

The Result of PilerCR on 302 sequences

GCA_000007005.1_ASM700v1_genomic.fna (PilerCR) :

START REPEAT
SPACER

crispr 1

1233465 GATTAATCCCAAAAGGAATTGAAAG GAACTAGCTTATAGTTTAGAAGAAAACAAACAAATAAT spacer
length: 38 repeater length: 25
1233528 GATTAATCCCAAAAGGAATTGAAAG ATTTTCAGCTGAAAATTTGAAATCTGTAGATTTGGATG spacer
length: 38 repeater length: 25
1233591 GATTAATCCCAAAAGGAATTGAAAG TTCCAAAATTGATCTTCTATTGCGTCTTTTATTGCTTTT spacer
length: 39 repeater length: 25
1233655 GATTAATCCCAAAAGGAATTGAAAG ATTGTAGTCTTTATCAATCCACGTTTCTCTAATCTTG spacer
length: 37 repeater length: 25
1233717 GATTAATCCCAAAAGGAATTGAAAG AATTTTATACCGTCAATCTCTTCATTGTGCGCCATAATC spacer
length: 38 repeater length: 25
1233780 GATTAATCCCAAAAGGAATTGAAAG GTGCTTCGCACATCACTCATCTTCTCTCATCACCTTC spacer
length: 37 repeater length: 25
1233842 GATTAATCCCAAAAGGAATTGAAAG AATGTATAAAGGTAACCAGGAGTTGTCCCACCTTTCA spacer
length: 36 repeater length: 25
1233903 GATTAATCCCAAAAGGAATTGAAAG ATATTTACCTTACTCTTTTGGAGAAAGGTTATACGAC spacer
length: 37 repeater length: 25
1233965 GATTAATCCCAAAAGGAATTGAAAG TTTAGGATTGACGATAAAGAAGATGTTATCGTTGGTG spacer
length: 37 repeater length: 25
1234027 GATTAATCCCAAAAGGAATTGAAAG CGAACGTAGTTTGAACCTGGCGGTATGTAGACATTAGCTT spacer
length: 40 repeater length: 25
1234092 GATTAATCCCAAAAGGAATTGAAAG AGACTTGATGTCGTCCTGTTGCCAATTAGCGAGGGCTT spacer
length: 38 repeater length: 25
1234155 GATTAATCCCAAAAGGAATTGAAAG CTAATAAAGACGTTAGGATGTTTGCAGTTGCCTGATGACCAA spacer
length: 42 repeater length: 25
1234222 GATTAATCCCAAAAGGAATTGAAAG CTGGACAGTATTCAATTTTAACTGCAATTAAACCTCTCTT spacer
length: 40 repeater length: 25
1234287 GATTAATCCCAAAAGGAATTGAAAG CAAAATATATACCGGTCTAAAGGTTTCCTGTATCGCAGACC spacer
length: 41 repeater length: 25
1234353 GATTAATCCCAAAAGGAATTGAAAG TGCGACTTGCAGTATCGCAGATGCAACCATTTTTGCAT spacer
length: 38 repeater length: 25
1234416 GATTAATCCCAAAAGGAATTGAAAG GGCGGGGTTC

crispr 2

1236131 GATTAATCCCAAAAGGAATTGAAAG CGTTATCACAGTTATATTTCTTCTTTAAAATATCATAT spacer
length: 38 repeater length: 25
1236194 GATTAATCCCAAAAGGAATTGAAAG TTATCCAGACATTAAGCATGTTGTCGTAGAGGTAGCTG spacer
length: 38 repeater length: 25
1236257 GATTAATCCCAAAAGGAATTGAAAG TACTTTTCCATCTTGAGGTATTGCGTTTAGTTGCACT spacer
length: 37 repeater length: 25
1236319 GATTAATCCCAAAAGGAATTGAAAG TAATATTTTCCAGATTGTCTAAAATTCATCAAATTA spacer
length: 36 repeater length: 25
1236380 GATTAATCCCAAAAGGAATTGAAAG TCTGTCAGTAGCACAAATAATTTTGTTCTCATAAATAGT spacer
length: 39 repeater length: 25
1236444 GATTAATCCCAAAAGGAATTGAAAG CGCCCATAGGACGGGATTTAGATTTCTTGTAGGATTTGTTT spacer
length: 41 repeater length: 25
1236510 GATTAATCCCAAAAGGAATTGAAAG GTAAGGGGGCTATCCATCCCCGCCCGTGAGGCTTTCCGCCC spacer
length: 41 repeater length: 25
1236576 GATTAATCCCAAAAGGAATTGAAAG TGAATCGTTATGGGCTTAGTTAATTCCGTAGTTAAACC spacer
length: 38 repeater length: 25
1236639 GATTAATCCCAAAAGGAATTGAAAG AACTTAAAGTTGTTATACGTCATTGGAATAACATTCATT spacer
length: 39 repeater length: 25
1236703 GATTAATCCCAAAAGGAATTGAAAG TTTACGATATTCACGTCGACAGATACCCTTACTGCTGATC spacer
length: 40 repeater length: 25
1236768 GATTAATCCCAAAAGGAATTGAAAG ATAGAATTGCATCAGACAGCTTTCATACCTCCGCATCT spacer
length: 38 repeater length: 25
1236831 GATTAATCCCAAAAGGAATTGAAAG TGAATAGCAACATCGTGTAACCTCATCCTCAGCCTTC spacer
length: 37 repeater length: 25
1236893 GATTAATCCCAAAAGGAATTGAAAG TCTTTCGCTCCTTGCACTAGTTTTTTCATTTTGCTC spacer length:
35 repeater length: 25
1236953 GATTAATCCCAAAAGGAATTGAAAG ATATCCAACGCTTGAAGTAATATTTGAATGTCAATACTTT spacer
length: 40 repeater length: 25
1237018 GATTAATCCCAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCTCTTTACGCATTTCT spacer
length: 39 repeater length: 25
1237082 GATTAATCCCAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGCG spacer
length: 36 repeater length: 25

40 1237143 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACAT spacer
length: 39 repeater length: 25

41 1237207 GATTAATCCCAAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTATG spacer
length: 41 repeater length: 25

42 1237273 GATTAATCCCAAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTCT spacer
length: 41 repeater length: 25

43 1237339 GATTAATCCCAAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAAGACTTTCAGCCCTC spacer
length: 36 repeater length: 25

44 1237400 GATTAATCCCAAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAATC spacer
length: 36 repeater length: 25

45 1237461 GATTAATCCCAAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTGT spacer
length: 39 repeater length: 25

46 1237525 GATTAATCCCAAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTTCAT spacer length:
34 repeater length: 25

47 1237584 GATTAATCCCAAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCAT spacer
length: 38 repeater length: 25

48 1237647 GATTAATCCCAAAAAGGAATTGAAAG TTATATTACGATAAAAAGTGCCAGATATGGTTGTTGGCATT spacer
length: 40 repeater length: 25

49 1237712 GATTAATCCCAAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGTGGGGGGCAAGGGCCCCGG spacer
length: 40 repeater length: 25

50 1237777 GATTAATCCCAAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTCTG spacer
length: 40 repeater length: 25

51 1237842 GATTAATCCCAAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTGC spacer
length: 39 repeater length: 25

52 1237906 GATTAATCCCAAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCATT spacer
length: 40 repeater length: 25

53 1237971 GATTAATCCCAAAAAGGAATTGAAAG CCCCCTGGAATGCACCATTTCTTGCAAGTAATACATTT spacer
length: 39 repeater length: 25

54 1238035 GATTAATCCCAAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTGC spacer
length: 40 repeater length: 25

55 1238100 GATTAATCCCAAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATACT spacer
length: 38 repeater length: 25

56 1238163 GATTAATCCCAAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCAG spacer
length: 39 repeater length: 25

57 1238227 GATTAATCCCAAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCTT spacer
length: 37 repeater length: 25

58 1238289 GATTAATCCCAAAAAGGAATTGAAAG TATATTGATGAGTCGAAGAATCTGATGAAGAACTTCCTTG spacer
length: 40 repeater length: 25

59 1238354 GATTAATCCCAAAAAGGAATTGAAAG TTTTATTTAAGAACACTGATGGAAAGATCTATAG spacer length:
35 repeater length: 25

60 1238414 GATTAATCCCAAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCTA spacer
length: 37 repeater length: 25

61 1238476 GATTAATCCCAAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTAG spacer
length: 39 repeater length: 25

62 1238540 GATTAATCCCAAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGATG spacer
length: 39 repeater length: 25

63 1238604 GATTAATCCCAAAAAGGAATTGAAAG CTCAGCAGATTTAAACTAACGATATTAATTGTACACACTG spacer
length: 40 repeater length: 25

64 1238669 GATTAATCCCAAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCAA spacer
length: 39 repeater length: 25

65 1238733 GATTAATCCCAAAAAGGAATTGAAAG CAAGTGCAATAGCAAACACTACTACTAAATATAACATATAT spacer
length: 39 repeater length: 25

66 1238797 GATTAATCCCAAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAATAAATCGTGGCTTTA spacer
length: 38 repeater length: 25

67 1238860 GATTAATCCCAAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAGT spacer
length: 39 repeater length: 25

68 1238924 GATTAATCCCAAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAATAAGAGAAAATTGTTTCAA spacer
length: 41 repeater length: 25

69 1238990 GATTAATCCCAAAAAGGAATTGAAAG TCTACAATGAATCTGTCATAAAGTGCCCGCAACTCTT spacer
length: 38 repeater length: 25

70 1239053 GATTAATCCCAAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTTT spacer
length: 36 repeater length: 25

71 1239114 GATTAATCCCAAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATGT spacer
length: 39 repeater length: 25

72 1239178 GATTAATCCCAAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTTT spacer
length: 39 repeater length: 25

73 1239242 GATTAATCCCAAAAAGGAATTGAAAG ACTACTCTTACTTTTTTGCAATCCTTTTGGAGTAGGC spacer
length: 36 repeater length: 25

74 1239303 GATTAATCCCAAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCTC spacer
length: 39 repeater length: 25

75 1239367 GATTAATCCCAAAAAGGAATTGAAAG TCGTAAACTTGAACTGACCCGTATATCCGAATTTAC spacer

length: 37 repeater length: 25

76 1239429 GATTAATCCCAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCTA spacer
length: 39 repeater length: 25

77 1239493 GATTAATCCCAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATATT spacer
length: 37 repeater length: 25

78 1239555 GATTAATCCCAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCTA spacer
length: 39 repeater length: 25

79 1239619 GATTAATCCCAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAAG spacer
length: 36 repeater length: 25

80 1239680 GATTAATCCCAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCCT spacer
length: 38 repeater length: 25

81 1239743 GATTAATCCCAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACTTTTGCATACGACATAATTT spacer
length: 40 repeater length: 25

82 1239808 GATTAATCCCAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACTT spacer
length: 39 repeater length: 25

83 1239872 GATTAATCCCAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGCT spacer
length: 37 repeater length: 25

84 1239934 GATTAATCCCAAAAGGAATTGAAAG GCGGTATCTG

85

86

87 crispr 3

88 1254482 CTTTCAATTCCTTTTGGGATTAATC TTGAAGATAGAGTTAAATGAACTTTTGATGACACAAAA spacer
length: 38 repeater length: 25

89 1254545 CTTTCAATTCCTTTTGGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCAA spacer
length: 41 repeater length: 25

90 1254611 CTTTCAATTCCTTTTGGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTGA spacer
length: 39 repeater length: 25

91 1254675 CTTTCAATTCCTTTTGGGATTAATC ACCAAGTGAACTTGAATATATAACCAAAAAGATAT spacer
length: 37 repeater length: 25

92 1254737 CTTTCAATTCCTTTTGGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAAT spacer
length: 38 repeater length: 25

93 1254800 CTTTCAATTCCTTTTGGGATTAATC AGTAATAGAACTCATTCAGAGTCTCTTCCAACCCGTACA spacer
length: 40 repeater length: 25

94 1254865 CTTTCAATTCCTTTTGGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGCG spacer length:
35 repeater length: 25

95 1254925 CTTTCAATTCCTTTTGGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG spacer
length: 39 repeater length: 25

96 1254989 CTTTCAATTCCTTTTGGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG spacer
length: 39 repeater length: 25

97 1255053 CTTTCAATTCCTTTTGGGATTAATC AAAATGTTTAATATTGGTGGAGTAGTTGATTTGATAATAT spacer
length: 41 repeater length: 25

98 1255119 CTTTCAATTCCTTTTGGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTAA spacer
length: 39 repeater length: 25

99 1255183 CTTTCAATTCCTTTTGGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGATA spacer
length: 39 repeater length: 25

100 1255247 CTTTCAATTCCTTTTGGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGAA spacer
length: 37 repeater length: 25

101 1255309 CTTTCAATTCCTTTTGGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGAT spacer
length: 37 repeater length: 25

102 1255371 CTTTCAATTCCTTTTGGGATTAATC CAAATCCATTCGAGGAAGTGTTAGAAGAGGTGTATGGTGA spacer
length: 40 repeater length: 25

103 1255436 CTTTCAATTCCTTTTGGGATTAATC CAGAGGGAAAAAGTTTGAGGAGATTTCAAGTATTACA spacer
length: 38 repeater length: 25

104 1255499 CTTTCAATTCCTTTTGGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAAA spacer
length: 40 repeater length: 25

105 1255564 CTTTCAATTCCTTTTGGGATTAATC GAGTGAGACCATGATCATTAACACTGATATTACGGTAAG spacer
length: 39 repeater length: 25

106 1255628 CTTTCAATTCCTTTTGGGATTAATC AACAAAACCTCACCAGTGATGGAACATTTGAATGTAA spacer
length: 37 repeater length: 25

107 1255690 CTTTCAATTCCTTTTGGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATACT spacer
length: 40 repeater length: 25

108 1255755 CTTTCAATTCCTTTTGGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATAT spacer
length: 42 repeater length: 25

109 1255822 CTTTCAATTCCTTTTGGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACGG spacer
length: 38 repeater length: 25

110 1255885 CTTTCAATTCCTTTTGGGATTAATC CCGTGATCAGATACAGTAACAGTCATGTTTTTATCT spacer
length: 36 repeater length: 25

111 1255946 CTTTCAATTCCTTTTGGGATTAATC CATGGAAACGGGAGGAGGGTGAGACAATGAAGGTAC spacer
length: 37 repeater length: 25

112 1256008 CTTTCAATTCCTTTTGGGATTAATC CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAACT spacer
length: 38 repeater length: 25

113 1256071 CTTTCAATTCCTTTTGGGATTAATC GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTAG spacer
length: 40 repeater length: 25

114 1256136 CTTTCAATTCCTTTTGGGATTAATC AAATTCCTGCAAAGGTAACACAATTGACGAGGTAAA spacer length:
35 repeater length: 25

115 1256196 CTTTCAATTCCTTTTGGGATTAATC CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCAA spacer
length: 40 repeater length: 25

116 1256261 CTTTCAATTCCTTTTGGGATTAATC TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAACT spacer
length: 40 repeater length: 25

117 1256326 CTTTCAATTCCTTTTGGGATTAATC GGCATAACCGCTGCTTTCGGCTGCTGCTGCTAATTGGTCTC spacer
length: 41 repeater length: 25

118 1256392 CTTTCAATTCCTTTTGGGATTAATC CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCTT spacer
length: 39 repeater length: 25

119 1256456 CTTTCAATTCCTTTTGGGATTAATC ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAAT spacer
length: 38 repeater length: 25

120 1256519 CTTTCAATTCCTTTTGGGATTAATC AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTAG spacer
length: 40 repeater length: 25

121 1256584 CTTTCAATTCCTTTTGGGATTAATC GGCATTAGAATATGGGTAAAACTTATAGCGACGAAGA spacer
length: 38 repeater length: 25

122 1256647 CTTTCAATTCCTTTTGGGATTAATC TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGAT spacer
length: 36 repeater length: 25

123 1256708 CTTTCAATTCCTTTTGGGATTAATC TTTACCACCGCTCAGACTTCTTGAGATGTTTAAACC spacer
length: 37 repeater length: 25

124 1256770 CTTTCAATTCCTTTTGGGATTAATC GAATTCCTATCAAGTATTGCGGAAGTAAATACTTCATATTTATCA
spacer length: 44 repeater length: 25

125 1256839 CTTTCAATTCCTTTTGGGATTAATC TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGTG spacer
length: 38 repeater length: 25

126 1256902 CTTTCAATTCCTTTTGGGATTAATC CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGCT spacer
length: 36 repeater length: 25

127 1256963 CTTTCAATTCCTTTTGGGATTAATC CACATTAGCAAGAATCGTGCTAGCTACAGTTGGATT spacer
length: 36 repeater length: 25

128 1257024 CTTTCAATTCCTTTTGGGATTAATC AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTTT spacer
length: 39 repeater length: 25

129 1257088 CTTTCAATTCCTTTTGGGATTAATC TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTCT spacer
length: 41 repeater length: 25

130 1257154 CTTTCAATTCCTTTTGGGATTAATC GGTAATGGTCTGTATATTGTCTTTAAGTATTTAT spacer length:
34 repeater length: 25

131 1257213 CTTTCAATTCCTTTTGGGATTAATC AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTAA spacer
length: 39 repeater length: 25

132 1257277 CTTTCAATTCCTTTTGGGATTAATC CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAAG spacer
length: 40 repeater length: 25

133 1257342 CTTTCAATTCCTTTTGGGATTAATC ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCATT spacer
length: 40 repeater length: 25

134 1257407 CTTTCAATTCCTTTTGGGATTAATC ATTAGCTAAACCATTTCAAAGGCTAACATCTTCTATGT spacer
length: 38 repeater length: 25

135 1257470 CTTTCAATTCCTTTTGGGATTAATC ATAAATCCACAAAGTGGCCGTTCAAAGCAAAGAGTTTATT spacer
length: 40 repeater length: 25

136 1257535 CTTTCAATTCCTTTTGGGATTAATC TGATATTTATTTTCTCGTGAAAAGTGGAGGGCCTAGAAC spacer
length: 39 repeater length: 25

137 1257599 CTTTCAATTCCTTTTGGGATTAATC ATTATATCATGGAGACCCAGGTGCTGTGACTATCAA spacer
length: 36 repeater length: 25

138 1257660 CTTTCAATTCCTTTTGGGATTAATC AATTAGCCAGCGTGCCATCTGGGTAAACGTGTATTTTGGTTAA spacer
length: 43 repeater length: 25

139 1257728 CTTTCAATTCCTTTTGGGATTAATC ATAATATATTTCTGTTCCAACCTACACCTAATGGATTCTGGG spacer
length: 39 repeater length: 25

140 1257792 CTTTCAATTCCTTTTGGGATTAATC TAATTGTCTGCCCTTGAGTTCCACTGAGAGAAACGC spacer
length: 36 repeater length: 25

141 1257853 CTTTCAATTCCTTTTGGGATTAATC AAAAGACGTACAAATATACATCGCACCGAACGGACACAT spacer
length: 39 repeater length: 25

142 1257917 CTTTCAATTCCTTTTGGGATTAATC GGGTGCGTGCCCCACAGGTCGCGGGTCTACCCCTTGC spacer
length: 37 repeater length: 25

143 1257979 CTTTCAATTCCTTTTGGGATTAATC TTATGTCGTTATCTTCTTCGTTTTTGCTGCGTTGTTT spacer
length: 37 repeater length: 25

144 1258041 CTTTCAATTCCTTTTGGGATTAATC GATAAAATATTAAATTCTCAAATTCATTTAGAG spacer length:
34 repeater length: 25

145 1258100 CTTTCAATTCCTTTTGGGATTAATC AAAATTTGAAACAATATCGCATCTTGAATAATTAT spacer length:
35 repeater length: 25

146 1258160 CTTTCAATTCCTTTTGGGATTAATC ACCCCAGAATCCTTGTAAGTAATTTAGTAGCAATGTA spacer
length: 37 repeater length: 25

147 1258222 CTTTCAATTCCTTTTGGGATTAATC AGAACAAGGTAAATAGGAGTGTAGTCATAAGGAGAGCAAT spacer
length: 40 repeater length: 25

148 1258287 CTTTCAATTCCTTTTGGGATTAATC CTCATTTATTTCGCATCATCTCCACCTTATCTAAGCCG spacer

length: 38 repeater length: 25
149 1258350 CTTTCAATTCCTTTTGGGATTAATC CCCAAGTAAGCGATATTTTAATGGGCTTACTTTTTTA spacer
length: 36 repeater length: 25
150 1258411 CTTTCAATTCCTTTTGGGATTAATC GAAAAAATGGTAGAGGACAATATGAAGAATATATTATT spacer
length: 38 repeater length: 25
151 1258474 CTTTCAATTCCTTTTGGGATTAATC GAAAAAAGAAGGTGATGAGAGAAGATGAGTGAGAAAGA spacer
length: 39 repeater length: 25
152 1258538 CTTTCAATTCCTTTTGGGATTAATC GATCTATTTCGCAGAGTTTGCCTCAACACATAAATAT spacer
length: 36 repeater length: 25
153 1258599 CTTTCAATTCCTTTTGGGATTAATC ACTTTCATCTTCAATTGGGACGATTAACTATTTAG spacer
length: 36 repeater length: 25
154 1258660 CTTTCAATTCCTTTTGGGATTAATC CAAAAATCTCAACGACAACACCAACCACAGCATTAAACAAG spacer
length: 40 repeater length: 25
155 1258725 CTTTCAATTCCTTTTGGGATTAATC CTGACCTTAGTAATGAGTAATAGATTCCCTGCGATGA spacer
length: 37 repeater length: 25
156 1258787 CTTTCAATTCCTTTTGGGATTAATC GGCATTTACAAGTGGTCACCAGAAATGGGCGTGTA spacer length:
35 repeater length: 25
157 1258847 CTTTCAATTCCTTTTGGGATTAATC TGCCCCATGTCTTCGGTTTGCAAATCATAAGGTATCC spacer
length: 37 repeater length: 25
158 1258909 CTTTCAATTCCTTTTGGGATTAATC CCATTTAAGATCTACTTCACACCACCTTCGCAGGAGA spacer
length: 37 repeater length: 25
159 1258971 CTTTCAATTCCTTTTGGGATTAATC ATTTATCTGTTTCATCCGTGGCTTTGCCACTCATTTTCTCTTC spacer
length: 43 repeater length: 25
160 1259039 CTTTCAATTCCTTTTGGGATTAATC TACAAAACTAAAAAATAAAAACTAAAAATTAAAAAA spacer
length: 38 repeater length: 25
161 1259102 CTTTCAATTCCTTTTGGGATTAATC TGATAGATTGGGAGAAATACTACCTGAAATTGAAAT spacer
length: 36 repeater length: 25
162 1259163 CTTTCAATTCCTTTTGGGATTAATC TATGTTGTAGAACTTAAACCTACATACCATTCCGCAATTAT spacer
length: 41 repeater length: 25
163 1259229 CTTTCAATTCCTTTTGGGATTAATC CACTAGAATTGAATGTGACAAACATACGACATGGTTCT spacer
length: 39 repeater length: 25
164 1259293 CTTTCAATTCCTTTTGGGATTAATC AATGGAGGCAATGAATGAATTAGAAAGTGAAGAGAGAGA spacer
length: 39 repeater length: 25
165 1259357 CTTTCAATTCCTTTTGGGATTAATC TCCAGAATGGAGGGCATATAATGTTGAGCAGTATGA spacer
length: 36 repeater length: 25
166 1259418 CTTTCAATTCCTTTTGGGATTAATC AAATACAAAGCCGATGAACCGCAATCTGCCCCTACAATT spacer
length: 39 repeater length: 25
167 1259482 CTTTCAATTCCTTTTGGGATTAATC TGAAGAGATTGACGGTATAAAATTTGAAGATATAATTAA spacer
length: 39 repeater length: 25
168 1259546 CTTTCAATTCCTTTTGGGATTAATC ATGGTATCTTGAGGCAGTGTACGGGTGATGCTAAGTTAT spacer
length: 39 repeater length: 25
169 1259610 CTTTCAATTCCTTTTGGGATTAATC AAGTGCCTCCAGCATTTAGTGCAAGTTGGTTTGATAG spacer
length: 37 repeater length: 25
170 1259672 CTTTCAATTCCTTTTGGGATTAATC TTCTGTAAAGCGCTCTTGCAACCTTCATGCCATAGCCC spacer
length: 38 repeater length: 25
171 1259735 CTTTCAATTCCTTTTGGGATTAATC CTTACTTGTGCTAGGATTTTACCAAATGCAATTGAT spacer
length: 38 repeater length: 25
172 1259798 CTTTCAATTCCTTTTGGGATTAATC GGTTCTAGCTTACGTTATCTAATTTGACGTGTGCGG spacer
length: 37 repeater length: 25
173 1259860 CTTTCAATTCCTTTTGGGATTAATC CATATAGTTCACCAGCACCCAGCGGTGTGAAGGATAT spacer
length: 37 repeater length: 25
174 1259922 CTTTCAATTCCTTTTGGGATTAATC ATTTGAAAATGTTTAACATAACTGGAGTAATTCCATT spacer
length: 37 repeater length: 25
175 1259984 CTTTCAATTCCTTTTGGGATTAATC TTCATCTAGAAGATATGAACAAGCTGTTGATGTGCAAT spacer
length: 38 repeater length: 25
176 1260047 CTTTCAATTCCTTTTGGGATTAATC GACATTAGCCCTGGGGGTATCTAAACCATCAGTTGAGT spacer
length: 38 repeater length: 25
177 1260110 CTTTCAATTCCTTTTGGGATTAATC ATATGACAACGTAGACATTTTCATTATGGATTGTGAA spacer
length: 37 repeater length: 25
178 1260172 CTTTCAATTCCTTTTGGGATTAATC ATCAAAACGGCACAGAACATCTTAGGGCAATTAGCT spacer
length: 36 repeater length: 25
179 1260233 CTTTCAATTCCTTTTGGGATTAATC TAATATGATTTTATTAAATCTAGTAGTAAAGCCATTAA spacer
length: 38 repeater length: 25
180 1260296 CTTTCAATTCCTTTTGGGATTAATC AACATCTTAATGCCTTTTATACCGCCAGTTACACATTATATCAA spacer
length: 43 repeater length: 25
181 1260364 CTTTCAATTCCTTTTGGGATTAATC AATTTACGATATTATACCGGTTGAGCCTGCAAAAAATGT spacer
length: 39 repeater length: 25
182 1260428 CTTTCAATTCCTTTTGGGATTAATC AGCGGTCCTG
183
184
185 crispr 4

186	1297152	CTTTCAATTCTATAAGAGATTATC	TGAGGATATACTTTAATCGGATTGTGTTAGGTGGAGAGATGTT	spacer
	length:	43	repeater length:	24
187	1297219	CTTTCAATTCTATAAGAGATTATC	CCATCTACCACACCGCGGACACTGGTATAAACATGCACCGG	spacer
	length:	41	repeater length:	24
188	1297284	CTTTCAATTCTATAAGAGATTATC	TCAGTCTTATTGTCTGAGGAGTAGTGGTAGGAGTGATAC	spacer
	length:	38	repeater length:	24
189	1297346	CTTTCAATTCTATAAGAGATTATC	GGAAGAGACAAGACTCTACAGTACAATATGCCCCAGATG	spacer
	length:	39	repeater length:	24
190	1297409	CTTTCAATTCTATAAGAGATTATC	AACCGGAAGTACGAACATATGTTGCTGAGATTGTGGTCTATGT	spacer
	length:	42	repeater length:	24
191	1297475	CTTTCAATTCTATAAGAGATTATC	TTTGTGGTACTTGTAGTTGTGATGCTGACGTTCCACTACT	spacer
	length:	40	repeater length:	24
192	1297539	CTTTCAATTCTATAAGAGATTATC	TCAAATCAACAAGTTACAGTAACCAACGGTACTTCAAACCC	spacer
	length:	41	repeater length:	24
193	1297604	CTTTCAATTCTATAAGAGATTATC	TATGTTGTTGTTTGTGAGTTGTGGTCTGCTGTGTAGTTG	spacer
	length:	40	repeater length:	24
194	1297668	CTTTCAATTCTATAAGAGATTATC	ATCCAGACGAAGTGGGGGCAATCATGCAGCCCCCTCA	spacer
	length:	38	repeater length:	24
195	1297730	CTTTCAATTCTATAAGAGATTATC	AAAGATAATGGATAATAACTTAACATTACAGAATTTAATG	spacer
	length:	40	repeater length:	24
196	1297794	CTTTCAATTCTATAAGAGATTATC	TAAACTCATGTAGCGTTAGTTGGAGCGGATCTGCACAAGTA	spacer
	length:	41	repeater length:	24
197	1297859	CTTTCAATTCTATAAGAGATTATC	CCAGTGTTTTACTTAAATCAGTACAAGGATCAAAACC	spacer
	length:	38	repeater length:	24
198	1297921	CTTTCAATTCTATAAGAGATTATC	AAGAGTTCGATCGGATTAAAGAGGAGATTGAGCAAAA	spacer
	length:	37	repeater length:	24
199	1297982	CTTTCAATTCTATAAGAGATTATC	AGTGACTCAATACCGGTCACAATATCTTCAGGTGCTCCCATT	spacer
	length:	42	repeater length:	24
200	1298048	CTTTCAATTCTATAAGAGATTATC	CGTCCCCATCGAATACGTAAGAGTCTGGAGGGGAATTTA	spacer
	length:	39	repeater length:	24
201	1298111	CTTTCAATTCTATAAGAGATTATC	TAAAGGTTACGTTAGAACTAGAAAAGAATGGAAATCTGAA	spacer
	length:	40	repeater length:	24
202	1298175	CTTTCAATTCTATAAGAGATTATC	TGGAGTTTTTCTAGATATTTTGTAAAGTACGTTTCTAGTTT	spacer
	length:	37	repeater length:	24
203	1298236	CTTTCAATTCTATAAGAGATTATC	AATAGGCTATGGTGTGTGGATGGACCTGTATCGTAAATA	spacer
	length:	39	repeater length:	24
204	1298299	CTTTCAATTCTATAAGAGATTATC	CACGCAAAAGGATAAACAATATGGTGCATTTCGAATGGA	spacer
	length:	39	repeater length:	24
205	1298362	CTTTCAATTCTATAAGAGATTATC	ACAAACAGTGTGTGTTACATTATCCTTCGATTACAACGAA	spacer
	length:	40	repeater length:	24
206	1298426	CTTTCAATTCTATAAGAGATTATC	CTTCTGTTCTGAAATTATAAAGGACATGCTGATAAAATTT	spacer
	length:	40	repeater length:	24
207	1298490	CTTTCAATTCTATAAGAGATTATC	CTAACTGAAGAAGACCCAATTTATATTGCAGGATTTGT	spacer
	length:	38	repeater length:	24
208	1298552	CTTTCAATTCTATAAGAGATTATC	TGCAGAACCATTAGCTGGTACAGTAACTGTTTGCCAA	spacer
	length:	37	repeater length:	24
209	1298613	CTTTCAATTCTATAAGAGATTATC	ACCATAGTCCCTGATTTTCGGTATTCTTTACCCTGTAACCCCT	spacer
	length:	42	repeater length:	24
210	1298679	CTTTCAATTCTATAAGAGATTATC	GCTTATCTCTCTCATGCGCCATTTCTTCTTTCCTTCTTTC	spacer
	length:	40	repeater length:	24
211	1298743	CTTTCAATTCTATAAGAGATTATC	TATATCCCCAAAAATCTCAGACATTAGAGAGCATTTTTGT	spacer
	length:	40	repeater length:	24
212	1298807	CTTTCAATTCTATAAGAGATTATC	AATAGATCCAGAAAATGAATATGTCAAATTAGCTGACATTT	spacer
	length:	41	repeater length:	24
213	1298872	CTTTCAATTCTATAAGAGATTATC	TTTATTTTCTTTCGATATTTTATTACCGAGACTTTTGCCT	spacer
	length:	40	repeater length:	24
214	1298936	CTTTCAATTCTATAAGAGATTATC	CAACCACAAGAAGAAACCACTACCCAAGAAATGCAGGGA	spacer
	length:	39	repeater length:	24
215	1298999	CTTTCAATTCTATAAGAGATTATC	TTTGAATCCTGGGCTTAACGCACCTTCTCTGGCCTCGA	spacer
	length:	38	repeater length:	24
216	1299061	CTTTCAATTCTATAAGAGATTATC	TTAGCCCAGATGAAGCAACACAAGAGGCTAGTAAGGTTG	spacer
	length:	39	repeater length:	24
217	1299124	CTTTCAATTCTATAAGAGATTATC	ATGGAGAGGT	
218				
219				
220	crispr 5			
221	1305633	GATAATCTCTTATAGAATTGAAAG	TTTGCCATTGCAGAATTATCGCCCAGAACAAATTTCT	spacer
	length:	37	repeater length:	24
222	1305694	GATAATCTCTTATAGAATTGAAAG	ATCATATATCTTGTATTCCGCATATTTAAATCTTTCTATC	spacer
	length:	40	repeater length:	24
223	1305758	GATAATCTCTTATAGAATTGAAAG	GCGGTTGAAGAAAAGTGCAGGATCACGGGGTCAGGACTG	spacer

length: 39 repeater length: 24

224 1305821 GATAATCTCTTATAGAATTGAAAG TAGACTATGCGTTTACTATGTCCGCAATGGCATTAGCG spacer
length: 39 repeater length: 24

225 1305884 GATAATCTCTTATAGAATTGAAAG TTGTATTTGTCGGTGGGTGAACAAATATACGCCTT spacer
length: 39 repeater length: 24

226 1305947 GATAATCTCTTATAGAATTGAAAG TCAATTTGTGAACTTGTCCCGCTCATTGGATTTGTTG spacer
length: 39 repeater length: 24

227 1306010 GATAATCTCTTATAGAATTGAAAG ATCAAGGGCAAATCGGGAGTCCAGGAGATTCTCGAAGCA spacer
length: 39 repeater length: 24

228 1306073 GATAATCTCTTATAGAATTGAAAG CTTGAAATTACAGAAAAATAACATTCATTTACCCTGTG spacer
length: 39 repeater length: 24

229 1306136 GATAATCTCTTATAGAATTGAAAG ATTCCAACGGCACTTCTTATTCTTTCACAGTTACGGGCT spacer
length: 39 repeater length: 24

230 1306199 GATAATCTCTTATAGAATTGAAAG CAGAATTAGCACGGTTAGTCGAGCAGTTAGAAATTTACT spacer
length: 39 repeater length: 24

231 1306262 GATAATCTCTTATAGAATTGAAAG CTTTGAAGTACTCTTCTCTATGATACGACACCAATTCTC spacer
length: 39 repeater length: 24

232 1306325 GATAATCTCTTATAGAATTGAAAG AAATTCTCGCAGAATTCTATCTACCGGACGATGTAGCATT spacer
length: 40 repeater length: 24

233 1306389 GATAATCTCTTATAGAATTGAAAG AAACCCGAACTTTTGCTATATATAGCATTTTGAACCTTTTACG spacer
length: 42 repeater length: 24

234 1306455 GATAATCTCTTATAGAATTGAAAG CGACACCAGTCGGTATTATCTCTTCTTCTTCAAACCAA spacer
length: 39 repeater length: 24

235 1306518 GATAATCTCTTATAGAATTGAAAG GAAAAGTTTGGCAGAAAAAGAGTCTGGCTTTGCCAGAAAGG spacer
length: 41 repeater length: 24

236 1306583 GATAATCTCTTATAGAATTGAAAG AAGATTGTGGCTATTGCCGCACCGGCGTAAGCGTATTCTT spacer
length: 40 repeater length: 24

237 1306647 GATAATCTCTTATAGAATTGAAAG CCAAATGCCCGTGAAACATAAACATAATCTCCAGTAGACC spacer
length: 40 repeater length: 24

238 1306711 GATAATCTCTTATAGAATTGAAAG GCTAATTCCAATGCTAAGTTATCTAGGGCAACAAACAATT spacer
length: 40 repeater length: 24

239 1306775 GATAATCTCTTATAGAATTGAAAG TCACGTTTGCCGTACTCCACCAAAGATATGTATTGAAA spacer
length: 38 repeater length: 24

240 1306837 GATAATCTCTTATAGAATTGAAAG GACTCGAAAGCCAAAGAGAACGAGAAATGGGACCGTA spacer
length: 37 repeater length: 24

241 1306898 GATAATCTCTTATAGAATTGAAAG AGCATAAGACCAAGCGCAATTGCGAGGTAATCAAAAAG spacer
length: 38 repeater length: 24

242 1306960 GATAATCTCTTATAGAATTGAAAG ACAACTCGTTCCTGGGTATCCCTGTTTTGTCTTCTAAC spacer
length: 38 repeater length: 24

243 1307022 GATAATCTCTTATAGAATTGAAAG TTTTGTCTCCAAATCGTTTGTCCAATCAAACCTTAATTAA spacer
length: 39 repeater length: 24

244 1307085 GATAATCTCTTATAGAATTGAAAG CCTTCAAACATAAGTTTGACAAATACGGTAGCCCCGCA spacer
length: 38 repeater length: 24

245 1307147 GATAATCTCTTATAGAATTGAAAG TTTTATCCATTTGATCCCTTCCTTATAATACAGACCTAT spacer
length: 39 repeater length: 24

246 1307210 GATAATCTCTTATAGAATTGAAAG CAGATAGATTCCATAACTCACCTCGCCCAAGAAGACTG spacer
length: 38 repeater length: 24

247 1307272 GATAATCTCTTATAGAATTGAAAG ATAAAATAATCGTTCAATATTTCAATGAACTGGTGTTATGG spacer
length: 42 repeater length: 24

248 1307338 GATAATCTCTTATAGAATTGAAAG AAAAGCCAATCCCAAGATACATCATCGCAGAAATATTCA spacer
length: 39 repeater length: 24

249 1307401 GATAATCTCTTATAGAATTGAAAG TTTTGATAACTAGATGTGGAACCGAAGTTTACTACTAGTT spacer
length: 40 repeater length: 24

250 1307465 GATAATCTCTTATAGAATTGAAAG ACAGTACCATCAAAATTAGGATAGCCGCCACAAACCA spacer
length: 37 repeater length: 24

251 1307526 GATAATCTCTTATAGAATTGAAAG AAAGAAGCGATCAAAAAGCTGGATAAGGAGTTGAAGCAG spacer
length: 39 repeater length: 24

252 1307589 GATAATCTCTTATAGAATTGAAAG GGTTTCTCTCTTGTGCGCTCTGCCAGTGCATCATCTAG spacer
length: 38 repeater length: 24

253 1307651 GATAATCTCTTATAGAATTGAAAG TCTTGTGTGGTGTAAACGATCTCGAATCCTGGGGGTAG spacer
length: 38 repeater length: 24

254 1307713 GATAATCTCTTATAGAATTGAAAG ATAAAACATATGTATTGGTGCCTATAATTAATAGCCATC spacer
length: 39 repeater length: 24

255 1307776 GATAATCTCTTATAGAATTGAAAG TCCAGTTTCCTTTGCAACATTATCTATAAACGTGTCCTT spacer
length: 39 repeater length: 24

256 1307839 GATAATCTCTTATAGAATTGAAAG CTCACTATGTTTGTGTCGAGAAGTTGAATAAGCAGT spacer
length: 37 repeater length: 24

257 1307900 GATAATCTCTTATAGAATTGAAAG TCTCCTTTTCTTCTAAGCTAAGATAAGCCTGTTTAATA spacer
length: 38 repeater length: 24

258 1307962 GATAATCTCTTATAGAATTGAAAG TTACCTCTACAACCTCCAGCTTCCTCTGTTGAATGCGGA spacer
length: 39 repeater length: 24

259 1308025 GATAATCTCTTATAGAATTGAAAG TTCAATTTATGTGTTACTTTTAATAATTGTTTCCTACTGCCT spacer
length: 40 repeater length: 24

260 1308089 GATAATCTCTTATAGAATTGAAAG TCGGATATGTCAGTCTTGACGAATTCGTATGCGTCTCCTT spacer
length: 40 repeater length: 24

261 1308153 GATAATCTCTTATAGAATTGAAAG AAATATAAACCATAAATCGTCAACAATTAGACTAACAT spacer
length: 38 repeater length: 24

262 1308215 GATAATCTCTTATAGAATTGAAAG CATGGTGGGGGGCGTCAAAAATTCAGAAATATTTTGCAT spacer
length: 40 repeater length: 24

263 1308279 GATAATCTCTTATAGAATTGAAAG AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA spacer
length: 38 repeater length: 24

264 1308341 GATAATCTCTTATAGAATTGAAAG CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA spacer
length: 37 repeater length: 24

265 1308402 GATAATCTCTTATAGAATTGAAAG AATTTGAACATAATTCGGCCTCGTCAGTTTTCCACAGATA spacer
length: 40 repeater length: 24

266 1308466 GATAATCTCTTATAGAATTGAAAG TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT spacer
length: 39 repeater length: 24

267 1308529 GATAATCTCTTATAGAATTGAAAG TTTACTGACAACGCCATCATACTTACTAGCCCACTAA spacer
length: 38 repeater length: 24

268 1308591 GATAATCTCTTATAGAATTGAAAG GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGGA spacer
length: 40 repeater length: 24

269 1308655 GATAATCTCTTATAGAATTGAAAG TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT spacer
length: 41 repeater length: 24

270 1308720 GATAATCTCTTATAGAATTGAAAG CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG spacer
length: 37 repeater length: 24

271 1308781 GATAATCTCTTATAGAATTGAAAG ATCTGAATTTCTCAGCTTCCATTGCATAATTTATTCTA spacer
length: 39 repeater length: 24

272 1308844 GATAATCTCTTATAGAATTGAAAG TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT spacer
length: 40 repeater length: 24

273 1308908 GATAATCTCTTATAGAATTGAAAG ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTC spacer
length: 38 repeater length: 24

274 1308970 GATAATCTCTTATAGAATTGAAAG TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAGC spacer
length: 38 repeater length: 24

275 1309032 GATAATCTCTTATAGAATTGAAAG GTCAAAATTGCCCAACCGAACGTTAGCAAAAATGCAGCAC spacer
length: 40 repeater length: 24

276 1309096 GATAATCTCTTATAGAATTGAAAG TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA spacer
length: 41 repeater length: 24

277 1309161 GATAATCTCTTATAGAATTGAAAG GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAACC spacer
length: 39 repeater length: 24

278 1309224 GATAATCTCTTATAGAATTGAAAG GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGTT spacer
length: 39 repeater length: 24

279 1309287 GATAATCTCTTATAGAATTGAAAG TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT spacer
length: 40 repeater length: 24

280 1309351 GATAATCTCTTATAGAATTGAAAG GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT spacer length:
35 repeater length: 24

281 1309410 GATAATCTCTTATAGAATTGAAAG GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC spacer
length: 39 repeater length: 24

282 1309473 GATAATCTCTTATAGAATTGAAAG GCTTCTTGTCCCTGAACTCCTTCTTGAAATGGATTTATT spacer
length: 39 repeater length: 24

283 1309536 GATAATCTCTTATAGAATTGAAAG TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT spacer
length: 37 repeater length: 24

284 1309597 GATAATCTCTTATAGAATTGAAAG CTA CTACATCATCCTCTACCACGCCAAGCCAACAACC spacer
length: 37 repeater length: 24

285 1309658 GATAATCTCTTATAGAATTGAAAG ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT spacer
length: 38 repeater length: 24

286 1309720 GATAATCTCTTATAGAATTGAAAG ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACTA spacer
length: 41 repeater length: 24

287 1309785 GATAATCTCTTATAGAATTGAAAG ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTCT spacer
length: 39 repeater length: 24

288 1309848 GATAATCTCTTATAGAATTGAAAG AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT spacer
length: 37 repeater length: 24

289 1309909 GATAATCTCTTATAGAATTGAAAG ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT spacer
length: 39 repeater length: 24

290 1309972 GATAATCTCTTATAGAATTGAAAG ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTGC spacer
length: 41 repeater length: 24

291 1310037 GATAATCTCTTATAGAATTGAAAG AAGCCTACACAGGATAGGATACTCAAATTATATGAAAAT spacer
length: 39 repeater length: 24

292 1310100 GATAATCTCTTATAGAATTGAAAG TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCAT spacer
length: 42 repeater length: 24

293 1310166 GATAATCTCTTATAGAATTGAAAG CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA spacer
length: 37 repeater length: 24

294 1310227 GATAATCTCTTATAGAATTGAAAG TGTTCTGTCGTTACTGTCTGTAAGCACGTCCTATTAT spacer

length: 37 repeater length: 24
295 1310288 GATAATCTCTTATAGAATTGAAAG ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC spacer
length: 38 repeater length: 24
296 1310350 GATAATCTCTTATAGAATTGAAAG TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGAA spacer
length: 39 repeater length: 24
297 1310413 GATAATCTCTTATAGAATTGAAAG GCACAATTCGCCAACGATTTTCGGTTCGCTTTATACCTT spacer
length: 38 repeater length: 24
298 1310475 GATAATCTCTTATAGAATTGAAAG CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTGG spacer
length: 41 repeater length: 24
299 1310540 GATAATCTCTTATAGAATTGAAAG AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG spacer
length: 40 repeater length: 24
300 1310604 GATAATCTCTTATAGAATTGAAAG ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGAT spacer
length: 42 repeater length: 24
301 1310670 GATAATCTCTTATAGAATTGAAAG TTCTGTTTCGAAGAAAACCCGCCTCAGATTCATTATGGG spacer
length: 39 repeater length: 24
302 1310733 GATAATCTCTTATAGAATTGAAAG AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAAA spacer
length: 39 repeater length: 24
303 1310796 GATAATCTCTTATAGAATTGAAAG CCTCATCGTAAACATGCAATCTTGCATATTCAGTGTA spacer
length: 37 repeater length: 24
304 1310857 GATAATCTCTTATAGAATTGAAAG GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCT spacer
length: 39 repeater length: 24
305 1310920 GATAATCTCTTATAGAATTGAAAG ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT spacer
length: 41 repeater length: 24
306 1310985 GATAATCTCTTATAGAATTGAAAG GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCGT spacer
length: 38 repeater length: 24
307 1311047 GATAATCTCTTATAGAATTGAAAG ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA spacer
length: 39 repeater length: 24
308 1311110 GATAATCTCTTATAGAATTGAAAG AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA spacer
length: 37 repeater length: 24
309 1311171 GATAATCTCTTATAGAATTGAAAG CGTTC TAGAGCTAAACGATGCATACGCGGTGGTACAATA spacer
length: 40 repeater length: 24
310 1311235 GATAATCTCTTATAGAATTGAAAG ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGATATTT spacer
length: 41 repeater length: 24
311 1311300 GATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACCTCTGGGTAAGCCACAATACGCAA spacer
length: 40 repeater length: 24
312 1311364 GATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTTCCTAGATCAAC spacer
length: 38 repeater length: 24
313 1311426 GATAATCTCTTATAGAATTGAAAG TAACTAGATCCTTATATTTACGTAAATGTAAAGGGG spacer
length: 38 repeater length: 24
314 1311488 GATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAATA spacer
length: 38 repeater length: 24
315 1311550 GATAATCTCTTATAGAATTGAAAG GTTCATCAGTTCTACCTTTTGGTCCAAAGGCTGATCCAA spacer
length: 39 repeater length: 24
316 1311613 GATAATCTCTTATAGAATTGAAAG GAACTTCGAG
317
318
319 crispr 6
320 1744006 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGTG spacer
length: 39 repeater length: 24
321 1744069 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAAC TCAAATA spacer
length: 42 repeater length: 24
322 1744135 GATAATCTACTATAGAATTGAAAG CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAACATTA spacer
length: 39 repeater length: 24
323 1744198 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTGA spacer
length: 41 repeater length: 24
324 1744263 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTC ACTCTGCGTATCATTATGGATAA spacer
length: 44 repeater length: 24
325 1744331 GATAATCTACTATAGAATTGAAAG TTAGCCCAACAATTA ACTAAAGATCCTGAAGCAGTCAA spacer
length: 38 repeater length: 24
326 1744393 GATAATCTACTATAGAATTGAAAG
327
328
329 crispr 7
330 1809771 CTTTCAATTCTATAGTAGATTAGC AACACATTGCTCATATAACTACACCATTCACTATTGCCTC spacer
length: 40 repeater length: 24
331 1809835 CTTTCAATTCTATAGTAGATTAGC ACAATGTATGACTATGGATATCAATGGAGCGTCGGCTTAA spacer
length: 40 repeater length: 24
332 1809899 CTTTCAATTCTATAGTAGATTAGC CAAATAATCTAGCATTTTCTTCATAAAGTTCAATTACATAC spacer
length: 40 repeater length: 24
333 1809963 CTTTCAATTCTATAGTAGATTAGC CTTAAAAGTGTGGAGTTTGTGCAGTTAGTTGAATTTCACT spacer
length: 41 repeater length: 24

334 1810028 CTTTCAATTCTATAGTAGATTAGC GTTATTCCTAATTGTTTTTCGGAAATTATTTTGAGAATGAA spacer
length: 40 repeater length: 24
335 1810092 CTTTCAATTCTATAGTAGATTAGC GCCGTACTGACTTCTCCCCTGCCAGCGAGGGTTCTCCTCAT spacer
length: 41 repeater length: 24
336 1810157 CTTTCAATTCTATAGTAGATTAGC TTCCCCACCATTATGTACCATTATTATGCTTCCATTTATT spacer
length: 40 repeater length: 24
337 1810221 CTTTCAATTCTATAGTAGATTAGC ATGTTCTTTTTCCAGAACTGTAACATAATTTTGTTGATA spacer
length: 40 repeater length: 24
338 1810285 CTTTCAATTCTATAGTAGATTAGC TATTTTTGCGTATTTACACGATTTATTTATTTTCGCAGAATT spacer
length: 41 repeater length: 24
339 1810350 CTTTCAATTCTATAGTAGATTAGC AGTGATGGTACTACGACCGTGAAAATGAGTTGAAAAA spacer
length: 38 repeater length: 24
340 1810412 CTTTCAATTCTATAGTAGATTAGC CATCACGCAGAATAATGGTTCAGGTAACTTTTTAAGG spacer
length: 37 repeater length: 24
341 1810473 CTTTCAATTCTATAGTAGATTAGC TGATTATATTCAAGGACAATATGTTGAAACGCCGATTTTAT spacer
length: 41 repeater length: 24
342 1810538 CTTTCAATTCTATAGTAGATTAGC AGATGCTATTGGAGGATTTACCAGGTTGGGTTATAATGTCAAATA
spacer length: 46 repeater length: 24
343 1810608 CTTTCAATTCTATAGTAGATTAGC TCAGAGTTTTTTTTATTTTTTCTATTTGAAATTAAGCACG spacer
length: 39 repeater length: 24
344 1810671 CTTTCAATTCTATAGTAGATTAGC TTGGGTGTTTTGTTTAGGTTTGAAAAGATTATCTTATTTTCT spacer
length: 43 repeater length: 24
345 1810738 CTTTCAATTCTATAGTAGATTAGC CCAACGGCTCTTACGCCCTCCTCGGCATGTACAACGGGACG spacer
length: 41 repeater length: 24
346 1810803 CTTTCAATTCTATAGTAGATTAGC AAGATACCACAACACTTGGAGTTAATGCATTATTGAATATGGATACAT
spacer length: 48 repeater length: 24
347 1810875 CTTTCAATTCTATAGTAGATTAGC GGAAAGGCTAATGGAGACAAAAGAAGTCTAAAAAGCAG spacer
length: 39 repeater length: 24
348 1810938 CTTTCAATTCTATAGTAGATTAGC TTCTTCAGCTTCTTCCCAACGCTATATGTGCTATTAGGTGTAAC spacer
length: 44 repeater length: 24
349 1811006 CTTTCAATTCTATAGTAGATTAGC CGGCACAGTACTACTATCTGAAAGTGTTGCATCTCCAAATA spacer
length: 41 repeater length: 24
350 1811071 CTTTCAATTCTATAGTAGATTAGC AACACGTCCTTTTTTCATTTGTAATATCTGAACCTGGAA spacer
length: 38 repeater length: 24
351 1811133 CTTTCAATTCTATAGTAGATTAGC
352
353
354 crispr 8
355 1811327 CTTTCAATTCTATAGTAGATTAGC ATATTTAAAGTTTTTGCTCAACCAGTTAGGTAACAAGTATTCT spacer
length: 43 repeater length: 24
356 1811394 CTTTCAATTCTATAGTAGATTAGC AAAGCGGTTGTTTTCCAGTTCAGAACTGGAATTCTTAT spacer
length: 40 repeater length: 24
357 1811458 CTTTCAATTCTATAGTAGATTAGC GGATTTTTAAATGGAGTGAATTGATAAAATGATAAAGC spacer
length: 38 repeater length: 24
358 1811520 CTTTCAATTCTATAGTAGATTAGC TTGGTGGGGCGATGAACGGCAACGATATGTTGGACGTCAT spacer
length: 40 repeater length: 24
359 1811584 CTTTCAATTCTATAGTAGATTAGC CTGGAACAAATTTGAAGAAAGTAAAAAATTGAAATTTTAA spacer
length: 42 repeater length: 24
360 1811650 CTTTCAATTCTATAGTAGATTAGC GATAGAGAAAAGTTTATAAAGGAGAGTGAAGATATGTATAT spacer
length: 41 repeater length: 24
361 1811715 CTTTCAATTCTATAGTAGATTAGC TCTAACACTTTATGATTTCAAGAACTTTGCAAGAAATAA spacer
length: 39 repeater length: 24
362 1811778 CTTTCAATTCTATAGTAGATTAGC TTAGCATGCGAAACAAATGAAGAATTCAGAAGAGAGTTAG spacer
length: 40 repeater length: 24
363 1811842 CTTTCAATTCTATAGTAGATTAGC AAAGAATGAGGAAAGAGGCATTGGAAGGCATTGAAGAAGGTA spacer
length: 42 repeater length: 24
364 1811908 CTTTCAATTCTATAGTAGATTAGC TGGAGATTTAATTAGATATCATCACTTCGTTTCTCTCTC spacer
length: 41 repeater length: 24
365 1811973 CTTTCAATTCTATAGTAGATTAGC CTGTTACGCCGGTGCTGGAGGGTAAGTTAGTTGGAGAGCT spacer
length: 40 repeater length: 24
366 1812037 CTTTCAATTCTATAGTAGATTAGC TTTCCCAGACTTAGTAAAGGACATTTGGAAGGTTCTAAT spacer
length: 39 repeater length: 24
367 1812100 CTTTCAATTCTATAGTAGATTAGC ATGAAACAGAAAAAGTTAACATTTTAGACCACCAATTAAA spacer
length: 40 repeater length: 24
368 1812164 CTTTCAATTCTATAGTAGATTAGC AAGACCCCGACTTTTTTAAGGTTTACAGATCCCGCAGAAAA spacer
length: 40 repeater length: 24
369 1812228 CTTTCAATTCTATAGTAGATTAGC ATGAGGTTTCGTCTGTAGGGATTAATCCCGTGTCTAAAG spacer
length: 39 repeater length: 24
370 1812291 CTTTCAATTCTATAGTAGATTAGC TAATTATCAATGGCAAACCGCATATAATTGGATGAGATTA spacer
length: 40 repeater length: 24
371 1812355 CTTTCAATTCTATAGTAGATTAGC TTTACTACACATGTAATAAGTATGTTGATTATGGAATAGAAT spacer

length: 42 repeater length: 24
372 1812421 CTTTCAATTCTATAGTAGATTAGC TTGAACACGTGATATAGAACCAGTTGTTCTAATACGTT spacer
length: 38 repeater length: 24
373 1812483 CTTTCAATTCTATAGTAGATTAGC AACAAATAGCAATAGCTTTGCTTATAGTCGGTGTAATAAT spacer
length: 39 repeater length: 24
374 1812546 CTTTCAATTCTATAGTAGATTAGC TTGTAAAGACTAGGTAAAACCTTTGTTATCATAATAGCAGTA spacer
length: 41 repeater length: 24
375 1812611 CTTTCAATTCTATAGTAGATTAGC AGGAGGGGGCTATACGTACGATCACGAATGTAACATTATCGTGA spacer
length: 43 repeater length: 24
376 1812678 CTTTCAATTCTATAGTAGATTAGC AGTATCTGGCTTTTCGACACAAAACCTCCTTTACCAAC spacer
length: 38 repeater length: 24
377 1812740 CTTTCAATTCTATAGTAGATTAGC ACGACGATGCTATGTGTTGCACTGTATTTGATCACGGTTAT spacer
length: 41 repeater length: 24
378 1812805 CTTTCAATTCTATAGTAGATTAGC TACGGTTAAAAGTTGGCAAAAAGCTTAAATTTTTGCAT spacer
length: 38 repeater length: 24
379 1812867 CTTTCAATTCTATAGTAGATTAGC CTTATGAGCCTCTTTGAGATGTGTCTCTGACTTCTGA spacer
length: 37 repeater length: 24
380 1812928 CTTTCAATTCTATAGTAGATTAGC ATAAATAAACTAGGTTTGTATTTATCACCTCCAACAATTCA spacer
length: 41 repeater length: 24
381 1812993 CTTTCAATTCTATAGTAGATTAGC AAACGATAAATTAGCACTATATTATAACTATGATTCTACACA spacer
length: 42 repeater length: 24
382 1813059 CTTTCAATTCTATAGTAGATTAGC AACTGTAACCTGGTAGCCTTGGTCAGGTGTTACTGACAGTGTGCGATG
spacer length: 46 repeater length: 24
383 1813129 CTTTCAATTCTATAGTAGATTAGC CAAAATGATATACATATAGTACCATCACCTAGCGCAAGAC spacer
length: 40 repeater length: 24
384 1813193 CTTTCAATTCTATAGTAGATTAGC GGATATCCAGCAATTGCAACAGGTGGGTCGGGGATATCATTGC spacer
length: 43 repeater length: 24
385 1813260 CTTTCAATTCTATAGTAGATTAGC TTTAACTATGACTTTTCAGAATACAACAATTCGCCAATT spacer
length: 40 repeater length: 24
386 1813324 CTTTCAATTCTATAGTAGATTAGC ATGTATAACAATAGATCATATGTTATATATAGAGAATGTACCAAT spacer
length: 44 repeater length: 24
387 1813392 CTTTCAATTCTATAGTAGATTAGC TCTTGTACAACTCTCATAACGTTTCATTGCAAAACAGTTCAT spacer
length: 43 repeater length: 24
388 1813459 CTTTCAATTCTATAGTAGATTAGC TACACTGTTGCTTTCCTAACGCTCTACATCGCGTTGT spacer
length: 37 repeater length: 24
389 1813520 CTTTCAATTCTATAGTAGATTAGC TGCAGGAGGGCGAGGAAGAATGATAAAGATGGAGGAAAA spacer
length: 39 repeater length: 24
390 1813583 CTTTCAATTCTATAGTAGATTAGC TTGTCCCTTCCATGGGCATTTGTCACTTTCACAAAACCTA spacer
length: 40 repeater length: 24
391 1813647 CTTTCAATTCTATAGTAGATTAGC ATAAAAAAGAATTATAACTTATTCATCATTCTTTTAATA spacer
length: 40 repeater length: 24
392 1813711 CTTTCAATTCTATAGTAGATTAGC TTATAATCCCCGTGACACAGAAAGAATTTTAAATATCATAAT spacer
length: 42 repeater length: 24
393 1813777 CTTTCAATTCTATAGTAGATTAGC TAAACTAACAAGTAAAATTATAACTCCTAACGGAATTGC spacer
length: 39 repeater length: 24
394 1813840 CTTTCAATTCTATAGTAGATTAGC TGACGATTATAAAGTGAACATGAGTATGCAGTAAGTGAAGT spacer
length: 42 repeater length: 24
395 1813906 CTTTCAATTCTATAGTAGATTAGC AGAATAATCAGTGATGAACAGTGTGAGAACTTGTCCAAGTTTT spacer
length: 44 repeater length: 24
396 1813974 CTTTCAATTCTATAGTAGATTAGC ATGATGTTGAAAATGGACTAAAACCTTTTAGATGAAAACT spacer
length: 40 repeater length: 24
397 1814038 CTTTCAATTCTATAGTAGATTAGC TGAACGGAACATCTATTTTTACTCCTAACATCATTCAATCA spacer
length: 41 repeater length: 24
398 1814103 CTTTCAATTCTATAGTAGATTAGC AAATAATGATAAATAAGGATGAGGTGATAGTACAATGAAATT spacer
length: 42 repeater length: 24
399 1814169 CTTTCAATTCTATAGTAGATTAGC AGCCCTCCAAAATCGTAAAACCTTGAATATATGAAGTTAAATTTA
spacer length: 45 repeater length: 24
400 1814238 CTTTCAATTCTATAGTAGATTAGC GTGCTGTAGGCTGTAGGACTGTGCGAGGTAGCGTTTGAAG spacer
length: 39 repeater length: 24
401 1814301 CTTTCAATTCTATAGTAGATTAGC AGAGTTAATAAACATTTCTGAATCCCCACGCTAACGAAAAG spacer
length: 40 repeater length: 24
402 1814365 CTTTCAATTCTATAGTAGATTAGC ACAAATAACGAAACGAATAAATATAATAAATTATGAATA spacer
length: 39 repeater length: 24
403 1814428 CTTTCAATTCTATAGTAGATTAGC TTGGTGAACCGGTGATAATATTCGTTACGGCGTCCAATACTGT spacer
length: 43 repeater length: 24
404 1814495 CTTTCAATTCTATAGTAGATTAGC CCTTACCCTTCAGGAAGCTGCAGAAGATGGTGGAGTACA spacer
length: 39 repeater length: 24
405 1814558 CTTTCAATTCTATAGTAGATTAGC CATCCGTTACGCTGAGCATACTAAGATCTGTCCTATTTGCCATA spacer
length: 44 repeater length: 24
406 1814626 CTTTCAATTCTATAGTAGATTAGC TATGGGGGTGAGTGACACTTATTCCACCGTTTCAAGTATTT spacer
length: 39 repeater length: 24

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407 1814689 CTTTCAATTCTATAGTAGATTAGC TGGAATTTTGAATTTTTTGCACCGCTCCAATTATTATTTGG spacer
length: 41 repeater length: 24
408 1814754 CTTTCAATTCTATAGTAGATTAGC TTGTCTGTCGGTGAAGCAGTAGTATTTCTAAGAGGCCGTCC spacer
length: 41 repeater length: 24
409 1814819 CTTTCAATTCTATAGTAGATTAGC TCTACTTCTGTCTTCTTAGCCATTTCAGCTCACCTTTG spacer
length: 37 repeater length: 24
410 1814880 CTTTCAATTCTATAGTAGATTAGC GTAAGAATAATTTTACAAAATCTTAGTAATTATATAGTTTATAT spacer
length: 44 repeater length: 24
411 1814948 CTTTCAATTCTATAGTAGATTAGC CCTCGCTTTAACCGAGGTGTCTCGGTGACGCTTGCTCCGT spacer
length: 40 repeater length: 24
412 1815012 CTTTCAATTCTATAGTAGATTAGC AGATTGGTGTATAGTAACAGAAAAGCAGACAACGAAAGGA spacer
length: 40 repeater length: 24
413 1815076 CTTTCAATTCTATAGTAGATTAGC ATGTTAGTTATCGGCGTTATAATGGGTATCGGAATCGGTGTAG spacer
length: 43 repeater length: 24
414 1815143 CTTTCAATTCTATAGTAGATTAGC CTATTTTTGTCAATAATTTTTTTATTTTTGCATTTTTTCGAAAT spacer
length: 43 repeater length: 24
415 1815210 CTTTCAATTCTATAGTAGATTAGC GTAATCTTATTTCTGCGGTAAATTGAGATTATAGATGGTAC spacer
length: 41 repeater length: 24
416 1815275 CTTTCAATTCTATAGTAGATTAGC ATCATTTATGCACATTTCAACTCCATTTCCAATATGAAT spacer
length: 39 repeater length: 24
417 1815338 CTTTCAATTCTATAGTAGATTAGC CCACGTTTTTTGTCTTAACTTTAATTGATTTATTAGAAT spacer
length: 39 repeater length: 24
418 1815401 CTTTCAATTCTATAGTAGATTAGC AAGGTCAATCCATTCTGGGGGCGTTAAACCCGCATCCCTGT spacer
length: 41 repeater length: 24
419 1815466 CTTTCAATTCTATAGTAGATTAGC GGCAGTGTTAGAATACTAACGGGCGAAGAAGAATGGGTTTATT spacer
length: 43 repeater length: 24
420 1815533 CTTTCAATTCTATAGTAGATTAGC
421
422
423 GCA_000007065.1_ASM706v1_genomic.fna (PilerCR) :
424 START REPEAT
SPACER
425 crispr 1
426 679198 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT AGAAGTCCAAGTAGAGAACGGTCTCCAAATCCATT
spacer length: 35 repeater length: 37
427 679270 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TCTATACGAAAATGAAATATTGACTGATGAAAGTAT
spacer length: 36 repeater length: 37
428 679343 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CCGTTTTTATACCTGTTAATATAGGACGTATACATT
spacer length: 36 repeater length: 37
429 679416 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CAGTGGGTCCGACTGGCTTTAGTGGTCTCCTCAGA
spacer length: 35 repeater length: 37
430 679488 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CCAACCAGTTAATACGATGTGTTACGAGGATGGT
spacer length: 34 repeater length: 37
431 679559 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CCGAAAGTTGCAGCCCTCAAACCTTCGTGACCTGA
spacer length: 37 repeater length: 37
432 679633 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CCCTGAGCCTGTAACAGAGCTTGAAAGATAATAAG
spacer length: 35 repeater length: 37
433 679705 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CGACTGGAAACCTGCCGATATCATTTTTATTTCGGAAG
spacer length: 36 repeater length: 37
434 679778 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CAGTGGGCGCGGAAAGAGTAATTCCCGCCACTTATA
spacer length: 36 repeater length: 37
435 679851 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT AGCTAAAGCATTGAAAGCTTTCAGGCTTAGTGAGGCAG
spacer length: 38 repeater length: 37
436 679926 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TTGCCGATTACATGAAGGAGCACAGCAGGGACGATTT
spacer length: 37 repeater length: 37
437 680000 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TAATAGGATCATTGATGCAGAAATCTCCTGAGAGTA
spacer length: 36 repeater length: 37
438 680073 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT
CTGTTCCCGCGCTGGCAAGAGTCACCGAGGAAAATATCAAAA spacer length: 43 repeater length: 37
439 680153 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT AAATAATGCCCCGCTTCGTGAAACCAGAGCACGATG
spacer length: 36 repeater length: 37
440 680226 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CCCAATTTCTCAGTTTGAGAGAGAGATTATTTTTT
spacer length: 36 repeater length: 37
441 680299 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT AAAGCCTTTTTGCTGATAATCAGGAAGAGGTGGA
spacer length: 34 repeater length: 37
442 680370 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT AAAGATCTGAAATCAAATAAAATCAATGAGAAAAGCA
spacer length: 37 repeater length: 37
443 680444 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TAACATCTCTATAGCCTATGGCTTTTGTATTTCCA
spacer length: 35 repeater length: 37
444 680516 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT ATAGTAGAGGCTATCCGATCCTCTAGGGGTTTATCAA
spacer length: 37 repeater length: 37

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445 680590 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT GACAGCTTAACCCGTTCTGAATGAGGCTTATCTCA
 spacer length: 36 repeater length: 37
 446 680663 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT GCTTGATCTTCTATTGACACGTTGAATGTACTTGA
 spacer length: 35 repeater length: 37
 447 680735 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT AGGTCACAGAGAGAATCAAAAATACAGTTAGAATTG
 spacer length: 36 repeater length: 37
 448 680808 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TTTCTCAGATCCTTGCAGGGAAAGATAAGGCTATAA
 spacer length: 36 repeater length: 37
 449 680881 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TTGTATGTGTACACATGGTGTACACATAAGGCGAA
 spacer length: 35 repeater length: 37
 450 680953 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT AGGAAAATGTTATATCAACGAAAGAACGCGGAGGAA
 spacer length: 36 repeater length: 37
 451 681026 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT AGTGACCTGATAGACGTAAGGAGCAATCTTCGCGGC
 spacer length: 36 repeater length: 37
 452 681099 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT GCGACGATCACACCATAAAAAAGTTTAACCAACTTTC
 spacer length: 38 repeater length: 37
 453 681174 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT GGTGTGTGGGGCATTGGGTGTGTACAGCATGATAG
 spacer length: 34 repeater length: 37
 454 681245 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT ACGACGACTCTGACGGCATAGGGGACGTATGGGGAA
 spacer length: 36 repeater length: 37
 455 681318 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT AGATTTCTTTTACCAATAGGATACGAAAACGTGTTCAA
 spacer length: 37 repeater length: 37
 456 681392 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT GGCGATAAGATGAAAAGAACTCAACTCAAGTTAGTT
 spacer length: 37 repeater length: 37
 457 681466 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TGATGAATTAAATCAAATTCCTTTTCGATTTTTCGG
 spacer length: 35 repeater length: 37
 458 681538 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CATCAAAAATTAGCCCGTCTTTATCCCCATAAGGAA
 spacer length: 36 repeater length: 37
 459 681611 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TAATTTGATAATACCTTAATCAACTCACTTTTCTCAA
 spacer length: 37 repeater length: 37
 460 681685 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TATCCGGGGGCAGGAGAGCACGAGGAGGGCCAGAAGAG
 spacer length: 38 repeater length: 37
 461 681760 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT ACGTTTTCTTTTGTCTTCCGAGGACAAGCCCGAT
 spacer length: 35 repeater length: 37
 462 681832 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT AAGGATTCTTCAGTATTATTGCCGTCGTCCTGATCCT
 spacer length: 37 repeater length: 37
 463 681906 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CTGAAAATATACTTTGAGCCCGCCAGCAAACGAAA
 spacer length: 35 repeater length: 37
 464 681978 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT ATAACAATCATCTGCCGAAAACGTCATAGAATTG
 spacer length: 34 repeater length: 37
 465 682049 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT ATTTGCAGGTGCAACAACGTTACAGGGTGGAGAAAT
 spacer length: 36 repeater length: 37
 466 682122 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT ATGAACAAGATGTAAATAAAGAAAATAAAGCTCTAAAAA
 spacer length: 39 repeater length: 37
 467 682198 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TTTATAGTGTTTTTCAGTGGATAGGTGTCACCTTTTAC
 spacer length: 38 repeater length: 37
 468 682273 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CATGATAATCACTATATGAGATTATGTGTTTAAAGTA
 spacer length: 37 repeater length: 37
 469 682347 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT AGTCCATCGTGCCCTGGAGTATTGAAAATGCAGTTG
 spacer length: 36 repeater length: 37
 470 682420 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT ATAATAAACCGAAAAGCGGTGTTAAGTCAGGATATTA
 spacer length: 37 repeater length: 37
 471 682494 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CCGTCATGATC
 472
 473
 474 crispr 2
 475 4089311 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTCTCGCATTTTCATCAGTTATCTTTATCTCGATCA
 spacer length: 36 repeater length: 37
 476 4089384 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGGAAGGCTGGCTTCAGACATCAAGAAGGAATGAGTT
 spacer length: 37 repeater length: 37
 477 4089458 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCTTTAGAAATATAAACATTTCTGCTGTCGTGTCTA
 spacer length: 37 repeater length: 37
 478 4089532 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGGAAGGCTGGCTTCAGACATCAAGAAGGAATGAGTT
 spacer length: 37 repeater length: 37
 479 4089606 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCTTTAGAAATATAAACATTTCTGCTGTCGTGTCTA
 spacer length: 37 repeater length: 37
 480 4089680 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAGGCTATGTACCAATTCCATTAATTACAGGTACAA
 spacer length: 36 repeater length: 37
 481 4089753 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGATATTCAACAGAAGAGGCAAGAAAATATGTTCA
 spacer length: 35 repeater length: 37
 482 4089825 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTGTCTAAAAGCCAGGATCTTGACAGTGGATTCTCAA

spacer length: 37 repeater length: 37
 483 4089899 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT ATATTTGCATCTTCGAAGGCATTTTTCATTATATCAGA
 spacer length: 38 repeater length: 37
 484 4089974 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT GGTATTTTTCGAAC TTCAA AACTGTATAACGCCAGTATC
 spacer length: 38 repeater length: 37
 485 4090049 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT TTATACTACAGCGGCAGGAGGAGAGCCGGGCGA
 spacer length: 34 repeater length: 37
 486 4090120 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT TCTACTCTCCTGAATAGATTTACATCTTCCAGGGATAA
 spacer length: 38 repeater length: 37
 487 4090195 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT ACATGACAGCAACAGACGCAGGAGATATAAGGATCG
 spacer length: 36 repeater length: 37
 488 4090268 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT TGATTTGTGCTTTAGATTCCCATTGTGCTTTCAATGC
 spacer length: 37 repeater length: 37
 489 4090342 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT TAGATT CAGCGTGATCAAACCGAGTTCTTTTAGAGT
 spacer length: 36 repeater length: 37
 490 4090415 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT TTCGTAAGTATATGTATTCAATCGCGAAAACAGTCAGT
 spacer length: 38 repeater length: 37
 491 4090490 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT TAGTATATCCTTAAAGTACGTCGTTTATAGTATATCCT
 spacer length: 38 repeater length: 37
 492 4090565 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT ACTTTAAGGATATACTATATGTGCGTGGTCTAGCGCT
 spacer length: 37 repeater length: 37
 493 4090639 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT AGGACGCTCGACGCGTTCGACCAGGCGAACCGBA
 spacer length: 34 repeater length: 37
 494 4090710 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT TTTTCGAAGGTTGTCCGAAAATTAAGCGAAGCTTTA
 spacer length: 37 repeater length: 37
 495 4090784 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT ACGGTGTACCTTTAACGTATACACTATAAGGTATATC
 spacer length: 37 repeater length: 37
 496 4090858 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT ATTACATCCGCGACGAGATCGAAGGTGAGTTGAAA
 spacer length: 35 repeater length: 37
 497 4090930 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT TGTA AAAATTCAGTAAATCCCATCCTTATCTATA
 spacer length: 35 repeater length: 37
 498 4091002 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT AACGAAATGCGGAAAACGCTTCGGATGTGAAAACGTGG
 spacer length: 38 repeater length: 37
 499 4091077 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT TTCGGGCATTTTGGGGTCTAGCAGAAACACTTTA
 spacer length: 35 repeater length: 37
 500 4091149 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT ACGACTGTCTACGAAAATGTTTGGCGACATGGGAG
 spacer length: 35 repeater length: 37
 501 4091221 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT AAAGAGAAAGCTGTTACTGAAACCTTGCAACTTA
 spacer length: 34 repeater length: 37
 502 4091292 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT GCATACCATTGATCTCAGCCTTGACGCCCTATCGT
 spacer length: 35 repeater length: 37
 503 4091364 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT
 GCAATACAGCTACAAAACAGGAGGGCATAGCCGGTAATTTAT spacer length: 41 repeater length: 37
 504 4091442 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT GTCTTCCTTTATCAAGTTTATAAGCTTTCATGTTT
 spacer length: 35 repeater length: 37
 505 4091514 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT TGTTTAATAGATCAATCCAGGTTTCGCCCTTTTTTC
 spacer length: 36 repeater length: 37
 506 4091587 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT ATGGAATTAGAAAAGAGGGCGGGACGAGACAGGAAA
 spacer length: 36 repeater length: 37
 507 4091660 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT CATTATCTCAAAATCCCTCTTGACCAAATGACCCC
 spacer length: 35 repeater length: 37
 508 4091732 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT TCATGCATTT CAGAAAGGGATTTAGCAGCACAGTC
 spacer length: 35 repeater length: 37
 509 4091804 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT TTTTGCTCTGATATGTGGCCTGTTTTCTTGTTGTCT
 spacer length: 35 repeater length: 37
 510 4091876 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT GAGCCGGCAGGACTGCCCCACTCTCGCCGCGATT
 spacer length: 35 repeater length: 37
 511 4091948 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT CTGGTTCTGGCTTGCGAGGCTTATTTATAATCCGAGCT
 spacer length: 38 repeater length: 37
 512 4092023 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT GTTTTTTCTCCGCGCATAAATTATTGACATAATAA
 spacer length: 35 repeater length: 37
 513 4092095 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT TAGGCGAAAAGCTGTTTCGGGA ACTCAACA ACTGATGAT
 spacer length: 38 repeater length: 37
 514 4092170 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT CCCTCAGAGAAATGCATGAAGCAATTGCCGAATTCA
 spacer length: 36 repeater length: 37
 515 4092243 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT CTGGCGGTGTATGATCCTAAATTAATTGGGTATG
 spacer length: 34 repeater length: 37
 516 4092314 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT
 517
 518
 519 crispr 3

520 4092469 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CGCTTCAAACCCTGGAGGGTGGGCCACGAATGGG
spacer length: 35 repeater length: 37

521 4092541 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATAAAAAATAGAACAGAAGGAAGCATTAGAATTTG
spacer length: 36 repeater length: 37

522 4092614 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTAATGTAACAAATAATAATCTAACTCTTAAAGA
spacer length: 35 repeater length: 37

523 4092686 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTATTTTCTTTATTACTGATATGATCATTGTCCGGT
spacer length: 36 repeater length: 37

524 4092759 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CACTTTCTTCTTGAAATGGGTTCATTTCTTTAGAA
spacer length: 35 repeater length: 37

525 4092831 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCGAGAACCAAGCTATTGCACTGGAACTCTGAATG
spacer length: 36 repeater length: 37

526 4092904 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAAATTATGTTTGCTGATGATGTAGTTACTGGGCCA
spacer length: 36 repeater length: 37

527 4092977 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAGCTATCATGTGTGGATTACTTCATGATATCTG
spacer length: 34 repeater length: 37

528 4093048 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAGATCTCGAAATAAGAACTTATCCATTTTTAA
spacer length: 33 repeater length: 37

529 4093118 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAAAAGTGATCCCGAAGCCGATCAATGGGAGGTAA
spacer length: 35 repeater length: 37

530 4093190 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAAAAGCACGCCAAGAGACGCGCAGCTCAGAAATT
spacer length: 35 repeater length: 37

531 4093262 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTAGGTTGTTCTGGTTCTTCAAAGACTCAACCGGG
spacer length: 36 repeater length: 37

532 4093335 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTTTACCCCGGCTATCTTCATTCGATCCCTCTTT
spacer length: 35 repeater length: 37

533 4093407 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTGGCTGCGTACGGAGTCGAATAGGACAACCTAACA
spacer length: 36 repeater length: 37

534 4093480 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCTCAGCTTCTTCATGAGTCATAGGCATTGAAGCTG
spacer length: 37 repeater length: 37

535 4093554 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACGAATTCGCGAGAGAGTATTCAGAGACGTATCA
spacer length: 34 repeater length: 37

536 4093625 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GATACAGCCCGTCAACCCGCGAGTGCAGGAATTTT
spacer length: 35 repeater length: 37

537 4093697 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAAACAATGGTAAACGAACATCTTACAAGCAG
spacer length: 34 repeater length: 37

538 4093768 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGACAACGCAAAAATGACAACGTTTTTAATTTGGTA
spacer length: 36 repeater length: 37

539 4093841 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCAACAACGCCCAAGCGCAGCCGCCGGAACCTCG
spacer length: 35 repeater length: 37

540 4093913 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAAAATTGCCCTTTGATATGATTCTGTCAATGTCCG
spacer length: 36 repeater length: 37

541 4093986 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAGAGGTTGAATGAACGGAAAACAGCATGAAACCCT
spacer length: 36 repeater length: 37

542 4094059 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATGGTGTTGTCTGATACTGTGTTGCACTGCAAGT
spacer length: 34 repeater length: 37

543 4094130 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTGCTATAGATGTCTCCCCGACAACATCTA
spacer length: 32 repeater length: 37

544 4094199 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACCCCACAAGTAAATTAGGTGATTATGTTTATGT
spacer length: 35 repeater length: 37

545 4094271 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTTATATCAGAGATTATTCTGATTCTGGTAGAGC
spacer length: 34 repeater length: 37

546 4094342 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTCTTTACTGTCTGTATAGTGTGGTTTCTCTTCAA
spacer length: 36 repeater length: 37

547 4094415 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTATAATAATGCTAAACTCACGGGAAACGGCG
spacer length: 34 repeater length: 37

548 4094486 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCGGCACCGTTTTAGACGGGCAAGGACAGGCAACAA
spacer length: 36 repeater length: 37

549 4094559 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGTTCATTCCTTTTTCTCCTTCTCTTATTGCATAT
spacer length: 35 repeater length: 37

550 4094631 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTTGAGAACGGAACAGCTTATGCGGTTTTTACCG
spacer length: 34 repeater length: 37

551 4094702 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CGGCGCGTGCTGTTATGATGAAGTAATATTCATCTC
spacer length: 36 repeater length: 37

552 4094775 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TATGTTATGTTCTTTTCAGATAGTCAAGATCTTCTTTG
spacer length: 37 repeater length: 37

553 4094849 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
ACCCGTCGACTACTTGACAAGAGAAGAATTGGACACTCT spacer length: 39 repeater length: 37

554 4094925 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAAAATAATAAAAAATAATATGTAAAGGTGTTTA
spacer length: 35 repeater length: 37

555 4094997 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATGAAAATCCGCAAGGATCTCATACGTGAATTAG

spacer length: 35 repeater length: 37
 556 4095069 GTTTC AATCCTTGT TTTAGTGGATCTTGCTCACGAAT
 TAGAGCGGTCACTCCGAGCAGGACAAGAGCAAGGAGGGTCTTTT spacer length: 44 repeater length: 37
 557 4095150 GTTTC AATCCTTGT TTTAGTGGATCTTGCTCACGAAT
 558
 559
 560 GCA_000007185.1_ASM718v1_genomic.fna (PilerCR):
 561 START REPEAT
 SPACER
 562 crispr 1
 563 1111464 GTTTCATTACCCGTATTATTACGGGTTAATTGCGAG
 ATGCAGGCACAATGAGTTTGC GGACAAAAGACGATAATGTATTGTTAAGAGTGTATAC spacer length: 57 repeater
 length: 36
 564 1111557 GTTTCATTACCCGTATTATTACGGGTTAATTGCGAG
 TATGTTAGCTGGTTCGAGGAAATTGTGGCGGTGTTAAACTCCGGAGAAACACGTCGAACCC spacer length: 60
 repeater length: 36
 565 1111653 GTTTCATTACCCGTATTATTACGGGTTAATTGCGAG
 CTCGCGATGCGTGTGCGGACCGCACCGTGCCCGCTGCTATGACGGATCTCCTCTTCGCGAC spacer length: 62
 repeater length: 36
 566 1111751 GTTTCATTACCCGTATTATTACGGGTTAATTGCGAG
 ACATGAGGTCCAGTTCCAGAAGCCTGAGCGGAAGCGCAAGGCGCTCGACCCGGA spacer length: 54 repeater
 length: 36
 567 1111841 GTTTCATTACCCGTATTATTACGGGTTAATTGCGAG
 GGTCAAGGAAGTCTTCCCTTCACTGAAGGAAAACTAGAGGATGACGAG spacer length: 49 repeater length:
 36
 568 1111926 GTTTCATTACCCGTATTATTACGGGTTAATTGCGAG
 AACCTAACTTAGCATATGATGGTGGTTATAATT CAGATATTAACGCTAGCATATC spacer length: 55 repeater
 length: 36
 569 1112017 GTTTCATTACCCGTATTATTACGGGTTAATTGCGAG
 CAGACTGGGTAAGGGAGGACAGAGACGGGGAGGTGGAGACATGGGTCCTTAAT spacer length: 53 repeater
 length: 36
 570 1112106 GTTTCATTACCCGTATTATTACGGGTTAATTGCGAG
 GAGGGCAATGAGGAAGGAACAGCTGAGAGCTCGGGGTATCACCGAGCTAACACCG spacer length: 55 repeater
 length: 36
 571 1112197 GTTTCATTACCCGTATTATTACGGGTTAATTGCGAG
 TCGTAGGGGTAGTAGAAGAAGCATAACGAAGGACTCATGGAATCCTGCAAAGA spacer length: 52 repeater
 length: 36
 572 1112285 GTTTCATTACCCGTATTATTACGGGTTAATTGCGAG
 CTAGCTGTGAAGGGAGTGTGTGTAGCGAGCCCTGAGAAAAATAATCCGTTGGTTC spacer length: 56 repeater
 length: 36
 573 1112377 GTTTCATTACCCGTATTATTACGGGTTAATTGCGAG
 TGCTCGCCCGCTTCTTCCGCGAGACCCGTATCATGACCGGGAAGAACGCGCTACCGCTTAGCGAGAAGAAC spacer
 length: 72 repeater length: 36
 574 1112485 GTTTCATTACCCGTATTATTACGGGTTAATTGCGAG GCGTACGCCA
 575
 576
 577 crispr 2
 578 1297216 GTTTCATTACCCGTGTTATTACGGGTTAATTGCGAG
 TCTGTTGTATTGGTATTGGGATGTTCCATGTGACTTTTACTCTGGCGTATG spacer length: 51 repeater
 length: 36
 579 1297303 GTTTCATTACCCGTGTTATTACGGGTTAATTGCGAG
 AGACAAACTAGTAGCGTTCGCGAGATTCAAAGGAGATATCACGGTGTGTTC spacer length: 51 repeater
 length: 36
 580 1297390 GTTTCATTACCCGTGTTATTACGGGTTAATTGCGAG
 TTTTGCAATCGATGATGCTTTTGTCTAGAATTTCTTTTATTCTGGGTCTAAATCTCTTAAT spacer length: 61
 repeater length: 36
 581 1297487 GTTTCATTACCCGTGTTATTACGGGTTAATTGCGAG
 CATGGACATAGACACGGACATAGACATGGACACGTCAACGGCTGTGACATTCTAGCC spacer length: 58
 repeater length: 36
 582 1297581 GTTTCATTACCCGTGTTATTACGGGTTAATTGCGAG ATCTGATACT
 583
 584
 585 crispr 3
 586 1306913 CTCGCAATTAACCCGTAATAATATGGGTAATGAAAC
 GGTAATGAAACTAGTATAATCTCCGTTAATTCATCTGCTACCTCTGGTAGTCTCTGTATTTCCGCAAACG spacer
 length: 70 repeater length: 36
 587 1307019 CTCGCAATTAACCCGTAATAATATGGGTAATGAAAC
 AACGCCTGGAGAAAAAGCCTTCGGTAAACCCCTAACAGACACAGCCCTAAGACCC spacer length: 54 repeater
 length: 36
 588 1307109 CTCGCAATTAACCCGTAATAATATGGGTAATGAAAC
 AATACCAGAACGTCTACCCGCATGGAACCTTCGGCTTCAGCGGAGTACCACACTCACAGA spacer length: 60


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repeater length: 36
589 1307205 CTCGCAATTAACCCGTAATAATATGGGTAATGAAAC
CGCTGTGGATAAACGATTGTCCACCGTGATACATAGCCGTCTAACCCCTTCTTCGT spacer length: 55 repeater
length: 36
590 1307296 CTCGCAATTAACCCGTAATAATATGGGTAATGAAAC
CTGTCTTCGCTTCTGGCCTTACTGTCTTCGTGAATGTTCCAAGCTCCAGGTAGTCAACTATCATC spacer length: 65
repeater length: 36
591 1307397 CTCGCAATTAACCCGTAATAATATGGGTAATGAAAC
TCTTGAGTAGGATACCGTTGATGATTGCCTCTCTCGTTTCCTTTGCCTCGTAGC spacer length: 54 repeater
length: 36
592 1307487 CTCGCAATTAACCCGTAATAATATGGGTAATGAAAC
TGTGCTGGTGCTAAGTGAAAAGATTGCCACCCAATGCCCTAGATCTCTGA spacer length: 50 repeater
length: 36
593 1307573 CTCGCAATTAACCCGTAATAATATGGGTAATGAAAC GGGAAGATA
594
595
596 crispr 4
597 1362695 GTTTCATTACCCATATTATTGCGGGTTAATTGCGAG
AACGTGTGTTGGAAGAGCATCTGGGACAACATAGAGGCAGACTTAAGGTGCAGGATTA spacer length: 58
repeater length: 36
598 1362789 GTTTCATTACCCATATTATTGCGGGTTAATTGCGAG
TTTTGCGGAGTAATCCCATGTTGGTTGTCGGTGACCGTAGAGTGCGGGATAGA spacer length: 53 repeater
length: 36
599 1362878 GTTTCATTACCCATATTATTGCGGGTTAATTGCGAG
CCCGCGGACAAGGCTTCGGTCTTGTGGAGGGTCTATTGGAGCAGTA spacer length: 46 repeater length: 36
600 1362960 GTTTCATTACCCATATTATTGCGGGTTAATTGCGAG
GGGTTGCAGTTACACGGCGTATATCATGGCGTTCACAGTGGAGTGGTCAGT spacer length: 51 repeater
length: 36
601 1363047 GTTTCATTACCCATATTATTGCGGGTTAATTGCGAG
ACTCGGTGGACACAGAGCTCGCCGCCGCGCTATCGGCACTATGGGAATCAGTC spacer length: 53 repeater
length: 36
602 1363136 GTTTCATTACCCATATTATTGCGGGTTAATTGCGAG
GTGTCCGGTTTGCGACTCTTAGGGGGATAACGACTTTCACTTCCGCGTCCT spacer length: 51 repeater
length: 36
603 1363223 GTTTCATTACCCATATTATTGCGGGTTAATTGCGAG
CCGGCGCGTTAGGCCTCAGCAACGTGGAGAAAGCGATACTTTATGACGATGTCCTTAAGGAGC spacer length: 63
repeater length: 36
604 1363322 GTTTCATTACCCATATTATTGCGGGTTAATTGCGAG
AAGTATCACAGCCAGGGCACGGACGAGACAGCGTACTGAGAGGGGCCAGAGTAGCAACAA spacer length: 60
repeater length: 36
605 1363418 GTTTCATTACCCATATTATTGCGGGTTAATTGCGAG GAAGTCGCCA
606
607
608 GCA_000007225.1_ASM722v1_genomic.fna (PilerCR):
609 START REPEAT
SPACER
610 crispr 1
611 39812 GTTTCAACTATCTTTTGATTTCTGG TGGAAGAACTGCAGCGGATATACGGCCCAGTCGTTAATGAGGC spacer
length: 43 repeater length: 25
612 39880 GTTTCAACTATCTTTTGATTTCTGG CTCATTAATAAAATTGATGATACTTTCAGCCATAAGAGAAA spacer
length: 41 repeater length: 25
613 39946 GTTTCAACTATCTTTTGATTTCTGG ACATGCGTATGGCGGTAGGCGACGTGTAGAATATAGTGAAAATGG spacer
length: 45 repeater length: 25
614 40016 GTTTCAACTATCTTTTGATTTCTGG GGGGTAAGTGGTTTGACAAGGAGCAAGCAGTAGAACTGCT spacer
length: 40 repeater length: 25
615 40081 GTTTCAACTATCTTTTGATTTCTGG GGTCGGCCCAATTACTGAACAAATAGTCTGTATGGTTTAA spacer
length: 40 repeater length: 25
616 40146 GTTTCAACTATCTTTTGATTTCTGG GTAATTAAATATTAATTACGACTTGTGCACACACATGGAGAGA spacer
length: 43 repeater length: 25
617 40214 GTTTCAACTATCTTTTGATTTCTGG GGC GTTGGCAACGCTGGACAGTACGGTGGCGGTGTTGTCA spacer
length: 40 repeater length: 25
618 40279 GTTTCAACTATCTTTTGATTTCTGG ACACGGCATTTCACACACCGAGGGTGTGGGAGTGGATAGCCGT spacer
length: 43 repeater length: 25
619 40347 GTTTCAACTATCTTTTGATTTCTGG ATATTTGGAAAAATCGATAAGGAAAGACTATTGGAAC TTG spacer
length: 40 repeater length: 25
620 40412 GTTTCAACTATCTTTTGATTTCTGG AAGGTCTCAGACCGTCATTTGATGCTTTGGTTAGTTTTGAAGCC spacer
length: 44 repeater length: 25
621 40481 GTTTCAACTATCTTTTGATTTCTGG CAGGAGGGTGTGGGGTGCACATGACGTACACGTCTGTGATGCT spacer
length: 44 repeater length: 25
622 40550 GTTTCAACTATCTTTTGATTTCTGG TGGAGAATTGGCTTCTTAGCTGTTTCTACGCAGCGCCTTTCTGG spacer
length: 44 repeater length: 25

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623 40619 GTTTCAACTATCTTTTGATTTCTGG ACCACTGCTAGAACAAATGGAAAAATGGTGGCAAGTTAA spacer
 length: 38 repeater length: 25
 624 40682 GTTTCAACTATCTTTTGATTTCTGG GCAAGCGGAAAGGGACACGGTATACGCCGGCTGTACCGAGGTCAT spacer
 length: 45 repeater length: 25
 625 40752 GTTTCAACTATCTTTTGATTTCTGG CACCATTGTG
 626
 627
 628 crispr 2
 629 45502 CCAGAAATCAAAAAGATAGTTGAAAC GGTGAATATACAGACAATATATCGAACGATGGCCGCAATCCAA spacer
 length: 43 repeater length: 25
 630 45570 CCAGAAATCAAAAAGATAGTTGAAAC TGTGAATACGCTCAGCTTGGCGTGCATCAGTCTCTTCAGAGAT spacer
 length: 43 repeater length: 25
 631 45638 CCAGAAATCAAAAAGATAGTTGAAAC CTGAAAAAGTTCCTGAACGCCGGGTTTTTCGTCGGGACCTTCC spacer
 length: 43 repeater length: 25
 632 45706 CCAGAAATCAAAAAGATAGTTGAAAC AACACTTTCAACCTAACAGTTATCCACTCCGCGATGTCGCTTC spacer
 length: 43 repeater length: 25
 633 45774 CCAGAAATCAAAAAGATAGTTGAAAC ATCGTGAACCTTGGCCCTAAGCTTAGAGAATACATCACTCCAA spacer
 length: 42 repeater length: 25
 634 45841 CCAGAAATCAAAAAGATAGTTGAAAC TATATCCATATCAGCCTCCGGCCACCGTTAGCTTGATGTCTG spacer
 length: 42 repeater length: 25
 635 45908 CCAGAAATCAAAAAGATAGTTGAAAC TTATCGAAATACATCAAACCGTCGTGCACGTGGGCCGCACACCG spacer
 length: 44 repeater length: 25
 636 45977 CCAGAAATCAAAAAGATAGTTGAAAC ATATACGTTTCACCCGCGCCACGCGTCTGTACTAATGCCGCG spacer
 length: 42 repeater length: 25
 637 46044 CCAGAAATCAAAAAGATAGTTGAAAC GTGCGGCTTAAACGAATACGGAAAGACAAAGCTATTCTCG spacer
 length: 40 repeater length: 25
 638 46109 CCAGAAATCAAAAAGATAGTTGAAAC AATGTATCTGTACAGACCCCGCATGCATAAAGTATCAAGTACAA spacer
 length: 44 repeater length: 25
 639 46178 CCAGAAATCAAAAAGATAGTTGAAAC ATAGTCAGAAGAATAATACAACCTATGACATTACTGGTAATGCCAAC
 spacer length: 46 repeater length: 25
 640 46249 CCAGAAATCAAAAAGATAGTTGAAAC GAGGCGGAAGGTTGCGGCATATGGAATAATTGAATGTAATACCCG spacer
 length: 45 repeater length: 25
 641 46319 CCAGAAATCAAAAAGATAGTTGAAAC TTCCCGAAGTTGCCTGAAAGCGATGTGATCCGCGGCGCGTCTA spacer
 length: 43 repeater length: 25
 642 46387 CCAGAAATCAAAAAGATAGTTGAAAC CCATGGCCCCGAAAAAGAATATTTACGCTGGGCCTTCTCTTGC spacer
 length: 44 repeater length: 25
 643 46456 CCAGAAATCAAAAAGATAGTTGAAAC TGTCCACTGTCTGTTTTGCAAATCTTCTACTATATCCTGGTAAG spacer
 length: 44 repeater length: 25
 644 46525 CCAGAAATCAAAAAGATAGTTGAAAC ATTGTCGCGCTGAAGGCGCCACAGCGCGGCACCGATGTTCAA spacer
 length: 42 repeater length: 25
 645 46592 CCAGAAATCAAAAAGATAGTTGAAAC ACTACATGTAAATGACTGCGTGTTTCATAGTGGCAACCTGTAGCGA spacer
 length: 45 repeater length: 25
 646 46662 CCAGAAATCAAAAAGATAGTTGAAAC GGGATACCTA
 647
 648
 649 crispr 3
 650 95530 GAATCTCAAAAAGAGGATTGAAAG TATTCAGAGTACTCTAGGCCGGTATACAGAGGGCCTAAAA spacer
 length: 40 repeater length: 24
 651 95594 GAATCTCAAAAAGAGGATTGAAAG AACACGTCAGCCAGCCCTCCCCATGTGGCCCTGGCTGTACACAG spacer
 length: 44 repeater length: 24
 652 95662 GAATCTCAAAAAGAGGATTGAAAG AAAATTTGTAAAGTTAGAGATAGCGAGCCGCGAATTGAGAGCGG spacer
 length: 44 repeater length: 24
 653 95730 GAATCTCAAAAAGAGGATTGAAAG TCTTCGGACAATGACGCGCTTAGAATGGGCGATTTATTCAACACGTACA
 spacer length: 49 repeater length: 24
 654 95803 GAATCTCAAAAAGAGGATTGAAAG CAATTACTCTTAATTCAGAGTCTCCCTCACAGACGGCAAATACTCA
 spacer length: 47 repeater length: 24
 655 95874 GAATCTCAAAAAGAGGATTGAAAG ATGTTAATTGAAGGGCCTGAGAACGCTGTTTCAGTTTATTCTCAAT spacer
 length: 45 repeater length: 24
 656 95943 GAATCTCAAAAAGAGGATTGAAAG CGTCTTTCTTCTTCGACACCTTGATGTTCAACGCCTCTACAG spacer
 length: 42 repeater length: 24
 657 96009 GAATCTCAAAAAGAGGATTGAAAG GTTCTAAATATACCGACGGCCGCGACATTTACTAATTCTCTGAA spacer
 length: 44 repeater length: 24
 658 96077 GAATCTCAAAAAGAGGATTGAAAG TTATATACTTGGATCTGTACGTCCCCTTCCGTATATACACCCTGCC spacer
 length: 46 repeater length: 24
 659 96147 GAATCTCAAAAAGAGGATTGAAAG TTGACAATTCAGCCCAAAGTGTAATCCGTTGATATGGTCGG spacer
 length: 41 repeater length: 24
 660 96212 GAATCTCAAAAAGAGGATTGAAAG TCGGTAAATTAGTCAGTGAGAGCTTGTTAGGTATACTCCCCCTTCC
 spacer length: 47 repeater length: 24
 661 96283 GAATCTCAAAAAGAGGATTGAAAG ATACTAATTGTGGCGGGGTTCAACCGTCAGCTGTTCCAGGT spacer
 length: 41 repeater length: 24
 662 96348 GAATCTCAAAAAGAGGATTGAAAG GTCCGCAGTCAACAGCCAAAAAGAGGGGGAAATAAACG spacer length:

38 repeater length: 24

663 96410 GAATCTCAAAAAGAGGATTGAAAG CTTTATCAACGTAGACCCTTTTGTATATCAAGCTCTTTCC spacer
length: 40 repeater length: 24

664 96474 GAATCTCAAAAAGAGGATTGAAAG CAGGTAGAGGTGCGGTTCAACAACGTTGTTGGCCACGTGGACTTTTTT
spacer length: 48 repeater length: 24

665 96546 GAATCTCAAAAAGAGGATTGAAAG TGGTTAATTCCAAGCTGAGGCAGGTCTGTGGACCC spacer length: 35
repeater length: 24

666 96605 GAATCTCAAAAAGAGGATTGAAAG CCCGCGGGCCCCGCGCCGCGCCAGCGGCCACCTTGTTTTTGTGTGT spacer
length: 44 repeater length: 24

667 96673 GAATCTCAAAAAGAGGATTGAAAG GCGCCGTCCATGCGAGCACGGGGAAGACTGCCGAGGGGTC spacer
length: 40 repeater length: 24

668 96737 GAATCTCAAAAAGAGGATTGAAAG ATTATCTTGAAGTAGCATCGCCACGGCGGCGAGCCCTGCGAGCT spacer
length: 43 repeater length: 24

669 96804 GAATCTCAAAAAGAGGATTGAAAG ATCCTAGGCATTGGGATGTACACTGCGATTTCCCCCTGCG spacer
length: 40 repeater length: 24

670 96868 GAATCTCAAAAAGAGGATTGAAAG AGAGTCCCTCCAGCTCCTCGAGGGCGGCGCACACTACGCACATG spacer
length: 44 repeater length: 24

671 96936 GAATCTCAAAAAGAGGATTGAAAG TGCTGTCTGGAGTTTCGGTTGTGCTGGCAGCTGTCTTTGGCGCCT spacer
length: 45 repeater length: 24

672 97005 GAATCTCAAAAAGAGGATTGAAAG GCTGTATGGAGAGCCAATGCGCATGCGGCGTAAGACTGTATATAC spacer
length: 45 repeater length: 24

673 97074 GAATCTCAAAAAGAGGATTGAAAG GCAAAAGGCCTGCGGAATAGCCAGCCATCCCCCGCCTGGCG spacer
length: 42 repeater length: 24

674 97140 GAATCTCAAAAAGAGGATTGAAAG CCTCAATTCTGCTTACCATGGTCTCAGGGTCGATAATAAACTTCT spacer
length: 44 repeater length: 24

675 97208 GAATCTCAAAAAGAGGATTGAAAG AGCTTTTTTAAGGGCCTCATTTTTCTGGGCCTCAGTAATAAAGC spacer
length: 43 repeater length: 24

676 97275 GAATCTCAAAAAGAGGATTGAAAG TATGCGTTGACCCGGGGCCCTACACAGCTCTCCTACTTACC spacer
length: 41 repeater length: 24

677 97340 GAATCTCAAAAAGAGGATTGAAAG ATGCGTATCATATACGCCGCACCCGCACAACTAATAACCGCATT spacer
length: 45 repeater length: 24

678 97409 GAATCTCAAAAAGAGGATTGAAAG ATACGGTGTACTGCAACGGCCGCGATTTGACTGAATGTACAAAACCG
spacer length: 48 repeater length: 24

679 97481 GAATCTCAAAAAGAGGATTGAAAG TAGGTACGTATTTGAGGCGGTCTGCCCTCTGTGCGTGTCCAGTG spacer
length: 44 repeater length: 24

680 97549 GAATCTCAAAAAGAGGATTGAAAG GGGAGGCTCAGCAAACAGGACACACAGCTTCCTGGGTACCCG spacer
length: 42 repeater length: 24

681 97615 GAATCTCAAAAAGAGGATTGAAAG GCCACCTGCTTAGCCGCCTCCTTCGCCCTCTCAGCCCGCTGGCCTCCGACGG
spacer length: 53 repeater length: 24

682 97692 GAATCTCAAAAAGAGGATTGAAAG CGGTGGCGGTGTACCAAATGTTCTACCTAGCCGGCGTCCAGCCGCCG
spacer length: 47 repeater length: 24

683 97763 GAATCTCAAAAAGAGGATTGAAAG ATTTTTTCAGTTCTCCCGCCGAAGTGCTTGAGATACTCGCAACCGT spacer
length: 45 repeater length: 24

684 97832 GAATCTCAAAAAGAGGATTGAAAG CTAGACGGAAGTCTCACCAGCTCCTCCTCGGCGCGCTTGCGCGCC spacer
length: 45 repeater length: 24

685 97901 GAATCTCAAAAAGAGGATTGAAAG CTATTCCAGTGGCGAACTCGGCCGATATCCTAAGCCCTGCGAG spacer
length: 43 repeater length: 24

686 97968 GAATCTCAAAAAGAGGATTGAAAG CAGTTGGGACATGTTTGAGAAGGAGCTGGCCAGGGCTAGGAGTGCTGAG
spacer length: 49 repeater length: 24

687 98041 GAATCTCAAAAAGAGGATTGAAAG GTACGGATACAGCGCCACTGCTTGACGCGGCGCTTACGCCGTT spacer
length: 45 repeater length: 24

688 98110 GAATCTCAAAAAGAGGATTGAAAG TCGGCACTGGGATCGTCTGGCCATAGTCGGCATTTCATGGG spacer
length: 43 repeater length: 24

689 98177 GAATCTCAAAAAGAGGATTGAAAG CGCGTTCTCGACACTGTGATGGATCTGATCCGCATGGATGCAGTGG spacer
length: 46 repeater length: 24

690 98247 GAATCTCAAAAAGAGGATTGAAAG ACTCGTTGCCCAGAGAGCGCCTCTGGAACCTAGCCAGCACC spacer
length: 41 repeater length: 24

691 98312 GAATCTCAAAAAGAGGATTGAAAG CACAATTGCGAAAAACGCGGCCCATTTGTATATAGCTCTCCCC spacer
length: 43 repeater length: 24

692 98379 GAATCTCAAAAAGAGGATTGAAAG CTAATTTTCAGTGATAAGTCCATACGGCCCAATTTGACGACATAA spacer
length: 44 repeater length: 24

693 98447 GAATCTCAAAAAGAGGATTGAAAG GCGAGGAGATTGCGCAGGAAGAGAACTCCTGCAAGCGCCGTT spacer
length: 42 repeater length: 24

694 98513 GAATCTCAAAAAGAGGATTGAAAG AACTATATAACAAAAC TAGAGCCGCTGTTGAGGAAGGCTAA spacer
length: 41 repeater length: 24

695 98578 GAATCTCAAAAAGAGGATTGAAAG CTTGAACTCAACGTCTCCAAGCATTTGTTTATACACGAGCACGCGGGG
spacer length: 48 repeater length: 24

696 98650 GAATCTCAAAAAGAGGATTGAAAG CGACGCCCGTATCGTCTACTTTACGCGGGGCTTCTTGACAACGG spacer
length: 45 repeater length: 24

697 98719 GAATCTCAAAAAGAGGATTGAAAG CACTATTTTGAAGAGTGGCATGTCCATTTTGGCGTCTCTCTTT spacer
length: 43 repeater length: 24

698 98786 GAATCTCAAAAAGAGGATTGAAAG GTGCCCCCTCGTGGCCCGGTACCGGGCCCTGACGGCCGCGAGA spacer
length: 43 repeater length: 24
699 98853 GAATCTCAAAAAGAGGATTGAAAG CGCTGTCCCAGTTGCGGCGGGTTGGTGTGGCGGTGCGCGGAA spacer
length: 43 repeater length: 24
700 98920 GAATCTCAAAAAGAGGATTGAAAG AGCCGCGGCGCCTCTTCACGAGCCCGATGGCGGCGAGCTGCC spacer
length: 42 repeater length: 24
701 98986 GAATCTCAAAAAGAGGATTGAAAG GAAAAACAAACCTTTTTCAAGAACTACACCAGGCCCTATAGGGGCCAG
spacer length: 49 repeater length: 24
702 99059 GAATCTCAAAAAGAGGATTGAAAG CTGAGTTGACTGATAAGTTCATACGGCCCAATATGACGACAC spacer
length: 42 repeater length: 24
703 99125 GAATCTCAAAAAGAGGATTGAAAG CCTCAAAGCCGCTACAATAATCATCGAGGAGTATTCAAAGAA spacer
length: 43 repeater length: 24
704 99192 GAATCTCAAAAAGAGGATTGAAAG TTGAGACTGTGGAGTTCGACATGGTGCGAACAGTGGCTGGTCTCGA spacer
length: 46 repeater length: 24
705 99262 GAATCTCAAAAAGAGGATTGAAAG TTTACCTATGTTGAAACTGATATGCGACTAGTGGACTGTATG spacer
length: 42 repeater length: 24
706 99328 GAATCTCAAAAAGAGGATTGAAAG TGTCCAATGAGCACATCTTCAATAGAGGCACCTCTATGCG spacer
length: 40 repeater length: 24
707 99392 GAATCTCAAAAAGAGGATTGAAAG AATACGCCTTCCTCGACTCGTGGTCGGCGTAGCACATAATCGTC spacer
length: 44 repeater length: 24
708 99460 GAATCTCAAAAAGAGGATTGAAAG AAGATTTTAGTCATCTCCTCCGCCACCAGGAACACTATCCTTGCGGGG
spacer length: 48 repeater length: 24
709 99532 GAATCTCAAAAAGAGGATTGAAAG CGGGAGATTGGGCAGGTTCGCCGCCTATGGGGACAATATCATCTT spacer
length: 45 repeater length: 24
710 99601 GAATCTCAAAAAGAGGATTGAAAG TATCTAAATCAGCTTGTGCGTGGCTTGATAAGCAAAAACATGCTGGG
spacer length: 47 repeater length: 24
711 99672 GAATCTCAAAAAGAGGATTGAAAG GTGACGTCTAGATTGGGCAGGAGTGTTTTAGCCCTCTCCCCGCC spacer
length: 45 repeater length: 24
712 99741 GAATCTCAAAAAGAGGATTGAAAG TGTACTGCTGAGTGGCGTTTATCTTGACGGCGATGTAGGTCTCGGT spacer
length: 46 repeater length: 24
713 99811 GAATCTCAAAAAGAGGATTGAAAG AAGATCCTCAAGCCACACCCTCTGCCGAGAGCGGCGTCCCTGGT spacer
length: 46 repeater length: 24
714 99881 GAATCTCAAAAAGAGGATTGAAAG TTCTGCCTTTCGGGCACCCTTCTCATTTGGCCCCGCCGAAGC spacer
length: 43 repeater length: 24
715 99948 GAATCTCAAAAAGAGGATTGAAAG TCTGGCGGAGAACTGTGTAACGACTACTACCACACAGCCACAGGGA spacer
length: 45 repeater length: 24
716 100017 GAATCTCAAAAAGAGGATTGAAAG GAGGTATACTCGGCGGCGTATACATATATAGCCCTAGAGCGCT spacer
length: 43 repeater length: 24
717 100084 GAATCTCAAAAAGAGGATTGAAAG ACCATCGTGGAGTGCCAAGTTCGCACCCATCGAATTTACTACTAG spacer
length: 44 repeater length: 24
718 100152 GAATCTCAAAAAGAGGATTGAAAG AAGCACGATTTGACAAAACAAGGTAAAGGGACTTGGGTTCGCCGT spacer
length: 45 repeater length: 24
719 100221 GAATCTCAAAAAGAGGATTGAAAG GTCCCTATACCCTGCTCCGTCCCAGTCTGTAGATGGGTCCTT spacer
length: 42 repeater length: 24
720 100287 GAATCTCAAAAAGAGGATTGAAAG CTGGCGAGATTGATGTTAGAGCACGCGGACGCCGTTATTGAAATACT
spacer length: 47 repeater length: 24
721 100358 GAATCTCAAAAAGAGGATTGAAAG GCGTTTTTCATCAACAACAACGCCCCCGTACCACTCAAGAATAATA spacer
length: 45 repeater length: 24
722 100427 GAATCTCAAAAAGAGGATTGAAAG GTTCAATACGTTTGAAGTTGTCTGCAATTTCTGAACGGCCCTA spacer
length: 44 repeater length: 24
723 100495 GAATCTCAAAAAGAGGATTGAAAG TCTCTGTCTCGTACCTTGTAATGTATGGCGTCTTCACAACCTGAATCT
spacer length: 49 repeater length: 24
724 100568 GAATCTCAAAAAGAGGATTGAAAG GTAAAACTATATTAACATGCCCAAACGTTATGACCGCCGT spacer
length: 41 repeater length: 24
725 100633 GAATCTCAAAAAGAGGATTGAAAG TGGACATTTTCGCCTCTGCTTCGGGCCCATATGATTGGACGA spacer
length: 42 repeater length: 24
726 100699 GAATCTCAAAAAGAGGATTGAAAG GTGGCGTTGATCTCCGCCCCGAAGCCCATGCGCGCCCCCAGCTCGG
spacer length: 46 repeater length: 24
727 100769 GAATCTCAAAAAGAGGATTGAAAG AACTGTCAGTACCGTGCTTACATGGAATATAGAAGTAGCGCTTACC
spacer length: 46 repeater length: 24
728 100839 GAATCTCAAAAAGAGGATTGAAAG TCCGGCACCCCTCCAGTGTGCCTCTTCATAAGGGCGATTAGGTAGATGGCCC
spacer length: 52 repeater length: 24
729 100915 GAATCTCAAAAAGAGGATTGAAAG GATCTTCGCGCTGAACAGGCGCAACATGTTCTCGCTGAGTTC spacer
length: 42 repeater length: 24
730 100981 GAATCTCAAAAAGAGGATTGAAAG GAATATGAAT
731
732
733 crispr 4
734 591744 GTTTCATTTCTTTTGTAGATTCTTC GAGGGAGGAGAGGAGTGGCAGATTACCACAACACTTTGCG spacer
length: 40 repeater length: 25
735 591809 GTTTCATTTCTTTTGTAGATTCTTC GTTAAACTGCCCCCGGCCCGGCCTCCACAACATATACATT spacer

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length: 42 repeater length: 25
736 591876 GTTTC AATTCTTTTGTAGATTCTTC GGT TATAGAAGCAAAAATAGTTGAAATACCGAGGATATGTTA spacer
length: 42 repeater length: 25
737 591943 GTTTC AATTCTTTTGTAGATTCTTC TTAGCGCTTGGCTGGAAGAAGAGTTAGAAGAATTAAA spacer
length: 37 repeater length: 25
738 592005 GTTTC AATTCTTTTGTAGATTCTTC ATAGGGCTATTACAGAGAATATCTGGAAGAAGCTTAGCAACA spacer
length: 42 repeater length: 25
739 592072 GTTTC AATTCTTTTGTAGATTCTTC TATGGCTCTTCTTAAGTTATATTTTTGTAAAGAGAAA spacer
length: 37 repeater length: 25
740 592134 GTTTC AATTCTTTTGTAGATTCTTC CAGCAGAGGCATTCTATTGGGATAGCGTAAACAAT spacer length:
36 repeater length: 25
741 592195 GTTTC AATTCTTTTGTAGATTCTTC TGTCTACAT
742
743
744 crispr 5
745 1898966 GTTTC AACTATCTTTTGATTTCTGG ATTATGAGGCCCTTAATTCTCGCCGGGCTCCAAAGGCGGG spacer
length: 41 repeater length: 25
746 1899032 GTTTC AACTATCTTTTGATTTCTGG ACAGTGCTCTATATCGAGGGACGCGGTAAACTGAAGTTAA spacer
length: 40 repeater length: 25
747 1899097 GTTTC AACTATCTTTTGATTTCTGG TACTCCTATTGAATTTCTGCCGAGCAGTTTTGCCTCTATGA spacer
length: 41 repeater length: 25
748 1899163 GTTTC AACTATCTTTTGATTTCTGG ATATTTATCTTGTTTGCCTCGCATGAGTAGAGTGGAAGT spacer
length: 41 repeater length: 25
749 1899229 GTTTC AACTATCTTTTGATTTCTGG TGGTGTAGATAACAGAGAATTATTAGATACGCTCTTTGTT spacer
length: 40 repeater length: 25
750 1899294 GTTTC AACTATCTTTTGATTTCTGG ATATCAATGGCAGGAGGCCGAGCAACATGACTCCTATCGCC spacer
length: 41 repeater length: 25
751 1899360 GTTTC AACTATCTTTTGATTTCTGG ATCAGGCCCCGACAGACTCATAGTCGTAACGGACAAATACCT spacer
length: 41 repeater length: 25
752 1899426 GTTTC AACTATCTTTTGATTTCTGG ATAGTGGTGGAAAAGTGATTGTAGTCACCTGGGACGCAGAAGT spacer
length: 43 repeater length: 25
753 1899494 GTTTC AACTATCTTTTGATTTCTGG CTTATTCAGTATATCCGCTTAAGTTACCACGAGCCAGC spacer
length: 39 repeater length: 25
754 1899558 GTTTC AACTATCTTTTGATTTCTGG CAAGCTGGCCGGCAGGCACCCTGCGGCCTTGGATAGAATTATACAA
spacer length: 46 repeater length: 25
755 1899629 GTTTC AACTATCTTTTGATTTCTGG
756
757
758 GCA_000007305.1_ASM730v1_genomic.fna (PilerCR) :
759 START REPEAT
SPACER
760 crispr 1
761 27090 GTTCCAATAAGACTAAAAATAGAATTGAAAG
TTATATGATTCATTTCTTGCTTAAGCAATCTGATCTGACCAGAGCTG spacer length: 48 repeater length: 30
762 27168 GTTCCAATAAGACTAAAAATAGAATTGAAAG TAAAGTTTATAAACTTTTCGTGTATAGAAAAGTGCA spacer
length: 36 repeater length: 30
763 27234 GTTCCAATAAGACTAAAAATAGAATTGAAAG CCGGTTCTGCACCCGAACTTTTCATACCAAATACTCC spacer
length: 38 repeater length: 30
764 27302 GTTCCAATAAGACTAAAAATAGAATTGAAAG GGTCACTACTTTACTGCTACAACCCGCTCTGGGTCGA spacer
length: 36 repeater length: 30
765 27368 GTTCCAATAAGACTAAAAATAGAATTGAAAG CTCTTATGCTGAATTTTTCTGAATCTTCGGATACTGGCAA spacer
length: 40 repeater length: 30
766 27438 GTTCCAATAAGACTAAAAATAGAATTGAAAG GCGTTAATGAACAATAAGCCTGACACGAACATAAACA spacer
length: 37 repeater length: 30
767 27505 GTTCCAATAAGACTAAAAATAGAATTGAAAG GGAAATGTGCGTAAAGTTTTCTTCCAGGCTTTTCGCT spacer
length: 38 repeater length: 30
768 27573 GTTCCAATAAGACTAAAAATAGAATTGAAAG GTAGTGAGGCGTTGAACCTGACCCACCACCAGCCCT spacer
length: 36 repeater length: 30
769 27639 GTTCCAATAAGACTAAAAATAGAATTGAAAG CACTACTGTCCTCTCGACAATTGACGTTATTACAGTCGA spacer
length: 39 repeater length: 30
770 27708 GTTCCAATAAGACTAAAAATAGAATTGAAAG TCAAACTTTACAAAAGTAAAGAAAAAATTGAACGGGT spacer
length: 38 repeater length: 30
771 27776 GTTCCAATAAGACTAAAAATAGAATTGAAAG GCGTGCCGTGTGTTTTTATACTGCTCTAATGTGTCT spacer
length: 37 repeater length: 30
772 27843 GTTCCAATAAGACTAAAAATAGAATTGAAAG TTGCTGCATATCCAGTGTGGTTGGTCTTGAGGTATAT spacer
length: 37 repeater length: 30
773 27910 GTTCCAATAAGACTAAAAATAGAATTGAAAG AGACATTAGGAGACAGTATAGGCCAGAACTTGCCCAG spacer
length: 37 repeater length: 30
774 27977 GTTCCAATAAGACTAAAAATAGAATTGAAAG TTAGCAAATTGCCGATTACTGCACATAAAAAAATA spacer
length: 36 repeater length: 30
775 28043 GTTCCAATAAGACTAAAAATAGAATTGAAAG TTTTTTTGCCCGTTTTTTCTTTTCCCTCACCGCTTTT spacer

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length: 37 repeater length: 30
776 28110 GTTCCAATAAGACTAAAAATAGAATTGAAAG AGAATCTATAAGGGATTGAAAGGTCAAGGGTATACTAT spacer
length: 38 repeater length: 30
777 28178 GTTCCAATAAGACTAAAAATAGAATTGAAAG ACGAACCTCTTTGATCGTAAAAATTTCAATCATCTCT spacer
length: 37 repeater length: 30
778 28245 GTTCCAATAAGACTAAAAATAGAATTGAAAG CTCCTATGCGGTCATTAGACCCCCGCCGGGGGCCGGCAG spacer
length: 39 repeater length: 30
779 28314 GTTCCAATAAGACTAAAAATAGAATTGAAAG TGAGTTGTTTAGTCTAACTCTTACACCATCAGAAATAA spacer
length: 38 repeater length: 30
780 28382 GTTCCAATAAGACTAAAAATAGAATTGAAAG ACAAATTAGTCAGAACCCCCCGCAATGAAAAATTTTTG spacer
length: 38 repeater length: 30
781 28450 GTTCCAATAAGACTAAAAATAGAATTGAAAG GACAGCGTGGACACGGTGAACGGGCTCTGGAAGGA spacer
length: 35 repeater length: 30
782 28515 GTTCCAATAAGACTAAAAATAGAATTGAAAG TGCCTATTTCTCGGGTCAAGCCTCCCAGCCTGAACCT spacer
length: 37 repeater length: 30
783 28582 GTTCCAATAAGACTAAAAATAGAATTGAAAG AGCGGTCTGAGCCTGAGCCGTCGCTCCCTCAAGCGA spacer
length: 36 repeater length: 30
784 28648 GTTCCAATAAGACTAAAAATAGAATTGAAAG TTATTCCTGATAGAACCTTTGCCACTGTTGAATTCCAG spacer
length: 38 repeater length: 30
785 28716 GTTCCAATAAGACTAAAAATAGAATTGAAAG CTGTATTTCTTGCGGTAATACCCCCCAAATAGTTCCT spacer
length: 37 repeater length: 30
786 28783 GTTCCAATAAGACTAAAAATAGAATTGAAAG CATACTTGCGGATACGGATCCAGTCAAACTTGACT spacer
length: 36 repeater length: 30
787 28849 GTTCCAATAAGACTAAAAATAGAATTGAAAG AACACTTTCCTTAACTCTGGGTCGTCTATGTTTTTGA spacer
length: 37 repeater length: 30
788 28916 GTTCCAATAAGACTAAAAATAGAATTGAAAG CTGGAGCGTTGGGCACAAGCATGGGGATGATTGTGGAG spacer
length: 38 repeater length: 30
789 28984 GTTCCAATAAGACTAAAAATAGAATTGAAAG AGGGTTGGGTTCTCAATGGTGTATGGAGCGTTTCTTA spacer
length: 37 repeater length: 30
790 29051 GTTCCAATAAGACTAAAAATAGAATTGAAAG CTATTAAACGCAATCCGCTCAGCCAAACATCACCCCTC spacer
length: 38 repeater length: 30
791 29119 GTTCCAATAAGACTAAAAATAGAATTGAAAG TGATGGAGTAGATGAAATTCCTGGGGTGTCTTGGGAA spacer
length: 37 repeater length: 30
792 29186 GTTCCAATAAGACTAAAAATAGAATTGAAAG GGTCTCATCTCGTGCAGCCTTTCTTCCCTCAACCCAC spacer
length: 37 repeater length: 30
793 29253 GTTCCAATAAGACTAAAAATAGAATTGAAAG GGAGCTAGAATTGATGAAGGAGGTTGCTCAAGTAGTGC spacer
length: 38 repeater length: 30
794 29321 GTTCCAATAAGACTAAAAATAGAATTGAAAG CACAAAGTTCTTCCATTCTACTAGTCCAGCTCTCTGT spacer
length: 37 repeater length: 30
795 29388 GTTCCAATAAGACTAAAAATAGAATTGAAAG CTGTCTCCCTAAGAGCATACAATCCTCTGTACTCTAT spacer
length: 37 repeater length: 30
796 29455 GTTCCAATAAGACTAAAAATAGAATTGAAAG GGAGTAGAAATGCCCAAATTCCTTTAGGGACAAGATG spacer
length: 38 repeater length: 30
797 29523 GTTCCAATAAGACTAAAAATAGAATTGAAAG CACCACCACGATGAAGGTACCGTTCTCAACGTCTACTTCA spacer
length: 40 repeater length: 30
798 29593 GTTCCAATAAGACTAAAAATAGAATTGAAAG AATCAACCCCAAACCTTGCAAGGGTGCCTCAACTGG spacer
length: 37 repeater length: 30
799 29660 GTTCCAATAAGACTAAAAATAGAATTGAAAG CATGGGCATC
800
801
802 crispr 2
803 29728 GTTCCAATAAG-ACTAAAAATAGAATTGAAAG
ACTGGATTGAGAGCAACTTGTCGAATTATGTCGTCAAGCTCGTCATTGA spacer length: 49 repeater length:
31
804 29808 GTTCCAATAAG-ACTAAAAATAGAATTGAAAG GATAATGCTAGGTTATTATATAGGTATAAGGCAAGGTGTCCA
spacer length: 42 repeater length: 31
805 29881 GTTCCAATAAG-ACTAAAAATAGAATTGAAAG GTTTCCAAGCCATTCCAACCACCCACATGTGTTGTTTTCAT
spacer length: 42 repeater length: 31
806 29954 GTTCCAATAAG-ACTAAAAATAGAATTGAAAG TTTGTGATAGTGTTCTTTGCAACGAAGAGCTTGCTGGTCA
spacer length: 40 repeater length: 31
807 30025 GTTCCAATAAG-ACTAAAAATAGAATTGAAAG GAACATTGTCCCTCCTCCAAACAGTTTTTCATGTCT spacer
length: 37 repeater length: 31
808 30093 GTTCCAATAAG-ACTAAAAATAGAATTGAAAG TAGAGTGCGGCGATTATTTTGGTTCTCAGCGTTGCTC spacer
length: 37 repeater length: 31
809 30161 GTTCCAATAAG-ACTAAAAATAGAATTGAAAG TCAGCAGTTACGTCGTTCTTCCAGGTGAGAATACCAT spacer
length: 37 repeater length: 31
810 30229 GTTCCAATAAG-ACTAAAAATAGAATTGAAAG
AATAATCAGCAAAATCACGGGACATAGAAGGCTAGACTACATCCTACAC spacer length: 49 repeater length:
31
811 30309 GTTCCAATAAG-ACTAAAAATAGAATTGAAAG AGAGAATCTGGTAAGGAGACAGTAACTGATCATGCAAT spacer
length: 39 repeater length: 31

812 30379 GTTCCAATAAG-ACTAAAATAGAATTGAAAG GAGTTTCCAAGATGAGTGCCCCGAGCCGGGGGCTCGGGGCATG
 spacer length: 43 repeater length: 31
 813 30453 GTTCCAATAAG-ACTAAAATAGAATTGAAAG AGAGGCCCCCACATCTGATTTAATCTGAGATGGAACCTCCACAATT
 spacer length: 46 repeater length: 31
 814 30530 GTTCCAATAAG-ACTAAAATAGAATTGAAAG AGTCGTCGGA
 815
 816
 817 crispr 3
 818 260713 GTTCCAATAAGACTACAAAAGAATTGAAAG TGTTTCATCGCACTTCTTCTTCTGACTCTGCTCCACTTAG spacer
 length: 39 repeater length: 30
 819 260782 GTTCCAATAAGACTACAAAAGAATTGAAAG GCGTTAATGAACAATAAGCCTGACACGAACATAAACA spacer
 length: 37 repeater length: 30
 820 260849 GTTCCAATAAGACTACAAAAGAATTGAAAG TTTCAATAAGGAGTTTCAAATGGCTCGATGGAATTAT spacer
 length: 37 repeater length: 30
 821 260916 GTTCCAATAAGACTACAAAAGAATTGAAAG AGAACCTCCGCAATCTCCTTTGGAGAAAGGCCCTTCTTGAGA
 spacer length: 42 repeater length: 30
 822 260988 GTTCCAATAAGACTACAAAAGAATTGAAAG CTTCTTCGAAGTCGTAGTTTAGTGTGTCAAGATATTCT spacer
 length: 38 repeater length: 30
 823 261056 GTTCCAATAAGACTACAAAAGAATTGAAAG TTCTAGAAGTTCTTCTGCGAGAGCCAAGAGCGCGGCT spacer
 length: 37 repeater length: 30
 824 261123 GTTCCAATAAGACTACAAAAGAATTGAAAG GTGTACTTAAGAATTTCTTTTATAACTTTTCTGAAGA spacer
 length: 37 repeater length: 30
 825 261190 GTTCCAATAAGACTACAAAAGAATTGAAAG ACATAAGAGACGGAGAGCTTGTTATCTGGAAAGCAAAT spacer
 length: 38 repeater length: 30
 826 261258 GTTCCAATAAGACTACAAAAGAATTGAAAG AGTTATAACAAACCAGCATGACCCGCTCTCGGCTGAGTGGCAG
 spacer length: 43 repeater length: 30
 827 261331 GTTCCAATAAGACTACAAAAGAATTGAAAG CTACCATGGCCATCACCAATAATTAATTGTAAGTTAG spacer
 length: 37 repeater length: 30
 828 261398 GTTCCAATAAGACTACAAAAGAATTGAAAG ATTTGCTGACAAGCCATCGCAAATTTCTTCTGTTTT spacer
 length: 36 repeater length: 30
 829 261464 GTTCCAATAAGACTACAAAAGAATTGAAAG AACTCCACGACAGCATAAGGGACATTTACCATCGTAT spacer
 length: 37 repeater length: 30
 830 261531 GTTCCAATAAGACTACAAAAGAATTGAAAG TGGATAACGC
 831
 832
 833 crispr 4
 834 261678 GTTCCAATAAGACTACAAAAGAATTGAAAG TCCAACATGGTTAACTTCCATCCTCTTAAAGGAACT spacer
 length: 37 repeater length: 30
 835 261745 GTTCCAATAAGACTACAAAAGAATTGAAAG GTAAGGTATTCTTCATAGACACCGCTCTGCATAACGT spacer
 length: 37 repeater length: 30
 836 261812 GTTCCAATAAGACTACAAAAGAATTGAAAG TTGAGGCTGGAGAGGGCTTCTTTGTTACTACTTGCGT spacer
 length: 37 repeater length: 30
 837 261879 GTTCCAATAAGACTACAAAAGAATTGAAAG TTAACCTCGTTTAGTTTTATGTTTCATGTTCCACACTAA spacer
 length: 37 repeater length: 30
 838 261946 GTTCCAATAAGACTACAAAAGAATTGAAAG CTAATTTACGCTTTAGCTCGTGATCAACCCTAATCCCTA spacer
 length: 39 repeater length: 30
 839 262015 GTTCCAATAAGACTACAAAAGAATTGAAAG CTCTGCGACA
 840
 841
 842 crispr 5
 843 312404 GTTCCAATAAGACTACAAAAGAATTGAAAG GAATGTTGCTCAATGCAAAGGGCTCACCGCTGCTGGT spacer
 length: 37 repeater length: 30
 844 312471 GTTCCAATAAGACTACAAAAGAATTGAAAG TTGAGTTGAAGCGCCACTCTTTGAAGCCTATCAGA spacer
 length: 35 repeater length: 30
 845 312536 GTTCCAATAAGACTACAAAAGAATTGAAAG GCTTCAGGTCTTCAATATTCAATCCCGGTCCCTTTCA spacer
 length: 37 repeater length: 30
 846 312603 GTTCCAATAAGACTACAAAAGAATTGAAAG TCGGGTCCCTTGAGTTCCGAACGGGCTCCCGAGGCT spacer
 length: 37 repeater length: 30
 847 312670 GTTCCAATAAGACTACAAAAGAATTGAAAG TTGATTCCCTTATAGATGTTTCGTTTTCCACACAACTAA spacer
 length: 38 repeater length: 30
 848 312738 GTTCCAATAAGACTACAAAAGAATTGAAAG CTGTATATCCTTTTCGTTTGTCTTCCACACTTTCAACTCT spacer
 length: 39 repeater length: 30
 849 312807 GTTCCAATAAGACTACAAAAGAATTGAAAG TATGTTTCGTTCTCGTTCACTGTTATTCTCTTTTGTTC spacer
 length: 38 repeater length: 30
 850 312875 GTTCCAATAAGACTACAAAAGAATTGAAAG AAAAATAAAAAAGAAGAGGTGGTGGTGAAGAATGT spacer
 length: 37 repeater length: 30
 851 312942 GTTCCAATAAGACTACAAAAGAATTGAAAG CTTTTCTGCTCCTGCTTAACAAAAGAATTGTTGGCTT spacer
 length: 38 repeater length: 30
 852 313010 GTTCCAATAAGACTACAAAAGAATTGAAAG GGAACCACAGACCCAATCGCAGTAATTTGGGTTGAC spacer
 length: 36 repeater length: 30
 853 313076 GTTCCAATAAGACTACAAAAGAATTGAAAG TCATGTATTTTTCTTCTCCCAAATCCAGGGGCTCCCA spacer

length: 37 repeater length: 30
854 313143 GTTCCAATAAGACTACAAAAGAATTGAAAG TCTCAATTGGGGAGTTGCTTTAATGGCTTTTGGAGTG spacer
length: 37 repeater length: 30
855 313210 GTTCCAATAAGACTACAAAAGAATTGAAAG AAGATAATCGCTCAACAGTTTCAATGCTATACTTGTCAA spacer
length: 39 repeater length: 30
856 313279 GTTCCAATAAGACTACAAAAGAATTGAAAG TAATCTCAATAACTTTGGCTTCTTTTCTGTGTTTGTGTT spacer
length: 38 repeater length: 30
857 313347 GTTCCAATAAGACTACAAAAGAATTGAAAG
GATTTTCAGAGAACAACGGTGAATTTAAGAATTTCTTGACTTTTCAATT spacer length: 47 repeater length: 30
858 313424 GTTCCAATAAGACTACAAAAGAATTGAAAG TTGCTGATTACGAAGGCATATCCTTCAATTGTTGCTCGT spacer
length: 39 repeater length: 30
859 313493 GTTCCAATAAGACTACAAAAGAATTGAAAG ATAGACTTCCCTTGTGTACTTTAGTAGTTCTGCAAGTAA spacer
length: 39 repeater length: 30
860 313562 GTTCCAATAAGACTACAAAAGAATTGAAAG GAAGGATAGCAGGATCTAATGTAATTCTCGCGACATCTTTAA
spacer length: 43 repeater length: 30
861 313635 GTTCCAATAAGACTACAAAAGAATTGAAAG GATGAGGAGTGAAAGTTCTTGCAAAGCCCTTTCCAAAAG spacer
length: 39 repeater length: 30
862 313704 GTTCCAATAAGACTACAAAAGAATTGAAAG AGTATCGCTACTGTTTTTCATGCACCACTGCACCCAT spacer
length: 36 repeater length: 30
863 313770 GTTCCAATAAGACTACAAAAGAATTGAAAG AATCAATCCGAGAATCGAATTTTCTATACGCTTTT spacer
length: 36 repeater length: 30
864 313836 GTTCCAATAAGACTACAAAAGAATTGAAAG TTTGTTTTTGTCTCCTGTGTCTTGTGGTGATAAAAT spacer
length: 35 repeater length: 30
865 313901 GTTCCAATAAGACTACAAAAGAATTGAAAG GAACAGGCAT
866
867
868 crispr 6
869 623118 CTTTCAATTCTATTTTGGTCTTATTGTAAC AGGTGGTTAGACGGGTGGTTTGTGAGACTTAGGACT spacer
length: 38 repeater length: 30
870 623186 CTTTCAATTCTATTTTGGTCTTATTGTAAC GCAGTCCAGTACAAAGGCACAATTCTCGGTGGAATACT spacer
length: 38 repeater length: 30
871 623254 CTTTCAATTCTATTTTGGTCTTATTGTAAC CTCCTTACAATAAGCTCACCGTTGCTGATGTTGTGGC spacer
length: 38 repeater length: 30
872 623322 CTTTCAATTCTATTTTGGTCTTATTGTAAC TTGTAAGGAGACCAAGACCACAGGTTTATAGGGGACTCA spacer
length: 39 repeater length: 30
873 623391 CTTTCAATTCTATTTTGGTCTTATTGTAAC ATGGTGATTATGGCGACACTATTGAGTGGTTCGTT spacer
length: 35 repeater length: 30
874 623456 CTTTCAATTCTATTTTGGTCTTATTGTAAC AGCTGAGAAGGTGTGCGAGGGATGTGAAGGCTAGGT spacer
length: 35 repeater length: 30
875 623521 CTTTCAATTCTATTTTGGTCTTATTGTAAC GCGGGAGCAAGGTGTTGCAAACCTTGATAGAGTTCCA spacer
length: 37 repeater length: 30
876 623588 CTTTCAATTCTATTTTGGTCTTATTGTAAC TGGGCATTGATTTTCGACATTGCAAAAATTTTTCATTGC spacer
length: 38 repeater length: 30
877 623656 CTTTCAATTCTATTTTGGTCTTATTGTAAC TCGGAGTTACCGATTGCTGAAGTAAATGAGAGATTCAAGATA
spacer length: 42 repeater length: 30
878 623728 CTTTCAATTCTATTTTGGTCTTATTGTAAC GTTGTTAATGTATTTCGTTGAGGCAGGGAAGTATAAGG spacer
length: 37 repeater length: 30
879 623795 CTTTCAATTCTATTTTGGTCTTATTGTAAC GACTTTTGTATTACAAAATCAGCGTAGTTTACTATCAG spacer
length: 38 repeater length: 30
880 623863 CTTTCAATTCTATTTTGGTCTTATTGTAAC ACAAACACAGAAAAGAAGCCAAAGTTATTGAGATTA spacer
length: 36 repeater length: 30
881 623929 CTTTCAATTCTATTTTGGTCTTATTGTAAC TAGCTAATGTCCATGAGAGTGTGTGAAAAGCTAGTGAA spacer
length: 38 repeater length: 30
882 623997 CTTTCAATTCTATTTTGGTCTTATTGTAAC GCCAAGCTAGTTATTGATGTGTTGCATACCGTATACAC spacer
length: 38 repeater length: 30
883 624065 CTTTCAATTCTATTTTGGTCTTATTGTAAC GCCAAGCTAGTTATTGATGTGTTGCATACCGTATACAC spacer
length: 38 repeater length: 30
884 624133 CTTTCAATTCTATTTTGGTCTTATTGTAAC TATTCATGGCATGTGGCAATGTTTCTTGATAGGGCACT spacer
length: 38 repeater length: 30
885 624201 CTTTCAATTCTATTTTGGTCTTATTGTAAC CTTTCTTGCATCTTTTGTATATCCCTTAGACCCAAATCT
spacer length: 40 repeater length: 30
886 624271 CTTTCAATTCTATTTTGGTCTTATTGTAAC TTAATTCTTGGGAAAAACAGGGATTATATTATCCAC spacer
length: 36 repeater length: 30
887 624337 CTTTCAATTCTATTTTGGTCTTATTGTAAC AGGAACGGTCTCCAAGAGGACTTGGCGAATTACGTGAC spacer
length: 38 repeater length: 30
888 624405 CTTTCAATTCTATTTTGGTCTTATTGTAAC TATTTTGTCTACTTTGTATGACAATGTCTTATGTGG spacer
length: 37 repeater length: 30
889 624472 CTTTCAATTCTATTTTGGTCTTATTGTAAC ATATAATAGGTATGTAGATAAATCACCTCTGAGAAGG spacer
length: 38 repeater length: 30
890 624540 CTTTCAATTCTATTTTGGTCTTATTGTAAC CGAATTTCGATAGATTCGAGAAGCTTGTAAGGGTAGAGA spacer
length: 38 repeater length: 30

891 624608 CTTTCAATTCTATTTTGGTCTTATTGTAAC CTATTATATATACAGATGTCTTGCATTATGATGCTTA spacer
 length: 37 repeater length: 30
 892 624675 CTTTCAATTCTATTTTGGTCTTATTGTAAC CGCTATGATATGCTGACGGATGAGGAGTATGCTGAGA spacer
 length: 37 repeater length: 30
 893 624742 CTTTCAATTCTATTTTGGTCTTATTGTAAC TGAAAATAGTGGACGTCATCCCTCCAAGCCAAGTGCCT spacer
 length: 38 repeater length: 30
 894 624810 CTTTCAATTCTATTTTGGTCTTATTGTAAC TATGACTCTGACACAGGTACTAAAATCGAGGAGTTCC spacer
 length: 37 repeater length: 30
 895 624877 CTTTCAATTCTATTTTGGTCTTATTGTAAC CACAAGCACTAGTCTGCTAGCGTTTTTCAGGAGTGGT spacer
 length: 37 repeater length: 30
 896 624944 CTTTCAATTCTATTTTGGTCTTATTGTAAC ACGAGCATTAGGACTGTGTTATTGTTTTGATCTTTT spacer
 length: 36 repeater length: 30
 897 625010 CTTTCAATTCTATTTTGGTCTTATTGTAAC GTGAGCGCCCTCAAGTACTACGTGAACCATTCCCCTT spacer
 length: 37 repeater length: 30
 898 625077 CTTTCAATTCTATTTTGGTCTTATTGTAAC CTCAATGCAAAGGGCTCACCGCTGCTGGTGAGTATGGTC spacer
 length: 39 repeater length: 30
 899 625146 CTTTCAATTCTATTTTGGTCTTATTGTAAC CGGTCGCCTG
 900
 901
 902 crispr 7
 903 695936 GTTACAATAAGACTAAAAATAGAATTGAAAG AGTGAAGAATTTGACGTACAAATGTCCTTAGTGGAAC spacer
 length: 37 repeater length: 30
 904 696003 GTTACAATAAGACTAAAAATAGAATTGAAAG TGATGTAGATCTCTGTACCTTTCGGGACCTGTAGGTC spacer
 length: 37 repeater length: 30
 905 696070 GTTACAATAAGACTAAAAATAGAATTGAAAG CAGTTCTACTTTGATAAGACTGTGGTGGTTAATGGTAAA spacer
 length: 39 repeater length: 30
 906 696139 GTTACAATAAGACTAAAAATAGAATTGAAAG CTCTTATGGTGAAGCTTTCGACATTTTCTTTGGATGT spacer
 length: 37 repeater length: 30
 907 696206 GTTACAATAAGACTAAAAATAGAATTGAAAG CGTCTTCTCTGAGATTCTTGGCTCGTTCTAGAGCCAT spacer
 length: 37 repeater length: 30
 908 696273 GTTACAATAAGACTAAAAATAGAATTGAAAG GAGAGTATCAGGAGCTTCTGACCTCCTTATACAGCT spacer
 length: 37 repeater length: 30
 909 696340 GTTACAATAAGACTAAAAATAGAATTGAAAG GACAAAGAACTCCCTAGCGTCCCTCCCCGTGTA CTTGA spacer
 length: 38 repeater length: 30
 910 696408 GTTACAATAAGACTAAAAATAGAATTGAAAG CCACACTTCTATCTCAGCACCCCCAAACGTGAAACTG spacer
 length: 37 repeater length: 30
 911 696475 GTTACAATAAGACTAAAAATAGAATTGAAAG TTCTGCCGTCCTTTTCTCGACGAACCTCATACCGA spacer
 length: 36 repeater length: 30
 912 696541 GTTACAATAAGACTAAAAATAGAATTGAAAG TTGAGGAGATGCTTACTGCGGTAAAAAGGACATTGCAG spacer
 length: 39 repeater length: 30
 913 696610 GTTACAATAAGACTAAAAATAGAATTGAAAG GGTGCTTGAGCTCGCTAGTGCCCTCCTCCTGGGCTAT spacer
 length: 37 repeater length: 30
 914 696677 GTTACAATAAGACTAAAAATAGAATTGAAAG TAATGCTGTACAGGATTGACAAGGAGGCTTACGCTTCT spacer
 length: 38 repeater length: 30
 915 696745 GTTACAATAAGACTAAAAATAGAATTGAAAG TACTATAGGCGGAACCTCCCTGCAATGAAAAATTTTGT spacer
 length: 37 repeater length: 30
 916 696812 GTTACAATAAGACTAAAAATAGAATTGAAAG GCACCTTCTTACCATCGCCGTCTGGATTGCTGGTAG spacer
 length: 37 repeater length: 30
 917 696879 GTTACAATAAGACTAAAAATAGAATTGAAAG TGTTTTCGAATATTGTTACTTCTTGTGTATCTCTGAA spacer
 length: 37 repeater length: 30
 918 696946 GTTACAATAAGACTAAAAATAGAATTGAAAG ATTCACTGGGTCTTTCAGAAAGTTTCAATAATTCACCG spacer
 length: 37 repeater length: 30
 919 697013 GTTACAATAAGACTAAAAATAGAATTGAAAG CCTTCTTCTTTTTTAAATTTTTTAAATTTTCATTAA spacer
 length: 34 repeater length: 30
 920 697077 GTTACAATAAGACTAAAAATAGAATTGAAAG TGATCTAGGCGTCGGGTAATTCTGTAAGGTCTCTGGCTCAT
 spacer length: 41 repeater length: 30
 921 697148 GTTACAATAAGACTAAAAATAGAATTGAAAG ATGACTATCAGGATGATAATCGTTTTTTTTATGCTCGCTTACAA
 spacer length: 43 repeater length: 30
 922 697221 GTTACAATAAGACTAAAAATAGAATTGAAAG ACAGGCAATTAGAACTCTTTCAAAAACGCAGTTCAG spacer
 length: 37 repeater length: 30
 923 697288 GTTACAATAAGACTAAAAATAGAATTGAAAG TAGTGTAACAACATCATATGGAAAGTCTCCCACGTTG spacer
 length: 37 repeater length: 30
 924 697355 GTTACAATAAGACTAAAAATAGAATTGAAAG GGGTTTACTCCGAACGGTGTCTGCTAACTGATATAGT spacer
 length: 38 repeater length: 30
 925 697423 GTTACAATAAGACTAAAAATAGAATTGAAAG ACTTAGCCACCTCCGAGATGTTTTCGTAATAGTTAT spacer
 length: 36 repeater length: 30
 926 697489 GTTACAATAAGACTAAAAATAGAATTGAAAG TTGTAGGCTCGTGGACTTGGCTTCCACACAATAATT spacer
 length: 37 repeater length: 30
 927 697556 GTTACAATAAGACTAAAAATAGAATTGAAAG CTTCTTCTCTTACAAAGTCTTCAATGATAGTAAATAT spacer
 length: 37 repeater length: 30
 928 697623 GTTACAATAAGACTAAAAATAGAATTGAAAG TGGGGTCTCGTCGCAATCGGTGCAGTATTCCTAAGCCT spacer

length: 38 repeater length: 30
929 697691 GTTACAATAAGACTAAAAATAGAATTGAAAG GCAATTGGGCTTTTTGTAGCTGGAATCTTGGGTGAT spacer
length: 36 repeater length: 30
930 697757 GTTACAATAAGACTAAAAATAGAATTGAAAG AAAGATTCTGATTCGCCGAAAGGCTTTTTCCGACACC spacer
length: 36 repeater length: 30
931 697823 GTTACAATAAGACTAAAAATAGAATTGAAAG TCACCATTACCTCCTAATCCAATCATCTAACATTGAA spacer
length: 37 repeater length: 30
932 697890 GTTACAATAAGACTAAAAATAGAATTGAAAG TAACTCTAATGTTTCATCGACTAACATGTCAATTTTCAT spacer
length: 38 repeater length: 30
933 697958 GTTACAATAAGACTAAAAATAGAATTGAAAG TTGGATTTGCTACTCTCACGTATAGGGTCCCTACCTCT spacer
length: 38 repeater length: 30
934 698026 GTTACAATAAGACTAAAAATAGAATTGAAAG TGATATAGTCGTCTGCTCCTGATACCCAATATATG spacer
length: 35 repeater length: 30
935 698091 GTTACAATAAGACTAAAAATAGAATTGAAAG AGGAGGCTCTAGATGAGCTAATCAGCGCAGAAGGTGG spacer
length: 37 repeater length: 30
936 698158 GTTACAATAAGACTAAAAATAGAATTGAAAG ACCACCCCTGGGAAAGGCCTTATGGTACTACCTAA spacer
length: 35 repeater length: 30
937 698223 GTTACAATAAGACTAAAAATAGAATTGAAAG CTTAAAAATACTACCCTCAACAATCAATATTGCAA spacer
length: 35 repeater length: 30
938 698288 GTTACAATAAGACTAAAAATAGAATTGAAAG AACCTCCCTAAGCCTGTCCTTCCAAGTGAACCTTATA spacer
length: 36 repeater length: 30
939 698354 GTTACAATAAGACTAAAAATAGAATTGAAAG CTCTCTTACTTCTATAAGACTGAACTTCACACCTAA spacer
length: 37 repeater length: 30
940 698421 GTTACAATAAGACTAAAAATAGAATTGAAAG TAACGCTTATTTACCCCTGCTTAACACTCTTAACCCCA spacer
length: 38 repeater length: 30
941 698489 GTTACAATAAGACTAAAAATAGAATTGAAAG ACATCCCTACATAATAATACGCCACTTGTCCAAAAAC spacer
length: 37 repeater length: 30
942 698556 GTTACAATAAGACTAAAAATAGAATTGAAAG ATCTCCATCATAACCAATGCTGTGCAAAATCAATCTT spacer
length: 36 repeater length: 30
943 698622 GTTACAATAAGACTAAAAATAGAATTGAAAG TTGAAAAGGTTGGGTGATAGGGTTAAGGAGGAGTTAGTGA
spacer length: 40 repeater length: 30
944 698692 GTTACAATAAGACTAAAAATAGAATTGAAAG TAAACTTAAGCTGGGATGGGCTATATACAAAGACAGACA spacer
length: 39 repeater length: 30
945 698761 GTTACAATAAGACTAAAAATAGAATTGAAAG GAGATAGAGCTGGTTTTACGTTATGGCAAAATCTTAGA spacer
length: 38 repeater length: 30
946 698829 GTTACAATAAGACTAAAAATAGAATTGAAAG TGGTTCATACAATTCTGGAAGGTTGTAGAAACCAAC spacer
length: 36 repeater length: 30
947 698895 GTTACAATAAGACTAAAAATAGAATTGAAAG GATGCCCAAACCTGAATATACCCCGCACTAACTAAGT spacer
length: 37 repeater length: 30
948 698962 GTTACAATAAGACTAAAAATAGAATTGAAAG CGTCAAAGGA
949
950
951 crispr 8
952 1064075 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CGGAGGCTCTACCTAATCATCTCTTGACACAACCTC spacer
length: 36 repeater length: 30
953 1064141 CTTTCAATTCTTTTGTAGTCTTATTGGAAC AGTTGACTTCACTACTACTTCTTCATCTATAATTCTA spacer
length: 37 repeater length: 30
954 1064208 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GAAGAGAGGTTAGAATAACAGCTATTAGCGTTTCACA spacer
length: 37 repeater length: 30
955 1064275 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TTTGGAGATAGAGTTGCAGTAGAAATGATAAGGAA spacer
length: 35 repeater length: 30
956 1064340 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CACGGCCTACCTCGCTGAGATCCGGGTAGATGACAGC spacer
length: 37 repeater length: 30
957 1064407 CTTTCAATTCTTTTGTAGTCTTATTGGAAC AAGGCAAGGA
958
959
960 crispr 9
961 1064564 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CTTATAAGATTTTCCCATTTAAGCAGAGCTTAGATAA spacer
length: 37 repeater length: 30
962 1064631 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CTGACTTTAGAGACTTATACAATAACAACAACATATCTAAAGTCC
spacer length: 45 repeater length: 30
963 1064706 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GCTACAACCCTCCCCTCGTAGTAGTACTTCCCATCGT spacer
length: 37 repeater length: 30
964 1064773 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CCTTATATGGGTGTTGTGAAGCAGGATAGAACTCTTGA spacer
length: 38 repeater length: 30
965 1064841 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GTCCCCGTAGTCCCTTAGAACTTTGTAGCCCTTCTTC spacer
length: 37 repeater length: 30
966 1064908 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CTTCCAGCATTTCTCTGCCTTCACGTAAACTTCTGTACCCT
spacer length: 40 repeater length: 30
967 1064978 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GCCAATTAAGTTCCTCCAGACAGATGAAGCCAGCAAA spacer
length: 37 repeater length: 30

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968 1065045 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CGAGGAAGGCTCCCTCTAAACCAGCCAAGGAGGTTAA spacer
length: 37 repeater length: 30
969 1065112 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TGGCCACCCACTCCAATGCGCCTTTCACTTTTTGGCCAA
spacer length: 39 repeater length: 30
970 1065181 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TATCAAAAGGTTAAGGCTTCTGTAAAAGAACTTA spacer
length: 34 repeater length: 30
971 1065245 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TTGCACTCACGTGTAACAAGTACCTGTACAATAGATA spacer
length: 37 repeater length: 30
972 1065312 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CAATATTTTTTCAATGTCTGTCATTGTCCCACCTCCT spacer
length: 37 repeater length: 30
973 1065379 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TGTTTTCACTAATCGAAGACTTCGTAAGAGATAACGA spacer
length: 37 repeater length: 30
974 1065446 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CTGAAGTGCTCTCAGCCGCAAGGACCGCATACTACAA spacer
length: 37 repeater length: 30
975 1065513 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GCGATGTAAAA
976
977
978 crispr 10
979 1091156 CTTCAATTCTTTTGTAGTCTTATTGGAAC CTACGGTTAAAAACCCTGCAGATTCTCCCAGCATAGTCCCC
spacer length: 41 repeater length: 29
980 1091226 CTTCAATTCTTTTGTAGTCTTATTGGAAC CCAGTAGAGTTCACGACGAGTGGGTGCAGTATTCTCG spacer
length: 37 repeater length: 29
981 1091292 CTTCAATTCTTTTGTAGTCTTATTGGAAC TTAAGGTTGAGACGGAGAAGGCGTTTCTTGTATCTTTA spacer
length: 38 repeater length: 29
982 1091359 CTTCAATTCTTTTGTAGTCTTATTGGAAC CCCGAAGACGTTCTCAAAGATTTAAAAAGAGATTTGCG spacer
length: 38 repeater length: 29
983 1091426 CTTCAATTCTTTTGTAGTCTTATTGGAAC GTAACAAAGGTGGGCGTTTCTAGAGAGGTTGGGCAAG spacer
length: 37 repeater length: 29
984 1091492 CTTCAATTCTTTTGTAGTCTTATTGGAAC GGGCTACGAGGACGCCCTGAGGATTATGAAAGAGGTCCT spacer
length: 39 repeater length: 29
985 1091560 CTTCAATTCTTTTGTAGTCTTATTGGAAC CGGAAGCTCATAGAGTTCAATGGAAGGTTGAAGCTCAT spacer
length: 38 repeater length: 29
986 1091627 CTTCAATTCTTTTGTAGTCTTATTGGAAC GTTTGGGCGTATGGTGCCTTAGTGCACGAGTTCCACCGT spacer
length: 39 repeater length: 29
987 1091695 CTTCAATTCTTTTGTAGTCTTATTGGAAC TTTTCACGTAGTTTATCACGTCGTCTGCATTTCTTCCT spacer
length: 38 repeater length: 29
988 1091762 CTTCAATTCTTTTGTAGTCTTATTGGAAC TCAAAGACTGTGTGTGGAGCAGCTATTTGCTTCGGCAT spacer
length: 38 repeater length: 29
989 1091829 CTTCAATTCTTTTGTAGTCTTATTGGAAC CACCTGCTCC
990
991
992 GCA_000007345.1_ASM734v1_genomic.fna (PilerCR) :
993 START REPEAT
994 SPACER
995 crispr 1
996 2369217 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC CAATATGTGTTGAGTTGTCTGCGTCCCGTGGGTAC
spacer length: 36 repeater length: 37
997 2369290 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC CACACATGAATTATGAGATTGGGAAACAGAATTATT
spacer length: 36 repeater length: 37
998 2369363 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TATGCTGTAGCCACCAATAACGATGCTGCAAACAC
spacer length: 35 repeater length: 37
999 2369435 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TTGCAGGGGTAATCATGACTATACAATTAAGAAACA
spacer length: 36 repeater length: 37
1000 2369508 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TGAATGCTGTAATAGCTGTACTTTTAATTTCCATTA
spacer length: 36 repeater length: 37
1001 2369581 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC CGGTAACCATCACTTTTGAAATTTCTCTTAACATT
spacer length: 36 repeater length: 37
1002 2369654 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC
1003
1004 crispr 2
1005 2378683 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAAACCATTGCTTCTCTCCTTATTATGTGTATCAGG
spacer length: 36 repeater length: 37
1006 2378756 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAGATCTTATTTTGCTAAAGGAATGTACTATCAA
spacer length: 36 repeater length: 37
1007 2378829 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CCCGGCAACATATCCAGTTGTTGTAGATTTTTGAGT
spacer length: 36 repeater length: 37
1008 2378902 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CTCCTTCGGGGCCTGTTGCGTACGACTTGAAATCCTT
spacer length: 37 repeater length: 37
1009 2378976 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAATTGAGCAATATAAATAAAATTGATATGTTTT
spacer length: 35 repeater length: 37

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1010 2379048 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC
1011
1012
1013 crispr 3
1014 2379327 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCGGAAC TGGAAACCGTGTAATGGTAACCGATGACTA
spacer length: 38 repeater length: 37
1015 2379402 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCTCGATTTGATCACAGCATTCTTAAACGTGATAC
spacer length: 36 repeater length: 37
1016 2379475 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC
TAATCAAGCTCTTTTGTAGCCTGGTTCCCGGGTTCGAAT spacer length: 39 repeater length: 37
1017 2379551 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCTCTCAGGTTGGGATGATATCGCCGAAATACGGT
spacer length: 36 repeater length: 37
1018 2379624 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTACAACAGGGCTATGAAAAACACTTTGTACAGAAAGT
spacer length: 38 repeater length: 37
1019 2379699 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CTGAAGGCTTTCCCGGTAATCCCGAATTCAGCGT
spacer length: 34 repeater length: 37
1020 2379770 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATATAAGCGTCTTTTCTGTGTATGTGATCCACTTT
spacer length: 36 repeater length: 37
1021 2379843 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CCTTGTGGTAATTAGTACAATGTTACCAGTATCAG
spacer length: 36 repeater length: 37
1022 2379916 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTCTCCAAC TGTCTTTTGTAGCTGGTCTTCTGGAAC T
spacer length: 38 repeater length: 37
1023 2379991 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ACTCTAAAAGAAGAGCTTAATGAACTACGTATAGAA
spacer length: 36 repeater length: 37
1024 2380064 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TACCCAAC TGTCAAATTTCAAAGCCACTACGTGA
spacer length: 35 repeater length: 37
1025 2380136 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATATGCGTTCCTGGCTTCTATAACCTCATCAGTCAGG
spacer length: 37 repeater length: 37
1026 2380210 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TATCTGGTGTACAGGGGCTATAATTGATGTGAAAAAA
spacer length: 38 repeater length: 37
1027 2380285 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAGATTCCAGACGGCACCATTGAATGTGTCTGAAGT
spacer length: 36 repeater length: 37
1028 2380358 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAATGTTTTTGTATTTTATCACGGTCTCACCAGTAA
spacer length: 36 repeater length: 37
1029 2380431 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTTTTTGGAGGCTACAGGAATTACTACGGACACC
spacer length: 35 repeater length: 37
1030 2380503 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTATATTTTCGACGCAAATCACGAAATATGATAAG
spacer length: 34 repeater length: 37
1031 2380574 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAATTGCTGTAATGTTCCGCAATCCTCATTATTA
spacer length: 35 repeater length: 37
1032 2380646 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTTAGATTTTGAGAGGATGGTAAGGCACAAATCTGC
spacer length: 37 repeater length: 37
1033 2380720 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTTAGGATCCTGTAACAACTCTGCACGCTTCATA
spacer length: 35 repeater length: 37
1034 2380792 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAGATTGAATGGGTATTGAGAAATGAAC TTTCTTCCC
spacer length: 36 repeater length: 37
1035 2380865 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CTTACATGGTAGGGATATTAGCAGAGAATGATAA
spacer length: 34 repeater length: 37
1036 2380936 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC
TGATGGACATTAATATTTTGTAGCAGTTGTCAAGCCTCACCGA spacer length: 41 repeater length: 37
1037 2381014 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGTAATTGAGGGAAATCATGAATCCTGACCTCTACA
spacer length: 36 repeater length: 37
1038 2381087 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC
1039
1040
1041 crispr 4
1042 4523521 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CGTGCGTGGACTCGGAACCGTCTCCCATTTACATTTATT
spacer length: 39 repeater length: 30
1043 4523590 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CTAAC TTTAATGGGAACGTCTGCGGCTGCTGTTGCTGC spacer
length: 38 repeater length: 30
1044 4523658 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CGGTTGCAGGAGCTGTAGCGAATGGCTTCATGCAAACC spacer
length: 38 repeater length: 30
1045 4523726 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TGCATATACTTTACGCTATCATACCTTTCAAGCGG spacer
length: 36 repeater length: 30
1046 4523792 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ATCCTTTGAATCATGGTTAAAATCCTCAGATATGACC spacer
length: 37 repeater length: 30
1047 4523859 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CTATCAGGATGTCAATTGGTGTCTGATGATATCCA spacer
length: 36 repeater length: 30
1048 4523925 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AGAGTTTTGAGGTCCTTGAACCTGAAAAAGAATCG spacer
length: 36 repeater length: 30
1049 4523991 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ATTCAAAAACAGTTGCATGTTACACCGGTGCAGATGTG spacer

length: 38 repeater length: 30
1050 4524059 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TCGGCACAGTAGCCTCTAATGGTTCATACATAGT spacer
length: 34 repeater length: 30
1051 4524123 GTTTC AATCCCTCTAAGGTCTGATTTTAAC AGTTTTGTTTTGTTGCTATAAAAAATAATAGTGC spacer
length: 34 repeater length: 30
1052 4524187 GTTTC AATCCCTCTAAGGTCTGATTTTAAC AACGACATTCATCACAATGTAAGGAATGCTAGTGAT spacer
length: 36 repeater length: 30
1053 4524253 GTTTC AATCCCTCTAAGGTCTGATTTTAAC AGAATCAAGTACGGCTGATGTGTCTTTCCAAGATGT spacer
length: 36 repeater length: 30
1054 4524319 GTTTC AATCCCTCTAAGGTCTGATTTTAAC AAATGCACGAGCCGAGCCGTAATTATATTGACGAC spacer
length: 36 repeater length: 30
1055 4524385 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TATATTTTTTTGTTGACTCTCAAGAAATCAAGCTGT spacer
length: 36 repeater length: 30
1056 4524451 GTTTC AATCCCTCTAAGGTCTGATTTTAAC CTTATACCTATAAGCCTCCCCTAACCATAGAGGACGACGAG
spacer length: 41 repeater length: 30
1057 4524522 GTTTC AATCCCTCTAAGGTCTGATTTTAAC GCTCAGGAGATTTCAGCAGGGGTAGCTAACGTCATAAACTA
spacer length: 40 repeater length: 30
1058 4524592 GTTTC AATCCCTCTAAGGTCTGATTTTAAC AATCTTTCCATTTCGATGGTTTCTCATCTTTTTTTA spacer
length: 35 repeater length: 30
1059 4524657 GTTTC AATCCCTCTAAGGTCTGATTTTAAC GATTTCTTCAGGAGCAGGGACCTGGACAACACCGAC spacer
length: 36 repeater length: 30
1060 4524723 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TATCATAGGTTGAGTTCTCGGTATGAGATGGATGTTAGAA
spacer length: 40 repeater length: 30
1061 4524793 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TTTGTAAGTGAGCCTTCGATAGATGCCTCTAAGCAGTT spacer
length: 38 repeater length: 30
1062 4524861 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TTGAAGTCTAAGCTAACTCCTGAGATCCAGGAGAAAAT spacer
length: 38 repeater length: 30
1063 4524929 GTTTC AATCCCTCTAAGGTCTGATTTTAAC AGCCTTACATTCTTCGCATCGAGTTCATATTCAAG spacer
length: 35 repeater length: 30
1064 4524994 GTTTC AATCCCTCTAAGGTCTGATTTTAAC ACTTCAAGAATGCCAGGTAAACCGCATCTGAGACC spacer
length: 35 repeater length: 30
1065 4525059 GTTTC AATCCCTCTAAGGTCTGATTTTAAC CTGCTGAAACTTCATATTGTTTCATGTTCTCTCCTT spacer
length: 36 repeater length: 30
1066 4525125 GTTTC AATCCCTCTAAGGTCTGATTTTAAC ATAATCCAACGGGGCATAGTGTGAGGAGTATGA spacer
length: 34 repeater length: 30
1067 4525189 GTTTC AATCCCTCTAAGGTCTGATTTTAAC AAGTTGCAGAGGACTATCGAAACGAACTGAAGATATGC
spacer length: 39 repeater length: 30
1068 4525258 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TACATCTTCATATTCATATATATACACTTCAGATAT spacer
length: 36 repeater length: 30
1069 4525324 GTTTC AATCCCTCTAAGGTCTGATTTTAAC GTTGAATGCGAACGCCTGCGGGGATTTCCGGATAAC spacer
length: 36 repeater length: 30
1070 4525390 GTTTC AATCCCTCTAAGGTCTGATTTTAAC ATGCTATGCTCGGAGCCACTCCGAAAATGAGAGAG spacer
length: 35 repeater length: 30
1071 4525455 GTTTC AATCCCTCTAAGGTCTGATTTTAAC ATTCCACCGCGACAAATAATATATACGTGGATCTCA spacer
length: 36 repeater length: 30
1072 4525521 GTTTC AATCCCTCTAAGGTCTGATTTTAAC
1073
1074
1075 GCA_000008085.1_ASM808v1_genomic.fna (PilerCR):
1076 START REPEAT
SPACER
1077 crispr 1
1078 13718 CTTTCAATATTTCTAATATATTAGAAAC GTGTCCAATGAATTAGTGTCTATATTATTATTATAGATAA spacer
length: 40 repeater length: 28
1079 13786 CTTTCAATATTTCTAATATATTAGAAAC TTCTTTCGAATACGCTCCAAACACCGATTTCAATTCCTCT spacer
length: 40 repeater length: 28
1080 13854 CTTTCAATATTTCTAATATATTAGAAAC ATCAAAATGAGAACGGAATAAATACTGTTAAATTGAAAGT spacer
length: 40 repeater length: 28
1081 13922 CTTTCAATATTTCTAATATATTAGAAAC TAGCCAGCAGAATAGAACTGCAGTAAATGATGCCTTC spacer
length: 38 repeater length: 28
1082 13988 CTTTCAATATTTCTAATATATTAGAAAC AGATAAAGTTATTGAAATAGTAGATTATAATAGAAGATG spacer
length: 39 repeater length: 28
1083 14055 CTTTCAATATTTCTAATATATTAGAAAC CTTCTAAAAAAGTCTATTTTTTCATTAACCTCCGTCCGCACT spacer
length: 40 repeater length: 28
1084 14123 CTTTCAATATTTCTAATATATTAGAAAC ACTATCGTATACTTGATCGAATGTTGATTTGAATGTTTTT spacer
length: 40 repeater length: 28
1085 14191 CTTTCAATATTTCTAATATATTAGAAAC GATTCCATGA
1086
1087
1088 crispr 2
1089 14353 CTTTCAATATTTCTAATATATTAGAAAC TGTTGTGTGTTGTTGCCTATATAATATATGATGTTGTGCT spacer

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length: 40 repeater length: 28
1090 14421 CTTTCAATATTTCTAATATATTAGAAAC TTCTATATCATATTTTATATGCATATAGTCCCAGTTTGAGA spacer
length: 40 repeater length: 28
1091 14489 CTTTCAATATTTCTAATATATTAGAAAC GGAACATTTTGTTCCTTGAGCAAATAAATACATCGTC spacer
length: 40 repeater length: 28
1092 14557 CTTTCAATATTTCTAATATATTAGAAAC GAAGGCAGCC
1093
1094
1095 crispr 3
1096 488635 CTTTCAATATTTCTAATATATTAGAAAC ACTACAGTGTAATTTGGTCAGCAGGCGTCGGTTGGCTATAA spacer
length: 41 repeater length: 28
1097 488704 CTTTCAATATTTCTAATATATTAGAAAC TAGCGACAATATCTTCTCTCTCGTGTATCTCGGGAAT spacer
length: 38 repeater length: 28
1098 488770 CTTTCAATATTTCTAATATATTAGAAAC TATAGACCGCCATTGCGTATATGCTTAATTCCTTATCCGC spacer
length: 40 repeater length: 28
1099 488838 CTTTCAATATTTCTAATATATTAGAAAC GAGAAACAATTAAGCTATTATCAATAACATTCACAGCAAC spacer
length: 40 repeater length: 28
1100 488906 CTTTCAATATTTCTAATATATTAGAAAC TGGAGGACAACGAAAGGTTTTTAAAGGAACAGGGCGAGAATGTGGA
spacer length: 46 repeater length: 28
1101 488980 CTTTCAATATTTCTAATATATTAGAAAC GTGGTTGGGAGGGAGCCGAAGGGTCCGAAGGGTTCGAAT spacer
length: 39 repeater length: 28
1102 489047 CTTTCAATATTTCTAATATATTAGAAAC ATGTTGTGTTCTATTGCCACGGATGTATCTGCTATTATGT spacer
length: 40 repeater length: 28
1103 489115 CTTTCAATATTTCTAATATATTAGAAAC TTGATAAATTCTTTGAAGTTATATGTAATTATCACTCTAT spacer
length: 40 repeater length: 28
1104 489183 CTTTCAATATTTCTAATATATTAGAAAC CCCTTTTTTC
1105
1106
1107 crispr 4
1108 489345 CTTTCAATATTTCTAATATATTAGAAAC CACATTTATGTATATTATATAATACTTTAAAAGTCTAACAG spacer
length: 41 repeater length: 28
1109 489414 CTTTCAATATTTCTAATATATTAGAAAC GATCACATACAGGAATTGCTGAAGAAATTGTTACAGGAAAAG
spacer length: 42 repeater length: 28
1110 489484 CTTTCAATATTTCTAATATATTAGAAAC ATGATAAGATGTTTGCTCAAAAAGCCAAATGCTTTTACACA spacer
length: 41 repeater length: 28
1111 489553 CTTTCAATATTTCTAATATATTAGAAAC CATCATATTTAAAGAGTTTGAGAACACGATACATTT spacer
length: 36 repeater length: 28
1112 489617 CTTTCAATATTTCTAATATATTAGAAAC GTGGGTCAATTTAAAGGATATTTACAAATGTAGAGTTAGAAA
spacer length: 43 repeater length: 28
1113 489688 CTTTCAATATTTCTAATATATTAGAAAC ATCCTATCAATTCTGGAATCTGATGCTGGATCAAATATAA spacer
length: 40 repeater length: 28
1114 489756 CTTTCAATATTTCTAATATATTAGAAAC TTCAGGACAAGAACAATGTAAATAACTCAATTTAACATA spacer
length: 40 repeater length: 28
1115 489824 CTTTCAATATTTCTAATATATTAGAAAC TCATTCTTAGATAAACAAGATATAGTATTTAGAAAGATG spacer
length: 39 repeater length: 28
1116 489891 CTTTCAATATTTCTAATATATTAGAAAC ATGGCGGAACATTACAATTGAAGATAGATAATAAGAGTAA spacer
length: 40 repeater length: 28
1117 489959 CTTTCAATATTTCTAATATATTAGAAAC ATCATTTCTTGTGTCTCTGAAGCCAAAGAATCTGTAGAG spacer
length: 40 repeater length: 28
1118 490027 CTTTCAATATTTCTAATATATTAGAAAC CAGTCTTAACATAATGCATGTTATTTGCCTAACTGATAA spacer
length: 40 repeater length: 28
1119 490095 CTTTCAATATTTCTAATATATTAGAAAC ATTGCAGTTTATACTGAAGATCCTTCTTAATTCTAGTTA spacer
length: 39 repeater length: 28
1120 490162 CTTTCAATATTTCTAATATATTAGAAAC ACAGCTAAACATTTATAAATAATTATATTATTATTATCCATA
spacer length: 42 repeater length: 28
1121 490232 CTTTCAATATTTCTAATATATTAGAAAC TTACATTATCCCTAATTACTATTCTTACTATCGAATTGTA spacer
length: 40 repeater length: 28
1122 490300 CTTTCAATATTTCTAATATATTAGAAAC TGTTACAAATGTGTATACTACCAATATCAATGCAAATCAA spacer
length: 40 repeater length: 28
1123 490368 CTTTCAATATTTCTAATATATTAGAAAC TGTTAATGATTATATGCTGAGTTGTTAATAATGTTGTCCT spacer
length: 40 repeater length: 28
1124 490436 CTTTCAATATTTCTAATATATTAGAAAC TTAATCCCGTTCAAAGTAGCACTTGAATCCAATAGTGAACCTTTT
spacer length: 45 repeater length: 28
1125 490509 CTTTCAATATTTCTAATATATTAGAAAC GATGGTCCCG
1126
1127
1128 GCA_000008265.1_ASM826v1_genomic.fna (PilerCR) :
1129 START REPEAT
SPACER
1130 crispr 1
1131 13 ACTTTCAATCCTATTTAGGTTATTATTAAAC CTGGATTTCTTGCCCATATTTGCCGAGATACTAT spacer

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length: 35 repeater length: 31
1132 79 ACTTTCAATCCTATTTAGGTTATTATTTAAAC ATATATCGGATTTCAAACCCTTATAGATAGACTAG spacer
length: 35 repeater length: 31
1133 145 ACTTTCAATCCTATTTAGGTTATTATTTAAAC GCCAGAGGCATTTCTCCGTGCGTGGTCCTTTAATG spacer
length: 35 repeater length: 31
1134 211 ACTTTCAATCCTATTTAGGTTATTATTTAAAC ACAACAGGCAAAAACAGAATTAAGACTGGCCATTGA spacer
length: 36 repeater length: 31
1135 278 ACTTTCAATCCTATTTAGGTTATTATTTAAAC AAGATAATACT
1136
1137
1138 crispr 2
1139 51348 CTTCCATACTATCTAGTAATTCTTAAAC AAAAAAGTGAAAATATCCGGGATATACAAATTATATTC spacer
length: 38 repeater length: 28
1140 51414 CTTCCATACTATCTAGTAATTCTTAAAC GAGTAAACTACAGTAGCAGGCAAAATAAATTTTTGAGGAACAG
spacer length: 43 repeater length: 28
1141 51485 CTTCCATACTATCTAGTAATTCTTAAAC TCTTAAAAATAGACGTCGTTTCTGACCCTTTCTTTAAG spacer
length: 38 repeater length: 28
1142 51551 CTTCCATACTATCTAGTAATTCTTAAAC TTGACGTTGTTGCGTGGGATGATGAGTGATATCCTCCT spacer
length: 38 repeater length: 28
1143 51617 CTTCCATACTATCTAGTAATTCTTAAAC AGAGAAGACAGCCTCAAAAAAGCCAAAGAAATACCTCAAAAAGAA
spacer length: 45 repeater length: 28
1144 51690 CTTCCATACTATCTAGTAATTCTTAAAC ACTAAAAATTGGAATATCGAAAAGATTAGCTCCATCTTAA spacer
length: 40 repeater length: 28
1145 51758 CTTCCATACTATCTAGTAATTCTTAAAC GATGATCTGCGTCATCCACTCCGGGAAGTGCATGTGGAAAAG spacer
length: 42 repeater length: 28
1146 51828 CTTCCATACTATCTAGTAATTCTTAAAC TTAAAGCCTGGTTCTAGGACTACAAAGGATTGCTTAGCGCTCCC
spacer length: 44 repeater length: 28
1147 51900 CTTCCATACTATCTAGTAATTCTTAAAC CATAAATCTATTCTATTATTATATTGAGGTGGTAAAATG spacer
length: 39 repeater length: 28
1148 51967 CTTCCATACTATCTAGTAATTCTTAAAC CAATAATGAATTATGGAATAGAAAAATAGCTAAAAT spacer
length: 37 repeater length: 28
1149 52032 CTTCCATACTATCTAGTAATTCTTAAAC TAAAAGCTATTGATCTGCTGGCTAACAACGATATATATCGAGTAGAA
spacer length: 47 repeater length: 28
1150 52107 CTTCCATACTATCTAGTAATTCTTAAAC CTTGGAAAAAATTTATGAATTATATATTTCTACATCA spacer
length: 38 repeater length: 28
1151 52173 CTTCCATACTATCTAGTAATTCTTAAAC TATAATATTGGTGATAAAAAATGGATAAGGATATGTATGTA spacer
length: 40 repeater length: 28
1152 52241 CTTCCATACTATCTAGTAATTCTTAAAC CCGGGCAGTGCTATAGTGAAGTTAGTACACAGAGGAAAGACA spacer
length: 42 repeater length: 28
1153 52311 CTTCCATACTATCTAGTAATTCTTAAAC ATCATCCAAT
1154
1155
1156 crispr 3
1157 61414 CTTCCATACTATCTAGTAATTCTTAAAC TGAGCTTGATAGGGTTCTAAAGGATTTTAGAATAAAGCTTCTT
spacer length: 43 repeater length: 28
1158 61485 CTTCCATACTATCTAGTAATTCTTAAAC CTGATATTCGCCATAATAGTTCTCGTTGCCGCCGTTATCTTTATC
spacer length: 45 repeater length: 28
1159 61558 CTTCCATACTATCTAGTAATTCTTAAAC CCACATGCAAATCTATGTTGCCGTCAAAAATTACATTGAGAGCAAAAA
spacer length: 48 repeater length: 28
1160 61634 CTTCCATACTATCTAGTAATTCTTAAAC ATCAAATCAGGGCACAAACACCTGATGGACGGTGTCCAC spacer
length: 39 repeater length: 28
1161 61701 CTTCCATACTATCTAGTAATTCTTAAAC CTTTAAAGAGCCTGGTCAATTCTCCTATTTCCGGTGATT spacer
length: 38 repeater length: 28
1162 61767 CTTCCATACTATCTAGTAATTCTTAAAC TGACAATAAAGGAGGTTGATTAAAATGATATATAAAAATTG spacer
length: 41 repeater length: 28
1163 61836 CTTCCATACTATCTAGTAATTCTTAAAC GCTTCTACAG
1164
1165
1166 crispr 4
1167 61982 CTTCCATACTATCTAGTAATTCTTAAAC ACATTATGTAAAAATGTCTGAGACAGATCAGAGAAGATCAT spacer
length: 41 repeater length: 28
1168 62051 CTTCCATACTATCTAGTAATTCTTAAAC AGGGCGAGGTTGTATTAAGAGGTACGCTTTACACGGAGTTA spacer
length: 41 repeater length: 28
1169 62120 CTTCCATACTATCTAGTAATTCTTAAAC CATCAAACAGTTTGAAACGAAAATAAGATAATGTATGA spacer
length: 39 repeater length: 28
1170 62187 CTTCCATACTATCTAGTAATTCTTAAAC ATAAAGTCTCGAATATTGAGGTCAAGCCTAATGCTTCCACG spacer
length: 41 repeater length: 28
1171 62256 CTTCCATACTATCTAGTAATTCTTAAAC CGTAGAATCAAAGAAGACGGCAATGGCGGTTATGTAG spacer
length: 38 repeater length: 28
1172 62322 CTTCCATACTATCTAGTAATTCTTAAAC TAGGCGACATCGTAATAGACATAACGGGAATAACGATGG spacer
length: 39 repeater length: 28

1173 62389 CTTCCATACTATCTAGTAATTCTTAAAC AATGATCGGGGCGAGCTGTACAGAGCGTATAATGAATGG spacer
length: 39 repeater length: 28
1174 62456 CTTCCATACTATCTAGTAATTCTTAAAC TTAGATAAAATATAAAATATCCATGTCCCGTGTGTGGTAGCCTAAAA
spacer length: 45 repeater length: 28
1175 62529 CTTCCATACTATCTAGTAATTCTTAAAC ACATTGACGA
1176
1177
1178 crispr 5
1179 1540317 CTTTCAATCCTATTTAGGTTATTATTTAAAC TCCGCCGAATTTCAAACACTTATAGATGGACTAGA spacer
length: 35 repeater length: 30
1180 1540382 CTTTCAATCCTATTTAGGTTATTATTTAAAC TATCTCTCTTTTCATTCCCTTATCGATTTATCGATCC spacer
length: 36 repeater length: 30
1181 1540448 CTTTCAATCCTATTTAGGTTATTATTTAAAC CACGGTGGTGATGCAACGATAAGATCAACATTATCA spacer
length: 36 repeater length: 30
1182 1540514 CTTTCAATCCTATTTAGGTTATTATTTAAAC TCCATCTAAAGACATTCTCTCTAAATATATCAAAGCC spacer
length: 37 repeater length: 30
1183 1540581 CTTTCAATCCTATTTAGGTTATTATTTAAAC TTTTTCCGCATAGAAAAGCCATTCTTTTCTCTGTA spacer
length: 35 repeater length: 30
1184 1540646 CTTTCAATCCTATTTAGGTTATTATTTAAAC CAGATGCGACAAAAATTTAACATCACTCGTGCTTTATCT
spacer length: 39 repeater length: 30
1185 1540715 CTTTCAATCCTATTTAGGTTATTATTTAAAC AATTTTAAACTTTTTGATACACATGTTTTTGATAAAATA spacer
length: 38 repeater length: 30
1186 1540783 CTTTCAATCCTATTTAGGTTATTATTTAAAC TGAATTTGTTATATTTGTGTTTATAAAGTTATTTCCAAT
spacer length: 39 repeater length: 30
1187 1540852 CTTTCAATCCTATTTAGGTTATTATTTAAAC TTATTTTCAAGTAAGCTATAAAGAAGGCTTTGATTT spacer
length: 36 repeater length: 30
1188 1540918 CTTTCAATCCTATTTAGGTTATTATTTAAAC TAAGACTATTACCATATTAAAGAAAAAGCCAAAAAAT spacer
length: 37 repeater length: 30
1189 1540985 CTTTCAATCCTATTTAGGTTATTATTTAAAC AAGTTCAGATAACGAGCTCTCTGCAAATGGGTATT spacer
length: 35 repeater length: 30
1190 1541050 CTTTCAATCCTATTTAGGTTATTATTTAAAC GAAAAAATAAAAAATGACTGACCTTTTCCTGACTGAA spacer
length: 37 repeater length: 30
1191 1541117 CTTTCAATCCTATTTAGGTTATTATTTAAAC CCTATTCTTTGCACATTGATAATGTACCAGGATACAT spacer
length: 37 repeater length: 30
1192 1541184 CTTTCAATCCTATTTAGGTTATTATTTAAAC CAGAACAAGGCCATGTCTACTGTGGCACAGTCATTTAGA
spacer length: 39 repeater length: 30
1193 1541253 CTTTCAATCCTATTTAGGTTATTATTTAAAC AAAGGGATAGAGCTGGCAAGGTTTGATAAAGGGACTAC spacer
length: 38 repeater length: 30
1194 1541321 CTTTCAATCCTATTTAGGTTATTATTTAAAC TATTAAATACTATAAGTGATTACGAATTTTAATCAAAA spacer
length: 38 repeater length: 30
1195 1541389 CTTTCAATCCTATTTAGGTTATTATTTAAAC TTCTCTTTCCGACGCTCTGGAACATTCTGCTCAACT spacer
length: 36 repeater length: 30
1196 1541455 CTTTCAATCCTATTTAGGTTATTATTTAAAC TCAAAGGTATAATCGGGACTTAATAACAAAAGCATTGCTA
spacer length: 40 repeater length: 30
1197 1541525 CTTTCAATCCTATTTAGGTTATTATTTAAAC ACCTATCCGTATAATTCATGTCCTTATTCTATATCTTTA
spacer length: 39 repeater length: 30
1198 1541594 CTTTCAATCCTATTTAGGTTATTATTTAAAC TATAAAGACCTTCAAAGACGCTTCAATTCTCTAAA spacer
length: 35 repeater length: 30
1199 1541659 CTTTCAATCCTATTTAGGTTATTATTTAAAC AATACCTCATCGGGAATGCGTCGTACACCTGGTTCGAA spacer
length: 38 repeater length: 30
1200 1541727 CTTTCAATCCTATTTAGGTTATTATTTAAAC TGAAAACCCCGTTAGATGCATCGCATGAATAGGCGTC spacer
length: 37 repeater length: 30
1201 1541794 CTTTCAATCCTATTTAGGTTATTATTTAAAC CAGGAGTATAGAGGGGTTGCTATGAATAAAATCTTTAATAAAAG
spacer length: 44 repeater length: 30
1202 1541868 CTTTCAATCCTATTTAGGTTATTATTTAAAC TATAGGCATGGCTTTATCTTTGACAACGATTATTATCA spacer
length: 38 repeater length: 30
1203 1541936 CTTTCAATCCTATTTAGGTTATTATTTAAAC GGCCACCTCTCAAACCTGATCTCTCATATCTATCAAAT spacer
length: 38 repeater length: 30
1204 1542004 CTTTCAATCCTATTTAGGTTATTATTTAAAC TCTATATCCTCAAAACCTATTATTCTAATTACATTAC spacer
length: 38 repeater length: 30
1205 1542072 CTTTCAATCCTATTTAGGTTATTATTTAAAC CATGAAATTAGCCGATTATCAAAATCTCAAAGGCTCTTT
spacer length: 39 repeater length: 30
1206 1542141 CTTTCAATCCTATTTAGGTTATTATTTAAAC TAATACATCAAATTCAAAGGTTCTATTGCAATATGGC spacer
length: 37 repeater length: 30
1207 1542208 CTTTCAATCCTATTTAGGTTATTATTTAAAC TTGAAAAGTATGCAATCCAGCCTGTTATGGCCCTGAGTT
spacer length: 39 repeater length: 30
1208 1542277 CTTTCAATCCTATTTAGGTTATTATTTAAAC TCGAAAAATACTAAAAAAGGCAAGGGAGATTGAGGAT spacer
length: 37 repeater length: 30
1209 1542344 CTTTCAATCCTATTTAGGTTATTATTTAAAC CAGGTTTTTTCACGGAGGTAAACAAAGGCGAGAGGACTG spacer
length: 38 repeater length: 30
1210 1542412 CTTTCAATCCTATTTAGGTTATTATTTAAAC AAAATTTATTTGATAGCTACCTCCATGAAGCTGAATA spacer

length: 37 repeater length: 30

1211 1542479 CTTTCAATCCTATTTAGGTTATTATTTAAC TATAGGTATTGAAATTTTTTAAAAC TGGATTGCATTAA spacer
length: 37 repeater length: 30

1212 1542546 CTTTCAATCCTATTTAGGTTATTATTTAAC ATGAATTTAATAACTGAAATAGCCATAACTGTATTCTC spacer
length: 38 repeater length: 30

1213 1542614 CTTTCAATCCTATTTAGGTTATTATTTAAC CCTGTCTCCTGCCTGCCATACTGTTCTATGAACTT spacer
length: 36 repeater length: 30

1214 1542680 CTTTCAATCCTATTTAGGTTATTATTTAAC TTCAATGTCTGACGCATTGTATCTGTTTTCTAATAGCT spacer
length: 38 repeater length: 30

1215 1542748 CTTTCAATCCTATTTAGGTTATTATTTAAC TGCGGAAATCCATTTTTTTGAAATTCAGAGTATCGAT spacer
length: 38 repeater length: 30

1216 1542816 CTTTCAATCCTATTTAGGTTATTATTTAAC GAATACAGATTTAGACCAGCGTCATCAAGAATTAG spacer
length: 35 repeater length: 30

1217 1542881 CTTTCAATCCTATTTAGGTTATTATTTAAC TCATTCTCTCATTCTCAAATCTCAAAGTCATAGTCGA spacer
length: 38 repeater length: 30

1218 1542949 CTTTCAATCCTATTTAGGTTATTATTTAAC TTGAAATCAAAGGATATGGAGTTAGGCTTATCGTTAT spacer
length: 37 repeater length: 30

1219 1543016 CTTTCAATCCTATTTAGGTTATTATTTAAC TTCATCTTTGCATGACGCTTTGGAAAATTCGGCTCAATT
spacer length: 39 repeater length: 30

1220 1543085 CTTTCAATCCTATTTAGGTTATTATTTAAC TGGATCAAAGCTTGCCTTCAACGTAATATCTTTGTT spacer
length: 36 repeater length: 30

1221 1543151 CTTTCAATCCTATTTAGGTTATTATTTAAC CCGATCCTGAATTTCTCTCAAACAGATATTATTCGAT spacer
length: 38 repeater length: 30

1222 1543219 CTTTCAATCCTATTTAGGTTATTATTTAAC ATATATGATCAATATGATTGTATTCGGAAAATTTAA spacer
length: 36 repeater length: 30

1223 1543285 CTTTCAATCCTATTTAGGTTATTATTTAAC AAAGCTATTGACCTCGTACATCATCTCTCCGCCTGA spacer
length: 36 repeater length: 30

1224 1543351 CTTTCAATCCTATTTAGGTTATTATTTAAC AAGGAAATAACGGATAACGGCGATAAAATATTAAAAATT
spacer length: 39 repeater length: 30

1225 1543420 CTTTCAATCCTATTTAGGTTATTATTTAAC GAATATAGAAATGAAAAAAACTGTATGCAAGTAAA spacer
length: 36 repeater length: 30

1226 1543486 CTTTCAATCCTATTTAGGTTATTATTTAAC AAAATCCTATGCCTCTTTGAGAATTATGCAGGACATT spacer
length: 37 repeater length: 30

1227 1543553 CTTTCAATCCTATTTAGGTTATTATTTAAC TGATAGAATACATCTCTATGAGTTCATATAACTCATTCA
spacer length: 39 repeater length: 30

1228 1543622 CTTTCAATCCTATTTAGGTTATTATTTAAC CCGCCTTTGTTTTTCATCGTTAACACCAGTTGTATCGAA spacer
length: 38 repeater length: 30

1229 1543690 CTTTCAATCCTATTTAGGTTATTATTTAAC TGATAGAATACATCTCTATGAGTTCATATAACTCATTCA
spacer length: 39 repeater length: 30

1230 1543759 CTTTCAATCCTATTTAGGTTATTATTTAAC CCGCCTTTGTTTTTCATCGTTAACACCAGTTGTATCGAA spacer
length: 38 repeater length: 30

1231 1543827 CTTTCAATCCTATTTAGGTTATTATTTAAC CTCTTCCTGCATTTATATCACCTCGTTGGCAATCGA spacer
length: 36 repeater length: 30

1232 1543893 CTTTCAATCCTATTTAGGTTATTATTTAAC TATCGATAGTTTTTTTGATTAAAATCGGCAATCACTTA spacer
length: 37 repeater length: 30

1233 1543960 CTTTCAATCCTATTTAGGTTATTATTTAAC TGAATTCTGAATTTTTGAGCCTGATTTTGTTTTTTG spacer
length: 36 repeater length: 30

1234 1544026 CTTTCAATCCTATTTAGGTTATTATTTAAC AAAATTGCTATCGATGATCCAATGCTCAATTTTCTA spacer
length: 36 repeater length: 30

1235 1544092 CTTTCAATCCTATTTAGGTTATTATTTAAC CATGAAAAGAAAAACAAATTTGCGAATTCATCAAAAT spacer
length: 37 repeater length: 30

1236 1544159 CTTTCAATCCTATTTAGGTTATTATTTAAC TAATCTTATGAATAATGCATTCTATGGTTATTCTCAA spacer
length: 38 repeater length: 30

1237 1544227 CTTTCAATCCTATTTAGGTTATTATTTAAC CATTGTCCCAACTATCCTTATAAATTCCGGAGCCGCATA
spacer length: 39 repeater length: 30

1238 1544296 CTTTCAATCCTATTTAGGTTATTATTTAAC TATTGAATTTGATCATTCTAATCAAACAGTCTTATCAA spacer
length: 38 repeater length: 30

1239 1544364 CTTTCAATCCTATTTAGGTTATTATTTAAC AAATCCAAACAAAGCATACCATGAATATCCATTAT spacer
length: 35 repeater length: 30

1240 1544429 CTTTCAATCCTATTTAGGTTATTATTTAAC TTAAAAATTGCTGGTTATATTAAAAAAAAGAAATAACT spacer
length: 38 repeater length: 30

1241 1544497 CTTTCAATCCTATTTAGGTTATTATTTAAC CAGATTCCTGCGGACAGTAGGAAAATGGATCATTTTGAAT
spacer length: 41 repeater length: 30

1242 1544568 CTTTCAATCCTATTTAGGTTATTATTTAAC CGATCTGATGATATAGTGTGGCATTGGAATTTTTGATA spacer
length: 38 repeater length: 30

1243 1544636 CTTTCAATCCTATTTAGGTTATTATTTAAC TTATATATCGAATTCAACTAATCATTTTTATGAAAA spacer
length: 36 repeater length: 30

1244 1544702 CTTTCAATCCTATTTAGGTTATTATTTAAC TGATCCAATTTTATAATCCTGCCTGCCAACAAATTT spacer
length: 36 repeater length: 30

1245 1544768 CTTTCAATCCTATTTAGGTTATTATTTAAC CATATTCCTTTGAATTGCAAAATCGCTGGTTTTCCA spacer
length: 36 repeater length: 30

1246 1544834 CTTTCAATCCTATTTAGGTTATTATTTAAC CAATCGTATTATCTTTATCTAAATTCGTGAGTAATC spacer
length: 36 repeater length: 30

1247 1544900 CTTTCAATCCTATTTAGGTTATTATTTAAC TATCAAAAAATTATTTGAAAATTTATCATTTGAAAA spacer
length: 36 repeater length: 30

1248 1544966 CTTTCAATCCTATTTAGGTTATTATTTAAC ATGGCCTATTTTCAGGTGCCAGGGCGAGGAATATAAGA spacer
length: 37 repeater length: 30

1249 1545033 CTTTCAATCCTATTTAGGTTATTATTTAAC TCATATGAACTGGCAGACGGCACAGCACCATCAAAAAT spacer
length: 38 repeater length: 30

1250 1545101 CTTTCAATCCTATTTAGGTTATTATTTAAC AGACTTTTTTTAATTCAAAATTAAATTTTACATATGT spacer
length: 36 repeater length: 30

1251 1545167 CTTTCAATCCTATTTAGGTTATTATTTAAC TGGGCGGCTGGGTTCATCATTTCCAAAGGAATGGGACAT
spacer length: 40 repeater length: 30

1252 1545237 CTTTCAATCCTATTTAGGTTATTATTTAAC AAACGGCGTTGTTAGACTGTCTCTATTTCTGATTAT spacer
length: 37 repeater length: 30

1253 1545304 CTTTCAATCCTATTTAGGTTATTATTTAAC TGCAACCCTGTTAAATGGGATTGTTACTCCCAATATTT spacer
length: 38 repeater length: 30

1254 1545372 CTTTCAATCCTATTTAGGTTATTATTTAAC ATGAAAAGAAAAACAAATTTGCGAATTCCATCAAAT spacer
length: 36 repeater length: 30

1255 1545438 CTTTCAATCCTATTTAGGTTATTATTTAAC GAGAATACAGATTTAGACCAGCGTCATCAAGAATTAG spacer
length: 37 repeater length: 30

1256 1545505 CTTTCAATCCTATTTAGGTTATTATTTAAC AGCCGACTTTATTTTTTCAATATTCCAGTTTTTGTAG spacer
length: 37 repeater length: 30

1257 1545572 CTTTCAATCCTATTTAGGTTATTATTTAAC TAAAAAGACTGAAAATGATAATTTTCAATTTTCATTGAG
spacer length: 39 repeater length: 30

1258 1545641 CTTTCAATCCTATTTAGGTTATTATTTAAC TAAAATAAAGCTAATTGAATGACAAAAACGATAATGG spacer
length: 38 repeater length: 30

1259 1545709 CTTTCAATCCTATTTAGGTTATTATTTAAC AGATGGATCTTTCCCCCAATGACCTAAACGGCGTTGT spacer
length: 37 repeater length: 30

1260 1545776 CTTTCAATCCTATTTAGGTTATTATTTAAC GACAATATCT

1261

1262

1263 GCA_000008645.1_ASM864v1_genomic.fna (PilerCR) :

1264 START REPEAT

SPACER

1265 crispr 1

1266 983372 ATTTCAATCCCATTTTGGTCTGATTTTAAAC TATCTTATGTCCGTTATTTTTTACCTACGTTGCAG spacer
length: 35 repeater length: 30

1267 983437 ATTTCAATCCCATTTTGGTCTGATTTTAAAC CAACAATAAAATTCAGGGGGACTGAGTACATAAAAG spacer
length: 36 repeater length: 30

1268 983503 ATTTCAATCCCATTTTGGTCTGATTTTAAAC GATTGAAATTACTGAGGATGGTCTCTACTTCCACCTT spacer
length: 37 repeater length: 30

1269 983570 ATTTCAATCCCATTTTGGTCTGATTTTAAAC ACGGCGTCTGTGACGTCGTTAGAGAGGATGGAGTCGT spacer
length: 37 repeater length: 30

1270 983637 ATTTCAATCCCATTTTGGTCTGATTTTAAAC GGTTTTGTGTGGGTGTGCATTCTGGTTGTGGTTGGTC spacer
length: 37 repeater length: 30

1271 983704 ATTTCAATCCCATTTTGGTCTGATTTTAAAC AAGCGCCGGGCAGACAGCACACATACAAGACTTCACAA spacer
length: 38 repeater length: 30

1272 983772 ATTTCAATCCCATTTTGGTCTGATTTTAAAC TTTCACGATGACTCTGTTGAGTTCATCGTATTCTTTCC spacer
length: 38 repeater length: 30

1273 983840 ATTTCAATCCCATTTTGGTCTGATTTTAAAC TGATGTTGGGAAGGTTTGGCCATCTGAATGATTTGA spacer
length: 36 repeater length: 30

1274 983906 ATTTCAATCCCATTTTGGTCTGATTTTAAAC TCAACATGGGGACATACGTCCAGGGGGACAGACGC spacer
length: 35 repeater length: 30

1275 983971 ATTTCAATCCCATTTTGGTCTGATTTTAAAC TCACCCTCCAGACTAGCTCATCAATGTACCCATTACC spacer
length: 37 repeater length: 30

1276 984038 ATTTCAATCCCATTTTGGTCTGATTTTAAAC GAAATACAACCCACACGCCAGTCCATCTCTTTC spacer
length: 35 repeater length: 30

1277 984103 ATTTCAATCCCATTTTGGTCTGATTTTAAAC CTGTCTGCCCCATTGTTTTGATCATGTTTGTGCATG spacer
length: 37 repeater length: 30

1278 984170 ATTTCAATCCCATTTTGGTCTGATTTTAAAC CCTTTAGAACTAAAAAATAACAAAATAAAAAAAGAC spacer
length: 37 repeater length: 30

1279 984237 ATTTCAATCCCATTTTGGTCTGATTTTAAAC GGGTTCTCATAGATGGGCGACAGAAAGACATGAAAA spacer
length: 36 repeater length: 30

1280 984303 ATTTCAATCCCATTTTGGTCTGATTTTAAAC CCGTTACTCATGCATTATTAGTGAGAAACAACTCTTT spacer
length: 37 repeater length: 30

1281 984370 ATTTCAATCCCATTTTGGTCTGATTTTAAAC GATTGAAATTACTGAGGATGGTCTCTACTTCCACCTT spacer
length: 37 repeater length: 30

1282 984437 ATTTCAATCCCATTTTGGTCTGATTTTAAAC GGTCGGTGCCCGGGTCGGGTGCCCCGGGTGCGGT spacer
length: 37 repeater length: 30

1283 984504 ATTTCAATCCCATTTTGGTCTGATTTTAAAC TATCATCACGCTTGAAGAGTATAATAAAGTTGTTAAGA spacer
length: 38 repeater length: 30

1284 984572 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGTTCACTATTTGGGTCATTTATGGGTACTATTTTG spacer
length: 36 repeater length: 30

1285 984638 ATTTCAATCCCATTTTGGTCTGATTTTAAC TATGAGGGCTGTGCATGCACGGATCAGCAAGGAAACAA spacer
length: 38 repeater length: 30

1286 984706 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCAGATTCTTTCTGACAATAATATGAGGTGATATAAA spacer
length: 37 repeater length: 30

1287 984773 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGTATGTGCAGTATCCTCTCTATGTCCCCTTCATTC spacer
length: 36 repeater length: 30

1288 984839 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCTATATTATGTCCATTATTTTTCATTTACGCTGCAG spacer
length: 37 repeater length: 30

1289 984906 ATTTCAATCCCATTTTGGTCTGATTTTAAC AATATTGAAACGTTCAAGGACATGTTGAAGAGGTATG spacer
length: 37 repeater length: 30

1290 984973 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAGGAAACGTTTACCCTTGAAGGGCGTAAGGCCTGATA spacer
length: 38 repeater length: 30

1291 985041 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTCGGTGGGGGTAGGTGGGGGGTGTGAAGGTAGAT spacer
length: 37 repeater length: 30

1292 985108 ATTTCAATCCCATTTTGGTCTGATTTTAAC GTATCCATGACTCCTGATGCCCTGGCACGTCGAAGTCA spacer
length: 38 repeater length: 30

1293 985176 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGTATGTGCAGTATCCTCTCTATGTCCCCTTCATTC spacer
length: 36 repeater length: 30

1294 985242 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTTTAGGGACTGTGAGATCGTTGTTGAACATAATAA spacer
length: 37 repeater length: 30

1295 985309 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCGGTGGGGGTAGGTGGGGGTATAATCAGAACAAAT spacer
length: 36 repeater length: 30

1296 985375 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTTTAGGGACTGTGAGATCGTTGTTGAACATAATAA spacer
length: 37 repeater length: 30

1297 985442 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCGGTGGGGGTAGGTGGGGGTATAATCAGAACAAAT spacer
length: 36 repeater length: 30

1298 985508 ATTTCAATCCCATTTTGGTCTGATTTTAAC AATATAGTGCAAATGATTCTAGAAAATAGTAAAATA spacer
length: 36 repeater length: 30

1299 985574 ATTTCAATCCCATTTTGGTCTGATTTTAAC TAAAATGAAAAAAGATTCAAAAAACATGCAAATG spacer
length: 36 repeater length: 30

1300 985640 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACAAAGTGCCCCGCATGTCGTGAAAAGATGAAGAAA spacer
length: 36 repeater length: 30

1301 985706 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGTGGAGGGCCTCGACTACTACAAGGCTATCAGGTT spacer
length: 36 repeater length: 30

1302 985772 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGAATCTGACATGAACTGCTATTGCTGTAACCGATAT spacer
length: 37 repeater length: 30

1303 985839 ATTTCAATCCCATTTTGGTCTGATTTTAAC GCTAAAAAGGAGTACCTGCAACGGAAAGTACCGGT spacer
length: 35 repeater length: 30

1304 985904 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTTTTAAATCCTCTAAAAACTGTTCTAAACACCAATC spacer
length: 37 repeater length: 30

1305 985971 ATTTCAATCCCATTTTGGTCTGATTTTAAC AACTTCACAGAAAAGCCTCCATGGAGCAAGTGCTCT spacer
length: 36 repeater length: 30

1306 986037 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGAGGTGAAAGATATGAAAATAAAAGTAAAAATAGA spacer
length: 37 repeater length: 30

1307 986104 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTCCTCACTACCACTAAGATCATATGCTGCCGCATAA spacer
length: 37 repeater length: 30

1308 986171 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGGAGAAACTGGATAGGAGGTGAATGAGATGATTGA spacer
length: 36 repeater length: 30

1309 986237 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATGTTTTTGGAGTCGTATAGCACTATGATCGCACAA spacer
length: 36 repeater length: 30

1310 986303 ATTTCAATCCCATTTTGGTCTGATTTTAAC GATTTTGACGGTGAGTACAATCTCTGCTGTCAGAACTG spacer
length: 38 repeater length: 30

1311 986371 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGGTTTATGGGTCTTAAACAATAGAACCCCTGATTA spacer
length: 36 repeater length: 30

1312 986437 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATAGAATGAAGAGGAAATACAAGAAAACATGCAAATG spacer
length: 37 repeater length: 30

1313 986504 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGGTTAATAAAATCGTCGATGATGTTGTAGACAAAATCA spacer
length: 39 repeater length: 30

1314 986573 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATGGATGAGGAAGGTGACGGCCCTGGGAAGTACAGGG spacer
length: 37 repeater length: 30

1315 986640 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACATACCCTTCTTCATATAAGAACTGCACATAGTCAAT spacer
length: 38 repeater length: 30

1316 986708 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGAGAAGGGTGAGGACGTCCTTGAGGGCGCATACGATGTCCT
spacer length: 42 repeater length: 30

1317 986780 ATTTCAATCCCATTTTGGTCTGATTTTAAC GCTTAGTCGTTATAATCGAGTCGATAAGATTCTTTGA spacer
length: 37 repeater length: 30

1318 986847 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGTGCTGAGGATGTCTTCGTGTACCCGGTCCTTCT spacer
length: 36 repeater length: 30

1319 986913 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGTAGCGAATTACTCCGCTGAGTTCTCATCCTTTGAT spacer

length: 38 repeater length: 30
1320 986981 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCATTTTGTTCCTCATTAACTCATCTTTAAATT spacer
length: 37 repeater length: 30
1321 987048 ATTTCAATCCCATTTTGGTCTGATTTTAAC GCAGAGGAAAACGAAGAAAAGGAGAAAATAGAAGCCA spacer
length: 37 repeater length: 30
1322 987115 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTATCTAAGTAGTATGAGTCTTCAAAGAGGATATTGA spacer
length: 37 repeater length: 30
1323 987182 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAGGCTTAGTGTGGGTTTTATTGAATCTGTACTTAT spacer
length: 36 repeater length: 30
1324 987248 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGTGCTGAGGATGTCTTCGTGTACCCGGTCCTTCT spacer
length: 36 repeater length: 30
1325 987314 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGTAGCGAATTACTCCGCTGAGTTCTCATCCTTTGAT spacer
length: 38 repeater length: 30
1326 987382 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCATTTTGTTCCTCATTAACTCATCTTTAAATT spacer
length: 37 repeater length: 30
1327 987449 ATTTCAATCCCATTTTGGTCTGATTTTAAC GCAGAGGAAAACGAAGAAAAGGAGAAAATAGAAGCCA spacer
length: 37 repeater length: 30
1328 987516 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTATCTAAGTAGTATGAGTCTTCAAAGAGGATATTGA spacer
length: 37 repeater length: 30
1329 987583 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAGGCTTAGTGTGGGTTTTATTGAATCTGTACTTAT spacer
length: 36 repeater length: 30
1330 987649 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGGTGAGAAAAAATGAAAGGAAAAGAAGTTGAGAAA spacer
length: 36 repeater length: 30
1331 987715 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGGCTTGGCCAGGCTGGGGTCCAGGCCACCCTCATCGC spacer
length: 38 repeater length: 30
1332 987783 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACTTATTTATCGATAAAGTTCTACTCACATGTTTAGT spacer
length: 37 repeater length: 30
1333 987850 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGGGAGGACCTCATAAAATTTTGGATTAAAATGTG spacer
length: 36 repeater length: 30
1334 987916 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTCCCTGAGATGATGTCCTTGATTGTGCTGC spacer
length: 32 repeater length: 30
1335 987978 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATATACATCATATATTAATAAAATAAAAAAATCAATA spacer
length: 38 repeater length: 30
1336 988046 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAGTTCATTGTACTCATTGATCGTCTCTTCATCCCC spacer
length: 36 repeater length: 30
1337 988112 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGGATTATTGGGACTTACATGCGACAGATTTTTTATA spacer
length: 36 repeater length: 30
1338 988178 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGATCTGAAAATAAAGAAAGCTTCAAATCAAAAAATA spacer
length: 37 repeater length: 30
1339 988245 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTTCTAGCAAGAGACATTGACGATATACACAAGTAC spacer
length: 36 repeater length: 30
1340 988311 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGGGGAGAGTCTGACATTCTTGAAGTAGAACCTCCCC spacer
length: 37 repeater length: 30
1341 988378 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCACACTGTACCCGAACCTCTCCGCGACTTTCTTTA spacer
length: 36 repeater length: 30
1342 988444 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGAGGTTATGAAATCAGTAATAGCCTCAAGGAGTAAG spacer
length: 37 repeater length: 30
1343 988511 ATTTCAATCCCATTTTGGTCTGATTTTAAC TAAAAGTAACCTATAACAATTACCTATGGCTCATAA spacer
length: 36 repeater length: 30
1344 988577 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCTCAGTAATGTAATAATCGATATAGCAAGTTGCGATG spacer
length: 38 repeater length: 30
1345 988645 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACGTAACAGTATATACTGTCCAAATGTGCCGAGAA spacer
length: 37 repeater length: 30
1346 988712 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTATAGGGTCATCCTCGAGGACAGCGCCCGCTTG spacer
length: 34 repeater length: 30
1347 988776 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGCTCGGCCAGGCAGGGGTGGAAATGGAACCTCGTCG spacer
length: 36 repeater length: 30
1348 988842 ATTTCAATCCCATTTTGGTCTGATTTTAAC TATGACGCCCTCAAAGTCTTTTTCCCGTGCGCCTCG spacer
length: 37 repeater length: 30
1349 988909 ATTTCAATCCCATTTTGGTCTGATTTTAAC CATGTCATGACCCGTGCCATGATCCGCCGATCAAAA spacer
length: 36 repeater length: 30
1350 988975 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCGAATGCCTATTAAGCCTGTATTACAGCATTAGAAGA spacer
length: 37 repeater length: 30
1351 989042 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGGCCTGGTTCATGGTTCAGGGTCTCCTTGCTTAT spacer
length: 35 repeater length: 30
1352 989107 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGTTCACTATTTGGGTCATTTATGGGTACTATTTTG spacer
length: 36 repeater length: 30
1353 989173 ATTTCAATCCCATTTTGGTCTGATTTTAAC TATGAGGGCTGTGCATGCACGGATCAGCAAGGAAACAA spacer
length: 38 repeater length: 30
1354 989241 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCAGATTCTTTCTGACAATAATATGAGGTGATATAAA spacer
length: 37 repeater length: 30

1355 989308 ATTTCAATCCCATTTTGGTCTGATTTTAAC CATATAACGAAATTAAGTCAAATTCGTTTCATTAGT spacer
length: 36 repeater length: 30

1356 989374 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCAGGTTGAGGTTTCAGGTTGAGGTTTCAGGTTG spacer
length: 34 repeater length: 30

1357 989438 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGATGATCGGGGTGGGTATGTTTCATGCATGGAAATC spacer
length: 36 repeater length: 30

1358 989504 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGAATACCTGTTCTCTTCGTATTCCTCATCGCAAC spacer
length: 36 repeater length: 30

1359 989570 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCTTTTTACTCTGTTTAGCCCTTTTTACTGCACAAT spacer
length: 36 repeater length: 30

1360 989636 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTACTTTTATAAATAATATCTGAACTTTTTTACCTT spacer
length: 36 repeater length: 30

1361 989702 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGGCGGTAAAGCACACTCAACGCTCTGATTGAGTGT spacer
length: 37 repeater length: 30

1362 989769 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCACAGTCAGCTCCACTGAGTCCATGCTTAGAGCCTC spacer
length: 37 repeater length: 30

1363 989836 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTAATTCCAATATGGGCCGATATCTGCCCTCTTTT spacer
length: 35 repeater length: 30

1364 989901 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGGAACACCAGGTCCTGGGCTTGTGGGTTCTGCTCG spacer
length: 37 repeater length: 30

1365 989968 ATTTCAATCCCATTTTGGTCTGATTTTAAC CATCTGTTTCACCTCTTCTTTTTTTCTTTGTG spacer
length: 32 repeater length: 30

1366 990030 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTATTAATTTAGTATTGGTTGTTTGGTTAATTC spacer
length: 34 repeater length: 30

1367 990094 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATATATAACCATATTGAACATTGATTTTAGCGTTTTT spacer
length: 36 repeater length: 30

1368 990160 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCAGCAGAAACAGTAATAGTCAAATATTATAAGCACA spacer
length: 37 repeater length: 30

1369 990227 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTTGATAAGGGTAGTAAACGAACCCGATAGTGAATAT spacer
length: 37 repeater length: 30

1370 990294 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCAAATAAAACGTTAATATCGATTTAATTCCAATA spacer
length: 35 repeater length: 30

1371 990359 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGTTTCAACTAATGAACTGTCTTAAATTGCTTATTT spacer
length: 37 repeater length: 30

1372 990426 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCGCAGAACATCATAACATCAGGTAGTCTATACAGT spacer
length: 37 repeater length: 30

1373 990493 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGATGGTTTTGATGTTTTGTGTAAAATTCGTGAG spacer
length: 34 repeater length: 30

1374 990557 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAAGTCACACTGAATACGAAGAAATACAAGACACAGT spacer
length: 37 repeater length: 30

1375 990624 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGGTCCTTGACGGGAAAATCTACAGGGCCACAATAG spacer
length: 37 repeater length: 30

1376 990691 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACACAGTACAATTATTCGGAATAATACACGCACAATG spacer
length: 37 repeater length: 30

1377 990758 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATGAACATGCAGATAAAAGATGATATAATAGAAAAAT spacer
length: 37 repeater length: 30

1378 990825 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGTATTTTTCTGAATTCACGGATTGCTTCGC spacer
length: 32 repeater length: 30

1379 990887 ATTTCAATCCCATTTTGGTCTGATTTTAAC TATAATCGAATATTGTTGCGTATTGTGTTGTGTTTTT spacer
length: 37 repeater length: 30

1380 990954 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGGTTCTTGTGGGTTATTGTTGTCCTAGTCCAGTTTACAC
spacer length: 40 repeater length: 30

1381 991024 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTAAAGTTTCTCTGTAGTCCACATCCCCTTTTTTTCA spacer
length: 36 repeater length: 30

1382 991090 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGAGGTGACAAGTATCAGGTTCTCACAGTGTTCATG spacer
length: 37 repeater length: 30

1383 991157 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACCGATGGTACCTCAGGATACTATTCCCACCACTCACC spacer
length: 38 repeater length: 30

1384 991225 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTGAAGACTCATACTACTTAGACAGTTTTGAATTTCG spacer
length: 36 repeater length: 30

1385 991291 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATCGAGGAATTCTATTTTATCCTCACCAGGATAGCGG spacer
length: 37 repeater length: 30

1386 991358 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATGTTTTCCGTTATACTATAGTGCGTTTTTGGTATTG spacer
length: 36 repeater length: 30

1387 991424 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCATACCACACATTTGGATTGTAGGTGGTTGATGTTA spacer
length: 37 repeater length: 30

1388 991491 ATTTCAATCCCATTTTGGTCTGATTTTAAC TAGCGGTTAATGTCGTCGATGTCCCTTGTTATT spacer
length: 33 repeater length: 30

1389 991554 ATTTCAATCCCATTTTGGTCTGATTTTAAC GTCCGGGTCTG

1390
1391

1392 crispr 2
 1393 1277707 TACACTTGAAATGAATGTCTCCC AAAATCGAGATCAATTAATACTAACT spacer length: 26
 repeater length: 23
 1394 1277756 TACACTTGAAATGAATGTCTCCC TTACAGGTCATCAGAACCATGGTCAGAT spacer length: 28
 repeater length: 23
 1395 1277807 TACACTTGAAATGAATGTCTCCC CATGCCGGACG
 1396
 1397
 1398 crispr 3
 1399 1472441 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GGTGAAAATACTAACACCCGTAGAAGCCCTTGAAGA spacer
 length: 36 repeater length: 30
 1400 1472507 GTTAAAAATCAGACCAAAAATGGGATTGAAAT ATTACAATCGTAAGCATTATGGTGAATCGGCTTGT spacer
 length: 35 repeater length: 30
 1401 1472572 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TGAAAAC TACGGAATGGTATAAGAATGGTGAGAGAG spacer
 length: 36 repeater length: 30
 1402 1472638 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GTAAATGCGAACTATTACTATAATAATAACCTTTAT spacer
 length: 36 repeater length: 30
 1403 1472704 GTTAAAAATCAGACCAAAAATGGGATTGAAAT ATATTTACAATTCTAATTTGATTTTTATTTCCCATGAAA
 spacer length: 39 repeater length: 30
 1404 1472773 GTTAAAAATCAGACCAAAAATGGGATTGAAAT ACTGGAGGAGATGGAAAAGTGCAGCACGAGTGACATC spacer
 length: 37 repeater length: 30
 1405 1472840 GTTAAAAATCAGACCAAAAATGGGATTGAAAT ATGGAGGTGAAAGGAATGGTAGTGAATGAAAAATGA spacer
 length: 37 repeater length: 30
 1406 1472907 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GAAGCAATGAGCTACGCAGTAGGGTGAGAGAGCAGG spacer
 length: 36 repeater length: 30
 1407 1472973 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TTATCGTGAAATACTTATTCTTAATCGGTTTTAGGT spacer
 length: 36 repeater length: 30
 1408 1473039 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TTTATATATAATTTTAACATATCCACAAAATAGTACCTAT
 spacer length: 40 repeater length: 30
 1409 1473109 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TTACAAACATCTCTATGGTTTCCAGTGCCATGACGA spacer
 length: 36 repeater length: 30
 1410 1473175 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TAAAGCTTCATTTGATTTACCGTCCATTACAAACAT spacer
 length: 36 repeater length: 30
 1411 1473241 GTTAAAAATCAGACCAAAAATGGGATTGAAAT CCAGGAGAGCATCAATGACATGACCAACCGCTCAAG spacer
 length: 37 repeater length: 30
 1412 1473308 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TTATGCTCTTAGGAGCATAGCGACGTAGTCATACAA spacer
 length: 36 repeater length: 30
 1413 1473374 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TTATAAAACCAAGAATGGAAGTAATGAATAGGCCATA spacer
 length: 37 repeater length: 30
 1414 1473441 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TGGGATGTCCTCGATAGGCTGCGAGAGAGCGCAGC spacer
 length: 35 repeater length: 30
 1415 1473506 GTTAAAAATCAGACCAAAAATGGGATTGAAAT AAAGGGTGGCGGAGAGTCGGTAGAAACGATGTGCAATGT
 spacer length: 39 repeater length: 30
 1416 1473575 GTTAAAAATCAGACCAAAAATGGGATTGAAAT ATCAAGCAAATGGTGATCATTATTTCCAGTACTCTTC spacer
 length: 37 repeater length: 30
 1417 1473642 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TTTATTTGGACTGGTTTGCCGTCGAGGAAGAATTC spacer
 length: 35 repeater length: 30
 1418 1473707 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TATTGGTCTCTGTCTCATCCACCGTAACGGTG spacer
 length: 32 repeater length: 30
 1419 1473769 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TTTTTTATTACCCAATATTTTTCTTCAATTCTTTCCA spacer
 length: 37 repeater length: 30
 1420 1473836 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TGGACTGATTTAAGCCCAATGGGGGCTCTCAGGGCGG spacer
 length: 37 repeater length: 30
 1421 1473903 GTTAAAAATCAGACCAAAAATGGGATTGAAAT ACTGGAAAAAAGAGTACACCACAATCTACACGTAATA spacer
 length: 38 repeater length: 30
 1422 1473971 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GAATGCGAGGAGGCTTAAAGCCACATTCAAGG spacer
 length: 32 repeater length: 30
 1423 1474033 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TATTGGTCTCTGTCTCATCCACCGTAACGGTG spacer
 length: 32 repeater length: 30
 1424 1474095 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TTTTTTATTACCCAATATTTTTCTTCAATTCTTTCCA spacer
 length: 37 repeater length: 30
 1425 1474162 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GCTCAATAAGGGTCGACGTGGCCCCGGAGGCCACGT spacer
 length: 36 repeater length: 30
 1426 1474228 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TACTGTGCGATCCACAGCTGACAGTGTAATTAATA spacer
 length: 35 repeater length: 30
 1427 1474293 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TGGACTGATTTAAGCCCAATGGGGGCTCTCAGGGCGG spacer
 length: 37 repeater length: 30
 1428 1474360 GTTAAAAATCAGACCAAAAATGGGATTGAAAT ACTGGAAAAAAGAGTACACCACAATCTACACGTAATA spacer
 length: 38 repeater length: 30
 1429 1474428 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GAATGCGAGGAGGCTTAAAGCCACATTCAAGG spacer
 length: 32 repeater length: 30

1430 1474490 GTTAAAATCAGACCAAAATGGGATTGAAAT TGAAGCACTGTGTTGGCTCAATGCTGTCTAAGTGCTT spacer
length: 37 repeater length: 30

1431 1474557 GTTAAAATCAGACCAAAATGGGATTGAAAT GGGAATACCTGAAGAAGATAAACGCATAGAGTTTGCCGA
spacer length: 39 repeater length: 30

1432 1474626 GTTAAAATCAGACCAAAATGGGATTGAAAT GCTAGTTCATGGCAGATGAGTTCAGCGAGACCATAC spacer
length: 36 repeater length: 30

1433 1474692 GTTAAAATCAGACCAAAATGGGATTGAAAT TAGATCACGCCCCCAAGCCACCTTAACCCGTCCGC spacer
length: 35 repeater length: 30

1434 1474757 GTTAAAATCAGACCAAAATGGGATTGAAAT GTACATTTTCGGTGGCGATTTTTTTCATTTACCACCGA spacer
length: 38 repeater length: 30

1435 1474825 GTTAAAATCAGACCAAAATGGGATTGAAAT ATCCGAAACATCTCAGTAGCGATTTTTTTCATTTTCGC spacer
length: 37 repeater length: 30

1436 1474892 GTTAAAATCAGACCAAAATGGGATTGAAAT GAGTATGGAAATAGCTATGGATGGTGGTTTTCAATTGA spacer
length: 38 repeater length: 30

1437 1474960 GTTAAAATCAGACCAAAATGGGATTGAAAT TGGCGATCGTAAGGGCCCTTAACCTGCGACTGG spacer
length: 33 repeater length: 30

1438 1475023 GTTAAAATCAGACCAAAATGGGATTGAAAT TAGGAGGGAGGAGTGATCCTCCCCTTTCTTTCTCA spacer
length: 35 repeater length: 30

1439 1475088 GTTAAAATCAGACCAAAATGGGATTGAAAT TTCTATCACCTCTTATTTTTCTCTCTGGAGCCGT spacer
length: 34 repeater length: 30

1440 1475152 GTTAAAATCAGACCAAAATGGGATTGAAAT CTATTTTTTCTTTGTCTCTGTGGTTCTTTTGGATTT spacer
length: 37 repeater length: 30

1441 1475219 GTTAAAATCAGACCAAAATGGGATTGAAAT TTCTATTTTTCTTTTCTTTCTTTTGTCTTTCTTTCTAT spacer
length: 38 repeater length: 30

1442 1475287 GTTAAAATCAGACCAAAATGGGATTGAAAT AAAATAACACTATCTAAATCATCAAATCATTTA spacer
length: 34 repeater length: 30

1443 1475351 GTTAAAATCAGACCAAAATGGGATTGAAAT TTGAGGATTCATATGCTTCAAAGGGGCTTTTTCTT spacer
length: 37 repeater length: 30

1444 1475418 GTTAAAATCAGACCAAAATGGGATTGAAAT GGACACGCGTATAGCCTGAAGACGACCCTCAGCAG spacer
length: 35 repeater length: 30

1445 1475483 GTTAAAATCAGACCAAAATGGGATTGAAAT ACGGAGACCA

1446
1447

1448 GCA_000008665.1_ASM866v1_genomic.fna (PilerCR):

1449 START REPEAT

SPACER

1450 crispr 1

1451 147 GTTGAAATCAGACCAAAATGGGATTGAAAG AGCCTTTCAGCCCTAGTGTGAGTGTCAGGTTTACTCTT spacer
length: 38 repeater length: 30

1452 215 GTTGAAATCAGACCAAAATGGGATTGAAAG GTTTGTTAAGGGCTTTGATTTGCTCCTCGGTGGCTCTG spacer
length: 38 repeater length: 30

1453 283 GTTGAAATCAGACCAAAATGGGATTGAAAG TAAAGCAGTTCACCCCTGTTACTGGTTTAACTGCCTT spacer
length: 37 repeater length: 30

1454 350 GTTGAAATCAGACCAAAATGGGATTGAAAG GTATTTGAATCAATGAAAAGAAATCTTACCTCGTC spacer
length: 35 repeater length: 30

1455 415 GTTGAAATCAGACCAAAATGGGATTGAAAG AGTCTTCTGGATGGGTCACAAGGGAGACATCGAGGC spacer
length: 36 repeater length: 30

1456 481 GTTGAAATCAGACCAAAATGGGATTGAAAG TCAGCAAGGTTACGTGCGAGATCCTCGAAGAGGGTATCA spacer
length: 39 repeater length: 30

1457 550 GTTGAAATCAGACCAAAATGGGATTGAAAG CGAGGATTGCTGCCAAAGAGAGCGCCTCGTTCTTCG spacer
length: 36 repeater length: 30

1458 616 GTTGAAATCAGACCAAAATGGGATTGAAAG AAAGTGAACATGCTTAAAGAAATGCTGACAGAAATTGA spacer
length: 38 repeater length: 30

1459 684 GTTGAAATCAGACCAAAATGGGATTGAAAG AGCGAGGAAGAGCTTGACGAATTCTTCAAAGCGGA spacer
length: 36 repeater length: 30

1460 750 GTTGAAATCAGACCAAAATGGGATTGAAAG TTGCATTTACATCGGCAGAATTGGTCTCGTCGGAAGGCAT spacer
length: 40 repeater length: 30

1461 820 GTTGAAATCAGACCAAAATGGGATTGAAAG CGGTTCTCTTACGTACTCATGCGAGAAGTGAGACTCGCGTTG spacer
length: 42 repeater length: 30

1462 892 GTTGAAATCAGACCAAAATGGGATTGAAAG AGCAAGTCGTGAAACTGAGCAGTCAAACAGATCGTTA spacer
length: 38 repeater length: 30

1463 960 GTTGAAATCAGACCAAAATGGGATTGAAAG TTTTCCCATACAATTACGACTTCGCCGGAACAAAAA spacer
length: 35 repeater length: 30

1464 1025 GTTGAAATCAGACCAAAATGGGATTGAAAG AGCGAGTTCGACCACGTCGTAGGTCTGCTGTCGGCAA spacer
length: 37 repeater length: 30

1465 1092 GTTGAAATCAGACCAAAATGGGATTGAAAG TGTTTGAAGTAGTTGAATACACCGTTGTGCTGTTTGT spacer
length: 38 repeater length: 30

1466 1160 GTTGAAATCAGACCAAAATGGGATTGAAAG AGAGGGAGTATTAGGGCCATACTGGCCGAGTTGTGGTT spacer
length: 39 repeater length: 30

1467 1229 GTTGAAATCAGACCAAAATGGGATTGAAAG ATTCCAAATTGCGGAAAAAGATTCGAGGGCAGTTACTTCCC spacer
length: 41 repeater length: 30

1468 1300 GTTGAATCAGACCAAAATGGGATTGAAAG ACGTCGTTTATTGCCGTAACGCTAACACCATACTCAAGA spacer
length: 39 repeater length: 30

1469 1369 GTTGAATCAGACCAAAATGGGATTGAAAG AAAGCCGTCCAGCGATTGTTTTTCATCCGCACCGATAATAG spacer
length: 40 repeater length: 30

1470 1439 GTTGAATCAGACCAAAATGGGATTGAAAG GGTTTAGACTTCCAGCAGGTAAGACATTCAAGGTTTC spacer
length: 36 repeater length: 30

1471 1505 GTTGAATCAGACCAAAATGGGATTGAAAG GAGGTAATAGCTGCGAGGGTCAAGCAGGTTTACGAGAA spacer
length: 38 repeater length: 30

1472 1573 GTTGAATCAGACCAAAATGGGATTGAAAG GAGCAATATTAGAAGAACTCATGGCCACTGGCGACTTCA spacer
length: 39 repeater length: 30

1473 1642 GTTGAATCAGACCAAAATGGGATTGAAAG TTACATATCCATTACAGCACCTATGGCTGCCATCAAAAT spacer
length: 40 repeater length: 30

1474 1712 GTTGAATCAGACCAAAATGGGATTGAAAG CTTACAACCCAGCCTGACCTCAATCTCTCTCTCTCTTCGA spacer
length: 41 repeater length: 30

1475 1783 GTTGAATCAGACCAAAATGGGATTGAAAG CATGGACATTACAGGCACAGCCAGAGCAAAAGACCTTC spacer
length: 37 repeater length: 30

1476 1850 GTTGAATCAGACCAAAATGGGATTGAAAG TTCGTTAAGCTTTTCTCTAATTAGATTAACCGTTTTTCGTA spacer
length: 40 repeater length: 30

1477 1920 GTTGAATCAGACCAAAATGGGATTGAAAG TTTGATGTGAAAACCGCCCCTAAGCTTCCCGTTCGT spacer
length: 36 repeater length: 30

1478 1986 GTTGAATCAGACCAAAATGGGATTGAAAG ATCCTCACCGTCGGCGTGTCTTTCCCATTCATTTTCGGC spacer
length: 39 repeater length: 30

1479 2055 GTTGAATCAGACCAAAATGGGATTGAAAG CATCAGCTTATGCATGTAATAAGCGAAGCTACATAACTGCAC
spacer length: 42 repeater length: 30

1480 2127 GTTGAATCAGACCAAAATGGGATTGAAAG ATCTATGTAGAGAAGGTATCCGATTTTCATAGACTGGAGA spacer
length: 39 repeater length: 30

1481 2196 GTTGAATCAGACCAAAATGGGATTGAAAG TATTTTTTTTAAAAAATATATAAAAAAGGAGGTGATGC spacer
length: 38 repeater length: 30

1482 2264 GTTGAATCAGACCAAAATGGGATTGAAAG CTGTTTCATCCTGTTTCGGAGTGTGATTTACGCAATTCTCA spacer
length: 40 repeater length: 30

1483 2334 GTTGAATCAGACCAAAATGGGATTGAAAG TCGCTCTCTTGGTAGGTTACTTTGTCTTTACGGAGGTT spacer
length: 38 repeater length: 30

1484 2402 GTTGAATCAGACCAAAATGGGATTGAAAG CGGTTTCCTCGCTGATCCGACTCTTCAGCCATCGCT spacer
length: 36 repeater length: 30

1485 2468 GTTGAATCAGACCAAAATGGGATTGAAAG TAAGCGTCGCTGGGCGTCGCTCGGTGGTGAACGGGTTA spacer
length: 39 repeater length: 30

1486 2537 GTTGAATCAGACCAAAATGGGATTGAAAG GCCAGGATAATTGAGCGTGTGTAGAGTCTGCCGCTGT spacer
length: 38 repeater length: 30

1487 2605 GTTGAATCAGACCAAAATGGGATTGAAAG ATTTCTGGTCGTGTTTACAACTTAACGAACGCTACGA spacer
length: 38 repeater length: 30

1488 2673 GTTGAATCAGACCAAAATGGGATTGAAAG CCAGCATTGTTCCAGCCGCAGCCAAACCGAGAAGGG spacer
length: 36 repeater length: 30

1489 2739 GTTGAATCAGACCAAAATGGGATTGAAAG GCCGTTTTTCAGCCTCTTTGCCTTCATCCAGCATTT spacer
length: 36 repeater length: 30

1490 2805 GTTGAATCAGACCAAAATGGGATTGAAAG CCTCCTTTGGGTGGAGTTCCAATCAGGAACGTGATTGG spacer
length: 38 repeater length: 30

1491 2873 GTTGAATCAGACCAAAATGGGATTGAAAG AAAGAATGACCGAACACCTTAACCTCTCTATAACCCAC spacer
length: 39 repeater length: 30

1492 2942 GTTGAATCAGACCAAAATGGGATTGAAAG CTCTTCCCAACGTCAACCCACAGATAACTATCTGGAGATG spacer
length: 39 repeater length: 30

1493 3011 GTTGAATCAGACCAAAATGGGATTGAAAG GTAACCATAACCTACAAGTGCGGAGTGCCCTTGCA spacer
length: 35 repeater length: 30

1494 3076 GTTGAATCAGACCAAAATGGGATTGAAAG TACTGCTCCCAGCACAAAGGCAGCGCAGGCGTCGTGGTCTTC spacer
length: 41 repeater length: 30

1495 3147 GTTGAATCAGACCAAAATGGGATTGAAAG CCTACGGCCGCAAATCGGACAGAGCTTATCCATCCTG spacer
length: 37 repeater length: 30

1496 3214 GTTGAATCAGACCAAAATGGGATTGAAAG TTTGCATCTTCACCGGCAATTGTCAGCTGCGAACTCTGA spacer
length: 38 repeater length: 30

1497 3282 GTTGAATCAGACCAAAATGGGATTGAAAG ATAGCTCTCTGTAACCTCACTTCTTCCCCATACCATGTTTCTA
spacer length: 42 repeater length: 30

1498 3354 GTTGAATCAGACCAAAATGGGATTGAAAG AGCATCTTCGTCTTCTTTATCCTCTTCAGGAGCTCTAA spacer
length: 38 repeater length: 30

1499 3422 GTTGAATCAGACCAAAATGGGATTGAAAG GAAGTTTGCCTTTGTTCAGAAAGTTGTAGAGTGCCA spacer
length: 37 repeater length: 30

1500 3489 GTTGAATCAGACCAAAATGGGATTGAAAG AATGCTAATCGGATTCTCTGGTCCATCTGCAAGTGGCA spacer
length: 38 repeater length: 30

1501 3557 GTTGAATCAGACCAAAATGGGATTGAAAG TGCTTCATCTTTCTCCAACACTTCTACAATCTTGACT spacer
length: 37 repeater length: 30

1502 3624 GTTGAATCAGACCAAAATGGGATTGAAAG AAGACTACGACTCTTGGTAATCCATCGTTGCCTCTAATC spacer
length: 39 repeater length: 30

1503 3693 GTTGAATCAGACCAAAATGGGATTGAAAG GGAACCCCGTAACTGGCTGCCTTCACGGCTGCGATTACTGCTAC

spacer length: 44 repeater length: 30
 1504 3767 GTTGAATCAGACCAAAATGGGATTGAAAG ATCAAGAGCCCATGCCGTCAGAGAATGCGTTGAGGAGT spacer
 length: 38 repeater length: 30
 1505 3835 GTTGAATCAGACCAAAATGGGATTGAAAG TCTGATTTTTTCGGCAACAACAACTGAACTCAGAATTGC spacer
 length: 40 repeater length: 30
 1506 3905 GTTGAATCAGACCAAAATGGGATTGAAAG CCTTATCTCATCCTCAGCACCATAAGGCATTTGACCCTT spacer
 length: 39 repeater length: 30
 1507 3974 GTTGAATCAGACCAAAATGGGATTGAAAG CGAGACATTAACACAATTTATTGGGCATGTCCTGACGG spacer
 length: 38 repeater length: 30
 1508 4042 GTTGAATCAGACCAAAATGGGATTGAAAG GCAGACGACGTACACTACTGGGGCGTTGTCAAGGAACA spacer
 length: 38 repeater length: 30
 1509 4110 GTTGAATCAGACCAAAATGGGATTGAAAG TAAGAACATCTCATAAACTTGTGTTGGACTCGGTAGCTCCCAA
 spacer length: 43 repeater length: 30
 1510 4183 GTTGAATCAGACCAAAATGGGATTGAAAG GATTGACCGA
 1511
 1512
 1513 crispr 2
 1514 398368 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTACTGTGTTCCGAGCTTTCAGAGGCAGGCCAAGAGCT spacer
 length: 38 repeater length: 30
 1515 398436 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTTTCATGTGCTCTCAACCAGTAGTATATTGTCCTAACTG spacer
 length: 39 repeater length: 30
 1516 398505 CTTTCAATCCCATTTTGGTCTGATTTCAAC AGGCCCCGAATCAACAGGAACACCTGATACACGAATA spacer
 length: 37 repeater length: 30
 1517 398572 CTTTCAATCCCATTTTGGTCTGATTTCAAC ATGCGGAATTAACAGCATTATCAGGAAAGCGATTATGA spacer
 length: 38 repeater length: 30
 1518 398640 CTTTCAATCCCATTTTGGTCTGATTTCAAC GGGGGGAGGATGAGAGCTCTGTTTGCCGTTCTGGTGT spacer
 length: 37 repeater length: 30
 1519 398707 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTTCTGGCATGGGGAGTTAGCAGGAACGTGGCAGGCTA spacer
 length: 38 repeater length: 30
 1520 398775 CTTTCAATCCCATTTTGGTCTGATTTCAAC GTTAAGCTCTCGGTCGGGCTCTTTGCTCGGTAGAACC spacer
 length: 37 repeater length: 30
 1521 398842 CTTTCAATCCCATTTTGGTCTGATTTCAAC GACTGTAATCTCAACTCCTCCGCCATCTTCTGAAACTC spacer
 length: 38 repeater length: 30
 1522 398910 CTTTCAATCCCATTTTGGTCTGATTTCAAC CACATTGACGTGGCGGATTAAGCGCTTGTGGAAAGTGT
 spacer length: 41 repeater length: 30
 1523 398981 CTTTCAATCCCATTTTGGTCTGATTTCAAC GATGAAGCCATATTTGTGCGATTATTCCACGACGTC spacer
 length: 36 repeater length: 30
 1524 399047 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTTCTCAACTATCGGTTGTTTGACATTTGTATCCTTTC spacer
 length: 38 repeater length: 30
 1525 399115 CTTTCAATCCCATTTTGGTCTGATTTCAAC GAAGTTCACATTCCCGTGACTTTCAAGAAGATTATG spacer
 length: 37 repeater length: 30
 1526 399182 CTTTCAATCCCATTTTGGTCTGATTTCAAC ACAATCTGATCGAACAGATTACCAGTCAAAGCAACTCC spacer
 length: 38 repeater length: 30
 1527 399250 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTGCTGAGCTCAGAGGCTTTACCGCTAACACTCGCCTTAACG
 spacer length: 42 repeater length: 30
 1528 399322 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTGTCAGTTCTCTTCTGATCGATTTCGGCCAGAGTGGTATATT
 spacer length: 42 repeater length: 30
 1529 399394 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTGAGTCTGCTTACTCCAAGATTTATGTCTCTGTATGTCT
 spacer length: 40 repeater length: 30
 1530 399464 CTTTCAATCCCATTTTGGTCTGATTTCAAC CCGGCAAAACAAGATACCACGATTTCTTCCCATGCCA spacer
 length: 37 repeater length: 30
 1531 399531 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTCCGACTATACCCAGTCAAACCCCTCGAAGTCCGA spacer
 length: 37 repeater length: 30
 1532 399598 CTTTCAATCCCATTTTGGTCTGATTTCAAC AGGTGCCTTGTAACCTTTCTATTTTTTTGATTGCTCT spacer
 length: 36 repeater length: 30
 1533 399664 CTTTCAATCCCATTTTGGTCTGATTTCAAC TACCGAGCTGCTCAGCGTTGGGATGGAGTATTTACG spacer
 length: 37 repeater length: 30
 1534 399731 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTGCGGGGAGCAGCCCATCGCCGAATACGACAAC spacer
 length: 35 repeater length: 30
 1535 399796 CTTTCAATCCCATTTTGGTCTGATTTCAAC TACTCCCCTGAAACCTCCTCAGAGCCTTCGTGTCCT spacer
 length: 36 repeater length: 30
 1536 399862 CTTTCAATCCCATTTTGGTCTGATTTCAAC CGTTCGGCGTCGTAGAGGAAGAGAAGAGGGAGTCCAGA spacer
 length: 38 repeater length: 30
 1537 399930 CTTTCAATCCCATTTTGGTCTGATTTCAAC GAGGCGTTCATCAAGGAGGCTTACCGAGTTCTAAAAAAGA
 spacer length: 41 repeater length: 30
 1538 400001 CTTTCAATCCCATTTTGGTCTGATTTCAAC AGTCGTTTTGAAAACCACCGAGCCGTCAGCGGTTGCGACCC
 spacer length: 41 repeater length: 30
 1539 400072 CTTTCAATCCCATTTTGGTCTGATTTCAAC TAAGATCCTGAAGCCAGATCCAGACCTCAAAGAAGGC spacer
 length: 37 repeater length: 30
 1540 400139 CTTTCAATCCCATTTTGGTCTGATTTCAAC CAATCTCGTCGTCAGCAATCGAGATATTAGCAGTTCCCGA
 spacer length: 40 repeater length: 30

1541 400209 CTTTCAATCCCATTTTGGTCTGATTTCAAC TATTTAGCCCTCTTAACGACCCGTTCTTCGCTGTTTAT spacer
length: 38 repeater length: 30
1542 400277 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTTAAGAACCTTGAATGTCTTACCTGCTGGAAGTCTAAACC
spacer length: 41 repeater length: 30
1543 400348 CTTTCAATCCCATTTTGGTCTGATTTCAAC TCAGCCACGTCGTTGAACCGATGCTCGCAGACTTCAACGGCTCC
spacer length: 44 repeater length: 30
1544 400422 CTTTCAATCCCATTTTGGTCTGATTTCAAC TCCGTAACATATGCTATTGTTCTCAAGCAAATTATACT spacer
length: 37 repeater length: 30
1545 400489 CTTTCAATCCCATTTTGGTCTGATTTCAAC CAGGAGGAATGATATGTTTATTGGACAAAGACAGGT spacer
length: 36 repeater length: 30
1546 400555 CTTTCAATCCCATTTTGGTCTGATTTCAAC ATCGCCAATTGCCTCAACACTCACTTTGCCATAGCAATACAA
spacer length: 42 repeater length: 30
1547 400627 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTCGGGGGATTGATGAGTTGCTTCTCCTCTTGCCCTT spacer
length: 38 repeater length: 30
1548 400695 CTTTCAATCCCATTTTGGTCTGATTTCAAC TCCCCTCTGGAGTTCGTGAGGTATGCCTCCTTTAT spacer
length: 35 repeater length: 30
1549 400760 CTTTCAATCCCATTTTGGTCTGATTTCAAC GGCCGAGCTGAAGCTGCTCTATGTGCGAGAGTTCCA spacer
length: 36 repeater length: 30
1550 400826 CTTTCAATCCCATTTTGGTCTGATTTCAAC TAACGAATCTCAAAGCCCTCGCATTGGAAAGGGTCG spacer
length: 36 repeater length: 30
1551 400892 CTTTCAATCCCATTTTGGTCTGATTTCAAC CAAGTACAGACTCTCGAAGCCGCCGTAATAATCGCT spacer
length: 36 repeater length: 30
1552 400958 CTTTCAATCCCATTTTGGTCTGATTTCAAC AAACCCCCCTCTTGGTGGAGTTGGCAAAGATTATGTC spacer
length: 37 repeater length: 30
1553 401025 CTTTCAATCCCATTTTGGTCTGATTTCAAC TCACGACGCTCCCTAACGGTAAGGCAATAGTTAAAAG spacer
length: 37 repeater length: 30
1554 401092 CTTTCAATCCCATTTTGGTCTGATTTCAAC TAGGGCAACAGTTGTTGATCTCCTCTCTCGTTAAG spacer
length: 36 repeater length: 30
1555 401158 CTTTCAATCCCATTTTGGTCTGATTTCAAC TGTTCAATCAAGTCAAAACGTATTACTCTCAAAGCG spacer
length: 36 repeater length: 30
1556 401224 CTTTCAATCCCATTTTGGTCTGATTTCAAC CATTAACAGCTCTCAGAACGATTTGGGACAGAACAAT spacer
length: 37 repeater length: 30
1557 401291 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTGAACTCCACCTCTGGCAACAGCGGCTGCTATTACTG spacer
length: 38 repeater length: 30
1558 401359 CTTTCAATCCCATTTTGGTCTGATTTCAAC CCTTGATCGAGGGAGAGAAGAACCCTCGAGTCGTCGTC spacer
length: 38 repeater length: 30
1559 401427 CTTTCAATCCCATTTTGGTCTGATTTCAAC TCAAAAACGTTTTGGAGAGTAGTTCTCGCACTTGCTG spacer
length: 37 repeater length: 30
1560 401494 CTTTCAATCCCATTTTGGTCTGATTTCAAC CGCCTTGCTGAAAGCTCTAAGCACCACTTCGGCAAT spacer
length: 36 repeater length: 30
1561 401560 CTTTCAATCCCATTTTGGTCTGATTTCAAC GTCCACTCCC
1562
1563
1564 crispr 3
1565 1690929 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CTATTCTCCAAATAAAATTATATAACGCATTAACATCA
spacer length: 38 repeater length: 37
1566 1691004 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CAGGAGGGACCGGAAACACACGGTTGAAGGGGAACGC
spacer length: 37 repeater length: 37
1567 1691078 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCTATAACTCCTATACGGTCAACATTGTAACCTGGGTT
spacer length: 38 repeater length: 37
1568 1691153 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
TCTCGCTTGCCCTGATGAAATCGGATGGCTTTGCGTCCA spacer length: 39 repeater length: 37
1569 1691229 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATCTTTTGCACTTCCTCCTTAACCTTCTTAATCTCC
spacer length: 36 repeater length: 37
1570 1691302 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
GCTCTGCAGGGCCAGGTAAGACAATTGCTGACATAATT spacer length: 39 repeater length: 37
1571 1691378 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
CTTCAGGTAACCCCTGAACTAAGACCTACTCGGACAGGATTAAGCTGCCGTAT spacer length: 53 repeater
length: 37
1572 1691468 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CTTCAGGTAACCCCTGCACAATTTGCGCCTTTTTCT
spacer length: 36 repeater length: 37
1573 1691541 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GTCTAACAGGCACAGGAGAACACATTGCACCCTTGCAA
spacer length: 38 repeater length: 37
1574 1691616 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
CCTTCAATATCACTGTCCAGTTTCTTGAAGCACACTGGG spacer length: 39 repeater length: 37
1575 1691692 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
ATGTCAACATGTTTCATGCCTGCTTCAAAGCCGATTTGG spacer length: 39 repeater length: 37
1576 1691768 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTTGGACTATTTGCCGCAATCTGCACAGACTACTTC
spacer length: 37 repeater length: 37
1577 1691842 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GTCTCGCTCAGGTCGGTTAAGGCATCGTTCATCTC
spacer length: 35 repeater length: 37

1578 1691914 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG
AACGTCGTGCTGAACCTTAGGAATAGTGATGTCCAACCTATCT spacer length: 41 repeater length: 37
1579 1691992 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG GAAATCGCTGTATTTCATTTGGTTTTTTGAATTGGAAA
spacer length: 37 repeater length: 37
1580 1692066 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG AAATCTACACCGTTTTATTTTAACCGCCTTCATAACAA
spacer length: 37 repeater length: 37
1581 1692140 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG CAAGCTGTTCTGGTGGCAACGATGCGAGTAAATTCT
spacer length: 36 repeater length: 37
1582 1692213 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG ATATACTCCTTACCCCTATCTTCTTGCTTGAAATTGC
spacer length: 38 repeater length: 37
1583 1692288 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG TCATCCTCTCGTACAGCGTCTCGTTGAAATGCCGAGA
spacer length: 38 repeater length: 37
1584 1692363 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG TCCCTCTCCCCACTCTCCATATCCTCGATAACGCTGAG
spacer length: 38 repeater length: 37
1585 1692438 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG
ATTATCAGAGGTGTTGTAATCAAGGACGAGGAGCTGGAT spacer length: 39 repeater length: 37
1586 1692514 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG ATATCAGCTCTTTTGTGAACTCATCCGTATAGTATGT
spacer length: 37 repeater length: 37
1587 1692588 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG AATATCTGATTTATCAGGGCGATGCTTATCTCGGAGAA
spacer length: 38 repeater length: 37
1588 1692663 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG
AACTGATACCACAACTGGTGCACCAACTGAGGTTGCCGC spacer length: 39 repeater length: 37
1589 1692739 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG CAGTAAACATTGACGGCCAAATTTATCAGGGAGACGT
spacer length: 37 repeater length: 37
1590 1692813 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG ATAAATTCCTGATACATATTATTTGAATCAGAACCCAC
spacer length: 38 repeater length: 37
1591 1692888 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG ATTTTATCTGCATCTCCACACTACCTCTGCAGGAAGCT
spacer length: 38 repeater length: 37
1592 1692963 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG
CAATAATCTCATCATTTGCCTGGAATTTCCGAAGTTAGGG spacer length: 39 repeater length: 37
1593 1693039 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG TGCAGCCACCAAGTTTGGTGACTTGGCAACCATCTT
spacer length: 36 repeater length: 37
1594 1693112 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG GATACATGCAAAATATCTTGAGTGAGGTGGTTTGATGG
spacer length: 38 repeater length: 37
1595 1693187 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG AATGCATCAGATTTCATACTCAAGAACCTTCTTAACAA
spacer length: 37 repeater length: 37
1596 1693261 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG ATATTTTCGTATCCTTGAGAGTATCAGCGATCGATTTCG
spacer length: 38 repeater length: 37
1597 1693336 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG TCATATCACCTGATGAAATTCATCCTTTTCTCTTA
spacer length: 35 repeater length: 37
1598 1693408 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG AATCACGACCCATTTCATATCACCTCTTCTCCAAACCAA
spacer length: 38 repeater length: 37
1599 1693483 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG TAAATGCTTTCTCACTTCCCTCTTCTCATATATCTCT
spacer length: 38 repeater length: 37
1600 1693558 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG GAGCTATCAGCAGATGGGCGAGAGTTTAGGCGGCTT
spacer length: 36 repeater length: 37
1601 1693631 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG
TGCAAAATAGGGGTGGTAGTAATGCGGTATAATTTTCAGC spacer length: 39 repeater length: 37
1602 1693707 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG ATGCAAAAGAGAAGTTTCGGGTAGTGGTAGTGGGGAAGG
spacer length: 38 repeater length: 37
1603 1693782 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG GTTGCTTGGCCTGCCATCTGAGTCATATGCCCCATCC
spacer length: 37 repeater length: 37
1604 1693856 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG ATGTCGTTGAACTGGGCTTGGATTTCTCTTATAATCGG
spacer length: 38 repeater length: 37
1605 1693931 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG CCCTCGAAGCGGGCCTGCTGCTTGAACCTTACGGTTGT
spacer length: 38 repeater length: 37
1606 1694006 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG
ACTGCAGGGGTGTGGACACAAGTGGACCGCAACAGAGGT spacer length: 39 repeater length: 37
1607 1694082 GTAAGAAAAGGGAGGCTCCTGAAAAATGGAGATTGAAAG
1608
1609
1610 GCA_000009965.1_ASM996v1_genomic.fna (PilerCR):
1611 START REPEAT
SPACER
1612 crispr 1
1613 373033 TTTCAATTCTCCTAGAGTCTTATTGCAAC GGGCGCTCCGTGACGTCACCGAGGCACCTAACACCTAA spacer
length: 38 repeater length: 29
1614 373100 TTTCAATTCTCCTAGAGTCTTATTGCAAC ACGGCACCACCCCTGCAAACACCACCAGCCAAAGCACGGA spacer
length: 40 repeater length: 29
1615 373169 TTTCAATTCTCCTAGAGTCTTATTGCAAC TTTTCCGAAGTTCACCTCTGAGGCCGAGAGGAGGATTGA spacer
length: 39 repeater length: 29

1616	373237	TTTCAATTCTCCTAGAGTCTTATTGCAAC	ACATAGATATAGAGAAGCCCCGAGACATCAAGAAGGCGA	spacer
	length:	39	repeater length:	29
1617	373305	TTTCAATTCTCCTAGAGTCTTATTGCAAC	GTGATGGAGGTGAAAGCCGATGTCTGATGTCCAGATTCA	spacer
	length:	39	repeater length:	29
1618	373373	TTTCAATTCTCCTAGAGTCTTATTGCAAC	GAATGGCGATGAAGAGCAGGCGAAGATTGACGCTCAAAA	spacer
	length:	39	repeater length:	29
1619	373441	TTTCAATTCTCCTAGAGTCTTATTGCAAC	TATCCTCCTCACCGCTGGCCTCTGCGCCGTACCTTA	spacer
	length:	37	repeater length:	29
1620	373507	TTTCAATTCTCCTAGAGTCTTATTGCAAC	CAAAGAACCCGAACCCTACCACCCTCGCGGAATTGA	spacer
	length:	36	repeater length:	29
1621	373572	TTTCAATTCTCCTAGAGTCTTATTGCAAC	TTTCGCGGAGTATTTGCCTTAAATCCTCCTTGATAATA	spacer
	length:	38	repeater length:	29
1622	373639	TTTCAATTCTCCTAGAGTCTTATTGCAAC	TTTCACGTTACCTCACTCAGAAAGCCCTCGCAAACCTCG	spacer
	length:	38	repeater length:	29
1623	373706	TTTCAATTCTCCTAGAGTCTTATTGCAAC	AGAAAGCACCAAGTATGAGATAGCTCCAATGAAAAACCTG	spacer
	length:	39	repeater length:	29
1624	373774	TTTCAATTCTCCTAGAGTCTTATTGCAAC	TCGTTGAACCCGTTAAAAGCCATCTCCCCATCTTCGTG	spacer
	length:	38	repeater length:	29
1625	373841	TTTCAATTCTCCTAGAGTCTTATTGCAAC	TTCTCGACATGAAAAGGGAGATGGGCAGAGTCATTGAG	spacer
	length:	38	repeater length:	29
1626	373908	TTTCAATTCTCCTAGAGTCTTATTGCAAC	TTGAGTTTGAAGAGCTTTACCTTTTTCTTTGCGTGGACG	spacer
	length:	39	repeater length:	29
1627	373976	TTTCAATTCTCCTAGAGTCTTATTGCAAC	TACCCGAAGCAGAACATGAAACATTTATCGCCTTAACG	spacer
	length:	38	repeater length:	29
1628	374043	TTTCAATTCTCCTAGAGTCTTATTGCAAC	CTGTTTCGACC	
1629				
1630				
1631	crispr	2		
1632	469047	TTTCAATTCTCTTAGAGTCTTATTGCAAC	GGTGAGAAAATCGTAAAGGCGTTCAGAGAGCCGGCTCTA	spacer
	length:	39	repeater length:	29
1633	469115	TTTCAATTCTCTTAGAGTCTTATTGCAAC	AAACTTTCCACACCTTGACTTTACGTCGACGTCGGTA	spacer
	length:	38	repeater length:	29
1634	469182	TTTCAATTCTCTTAGAGTCTTATTGCAAC	TCCTCGTCGAGGAAGCCCATGCCAATGGCTCTGCGGAA	spacer
	length:	38	repeater length:	29
1635	469249	TTTCAATTCTCTTAGAGTCTTATTGCAAC	GCGCTGGAAGGCCCTCCAGAAAATTGCAGAAATCCTA	spacer
	length:	37	repeater length:	29
1636	469315	TTTCAATTCTCTTAGAGTCTTATTGCAAC	TTTGAAGTCTTCAGGAAAGAGGGCATTTCATGGAAAACCTG	spacer
	length:	39	repeater length:	29
1637	469383	TTTCAATTCTCTTAGAGTCTTATTGCAAC	ATGGCCGGGTTACCTGAACGTCATAGGTCGCGACCG	spacer
	length:	37	repeater length:	29
1638	469449	TTTCAATTCTCTTAGAGTCTTATTGCAAC	AGCACGAAGAACGCATCAACACCGCCCCACTTGTAGTTG	spacer
	length:	39	repeater length:	29
1639	469517	TTTCAATTCTCTTAGAGTCTTATTGCAAC	GCGTAGCATAGTTGGGTAGTGGGCCCGCCTCGTGAGG	spacer
	length:	37	repeater length:	29
1640	469583	TTTCAATTCTCTTAGAGTCTTATTGCAAC	GACGTGGGGACAGCCATTAAAGAACTGGGCGAAGACCG	spacer
	length:	38	repeater length:	29
1641	469650	TTTCAATTCTCTTAGAGTCTTATTGCAAC	CCTCTCCTTGATAACATCCAGCACGGCGCGGTGGAG	spacer
	length:	37	repeater length:	29
1642	469716	TTTCAATTCTCTTAGAGTCTTATTGCAAC	GCCCTCACTCAGGGCTGCCCCCTACCACTCCCCAAAGTCG	spacer
	length:	40	repeater length:	29
1643	469785	TTTCAATTCTCTTAGAGTCTTATTGCAAC	GTCCGGGCTTTTGATTGTGGGCAATTCTCCAGGCCCG	spacer
	length:	39	repeater length:	29
1644	469853	TTTCAATTCTCTTAGAGTCTTATTGCAAC	GTTAGAGATCAAAAGAAGGTCAAGGCGGGTGGTTCTCCCG	spacer
	length:	40	repeater length:	29
1645	469922	TTTCAATTCTCTTAGAGTCTTATTGCAAC	TTGCGCAACACCCACCACCGTCACCCACCACCCACCTTTTTG	spacer
	length:	42	repeater length:	29
1646	469993	TTTCAATTCTCTTAGAGTCTTATTGCAAC	TTCTTGCTCGAAGGCCTCATCAGCGATGGGCTTGACGAG	spacer
	length:	39	repeater length:	29
1647	470061	TTTCAATTCTCTTAGAGTCTTATTGCAAC	TATTGACCCGCCGAAAAGCCAGATTACGCCGATAGTTG	spacer
	length:	39	repeater length:	29
1648	470129	TTTCAATTCTCTTAGAGTCTTATTGCAAC	TCCCCGAATTTCCCGGATTTTCCCTATATTTCCCTATAG	spacer
	length:	39	repeater length:	29
1649	470197	TTTCAATTCTCTTAGAGTCTTATTGCAAC	AGGTCTCTGTCTGGAGAGAAATGCAGACGGCAAGCTTGG	spacer
	length:	40	repeater length:	29
1650	470266	TTTCAATTCTCTTAGAGTCTTATTGCAAC	CTGAGCCAAGGCTAGATGTTGAGCCTGAGCCAGAAGCGGGG	spacer
	length:	41	repeater length:	29
1651	470336	TTTCAATTCTCTTAGAGTCTTATTGCAAC	TGTGGCCCAGATAAGGGCTGTGGCATAGGTTTACG	spacer
	length:	35	repeater length:	29
1652	470400	TTTCAATTCTCTTAGAGTCTTATTGCAAC	CAGTCTTCCCCGACTTCGGCGCGAGCATGATCTACGGG	spacer
	length:	38	repeater length:	29
1653	470467	TTTCAATTCTCTTAGAGTCTTATTGCAAC	TAGGTCTTGCTCATAATCGCGTCGTGGCTCTCAAGGTTGAG	

spacer length: 41 repeater length: 29
 1654 470537 TTTCAATTCTCTTAGAGTCTTATTGCAAC CGGACCTGGC
 1655
 1656
 1657 crispr 3
 1658 833494 GTTGCAATAAGACTCTAAGAGAATTGAAA GTTTGCCACCCTGAATCACTCTTGCAACCGCTATTCTGAA spacer
 length: 40 repeater length: 29
 1659 833563 GTTGCAATAAGACTCTAAGAGAATTGAAA GCGTCTTCCTCATCGTCGTAGAGCTTGACCCTCCACCCACCGG
 spacer length: 43 repeater length: 29
 1660 833635 GTTGCAATAAGACTCTAAGAGAATTGAAA GTTTTTTAGGTGTAGTTTGGTGGTGTGGGCGAGGTTCA spacer
 length: 38 repeater length: 29
 1661 833702 GTTGCAATAAGACTCTAAGAGAATTGAAA GCGGAGAAGAAGCCACGGGCTACGCAATACTTGCTTAC spacer
 length: 39 repeater length: 29
 1662 833770 GTTGCAATAAGACTCTAAGAGAATTGAAA GAAGAGACGATCATGCTCTCACCCCAGGAGTTGCTCGT spacer
 length: 39 repeater length: 29
 1663 833838 GTTGCAATAAGACTCTAAGAGAATTGAAA GAACGATTTGTTCTCTGTGGACTTGGGTCTCATTGGGA spacer
 length: 38 repeater length: 29
 1664 833905 GTTGCAATAAGACTCTAAGAGAATTGAAA GGAACACATCGCCAGGAACCTCAAGCGACTTCGGGTGGTCCG
 spacer length: 43 repeater length: 29
 1665 833977 GTTGCAATAAGACTCTAAGAGAATTGAAA GCCAAAATGAATAAAAGCCCCTATCCCTAATAAATGTAA spacer
 length: 39 repeater length: 29
 1666 834045 GTTGCAATAAGACTCTAAGAGAATTGAAA GGCAGATGGTGAGATGGAGGTAACAATAGAATTTGTGG spacer
 length: 38 repeater length: 29
 1667 834112 GTTGCAATAAGACTCTAAGAGAATTGAAA GGGTTAAACTCAGTCAGAGGGCCAGTGAGGTCCTGAGA spacer
 length: 38 repeater length: 29
 1668 834179 GTTGCAATAAGACTCTAAGAGAATTGAAA GCCTGTGCAGCCTGGAGGTAGTAGTCACCGATCATTTCTCTC
 spacer length: 41 repeater length: 29
 1669 834249 GTTGCAATAAGACTCTAAGAGAATTGAAA GTCTTCAAGTGAAGCGAGGATTTAGCGATCTCTCTCT spacer
 length: 38 repeater length: 29
 1670 834316 GTTGCAATAAGACTCTAAGAGAATTGAAA GAACACTTGCGAACTTTCCCGGCCAGAACAAAGGAAAGCGAG
 spacer length: 41 repeater length: 29
 1671 834386 GTTGCAATAAGACTCTAAGAGAATTGAAA GCAAGTTTGAAGAATTAGTCAGTGAAAAAGGCAAACAGT spacer
 length: 39 repeater length: 29
 1672 834454 GTTGCAATAAGACTCTAAGAGAATTGAAA GCAGACTTGCCGTTCACTGGGACAGGGATGCGGAAGCGG spacer
 length: 39 repeater length: 29
 1673 834522 GTTGCAATAAGACTCTAAGAGAATTGAAA GATGGACTGAAAGACCCTCTTCAGTTCTTCCGCGTTTTT spacer
 length: 39 repeater length: 29
 1674 834590 GTTGCAATAAGACTCTAAGAGAATTGAAA GAGTTCTAAGACTCTCCCCAAGAAAGGGCACTACGTCT spacer
 length: 38 repeater length: 29
 1675 834657 GTTGCAATAAGACTCTAAGAGAATTGAAA GTAGGACATCACCTCACGGTGCTGGCGGGAGGGCCTTCACG
 spacer length: 41 repeater length: 29
 1676 834727 GTTGCAATAAGACTCTAAGAGAATTGAAA GAGATAACGCTCGACGTGCCAGCAAACAAAGCCGAA spacer
 length: 36 repeater length: 29
 1677 834792 GTTGCAATAAGACTCTAAGAGAATTGAAA GGAGTTCTAATGATTAGCTTAACAATATCCCCATCTGAT spacer
 length: 39 repeater length: 29
 1678 834860 GTTGCAATAAGACTCTAAGAGAATTGAAA GTCACTTCTCCTGAGAAACGAAAGGAGTCGAGAGTCTGT spacer
 length: 39 repeater length: 29
 1679 834928 GTTGCAATAAGACTCTAAGAGAATTGAAA GTACTTCCGGCTAAGAACGAAAAGCCGCTCGACAAGCCG spacer
 length: 39 repeater length: 29
 1680 834996 GTTGCAATAAGACTCTAAGAGAATTGAAA GACATAGCCCTCTCCCAGGCCGCACAGGTCTTCAGGTACAA
 spacer length: 41 repeater length: 29
 1681 835066 GTTGCAATAAGACTCTAAGAGAATTGAAA CGATTAAGGGTGGCGTCTGCGCTGGCGAACGGGCTTACG spacer
 length: 39 repeater length: 29
 1682 835134 GTTGCAATAAGACTCTAAGAGAATTGAAA CGTAGTACTTCTTAAGCATGCGTTCACGCCTTAGATAG spacer
 length: 38 repeater length: 29
 1683 835201 GTTGCAATAAGACTCTAAGAGAATTGAAA CCTGTGGTGGTCATGATAGTACGTGATAGCAGCACTAGC spacer
 length: 39 repeater length: 29
 1684 835269 GTTGCAATAAGACTCTAAGAGAATTGAAA CTCGCTATGACAATCTTTGCGTCTCATCCATCAGAAT spacer
 length: 38 repeater length: 29
 1685 835336 GTTGCAATAAGACTCTAAGAGAATTGAAA GCTATCAGGCCCTCTGTCTGGCCAGTTAGGTCCTTCCAC spacer
 length: 39 repeater length: 29
 1686 835404 GTTGCAATAAGACTCTAAGAGAATTGAAA GGAAGATCGTGGCCAAGATACTCAACGAGATGTCTGAAG spacer
 length: 38 repeater length: 29
 1687 835471 GTTGCAATAAGACTCTAAGAGAATTGAAA GGTCTTCGCGAGGATCTCCCGTGAAGAAGACTGAGACCG spacer
 length: 39 repeater length: 29
 1688 835539 GTTGCAATAAGACTCTAAGAGAATTGAAA
 GCAAGGACTACCTACAATTTCCCTACCCTATCGGCGCGTTGCAATAA spacer length: 48 repeater length: 29
 1689 835616 GTTGCAATAAGACTCTAAGAGAATTGAAA GAGAATAACGCCGTCACCGGCCAGGCGGAGCGCTTTAG spacer
 length: 38 repeater length: 29
 1690 835683 GTTGCAATAAGACTCTAAGAGAATTGAAA GCAACTCTCATACATCACACCCCAGCTCATAGATTTT spacer
 length: 38 repeater length: 29

1691 835750 GTTGCAATAAGACTCTAAGAGAATTGAAA GAGGCTCGCCGCGCCGCCGAGGAGCATCAGCGCTGGCTC spacer
length: 39 repeater length: 29
1692 835818 GTTGCAATAAGACTCTAAGAGAATTGAAA GAGCTTATACATCACGTAAACCGTGAACGCTGAACCGACCA
spacer length: 41 repeater length: 29
1693 835888 GTTGCAATAAGACTCTAAGAGAATTGAAA ATCGACGAGGTCGGGAAGGACGCCATGGTCTTCGTGG
1694
1695
1696 GCA_000011005.1_ASM1100v1_genomic.fna (PilerCR):
1697 START REPEAT
SPACER
1698 GCA_000011105.1_ASM1110v1_genomic.fna (PilerCR):
1699 START REPEAT
SPACER
1700 crispr 1
1701 32971 CTTTCCACACTATTTAGTTCTACGGAAAC GCTAGGGCATTACTAGAAAGAGCAAAAAGCAGGTACAT spacer
length: 38 repeater length: 29
1702 33038 CTTTCCACACTATTTAGTTCTACGGAAAC AAGAAGTCAGGGATTTTCATAAGAGACGAGGATTCTCAA spacer
length: 38 repeater length: 29
1703 33105 CTTTCCACACTATTTAGTTCTACGGAAAC TCATAGCCATCGGCTGGCTTAGACGTAAGCCTGATTT spacer
length: 37 repeater length: 29
1704 33171 CTTTCCACACTATTTAGTTCTACGGAAAC CTCACATTCCCTCGAGCAGAACCCGCACTTACTCACCTT spacer
length: 38 repeater length: 29
1705 33238 CTTTCCACACTATTTAGTTCTACGGAAAC TTTGGCGATGATGGATCAGGAACAAAAGGACGCATTCTTC spacer
length: 40 repeater length: 29
1706 33307 CTTTCCACACTATTTAGTTCTACGGAAAC AATACTATGAGTGCATAATTAGTATCGAGGTGAT spacer
length: 34 repeater length: 29
1707 33370 CTTTCCACACTATTTAGTTCTACGGAAAC GTAAGGGAGGCTTTCGCGACGGCAATGGTTACATATAG spacer
length: 38 repeater length: 29
1708 33437 CTTTCCACACTATTTAGTTCTACGGAAAC CTTATAGACGGGAAAGAGATACACGTTATAAAAGAGCTT spacer
length: 39 repeater length: 29
1709 33505 CTTTCCACACTATTTAGTTCTACGGAAAC GCTATTGGAGCAAGGGAAATTCAGCTATACAGAAGACAT spacer
length: 39 repeater length: 29
1710 33573 CTTTCCACACTATTTAGTTCTACGGAAAC TGGAATAGTGTTATTGCTAGAGTTTTTAGTGGAATTGTTGAGA
spacer length: 43 repeater length: 29
1711 33645 CTTTCCACACTATTTAGTTCTACGGAAAC GAGTTAAGAAGAGAGGCATTAATGTTTGCAGAATATCTT spacer
length: 39 repeater length: 29
1712 33713 CTTTCCACACTATTTAGTTCTACGGAAAC ATGAAAGCAGAACTTGGAAGAACATACTGTACATGTCAGCTT
spacer length: 43 repeater length: 29
1713 33785 CTTTCCACACTATTTAGTTCTACGGAAAC GAACGATGTTGATATGAAGTTCTCATGCCAGATTATC spacer
length: 37 repeater length: 29
1714 33851 CTTTCCACACTATTTAGTTCTACGGAAAC CTAGGGAATACCTAAGTGCTACTAACTCAAGAACACTTT spacer
length: 39 repeater length: 29
1715 33919 CTTTCCACACTATTTAGTTCTACGGAAAC AGCTTAAATCACTGGGTTATGAGGTTGAACCTATGAC spacer
length: 37 repeater length: 29
1716 33985 CTTTCCACACTATTTAGTTCTACGGAAAC TTACGAACTTCTTGAGTAAAGAAATCACGCAGGCAGGT spacer
length: 38 repeater length: 29
1717 34052 CTTTCCACACTATTTAGTTCTACGGAAAC ACCTTGTTGGA
1718
1719
1720 crispr 2
1721 150417 GTTTCCGTAGAACTTAGTAGTGTGGAAAG TAGAGCTCGAAGTAGACTTTAACCCAGCGGTTCCACT spacer
length: 38 repeater length: 29
1722 150484 GTTTCCGTAGAACTTAGTAGTGTGGAAAG AGGTCTGGCTCCTCATCCTCAGGAGGCTTCTTAAATGG spacer
length: 38 repeater length: 29
1723 150551 GTTTCCGTAGAACTTAGTAGTGTGGAAAG GACTTGAAGAAGGATGTAATAACATATGATGACTTCATAGAAG
spacer length: 43 repeater length: 29
1724 150623 GTTTCCGTAGAACTTAGTAGTGTGGAAAG ACTAAGTTGCTAACTAGAGTATTGCTCATCCAAGAATCATACTTCAA
spacer length: 47 repeater length: 29
1725 150699 GTTTCCGTAGAACTTAGTAGTGTGGAAAG TATCTGAAGCACTATTGCCAACAAATTCTGGAACAATCC spacer
length: 39 repeater length: 29
1726 150767 GTTTCCGTAGAACTTAGTAGTGTGGAAAG TTGATGACCTTGCCCATTTAGAGTATGACCCAGAAACT spacer
length: 38 repeater length: 29
1727 150834 GTTTCCGTAGAACTTAGTAGTGTGGAAAG CTGATTTATACGGGTTCTCTGGTTTTTCTACCTCAA spacer
length: 36 repeater length: 29
1728 150899 GTTTCCGTAGAACTTAGTAGTGTGGAAAG ACTTTCACGAAGACATCAGGGTTTCTCCGATTCCCTCT spacer
length: 38 repeater length: 29
1729 150966 GTTTCCGTAGAACTTAGTAGTGTGGAAAG ACGTCAATTCCATAGCCCAAATTCTCAGCTACGTCGAATTCA
spacer length: 42 repeater length: 29
1730 151037 GTTTCCGTAGAACTTAGTAGTGTGGAAAG GCGTGGAACATCCCAGCGAACGGTTACGACGACATAAC spacer
length: 40 repeater length: 29
1731 151106 GTTTCCGTAGAACTTAGTAGTGTGGAAAG AGCGTCCAGCCACTTGCTGGAACATTTATTGTTTCTAGCTCG

spacer length: 42 repeater length: 29
 1732 151177 GTTCCGTAGAACTTAGTAGTGTGGAAAG
 ACAGTCGTATACAATCCTTGCAGACATGTGCCCCGAGATGAACTTTCCA spacer length: 49 repeater length: 29
 1733 151255 GTTCCGTAGAACTTAGTAGTGTGGAAAG CATAAAATCTAATAAGGATATCTGTAGACATCAAGCGA spacer length: 38 repeater length: 29
 1734 151322 GTTCCGTAGAACTTAGTAGTGTGGAAAG
 TCAACCTTGTCATCAGCAACCGTGTAGGTTATTGTGTACTTTGGGGTTTCC spacer length: 51 repeater length: 29
 1735 151402 GTTCCGTAGAACTTAGTAGTGTGGAAAG AACTGTGCGAGGCCTGCGTTTTGCAGGAACAACCCAA spacer length: 37 repeater length: 29
 1736 151468 GTTCCGTAGAACTTAGTAGTGTGGAAAG ATAGTAGCATTACTACGACATACTCTGGGCTCTCTGAAT spacer length: 39 repeater length: 29
 1737 151536 GTTCCGTAGAACTTAGTAGTGTGGAAAG CTCAGCTCTTCTGGGGTTATGACGCCTCCCTCTATAG spacer length: 37 repeater length: 29
 1738 151602 GTTCCGTAGAACTTAGTAGTGTGGAAAG AAGAAGGGTAGGAGGAAGAGGAGAGAGGAGTTCTTTGGCTGG spacer length: 42 repeater length: 29
 1739 151673 GTTCCGTAGAACTTAGTAGTGTGGAAAG TCCTTTCAA
 1740
 1741
 1742 crispr 3
 1743 151942 GTTCCGTAGAACTTAGTAGTGTGGAAAGAC CTCTGGGGTATGACTTGCCACAACAACACCACCTCC spacer length: 36 repeater length: 31
 1744 152009 GTTCCGTAGAACTTAGTAGTGTGGAAAGAC AACCAGTAGCCTGTTAATGAGCGGTGCTGGCAGCTGG spacer length: 37 repeater length: 31
 1745 152077 GTTCCGTAGAACTTAGTAGTGTGGAAAGAC AAATCCAAGATCC
 1746
 1747
 1748 crispr 4
 1749 637737 GTTCCAATAAGACTATAAGAGAATTGAAAG TAACCTTAAGCGGGAGGGAACCTTGTTGAGTTCATAAGGG spacer length: 39 repeater length: 30
 1750 637806 GTTCCAATAAGACTATAAGAGAATTGAAAG ACGACGTAATCAACCTCGAAAAGGGTTCCGCACCTGTT spacer length: 38 repeater length: 30
 1751 637874 GTTCCAATAAGACTATAAGAGAATTGAAAG CGTGCTCTGGGTACGCTGTTGCTACGATGTGTGCAGGG spacer length: 38 repeater length: 30
 1752 637942 GTTCCAATAAGACTATAAGAGAATTGAAAG TATAGATGTCGTCAAATCTATATAGATGCCGGTGGAC spacer length: 37 repeater length: 30
 1753 638009 GTTCCAATAAGACTATAAGAGAATTGAAAG GAGAGAAACGACAGGCTTACCTCCACTTTCAAGCCAT spacer length: 37 repeater length: 30
 1754 638076 GTTCCAATAAGACTATAAGAGAATTGAAAG TCAAGTTGATAAAATCATTGCCTGCTCAATATCTTTT spacer length: 37 repeater length: 30
 1755 638143 GTTCCAATAAGACTATAAGAGAATTGAAAG AGCTCGGAAGAGGGCAGGATAGGAAAGTATGACGCAA spacer length: 37 repeater length: 30
 1756 638210 GTTCCAATAAGACTATAAGAGAATTGAAAG TGTGTTGCATCGGACATGTTTCAAGTATGAAATCCTTC spacer length: 37 repeater length: 30
 1757 638277 GTTCCAATAAGACTATAAGAGAATTGAAAG TTCTTCCTTTCCAGCTCGTAACCCAGGGATTCGAGCC spacer length: 37 repeater length: 30
 1758 638344 GTTCCAATAAGACTATAAGAGAATTGAAAG CGGCGAGCTAGATAAGAGGGAGGAGACGCATTTAGAG spacer length: 38 repeater length: 30
 1759 638412 GTTCCAATAAGACTATAAGAGAATTGAAAG ACGCTAACGTCAGCATGGAAGACGTTTTGAAGGCTATA spacer length: 38 repeater length: 30
 1760 638480 GTTCCAATAAGACTATAAGAGAATTGAAAG AACTTCGTACTCGACTAGCTCCTCCTCATCGTCCTC spacer length: 36 repeater length: 30
 1761 638546 GTTCCAATAAGACTATAAGAGAATTGAAAG ATTTAAGATAGACGGGAGAGTACCCATGTAGCTGTCAA spacer length: 38 repeater length: 30
 1762 638614 GTTCCAATAAGACTATAAGAGAATTGAAAG GAGTTCATATGTCGACTTTCACACTTGGGTTCTTCTGT spacer length: 38 repeater length: 30
 1763 638682 GTTCCAATAAGACTATAAGAGAATTGAAAG AAGCTTGAGGTTGTTTATTATAACGTGAAATGGGATGATGTT spacer length: 42 repeater length: 30
 1764 638754 GTTCCAATAAGACTATAAGAGAATTGAAAG TCTGGAAGGAAGGCAATACCAAATCAGAGGTTGAG spacer length: 36 repeater length: 30
 1765 638820 GTTCCAATAAGACTATAAGAGAATTGAAAG AATGTTCCAC
 1766
 1767
 1768 crispr 5
 1769 933763 TTTCCACACTATTTAGTTCTACGGAAAC GAAGTCCTCTACTACGAGAATGGCGTCTACAGGTTCAACGGC spacer length: 42 repeater length: 28
 1770 933833 TTTCCACACTATTTAGTTCTACGGAAAC ACAGTTTGCCGAGCAGTTGGGAGCAACTTCCATAGTCTTTTCTC spacer length: 44 repeater length: 28
 1771 933905 TTTCCACACTATTTAGTTCTACGGAAAC ATATAGGAGTAGAGACCATAAAAACCTTCCCCTACTAG spacer length: 38 repeater length: 28

1772 933971 TTTCCACACTATTTAGTTCTACGGAAAC GCGACGAATTATGGAGCCACGCCCCAGCGGGTGAGCATTCCG
 spacer length: 42 repeater length: 28
 1773 934041 TTTCCACACTATTTAGTTCTACGGAAAC AGTCGGATAC
 1774
 1775
 1776 crispr 6
 1777 934202 GTTTCCACACTACTAAGTTCTACGGAAAC AAAATGCTAGGGAAATCCAAGAGATTGGAGAGTTTCC spacer
 length: 37 repeater length: 29
 1778 934268 GTTTCCACACTACTAAGTTCTACGGAAAC CTCAATTGCCTTGTCTAGTATAAATCTACCCAGCCATG spacer
 length: 38 repeater length: 29
 1779 934335 GTTTCCACACTACTAAGTTCTACGGAAAC GGTCTGCAGGGCATGTGGATCACCTTTCTATTATTACAT spacer
 length: 40 repeater length: 29
 1780 934404 GTTTCCACACTACTAAGTTCTACGGAAAC CCTTGCAGAAGAATGGCTGGAGACTGCAGGAAAGTTGGTAGTGTTTT
 spacer length: 47 repeater length: 29
 1781 934480 GTTTCCACACTACTAAGTTCTACGGAAAC TAGAGGGAAAGTTGTGATATGCAGAGCGGATGAGAACGAGTA
 spacer length: 42 repeater length: 29
 1782 934551 GTTTCCACACTACTAAGTTCTACGGAAAC AGAAATTGTTTCAGAAATGTCAATAGTGGACTTGAACAG spacer
 length: 39 repeater length: 29
 1783 934619 GTTTCCACACTACTAAGTTCTACGGAAAC AAGGAGCCGTCTCCAGGAGCCCATTCCCACCCTTCCTTGTAC
 spacer length: 42 repeater length: 29
 1784 934690 GTTTCCACACTACTAAGTTCTACGGAAAC CTACTAGCAAGGCTGGCAATGTACACAGCAGTAGGGTACA spacer
 length: 40 repeater length: 29
 1785 934759 GTTTCCACACTACTAAGTTCTACGGAAAC TAGTTGTATATTGGGCATTGGTTGATGACCTTACTCTCCC spacer
 length: 40 repeater length: 29
 1786 934828 GTTTCCACACTACTAAGTTCTACGGAAAC GCGTCGTACC
 1787
 1788
 1789 crispr 7
 1790 935104 CTTTCCACACTATTTAGTTCTACGGAAAC GCCAAGAAGCCTGAAAAGTCGGAGTGGGAAAAGATAAT spacer
 length: 38 repeater length: 29
 1791 935171 CTTTCCACACTATTTAGTTCTACGGAAAC CGTAGATCCCTCCTATGAGGTGTATGTGCTTGCCAGAAAGTT
 spacer length: 42 repeater length: 29
 1792 935242 CTTTCCACACTATTTAGTTCTACGGAAAC ACGGAGCTCGGGATTAGTCCTGGGACTGTTAGGAAGGAGTT
 spacer length: 41 repeater length: 29
 1793 935312 CTTTCCACACTATTTAGTTCTACGGAAAC AAGTACGTTATTACCTCACTCGTAAACTCTTCCCGT spacer
 length: 36 repeater length: 29
 1794 935377 CTTTCCACACTATTTAGTTCTACGGAAAC
 ACGGGGTTGATGATTACATTAAAGTTCCTTACAGTTCTTCTTTAAACT spacer length: 48 repeater length: 29
 1795 935454 CTTTCCACACTATTTAGTTCTACGGAAAC AGAGAAGTTTTACCTTCCGAGCTCGTGAAGTATATACAAT spacer
 length: 40 repeater length: 29
 1796 935523 CTTTCCACACTATTTAGTTCTACGGAAAC TGAAAAGGGTTATAAGTTCTGGCGGTTAAGATTACT spacer
 length: 36 repeater length: 29
 1797 935588 CTTTCCACACTATTTAGTTCTACGGAAAC CTGGTTCGGTGGAGTGCTTGTGGCTTGGTTCTACTT spacer
 length: 36 repeater length: 29
 1798 935653 CTTTCCACACTATTTAGTTCTACGGAAAC AAGCTGTGCCCCCTTCCTCACCACGGCAATTAAAGTA spacer
 length: 36 repeater length: 29
 1799 935718 CTTTCCACACTATTTAGTTCTACGGAAAC ATTAGCGAACGGCATGGTTAAGGAGGTCGGCATAAAGTC spacer
 length: 39 repeater length: 29
 1800 935786 CTTTCCACACTATTTAGTTCTACGGAAAC CTACTTCATTCCGTCTCCCTCTTTCTCTTATCACCGCC spacer
 length: 38 repeater length: 29
 1801 935853 CTTTCCACACTATTTAGTTCTACGGAAAC CGGGGTCAGG
 1802
 1803
 1804 crispr 8
 1805 935927 CTTTCCACACTATTTAGTTCTACGGAAAC CTTGACGAGAGAATAGTCCAGAAATTAAGAGGAATGGGATACACGAT
 spacer length: 47 repeater length: 29
 1806 936003 CTTTCCACACTATTTAGTTCTACGGAAAC GTGTTACCGTAGCACAGAAGGGTAGCTTCCGTGTCT spacer
 length: 36 repeater length: 29
 1807 936068 CTTTCCACACTATTTAGTTCTACGGAAAC GCTGCATTCAATGCCGAACCTGCAACTATGCTTTATCTCCT
 spacer length: 41 repeater length: 29
 1808 936138 CTTTCCACACTATTTAGTTCTACGGAAAC CCTATCGGCCTCAAAGACGCAAAGGCATTCTACGATTACT spacer
 length: 40 repeater length: 29
 1809 936207 CTTTCCACACTATTTAGTTCTACGGAAAC TGGAACACCTCTACAAATAATGTTGGATAATAAACGTTTCCGT
 spacer length: 43 repeater length: 29
 1810 936279 CTTTCCACACTATTTAGTTCTACGGAAAC ATGTTACATTGACACTATCAGGAGCAAGCCACATAA spacer
 length: 36 repeater length: 29
 1811 936344 CTTTCCACACTATTTAGTTCTACGGAAAC CTCTAGCTACTTCTGCCGGCTCTTCTAGGGATAATA spacer
 length: 36 repeater length: 29
 1812 936409 CTTTCCACACTATTTAGTTCTACGGAAAC ACGTGACTAAGTACAGGGTTATCGCAAAGGTTGCCTT spacer
 length: 37 repeater length: 29
 1813 936475 CTTTCCACACTATTTAGTTCTACGGAAAC AAGGAGGAGGTGAAGGGGATGAAGATTGTTCTAAAAA spacer

length: 37 repeater length: 29
1814 936541 CTTTCCACACTATTTAGTTCTACGGAAAC AAGCTGGGGCTTGATACTGCGGACAGGATGGATAGTGC spacer
length: 38 repeater length: 29
1815 936608 CTTTCCACACTATTTAGTTCTACGGAAAC CTCATTGATGGGGAGGATGGGGAAGCTCCTTGCAAAA spacer
length: 37 repeater length: 29
1816 936674 CTTTCCACACTATTTAGTTCTACGGAAAC AAGAAATACATTGACAGGAAAGTCATCTATTGGGAGTT spacer
length: 38 repeater length: 29
1817 936741 CTTTCCACACTATTTAGTTCTACGGAAAC ATAGTAAAAGAGGAGCAGTACATCAGCGATGACGAG spacer
length: 36 repeater length: 29
1818 936806 CTTTCCACACTATTTAGTTCTACGGAAAC AGAGAATCATAGAGGAGGAGGGTGTGGAGACTGCTTA spacer
length: 37 repeater length: 29
1819 936872 CTTTCCACACTATTTAGTTCTACGGAAAC CGGACACTGTGCAGAAGCTCAGGCAAGCCAAGAGTAGTTC spacer
length: 40 repeater length: 29
1820 936941 CTTTCCACACTATTTAGTTCTACGGAAAC CTTGGGAACTGGGTACGGCTGGGGAAGTGGATAAGGCTTTT
spacer length: 41 repeater length: 29
1821 937011 CTTTCCACACTATTTAGTTCTACGGAAAC ATATTATCCAGCGTCTACCGTCTTTTCGGCACCAGGAAGA spacer
length: 40 repeater length: 29
1822 937080 CTTTCCACACTATTTAGTTCTACGGAAAC CTCAAAGACATCTAATAGGCAAATAGGCATAGCTTT spacer
length: 36 repeater length: 29
1823 937145 CTTTCCACACTATTTAGTTCTACGGAAAC CCAGCCTCCTCCCTTGCTGCTCTGGGAGGAGTTCCC spacer
length: 37 repeater length: 29
1824 937211 CTTTCCACACTATTTAGTTCTACGGAAAC GAAGGGGTGATGGCTTATACATTGTAAGGCCTGGGGA spacer
length: 37 repeater length: 29
1825 937277 CTTTCCACACTATTTAGTTCTACGGAAAC ACGTTTGGGTAATCCCAGTAAGGGATGAGGCAACCGG spacer
length: 37 repeater length: 29
1826 937343 CTTTCCACACTATTTAGTTCTACGGAAAC AAAATGCTTCGATGGCGTGGAGTACCTTAACAGTCTT spacer
length: 37 repeater length: 29
1827 937409 CTTTCCACACTATTTAGTTCTACGGAAAC ACTGTTATGTTGACGCGCTAACACACTCACACGCCCAGTAT
spacer length: 41 repeater length: 29
1828 937479 CTTTCCACACTATTTAGTTCTACGGAAAC CGGATAGGGTCACCTAAGTAACATTGGCCCCCTTATGA spacer
length: 38 repeater length: 29
1829 937546 CTTTCCACACTATTTAGTTCTACGGAAAC CGAAGTGATAGAATGGTCAGAGTACTGGAAATTACCAG spacer
length: 38 repeater length: 29
1830 937613 CTTTCCACACTATTTAGTTCTACGGAAAC CCAGAAAGGGGAACCTACAGGGCTGTAGTAATCAGAAT spacer
length: 38 repeater length: 29
1831 937680 CTTTCCACACTATTTAGTTCTACGGAAAC GCGATTTCCGCAACTACCTTGCTCTGGGGGAATTG spacer
length: 37 repeater length: 29
1832 937746 CTTTCCACACTATTTAGTTCTACGGAAAC AAGACATTGTTTCTGATGATGATAAGTTGGAAAGAA spacer
length: 36 repeater length: 29
1833 937811 CTTTCCACACTATTTAGTTCTACGGAAAC AACAACTCCATTTTTATCACCTCGTCTGGACGTTAAA spacer
length: 37 repeater length: 29
1834 937877 CTTTCCACACTATTTAGTTCTACGGAAAC GCTGTAAAAGGACAGGGGAACTTGTGTGGAGGTTTAC spacer
length: 39 repeater length: 29
1835 937945 CTTTCCACACTATTTAGTTCTACGGAAAC TTGTAGACAGTGTTTTTGAAGTCAAGCGTCAGTATCAAC spacer
length: 39 repeater length: 29
1836 938013 CTTTCCACACTATTTAGTTCTACGGAAAC GTATTTTCGAGTCGGATTTTCATCTGGTATGCAAGAAACCG spacer
length: 39 repeater length: 29
1837 938081 CTTTCCACACTATTTAGTTCTACGGAAAC CGTTGCTTTCTTAGACGTTGAGGGAGCCGACACGACG spacer
length: 37 repeater length: 29
1838 938147 CTTTCCACACTATTTAGTTCTACGGAAAC AAATTAAGTTTCTGCTCCATGCAATTCCACCTCCTTT spacer
length: 37 repeater length: 29
1839 938213 CTTTCCACACTATTTAGTTCTACGGAAAC CCCAGGACTGCCCTTCTCAGCAATCCCCAGGAGCCTGTA spacer
length: 39 repeater length: 29
1840 938281 CTTTCCACACTATTTAGTTCTACGGAAAC AGATTCCATA
1841
1842
1843 crispr 9
1844 994359 GTTCCAATAAGACTAAAATAGAATTGAA ACTTCTGGAGTGCAAAGTTTGAAAAGGCTTGAATGGT spacer
length: 38 repeater length: 28
1845 994425 GTTCCAATAAGACTAAAATAGAATTGAA ACAGGCTTTTATTGAGCGTTGGTTTGTATTATTTTA spacer
length: 35 repeater length: 28
1846 994488 GTTCCAATAAGACTAAAATAGAATTGAA ACCAGTTTAAGCTTAACCTCCACCTGTGAACGTTGAGA spacer
length: 39 repeater length: 28
1847 994555 GTTCCAATAAGACTAAAATAGAATTGAA ACTTCACGGCTGGTTGGAGGGTACTAGTCTATGATATGC spacer
length: 39 repeater length: 28
1848 994622 GTTCCAATAAGACTAAAATAGAATTGAA ACTGGAGCGATGGCTCTCGCACTCGGTCTCTTGTTTCAGC spacer
length: 39 repeater length: 28
1849 994689 GTTCCAATAAGACTAAAATAGAATTGAA ACCATAGCTAGGAATCTTGGCTTTCTCTGGAGAAGGAG spacer
length: 38 repeater length: 28
1850 994755 GTTCCAATAAGACTAAAATAGAATTGAA GAGGGCCTGA
1851

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1852
1853 crispr 10
1854 1117871 CTTTCAATTCTATTTTAGTCTTATTGGAAC AATCGTATGAGGTTCTGTCAGTTACGTCGTGAGTGA spacer
length: 36 repeater length: 30
1855 1117937 CTTTCAATTCTATTTTAGTCTTATTGGAAC AAACCTTCCTATATCGCCAGCAATATCAATCACAATTT spacer
length: 37 repeater length: 30
1856 1118004 CTTTCAATTCTATTTTAGTCTTATTGGAAC GCAGCCCCTGCCTTTCCAGGTGCAGCTGCCCAGTCAG spacer
length: 37 repeater length: 30
1857 1118071 CTTTCAATTCTATTTTAGTCTTATTGGAAC GTGGTCATGGTCTGGCGATGATGTTCCACTTTTAA spacer
length: 35 repeater length: 30
1858 1118136 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGTAGCCCCAATTGGAGCGCGATTATGACTATGCTT spacer
length: 35 repeater length: 30
1859 1118201 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCGCCACCAAGCACTCCATCTCCTTGATAGTCCAGCCCT
spacer length: 39 repeater length: 30
1860 1118270 CTTTCAATTCTATTTTAGTCTTATTGGAAC GATTCTTAGTTTATTAGCCCCAACCTGCCACTCTTGT spacer
length: 37 repeater length: 30
1861 1118337 CTTTCAATTCTATTTTAGTCTTATTGGAAC TAGAACAAATCAAGGAACAATAAGAACCTATCCC spacer
length: 36 repeater length: 30
1862 1118403 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTGGGGTTAAAAGACAAGTTCAACCTCAGCAAAAATGTC
spacer length: 39 repeater length: 30
1863 1118472 CTTTCAATTCTATTTTAGTCTTATTGGAAC GGATGAAGTGAAGTTTCTACTGAGCGAGCTCATAAAG spacer
length: 37 repeater length: 30
1864 1118539 CTTTCAATTCTATTTTAGTCTTATTGGAAC CATCCGCAGGCTTCACGTACCAGGAGAACCTGTTTCGT spacer
length: 37 repeater length: 30
1865 1118606 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATATTATATACGCTGAACCAAGTTTGTGAATGACGCT spacer
length: 36 repeater length: 30
1866 1118672 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTGGATGTCATAAGATTTACGGACTTCACACCGAGTA spacer
length: 37 repeater length: 30
1867 1118739 CTTTCAATTCTATTTTAGTCTTATTGGAAC TATCCAGTCCACGACCTTTATGTGTCCCGTATCCTGT spacer
length: 37 repeater length: 30
1868 1118806 CTTTCAATTCTATTTTAGTCTTATTGGAAC ACTTCTCAATTCCACGTGCCTCTACAAATGGACAAGC spacer
length: 37 repeater length: 30
1869 1118873 CTTTCAATTCTATTTTAGTCTTATTGGAAC CCACAACCTCTGAACGAATTATTTCTCCAGCAGAAAC spacer
length: 37 repeater length: 30
1870 1118940 CTTTCAATTCTATTTTAGTCTTATTGGAAC GGTGCTCCTC
1871
1872
1873 GCA_000011125.1_ASM1112v1_genomic.fna (PilerCR):
1874 START REPEAT
SPACER
1875 crispr 1
1876 717247 GAATCTTCGAGATAGAATTGCAAG AGCATCCGAGGGGGCCCCACAATGAGGCTGGGGAGGGGTA spacer
length: 39 repeater length: 24
1877 717310 GAATCTTCGAGATAGAATTGCAAG TGGGCCCAGGTCCTGCTGTGACAATAGGTTTCCGTTGCTGT spacer
length: 41 repeater length: 24
1878 717375 GAATCTTCGAGATAGAATTGCAAG ATCTATAACATCATCGCGTGCAGCAGGGGGCCAGAGGACTTC spacer
length: 42 repeater length: 24
1879 717441 GAATCTTCGAGATAGAATTGCAAG GGTCTTGGTCTTGCTCCCCGCGACTACTGGCAGCTCTTCCAGGG spacer
length: 45 repeater length: 24
1880 717510 GAATCTTCGAGATAGAATTGCAAG TGAGCCTAGCCAGCTCGGCCCTGTTACGGGCCTCAACCTCA spacer
length: 41 repeater length: 24
1881 717575 GAATCTTCGAGATAGAATTGCAAG TCGCCATGTAGTCGTACATCGCCCTCTTCAGCACGTCA spacer
length: 38 repeater length: 24
1882 717637 GAATCTTCGAGATAGAATTGCAAG CCGCCGAAGAGGGGCCAGCCTATGATTATTCCGAGGC spacer length:
37 repeater length: 24
1883 717698 GAATCTTCGAGATAGAATTGCAAG TCTTCATCTACAACTTTTACAAAAAAGCATGGGCTCACGGG spacer
length: 41 repeater length: 24
1884 717763 GAATCTTCGAGATAGAATTGCAAG TGTGCTAAGAGCCCCGAGAAATGTGTAGCCTCGGAGGGCCC spacer
length: 41 repeater length: 24
1885 717828 GAATCTTCGAGATAGAATTGCAAG ACGTCGAGGTTAGGGTTATGGTGAACGCCAGGGGCAATTAGAGTATACCGA
spacer length: 52 repeater length: 24
1886 717904 GAATCTTCGAGATAGAATTGCAAG AAGGCAATACTCAGGATAGACAGGTACGCCAGGCAGGAGGTAG spacer
length: 43 repeater length: 24
1887 717971 GAATCTTCGAGATAGAATTGCAAG CGACTGTGGCTATAGCCAGGGCACCGACACCGTACTTC spacer
length: 41 repeater length: 24
1888 718036 GAATCTTCGAGATAGAATTGCAAG CCTCTCCCCCTACACGACAACGAGGAAGACGGGGCCCT spacer
length: 38 repeater length: 24
1889 718098 GAATCTTCGAGATAGAATTGCAAG GCTAAGCAGTGCATACGACACTTCCTTACCCTGCCGATCGA spacer
length: 41 repeater length: 24
1890 718163 GAATCTTCGAGATAGAATTGCAAG ATCGCATAAGGGCTACAGGAATCCACGTAGAGTTGCTAGGGAAA spacer
length: 44 repeater length: 24

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1891 718231 GAATCTTCGAGATAGAAATTGCAAG GCTGTAGAGGGCGGCGTAGTGAAAGCCCCGCTCCGCCA spacer
length: 39 repeater length: 24
1892 718294 GAATCTTCGAGATAGAAATTGCAAG ACAAACCTGGTTTTTCATGTATCTGTGTCTCTGTAGCCGTATCAATAGCAT
spacer length: 49 repeater length: 24
1893 718367 GAATCTTCGAGATAGAAATTGCAAG CTTTCCCGTCCACTCCAACGAAATCCACGATAGATAGTATTG spacer
length: 42 repeater length: 24
1894 718433 GAATCTTCGAGATAGAAATTGCAAG GCGGCGCGGCAGTAGGAGGTCTAGCATGACCCCTATGAGGACG spacer
length: 43 repeater length: 24
1895 718500 GAATCTTCGAGATAGAAATTGCAAG CAGAATTTCTGGGGTTTCAGCTTATAACGGCTGGGCGGCAGA spacer
length: 42 repeater length: 24
1896 718566 GAATCTTCGAGATAGAAATTGCAAG AGCTCGTAGAGGTCAGACTTGTCCACCCTTAGATCGGCCGCC spacer
length: 42 repeater length: 24
1897 718632 GAATCTTCGAGATAGAAATTGCAAG AAGGCAAAGCCGATTGTCAAGCCCAAGCCCCGGCAATAAAGAA spacer
length: 44 repeater length: 24
1898 718700 GAATCTTCGAGATAGAAATTGCAAG TGGGTTAGGTGATGCTGTAAGGATGGTAAGTTGGTTCCTCTTGACTA
spacer length: 47 repeater length: 24
1899 718771 GAATCTTCGAGATAGAAATTGCAAG GGCAAGAAATAACACCACAGCACCCAGACTTAATATAAAAACTGCA
spacer length: 46 repeater length: 24
1900 718841 GAATCTTCGAGATAGAAATTGCAAG AGCATATTCGCAACTTCCTCAAGCGCTTCCTTCGCCTCTTT spacer
length: 41 repeater length: 24
1901 718906 GAATCTTCGAGATAGAAATTGCAAG TAGGGTCCTCGTGCTACTGGAACCCACTCCTAGGGAGCTCCGG spacer
length: 43 repeater length: 24
1902 718973 GAATCTTCGAGATAGAAATTGCAAG AGCTGCTGCT
1903
1904
1905 crispr 2
1906 786656 GCATATCCCTAAAGGGAATAGAAAG GTAGACGCCTGCACGGTTCAGCAAATACACGGCATCCTG spacer
length: 39 repeater length: 25
1907 786720 GCATATCCCTAAAGGGAATAGAAAG AACTGGAAGAGGGGGAGTAAGAGAGCGTTCTGGGGCTA spacer
length: 38 repeater length: 25
1908 786783 GCATATCCCTAAAGGGAATAGAAAG GTAGACCTGGCCGTCGAGGTGTATCTCCATGCAGCCC spacer
length: 37 repeater length: 25
1909 786845 GCATATCCCTAAAGGGAATAGAAAG TTAGAAGCCTATTAGAGCAGGGCGTGGACGATGGCTCGAT spacer
length: 40 repeater length: 25
1910 786910 GCATATCCCTAAAGGGAATAGAAAG ATAACCTCGGTGCCAACGCGTTCGCCGTGAATGCTGGC spacer
length: 38 repeater length: 25
1911 786973 GCATATCCCTAAAGGGAATAGAAAG GAGAACCTGTAGCGCTCGAGCCTCGCAGCCGCCCTAACGGC spacer
length: 41 repeater length: 25
1912 787039 GCATATCCCTAAAGGGAATAGAAAG AAGAGAATTTGCGCCGATGAGGCGGGCGAGGGGTGACGGT spacer
length: 40 repeater length: 25
1913 787104 GCATATCCCTAAAGGGAATAGAAAG CTTACAGGTCTGCAATCGCCGCCCTGAGGTTCTGAATATC spacer
length: 39 repeater length: 25
1914 787168 GCATATCCCTAAAGGGAATAGAAAG ACCCGCCGGCGGCCTCCTCGGCGGCATAGGCTGCACAACCG spacer
length: 41 repeater length: 25
1915 787234 GCATATCCCTAAAGGGAATAGAAAG GGGAGACTGCTAATCCGGAGGAGGCCCCGTGTGCAAAA spacer
length: 38 repeater length: 25
1916 787297 GCATATCCCTAAAGGGAATAGAAAG TCCTAACCGGCGGCCTCCGTATTATCCGGGGCGGCGG spacer
length: 37 repeater length: 25
1917 787359 GCATATCCCTAAAGGGAATAGAAAG CTGGTTATAGTGAGGCCCTCCGAGTCTCTATCACAACC spacer
length: 39 repeater length: 25
1918 787423 GCATATCCCTAAAGGGAATAGAAAG CTTTACGCTGCCTTTCTGGCGGGGGTCTGAGCCAGG spacer
length: 37 repeater length: 25
1919 787485 GCATATCCCTAAAGGGAATAGAAAG TTACGGCATAGGGCTAGACCCTGCTATGAGCGGGGCACCGAC spacer
length: 42 repeater length: 25
1920 787552 GCATATCCCTAAAGGGAATAGAAAG CTTACCACCACCATTGGAGCCACCCCAGAGCTGCCTGG spacer
length: 38 repeater length: 25
1921 787615 GCATATCCCTAAAGGGAATAGAAAG GATTGCATAGGCGATATACCCGAATCCCAGGTCGGTAA spacer
length: 38 repeater length: 25
1922 787678 GCATATCCCTAAAGGGAATAGAAAG AGGAGGCGGAAGTACGAGATAGTTGTTGGGCCCCGAGATGCCGGCTA
spacer length: 47 repeater length: 25
1923 787750 GCATATCCCTAAAGGGAATAGAAAG TCCTGGACCTCCGCCTACCCCGCGTCCTAGTCTCCCGGG spacer
length: 39 repeater length: 25
1924 787814 GCATATCCCTAAAGGGAATAGAAAG TGGACCCACAAGAAGCTGGTGAAGAGCATTATGGAGTCAA spacer
length: 40 repeater length: 25
1925 787879 GCATATCCCTAAAGGGAATAGAAAG CCACCGCCTGAGCTCCCTCTCCAGCTCGGGGTCCACCTGG spacer
length: 40 repeater length: 25
1926 787944 GCATATCCCTAAAGGGAATAGAAAG ACCACGACGGTCTCCTCGCCACGCCGAGTAGTAGTCCGTG spacer
length: 42 repeater length: 25
1927 788011 GCATATCCCTAAAGGGAATAGAAAG TGAAGAAGCAGCCTAGGCCTATACTAGTCTATGAGCTCTCGAGG spacer
length: 44 repeater length: 25
1928 788080 GCATATCCCTAAAGGGAATAGAAAG TTATGAGGTGTGGGAGCGTGATGGTGGAGTTGTTATAAAGT spacer

length: 42 repeater length: 25
1929 788147 GCATATCCCTAAAGGGAATAGAAAG AGTGGGCAAGCGGATAACATCTCTATAGAGAGGTCTACG spacer
length: 39 repeater length: 25
1930 788211 GCATATCCCTAAAGGGAATAGAAAG CCACCTGGCGAGCCGCCACCACCCTGCGGCATACGCAGCGCCTGG
spacer length: 46 repeater length: 25
1931 788282 GCATATCCCTAAAGGGAATAGAAAG TCGAGCACTTCCAGGCGGCTGGCCTTGCTAGGCTTGAGAACGGCAG
spacer length: 46 repeater length: 25
1932 788353 GCATATCCCTAAAGGGAATAGAAAG GCGGTGGTTGTGCTAGCCTTCGCATTCGCCCTCTCGGGCCCC spacer
length: 42 repeater length: 25
1933 788420 GCATATCCCTAAAGGGAATAGAAAG CTCTTTCTCGAGCACCAGCCTGCCTTCGGAGTCCATAGC spacer
length: 39 repeater length: 25
1934 788484 GCATATCCCTAAAGGGAATAGAAAG TTCACAGTCCACGCCTCGCAGGTCTACCATCTAGTCGATATT spacer
length: 42 repeater length: 25
1935 788551 GCATATCCCTAAAGGGAATAGAAAG GCCGCGCTGAACGCCTACTTGCCGCTGGCTTCGAGGCA spacer
length: 39 repeater length: 25
1936 788615 GCATATCCCTAAAGGGAATAGAAAG ATCACAAAAACGTGAACGCGCCCGCCGGCTACAGCTTCT spacer
length: 40 repeater length: 25
1937 788680 GCATATCCCTAAAGGGAATAGAAAG CCTCACGTACAGCCACATGGTCCCCAGGCCAGCCAGGACG spacer
length: 40 repeater length: 25
1938 788745 GCATATCCCTAAAGGGAATAGAAAG TTACGGGTGGTGTAAGTAGAAATAACTATGAAGATA spacer length:
36 repeater length: 25
1939 788806 GCATATCCCTAAAGGGAATAGAAAG GAAGCAACTCAGAAGAGCTTCCCTCTTGACTCTAAAGCCCTT spacer
length: 42 repeater length: 25
1940 788873 GCATATCCCTAAAGGGAATAGAAAG ATGTGCATGGAGTGGGCATCAGAATTAATGAGATAATCAAG spacer
length: 41 repeater length: 25
1941 788939 GCATATCCCTAAAGGGAATAGAAAG CTCGGTTACGGCGTTAGCCCCGCCGTTTGCATTGACAAAC spacer
length: 40 repeater length: 25
1942 789004 GCATATCCCTAAAGGGAATAGAAAG GTTGCCCTAGCACCCCTGCTGGCCCTGCTCCTAGTACT spacer
length: 38 repeater length: 25
1943 789067 GCATATCCCTAAAGGGAATAGAAAG TACAACTTCCTGAGGTGGCTCGCCGCCTACGGCCCCGT spacer
length: 38 repeater length: 25
1944 789130 GCATATCCCTAAAGGGAATAGAAAG TGCAGCCAGCTTTACAACGCTGATCCTCTTCTCACTCCTAA spacer
length: 41 repeater length: 25
1945 789196 GCATATCCCTAAAGGGAATAGAAAG GTATATAATGTGCGGGGCTATCCCCTGCTCATATCCACG spacer
length: 40 repeater length: 25
1946 789261 GCATATCCCTAAAGGGAATAGAAAG CTGGAGCGCCGGGAGCTCAAGAGGGACGGCAGGCGCAGGGCGAG spacer
length: 44 repeater length: 25
1947 789330 GCATATCCCTAAAGGGAATAGAAAG CTCCTCTCAT
1948
1949
1950 crispr 3
1951 1277298 CTTGCAATTCTATCTCGAAGATTC CTCCGGAGCCTCGGCTGTAACCGAGTCGGCCATACTCA spacer
length: 38 repeater length: 24
1952 1277360 CTTGCAATTCTATCTCGAAGATTC TAAGACTAGCTGGATGGAGGCCATGCTGGGGGCCACCATA spacer
length: 40 repeater length: 24
1953 1277424 CTTGCAATTCTATCTCGAAGATTC CCGAGGGTATATGGTTCGACGAAGTCGACAAATGGGCGAGGGCGG
spacer length: 45 repeater length: 24
1954 1277493 CTTGCAATTCTATCTCGAAGATTC AGCGGGTGAGTAGCCGTGCCTTGGGCTGACTGCAGACTATGT spacer
length: 43 repeater length: 24
1955 1277560 CTTGCAATTCTATCTCGAAGATTC ACCTAAGCAGCTTCGACGTAACCGTGTTCACGTGCAGA spacer
length: 38 repeater length: 24
1956 1277622 CTTGCAATTCTATCTCGAAGATTC GGCTCCATGGCTGGGCGGAGAGGGCAAGGTGGAGCTG spacer
length: 37 repeater length: 24
1957 1277683 CTTGCAATTCTATCTCGAAGATTC GCCAGCCGACTTCCGCCTGCTAGGCCCCCTTGGTGGGGTCTG spacer
length: 41 repeater length: 24
1958 1277748 CTTGCAATTCTATCTCGAAGATTC TCATAGTCTGGGGGTCTTGGTTCTCCTAGGCGTCATAA spacer
length: 39 repeater length: 24
1959 1277811 CTTGCAATTCTATCTCGAAGATTC TAGACGGAAGTAGCGCGCTGAGGATCGAGCCACTCTTCAGGGTAG
spacer length: 45 repeater length: 24
1960 1277880 CTTGCAATTCTATCTCGAAGATTC ATTCTCTGGCTACCTCTTCGAGCGCTTCCTTCGCCTCTTTATCCACC
spacer length: 47 repeater length: 24
1961 1277951 CTTGCAATTCTATCTCGAAGATTC CTCTTATATATTTAATCAGTATAACCCTGACAAGCTCA spacer
length: 38 repeater length: 24
1962 1278013 CTTGCAATTCTATCTCGAAGATTC CCTCTAGTGAGCGTGGAATTCCTCAAAACACCATCAGACT spacer
length: 40 repeater length: 24
1963 1278077 CTTGCAATTCTATCTCGAAGATTC GCGTATGGGGAGCGGGCTGGGCCCGCGGTTCATGCTTGCGCT spacer
length: 41 repeater length: 24
1964 1278142 CTTGCAATTCTATCTCGAAGATTC CCAGGCACTTGTGTTAAGGTTCTCGAAGCTGAGGATAG spacer
length: 38 repeater length: 24
1965 1278204 CTTGCAATTCTATCTCGAAGATTC GATTCGCCCCAAGTGGGCGTGGAAGCGGCTCGGCGCCTTCGTC spacer
length: 42 repeater length: 24

1966 1278270 CTTGCAATTCTATCTCGAAGATTC CAGCACGGTCAGCTGGAGAGGCCAGTAGAGGGGGCCGAGCAG spacer
length: 42 repeater length: 24
1967 1278336 CTTGCAATTCTATCTCGAAGATTC CTGTAGGGCTAGGATCGAGAGGTTAGCAAGATGGTGT spacer
length: 38 repeater length: 24
1968 1278398 CTTGCAATTCTATCTCGAAGATTC GAGAGGCTGGGCCTCACTGGTAGGGTCGTTATAGTTTCCG spacer
length: 40 repeater length: 24
1969 1278462 CTTGCAATTCTATCTCGAAGATTC AGCCGACGG
1970
1971
1972 GCA_000011185.1_ASM1118v1_genomic.fna (PilerCR):
1973 START REPEAT
SPACER
1974 crispr 1
1975 109188 CTTCCATACTAACTAGTACATCTTAAAC TATTGAGAAAAGAGACGATGTTAGCTGGATCGAAATGAAGG spacer
length: 41 repeater length: 28
1976 109257 CTTCCATACTAACTAGTACATCTTAAAC TCTTACAAATGTGGACACTAGGGGGATAGCTTTATCCA spacer
length: 38 repeater length: 28
1977 109323 CTTCCATACTAACTAGTACATCTTAAAC TCCTTTAATTCAGATCTTTTATAAAGCGGGACTTCGTCAATA
spacer length: 42 repeater length: 28
1978 109393 CTTCCATACTAACTAGTACATCTTAAAC GCTACATCACTGATGTGCATATATTCCGTGCCAAGTCGA spacer
length: 39 repeater length: 28
1979 109460 CTTCCATACTAACTAGTACATCTTAAAC CGACCGCCGTGGACGGATTTTCGACAACACTACGTTCTGG spacer
length: 38 repeater length: 28
1980 109526 CTTCCATACTAACTAGTACATCTTAAAC CTCATCGTTCAAGTGGACGGTGAGAGATATGTCTA spacer
length: 35 repeater length: 28
1981 109589 CTTCCATACTAACTAGTACATCTTAAAC GAATAAAAGACTTTGATCAAGACAAGGTTCACTTCTATCGACTT
spacer length: 44 repeater length: 28
1982 109661 CTTCCATACTAACTAGTACATCTTAAAC TCTACGTCCTCTATCCCGACGACAACAACGAATATTATGCTT
spacer length: 42 repeater length: 28
1983 109731 CTTCCATACTAACTAGTACATCTTAAAC TGGGATTATATCCTGGAGGAAAAAATGGAGACGAAAA spacer
length: 37 repeater length: 28
1984 109796 CTTCCATACTAACTAGTACATCTTAAAC AAGAAGTTTATGATAGCTACGATGCATCACGGGTTTTA spacer
length: 38 repeater length: 28
1985 109862 CTTCCATACTAACTAGTACATCTTAAAC TCCAAGGATGAGGCAAGATCACGAAGATCGTCTTTTA spacer
length: 37 repeater length: 28
1986 109927 CTTCCATACTAACTAGTACATCTTAAAC CTAGCGCTGAATACGAGCAAAATATGGAAATTCAAGG spacer
length: 37 repeater length: 28
1987 109992 CTTCCATACTAACTAGTACATCTTAAAC TGATAGGGAAGAGAGACCTCGAATATTGGATCGATAACCT spacer
length: 40 repeater length: 28
1988 110060 CTTCCATACTAACTAGTACATCTTAAAC TCAAGGCTTTAAAGCAAAAGGTTTTTAGGTGCTGGAAGATAGAGCA
spacer length: 46 repeater length: 28
1989 110134 CTTCCATACTAACTAGTACATCTTAAAC GATATTTTCATGATAGCGATCAGCTAACGTTTGTGAATGTT spacer
length: 40 repeater length: 28
1990 110202 CTTCCATACTAACTAGTACATCTTAAAC AGAAGACGTTCCGGAGGAATACATAAGGGGCATTTTCGA spacer
length: 39 repeater length: 28
1991 110269 CTTCCATACTAACTAGTACATCTTAAAC GGTGTCAGCGTGTCTGTTGTCATGCATCTCAATCAGCCTTACG
spacer length: 42 repeater length: 28
1992 110339 CTTCCATACTAACTAGTACATCTTAAAC AAGGTGAGAGAAAATGTGTTTCACACCAGTTGGATTTGTAAGATA
spacer length: 45 repeater length: 28
1993 110412 CTTCCATACTAACTAGTACATCTTAAAC CAAGAACTGT
1994
1995
1996 crispr 2
1997 121536 CTTCCATACTAACTAGTACATCTTAAAC TGGACAATCTGCCGAAAGCAGCAAAGACTGTGAGTACAATAAG
spacer length: 43 repeater length: 28
1998 121607 CTTCCATACTAACTAGTACATCTTAAAC GAAAAAATCCTATTCGGCTATTTTCACTCAAATTTATAT spacer
length: 40 repeater length: 28
1999 121675 CTTCCATACTAACTAGTACATCTTAAAC GACTCACGCAATGGAGATGCGGATAGTATACTTTTAAACGCT
spacer length: 42 repeater length: 28
2000 121745 CTTCCATACTAACTAGTACATCTTAAAC GCAGAGGCATATCCAAAAAAGGCAAGGTGTAATTAGACC spacer
length: 40 repeater length: 28
2001 121813 CTTCCATACTAACTAGTACATCTTAAAC AAGGTTTTTTATTACTCGCTCTTCAGGAGCGCATGGCAGGGC
spacer length: 42 repeater length: 28
2002 121883 CTTCCATACTAACTAGTACATCTTAAAC CAGGTACGCACAAAAAAGGAGAGCAGAATATGCAGCGGATGA
spacer length: 42 repeater length: 28
2003 121953 CTTCCATACTAACTAGTACATCTTAAAC GATGTCCAATAGAGTAGAAAAAGGTGTTAGGGAGGCCCTCAGCT
spacer length: 44 repeater length: 28
2004 122025 CTTCCATACTAACTAGTACATCTTAAAC TAGAAAATACTGTTTCATTGATTGCAGACCAATTGAAAGACTCTT
spacer length: 44 repeater length: 28
2005 122097 CTTCCATACTAACTAGTACATCTTAAAC AAGGGAGCAAGAGCTCTGCCTATTAAAGCTGATAAATCACAT
spacer length: 42 repeater length: 28

2006 122167 CTTCCATACTAACTAGTACATCTTAAAC CAGGTTCTATGTATCTCCATTGTGATTGGCATGCAAATTCTTATT
spacer length: 45 repeater length: 28

2007 122240 CTTCCATACTAACTAGTACATCTTAAAC AACAAAGGTGTATGTTCTCAATTCCGGCAGCACTGCCGAATGTA
spacer length: 42 repeater length: 28

2008 122310 CTTCCATACTAACTAGTACATCTTAAAC GGATATTACATGGGAAAAGAGAACATACAGAAAATACA spacer
length: 38 repeater length: 28

2009 122376 CTTCCATACTAACTAGTACATCTTAAAC ACGAGTATGCTACGAAATTGATTTTCAGAAGTATTCGAGGACTAC
spacer length: 44 repeater length: 28

2010 122448 CTTCCATACTAACTAGTACATCTTAAAC TTAGGTATATCATATTAAGGTGAAAAAATGGATAAAAAAGAA
spacer length: 42 repeater length: 28

2011 122518 CTTCCATACTAACTAGTACATCTTAAAC AAGAGACTGTTAGAAAGCGGATTTATATCGGCTGTGGGGCAT
spacer length: 42 repeater length: 28

2012 122588 CTTCCATACTAACTAGTACATCTTAAAC TACGCCAGGCA

2013

2014

2015 GCA_000011205.1_ASM1120v1_genomic.fna (PilerCR):

2016 START REPEAT
SPACER

2017 crispr 1

2018 25996 CTTTCAATTCCTTTTGGGATTCATC TGTTAGTCGGTCTATGAATTTCTGTGGTAAACGCAAAAT spacer
length: 38 repeater length: 25

2019 26059 CTTTCAATTCCTTTTGGGATTCATC TATCATATTTTCATCATTTTCTTTTCACTAACAAATATATT spacer
length: 39 repeater length: 25

2020 26123 CTTTCAATTCCTTTTGGGATTCATC GGTGAGGTCAAAGAATTAGAGAGTTGGCAATTATATAGTA spacer
length: 40 repeater length: 25

2021 26188 CTTTCAATTCCTTTTGGGATTCATC CAGCTGACGTAGCCTCTGAGTTAGCTTTCCAGAAATATCT spacer
length: 40 repeater length: 25

2022 26253 CTTTCAATTCCTTTTGGGATTCATC TATAATAAAGCCCTGGGAAAGGACAGACCCGATATTTTTTCG spacer
length: 41 repeater length: 25

2023 26319 CTTTCAATTCCTTTTGGGATTCATC AGGACATTTGAGTATCTATAATATTCCAGAGCCAAGAGT spacer
length: 39 repeater length: 25

2024 26383 CTTTCAATTCCTTTTGGGATTCATC TTGCTCAGCCTCATCAAATTTCTTCCTTTTCAATAA spacer length:
36 repeater length: 25

2025 26444 CTTTCAATTCCTTTTGGGATTCATC TCAATTGTTTTCTTCAATTGTTTTTCTTCAGACATTTA spacer
length: 38 repeater length: 25

2026 26507 CTTTCAATTCCTTTTGGGATTCATC ACCAATTCGGCTGGAGACATACTGGTGCAGGAGGATT spacer length:
37 repeater length: 25

2027 26569 CTTTCAATTCCTTTTGGGATTCATC AATCCCTGATTCAAGAACTATTGAGGAATTACTTCATAG spacer
length: 39 repeater length: 25

2028 26633 CTTTCAATTCCTTTTGGGATTCATC GTAGTTGGTTCTTGAGTATCCTTACATATTCATCTAT spacer length:
37 repeater length: 25

2029 26695 CTTTCAATTCCTTTTGGGATTCATC TTGGCGTAACAATATTTGCTACTAACTTAGGTATTAAT spacer
length: 38 repeater length: 25

2030 26758 CTTTCAATTCCTTTTGGGATTCATC GATTATCAATGACAATTCACAGACTTGCTAATTTCAAA spacer
length: 38 repeater length: 25

2031 26821 CTTTCAATTCCTTTTGGGATTCATC ATAGTTAATCCTCTTTGTAGCAAACTACTTTTAAATTCATTT spacer
length: 43 repeater length: 25

2032 26889 CTTTCAATTCCTTTTGGGATTCATC ACAATGGAACCTTCTGAACTCAACTCGTTGGATTAGTA spacer
length: 38 repeater length: 25

2033 26952 CTTTCAATTCCTTTTGGGATTCATC AAGAACGAAATACGTGAGAACGGTTTTAGTATATATGTAT spacer
length: 40 repeater length: 25

2034 27017 CTTTCAATTCCTTTTGGGATTCATC TATCAAATGTATGCCTATAGACGAATAATGAGATTAGT spacer
length: 38 repeater length: 25

2035 27080 CTTTCAATTCCTTTTGGGATTCATC TTTGTTTAGGACTTCTTCTAGTTCTGATCCTCCAAA spacer length:
36 repeater length: 25

2036 27141 CTTTCAATTCCTTTTGGGATTCATC CACAACCTAAATATAAATATGCATTAAATGAAATTTCTAA spacer
length: 40 repeater length: 25

2037 27206 CTTTCAATTCCTTTTGGGATTCATC AATGCGTCTGCAATAACTACGTTATCCCTCTTCTGTACCT spacer
length: 40 repeater length: 25

2038 27271 CTTTCAATTCCTTTTGGGATTCATC TCTTTTGAGTTTATTAATTCTTCTTTTAAAGTTCTTTAAC spacer
length: 39 repeater length: 25

2039 27335 CTTTCAATTCCTTTTGGGATTCATC CCATTGAAATGCAAAAAGGTATGATAAAGACTCAAGCTA spacer
length: 39 repeater length: 25

2040 27399 CTTTCAATTCCTTTTGGGATTCATC AACAGTTCCCCAGTTCTCAGGCCCGTTTCAACTAATAAT spacer
length: 39 repeater length: 25

2041 27463 CTTTCAATTCCTTTTGGGATTCATC CAGAGATATTATTTAACATATGTCGCTCCAGATCTTAA spacer
length: 38 repeater length: 25

2042 27526 CTTTCAATTCCTTTTGGGATTCATC TGCGACCACCAACGCGTTAGCCGTTTACAGACTGCCCTC spacer
length: 39 repeater length: 25

2043 27590 CTTTCAATTCCTTTTGGGATTCATC ACGACTACAACAAGATACTACAAAAGTTGACAGAGATATT spacer
length: 40 repeater length: 25

2044	27655 CTTTCAATTCCTTTTGGGATTCATC	TTGTCTCTATGATTTTCATGAATCGCATCTCTTAGTTTTG spacer
	length: 39 repeater length: 25	
2045	27719 CTTTCAATTCCTTTTGGGATTCATC	ATAAATGGTTTTTCAGTTCCTTAACGTTCATTTTTTTGTA spacer
	length: 39 repeater length: 25	
2046	27783 CTTTCAATTCCTTTTGGGATTCATC	CTGCTATTCTTGCTGAGAACTCGATTTAGCGGATATAGCAAT spacer
	length: 43 repeater length: 25	
2047	27851 CTTTCAATTCCTTTTGGGATTCATC	GAACCTCCCGAAACACTCAAAGTTAAGAAGACTAAACC spacer
	length: 38 repeater length: 25	
2048	27914 CTTTCAATTCCTTTTGGGATTCATC	TTATAAATGTTGTATTAATAACTAGCTGACCGTTATACC spacer
	length: 39 repeater length: 25	
2049	27978 CTTTCAATTCCTTTTGGGATTCATC	AACACCACAATGTTATGTCGCTATGGGAGAATATAAGG spacer
	length: 38 repeater length: 25	
2050	28041 CTTTCAATTCCTTTTGGGATTCATC	TTTGAGACATTAACACTCTGTACACCAGACAGAGTAACCTT spacer
	length: 41 repeater length: 25	
2051	28107 CTTTCAATTCCTTTTGGGATTCATC	TGAATTTCTTCACTCCAGAAAAGATAAATACTAC spacer length: 34
	repeater length: 25	
2052	28166 CTTTCAATTCCTTTTGGGATTCATC	GAGAAAAAATAAATCCTTTAAACTGACCTCCTCCCTCCTTC spacer
	length: 42 repeater length: 25	
2053	28233 CTTTCAATTCCTTTTGGGATTCATC	ATAAGGAGCTTAAGGAGAGGATAGTAAAGGAGTA spacer length: 34
	repeater length: 25	
2054	28292 CTTTCAATTCCTTTTGGGATTCATC	GTGGGCATGAACCTTCTACGCCACGCATTGAGGATATAA spacer
	length: 39 repeater length: 25	
2055	28356 CTTTCAATTCCTTTTGGGATTCATC	TGAAGCTGGTGCTTACGGCTACCTCTGTGAGCATGTAAA spacer
	length: 39 repeater length: 25	
2056	28420 CTTTCAATTCCTTTTGGGATTCATC	TAGAAGATATAGAGCAAAATGTAAATAAAGAAGATTT spacer length:
	37 repeater length: 25	
2057	28482 CTTTCAATTCCTTTTGGGATTCATC	CTTACTCATCTTCCTTCACCTCCATGTGCAATGAT spacer length:
	35 repeater length: 25	
2058	28542 CTTTCAATTCCTTTTGGGATTCATC	ATATAACAGGGAAACCGAAGAAATTTGGAGTAGACT spacer length:
	36 repeater length: 25	
2059	28603 CTTTCAATTCCTTTTGGGATTCATC	TTCTGTTGATTTTTTCTTCTTCCATTTTGCGATCACCTTTC spacer
	length: 41 repeater length: 25	
2060	28669 CTTTCAATTCCTTTTGGGATTCATC	AACAGTGGAAGGTTTACCTACAAGCTCTGCTTTACCACG spacer
	length: 39 repeater length: 25	
2061	28733 CTTTCAATTCCTTTTGGGATTCATC	ACCCAGATCCGCTTTACATAGAGGCTGTGCAAAATAACG spacer
	length: 39 repeater length: 25	
2062	28797 CTTTCAATTCCTTTTGGGATTCATC	ATTCTACTAATGGTGCAGGGAATATTGTGGAATTTGTATA spacer
	length: 40 repeater length: 25	
2063	28862 CTTTCAATTCCTTTTGGGATTCATC	ATCATTATGCCACCTCAGTGGTGCAGTACTGCTAACGCGA spacer
	length: 41 repeater length: 25	
2064	28928 CTTTCAATTCCTTTTGGGATTCATC	ATAGTACAAATTTTTAGAGAACAACAAAACCATAATTAG spacer
	length: 38 repeater length: 25	
2065	28991 CTTTCAATTCCTTTTGGGATTCATC	AGAGCATCTCTGGTATGTCCGGTGAGGTGATAGTGTTATG spacer
	length: 40 repeater length: 25	
2066	29056 CTTTCAATTCCTTTTGGGATTCATC	AAGCGTCTACTTTTTAGTAGATTCTTATAAACTCATAAAA spacer
	length: 40 repeater length: 25	
2067	29121 CTTTCAATTCCTTTTGGGATTCATC	ATGACATTGCGTCTGCGATGACTGAAGAGGAGTACAAAAA spacer
	length: 40 repeater length: 25	
2068	29186 CTTTCAATTCCTTTTGGGATTCATC	GCGATGATGACGGATGGACAGGCTGACTTAAGATGA spacer length:
	36 repeater length: 25	
2069	29247 CTTTCAATTCCTTTTGGGATTCATC	ACGATTTTTGGCAATTAGTGAAGAAAAGAAGCTAACA spacer
	length: 38 repeater length: 25	
2070	29310 CTTTCAATTCCTTTTGGGATTCATC	GACTCCAGTTACATAAATTGCAAATAACATAATAATCC spacer
	length: 38 repeater length: 25	
2071	29373 CTTTCAATTCCTTTTGGGATTCATC	GTACACCTAATGGAAAATGTAATCATCATGGACTGAGGGCG spacer
	length: 41 repeater length: 25	
2072	29439 CTTTCAATTCCTTTTGGGATTCATC	CTGGACTACAGTCAGTCAAAATCTCTAATTCAA spacer length: 33
	repeater length: 25	
2073	29497 CTTTCAATTCCTTTTGGGATTCATC	GAAGTTGTTTCTTGATATTTTCAAATTCTACAATTGTAT spacer
	length: 39 repeater length: 25	
2074	29561 CTTTCAATTCCTTTTGGGATTCATC	TGTGCCGATAATAAACCCCTGCGTATCGAAGGGCTGTATC spacer
	length: 39 repeater length: 25	
2075	29625 CTTTCAATTCCTTTTGGGATTCATC	GTAACTTCTCAACTTGAGAACTCTAACTTTATAATC spacer
	length: 39 repeater length: 25	
2076	29689 CTTTCAATTCCTTTTGGGATTCATC	TATCTTAAGAGACTTTATGGAAATAAAGCCTTCAATAA spacer
	length: 38 repeater length: 25	
2077	29752 CTTTCAATTCCTTTTGGGATTCATC	GAGGATTTTGTAGAATAGATGAAATCAAAGCGGAATATAAAAT spacer
	length: 44 repeater length: 25	
2078	29821 CTTTCAATTCCTTTTGGGATTCATC	AGAAATTGAAAGTTTAGAAAGAAAAACATATATATCACT spacer
	length: 39 repeater length: 25	
2079	29885 CTTTCAATTCCTTTTGGGATTCATC	CTCCAGTGGTTCTCATTTTGTGTGACGGTACTGAGTATA spacer

length: 39 repeater length: 25
2080 29949 CTTTCAATTCCTTTTGGGATTCATC TTTATTGAAGACTATGATGAAGTTATTGTAGATAA spacer length:
35 repeater length: 25
2081 30009 CTTTCAATTCCTTTTGGGATTCATC GTGGTCCATATCCGCCTTCATAAGGTTTAGGTAAAGTTAT spacer
length: 40 repeater length: 25
2082 30074 CTTTCAATTCCTTTTGGGATTCATC ATAATTGCGGGGCAATTGCACCGTACCATGATGAAGC spacer length:
37 repeater length: 25
2083 30136 CTTTCAATTCCTTTTGGGATTCATC ACGGGAAAATAATACATAACGTGAAAGATGTTAATAAAAT spacer
length: 40 repeater length: 25
2084 30201 CTTTCAATTCCTTTTGGGATTCATC GAAGTAGAAATAACAGAAAACCTCCCGTATCCTATTAAT spacer
length: 39 repeater length: 25
2085 30265 CTTTCAATTCCTTTTGGGATTCATC GGAATACCATCAACAAGCAACTTCTTGCCCTCATATTTTT spacer
length: 40 repeater length: 25
2086 30330 CTTTCAATTCCTTTTGGGATTCATC TTATTTGAAGGAATACAGTGTCTGACATGTCCTACAC spacer
length: 39 repeater length: 25
2087 30394 CTTTCAATTCCTTTTGGGATTCATC AAAGTAGAACACCCGGGCAGAGTAAGAAAATATTTAGAA spacer
length: 39 repeater length: 25
2088 30458 CTTTCAATTCCTTTTGGGATTCATC TTAAAATCGGGTCGGCAAATCCAGAAAGGAACTGAA spacer length:
37 repeater length: 25
2089 30520 CTTTCAATTCCTTTTGGGATTCATC AGAAGAAGAGGATAATACTTATACACCACATTATCTCAT spacer
length: 39 repeater length: 25
2090 30584 CTTTCAATTCCTTTTGGGATTCATC AGGATCTGGC
2091
2092
2093 crispr 2
2094 32701 GATGAATCCCAAAAAGGAATTGAAAG TTCCTAACTTCTTTTCGTAAATGTTAGGAAAAGATTTAA spacer
length: 38 repeater length: 25
2095 32764 GATGAATCCCAAAAAGGAATTGAAAG ATTAGCATCAACAATTTTCGATGAAGGAGTAGACATACCT spacer
length: 40 repeater length: 25
2096 32829 GATGAATCCCAAAAAGGAATTGAAAG ACACTAATAATATAGGATTTGTCACGGAAGATGATAT spacer length:
37 repeater length: 25
2097 32891 GATGAATCCCAAAAAGGAATTGAAAG ACTTTATCTTTATACCGTAACTCTATACTGGAGACT spacer length:
36 repeater length: 25
2098 32952 GATGAATCCCAAAAAGGAATTGAAAG AAGATAGATGACAAGATAACAATAAATTTTCATACAAATAG spacer
length: 40 repeater length: 25
2099 33017 GATGAATCCCAAAAAGGAATTGAAAG CGTAATTAAGCCCGATTTGTACACCACGCCGTGGGTTC spacer
length: 38 repeater length: 25
2100 33080 GATGAATCCCAAAAAGGAATTGAAAG TGATTGATCACAATGAGAAGACTGTAAAGCTGATAAAC spacer
length: 38 repeater length: 25
2101 33143 GATGAATCCCAAAAAGGAATTGAAAG TGTTGAGGCATAAATTAATCTATCCTTAATGAAAAAT spacer length:
37 repeater length: 25
2102 33205 GATGAATCCCAAAAAGGAATTGAAAG TTCTTCCTCAGCCTCCATTTTGTTTATGATTTGTAGTGCC spacer
length: 40 repeater length: 25
2103 33270 GATGAATCCCAAAAAGGAATTGAAAG TTCAATAATCTCTATCTTTCCAAAATCTGTAAATGAAGAC spacer
length: 40 repeater length: 25
2104 33335 GATGAATCCCAAAAAGGAATTGAAAG TATGGGAATGTGAACAGCTTATCCTCATTTTATCCCCAAT spacer
length: 40 repeater length: 25
2105 33400 GATGAATCCCAAAAAGGAATTGAAAG TTTCTGTAATCTCCCTGCTTTCTTAACGTTATCTTATCAA spacer
length: 40 repeater length: 25
2106 33465 GATGAATCCCAAAAAGGAATTGAAAG ATGAACTGTTTGCCCTACTTGATAGCCACTGATTCAATT spacer
length: 39 repeater length: 25
2107 33529 GATGAATCCCAAAAAGGAATTGAAAG TCGCAAAGCGAAAAATTGAAAATTTTACAATCAAAA spacer length:
37 repeater length: 25
2108 33591 GATGAATCCCAAAAAGGAATTGAAAG GTAAAAATGATGTTCAATAAGTTGTATGGAGATGAAAATTCAC spacer
length: 43 repeater length: 25
2109 33659 GATGAATCCCAAAAAGGAATTGAAAG GAGATTATAGCCGAGATAATAGAAGAATCAAAGCCAAATT spacer
length: 40 repeater length: 25
2110 33724 GATGAATCCCAAAAAGGAATTGAAAG GTATACTCATTCATAATCTTTTCCATTAAAGCCAAAATAC spacer
length: 40 repeater length: 25
2111 33789 GATGAATCCCAAAAAGGAATTGAAAG GTAAGAGTGTTGAAATATTCATCTACAATAAGTAATCAAAAT spacer
length: 43 repeater length: 25
2112 33857 GATGAATCCCAAAAAGGAATTGAAAG TATTCATTAATTACAGACAGAAGAGAAGAATTTTGATTATTC spacer
length: 41 repeater length: 25
2113 33923 GATGAATCCCAAAAAGGAATTGAAAG CTCACTCTCTTGTAATTTTTCTAGAGCGATTCTAAAT spacer length:
37 repeater length: 25
2114 33985 GATGAATCCCAAAAAGGAATTGAAAG CAGTATATTTGTTTAAGTTTTCTTGCAATTTTGTGCTT spacer
length: 40 repeater length: 25
2115 34050 GATGAATCCCAAAAAGGAATTGAAAG AATATATTGTTGATATTGAGGAAATTGGAACAAATACA spacer
length: 38 repeater length: 25
2116 34113 GATGAATCCCAAAAAGGAATTGAAAG ATATAACTTTACACACGTTACACAATAAACCATGAACCAA spacer
length: 40 repeater length: 25

2117 34178 GATGAATCCCAAAAAGGAATTGAAAG TTTATTTTTATTTTTTCCGTTAGGGGTGGGGGATGTTA spacer
length: 39 repeater length: 25

2118 34242 GATGAATCCCAAAAAGGAATTGAAAG GGTACATCTTGGCTTACTATTTTATAGGCTGTCTTCTCTG spacer
length: 40 repeater length: 25

2119 34307 GATGAATCCCAAAAAGGAATTGAAAG GAAATCCTAAAGGCGGTTCAAAATCCTTAGCGTAGT spacer length:
36 repeater length: 25

2120 34368 GATGAATCCCAAAAAGGAATTGAAAG TTTAATTTTCTTAAATAGTCAAAAAAGAACTACTTCT spacer
length: 38 repeater length: 25

2121 34431 GATGAATCCCAAAAAGGAATTGAAAG TATTACTTTGTCTACATGCGTAATACTAAGATTGTTATTA spacer
length: 39 repeater length: 25

2122 34495 GATGAATCCCAAAAAGGAATTGAAAG GAAGTAGTTAGTAAATGCTACTCGACGTGTGAAAATATA spacer
length: 39 repeater length: 25

2123 34559 GATGAATCCCAAAAAGGAATTGAAAG CTAAAAAGAGACTTTTAACTGGGGAGTTTAATCACCGTCG spacer
length: 40 repeater length: 25

2124 34624 GATGAATCCCAAAAAGGAATTGAAAG TAAAGCCGGAATTGTTACTGTACAGTTTTCTTTCTCAACT spacer
length: 40 repeater length: 25

2125 34689 GATGAATCCCAAAAAGGAATTGAAAG CTGTAAACTAGAGTTGAAATAACACTTCTATCAAGAACAA spacer
length: 40 repeater length: 25

2126 34754 GATGAATCCCAAAAAGGAATTGAAAG TTTGGCTATTTTCGATAGCTTGATTTAAGTCACTAATAGA spacer
length: 39 repeater length: 25

2127 34818 GATGAATCCCAAAAAGGAATTGAAAG TTGGAATTTTGGCTCACCCCTTTAAGTATTCATCTA spacer length:
37 repeater length: 25

2128 34880 GATGAATCCCAAAAAGGAATTGAAAG TTAACGGAATCGGTCTAGGTGATTTGCCATTTAAC spacer length:
35 repeater length: 25

2129 34940 GATGAATCCCAAAAAGGAATTGAAAG AGGAGGAGCTGAACGGTAACCCTATGGTTGACAGTGAGTT spacer
length: 40 repeater length: 25

2130 35005 GATGAATCCCAAAAAGGAATTGAAAG CTTTTCTTTTCTGAGTGTGGACAACAATTTCTAAA spacer length:
35 repeater length: 25

2131 35065 GATGAATCCCAAAAAGGAATTGAAAG TCTTCCTTTTGTGGCTAATTGGTCAAATGATGTTATCA spacer
length: 38 repeater length: 25

2132 35128 GATGAATCCCAAAAAGGAATTGAAAG TAATATATCAAATATCTTTTGAATTGTTGAACAAGTTCT spacer
length: 39 repeater length: 25

2133 35192 GATGAATCCCAAAAAGGAATTGAAAG TTCTACTTATCAAAC TAGTAGGTCTAACATATTACGTCA spacer
length: 39 repeater length: 25

2134 35256 GATGAATCCCAAAAAGGAATTGAAAG TAATAAGAAGAAAATTGCTAAATGTTTTGAATCATAATGCT spacer
length: 41 repeater length: 25

2135 35322 GATGAATCCCAAAAAGGAATTGAAAG AAGAAACCTTCAGAAATCCAAATTGAGATATGGTCAA spacer length:
37 repeater length: 25

2136 35384 GATGAATCCCAAAAAGGAATTGAAAG ATCACTAAATCATTAAC TCTGACTTTGAAAACCATCTCAGA spacer
length: 41 repeater length: 25

2137 35450 GATGAATCCCAAAAAGGAATTGAAAG AGCTTTCTTAATTAATCCACATGAACATGTCTTACTAA spacer
length: 38 repeater length: 25

2138 35513 GATGAATCCCAAAAAGGAATTGAAAG GCAAAGTAGTACCTTCGGTTTGTCTTATCCCGCTTAATAC spacer
length: 40 repeater length: 25

2139 35578 GATGAATCCCAAAAAGGAATTGAAAG AACTCCCTAACGAACTCTATCTTATCTTGCTTATCCAATAA spacer
length: 41 repeater length: 25

2140 35644 GATGAATCCCAAAAAGGAATTGAAAG AAGATCCACTAACAGTGCTAAAGCCGATCATTGGTAACCGCA spacer
length: 42 repeater length: 25

2141 35711 GATGAATCCCAAAAAGGAATTGAAAG TTTGAGTTACTGTCAAAGATTAGCAATTTTTGTTTTGTT spacer
length: 39 repeater length: 25

2142 35775 GATGAATCCCAAAAAGGAATTGAAAG TTTCTTAACTACAGTGAGTGGAATATATCTTTAGGA spacer length:
37 repeater length: 25

2143 35837 GATGAATCCCAAAAAGGAATTGAAAG GATCTTCATGACTATATTAAGTCTTTGGCTTTAGAAG spacer length:
37 repeater length: 25

2144 35899 GATGAATCCCAAAAAGGAATTGAAAG TTTAACCCCTCTTCAGTATCAAACAAGATTATCTTGTA spacer
length: 38 repeater length: 25

2145 35962 GATGAATCCCAAAAAGGAATTGAAAG TTATGAAGAATAAGGATAACTTTGTCTTGACAGAAGTGT spacer
length: 40 repeater length: 25

2146 36027 GATGAATCCCAAAAAGGAATTGAAAG ACGATTACTGGACAGGGTGGGATGGTGAAATTTAT spacer length:
35 repeater length: 25

2147 36087 GATGAATCCCAAAAAGGAATTGAAAG CGTACTAGTAGTAGCTCTTCTCTCACTATTTGCAATAAATTT spacer
length: 42 repeater length: 25

2148 36154 GATGAATCCCAAAAAGGAATTGAAAG CTGAATTTACCCCATGAATATTCTACTCCTGCATAACTC spacer
length: 39 repeater length: 25

2149 36218 GATGAATCCCAAAAAGGAATTGAAAG GGTAAGCCTTTTCGATTGGTACATTTAATTTACTGCCGTC spacer
length: 40 repeater length: 25

2150 36283 GATGAATCCCAAAAAGGAATTGAAAG AGCAGAATCTATAGGGAATTCAC TTGGAATTAATACTG spacer
length: 38 repeater length: 25

2151 36346 GATGAATCCCAAAAAGGAATTGAAAG TTAATCTCTCATTTTTCCTTCGGCAATTCGGTCTGTTTT spacer
length: 39 repeater length: 25

2152 36410 GATGAATCCCAAAAAGGAATTGAAAG TTTTCACTTTTCAAGCAATGACTAATGCTATACCTTCATTATC spacer

length: 41 repeater length: 25
2153 36476 GATGAATCCCAAAAAGGAATTGAAAG ATCTTATCTAAATCTATTGCTGAAGAAAAAGACAAAAG spacer
length: 38 repeater length: 25
2154 36539 GATGAATCCCAAAAAGGAATTGAAAG ACAGAACTCCTCATTTTCATCTTTATGTACACTCCA spacer
length: 38 repeater length: 25
2155 36602 GATGAATCCCAAAAAGGAATTGAAAG ATCTTTGCTCAAACCTGGAACTTTGCAAATGAAGTTT spacer length:
37 repeater length: 25
2156 36664 GATGAATCCCAAAAAGGAATTGAAAG CTTTGGGGTTATTTAAAGCTTTCGGAGAAAGATATTAAAAAACT spacer
length: 44 repeater length: 25
2157 36733 GATGAATCCCAAAAAGGAATTGAAAG TTTTTCCTTCTATCCTGTATGATATTCTTTCATCAT spacer length:
37 repeater length: 25
2158 36795 GATGAATCCCAAAAAGGAATTGAAAG GGCATCTGAAATATTCTTTAAGTGAAGATGATAAAGA spacer length:
37 repeater length: 25
2159 36857 GATGAATCCCAAAAAGGAATTGAAAG TTTTATATACGCTCTGTAGTCTGTTTTAACATTAATATC spacer
length: 39 repeater length: 25
2160 36921 GATGAATCCCAAAAAGGAATTGAAAG GGTGTCTCATCACCAATACAAATCGCTGAAGATATTGGT spacer
length: 39 repeater length: 25
2161 36985 GATGAATCCCAAAAAGGAATTGAAAG TTTATAGATCTAACTAATGTTCGTATTAATTCTCTATT spacer
length: 38 repeater length: 25
2162 37048 GATGAATCCCAAAAAGGAATTGAAAG GCAATGAGAGGCAGTGAAGAGAACCAATTATAACGTTATA spacer
length: 41 repeater length: 25
2163 37114 GATGAATCCCAAAAAGGAATTGAAAG TACAGGTGATGCATGACTGGGGATCGTGACCCAGTCGCA spacer
length: 40 repeater length: 25
2164 37179 GATGAATCCCAAAAAGGAATTGAAAG TTTTATGCAAACACACCTGTGATTATCGGAACAA spacer length: 34
repeater length: 25
2165 37238 GATGAATCCCAAAAAGGAATTGAAAG GGTAGGTTTATGACTTGAGGTACAGCATATGTGTATGCAT spacer
length: 40 repeater length: 25
2166 37303 GATGAATCCCAAAAAGGAATTGAAAG GTGATATTGGCGGGTAGTTGACCAGTTGAGGTAAACGCT spacer
length: 39 repeater length: 25
2167 37367 GATGAATCCCAAAAAGGAATTGAAAG GTGATACTTCAAAAGTAATGTAATTCTGAACGATATCAC spacer
length: 39 repeater length: 25
2168 37431 GATGAATCCCAAAAAGGAATTGAAAG TTAACCACAGCTGTGGTATCAAACCTGTTGTGGGGCAAT spacer
length: 39 repeater length: 25
2169 37495 GATGAATCCCAAAAAGGAATTGAAAG TTTCCGTTTGCTTTACGTAGAGAACGCCCTATACGTT spacer length:
37 repeater length: 25
2170 37557 GATGAATCCCAAAAAGGAATTGAAAG ATAGACTTTTACCATTGCTGGTAAAGAAAATGTATATTA spacer
length: 40 repeater length: 25
2171 37622 GATGAATCCCAAAAAGGAATTGAAAG TTAGATCTTTTGTAGGAATAAGAATTGCCCATTTCTTA spacer
length: 38 repeater length: 25
2172 37685 GATGAATCCCAAAAAGGAATTGAAAG TTAGGGTCTGGTACCAGTTCCTTGAACCTCTTCGAACT spacer length:
37 repeater length: 25
2173 37747 GATGAATCCCAAAAAGGAATTGAAAG GCCTCAAGCTTAGCGAGCTCCTCCCATATTTACCGACG spacer
length: 39 repeater length: 25
2174 37811 GATGAATCCCAAAAAGGAATTGAAAG TATATGTTAATACAAAATAGTTGTTACTAAAATCAAAATG spacer
length: 40 repeater length: 25
2175 37876 GATGAATCCCAAAAAGGAATTGAAAG ATTTTCTACGAGATAATTTATTGTTGAGTACACCCTCATA spacer
length: 40 repeater length: 25
2176 37941 GATGAATCCCAAAAAGGAATTGAAAG ATGAAAACGGACAGCCCATGATAGTCAATGACCCAAT spacer length:
37 repeater length: 25
2177 38003 GATGAATCCCAAAAAGGAATTGAAAG TTTTGTGGTGACATTATTTTAATTCCCCACGTACAATTTT spacer
length: 40 repeater length: 25
2178 38068 GATGAATCCCAAAAAGGAATTGAAAG AGTTTCTATACCAGCTAACTCTTCAATTACTATTTATATG spacer
length: 40 repeater length: 25
2179 38133 GATGAATCCCAAAAAGGAATTGAAAG TTTTATGTTGAAGGGGTTTAATATGCCACAGGAAGAGCA spacer
length: 39 repeater length: 25
2180 38197 GATGAATCCCAAAAAGGAATTGAAAG TAATATATGCACTAGCTGTAATGAATGATATTCCAGTTT spacer
length: 39 repeater length: 25
2181 38261 GATGAATCCCAAAAAGGAATTGAAAG TTTTTTCTTCTAACTAATCATTTTTTACCCCTAATACT spacer
length: 39 repeater length: 25
2182 38325 GATGAATCCCAAAAAGGAATTGAAAG GAAAGTTCCCATGGTCTGGAGATTCAAAATGAATGCTCATTAGT spacer
length: 44 repeater length: 25
2183 38394 GATGAATCCCAAAAAGGAATTGAAAG ATTCCATTAAAATTTCTTTAAATTTACATGATCTAG spacer length:
37 repeater length: 25
2184 38456 GATGAATCCCAAAAAGGAATTGAAAG GGTATTTAGGCGTTTCAACACAACATGAGGTTGA spacer length: 34
repeater length: 25
2185 38515 GATGAATCCCAAAAAGGAATTGAAAG GTGTACCAGTCGTCACCTGTTTTTATTTGCGTAGTGGTCT spacer
length: 39 repeater length: 25
2186 38579 GATGAATCCCAAAAAGGAATTGAAAG ACCCTCACTAAAAGACCTTAGGTAATCTCTCCATTTGTTTGAT spacer
length: 44 repeater length: 25
2187 38648 GATGAATCCCAAAAAGGAATTGAAAG ACCTGAACATTTAAATTTTAACTATTAAGAATGGTACATC spacer
length: 40 repeater length: 25

2188 38713 GATGAATCCCAAAAAGGAATTGAAAG TTATATAAACTATAACATCCACTGAATGTTAGTCCACTTCTTGAA spacer
 length: 45 repeater length: 25
 2189 38783 GATGAATCCCAAAAAGGAATTGAAAG AAGAGCCTCTTGACATTGGAGATTATTTAGTCGGTAATG spacer
 length: 39 repeater length: 25
 2190 38847 GATGAATCCCAAAAAGGAATTGAAAG AAGAGCCTCTTGACATTGGAGATTATTTAGTCGGTAATG spacer
 length: 39 repeater length: 25
 2191 38911 GATGAATCCCAAAAAGGAATTGAAAG AAGAGCCTCTTGACATTGGAGATTATTTAGTCGGTAATG spacer
 length: 39 repeater length: 25
 2192 38975 GATGAATCCCAAAAAGGAATTGAAAG GTAGAGGTCCTCTAGCGGACTTTGTTAGTAAAAATTTT spacer
 length: 38 repeater length: 25
 2193 39038 GATGAATCCCAAAAAGGAATTGAAAG ATCATCCTCCTCATTGTCGATACTCCCTTTGTGAATTT spacer
 length: 38 repeater length: 25
 2194 39101 GATGAATCCCAAAAAGGAATTGAAAG GATAACAAATATAGCTACTCAGGTTTATAATGCTGG spacer length:
 36 repeater length: 25
 2195 39162 GATGAATCCCAAAAAGGAATTGAAAG GTTTAATGCTCTAGCTAATTTTCATAGCATAACCTTGGTAA spacer
 length: 40 repeater length: 25
 2196 39227 GATGAATCCCAAAAAGGAATTGAAAG TTAATATAACAACACTTATATATCTGTTACGCAAAAATTAG spacer
 length: 41 repeater length: 25
 2197 39293 GATGAATCCCAAAAAGGAATTGAAAG AATGTTTGCTTTTTATGACAGTAAATAAAAACATGTTCCCT spacer
 length: 39 repeater length: 25
 2198 39357 GATGAATCCCAAAAAGGAATTGAAAG TCAAGAATCTTTTGCAATACATCACCTGAGATCCCATAT spacer
 length: 39 repeater length: 25
 2199 39421 GATGAATCCCAAAAAGGAATTGAAAG AATAAGATGGGATCTGAGGAGGAATGGGAGGAAGAGGAAT spacer
 length: 40 repeater length: 25
 2200 39486 GATGAATCCCAAAAAGGAATTGAAAG TTGTTTCTTCCCCCTATGTCTACTTATTATTTTTTCCC spacer
 length: 38 repeater length: 25
 2201 39549 GATGAATCCCAAAAAGGAATTGAAAG AAGTTAGGATCTAGCGGAATAAAAGTATACTCAAGTTTAT spacer
 length: 40 repeater length: 25
 2202 39614 GATGAATCCCAAAAAGGAATTGAAAG AAAGCACAGTCAATAACGTTATCTGGTATCATATTATCAAA spacer
 length: 41 repeater length: 25
 2203 39680 GATGAATCCCAAAAAGGAATTGAAAG CTTTCTCCTTCCCTCTGATCTCTCGCTGAATTGAAAAGA spacer
 length: 39 repeater length: 25
 2204 39744 GATGAATCCCAAAAAGGAATTGAAAG GTAAGTATTGATGCTAACATTGACTTCGCTGTCCCAGGGGC spacer
 length: 41 repeater length: 25
 2205 39810 GATGAATCCCAAAAAGGAATTGAAAG CTGGTGGT
 2206
 2207
 2208 crispr 3
 2209 2664298 CTTTCAATTCCATTAAGGATTATC TCTCTTTCAAATCACTTCAGTGGGGCTAGGATATACTTAG spacer
 length: 40 repeater length: 24
 2210 2664362 CTTTCAATTCCATTAAGGATTATC AAAATGAGCTTGAAAAATCGAAAACGAACTCAGGTTAATGAG spacer
 length: 43 repeater length: 24
 2211 2664429 CTTTCAATTCCATTAAGGATTATC CCGAATTTACCTAGTGTTGTTAGCATAAGAAGAAGTAGGA spacer
 length: 40 repeater length: 24
 2212 2664493 CTTTCAATTCCATTAAGGATTATC CCAAAGATAGGGACATGGGAGGCGCTAGCGAAGTATAAAGTT spacer
 length: 42 repeater length: 24
 2213 2664559 CTTTCAATTCCATTAAGGATTATC TGGACCAGATCGATAGCCGGGATTATAATAGATTTAATAAT spacer
 length: 41 repeater length: 24
 2214 2664624 CTTTCAATTCCATTAAGGATTATC TTTATTATCATAATAATACCAGACTTTTCGTA CTCTTTCC spacer
 length: 40 repeater length: 24
 2215 2664688 CTTTCAATTCCATTAAGGATTATC ATTCAATATTTTGTATGGAGTTACAGCCCATACAACGTTT spacer
 length: 40 repeater length: 24
 2216 2664752 CTTTCAATTCCATTAAGGATTATC AGAACTTCGCGGTAAGGCAAACATCAATTGCAGTTTCTAGT spacer
 length: 41 repeater length: 24
 2217 2664817 CTTTCAATTCCATTAAGGATTATC GGGGTAGCAATGCTAATTTTGGGTACTGATGATTCGGGTAAA spacer
 length: 42 repeater length: 24
 2218 2664883 CTTTCAATTCCATTAAGGATTATC CAAATGTTTTGGGTAATGATATAACCACAGCTTGTAGCCTATTT spacer
 length: 43 repeater length: 24
 2219 2664950 CTTTCAATTCCATTAAGGATTATC AGGGTGTGATATACCTAACATTGTTTATTAGTGTAGCGTC spacer
 length: 43 repeater length: 24
 2220 2665017 CTTTCAATTCCATTAAGGATTATC ATTAATTACTATGGAATCCGTGATATCCGGATAAGGCAATCCG spacer
 length: 43 repeater length: 24
 2221 2665084 CTTTCAATTCCATTAAGGATTATC TTCGTTTCACGTCTTTCATAGTTAAAAATCAGTGTGAGAG spacer
 length: 40 repeater length: 24
 2222 2665148 CTTTCAATTCCATTAAGGATTATC GTAAATGAATTGCCTGGTCTTCTCCACTCTGACAGTTGTAGT spacer
 length: 42 repeater length: 24
 2223 2665214 CTTTCAATTCCATTAAGGATTATC ATAAGCATCCCGTTATTAGGACCTAACACTACTACAGTCGT spacer
 length: 41 repeater length: 24
 2224 2665279 CTTTCAATTCCATTAAGGATTATC TATTAATTTACCGTATCCGCTTTTGCAA spacer length: 29
 repeater length: 24
 2225 2665332 CTTTCAATTCCATTAAGGATTATC CCAAAGCTGATGACTGTTAACTCGAGTCTTCAGATCA spacer

length: 38 repeater length: 24
2226 2665394 CTTTCAATTCCATTAAGGATTATC AGGGCGGATTAGCAGTAAACGAAAGCGATTTCAGTAGAATACGATA
spacer length: 45 repeater length: 24
2227 2665463 CTTTCAATTCCATTAAGGATTATC CTTTACAATAAGAAAATTTAACAAAGACCTGAGACAGTTTG spacer
length: 41 repeater length: 24
2228 2665528 CTTTCAATTCCATTAAGGATTATC AAAAATTAGAGAAGCTCGCAGAGGATGATGCTGAGACAAA spacer
length: 40 repeater length: 24
2229 2665592 CTTTCAATTCCATTAAGGATTATC ATGAGGTAGTGGACATGCTTCGCGATGGTTCGCTAATTTGT spacer
length: 41 repeater length: 24
2230 2665657 CTTTCAATTCCATTAAGGATTATC CAAGATGAAGTCGCATTAATTATAAGTTATCATGATAATGAC spacer
length: 42 repeater length: 24
2231 2665723 CTTTCAATTCCATTAAGGATTATC AACTCATTAAGTAAAAGCCAATTGATCATCTATAACAGA spacer
length: 40 repeater length: 24
2232 2665787 CTTTCAATTCCATTAAGGATTATC
2233
2234
2235 crispr 4
2236 2665838 CTTTCAATTCCATTAAGGATTATC AAAAATTCAATCGCTTGTTGGTCAGCTGAACCGTCATAATATTCCAA
spacer length: 47 repeater length: 24
2237 2665909 CTTTCAATTCCATTAAGGATTATC CTACAAAACCATTACTTTGTAATGAGTGAGATAGAGCTCCAAA spacer
length: 43 repeater length: 24
2238 2665976 CTTTCAATTCCATTAAGGATTATC CTACATGGATTGGAGCGCTAGATGCCGGCACACTAAAAGT spacer
length: 40 repeater length: 24
2239 2666040 CTTTCAATTCCATTAAGGATTATC ATGATTGGTGGTAAAGCTGGGGATATTTTGGCTGGTGTCTGG spacer
length: 41 repeater length: 24
2240 2666105 CTTTCAATTCCATTAAGGATTATC GTATTGCGAACTTAATTTGAATATCTTCCCCTTAGGGGTAG spacer
length: 41 repeater length: 24
2241 2666170 CTTTCAATTCCATTAAGGATTATC TTTACACTAGTAACTTAGTTACGTTAGTCTGGAAGTTCTGT spacer
length: 42 repeater length: 24
2242 2666236 CTTTCAATTCCATTAAGGATTATC ATTTGCCCACTCTTCCAAATATGATATAGATATCTGTTTTAAT spacer
length: 43 repeater length: 24
2243 2666303 CTTTCAATTCCATTAAGGATTATC CAGTTATATAGTAAAAGTTACGTCGAGTATGGAAAAAG spacer
length: 38 repeater length: 24
2244 2666365 CTTTCAATTCCATTAAGGATTATC TCTTTATTGTGCATGACAGCCTAAATAAATATGCTCTGACTA spacer
length: 42 repeater length: 24
2245 2666431 CTTTCAATTCCATTAAGGATTATC CACAGCTAGAAAAGAACAGAGTTCAAGTAAAAATGAACAAA spacer
length: 41 repeater length: 24
2246 2666496 CTTTCAATTCCATTAAGGATTATC AACTCAGAGTAATTACAGTTAACTGGATGAAGAACTAGTCCAA spacer
length: 44 repeater length: 24
2247 2666564 CTTTCAATTCCATTAAGGATTATC CTGAACTTGGTGTACCGTTAGACGTCATAGACTTTATCCA spacer
length: 40 repeater length: 24
2248 2666628 CTTTCAATTCCATTAAGGATTATC TTAAATATTGCTTAAGCTCTTCCTCATCGTCAATAAAT spacer
length: 39 repeater length: 24
2249 2666691 CTTTCAATTCCATTAAGGATTATC CTACCCCTAGGGTGTCTTAAGTCAATTCTTTTCTATTTTTTT spacer
length: 43 repeater length: 24
2250 2666758 CTTTCAATTCCATTAAGGATTATC TTCTAAGAGCTTAACCACAAACAAATTTGACATAAAATAAGATAAT
spacer length: 46 repeater length: 24
2251 2666828 CTTTCAATTCCATTAAGGATTATC TGGACTACAGTCAGTCAAATCTCTAATTCAACATTTAA spacer
length: 39 repeater length: 24
2252 2666891 CTTTCAATTCCATTAAGGATTATC TTCTGACCAGTCGACATGGAATTTTATAGTGAATAACAT spacer
length: 39 repeater length: 24
2253 2666954 CTTTCAATTCCATTAAGGATTATC ATAGGAATAAGATCCCTGTTGATATTTTACTCCAGTAGTAGCAT
spacer length: 46 repeater length: 24
2254 2667024 CTTTCAATTCCATTAAGGATTATC CTGCTTAACAAGTTAAGCAGCAATTGTAGAGTGTTATTCTT spacer
length: 41 repeater length: 24
2255 2667089 CTTTCAATTCCATTAAGGATTATC TTCTGCTTTGTCTCCTAATTTTTGTTTTATTGGCAATTC spacer
length: 39 repeater length: 24
2256 2667152 CTTTCAATTCCATTAAGGATTATC
2257
2258
2259 crispr 5
2260 2671318 CTTTCAATTCCATTATGGATTAGC TTACAGTAAAAGAGAAGTACTAACGTTGATGAGGAAACAT spacer
length: 40 repeater length: 24
2261 2671382 CTTTCAATTCCATTATGGATTAGC ACTTGTGATTGAATCTCGTATAATTTAAGCTTGGCATCATA spacer
length: 41 repeater length: 24
2262 2671447 CTTTCAATTCCATTATGGATTAGC CTAGACTGAGTTAAATTGTACATGCCTAAAATATAATTAATA spacer
length: 42 repeater length: 24
2263 2671513 CTTTCAATTCCATTATGGATTAGC CTCGATTTTCATTAACAACCTTTCCTGAGGAGGACGAGTTT spacer
length: 39 repeater length: 24
2264 2671576 CTTTCAATTCCATTATGGATTAGC AAAGTGCTTACGATTTATCTGGAACCCCTCTCGTCGGGTGT spacer
length: 41 repeater length: 24

2265 2671641 CTTTCAATTCCATTATGGATTAGC AAAGCTGCAGAGAATAGCTAGGTTAGTCCAGGGTAAGCAAACA spacer
length: 43 repeater length: 24

2266 2671708 CTTTCAATTCCATTATGGATTAGC GTTACAACATTACAATTTTTGGAATTTCTTCTACAATTAA spacer
length: 42 repeater length: 24

2267 2671774 CTTTCAATTCCATTATGGATTAGC TGGGTCGTGGAAGTAATCAGAGAGACTTACTGCGAATACTGTG spacer
length: 43 repeater length: 24

2268 2671841 CTTTCAATTCCATTATGGATTAGC TAACTCATTTGTGTTTGTTAATAAGTTTTGACGTAGTCT spacer
length: 39 repeater length: 24

2269 2671904 CTTTCAATTCCATTATGGATTAGC GTACACTATCGTAGATTTTCCGTACTCATAATCAATTTCA spacer
length: 40 repeater length: 24

2270 2671968 CTTTCAATTCCATTATGGATTAGC ACGCAAGTGCCCACGATACCTGGGGCGATGGCGTTGATGCAA spacer
length: 42 repeater length: 24

2271 2672034 CTTTCAATTCCATTATGGATTAGC CATCTTGCATGCTGCATACGTTTCATAAAAATGAGGATCAA spacer
length: 41 repeater length: 24

2272 2672099 CTTTCAATTCCATTATGGATTAGC CCAGAGATTGAATTAGCTGAATTATATTCTTTTACATGTAC spacer
length: 41 repeater length: 24

2273 2672164 CTTTCAATTCCATTATGGATTAGC CGTAGACGGGTGAACCGTAGTAAGAAGGACTATTAGTAGGTGCCC
spacer length: 45 repeater length: 24

2274 2672233 CTTTCAATTCCATTATGGATTAGC TCTACGTTACGAATCAGAATTCACAATATGTAATGTATGTAAA spacer
length: 43 repeater length: 24

2275 2672300 CTTTCAATTCCATTATGGATTAGC ATAGAAGTTGATGAGACTTATGATGTTAACATTTGGTATCAAAA spacer
length: 44 repeater length: 24

2276 2672368 CTTTCAATTCCATTATGGATTAGC GTGAGAGCTTTTTAATAAGTACTAGCGTATTCTATTTACCC spacer
length: 41 repeater length: 24

2277 2672433 CTTTCAATTCCATTATGGATTAGC GCAGGTAGTATTATGCAAGGTCCAATCAGGGTTATA spacer length:
36 repeater length: 24

2278 2672493 CTTTCAATTCCATTATGGATTAGC TACCACTTGTATTGTTGTACTACTATTTAACCATAAAATTTCCATTA
spacer length: 47 repeater length: 24

2279 2672564 CTTTCAATTCCATTATGGATTAGC CAAACTTCTATTATTATGTTGTTTGGTCTTCAAGTGAC spacer
length: 38 repeater length: 24

2280 2672626 CTTTCAATTCCATTATGGATTAGC ATTAATTGCTAATGTTAAAGGATCTTCTCTTTAATTCTAAA spacer
length: 42 repeater length: 24

2281 2672692 CTTTCAATTCCATTATGGATTAGC ATAGAATAAAGATTGTTAGATTTCTAGTTTTCAACAATTGT spacer
length: 41 repeater length: 24

2282 2672757 CTTTCAATTCCATTATGGATTAGC ATAAGAATAATAAGTTATTATGACTACTCAGAAGTCGTGA spacer
length: 40 repeater length: 24

2283 2672821 CTTTCAATTCCATTATGGATTAGC ATTGAATAATTGTAGAATCTTAAAGCTTGTCAGTCTATAGAT spacer
length: 42 repeater length: 24

2284 2672887 CTTTCAATTCCATTATGGATTAGC GGAAGATGTTATCCTTTTTTTTAAAAGTTTTAAGATTTAGTAGT spacer
length: 43 repeater length: 24

2285 2672954 CTTTCAATTCCATTATGGATTAGC AAGAGGAGCGGGCTTAACGGTATTGTAATTGTTATAAAAA spacer
length: 40 repeater length: 24

2286 2673018 CTTTCAATTCCATTATGGATTAGC TAAGATAAAGTCTATTTTTTTTATCAGAATTTCCAGATGCTAAATTTG
spacer length: 47 repeater length: 24

2287 2673089 CTTTCAATTCCATTATGGATTAGC ACATTAAGATATATTAATATTGCCAACTTATGGAAAGTAA spacer
length: 41 repeater length: 24

2288 2673154 CTTTCAATTCCATTATGGATTAGC ATTCTTCTAATTCTTCTAACATAGATATTAATAAACTCAA spacer
length: 40 repeater length: 24

2289 2673218 CTTTCAATTCCATTATGGATTAGC TCTGCTTATTTTGTAGAAAACTCTACAGGGAGGGAAGAGCGTTA
spacer length: 45 repeater length: 24

2290 2673287 CTTTCAATTCCATTATGGATTAGC GCGAATGCTTCTTCTAATTGGTATAGTGTGTAATAAA spacer
length: 38 repeater length: 24

2291 2673349 CTTTCAATTCCATTATGGATTAGC GGGAGTCAGTAATTTTGCCTAAGCCATTGCACGTATAAG spacer
length: 39 repeater length: 24

2292 2673412 CTTTCAATTCCATTATGGATTAGC ACGCTTAGACCAGATAGAAAAGAGACTCAAGAAGAAAA spacer
length: 38 repeater length: 24

2293 2673474 CTTTCAATTCCATTATGGATTAGC ATATAATGATTGCGTCCAAGAAGTGGCATTAGATGATGT spacer
length: 39 repeater length: 24

2294 2673537 CTTTCAATTCCATTATGGATTAGC TTGCAAATAGGGAAGATGCAGTAAAGTATTACATTACATT spacer
length: 40 repeater length: 24

2295 2673601 CTTTCAATTCCATTATGGATTAGC AAGATTAAAAAGTTTAGAAGTATACCTTAATTATTAGTTTT spacer
length: 41 repeater length: 24

2296 2673666 CTTTCAATTCCATTATGGATTAGC TCATCTGTGGAATTTGTAATTGAGGATAGCTAAAGTT spacer
length: 37 repeater length: 24

2297 2673727 CTTTCAATTCCATTATGGATTAGC AATGAGTTATGAAGAAGTTTGTCTTTTATAAAAGAAAAAG spacer
length: 41 repeater length: 24

2298 2673792 CTTTCAATTCCATTATGGATTAGC TTCCTTTCTCTAGTCCTTGCCCTATCAAACACTGTTATAAC spacer
length: 41 repeater length: 24

2299 2673857 CTTTCAATTCCATTATGGATTAGC AATATGAGGATGAGGTATCTGAGGGTAGCGTTACAAGGCT spacer
length: 41 repeater length: 24

2300 2673922 CTTTCAATTCCATTATGGATTAGC AATGTTTACGGTAATACTTATGAGTATACCAGTACTAC spacer

length: 38 repeater length: 24
2301 2673984 CTTTCAATTCATTATGGATTAGC TTAATACTTATTATAGCTACAGTTATTATTGCCCTTATAGTTATA
spacer length: 45 repeater length: 24
2302 2674053 CTTTCAATTCATTATGGATTAGC TCTATTTTTCTAGATGGTGGAAACGGTAAGGCATAATAGAA spacer
length: 41 repeater length: 24
2303 2674118 CTTTCAATTCATTATGGATTAGC TACACTTAACGATATCCCAATTTACAAAATAATAAA spacer length:
36 repeater length: 24
2304 2674178 CTTTCAATTCATTATGGATTAGC CACCCCTCAGCAGTACTTAGCAGCAGTCAGCTCTCTTAA spacer
length: 39 repeater length: 24
2305 2674241 CTTTCAATTCATTATGGATTAGC CTGGTGCCTAACGGGTGCTGTGGTAGGTTCAATTTGTTCC spacer
length: 40 repeater length: 24
2306 2674305 CTTTCAATTCATTATGGATTAGC TTGTTGTGTTCTCTCTCTTTGCGATCTCTTCTAGTTTCT spacer
length: 39 repeater length: 24
2307 2674368 CTTTCAATTCATTATGGATTAGC ATAATTATGATCCTTCACTAGACCAAAGGAAGAAGAC spacer
length: 38 repeater length: 24
2308 2674430 CTTTCAATTCATTATGGATTAGC GACACGATAAATCATTCCGATATTAACAAAAAATAGAT spacer
length: 39 repeater length: 24
2309 2674493 CTTTCAATTCATTATGGATTAGC TATCGTTTTGAACTTTGCATGGACGGTATGTATAACTCTAA spacer
length: 41 repeater length: 24
2310 2674558 CTTTCAATTCATTATGGATTAGC ATTTTTAACGTAATTTTGGCTCAGAAAGACGTGACAAAAATGG spacer
length: 43 repeater length: 24
2311 2674625 CTTTCAATTCATTATGGATTAGC TGAATTATTAGAACAGCTAGTGTATGCTATAAATCCAAACA spacer
length: 41 repeater length: 24
2312 2674690 CTTTCAATTCATTATGGATTAGC ATTATCTCCACATGATATACGCCGTAGCGGGGCATATTGG spacer
length: 40 repeater length: 24
2313 2674754 CTTTCAATTCATTATGGATTAGC TAGAACTTAGACGAAATAACAGAGAAATACGATATACAAC spacer
length: 41 repeater length: 24
2314 2674819 CTTTCAATTCATTATGGATTAGC TGACATGAAAGCGACAAAACGCCAAATAGAATTAATAAAG spacer
length: 40 repeater length: 24
2315 2674883 CTTTCAATTCATTATGGATTAGC CGATTATTTATATATGCTCTTTGTGCTGTCGGCAGTGAG spacer
length: 39 repeater length: 24
2316 2674946 CTTTCAATTCATTATGGATTAGC TCTGCCAGCTTACTCATCTTAGCCACCTCCAACAACCTTA spacer
length: 40 repeater length: 24
2317 2675010 CTTTCAATTCATTATGGATTAGC CTTCTGATTACGATAGACCTTTCCAGTTTATGTGTGTTACAAT spacer
length: 43 repeater length: 24
2318 2675077 CTTTCAATTCATTATGGATTAGC ATAGTCAAGTGAGCCTCTGTTTCCTTAAAGAAAATACAATG spacer
length: 40 repeater length: 24
2319 2675141 CTTTCAATTCATTATGGATTAGC ACTTTATACGTATCCCCGCTTGTGCGCACCTTAACTGATTCT spacer
length: 42 repeater length: 24
2320 2675207 CTTTCAATTCATTATGGATTAGC AAAATAGCACCAGGAAGGAGACTATACCACCGGGTTATGAT spacer
length: 41 repeater length: 24
2321 2675272 CTTTCAATTCATTATGGATTAGC GACCTCAGTTTAAATGATATGACCTAGTTTTTACTTCCCAGTTAACT
spacer length: 46 repeater length: 24
2322 2675342 CTTTCAATTCATTATGGATTAGC CTACTACTGATGATGGGAAAGCGTCAGAAGGATCTAAATTAAC spacer
length: 43 repeater length: 24
2323 2675409 CTTTCAATTCATTATGGATTAGC AACTGCCCTGAGCGTGATGTTAAACTCCCCAGTTTAAATAG spacer
length: 40 repeater length: 24
2324 2675473 CTTTCAATTCATTATGGATTAGC CTGGTGAGGTTAGAATGCATGATGTAATACGTTTAGGAGAA spacer
length: 41 repeater length: 24
2325 2675538 CTTTCAATTCATTATGGATTAGC GAGACTGATTACTAGAAGAATTAAATAATTTTTGCATATCTTG spacer
length: 43 repeater length: 24
2326 2675605 CTTTCAATTCATTATGGATTAGC ATCTCATGTTGATATTCTTCTTTAGCCTTCTCTAGAGCCATTTC spacer
length: 44 repeater length: 24
2327 2675673 CTTTCAATTCATTATGGATTAGC TTGCTCTGGTACTAGTACAACCTCTCTTTTGCCATCT spacer length:
36 repeater length: 24
2328 2675733 CTTTCAATTCATTATGGATTAGC TACATATTTCTGCTGTAGCTGCCATTTATATCATCTTACTT spacer
length: 41 repeater length: 24
2329 2675798 CTTTCAATTCATTATGGATTAGC ACTATTACTCAAAGTATCCGTGATTATTATTACAATCAA spacer
length: 39 repeater length: 24
2330 2675861 CTTTCAATTCATTATGGATTAGC ATCGCGGGCTGCTGGGTCAAGTTCAGACATGTGATGAGCGTAA spacer
length: 43 repeater length: 24
2331 2675928 CTTTCAATTCATTATGGATTAGC TCTATTATAGAGAAGAGATAGTACTTTTGCTTCTGGAGTT spacer
length: 40 repeater length: 24
2332 2675992 CTTTCAATTCATTATGGATTAGC TAAAAATTTTCCAATTTGAGGATTTCTATCATACTAAATATAT spacer
length: 43 repeater length: 24
2333 2676059 CTTTCAATTCATTATGGATTAGC TTGGAGAACCACCCTGAGCTTTCCGAAATCGTTAACAATACG spacer
length: 42 repeater length: 24
2334 2676125 CTTTCAATTCATTATGGATTAGC TTCTGCACTAGAAGAACCATGCTCTTTATCAGAATTGT spacer
length: 38 repeater length: 24
2335 2676187 CTTTCAATTCATTATGGATTAGC AGCCAGCGAAGGATATGCAGTGATCGTTCATCATACTGAT spacer
length: 40 repeater length: 24

2336 2676251 CTTTCAATTCCATTATGGATTAGC CCCTCGCTTAAACAGAACTGTTAGAGCAAGGCATAATTACAGA spacer
length: 44 repeater length: 24
2337 2676319 CTTTCAATTCCATTATGGATTAGC TTAAAGGCGGTGCACCGCTACCCCCGTTTGCGGTAATGTAAAA spacer
length: 43 repeater length: 24
2338 2676386 CTTTCAATTCCATTATGGATTAGC TGTTCATATTTTCATATTTGCAATCTTCAAATTTCCATAAA spacer
length: 41 repeater length: 24
2339 2676451 CTTTCAATTCCATTATGGATTAGC AGCACCGAGTATAGCACCTTCATTAGCTTCCTGAAGGACCTG spacer
length: 42 repeater length: 24
2340 2676517 CTTTCAATTCCATTATGGATTAGC ATAAACCAAAGAAGTGACATTTACGAATACTACTTTGAGTT spacer
length: 41 repeater length: 24
2341 2676582 CTTTCAATTCCATTATGGATTAGC CCAAACTAATGAGTATCATAATCGAGTCACCAGATCAT spacer
length: 39 repeater length: 24
2342 2676645 CTTTCAATTCCATTATGGATTAGC CACAGGTATCGCGAGGTCAGGGTTTGCTTTAACGAAATA spacer
length: 39 repeater length: 24
2343 2676708 CTTTCAATTCCATTATGGATTAGC TCTGCATTGTGTTATGATAAATACGGTCAGCTTGACGAGT spacer
length: 41 repeater length: 24
2344 2676773 CTTTCAATTCCATTATGGATTAGC AAAGTTGAAGTAAAGGTTGTTAAATCATTAGAAAAATTGCCTA spacer
length: 43 repeater length: 24
2345 2676840 CTTTCAATTCCATTATGGATTAGC CTCTATCCGGAAGAGTTTGCTAAGATTGACGAATTTTGTAG spacer
length: 41 repeater length: 24
2346 2676905 CTTTCAATTCCATTATGGATTAGC TGTTCAAGGAGAAAGCAATAATCAAGGTAAGACAAACTGT spacer
length: 40 repeater length: 24
2347 2676969 CTTTCAATTCCATTATGGATTAGC TACAGTCCTGTGCGACGTAACATTTGCTTTGCGTAAGCAATACTGT
spacer length: 46 repeater length: 24
2348 2677039 CTTTCAATTCCATTATGGATTAGC ATCGGTAACCTCATCATAATAAGTAGCATAAACTACTCCA spacer
length: 39 repeater length: 24
2349 2677102 CTTTCAATTCCATTATGGATTAGC ATAGTCGTTATCTATAGCGTCCTGAATCCTCTCTAAAGCGT spacer
length: 41 repeater length: 24
2350 2677167 CTTTCAATTCCATTATGGATTAGC GAAATCCAAAGGAGAAAGGAGAAAAAGCGGAAATTTTA spacer
length: 39 repeater length: 24
2351 2677230 CTTTCAATTCCATTATGGATTAGC AACCAGTTTGAGGAGTTCCTTAACAAGTTCATCTTCAGAG spacer
length: 40 repeater length: 24
2352 2677294 CTTTCAATTCCATTATGGATTAGC CGTTCATTTTATTAGGGCAGTTGGGTATACACAAGAATTATCA spacer
length: 43 repeater length: 24
2353 2677361 CTTTCAATTCCATTATGGATTAGC ACGGGGTATATTGTGATCTGGTTCTGACAAAGACGTTGAA spacer
length: 40 repeater length: 24
2354 2677425 CTTTCAATTCCATTATGGATTAGC
2355
2356
2357 crispr 6
2358 2677491 CTTTCAATTCCATTATGGATTAGC AGAGCTTGATTTAGAAGGAAAAATATGGTTGTATAATATAAAATG
spacer length: 45 repeater length: 24
2359 2677560 CTTTCAATTCCATTATGGATTAGC AGATAGCATAATCATAATTTAGATCTTTAGCATATTTTCATTA spacer
length: 42 repeater length: 24
2360 2677626 CTTTCAATTCCATTATGGATTAGC AGGGAAAGGTTTCAGGTTTAAGGCTTATATTTACCGCTGAA spacer
length: 41 repeater length: 24
2361 2677691 CTTTCAATTCCATTATGGATTAGC TCAAATTGGGACACAAACCATAACCCCAACAATTGAAGATAA spacer
length: 42 repeater length: 24
2362 2677757 CTTTCAATTCCATTATGGATTAGC TTAAGTAGATATTCTGCCGAAAATTCCTATGACAATAATGTTTT
spacer length: 45 repeater length: 24
2363 2677826 CTTTCAATTCCATTATGGATTAGC TAATTTTGAGGGCGAAAATCGTAGGGGATGAAAGATATACG spacer
length: 41 repeater length: 24
2364 2677891 CTTTCAATTCCATTATGGATTAGC TTAAATATAAAGACGTATTAAAGCTAGACGGAAGA spacer
length: 37 repeater length: 24
2365 2677952 CTTTCAATTCCATTATGGATTAGC TGCCAATAACTATGAAATCAAGATATTTGACAGATGGATAAA spacer
length: 42 repeater length: 24
2366 2678018 CTTTCAATTCCATTATGGATTAGC
2367
2368
2369 crispr 7
2370 2685052 CTTTCAATTCCATTAAAGGATTATC GGGACAATATACTATTTACAAATGCCACTAGCATTGATTT spacer
length: 40 repeater length: 24
2371 2685116 CTTTCAATTCCATTAAAGGATTATC ATTTTCAATTACTAGTACAGCACATAGTGACGGAAATTATAC spacer
length: 42 repeater length: 24
2372 2685182 CTTTCAATTCCATTAAAGGATTATC GTAAAAATCCCGAGATAAAGCCTATCATTATCAAATT spacer
length: 37 repeater length: 24
2373 2685243 CTTTCAATTCCATTAAAGGATTATC GTTGAATATTAATGGTAATGAAAATGCTATGTATGCAGTAAG spacer
length: 42 repeater length: 24
2374 2685309 CTTTCAATTCCATTAAAGGATTATC TCCTTATCCTAGTGACAAGAATGCTCTTTATATAGTAAG spacer
length: 39 repeater length: 24
2375 2685372 CTTTCAATTCCATTAAAGGATTATC AACATGCTTATAGATTTGGTTGAACTTATATGGTAACTGCGA spacer

length: 42 repeater length: 24
2376 2685438 CTTTCAATTCCATTAAGGATTATC TAGTGTTAGTTGTTATAGTACTCGTAGCAGATATTGTTGCTG spacer
length: 42 repeater length: 24
2377 2685504 CTTTCAATTCCATTAAGGATTATC
2378
2379
2380 crispr 8
2381 2685763 CTTTCAATTCCATTAAGGATTATC TGAGGGTGGACTTCCCCGTGTTTCGATTGCGCGTATAATATTAAATAT
spacer length: 47 repeater length: 24
2382 2685834 CTTTCAATTCCATTAAGGATTATC AGTTAGTCCCCGATTCAAAAGTCGTTGAGGAGCTACTTCG spacer
length: 40 repeater length: 24
2383 2685898 CTTTCAATTCCATTAAGGATTATC TCACCAAAAAGGATCCAACCACCATCATAATCCTCAGAATCTGT spacer
length: 44 repeater length: 24
2384 2685966 CTTTCAATTCCATTAAGGATTATC CTTTAACACTTTTTTGTGTTTATCATACACCTCACCTATT spacer
length: 40 repeater length: 24
2385 2686030 CTTTCAATTCCATTAAGGATTATC CGAATCTTTTATTCGTGTCAAAAACCGTGCCGTCTAGGTCA spacer
length: 41 repeater length: 24
2386 2686095 CTTTCAATTCCATTAAGGATTATC TAAATATAGGAATATATCCTAACGTCTACGTTCCCTCCGTA spacer
length: 42 repeater length: 24
2387 2686161 CTTTCAATTCCATTAAGGATTATC ACGGGACTTTCTGGGCAACGACACGTTTTGGTTCAGAACG spacer
length: 40 repeater length: 24
2388 2686225 CTTTCAATTCCATTAAGGATTATC TTGGGTATGTGTTGAAGTACAGATACGGGTTTGGGGTT spacer
length: 38 repeater length: 24
2389 2686287 CTTTCAATTCCATTAAGGATTATC CAAATTTTCCATAAGAAGTATTCAACATCAGTTTAGCTAA spacer
length: 40 repeater length: 24
2390 2686351 CTTTCAATTCCATTAAGGATTATC AAAAATACGCTATCAAATTGCCTAAGCGTCTCAATTACATT spacer
length: 41 repeater length: 24
2391 2686416 CTTTCAATTCCATTAAGGATTATC TTCTTAACGAACTGAATCCAGGGGAACAGTTACGTTTAT spacer
length: 40 repeater length: 24
2392 2686480 CTTTCAATTCCATTAAGGATTATC CGTTATATGAAGAATAAGTACTATGTTGCGACTGTAAAC spacer
length: 40 repeater length: 24
2393 2686544 CTTTCAATTCCATTAAGGATTATC TCCCTCTAGTCCACTCAAACGTCCATAATGCTGCAATTAA spacer
length: 40 repeater length: 24
2394 2686608 CTTTCAATTCCATTAAGGATTATC CAGGAGGTTTAGGTAAGTTAGTTAAGTCAGTTAGTAGGTA spacer
length: 40 repeater length: 24
2395 2686672 CTTTCAATTCCATTAAGGATTATC TAAAAAAGCTCTACGTAAGTAAAGGGGCTTAATAATTGCTA spacer
length: 42 repeater length: 24
2396 2686738 CTTTCAATTCCATTAAGGATTATC CAATGAGTGCTACTGTGCCGTTTGTGATGATATATCTAGT spacer
length: 41 repeater length: 24
2397 2686803 CTTTCAATTCCATTAAGGATTATC AATCCCTTGCGGGAATTTTGGAAACCTAGAAGATTCAAGAAT spacer
length: 43 repeater length: 24
2398 2686870 CTTTCAATTCCATTAAGGATTATC AATATTTTTCTTATCTGGCAATACTTAAGAAATTGAGAATAT spacer
length: 42 repeater length: 24
2399 2686936 CTTTCAATTCCATTAAGGATTATC TCACATCTGAAAACGTTTGCTGGTGTCAAAGGTCGTTCCGTCA spacer
length: 43 repeater length: 24
2400 2687003 CTTTCAATTCCATTAAGGATTATC TCTATTGCGTGATCCACATAATCTCTAATCTCATATAGCA spacer
length: 40 repeater length: 24
2401 2687067 CTTTCAATTCCATTAAGGATTATC TTTATTTTTCTAAGCGTTTAAAATTATTTGTTATTTATAGA spacer
length: 42 repeater length: 24
2402 2687133 CTTTCAATTCCATTAAGGATTATC ACAGGCGGAGGCTTTAGCTTTGGAGGCGGAAAGGAGGAAG spacer
length: 41 repeater length: 24
2403 2687198 CTTTCAATTCCATTAAGGATTATC AAAATGTAAAAGTATATGACATCTTTGTACACCAGGTGA spacer
length: 40 repeater length: 24
2404 2687262 CTTTCAATTCCATTAAGGATTATC TTTTTTTGAACTCATTATAAATAGAGACTGGTACCAAAA spacer
length: 39 repeater length: 24
2405 2687325 CTTTCAATTCCATTAAGGATTATC TAGAAAGTTCTAGTTATGAAATAACAGAGGTGTTGAAAAA spacer
length: 40 repeater length: 24
2406 2687389 CTTTCAATTCCATTAAGGATTATC TTAAGTCAACTAAAGAGAACGTGGATAAGGTAATAATAAA spacer
length: 39 repeater length: 24
2407 2687452 CTTTCAATTCCATTAAGGATTATC TTAGGAGTGGGCTTTTAAATTTCTATCCTTCAATTTCTGA spacer
length: 40 repeater length: 24
2408 2687516 CTTTCAATTCCATTAAGGATTATC CCGTATTGATTTGCTGTCTCCTCCTCCCTTACCGATACCG spacer
length: 41 repeater length: 24
2409 2687581 CTTTCAATTCCATTAAGGATTATC TTTGTAATGCGTATATCGTACATAGAGCAAAAATGGAGAAAC spacer
length: 42 repeater length: 24
2410 2687647 CTTTCAATTCCATTAAGGATTATC TTAGCGTGATAGACGATATCTTAAGTGAGGCTAGGAAGTAC spacer
length: 41 repeater length: 24
2411 2687712 CTTTCAATTCCATTAAGGATTATC TGTATACGGAAATATTGAAGTTACAAATGGCGTAACAAAAC spacer
length: 41 repeater length: 24
2412 2687777 CTTTCAATTCCATTAAGGATTATC TTATACTCTTTGAAACACATGGCATGTGAAAAAATT spacer length:
36 repeater length: 24

2413 2687837 CTTTCAATTCCATTAAGGATTATC AGAAATATGAAGAACTGTAAACGAGTATAACGGGTAA spacer
length: 39 repeater length: 24

2414 2687900 CTTTCAATTCCATTAAGGATTATC GGAATGTGGCACCACGCTGAGATTATCATCAACAATAAT spacer
length: 39 repeater length: 24

2415 2687963 CTTTCAATTCCATTAAGGATTATC TGGGATATTACATAGTTCAATAATAAATTAAGGGAAAACTAT spacer
length: 43 repeater length: 24

2416 2688030 CTTTCAATTCCATTAAGGATTATC CGGTCTGGATTAACATTTAGTGGTTGTATGAAAATAAAAAA spacer
length: 41 repeater length: 24

2417 2688095 CTTTCAATTCCATTAAGGATTATC TTTCTATCAAGTCAAGTACTGACAAATCAACTACAAATCTGAA spacer
length: 43 repeater length: 24

2418 2688162 CTTTCAATTCCATTAAGGATTATC ATTATAGTAATTGTTTTAGTAATCATTTTGATAGCTGTGAT spacer
length: 41 repeater length: 24

2419 2688227 CTTTCAATTCCATTAAGGATTATC CCTATAGGTGTTACAAAATTCAGCCCCTTCTGATGGGGAT spacer
length: 40 repeater length: 24

2420 2688291 CTTTCAATTCCATTAAGGATTATC CTTGATCTACTACCAGTTCATTTATTCTCTCAATAAAGAA spacer
length: 40 repeater length: 24

2421 2688355 CTTTCAATTCCATTAAGGATTATC AAATCGTTCCTTCTACGTATACGACAGTTTGGGACTTCATAG spacer
length: 41 repeater length: 24

2422 2688420 CTTTCAATTCCATTAAGGATTATC TATACTTCCTCCCCGTCAGAAGAAAATTTAGACGGGGGGATAG spacer
length: 43 repeater length: 24

2423 2688487 CTTTCAATTCCATTAAGGATTATC AAAATCGTTGTAATAGACGAGGCACATAGAATACTCGCTAGAA spacer
length: 43 repeater length: 24

2424 2688554 CTTTCAATTCCATTAAGGATTATC AGGAAGACTGGGGAAATATTGATTCTGCAGGGGAGGACAAAG spacer
length: 42 repeater length: 24

2425 2688620 CTTTCAATTCCATTAAGGATTATC ATACCGTCACGTAGTAAACGTGGCTTAAACATTACACTA spacer
length: 40 repeater length: 24

2426 2688684 CTTTCAATTCCATTAAGGATTATC ATGTCAGTATTTTGAACCTCTGTCCTTAAGGTAACCTTTGTC spacer
length: 40 repeater length: 24

2427 2688748 CTTTCAATTCCATTAAGGATTATC GGTTTCCTACTTTTACACCATCTTTATATAAAGATATAA spacer
length: 39 repeater length: 24

2428 2688811 CTTTCAATTCCATTAAGGATTATC CACGACCTGGTCTTTTTACCGCATCACTCAGGCTTTT spacer
length: 37 repeater length: 24

2429 2688872 CTTTCAATTCCATTAAGGATTATC TTAGAGAAGGAAAGAAAATCTATGTAGAATTAACAGAGAA spacer
length: 40 repeater length: 24

2430 2688936 CTTTCAATTCCATTAAGGATTATC GGAACGTGGACATTAGGATATACAGTTACATCTATTTCTTTC spacer
length: 42 repeater length: 24

2431 2689002 CTTTCAATTCCATTAAGGATTATC ACACGCAGATATTATGCTTCTTACAGACGTGGTCAAGAG spacer
length: 39 repeater length: 24

2432 2689065 CTTTCAATTCCATTAAGGATTATC CTATCACTCAACGGAATATCGGAATATGAATCAAGAG spacer
length: 37 repeater length: 24

2433 2689126 CTTTCAATTCCATTAAGGATTATC TGGGAATGTTTCGTAGACGTCGTAACGTCTGACAAAGTGAGAT spacer
length: 43 repeater length: 24

2434 2689193 CTTTCAATTCCATTAAGGATTATC AACTTATGCAAATCTCATCTATGACGCGAGAAATAATATGTA spacer
length: 42 repeater length: 24

2435 2689259 CTTTCAATTCCATTAAGGATTATC

2436

2437

2438 crispr 9

2439 2689323 CTTTCAATTCCATTAAGGATTATC
TGATTGTTTTTATATTCACTTGGTATAAAAAGAATATTGTACAAATTTCTCAAT spacer length: 53 repeater
length: 24

2440 2689400 CTTTCAATTCCATTAAGGATTATC TATCGCTGGAATAGTAGGAAATATTCTCTCACTTTAT spacer
length: 37 repeater length: 24

2441 2689461 CTTTCAATTCCATTAAGGATTATC CAAAAAATTAGTTAGAAAAAACTGACTTAAGAAATAGTCTTATTAA
spacer length: 46 repeater length: 24

2442 2689531 CTTTCAATTCCATTAAGGATTATC AGTGTTAGATAGACAGATCGGTAGTAAAGTGCCTGTCGTATTTCG spacer
length: 44 repeater length: 24

2443 2689599 CTTTCAATTCCATTAAGGATTATC TTATTGATGCTTTCGCCATTGAACCTATAGACGAAAAGAAGATCA
spacer length: 45 repeater length: 24

2444 2689668 CTTTCAATTCCATTAAGGATTATC ATACATAATACATAATAATCAGAAAAAGGGCAAAAGAGCATGAT spacer
length: 44 repeater length: 24

2445 2689736 CTTTCAATTCCATTAAGGATTATC TGGAGATAGTTGAGAGTTATGATTCTGATACTTATGCTTACC spacer
length: 42 repeater length: 24

2446 2689802 CTTTCAATTCCATTAAGGATTATC GTAGCTGGATTTCTAGGGTACTATTTTGCACCAAGCAATA spacer
length: 40 repeater length: 24

2447 2689866 CTTTCAATTCCATTAAGGATTATC TTTCTCTTCAGAAGAACAGAATTGAAGTGAAAGCGAAAAG spacer
length: 40 repeater length: 24

2448 2689930 CTTTCAATTCCATTAAGGATTATC AAACATTTTCTGTAACAATTGTATAACAATTGGTTATAATGA spacer
length: 42 repeater length: 24

2449 2689996 CTTTCAATTCCATTAAGGATTATC TTCAGCTTATCTGAGTACTTCAAGAAAATATCGTTAAGCCT spacer
length: 41 repeater length: 24

2450 2690061 CTTTCAATTCCATTAAGGATTATC TGAATATAAAATCCAATATCTTAAAGTTGTAGTTATAAATCATGT
spacer length: 45 repeater length: 24

2451 2690130 CTTTCAATTCCATTAAGGATTATC TGAAAAACTGAAAAATGACGGTTGGGAAGTAATTTGGACTAT spacer
length: 42 repeater length: 24

2452 2690196 CTTTCAATTCCATTAAGGATTATC AAGGAATTCTGCAGAAATTTAGACGAACCTTAATCAAGTAT spacer
length: 40 repeater length: 24

2453 2690260 CTTTCAATTCCATTAAGGATTATC CTATCTTCTCTAAAGGACCCACGTAAAGATACCTTAACTT spacer
length: 40 repeater length: 24

2454 2690324 CTTTCAATTCCATTAAGGATTATC TGGAAAAAAGTCTTATAATAATCATCTTTATAGTAGT spacer
length: 37 repeater length: 24

2455 2690385 CTTTCAATTCCATTAAGGATTATC CTGTTTCATAAAAGAAGTAGTGATGGCAAGAAATCCTATACT spacer
length: 41 repeater length: 24

2456 2690450 CTTTCAATTCCATTAAGGATTATC AACGGGTAAAGCCCAACAATGTTTCATAACACCAGCAAATGTA spacer
length: 42 repeater length: 24

2457 2690516 CTTTCAATTCCATTAAGGATTATC ATCCAGGCTTATATGCGAGGTGGCATTTAGAGGGGTAAAA spacer
length: 41 repeater length: 24

2458 2690581 CTTTCAATTCCATTAAGGATTATC TCGCTGTAATAGGTGCTAGGATACTTACTAGACAACTTGG spacer
length: 40 repeater length: 24

2459 2690645 CTTTCAATTCCATTAAGGATTATC TAAATGCTCAAATACTTAATCTCTCAGCGTGGCCTAAAT spacer
length: 39 repeater length: 24

2460 2690708 CTTTCAATTCCATTAAGGATTATC ACAACCAAAATGATCTATTTACCAATGTGATACTCATAA spacer
length: 39 repeater length: 24

2461 2690771 CTTTCAATTCCATTAAGGATTATC TAATTATCATCAGAGAAAATTAGCAGAAATGAATGAGAGAAACG spacer
length: 44 repeater length: 24

2462 2690839 CTTTCAATTCCATTAAGGATTATC TGTTCCCTTGACTTCATCAATTAACAAACCGCTATGGTCAAG spacer
length: 42 repeater length: 24

2463 2690905 CTTTCAATTCCATTAAGGATTATC TCAAACACGTCACCCTCAAGGTATGCTGGTGATTGTAATGA spacer
length: 41 repeater length: 24

2464 2690970 CTTTCAATTCCATTAAGGATTATC GAGCGGGTACACTAAGAGGGAAATAATAGCAGTATTGAGAAAGCA
spacer length: 45 repeater length: 24

2465 2691039 CTTTCAATTCCATTAAGGATTATC TTAGGTACAGTGTCTCAATTGATAATCCCGCTTATTTTAGACT spacer
length: 43 repeater length: 24

2466 2691106 CTTTCAATTCCATTAAGGATTATC ATCTGACAAAAAAGAGAGATATTCTATGATATTTGTTGT spacer
length: 40 repeater length: 24

2467 2691170 CTTTCAATTCCATTAAGGATTATC TCTATTTTATCGTTTGTCAAACTTCATCGAGTGATAT spacer
length: 38 repeater length: 24

2468 2691232 CTTTCAATTCCATTAAGGATTATC ATATCTAATGTGTTGCTTTAGTGATACTGACGACGAAAA spacer
length: 39 repeater length: 24

2469 2691295 CTTTCAATTCCATTAAGGATTATC TCTATACCCGGAAGAGTTTGCTAAGATTGACGAATTTTGCAG spacer
length: 42 repeater length: 24

2470 2691361 CTTTCAATTCCATTAAGGATTATC GTATATCAGAAAGTTCTTTGCGACACAAATGCTAAGTTT spacer
length: 39 repeater length: 24

2471 2691424 CTTTCAATTCCATTAAGGATTATC TTAATTCCATTTAAGCAACAAATTCAAACGTTTCTAGAGTC spacer
length: 41 repeater length: 24

2472 2691489 CTTTCAATTCCATTAAGGATTATC GTTTAATTTTTTCTGACTGGAGACCGTCTAAGGATTATGT spacer
length: 40 repeater length: 24

2473 2691553 CTTTCAATTCCATTAAGGATTATC AATAGCCTAATGAGGTGAGGGATATGAAGAAAAGGAGTT spacer
length: 39 repeater length: 24

2474 2691616 CTTTCAATTCCATTAAGGATTATC TCGAGAGGTCTGTCGTCATAAGACGGGCACTCTCGGAATTCTTG spacer
length: 44 repeater length: 24

2475 2691684 CTTTCAATTCCATTAAGGATTATC TCGTTAATATTTTCAGCAGTTTCCGGGACAGTGATTTG spacer
length: 38 repeater length: 24

2476 2691746 CTTTCAATTCCATTAAGGATTATC TGAAAGAGCTGAAGGACTTAGATAGTTTGTAGTAAATATTGTTAA spacer
length: 43 repeater length: 24

2477 2691813 CTTTCAATTCCATTAAGGATTATC ACGATCTCGTCATAGATTCTCCACGTAATAATAAAAAG spacer
length: 39 repeater length: 24

2478 2691876 CTTTCAATTCCATTAAGGATTATC CTGACCAGATGACACTTTCATTACCATCATCAAGAGCTGTT spacer
length: 41 repeater length: 24

2479 2691941 CTTTCAATTCCATTAAGGATTATC CGCAAAACCGTAATAGATTTCGAACTTCCTCTTCTGCCCTTT spacer
length: 42 repeater length: 24

2480 2692007 CTTTCAATTCCATTAAGGATTATC GAAATAGCTAAGTACTTTGATAGTTTCCCCTTCTTGCTCA spacer
length: 40 repeater length: 24

2481 2692071 CTTTCAATTCCATTAAGGATTATC TGATAGGGCTTTACCTCAGCCATGATAAGTTACCTTATTTTT spacer
length: 42 repeater length: 24

2482 2692137 CTTTCAATTCCATTAAGGATTATC GGTGGAGGAATATCTGGAAGCACTCTATTCTGGGTTGCAGT spacer
length: 41 repeater length: 24

2483 2692202 CTTTCAATTCCATTAAGGATTATC CCGGTTCTAGCAAACCCTCTACCGCTAACGTTTCCAAGAAA spacer
length: 41 repeater length: 24

2484 2692267 CTTTCAATTCCATTAAGGATTATC ATAACACAGTTGTTGAGGAGTGCTGCTGAATTGGAAAGC spacer
length: 39 repeater length: 24

2485 2692330 CTTTCAATTCCATTAAGGATTATC CAGAGGTAGGAAGTAAAAAAGATATTCAAATACAGAAAA spacer

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length: 43 repeater length: 24
2486 2692397 CTTTCAATTCCATTAAGGATTATC CCCAGCGAAAAGCCTAGACACTCCTCGAACTGCTCTACCAA spacer
length: 41 repeater length: 24
2487 2692462 CTTTCAATTCCATTAAGGATTATC TCAGCCTCCTCAGGTTTTATAACAATTTTGGTTGGCCC spacer
length: 38 repeater length: 24
2488 2692524 CTTTCAATTCCATTAAGGATTATC TTATGTCAGTAGTCTTGACATTAATAATTAAGATGTATGA spacer
length: 39 repeater length: 24
2489 2692587 CTTTCAATTCCATTAAGGATTATC CACCAGTTCCGGAGCTAGTTGACGTTTGACCGCCAGTTCC spacer
length: 40 repeater length: 24
2490 2692651 CTTTCAATTCCATTAAGGATTATC CTTTCTTGAGGTAGACAAACTCTGAAATATTTTTAACTT spacer
length: 40 repeater length: 24
2491 2692715 CTTTCAATTCCATTAAGGATTATC CTACAGAAAGCTAAGATGATAAGGGCCTACCTTATTGT spacer
length: 38 repeater length: 24
2492 2692777 CTTTCAATTCCATTAAGGATTATC AATATCATATTAGGGGATTTTCCCTAACTCCTCTCGTAAAAGTT spacer
length: 44 repeater length: 24
2493 2692845 CTTTCAATTCCATTAAGGATTATC
2494
2495
2496 GCA_000011585.1_ASM1158v1_genomic.fna (PilerCR):
2497 START REPEAT
SPACER
2498 GCA_000012285.1_ASM1228v1_genomic.fna (PilerCR):
2499 START REPEAT
SPACER
2500 crispr 1
2501 1654809 GTTTGTAGTTTCTTGTCGTTATTAC TCTGTGTAACGTATCAGCAATGCGCTTTGTTATAT spacer length:
35 repeater length: 24
2502 1654868 GTTTGTAGTTTCTTGTCGTTATTAC GCGGATTTCCACTGTTTCCAGCCTGAGCTTGGGC spacer length:
34 repeater length: 24
2503 1654926 GTTTGTAGTTTCTTGTCGTTATTAC AGCAAATTTTTAACAATGTATTCCATTCTTGAAGT spacer length:
36 repeater length: 24
2504 1654986 GTTTGTAGTTTCTTGTCGTTATTAC AATTTTATAATGTCTGTAAACTAAAACATTGTTTT spacer length:
36 repeater length: 24
2505 1655046 GTTTGTAGTTTCTTGTCGTTATTAC AAGGGATCTAGCCTGGCTAGAGAGCTTGCCGCTTTAATTAA spacer
length: 41 repeater length: 24
2506 1655111 GTTTGTAGTTTCTTGTCGTTATTAC ATGGGTGCACCACCAGAAGTAGTAGAAGAGGTCGAG spacer length:
36 repeater length: 24
2507 1655171 GTTTGTAGTTTCTTGTCGTTATTAC TGTATTGCCACACAATGTCCCGTTTTCGTTGTACAGG spacer length:
36 repeater length: 24
2508 1655231 GTTTGTAGTTTCTTGTCGTTATTAC CAAGAGAAAGGAGCTAGGAAGAGGATCTTTTCCCT spacer length:
35 repeater length: 24
2509 1655290 GTTTGTAGTTTCTTGTCGTTATTAC ATTAGGACTCGAAAAATTTATATAAAAAAGACATT spacer length:
36 repeater length: 24
2510 1655350 GTTTGTAGTTTCTTGTCGTTATTAC TTCTCATCAACATTTGCTGTACAAATTCATAATCAT spacer
length: 37 repeater length: 24
2511 1655411 GTTTGTAGTTTCTTGTCGTTATTAC ACCAGTCTTACTCAACAAGTCAGCCCTTACTTATAAT spacer
length: 37 repeater length: 24
2512 1655472 GTTTGTAGTTTCTTGTCGTTATTAC CTCAGTCAGATACGTCTTCTTTAGCTGGCTTATGT spacer length:
35 repeater length: 24
2513 1655531 GTTTGTAGTTTCTTGTCGTTATTAC ATCGAGTGGAAGGCGTTAGACCCAGTAGCTGCCGC spacer length:
35 repeater length: 24
2514 1655590 GTTTGTAGTTTCTTGTCGTTATTAC AGCCTGGATCTGAAGAAACATAACCATGAGATAT spacer length:
34 repeater length: 24
2515 1655648 GTTTGTAGTTTCTTGTCGTTATTAC AGGTCAGGAATATAGATTATTCGTACTTTGCTAT spacer length:
34 repeater length: 24
2516 1655706 GTTTGTAGTTTCTTGTCGTTATTAC AAGTCTTCAGAAAATCATCAACACGCATATACTG spacer length:
34 repeater length: 24
2517 1655764 GTTTGTAGTTTCTTGTCGTTATTAC TTTGATTAAAATGGGTTGGTATGGCATAAAAAAT spacer length:
34 repeater length: 24
2518 1655822 GTTTGTAGTTTCTTGTCGTTATTAC ATCGGAATTATAGGCGGATTTTAAACAATATTCCTAACAT spacer
length: 40 repeater length: 24
2519 1655886 GTTTGTAGTTTCTTGTCGTTATTAC GGAGACAAAGTTTGTCTGTGCAATATATCCCAA spacer length: 33
repeater length: 24
2520 1655943 GTTTGTAGTTTCTTGTCGTTATTAC AGAAAGAGGAACATAAGGTCTAGATCTTACCCAA spacer length:
34 repeater length: 24
2521 1656001 GTTTGTAGTTTCTTGTCGTTATTAC TAATTCATCTTTATAGTGTAACTTTTTGAAATAAA spacer length:
35 repeater length: 24
2522 1656060 GTTTGTAGTTTCTTGTCGTTATTAC AACTAAGAAAAATTCAGTCAGCAGTATTAATACTACTACTA spacer
length: 39 repeater length: 24
2523 1656123 GTTTGTAGTTTCTTGTCGTTATTAC TACACCAGTGAGAATGTCTTCCCGAACTACAAGAA spacer length:
36 repeater length: 24

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2524 1656183 GTTTGTAGTTTCTTGTCGTTATTAC AATTGGCAACTAAGAAGTTTGTACAAATAACATAA spacer length:
35 repeater length: 24

2525 1656242 GTTTGTAGTTTCTTGTCGTTATTAC GAATAGGGGATGCGATAAACAGTTAGCACAAACA spacer length:
35 repeater length: 24

2526 1656301 GTTTGTAGTTTCTTGTCGTTATTAC GGCATATAGAATTTTTCGCTTTGTTGCCTCTTTAA spacer length:
35 repeater length: 24

2527 1656360 GTTTGTAGTTTCTTGTCGTTATTAC ATTCAATTTTTTTTCGTTTTGTCGGTGAAAATAAAA spacer length:
35 repeater length: 24

2528 1656419 GTTTGTAGTTTCTTGTCGTTATTAC GCTTGTGGTAACTATTCCATCGTCATCAGCAATC spacer length:
34 repeater length: 24

2529 1656477 GTTTGTAGTTTCTTGTCGTTATTAC AACGCATTATTGCTAATGCACGGTGCTAACAATCTAG spacer
length: 37 repeater length: 24

2530 1656538 GTTTGTAGTTTCTTGTCGTTATTAC GTTTAAAACGGTAAATAGATAAAACCAAGAAAATG spacer length:
35 repeater length: 24

2531 1656597 GTTTGTAGTTTCTTGTCGTTATTAC ACGTCTTGTGCTGACTTGTAACATCGCTGTTCTT spacer length:
35 repeater length: 24

2532 1656656 GTTTGTAGTTTCTTGTCGTTATTAC AAAGAAGTGCAAAAAAATGGCTACGGTGACATT spacer length:
34 repeater length: 24

2533 1656714 GTTTGTAGTTTCTTGTCGTTATTAC ATGCATTCAATTAAAGACTTAACAATTCAAGAGTT spacer length:
34 repeater length: 24

2534 1656772 GTTTGTAGTTTCTTGTCGTTATTAC AAGTTTCTTAATTTATTACAGTTATATGAACAGC spacer length:
34 repeater length: 24

2535 1656830 GTTTGTAGTTTCTTGTCGTTATTAC ACAATAGCCCGCAAATGTCAGTATCATCACGTTGTT spacer length:
36 repeater length: 24

2536 1656890 GTTTGTAGTTTCTTGTCGTTATTAC AGATTTTATGAAACATTAAGTATTTATTTTATCTAT spacer length:
36 repeater length: 24

2537 1656950 GTTTGTAGTTTCTTGTCGTTATTAC ATTAATCAGATAGAACTAGCAGTGTTTTTTATGTT spacer length:
36 repeater length: 24

2538 1657010 GTTTGTAGTTTCTTGTCGTTATTAC ACCTTCACTTATTGAAGATGGGGCTGAAACAACCTT spacer length:
36 repeater length: 24

2539 1657070 GTTTGTAGTTTCTTGTCGTTATTAC TTGGTTACTGATATTTTCTGAACTCCAGCAAATGT spacer length:
35 repeater length: 24

2540 1657129 GTTTGTAGTTTCTTGTCGTTATTAC CGTTAAACAGACTAGGCTCAGGACAAGCATTCACT spacer length:
35 repeater length: 24

2541 1657188 GTTTGTAGTTTCTTGTCGTTATTAC AGCCCAAATCTGTTATCTCTTTAGAATGAAATTTT spacer length:
35 repeater length: 24

2542 1657247 GTTTGTAGTTTCTTGTCGTTATTAC AGAGTACCTTTACCTAACCAGAGCGTCGTATATTAT spacer length:
36 repeater length: 24

2543 1657307 GTTTGTAGTTTCTTGTCGTTATTAC TGTAGTCTTGCGCAATACCTGCGCTCTTTAGCAGT spacer length:
35 repeater length: 24

2544 1657366 GTTTGTAGTTTCTTGTCGTTATTAC AGAAGCTATACAACGAGGCTATATAAATAAAATG spacer length:
34 repeater length: 24

2545 1657424 GTTTGTAGTTTCTTGTCGTTATTAC GTGAAGATGTCGATAGTGACGATAGCTGAGATAGT spacer length:
35 repeater length: 24

2546 1657483 GTTTGTAGTTTCTTGTCGTTATTAC AAAGTAAGCCCGATAGTCCTTAGGTCAGGATCCCTTTA spacer
length: 38 repeater length: 24

2547 1657545 GTTTGTAGTTTCTTGTCGTTATTAC TATATTTGGTCAAGTGTCTTACAGCATTTTAAT spacer length:
34 repeater length: 24

2548 1657603 GTTTGTAGTTTCTTGTCGTTATTAC GCAGAGTCTTTCGCTACGTCTTTCAGCGTCTCAAA spacer length:
35 repeater length: 24

2549 1657662 GTTTGTAGTTTCTTGTCGTTATTAC GATCACAGTAATGCGTTATATAAAAAGGCAGAATTCA spacer
length: 37 repeater length: 24

2550 1657723 GTTTGTAGTTTCTTGTCGTTATTAC CTTTGATCAATTACTAAATTCTGTAATTGTGCCTCTA spacer
length: 37 repeater length: 24

2551 1657784 GTTTGTAGTTTCTTGTCGTTATTAC GTAGAAAGTCATAACCCAAAACCTTCATTTTTTTGTT spacer length:
36 repeater length: 24

2552 1657844 GTTTGTAGTTTCTTGTCGTTATTAC ACAGGCTGTACCAAGCTGTTAGCGATGTAGTTAAT spacer length:
35 repeater length: 24

2553 1657903 GTTTGTAGTTTCTTGTCGTTATTAC AGCTCCCATTTAAATCACGACCACTCCAAATATCA spacer length:
35 repeater length: 24

2554 1657962 GTTTGTAGTTTCTTGTCGTTATTAC AGTTATAATCTATCTCCGGAACATTTAAATATTTTA spacer length:
36 repeater length: 24

2555 1658022 GTTTGTAGTTTCTTGTCGTTATTAC ATAGTTGGTGGGACGGAATGGAGAAACAGCTAAAA spacer length:
35 repeater length: 24

2556 1658081 GTTTGTAGTTTCTTGTCGTTATTAC TATAAAAAAGCATTTGCACAGTCTTGAAACCACTATTT spacer
length: 39 repeater length: 24

2557 1658144 GTTTGTAGTTTCTTGTCGTTATTAC ATGCTCGCCCAACAGCACACCGGACAGATCGACATA spacer length:
36 repeater length: 24

2558 1658204 GTTTGTAGTTTCTTGTCGTTATTAC AACTGAAGGAACCTTGTAAGCGGTATGCTTTGCTTCTTCTC spacer
length: 42 repeater length: 24

2559 1658270 GTTTGTAGTTTCTTGTCGTTATTAC AACTGGAGCAACGTATTGTTGAATATAGCCCCTATGA spacer

length: 37 repeater length: 24

2560 1658331 GTTT TAGTTTCTTGTCGTTATTAC AATGAGATATTCAGTGCATGGAGCGTGAAA spacer length: 34 repeater length: 24

2561 1658389 GTTT TAGTTTCTTGTCGTTATTAC TTTCCTTATTTTTTAACGAGGGAAATGGTCAGGCTAAAA spacer length: 39 repeater length: 24

2562 1658452 GTTT TAGTTTCTTGTCGTTATTAC TACGGTAAACTGGGGAGTTAACTCAGCATCCA spacer length: 32 repeater length: 24

2563 1658508 GTTT TAGTTTCTTGTCGTTATTAC CTTTCGCATACTTCCTCGCCCTCCTTGAGATATTTTCT spacer length: 38 repeater length: 24

2564 1658570 GTTT TAGTTTCTTGTCGTTATTAC CCCTCTCTTC

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2566

2567 crispr 2

2568 1670961 GTAATAACGACAAGAACTAAAAC ATCTTCTCTGTCTCTACTACTTTCTGCTCTTCTTT spacer length: 36 repeater length: 24

2569 1671021 GTAATAACGACAAGAACTAAAAC TGAAAAGTTCATAAAAAAGTACCCTAACGTAGAACA spacer length: 36 repeater length: 24

2570 1671081 GTAATAACGACAAGAACTAAAAC AATTTTATGATATCGCTTTTGTTCAGGAAACAT spacer length: 34 repeater length: 24

2571 1671139 GTAATAACGACAAGAACTAAAAC AATTCTAAGTGCACAAGAAGGACTAGAAGAGGCAGGCCT spacer length: 39 repeater length: 24

2572 1671202 GTAATAACGACAAGAACTAAAAC TAATGCCCAGTAACATAGATGCCTCCTTGATTAT spacer length: 34 repeater length: 24

2573 1671260 GTAATAACGACAAGAACTAAAAC AATTTGGATTGACGTCACCTCAAGATCTATTACCT spacer length: 35 repeater length: 24

2574 1671319 GTAATAACGACAAGAACTAAAAC ATATTTAAGCCTTACTCTTTACATTAAAAGTAACAA spacer length: 36 repeater length: 24

2575 1671379 GTAATAACGACAAGAACTAAAAC TCGACGTTAGTCTTAGATTTTTATCATTTTTAGGT spacer length: 35 repeater length: 24

2576 1671438 GTAATAACGACAAGAACTAAAAC TTGTGCTCTTTAATGTCAAACAGTGTGATCTATT spacer length: 34 repeater length: 24

2577 1671496 GTAATAACGACAAGAACTAAAAC ACAGTGCATGAAGTAGCATCATATGTCGTAAGTGA spacer length: 35 repeater length: 24

2578 1671555 GTAATAACGACAAGAACTAAAAC TCTCTGGGTAAAGTGCAAAGAGCACTGGGATTACAA spacer length: 36 repeater length: 24

2579 1671615 GTAATAACGACAAGAACTAAAAC CAACAAGGCTGAGAAGATAGCAAAGAAGCTAGTA spacer length: 34 repeater length: 24

2580 1671673 GTAATAACGACAAGAACTAAAAC TACAATAATTTTCAAGTTTCCAGTAAATGATACAAATTC spacer length: 38 repeater length: 24

2581 1671735 GTAATAACGACAAGAACTAAAAC TTGTCATTAACTGACAACCTTTGTCTCTGACCCAAA spacer length: 36 repeater length: 24

2582 1671795 GTAATAACGACAAGAACTAAAAC AGTAGCGGTATACAAAAATGTATTTGTTGTGATA spacer length: 34 repeater length: 24

2583 1671853 GTAATAACGACAAGAACTAAAAC TGGCTCACAGGCATTAATACCTGCAAAGCCTAGG spacer length: 34 repeater length: 24

2584 1671911 GTAATAACGACAAGAACTAAAAC AAAAGTTTGCCAATTTAGGTGCTGTGCAGGAAGCATTTA spacer length: 39 repeater length: 24

2585 1671974 GTAATAACGACAAGAACTAAAAC GAATAATTGTAGATCAGCCATCAACTTCCACACG spacer length: 34 repeater length: 24

2586 1672032 GTAATAACGACAAGAACTAAAAC AGAAAATGAGTAGTGAGATAAAGACAAAAAATAAGT spacer length: 36 repeater length: 24

2587 1672092 GTAATAACGACAAGAACTAAAAC AATTTCTATATAATCCAAGAGACACAGAGAGGTTTCTAC spacer length: 39 repeater length: 24

2588 1672155 GTAATAACGACAAGAACTAAAAC TACATTACTTTTAGAAATATAGTATGAGCGTAACATA spacer length: 37 repeater length: 24

2589 1672216 GTAATAACGACAAGAACTAAAAC CAGTACACAAAGTGGATAGGAAAAGTCAACAAT spacer length: 33 repeater length: 24

2590 1672273 GTAATAACGACAAGAACTAAAAC ATCGTATATTATATTGGGGCAGAAAAAATGAATGAT spacer length: 36 repeater length: 24

2591 1672333 GTAATAACGACAAGAACTAAAAC CAGGTTCAATTTTCAAGTAAATAATGGCATTACAAT spacer length: 34 repeater length: 24

2592 1672391 GTAATAACGACAAGAACTAAAAC AACATCAGACTTTTGCACCTTTTATTAGAAGGCTTTGGA spacer length: 38 repeater length: 24

2593 1672453 GTAATAACGACAAGAACTAAAAC GATACATTGCATATATTGGCAATCAGCAATACAA spacer length: 34 repeater length: 24

2594 1672511 GTAATAACGACAAGAACTAAAAC ACTATATATTGTTTGGAGCTTATCATAAACTTCATC spacer length: 36 repeater length: 24

2595 1672571 GTAATAACGACAAGAACTAAAAC CTGAATAGAGAGATGATAGAAGAAACGGTAAGTA spacer length: 34 repeater length: 24

2596 1672629 GTAATAACGACAAGAACTAAAAC TCAGCCTCTAATTCTGCTGCAACTTCCATCAATTTCTTT spacer length: 39 repeater length: 24

2597 1672692 GTAATAACGACAAGAACTAAAAC ATTAATTCCAAAGGACATTGAGAAGAAATTTGGCTTAA spacer
 length: 39 repeater length: 24
 2598 1672755 GTAATAACGACAAGAACTAAAAC ATATGAGCAACAGCAACTCAAATCTTTATATGAAGTC spacer
 length: 37 repeater length: 24
 2599 1672816 GTAATAACGACAAGAACTAAAAC CACCAAAGAGTTTTTGTCCAAAGCCTTTTATGGA spacer length:
 34 repeater length: 24
 2600 1672874 GTAATAACGACAAGAACTAAAAC CAGTCTCAATGTCTTTATGAGACAATTCTATATCCAA spacer
 length: 37 repeater length: 24
 2601 1672935 GTAATAACGACAAGAACTAAAAC GCACTTCTACTTGCTTAACGCTATAGCAAGCAAGAA spacer length:
 36 repeater length: 24
 2602 1672995 GTAATAACGACAAGAACTAAAAC GTTCATCAACCTCATGCTGAGTAAGACTATTAGTATGT spacer
 length: 38 repeater length: 24
 2603 1673057 GTAATAACGACAAGAACTAAAAC CTCGTATTCTGTAAGCCCTCGTGGGTGGTGACGAT spacer length:
 36 repeater length: 24
 2604 1673117 GTAATAACGACAAGAACTAAAAC CTTTACAATAATTTTTTCAGGAAAACAAATTGAA spacer length:
 35 repeater length: 24
 2605 1673176 GTAATAACGACAAGAACTAAAAC TATGTCTTAGATAGTTGAAAAAGCTAAAGCTTTT spacer length:
 34 repeater length: 24
 2606 1673234 GTAATAACGACAAGAACTAAAAC GAATGTGTCCCCCTAGAGTTTTACCAAACAACCA spacer length:
 36 repeater length: 24
 2607 1673294 GTAATAACGACAAGAACTAAAAC AAAAAACCTTTAACCTCTATCGAATGCTGTCAAAAA spacer length:
 36 repeater length: 24
 2608 1673354 GTAATAACGACAAGAACTAAAAC AACGTTACGACCACTACTACTCAGAAGAAGATAGT spacer length:
 35 repeater length: 24
 2609 1673413 GTAATAACGACAAGAACTAAAAC GAGGGATGAAGGCAAATCAGTATCAGCAATAGTAGAG spacer
 length: 37 repeater length: 24
 2610 1673474 GTAATAACGACAAGAACTAAAAC GAAGTAGAACAGCTGTTTTTCAGGATTGAAATTAT spacer length:
 35 repeater length: 24
 2611 1673533 GTAATAACGACAAGAACTAAAAC AAGAGAATACTTTCTCGCCTCAGCAAGAATCGTATCAAT spacer
 length: 39 repeater length: 24
 2612 1673596 GTAATAACGACAAGAACTAAAAC GTATGTGGGAGAGCTTTATGAGTGGTAAGACACAC spacer length:
 35 repeater length: 24
 2613 1673655 GTAATAACGACAAGAACTAAAAC ATGCAGGTACTATACTGAGCCTGATGAACAGCA spacer length: 33
 repeater length: 24
 2614 1673712 GTAATAACGACAAGAACTAAAAC AAATTTAAGGAAAATGGAGTGTATGTATATAAAT spacer length:
 34 repeater length: 24
 2615 1673770 GTAATAACGACAAGAACTAAAAC CTCAATTATTTTCAATGCTTTTTCTTTTTCTGTTGT spacer length:
 35 repeater length: 24
 2616 1673829 GTAATAACGACAAGAACTAAAAC ACATCAGCACTTATGGATACTACGCCATGCTCATCT spacer length:
 36 repeater length: 24
 2617 1673889 GTAATAACGACAAGAACTAAAAC ACTATTACTTTTGAAAATATGTAGATAAGACTGGT spacer length:
 35 repeater length: 24
 2618 1673948 GTAATAACGACAAGAACTAAAAC TTACAGTTGTTCCGTTAGGAAGTATATAGTTACT spacer length:
 34 repeater length: 24
 2619 1674006 GTAATAACGACAAGAACTAAAAC AAAATAATCATAAAACCCGAGCATTACGAAGAATTGA spacer
 length: 37 repeater length: 24
 2620 1674067 GTAATAACGACAAGAACTAAAAC TGTAAGGACTTCTTAAAAAGGTTAGAGGGGTTTCTC spacer
 length: 37 repeater length: 24
 2621 1674128 GTAATAACGACAAGAACTAAAAC GTAATTATTCTGATGGGTGCTATAATCTCGATGGC spacer length:
 35 repeater length: 24
 2622 1674187 GTAATAACGACAAGAACTAAAAC AGCGATTAGTTTAGTTCGAATTAGCTATTGCGACTT spacer length:
 35 repeater length: 24
 2623 1674246 GTAATAACGACAAGAACTAAAAC ATGGGATCCTGATAATTCGGCATCAGCACAATTC spacer length:
 34 repeater length: 24
 2624 1674304 GTAATAACGACAAGAACTAAAAC CTCTTCATTTGTCTCGTGAAATATAGGGTTTTTCA spacer length:
 35 repeater length: 24
 2625 1674363 GTAATAACGACAAGAACTAAAAC ATAGGGTAGTTCACAAAGAGCCAGCCCTCGTCAAC spacer length:
 35 repeater length: 24
 2626 1674422 GTAATAACGACAAGAACTAAAAC CTTTACGTAGTAGTTATAGAGCTTCGTTACGTGCT spacer length:
 35 repeater length: 24
 2627 1674481 GTAATAACGACAAGAACTAAAAC CTTGAACCATTGAACCTGCGATTGCAGGGATTAAGTAT spacer
 length: 38 repeater length: 24
 2628 1674543 GTAATAACGACAAGAACTAAAAC GCTGACTGGGGTGAGCCAGAAATGAAGACTGGAAG spacer length:
 36 repeater length: 24
 2629 1674603 GTAATAACGACAAGAACTAAAAC TAAAATTAGTCTGCTGGCCAATTAAGAACAACTCT spacer length:
 36 repeater length: 24
 2630 1674663 GTAATAACGACAAGAACTAAAAC GTGCAACAGGGTGAAACATAGATGAGCACATTTTT spacer length:
 35 repeater length: 24
 2631 1674722 GTAATAACGACAAGAACTAAAAC ATTATGCTCATTATCTCTGATTTTCGACCTTAAAGC spacer length:
 35 repeater length: 24
 2632 1674781 GTAATAACGACAAGAACTAAAAC CTACATTGTCCTGAAGTCCTAATTCTTTAATTCCTT spacer

length: 37 repeater length: 24
2633 1674842 GTAATAACGACAAGAACTAAAAC TTTTATTTTTCAGTAGCTATCACCATAGTAGCCCTAAAA spacer
length: 39 repeater length: 24
2634 1674905 GTAATAACGACAAGAACTAAAAC TACTCCCCAGGCTTACCCAGCAAGAAGAGGAAGCCTT spacer
length: 37 repeater length: 24
2635 1674966 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
35 repeater length: 24
2636 1675025 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
35 repeater length: 24
2637 1675084 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
35 repeater length: 24
2638 1675143 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
35 repeater length: 24
2639 1675202 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
35 repeater length: 24
2640 1675261 GTAATAACGACAAGAACTAAAAC CATTTTAGCTCAAGCATCACCAGCATCAATTGAAAG spacer length:
36 repeater length: 24
2641 1675321 GTAATAACGACAAGAACTAAAAC ACCGTTCCGTAGATATTATTACTGTAACCTCCCTCCC spacer length:
36 repeater length: 24
2642 1675381 GTAATAACGACAAGAACTAAAAC ACTGGGCTCCCCGTGATCACTCCAGGTCCTTATGTTG spacer
length: 37 repeater length: 24
2643 1675442 GTAATAACGACAAGAACTAAAAC GACGCTAAAAAGCAAGAACAACAATCACAACAATCG spacer length:
36 repeater length: 24
2644 1675502 GTAATAACGACAAGAACTAAAAC TTTCTTAGTGAATCCCATGTACGTATATCTAATTTA spacer length:
36 repeater length: 24
2645 1675562 GTAATAACGACAAGAACTAAAAC
2646
2647
2648 crispr 3
2649 1786369 ACTTTCATCCCTTATGGGATTCTTC CTACCTTTTGAGATGCTTTCACCGATCTATGTTAAAGCAA spacer
length: 40 repeater length: 26
2650 1786435 ACTTTCATCCCTTATGGGATTCTTC CTCGTTTTCAATAAATGTCTATAGGGATGAATGTG spacer
length: 35 repeater length: 26
2651 1786496 ACTTTCATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATAT spacer
length: 36 repeater length: 26
2652 1786558 ACTTTCATCCCTTATGGGATTCTTC
2653
2654
2655 crispr 4
2656 1825970 CTTTCAATCCCTTTTGGGATTCATC AGAGTCCCCTTCAACATAAAACCTAACTTGGTTTGG spacer
length: 36 repeater length: 25
2657 1826031 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGAT spacer
length: 38 repeater length: 25
2658 1826094 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAGC spacer
length: 37 repeater length: 25
2659 1826156 CTTTCAATCCCTTTTGGGATTCATC TGCGGAAATATGGAAAGAAGTATTATGAAAAAGGAGAAAA spacer
length: 41 repeater length: 25
2660 1826222 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAACT spacer
length: 36 repeater length: 25
2661 1826283 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTATACCC spacer
length: 38 repeater length: 25
2662 1826346 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGCT spacer
length: 37 repeater length: 25
2663 1826408 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTTGAG spacer
length: 39 repeater length: 25
2664 1826472 CTTTCAATCCCTTTTGGGATTCATC TATGAAC TAACAGATAAAGGGAAGAGAAGTGTTCCCAAACT spacer
length: 42 repeater length: 25
2665 1826539 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGAG spacer
length: 39 repeater length: 25
2666 1826603 CTTTCAATCCCTTTTGGGATTCATC
2667
2668
2669 GCA_000012545.1_ASM1254v1_genomic.fna (PilerCR):
2670 START REPEAT
SPACER
2671 crispr 1
2672 490168 GTTAAAAATAGACTTAATAGTATGAAAAC CGGATTTGATTAAAACGTATTACCCAATCATATATTTTC spacer
length: 38 repeater length: 29
2673 490235 GTTAAAAATAGACTTAATAGTATGAAAAC TAGATATTTCAAATTTACAATTACCATTTAAAAAAAC spacer
length: 37 repeater length: 29
2674 490301 GTTAAAAATAGACTTAATAGTATGAAAAC AAGAACGTTTTGCTTCTAATTCAGAGTATAATACTTTT spacer

length: 38 repeater length: 29
2675 490368 GTTAAAAATAGACTTAATAGTATGAAAAC CCAATGAGGAAGAATATCTCGGTCTAGAAAAAGGAG spacer
length: 36 repeater length: 29
2676 490433 GTTAAAAATAGACTTAATAGTATGAAAAC AAGGAAATTATAATTATACTCACCAGTATGATATTAA spacer
length: 37 repeater length: 29
2677 490499 GTTAAAAATAGACTTAATAGTATGAAAAC CAATAGAGGAATAAAAAACAATGTCAAGTATAATAAAA spacer
length: 37 repeater length: 29
2678 490565 GTTAAAAATAGACTTAATAGTATGAAAAC TTGAGGTAGAAATTGATAATGAGTTCATTAATGAAC spacer
length: 36 repeater length: 29
2679 490630 GTTAAAAATAGACTTAATAGTATGAAAAC TATATATGGAATAATATTGAAACAGTGTTTAAATAA spacer
length: 37 repeater length: 29
2680 490696 GTTAAAAATAGACTTAATAGTATGAAAAC AACAAATAATATGTGTCATTATACTTATAGATTTTAC spacer
length: 37 repeater length: 29
2681 490762 GTTAAAAATAGACTTAATAGTATGAAAAC CTGGATAATCAATCCCTTTAAAACTAGCCGGACTAA spacer
length: 36 repeater length: 29
2682 490827 GTTAAAAATAGACTTAATAGTATGAAAAC TTCGTAGAGGTGGTGGTCCAACAATTTTATTTTTTC spacer
length: 37 repeater length: 29
2683 490893 GTTAAAAATAGACTTAATAGTATGAAAAC CATCTTCCCATTCATAGTCTTGTTTAAATTCTCCATT spacer
length: 37 repeater length: 29
2684 490959 GTTAAAAATAGACTTAATAGTATGAAAAC TGATAACATTCAAAAAGATATGTGGAAAACAATCAAT spacer
length: 37 repeater length: 29
2685 491025 GTTAAAAATAGACTTAATAGTATGAAAAC CACTTGAAATAAAACACATAGTACAATTTCAACTGT spacer
length: 36 repeater length: 29
2686 491090 GTTAAAAATAGACTTAATAGTATGAAAAC AGGTCATCAATATCATATTCTTTTACAAGTGTATTTTC spacer
length: 37 repeater length: 29
2687 491156 GTTAAAAATAGACTTAATAGTATGAAAAC TTATGAAAACAAGTGATGGAACAAATAAAACAATAAT spacer
length: 37 repeater length: 29
2688 491222 GTTAAAAATAGACTTAATAGTATGAAAAC GATGCTTTTAAATTAATATATTTTAATATTAATTCA spacer
length: 36 repeater length: 29
2689 491287 GTTAAAAATAGACTTAATAGTATGAAAAC ATAGTGAATATACAGACCCCCTTAAAAAGCCAACAATA spacer
length: 38 repeater length: 29
2690 491354 GTTAAAAATAGACTTAATAGTATGAAAAC TGAAAATTGATTATAAAAAAGTAGGAGATGTATTTGAA spacer
length: 38 repeater length: 29
2691 491421 GTTAAAAATAGACTTAATAGTATGAAAAC TATGGAATCACGTAAAAGAGCAACGTTGGGTATCA spacer
length: 36 repeater length: 29
2692 491486 GTTAAAAATAGACTTAATAGTATGAAAAC TAACAAACTACTCAAAACAAAATAACAGAAACAGA spacer
length: 37 repeater length: 29
2693 491552 GTTAAAAATAGACTTAATAGTATGAAAAC AAAATGGAGATAAAACAGATTATAAAATGGAACCTTATA spacer
length: 38 repeater length: 29
2694 491619 GTTAAAAATAGACTTAATAGTATGAAAAC CTTAGATGCAGTAGAAATGAAAATCTGTTATACTAA spacer
length: 36 repeater length: 29
2695 491684 GTTAAAAATAGACTTAATAGTATGAAAAC CATCTTCTGTATTTGGTGGAGTAATATATTTTTCAC spacer
length: 36 repeater length: 29
2696 491749 GTTAAAAATAGACTTAATAGTATGAAAAC AACTCTTTTTCACTATTTATTCCTATTTTCAAATAA spacer
length: 36 repeater length: 29
2697 491814 GTTAAAAATAGACTTAATAGTATGAAAAC GGTTTATTAATTCATCTTCAATATGTTTCATGTAATC spacer
length: 37 repeater length: 29
2698 491880 GTTAAAAATAGACTTAATAGTATGAAAAC TACCAATAAAATAGTCTTGATTTGTACTTTTAAGCTGGA spacer
length: 39 repeater length: 29
2699 491948 GTTAAAAATAGACTTAATAGTATGAAAAC AAATTATTGCTACAACAAAAGATACAATTACAATTACA spacer
length: 38 repeater length: 29
2700 492015 GTTAAAAATAGACTTAATAGTATGAAAAC TTTCATTATTTTGTGTCTTTGTTGTTGTAGTGTA spacer
length: 36 repeater length: 29
2701 492080 GTTAAAAATAGACTTAATAGTATGAAAAC AATGGATTTTGAGCATCATTATCAGGAGTAATACTTGG spacer
length: 38 repeater length: 29
2702 492147 GTTAAAAATAGACTTAATAGTATGAAAAC CAAATACTATAGATTACATAATACTTTTAACAGAAAAT spacer
length: 38 repeater length: 29
2703 492214 GTTAAAAATAGACTTAATAGTATGAAAAC TTTGTTTGAGGTGGAATTACTTGTGTATACATTGTATT spacer
length: 38 repeater length: 29
2704 492281 GTTAAAAATAGACTTAATAGTATGAAAAC TTATTTAAATGAAAGTGATATACCTAATACAACCTCC spacer
length: 36 repeater length: 29
2705 492346 GTTAAAAATAGACTTAATAGTATGAAAAC GTAATGATTTCTACAGTGAAATTGAAGAATTTATAG spacer
length: 36 repeater length: 29
2706 492411 GTTAAAAATAGACTTAATAGTATGAAAAC TAATAGTGGACGTTTATATGTAAAGAATATTAAATTA spacer
length: 37 repeater length: 29
2707 492477 GTTAAAAATAGACTTAATAGTATGAAAAC CTAGACGAGGATAAAACAATTCCAAGTGATACATGG spacer
length: 36 repeater length: 29
2708 492542 GTTAAAAATAGACTTAATAGTATGAAAAC TAATGTTGCAAGACAAATAAAAGAAGTAATTAAGAAC spacer
length: 37 repeater length: 29
2709 492608 GTTAAAAATAGACTTAATAGTATGAAAAC TGATTATATTACTGAATCAGAAGCTTTTGACTACATA spacer
length: 37 repeater length: 29

2710 492674 GTTAAAAATAGACTTAATAGTATGAAAAC TACTTCCTCTACTGCAACAATTCTATAAAAAAATC spacer
 length: 36 repeater length: 29
 2711 492739 GTTAAAAATAGACTTAATAGTATGAAAAC TTTAATCTTCTAAAACATAAATAATCATACAAAAAG spacer
 length: 36 repeater length: 29
 2712 492804 GTTAAAAATAGACTTAATAGTATGAAAAC GCAAATGGTGTGATACAAATAATATTCGGGAAATGT spacer
 length: 37 repeater length: 29
 2713 492870 GTTAAAAATAGACTTAATAGTATGAAAAC CACCTATATGTACTAGAAATTTACGCCCATTTTCATAGG spacer
 length: 37 repeater length: 29
 2714 492936 GTTAAAAATAGACTTAATAGTATGAAAAC GCAAATGGTGTGATACAAATAATATTCGGGAAATGT spacer
 length: 37 repeater length: 29
 2715 493002 GTTAAAAATAGACTTAATAGTATGAAAAC CACCTATATGTACTAGAAATTTACGCCCATTTTCATAGG spacer
 length: 37 repeater length: 29
 2716 493068 GTTAAAAATAGACTTAATAGTATGAAAAC CCAAACCTGGGTAGAAGCAAATACTACTGCAAACAAT spacer
 length: 36 repeater length: 29
 2717 493133 GTTAAAAATAGACTTAATAGTATGAAAAC CATGAAAAATACATCACAAAAAATAAAACAAGTTACC spacer
 length: 37 repeater length: 29
 2718 493199 GTTAAAAATAGACTTAATAGTATGAAAAC TCTATTCTGTATATATTCAATTTAGGATAGAATTTTC spacer
 length: 36 repeater length: 29
 2719 493264 GTTAAAAATAGACTTAATAGTATGAAAAC TAGTTTGTAGTGCCTTAGTATTTAAAGGTTTGTTCATA spacer
 length: 37 repeater length: 29
 2720 493330 GTTAAAAATAGACTTAATAGTATGAAAAC GAATACAACACTTTAAATACTAGAAATGACAAATAA spacer
 length: 36 repeater length: 29
 2721 493395 GTTAAAAATAGACTTAATAGTATGAAAAC ATCTATATTGGGAAAAAAGAAGGCACTTCTTTTGA spacer
 length: 36 repeater length: 29
 2722 493460 GTTAAAAATAGACTTAATAGTATGAAAAC CAGCGAAACG
 2723
 2724
 2725 crispr 2
 2726 493527 GTTAAAAATAGACTTAATAGTATGAAAAC TGGATATAATATGACTGAAATAGGTCGTAATAGTAAAGCTG
 spacer length: 41 repeater length: 29
 2727 493597 GTTAAAAATAGACTTAATAGTATGAAAAC CGGAGATATGTGCCAATTAATTCATCACCTACCTCTTCAT spacer
 length: 40 repeater length: 29
 2728 493666 GTTAAAAATAGACTTAATAGTATGAAAAC CAAAATTGGATGTGGACTATAAACAGCTACTTTTTTAAAC spacer
 length: 40 repeater length: 29
 2729 493735 GTTAAAAATAGACTTAATAGTATGAAAAC ACAAATAAAACACTAACAGAGTATAGTATTGATAAT spacer
 length: 36 repeater length: 29
 2730 493800 GTTAAAAATAGACTTAATAGTATGAAAAC TTGAACACCATGAAAAGAAATGCCCGTGTTTTTATTTTT spacer
 length: 39 repeater length: 29
 2731 493868 GTTAAAAATAGACTTAATAGTATGAAAAC CACTCTCACAATCCTTATGATGAATGTATCTACTTC spacer
 length: 36 repeater length: 29
 2732 493933 GTTAAAAATAGACTTAATAGTATGAAAAC GTCTTATCATCAGAATTTTCATCAACAACATCTATTT spacer
 length: 37 repeater length: 29
 2733 493999 GTTAAAAATAGACTTAATAGTATGAAAAC CTTATGAAGGAGAAAAAGAAGTCGAATATAAAAGACAC spacer
 length: 38 repeater length: 29
 2734 494066 GTTAAAAATAGACTTAATAGTATGAAAAC CACTTGTAAGTGTACCACCACCAGTATAACATAATAC spacer
 length: 37 repeater length: 29
 2735 494132 GTTAAAAATAGACTTAATAGTATGAAAAC TGTCCGCACCATTCCGGTACTGCCGCACCCTCGATA
 2736
 2737
 2738 crispr 3
 2739 1091283 AATAGAATAAGATCATAATGAAATTGAAAT ACGACACAAATGAATACAGATGCAACTCAAATTACAA spacer
 length: 37 repeater length: 30
 2740 1091350 AATAGAATAAGATCATAATGAAATTGAAAT GGAAGAGACCATAAAAAATGTATTTACGGAATATATT spacer
 length: 36 repeater length: 30
 2741 1091416 AATAGAATAAGATCATAATGAAATTGAAAT TTTAAGTAACTCATCTGATAATTCAGTTAATGTTAC spacer
 length: 36 repeater length: 30
 2742 1091482 AATAGAATAAGATCATAATGAAATTGAAAT ACTAATATCAACAAACGGAATTTTCAGCACTATTTGGG spacer
 length: 37 repeater length: 30
 2743 1091549 AATAGAATAAGATCATAATGAAATTGAAAT TAAGCATTACCATTAAACAAATTTACAGTTTTCTACA spacer
 length: 36 repeater length: 30
 2744 1091615 AATAGAATAAGATCATAATGAAATTGAAAT AAAGAACGTTTAATGATTAATTCATCTTCAGAGTCAA spacer
 length: 37 repeater length: 30
 2745 1091682 AATAGAATAAGATCATAATGAAATTGAAAT TGATTTAGAAACATATCAATATCCATTTCGAAATAGA spacer
 length: 36 repeater length: 30
 2746 1091748 AATAGAATAAGATCATAATGAAATTGAAAT TATTTTCTAATAAATAGAGTAATGCTTCATCATTATC spacer
 length: 37 repeater length: 30
 2747 1091815 AATAGAATAAGATCATAATGAAATTGAAAT TCAGCATCATTTTACACTAGCAACAAGGGTAGGAGTT spacer
 length: 36 repeater length: 30
 2748 1091881 AATAGAATAAGATCATAATGAAATTGAAAT AAGTAAAAAAAAAATCAAAAATAATAGAAAAAAAAA spacer
 length: 37 repeater length: 30
 2749 1091948 AATAGAATAAGATCATAATGAAATTGAAAT CTAAACTACACGTGTAGTAACAATACGTGTATCAT spacer

	length: 36	repeater length: 30	
2750	1092014	AATAGAATAAGATCATAATGAAATTGAAAT	GCAATTTATCCAGACCCTGTTTCATCGTTACTTCAAA spacer
	length: 37	repeater length: 30	
2751	1092081	AATAGAATAAGATCATAATGAAATTGAAAT	CACGTATATCCTGTGTCTTGTCTCGGTCATAATAGATT spacer
	length: 36	repeater length: 30	
2752	1092147	AATAGAATAAGATCATAATGAAATTGAAAT	ACAGGAAATAATTTATTTAAAGTAAAAGAATTTGAA spacer
	length: 36	repeater length: 30	
2753	1092213	AATAGAATAAGATCATAATGAAATTGAAAT	TATGTTGTTAATACTAATTCTTCTATTATCTTCTCATA spacer
	length: 38	repeater length: 30	
2754	1092281	AATAGAATAAGATCATAATGAAATTGAAAT	ACATCTTCAGCTTTATCTAATTTTTGAACATATCTT spacer
	length: 36	repeater length: 30	
2755	1092347	AATAGAATAAGATCATAATGAAATTGAAAT	AATTGTGAAATAAAAAAGAAGATCTTTTAAACAAA spacer
	length: 36	repeater length: 30	
2756	1092413	AATAGAATAAGATCATAATGAAATTGAAAT	AATTTAATTACATCAGAACTATTGATTCTGATGGTT spacer
	length: 37	repeater length: 30	
2757	1092480	AATAGAATAAGATCATAATGAAATTGAAAT	AATAAAGATGTAGCTGAACGTACTTCTAAACGGTTA spacer
	length: 36	repeater length: 30	
2758	1092546	AATAGAATAAGATCATAATGAAATTGAAAT	AGTACTAAGAAATGATTCTCCATTAATATAACATTA spacer
	length: 37	repeater length: 30	
2759	1092613	AATAGAATAAGATCATAATGAAATTGAAAT	TTTTCTTTACGTGTAGACCAGGAGAGTATATCTCC spacer
	length: 35	repeater length: 30	
2760	1092678	AATAGAATAAGATCATAATGAAATTGAAAT	GAAACTGGTAAATTACTTTATTATGGACGTTTTAAA spacer
	length: 36	repeater length: 30	
2761	1092744	AATAGAATAAGATCATAATGAAATTGAAAT	ATTGATATTGGAACAAGAGGATACACAAAATGGTCAT spacer
	length: 37	repeater length: 30	
2762	1092811	AATAGAATAAGATCATAATGAAATTGAAAT	GCAAATGTATTTAAAGAACTTGTTACTAACTTAAA spacer
	length: 36	repeater length: 30	
2763	1092877	AATAGAATAAGATCATAATGAAATTGAAAT	TAAGAACTATCAAGCAATCCCTTATAATAACCTTTAT spacer
	length: 37	repeater length: 30	
2764	1092944	AATAGAATAAGATCATAATGAAATTGAAAT	GTTGCATCACTAGGAAGAATAGTTTGAAGTAAATTG spacer
	length: 37	repeater length: 30	
2765	1093011	AATAGAATAAGATCATAATGAAATTGAAAT	TCTAGTTTAGATGATGGTTCTACTTTATCTTTACCT spacer
	length: 36	repeater length: 30	
2766	1093077	AATAGAATAAGATCATAATGAAATTGAAAT	GGTTTTAATCCACGGGTGATTAGTGATGAAGAGTTTG spacer
	length: 37	repeater length: 30	
2767	1093144	AATAGAATAAGATCATAATGAAATTGAAAT	ACAGGCTGGTAAAAACATTTTTGGAGGAAATAAA spacer
	length: 35	repeater length: 30	
2768	1093209	AATAGAATAAGATCATAATGAAATTGAAAT	TCTACGCTTGGTCTTGATTCATGTTTATATGTAATT spacer
	length: 36	repeater length: 30	
2769	1093275	AATAGAATAAGATCATAATGAAATTGAAAT	GAAGCAAAACAAAAGGAGATACTGCAAGAATACTTAT spacer
	length: 37	repeater length: 30	
2770	1093342	AATAGAATAAGATCATAATGAAATTGAAAT	AGATTATCAACGCCTAGAATTTGTTGTATATCTTTT spacer
	length: 36	repeater length: 30	
2771	1093408	AATAGAATAAGATCATAATGAAATTGAAAT	ATAGAAATCATAATGTATATTTCTGAATACATTTTC spacer
	length: 36	repeater length: 30	
2772	1093474	AATAGAATAAGATCATAATGAAATTGAAAT	ATTACTGAAGAAGAGATTAATAATAAATTACCTGCAA spacer
	length: 37	repeater length: 30	
2773	1093541	AATAGAATAAGATCATAATGAAATTGAAAT	GATACTATTGCAATTATTATATCTTGATTATACTTC spacer
	length: 36	repeater length: 30	
2774	1093607	AATAGAATAAGATCATAATGAAATTGAAAT	AAATGAATTGCACATACAACAAGAATCATAGTACAAAA spacer
	length: 38	repeater length: 30	
2775	1093675	AATAGAATAAGATCATAATGAAATTGAAAT	AGAGCATTGATTGCAATATAATTGATTGTTTTCCA spacer
	length: 35	repeater length: 30	
2776	1093740	AATAGAATAAGATCATAATGAAATTGAAAT	AAAATTAATAGGTGTTGGATTATCATAAGCAATAGTA spacer
	length: 37	repeater length: 30	
2777	1093807	AATAGAATAAGATCATAATGAAATTGAAAT	AATCAGTTAATAGGAGAACCTAATAATGCATAAAGAT spacer
	length: 37	repeater length: 30	
2778	1093874	AATAGAATAAGATCATAATGAAATTGAAAT	CTTTCAGGCACAAGTATAGCTGTATCTACTATTTTTT spacer
	length: 37	repeater length: 30	
2779	1093941	AATAGAATAAGATCATAATGAAATTGAAAT	TAGTATACACATCTTTTGGTTTATTGGAGTTTTCCT spacer
	length: 36	repeater length: 30	
2780	1094007	AATAGAATAAGATCATAATGAAATTGAAAT	AGAGTAAAAAAGAACTATTTTTTAGTTTCTTTTTATT spacer
	length: 38	repeater length: 30	
2781	1094075	AATAGAATAAGATCATAATGAAATTGAAAT	ATGGTTACTGTATTACTAATCCAATCACCAACTTTATA spacer
	length: 38	repeater length: 30	
2782	1094143	AATAGAATAAGATCATAATGAAATTGAAAT	GATATGAAATCTACACAACCTACAAAAGATATGCAA spacer
	length: 36	repeater length: 30	
2783	1094209	AATAGAATAAGATCATAATGAAATTGAAAT	TCTCTTGAAAATCCTGATAATAATACTTGATAGA spacer
	length: 36	repeater length: 30	
2784	1094275	AATAGAATAAGATCATAATGAAATTGAAAT	CGTATAAGTTATGGTACATTTAAACAATGGCTGAA spacer
	length: 36	repeater length: 30	

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2785 1094341 AATAGAATAAGATCATAATGAAATTGAAAT GAAGCAAACCATGAAAAACCAACTGAAAGATGTAAA spacer
length: 36 repeater length: 30
2786 1094407 AATAGAATAAGATCATAATGAAATTGAAAT GGTGTTAGTACAGGTATGGACGGATTACTCCATGAAA spacer
length: 37 repeater length: 30
2787 1094474 AATAGAATAAGATCATAATGAAATTGAAAT ATAAAAATAACAAATGGAACAACAACAAAACAGTA spacer
length: 36 repeater length: 30
2788 1094540 AATAGAATAAGATCATAATGAAATTGAAAT GTCGTTGAACAAGAAATAAGAATTATAGAAAATAAT spacer
length: 36 repeater length: 30
2789 1094606 AATAGAATAAGATCATAATGAAATTGAAAT TTAACATCTACAAGGTCATGAAGAAGTTTTGTTTCAT spacer
length: 37 repeater length: 30
2790 1094673 AATAGAATAAGATCATAATGAAATTGAAAT CGATACATTTTTTAAATTACTTGTATCAGTAGTAATA spacer
length: 36 repeater length: 30
2791 1094739 AATAGAATAAGATCATAATGAAATTGAAAT ACTCTTACCCGATTTAATTATGAATATCTTCAAGCAT spacer
length: 37 repeater length: 30
2792 1094806 AATAGAATAAGATCATAATGAAATTGAAAT GATGTAGAAGATGAAGTTGATGAATTTCTTGAAGAG spacer
length: 36 repeater length: 30
2793 1094872 AATAGAATAAGATCATAATGAAATTGAAAT GATATCTTTCATATATTATCATTTTTTATCATATTTTT spacer
length: 37 repeater length: 30
2794 1094939 AATAGAATAAGATCATAATGAAATTGAAAT TTGGTAAAAGAAATAGCGGAAGACAATGAATACTCTG spacer
length: 37 repeater length: 30
2795 1095006 AATAGAATAAGATCATAATGAAATTGAAAT ACCCAAGGCC
2796
2797
2798 crispr 4
2799 1517318 AATGGAGGAGCAATATATA ATGATGGACAAATAAATATTAATAAATCAACATTCCAATCAAACAAAGCTACAAAA
spacer length: 56 repeater length: 19
2800 1517393 AATGGAGGAGCAATATATA ATAAAAATATATACAACAGCAGAAATTCAAATACATTCAAACACTGCTAAAATC
spacer length: 56 repeater length: 19
2801 1517468 AATGGAGGAGCAATATATA CCACGAACAATCTATACATTAATTCTAATACATTTACTTCAAATAATGCAACAGGT
spacer length: 56 repeater length: 19
2802 1517543 AATGGAGGAGCAATATATA GTTGAGGG
2803
2804
2805 GCA_000013445.1_ASM1344v1_genomic.fna (PilerCR):
2806 START REPEAT
SPACER
2807 crispr 1
2808 841172 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC GCAGACCGCGACGAGGCCTGGGGCAGACTGGAAA
spacer length: 34 repeater length: 36
2809 841242 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TATTTCTCCTTCAAACGTTTAATGTACTTATTCA
spacer length: 35 repeater length: 36
2810 841313 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC AGCAGATGACATAGTAAACAGAATCACTGAACTG
spacer length: 34 repeater length: 36
2811 841383 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC CTATTTCCCTGCACGATTGAGAAACCCGGCGCATA
spacer length: 35 repeater length: 36
2812 841454 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC GACTCAAGTGCAAAGAAAGCAATCATAGAACTTCT
spacer length: 35 repeater length: 36
2813 841525 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TTTCATCCCATGCAAACAGGTGCCGGGCAATCA spacer
length: 33 repeater length: 36
2814 841594 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TATCAGAATTCTGGAAAGCCGTCTCTCAAGAGCGTGTG
spacer length: 38 repeater length: 36
2815 841668 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC CCTGTCACGAGATGACGTGTCAGCCATGAAGTG spacer
length: 33 repeater length: 36
2816 841737 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TATCAATTAACCTATGTTCTACTCTTCTGTATGT
spacer length: 34 repeater length: 36
2817 841807 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC ATGCGTGCCCGCACGCCTGCACGTTGCCACCTTG
spacer length: 34 repeater length: 36
2818 841877 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TAACATTGCATTAGAACAACCTCTACGTGGACATC
spacer length: 34 repeater length: 36
2819 841947 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC AAATAGCCCGTCGCCAGGCGATGGTATCACGAAT
spacer length: 34 repeater length: 36
2820 842017 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TAACCGATTTTACGTTTACCTTTATAGCATATAACAA
spacer length: 36 repeater length: 36
2821 842089 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC ATCTCGAATTACAAGGTAGACCCATGGGGTCTAT
spacer length: 34 repeater length: 36
2822 842159 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC CCAATACGTTGGTCACGTAAAGTACGGATGTGAG
spacer length: 34 repeater length: 36
2823 842229 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TACTTTTTCCGTAAAGGAGCTGCTTACAGAACTG
spacer length: 34 repeater length: 36
2824 842299 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC AACTAAAAGAGGGCCCCCTAAAATCTCTTAAA spacer
length: 33 repeater length: 36

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2825 842368 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC AATCTATAGGGAAGGTAAATCTTTACCAGATACT
 spacer length: 34 repeater length: 36
 2826 842438 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC AAGGTTTCCATCCTCATAGAATGGAAACAAGCGG
 spacer length: 34 repeater length: 36
 2827 842508 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC AGATGAGGTATTGGTGCTTAAAGGGCACCCGCTT
 spacer length: 34 repeater length: 36
 2828 842578 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC AGGAAGAGTCGAACAACAAATTTCAAAAAATTGTAA
 spacer length: 36 repeater length: 36
 2829 842650 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TGTGGTGACTTGAGTGGCACCCTATTAGCCGCAA
 spacer length: 35 repeater length: 36
 2830 842721 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC GGGGGCAGAGTTGCAGATGTTGATATTCACGCTG
 spacer length: 34 repeater length: 36
 2831 842791 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC GAGGACTTGAGTTGTCCCCTGTGCACAGTCGAA spacer
 length: 33 repeater length: 36
 2832 842860 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC AACTTCTCCAGCTTGTGCTCTATCTCTATATGATG
 spacer length: 35 repeater length: 36
 2833 842931 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TCTCAAATGTAGTGCCCCCTTCCCACAAGATTTATT
 spacer length: 35 repeater length: 36
 2834 843002 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TGTACCGTCCTTCCATGCTGCAAATCATTAACAG
 spacer length: 34 repeater length: 36
 2835 843072 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TCATAAGGTTGATCTCATGTTCTAACAGGTTAC
 spacer length: 34 repeater length: 36
 2836 843142 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC ACCCCAAAATTCCATCTGAACGATAAATATTTTTTC
 spacer length: 36 repeater length: 36
 2837 843214 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC CGTGTAACCTAATTATCAGTCATTACGTCTCACATT
 spacer length: 36 repeater length: 36
 2838 843286 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC CGATCATGTC
 2839
 2840
 2841 crispr 2
 2842 844462 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TGCAATACTACCATATCCACCAAATACTCTAA spacer
 length: 32 repeater length: 36
 2843 844530 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TTTGTATTATATCATCGAGTAAAAAACTTGAAACA
 spacer length: 35 repeater length: 36
 2844 844601 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TTAAATGGTGAACAGTATAATTGACGAAAAAT spacer
 length: 32 repeater length: 36
 2845 844669 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC CCACCAACCGTTATATTCCTTATGATTCATTTTTTA
 spacer length: 35 repeater length: 36
 2846 844740 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TAAAGAAGCCTACCGATACAGGAGGAAAGATAAA
 spacer length: 34 repeater length: 36
 2847 844810 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TGAAAAACACTCCCCCGTCAGAACCCGCCGTTTCG
 spacer length: 34 repeater length: 36
 2848 844880 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC AACGACAGCCTGTTCTCCTGTATCACTGGTGATGAT
 spacer length: 36 repeater length: 36
 2849 844952 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC GGAGACGGCCC
 2850
 2851
 2852 crispr 3
 2853 852894 AGTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TGGTACTTGTTCAACCCAATAACGGGTATGGTG
 spacer length: 33 repeater length: 37
 2854 852964 AGTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC CTACCCAATATTAACCTCATACATCTGTATACC
 spacer length: 33 repeater length: 37
 2855 853034 AGTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TATGTAGATCATTATGGTGATATATCGAGTGTA
 spacer length: 33 repeater length: 37
 2856 853104 AGTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC AAGAAAACCCACATTAAACATTTACATAGATGT
 spacer length: 34 repeater length: 37
 2857 853175 AGTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TGGACGATTC
 2858
 2859
 2860 crispr 4
 2861 853316 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC ACGTAAGGATGAGTGATTATGGTACGGATACAGA
 spacer length: 34 repeater length: 36
 2862 853386 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC ATTAGATAGAGCCACATTACATGAGGTCTATTAT
 spacer length: 34 repeater length: 36
 2863 853456 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC AGGGAATGTTTCGAGAAATGAAATAGAAACAACGTC
 spacer length: 35 repeater length: 36
 2864 853527 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TAACATGCTTGACAAAATAGTGGAATGATTTCTCTG
 spacer length: 35 repeater length: 36
 2865 853598 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TGAACATGAGGCTTATCCGATTTCTGGATAA spacer
 length: 33 repeater length: 36
 2866 853667 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC CAGGTGCTGCACAGGGCAACTGGTGGTATCAGGA

spacer length: 34 repeater length: 36
 2867 853737 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC GTTAATGATACGTTCTGCGATTTGTGCGGTAAA spacer
 length: 33 repeater length: 36
 2868 853806 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TGTGTACTCGCGTTTCCATTTGCCGTCTGTCCCG
 spacer length: 34 repeater length: 36
 2869 853876 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC ATAATGGATCATGTTATGTTCCCGCCTTTTCATG spacer
 length: 33 repeater length: 36
 2870 853945 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC CTCAAATAACCCATAATGAGATCTTTGATTCTG
 spacer length: 34 repeater length: 36
 2871 854015 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC ATAATGGATCATGTTATGTTCCCGCCTTTTCATG spacer
 length: 33 repeater length: 36
 2872 854084 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC CTCAAATAACCCATAATGAGATCTTTGATTCTG
 spacer length: 34 repeater length: 36
 2873 854154 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC GAACTGGCAGAATAATGATCCAGCCCCAGTATGT
 spacer length: 34 repeater length: 36
 2874 854224 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC ATCTCACTCTCTTATAAGTGAGATGAATGAGGATGA
 spacer length: 36 repeater length: 36
 2875 854296 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC AAGAGTCTAATGAGAAGTATAAAAAAATTGTAAA
 spacer length: 34 repeater length: 36
 2876 854366 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC CAGGTGCACAACCTGATGGAAGAACAGAGGGAAA
 spacer length: 34 repeater length: 36
 2877 854436 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC AGGTTGCTGCAGGTGTTATAGATCTCCCTGATGTA
 spacer length: 35 repeater length: 36
 2878 854507 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC CTGCCTCCGTTGGTGCTGCAAGGCCCTGCATGAGGTT
 spacer length: 37 repeater length: 36
 2879 854580 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TACATTCTGCTTTTAGGTTGGAAAGGGGCTTCCAA
 spacer length: 35 repeater length: 36
 2880 854651 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TATATCACACTAAAGTAAAAAACAGATGAAATCAG
 spacer length: 35 repeater length: 36
 2881 854722 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC AGCCACACGCGGTCTATCCTGTAACCTGATAAC
 spacer length: 34 repeater length: 36
 2882 854792 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC CGTAAGACTGCGTAAACATGACGTAACCTATATCCGT
 spacer length: 36 repeater length: 36
 2883 854864 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TTACACTTGACGAGATTGAAGCCGCTAAGGACTT
 spacer length: 34 repeater length: 36
 2884 854934 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC GAAATACCACAAAGGAGCGTGGTTAGATGATGCCCC
 spacer length: 36 repeater length: 36
 2885 855006 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TTTAAAGCGCGCCGAAATTGAGGCGCAGTATAAGA
 spacer length: 35 repeater length: 36
 2886 855077 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TATTAAAGATGAAATAAAAAATTCTATTGTATTAA
 spacer length: 34 repeater length: 36
 2887 855147 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC ATTCTAGAGGGCTTCTGATTATCCTCAAAGCAT spacer
 length: 33 repeater length: 36
 2888 855216 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC TGCATGATGACAAGTTAACCTTATTAAACGCTAAG
 spacer length: 34 repeater length: 36
 2889 855286 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC AAATCAGATACTAGAATAACTATATGGTAAATATC
 spacer length: 35 repeater length: 36
 2890 855357 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC CCCGATTGAGCTCGTACAAGCGGGCGCGGGCGT spacer
 length: 33 repeater length: 36
 2891 855426 GTTGCCATACCCTTCTATTTTCGGGTCACCTTGCAAC CCGGAGTTTCG
 2892
 2893
 2894 crispr 5
 2895 1571536 CGGTTTCATCCCCATACACACGGGGAACTC TAATAACTCCAAGTGTAAAAATATTGCTTCTA spacer
 length: 32 repeater length: 29
 2896 1571597 CGGTTTCATCCCCATACACACGGGGAACTC TTTGATCCGCTCCAGTGAGAAACCATAGAACT spacer
 length: 32 repeater length: 29
 2897 1571658 CGGTTTCATCCCCATACACACGGGGAACTC TTTGATCCGCTCCAGTGAGAAACCATAGAACT spacer
 length: 32 repeater length: 29
 2898 1571719 CGGTTTCATCCCCATACACACGGGGAACTC ATAAGCTGAACAAACAATGTCAAGATTCATTG spacer
 length: 32 repeater length: 29
 2899 1571780 CGGTTTCATCCCCATACACACGGGGAACTC AATTGCACCAGCACAGTATTTTGAAGTCAATTT spacer
 length: 32 repeater length: 29
 2900 1571841 CGGTTTCATCCCCATACACACGGGGAACTC GGTTGGATTAAATCTCCTGTTGTTTATCTCT spacer
 length: 32 repeater length: 29
 2901 1571902 CGGTTTCATCCCCATACACACGGGGAACTC TCAAATTTCTTTAAGTGTCTACTCCGTTAT spacer
 length: 32 repeater length: 29
 2902 1571963 CGGTTTCATCCCCATACACACGGGGAACTC GCCGTTATCCCAAGTTCCATTGCTTCATAAT spacer
 length: 32 repeater length: 29
 2903 1572024 CGGTTTCATCCCCATACACACGGGGAACTC GTTTTGATATTGAAGTATCAGAGGATGGGTGA spacer
 length: 32 repeater length: 29

2904 1572085 CGGTTCATCCCCATACACACGGGGAACTC TCATTTACCGTAAAGACGATTGGTGCATTTAA spacer
 length: 32 repeater length: 29
 2905 1572146 CGGTTCATCCCCATACACACGGGGAACTC ATAAGCGCACGGCAGAACGGAAGCGGAAGGG spacer
 length: 32 repeater length: 29
 2906 1572207 CGGTTCATCCCCATACACACGGGGAACTC TTTATTTCGCGGCGATTACTATTTTCAGATATTA spacer
 length: 32 repeater length: 29
 2907 1572268 CGGTTCATCCCCATACACACGGGGAACTC GGGTGCATCCCGTGTGAATTGAATACATAAA spacer
 length: 32 repeater length: 29
 2908 1572329 CGGTTCATCCCCATACACACGGGGAACTC TTGGTTGGTGAACCTGGTGCTATTGTTCGGATA spacer
 length: 32 repeater length: 29
 2909 1572390 CGGTTCATCCCCATACACACGGGGAACTC TTGGAGAATGGGTGCTACTCTGTTTATAGGGG spacer
 length: 32 repeater length: 29
 2910 1572451 CGGTTCATCCCCATACACACGGGGAACTC GAATTCTTCGGCTCTCTGTTTTGCTGCGTTTG spacer
 length: 32 repeater length: 29
 2911 1572512 CGGTTCATCCCCATACACACGGGGAACTC CGATTATGTCCTGTGGGACTGTTTTTATTACA spacer
 length: 32 repeater length: 29
 2912 1572573 CGGTTCATCCCCATACACACGGGGAACTC GCAGGAGTTGTGTTTCATTGGCTGTCCATTAGG spacer
 length: 32 repeater length: 29
 2913 1572634 CGGTTCATCCCCATACACACGGGGAACTC ATCAACCCTATATTTCGACATTGGAGCACGTAA spacer
 length: 32 repeater length: 29
 2914 1572695 CGGTTCATCCCCATACACACGGGGAACTC AGGAGATGTATCGAACAAAGAGCATTGGATTG spacer
 length: 32 repeater length: 29
 2915 1572756 CGGTTCATCCCCATACACACGGGGAACTC ATTAGTGGAAGACGTCCGGGCCTTTGCCGAAG spacer
 length: 32 repeater length: 29
 2916 1572817 CGGTTCATCCCCATACACACGGGGAACTC TGCAACCCGATGATAATCATTCACTACCTTTC spacer
 length: 32 repeater length: 29
 2917 1572878 CGGTTCATCCCCATACACACGGGGAACTC GTGGCTACAATCGTGTGATCTGCTCGCACATT spacer
 length: 32 repeater length: 29
 2918 1572939 CGGTTCATCCCCATACACACGGGGAACTC GTAGTGATCACTCATCATCACCATAAGCA spacer
 length: 32 repeater length: 29
 2919 1573000 CGGTTCATCCCCATACACACGGGGAACTC AACACAGAACCAACCATCCGGAAGTGCTGGTA spacer
 length: 32 repeater length: 29
 2920 1573061 CGGTTCATCCCCATACACACGGGGAACTC TTACTGCCATTTCTTTTCATCAGGGTTGGTGTG spacer
 length: 32 repeater length: 29
 2921 1573122 CGGTTCATCCCCATACACACGGGGAACTC CAGGTTTCGTGATCTTCTGACCGACCGGCATTTC spacer
 length: 32 repeater length: 29
 2922 1573183 CGGTTCATCCCCATACACACGGGGAACTC CCGCATCAACCCATTACACGTTTCGGCATGT spacer
 length: 32 repeater length: 29
 2923 1573244 CGGTTCATCCCCATACACACGGGGAACTC CAGGGACATCTCAAGAAGGGTAATCGTGGTGT spacer
 length: 32 repeater length: 29
 2924 1573305 CGGTTCATCCCCATACACACGGGGAACTC TACACGTTTGTGGATGATGCAGTTATCCGGAT spacer
 length: 32 repeater length: 29
 2925 1573366 CGGTTCATCCCCATACACACGGGGAACTC CCATTTTCATG
 2926
 2927
 2928 crispr 6
 2929 2088863 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TTGATGAATTGAAACACCCTTGGATCATATATATAAG
 spacer length: 37 repeater length: 37
 2930 2088937 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CTTTTTGTTCCTGTTGTTTGTATTTGAACCATCTAG
 spacer length: 36 repeater length: 37
 2931 2089010 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TTGTTGCGATTATATGAAGATTATAAGAAAACGCA
 spacer length: 35 repeater length: 37
 2932 2089082 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC AAAAATCTATTACAGGGATACAACCTCGTTCTGG
 spacer length: 35 repeater length: 37
 2933 2089154 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ATCACTGAAGTTCCCTTAGGTGTTGGAGCATTATT
 spacer length: 35 repeater length: 37
 2934 2089226 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GAGTTTCCACATCAATTTTCATGGTATCACTCCGG
 spacer length: 35 repeater length: 37
 2935 2089298 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CTTGTTAATTTCTTTTAATGCTGCATCACATACTAA
 spacer length: 36 repeater length: 37
 2936 2089371 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TTGGGTCTTGGCCTGCATCATTGGGGGAAGTATAC
 spacer length: 35 repeater length: 37
 2937 2089443 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GAGTGTACATGGTCACATCAGTCAAAAAGGATCATGT
 spacer length: 37 repeater length: 37
 2938 2089517 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ACTATGAATCCTCACGACTTCGAAGAGCCGGGCAA
 spacer length: 35 repeater length: 37
 2939 2089589 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC AACATCTGCAACTCTGCCTCCGCTTGTCAGATTATG
 spacer length: 36 repeater length: 37
 2940 2089662 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CCGGTATATCACAAATCATCTGTTGAGTTATAAAT
 spacer length: 35 repeater length: 37
 2941 2089734 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TTTTACCTTTATGCGCTGAAACCGCTTCCATGGAC

spacer length: 35 repeater length: 37
 2942 2089806 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CGGAGAGCGGGATCCGGGAGTGAGCACACAGCAGA
 spacer length: 35 repeater length: 37
 2943 2089878 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TCGAGGGGCTCTGGGGGCTCATGGGATCCGGACCCGG
 spacer length: 37 repeater length: 37
 2944 2089952 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ACCTGACCGGCCTTTATCGTTGCTCCGGCGGTGAAA
 spacer length: 36 repeater length: 37
 2945 2090025 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC AATTACCAAGTTTTTCACTGACATACTCGCATCATT
 spacer length: 36 repeater length: 37
 2946 2090098 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TGGGCAGGCATGTGATGAGCGGACCAGTGGAAGTCA
 spacer length: 36 repeater length: 37
 2947 2090171 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GAGTATTTCTGGGGTCTGTCTGAATTGCTGTCTGA
 spacer length: 36 repeater length: 37
 2948 2090244 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GTAATCCTTGCGAGCGGGCTTTATGGTACAGTTATG
 spacer length: 36 repeater length: 37
 2949 2090317 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CAGGCATAAGGGCCTGGTTGAATGGCTAAACTT
 spacer length: 34 repeater length: 37
 2950 2090388 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TTATATTGGGAATGTGAGCAATGGTGGATTTATGT
 spacer length: 35 repeater length: 37
 2951 2090460 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ATTCTTTTCAGGGCTTTAAGGTCTTCGCTCATATAA
 spacer length: 35 repeater length: 37
 2952 2090532 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GAACGGAAGGCGCAAATCTCATAACGTTCTGGGATGA
 spacer length: 37 repeater length: 37
 2953 2090606 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TTGCTGCCTTTTCGCTCAAACCTCTTGGGGCGCCAGA
 spacer length: 37 repeater length: 37
 2954 2090680 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ATATTCCGGTGTTAGAACCGCGGCGTCTGCAGAA
 spacer length: 34 repeater length: 37
 2955 2090751 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC AGTAGCAACACCGGCATACGAAGCGGGGTACTCA
 spacer length: 35 repeater length: 37
 2956 2090823 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ACGTAGATCTCATGAGCAACATTGTGGCTGAACTG
 spacer length: 35 repeater length: 37
 2957 2090895 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CCATTTGGGTCTGTGTATCGAACTGCACATACCACC
 spacer length: 36 repeater length: 37
 2958 2090968 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ACGGGTCAGACCCTTCAATGTTTCAGCGACTCTGAAAA
 spacer length: 37 repeater length: 37
 2959 2091042 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CCGGTTCCCCGACATCGAAAGCGTCCCGGAGAGGA
 spacer length: 35 repeater length: 37
 2960 2091114 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CTGAATACCAAGCTAGACAAACTTTTGGCACACTTTG
 spacer length: 37 repeater length: 37
 2961 2091188 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CATTTACCCATTTCAGTACCAGTCCAAACATAACAAT
 spacer length: 36 repeater length: 37
 2962 2091261 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TGATCAGGGGAGTATGTGCAATGCTCAGTTACGAAG
 spacer length: 36 repeater length: 37
 2963 2091334 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ACACATTTTCTGCGCGCCACGTTACACATATCTGT
 spacer length: 36 repeater length: 37
 2964 2091407 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ACACCAGTCGTAACCGCTTCTGCTGCTGTTGCTGA
 spacer length: 35 repeater length: 37
 2965 2091479 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TCACATCGTATCCTGCCTTGAAATCAAGATATGCG
 spacer length: 35 repeater length: 37
 2966 2091551 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CAGACTATAATCAGCCGTCATTACCAGTCTCTCAA
 spacer length: 36 repeater length: 37
 2967 2091624 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TTGTCTCCGGTCTTCAGGCATACCACCCGGTCATA
 spacer length: 35 repeater length: 37
 2968 2091696 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TAATATATTAGACATTAATCCAAGTGGTAAATATTA
 spacer length: 36 repeater length: 37
 2969 2091769 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC AGGTCACCCGGTTTGACGATGAGAGAGATTCAAGCCC
 spacer length: 37 repeater length: 37
 2970 2091843 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TGTACGAGTTGTAATGCCGGGTAATGTGCCGGCGTA
 spacer length: 36 repeater length: 37
 2971 2091916 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC
 2972
 2973
 2974 crispr 7
 2975 2093151 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TAACCTTAACACGGCAAACAGTAAGCAAGTAGGATT
 spacer length: 36 repeater length: 37
 2976 2093224 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CGGGAAACTGGGGTTTATCGGGCAGATTTTGAGATTA
 spacer length: 37 repeater length: 37
 2977 2093298 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CTTCTACCTGTAAGGGGGGAGTATCCATAATGTC
 spacer length: 36 repeater length: 37
 2978 2093371 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC AAACCGTATGGCCGCGAGTCATTATGATCCAATGG
 spacer length: 34 repeater length: 37

2979	2093442	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	TTTCCTGCGCTGAGGATGTCATTGAGATGATGATGG
		spacer length: 36 repeater length: 37	
2980	2093515	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	TTCATCGCCGCGTTTTATAGCATTCCCTGCAGGA
		spacer length: 34 repeater length: 37	
2981	2093586	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CTGAGTTTCCAGCCCCGTTTGAGTATCATGAGAGCA
		spacer length: 36 repeater length: 37	
2982	2093659	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	GCTCCCTCTCCCTCATCAGCTCATCAGATGACACTAT
		spacer length: 37 repeater length: 37	
2983	2093733	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CGTGAGCCGTGGTCTGACTTCTGACGCCTTCCTGA
		spacer length: 35 repeater length: 37	
2984	2093805	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CATCGACTTCTTCCCGCGGTTCTTCCGGCTGACTGT
		spacer length: 36 repeater length: 37	
2985	2093878	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CACATCAATCACAGCCGATGATATGCGTAAGGCATTA
		spacer length: 37 repeater length: 37	
2986	2093952	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CCTGATTCTACGGGCCTTTTCAAGTGCAGTTTCCAT
		spacer length: 36 repeater length: 37	
2987	2094025	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CCTCATGGATCGGTTGACTGAAACTCAGTAGCCAT
		spacer length: 36 repeater length: 37	
2988	2094098	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CCTGCCATTATATCTCTCTATAAATGATTCGCACGTC
		spacer length: 37 repeater length: 37	
2989	2094172	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CTATGGTGATGTTTTCGTTATGTCATCCGGGTATTT
		spacer length: 36 repeater length: 37	
2990	2094245	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CGGGTCATGTCCCGCCGGTTGTCTGCTATCCGATA
		spacer length: 35 repeater length: 37	
2991	2094317	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	ATGTAACATCTCACTGGTATGACCATCTATCCAAT
		spacer length: 35 repeater length: 37	
2992	2094389	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	ACTCGCTGAATGGATCGGTGAGTCTGTTGATGCAAT
		spacer length: 36 repeater length: 37	
2993	2094462	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CGCAGCGGCCAGCAAAGTTCATTTCGACCACCCGCCTA
		spacer length: 37 repeater length: 37	
2994	2094536	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	ATCCGGATATCATAGATTTTCATCAAAGCGAAATC
		spacer length: 34 repeater length: 37	
2995	2094607	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CTCTGGTTTTAGCATACCTCCTGTGAGGGCTATACGT
		spacer length: 36 repeater length: 37	
2996	2094680	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CCAGGAGAGTACTGCATACAGTCTAGTCCTACATTG
		spacer length: 36 repeater length: 37	
2997	2094753	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	ACATAAATACGGGGCAAAAATACACGGGTTAGGATT
		spacer length: 36 repeater length: 37	
2998	2094826	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CTTTTTGAGATAGACTTCGCTGAGGAGTTCAAACCATA
		spacer length: 38 repeater length: 37	
2999	2094901	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CTTTTGCATATACGCGTAATATAATTACACACACATA
		spacer length: 37 repeater length: 37	
3000	2094975	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CGCGACATTCCGGCACGAACCCACGGGGCGACGGACT
		spacer length: 36 repeater length: 37	
3001	2095048	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	GGTAGACATACCCCTGGCCGTCCAGACATATTC
		spacer length: 34 repeater length: 37	
3002	2095119	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CATCAAGAATCAACTTCTTAACCAGATGATGTGAAT
		spacer length: 36 repeater length: 37	
3003	2095192	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CCGTGCCCTTGCGGCTACCATTTTCTTTCTTGCAAT
		spacer length: 36 repeater length: 37	
3004	2095265	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	TTTGTAACTCTCCTGTCTGGACTTCCTCGTAACCAAT
		spacer length: 36 repeater length: 37	
3005	2095338	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CATTTCTCAACTGGGTATTCTTCAGCCGTATGTGA
		spacer length: 35 repeater length: 37	
3006	2095410	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	TCGACTCAATGAAAAAGAAGACTTTTCATGAGTGA
		spacer length: 34 repeater length: 37	
3007	2095481	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CCGCGTAAAAATAGCAGGAGGCATGTAATGACAGA
		spacer length: 35 repeater length: 37	
3008	2095553	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CAGGATATCAAAGAATATGAAATGTTGGAATATAGG
		spacer length: 36 repeater length: 37	
3009	2095626	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	ATAGGATCTATCCAACCAAACCTCTGATATAGATTT
		spacer length: 35 repeater length: 37	
3010	2095698	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	GAGACTGCCCAGAGATCTCATAGAACGCCTGGTCAGC
		spacer length: 37 repeater length: 37	
3011	2095772	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	TCACAAATGACACCGCTCTCGCAGTCAATGCAACGAA
		spacer length: 37 repeater length: 37	
3012	2095846	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	GTGCCAAATGTCGGATTACCATCCGCGGATAGTTGA
		spacer length: 36 repeater length: 37	
3013	2095919	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	ACGAGTAAAGGCCGCTATTGAGATGGGGCAGGACTCAA
		spacer length: 38 repeater length: 37	
3014	2095994	GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC	CTCACTCGTCCCTGTGTGTTTCTATGGTTATATTA

spacer length: 35 repeater length: 37
 3015 2096066 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CTCAATGAGTGCATCTATTGCCTCCTGGTTGATCGG
 spacer length: 36 repeater length: 37
 3016 2096139 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC AAGGGACTATGCAATCCTTCATGATCTCACACTAAT
 spacer length: 36 repeater length: 37
 3017 2096212 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TGGAGTTGTGGGAACCTCCTGAAAATTCATCGTCATA
 spacer length: 36 repeater length: 37
 3018 2096285 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TTCAAAAACACCTGATTCAATGAGATGATTGATTT
 spacer length: 35 repeater length: 37
 3019 2096357 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GATACCGCTTCAGTCATCAGCACACCCCCAAAATA
 spacer length: 35 repeater length: 37
 3020 2096429 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TGGAGTTAGTTTAGGAGCCATAAACC GGCACCGGG
 spacer length: 35 repeater length: 37
 3021 2096501 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GGAGTGATGAATGATTGAAAAAGAGTGTAAAGCCATT
 spacer length: 36 repeater length: 37
 3022 2096574 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GTGATAAAAGGATTAGAAAAATCTTCACCAGAAGG
 spacer length: 35 repeater length: 37
 3023 2096646 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CCGAATATGAAAGAGATAGAGAATTGCCTAATGG
 spacer length: 34 repeater length: 37
 3024 2096717 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ATAATTACCCACGCGCACCAAATAAGATAATATTA
 spacer length: 36 repeater length: 37
 3025 2096790 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CCAGCTTGAGCTCATAACGAGTAGTCCTGAACAG
 spacer length: 34 repeater length: 37
 3026 2096861 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC AATTTTTTACCAGGATTTTGGTGGGATTTGATCCAC
 spacer length: 36 repeater length: 37
 3027 2096934 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GCAGTTTTGACTTTTCCACTCTCGACGGTACGTCA
 spacer length: 35 repeater length: 37
 3028 2097006 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TGTAATGCTTGTCTCTACACTGAATAGCGAACCCGT
 spacer length: 36 repeater length: 37
 3029 2097079 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TGAGGCAATTTTCTAAAGGGGGGATTACAATAACA
 spacer length: 35 repeater length: 37
 3030 2097151 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CTGACCTCGTTGATGGTGAGAGTCCGGTATTTGG
 spacer length: 34 repeater length: 37
 3031 2097222 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CAGGTATCACAGGGAGTTCCATTCTTATCAACGAGGT
 spacer length: 37 repeater length: 37
 3032 2097296 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ATGGCATCATCAACCGGAATGGGTGAGTCGGATCA
 spacer length: 35 repeater length: 37
 3033 2097368 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GACGATGAGGGAGATGATTGAGGAGGAGATTCAGAAA
 spacer length: 37 repeater length: 37
 3034 2097442 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GCGATCATTACCTGGAATAATCAGATTGTTGATGGT
 spacer length: 36 repeater length: 37
 3035 2097515 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CTGTAGTTGTGCGATCTTCGTAGTTCATGCGTTCT
 spacer length: 35 repeater length: 37
 3036 2097587 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GGCAGTTACTGACGGACTTTCGACGGTGCAGAAAAA
 spacer length: 36 repeater length: 37
 3037 2097660 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC AGAATTGGAGATCATCATGGTAAACAGCAACATTG
 spacer length: 35 repeater length: 37
 3038 2097732 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC AGTTCCGTTGACGTCCTCAAGGGCTTTTTTCGAAT
 spacer length: 35 repeater length: 37
 3039 2097804 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GAGGCCAACCTCCGAACCGTTGATCGAAACATCCCT
 spacer length: 36 repeater length: 37
 3040 2097877 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC
 3041
 3042
 3043 GCA_000014945.1_ASM1494v1_genomic.fna (PilerCR):
 3044 START REPEAT
 SPACER
 3045 crispr 1
 3046 670838 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TTTCCGGATTAGAATAATAAGGAACTTCCGGTACGGG
 spacer length: 37 repeater length: 37
 3047 670912 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC GGTATACTAAGCGTACCGTTCTGCTCAACATCGACTA
 spacer length: 37 repeater length: 37
 3048 670986 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACACCATATGCTCCGGGCAGAGGAGCATGTTTCACT
 spacer length: 37 repeater length: 37
 3049 671060 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCAGTCCTCCTCCTCAGGAGGACTGGCTTTTTTCAA
 spacer length: 36 repeater length: 37
 3050 671133 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CACAATAAATCCCCCTTTGAAAACGAGTTCAAGC
 spacer length: 34 repeater length: 37
 3051 671204 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TATGTAGCTGCATATCTACACCTCCACGGATATAAGAG
 spacer length: 38 repeater length: 37
 3052 671279 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCTTCTGGCTCTGGCACGGCGAGAACTATCTCGCCGT

spacer length: 37 repeater length: 37
 3053 671353 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCCAAATTACCAAGACAAACATGCTTGTCATGGGTG
 spacer length: 36 repeater length: 37
 3054 671426 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CTGCGAACTTTGCCATGAGCACCTCTTCGTGAGGTGCT
 spacer length: 38 repeater length: 37
 3055 671501 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC GATGATTAATCTCATAACTGGTGAGATTTTCGACTCTC
 spacer length: 38 repeater length: 37
 3056 671576 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCTGTTGATGGTGCTCAGTGACGTTTCGATAGAAGA
 spacer length: 36 repeater length: 37
 3057 671649 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC AACTGATTTCTTGTCTGGCAAATTTGTTGTTGTAGA
 spacer length: 36 repeater length: 37
 3058 671722 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCTCCTAGCCCTTTATTCTGCTGGCTGGAGCTTCTGCT
 spacer length: 37 repeater length: 37
 3059 671796 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TACAATTCCTTCCCGCACTCTGAGCACCTCACGAA
 spacer length: 35 repeater length: 37
 3060 671868 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC AGATGAACTGATACCAGTTCACCTCGGTCGTTTCGA
 spacer length: 36 repeater length: 37
 3061 671941 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC GGAAATCCCAGACCCCGCTGAGTGTATCTTTTCAGTT
 spacer length: 36 repeater length: 37
 3062 672014 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCCATTCTCGAGCGGAAACGCGCTCGGGCCGAGGA
 spacer length: 35 repeater length: 37
 3063 672086 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACTGCCTGCTGCTCAAAGCCGGCGAAGGTGAACCTG
 spacer length: 36 repeater length: 37
 3064 672159 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC AGGTATCAGGAGACCTGCGGAGCAAGTACACTCCAGG
 spacer length: 37 repeater length: 37
 3065 672233 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CTACGTCTTT
 3066
 3067
 3068 crispr 2
 3069 672390 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCAGCAGCGATCTTACCTCTGAGCAATACTCGCCGC
 spacer length: 36 repeater length: 37
 3070 672463 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ATGAACTCATCCGAGCGATTCTGTAGATCTGGCCG
 spacer length: 36 repeater length: 37
 3071 672536 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACTACTCCTTTGTCTGGAAGATCCAGCATTTACTT
 spacer length: 35 repeater length: 37
 3072 672608 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TGGCGTCATCAGAATAACCAAGAGCTTTTCATTAGA
 spacer length: 35 repeater length: 37
 3073 672680 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ATTAAATCCTTATCCAGCCTGGTTAAGCCTTACGAT
 spacer length: 36 repeater length: 37
 3074 672753 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ATCTACTAGCGTCGCTTGCGGCGCAAGTAGATATAGT
 spacer length: 37 repeater length: 37
 3075 672827 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC AAGAATTGTAACCTCGTATTAATGGGGCAAATCAA
 spacer length: 34 repeater length: 37
 3076 672898 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCTCGGTAAACGGCGAGATAGTCCTCGCCGTCCCAA
 spacer length: 36 repeater length: 37
 3077 672971 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCCTACGCCATACGGCTAGCGTGAAAAAAAATGCCGTA
 spacer length: 38 repeater length: 37
 3078 673046 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CGCCTCCCAGTTCTCGTCGTTCCATACTGTCTCAG
 spacer length: 35 repeater length: 37
 3079 673118 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC AAGTTCCAGGTACTTCTCCTGTCCCGGTGGAATGAT
 spacer length: 36 repeater length: 37
 3080 673191 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC AAAGATGTCATGATCGCATCGGTGATCGGCTCGGT
 spacer length: 35 repeater length: 37
 3081 673263 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC
 ACAGCTTAGCGGTCTTGTCTTGCCCCGACAGCGCTCTCTCTG spacer length: 43 repeater length: 37
 3082 673343 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCTCATCGGGTACTGGTGAGCAGCCCTCGCATCCT
 spacer length: 35 repeater length: 37
 3083 673415 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC GATTTGCCCTGGGCATATCGGATCACTATCTGAT
 spacer length: 35 repeater length: 37
 3084 673487 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCACGAACATGTACCGACTGCGGCGCTTCACCCGC
 spacer length: 35 repeater length: 37
 3085 673559 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CGTCATTACGTTCTCCTACCCGATAATTCCCGGGA
 spacer length: 36 repeater length: 37
 3086 673632 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ATCTCGCTCAATGTCAGAGACGCTCTAGTATCTGGA
 spacer length: 36 repeater length: 37
 3087 673705 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCGAGGAGGTGAGAGGACGGCTAAACTGCGACGTG
 spacer length: 35 repeater length: 37
 3088 673777 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCGACTTGATTAGATGAGAGTCGGATCTTCTGGGA
 spacer length: 36 repeater length: 37
 3089 673850 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TTTGGTTCTGGTGCTGTCATTTTTTTCTCCTCCACGG
 spacer length: 37 repeater length: 37

3090	673924	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	TATTTAGATTTATTTGAAGGCCAGCGGCTCCAGCCAG
	spacer	length: 37	repeater length: 37
3091	673998	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	ATGTCTCCGACAACCTTGCAACGGATAATCATTACCAA
	spacer	length: 37	repeater length: 37
3092	674072	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	TGACCTGGACTAAATTTGACATGTCTGAAGGAGGAGGA
	spacer	length: 37	repeater length: 37
3093	674146	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	ATCACGGCTAGGTAGCCTAAATACTCCTTTTGGT
	spacer	length: 34	repeater length: 37
3094	674217	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	CCTCCAAATACCATATACGCATTATTGGTATATAAAG
	spacer	length: 37	repeater length: 37
3095	674291	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	ACCTAATGCAGCGGCTCGACAAAGAAGTGCTCAGG
	spacer	length: 35	repeater length: 37
3096	674363	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	GAGCGCAAAGCACGAGATGCCTTCTTCAGGCGGGAG
	spacer	length: 36	repeater length: 37
3097	674436	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	TTATGTTCCGGTCCACGTACCGGTATGGTCGTGAAAG
	spacer	length: 37	repeater length: 37
3098	674510	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	ACAATCTTCTATTTTCGCTGCGCACGCCAGCAACGA
	spacer	length: 35	repeater length: 37
3099	674582	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	ACGCGCAGAGGATAACGGAGCTCATGACCGTTCCGA
	spacer	length: 36	repeater length: 37
3100	674655	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	CGAATTCTCTGAGCATAAGTGATATCAAAAAAATATA
	spacer	length: 37	repeater length: 37
3101	674729	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	TATTTAGATTTATTTGAAGGCCAGCGGCTCCAGCCAG
	spacer	length: 37	repeater length: 37
3102	674803	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	ATGTCTCCGACAACCTTGCAACGGATAATCATTACCAA
	spacer	length: 37	repeater length: 37
3103	674877	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	TGACCTGGACTAAATTTGACATGTCTGAAGGAGGAGGA
	spacer	length: 37	repeater length: 37
3104	674951	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	CGCCACAGCGATAGGTTTTCGAATAATGAAAAGCG
	spacer	length: 37	repeater length: 37
3105	675025	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	ACAGAATCTTCGACCATGATCAGGAACCTCATTCAAT
	spacer	length: 36	repeater length: 37
3106	675098	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	GCAATTTTCCAGCATGCATCACAACAGAATCACGAA
	spacer	length: 36	repeater length: 37
3107	675171	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	TATGGAGACTTCTGGAAGAAACCCTCTCAACACTCTC
	spacer	length: 37	repeater length: 37
3108	675245	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	TCGTGAGGGCATTTCGCCAGGCATATGCTGTGTGTC
	spacer	length: 35	repeater length: 37
3109	675317	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	TCCGCCTGGCTCCACCTGCGACGGCGACCATTTCAGT
	spacer	length: 36	repeater length: 37
3110	675390	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	CTTTCTGCTACGATGGGGGGTGTACGATCCACGT
	spacer	length: 35	repeater length: 37
3111	675462	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	TCTCCAGCAGACTTTGCGACAAGCTCTCCAGTCTGC
	spacer	length: 36	repeater length: 37
3112	675535	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	TGACACCTTCATTATATAATACAGAGCATAATATGG
	spacer	length: 36	repeater length: 37
3113	675608	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	TGTTGAATACTGTAAGAAGAACAATCTCGCATATA
	spacer	length: 35	repeater length: 37
3114	675680	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	CGGGATACGTTCAAGCGATCAGCGGATGGAATGAAGC
	spacer	length: 37	repeater length: 37
3115	675754	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	TATACAATGAAAGTCTATATGGTAAATAGAGGCCCG
	spacer	length: 36	repeater length: 37
3116	675827	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	CGCATAAAATGCGCATGTTCTAAAAATAATCCCAAGC
	spacer	length: 37	repeater length: 37
3117	675901	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	ATCTCTGATGCAGGAGGAACGGTCGAACATCCGG
	spacer	length: 35	repeater length: 37
3118	675973	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	CGAACAACTTTAAGATCTGTACGGAACCTCGGTCTCAG
	spacer	length: 37	repeater length: 37
3119	676047	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	ACTTGACTTTTGTATCCAACCAACACATCTTTCGAT
	spacer	length: 36	repeater length: 37
3120	676120	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	ACGATTGATACGAACGTATTCTGAAAGGATGAAGAT
	spacer	length: 36	repeater length: 37
3121	676193	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	TCCTTGCAAATCTCCACAGATCGAAGATCGAGGATTGA
	spacer	length: 38	repeater length: 37
3122	676268	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	TCCTTATTAGGATGTGTTCAACGCCGTCGGCATT
	spacer	length: 34	repeater length: 37
3123	676339	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	CGAACGCTCTGGTCTTTGAGCGCTCGTAACTATTTT
	spacer	length: 36	repeater length: 37
3124	676412	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	AAATTCCAGCCCAGGATGGGCTGAAGGCGCTCATCC
	spacer	length: 36	repeater length: 37
3125	676485	GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC	CCCGAATGAATTCACCGTATATGGTACATCGGGAATT

spacer length: 37 repeater length: 37
 3126 676559 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCGCATTTAATGTGTATCGTACACACTTGAAGCCGGA
 spacer length: 37 repeater length: 37
 3127 676633 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CTCCTGGGGATACGCCCCATAATATACGTATACGTCAT
 spacer length: 38 repeater length: 37
 3128 676708 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CATCGAGTGGATAAAAAAGACACTCGATGACGAGGG
 spacer length: 36 repeater length: 37
 3129 676781 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TATATTTCCCTCTCGGGAGACTCGGGAGAATTACA
 spacer length: 35 repeater length: 37
 3130 676853 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TGCATCCAGCGCTTCTGCATCATCAAAGCAATTCGA
 spacer length: 36 repeater length: 37
 3131 676926 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACGCTGCCTTCGATATCATGTGCGCGACATGCTTGT
 spacer length: 36 repeater length: 37
 3132 676999 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TACACAGCCCTGAGCCAGCGGGTCTCGGGGGCTG
 spacer length: 34 repeater length: 37
 3133 677070 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCGAAAACGTTGTCAGCGTGCCAGTGAACCTCCAAC
 spacer length: 37 repeater length: 37
 3134 677144 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACAATTTAGGAAAAAAAAAAAA spacer length: 21
 repeater length: 37
 3135 677202 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC
 CGGACACAATCGGGTGGACAAATCTGCTCATTGAGTTCTG spacer length: 40 repeater length: 37
 3136 677279 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TATGAATCGGATGCGCGACGCGATAGCATCGCTATCTG
 spacer length: 38 repeater length: 37
 3137 677354 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ATCATACAGACGTGTTGCGTGTTGATTACAGAAACAAG
 spacer length: 38 repeater length: 37
 3138 677429 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CGCCATTGAAATTCGTGGCGCGGGGAGCCCTGGA
 spacer length: 36 repeater length: 37
 3139 677502 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TGTCACACAAAACGCGAAATCAATACCGGTATCTACAA
 spacer length: 38 repeater length: 37
 3140 677577 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CTGCGTATCTCCACGCACTGCACGGGTTGTCGAAAT
 spacer length: 36 repeater length: 37
 3141 677650 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCTCGACAACCTGACCGTTCTTCACTACTGCCTGAA
 spacer length: 36 repeater length: 37
 3142 677723 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC GCCCATATCTCTTCGTGATGCTCCGCGGTCCTGCTG
 spacer length: 36 repeater length: 37
 3143 677796 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC AGCAGCATCTTTTTTTCACCTCATGATATCATTATGAC
 spacer length: 37 repeater length: 37
 3144 677870 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TTTCTATACTGGGGATGTTGTACTTTCCTTGCCTTCCTT
 spacer length: 38 repeater length: 37
 3145 677945 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC GCGAGTTTGA
 3146
 3147
 3148 crispr 3
 3149 1557640 AACGTAACCATTCCCCAAGAACTCATAGCAGGACCAG AAATCCCCCAGGATAGCACAGATGCCGCGCCGGATGC
 spacer length: 37 repeater length: 37
 3150 1557714 AACGTAACCATTCCCCAAGAACTCATAGCAGGACCAG TGTGAGGGCAACGTTGGGATTGTTCAACACCCAGA
 spacer length: 36 repeater length: 37
 3151 1557787 AACGTAACCATTCCCCAAGAACTCATAGCAGGACCAG GATGCGTCTG
 3152
 3153
 3154 crispr 4
 3155 1696035 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TGAACGGAGATGTAAGATTTGTGGGGTTCTGCTGG
 spacer length: 35 repeater length: 37
 3156 1696107 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TGCGCTGGATGTCGCGGGAGAGCTCATGGTGGATCTGG
 spacer length: 38 repeater length: 37
 3157 1696182 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TGATCGAGAATTTGACCTCCACGGACCGCTCGGACATC
 spacer length: 38 repeater length: 37
 3158 1696257 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TTCGATGACACGACAATGTGGAGGTGGCACGAAGGAA
 spacer length: 37 repeater length: 37
 3159 1696331 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TAAGATTCTTCAGACGATCTGTGTCATTTCGTGATTT
 spacer length: 36 repeater length: 37
 3160 1696404 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CTACCACCGGAGCATGGAGACCGCTTAGAATCAAT
 spacer length: 35 repeater length: 37
 3161 1696476 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TGGAGGATGACCTGGGATATGTTATACGATTCACTGA
 spacer length: 37 repeater length: 37
 3162 1696550 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TAAATGCCACAATTGCGGAGAGGTTTCAAGTTCTGA
 spacer length: 36 repeater length: 37
 3163 1696623 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CGAATCCCGACTGGAGCACTATAAAATTCTGTTCAAT
 spacer length: 37 repeater length: 37
 3164 1696697 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TAACCCTCTTCACCCATGCGCCCATTGCTACCTCGCTC
 spacer length: 38 repeater length: 37

3165 1696772 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TCAGTTCCCTTTTCATCGGGATTGCGCTTGCAACAAG
spacer length: 37 repeater length: 37
3166 1696846 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CTGTCTGTCTTCGCAGTTATCAGCGCAGCATGTGAAC
spacer length: 37 repeater length: 37
3167 1696920 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC
TGTTTTGGAATTCCGACAAATGACGGGCACGGTTCAGGAT spacer length: 39 repeater length: 37
3168 1696996 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC
AGCTCCATCGCGCACAAATCCGACTGACCAATGCCTTATC spacer length: 39 repeater length: 37
3169 1697072 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC
TATTCGTCGGAACTCAGGACAATTCGAGCATATCTCGA spacer length: 39 repeater length: 37
3170 1697148 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CATTAAAGCAGTCTTGAGATCACCTTCACAGTCTT
spacer length: 36 repeater length: 37
3171 1697221 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC
CGGAAGGCCAACGGGGAGCCATTCTGTCGGCGACGACGAA spacer length: 39 repeater length: 37
3172 1697297 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC AACCCTTGGAATGGCAAATCTCCAGACCCCAAAA
spacer length: 36 repeater length: 37
3173 1697370 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC
TCTGTAGTAGTCGCTGGAGAATATCACAGGGATCTCGTTGT spacer length: 41 repeater length: 37
3174 1697448 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC AACATTCAAATGGATAAAGCCGGTCCGGAATACATT
spacer length: 37 repeater length: 37
3175 1697522 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC
CAAGAGTTTCCTTGATCTCATCAATAATTTTATACAGTT spacer length: 39 repeater length: 37
3176 1697598 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CTACTGGTGGATCGAAGAATGTTACTCCAACATGCAC
spacer length: 37 repeater length: 37
3177 1697672 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC AAATACTCCGCATCGTGATAATGAATATCCCCAGATGT
spacer length: 38 repeater length: 37
3178 1697747 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CTGGTATGACAAAGGTAACGATTAAATGGGATAAATC
spacer length: 37 repeater length: 37
3179 1697821 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TGCGGCGGTTGGTGCAACGGTTACCGGTGGAGTTGT
spacer length: 36 repeater length: 37
3180 1697894 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TATTCCATCTAGATCAACCTCATCAAAGTTTTTTATTC
spacer length: 37 repeater length: 37
3181 1697968 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CAATAAATCCATCGGATGTTATTACGTTTCATCTAAA
spacer length: 36 repeater length: 37
3182 1698041 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC AAATATTTCTCTTCTCATTCAATGATCTCCAAACCCC
spacer length: 37 repeater length: 37
3183 1698115 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC GGGTATTTCTGGAACGGAAGCCGCTACTCAATTGAGGT
spacer length: 38 repeater length: 37
3184 1698190 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TGGATGTTTTGAAGTCAGGAGGTGCGTCAGATCTCGGG
spacer length: 38 repeater length: 37
3185 1698265 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TTAACGACTTCCTCAACGGCATCCTGAGCTTTCGCGAT
spacer length: 38 repeater length: 37
3186 1698340 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TATTATCTCAAATCGTAGCGCTGTCCGGCCTGAAGAG
spacer length: 38 repeater length: 37
3187 1698415 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CATATGATGTACTCGTGCCTATAGCTGATTACCAGGGT
spacer length: 38 repeater length: 37
3188 1698490 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC
CAGGCGAATTATCTTCATATCTTGCCCTCCAAGTTATATA spacer length: 39 repeater length: 37
3189 1698566 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC GCAAAAGATATTACGTGCCCCGCGCCGGACATCATAAC
spacer length: 38 repeater length: 37
3190 1698641 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TATACATGTCACCGCGCTTTGATTACCGCATAACACA
spacer length: 36 repeater length: 37
3191 1698714 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TATGATATGATTATGCATATTATTGAGATATACATATA
spacer length: 38 repeater length: 37
3192 1698789 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TTGGGCGAGTCTCGAGGCGGAACCCCGCCTCGGAAAA
spacer length: 37 repeater length: 37
3193 1698863 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC
GCATCTCATTTTTGCATCAGCTCCTTACAGAGGGAGCTGAT spacer length: 40 repeater length: 37
3194 1698940 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CAATCAGCTCACATACAATTAGAAATCATACAAACA
spacer length: 36 repeater length: 37
3195 1699013 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TGATGTGGTATTCTGAGTACCAGCGGGAGTTGGT
spacer length: 35 repeater length: 37
3196 1699085 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TATAACTTTCTAACTCATCTTTGAGATCACTCACCA
spacer length: 36 repeater length: 37
3197 1699158 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC
AATTTAATTTTCGTCGAGGATCATATCAACTTTTTTCCAAA spacer length: 39 repeater length: 37
3198 1699234 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC AAATATCTCGGAGGAGAAAATAAAATCGAAGTGAA
spacer length: 35 repeater length: 37
3199 1699306 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TCGACGTAATCCGACTGCATACCCATGCCATTCGATT
spacer length: 38 repeater length: 37
3200 1699381 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC AAGACAAGCTCGTTTGATGGATAATCCGCGCCCAGCTC

spacer length: 38 repeater length: 37
 3201 1699456 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC GAGTGAGATGGCTCAGAAGGATTACTATGAGATACTCG
 spacer length: 38 repeater length: 37
 3202 1699531 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TCGAACAACTCGCCAGGAGCCGACTTCGCATGG
 spacer length: 36 repeater length: 37
 3203 1699604 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC GCATTGCATGAATCGAATTATCCGTATCTGCATCTTTC
 spacer length: 38 repeater length: 37
 3204 1699679 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CTGTCCCCGTTCAAGTATGGTTATCATGGACTCCAGGG
 spacer length: 38 repeater length: 37
 3205 1699754 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC GTCCAATATTCATCCCCGCGGGCTGTACGACAATCCC
 spacer length: 38 repeater length: 37
 3206 1699829 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TCCCGGATTCCGTGGAAGTGCTCCTGCAGGCATAGGT
 spacer length: 37 repeater length: 37
 3207 1699903 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC
 AAAATTTTCAATAAATCCATCTCTGGTCCTTACTCGCAT spacer length: 39 repeater length: 37
 3208 1699979 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC
 CGACTCCGGAGGCCGCGCATGCTCCAGCCAGCGGAGCAAA spacer length: 39 repeater length: 37
 3209 1700055 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CCTGACGCATACTGGTAGTATGCGTCATCTCTATACA
 spacer length: 37 repeater length: 37
 3210 1700129 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC ATATTGATGGATTTCATGGAAGTACGATGCTGAGAAGGG
 spacer length: 38 repeater length: 37
 3211 1700204 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CTGCTCACGCGGGCATACTTTCTGGCTGGCTCTGAGGT
 spacer length: 38 repeater length: 37
 3212 1700279 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TCGTGATTCCGCCATCCGTAATACTCTTCCTCACA
 spacer length: 35 repeater length: 37
 3213 1700351 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CCGCCCATTCGAGACTTGAATGCGGAGATGAG
 spacer length: 32 repeater length: 37
 3214 1700420 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC
 3215
 3216
 3217 GCA_000015145.1_ASM1514v1_genomic.fna(PilerCR):
 3218 START REPEAT
 SPACER
 3219 crispr 1
 3220 632552 GAACAACCTCAAAAAGAGAATTGCAAG GCAATCCAGCAGATGGCCCAGCAATTCCAGCAGCAGC spacer
 length: 37 repeater length: 25
 3221 632614 GAACAACCTCAAAAAGAGAATTGCAAG TACGCATAAAGAAAGCACTAGCAGAACATCTTGAAGCATTTCGAG
 spacer length: 45 repeater length: 25
 3222 632684 GAACAACCTCAAAAAGAGAATTGCAAG GGTACAGCCTTGCGAAGTTTTCTCGGTCGCCAGGGCCTTTTCGA
 spacer length: 45 repeater length: 25
 3223 632754 GAACAACCTCAAAAAGAGAATTGCAAG GCGATGGGCATCCCTGTGCAGATTGGCGCCAAGCCAATCAGCAT spacer
 length: 44 repeater length: 25
 3224 632823 GAACAACCTCAAAAAGAGAATTGCAAG CCCTTGGCTCCTCGGGAGGCGAGTGCTGCTTCCTGCACAGCTCG spacer
 length: 44 repeater length: 25
 3225 632892 GAACAACCTCAAAAAGAGAATTGCAAG ATGTATTCAACGAGGCCAACTCCTCAGCCTTCTTTACTTCTCT spacer
 length: 44 repeater length: 25
 3226 632961 GAACAACCTCAAAAAGAGAATTGCAAG CCTACCATGGCGGCCTCCACCCACCCCAACATTGTAGCTAT spacer
 length: 43 repeater length: 25
 3227 633029 GAACAACCTCAAAAAGAGAATTGCAAG CCTCTCAAGCATTGACACGCCATGACCCGCAAGCGCCATTG spacer
 length: 41 repeater length: 25
 3228 633095 GAACAACCTCAAAAAGAGAATTGCAAG CATGCTGTCT
 3229
 3230
 3231 crispr 2
 3232 633240 GAACAACCTCAAAAAGAGAATTGCAAG TCGTCGCTCACCTATCTCTCCATCACGATACGCAATCGCCACGTCTAT
 spacer length: 48 repeater length: 25
 3233 633313 GAACAACCTCAAAAAGAGAATTGCAAG GCATATGCAGTATGGTAGGCCTTCCTTGTCCCATTCTCTCCAGCTC
 spacer length: 45 repeater length: 25
 3234 633383 GAACAACCTCAAAAAGAGAATTGCAAG TCCAAGAGCTCTACTTGCCGTCTCTTCAACTCTAGATATTCT spacer
 length: 42 repeater length: 25
 3235 633450 GAACAACCTCAAAAAGAGAATTGCAAG TCTCCGTGAGACGCTTCTCAAGCTCCTCAGGGTCAACGGTTTTCT
 spacer length: 45 repeater length: 25
 3236 633520 GAACAACCTCAAAAAGAGAATTGCAAG AACTCGCTGGCCATCTCCAATAGCTGCTTGATCTTTTGA spacer
 length: 40 repeater length: 25
 3237 633585 GAACAACCTCAAAAAGAGAATTGCAAG TCCCAACAGCGTAGCCGTACCTTCTCGCGTGGTCTATGAAGT spacer
 length: 42 repeater length: 25
 3238 633652 GAACAACCTCAAAAAGAGAATTGCAAG TACATCATATCCTACTTCTCTACTCTCACAGTACTCTTCACATTT
 spacer length: 45 repeater length: 25
 3239 633722 GAACAACCTCAAAAAGAGAATTGCAAG TCTCCGCCTGCTCGGCGGCCTGCTCTAGCGCCGCTATG spacer
 length: 38 repeater length: 25
 3240 633785 GAACAACCTCAAAAAGAGAATTGCAAG CTCATTGCCAAGTCTTGCTTGCTGAACGTGAAGTCTTCGC spacer

length: 41 repeater length: 25
3241 633851 GAACAAC TCAATGCTGCTGATGTTGCCGATGCTTGGCGTCGGCACAA spacer
length: 40 repeater length: 25
3242 633916 GAACAAC CCTTGTTTTGCAGACTCGACGAACGTCGGAACACAATCGTG spacer
length: 41 repeater length: 25
3243 633982 GAACAAC GTGAGTACGCAGACACCAAGGCCGCCAAGGTTTCACCCACGTGT
spacer length: 45 repeater length: 25
3244 634052 GAACAAC TTTCTGGAATCAGGACTCTAAGTCTCCTTTCCCAACAAA spacer
length: 40 repeater length: 25
3245 634117 GAACAAC TGGGAGCGCACGGGGGTCTGCGCACACTTTACCAATTCAA spacer
length: 41 repeater length: 25
3246 634183 GAACAAC ACGAAGACGCTGTACGAGCTGCCGCCACCAGGCAACTACACACCAA
spacer length: 46 repeater length: 25
3247 634254 GAACAAC CGTCATTGTACTCTTTTCGCTCAATTATTATTATGTCGTCGG spacer
length: 42 repeater length: 25
3248 634321 GAACAAC GTGTTAGTAGTTCTCTCATGGTTTTCAGTGTGTTTACAGC spacer
length: 40 repeater length: 25
3249 634386 GAACAAC ATCCGAACTGTGCCAGTTCACATTCCATCATTTTTATAGAG spacer
length: 41 repeater length: 25
3250 634452 GAACAAC TCTGCTGGATTGCGGGGACATGCGGCGCGAGCTCCCTCAGCATCTT
spacer length: 46 repeater length: 25
3251 634523 GAACAAC TCCGTTCTGCTCCTCAGAGCGAACAGCTTCCTTGCGTACGC spacer
length: 39 repeater length: 25
3252 634587 GAACAAC TGGACTGACTTCGATTACAAGCAGCACTACGACAATCTCGA spacer
length: 41 repeater length: 25
3253 634653 GAACAAC GTTCTAGCTGCTGACCCCGACAGCCTCGTCGCTGAGCTTAACCGT
spacer length: 45 repeater length: 25
3254 634723 GAACAAC CTGTATGTTTGCCGCAACATATCGCTATCACCTTGGGC spacer
length: 38 repeater length: 25
3255 634786 GAACAAC AGGCATCATCGGCGCGTCAAGGATCACTCCAGCACAGCTCTCCGA
spacer length: 45 repeater length: 25
3256 634856 GAACAAC ACACCTCCACGCGGTCCGGTGCAGCCTCCACTTCCCTTTACAAT spacer
length: 44 repeater length: 25
3257 634925 GAACAAC GGCCGCGTAGACCATGTAGCCTACTGCTAGCGCTACGGCTGGGTAC
spacer length: 46 repeater length: 25
3258 634996 GAACAAC GTTTTTACTCTGCCAGGTGTTAACCTCGAATTCAACTCTCATCTT
spacer length: 45 repeater length: 25
3259 635066 GAACAAC TTATCGCAGCTTGTTTCCTCTTCTTCCGTTTCCCTCCTCCGCTT spacer
length: 43 repeater length: 25
3260 635134 GAACAAC GCGGTCGCAACCCCATGCGCGTCTGTAGTGGGCTATAATGAGGTCTGGACAGC spacer length: 53 repeater
length: 25
3261 635212 GAACAAC TTTAAATCCGGTTTTCTTTCAATTCCACTTCTGGGTAAAAAA spacer
length: 43 repeater length: 25
3262 635280 GAACAAC TATACTTGTTATATCTCACCTGATGTCTAGCATTCTTCCACCTCG
spacer length: 46 repeater length: 25
3263 635351 GAACAAC CTGGGGACCTGTGTCTGGAAACCTCGCTATTATCGCCCCGCCAA spacer
length: 44 repeater length: 25
3264 635420 GAACAAC ACACCATTTGCAACAATGAGGATGGTGGTTACTAGCGATAGGGAT
spacer length: 45 repeater length: 25
3265 635490 GAACAAC TTGATTATTGCCATGACTGTGAAGGCTAGCTGGCCAACGGCATG spacer
length: 44 repeater length: 25
3266 635559 GAACAAC CGCAGGCTCAGGCGTGGCACGGCATAGAAAACACTTATACTAG spacer
length: 43 repeater length: 25
3267 635627 GAACAAC TAGAACAATATATACGGCTCCGTGCCGTCTTTGGCACCCCTCAGCT
spacer length: 46 repeater length: 25
3268 635698 GAACAAC ACGAACGCTTTGTTGACAGAGACCGGTGGGGAGACTGCGGCAACGA
spacer length: 46 repeater length: 25
3269 635769 GAACAAC TGTGTATCAAGCTCGGATACCTTTCCAAATGTAATATAAT
3270
3271
3272 crispr 3
3273 702373 CTTGCAATTCTCTTTTGAGTTGTTT GCCCGCTCCAGGACTCGGCACGGACCTCTATCCTAGTGCCTCCGTT
spacer length: 46 repeater length: 25
3274 702444 CTTGCAATTCTCTTTTGAGTTGTTT TAGGCTATGTCAAAAGAGAAATCGCTATAAGAAAAACAT spacer
length: 39 repeater length: 25
3275 702508 CTTGCAATTCTCTTTTGAGTTGTTT GAGCGCCTGCTGCAGATCATAGAGTATGAATTGTCGAAGGAGA spacer
length: 43 repeater length: 25
3276 702576 CTTGCAATTCTCTTTTGAGTTGTTT AGGGAGGATAAGGACGACCCGCTGGAGGCAATAGCAATAGGTGTCAT
spacer length: 47 repeater length: 25
3277 702648 CTTGCAATTCTCTTTTGAGTTGTTT CCTGGCGAACATGGTTATCGTGCTGCCGCCCTCGTAGCCAAACGC

spacer length: 45 repeater length: 25
 3278 702718 CTTGCAATTCTCTTTTGAGTTGTTC ACGAGTGAGGTACGGGCGTCGAGGAAAACCTACGGTACATGATTGT
 spacer length: 45 repeater length: 25
 3279 702788 CTTGCAATTCTCTTTTGAGTTGTTC ATTTTGGCCGTTTGGTGGGAAGGTTCTCCACCTGCTCACTTCT spacer
 length: 44 repeater length: 25
 3280 702857 CTTGCAATTCTCTTTTGAGTTGTTC AGTGGTGACAAGGCAGCAAGTAATAGTGCAACTCTGCATACCGAAAGA
 spacer length: 48 repeater length: 25
 3281 702930 CTTGCAATTCTCTTTTGAGTTGTTC AGGTGGAGAGGCTGCTGGGCGGTGAGGCCCTGGCAGGTATAAAGA
 spacer length: 45 repeater length: 25
 3282 703000 CTTGCAATTCTCTTTTGAGTTGTTC ATCCACTCCTCCCTGCTTACCTTCCTCTTTACGACTAGT spacer
 length: 39 repeater length: 25
 3283 703064 CTTGCAATTCTCTTTTGAGTTGTTC CTATGTCCTCCTCCCGTAGGCTCAGGGGCCAGGGCATTAGAA spacer
 length: 42 repeater length: 25
 3284 703131 CTTGCAATTCTCTTTTGAGTTGTTC CAGCAGTTGCTCTAGGGTCTTCGGCACCCACATGGAGTGCTGTGGTG
 spacer length: 47 repeater length: 25
 3285 703203 CTTGCAATTCTCTTTTGAGTTGTTC GGAGGTGAGAGGTATGAGTAGAAAATGTAAATTTCGTAT spacer
 length: 38 repeater length: 25
 3286 703266 CTTGCAATTCTCTTTTGAGTTGTTC AGATGAGATAGAGCAGCTGCTAGAGGAGTGCGAAGCCGTTGA spacer
 length: 42 repeater length: 25
 3287 703333 CTTGCAATTCTCTTTTGAGTTGTTC CAAACCTGCGCTACCTCAACGACCTACCACCAACTATTGATAT spacer
 length: 43 repeater length: 25
 3288 703401 CTTGCAATTCTCTTTTGAGTTGTTC AGATGAGATAGAGCAGCTGCTAGAGGAGTGCGAAGCCGTTGA spacer
 length: 42 repeater length: 25
 3289 703468 CTTGCAATTCTCTTTTGAGTTGTTC CAAACCTGCGCTACCTCAACGACCTACCACCAACTATTGATAT spacer
 length: 43 repeater length: 25
 3290 703536 CTTGCAATTCTCTTTTGAGTTGTTC
 CCAGGTACGGTGACCTACTGCTTAAACCCGACTGCCTAGCACCAGGAGGGGAT spacer length: 53 repeater
 length: 25
 3291 703614 CTTGCAATTCTCTTTTGAGTTGTTC CATTATACCGATGATGTTCAGTACTGCTACAGCAATGGCAGC spacer
 length: 42 repeater length: 25
 3292 703681 CTTGCAATTCTCTTTTGAGTTGTTC TGGTGGAGATTGTGAAGTGAGGTGATCGGCATGCAGATGT spacer
 length: 40 repeater length: 25
 3293 703746 CTTGCAATTCTCTTTTGAGTTGTTC AAGAGAGGTGGCAGTGAGGAAAACGTTGATTGTGATGGAAGAAAT
 spacer length: 45 repeater length: 25
 3294 703816 CTTGCAATTCTCTTTTGAGTTGTTC GCGTGGTGCTATGGGTCGTCGAGGACTAGGAGGGCGAAGAGT spacer
 length: 42 repeater length: 25
 3295 703883 CTTGCAATTCTCTTTTGAGTTGTTC CCTCCTCGGAGAGCGTTACATTGCTGAGATATGCCTTTA spacer
 length: 39 repeater length: 25
 3296 703947 CTTGCAATTCTCTTTTGAGTTGTTC TCACATGGCTCGGTTTTCCCCCAAATCACGCATTCATTGTACGT
 spacer length: 45 repeater length: 25
 3297 704017 CTTGCAATTCTCTTTTGAGTTGTTC ATTAATCAAATCACAATCATTGGGAGCTGCGATCAACAAAAGAACA
 spacer length: 46 repeater length: 25
 3298 704088 CTTGCAATTCTCTTTTGAGTTGTTC CAAGCATCACCGCATCTACCGGCTCCTGCTACGCCTCGGCCCCAGGA
 spacer length: 47 repeater length: 25
 3299 704160 CTTGCAATTCTCTTTTGAGTTGTTC TTGATTGTAGGCGCGCAAGGCGGTGGTGGCAATAACGCTTTCGC spacer
 length: 44 repeater length: 25
 3300 704229 CTTGCAATTCTCTTTTGAGTTGTTC TGGCACGCTGGAAGTACTACTACAACGGAGTGAACCAGTTGGACC
 spacer length: 45 repeater length: 25
 3301 704299 CTTGCAATTCTCTTTTGAGTTGTTC CTTCGTCTGTTCGGCAGTATCAACTATGTGAAGACTGAGATGC spacer
 length: 44 repeater length: 25
 3302 704368 CTTGCAATTCTCTTTTGAGTTGTTC TCGCTCGCTGGCGGTGGCGTCGTCGAGATCGCAAAATCGAATC spacer
 length: 43 repeater length: 25
 3303 704436 CTTGCAATTCTCTTTTGAGTTGTTC ATACAGCTTCGAGGAACGCGAAGAGCCTGGCCGCTTGCTTCTTGTCC
 spacer length: 47 repeater length: 25
 3304 704508 CTTGCAATTCTCTTTTGAGTTGTTC CAGTATGCATAGACAAGTCTATCGGCAGGATAGAGCCCTATATCAAGG
 spacer length: 48 repeater length: 25
 3305 704581 CTTGCAATTCTCTTTTGAGTTGTTC AGAGGATGTTGAGGAGCGGCTGAGGGAGATGCAGGAGACGATACA
 spacer length: 46 repeater length: 25
 3306 704652 CTTGCAATTCTCTTTTGAGTTGTTC TTAGTAGAATCATAGAAGAAGGTAGTATCAGCATCTTGATAGAT spacer
 length: 44 repeater length: 25
 3307 704721 CTTGCAATTCTCTTTTGAGTTGTTC TTGAAAAAAGACCTGCATGAGGTGGCTCATCATGCGCTTG spacer
 length: 40 repeater length: 25
 3308 704786 CTTGCAATTCTCTTTTGAGTTGTTC AGAGCCCGTTACCCGCATAGCGGTCAAATGGGAGCCCAGCG spacer
 length: 42 repeater length: 25
 3309 704853 CTTGCAATTCTCTTTTGAGTTGTTC ACCGGTGAGAGGGATGGTAAGGGTCGAGTTTCAGATCAATACA spacer
 length: 43 repeater length: 25
 3310 704921 CTTGCAATTCTCTTTTGAGTTGTTC TTCACATCATTCATTGAGTACACAACAGGAGAGAGCTACATAGAGG
 spacer length: 46 repeater length: 25
 3311 704992 CTTGCAATTCTCTTTTGAGTTGTTC ATAGTCATCGAATACAACGGCATATTCATGATGGAATGCAAC spacer
 length: 43 repeater length: 25
 3312 705060 CTTGCAATTCTCTTTTGAGTTGTTC AGACCCTGAGAAACGAGACAGACTACCCGCCAGCCAGGCTCTGGAGG

spacer length: 47 repeater length: 25
 3313 705132 CTTGCAATTCTCTTTTGAGTTGTTC ACGTTAGAAACCCCGATGCAGCGATAAAGACACTGAGC spacer
 length: 38 repeater length: 25
 3314 705195 CTTGCAATTCTCTTTTGAGTTGTTC GATATTCACGTAGACCACCACGAGACAAGCATACCGTTTCG spacer
 length: 41 repeater length: 25
 3315 705261 CTTGCAATTCTCTTTTGAGTTGTTC CTACATCTCGCTGCGCTACAGCAGCAAGGACGAGGCGTCCA spacer
 length: 41 repeater length: 25
 3316 705327 CTTGCAATTCTCTTTTGAGTTGTTC AAGACCATGAGTGCACAACGATGCAGCAGTTCTACATAGTCTTCAATGA
 spacer length: 49 repeater length: 25
 3317 705401 CTTGCAATTCTCTTTTGAGTTGTTC GAAGAAGGTTGGCAACAAATGGAGGGGCGTTAAAGCCCTTG spacer
 length: 41 repeater length: 25
 3318 705467 CTTGCAATTCTCTTTTGAGTTGTTC AGCAAGCTGAAGTTTAACTCTGCAACGTGGAGAGCTGC spacer
 length: 39 repeater length: 25
 3319 705531 CTTGCAATTCTCTTTTGAGTTGTTC CATTCCCGAG
 3320
 3321
 3322 GCA_000015205.1_ASM1520v1_genomic.fna (PilerCR):
 3323 START REPEAT
 SPACER
 3324 crispr 1
 3325 102 GTTTCTACTATCTTTTGATTTCTGG TTCCATGTTCTGTTGCCGTGTGAGATTCCAGCATCACAGCTGAG spacer
 length: 44 repeater length: 25
 3326 171 GTTTCTACTATCTTTTGATTTCTGG CGGCGGGAAGTCCGCTGTGCAATTGCTGACCGGGGAATATG spacer
 length: 41 repeater length: 25
 3327 237 GTTTCTACTATCTTTTGATTTCTGG CGGCGGGAAGTCCGCTGTGCAATTGCTGACCGGGGAATATG spacer
 length: 41 repeater length: 25
 3328 303 GTTTCTACTATCTTTTGATTTCTGG ACCTCGTTAGTAAAGCAACGAAGAAAATGGCACAATAGAACCTAT spacer
 length: 45 repeater length: 25
 3329 373 GTTTCTACTATCTTTTGATTTCTGG ACGATTGTGTTTAACCCGGCGCCGTATCCAACAGAGCACATATG spacer
 length: 44 repeater length: 25
 3330 442 GTTTCTACTATCTTTTGATTTCTGG TTTAGGGTCGGTAGCGGAGCGGAGACGGGCGACGGCGATCAAG spacer
 length: 43 repeater length: 25
 3331 510 GTTTCTACTATCTTTTGATTTCTGG GTACCCGTGGGCAAGCGAATATTGGGCTATGGGGCTGTATAGA spacer
 length: 43 repeater length: 25
 3332 578 GTTTCTACTATCTTTTGATTTCTGG CAAGAACTCCGCGGCAAATATGTAAAGTTGCATATCATTGATCT spacer
 length: 44 repeater length: 25
 3333 647 GTTTCTACTATCTTTTGATTTCTGG TCACACTGTCTGTGGTGAGAGTACTTTAAGCCCCCAATAGTTTCTACA
 spacer length: 49 repeater length: 25
 3334 721 GTTTCTACTATCTTTTGATTTCTGG GCCCTCAGGGCGGTTTCGGCGTCCATCATGGCGACCAGCTCGTC spacer
 length: 44 repeater length: 25
 3335 790 GTTTCTACTATCTTTTGATTTCTGG CTCTCTGCAGAGGACAGACCAAGGCTTGTCGCTCCAGATGCAAC spacer
 length: 44 repeater length: 25
 3336 859 GTTTCTACTATCTTTTGATTTCTGG TTCGTGCGGACGCCGTGTAGCTTCCTCGCGAGCGAGAAGTTTGT spacer
 length: 44 repeater length: 25
 3337 928 GTTTCTACTATCTTTTGATTTCTGG ATGCTAAGGCGGGCGCCAGGTTTGCGGCCGGCGGCACCGTGGAG spacer
 length: 44 repeater length: 25
 3338 997 GTTTCTACTATCTTTTGATTTCTGG CCTTAACCACGTGGCCCACGATGTCAGTCCCGATAATGTTG spacer
 length: 41 repeater length: 25
 3339 1063 GTTTCTACTATCTTTTGATTTCTGG CGTGCGGCCCTCCTCAGGGCCCTCCGCCATGAGATAGACAT spacer
 length: 42 repeater length: 25
 3340 1130 GTTTCTACTATCTTTTGATTTCTGG AAGAAGCGCGACGTCTGGCACAGATAGACGAGATAATACACTCA spacer
 length: 44 repeater length: 25
 3341 1199 GTTTCTACTATCTTTTGATTTCTGG ACAAGATATT
 3342
 3343
 3344 crispr 2
 3345 38865 CCAGAAATCAAAAGATAGTAGAAA GCTCCTGCTCGGATGCAGAAGGGACTCGGACGGGCGTGTGCTCT spacer
 length: 44 repeater length: 24
 3346 38933 CCAGAAATCAAAAGATAGTAGAAA GTATGCTCCGGGCTAGACGGCCTCCCCGAGCCCGTGCGGGCGAG spacer
 length: 44 repeater length: 24
 3347 39001 CCAGAAATCAAAAGATAGTAGAAA GTCGCGGTAGCACTGGACGACTGTGTCCCACCCACGCTCCTCAG spacer
 length: 44 repeater length: 24
 3348 39069 CCAGAAATCAAAAGATAGTAGAAA GCAATCGCGTCCATAACCGCCCCGCCAGTCTCTGTCGCAC spacer
 length: 39 repeater length: 24
 3349 39132 CCAGAAATCAAAAGATAGTAGAAA CGCCGCCATCGCGATAGCGTACTACGCAGGCGTCAAGAGGGGCG spacer
 length: 44 repeater length: 24
 3350 39200 CCAGAAATCAAAAGATAGTAGAAA CATAAACAGACGCCGCCCTTCTGGTGGCTCCCCGTCGACCTCTGG spacer
 length: 45 repeater length: 24
 3351 39269 CCAGAAATCAAAAGATAGTAGAAA CTCTGTAATCAACTCCTCCAGACCATACTCCTCAGCAATCTGTAG spacer
 length: 46 repeater length: 24
 3352 39339 CCAGAAATCAAAAGATAGTAGAAA CTACGTCTCGTGGAGCGGGGCGAAGCTAGGCACATACGTCGTCA spacer

length: 44 repeater length: 24
3353 39407 CCAGAAATCAAAAGATAGTAGAAA CCTCCAACAGGTGGGGAGGTGGGAGAGGGACATGAACAA spacer
length: 39 repeater length: 24
3354 39470 CCAGAAATCAAAAGATAGTAGAAA TCAAGGAGCT
3355
3356
3357 crispr 3
3358 39539 CCAGAAATCAAAAGATAGTAGAAA CGCAAACGTAGTGAAGACCGCGGTCATCGGGAATGGCGGTCATGCTTGCGCT
spacer length: 52 repeater length: 24
3359 39615 CCAGAAATCAAAAGATAGTAGAAA CCCTCTTCTAGCTCTCTGTCTAGGTCTTGAAGAAATTCGGC spacer
length: 41 repeater length: 24
3360 39680 CCAGAAATCAAAAGATAGTAGAAA TGCCCACTCCATAGACCATATCAGTTGTCTTTCCGCCATTATCTG spacer
length: 45 repeater length: 24
3361 39749 CCAGAAATCAAAAGATAGTAGAAA CGGGGCGTCTGAGACGTCTATCACGACGGGGACAGACGTAATGT spacer
length: 44 repeater length: 24
3362 39817 CCAGAAATCAAAAGATAGTAGAAA GTGAAGACGG
3363
3364
3365 crispr 4
3366 1404031 CCAGAAATCAAAAGATAGTAGAAAC CAGAACACGTCTGGGAATATCATGATGTCCTCCAGTTCCCAA spacer
length: 42 repeater length: 25
3367 1404098 CCAGAAATCAAAAGATAGTAGAAAC TCAAAAAAGACGTGCTTGTCTAGAGTACCCAACTATCCCCCTCCT
spacer length: 44 repeater length: 25
3368 1404167 CCAGAAATCAAAAGATAGTAGAAAC CGCTGACAGC
3369
3370
3371 crispr 5
3372 1413796 GTTCTACTATCTTTTGATTTCTGG CCGCGATGGCCGGCTTCGCCCTCCTCCAGGCCTGGAAGGCGAG spacer
length: 43 repeater length: 25
3373 1413864 GTTCTACTATCTTTTGATTTCTGG AGGGCGTAATCGTCTCTCTCGAACAGATGGCCTTTATGACGTC spacer
length: 43 repeater length: 25
3374 1413932 GTTCTACTATCTTTTGATTTCTGG CGCGGTCTTCAACGCGGTTCAGTCCGGCCAACTCCCAGCCTTGCT
spacer length: 45 repeater length: 25
3375 1414002 GTTCTACTATCTTTTGATTTCTGG TAAAAGGTAG
3376
3377
3378 crispr 6
3379 1757116 GTTCTACTATCTTTTGATTTCTGG CCCAGGCGGAGGCCGTGAGCGCAGTCCTCATGCCACGCGTTTGAG
spacer length: 45 repeater length: 25
3380 1757186 GTTCTACTATCTTTTGATTTCTGG ATCGTAGAGATAAGTGCGGCACTAGAAGATGCAATGATGCTGTT
spacer length: 44 repeater length: 25
3381 1757255 GTTCTACTATCTTTTGATTTCTGG GTCTGAACAGGGTCTTCGTGGTGGTGCCCCGCCACATAGCT spacer
length: 41 repeater length: 25
3382 1757321 GTTCTACTATCTTTTGATTTCTGG CAGAGCCGCCGGGACTGCCCCCCCCCGGCGACCACTCGAAGAGGCC
spacer length: 47 repeater length: 25
3383 1757393 GTTCTACTATCTTTTGATTTCTGG CCTGGACGTCATATACATGTGCCAGGGAGGGAGAGTATACG spacer
length: 41 repeater length: 25
3384 1757459 GTTCTACTATCTTTTGATTTCTGG GCACCTCCTGCGGTGGGCGGTTAAGCGGTTGCAGAAAGACAA spacer
length: 42 repeater length: 25
3385 1757526 GTTCTACTATCTTTTGATTTCTGG ACAGCCCGGCGTGCCCCAGTCTTTGTGCGACGCAGACTACCGC spacer
length: 42 repeater length: 25
3386 1757593 GTTCTACTATCTTTTGATTTCTGG AGTGCGGCTCCCAAGTCCACGGGTGCGGTACATGTTGCCGAAG
spacer length: 44 repeater length: 25
3387 1757662 GTTCTACTATCTTTTGATTTCTGG TGCCATGGGGGGACAGTCGTCGTCCTCTTCACGTCTGATGGATAT
spacer length: 45 repeater length: 25
3388 1757732 GTTCTACTATCTTTTGATTTCTGG TCGACGACATCCGCCACAGCGACGGTGGCGGTTAGGGGCATACA
spacer length: 44 repeater length: 25
3389 1757801 GTTCTACTATCTTTTGATTTCTGG GCCACTTACAGGCGTGATTATTGCGAAAGCGCTAGGTGGTCTAG
spacer length: 45 repeater length: 25
3390 1757871 GTTCTACTATCTTTTGATTTCTGG GAAAAATTGGTAGTGAAGGGGAGGATGGCCAAAGAGCTTATG spacer
length: 42 repeater length: 25
3391 1757938 GTTCTACTATCTTTTGATTTCTGG GGCAGTAGTGAAAACCAGGGGTAAATAAACGTTTCGCCCTTGAG
spacer length: 44 repeater length: 25
3392 1758007 GTTCTACTATCTTTTGATTTCTGG GGTCTTGGGGAGCGGCACAGCGGCCAACTCCGCCAAGGCCCCAC
spacer length: 45 repeater length: 25
3393 1758077 GTTCTACTATCTTTTGATTTCTGG CCTCATCTCCCGCAGGGCGTGGTACCTCGCGATGGCGGTGACTAG
spacer length: 45 repeater length: 25
3394 1758147 GTTCTACTATCTTTTGATTTCTGG CTGTTGACCTTCCCGCTGTCTAGAAATGAGTACGAGGGCCT spacer
length: 41 repeater length: 25
3395 1758213 GTTCTACTATCTTTTGATTTCTGG CAATCACTGAGCTGACGACTGAGTAATCGCGGAGATAACATT spacer
length: 42 repeater length: 25

3396 1758280 GTTTCTACTATCTTTTGATTCTGG CGTTATCCGAAAGGAGGATGCTGTAAAAGTAGCGCGGTATCTT spacer
length: 43 repeater length: 25

3397 1758348 GTTTCTACTATCTTTTGATTCTGG AGCTATATTCCTACTAGTTGAAGCGGTAACTCATTAAGAGTGTG
spacer length: 46 repeater length: 25

3398 1758419 GTTTCTACTATCTTTTGATTCTGG ACCAACTATCCTTATCGGCTGTCCCACGGCGTACCTCGGCTC spacer
length: 42 repeater length: 25

3399 1758486 GTTTCTACTATCTTTTGATTCTGG ATGCAGTACCTCGAGACTACGCCGCGTGTCTCGCCGTGATTAAG
spacer length: 44 repeater length: 25

3400 1758555 GTTTCTACTATCTTTTGATTCTGG CTTTGCCACTGCTTCAAATATCACCTTTGGCAAGCCTCT spacer
length: 39 repeater length: 25

3401 1758619 GTTTCTACTATCTTTTGATTCTGG GCGGACATAGTCGAGCCAGACGAGCGTAACTCGATAAC spacer
length: 38 repeater length: 25

3402 1758682 GTTTCTACTATCTTTTGATTCTGG CCACGTGATTATTACACCGAGGATTTAGCAATGATGTTACG spacer
length: 41 repeater length: 25

3403 1758748 GTTTCTACTATCTTTTGATTCTGG GCCTGGCAACAGAAGTGGCCCCCGTAGTCGGGAAAGTGCT spacer
length: 40 repeater length: 25

3404 1758813 GTTTCTACTATCTTTTGATTCTGG GTGACAGCTGTGACCCAGCCGCTTGCCACGTGCCCTGTAAGAA
spacer length: 44 repeater length: 25

3405 1758882 GTTTCTACTATCTTTTGATTCTGG TCGTGGAACGTGTCTGAAGCTAGGTGAACATGCCCTGTAGAGAT spacer
length: 43 repeater length: 25

3406 1758950 GTTTCTACTATCTTTTGATTCTGG GTAGTCAACTGGCTCAGAGGCCTCATTTAAGCCCAACTTAGTCCT
spacer length: 45 repeater length: 25

3407 1759020 GTTTCTACTATCTTTTGATTCTGG TACATCTGGCGCGCACGCTGTTGCCGGGGCTGTACATTATGCAA
spacer length: 44 repeater length: 25

3408 1759089 GTTTCTACTATCTTTTGATTCTGG TCTAAACTCTACGCTCATGCCACCTCCTCGGGTTTGTTCAGTAG
spacer length: 47 repeater length: 25

3409 1759161 GTTTCTACTATCTTTTGATTCTGG CTGGCATAAAGTTCAACTGAACGGGGGCCATTGGGTAATC spacer
length: 40 repeater length: 25

3410 1759226 GTTTCTACTATCTTTTGATTCTGG TCAGGACTGGGACAGGGCCCAGGCACCGACGCAGGCCAGGGCCC
spacer length: 44 repeater length: 25

3411 1759295 GTTTCTACTATCTTTTGATTCTGG GCCGATCTTCTACGCCGTCTTACCCCAAGCCGATGTTGGAGCTG
spacer length: 44 repeater length: 25

3412 1759364 GTTTCTACTATCTTTTGATTCTGG CGCGCGTAGTCCACGTAGCCGAAGAAGTCGTACATGTGGGGA spacer
length: 42 repeater length: 25

3413 1759431 GTTTCTACTATCTTTTGATTCTGG

3414

3415

3416 GCA_000015765.1_ASM1576v1_genomic.fna (PilerCR):

3417 START REPEAT
SPACER

3418 crispr 1

3419 839384 CCCCCGTGGGCACGTGGATTGAAAT GCTGCGAGGATATTCTGTTTCGCGCTGGATCAGAGTCGTG spacer
length: 39 repeater length: 25

3420 839448 CCCCCGTGGGCACGTGGATTGAAAT CCAAATTCAAAGGCATGAACTGGGTGATCCGACCTGTCGTG spacer
length: 41 repeater length: 25

3421 839514 CCCCCGTGGGCACGTGGATTGAAAT TGTTGTTTTCAAATTATCGCATTAATAATCTATCATCTTGTCTGTG
spacer length: 47 repeater length: 25

3422 839586 CCCCCGTGGGCACGTGGATTGAAAT TGTTGTCTCTGACGACCTCTTCGCGTGGCAAAAGTCGTG spacer
length: 39 repeater length: 25

3423 839650 CCCCCGTGGGCACGTGGATTGAAAT GATACGATTGAATCCAAAGCCACGACGATCAAGTCGTG spacer
length: 38 repeater length: 25

3424 839713 CCCCCGTGGGCACGTGGATTGAAAT TACCGGTAATACATACGTCGCTAAACAGTGGTAGTCGTG spacer
length: 39 repeater length: 25

3425 839777 CCCCCGTGGGCACGTGGATTGAAAT ACAGTGTATGTACCTGAATATCCTTGAAGTGTAGTCGTG spacer
length: 39 repeater length: 25

3426 839841 CCCCCGTGGGCACGTGGATTGAAAT ATACTGGGCGCCGTATCCGGACACAACCGCCCCGCGTCGTGC spacer
length: 42 repeater length: 25

3427 839908 CCCCCGTGGGCACGTGGATTGAAAT TTGCGATCTGATTATAAGACATACCTTTTTTATGTCTGTGC spacer
length: 40 repeater length: 25

3428 839973 CCCCCGTGGGCACGTGGATTGAAAT ATATATATGGTGTGGAATCATCAAACCATCAGTCGTGC spacer
length: 40 repeater length: 25

3429 840038 CCCCCGTGGGCACGTGGATTGAAAT AATGCCTCTATCCGAGACCGTGCCCTCCCTGAGGATAGAC

3430

3431

3432 crispr 2

3433 840175 GTGGGCACGTGGATTGAAAT ATCTCCTTTCTTGATAGTAATAATAGTATTCAAGTCGTGCCCCC spacer
length: 46 repeater length: 20

3434 840241 GTGGGCACGTGGATTGAAAT ATGTCTTCTTTGTTCTGTGTCAATCTCCAGTCGTGCCCCC spacer
length: 46 repeater length: 20

3435 840307 GTGGGCACGTGGATTGAAAT CTTGACGCCTGATATACCGTTAAGTTTAGACGTCGTGCCCCC spacer
length: 44 repeater length: 20

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3436 840371 GTGGGCACGTGGATTGAAAT CAAGACTCGCGTATAGATATAGCCGAAATATAGTCGTGCCCCC spacer
length: 44 repeater length: 20
3437 840435 GTGGGCACGTGGATTGAAAT GAATCTGAGTTCATGCCGCGGGTAAAGCGGTATCGTCGTGCCCCTT spacer
length: 46 repeater length: 20
3438 840501 GTGGGCACGTGGATTGAAAT CTCAACATCAACGAGGGAGATATCCTTGGAGTCCGTCGTGCCCCCT spacer
length: 46 repeater length: 20
3439 840567 GTGGGCACGTGGATTGAAAT CACATCCCCAAGCTCAAACAGGTGCAGAAGGACATCGTGGTGAA
3440
3441
3442 GCA_000015805.1_ASM1580v1_genomic.fna (PilerCR):
3443 START REPEAT
3444 SPACER
3445 crispr 1
3446 264903 GAGAAATCCCCAAAGGGGGTAGAAA CAGCTTGACGTACCAGAACAGTACCTCAAAATCTCTTAGGTCCCG spacer
length: 45 repeater length: 24
3447 264972 GAGAAATCCCCAAAGGGGGTAGAAA CACGAATTCGACGATTTTTTTGTTCAATGTCCATGTCAAAGTACA spacer
length: 45 repeater length: 24
3448 265041 GAGAAATCCCCAAAGGGGGTAGAAA GCAACTTTCTTCTACCCCGGGTAAGCGAGATGTATATGTAAAGCCA
spacer length: 46 repeater length: 24
3449 265111 GAGAAATCCCCAAAGGGGGTAGAAA TCCTTGTTGA
3450
3451 crispr 2
3452 1185324 CTTTCAATCCTCTTCTTGAGATTC CTTGCGCGTGGGTCTCGCGATTGGGTTTATTTAGGTGGGGGCATAG
spacer length: 47 repeater length: 24
3453 1185395 CTTTCAATCCTCTTCTTGAGATTC GGGTAATTAGGATATGGGAGGCCGCGGGTATGAAAAGATATG spacer
length: 42 repeater length: 24
3454 1185461 CTTTCAATCCTCTTCTTGAGATTC ATACTAACGTGTCCGCATATGAAACCTACGCATTAAGAG spacer
length: 39 repeater length: 24
3455 1185524 CTTTCAATCCTCTTCTTGAGATTC TCTATTTGTAAAGGGGCGAATTTACGCCGTTGTTAACTATGTAAA
spacer length: 46 repeater length: 24
3456 1185594 CTTTCAATCCTCTTCTTGAGATTC CTCGCCCCGCCCGGGAGTGGGGGTACGACGGGGGCCGGGGTCG spacer
length: 43 repeater length: 24
3457 1185661 CTTTCAATCCTCTTCTTGAGATTC ACCAGTTGACGAAGGTCTGGTCTCCGTGGTTGGACCAGTTCGAGAA
spacer length: 46 repeater length: 24
3458 1185731 CTTTCAATCCTCTTCTTGAGATTC GCCAGCGCTCTCTCCAGAGCTGGCTTCCGCATTATCTG spacer
length: 38 repeater length: 24
3459 1185793 CTTTCAATCCTCTTCTTGAGATTC CTTGCCTGCA
3460
3461
3462 crispr 3
3463 1188224 CTTTCAATCCTCTTCTTGAGATTC TTGCCAAGTACGGCTTCGACGTTGAGGATATAATACCGTCGGTGG
spacer length: 45 repeater length: 24
3464 1188293 CTTTCAATCCTCTTCTTGAGATTC CTACCCTTCCTCTCGATGGTGGCCCTGGAGAGAGATACTCAG spacer
length: 41 repeater length: 24
3465 1188358 CTTTCAATCCTCTTCTTGAGATTC TCACTATAGGAAGCGGGGCTATACGGTAGATACATACTATGAG spacer
length: 43 repeater length: 24
3466 1188425 CTTTCAATCCTCTTCTTGAGATTC TGGCCACGTGGTGCATGGTTATGATAACCACGCCGAGGCGTTAG spacer
length: 44 repeater length: 24
3467 1188493 CTTTCAATCCTCTTCTTGAGATTC TGTAGGTAGCTGTTTCCCCTTAACCCCTCCTTAAGCCTTTGGTAT
spacer length: 46 repeater length: 24
3468 1188563 CTTTCAATCCTCTTCTTGAGATTC GGTGGGTGGAGGTGGAGGTGCTATGACTGGCGAGTACGAGAGACTAA
spacer length: 47 repeater length: 24
3469 1188634 CTTTCAATCCTCTTCTTGAGATTC TCGTGACAGTCAACGGCCCCCTCCAGTGGGTGTGACAACGGCG spacer
length: 42 repeater length: 24
3470 1188700 CTTTCAATCCTCTTCTTGAGATTC ATCTAGAGACTCGGTGGGGGTGTATATGTCCCACAGCTTCTTAA spacer
length: 44 repeater length: 24
3471 1188768 CTTTCAATCCTCTTCTTGAGATTC CGCCAGGTCGGCGGCGGCCTTGTACACCCACCTCCTCACCTTCCG
spacer length: 45 repeater length: 24
3472 1188837 CTTTCAATCCTCTTCTTGAGATTC TGGGAGTCCACGCTTACGGATATCATTTTCACGTCGTTGTT spacer
length: 41 repeater length: 24
3473 1188902 CTTTCAATCCTCTTCTTGAGATTC TGCTTTATGACAAGAAGACACGTGGATGCGACCACAGTAGGAA spacer
length: 43 repeater length: 24
3474 1188969 CTTTCAATCCTCTTCTTGAGATTC CTATAGGGGCAAAGTGCGCCTACTGTGCACTGATGTGGGGTGCAATTGT
spacer length: 48 repeater length: 24
3475 1189041 CTTTCAATCCTCTTCTTGAGATTC GAGCGCACGTAAAGCGCTAGAGGGGGCGCGCACGTTCTTGCTAA spacer
length: 44 repeater length: 24
3476 1189109 CTTTCAATCCTCTTCTTGAGATTC CGTCCCCCGTCGTCGCCAGGACAACGTCGTTGTTGGAGAAG spacer
length: 41 repeater length: 24
3477 1189174 CTTTCAATCCTCTTCTTGAGATTC CCACAAACAATGCCCGCGCGCCTAGGCGCGCGGGGAAAGCGC spacer
length: 43 repeater length: 24

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3478 1189241 CTTTCAATCCTCTTCTTGAGATTC TGGTAAATGCACAGCGATTAATTCCATTTTTGCACCAGTAGA spacer
length: 42 repeater length: 24

3479 1189307 CTTTCAATCCTCTTCTTGAGATTC CCTCCACCTTCTCTGTCTGGCGCTTAGGGGTCTCGTGG spacer
length: 39 repeater length: 24

3480 1189370 CTTTCAATCCTCTTCTTGAGATTC CTCTCAAGTCCACGTGGCGGGGCGCCAGCTCCTCAATACGCC spacer
length: 42 repeater length: 24

3481 1189436 CTTTCAATCCTCTTCTTGAGATTC CAAATCTACCGCCGTTATACTCAATCATAGCGGCATAGTAT spacer
length: 41 repeater length: 24

3482 1189501 CTTTCAATCCTCTTCTTGAGATTC TCCTAAAGCGACCCTCCTTGCAACACTTCGCCACTAGCCACAGC spacer
length: 44 repeater length: 24

3483 1189569 CTTTCAATCCTCTTCTTGAGATTC CCCCCACCTACCGATACGTGGCGCGTGGCCCCGTGGTGCTG spacer
length: 42 repeater length: 24

3484 1189635 CTTTCAATCCTCTTCTTGAGATTC TACCAGCTTGACGTAGGCGGTGCCAGGCACCACCTCGCCCTCGA spacer
length: 44 repeater length: 24

3485 1189703 CTTTCAATCCTCTTCTTGAGATTC CTACACAGCCTCTATGTGCACTTGCCCCAGGCCTGGCTAAGTG spacer
length: 43 repeater length: 24

3486 1189770 CTTTCAATCCTCTTCTTGAGATTC CGCGCCGTGCATGTGGGCCGATGGGCGCGCAAAATATGTAGT spacer
length: 43 repeater length: 24

3487 1189837 CTTTCAATCCTCTTCTTGAGATTC CCACGTCGAAACCCACGTGGGGGGCCAGAGCGTTGACTAGC spacer
length: 41 repeater length: 24

3488 1189902 CTTTCAATCCTCTTCTTGAGATTC GCGGGCGAGGGCCACAGACACGGTCTCGCTTATGGACGCGT spacer
length: 41 repeater length: 24

3489 1189967 CTTTCAATCCTCTTCTTGAGATTC GGCGCTTGTCTACCAAATCTCGATTGGCAAGAGACAAGTGCAA spacer
length: 43 repeater length: 24

3490 1190034 CTTTCAATCCTCTTCTTGAGATTC CGAGGCCACGGCGGCGAGTGCGACATCTATAGCCAGACCG spacer
length: 41 repeater length: 24

3491 1190099 CTTTCAATCCTCTTCTTGAGATTC ATTACTGTGGACATGGCTCCTCGAATATCCGCCTTAACTGTGA spacer
length: 43 repeater length: 24

3492 1190166 CTTTCAATCCTCTTCTTGAGATTC CAGCCACGGGTAAACCACCATTGAAACAGTGTACATATGCGTAAATG
spacer length: 49 repeater length: 24

3493 1190239 CTTTCAATCCTCTTCTTGAGATTC AGGTGCCTGTTTGCAGAAGGCTATGATGAACGCACTATAAACGA spacer
length: 44 repeater length: 24

3494 1190307 CTTTCAATCCTCTTCTTGAGATTC GACAAAATAGTCAACGGCTTTCAACACGACATATAGCTGTATAC spacer
length: 44 repeater length: 24

3495 1190375 CTTTCAATCCTCTTCTTGAGATTC CGCTTATTGAAAAGCCAAGCGAGTACGCCATATCGGCAGGC spacer
length: 42 repeater length: 24

3496 1190441 CTTTCAATCCTCTTCTTGAGATTC GGTGAAGGTGGCCACAGTGCTTAAGGCCCTGTGCAAAAAGCT spacer
length: 42 repeater length: 24

3497 1190507 CTTTCAATCCTCTTCTTGAGATTC GCAGAAGCGC

3498

3499

3500 crispr 4

3501 1203350 GAATCTCAAGAAGAGGATTGAAAG GTTGTACGCCGCCGAGCGGGAGCGACGCGGTGGTTTGGTTT spacer
length: 41 repeater length: 24

3502 1203415 GAATCTCAAGAAGAGGATTGAAAG TCCTCTTGGATCAACTACCACCGTTACCACTACGACTCAGGTGCGA
spacer length: 46 repeater length: 24

3503 1203485 GAATCTCAAGAAGAGGATTGAAAG ACTGTCAGCGATCCAGCTCCACCACCCGCTCCGGAGGACAC spacer
length: 41 repeater length: 24

3504 1203550 GAATCTCAAGAAGAGGATTGAAAG CTCTATACGCCGTCGCCAGGATAAGCTCATTGCTTACAACAGT spacer
length: 43 repeater length: 24

3505 1203617 GAATCTCAAGAAGAGGATTGAAAG TCCAAAACCTAGACGCCCTCCTCCAGTCACCGTCGGGACTTTG spacer
length: 43 repeater length: 24

3506 1203684 GAATCTCAAGAAGAGGATTGAAAG AATCACTCCGGACCCGCTATTAATCGTGGCGGGGTTCAACCGTCA
spacer length: 45 repeater length: 24

3507 1203753 GAATCTCAAGAAGAGGATTGAAAG ATATATTGAATCAATAAGGTCCGACGACACCCGTTCAAGCAGGGACCCG
spacer length: 49 repeater length: 24

3508 1203826 GAATCTCAAGAAGAGGATTGAAAG TGACCTCTGGGGTCTCCTCCTCTTTATCAACGTAGACCCTTTTGT
spacer length: 45 repeater length: 24

3509 1203895 GAATCTCAAGAAGAGGATTGAAAG ACTCTATGCGGCCACGAATTCCTCAGACTCAAGCGTAG spacer
length: 39 repeater length: 24

3510 1203958 GAATCTCAAGAAGAGGATTGAAAG GCCCTCACCGTGTTGATATTGACGCTCGCATACATATTATTGT spacer
length: 44 repeater length: 24

3511 1204026 GAATCTCAAGAAGAGGATTGAAAG ACAGACCTCTTGAGGAGGTTTCGAGGGGTCGAGGTGTCCCTCGCC
spacer length: 45 repeater length: 24

3512 1204095 GAATCTCAAGAAGAGGATTGAAAG ATTGGCGTTGGCGTCCCGGTGAAAATACTGCGCCACGATGGGAGG
spacer length: 45 repeater length: 24

3513 1204164 GAATCTCAAGAAGAGGATTGAAAG ATAGTACTTGCCAGAGCCTAACACGACTATAGTGTTCATAT spacer
length: 42 repeater length: 24

3514 1204230 GAATCTCAAGAAGAGGATTGAAAG CATTTTTGCGGCGGCGAGCTCCTCGCCGAATAGCAAGCG spacer
length: 39 repeater length: 24

3515 1204293 GAATCTCAAGAAGAGGATTGAAAG TCTGGCGCACCAATCTCGTACACGTCCCCACCTCATCTACGA spacer

length: 43 repeater length: 24
 3516 1204360 GAATCTCAAGAAGAGGATTGAAAG TTGGGCGCCTTTACCACGGGGGCCGATTTATGATTACTATAGAT
 spacer length: 45 repeater length: 24
 3517 1204429 GAATCTCAAGAAGAGGATTGAAAG TTTCCAGTGTGAAAAAATATCGGTTACTACAGTGTGAATTATGC spacer
 length: 44 repeater length: 24
 3518 1204497 GAATCTCAAGAAGAGGATTGAAAG CCGCACCCGCGATAGGCCTAACCCTTCATGATGCTAT spacer
 length: 39 repeater length: 24
 3519 1204560 GAATCTCAAGAAGAGGATTGAAAG TCCTCGCCACCTGCCTGACGACGAGGGCGCACTCCTCCGAGCG spacer
 length: 44 repeater length: 24
 3520 1204628 GAATCTCAAGAAGAGGATTGAAAG TAGCTTTGGTAGCGGCAGTGTGAAGTGCCCCTCTGGGCCATCAA spacer
 length: 44 repeater length: 24
 3521 1204696 GAATCTCAAGAAGAGGATTGAAAG ATTTCAAAGCCACGTTTGGGTAAACTGTATAACTCTGTCCAA spacer
 length: 43 repeater length: 24
 3522 1204763 GAATCTCAAGAAGAGGATTGAAAG CTCCTGGCGCAGATGTTATTGCATTTGGCAGAGATGTGCG spacer
 length: 40 repeater length: 24
 3523 1204827 GAATCTCAAGAAGAGGATTGAAAG TATTGCTCCCTCAGCTCCCTAGCCAGCCTCTGCGCCCTGTCA spacer
 length: 42 repeater length: 24
 3524 1204893 GAATCTCAAGAAGAGGATTGAAAG AGTCCACCAGCACCGCGGTGGGCGCACGCGGTGCGCAAGGGCCG
 spacer length: 45 repeater length: 24
 3525 1204962 GAATCTCAAGAAGAGGATTGAAAG TCTTTTTTGGGGGGCGTTCCTGCGCCCCCTAAACCCCTTTGCC spacer
 length: 44 repeater length: 24
 3526 1205030 GAATCTCAAGAAGAGGATTGAAAG CCTACGTGGCCAATCTCGTGGCCGACCAGCTTCTCAGTCG spacer
 length: 40 repeater length: 24
 3527 1205094 GAATCTCAAGAAGAGGATTGAAAG CAGGCTGGCACAGAGTGGGGACCTGCCCCCTCGTCCTCTCTAC spacer
 length: 41 repeater length: 24
 3528 1205159 GAATCTCAAGAAGAGGATTGAAAG TTATTACCGTGCGCCTTATTTTGCCAATAGTGTCTTCTCCTC spacer
 length: 43 repeater length: 24
 3529 1205226 GAATCTCAAGAAGAGGATTGAAAG TACGTATTTGGGCCCACACGTCTTGTGTAATCGCACGAGACCAC spacer
 length: 44 repeater length: 24
 3530 1205294 GAATCTCAAGAAGAGGATTGAAAG CACTTTGGGCATGGGTGCTGTGGTGCAACAGCTTTCCTCTAC spacer
 length: 43 repeater length: 24
 3531 1205361 GAATCTCAAGAAGAGGATTGAAAG TCGCCCGCAACGCCAACAGGCGGGTCTGCAGGCATTCGGCCCT spacer
 length: 43 repeater length: 24
 3532 1205428 GAATCTCAAGAAGAGGATTGAAAG TCGCGGAGAGGAATATCGTGTATAACTACGGAGAGACGCG spacer
 length: 40 repeater length: 24
 3533 1205492 GAATCTCAAGAAGAGGATTGAAAG ATGTAGCGCGCCAGTATTCGATTATATAGCCAGCCACGTATTG spacer
 length: 44 repeater length: 24
 3534 1205560 GAATCTCAAGAAGAGGATTGAAAG TGTATGAATCCCACTATCGCATCGCTAATAGACTTAAACTCAGCC
 spacer length: 45 repeater length: 24
 3535 1205629 GAATCTCAAGAAGAGGATTGAAAG CAGACCGTGAGGCCGCCCCACCGGTTAAAGGTGTTATG spacer
 length: 39 repeater length: 24
 3536 1205692 GAATCTCAAGAAGAGGATTGAAAG CTTTATCTCGCTCTCCCTTTTTTGCTCTACTACGTTACCCATGG spacer
 length: 44 repeater length: 24
 3537 1205760 GAATCTCAAGAAGAGGATTGAAAG CATGGGAGACGTAAACGCCGTTGTGTCCAACGTCTATGCAGTAAACG
 spacer length: 47 repeater length: 24
 3538 1205831 GAATCTCAAGAAGAGGATTGAAAG ACGGTCTTG
 3539
 3540
 3541 crispr 5
 3542 1669192 CCTTTCAATCCTCTTCTTGAGATTC GATAAACATGGCCGCAAACGCCTCCAAGGACGACGTGTAC spacer
 length: 40 repeater length: 25
 3543 1669257 CCTTTCAATCCTCTTCTTGAGATTC ACACCCGCTTCTTGGACGACGCCATTGACAGAAGCTGCA spacer
 length: 39 repeater length: 25
 3544 1669321 CCTTTCAATCCTCTTCTTGAGATTC
 3545
 3546
 3547 GCA_000015825.1_ASM1582v1_genomic.fna (PilerCR):
 3548 START REPEAT
 SPACER
 3549 GCA_000015945.1_ASM1594v1_genomic.fna (PilerCR):
 3550 START REPEAT
 SPACER
 3551 crispr 1
 3552 330611 CTTTCAATTCTTTCTATGTTGTTAC CCAACTCTGCTACGTCCTAGCACTCTAACAGGTATCTTTG spacer
 length: 40 repeater length: 25
 3553 330676 CTTTCAATTCTTTCTATGTTGTTAC TCTCGGAATAAATCTTAAATATAGAACTTGGGGAACGAAA spacer
 length: 40 repeater length: 25
 3554 330741 CTTTCAATTCTTTCTATGTTGTTAC ATGGCTCTACTAATGCTATCAACATGGATAACGAAGAATATTA spacer
 length: 43 repeater length: 25
 3555 330809 CTTTCAATTCTTTCTATGTTGTTAC CCCGCTCGAGTAACGGGGGGCAGACACGGGGCTTAGAG spacer
 length: 39 repeater length: 25

3556 330873 CTTTCAATTCTTTCTATGTTGTTAC GTATATTTGTTCCCGATTTAAGACCGTTTATTATACAGTTAC spacer
length: 42 repeater length: 25

3557 330940 CTTTCAATTCTTTCTATGTTGTTAC CAATGATTACCCAGAAAGAGATCGTTGAATATGTTAGGAA spacer
length: 40 repeater length: 25

3558 331005 CTTTCAATTCTTTCTATGTTGTTAC TTAAGACATGGGAAAACCCAAATTTTAACTGTAAATGTT spacer
length: 40 repeater length: 25

3559 331070 CTTTCAATTCTTTCTATGTTGTTAC TTGTCCGTGATATTTCTAATGGGTTTTCCATATAGTATTCTG spacer
length: 42 repeater length: 25

3560 331137 CTTTCAATTCTTTCTATGTTGTTAC GCTTCCTTCG

3561

3562

3563 crispr 2

3564 332545 CTTTCAATTCTTTCTATGTTGTTAC CTATCACTTCTATTTTGATCTATGGGAGGAGAACCCGTTA spacer
length: 40 repeater length: 25

3565 332610 CTTTCAATTCTTTCTATGTTGTTAC GAGAAAATACTGCGTGAACCTCTAAGCATGATTGTGCGAG spacer
length: 40 repeater length: 25

3566 332675 CTTTCAATTCTTTCTATGTTGTTAC ATTGACTCCTAATTTGTTTCTGCAAAAACGTGATATGCT spacer
length: 39 repeater length: 25

3567 332739 CTTTCAATTCTTTCTATGTTGTTAC TTAGAGTTACCTAGGGAACAGGTTTACGACTTAGTAACTCAAT spacer
length: 43 repeater length: 25

3568 332807 CTTTCAATTCTTTCTATGTTGTTAC ATACACCGATCGAAGTTATTGAAGAATACGAGAGGGGAAATAT spacer
length: 42 repeater length: 25

3569 332874 CTTTCAATTCTTTCTATGTTGTTAC AAATACACTTGTCCAATATGCGGTAAAGAGTTTAAGAGTG spacer
length: 40 repeater length: 25

3570 332939 CTTTCAATTCTTTCTATGTTGTTAC ATGGATTGTAATAAAATACAGAGCCGATTGGAGCTGGAA spacer
length: 39 repeater length: 25

3571 333003 CTTTCAATTCTTTCTATGTTGTTAC TAGGGGGCAAGATCAAGGTTAGCCTCAAGGCTATGGCTAC spacer
length: 40 repeater length: 25

3572 333068 CTTTCAATTCTTTCTATGTTGTTAC TGTGTGTGTGTGGGTGTTGTTGTGTTTTTTGTGTGTCT spacer
length: 40 repeater length: 25

3573 333133 CTTTCAATTCTTTCTATGTTGTTAC TTAGAGTTACCTAGGGAACAGGTTTACGACTTAGTAACTCAAT spacer
length: 43 repeater length: 25

3574 333201 CTTTCAATTCTTTCTATGTTGTTAC CATTTGAAGTATTTTCGGCTAGACGTTTCCAGCCCATGTAT spacer
length: 40 repeater length: 25

3575 333266 CTTTCAATTCTTTCTATGTTGTTAC TAATATAAATAAGAGTGAGGATAAGAAGCAAGAAAAATA spacer
length: 40 repeater length: 25

3576 333331 CTTTCAATTCTTTCTATGTTGTTAC ACCATCTGGTGAACGGGCCATTGGTGCTGTATGGTATAG spacer
length: 39 repeater length: 25

3577 333395 CTTTCAATTCTTTCTATGTTGTTAC CAAGCCATTCAAGCCATTGAACTATTTTTTTATGCATA spacer
length: 38 repeater length: 25

3578 333458 CTTTCAATTCTTTCTATGTTGTTAC TGCTGGGTCA

3579

3580

3581 crispr 3

3582 336666 GTAGCAACATAGAAAAGAATTGAAAG CCTCATAAAAACAATGTCTTAAAAACAATTATATTTAA spacer
length: 39 repeater length: 25

3583 336730 GTAGCAACATAGAAAAGAATTGAAAG CTCAGCAATCAGCTTATTATCTCTATAAACCCCTGATATTG spacer
length: 40 repeater length: 25

3584 336795 GTAGCAACATAGAAAAGAATTGAAAG TTCTTTTCTTGAGGGCTTCTCTAAGGGTTTTCGGCTACTAT spacer
length: 40 repeater length: 25

3585 336860 GTAGCAACATAGAAAAGAATTGAAAG TAGGCGAGGACGACATGGTTAGGTGGAGAGCGAGAACCCGTT spacer
length: 42 repeater length: 25

3586 336927 GTAGCAACATAGAAAAGAATTGAAAG TCCCCCGCCACACCACGCACACAAAACATGCATGCAAAA spacer
length: 39 repeater length: 25

3587 336991 GTAGCAACATAGAAAAGAATTGAAAG TTGTAGAATAGCCTGGGCTACTGCCTCTACCTTCTCTTTA spacer
length: 40 repeater length: 25

3588 337056 GTAGCAACATAGAAAAGAATTGAAAG TTTATCCCCACAAACCTTAGCAGTATATCGTATAACTG spacer
length: 38 repeater length: 25

3589 337119 GTAGCAACATAGAAAAGAATTGAAAG CGGACTCGGTTTTGCCAGCGATATCGGGGTAGCGGATGT spacer
length: 39 repeater length: 25

3590 337183 GTAGCAACATAGAAAAGAATTGAAAG GTCCATAAATTTGTGGAGCATACTCTACTAGCATTTTCAT spacer
length: 39 repeater length: 25

3591 337247 GTAGCAACATAGAAAAGAATTGAAAG AAGATTAATGGAATTGCAACGCTTATTAATGCTATTATTAG spacer
length: 41 repeater length: 25

3592 337313 GTAGCAACATAGAAAAGAATTGAAAG CTGCCGTATCAAGCTTCGGCACAATTTTTGTCCTAAATAT spacer
length: 40 repeater length: 25

3593 337378 GTAGCAACATAGAAAAGAATTGAAAG TTAGAGACCTATGCGTCCTAATAGAGGTATTGCTCTCCTAG spacer
length: 41 repeater length: 25

3594 337444 GTAGCAACATAGAAAAGAATTGAAAG ATAGGAACCGCTCTGTGGCATGCGTTTATAGAAATTG spacer
length: 37 repeater length: 25

3595 337506 GTAGCAACATAGAAAAGAATTGAAAG AGAGATACAGCGAGATAGATTATACGCCGACAATTGACCAA spacer

length: 41 repeater length: 25
3596 337572 GTAGCAACATAGAAAAGAATTGAAAG CGGAACCGCA
3597
3598
3599 crispr 4
3600 350839 GTAACAACATAGAAAAGAATTGAAAG CGCTGGAGACTGGGTCTATGTGATACTGTGGAGATCTCCC spacer
length: 40 repeater length: 25
3601 350904 GTAACAACATAGAAAAGAATTGAAAG AGCTAGGGGGGATATAGCACCAGATACTCCTATATCCTCA spacer
length: 40 repeater length: 25
3602 350969 GTAACAACATAGAAAAGAATTGAAAG ATTATATATATTGTTTGGTATACATTTACTATTTTTAAT spacer
length: 39 repeater length: 25
3603 351033 GTAACAACATAGAAAAGAATTGAAAG TCGAACCATATAGACATTCTCCCATTCGCACTAACTGTAAA spacer
length: 41 repeater length: 25
3604 351099 GTAACAACATAGAAAAGAATTGAAAG GGCATCCACG
3605
3606
3607 crispr 5
3608 394572 CTTTCAATTCTTTCTATGTTGTTAC GTGGATGCTAGAAAGATGATGGTGGAGAGGATAAAAAA spacer
length: 38 repeater length: 25
3609 394635 CTTTCAATTCTTTCTATGTTGTTAC ACTACTAAATATTATGGTGTGAAAGATGGGGGTTCCTCAG spacer
length: 39 repeater length: 25
3610 394699 CTTTCAATTCTTTCTATGTTGTTAC CCCGTAACAGTAACTGCAACTGCAACAGCACCCGTTATTAG spacer
length: 41 repeater length: 25
3611 394765 CTTTCAATTCTTTCTATGTTGTTAC ATATTTATCTGGCATAAGCTATGTTGAACTGCGTGCATTAC spacer
length: 41 repeater length: 25
3612 394831 CTTTCAATTCTTTCTATGTTGTTAC CTAAATAATTGAAAGAGCCGAACATGTTGTCAGAACCAT spacer
length: 40 repeater length: 25
3613 394896 CTTTCAATTCTTTCTATGTTGTTAC TCTGTTTCGAG
3614
3615
3616 crispr 6
3617 395455 GTAACAACATAGAAAAGAATTGAAAG TCGACATCGATCCAGTATCTGTTCCCCGACCCGATCGAT spacer
length: 38 repeater length: 25
3618 395518 GTAACAACATAGAAAAGAATTGAAAG CCCTTTGTCTAGGCATACCCTAAAGTTTGCATATTGAT spacer
length: 38 repeater length: 25
3619 395581 GTAACAACATAGAAAAGAATTGAAAG CCCTTTGTCTAGGCATACCCTAAAGTTTGCATATTGAT spacer
length: 38 repeater length: 25
3620 395644 GTAACAACATAGAAAAGAATTGAAAG CCTTTTTTCTCGTATTGCCTGAATACTTCGTTAGGCAGT spacer
length: 40 repeater length: 25
3621 395709 GTAACAACATAGAAAAGAATTGAAAG CCCTCAAGCGAGTCCAGTAGTTCTCCTATATAATTGCTA spacer
length: 39 repeater length: 25
3622 395773 GTAACAACATAGAAAAGAATTGAAAG TAAACATCCTGCTAAAGCAAATACGTATCTATTGGAGTAT spacer
length: 40 repeater length: 25
3623 395838 GTAACAACATAGAAAAGAATTGAAAG CCATCTTTCGTTCTCACATATACCCAATCACCAGCTGGAT spacer
length: 40 repeater length: 25
3624 395903 GTAACAACATAGAAAAGAATTGAAAG TGAACAACCCGCCTTTACTCCTTTTGCTCTTCCTTTTTCT spacer
length: 40 repeater length: 25
3625 395968 GTAACAACATAGAAAAGAATTGAAAG CATATGTGGA
3626
3627
3628 crispr 7
3629 564438 GTAACAACATAGAAAAGAATTGAAAG GCAGAAATACAACAAACATGGTTTCACATATAGGGGATTG spacer
length: 40 repeater length: 25
3630 564503 GTAACAACATAGAAAAGAATTGAAAG TTTCTTTGCTAGTATAACAGCTTCGCTTAAATCACTCGGTG spacer
length: 41 repeater length: 25
3631 564569 GTAACAACATAGAAAAGAATTGAAAG TCATTCTTCCAAGCATAATATAATGCTGTCATGATAGTG spacer
length: 39 repeater length: 25
3632 564633 GTAACAACATAGAAAAGAATTGAAAG ATAAGCATTGTTGCTTGCCGTAATTGTTACTGATACAG spacer
length: 38 repeater length: 25
3633 564696 GTAACAACATAGAAAAGAATTGAAAG TCATATAATCGTCTTTTTTCTGCTTTATTCATGTTAAT spacer
length: 38 repeater length: 25
3634 564759 GTAACAACATAGAAAAGAATTGAAAG ATTGTTTCAAATGTTTCGCCTTGTTTCTCCAGTTTGCGGG spacer
length: 40 repeater length: 25
3635 564824 GTAACAACATAGAAAAGAATTGAAAG ATACAAGACGACTATCCCAAAGAAAAATATAGATTGATTG spacer
length: 40 repeater length: 25
3636 564889 GTAACAACATAGAAAAGAATTGAAAG TGAAAGTATCTGTTCAAATATTTCTTAACAATTTCAACTA spacer
length: 40 repeater length: 25
3637 564954 GTAACAACATAGAAAAGAATTGAAAG TTAGTCCGAGCCATTTCTCCAAGATGTCTGGAAGAACAG spacer
length: 39 repeater length: 25
3638 565018 GTAACAACATAGAAAAGAATTGAAAG TATTATCAATTCTTGGAACAGGCATAATATCACTAGCAT spacer
length: 39 repeater length: 25

3639 565082 GTAACAACATAGAAAAGAATTGAAAG ATTATTTTATGCTCGGCATCAGGCTCAACAATAAAGTCTTA spacer
length: 40 repeater length: 25
3640 565147 GTAACAACATAGAAAAGAATTGAAAG CCGCTTTGTCTTCAAACTCTCGCCTGGTCTTTGCCACT spacer
length: 39 repeater length: 25
3641 565211 GTAACAACATAGAAAAGAATTGAAAG TTTACTAGTTTAACTGTTACTGTTTTACTGGCATCTGCAT spacer
length: 40 repeater length: 25
3642 565276 GTAACAACATAGAAAAGAATTGAAAG GCCGGCCCCCT
3643
3644
3645 crispr 8
3646 592338 CTTTCAATTCTTTCTATGTTGTTAC TTAGCCCAACAAACAAGAATGAACTGGAATGGCTTACACT spacer
length: 40 repeater length: 25
3647 592403 CTTTCAATTCTTTCTATGTTGTTAC AGAAATAGCGTTTCTGCGTTTCGCATTCTATAAAGCTTGG spacer
length: 40 repeater length: 25
3648 592468 CTTTCAATTCTTTCTATGTTGTTAC TTATGTTGTTGAAAATAATATTGAATATAAGATAGATAAAA spacer
length: 41 repeater length: 25
3649 592534 CTTTCAATTCTTTCTATGTTGTTAC CGATTGATACAATTAATTAATATGAATAAGGCTGAGAAA spacer
length: 39 repeater length: 25
3650 592598 CTTTCAATTCTTTCTATGTTGTTAC GCAAATATACATTGCCCCGAGAGAGAACAGGGAGTTAAAA spacer
length: 39 repeater length: 25
3651 592662 CTTTCAATTCTTTCTATGTTGTTAC TTATTTTATTTTTATAAAAAGACAGGCTAGGTGAGCAAG spacer
length: 39 repeater length: 25
3652 592726 CTTTCAATTCTTTCTATGTTGTTAC ATAGTGTGTGAATCTACTAGCTAAGGCGGTAGCTATGAG spacer
length: 39 repeater length: 25
3653 592790 CTTTCAATTCTTTCTATGTTGTTAC TAAAACCATTACACCTAAAAGCTGGATCGACATGGTTGA spacer
length: 39 repeater length: 25
3654 592854 CTTTCAATTCTTTCTATGTTGTTAC TTTGTTATGCGGGAATAGGGTCCTTTTTCATCTACTAAT spacer
length: 39 repeater length: 25
3655 592918 CTTTCAATTCTTTCTATGTTGTTAC TAACCGAGAGAATACCCCCATTCGTTGATTACTGTAATAG spacer
length: 40 repeater length: 25
3656 592983 CTTTCAATTCTTTCTATGTTGTTAC CTAACTCCCTCGAGGGGGTTCGCGGGGGTGGTGAAGATAAGA spacer
length: 42 repeater length: 25
3657 593050 CTTTCAATTCTTTCTATGTTGTTAC TAACCGAGAGAATACCCCCATTCGTTGATTACTGTAATAG spacer
length: 40 repeater length: 25
3658 593115 CTTTCAATTCTTTCTATGTTGTTAC CTAACTCCCTCGAGGGGGTTCGCGGGGGTGGTGAAGATAAGA spacer
length: 42 repeater length: 25
3659 593182 CTTTCAATTCTTTCTATGTTGTTAC TAACCGAGAGAATACCCCCATTCGTTGATTACTGTAATAG spacer
length: 40 repeater length: 25
3660 593247 CTTTCAATTCTTTCTATGTTGTTAC CATCGTCCATA
3661
3662
3663 crispr 9
3664 597052 GTAACAACATAGAAAAGAATTGAAAG ACCGCCCTAGGAGAGGGCTCGAGCCCTGATTTGCTCCACAA spacer
length: 41 repeater length: 25
3665 597118 GTAACAACATAGAAAAGAATTGAAAG GTATCAAGTATCCATTACTGCCTTTCACGACACGATAATCA spacer
length: 41 repeater length: 25
3666 597184 GTAACAACATAGAAAAGAATTGAAAG TTCCTAAGAACTCTATTCTTGATCACTATCTTCTCC spacer
length: 38 repeater length: 25
3667 597247 GTAACAACATAGAAAAGAATTGAAAG TGTATTTCATAGCCATTATAATACTAATGGCTAGAAGGGGG spacer
length: 41 repeater length: 25
3668 597313 GTAACAACATAGAAAAGAATTGAAAG TTAAGTAGAATTGTTGAACGGCTAACTGGATTTGACATGTTA spacer
length: 42 repeater length: 25
3669 597380 GTAACAACATAGAAAAGAATTGAAAG TATGTAGTTTCTCGGCTATATGATCTATTATGGAGAGTGT spacer
length: 40 repeater length: 25
3670 597445 GTAACAACATAGAAAAGAATTGAAAG AAAACAAGTGCTCTAATGCCTTATCCCAATCCCTATACA spacer
length: 40 repeater length: 25
3671 597510 GTAACAACATAGAAAAGAATTGAAAG CTTGCCATTCTATTGCCGAGGATATTGAATGATCCAGGA spacer
length: 39 repeater length: 25
3672 597574 GTAACAACATAGAAAAGAATTGAAAG TGTCCAATAATGAACGTAATTGTTTTCCCGATCTCGGTAT spacer
length: 40 repeater length: 25
3673 597639 GTAACAACATAGAAAAGAATTGAAAG TAACTAATCCTAACGCAGATCCCATTTCTTTCATACTTGT spacer
length: 40 repeater length: 25
3674 597704 GTAACAACATAGAAAAGAATTGAAAG CTTATTGGAGAAAATACTTAGTGAACCTCTCCAAGCATGATTGT spacer
length: 43 repeater length: 25
3675 597772 GTAACAACATAGAAAAGAATTGAAAG ATTATTGCAAATATTAAGTGTGCAACATCGCGTAAAGTAG spacer
length: 40 repeater length: 25
3676 597837 GTAACAACATAGAAAAGAATTGAAAG CCCCACCTATACGCACCGGCTCAGTTGAAGTGGCTGGTG spacer
length: 40 repeater length: 25
3677 597902 GTAACAACATAGAAAAGAATTGAAAG TGTATTCGTCTTGACATGTATTGTTATGCTACCGCTC spacer
length: 38 repeater length: 25
3678 597965 GTAACAACATAGAAAAGAATTGAAAG CGCTTTTTCTAATGCAATTGTGAATTTTCTTCTATCTGG spacer

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length: 39 repeater length: 25
3679 598029 GTAACAACATAGAAAAGAATTGAAAG TAAGCTTGAGGGGAAAACCGAGATAGTGTGAGAAACGAT spacer
length: 39 repeater length: 25
3680 598093 GTAACAACATAGAAAAGAATTGAAAG CGTCAGACAT
3681
3682
3683 crispr 10
3684 602803 CTTTCAATTCTTTCTGTGTTGCTAC ATCGCAGGGGCGAGTTCTAGGAACCATTGTCCCCGGTATC spacer
length: 39 repeater length: 25
3685 602867 CTTTCAATTCTTTCTGTGTTGCTAC ATATGAGAATAAGAGCTTCGAGGACATAGATAGAGAAAAGAAT spacer
length: 42 repeater length: 25
3686 602934 CTTTCAATTCTTTCTGTGTTGCTAC CCCCAGGAATCGTTAAGTGCTTTCTGGGCAAACACTAG spacer
length: 39 repeater length: 25
3687 602998 CTTTCAATTCTTTCTGTGTTGCTAC ATAAACAACA
3688
3689
3690 crispr 11
3691 1553943 CTTTCAATTCTTTCTATGTTGTTAC CATTATGTCCCCCGTATCACTAGAGCTTGTAAGTCTCATACA spacer
length: 41 repeater length: 25
3692 1554009 CTTTCAATTCTTTCTATGTTGTTAC ATTGGCATCCACAATGTTATTGTTTTTATGGGTTTCCTG spacer
length: 39 repeater length: 25
3693 1554073 CTTTCAATTCTTTCTATGTTGTTAC TTCAAGCCCTGATATACCTTCTCAGCAACATTTAATGTT spacer
length: 39 repeater length: 25
3694 1554137 CTTTCAATTCTTTCTATGTTGTTAC AACTATTATATTGGATCCCGCCTTGTAAGTGTATGTAT spacer
length: 40 repeater length: 25
3695 1554202 CTTTCAATTCTTTCTATGTTGTTAC TCTACAAATCTGAAAAAGACCTTATCGAGGTTGATACTGA spacer
length: 40 repeater length: 25
3696 1554267 CTTTCAATTCTTTCTATGTTGTTAC CTATACTATTACATTCGAGGGCTACCCCAATACTAAGC spacer
length: 38 repeater length: 25
3697 1554330 CTTTCAATTCTTTCTATGTTGTTAC ACTTTAATTTCTGTATAATTTGAAGCATCAACAGTTACTACTATG
spacer length: 45 repeater length: 25
3698 1554400 CTTTCAATTCTTTCTATGTTGTTAC TTTACGATGTT
3699
3700
3701 crispr 12
3702 1564218 CTTTCAATTCTTTCTGTGTTGTTAC TTTTAAGTATTGGTGGTTTTTCTGAAGCTCTCTATTAT spacer
length: 38 repeater length: 25
3703 1564281 CTTTCAATTCTTTCTGTGTTGTTAC CAATAAATATATAAACTTTAAGTTAGCTAAATTTTTTACA spacer
length: 39 repeater length: 25
3704 1564345 CTTTCAATTCTTTCTGTGTTGTTAC ACTACCCATGAACACCCAACCATATTCTACCGAAACCTT spacer
length: 39 repeater length: 25
3705 1564409 CTTTCAATTCTTTCTGTGTTGTTAC GAAAGAGCTATTGAACAACAACATAGAACTAGCATTTAA spacer
length: 39 repeater length: 25
3706 1564473 CTTTCAATTCTTTCTGTGTTGTTAC TCCCTGAGGAT
3707
3708
3709 GCA_000016385.1_ASM1638v1_genomic.fna (PilerCR):
3710 START REPEAT
SPACER
3711 crispr 1
3712 999186 GAATCTCAAAAAGAGGATTGAAAG AACCCGCCAAGGCATTACTGGATCGCCGCCGTCGTTTTGACTA spacer
length: 43 repeater length: 24
3713 999253 GAATCTCAAAAAGAGGATTGAAAG CGTATATGTGGAGCTCTGGGGGTATCCTGACCCCTCTAT spacer
length: 40 repeater length: 24
3714 999317 GAATCTCAAAAAGAGGATTGAAAG AGCAGGACGTGTCTAAACAGCTTGACAGAATTGCATCCTTGGCACAGC
spacer length: 48 repeater length: 24
3715 999389 GAATCTCAAAAAGAGGATTGAAAG AGACGATGTAGTCTTGGCTTGGGCCGTCTTTATACACGCCGAAGCCG
spacer length: 47 repeater length: 24
3716 999460 GAATCTCAAAAAGAGGATTGAAAG GTCATCACGAAGTATAGTATCAACCCGCCGGCTACTGCGATAACT spacer
length: 45 repeater length: 24
3717 999529 GAATCTCAAAAAGAGGATTGAAAG TGCCGTACTACGGCAAAGCAATATACGTCGTTAAAGAGAACT spacer
length: 42 repeater length: 24
3718 999595 GAATCTCAAAAAGAGGATTGAAAG AAGCTGTACATCGCCTCTGAGCCCAACGTCTTCTACGGCGAG spacer
length: 42 repeater length: 24
3719 999661 GAATCTCAAAAAGAGGATTGAAAG TCATCATGGCCATAAACACGAAGAGCCACGGCGAGAAGCCCCAT spacer
length: 44 repeater length: 24
3720 999729 GAATCTCAAAAAGAGGATTGAAAG GACGTTAACTGCTGAGTACACTTCACGCTCGTGCAACAGCTTAAG spacer
length: 45 repeater length: 24
3721 999798 GAATCTCAAAAAGAGGATTGAAAG GCCAGAGACATTGCGCGTATTGTTGCGCAGGCTGGCGTCCTACT spacer
length: 44 repeater length: 24
3722 999866 GAATCTCAAAAAGAGGATTGAAAG ACTAACGCAGCAATCACTATCACCACCGCGATTATTAGTATTGTT spacer

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length: 45 repeater length: 24
3723 999935 GAATCTCAAAAAGAGGATTGAAAG TTTGCACGGCGAATGTAGCTATCTGCCCCGCTGTTGTAATAAG spacer
length: 43 repeater length: 24
3724 1000002 GAATCTCAAAAAGAGGATTGAAAG CTGCTGGGTCTGGGCGCATCTGTTGCGTTAACTACGTTG spacer
length: 39 repeater length: 24
3725 1000065 GAATCTCAAAAAGAGGATTGAAAG CCAAAACCGTGAGGCCCGCTCCAGTCTCCGTCTGGACTTTCT spacer
length: 43 repeater length: 24
3726 1000132 GAATCTCAAAAAGAGGATTGAAAG AAAAGGTTTTGTACGGCGAGGCCACGTACTTCCACTTAAACATGGC
spacer length: 46 repeater length: 24
3727 1000202 GAATCTCAAAAAGAGGATTGAAAG ATCTGAATACCGTGGCCGGCATCGATGCAGTTGACGACGACGAA spacer
length: 44 repeater length: 24
3728 1000270 GAATCTCAAAAAGAGGATTGAAAG CAGCTCTCTTCTTTTTTCCCGCCCGCCTTTTTGCAAAAATAAAT
spacer length: 45 repeater length: 24
3729 1000339 GAATCTCAAAAAGAGGATTGAAAG GGAAGGCATGTGGCGAAGAGGATAAGTTTGACAGAGCTTGCT spacer
length: 42 repeater length: 24
3730 1000405 GAATCTCAAAAAGAGGATTGAAAG ACATATGGAAGCGCCGAGAGGCCGAAGATGCGTCTCATGCAGG spacer
length: 43 repeater length: 24
3731 1000472 GAATCTCAAAAAGAGGATTGAAAG GTTTTGATATCAAGCTCCGGCACTACATCAGTACAATACGTC spacer
length: 42 repeater length: 24
3732 1000538 GAATCTCAAAAAGAGGATTGAAAG CGTAGTCGGCTGGGCGGTAGCCGGAGGAGGTCTGCACCACTG spacer
length: 42 repeater length: 24
3733 1000604 GAATCTCAAAAAGAGGATTGAAAG CAGGTAGAGAAACAGCCTGAGGTGCGTCTGCCGGATGAGA spacer
length: 40 repeater length: 24
3734 1000668 GAATCTCAAAAAGAGGATTGAAAG AGACATGTATATCTCAGACAGCTCCTTCTTAGCCACCGTCTGGA spacer
length: 44 repeater length: 24
3735 1000736 GAATCTCAAAAAGAGGATTGAAAG CAGGCGCCCTGACGCCGGGAGTCTTCGCGCCGGTTTCGGAGAG spacer
length: 43 repeater length: 24
3736 1000803 GAATCTCAAAAAGAGGATTGAAAG ACTCGTACACAACCTCGGCTGGGCTTGACATGTGGAGA spacer
length: 38 repeater length: 24
3737 1000865 GAATCTCAAAAAGAGGATTGAAAG ATAAAAACTTTAACGAACCGAACCCCCGCCCTAAAGGGCGAG spacer
length: 42 repeater length: 24
3738 1000931 GAATCTCAAAAAGAGGATTGAAAG ACACGTCGAAATGCGGCCCAACAGTTTTGCTCACCTGCCAA spacer
length: 42 repeater length: 24
3739 1000997 GAATCTCAAAAAGAGGATTGAAAG CCTGTCTTAAACGGCACCATGCCGGTGGCGATCCCCATCGC spacer
length: 41 repeater length: 24
3740 1001062 GAATCTCAAAAAGAGGATTGAAAG TGTGTAGCCCCGACGCCCATATGGCTCCCGGTGCCGCCCCGTCTT
spacer length: 46 repeater length: 24
3741 1001132 GAATCTCAAAAAGAGGATTGAAAG GCGACATGGACATAAGCGACATGTACATCAGCACATACGCGAAGGG
spacer length: 46 repeater length: 24
3742 1001202 GAATCTCAAAAAGAGGATTGAAAG TTGCTAAGGCGAGTCTCTCTTCGTGTACTCTCAACAT spacer
length: 39 repeater length: 24
3743 1001265 GAATCTCAAAAAGAGGATTGAAAG GAACTGCTTGAGCCGGACGAGCCGCCCGGAGCCGCTTAATGT spacer
length: 44 repeater length: 24
3744 1001333 GAATCTCAAAAAGAGGATTGAAAG AAGACGTCGATGGCGTATGGGAAAGGCGGCGCTCTGCTACCT spacer
length: 43 repeater length: 24
3745 1001400 GAATCTCAAAAAGAGGATTGAAAG CTCTGACATTATCCGCCACTTCCCTCTGGAGGCTGTTTCAGGTGGCGG
spacer length: 47 repeater length: 24
3746 1001471 GAATCTCAAAAAGAGGATTGAAAG GAGGAGTCGA
3747
3748
3749 crispr 2
3750 1012950 GAATCTCAAAAAGAGGATTGAAAG AGTGGCGATTATAACTCTGCGCAACCCAGGCCACTATACATA spacer
length: 42 repeater length: 24
3751 1013016 GAATCTCAAAAAGAGGATTGAAAG CAGTACTGCAATGCGGCTATAGGACGATAATACTCGACGAGGCCCATTG
spacer length: 49 repeater length: 24
3752 1013089 GAATCTCAAAAAGAGGATTGAAAG TAAGTTGTGGCTGACGACTGGGGCCAGGGAGTATGAGCGTCCA spacer
length: 43 repeater length: 24
3753 1013156 GAATCTCAAAAAGAGGATTGAAAG GCCGGGGACAAAAGCATACGTACGCCGAGAGTTACAAAAGCGT spacer
length: 43 repeater length: 24
3754 1013223 GAATCTCAAAAAGAGGATTGAAAG TATGTTGCCTGCCACGTGGCAAGAATTCCTCGGGGAGACTGACAA
spacer length: 46 repeater length: 24
3755 1013293 GAATCTCAAAAAGAGGATTGAAAG AGTCTTTAAACATCCAGGGCAGGCGCGCAATTGATATAC spacer
length: 39 repeater length: 24
3756 1013356 GAATCTCAAAAAGAGGATTGAAAG CTTCTCAGCTCGTCTGTGTTTACAATACGTTTGAGTATTTC spacer
length: 42 repeater length: 24
3757 1013422 GAATCTCAAAAAGAGGATTGAAAG GTTGTGCTCGGGGACGCTTTCAAGCCGCGCTCTAATACA spacer
length: 40 repeater length: 24
3758 1013486 GAATCTCAAAAAGAGGATTGAAAG GGAAGATCTTAAGCGCATCCGTCGTTGCGCCGGGACTTC spacer
length: 39 repeater length: 24
3759 1013549 GAATCTCAAAAAGAGGATTGAAAG ATCCGGCGTGGGGAAGACGACGCTTGCGCTGAAGTTAGTGTC spacer
length: 42 repeater length: 24

3760 1013615 GAATCTCAAAAAGAGGATTGAAAG CTGTTGGGTTGCTCAGACAGAGCTATTCCAGCCGCCCTTAGGGCGGCTA
spacer length: 49 repeater length: 24

3761 1013688 GAATCTCAAAAAGAGGATTGAAAG GCAACCTCCTTTGCGCCCATGCCACTAAGTCGCTTATGTTGA spacer
length: 42 repeater length: 24

3762 1013754 GAATCTCAAAAAGAGGATTGAAAG CTGCGTCTTAGATCCCGCCACGGGCCTGCCTCTCTCGTCTAGCT spacer
length: 44 repeater length: 24

3763 1013822 GAATCTCAAAAAGAGGATTGAAAG TCGTAGAGACGGCGTGTGTAGAGGCATGGCTCAGAACTGTAATACT
spacer length: 46 repeater length: 24

3764 1013892 GAATCTCAAAAAGAGGATTGAAAG GGCGGCTACCACAGCGGCTAGAAAAGCCGACGGCAAGGCCAG spacer
length: 42 repeater length: 24

3765 1013958 GAATCTCAAAAAGAGGATTGAAAG TATGCCACTTGTGCCGCCATGGTGCCGTAGGCGATAAATCCGC spacer
length: 43 repeater length: 24

3766 1014025 GAATCTCAAAAAGAGGATTGAAAG GGCACGGTACGTAGGCGGAGAACTATAAAATGGCCTACTGGCC spacer
length: 42 repeater length: 24

3767 1014091 GAATCTCAAAAAGAGGATTGAAAG CTACAATCTCTAACGTCTCCCCACAGTAGGGACACGATACT spacer
length: 41 repeater length: 24

3768 1014156 GAATCTCAAAAAGAGGATTGAAAG TCTCTAACCAAACGTGTGTACGAGAATCTTGACGGCCAGCCTCCCCAAT
spacer length: 48 repeater length: 24

3769 1014228 GAATCTCAAAAAGAGGATTGAAAG TCTACGTACACTATGCCGACGCAGTGTGTTGTTACTCTGTTACTCG spacer
length: 43 repeater length: 24

3770 1014295 GAATCTCAAAAAGAGGATTGAAAG AACACGAGGCGGCTAAGCGGATGGCCCTCGAGGGAGAGATA spacer
length: 41 repeater length: 24

3771 1014360 GAATCTCAAAAAGAGGATTGAAAG CCTTACCACATGCTCCTCTGGGACGCATAACGATGTCATTGGCAA
spacer length: 45 repeater length: 24

3772 1014429 GAATCTCAAAAAGAGGATTGAAAG CAGTAACGCGTATAGTCGTTGCGCGAGCCTACTTTGTTGCGCT spacer
length: 43 repeater length: 24

3773 1014496 GAATCTCAAAAAGAGGATTGAAAG ACTGCAACGCGACGGAGACGCGACGCAACTATGACAAGTTCAAGA
spacer length: 45 repeater length: 24

3774 1014565 GAATCTCAAAAAGAGGATTGAAAG TTACACAAGCGTTAGTGGATGTATTGGTGAGCAAGTGCGATA spacer
length: 42 repeater length: 24

3775 1014631 GAATCTCAAAAAGAGGATTGAAAG AATGCTTAAGGGCCTGGGACCCCGACCGGGTCCCGGGGCCA spacer
length: 42 repeater length: 24

3776 1014697 GAATCTCAAAAAGAGGATTGAAAG TGCTTGATGACGTCGGGAGGCGGATGGCCAGTTACGCCAATACTA
spacer length: 45 repeater length: 24

3777 1014766 GAATCTCAAAAAGAGGATTGAAAG ATAATAGATACTTAGAAGTAAAATATCCAAACGGCATTAGGGC spacer
length: 43 repeater length: 24

3778 1014833 GAATCTCAAAAAGAGGATTGAAAG TGCGCAGTTTCCTCTTGAACCCGCCGTACAGTAAGCCATG spacer
length: 40 repeater length: 24

3779 1014897 GAATCTCAAAAAGAGGATTGAAAG GGTTTCACAGACGCACGCGGTGACATGCGCAAATACAGACT spacer
length: 41 repeater length: 24

3780 1014962 GAATCTCAAAAAGAGGATTGAAAG GCAAAGAACCGTGCAAGATTTCTCCTGGCACCGGGGTCA spacer
length: 39 repeater length: 24

3781 1015025 GAATCTCAAAAAGAGGATTGAAAG ACCGCTTTAGCGGCCTTGATTAAATCTTCGTCTGAGAGAAG spacer
length: 41 repeater length: 24

3782 1015090 GAATCTCAAAAAGAGGATTGAAAG AACAAACCCACAAATAGACAAGCGGGCAATCATGGCAATTATC spacer
length: 44 repeater length: 24

3783 1015158 GAATCTCAAAAAGAGGATTGAAAG CAGTTACGCCTTGTCCGCTTATTCTGTGGGCGATCATGTGGAA spacer
length: 43 repeater length: 24

3784 1015225 GAATCTCAAAAAGAGGATTGAAAG TGTCTTCATATATTGTGCAGTCCTCCCCTTCGCACTGCACT spacer
length: 41 repeater length: 24

3785 1015290 GAATCTCAAAAAGAGGATTGAAAG AGCCGACTACGTGGTGAGACAACAATCCAGCGACCGCGACT spacer
length: 41 repeater length: 24

3786 1015355 GAATCTCAAAAAGAGGATTGAAAG ACGTTGCTTCCCCTCCGATCTTCCCCACGACCTGGGGGA spacer
length: 40 repeater length: 24

3787 1015419 GAATCTCAAAAAGAGGATTGAAAG GCGCATGTATATCACGTCTTTTTTCTTGGCCCCCCCCCTTCCGTTGC
spacer length: 46 repeater length: 24

3788 1015489 GAATCTCAAAAAGAGGATTGAAAG AAGGCCGCGCTGGGCCACAGCCAAGGCAGTATCGTGTAGAGGA spacer
length: 43 repeater length: 24

3789 1015556 GAATCTCAAAAAGAGGATTGAAAG GGGATCCCAGTCGGGGCCCTGGGGCCAAAGAACAGGCAAAGT spacer
length: 42 repeater length: 24

3790 1015622 GAATCTCAAAAAGAGGATTGAAAG CGTGTCCAGATACCTAGCCGAAACACTCTGCGGCCCGTACATAT spacer
length: 44 repeater length: 24

3791 1015690 GAATCTCAAAAAGAGGATTGAAAG GCTTTGCGCACTAAAGAGCTGTCGGACGACGTCATAGTTTTG spacer
length: 42 repeater length: 24

3792 1015756 GAATCTCAAAAAGAGGATTGAAAG GTAGATATTCTGAGTCGGATAATTTAAAGTCCGGCCT spacer
length: 37 repeater length: 24

3793 1015817 GAATCTCAAAAAGAGGATTGAAAG TCTACGAGGACGTAGCGCTCTCCTTCCTGCCTGACAAAGAC spacer
length: 41 repeater length: 24

3794 1015882 GAATCTCAAAAAGAGGATTGAAAG GTCACGCGGTACAAATGCACGCATGAAGGCGTAGACGTCTT spacer
length: 41 repeater length: 24

3795 1015947 GAATCTCAAAAAGAGGATTGAAAG TAAGCCATAATTGTGCAAACATCTGCATACGCTAACAGCTTG spacer

length: 43 repeater length: 24
3796 1016014 GAATCTCAAAAAGAGGATTGAAAG CTTGATACTTCCTTATCGTGTTCATAGCTACGACCTAG spacer
length: 37 repeater length: 24
3797 1016075 GAATCTCAAAAAGAGGATTGAAAG GCCTTATTGTTAATCCAAGGCCGAATTTGTCTGAATACAACCT spacer
length: 41 repeater length: 24
3798 1016140 GAATCTCAAAAAGAGGATTGAAAG CCACGTACGAGTTTCGGCGGCGCGTGCCTGCGGCGGCTCCTTGCCC spacer
length: 44 repeater length: 24
3799 1016208 GAATCTCAAAAAGAGGATTGAAAG ACGTGCGCCTATTTGCAGACCCGGTGCCCGTAGAGGCGAAT spacer
length: 41 repeater length: 24
3800 1016273 GAATCTCAAAAAGAGGATTGAAAG TCTTGCACTGCCTCGGCCAGCAAGCGCGCCAGCATGTGCG spacer
length: 40 repeater length: 24
3801 1016337 GAATCTCAAAAAGAGGATTGAAAG CTTAGCACGTGAAGCTGTGATTGCGCTCATTACTGCTGGGAAT spacer
length: 43 repeater length: 24
3802 1016404 GAATCTCAAAAAGAGGATTGAAAG
CTATAATATCAACTATCTTTATCCTATCCTCACCCTACGATAATAGTAAATAG spacer length: 54 repeater
length: 24
3803 1016482 GAATCTCAAAAAGAGGATTGAAAG CGCATCTCACTACAACGCCGACGTAGTCGGTTTGGCGCTGTTACTC
spacer length: 46 repeater length: 24
3804 1016552 GAATCTCAAAAAGAGGATTGAAAG GCTGAGCCGGGGAGCACGACAGCTGTCGTAGCCACCGCCTTA spacer
length: 42 repeater length: 24
3805 1016618 GAATCTCAAAAAGAGGATTGAAAG CTTGTGGAGAGGTACCTGCGCGCAATCGGCGACGAGCTGATTATGC
spacer length: 46 repeater length: 24
3806 1016688 GAATCTCAAAAAGAGGATTGAAAG CTTTTCTCTCTTTTGCCTTTTTTCGGCGCGAGAGTTGAACTAA spacer
length: 42 repeater length: 24
3807 1016754 GAATCTCAAAAAGAGGATTGAAAG ATCTTATTATCACGTGTCGTTACTAATCAGCACGATGATGGCG spacer
length: 43 repeater length: 24
3808 1016821 GAATCTCAAAAAGAGGATTGAAAG CACCTCTTCCAGCGACCTCTTCACGTCGAGGTGGGCTTGTCTAC spacer
length: 44 repeater length: 24
3809 1016889 GAATCTCAAAAAGAGGATTGAAAG TTTTTCTTTTCTTTTTCAGGTGAGGGAACCGAGTTGGCGT spacer
length: 40 repeater length: 24
3810 1016953 GAATCTCAAAAAGAGGATTGAAAG GCTTTCGCCTGATGAGACGCCTGAACGCGGCCAGTACGTCTCGGGC
spacer length: 46 repeater length: 24
3811 1017023 GAATCTCAAAAAGAGGATTGAAAG ACAACGGCTGGGTACGGAATACCGCTCAGCAAAAGGCTGAGCATAG
spacer length: 46 repeater length: 24
3812 1017093 GAATCTCAAAAAGAGGATTGAAAG ATTTAAACAGATGCTTACTGCCTATACATGTGCGACCGGGAAAAT spacer
length: 44 repeater length: 24
3813 1017161 GAATCTCAAAAAGAGGATTGAAAG TGCCGTATACAAAGCACAGCTACTACGCAGACGTGCTTTACGA spacer
length: 43 repeater length: 24
3814 1017228 GAATCTCAAAAAGAGGATTGAAAG AGGTCGGCAC
3815
3816
3817 crispr 3
3818 1017299 GAATCTCAAAAAGAGGATTGAAAG
GGTGTATACAGCCTTTGTCAAGGCTGTATACGAGGTGGTTGGCAAACTCGCGCA spacer length: 55 repeater
length: 24
3819 1017378 GAATCTCAAAAAGAGGATTGAAAG GCAGAAGTACATGACGTTGTCATATATTTCTCCCCTATTTCTT spacer
length: 44 repeater length: 24
3820 1017446 GAATCTCAAAAAGAGGATTGAAAG ACTTGTAGAGGGCTCTCCCCAAGTCGTAGAGGAGCC spacer length:
36 repeater length: 24
3821 1017506 GAATCTCAAAAAGAGGATTGAAAG TTAACATTTTTTTCATTAATCATATTTACGTAAAATTCATTAT spacer
length: 42 repeater length: 24
3822 1017572 GAATCTCAAAAAGAGGATTGAAAG GGTAAGTAACATTTTGTCAAACCTCGCTATCGGCTTCTTTTTTCACGA
spacer length: 45 repeater length: 24
3823 1017641 GAATCTCAAAAAGAGGATTGAAAG CCACTCTTCTTCGCTTAATGAGTCTATTTCTTTTAAACAGTCT spacer
length: 43 repeater length: 24
3824 1017708 GAATCTCAAAAAGAGGATTGAAAG TTGGAATAGACTCCTCCAACGCTAGCTGAGCTCTGCAT spacer
length: 38 repeater length: 24
3825 1017770 GAATCTCAAAAAGAGGATTGAAAG CAGGCCGCGGCGTGCACAGAGGGGGGCACTGAGAAGACGCC spacer
length: 41 repeater length: 24
3826 1017835 GAATCTCAAAAAGAGGATTGAAAG CTTGTGCGACATATCGCTTAGTGTGTAGAACTGGCATACTGGTAGT
spacer length: 47 repeater length: 24
3827 1017906 GAATCTCAAAAAGAGGATTGAAAG ACTAAGTGGGGTCTACGGCTGGGGTTTTGGCACCCCCACATTATAAATCT
spacer length: 50 repeater length: 24
3828 1017980 GAATCTCAAAAAGAGGATTGAAAG ATGCTGTAAAGCGCCAGCGCTCTGCATGTGCACCTAATAAC spacer
length: 41 repeater length: 24
3829 1018045 GAATCTCAAAAAGAGGATTGAAAG CTTATTGTGTTTGGGCTGGATATTGGACATGGCTGTGCGTATGCAA
spacer length: 46 repeater length: 24
3830 1018115 GAATCTCAAAAAGAGGATTGAAAG TTTAAGAGGAGCGTTGTCAACGCCACATTTCCGCCCAAACC spacer
length: 41 repeater length: 24
3831 1018180 GAATCTCAAAAAGAGGATTGAAAG TGCCAGCCGTGGAGCTACGCCACCACATTCTCAAGAGACAA spacer
length: 41 repeater length: 24

3832 1018245 GAATCTCAAAAAGAGGATTGAAAG TTGGTTTATAAGCCGCCTCAATAAGGAGGTTGTAATCATGCC spacer
length: 42 repeater length: 24

3833 1018311 GAATCTCAAAAAGAGGATTGAAAG AAGAGCTGTTACGCAGTATAGGCTGTCTGGGGGGCGAAGTGGCCA spacer
length: 44 repeater length: 24

3834 1018379 GAATCTCAAAAAGAGGATTGAAAG GAGGCCCAGTAGCGGCATAAGTTTGTCAAGCGCTTTTGATACG spacer
length: 43 repeater length: 24

3835 1018446 GAATCTCAAAAAGAGGATTGAAAG TGCCGTTACGCGCCTCGGGTATTGCGCGCATCAACGCATT spacer
length: 40 repeater length: 24

3836 1018510 GAATCTCAAAAAGAGGATTGAAAG GCTCATACGCGTATCTATACACCGCCTGCAGTGCGGCCTGTA spacer
length: 42 repeater length: 24

3837 1018576 GAATCTCAAAAAGAGGATTGAAAG AACTACGCGCTTTTAACGGTTTTTAGTTTTCTAGCCAAT spacer
length: 40 repeater length: 24

3838 1018640 GAATCTCAAAAAGAGGATTGAAAG CGTATACTCACCACCTTTATATTACCCATAGAAATCTAAACA spacer
length: 42 repeater length: 24

3839 1018706 GAATCTCAAAAAGAGGATTGAAAG AAAATATCACACTGGTGACCCTCTCTAGTACAGGGAGTGGCGCC spacer
length: 44 repeater length: 24

3840 1018774 GAATCTCAAAAAGAGGATTGAAAG TTCTTCGACAGGCAGGGAGAGGAGAGGTACGCGCTGTACAAG spacer
length: 42 repeater length: 24

3841 1018840 GAATCTCAAAAAGAGGATTGAAAG ATTAGTATTTGGTCTAGCAGGTCTTTTATTTGTAGATATTCT spacer
length: 42 repeater length: 24

3842 1018906 GAATCTCAAAAAGAGGATTGAAAG TCGTATGCGT

3843

3844

3845 crispr 4

3846 1307875 CTTTCAATCCTCTTTTTGAGATTC GAACGCCATGGCCCAAGCCCTGGCGGAGTACGCGGTGAGATC spacer
length: 42 repeater length: 24

3847 1307941 CTTTCAATCCTCTTTTTGAGATTC ACTAAGGCAGATGTAGTTATTCCACACGGCGTTAGTGATGATATCAT
spacer length: 47 repeater length: 24

3848 1308012 CTTTCAATCCTCTTTTTGAGATTC GAGACTGTCAGACCGCCATTGGAGGCGCCGAAGGAGAGAGCCGC spacer
length: 44 repeater length: 24

3849 1308080 CTTTCAATCCTCTTTTTGAGATTC TTCTGTAGAG

3850

3851

3852 GCA_000016525.1_ASM1652v1_genomic.fna (PilerCR):

3853 START REPEAT
SPACER

3854 crispr 1

3855 152501 ATTTCAATCCTATTATAGTCTTATTTTTTAAC AGTTGACCTAAGTTTATATAATTGTGCAAATCCAGC spacer
length: 36 repeater length: 31

3856 152568 ATTTCAATCCTATTATAGTCTTATTTTTTAAC AGATGATGTTTTATTGGAGAATGGATATGCAGTACA spacer
length: 36 repeater length: 31

3857 152635 ATTTCAATCCTATTATAGTCTTATTTTTTAAC CAGGTTATCATTTTCCATGATTACTTTATCATGTGTA spacer
length: 37 repeater length: 31

3858 152703 ATTTCAATCCTATTATAGTCTTATTTTTTAAC ATTATATGATGCTGTAGACTTAAGATGACTTTCTTG spacer
length: 36 repeater length: 31

3859 152770 ATTTCAATCCTATTATAGTCTTATTTTTTAAC ACTCACAAAAGAAACAGTGATCCTTATATTGCTCA spacer
length: 35 repeater length: 31

3860 152836 ATTTCAATCCTATTATAGTCTTATTTTTTAAC TTGAATTAGAAATCACAGTTAAAGAAATACCTAC spacer
length: 34 repeater length: 31

3861 152901 ATTTCAATCCTATTATAGTCTTATTTTTTAAC TCCTATTTTGGACAATTTTGTTTTAATACCATC spacer
length: 33 repeater length: 31

3862 152965 ATTTCAATCCTATTATAGTCTTATTTTTTAAC ATCACCATCATAACCATTTTCATTTATATGAATATT spacer
length: 35 repeater length: 31

3863 153031 ATTTCAATCCTATTATAGTCTTATTTTTTAAC CTACAAAAAACCATTCAAGCAATAAACCTGACTA spacer
length: 34 repeater length: 31

3864 153096 ATTTCAATCCTATTATAGTCTTATTTTTTAAC TATCTAAATCATTCCTTTTATAAATCACTTCACTGAT spacer
length: 37 repeater length: 31

3865 153164 ATTTCAATCCTATTATAGTCTTATTTTTTAAC CTGTGTCGTTTAATAATAAATCATTTACGTAACATA spacer
length: 36 repeater length: 31

3866 153231 ATTTCAATCCTATTATAGTCTTATTTTTTAAC CTAATACATCTGACATCATAAAAAACACCTTTCATA spacer
length: 35 repeater length: 31

3867 153297 ATTTCAATCCTATTATAGTCTTATTTTTTAAC GACAGTTAAAACATTTGCCATTACAAATTATATATT spacer
length: 36 repeater length: 31

3868 153364 ATTTCAATCCTATTATAGTCTTATTTTTTAAC CCATACATTATCATACCAGTAAACCAATTTGG spacer
length: 32 repeater length: 31

3869 153427 ATTTCAATCCTATTATAGTCTTATTTTTTAAC TTCCACACTATCAAATTTGTTGATTTTTTCCATTCT spacer
length: 36 repeater length: 31

3870 153494 ATTTCAATCCTATTATAGTCTTATTTTTTAAC AAAAGTATACAAATAATCTGAAAACCATGGGTTCTAT spacer
length: 37 repeater length: 31

3871 153562 ATTTCAATCCTATTATAGTCTTATTTTTTAAC ATCTTCCTTTTTTGATAACAAGATTTGTTTCCTCGT spacer
length: 35 repeater length: 31

3872 153628 ATTTCAATCCTATTATAGTCTTATTTTAAAC ACTGGTTTAAATGGTGCTGGAATATCTAATAATCCA spacer
length: 36 repeater length: 31

3873 153695 ATTTCAATCCTATTATAGTCTTATTTTAAAC AATATATTTATATAGTAGACGGTATAAAGTAATATA spacer
length: 36 repeater length: 31

3874 153762 ATTTCAATCCTATTATAGTCTTATTTTAAAC TTTGATGTAGTTCTTCTTCAGTTATGTTGAATGTGT spacer
length: 36 repeater length: 31

3875 153829 ATTTCAATCCTATTATAGTCTTATTTTAAAC ACATTACCAACCTCAATTTCCATTTCAATAGTTTT spacer
length: 36 repeater length: 31

3876 153896 ATTTCAATCCTATTATAGTCTTATTTTAAAC TGCTCCTGCAATCAAAATTAAAATCTTGTAACCTTC spacer
length: 36 repeater length: 31

3877 153963 ATTTCAATCCTATTATAGTCTTATTTTAAAC CATCACGTCTTAACATTCTAATGTCATCTTCACTCCA spacer
length: 37 repeater length: 31

3878 154031 ATTTCAATCCTATTATAGTCTTATTTTAAAC TTACTAATATGGCCAATGGTGTTAAAAGTTTACAAG spacer
length: 36 repeater length: 31

3879 154098 ATTTCAATCCTATTATAGTCTTATTTTAAAC TTGTACATGCATTGTCCTGCATGTACTTTTAAATGTT spacer
length: 36 repeater length: 31

3880 154165 ATTTCAATCCTATTATAGTCTTATTTTAAAC TTTAGTTTATGATACTATGACCAGTGAATCCGACAGA spacer
length: 37 repeater length: 31

3881 154233 ATTTCAATCCTATTATAGTCTTATTTTAAAC TAGTTGCAAAAGCTGTGGACACTGCAAGGTTAATTCT spacer
length: 37 repeater length: 31

3882 154301 ATTTCAATCCTATTATAGTCTTATTTTAAAC ACCTCCTTTGTAACCTACAGGGTCAGACTGCCAG spacer
length: 35 repeater length: 31

3883 154367 ATTTCAATCCTATTATAGTCTTATTTTAAAC TACTGAAAGGCATATCAGAATTAGTATCCAGTACAT spacer
length: 36 repeater length: 31

3884 154434 ATTTCAATCCTATTATAGTCTTATTTTAAAC CAATACAGTTGCCTTCTACAATCCCGTTTTTAGTTG spacer
length: 36 repeater length: 31

3885 154501 ATTTCAATCCTATTATAGTCTTATTTTAAAC TAGGAAAAGCAATGGGAGCATTGTCTGATGTTAAT spacer
length: 35 repeater length: 31

3886 154567 ATTTCAATCCTATTATAGTCTTATTTTAAAC TGTATATGTGAATAATGCTTGTCCATTATTATTCTG spacer
length: 35 repeater length: 31

3887 154633 ATTTCAATCCTATTATAGTCTTATTTTAAAC ATTCTAATTGCATTGCGTTAGGATAATCGCTAACCTGT spacer
length: 38 repeater length: 31

3888 154702 ATTTCAATCCTATTATAGTCTTATTTTAAAC TATTAATAAATCTTGTACTATTACTCATTGTCATAA spacer
length: 36 repeater length: 31

3889 154769 ATTTCAATCCTATTATAGTCTTATTTTAAAC TCTAAAATCAGTGTATCCTGGTTCTTCATAGTA spacer
length: 33 repeater length: 31

3890 154833 ATTTCAATCCTATTATAGTCTTATTTTAAAC CAAAGGTATCTGTGATGGATTTACTAATCATTTCC spacer
length: 35 repeater length: 31

3891 154899 ATTTCAATCCTATTATAGTCTTATTTTAAAC AGTTGCAGTAGTATAAGTAGAAGTTCCTTTATACGA spacer
length: 36 repeater length: 31

3892 154966 ATTTCAATCCTATTATAGTCTTATTTTAAAC TTGGTTACAAACAAGGTAAAGTTTTTCTACCTTT spacer
length: 34 repeater length: 31

3893 155031 ATTTCAATCCTATTATAGTCTTATTTTAAAC TTTAGTAGTAGAAATAAGAAAACTGAAAAAGTAAA spacer
length: 36 repeater length: 31

3894 155098 ATTTCAATCCTATTATAGTCTTATTTTAAAC ATTTAGATATTATGATGTTAATGCGGAAGTATGGTA spacer
length: 36 repeater length: 31

3895 155165 ATTTCAATCCTATTATAGTCTTATTTTAAAC ATTCCTGCATATAGTACAATTACTGGAGTTAA spacer
length: 32 repeater length: 31

3896 155228 ATTTCAATCCTATTATAGTCTTATTTTAAAC ATCGCAGTGCTTGTAGCAATTATTGGTTTCGTAT spacer
length: 34 repeater length: 31

3897 155293 ATTTCAATCCTATTATAGTCTTATTTTAAAC AAGTAGTGTTGAATTTACATGGTACAAGTAATAC spacer
length: 34 repeater length: 31

3898 155358 ATTTCAATCCTATTATAGTCTTATTTTAAAC AATATGTGCG

3899

3900

3901 GCA_000016605.1_ASM1660v1_genomic.fna (PilerCR) :

3902 START REPEAT

SPACER

3903 crispr 1

3904 1082303 CTTTCAACTCTATAGGAGATTAAC TGATTTTGACACGGCCTATCAAAATGTAATAAAAACGCATA spacer
length: 41 repeater length: 24

3905 1082368 CTTTCAACTCTATAGGAGATTAAC TAATAGGTATAATATTGGGCATTCTCGCCCTAGTTCAATT spacer
length: 40 repeater length: 24

3906 1082432 CTTTCAACTCTATAGGAGATTAAC AGACCCAAAACCTAAAACCTCAAAAAGTCTTTGAGCAATT spacer
length: 40 repeater length: 24

3907 1082496 CTTTCAACTCTATAGGAGATTAAC TTACTTCTAATGATTACAGGGATTTCTCAGAACCCTTCT spacer
length: 39 repeater length: 24

3908 1082559 CTTTCAACTCTATAGGAGATTAAC GCTGAAATTGGCAGAGGTAAGGAAGCTAATCGAGTCGAA spacer
length: 39 repeater length: 24

3909 1082622 CTTTCAACTCTATAGGAGATTAAC GTGAGGATTCACCGAATCCTGCCTTAGACGATACCGAGCAGAAG spacer
length: 44 repeater length: 24

3910 1082690 CTTTCAACTCTATAGGAGATTAAC AGAAGAAAAAGTATACTTGAAAAGAAGATTGAATTTTTTAGA spacer
length: 41 repeater length: 24

3911 1082755 CTTTCAACTCTATAGGAGATTAAC ATCAAATGATGCCAAAAAGTGATCTACCTATTCTTTTCAT spacer
length: 40 repeater length: 24

3912 1082819 CTTTCAACTCTATAGGAGATTAAC AACATGATAAGGCTTTACTTAGAAAGTTAGAGAAAAAATT spacer
length: 40 repeater length: 24

3913 1082883 CTTTCAACTCTATAGGAGATTAAC CGTGATTCATTAAGGTTATCATAATGAATTGGAAAACAGTCT spacer
length: 42 repeater length: 24

3914 1082949 CTTTCAACTCTATAGGAGATTAAC TTCAAAAAATGGTCAAGGTGATAGAGAGTCAGTTATTAG spacer
length: 39 repeater length: 24

3915 1083012 CTTTCAACTCTATAGGAGATTAAC AGTTCTACGGAAAACTATCAATCCAGATAGCAATAAAGA spacer
length: 39 repeater length: 24

3916 1083075 CTTTCAACTCTATAGGAGATTAAC ATGCGATTACCACCACGGCTCCGTTTTGCCCGTTTGCTCC spacer
length: 40 repeater length: 24

3917 1083139 CTTTCAACTCTATAGGAGATTAAC CATCGGTGTATTACTACTCACTGTGATTGGTGTATCAAG spacer
length: 39 repeater length: 24

3918 1083202 CTTTCAACTCTATAGGAGATTAAC TCCAGGTACATCGTCAGCGAATGGATCAGGAGGAGCAGG spacer
length: 39 repeater length: 24

3919 1083265 CTTTCAACTCTATAGGAGATTAAC TCCACTCGGTGCCGTGAAAGTTTTGACAAGACTCATGTTTGA spacer
length: 42 repeater length: 24

3920 1083331 CTTTCAACTCTATAGGAGATTAAC TCAATAATTGACGAGCAAGATTTAGTGATTCCAGACGAGG spacer
length: 40 repeater length: 24

3921 1083395 CTTTCAACTCTATAGGAGATTAAC ACAGTTCACAAACGGAATTGTTTGATAACTTCTTGGAAT spacer
length: 39 repeater length: 24

3922 1083458 CTTTCAACTCTATAGGAGATTAAC CTTACTTTCCATGTTCTCCATTACAAAGTAAAGTACT spacer
length: 39 repeater length: 24

3923 1083521 CTTTCAACTCTATAGGAGATTAAC CGGTCACTGAAGCCGATCCACCCTTAGTTGAGACCACGAG spacer
length: 40 repeater length: 24

3924 1083585 CTTTCAACTCTATAGGAGATTAAC TAATTGAAGTTACAGTAGAAATACAAAACCAAAAAATGA spacer
length: 39 repeater length: 24

3925 1083648 CTTTCAACTCTATAGGAGATTAAC ATCAAATTACTGGAGAAGAGTGGAACAAAATAATAAGGGAA spacer
length: 41 repeater length: 24

3926 1083713 CTTTCAACTCTATAGGAGATTAAC TTATACGGTTATTGGATGACGCGAGTATATCGTGAAAGTTA spacer
length: 41 repeater length: 24

3927 1083778 CTTTCAACTCTATAGGAGATTAAC AAAGCCTTCGTATCTGATGACGGCTCAGTTCCAATCGTTA spacer
length: 40 repeater length: 24

3928 1083842 CTTTCAACTCTATAGGAGATTAAC ATGAAGATGTGGAGTCAAAGACCGAAAGGCCCTGGGATTA spacer
length: 40 repeater length: 24

3929 1083906 CTTTCAACTCTATAGGAGATTAAC ATATTTTCGTCTTATGTAGTTTGTAATTGATCTTTTTTTCTTT spacer
length: 43 repeater length: 24

3930 1083973 CTTTCAACTCTATAGGAGATTAAC TTAGGACCGTTGGGTTACGAGTTACAACGAGATGGTGAAA spacer
length: 41 repeater length: 24

3931 1084038 CTTTCAACTCTATAGGAGATTAAC TTCATGCAGACTACGAAGTCGCTCTAATTTATCTTAATCT spacer
length: 40 repeater length: 24

3932 1084102 CTTTCAACTCTATAGGAGATTAAC GTCATAAACCACTGATCACTAGTAGTATGTTCGAACTAT spacer
length: 40 repeater length: 24

3933 1084166 CTTTCAACTCTATAGGAGATTAAC TGTTGTGTGAATCTGAACCCGAAGACGAGGACATGTACC spacer
length: 39 repeater length: 24

3934 1084229 CTTTCAACTCTATAGGAGATTAAC CAAGTGTGTTTGTGGGGATAACGAACTGGGGAAGGAA spacer
length: 39 repeater length: 24

3935 1084292 CTTTCAACTCTATAGGAGATTAAC TATATGACAAGTTGAGAAGGAATATTCTTCAACGCGGGAA spacer
length: 40 repeater length: 24

3936 1084356 CTTTCAACTCTATAGGAGATTAAC AAGTTAGTGGGGGAAGCCCGTAGAGTTCAGATTAGGTAC spacer
length: 41 repeater length: 24

3937 1084421 CTTTCAACTCTATAGGAGATTAAC ATCATCCCCCTCATCAAACACTCATCAAGATACTCATCACTGTA
spacer length: 45 repeater length: 24

3938 1084490 CTTTCAACTCTATAGGAGATTAAC TCTCGACGCGGAGAGGATAGAGCGGTTGGTCGAGGACGA spacer
length: 39 repeater length: 24

3939 1084553 CTTTCAACTCTATAGGAGATTAAC CGAATTTTTCCCCCGTGAGCGGGGGTTAGAAAGAGTTTGAC spacer
length: 42 repeater length: 24

3940 1084619 CTTTCAACTCTATAGGAGATTAAC CCCATAGTGGTCCCCTATGAGTTTGAGGATACAACCTCATTA spacer
length: 43 repeater length: 24

3941 1084686 CTTTCAACTCTATAGGAGATTAAC CGGGGTCCAAAGGTTCCCTGAATGTAAATATATTATTAC spacer
length: 39 repeater length: 24

3942 1084749 CTTTCAACTCTATAGGAGATTAAC CATATGACGCTCTCAAGGTAGTCACTCAAGATATCTTAGC spacer
length: 40 repeater length: 24

3943 1084813 CTTTCAACTCTATAGGAGATTAAC TTACGATCAGCCTTTTCGTTGCAGGTCTAATTCTCAGA spacer
length: 38 repeater length: 24

3944 1084875 CTTTCAACTCTATAGGAGATTAAC CCAACTGTCCAGCCTGCCCTGCTGGACTAGGGTTTTCGAAC spacer
length: 41 repeater length: 24

3945 1084940 CTTTCAACTCTATAGGAGATTAAC CTCGTTAAGATATGCATTGATCACTTACGCTTCCAAAA spacer

length: 39 repeater length: 24
3946 1085003 CTTTCAACTCTATAGGAGATTAAC TCTTTTTTTTGC GGTTATACAATTAAACGTTTCGTGAAT spacer
length: 38 repeater length: 24
3947 1085065 CTTTCAACTCTATAGGAGATTAAC ACGTCCTTCTCCGTGATGTAGAGCGTACTGCCTGAAGTCCCTGT spacer
length: 44 repeater length: 24
3948 1085133 CTTTCAACTCTATAGGAGATTAAC AAAGGACCATAATACATCACAACCTAGTCTGCTTGCAAAGTGA spacer
length: 43 repeater length: 24
3949 1085200 CTTTCAACTCTATAGGAGATTAAC ATAACCGGAACGAAACTAGAGGAATACTGTGAACCGGTAA spacer
length: 40 repeater length: 24
3950 1085264 CTTTCAACTCTATAGGAGATTAAC CAATGAGTGTTGGTCTCATCCTTGAGGGTCCTGATGGAGT spacer
length: 40 repeater length: 24
3951 1085328 CTTTCAACTCTATAGGAGATTAAC CAATACGACTACGGGTTTCAATCTTGAAAAGTTCGGTG spacer
length: 38 repeater length: 24
3952 1085390 CTTTCAACTCTATAGGAGATTAAC ATGGTCAATTATGTCCCTTAATATGATGGTAGAGATATTGA spacer
length: 40 repeater length: 24
3953 1085454 CTTTCAACTCTATAGGAGATTAAC TGGACATGTCTACATCAAAGAAGTCCAAGTACTTTGCCT spacer
length: 39 repeater length: 24
3954 1085517 CTTTCAACTCTATAGGAGATTAAC TACCTGAAGTTCTCCCACTCTAGCAGGGAGCTGCTGTCCTACT spacer
length: 43 repeater length: 24
3955 1085584 CTTTCAACTCTATAGGAGATTAAC GCGGTAAAAAATGCAATAGGAGGAGTAGGAAGCTTCTTTTC spacer
length: 41 repeater length: 24
3956 1085649 CTTTCAACTCTATAGGAGATTAAC TTACTATTTCTTAAGGAACGACGTAAGAGAAAGTAGTAAT spacer
length: 40 repeater length: 24
3957 1085713 CTTTCAACTCTATAGGAGATTAAC GGAATAAAGGACAAGGGATTCTTCATCAGTTTGGA spacer length:
36 repeater length: 24
3958 1085773 CTTTCAACTCTATAGGAGATTAAC ACAAGGAGTAGCTCTTACTGGTAATGAGGGTATAATAAGAAA spacer
length: 42 repeater length: 24
3959 1085839 CTTTCAACTCTATAGGAGATTAAC CGCTCTGGACCTCCTTCTTGACGTAGTCATTTCTCTTTAGTT spacer
length: 42 repeater length: 24
3960 1085905 CTTTCAACTCTATAGGAGATTAAC AGACAAGTCCAGAGGGTTAGGGAGGAGAGGAGGTCCAGTCTT spacer
length: 42 repeater length: 24
3961 1085971 CTTTCAACTCTATAGGAGATTAAC ACTTTAGCTTTCATGACTTACACAACCTTCATATCCACCT spacer
length: 39 repeater length: 24
3962 1086034 CTTTCAACTCTATAGGAGATTAAC TGAATAAACCAACTCTCCTTCATAGTTTAAATTAATTACAT spacer
length: 41 repeater length: 24
3963 1086099 CTTTCAACTCTATAGGAGATTAAC AAGAGAATAAGGGTAGTATATAACCCTGCAATCACCTTAA spacer
length: 40 repeater length: 24
3964 1086163 CTTTCAACTCTATAGGAGATTAAC CAGCTTGTGGTATTCTCCTAATATTACTGCATTGACCC spacer
length: 39 repeater length: 24
3965 1086226 CTTTCAACTCTATAGGAGATTAAC TTAAAGATAATTGGAAGAACAATTAATAAGAACATTA spacer
length: 40 repeater length: 24
3966 1086290 CTTTCAACTCTATAGGAGATTAAC ATGGGGGTTCAAAGGGGTGAAATACCCCTTCCGTCAAGGA spacer
length: 41 repeater length: 24
3967 1086355 CTTTCAACTCTATAGGAGATTAAC TGCATACAGTCTTTTGCAACACTTATTATTCTGTCATATT spacer
length: 40 repeater length: 24
3968 1086419 CTTTCAACTCTATAGGAGATTAAC CTTTCGTATATCTACCATGAATAAGTCTTGAATGTAAA spacer
length: 38 repeater length: 24
3969 1086481 CTTTCAACTCTATAGGAGATTAAC TTATATTTAGTTAGAATTTTCTCAAAAATCATCTCGATCT spacer
length: 42 repeater length: 24
3970 1086547 CTTTCAACTCTATAGGAGATTAAC CTAACCGTATTGAGTCCGTGGGTGCGACCGGCCACAGTA spacer
length: 40 repeater length: 24
3971 1086611 CTTTCAACTCTATAGGAGATTAAC AGTCTGCTGGCTTTAATCTTCATGTAGTTGCCAGTAGGTTT spacer
length: 41 repeater length: 24
3972 1086676 CTTTCAACTCTATAGGAGATTAAC TTTTGCTTTTCTCTTCTCAAATTTTCTTCTCCATGATTCA spacer
length: 40 repeater length: 24
3973 1086740 CTTTCAACTCTATAGGAGATTAAC CGGTCTGAGTCTCTGGCTGAGACTCTAACTTCTTCTTGAGA spacer
length: 41 repeater length: 24
3974 1086805 CTTTCAACTCTATAGGAGATTAAC ATACCCTAGAGGAAGAAGTTGAGGAGGTCTGGCTCAACTTG spacer
length: 42 repeater length: 24
3975 1086871 CTTTCAACTCTATAGGAGATTAAC ATGAAAACGACCGTGACGTCATTGCAATCATGAATCTCAA spacer
length: 40 repeater length: 24
3976 1086935 CTTTCAACTCTATAGGAGATTAAC ACATGCTAGATTTTGATAAAAATTGAATGCAGAATTTAACCA spacer
length: 42 repeater length: 24
3977 1087001 CTTTCAACTCTATAGGAGATTAAC AACTGTTGCAGAATCGTACTGGAAAGCGGTCCCTGCATT spacer
length: 39 repeater length: 24
3978 1087064 CTTTCAACTCTATAGGAGATTAAC AGCTTTACGGCAAAGAGAAAGAGTTTGATGAGTTCA spacer length:
36 repeater length: 24
3979 1087124 CTTTCAACTCTATAGGAGATTAAC ACGGACACGACCCAGGGGTGATGGTCGTCCCGCTCATGT spacer
length: 39 repeater length: 24
3980 1087187 CTTTCAACTCTATAGGAGATTAAC TCAGAAGAGCCATCGAGAAGATGGTTAAGGAAGAGA spacer length:
36 repeater length: 24

3981 1087247 CTTTCAACTCTATAGGAGATTAAC TCGATCTAATGAAATTGGCTAGGGAGTTCGGTCAGGGGTT spacer
length: 40 repeater length: 24

3982 1087311 CTTTCAACTCTATAGGAGATTAAC GTAAATAGATGAAATCCATGTCCGCTCCACATTACTAGAA spacer
length: 41 repeater length: 24

3983 1087376 CTTTCAACTCTATAGGAGATTAAC CCTCTCAACCTCATGAAAAAGGTGGATGGGAGGGTAG spacer
length: 37 repeater length: 24

3984 1087437 CTTTCAACTCTATAGGAGATTAAC CTTCCCTGATGGTTACACCCCTTTGCACCTAGCGGTAGAACT spacer
length: 42 repeater length: 24

3985 1087503 CTTTCAACTCTATAGGAGATTAAC ACGGACCAATCTTTTGCCTTGCCTCCTTGTACTGCTCATCTAG spacer
length: 43 repeater length: 24

3986 1087570 CTTTCAACTCTATAGGAGATTAAC CCTCAGTGGGACGTTGGCTTTTGATTGGAGAGGTATTC spacer
length: 38 repeater length: 24

3987 1087632 CTTTCAACTCTATAGGAGATTAAC ATTTAACATCTTAGGTGTTATCTTAAGATATTCTGGCTT spacer
length: 39 repeater length: 24

3988 1087695 CTTTCAACTCTATAGGAGATTAAC TTCTAAGACGTGCTCCCTATGTGGGAAATTCATGAGAG spacer
length: 39 repeater length: 24

3989 1087758 CTTTCAACTCTATAGGAGATTAAC CACCTGAAAGGTTACGGCATTACAGGTAGGACGCAATCCTA spacer
length: 40 repeater length: 24

3990 1087822 CTTTCAACTCTATAGGAGATTAAC TTATCATGGCGAATATCAGACGTATTAGGTCACCTCATCT spacer
length: 39 repeater length: 24

3991 1087885 CTTTCAACTCTATAGGAGATTAAC CGCTCCATAATGATATAGTCATGATACAAGGATGGCGTTA spacer
length: 40 repeater length: 24

3992 1087949 CTTTCAACTCTATAGGAGATTAAC AAGCAGGAAGTCTTTACAAAATCAAATGGCTAATACATA spacer
length: 40 repeater length: 24

3993 1088013 CTTTCAACTCTATAGGAGATTAAC TTTTTCTCTTCTCTTTCTCATACGATAAAATACGTAAAGT spacer
length: 40 repeater length: 24

3994 1088077 CTTTCAACTCTATAGGAGATTAAC TTGCTTCTGGAAAGCGGCGCAAGAGAAATTGAGGTTTTAA spacer
length: 40 repeater length: 24

3995 1088141 CTTTCAACTCTATAGGAGATTAAC TACAGATAAGGAAATTCAAAACCTACAGCCAACAGAGAAAT spacer
length: 41 repeater length: 24

3996 1088206 CTTTCAACTCTATAGGAGATTAAC TTGTCTTTTGATTTTCTACTCAACAATTTTGAGTAGAAAA spacer
length: 40 repeater length: 24

3997 1088270 CTTTCAACTCTATAGGAGATTAAC CGTACGAGGCTATCACATGCCTGGGCAAAGGCGTGTGTTC spacer
length: 40 repeater length: 24

3998 1088334 CTTTCAACTCTATAGGAGATTAAC CTTGACGTGGAAGACAAGGCATTATTCACGAAATGGAT spacer
length: 38 repeater length: 24

3999 1088396 CTTTCAACTCTATAGGAGATTAAC GGAACAAAGTGCTACAGCCTTATTGCTAAGGCAAACGAAGC spacer
length: 42 repeater length: 24

4000 1088462 CTTTCAACTCTATAGGAGATTAAC CATCGGGCGCCGGAATGGTTCTAAGCCGTAACGCTTAAA spacer
length: 40 repeater length: 24

4001 1088526 CTTTCAACTCTATAGGAGATTAAC ATTCCCAGGGCATTATCTACAGAAAATGGCAGAAATATAA spacer
length: 40 repeater length: 24

4002 1088590 CTTTCAACTCTATAGGAGATTAAC CAAATCGCCCCCGTTTCGCCCCCGCTTCTCTTTCTTTTCACC spacer
length: 44 repeater length: 24

4003 1088658 CTTTCAACTCTATAGGAGATTAAC ATTGATATTAACGTTAAACCCCACGCCCCCAGTGAAGTT spacer
length: 39 repeater length: 24

4004 1088721 CTTTCAACTCTATAGGAGATTAAC AACGCAGAAAGATGCGTGAGAGAAGCAATGGCGTATCTAGT spacer
length: 41 repeater length: 24

4005 1088786 CTTTCAACTCTATAGGAGATTAAC CCCCCGCTTAGTTTCTGCCACGCATACCTCTGTTCTGCC spacer
length: 39 repeater length: 24

4006 1088849 CTTTCAACTCTATAGGAGATTAAC TCTGGAACCTTAGTACTTCCATGTTAACCACCTGTGTAT spacer
length: 39 repeater length: 24

4007 1088912 CTTTCAACTCTATAGGAGATTAAC TTCACTCTCCCAGTAGACGTTTACAGCTTCAAGATCGTT spacer
length: 39 repeater length: 24

4008 1088975 CTTTCAACTCTATAGGAGATTAAC ATATGGGATGTTCTTATTTAATAAACAAGGAAAAAAGAAGG spacer
length: 41 repeater length: 24

4009 1089040 CTTTCAACTCTATAGGAGATTAAC TCTCACTTATGACTAAAGGTTCTTTGTTCTCAACTTCTTT spacer
length: 40 repeater length: 24

4010 1089104 CTTTCAACTCTATAGGAGATTAAC AGCCACAACCGACGACGGAACTTACTATTTTGTGTA spacer
length: 37 repeater length: 24

4011 1089165 CTTTCAACTCTATAGGAGATTAAC GCACCCACCAAGTCATGGTAGTGGTAGCACTAACAGTAG spacer
length: 40 repeater length: 24

4012 1089229 CTTTCAACTCTATAGGAGATTAAC AAGCTAGTTACATGAATCGTCACATTAAATGTGTTACTTGA spacer
length: 41 repeater length: 24

4013 1089294 CTTTCAACTCTATAGGAGATTAAC CAGTCCGTAATTACCCTATTGCTAACTAATTTTCATAGGAATAG spacer
length: 43 repeater length: 24

4014 1089361 CTTTCAACTCTATAGGAGATTAAC AGTTAGGTTTTCTACTATCATTATCATTATTGAATCAGCG spacer
length: 40 repeater length: 24

4015 1089425 CTTTCAACTCTATAGGAGATTAAC TAGTATGGTGCGCCAGCCTCCGTGCTGACGACATCATA spacer
length: 39 repeater length: 24

4016 1089488 CTTTCAACTCTATAGGAGATTAAC ACTGTCTCTATCGGTATCCAAAAATGTAAAAATTCCTCATT spacer

length: 41 repeater length: 24

4017 1089553 CTTTCAACTCTATAGGAGATTAAC ACCAATTGACGGCCACGGATGGAAGTCCGACAGTGA spacer length: 36 repeater length: 24

4018 1089613 CTTTCAACTCTATAGGAGATTAAC ATTGCCAGCATACGCTAGATCAAAGCTAAAAGATGAGTA spacer length: 39 repeater length: 24

4019 1089676 CTTTCAACTCTATAGGAGATTAAC TGAATCCTAAAGCGTCAAGAATTACCTTCCATTTCGTCAT spacer length: 39 repeater length: 24

4020 1089739 CTTTCAACTCTATAGGAGATTAAC ATCAAGCGATTGCATTTGTTCTCAAGCAGAGGTTACAGGA spacer length: 40 repeater length: 24

4021 1089803 CTTTCAACTCTATAGGAGATTAAC ATGAGAAGTAAAGAAGAATTGAATGAAGCGTTGGAGCAAA spacer length: 40 repeater length: 24

4022 1089867 CTTTCAACTCTATAGGAGATTAAC ATGGGAATACGTTTACCAATTACTGATGCTGATGGGAAGGCCAAC spacer length: 45 repeater length: 24

4023 1089936 CTTTCAACTCTATAGGAGATTAAC AGATTGGGAAAGGTGGTTCAAAGGTACAGACAATAACAT spacer length: 39 repeater length: 24

4024 1089999 CTTTCAACTCTATAGGAGATTAAC ATCATAACTGACGTTGACACCTGCCATAGTTGTTCTGATGG spacer length: 41 repeater length: 24

4025 1090064 CTTTCAACTCTATAGGAGATTAAC GCAAATGCCTTCAAAAACACTTCAAGCGCTAATGTTAGGG spacer length: 41 repeater length: 24

4026 1090129 CTTTCAACTCTATAGGAGATTAAC GAGAGAGAAAGATTTATATACTTGACATGACATATGTATAAA spacer length: 42 repeater length: 24

4027 1090195 CTTTCAACTCTATAGGAGATTAAC CTATTAACATCATAACAATTTGCCACACTAACAGGA spacer length: 38 repeater length: 24

4028 1090257 CTTTCAACTCTATAGGAGATTAAC ACGCAATGGATTATCTGGAAGAGATGCTGGGCAATAAG spacer length: 38 repeater length: 24

4029 1090319 CTTTCAACTCTATAGGAGATTAAC CACGATAAATTATTGGATGAAAACATCTTTTAACTTGTCGC spacer length: 41 repeater length: 24

4030 1090384 CTTTCAACTCTATAGGAGATTAAC TGAAATATTTTCAGCGTTATACTTTTGCTTAATGTACTCTTT spacer length: 42 repeater length: 24

4031 1090450 CTTTCAACTCTATAGGAGATTAAC AGGCGGAAGCTAAGTATTTGTTAGAAATAGAGAAATATACA spacer length: 41 repeater length: 24

4032 1090515 CTTTCAACTCTATAGGAGATTAAC TGTTGATCGGAGACATTATTTAGGTCTTTAATCCCAAATC spacer length: 40 repeater length: 24

4033 1090579 CTTTCAACTCTATAGGAGATTAAC CGATTTACTGGGACTGTGATACCCAACAGCATAGACATCAGTT spacer length: 43 repeater length: 24

4034 1090646 CTTTCAACTCTATAGGAGATTAAC TAGGATTTTTTTTTCTTAGATGATAGATTAATTGGAAATTCCT spacer length: 42 repeater length: 24

4035 1090712 CTTTCAACTCTATAGGAGATTAAC GAAGTGTTTCGCGCTCTGCTAGAACAAATACGGAATGAAAGTGCC spacer length: 44 repeater length: 24

4036 1090780 CTTTCAACTCTATAGGAGATTAAC ACACGTGGTGATTGATCCATTCCAATAAGGCAAATCATTC spacer length: 41 repeater length: 24

4037 1090845 CTTTCAACTCTATAGGAGATTAAC AAGTTATTCGCGCTTTGCGCTTCTTTTTTGTCTTAAACA spacer length: 41 repeater length: 24

4038 1090910 CTTTCAACTCTATAGGAGATTAAC AAATAATTAGTTAGTAGGAGGATAGTTTTGAAAACTTTTTAGAAG spacer length: 45 repeater length: 24

4039 1090979 CTTTCAACTCTATAGGAGATTAAC GTTTGTTTTAGCGCAATATTTAGATCAACAGAAGAAGA spacer length: 41 repeater length: 24

4040 1091044 CTTTCAACTCTATAGGAGATTAAC ACCCAAAAACGTAGTGGGAAAATATAATCTTCATTATTT spacer length: 40 repeater length: 24

4041 1091108 CTTTCAACTCTATAGGAGATTAAC TAGCCCCAGTCGGTTTAGGCGGAAAATTCAACATTAAATT spacer length: 40 repeater length: 24

4042 1091172 CTTTCAACTCTATAGGAGATTAAC TGACGGTTTGACAGAGGTCTATGTGTTACATACAGTAA spacer length: 39 repeater length: 24

4043 1091235 CTTTCAACTCTATAGGAGATTAAC TGAGAAGAGAGAACTATATTTTAGTGAAAAAATGTCAGC spacer length: 40 repeater length: 24

4044 1091299 CTTTCAACTCTATAGGAGATTAAC ACTATCCATCTTCCACAATTTATATTATCCATATTTTCATTA spacer length: 42 repeater length: 24

4045 1091365 CTTTCAACTCTATAGGAGATTAAC AGAATTTATAAGCCAAATTCTTGATAGTTTCTAACAAACG spacer length: 40 repeater length: 24

4046 1091429 CTTTCAACTCTATAGGAGATTAAC AATATTTGTAAATTCATCAAACATTTTCCTAACTTTATC spacer length: 40 repeater length: 24

4047 1091493 CTTTCAACTCTATAGGAGATTAAC AAAGAAGAGAATACAAGCTGTATTTTGTGAGGTTTAGCA spacer length: 39 repeater length: 24

4048 1091556 CTTTCAACTCTATAGGAGATTAAC ATTTGGCAAAATCCTAGCCAGAAGATAGGGGCGACAAC spacer length: 39 repeater length: 24

4049 1091619 CTTTCAACTCTATAGGAGATTAAC CAGTGAAAAAGAAATTACTTAATGTAGTCGAAAAGTG spacer length: 37 repeater length: 24

4050 1091680 CTTTCAACTCTATAGGAGATTAAC ATATGATGGAGAACTCAAGTATATATTTTCACTTCAGATAA spacer length: 42 repeater length: 24

4051 1091746 CTTTCAACTCTATAGGAGATTAAC AATCCAGAACTACGCTTTACCAATACATGAAAAGTAT spacer length: 39 repeater length: 24

4052 1091809 CTTTCAACTCTATAGGAGATTAAC TATAGAAAGCTGTTGGACGAAGCGGTCTCTCCTGAAGAG spacer
 length: 39 repeater length: 24
 4053 1091872 CTTTCAACTCTATAGGAGATTAAC AGGACGTCGT
 4054
 4055
 4056 crispr 2
 4057 1097312 CTTAATCTCCTATAGAGTTGAAAG AAGGCGAAATGCAGAAGATGTAGTAGCAAAGACAGCTGTGA spacer
 length: 41 repeater length: 24
 4058 1097377 CTTAATCTCCTATAGAGTTGAAAG CAACTCTCATGATTATAATCCCTCCATTTTAAATGTATT spacer
 length: 40 repeater length: 24
 4059 1097441 CTTAATCTCCTATAGAGTTGAAAG AAGTTTACTTCAGTTAATGAGCAAGTCAGCGCAGTGCTAA spacer
 length: 40 repeater length: 24
 4060 1097505 CTTAATCTCCTATAGAGTTGAAAG TTATATTTACGGGTAAGACGGCGTTAACGAAGCGTTAGG spacer
 length: 39 repeater length: 24
 4061 1097568 CTTAATCTCCTATAGAGTTGAAAG AGTTTAAACGTTACAACCTCTCGTTTCCAAACACCTCGTTTGT spacer
 length: 42 repeater length: 24
 4062 1097634 CTTAATCTCCTATAGAGTTGAAAG AAAACGAGACCTTTGGCTAAATAAACCGCACCATAGATAT spacer
 length: 40 repeater length: 24
 4063 1097698 CTTAATCTCCTATAGAGTTGAAAG CTATGAAATTGTCGCATTTCGTATGCAAAATATTTCTGGATCT spacer
 length: 42 repeater length: 24
 4064 1097764 CTTAATCTCCTATAGAGTTGAAAG TACATATCCTTCAATTGTGATCTAGCGTATGCTGGTAGT spacer
 length: 39 repeater length: 24
 4065 1097827 CTTAATCTCCTATAGAGTTGAAAG ATTTGGATTTTGATAATTTTCTTTTCTTTGTCATAATAAT spacer
 length: 40 repeater length: 24
 4066 1097891 CTTAATCTCCTATAGAGTTGAAAG TATAGTTAAGTCATTTTTTCTTCTTGTGGTGGTATTACCTAT spacer
 length: 42 repeater length: 24
 4067 1097957 CTTAATCTCCTATAGAGTTGAAAG TACCAATTTCTGCTAATAACGTGAACGTACTCTCGCTGAG spacer
 length: 40 repeater length: 24
 4068 1098021 CTTAATCTCCTATAGAGTTGAAAG TAACTTATCCCTACATGATTGCGAAAAACAACAAT spacer
 length: 37 repeater length: 24
 4069 1098082 CTTAATCTCCTATAGAGTTGAAAG TGTTTTTAAGGACCTGGAGGCAGTCCGCCATTTACCCAC spacer
 length: 40 repeater length: 24
 4070 1098146 CTTAATCTCCTATAGAGTTGAAAG TGAGAACAGCTGTCTTCACTGCTGACCATCGAGCGACCT spacer
 length: 39 repeater length: 24
 4071 1098209 CTTAATCTCCTATAGAGTTGAAAG TTTTCTTTCTCATACATTACTCTTATTAGTTTACTAACAA spacer
 length: 40 repeater length: 24
 4072 1098273 CTTAATCTCCTATAGAGTTGAAAG CTTCTTGTTCTTCTCTCTGCTTTACGCCTTCTTGTCTTCC spacer
 length: 41 repeater length: 24
 4073 1098338 CTTAATCTCCTATAGAGTTGAAAG TCTGTACGTGGGTCAATAAATGTCACAATCGCGTACTTCTT spacer
 length: 41 repeater length: 24
 4074 1098403 CTTAATCTCCTATAGAGTTGAAAG ATAATAATCAACGAGGCAAACCTCCATGTTCTACAAACCA spacer
 length: 39 repeater length: 24
 4075 1098466 CTTAATCTCCTATAGAGTTGAAAG ACTAGGCAAACGATACTGAGACACAGCGGGACTGCAG spacer
 length: 37 repeater length: 24
 4076 1098527 CTTAATCTCCTATAGAGTTGAAAG TTGGAAACACTCCGTATCAATCCTTTAGACTGCAACTCCTCA spacer
 length: 42 repeater length: 24
 4077 1098593 CTTAATCTCCTATAGAGTTGAAAG AACATTAGTGTAAGCCTGCAGCGTTTGCTGGAAGCACGG spacer
 length: 40 repeater length: 24
 4078 1098657 CTTAATCTCCTATAGAGTTGAAAG TCTCGTCCTTAAATTTCAAACTTCCATGTAGCTCGCCCCCTCT spacer
 length: 44 repeater length: 24
 4079 1098725 CTTAATCTCCTATAGAGTTGAAAG CTTATGTACACACCACCTGAGCTAAGGAGTGTCTTAATCT spacer
 length: 40 repeater length: 24
 4080 1098789 CTTAATCTCCTATAGAGTTGAAAG AAATGGGACGATGAGGGTGTTCACAGATACAACACCACAG spacer
 length: 41 repeater length: 24
 4081 1098854 CTTAATCTCCTATAGAGTTGAAAG ATTATATATAATATATGAATAATAGCCCCCGTCTTCGCGCCTT spacer
 length: 44 repeater length: 24
 4082 1098922 CTTAATCTCCTATAGAGTTGAAAG TCTTTTGCACATATCCATTCGACCACATCTCTCGGCTTCGATAC spacer
 length: 44 repeater length: 24
 4083 1098990 CTTAATCTCCTATAGAGTTGAAAG TTGACGACGTGCTTACTCTTCTTTCCAGTTCTTGTACTT spacer
 length: 40 repeater length: 24
 4084 1099054 CTTAATCTCCTATAGAGTTGAAAG TTATCGATAAAATCGTAAACGATTTGTTGCCTTATTACGTGAA spacer
 length: 43 repeater length: 24
 4085 1099121 CTTAATCTCCTATAGAGTTGAAAG ACACCTCTACTAACTTTACCAAAGCCTATCATAGTCCCAACG spacer
 length: 42 repeater length: 24
 4086 1099187 CTTAATCTCCTATAGAGTTGAAAG CCTTTATTCTTGCTATTAGATCGAATAAATCGCTCGCG spacer
 length: 38 repeater length: 24
 4087 1099249 CTTAATCTCCTATAGAGTTGAAAG TAAGTGGACACTATTGATCACCTCAGGGCTAGATATATGCCT spacer
 length: 42 repeater length: 24
 4088 1099315 CTTAATCTCCTATAGAGTTGAAAG TCATTGAAATACTCAGCAACTGTATCCCTTAACTCTTCCTTATTA
 spacer length: 45 repeater length: 24
 4089 1099384 CTTAATCTCCTATAGAGTTGAAAG AGTATACCTGGGAGTGCTGATGTAGATGCGTCACCGACCACGTT spacer

length: 44 repeater length: 24
4090 1099452 CTTAATCTCCTATAGAGTTGAAAG ACTACGGGTCTCAAGGTAGTCGGTGTCTTCTAGTAGCTG spacer
length: 40 repeater length: 24
4091 1099516 CTTAATCTCCTATAGAGTTGAAAG ATCGTACTTTGCGCTGTACCTTATGAACAGTGGAATGTCCC spacer
length: 41 repeater length: 24
4092 1099581 CTTAATCTCCTATAGAGTTGAAAG GTAAAGGGGTTGTGTTTTACGTTTTGAGTGGTGTTCACGAC spacer
length: 41 repeater length: 24
4093 1099646 CTTAATCTCCTATAGAGTTGAAAG CTAAACATATATGAGTTCATTTTTTCCGACTTTCCTAGA spacer
length: 39 repeater length: 24
4094 1099709 CTTAATCTCCTATAGAGTTGAAAG TAAAGTGATAGAATAAAAGCTATTATTCCAACATTTTCT spacer
length: 39 repeater length: 24
4095 1099772 CTTAATCTCCTATAGAGTTGAAAG CCTTGGCAACTCGGACCCCTCAAGCGTACGGAAGAGATT spacer
length: 40 repeater length: 24
4096 1099836 CTTAATCTCCTATAGAGTTGAAAG AAACCTCTCGATCAAGACATTTATTGTCTCTTCATCTATCT spacer
length: 40 repeater length: 24
4097 1099900 CTTAATCTCCTATAGAGTTGAAAG TCTAAGGAGGATAAAGAGGAAGATTGGGCATTTTGTCTGT spacer
length: 41 repeater length: 24
4098 1099965 CTTAATCTCCTATAGAGTTGAAAG TTAGTGTTTACGTATGCTCTTTGTTGAGCTAGTTGTTGAT spacer
length: 40 repeater length: 24
4099 1100029 CTTAATCTCCTATAGAGTTGAAAG TTCACGAGGATGATTATAAGCTCAGGGAGAAGATTGT spacer
length: 37 repeater length: 24
4100 1100090 CTTAATCTCCTATAGAGTTGAAAG ACGTAACCTGTAGATGTGTAACCAGGCTCAGACGAGAA spacer
length: 38 repeater length: 24
4101 1100152 CTTAATCTCCTATAGAGTTGAAAG GAACATCCGCCTTATCGTTATCTTTCTTCTTGAACAGGAAC spacer
length: 41 repeater length: 24
4102 1100217 CTTAATCTCCTATAGAGTTGAAAG TCAATTTATCATACCTACCTAGTCTTACTAAAGTACAGT spacer
length: 39 repeater length: 24
4103 1100280 CTTAATCTCCTATAGAGTTGAAAG GTTGGACTACCTGAAGTAATCGAGCTCAGTGGAGGCA spacer
length: 37 repeater length: 24
4104 1100341 CTTAATCTCCTATAGAGTTGAAAG GTTTTACGTGATACTTTATGATGTCGTTGCATCTATCGA spacer
length: 40 repeater length: 24
4105 1100405 CTTAATCTCCTATAGAGTTGAAAG AGGACATAAGGCCTTGCCATGGTCTCAATATCCCATTCTT spacer
length: 41 repeater length: 24
4106 1100470 CTTAATCTCCTATAGAGTTGAAAG GCACTGACGTTTACTATCTGCAGCCCACTTGGTGACTG spacer
length: 38 repeater length: 24
4107 1100532 CTTAATCTCCTATAGAGTTGAAAG ACACTGCCTTGATGAGCGGGATGCTTCCAATTCTCCCTCT spacer
length: 40 repeater length: 24
4108 1100596 CTTAATCTCCTATAGAGTTGAAAG AGGATTCTTCTAAATGCTGTGACAAATGTTAGAATTAGATA spacer
length: 41 repeater length: 24
4109 1100661 CTTAATCTCCTATAGAGTTGAAAG CAACGAAGAAAGAGTCGAGAACTAAGCAGAGTCGAGCACT spacer
length: 41 repeater length: 24
4110 1100726 CTTAATCTCCTATAGAGTTGAAAG TATTCGTCTGACGATTCCACTTCAACAGAGTTCACAATAA spacer
length: 40 repeater length: 24
4111 1100790 CTTAATCTCCTATAGAGTTGAAAG AGTTGCTCTAGCAGGAGAAGATCCTGCTCTTCGATTTTGAAT spacer
length: 42 repeater length: 24
4112 1100856 CTTAATCTCCTATAGAGTTGAAAG CGGATTGGCT
4113
4114
4115 crispr 3
4116 1104326 GTTAATCTTCTATAGAGTTGAAAG TCTCAATCTGTAGGCCAAGCCACTATTATCATAACTCCAC spacer
length: 40 repeater length: 24
4117 1104390 GTTAATCTTCTATAGAGTTGAAAG TGAATGCAAGCCTGTCGTACATTACTATTCTACCTTGTTTG spacer
length: 41 repeater length: 24
4118 1104455 GTTAATCTTCTATAGAGTTGAAAG TTTGTCTGTTTCGATTGGAATAATTTACGCGTTACCATAAAC spacer
length: 42 repeater length: 24
4119 1104521 GTTAATCTTCTATAGAGTTGAAAG TACCTGTATGACAATTCGCTAAAAATTTAACTATCTAC spacer
length: 39 repeater length: 24
4120 1104584 GTTAATCTTCTATAGAGTTGAAAG TCATTTCCATTTCTTTCAATTTATCAACTATTAACCTAA spacer
length: 39 repeater length: 24
4121 1104647 GTTAATCTTCTATAGAGTTGAAAG GAGGAAAAGAAGGCTAACGCATTAAAGGCGTGGCATTTAGGG spacer
length: 42 repeater length: 24
4122 1104713 GTTAATCTTCTATAGAGTTGAAAG GACCCATATTTAGGAGTTATGTCAGCTATATCCAAGCAT spacer
length: 39 repeater length: 24
4123 1104776 GTTAATCTTCTATAGAGTTGAAAG TCTTGATTTCCATGTCTATCCCCTGCGCATATCTCATATCA spacer
length: 41 repeater length: 24
4124 1104841 GTTAATCTTCTATAGAGTTGAAAG CATGAGCTGTCCCTCCGATAAGATCATATTTGATGCAGA spacer
length: 39 repeater length: 24
4125 1104904 GTTAATCTTCTATAGAGTTGAAAG TGAAATAACCGCCGACATCCAACGCTGGAAATTTATATCT spacer
length: 40 repeater length: 24
4126 1104968 GTTAATCTTCTATAGAGTTGAAAG AATCTTAAACCGCAACCTTTTATAAAATCTTCAACTGTAA spacer
length: 40 repeater length: 24

4127 1105032 GTTAATCTTCTATAGAGTTGAAAG CCTATAACCTAATAGCATAATATTTACTATGTCCCTCCAT spacer
length: 40 repeater length: 24

4128 1105096 GTTAATCTTCTATAGAGTTGAAAG TGCTCACCCCTCTTCAGTTTCTGCGCCTTCTCCCTCACCG spacer
length: 39 repeater length: 24

4129 1105159 GTTAATCTTCTATAGAGTTGAAAG TTGATATTTGAGTGCCTGCGCAAATTCCTCAAACAAATCT spacer
length: 40 repeater length: 24

4130 1105223 GTTAATCTTCTATAGAGTTGAAAG TCTTTAGTCGCTATAATGTCGGGTAATGGTTGCTTACCAG spacer
length: 40 repeater length: 24

4131 1105287 GTTAATCTTCTATAGAGTTGAAAG TCTGATTCTGATACCTCCTCTTCGCTCCCTTCTTGTTACCTTCTT
spacer length: 46 repeater length: 24

4132 1105357 GTTAATCTTCTATAGAGTTGAAAG CTTTTTTGCAACCTAGAAAGCCTTGTTGCGAAATATGGC spacer
length: 39 repeater length: 24

4133 1105420 GTTAATCTTCTATAGAGTTGAAAG ATTGCTTCTACTTCTGCTGGCATTMTTTCCTACTAAAA spacer
length: 38 repeater length: 24

4134 1105482 GTTAATCTTCTATAGAGTTGAAAG GCAATATTGGATAGGATTCATATCATCCAAGTTGCAATAAA spacer
length: 41 repeater length: 24

4135 1105547 GTTAATCTTCTATAGAGTTGAAAG GCAATCATTGCGAAAATAACGGGGCATAAACGCCTGGAC spacer
length: 39 repeater length: 24

4136 1105610 GTTAATCTTCTATAGAGTTGAAAG TAGGTAGAAGGCAGAAGGAAGTTTGTAGCTTCGATATTGGAA spacer
length: 41 repeater length: 24

4137 1105675 GTTAATCTTCTATAGAGTTGAAAG CGTTTCTCTAATCTCGCCAACCTAGTTGCGAAATATGGCTG spacer
length: 41 repeater length: 24

4138 1105740 GTTAATCTTCTATAGAGTTGAAAG TATATTTCTGTCGCTATATCGCCAGAAAGACGTCTGATAT spacer
length: 39 repeater length: 24

4139 1105803 GTTAATCTTCTATAGAGTTGAAAG GTTCACGAGTAAACTGTATAAGAGTGAGGTAACAAATCT spacer
length: 40 repeater length: 24

4140 1105867 GTTAATCTTCTATAGAGTTGAAAG AAAGTGAAAGTGATGCTGGAGGTGAGGGACAGACTGGGAG spacer
length: 40 repeater length: 24

4141 1105931 GTTAATCTTCTATAGAGTTGAAAG ATTTGGATCTTGAGAATTTTCTTTTCTTGTGATAATAA spacer
length: 39 repeater length: 24

4142 1105994 GTTAATCTTCTATAGAGTTGAAAG AAGGCGTATAACAAAACGGCGTATGTCATATGTTCTGCTTCTA spacer
length: 43 repeater length: 24

4143 1106061 GTTAATCTTCTATAGAGTTGAAAG AGAGAGGGCTTCACTTACAAGTAAATCAGCACACCTTAT spacer
length: 39 repeater length: 24

4144 1106124 GTTAATCTTCTATAGAGTTGAAAG GAGAAGTACCCGGGCGTATCCAGGCTAAGCCAGTTATCAA spacer
length: 40 repeater length: 24

4145 1106188 GTTAATCTTCTATAGAGTTGAAAG TTTGCCATGGAAGAAGCGAAATGTCAGTGTTGGTAGCTCC spacer
length: 40 repeater length: 24

4146 1106252 GTTAATCTTCTATAGAGTTGAAAG GAATAGTAAGTAAATCATCACCTGCAATTATCGTGTATTTTT spacer
length: 42 repeater length: 24

4147 1106318 GTTAATCTTCTATAGAGTTGAAAG ATATAACGAAAGAGCGTTCACAAAAGCGTTAGTAG spacer length:
35 repeater length: 24

4148 1106377 GTTAATCTTCTATAGAGTTGAAAG ATTGCTATAAACCACATCATGGCTCCTAGCATCAACG spacer
length: 37 repeater length: 24

4149 1106438 GTTAATCTTCTATAGAGTTGAAAG TACAATCTTATCAACTATGTCTTCCAAAAATGGTGGTAGA spacer
length: 40 repeater length: 24

4150 1106502 GTTAATCTTCTATAGAGTTGAAAG CCAAAAATCGAATTCAAGGACCAAAACGTAAAACCACCTGG spacer
length: 41 repeater length: 24

4151 1106567 GTTAATCTTCTATAGAGTTGAAAG TATGATGTTCTCATTGTATTTGTTGAGATCATGTTTAA spacer
length: 38 repeater length: 24

4152 1106629 GTTAATCTTCTATAGAGTTGAAAG GACACGGCTTTGTAAACAGAGAACCCAGGCAGAACAGATA spacer
length: 40 repeater length: 24

4153 1106693 GTTAATCTTCTATAGAGTTGAAAG ATACCGGTGTCCATACAGCCAATACCCCCAACACCGCCAC spacer
length: 40 repeater length: 24

4154 1106757 GTTAATCTTCTATAGAGTTGAAAG TAATTATATAAGCCGAATTGATGTAAATAAGACAAGATGACT spacer
length: 42 repeater length: 24

4155 1106823 GTTAATCTTCTATAGAGTTGAAAG CTTGTTTTTGTCTTTTTTCTTTGTAATCTTCTATTCTTA spacer
length: 39 repeater length: 24

4156 1106886 GTTAATCTTCTATAGAGTTGAAAG TCATGAATCAGTTTGAAAGAAGAGAAGATTGGTTAAATG spacer
length: 39 repeater length: 24

4157 1106949 GTTAATCTTCTATAGAGTTGAAAG GGTTTTGTCTCTTTTTTCTGGCTTTCCCGCCAGAATCTTT spacer
length: 39 repeater length: 24

4158 1107012 GTTAATCTTCTATAGAGTTGAAAG ATTTGCAATTTCATTTGCAATTGTTTCAATTCACTTCAAAT spacer
length: 41 repeater length: 24

4159 1107077 GTTAATCTTCTATAGAGTTGAAAG CTTTCTTCTTCTATTTCCTTATCTTTTCTTCTTTTCACTAT spacer
length: 41 repeater length: 24

4160 1107142 GTTAATCTTCTATAGAGTTGAAAG CTTATTTTCAGAGGATCTAATAGACGAAGGCGGAATCTTTCT spacer
length: 41 repeater length: 24

4161 1107207 GTTAATCTTCTATAGAGTTGAAAG CTGGCATTACCCAGGCTTGGCGACACACCAGAAGACAGACT spacer
length: 41 repeater length: 24

4162 1107272 GTTAATCTTCTATAGAGTTGAAAG GTTTTTGTTGTTTTCGAAGAGAATTGGCGGGGCGCTGTAATT spacer

length: 41 repeater length: 24
4163 1107337 GTTAATCTTCTATAGAGTTGAAAG GTGGGAACAGCGGTGCTATTCATGACCCCTCGCCCAGGT spacer
length: 39 repeater length: 24
4164 1107400 GTTAATCTTCTATAGAGTTGAAAG AGACTTTATTTCCAGATTTTTCTATATTTATCATTCCGTTTGAT spacer
length: 44 repeater length: 24
4165 1107468 GTTAATCTTCTATAGAGTTGAAAG GAGCACTCTGGGGGATACCCCCCGACCCCTACTGCTAA spacer
length: 40 repeater length: 24
4166 1107532 GTTAATCTTCTATAGAGTTGAAAG TGAGACCGGGACACCGCCGAAATTAAATCCGGCAACGCCA spacer
length: 40 repeater length: 24
4167 1107596 GTTAATCTTCTATAGAGTTGAAAG TCTTCTTTGTCCATCTGTATATCCCAATCACGCCATCTGT spacer
length: 40 repeater length: 24
4168 1107660 GTTAATCTTCTATAGAGTTGAAAG ACTACATATGACGCCGTGGATTGCAGATCTGCTATATTCTT spacer
length: 41 repeater length: 24
4169 1107725 GTTAATCTTCTATAGAGTTGAAAG TCCTCTATCACGTCATCTATAGCCACACACTTTTGAGCGT spacer
length: 40 repeater length: 24
4170 1107789 GTTAATCTTCTATAGAGTTGAAAG ATGGATAAAGACGAATTGAAAGAAATTATTAAGAATTTA spacer
length: 39 repeater length: 24
4171 1107852 GTTAATCTTCTATAGAGTTGAAAG TACTTTTAATCCAGCTTGTCAATGGATGCAGAATTAGAGAGGC spacer
length: 43 repeater length: 24
4172 1107919 GTTAATCTTCTATAGAGTTGAAAG CGTGGGGCTCGCTCTAACTTGTAACGACACATGTTCCCTA spacer
length: 39 repeater length: 24
4173 1107982 GTTAATCTTCTATAGAGTTGAAAG CCTGAGCTAAGGAGTGTCTTAATCTTATCGAAGTCGTCTGGCTT spacer
length: 44 repeater length: 24
4174 1108050 GTTAATCTTCTATAGAGTTGAAAG CTTCGCCGTATAACGATCCTACAACAATAATCACTGATTTTGA spacer
length: 43 repeater length: 24
4175 1108117 GTTAATCTTCTATAGAGTTGAAAG GTAATGAAAGTAATGTCTTTTCTCATACGAAAAGACCAA spacer
length: 39 repeater length: 24
4176 1108180 GTTAATCTTCTATAGAGTTGAAAG AGATGATGCACTGGCAGAGGCGACAAGAGAAAAACCAGGCT spacer
length: 41 repeater length: 24
4177 1108245 GTTAATCTTCTATAGAGTTGAAAG CAATGAATTCAGAAAACAGCTGTTCATCCTGGTTCTCAG spacer
length: 39 repeater length: 24
4178 1108308 GTTAATCTTCTATAGAGTTGAAAG ACAAGGACGTTTTTCGTGATCCAGGTGAGCGAATACACA spacer
length: 38 repeater length: 24
4179 1108370 GTTAATCTTCTATAGAGTTGAAAG AGCAATAATTTAATTGCACTATTTTTAACTGTGCATGA spacer
length: 38 repeater length: 24
4180 1108432 GTTAATCTTCTATAGAGTTGAAAG TTCACTGTCTACACATAAGTATAAGGGGCTTCGCCCTT spacer
length: 39 repeater length: 24
4181 1108495 GTTAATCTTCTATAGAGTTGAAAG CATAATTCGTTTCTGTATTTGGCGTCAAATTTATTTTTAAT spacer
length: 41 repeater length: 24
4182 1108560 GTTAATCTTCTATAGAGTTGAAAG ATTTGAAATAAGACAAATCAGTGCAGAAGAGGCAAGGAACTAG spacer
length: 44 repeater length: 24
4183 1108628 GTTAATCTTCTATAGAGTTGAAAG AGATAACATTTTTTCTCTTGTTTAAACGTATCTACGAACCAG spacer
length: 42 repeater length: 24
4184 1108694 GTTAATCTTCTATAGAGTTGAAAG ACCCCGCCAATCAGTGC GTTGTGCTGGCTTCATATC spacer
length: 41 repeater length: 24
4185 1108759 GTTAATCTTCTATAGAGTTGAAAG TATATATTATATTATGAATTATACCACACACTTCTTTTTTCGC spacer
length: 42 repeater length: 24
4186 1108825 GTTAATCTTCTATAGAGTTGAAAG AGAAACGAATTGTTAGTTTACTTATCACGCCTTCATTCCCA spacer
length: 41 repeater length: 24
4187 1108890 GTTAATCTTCTATAGAGTTGAAAG ATATCCACCCTTCTCACCAAAGAATAATACAAAAATTTAA spacer
length: 41 repeater length: 24
4188 1108955 GTTAATCTTCTATAGAGTTGAAAG GTGGGCGGAA
4189
4190
4191 crispr 4
4192 1109097 GTTAATCTTCTATAGAGTTGAAAG ATTATTACTACTATATCATCCGGATTCAATTTTCTATCCCG spacer
length: 40 repeater length: 24
4193 1109161 GTTAATCTTCTATAGAGTTGAAAG CTTATTTCTTCGCGGTTTATAATGGACCCGGAACG spacer length:
35 repeater length: 24
4194 1109220 GTTAATCTTCTATAGAGTTGAAAG TATCTTCCTGACGTAGATGATGCAGTCCAAACAATAGATAG spacer
length: 41 repeater length: 24
4195 1109285 GTTAATCTTCTATAGAGTTGAAAG TGTACCAAGCCTGGATGGGTAGACCAGGACCGTGATCAAT spacer
length: 40 repeater length: 24
4196 1109349 GTTAATCTTCTATAGAGTTGAAAG TCTTTCATTGGGTTCGTATAAAAATCCTTGACCTAAGGA spacer
length: 39 repeater length: 24
4197 1109412 GTTAATCTTCTATAGAGTTGAAAG CAGACAATACGATCGAGTAGGGGACTGTGTGTAAAAATGAGGG spacer
length: 43 repeater length: 24
4198 1109479 GTTAATCTTCTATAGAGTTGAAAG TGTACACTTCCTTCTTCTTAGGCAAGGTTATTTTAACTT spacer
length: 40 repeater length: 24
4199 1109543 GTTAATCTTCTATAGAGTTGAAAG GGCGGGTGAAAGAACTACTCGAGAAAGAGAAAAGAAAA spacer
length: 39 repeater length: 24

4200	1109606	GTTAATCTTCTATAGAGTTGAAAG	AGTATCATTCAGTGGAAAGTTGTACGGTATGAGGAGTCATA	spacer
	length:	41	repeater length:	24
4201	1109671	GTTAATCTTCTATAGAGTTGAAAG	ATTCCACGATTTTAAACCTTTACAGATTCCCCATATCCTG	spacer
	length:	39	repeater length:	24
4202	1109734	GTTAATCTTCTATAGAGTTGAAAG	CCTAGATCACGGGGCCAATCCAAACGTGAAAGATCTAGAT	spacer
	length:	40	repeater length:	24
4203	1109798	GTTAATCTTCTATAGAGTTGAAAG	TCAAAGGTTGCTGAGGACTGTTATAGGGATGCACTCTCAGT	spacer
	length:	41	repeater length:	24
4204	1109863	GTTAATCTTCTATAGAGTTGAAAG	TTGATCGTTAAAAAGTAACGTAAGACGTTTCACAAGAGA	spacer
	length:	39	repeater length:	24
4205	1109926	GTTAATCTTCTATAGAGTTGAAAG	ATATTGATTATGAAGACTTTAAGAAAGATACCAATTCTAT	spacer
	length:	40	repeater length:	24
4206	1109990	GTTAATCTTCTATAGAGTTGAAAG	TAATTCCTCTTTGATCTCTCTGGATTCTTGTTTTGTTGAAT	spacer
	length:	41	repeater length:	24
4207	1110055	GTTAATCTTCTATAGAGTTGAAAG	TTATTTTCGAGTTTCTCATATATCTCCACGTTATGTCAGA	spacer
	length:	40	repeater length:	24
4208	1110119	GTTAATCTTCTATAGAGTTGAAAG	CTCTCGTTAAGGAACCTACTCAAAGCCCTCAAAGACGAT	spacer
	length:	39	repeater length:	24
4209	1110182	GTTAATCTTCTATAGAGTTGAAAG	TTCAACTCCACGATTGATTTGATAATTATCAAGGCTTTT	spacer
	length:	39	repeater length:	24
4210	1110245	GTTAATCTTCTATAGAGTTGAAAG	AATGAGAGAGTCAGGCCGAGGCCCTCATTACATCTATCATAT	spacer
	length:	43	repeater length:	24
4211	1110312	GTTAATCTTCTATAGAGTTGAAAG	ATAAACCAGCGTTTCCCTACAAGTATGAGGCCAAAGAACA	spacer
	length:	39	repeater length:	24
4212	1110375	GTTAATCTTCTATAGAGTTGAAAG	AGGAATGAAGTGAGTTGTCCGGGTGGTACACCAGTCAAGTCAG	spacer
	length:	43	repeater length:	24
4213	1110442	GTTAATCTTCTATAGAGTTGAAAG	GCTTGTTGCTCAGCCATTGCGTAACCTCACCCAC	spacer length: 35
	length:	35	repeater length:	24
4214	1110501	GTTAATCTTCTATAGAGTTGAAAG	TGGACACGTTGGGAAGGCCCTTGCCACGCGGAACCTCAGA	spacer
	length:	38	repeater length:	24
4215	1110563	GTTAATCTTCTATAGAGTTGAAAG	AGAGACTGGACCATAAAAAGGAGTTCCTAAAGCGGGTAATAAA	spacer
	length:	42	repeater length:	24
4216	1110629	GTTAATCTTCTATAGAGTTGAAAG	TAAAGATTGACCTTATTACTCTTGACAAATATATCCCG	spacer
	length:	38	repeater length:	24
4217	1110691	GTTAATCTTCTATAGAGTTGAAAG	AACTTTGAAGTCAGAGTTTTCTGCTTCTTTTATTACTTTA	spacer
	length:	40	repeater length:	24
4218	1110755	GTTAATCTTCTATAGAGTTGAAAG	TACATTACCTTGATTATCCATTGTTGCGTTTAGCTGAAG	spacer
	length:	39	repeater length:	24
4219	1110818	GTTAATCTTCTATAGAGTTGAAAG	TATGATTTTCTCGCTATTCACCACCTCCTTGATATACTGTA	spacer
	length:	41	repeater length:	24
4220	1110883	GTTAATCTTCTATAGAGTTGAAAG	TCCATATAGAGATTTCTAATAATCAATTGGGGATAGATAT	spacer
	length:	40	repeater length:	24
4221	1110947	GTTAATCTTCTATAGAGTTGAAAG	ACGTTGAACCAACGTTACCCCCCGCCGTCAAAGACGC	spacer
	length:	37	repeater length:	24
4222	1111008	GTTAATCTTCTATAGAGTTGAAAG	TCCACGGAGGGGTGGAGAATGAAACTATTCGAAGGGAC	spacer
	length:	38	repeater length:	24
4223	1111070	GTTAATCTTCTATAGAGTTGAAAG	ATGAGATCTACCTCGAAAATACGAAGGCAGACGTTGAGG	spacer
	length:	39	repeater length:	24
4224	1111133	GTTAATCTTCTATAGAGTTGAAAG	GAAAATCTCAAAGACTTGTTAATCCCATCAAAAAAATGG	spacer
	length:	39	repeater length:	24
4225	1111196	GTTAATCTTCTATAGAGTTGAAAG	ATATCGTTATCCGCGGTCATTCTCACGTGAGTGATTG	spacer
	length:	37	repeater length:	24
4226	1111257	GTTAATCTTCTATAGAGTTGAAAG	ACGGTACGCCGTCGCCGACGCGGGGATACCCTGTATCAG	spacer
	length:	40	repeater length:	24
4227	1111321	GTTAATCTTCTATAGAGTTGAAAG	AATAGTCTGCGTGGAAGTAAGTGACCTTCACGAACTTT	spacer
	length:	38	repeater length:	24
4228	1111383	GTTAATCTTCTATAGAGTTGAAAG	CGTGACCCCGCTCGTGCGGTCACGGCATGCTAGGAGGAGG	spacer
	length:	40	repeater length:	24
4229	1111447	GTTAATCTTCTATAGAGTTGAAAG	AAATTTTTAGAAGAAATATACGAATGTGTAGATAAAAA	spacer
	length:	38	repeater length:	24
4230	1111509	GTTAATCTTCTATAGAGTTGAAAG	TTTCTTTGTTACGATCACTAACTCTAAGATATAATCGGGG	spacer
	length:	41	repeater length:	24
4231	1111574	GTTAATCTTCTATAGAGTTGAAAG	CAATAAAATCGTGATCAAAACGTTTTTTGAATGAACTCATG	spacer
	length:	40	repeater length:	24
4232	1111638	GTTAATCTTCTATAGAGTTGAAAG	CTCATCAAGAGGCATTATTTTCTCATCAAAACCGCCAAGAT	spacer
	length:	41	repeater length:	24
4233	1111703	GTTAATCTTCTATAGAGTTGAAAG	AAAAATTATTCTTGTTGGATCTGTTGCTGCTATATTGGGTGTA	spacer
	length:	43	repeater length:	24
4234	1111770	GTTAATCTTCTATAGAGTTGAAAG	TTAGTAAGTCCCTAGGGCATGATCCCAGAAATAACCACCA	spacer
	length:	41	repeater length:	24
4235	1111835	GTTAATCTTCTATAGAGTTGAAAG	GTAGATTATCAATCTTACCCAACGGTCCAAAGGAACTAAGTAT	spacer

length: 43 repeater length: 24
4236 1111902 GTTAATCTTCTATAGAGTTGAAAG TTTATCCTTAGGTATCTCATAGAGACTGGTTTAGCTTCGA spacer
length: 40 repeater length: 24
4237 1111966 GTTAATCTTCTATAGAGTTGAAAG GCTATCAAAAGCTGGAGAGCAAGTAGCGACCTTTCTTTT spacer
length: 39 repeater length: 24
4238 1112029 GTTAATCTTCTATAGAGTTGAAAG TAATCGGTTAAACCGCTTTTGAAAGGAAAATAGAATGAT spacer
length: 39 repeater length: 24
4239 1112092 GTTAATCTTCTATAGAGTTGAAAG ATCCAAATCATTAGAATTAACGATAATTTTCGGTAAGGAT spacer
length: 39 repeater length: 24
4240 1112155 GTTAATCTTCTATAGAGTTGAAAG TACTGGAATCCGTATATAATTGATTCAATTTAGTGGAACCA spacer
length: 40 repeater length: 24
4241 1112219 GTTAATCTTCTATAGAGTTGAAAG AACTTCCTACTTAGACCGCGAATTAGCGATCTAGGAATCGA spacer
length: 41 repeater length: 24
4242 1112284 GTTAATCTTCTATAGAGTTGAAAG AGTCTAACCCCTTCTGTCCCTGATATTTTCTCTATA spacer
length: 38 repeater length: 24
4243 1112346 GTTAATCTTCTATAGAGTTGAAAG TTCTCAATTAGTCCACCCAAGGTATCGTGAGAACCATAGTCG spacer
length: 43 repeater length: 24
4244 1112413 GTTAATCTTCTATAGAGTTGAAAG AAAATTCGACGAGAAAATACAGAGAATCGCGAAGGCA spacer
length: 37 repeater length: 24
4245 1112474 GTTAATCTTCTATAGAGTTGAAAG CTCCGCGAATTCTCTAAGTTTCGGAATAGCGTTGCCCTGA spacer
length: 40 repeater length: 24
4246 1112538 GTTAATCTTCTATAGAGTTGAAAG ACAAGCCAAATGATGAAGTTACTACTACTAATACTACTACTAA spacer
length: 43 repeater length: 24
4247 1112605 GTTAATCTTCTATAGAGTTGAAAG TTGCCATCGCCTCAACTACTGCCAGACCAAATGTCTCAC spacer
length: 39 repeater length: 24
4248 1112668 GTTAATCTTCTATAGAGTTGAAAG TTCAGCTTAAGGATGACACTCTTGATATGTTGAGTCTTTCC spacer
length: 41 repeater length: 24
4249 1112733 GTTAATCTTCTATAGAGTTGAAAG GTAGGTGTGAAAATCACTATAGTCATCATACAGCCTCAT spacer
length: 39 repeater length: 24
4250 1112796 GTTAATCTTCTATAGAGTTGAAAG TGCTTTGTACGTAAAATGACGTGCTTCTCCTTATACCAA spacer
length: 39 repeater length: 24
4251 1112859 GTTAATCTTCTATAGAGTTGAAAG TGCACCAGTCCCTAGTGTAACCCCTTCCAATATTGACGTCT spacer
length: 41 repeater length: 24
4252 1112924 GTTAATCTTCTATAGAGTTGAAAG CTTCATATCTTCAGCTTCAGGGTACCAGAGACGAATCTCACC spacer
length: 42 repeater length: 24
4253 1112990 GTTAATCTTCTATAGAGTTGAAAG AGTAAAATAGGTCCTGCATTTGTACTAGGCGTTACGAATAAT spacer
length: 42 repeater length: 24
4254 1113056 GTTAATCTTCTATAGAGTTGAAAG AGTATCGCAGCGGGCGGGGATGTCGCCGAAAAATCTACG spacer
length: 39 repeater length: 24
4255 1113119 GTTAATCTTCTATAGAGTTGAAAG GTAATATCGGTCAATCCCACGAATGTGGACGTATACA spacer
length: 37 repeater length: 24
4256 1113180 GTTAATCTTCTATAGAGTTGAAAG CGATGAACTGAAGGCAACGCCAAAACAACTGTTTCAGGAAAAA spacer
length: 42 repeater length: 24
4257 1113246 GTTAATCTTCTATAGAGTTGAAAG AGAGAGTCTAGGAGCAGGGATACAGAATGCTATAGGATCC spacer
length: 40 repeater length: 24
4258 1113310 GTTAATCTTCTATAGAGTTGAAAG TATTGCGGACAAAGTTCAAAGTCATATATTTCTTTGCCCCC spacer
length: 41 repeater length: 24
4259 1113375 GTTAATCTTCTATAGAGTTGAAAG ATTCACCCAGGGACGTTAATGCCGAATTCTATGAGGACAG spacer
length: 40 repeater length: 24
4260 1113439 GTTAATCTTCTATAGAGTTGAAAG TTCTATAGTCAGGGGCATTTGGATTTACCTTAAGTTTGA spacer
length: 39 repeater length: 24
4261 1113502 GTTAATCTTCTATAGAGTTGAAAG GAATATTGCAATTTCTGGATTATGAACACTGGAAAGTGATAG spacer
length: 42 repeater length: 24
4262 1113568 GTTAATCTTCTATAGAGTTGAAAG TCGAAGTCCCTGTACCACCTCCACCCGTGCTAGTTTCT spacer
length: 38 repeater length: 24
4263 1113630 GTTAATCTTCTATAGAGTTGAAAG CCCTGATCATCTTTAGCACTCATATGTTATCATGATA spacer
length: 37 repeater length: 24
4264 1113691 GTTAATCTTCTATAGAGTTGAAAG ATCCAAGAACTCAATCAACTCCAGCGTATTTTCCCCAAA spacer
length: 39 repeater length: 24
4265 1113754 GTTAATCTTCTATAGAGTTGAAAG ATCTTCCTCACCCTTATGTCCCAATGCCCCGAATTAGACC spacer
length: 40 repeater length: 24
4266 1113818 GTTAATCTTCTATAGAGTTGAAAG GTAGCGTTTGAGGAACTAACCAATGCGACGATACAAGTA spacer
length: 39 repeater length: 24
4267 1113881 GTTAATCTTCTATAGAGTTGAAAG GCACAATTGTTGTGCGGTAAAGGAGAATGGAACAAACATAG spacer
length: 40 repeater length: 24
4268 1113945 GTTAATCTTCTATAGAGTTGAAAG GCACCTCCGCCTCCCCACCTCCACCTGCTCCGATTGCT spacer
length: 39 repeater length: 24
4269 1114008 GTTAATCTTCTATAGAGTTGAAAG TAATTTTCTCGGTTACGGTACTGCCACTACTGGCAAT spacer
length: 37 repeater length: 24
4270 1114069 GTTAATCTTCTATAGAGTTGAAAG TAAGGATGAACCTAATTGCTCAAGGAGAATAAGATCCTGC spacer
length: 40 repeater length: 24

4271 1114133 GTTAATCTTCTATAGAGTTGAAAG GATAATGTAGCGTATATCCTCAAGCAGTTCTATAACAGAA spacer
 length: 40 repeater length: 24
 4272 1114197 GTTAATCTTCTATAGAGTTGAAAG ATTATACTACTGTTATGTACTGTACTGTATATATTCCTTA spacer
 length: 40 repeater length: 24
 4273 1114261 GTTAATCTTCTATAGAGTTGAAAG ATCTTTTCCACTGTATATTGACCATATCTTCTATCTAGA spacer
 length: 39 repeater length: 24
 4274 1114324 GTTAATCTTCTATAGAGTTGAAAG TAAAGGAATGAGCTCTTGAATGACAAAACCCTTCGTTATACG spacer
 length: 42 repeater length: 24
 4275 1114390 GTTAATCTTCTATAGAGTTGAAAG TCACTTTGCTCTTTATCGCATCTCCGACGTCGTTGAGAA spacer
 length: 39 repeater length: 24
 4276 1114453 GTTAATCTTCTATAGAGTTGAAAG CCTTATGTAACCTTGATCCATCTTCTGCACAACCTAGATCCT spacer
 length: 41 repeater length: 24
 4277 1114518 GTTAATCTTCTATAGAGTTGAAAG CTCATGGTTCCCTGTCTCTCCTAGATGCATTAGACCAGACCCT spacer
 length: 43 repeater length: 24
 4278 1114585 GTTAATCTTCTATAGAGTTGAAAG TATCATAAGAACATAGTAGAGAAGGCTCAGGATTACGCA spacer
 length: 39 repeater length: 24
 4279 1114648 GTTAATCTTCTATAGAGTTGAAAG CCACATTGAC
 4280
 4281
 4282 crispr 5
 4283 1136093 GTTTCAAACCCTCGAAGGATCTCTACAA
 ACGACACGCTCTACACCCCCCCCCCGTGTGAGTGTGGGAAGCGGGGATCCC spacer length: 52 repeater
 length: 28
 4284 1136173 GTTTCAAACCCTCGAAGGATCTCTACAA ACTGGGGTCCATTGTGATGAAGATTTTCGGAGAAATTGAAGA
 spacer length: 41 repeater length: 28
 4285 1136242 GTTTCAAACCCTCGAAGGATCTCTACAA ACTCCCCTGTTACGACTGAACCAATACTTGATTGCACGT spacer
 length: 39 repeater length: 28
 4286 1136309 GTTTCAAACCCTCGAAGGATCTCTACAA ACCTCTACACACTAAGAGTAGCTGAGACCATAAAAACCAA spacer
 length: 40 repeater length: 28
 4287 1136377 GTTTCAAACCCTCGAAGGATCTCTACAA ACACATCATAGCCATGTCACCGAACGGAACCTCTGAGGTACTT
 spacer length: 42 repeater length: 28
 4288 1136447 GTTTCAAACCCTCGAAGGATCTCTACAA GCATTCAACTAGTGGCGTCTCCTGAAGGGCAACTATT spacer
 length: 37 repeater length: 28
 4289 1136512 GTTTCAAACCCTCGAAGGATCTCTACAA GAAGGGCTATTCTGCGTACGCTTCCCACCTCTGGAGGCA spacer
 length: 39 repeater length: 28
 4290 1136579 GTTTCAAACCCTCGAAGGATCTCTACAA CCAGGACCAG
 4291
 4292
 4293 crispr 6
 4294 1137825 TTGTAGTGATCCTTTGAGGGTTTGAAC AAATAGTACTGACTTGATACGGCTAGGTGATAATAGCGT spacer
 length: 39 repeater length: 28
 4295 1137892 TTGTAGTGATCCTTTGAGGGTTTGAAC GCAAAGGCCTTTCCACACTCTCCAAGGGAGTATGAAGT spacer
 length: 39 repeater length: 28
 4296 1137959 TTGTAGTGATCCTTTGAGGGTTTGAAC CTTACGTCTTGAAAGTACTCGATTATCAATTTAACAGGT spacer
 length: 39 repeater length: 28
 4297 1138026 TTGTAGTGATCCTTTGAGGGTTTGAAC GCGTCAATTCTCTAAAAAGAAAAGGCTAGCGTGAAGGGGAC
 spacer length: 41 repeater length: 28
 4298 1138095 TTGTAGTGATCCTTTGAGGGTTTGAAC TAAGTGAACCATGGGTATTCCCCCTCCGGGGGAACCTTCGAC
 spacer length: 41 repeater length: 28
 4299 1138164 TTGTAGTGATCCTTTGAGGGTTTGAAC TCGGAAAGAACATATACATCCTCCCCGTGGTTCCCGGGT spacer
 length: 39 repeater length: 28
 4300 1138231 TTGTAGTGATCCTTTGAGGGTTTGAAC GTGTTTGTCCCCATCTTTTGATGGGGCAGCTGCTCCTCT spacer
 length: 39 repeater length: 28
 4301 1138298 TTGTAGTGATCCTTTGAGGGTTTGAAC TATACTTTGGAAAATCAGTATATCTCTTGTATCTTCTGT spacer
 length: 39 repeater length: 28
 4302 1138365 TTGTAGTGATCCTTTGAGGGTTTGAAC TCGATAGCGAACCTGATAACTTCGCTTCTATTTCAGTCTGT spacer
 length: 40 repeater length: 28
 4303 1138433 TTGTAGTGATCCTTTGAGGGTTTGAAC ATAGACGTATCGACCCGCCGTATAGCATCAAGAAGATAGT spacer
 length: 40 repeater length: 28
 4304 1138501 TTGTAGTGATCCTTTGAGGGTTTGAAC TACACGACGCGATCACACTCACATGCCCCGCTGTGCGCGTTGT
 spacer length: 43 repeater length: 28
 4305 1138572 TTGTAGTGATCCTTTGAGGGTTTGAAC ATAACCTCTATACGCTCTCACACGGCTGAGGTCGAGGAGC spacer
 length: 39 repeater length: 28
 4306 1138639 TTGTAGTGATCCTTTGAGGGTTTGAAC CCACCTTCACCCTCGCCTTACGGCCCTTTTCCTTCCTCAGT
 spacer length: 41 repeater length: 28
 4307 1138708 TTGTAGTGATCCTTTGAGGGTTTGAAC GATTAAGGC
 4308
 4309
 4310 GCA_000017165.1_ASM1716v1_genomic.fna (PilerCR):
 4311 START REPEAT
 SPACER

4312	crispr 1	
4313	127423	ATACGAAACGTTGATCCATCAAAACAAGGATTGAGAC CATTGTAGCATAACAGACGTATTGATTACCTCTATC
	spacer length: 37	repeater length: 37
4314	127497	ATACGAAACGTTGATCCATCAAAACAAGGATTGAGAC TCTTTGAATATACCATCTGATGAGTCAGCTAAGATT
	spacer length: 36	repeater length: 37
4315	127570	ATACGAAACGTTGATCCATCAAAACAAGGATTGAGAC AACGGATATCGATTATATAAGACGATTATATATTGA
	spacer length: 36	repeater length: 37
4316	127643	ATACGAAACGTTGATCCATCAAAACAAGGATTGAGAC GTACACGGGCAACT
4317		
4318		
4319	crispr 2	
4320	262820	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC CCAATGAAGCAAGTACTAATGAGTCGTATTATACAA
	spacer length: 36	repeater length: 37
4321	262893	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC CTATCTAATATCCTATTATGTAATGGCTCGCACTCGT
	spacer length: 37	repeater length: 37
4322	262967	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC CAGAATCGTAAGTACCTAAATTTATAGTTCCATCA
	spacer length: 35	repeater length: 37
4323	263039	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TGTTACGCCGTTTGCGGTTCCAAAATCAGATATTT
	spacer length: 35	repeater length: 37
4324	263111	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TTCTATAGGTGTTGCTTGAAAGTTCCGTAATGTCTG
	spacer length: 36	repeater length: 37
4325	263184	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TGTCTTTTTTTTCTTGTTTCAACTGAAAGAGATAC
	spacer length: 35	repeater length: 37
4326	263256	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TACAATTCAGAGAACTGGTGCTTCGGGTAAGATACC
	spacer length: 36	repeater length: 37
4327	263329	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC CTGGCCAGGCTTATGCTATGCATATGGAGAATATCCGAAT spacer length: 40 repeater length: 37
4328	263406	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TCCGACGATACCGGAAAAATCCAATGTATCGGCTT
	spacer length: 35	repeater length: 37
4329	263478	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC CTGGAAAACACCTACTGTTAATCCTGCAAGTATGAAT
	spacer length: 37	repeater length: 37
4330	263552	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TTCATTGTCAACTACTTCTGCGATTCCCAAATCAG
	spacer length: 35	repeater length: 37
4331	263624	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TTTATTCTACCCCAACTATTACTATAACTAGCAGAG
	spacer length: 36	repeater length: 37
4332	263697	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TACGTGATGTAGTACGTGTCTGCTGCAGCGATGAATAA
	spacer length: 38	repeater length: 37
4333	263772	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TTGTTGATGCAATTCCTGCCATTGACGTTCCGT
	spacer length: 33	repeater length: 37
4334	263842	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC CTGCTCCAAGCATGATTACTGCTACTGCGATGATTGG
	spacer length: 37	repeater length: 37
4335	263916	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC GTTTCTATGTGTTGGGTTGTGCCATTGTTGTAATG
	spacer length: 35	repeater length: 37
4336	263988	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC ACCGATAATGTTTTGTACTCCTTCAACATTTTCTCTATA
	spacer length: 39	repeater length: 37
4337	264064	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TCCAGAATTGATAAACGGTATACATTAAAAACCATTA
	spacer length: 37	repeater length: 37
4338	264138	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TCAATTCTTTGTCAAGATGAAATTAAGATTATTATAC
	spacer length: 39	repeater length: 37
4339	264214	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TATAGTTCTATTTTTTAACACACTTTAAAAAGTGTA
	spacer length: 36	repeater length: 37
4340	264287	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TTGGAACCGGATTTTATAAATTATATGATATTA
	spacer length: 33	repeater length: 37
4341	264357	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC AGTTTCATCCATCTCTTTTTTGGTATATTTTCATAATTAT
	spacer length: 39	repeater length: 37
4342	264433	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC GTTCGATATGAGGGGAACCAATCTCAAGTGTGGGATGT
	spacer length: 38	repeater length: 37
4343	264508	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TCTTAAAAGATAAAGGATATGATAAAAGGGATGATA
	spacer length: 36	repeater length: 37
4344	264581	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC AATCAGTAAATCAGTATCGAATATTAAGGGTTTTG
	spacer length: 35	repeater length: 37
4345	264653	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TTTGTAGTTGCTATACTATCCCTCTGTTTTATTTT
	spacer length: 35	repeater length: 37
4346	264725	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TCTGTCAATGTTTCTACTTCCGCTTTAAATCAATA
	spacer length: 36	repeater length: 37
4347	264798	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC CATAAATTAATTTCTTCATTGGTTAGAATGCCCTCGT
	spacer length: 37	repeater length: 37
4348	264872	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC CAGTGAAAATCCATATGAATTGGCACAGTACTTCAT
	spacer length: 36	repeater length: 37
4349	264945	GTTTCAATGCTTGTTCTAATGCATTATGCTCTTTTAC TACTCCTTCAACATTCTCTCGATATAAGTCATCTTT
	spacer length: 36	repeater length: 37

4350	265018	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	GATACAGTCTTCACACATTGCACCACTTTCAAGTGTGTG
	spacer	length: 39	repeater length: 37
4351	265094	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	ACCACTCCAAAAAAGATAATGATTATTTGATAATTAT
	spacer	length: 37	repeater length: 37
4352	265168	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	AAATATCACATAGGAATAATTTTACCTCCGTAGCGAT
	spacer	length: 37	repeater length: 37
4353	265242	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	AGACGAAAGATCAGTTATTCAACTGATTTTCCACGCAG
	spacer	length: 38	repeater length: 37
4354	265317	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CCTTCATGTTTTTCCATTTCTTTTATTGTGAAGT
	spacer	length: 34	repeater length: 37
4355	265388	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TGAATCAACGTATCCTGTATCAATTTTGAGTTTAA
	spacer	length: 35	repeater length: 37
4356	265460	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	AGTTAATTGCTGTAATTTAAACGAGTTTTTCCTTGT
	spacer	length: 36	repeater length: 37
4357	265533	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	AAGAATAATGCAATGGCAAACATCACAGATGAGAAAT
	spacer	length: 37	repeater length: 37
4358	265607	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	ATCGAATAGTAGTTTTTTTTCCGAAGTACTCACTTGG
	spacer	length: 36	repeater length: 37
4359	265680	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	AGTTCAAAAAGCAATGGCAAGAAAGAATTACAAAGCGT
	spacer	length: 38	repeater length: 37
4360	265755	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TCAGACAAACTATGCCTTAACTGTCTTTTTTCAGACAT
	spacer	length: 37	repeater length: 37
4361	265829	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CTGAACTTCTAGTTCTTGAAAATCTACATATTCGGA
	spacer	length: 36	repeater length: 37
4362	265902	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TTATCGGTTCAAAGTGTAAGTGTGAAGCAGGATA
	spacer	length: 35	repeater length: 37
4363	265974	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	ATGCCCTTCAGTAATCTCGAATGCAAATCTTTCGACAC
	spacer	length: 39	repeater length: 37
4364	266050	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	ATTTGGCCGTACTCAGTATATATAATATCTGAGTCGT
	spacer	length: 37	repeater length: 37
4365	266124	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CTATTTATGCAAAATAAAGATAAAAAGTTTAAAGCCAT
	spacer	length: 38	repeater length: 37
4366	266199	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TTTTCATGTTGATCCCTCAATTAAAGTTTTCTTTAT
	spacer	length: 36	repeater length: 37
4367	266272	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CTTAAAAGATAAAGGATATGATAAAAGGGACTACA
	spacer	length: 35	repeater length: 37
4368	266344	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	
	TACTATTTAGTATCCCTTAAAAAACTAGTATCATATGACT	spacer	length: 40
4369	266421	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	AAATATTACAGAAGCTCAGCACATAGAATCCATAT
	spacer	length: 35	repeater length: 37
4370	266493	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TACCAAGATATTATTTGCACAGTAGGTAACCGGAAAA
	spacer	length: 37	repeater length: 37
4371	266567	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TCTATATCTTTTGCTAAAATATTAATTTGATATGCTC
	spacer	length: 37	repeater length: 37
4372	266641	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	AACAAACCTAGAGGGTGCAGACCTTAGGGGGGCTGACT
	spacer	length: 38	repeater length: 37
4373	266716	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TATTTTACAATTTATAATATGTGAATATTACTATA
	spacer	length: 35	repeater length: 37
4374	266788	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TTTTTCACAATTTAGCAATATTTATTAAAGTTTTCTT
	spacer	length: 37	repeater length: 37
4375	266862	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	AGAAGAGGAGCTAGAGATGGTGAAGTCAACCGTTATTCT
	spacer	length: 38	repeater length: 37
4376	266937	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TTTACTTATTATTGATTGAAAGGGGGCGATAATGAC
	spacer	length: 36	repeater length: 37
4377	267010	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CCTATTTTAATTGTAGTTAAAAAATCAATTTAAAT
	spacer	length: 35	repeater length: 37
4378	267082	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	AGATGTGGAAATGGTAGAAATTATTGAAGAAGAAGC
	spacer	length: 36	repeater length: 37
4379	267155	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CCAACCTCGGCTGTTGCTTACTATGGGAAAAAAGTTA
	spacer	length: 36	repeater length: 37
4380	267228	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	ACGATAACGAGACTGTTGAAGTAGACCCAACTCTTG
	spacer	length: 36	repeater length: 37
4381	267301	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CTTTGTTTCGATTGTTACAGGTCCATAGTTTTTTTTTA
	spacer	length: 36	repeater length: 37
4382	267374	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	AATTATTACACGACATAATAGACCAATAATTTGT
	spacer	length: 35	repeater length: 37
4383	267446	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CTCAGATTTTTCAAATTTTTTCGAGGTATGGTATTATA
	spacer	length: 38	repeater length: 37
4384	267521	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	AATCGATTATTACAGAACTAATACGTTCTCTATATA
	spacer	length: 35	repeater length: 37
4385	267593	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TCGTTGTTTGTGAGTTCTTGATAATATAACACCTT

spacer length: 36 repeater length: 37
 4386 267666 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTTTGAATATGGTAAAAACATGTCTTAATTATGATGATA
 spacer length: 39 repeater length: 37
 4387 267742 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AAGATCACCGGGTCGGGACCCAGATTTATCTTAA
 spacer length: 34 repeater length: 37
 4388 267813 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ATTTAACAAAAATAGTGAGAACATGAACGATATTGA
 spacer length: 36 repeater length: 37
 4389 267886 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TGATTCTAATTCACCATTATGTAAGCTACCGGATTC
 spacer length: 36 repeater length: 37
 4390 267959 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TCCAATTCCTGAAGGTCATGATCTGGATCAGGACTTGA
 spacer length: 38 repeater length: 37
 4391 268034 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TAGATCACTATGCTGGAAAAAAGCAACTGAAATAAT
 spacer length: 37 repeater length: 37
 4392 268108 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC
 TTGAAAAAATACTTACTGAATTGTGATTAATGGTGAAAT spacer length: 40 repeater length: 37
 4393 268185 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ACTGTAAGGAATTCTGATAAATTTATTCATTCCAGCA
 spacer length: 37 repeater length: 37
 4394 268259 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ATCACTAATCTCGTCGACAACCACACATTTTAAGTT
 spacer length: 36 repeater length: 37
 4395 268332 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC
 ATTGACTCTTTTAATTTGATTTTCAGGTGCTAAGTCAATACG spacer length: 41 repeater length: 37
 4396 268410 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTCTATTATTGTTTTTCGTCGTTAGGATTTTCGTCT
 spacer length: 36 repeater length: 37
 4397 268483 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CCAAATGTTTTTTTACGATATCTCTAATTGA spacer
 length: 32 repeater length: 37
 4398 268552 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CGCTTTTAATTTATATGGTGAAAACAATTTTAAATT
 spacer length: 36 repeater length: 37
 4399 268625 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ATTATTTTATAATAATATATTATCTATTATACTA
 spacer length: 34 repeater length: 37
 4400 268696 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AAAACAATTCGATAAAATACATTATGAAATAATAAG
 spacer length: 37 repeater length: 37
 4401 268770 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TACTAAAAGATAAAGGATATGATAAAAGGGATTACA
 spacer length: 36 repeater length: 37
 4402 268843 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ATCACTTTTTTATTATTTCTATTTTCGATAGAATATT
 spacer length: 37 repeater length: 37
 4403 268917 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TACTACAAAGGATAGAAGACTATTATATAATTGAA
 spacer length: 35 repeater length: 37
 4404 268989 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AGTGAGAATACATAAAAACAATCAAAAAGAAGGGA
 spacer length: 35 repeater length: 37
 4405 269061 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTCATTGTCAACTACTTCTGCGATTCCCAAATCAG
 spacer length: 35 repeater length: 37
 4406 269133 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTTATTCTACCCCACTATTACTATAACTAGCAGAG
 spacer length: 36 repeater length: 37
 4407 269206 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AGTGAGAATACATAAAAACAATCAAAAAGAAGGGA
 spacer length: 35 repeater length: 37
 4408 269278 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTGTTGATGCAATTCCTGCCATTGACGTTCCGT
 spacer length: 33 repeater length: 37
 4409 269348 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CTGCTCCAAGCATGATTACTGCTACTGCGATGATTGG
 spacer length: 37 repeater length: 37
 4410 269422 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC GTTGTATGTGATGCCTTCCCCTCCCGACTGAACGT
 spacer length: 35 repeater length: 37
 4411 269494 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CGATATATAATATTATATTATAATATCGGGTCAAAA
 spacer length: 36 repeater length: 37
 4412 269567 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TATCCTGTCTTTGTATTTTCATTTGTTGAATTAATAC
 spacer length: 36 repeater length: 37
 4413 269640 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTTCAATTTTTGCATTTTCTTCAAGATAGTTAATG
 spacer length: 35 repeater length: 37
 4414 269712 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ATTACTTACTATATATAGTTATCTACACTAAGTA
 spacer length: 34 repeater length: 37
 4415 269783 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC GGCCGAAAAATTTAACTTTTAATAACTGCATATCT
 spacer length: 35 repeater length: 37
 4416 269855 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC GAAACGATTGGAGTTAATATGTAAGATTTTGAGTAT
 spacer length: 36 repeater length: 37
 4417 269928 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC
 ACAGGTAATCAAAAGTAATTTGGGGGCAACTGCGTTATAC spacer length: 40 repeater length: 37
 4418 270005 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC GACTATTTTTTTTATAAAAGCATAACTATATATATGA
 spacer length: 36 repeater length: 37
 4419 270078 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CCAAGGACAT
 4420
 4421
 4422 GCA_000017185.1_ASM1718v1_genomic.fna (PilerCR):

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4423 START REPEAT
4424 SPACER
4424 crispr 1
4425 1121705 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TCGTGTTCACCTTATGGCTATAATCTGTTTTGG
spacer length: 32 repeater length: 37
4426 1121774 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TTTCCATTGTGGTAGCTTCATAATTACAGTTC
spacer length: 32 repeater length: 37
4427 1121843 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TAATTATTTTCGCATGATGTTGCAGAGCATTGAATAT
spacer length: 36 repeater length: 37
4428 1121916 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC GACATAATATCTCACCAATTTGGTAGTTGTGGCA
spacer length: 34 repeater length: 37
4429 1121987 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TTGGAGTTAGCCCTTGCAGGAGTTGGAAAGGT
spacer length: 32 repeater length: 37
4430 1122056 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TTTCCCTTATATCTCATTATAAATTTTACGGCGTAGC
spacer length: 37 repeater length: 37
4431 1122130 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TGCATATATAAATTCAAATATGTCGATATTACAAAA
spacer length: 36 repeater length: 37
4432 1122203 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC GGACAGTAAAAACATTATCAGACTATACGGAGGTAAA
spacer length: 37 repeater length: 37
4433 1122277 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TTGTTGTTATGTCGGTGTCTGTTAAATCAAATTTCAA
spacer length: 37 repeater length: 37
4434 1122351 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TTTTGGAGCCATTTCATAATTTTGATTAATTCCAT
spacer length: 34 repeater length: 37
4435 1122422 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TGCATATATAAATTCAAATATGTCGATATTACAAAA
spacer length: 36 repeater length: 37
4436 1122495 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC GGACAGTAAAAACATTATCAGACTATACGGAGGTAAA
spacer length: 37 repeater length: 37
4437 1122569 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TTGTTGTTATGTCGGTGTCTGTTAAATCAAATTTCAA
spacer length: 37 repeater length: 37
4438 1122643 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TTTTGGAGCCATTTCATAATTTTGATTAATTCCAT
spacer length: 34 repeater length: 37
4439 1122714 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC GATCTGATGGAATCATTGAAATTATTGCAAATCC
spacer length: 34 repeater length: 37
4440 1122785 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC CGATGGCCTG
4441
4442
4443 GCA_000017225.1_ASM1722v1_genomic.fna (PilerCR):
4444 START REPEAT
4445 SPACER
4445 GCA_000017625.1_ASM1762v1_genomic.fna (PilerCR):
4446 START REPEAT
4447 SPACER
4447 GCA_000017945.1_ASM1794v1_genomic.fna (PilerCR):
4448 START REPEAT
4449 SPACER
4449 crispr 1
4450 89077 CTTTCTATCCTCTCTTGAGACTCCAC GCTGTACCAATACTGGGGCGCGTTGTGTGTGCCACACGAACC spacer
length: 42 repeater length: 26
4451 89145 CTTTCTATCCTCTCTTGAGACTCCAC TCTGCACCTCCCTCACGTCTCGTAGACGTGGTCTGA spacer length:
36 repeater length: 26
4452 89207 CTTTCTATCCTCTCTTGAGACTCCAC AAAAAGGTATTTCGCATGAGCGTGGGAGCCGAGATCAT spacer
length: 38 repeater length: 26
4453 89271 CTTTCTATCCTCTCTTGAGACTCCAC GGTTCTACAAGCGAGAGACTCACCTGGTACTACATTACCTTGTTAG
spacer length: 46 repeater length: 26
4454 89343 CTTTCTATCCTCTCTTGAGACTCCAC TCCCTCTTCT
4455
4456
4457 crispr 2
4458 260446 CTTTCTATCCTCTTTTGAGACTCCAC TACCAATATCTCCTGCATAATTGTGCCACCGCTTAGTCAC spacer
length: 40 repeater length: 26
4459 260512 CTTTCTATCCTCTTTTGAGACTCCAC GGCCTGGGATCTATTTCAGGGCCCTGAAAGAGGGAAGGCCGAT spacer
length: 42 repeater length: 26
4460 260580 CTTTCTATCCTCTTTTGAGACTCCAC AGAGGCAAGAAGTACGCGGAGCTAGGGGCGCTGGCGGGCGT spacer
length: 41 repeater length: 26
4461 260647 CTTTCTATCCTCTTTTGAGACTCCAC CCCACCCCTCGCCAAGAGGAAGTCTCAGGAAGTGGTTGGG spacer
length: 41 repeater length: 26
4462 260714 CTTTCTATCCTCTTTTGAGACTCCAC GGCAGCCGACGATAACCCCGGAGAGGTGCCCCGATGATC spacer
length: 40 repeater length: 26
4463 260780 CTTTCTATCCTCTTTTGAGACTCCAC TGCCTGGAGAGCTTGGCAAGGGGAGTGGCGTGTGGCAGG spacer
length: 41 repeater length: 26
4464 260847 CTTTCTATCCTCTTTTGAGACTCCAC GAACGATAGGAAAGTGATTTATGTTTCGACTGAGCAAACAAT spacer

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length: 42 repeater length: 26
4465 260915 CTTTCTATCCTCTTTTGAGACTCCAC ATGAATATATAGTAAAGCTCGCGAGGCTACTCGACTACCTCGT spacer
length: 43 repeater length: 26
4466 260984 CTTTCTATCCTCTTTTGAGACTCCAC GAACATGAGG
4467
4468
4469 crispr 3
4470 290617 GTGGAGTCTCAAAAGAGGATAGAAAAG GCTCATCTTCGTGATTTGACAACTATGGTCAAGTCGA spacer
length: 38 repeater length: 26
4471 290681 GTGGAGTCTCAAAAGAGGATAGAAAAG TTCTCTAGCTTTACGATGTTTGAGAAGCTGAGGTAGTTGTCGT spacer
length: 43 repeater length: 26
4472 290750 GTGGAGTCTCAAAAGAGGATAGAAAAG GCATTAATTTCTATGTAATATTCCTCGTTATTCTCCTTG spacer
length: 39 repeater length: 26
4473 290815 GTGGAGTCTCAAAAGAGGATAGAAAAG AACACATCACCTTAAGCAACTTGTCTATATCATCCT spacer
length: 37 repeater length: 26
4474 290878 GTGGAGTCTCAAAAGAGGATAGAAAAG TTAGTAATTATTGTGACACTCTTTGTTTCAGGGTCTTTTATGAAGA
spacer length: 46 repeater length: 26
4475 290950 GTGGAGTCTCAAAAGAGGATAGAAAAG TTGCAAAGTA
4476
4477
4478 crispr 4
4479 413552 CTTTCTATCCTCTTTTGAGACTCCAC GGGTGAAAAAAGAGTACGTAACGTGACGGCGATGGCAG spacer
length: 38 repeater length: 26
4480 413616 CTTTCTATCCTCTTTTGAGACTCCAC ATAGAGGGGCCAGCGATCCTCCCGGCCGAAGTGAATGGAATCTA
spacer length: 44 repeater length: 26
4481 413686 CTTTCTATCCTCTTTTGAGACTCCAC AGATGTACAAAAATATACATATTCCACTGCGACGATATGAC spacer
length: 41 repeater length: 26
4482 413753 CTTTCTATCCTCTTTTGAGACTCCAC AAACCCTAGAACAAATAAAAAGAGCCTTACAAGAAGTTCT spacer
length: 40 repeater length: 26
4483 413819 CTTTCTATCCTCTTTTGAGACTCCAC GGCAGGGTCTACTCTCCTGAGGAAGTTGAGGAGCTGCTGAG spacer
length: 41 repeater length: 26
4484 413886 CTTTCTATCCTCTTTTGAGACTCCAC GGAGGATGATG
4485
4486
4487 crispr 5
4488 413946 ACTTTCCATTCTCTCTTGAGACTTCAC AGCTTCTCGACGTTGACGAAGTTCAGTATCGCGCGT spacer
length: 36 repeater length: 27
4489 414009 ACTTTCCATTCTCTCTTGAGACTTCAC CGCATGCGGAGGAGGAGTGGTCATAAGAAGCGAAGATGGTA spacer
length: 41 repeater length: 27
4490 414077 ACTTTCCATTCTCTCTTGAGACTTCAC GCCTTCGATGTTAACTTCCATTCCCTTTGATGAC spacer
length: 35 repeater length: 27
4491 414139 ACTTTCCATTCTCTCTTGAGACTTCAC TGAAGGGGGTTCTCGGGTTAGCTGAACTCTTGATATCGTAC spacer
length: 41 repeater length: 27
4492 414207 ACTTTCCATTCTCTCTTGAGACTTCAC ATGGAAAGATAATACTGAGACCGACATGGGATTTCTGGTGTT spacer
length: 42 repeater length: 27
4493 414276 ACTTTCCATTCTCTCTTGAGACTTCAC ACGGAAACGA
4494
4495
4496 crispr 6
4497 915467 GTGGAGTCTCAAGAGAGAATGGAAAG GTACTAATGCCGTATTACCAAATCTAAACGATAGGCGAGAT spacer
length: 41 repeater length: 26
4498 915534 GTGGAGTCTCAAGAGAGAATGGAAAG TGTACTTGTGCTACTGATGAAGAAGATGGGGTGAGAGC spacer
length: 38 repeater length: 26
4499 915598 GTGGAGTCTCAAGAGAGAATGGAAAG GAGGGACCAG
4500
4501
4502 crispr 7
4503 952489 GTGGAGTCTCAAGAGAGGATAGAAAAG TGTTAAACCTAGTTCTAGCTCTCGACACAATTATGTTTT spacer
length: 39 repeater length: 26
4504 952554 GTGGAGTCTCAAGAGAGGATAGAAAAG GATATCGCCGATTTACGGGAGGGAAGGAGAATTCCTA spacer
length: 37 repeater length: 26
4505 952617 GTGGAGTCTCAAGAGAGGATAGAAAAG GTGAGGTGAAGGTACTGCCTGTTGGCGGAGGCCATCAGCATGTCCT
spacer length: 46 repeater length: 26
4506 952689 GTGGAGTCTCAAGAGAGGATAGAAAAG CGAGGTTTCATGACC
4507
4508
4509 crispr 8
4510 955648 GATTAAACGAAAGAGAACTGCAAG CTTGTACTGTGCTAGCTGGGCCGAGAGCTCAGTTGCTC spacer
length: 39 repeater length: 24
4511 955711 GATTAAACGAAAGAGAACTGCAAG ACTTGTTGACGACCTCGTCGAGCTTGTCGTACGCTTG spacer
length: 38 repeater length: 24

4512 955773 GATTAAACGAAAGAGAACTGCAAG ATGTCGTCACAGTGAAATACATACACCTTCTGCAAATCT spacer
 length: 39 repeater length: 24
 4513 955836 GATTAAACGAAAGAGAACTGCAAG ATGTCGTCACAGTGAAATACATACACCTTCTGCAAATCT spacer
 length: 39 repeater length: 24
 4514 955899 GATTAAACGAAAGAGAACTGCAAG ATGTCGTCACAGTGAAATACATACACCTTCTGCAAATCT spacer
 length: 39 repeater length: 24
 4515 955962 GATTAAACGAAAGAGAACTGCAAG GTTCTTTATCATTCATTTCCTGCCATACTCTGAGAAACA spacer
 length: 39 repeater length: 24
 4516 956025 GATTAAACGAAAGAGAACTGCAAG CCGGTGCACCACACGTTTTTCGCCCTTCGACCTCGTCCCC spacer
 length: 38 repeater length: 24
 4517 956087 GATTAAACGAAAGAGAACTGCAAG CTGGCGTGATGACGGTCGTACGATGACTATCCTAGAA spacer length:
 37 repeater length: 24
 4518 956148 GATTAAACGAAAGAGAACTGCAAG AGAGCACTATCGAACAGATAGACCTCAACGTTTTTCAG spacer length:
 37 repeater length: 24
 4519 956209 GATTAAACGAAAGAGAACTGCAAG TGCTAATCTGTTCCAAGGGAACGTCGACGCCATGGCGAA spacer
 length: 39 repeater length: 24
 4520 956272 GATTAAACGAAAGAGAACTGCAAG TGGGTTCTTTCTGCCACCACCGCACACCTCATGAGC spacer
 length: 38 repeater length: 24
 4521 956334 GATTAAACGAAAGAGAACTGCAAG CTAGTGTACGCTTCACCGTGTGAAGACATAATGAGCAG spacer
 length: 38 repeater length: 24
 4522 956396 GATTAAACGAAAGAGAACTGCAAG CTTTGCATTTTCCTTCGGCAATGTAGCTCGCTATCGC spacer length:
 36 repeater length: 24
 4523 956456 GATTAAACGAAAGAGAACTGCAAG CGAGGGAATGAGCGGAGGGAAGCGGGATGAGGAGCGAG spacer
 length: 38 repeater length: 24
 4524 956518 GATTAAACGAAAGAGAACTGCAAG ATTAGAAGCACCACATGAACGAATCGGTGTGCATCAGG spacer
 length: 38 repeater length: 24
 4525 956580 GATTAAACGAAAGAGAACTGCAAG TATGAATAACGGGTCCTCGATTACTTCTGGGTGTCT spacer length:
 37 repeater length: 24
 4526 956641 GATTAAACGAAAGAGAACTGCAAG CAATGGCTTACCCAACACGGCCTGAGCGAAGAGGTCTTT spacer
 length: 39 repeater length: 24
 4527 956704 GATTAAACGAAAGAGAACTGCAAG TTTGTCGAGCTCTTGCCAGGATAGACTAGGACAACCG spacer length:
 37 repeater length: 24
 4528 956765 GATTAAACGAAAGAGAACTGCAAG GGGTCTGCTGGCAGATCGGCGATGTCATCGCAATGGTA spacer
 length: 38 repeater length: 24
 4529 956827 GATTAAACGAAAGAGAACTGCAAG TGAATGGCGGGTGCGGGAGATGGTTGAGGAGAAGATGGTAGT spacer
 length: 42 repeater length: 24
 4530 956893 GATTAAACGAAAGAGAACTGCAAG TAAGTAATATTCTATTAGCATCTTCTTCAAGTTTTCA spacer length:
 37 repeater length: 24
 4531 956954 GATTAAACGAAAGAGAACTGCAAG TATAAGGGCTATGGCATGATGGTAATGATGATAATGA spacer length:
 37 repeater length: 24
 4532 957015 GATTAAACGAAAGAGAACTGCAAG GAAAGGGAGA
 4533
 4534
 4535 crispr 9
 4536 1009878 CTTTCTATCCTCTTTTGAGACTTCAC ATTCTCTTTCCTCTTTTGGGTGTCTGGGAGTCCTGCG spacer
 length: 37 repeater length: 26
 4537 1009941 CTTTCTATCCTCTTTTGAGACTTCAC AGTGTTAGAAGGTAAAGAGATAGAGATATTGAACGTTAGAGAAT
 spacer length: 44 repeater length: 26
 4538 1010011 CTTTCTATCCTCTTTTGAGACTTCAC AGGAAGTGGCGAACGAGGAGGAGGCCAAGAGACTGTGTGA spacer
 length: 40 repeater length: 26
 4539 1010077 CTTTCTATCCTCTTTTGAGACTTCAC TTGTGAACCCCGTTCTGGTGGTACAGGCCGAGAGCGAGGT spacer
 length: 40 repeater length: 26
 4540 1010143 CTTTCTATCCTCTTTTGAGACTTCAC AACTTACGAACGGTGACTTAGGTACAACAGGAAGTCTAAGTCTA
 spacer length: 44 repeater length: 26
 4541 1010213 CTTTCTATCCTCTTTTGAGACTTCAC AACACCACGAAGAAGTTATTGCGTAAAAAACATTACCGAAAG spacer
 length: 42 repeater length: 26
 4542 1010281 CTTTCTATCCTCTTTTGAGACTTCAC GCTGCCGCAA
 4543
 4544
 4545 GCA_000018305.1_ASM1830v1_genomic.fna (PilerCR):
 4546 START REPEAT
 SPACER
 4547 crispr 1
 4548 232507 CTTTCTAATCCCTTTTGGGATTTTC TTTCTCTCTCTTTCACACTACGTACATGGATACAGATATAT spacer
 length: 41 repeater length: 25
 4549 232573 CTTTCTAATCCCTTTTGGGATTTTC TAGTGACACGAAGTTCCTGTATTTCGACATTAAGGTAGACTATA spacer
 length: 44 repeater length: 25
 4550 232642 CTTTCTAATCCCTTTTGGGATTTTC TTGTTTGGTTGAGAATCTGCTCAATAGCGGAGTAAGCCGAT spacer
 length: 41 repeater length: 25
 4551 232708 CTTTCTAATCCCTTTTGGGATTTTC ATGAAAAATTCATGTTAAATTAATTAGAAAAATCATGATTTTCA spacer
 length: 44 repeater length: 25

4552 232777 CTTTCTAATCCCTTTTGGGATTTTC TTCACAGTCGGTAACTGCCACACCTGGTTACCGTTAAACCCCA spacer
 length: 43 repeater length: 25
 4553 232845 CTTTCTAATCCCTTTTGGGATTTTC CCCTGTGGACA
 4554
 4555
 4556 crispr 2
 4557 370259 TTA CTCTTTCTAATCCCTTTTGGGATTTACA TGCAAATTC CGAATCAGAAGCAAACATTAAAGAAAATA spacer
 length: 38 repeater length: 31
 4558 370328 TTA CTCTTTCTAATCCCTTTTGGGATTTACA AGCTCAGGAAACCAGCCACGATTCAAGAACTCATT spacer
 length: 35 repeater length: 31
 4559 370394 TTA CTCTTTCTAATCCCTTTTGGGATTTACA CAAGGACCCGCTCTTC
 4560
 4561
 4562 crispr 3
 4563 1258729 GAAAATCCCAAAAGGGATTAGAAAG TATGGAACACATGTATAGATAGAGACCTAGAAACCTACACGAGTT
 spacer length: 45 repeater length: 25
 4564 1258799 GAAAATCCCAAAAGGGATTAGAAAG TATCCGTTTAGTGTTCCTTGCTTCCACGTGGAGGATTC spacer
 length: 40 repeater length: 25
 4565 1258864 GAAAATCCCAAAAGGGATTAGAAAG TTCCCACTTCCTTAATGTACTCATAATTTTTTAATTATTTTTT spacer
 length: 43 repeater length: 25
 4566 1258932 GAAAATCCCAAAAGGGATTAGAAAG TTCTAAATAATTTAATGAATCCTGACACAAGTGACTTAATGATTCTT
 spacer length: 47 repeater length: 25
 4567 1259004 GAAAATCCCAAAAGGGATTAGAAAG TCAAAATTGAGCGCACTAAAGATGGCGGTAGGTAATTAAG spacer
 length: 40 repeater length: 25
 4568 1259069 GAAAATCCCAAAAGGGATTAGAAAG CAATATTATCATGGTTTATGCATAAAGTTACAGGTTCTA spacer
 length: 39 repeater length: 25
 4569 1259133 GAAAATCCCAAAAGGGATTAGAAAG GTAATTATATATATCACTTAACGTTACTTCGTTAAACGCGTAG spacer
 length: 43 repeater length: 25
 4570 1259201 GAAAATCCCAAAAGGGATTAGAAAG CTGATGTATCCATATTTCTGCAGAATAGAGTCCGGTATTT spacer
 length: 40 repeater length: 25
 4571 1259266 GAAAATCCCAAAAGGGATTAGAAAG AACATGAACAC
 4572
 4573
 4574 crispr 4
 4575 1583087 CTTTCTAATCCCTCTTGGGATTTTC ATGAAAAAGCCATAATTGTTACAGGGAAAAAGGAAAATAA spacer
 length: 40 repeater length: 25
 4576 1583152 CTTTCTAATCCCTCTTGGGATTTTC GGATGCATTCCCCTACTCCATAACAACCGTGAGGGGTTTGATTAAT
 spacer length: 46 repeater length: 25
 4577 1583223 CTTTCTAATCCCTCTTGGGATTTTC TTAATTATTAAGTCTTTATCCTTAATTTTTTAATTCGAATTCC spacer
 length: 43 repeater length: 25
 4578 1583291 CTTTCTAATCCCTCTTGGGATTTTC ACGAGAAGGCC
 4579
 4580
 4581 crispr 5
 4582 1588508 GAAAATCCCAAAAGGGATTAGAAAG CCGCAGACGTTGCTCAGCTTGTTTAACAGTTTAGCGAAGCCGC spacer
 length: 43 repeater length: 25
 4583 1588576 GAAAATCCCAAAAGGGATTAGAAAG GATAAGGCCACGGTTTCAAGTACATTGAGGAATCGTTACAAT spacer
 length: 42 repeater length: 25
 4584 1588643 GAAAATCCCAAAAGGGATTAGAAAG TGTATGATAATTCCACCTTAGTGCTAGTTCCCCATGAACCTA spacer
 length: 42 repeater length: 25
 4585 1588710 GAAAATCCCAAAAGGGATTAGAAAG GCGGTATAATTGAGTACCGTTACTGAACATGAACTTGAGGAAAATC
 spacer length: 46 repeater length: 25
 4586 1588781 GAAAATCCCAAAAGGGATTAGAAAG TG TAGTAACGTGGAAATAAAGGTACACTTG TAGCAGGTA spacer
 length: 39 repeater length: 25
 4587 1588845 GAAAATCCCAAAAGGGATTAGAAAG TTGTGGTCGTAGAAGTCGAAACCTAACCTATTAAGTCTC spacer
 length: 40 repeater length: 25
 4588 1588910 GAAAATCCCAAAAGGGATTAGAAAG TTTACAAAATCCTCAAATCCCTCAAATTTTTTCCATAGGGAATCAAG
 spacer length: 46 repeater length: 25
 4589 1588981 GAAAATCCCAAAAGGGATTAGAAAG TAATTACAGCTGTGAACTCAGGAAACATAAAATATATATCACT spacer
 length: 43 repeater length: 25
 4590 1589049 GAAAATCCCAAAAGGGATTAGAAAG GCTTATGATGATTGCCGTTGATGGTAAGACATAATTAATCACT spacer
 length: 43 repeater length: 25
 4591 1589117 GAAAATCCCAAAAGGGATTAGAAAG TTATCACTACTCCAATGCAATGAACCCAGCAAGTCTTCATACTCAT
 spacer length: 46 repeater length: 25
 4592 1589188 GAAAATCCCAAAAGGGATTAGAAAG GGAGACGGTGGCGGCCCTTCAGGAATGCGGTATGAAGTGCCTCATA
 4593
 4594
 4595 crispr 6
 4596 1611613 AAATCCCAAAAGGGATTAGAAAG TATTGCATAATCAAGCAATTTAGCATAACCCCATCCGCTTACGA spacer
 length: 44 repeater length: 23
 4597 1611680 AAATCCCAAAAGGGATTAGAAAG ATATTGGTATCATTGAGTTCACCAATACGTTTTATAACAAGTGACCTGA

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spacer length: 49 repeater length: 23
4598 1611752 AAATCCCAAAAGGGATTAGAAAG GTCAGGTGGGTTGATAACCAATTCAAGCCCATAGATATACTTGAGA
spacer length: 46 repeater length: 23
4599 1611821 AAATCCCAAAAGGGATTAGAAAG TGTTTCCGAAGGCGTTGCTCCACGTTAGGTACCCGTTGATAATCGT
spacer length: 46 repeater length: 23
4600 1611890 AAATCCCAAAAGGGATTAGAAAG CATGTAGGGGATAGATCCCTATGCACCCCGATTATATCAAGT spacer
length: 42 repeater length: 23
4601 1611955 AAATCCCAAAAGGGATTAGAAAG TGCATTATGAGGGCGTCCGCTATTAAACCGTGGCCTGGGGTTAGA spacer
length: 45 repeater length: 23
4602 1612023 AAATCCCAAAAGGGATTAGAAAG CCTCGGCGAC
4603
4604
4605 crispr 7
4606 1700149 CTTTCTAATCCCTCTTGGGATTTTCT ATTCCCCTACTCCATAACAACCGTGAGGGGTTTGATTAAT spacer
length: 40 repeater length: 26
4607 1700215 CTTTCTAATCCCTCTTGGGATTTTCT TAATTATTAAGTCTTTATCCTTAATTTTTTAATTCGAATTCC spacer
length: 42 repeater length: 26
4608 1700283 CTTTCTAATCCCTCTTGGGATTTTCT GGATTGATTTAAGCGGTAACGGTTACAATGCAGTATTTCGT spacer
length: 40 repeater length: 26
4609 1700349 CTTTCTAATCCCTCTTGGGATTTTCT
4610
4611
4612 GCA_000018365.1_ASM1836v1_genomic.fna(PilerCR):
4613 START REPEAT
SPACER
4614 crispr 1
4615 294183 GTTTC AATTCTCCTAGAGTCTTATTGCAAC AAGGCTACGAGGCAAAGTATAAAGTGAAGTCAGTAA spacer
length: 37 repeater length: 30
4616 294250 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CCAAACATTTCCATCCACCTCCATCTTTTTTGCTTTTT spacer
length: 37 repeater length: 30
4617 294317 GTTTC AATTCTCCTAGAGTCTTATTGCAAC TTGAAGAGATAACTACAGACATGGAGATGTTAGGGGTA spacer
length: 38 repeater length: 30
4618 294385 GTTTC AATTCTCCTAGAGTCTTATTGCAAC ATATCGCCGCCCATTCGACGACATAAGGGCGTATAAA spacer
length: 38 repeater length: 30
4619 294453 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GAGGGAGAGCCATGAACACCTTCGGTCATTTTTTTGTGG spacer
length: 39 repeater length: 30
4620 294522 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CCCGATGTCGGTCAGGTCAGCAGCCCCGATGTCGT spacer
length: 35 repeater length: 30
4621 294587 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GCAC TCGGTTGATGGATTGCGCGAGCTCATGGCCGACAT spacer
length: 39 repeater length: 30
4622 294656 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CTTGGAAATCTCCATTATGGGTTGATTGTAGTATTCA spacer
length: 37 repeater length: 30
4623 294723 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CCGTTCGTGGTGTTCTTGAAGAGGCCCTTAATGAGTA spacer
length: 37 repeater length: 30
4624 294790 GTTTC AATTCTCCTAGAGTCTTATTGCAAC TGAGGTCGAGCTCGCCGACGAGGCGGTCATTAAGTCTT spacer
length: 38 repeater length: 30
4625 294858 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GCTACTACGACCGCAGGGATGGCTTTGCCGTGGAATTC spacer
length: 38 repeater length: 30
4626 294926 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CGGGCCTCACCTCCATAGTACGCTTTTTTCGATAGTTAC spacer
length: 38 repeater length: 30
4627 294994 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GCGCTGGAAGCCGCCGATACGTCTATGGCCCAATA spacer
length: 36 repeater length: 30
4628 295060 GTTTC AATTCTCCTAGAGTCTTATTGCAAC AGTTCCTGCTCCCACTTCTTGAGCCGGGCCTCGCGCT spacer
length: 37 repeater length: 30
4629 295127 GTTTC AATTCTCCTAGAGTCTTATTGCAAC AGAACTACCCGCGACCGCCTTCGGGTCCTTCTCTT spacer
length: 37 repeater length: 30
4630 295194 GTTTC AATTCTCCTAGAGTCTTATTGCAAC ATGCTAGTATTCCTGCAAAGTTTATAAACACAGAATA spacer
length: 37 repeater length: 30
4631 295261 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CTGCTTATTGGGGCTGCTGGGGCTGCCCTGGTTCTAG spacer
length: 37 repeater length: 30
4632 295328 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GGCCGGTAGTCTCCAGATCCAGGACTATCTCTCCCTC spacer
length: 37 repeater length: 30
4633 295395 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CTGTCCAGCAGGTCTTTCACCGTACCCTGCACAAACAG spacer
length: 38 repeater length: 30
4634 295463 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GCGAGATATGCCAGGACAAGGCCGAACGCAGCCGCGA spacer
length: 37 repeater length: 30
4635 295530 GTTTC AATTCTCCTAGAGTCTTATTGCAAC ACCCCTTCGTCGTCCTCGCTTTCGCTTTCGAGGGTC spacer
length: 36 repeater length: 30
4636 295596 GTTTC AATTCTCCTAGAGTCTTATTGCAAC AGGATGGCGTCGGAGTTTAAGGCGGTGGTGAGCCGT spacer
length: 36 repeater length: 30
4637 295662 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GAGATGCTAAAGGGAAAGGCCCTGAACTCGCCGCGAA spacer

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length: 38 repeater length: 30
4638 295730 GTTTC AATTCTCCTAGAGTCTTATTGCAAC AAGATCGTGG
4639
4640
4641 crispr 2
4642 728607 GTTTC AATAAGACTCTAAGAGAATTGAAAG GCCTTGGCGTGCTCGCCGCTCTGGGCTTCGTCGTTTT spacer
length: 37 repeater length: 30
4643 728674 GTTTC AATAAGACTCTAAGAGAATTGAAAG GCCGGATTGAGAACTCCCCTCCCGGGTGGCTAATGGG spacer
length: 37 repeater length: 30
4644 728741 GTTTC AATAAGACTCTAAGAGAATTGAAAG GAGGCCTAAAATATCAGCTCATAGACCCGGAGAACCTC spacer
length: 38 repeater length: 30
4645 728809 GTTTC AATAAGACTCTAAGAGAATTGAAAG CTATTTTTTACCTGCATCGGCTTCATTCTGCCGGTAA spacer
length: 37 repeater length: 30
4646 728876 GTTTC AATAAGACTCTAAGAGAATTGAAAG TTCGTCGAGAAGGGCCTCGAGCTTTCGCTTCATTTC spacer
length: 37 repeater length: 30
4647 728943 GTTTC AATAAGACTCTAAGAGAATTGAAAG TTATGAACGCTGCACCCAGGCCAGCCAGGAAATCAA spacer
length: 36 repeater length: 30
4648 729009 GTTTC AATAAGACTCTAAGAGAATTGAAAG GCGTTTTTTCATAGCACTATCACCGACTATTTATTGA spacer
length: 36 repeater length: 30
4649 729075 GTTTC AATAAGACTCTAAGAGAATTGAAAG TCTTGGCAATGACTACTACGCTGGCCGCTCTGCGAGC spacer
length: 37 repeater length: 30
4650 729142 GTTTC AATAAGACTCTAAGAGAATTGAAAG ATAGAAAACCTTAGGGTTATCGGGTATGTGAGGGTTTC spacer
length: 37 repeater length: 30
4651 729209 GTTTC AATAAGACTCTAAGAGAATTGAAAG TACCGCGGCCGAGGCCTTCGACGCGGCCCTCGCTAAC spacer
length: 37 repeater length: 30
4652 729276 GTTTC AATAAGACTCTAAGAGAATTGAAAG ACTACAAGTTCTACATCGCGCCGAACCCTGGATACTTT spacer
length: 38 repeater length: 30
4653 729344 GTTTC AATAAGACTCTAAGAGAATTGAAAG ACGAGCTGAACGTCCAGGTTCTCCAGGGCGACGCAG spacer
length: 36 repeater length: 30
4654 729410 GTTTC AATAAGACTCTAAGAGAATTGAAAG AGTTGATGAACATCTTTGCTACATCATATTGTTGAA spacer
length: 37 repeater length: 30
4655 729477 GTTTC AATAAGACTCTAAGAGAATTGAAAG CCGTGCGTGGTGGACACGATTTTCAGAGCTCCTCAACGA spacer
length: 38 repeater length: 30
4656 729545 GTTTC AATAAGACTCTAAGAGAATTGAAAG AAGGCCCAACCAAGGACCCAGCCCCGACCAGGAACGA spacer
length: 38 repeater length: 30
4657 729613 GTTTC AATAAGACTCTAAGAGAATTGAAAG AACATAGCCAAACGTCTTCTCATCAACGACAGGA spacer
length: 36 repeater length: 30
4658 729679 GTTTC AATAAGACTCTAAGAGAATTGAAAG ATGACTTCGCGGACATCAAGCTCAAAGAGCTTCATGG spacer
length: 37 repeater length: 30
4659 729746 GTTTC AATAAGACTCTAAGAGAATTGAAAG TTCTACGAAGTCAATGTTTCAGCTTCTTGTTCTTGTCG spacer
length: 38 repeater length: 30
4660 729814 GTTTC AATAAGACTCTAAGAGAATTGAAAG TCGGAGAAGAGCACGGTCAGCTTGGCGTAGAGGTAG spacer
length: 36 repeater length: 30
4661 729880 GTTTC AATAAGACTCTAAGAGAATTGAAAG TCCACTCATCCGGCCACAGGCGCTCATTCTCTTTAAT spacer
length: 37 repeater length: 30
4662 729947 GTTTC AATAAGACTCTAAGAGAATTGAAAG GTAATCAAGGCCCTTCTGACCCATTCTCCACTTCCT spacer
length: 38 repeater length: 30
4663 730015 GTTTC AATAAGACTCTAAGAGAATTGAAAG ATCCTATCCGAGTTCGAGCCACTCAGATAAGTGCGGT spacer
length: 37 repeater length: 30
4664 730082 GTTTC AATAAGACTCTAAGAGAATTGAAAG GAGTGTCTGCCGCTTCAAGCAACACATCATACCTGC spacer
length: 36 repeater length: 30
4665 730148 GTTTC AATAAGACTCTAAGAGAATTGAAAG AGCATTCCG
4666
4667
4668 crispr 3
4669 818815 GTTCCAGTAGGACAGAATTGTGTGGAAAG GCCCACGACTTTTTAGCGGCGACCGCCGCGAGTTCTTCC spacer
length: 39 repeater length: 29
4670 818883 GTTCCAGTAGGACAGAATTGTGTGGAAAG GAGGGGCCGGGCCTCAAAATCCCCCAAAGTCCCCC spacer
length: 35 repeater length: 29
4671 818947 GTTCCAGTAGGACAGAATTGTGTGGAAAG TGGCCCCGAAACCCTTCCGGGAGAGTGAGGACCCTCGA spacer
length: 37 repeater length: 29
4672 819013 GTTCCAGTAGGACAGAATTGTGTGGAAAG TGTGGGTTTACCGGCGAGGAATCCGAGAGAGAATGTAA spacer
length: 39 repeater length: 29
4673 819081 GTTCCAGTAGGACAGAATTGTGTGGAAAG ATGAAGAGGGAAGAGTTCATCAAAACCCTCCTTGACG spacer
length: 37 repeater length: 29
4674 819147 GTTCCAGTAGGACAGAATTGTGTGGAAAG TTGAGTTTTCCCAGCTCGACGCGGTTATTACGCTG spacer
length: 36 repeater length: 29
4675 819212 GTTCCAGTAGGACAGAATTGTGTGGAAAG TTGGTGGCCTTCTGGTTTCATTGGGCGCTGACGAACA spacer
length: 36 repeater length: 29
4676 819277 GTTCCAGTAGGACAGAATTGTGTGGAAAG CCGTTTCCACCGAGACCGGCCATCCAACCGAACATTT spacer
length: 37 repeater length: 29

4677 819343 GTTCCAGTAGGACAGAAATTGTGTGGAAAG CTTAGGTCTCTGAAAAGACTCCTTTTCGCTCTTATAG spacer
 length: 36 repeater length: 29
 4678 819408 GTTCCAGTAGGACAGAAATTGTGTGGAAAG ATCAGTCGCTCCGGTAAGCTGCTTGATTATTGTGTTGTCC spacer
 length: 40 repeater length: 29
 4679 819477 GTTCCAGTAGGACAGAAATTGTGTGGAAAG CTCGACCTTACCCCGCGTCCAGAACTGAATACAAAAC spacer
 length: 37 repeater length: 29
 4680 819543 GTTCCAGTAGGACAGAAATTGTGTGGAAAG CTCGCGAGGTAGTAGAACCCGCCTCTCGCCCTCTCGA spacer
 length: 37 repeater length: 29
 4681 819609 GTTCCAGTAGGACAGAAATTGTGTGGAAAG CACCCTGAAGGGGGAACAACTCACGGAGGAGCAATAGAA spacer
 length: 39 repeater length: 29
 4682 819677 GTTCCAGTAGGACAGAAATTGTGTGGAAAG CCTGGTAAACCTTCAACAACTCATCAACGGCCTCCA spacer
 length: 37 repeater length: 29
 4683 819743 GTTCCAGTAGGACAGAAATTGTGTGGAAAG GTCAAACCACCCAAAATCGCTCTCATCTCCAACCGAC spacer
 length: 37 repeater length: 29
 4684 819809 GTTCCAGTAGGACAGAAATTGTGTGGAAAG CCCACTTCCCT
 4685
 4686
 4687 crispr 4
 4688 828041 GGACAGAATTGTGTGGAA ATGGCTCCGGCCCCGCGTACTGGGGGAAGAACCTGTAAATGTTTCAGTG spacer
 length: 49 repeater length: 18
 4689 828108 GGACAGAATTGTGTGGAA GCTTGACGTAGATGGTCGTGGTGTTCGTGCTCAGGTCGAGTTTCAGTA spacer
 length: 48 repeater length: 18
 4690 828174 GGACAGAATTGTGTGGAA ACTGTCCGGTGCCCGCCAACTGTGACATGGTGCTCGGTTTCAGTA spacer
 length: 47 repeater length: 18
 4691 828239 GGACAGAATTGTGTGGAA ACTAATGCGGCGACCTCTAACCTAACGAAGCCCGGTGAAGTTTCAGTA spacer
 length: 48 repeater length: 18
 4692 828305 GGACAGAATTGTGTGGAA ACAGATCCTCGACCAGGTCGCTGATGAGCTTCGGGCCGACTCCAGGGTTTCAGTA
 spacer length: 56 repeater length: 18
 4693 828379 GGACAGAATTGTGTGGAA ATGTCTCCTGCTTTTGCTCTTCGCTGAGCCACTCGCTTTTGTTTTAGTGG spacer
 length: 51 repeater length: 18
 4694 828448 GGACAGAATTGTGTGGAA ACACGTATTCTGTCAACAGCCGATACGTTACTACTATATACGTTTCAGTGG spacer
 length: 51 repeater length: 18
 4695 828517 GGACAGAATTGTGTGGAA ACTCGATCGTGTCTGTGTTATAGTCAGCGAGGTAGTCAACTTTTAGTGG spacer
 length: 49 repeater length: 18
 4696 828584 GGACAGAATTGTGTGGAA GGAACATC
 4697
 4698
 4699 crispr 5
 4700 995056 GTTTC AATTCTCTTAGAGTCTTATTGCAAC CAGATCGCCTGCTGGGTCTGGCTCATCTGGCCGTGCTCG spacer
 length: 39 repeater length: 30
 4701 995125 GTTTC AATTCTCTTAGAGTCTTATTGCAAC CCGGCATCAGGGCTGACACCTACTCAACGACCCTCTATG spacer
 length: 39 repeater length: 30
 4702 995194 GTTTC AATTCTCTTAGAGTCTTATTGCAAC AGGAGGAAGATGGCAAGTATCATGTTTATGATAAGAA spacer
 length: 37 repeater length: 30
 4703 995261 GTTTC AATTCTCTTAGAGTCTTATTGCAAC ACGAATCTATCAACCGAGTCAATGGCCCGAGTTCTA spacer
 length: 36 repeater length: 30
 4704 995327 GTTTC AATTCTCTTAGAGTCTTATTGCAAC CCATTGGCCCCCTTCAAACAACGTCAAGGTAAAATT spacer
 length: 37 repeater length: 30
 4705 995394 GTTTC AATTCTCTTAGAGTCTTATTGCAAC CGGCGAGCTCGACCTCATACGTCACGACCACACCCT spacer
 length: 36 repeater length: 30
 4706 995460 GTTTC AATTCTCTTAGAGTCTTATTGCAAC CTACCTCAAGCAGTAGGAACGTGTTGTTCCCGTCCGT spacer
 length: 37 repeater length: 30
 4707 995527 GTTTC AATTCTCTTAGAGTCTTATTGCAAC CTACTGCTATGATAAACTCCACTGCTCTTTTTAGATGG spacer
 length: 38 repeater length: 30
 4708 995595 GTTTC AATTCTCTTAGAGTCTTATTGCAAC ATAAAGGGCTCGGGGAGGGTATTCTCCGAGACCCTT spacer
 length: 36 repeater length: 30
 4709 995661 GTTTC AATTCTCTTAGAGTCTTATTGCAAC TCTCCCACTCAATCTTATCGATTATCCTATCAATGT spacer
 length: 36 repeater length: 30
 4710 995727 GTTTC AATTCTCTTAGAGTCTTATTGCAAC TTTGGGCGACTCTGTTTGCTTTTGCGTTCTGGTATCT spacer
 length: 37 repeater length: 30
 4711 995794 GTTTC AATTCTCTTAGAGTCTTATTGCAAC ATAAAACGGCGGTTTCGATTACTTGTGTCTTGTCTCT spacer
 length: 38 repeater length: 30
 4712 995862 GTTTC AATTCTCTTAGAGTCTTATTGCAAC TTCGCGTTTGCGACCTGTTCAAGGGGTGATGTTGCCC spacer
 length: 36 repeater length: 30
 4713 995928 GTTTC AATTCTCTTAGAGTCTTATTGCAAC TTGCCGTGCCGGTGAGGGCTGCTGATGTTCAATACTA spacer
 length: 37 repeater length: 30
 4714 995995 GTTTC AATTCTCTTAGAGTCTTATTGCAAC GGCAGCTGAGACGGGCGAGAGCGTTGTGTTCACTGT spacer
 length: 36 repeater length: 30
 4715 996061 GTTTC AATTCTCTTAGAGTCTTATTGCAAC AAGCCGAATCACTTTTGTATTAGCCCATATTTTATGA spacer
 length: 38 repeater length: 30
 4716 996129 GTTTC AATTCTCTTAGAGTCTTATTGCAAC TGGCACCTGCCAAGACTGCTGCGGCAAAGCTCTGGTT spacer

length: 38 repeater length: 30
4717 996197 GTTTC AATTCTCTTAGAGTCTTATTGCAAC AAACAGAGCAGAGACTCTAAAGAGATGGGTGGGAATTAGT
spacer length: 40 repeater length: 30
4718 996267 GTTTC AATTCTCTTAGAGTCTTATTGCAAC AAAGAGATAAAGCGCGTCGTCCTGACGGTATTGCCAA spacer
length: 38 repeater length: 30
4719 996335 GTTTC AATTCTCTTAGAGTCTTATTGCAAC CTTGACTTCCTTCTCGATCTTGAGGCTGTCTTCT spacer
length: 35 repeater length: 30
4720 996400 GTTTC AATTCTCTTAGAGTCTTATTGCAAC CCACGTCGCCCTGGTAGTAAAAATAGACGCTGACGT spacer
length: 36 repeater length: 30
4721 996466 GTTTC AATTCTCTTAGAGTCTTATTGCAAC ATGCAGTAGTGCTTAAACCAGCTCTTGATCTTCTTT spacer
length: 36 repeater length: 30
4722 996532 GTTTC AATTCTCTTAGAGTCTTATTGCAAC GGAGACTATGAAACCCTCGAAGCCGATGTAAACTGT spacer
length: 36 repeater length: 30
4723 996598 GTTTC AATTCTCTTAGAGTCTTATTGCAAC ATGAGCATCAGCCACGGCTCAGTGCCCCTGCTCAGGAA spacer
length: 38 repeater length: 30
4724 996666 GTTTC AATTCTCTTAGAGTCTTATTGCAAC ATGAAGGCTCAGGCCGACGCGATAAGCCCTGAGAACAC spacer
length: 38 repeater length: 30
4725 996734 GTTTC AATTCTCTTAGAGTCTTATTGCAAC TTCAGAAACCTTGCAATACTTATGATAGTACTGAACCT spacer
length: 38 repeater length: 30
4726 996802 GTTTC AATTCTCTTAGAGTCTTATTGCAAC TCGGAACGGCCTTGCGGTAGATGATGTAACCAACGAG spacer
length: 37 repeater length: 30
4727 996869 GTTTC AATTCTCTTAGAGTCTTATTGCAAC CTGCATACAACCTCGCAAGAGACCTCGTTGAATATGGC spacer
length: 37 repeater length: 30
4728 996936 GTTTC AATTCTCTTAGAGTCTTATTGCAAC CTATGGTCTTGGCCTGGCCGCTGAGCTGAGAGAAAACGA spacer
length: 39 repeater length: 30
4729 997005 GTTTC AATTCTCTTAGAGTCTTATTGCAAC CTGAGCGTCAGGTTTCCACTCCAGGCCAGCATGATTT spacer
length: 37 repeater length: 30
4730 997072 GTTTC AATTCTCTTAGAGTCTTATTGCAAC TCGGCTTCATGAAGTTCTTTTTTCGGCAACATCCTTCT spacer
length: 37 repeater length: 30
4731 997139 GTTTC AATTCTCTTAGAGTCTTATTGCAAC CTCACCGTCAGGCGTGACCAAAATGTGGAGCTCGTT spacer
length: 36 repeater length: 30
4732 997205 GTTTC AATTCTCTTAGAGTCTTATTGCAAC GGTTGCCATCCTGCTGAATATCGCCGGCCTCAATCCTT spacer
length: 38 repeater length: 30
4733 997273 GTTTC AATTCTCTTAGAGTCTTATTGCAAC ATAAGCGTCCTGACGGCCTTATCAATGAAGTTGATGTG spacer
length: 38 repeater length: 30
4734 997341 GTTTC AATTCTCTTAGAGTCTTATTGCAAC GGTGTGGATCATGTGAATCTCGTCTGGGTGAGGACGG spacer
length: 38 repeater length: 30
4735 997409 GTTTC AATTCTCTTAGAGTCTTATTGCAAC AAATCAAAGCTGCCCCGTGTGCTGTACTCCGACATACTC spacer
length: 38 repeater length: 30
4736 997477 GTTTC AATTCTCTTAGAGTCTTATTGCAAC CAACGCTTGGCATTGCCATAGCTCTTGTACTAGCCAT spacer
length: 37 repeater length: 30
4737 997544 GTTTC AATTCTCTTAGAGTCTTATTGCAAC CCCCCTGACAACGAAGAATGAGCCTGCAATGTTACCAA spacer
length: 38 repeater length: 30
4738 997612 GTTTC AATTCTCTTAGAGTCTTATTGCAAC AGTTATTAGTTTGGCCAAGCGCATCTTCCAAAACCTC spacer
length: 36 repeater length: 30
4739 997678 GTTTC AATTCTCTTAGAGTCTTATTGCAAC CTCAATCAGAGGCTCTGGCTGAGTTTCCTCAAATTCA spacer
length: 37 repeater length: 30
4740 997745 GTTTC AATTCTCTTAGAGTCTTATTGCAAC GTGAGGATGGCAAAAAGGAAAACCTCTAAGAAAATCAA spacer
length: 38 repeater length: 30
4741 997813 GTTTC AATTCTCTTAGAGTCTTATTGCAAC TGGCAAAGTGCCGAGGGCTGAACTCCGCGAAGCGAC spacer
length: 36 repeater length: 30
4742 997879 GTTTC AATTCTCTTAGAGTCTTATTGCAAC TCCCGTTCACGAGCTGTTGGCCGGCCTGCGCAATCTG spacer
length: 37 repeater length: 30
4743 997946 GTTTC AATTCTCTTAGAGTCTTATTGCAAC TGAAGGAGCA
4744
4745
4746 GCA_000018465.1_ASM1846v1_genomic.fna (PilerCR):
4747 START REPEAT
SPACER
4748 GCA_000018485.1_ASM1848v1_genomic.fna (PilerCR):
4749 START REPEAT
SPACER
4750 GCA_000019805.1_ASM1980v1_genomic.fna (PilerCR):
4751 START REPEAT
SPACER
4752 crispr 1
4753 526439 GTTTC TACTATCTTTTGATTTCTGG AAAGCGTCCAGCGCAATAAGGAATCTTCTGCTAGACATAATATT spacer
length: 44 repeater length: 25
4754 526508 GTTTC TACTATCTTTTGATTTCTGG GAGCGGGATCCTCATGTTAACGCCGAGTCGGGACGGCGAATA spacer
length: 42 repeater length: 25
4755 526575 GTTTC TACTATCTTTTGATTTCTGG GCCGCGAGTGCGGCACCGGGCCACGCTAAGAACTTCGCAAGCGT

spacer length: 45 repeater length: 25
 4756 526645 GTTCTACTATCTTTTGATTTCTGG ATAAGAAGTGCAACAAATGCGCTTTGAAGAGAGACTTTATTCC spacer
 length: 43 repeater length: 25
 4757 526713 GTTCTACTATCTTTTGATTTCTGG GACCCCGTCTA
 4758
 4759
 4760 crispr 2
 4761 530827 CCAGAAATCAAAAAGATAGTAGAAAC CGGTTTTCTCACTACACGTCGGCCTTCGCCACTGTCGAGAG spacer
 length: 41 repeater length: 25
 4762 530893 CCAGAAATCAAAAAGATAGTAGAAAC ACAGCCCAGGCCGCCCTCACGCCGCTGTGCTTCCGCGCCAGG spacer
 length: 42 repeater length: 25
 4763 530960 CCAGAAATCAAAAAGATAGTAGAAAC ATGCCAGTGGGGAGGAGCTCCAGCACCAGGCCGTTGCGCACAGACGC
 spacer length: 47 repeater length: 25
 4764 531032 CCAGAAATCAAAAAGATAGTAGAAAC ACAGTATCGGGAATCCCAGCGCCATCGATTGTCTTCACAATC spacer
 length: 42 repeater length: 25
 4765 531099 CCAGAAATCAAAAAGATAGTAGAAAC TGGCTATCGCGTCCATAACCGCACGCCAGTCCTCGTCGCA spacer
 length: 40 repeater length: 25
 4766 531164 CCAGAAATCAAAAAGATAGTAGAAAC AATACGTCCTCGGCCTTGCCGGTGTGCATAAGCCGCTCGGCA spacer
 length: 42 repeater length: 25
 4767 531231 CCAGAAATCAAAAAGATAGTAGAAAC CGGTGGAGGTTACGCGCCACGCCGTCGTGGTAGTGATGCAGTAGAG
 spacer length: 46 repeater length: 25
 4768 531302 CCAGAAATCAAAAAGATAGTAGAAAC AGAATATTTCTTCTCGACGTAGGCTCTCAGCACGGCGGT spacer
 length: 39 repeater length: 25
 4769 531366 CCAGAAATCAAAAAGATAGTAGAAAC GAGGCCCTCGGTGCCGAGGTGGGCGTCCCCAACGCATA
 4770
 4771
 4772 crispr 3
 4773 849843 CCAGAAATCAAAAAGATAGTAGAAAC TGAACGGCGTGACTGTTGCTGTGTGCGCCACTCCACTCAAACAT spacer
 length: 43 repeater length: 25
 4774 849911 CCAGAAATCAAAAAGATAGTAGAAAC AAAGTCGAGACGCAAGGTGGGGGGTTGGTATGAGGTGCTACG spacer
 length: 42 repeater length: 25
 4775 849978 CCAGAAATCAAAAAGATAGTAGAAAC TGGACGGTCTCACTACATGGATTTACTGAGCGCCAGACGT spacer
 length: 40 repeater length: 25
 4776 850043 CCAGAAATCAAAAAGATAGTAGAAAC GTGATAAATGTGTTTAACGCATCTGTTTCACATTCCGCAT spacer
 length: 40 repeater length: 25
 4777 850108 CCAGAAATCAAAAAGATAGTAGAAAC GAATATACTTGATCTGTGTCCTTGTGATCTTCTCGTCGAAG spacer
 length: 41 repeater length: 25
 4778 850174 CCAGAAATCAAAAAGATAGTAGAAAC GCTCCGCACTGTATACACACGACGCCGTCGGCGACGGTCACGAGCG
 spacer length: 46 repeater length: 25
 4779 850245 CCAGAAATCAAAAAGATAGTAGAAAC CATCTGCATGACCATATACCTCATCAGCCCCTGCATCATGGTT spacer
 length: 43 repeater length: 25
 4780 850313 CCAGAAATCAAAAAGATAGTAGAAAC GTTACGTGGTGGTATGGCAGGAGTGTTAAGATTATGGTGGCGCC spacer
 length: 44 repeater length: 25
 4781 850382 CCAGAAATCAAAAAGATAGTAGAAAC ATGCTCGGCATACAATCGCTGGCCCCCTCCCCGCCCTAAAGGGCG
 spacer length: 45 repeater length: 25
 4782 850452 CCAGAAATCAAAAAGATAGTAGAAAC ATGAACAAGGAAGTCGATGTCGAGGTGGTGCCTGAGGAACCCAG spacer
 length: 44 repeater length: 25
 4783 850521 CCAGAAATCAAAAAGATAGTAGAAAC CCTAGAACACCAAAAGGCGCAGGCCATGAGCCCCAACACTATG spacer
 length: 43 repeater length: 25
 4784 850589 CCAGAAATCAAAAAGATAGTAGAAAC AGCTTCTTCCTACGCTCCTCTGCGCTACCCTCAGAAGTCA spacer
 length: 40 repeater length: 25
 4785 850654 CCAGAAATCAAAAAGATAGTAGAAAC GCGTAGTTTTATGTGGATGAGACATATACGTCAGCTACATGTCCA spacer
 length: 44 repeater length: 25
 4786 850723 CCAGAAATCAAAAAGATAGTAGAAAC TCTACATCTGTCCAGAACCTGTATGCCTCGTTGGCAACATAT spacer
 length: 42 repeater length: 25
 4787 850790 CCAGAAATCAAAAAGATAGTAGAAAC CCACCTCCAGTTGCCACCTCAACCACGGCACTGCCTATCTTCCGC
 spacer length: 45 repeater length: 25
 4788 850860 CCAGAAATCAAAAAGATAGTAGAAAC ACGGTACCAGACGCAGATATGCCGCTCTGAGATGGCGATATGTTGC
 spacer length: 46 repeater length: 25
 4789 850931 CCAGAAATCAAAAAGATAGTAGAAAC GAAGCCGGCGTCGGGGGCCGCTCGCCCGGCCGCG spacer length:
 36 repeater length: 25
 4790 850992 CCAGAAATCAAAAAGATAGTAGAAAC AGCCAACTGGCCCTTGACACGGCCCCCGGGCCGGGGTTGACAA spacer
 length: 44 repeater length: 25
 4791 851061 CCAGAAATCAAAAAGATAGTAGAAAC TTCGAAGTTGCATCCGCTCGACCCCTCCCTCTCCTTCCGCCCT spacer
 length: 43 repeater length: 25
 4792 851129 CCAGAAATCAAAAAGATAGTAGAAAC CCTCTACAGAGACATCACATGTCAATAAACCCGCGCCTGC spacer
 length: 40 repeater length: 25
 4793 851194 CCAGAAATCAAAAAGATAGTAGAAAC GCCCCCGCTGTAGCTGAAACATACTTTGACGCGTTGCTTTCC spacer
 length: 42 repeater length: 25
 4794 851261 CCAGAAATCAAAAAGATAGTAGAAAC ATTATGTCTGAAACTGGTCTTGCCGTTGGCGTGCT spacer length:
 35 repeater length: 25

4795 851321 CCAGAAATCAAAAAGATAGTAGAAAC CAGGAGAGAAGCCGCGAGATGGCATAACAAATTCGCCATAATC spacer
 length: 42 repeater length: 25
 4796 851388 CCAGAAATCAAAAAGATAGTAGAAAC GAACGAGAAAGGCGCCGCGGGGGCGGCGTGGTTGGACGAGCTAGTC
 spacer length: 46 repeater length: 25
 4797 851459 CCAGAAATCAAAAAGATAGTAGAAAC ATATGGAGTATCCAGAAATGAAGCCGCAAGCCATTTTCAGTTCT spacer
 length: 43 repeater length: 25
 4798 851527 CCAGAAATCAAAAAGATAGTAGAAAC CCACTTGCCATATCGTTGTAGCCGAGCCGCACCGCGTACGGAGAC
 spacer length: 45 repeater length: 25
 4799 851597 CCAGAAATCAAAAAGATAGTAGAAAC GCTAGTCGGCGTGCCGGTGGCGATTATGACCCTCGCCATGCCGCC
 spacer length: 45 repeater length: 25
 4800 851667 CCAGAAATCAAAAAGATAGTAGAAAC CGCTGTCTCTACCTCTCTCGTGCGCATGGTCATCGGCAACGT spacer
 length: 42 repeater length: 25
 4801 851734 CCAGAAATCAAAAAGATAGTAGAAAC CTATACATC
 4802
 4803
 4804 crispr 4
 4805 856226 GAATCTCAAGTTGAGGATTGAAAG CGATCAGCTTGACGATCGTGGAGTGTATTACCGACTTCTGCTCCTCGG
 spacer length: 48 repeater length: 24
 4806 856298 GAATCTCAAGTTGAGGATTGAAAG CGTAGTGGTAATCTCTAATCTCTCTAATGATGTCTCATTCTCCA spacer
 length: 45 repeater length: 24
 4807 856367 GAATCTCAAGTTGAGGATTGAAAG CTTTCATGACCGCATTAATATATATCGGGTCTTGCAATTGCTAC spacer
 length: 42 repeater length: 24
 4808 856433 GAATCTCAAGTTGAGGATTGAAAG CCTCGAGGAAGGCGTGGGGATCCCTGGCCAGCAGCTCAGCC spacer
 length: 41 repeater length: 24
 4809 856498 GAATCTCAAGTTGAGGATTGAAAG TTTAACC GCAGAACTTGTCGATAACTGAAAAACGGGGTTG spacer
 length: 42 repeater length: 24
 4810 856564 GAATCTCAAGTTGAGGATTGAAAG TTGTACTCTTATAGAAACGTATTGTGGCCACCTTACGGCGGAGTG spacer
 length: 45 repeater length: 24
 4811 856633 GAATCTCAAGTTGAGGATTGAAAG CAGTCTCCGCGGATGCTTGTGCATCGTTTCGGCGCCGACAACTCA spacer
 length: 44 repeater length: 24
 4812 856701 GAATCTCAAGTTGAGGATTGAAAG ATCTTCACAGCGTAGTACACCTGCGTGTGGCTGAGGGAGAG spacer
 length: 41 repeater length: 24
 4813 856766 GAATCTCAAGTTGAGGATTGAAAG CGTCTAGGACGAGGGGCACTATCATTATGCGCCTGTCC spacer
 length: 38 repeater length: 24
 4814 856828 GAATCTCAAGTTGAGGATTGAAAG CTCAGCTTGTAGACGTTCTCCATGTATTTCATCGATATAGTACA spacer
 length: 43 repeater length: 24
 4815 856895 GAATCTCAAGTTGAGGATTGAAAG GCATGGCC
 4816
 4817
 4818 crispr 5
 4819 856965 GAATCTCAAAGAGAGGATTGAAAG CAAATACATGTAATACGTTGCAGTATTCTTATACAGCCTACTCTTTAC
 spacer length: 48 repeater length: 24
 4820 857037 GAATCTCAAAGAGAGGATTGAAAG AATTGCCCCACGACTTGGGGGAGAGAAACGGCGGCGTGGGGT spacer
 length: 43 repeater length: 24
 4821 857104 GAATCTCAAAGAGAGGATTGAAAG AGGAGAGCGGCGTCGACGACGTCCGCCCTTCCGGGGAAGTTGGGA spacer
 length: 45 repeater length: 24
 4822 857173 GAATCTCAAAGAGAGGATTGAAAG
 ATAACATCCATAAGGTTTATTGGTCGTGCGAATGGCACCTCTTCATTGGGCAGA spacer length: 54 repeater
 length: 24
 4823 857251 GAATCTCAAAGAGAGGATTGAAAG TCCACCACAGAGCCCCTAATTGTATACCACCGCAATACCT spacer
 length: 41 repeater length: 24
 4824 857316 GAATCTCAAAGAGAGGATTGAAAG ATCTGTATATGCGCCAACTGTCAATAAGCGGTCTGCGTTTT spacer
 length: 43 repeater length: 24
 4825 857383 GAATCTCAAAGAGAGGATTGAAAG AAACAGAAAC
 4826
 4827
 4828 crispr 6
 4829 883096 GATTCTCAGATAGAGATTTGAAGG GCCCTTGGCCAGGTGGACGGCCCAACCAAGACGAGTAGTGG spacer
 length: 42 repeater length: 24
 4830 883162 GATTCTCAGATAGAGATTTGAAGG GACGGCGGGGTCAACCGCCCGGGGATGTAGATTAGACGTGGCGAT spacer
 length: 45 repeater length: 24
 4831 883231 GATTCTCAGATAGAGATTTGAAGG CGAAACGGGGCGGCACTCGGCCGAGGACATACTCCGCGGAGT spacer
 length: 42 repeater length: 24
 4832 883297 GATTCTCAGATAGAGATTTGAAGG CCTCACAATTTTCGGCCGCTCTATACTTACACGCACACTTAAGT spacer
 length: 44 repeater length: 24
 4833 883365 GATTCTCAGATAGAGATTTGAAGG GTATTGGGTTATATATGGGCCGTCAAGTTTGGTGTGTTTGGT spacer
 length: 45 repeater length: 24
 4834 883434 GATTCTCAGATAGAGATTTGAAGG ACGCCGGCCTGCCCCGGGACGTATGCAATAGACTACTGGC spacer
 length: 39 repeater length: 24
 4835 883497 GATTCTCAGATAGAGATTTGAAGG CTTGGACGCGCAGAGGATCTACAGAAAGCTCCTCGAGTATGTCTGA spacer
 length: 45 repeater length: 24

4836 883566 GATTCTCAGATAGAGATTTGAAGG ATCATTCCCGTACACAAGGTCGGACAGCTTCAGTTGCTGCCCCACCGC
 spacer length: 47 repeater length: 24
 4837 883637 GATTCTCAGATAGAGATTTGAAGG CTGTTTTTCACAGCTGTGATTTCCGGCGTCCGAAGGGGGG spacer
 length: 39 repeater length: 24
 4838 883700 GATTCTCAGATAGAGATTTGAAGG TTGTAGTATATCGTGCCGGCCGACAGGCTGATTTGGGGCAGGGCCA
 spacer length: 46 repeater length: 24
 4839 883770 GATTCTCAGATAGAGATTTGAAGG ATTAGGGCATCGCCAACATACTTGAACACCTCGCGGTATTTAGT spacer
 length: 44 repeater length: 24
 4840 883838 GATTCTCAGATAGAGATTTGAAGG GTAGAATACTACGTCGGTCGCGGGAGCTGTCGCTACGTTGATGG spacer
 length: 44 repeater length: 24
 4841 883906 GATTCTCAGATAGAGATTTGAAGG TGTAGTCGGTGTAGGAGCCGCATGCGGTGCCCTGTATGACAT spacer
 length: 42 repeater length: 24
 4842 883972 GATTCTCAGATAGAGATTTGAAGG TTTATTGTCTCCAGCCACGCGGCGTCTCTGTACGCGTATTGACG spacer
 length: 45 repeater length: 24
 4843 884041 GATTCTCAGATAGAGATTTGAAGG TCTATCGTTATGCCGTTTGC GTTATTGTAGTACAACAGAACGCCGGG
 spacer length: 47 repeater length: 24
 4844 884112 GATTCTCAGATAGAGATTTGAAGG CGCCACACGACGCTTCAAGAGCTACTGAGAGCGCTCTACGCC spacer
 length: 42 repeater length: 24
 4845 884178 GATTCTCAGATAGAGATTTGAAGG ATCCTCTGGCCAGGGATAAGCAGAAAAAGGGGATTACA spacer
 length: 39 repeater length: 24
 4846 884241 GATTCTCAGATAGAGATTTGAAGG CTTCGCGATCAGCTCCGCTATCGCCATTCTTATGATCTCTC spacer
 length: 41 repeater length: 24
 4847 884306 GATTCTCAGATAGAGATTTGAAGG AAACACGAAGAAAAAATACGAGGTCAACGAAAACGGTGAAATAG spacer
 length: 44 repeater length: 24
 4848 884374 GATTCTCAGATAGAGATTTGAAGG CGTCGCCCAGCTTGAAC TTTCTGTTGCAGACGTCCAAC spacer
 length: 38 repeater length: 24
 4849 884436 GATTCTCAGATAGAGATTTGAAGG CTAACACTGACAGTGCCTGTGACAGATCGCGCCTGATTGCGACA spacer
 length: 45 repeater length: 24
 4850 884505 GATTCTCAGATAGAGATTTGAAGG GTTTAGACTGTAGAATTCCTTTCCGCATAGCTGGCATTGCATG spacer
 length: 43 repeater length: 24
 4851 884572 GATTCTCAGATAGAGATTTGAAGG GCCAGTGAAGGTAATCTATTTGACATCAGATGGAC spacer length:
 35 repeater length: 24
 4852 884631 GATTCTCAGATAGAGATTTGAAGG TCGGACATTGTGGCAATGTGGGTTTCGTGGTATCATAAGCGAA spacer
 length: 42 repeater length: 24
 4853 884697 GATTCTCAGATAGAGATTTGAAGG CGACAAGGTCGCGTTGGCGGTATCACTATTTAAACCCACGCAACAG
 spacer length: 46 repeater length: 24
 4854 884767 GATTCTCAGATAGAGATTTGAAGG TTATATTGCGCCAGTTACTATTGGCGACAAC TCTCCTCAACA spacer
 length: 42 repeater length: 24
 4855 884833 GATTCTCAGATAGAGATTTGAAGG CTATCTTGGGTTTTACACGTGCGCCCGCGTTTGGATCCAATATGT spacer
 length: 45 repeater length: 24
 4856 884902 GATTCTCAGATAGAGATTTGAAGG TCTTGGTACACGGCGGTGGCAGGCAGTACTACGCCTTCA spacer
 length: 39 repeater length: 24
 4857 884965 GATTCTCAGATAGAGATTTGAAGG ATGATGGTCTCGCTCTTGGTGTACAGCCATATGACCAAGCCG spacer
 length: 42 repeater length: 24
 4858 885031 GATTCTCAGATAGAGATTTGAAGG GTGGCGAGCTCTCTGAGAAGTAGAACGCGGAGGTGGGTAC spacer
 length: 41 repeater length: 24
 4859 885096 GATTCTCAGATAGAGATTTGAAGG ACGTCGACGTATGCAAGCAGGTTGTAACCGCCTAACGAATCA spacer
 length: 42 repeater length: 24
 4860 885162 GATTCTCAGATAGAGATTTGAAGG CTAAACTTAAACGTGCTTGAGATCGTTGAGGTATGAGCTCGTGGA spacer
 length: 45 repeater length: 24
 4861 885231 GATTCTCAGATAGAGATTTGAAGG TAGTAGACGTGTGTGCAATTAGGCTCTGCGTCGCGTTTA spacer
 length: 40 repeater length: 24
 4862 885295 GATTCTCAGATAGAGATTTGAAGG AGGAGGGATACAGACAGCTCATCCGGTACGTCGAGAGAGGGAGG spacer
 length: 45 repeater length: 24
 4863 885364 GATTCTCAGATAGAGATTTGAAGG GCCATACTCCGTGGCCTGCATAGCCGTGAGGAGGGAGCTGGCG spacer
 length: 43 repeater length: 24
 4864 885431 GATTCTCAGATAGAGATTTGAAGG CATGATTGAGCGCAGCGAGAAGCTGTCCGACACCGCCGCC spacer
 length: 44 repeater length: 24
 4865 885499 GATTCTCAGATAGAGATTTGAAGG CGCCTTGCTGAGGTGCTACCAGTGCATAAGGCGCTCTGCGAGGCC spacer
 length: 45 repeater length: 24
 4866 885568 GATTCTCAGATAGAGATTTGAAGG GTCGTCTACCCGCCGCCCCGACAAATACATCGCCGTGATCGGCAC spacer
 length: 44 repeater length: 24
 4867 885636 GATTCTCAGATAGAGATTTGAAGG TTCTACGACTTTGCGGACAAGCAGACGGTGTATGAATACATGGAGA
 spacer length: 46 repeater length: 24
 4868 885706 GATTCTCAGATAGAGATTTGAAGG TCGAGGATCT
 4869
 4870
 4871 crispr 7
 4872 994024 CCAGAAATCAAAAAGATAGTAGAAAC GCAACGACGAGCGGGCGCTGTGACATTTCGCACTGAGACA spacer
 length: 40 repeater length: 25
 4873 994089 CCAGAAATCAAAAAGATAGTAGAAAC CTAAAAACGCACAACCTTCTCGATTCTCTCTTGTCCGCTCA spacer

length: 42 repeater length: 25
4874 994156 CCAGAAATCAAAAAGATAGTAGAAAC CAGATGAGATACGCAGACTGTTTCTGCCTGCAGCAACTACCAGG spacer
length: 44 repeater length: 25
4875 994225 CCAGAAATCAAAAAGATAGTAGAAAC TGAGTAGCTCTTGAAGCGTCACCCAACGCGGTAGCTGGGATATGCG
spacer length: 46 repeater length: 25
4876 994296 CCAGAAATCAAAAAGATAGTAGAAAC GACATATGGAAGATCCGCTGGCCCCGAGGCGATAAAGTCG spacer
length: 39 repeater length: 25
4877 994360 CCAGAAATCAAAAAGATAGTAGAAAC CCGGCCCCCTGAGGGGCCTCTAACTTCGTAAACTCTATTTTTTTGA spacer
length: 44 repeater length: 25
4878 994429 CCAGAAATCAAAAAGATAGTAGAAAC AAGGTGCGCGGTGAGGACGTACTGCCTCTGGATTCTGGAGGTG spacer
length: 42 repeater length: 25
4879 994496 CCAGAAATCAAAAAGATAGTAGAAAC CTTGTTGGAGTTGCTCTGGGCTTTGCCGTCGGCGCGTTCTGGCTCA
spacer length: 46 repeater length: 25
4880 994567 CCAGAAATCAAAAAGATAGTAGAAAC TGTAGAAACGAGATACGCGATGGCGTAGAGACTGCGACGTTGTCTCGC
spacer length: 48 repeater length: 25
4881 994640 CCAGAAATCAAAAAGATAGTAGAAAC ACGCTTCTTGCAAGACGCGTATAGTCGCGTCGCGGTTGTTGA spacer
length: 42 repeater length: 25
4882 994707 CCAGAAATCAAAAAGATAGTAGAAAC ACACCGCTTGGGCTCGAGGCTGAGGAGCTCCTTGAGCCGGCCAGG
spacer length: 45 repeater length: 25
4883 994777 CCAGAAATCAAAAAGATAGTAGAAAC AGAGACTCGTAGAACAGTAGCCAAGAGTACGCCTTAGACCAAA spacer
length: 43 repeater length: 25
4884 994845 CCAGAAATCAAAAAGATAGTAGAAAC TCCCTGGTGTCTGCTAAGACGTCCATTACGGCGCCGCTTAAC spacer
length: 43 repeater length: 25
4885 994913 CCAGAAATCAAAAAGATAGTAGAAAC CCACATGGACTATACATGGATGTGGGGCCTGAAGGAGAGGGAGTA
spacer length: 45 repeater length: 25
4886 994983 CCAGAAATCAAAAAGATAGTAGAAAC GGTCTCGCGATCCTGCCAACACCGCCATGGCGACCATGGCGT spacer
length: 43 repeater length: 25
4887 995051 CCAGAAATCAAAAAGATAGTAGAAAC GCTCATGGTC
4888
4889
4890 crispr 8
4891 1017597 GAATCTCAAGTTGAGGATTGAAAG GGAGATGGCGATACTGCGGGCGTTCTGGGGGGCATGCTGA spacer
length: 40 repeater length: 24
4892 1017661 GAATCTCAAGTTGAGGATTGAAAG CAGCGCCTCCACGGTGTACGAGCTGGGCAGAGTGAGGGTGGTG spacer
length: 43 repeater length: 24
4893 1017728 GAATCTCAAGTTGAGGATTGAAAG CAACTCCTAAACCACCCCGTTTTTCTCTCCTTAAGACGT spacer
length: 40 repeater length: 24
4894 1017792 GAATCTCAAGTTGAGGATTGAAAG CGTCAACTTGATCCATTGTACACTCACGCCCCGAAACAGACATTG spacer
length: 44 repeater length: 24
4895 1017860 GAATCTCAAGTTGAGGATTGAAAG CTTTGGCGCGACAGAGTGGGTCTGGCGTGACAGTTCCTTG spacer
length: 41 repeater length: 24
4896 1017925 GAATCTCAAGTTGAGGATTGAAAG ATATTCCGGGCCCAGGGCATCTACGGTGCCCGGTGGGTAGGCTA spacer
length: 44 repeater length: 24
4897 1017993 GAATCTCAAGTTGAGGATTGAAAG GTTTCGAGTGCCATTCACTGTACGGCTCGAGCTCATATATTTTC spacer
length: 44 repeater length: 24
4898 1018061 GAATCTCAAGTTGAGGATTGAAAG GTTTCGAGTGCCATTCACTGTACGGCTCGAGCTCATATATTTTC spacer
length: 44 repeater length: 24
4899 1018129 GAATCTCAAGTTGAGGATTGAAAG TGAACTCGCCTACCTTGACGTAGCAGGTGTTCCACACCACCAGGT
spacer length: 45 repeater length: 24
4900 1018198 GAATCTCAAGTTGAGGATTGAAAG GGTCAATCCCGTCCACGACGCGTAACCTCCCCATTTTT spacer
length: 38 repeater length: 24
4901 1018260 GAATCTCAAGTTGAGGATTGAAAG TCGATAGCTTTCTCAGCCGTAGCGGTGTCCATCATGGCGAC spacer
length: 41 repeater length: 24
4902 1018325 GAATCTCAAGTTGAGGATTGAAAG GCGCGCGGTCTCTGCAACTGTTGCTGTGGCTTAGGCGGAGGT spacer
length: 42 repeater length: 24
4903 1018391 GAATCTCAAGTTGAGGATTGAAAG TGTCTAGATAGCGCTGTATCATCATGGCCTTGGGATAGTAGA spacer
length: 42 repeater length: 24
4904 1018457 GAATCTCAAGTTGAGGATTGAAAG CAGCGAGTGTGGCGGCAGGCAGACGCCAACAGCTCCTCACTCT spacer
length: 44 repeater length: 24
4905 1018525 GAATCTCAAGTTGAGGATTGAAAG ACTCTCTACTCCTACGTACACATCATCGCTACACGTCTCA spacer
length: 41 repeater length: 24
4906 1018590 GAATCTCAAGTTGAGGATTGAAAG TCACTTGACGTCCCTACCGCCATACTCACTTCACGGTTGTA spacer
length: 41 repeater length: 24
4907 1018655 GAATCTCAAGTTGAGGATTGAAAG CTACTGCCTCGTAGACGTGGAGGAGGGAAGGGCCGTGTGCG spacer
length: 41 repeater length: 24
4908 1018720 GAATCTCAAGTTGAGGATTGAAAG AATGGGTTGCGACAGCCACCGAAGCTACCGTGCCACATCGACTC spacer
length: 44 repeater length: 24
4909 1018788 GAATCTCAAGTTGAGGATTGAAAG TATGCAATCTGCTCAGCCAAACTAACGTCGTCCAGCCTCGTAATG
spacer length: 45 repeater length: 24
4910 1018857 GAATCTCAAGTTGAGGATTGAAAG CGGCCGCGACGGCGACGGTGAGGTGCGAGGCGCAGTTGCGGG spacer
length: 43 repeater length: 24

4911 1018924 GAATCTCAAGTTGAGGATTGAAAG GCGGTGACAGGCGAGTAGTTGTATGCGACGTCTAGGGCATCAT spacer
 length: 43 repeater length: 24
 4912 1018991 GAATCTCAAGTTGAGGATTGAAAG AGCTGTTGTTGCTGTAGCTGTCTCATTACCTCCTCGC spacer
 length: 37 repeater length: 24
 4913 1019052 GAATCTCAAGTTGAGGATTGAAAG CACAGCTGTGTACTCGGCGAGCGCCATGTCGACGAGCTACTG spacer
 length: 42 repeater length: 24
 4914 1019118 GAATCTCAAGTTGAGGATTGAAAG GACCGGGTAC
 4915
 4916
 4917 crispr 9
 4918 1030558 CTTTCAATCCTCTCTTTGAGATTC GCTAGTCGTGTACGCCAGGGCGCGCAACTGCACCGTGGTG spacer
 length: 40 repeater length: 24
 4919 1030622 CTTTCAATCCTCTCTTTGAGATTC CGGCGATGGATATGTCTATGTCAACGGCGTTAGGAGGGCTA spacer
 length: 41 repeater length: 24
 4920 1030687 CTTTCAATCCTCTCTTTGAGATTC ATCCGTACTACTGGCAGAAGAACGCGTATGCGTTTGAGA spacer
 length: 39 repeater length: 24
 4921 1030750 CTTTCAATCCTCTCTTTGAGATTC ACAGGGGCTTCTCTGCGCCCAGCTCAAGGGGAGTCTT spacer
 length: 37 repeater length: 24
 4922 1030811 CTTTCAATCCTCTCTTTGAGATTC GCGTCGATGTCTGTATATGCATATATTTGTGCTGTAATACA spacer
 length: 41 repeater length: 24
 4923 1030876 CTTTCAATCCTCTCTTTGAGATTC GTATGGCCGCCCGCCAGCACTGATCCTGCCGCCCCCAGGCTC spacer
 length: 43 repeater length: 24
 4924 1030943 CTTTCAATCCTCTCTTTGAGATTC GGCTCATGAGGAGTGCGTAGAGCGTGCCAAGACGTGCTACATTA spacer
 length: 44 repeater length: 24
 4925 1031011 CTTTCAATCCTCTCTTTGAGATTC GTGGATGGGGCCCTTAACAATTATTGCCCGATCTAGGTTGGTCA spacer
 length: 44 repeater length: 24
 4926 1031079 CTTTCAATCCTCTCTTTGAGATTC TTA CTG CAGAGGGCCAGCCAGGCCTACAGAACATACATCCGCCGT
 spacer length: 45 repeater length: 24
 4927 1031148 CTTTCAATCCTCTCTTTGAGATTC GGCCCTACTAATAGCCGGGGCCCTGGCGGCATCTGGCGCCGGGGCC
 spacer length: 46 repeater length: 24
 4928 1031218 CTTTCAATCCTCTCTTTGAGATTC AGGGAGCTTGCGCAGTTGGTTGACAAGCTCGAGAATCTGAGACGTC
 spacer length: 46 repeater length: 24
 4929 1031288 CTTTCAATCCTCTCTTTGAGATTC AGATGGCGATAGTATAGTCGTGAAGCAGTTGCCAGA spacer length:
 36 repeater length: 24
 4930 1031348 CTTTCAATCCTCTCTTTGAGATTC CGGCATCTGCCACTGTATCAACCACCCCACTATCAAGTATACAGAC
 spacer length: 46 repeater length: 24
 4931 1031418 CTTTCAATCCTCTCTTTGAGATTC TACTATCACGCTCCACGCGATTCTGGTTCTGGTATCCGT spacer
 length: 40 repeater length: 24
 4932 1031482 CTTTCAATCCTCTCTTTGAGATTC AGCATGGTAGCGACAGCGCCAAGGTGGTGATGGAGACGTACGA spacer
 length: 43 repeater length: 24
 4933 1031549 CTTTCAATCCTCTCTTTGAGATTC GCGTGGCTAACAGTAAGATTAGCGACTGGATTCACTTTTTTGC spacer
 length: 43 repeater length: 24
 4934 1031616 CTTTCAATCCTCTCTTTGAGATTC TGAGGATGATCTGATTTGGGTGGCGAGAAGTTCGGTCTGAAG spacer
 length: 43 repeater length: 24
 4935 1031683 CTTTCAATCCTCTCTTTGAGATTC CGCACCGGCGTCGGCAACAAGTCGCTCCTGGTGAGGAGGGCCCTCG
 spacer length: 46 repeater length: 24
 4936 1031753 CTTTCAATCCTCTCTTTGAGATTC GACGAACTACTACGGGCTTAGGGCCGAGATGCGGTGGTACTGC spacer
 length: 44 repeater length: 24
 4937 1031821 CTTTCAATCCTCTCTTTGAGATTC GTTAGCGAGGAGGAGGTGGAGGACGAACTCTACGAGATTGT spacer
 length: 41 repeater length: 24
 4938 1031886 CTTTCAATCCTCTCTTTGAGATTC GGACGGGGCCGGCCGTGGCGTGATACGGGTGTGGTCTG spacer
 length: 39 repeater length: 24
 4939 1031949 CTTTCAATCCTCTCTTTGAGATTC GTCGTTAGTGTCTATGACCGCAGTGGTACCGCTGTGTTGCAAGTG
 spacer length: 45 repeater length: 24
 4940 1032018 CTTTCAATCCTCTCTTTGAGATTC CGATGTCCACCAACACAATGTCGTCGTCATCAACCGCCAC spacer
 length: 40 repeater length: 24
 4941 1032082 CTTTCAATCCTCTCTTTGAGATTC ACATTTAAAGCCGTAGTTGCTGTAGGACAGGCGGGGGAGA spacer
 length: 40 repeater length: 24
 4942 1032146 CTTTCAATCCTCTCTTTGAGATTC AGGAAGAACG
 4943
 4944
 4945 crispr 10
 4946 1036185 GAATCTCAAGTTGAGGATTGAAAG GTAGCATGCTGTCTCAGTTGCTGGCTGAACTGAGTGGCATCTAGCAC
 spacer length: 47 repeater length: 24
 4947 1036256 GAATCTCAAGTTGAGGATTGAAAG AGAGTCTCGTACGACACTCTCCTCCCGCAGAGGTCGCACCT spacer
 length: 41 repeater length: 24
 4948 1036321 GAATCTCAAGTTGAGGATTGAAAG AGAGTCTCGTACGACACTCTCCTCCCGCAGAGGTCGCACCT spacer
 length: 41 repeater length: 24
 4949 1036386 GAATCTCAAGTTGAGGATTGAAAG CGGAAAGTTCTGTGCGACTGTCTGTTGGAAGTAGTCCAACCCACC
 spacer length: 45 repeater length: 24
 4950 1036455 GAATCTCAAGTTGAGGATTGAAAG TCGATTCCATCCGTTATGAGCGCTATGACGGCGTTGCGACGC spacer

length: 42 repeater length: 24

4951 1036521 GAATCTCAAGTTGAGGATTGAAAG CTGTACAGATATCTCGAGTAAGGAATGGGTGTTAGTTTCTGACT spacer
length: 42 repeater length: 24

4952 1036587 GAATCTCAAGTTGAGGATTGAAAG CAACGAAGGCGACCAGGTCACCGTTGTGGTGCACAACGTGAAGT spacer
length: 44 repeater length: 24

4953 1036655 GAATCTCAAGTTGAGGATTGAAAG GTCTTCTCTTGGATCTGCTTGGCGAGCGCTCCACAGCTGCGCG spacer
length: 44 repeater length: 24

4954 1036723 GAATCTCAAGTTGAGGATTGAAAG TCGTGAAGAAGAAGAGCGCAGGAGACGTGAGGAAGAGGA spacer
length: 39 repeater length: 24

4955 1036786 GAATCTCAAGTTGAGGATTGAAAG ATAAACCAAGTGGCGGCGTTCTGCGTAACCGGCGTCCAGTTGATC
spacer length: 45 repeater length: 24

4956 1036855 GAATCTCAAGTTGAGGATTGAAAG CAACAGGTCACGTCCTTCCTTGCCGGCCTCACTGACCCCTTCG spacer
length: 43 repeater length: 24

4957 1036922 GAATCTCAAGTTGAGGATTGAAAG CGAGGACAGCTCTAACGCTACTCGCTGATTGAGAGTAATTAA spacer
length: 42 repeater length: 24

4958 1036988 GAATCTCAAGTTGAGGATTGAAAG ATTAAGTTCGCGTATCTGCTGAATGAGTACAGGCGCAGACT spacer
length: 41 repeater length: 24

4959 1037053 GAATCTCAAGTTGAGGATTGAAAG TGTATCTGGTACGGCCACCTGGTGTAGTCCACGCCGAGAG spacer
length: 41 repeater length: 24

4960 1037118 GAATCTCAAGTTGAGGATTGAAAG CGAGTAGATCTCCAGCGTCGTGGATGTCTTCGCGTGGCCGAGCCAGT
spacer length: 47 repeater length: 24

4961 1037189 GAATCTCAAGTTGAGGATTGAAAG TCTCTATCCTTTTGTCTGAAGTCTTCGTTGCGATAGTACTGG spacer
length: 41 repeater length: 24

4962 1037254 GAATCTCAAGTTGAGGATTGAAAG GCTGTACGACGCCGGCGCAGAACTCCAGGGTGTGGACGATGGCG spacer
length: 44 repeater length: 24

4963 1037322 GAATCTCAAGTTGAGGATTGAAAG CAGTACCGTGTCTGATAGTGGATGCAGAGCTTGACGGCCCTTACT
spacer length: 45 repeater length: 24

4964 1037391 GAATCTCAAGTTGAGGATTGAAAG CGGGGGCATCCCGTCCCCCGAGAACGAGTATCTGATTAGGAGCC spacer
length: 44 repeater length: 24

4965 1037459 GAATCTCAAGTTGAGGATTGAAAG GGGTGCCCAACGGACGTAGTCCCTAGTCTCTGTGTAACCTTCC spacer
length: 42 repeater length: 24

4966 1037525 GAATCTCAAGTTGAGGATTGAAAG TTTGATCCCTGCATCATGACAAATGCGTCCCGAATTCATCA spacer
length: 43 repeater length: 24

4967 1037592 GAATCTCAAGTTGAGGATTGAAAG GAGATCCAGCAAATCATCTGCATATTCTCGCGTAGAGCGCT spacer
length: 41 repeater length: 24

4968 1037657 GAATCTCAAGTTGAGGATTGAAAG CTCCATCGGGATTGGCCTCCACCTATAAAATCTAGAGGAGAACT
spacer length: 45 repeater length: 24

4969 1037726 GAATCTCAAGTTGAGGATTGAAAG CTCTTATCAACGCTTTTTCAAGTATACTATTGTGCTCTGT spacer
length: 40 repeater length: 24

4970 1037790 GAATCTCAAGTTGAGGATTGAAAG
CACACTTCAGCGCCAGCTTCAGCCCCCTTATACACCACGACGTCGTGGGGGCG spacer length: 52 repeater
length: 24

4971 1037866 GAATCTCAAGTTGAGGATTGAAAG CGGCACTTCCATGTTTCATGTACGACCTTCTCCACGCCTCTCT spacer
length: 42 repeater length: 24

4972 1037932 GAATCTCAAGTTGAGGATTGAAAG TGCGACACAATTCCGCGCTTCTTCGGCGCCGCCGAGGAGCC spacer
length: 44 repeater length: 24

4973 1038000 GAATCTCAAGTTGAGGATTGAAAG ACGTTAAAATACAATACATCGCCGCCTCTCACGGCGACGAT spacer
length: 41 repeater length: 24

4974 1038065 GAATCTCAAGTTGAGGATTGAAAG TATGAGCAGGACTGGTGGAGGAGGGCGTTGGCGAACTCCGT spacer
length: 41 repeater length: 24

4975 1038130 GAATCTCAAGTTGAGGATTGAAAG CACCCGGCGTGAACTTCAGCGTCGTGCCAACGCCACCGGATGT spacer
length: 44 repeater length: 24

4976 1038198 GAATCTCAAGTTGAGGATTGAAAG GTCATTTCGACACCGCCGATTCAAGATGGCAGTTGACAGGAG spacer
length: 42 repeater length: 24

4977 1038264 GAATCTCAAGTTGAGGATTGAAAG TTTACCATAACCGCTTATGTGGTGCATAGAAGTTCTAAGCGAT spacer
length: 42 repeater length: 24

4978 1038330 GAATCTCAAGTTGAGGATTGAAAG GAGTGACGGAATGCACTGCGGCCGGCGGCACATGTGTTGCT spacer
length: 41 repeater length: 24

4979 1038395 GAATCTCAAGTTGAGGATTGAAAG CGCCGTTGCT

4980

4981

4982 GCA_000020905.1_ASM2090v1_genomic.fna (PilerCR):

4983 START REPEAT

SPACER

4984 crispr 1

4985 752211 GAATACAATAGAAAGAATTGAAAG GTCTCAGTAAATACTTCAATTGCTTCTTTTTTCGTTATTGTGCG spacer
length: 43 repeater length: 24

4986 752278 GAATACAATAGAAAGAATTGAAAG TTTCATAAACTCTCTCACTAGTCGACGCACCAATGCGGA spacer
length: 40 repeater length: 24

4987 752342 GAATACAATAGAAAGAATTGAAAG ATGATATAGTTGAATCCCAAACATGTTTTAACCAGATATAGCG spacer
length: 42 repeater length: 24

4988 752408 GAATACAATAGAAAGAATTGAAAG TAGAGTGAGTTCATAAGTAGTTTGGCAAATTGTCTGGTTAG spacer
length: 41 repeater length: 24

4989 752473 GAATACAATAGAAAGAATTGAAAG
TCAAATTTTGTCTCTATAAAAAAGAATGAGGCGTCTATGGAATAAAGAATGGGGA spacer length: 54 repeater
length: 24

4990 752551 GAATACAATAGAAAGAATTGAAAG TCAACCTTCTAAGGACGTCTATAACGTCCTTAGAGAGAGATACG spacer
length: 44 repeater length: 24

4991 752619 GAATACAATAGAAAGAATTGAAAG TTTCCGATTTTCTCCTCACGAATATGAATTCGTCTTCAC spacer length:
37 repeater length: 24

4992 752680 GAATACAATAGAAAGAATTGAAAG GCTGTTTCATCGTCTACGCTTATGGCTTTTATTATTCTCTTTTC spacer
length: 43 repeater length: 24

4993 752747 GAATACAATAGAAAGAATTGAAAG TCTTGTATGCCTCTACAAGTAATCTCTCAGCTACAC spacer length:
36 repeater length: 24

4994 752807 GAATACAATAGAAAGAATTGAAAG GCCCGTGTGAGAGGCCCGTAGATATATAGCCAGTGTAGCCA spacer
length: 42 repeater length: 24

4995 752873 GAATACAATAGAAAGAATTGAAAG CACGTGTAATTATAAATGATTTACGCCGTTAAAGTTTTTTCAGC spacer
length: 44 repeater length: 24

4996 752941 GAATACAATAGAAAGAATTGAAAG AACAAATAGCCGTCCAAGGGGTGTGCTGAATATACCCGA spacer
length: 38 repeater length: 24

4997 753003 GAATACAATAGAAAGAATTGAAAG TAAATAAAATCTAAACCGTATGAGGTGAGGTGTAAGTCTTGGC spacer
length: 43 repeater length: 24

4998 753070 GAATACAATAGAAAGAATTGAAAG TATCGTAATTATAGTTTAGATGCTTGATTACCTGGCGGATTAT spacer
length: 43 repeater length: 24

4999 753137 GAATACAATAGAAAGAATTGAAAG TTGTTATAACCCCCATCTCATACATACGTCTCAAATCCAC spacer
length: 40 repeater length: 24

5000 753201 GAATACAATAGAAAGAATTGAAAG ATTAATGCTGACACGTTGTAGCCTTGCTCTTTCAATTTCTCAT spacer
length: 44 repeater length: 24

5001 753269 GAATACAATAGAAAGAATTGAAAG TCAGGGCGTTCTCTACGCGTTTCTGCTGCAGGTAGCAACTGAGCG
spacer length: 46 repeater length: 24

5002 753339 GAATACAATAGAAAGAATTGAAAG CATAACCTAGACCTCTTGTACCAACGAACCTTACCTTTATTT spacer
length: 42 repeater length: 24

5003 753405 GAATACAATAGAAAGAATTGAAAG AGACGTGAAAAAACGTTTTAACTAGCTATCACTTACCTTG spacer
length: 42 repeater length: 24

5004 753471 GAATACAATAGAAAGAATTGAAAG TTAAACGCGTTACCACTCAATGCGTTCCCGTCAGAGTGGCG spacer
length: 41 repeater length: 24

5005 753536 GAATACAATAGAAAGAATTGAAAG CGCCTCCACGTTTCATATCAACATTGTTGAACAGAGACTTG spacer
length: 40 repeater length: 24

5006 753600 GAATACAATAGAAAGAATTGAAAG AAATTTAATACACGCGTTTTATAGTAATCGCTCGCTTTTTTTTT spacer
length: 43 repeater length: 24

5007 753667 GAATACAATAGAAAGAATTGAAAG CAGAATATTACAATTCACTTCTAGGTGAACGGGCGTGAGTAGG spacer
length: 43 repeater length: 24

5008 753734 GAATACAATAGAAAGAATTGAAAG CGATCACGACAACTGTCTATAACACTACTACTACCACCCT spacer
length: 40 repeater length: 24

5009 753798 GAATACAATAGAAAGAATTGAAAG TTATATCCGTAGTGAATATTCAAATGCATTGGCTTTC spacer length:
37 repeater length: 24

5010 753859 GAATACAATAGAAAGAATTGAAAG TAGACCTGCCTCGAGACAGTTATAGTTGTATAGACCCTGCC spacer
length: 41 repeater length: 24

5011 753924 GAATACAATAGAAAGAATTGAAAG CTTATCCCATGAACGCATTTTACCTTACGCCCTACGGTAAAGT spacer
length: 44 repeater length: 24

5012 753992 GAATACAATAGAAAGAATTGAAAG TTTGTCAGCTGTGTGATCACTTCTGTTTTGCTGTTGATTTTCGT spacer
length: 44 repeater length: 24

5013 754060 GAATACAATAGAAAGAATTGAAAG CTTCTGACTCGAGCTCGACTAACACGCTCTCACCTCGCTCTC spacer
length: 42 repeater length: 24

5014 754126 GAATACAATAGAAAGAATTGAAAG ATCTTAGATATGACGTAGTACCTGTCCTTCTCCATCGTGTAGA spacer
length: 43 repeater length: 24

5015 754193 GAATACAATAGAAAGAATTGAAAG ACTGCTTTCAACCCCTCCCGTTAGGGTCTTTCACAGCTCTATATC spacer
length: 44 repeater length: 24

5016 754261 GAATACAATAGAAAGAATTGAAAG TAGTATAGCGCCTTTCCTCAGGGCTACCAACTACCGCGTCTCA spacer
length: 44 repeater length: 24

5017 754329 GAATACAATAGAAAGAATTGAAAG TATACTACTGGATGATTTGAGTTATGTACTCAATCCACGGAGTC spacer
length: 44 repeater length: 24

5018 754397 GAATACAATAGAAAGAATTGAAAG CTTAGTTGCACTATCTCATCATGATACCTGTCTACGTCTATCC spacer
length: 43 repeater length: 24

5019 754464 GAATACAATAGAAAGAATTGAAAG CTGTGCTACAAATCTCCCCAGGGCCTCGAGTTTCTCAACTTGGGC
spacer length: 46 repeater length: 24

5020 754534 GAATACAATAGAAAGAATTGAAAG GAGGTTCACTACTACCACCCTAGAAGGAGGCTATGTGTTG spacer
length: 39 repeater length: 24

5021 754597 GAATACAATAGAAAGAATTGAAAG ACTACCGCATATTAACGTCATTGACACAGCCCGAAATACGTC spacer
length: 42 repeater length: 24

5022 754663 GAATACAATAGAAAGAATTGAAAG AGGCAGACAGCGTGAGGCAGGCTAGCATGGAGGAGCTGAAGA spacer
length: 42 repeater length: 24

5023 754729 GAATACAATAGAAAGAATTGAAAG TACTCTTTCCCCGACACCTTCGACAACCTCGCTAACACTCAC spacer
length: 41 repeater length: 24

5024 754794 GAATACAATAGAAAGAATTGAAAG TGAATACGAGGATCAGGATACCGGTGAGATACGTAGTGGA spacer
length: 40 repeater length: 24

5025 754858 GAATACAATAGAAAGAATTGAAAG AAGACTACATCGTCTGACCCACTCCACGCTTTCAACAGCCAAGTGAA
spacer length: 47 repeater length: 24

5026 754929 GAATACAATAGAAAGAATTGAAAG CAAGACTATTGGCCTCGGCATGAAGTTCTTCAATTCATCGTCC spacer
length: 43 repeater length: 24

5027 754996 GAATACAATAGAAAGAATTGAAAG CTATTGTGGGCGGGGTGATGTCCGCTACTTTAACTTCTTGAC spacer
length: 42 repeater length: 24

5028 755062 GAATACAATAGAAAGAATTGAAAG TTGAAGCGACCGTGGTGTGCGGGCGTAGCTGCGAGCACAGTGT spacer
length: 42 repeater length: 24

5029 755128 GAATACAATAGAAAGAATTGAAAG GAGATAATAAAATGTTGGCATTTAGACTATCGCCTCGCTGAAAGC spacer
length: 45 repeater length: 24

5030 755197 GAATACAATAGAAAGAATTGAAAG TCGACCATCTCAAATGCTGTACGGGTTTCTTGACACGTTTAAA spacer
length: 45 repeater length: 24

5031 755266 GAATACAATAGAAAGAATTGAAAG CCAGCTATACCTAGCTTACCAAAGATGATTTCGTGCTAATGGAT spacer
length: 43 repeater length: 24

5032 755333 GAATACAATAGAAAGAATTGAAAG ATGGTATATAATGATCGGACATCAATCGACCCGTCGAATA spacer
length: 40 repeater length: 24

5033 755397 GAATACAATAGAAAGAATTGAAAG TGCTCTTTAATACGGCTGAGGGAGTTGATGCAAATAGCTCAG spacer
length: 42 repeater length: 24

5034 755463 GAATACAATAGAAAGAATTGAAAG CCAATGACGCTTGCCAGCGATCTACTCCTTGGAATATCTGCAC spacer
length: 44 repeater length: 24

5035 755531 GAATACAATAGAAAGAATTGAAAG CTCTACCTTGACCAACAACTCACCTAATATTCTAATAATT spacer
length: 41 repeater length: 24

5036 755596 GAATACAATAGAAAGAATTGAAAG CAATGTACTTATCCACTCTCAAGCATTCAAGCGTCGCATCACTAA spacer
length: 45 repeater length: 24

5037 755665 GAATACAATAGAAAGAATTGAAAG TACTGTGCCACCCCCGCCTCCCCAGTAGGCTCCCTGAGGTATA spacer
length: 44 repeater length: 24

5038 755733 GAATACAATAGAAAGAATTGAAAG CAGGAACGGGGCTATGCTTTTCGCGTAGTGACAGATAAACAT spacer
length: 42 repeater length: 24

5039 755799 GAATACAATAGAAAGAATTGAAAG ATCACACGTTATTAAATCATACGCCTTAGCTATCCATGGTGTATT spacer
length: 45 repeater length: 24

5040 755868 GAATACAATAGAAAGAATTGAAAG TCTGACATATAGTGTTTTTGAAACAGGGGTGGTCGGGATGCG spacer
length: 42 repeater length: 24

5041 755934 GAATACAATAGAAAGAATTGAAAG AAATCACAGAAAGTGTTTGTCTCCGACTTGAGACAGGTATG spacer
length: 41 repeater length: 24

5042 755999 GAATACAATAGAAAGAATTGAAAG TCCTTAGATACATGTACATACCCTTAGCAACTACTTCTAAGATG spacer
length: 44 repeater length: 24

5043 756067 GAATACAATAGAAAGAATTGAAAG CGGTTACTGCCGTAGAAGTGATAAGAGCAAGAACATAGTTGT spacer
length: 42 repeater length: 24

5044 756133 GAATACAATAGAAAGAATTGAAAG GCTTAGACTTATCATCGATGAACGACAGATAAAACGCACA spacer
length: 40 repeater length: 24

5045 756197 GAATACAATAGAAAGAATTGAAAG ACGCGACCTGGAGCGGCTGTAGAATACCGTGCTGTCTGATG spacer
length: 41 repeater length: 24

5046 756262 GAATACAATAGAAAGAATTGAAAG TTGCAGTGTGGCGTATGTAGCACTTGACCTCGCTGGCTTCTG spacer
length: 42 repeater length: 24

5047 756328 GAATACAATAGAAAGAATTGAAAG CCGCTAGCTAGCCTCAATTTACAGAGGTGGCCCGCGGAGCCC spacer
length: 42 repeater length: 24

5048 756394 GAATACAATAGAAAGAATTGAAAG GTTGCCTCCGCCCGCTCACGGCTCATGCCAGCGATGCGAGGTA spacer
length: 44 repeater length: 24

5049 756462 GAATACAATAGAAAGAATTGAAAG GAGTACTCAGCTGGAGTGTGACGCCACGTAAGGACTGGGC spacer
length: 41 repeater length: 24

5050 756527 GAATACAATAGAAAGAATTGAAAG CAGGACTTTCACCTGCAGTGTGTACACACATTTTCATTGAA spacer
length: 40 repeater length: 24

5051 756591 GAATACAATAGAAAGAATTGAAAG ATCAAGATAGCCATTTGAGAAAGTTTTTCCTTGAATGTCTCTA spacer
length: 44 repeater length: 24

5052 756659 GAATACAATAGAAAGAATTGAAAG ACACCAGCACCTGGCGGGGAAGAGGAGAAGGCCGAGCAGA spacer
length: 40 repeater length: 24

5053 756723 GAATACAATAGAAAGAATTGAAAG TTTTCTTAACTTCATCAGCAAATACATAGTCCTTGGGTGCAT spacer
length: 42 repeater length: 24

5054 756789 GAATACAATAGAAAGAATTGAAAG AATAATGTCTCCCGGTGATGGAAAATATTCGGTGACGGCTAGC spacer
length: 43 repeater length: 24

5055 756856 GAATACAATAGAAAGAATTGAAAG GAGCGGAGCCGACAAAGCAGTACCTAAGATGAGTGAATTCG spacer
length: 41 repeater length: 24

5056 756921 GAATACAATAGAAAGAATTGAAAG GACAGAGAACTAAAAGAGATGAAGCTCGAGAAGGTGATCGCGTGGA
spacer length: 47 repeater length: 24

5057 756992 GAATACAATAGAAAGAATTGAAAG GTAATTCCATATATCCGCTGGGTTTGTGGTGTATAGCAGTACTTA
spacer length: 47 repeater length: 24

5058 757063 GAATACAATAGAAAGAATTGAAAG TTTAAATGGATACTAGCACGGGTATAATGGAGTTTATAAC spacer

length: 41 repeater length: 24
5059 757128 GAATACAATAGAAAAGAAATTGAAAG CAGGACTTTTCACCTGCAGTGTGTACACACATTTTCATTGAA spacer
length: 40 repeater length: 24
5060 757192 GAATACAATAGAAAAGAAATTGAAAG TAATGCTACTTTTCACGTAGTACTTCTCGAACACTTCTTTTC spacer
length: 40 repeater length: 24
5061 757256 GAATACAATAGAAAAGAAATTGAAAG AATATGACACTGCAATCGATTTCGCGTGATGCACGTGCGCGGTGA spacer
length: 44 repeater length: 24
5062 757324 GAATACAATAGAAAAGAAATTGAAAG ATAACCCCGGTTAGTGTACCAGTTACACTATTCATCCACGT spacer
length: 41 repeater length: 24
5063 757389 GAATACAATAGAAAAGAAATTGAAAG CTGGTCAGACCGCAATGCTCTACGAGGAAGACAGTCGACTCA spacer
length: 42 repeater length: 24
5064 757455 GAATACAATAGAAAAGAAATTGAAAG GACAGAGAAACTAAAAGAGATGAAGCTCGAGAAGGTGATCACGTGGA
spacer length: 47 repeater length: 24
5065 757526 GAATACAATAGAAAAGAAATTGAAAG ATAACATATGCGGAGGGGTTGTGACATGAACCTGCGCTACAA spacer
length: 42 repeater length: 24
5066 757592 GAATACAATAGAAAAGAAATTGAAAG AGGGATGGGTTGAGGGATGCAATCACGTGGTATGGTGCATGGTAT spacer
length: 45 repeater length: 24
5067 757661 GAATACAATAGAAAAGAAATTGAAAG CTCTTTATTGTAAAACGTGTTTACGTAGCGTTTTTTTACACCGC spacer
length: 42 repeater length: 24
5068 757727 GAATACAATAGAAAAGAAATTGAAAG ACTCGCATTGCTCATTAAACATAGCTATTGGTATAACTCTGT spacer
length: 41 repeater length: 24
5069 757792 GAATACAATAGAAAAGAAATTGAAAG CGCAGGTCATCAACAACATATCCTTGATGGTTTCATGTTGCT spacer
length: 41 repeater length: 24
5070 757857 GAATACAATAGAAAAGAAATTGAAAG TTACCATCGC
5071
5072
5073 crispr 2
5074 768269 GAAGCAATAATGAAGAATTGAAAG TTAATCTACTTCGTCCTCCCGCTGGCAATGCTGGTGAGAATAT spacer
length: 43 repeater length: 24
5075 768336 GAAGCAATAATGAAGAATTGAAAG TAGATTTTATCCATGGGCCTTAAATCCAGTTGGCTGGGGCT spacer
length: 41 repeater length: 24
5076 768401 GAAGCAATAATGAAGAATTGAAAG ACATATGCCCCGGGCGGGGGCCTGATTCATTTTGAAGAA spacer
length: 39 repeater length: 24
5077 768464 GAAGCAATAATGAAGAATTGAAAG CATGTAATCACCTCTATCATCACCATAGAGGTTAATGAAA spacer
length: 42 repeater length: 24
5078 768530 GAAGCAATAATGAAGAATTGAAAG CTGTAGTTGTTTCGGGTACGGCTTCAAACAGTCCACTAGTAGCGT spacer
length: 45 repeater length: 24
5079 768599 GAAGCAATAATGAAGAATTGAAAG CAAGTCCGGCTTCGCGCCGATCTACGATGTCATAGGCAAGGT spacer
length: 42 repeater length: 24
5080 768665 GAAGCAATAATGAAGAATTGAAAG GGCATGGCTA
5081
5082
5083 GCA_000021965.1_ASM2196v1_genomic.fna (PilerCR):
5084 START REPEAT
SPACER
5085 crispr 1
5086 1644855 CGGTTTCATCCCCACGCTTGTGGGGAACTC CTGAAGACGATGCTCGCGGGGCTGATTGGGCT spacer
length: 32 repeater length: 29
5087 1644916 CGGTTTCATCCCCACGCTTGTGGGGAACTC GAGATTGTCGGTTGGGATCGCACCGGTGCCGG spacer
length: 32 repeater length: 29
5088 1644977 CGGTTTCATCCCCACGCTTGTGGGGAACTC TGATGCTCGGTCTCGTCGATTGCAGTCGTCGA spacer
length: 32 repeater length: 29
5089 1645038 CGGTTTCATCCCCACGCTTGTGGGGAACTC ATGGACTTTGGAAACGAGCATCGGCGTAATCT spacer
length: 32 repeater length: 29
5090 1645099 CGGTTTCATCCCCACGCTTGTGGGGAACTC TGCGCGACCGCTCGGAAAAATTAGGGAGCGGG spacer
length: 32 repeater length: 29
5091 1645160 CGGTTTCATCCCCACGCTTGTGGGGAACTC CCGGACTGCCGGAAGCCCTCTACGACCACTGC spacer
length: 32 repeater length: 29
5092 1645221 CGGTTTCATCCCCACGCTTGTGGGGAACTC CAACAGAACCTCGCAGAGTTTCGGAACGGCAAC spacer
length: 32 repeater length: 29
5093 1645282 CGGTTTCATCCCCACGCTTGTGGGGAACTC GGGGATCACCAACGTCAGGGAGGCTCTGCTGA spacer
length: 32 repeater length: 29
5094 1645343 CGGTTTCATCCCCACGCTTGTGGGGAACTC TGCCGGCCGGGGTGCCGCAGTTGTGCCGGCTG spacer
length: 32 repeater length: 29
5095 1645404 CGGTTTCATCCCCACGCTTGTGGGGAACTC GAAATTTGAGCAGGGATTTCATGGTTTCGCTCC spacer
length: 32 repeater length: 29
5096 1645465 CGGTTTCATCCCCACGCTTGTGGGGAACTC ATAAGTTCATAGTAACGCTTTGTATTTAGTGC spacer
length: 32 repeater length: 29
5097 1645526 CGGTTTCATCCCCACGCTTGTGGGGAACTC GCGTAGTCAATGACGAACCCGCCGCCCGGAT spacer
length: 32 repeater length: 29
5098 1645587 CGGTTTCATCCCCACGCTTGTGGGGAACTC GATAATGTCCCGGGTATCCTGTGTGGTTGACT spacer

length: 32 repeater length: 29
5099 1645648 CGGTTTCATCCCCACGCTTGTGGGGAACTC GCCATCACTAAATGTATGCCGGTGAGTTTTTTT spacer
length: 32 repeater length: 29
5100 1645709 CGGTTTCATCCCCACGCTTGTGGGGAACTC GGACAAAAAAACCGACACCTCGATCACGGATC spacer
length: 32 repeater length: 29
5101 1645770 CGGTTTCATCCCCACGCTTGTGGGGAACTC CCGTCGTTCCGGGTCCGTCACGACACCTCCGA spacer
length: 32 repeater length: 29
5102 1645831 CGGTTTCATCCCCACGCTTGTGGGGAACTC GCGCCCAGTTCGTCGTCGACTGTGTTGACCAC spacer
length: 32 repeater length: 29
5103 1645892 CGGTTTCATCCCCACGCTTGTGGGGAACTC CTTTCATGCCCCGATTTTGAACACCTGGTCATA spacer
length: 32 repeater length: 29
5104 1645953 CGGTTTCATCCCCACGCTTGTGGGGAACTC GTGGTTGGGAGTATGTACGCTCCGCCAGAGAT spacer
length: 32 repeater length: 29
5105 1646014 CGGTTTCATCCCCACGCTTGTGGGGAACTC CCAGTTGTACGCATCGGCTGTGATGTAGTTGT spacer
length: 32 repeater length: 29
5106 1646075 CGGTTTCATCCCCACGCTTGTGGGGAACTC TCGTCGATATCATCGTCGCGCATTCTGTCTAC spacer
length: 32 repeater length: 29
5107 1646136 CGGTTTCATCCCCACGCTTGTGGGGAACTC CAGTCCGTTGTGATATATCCTCTCAGATCCAA spacer
length: 32 repeater length: 29
5108 1646197 CGGTTTCATCCCCACGCTTGTGGGGAACTC TCCGGTTCCGACCATCCTGAGACCGGAGGGTT spacer
length: 32 repeater length: 29
5109 1646258 CGGTTTCATCCCCACGCTTGTGGGGAACTC AAAAGCACAACAAGCCAAAAGAACAGGTTATC spacer
length: 32 repeater length: 29
5110 1646319 CGGTTTCATCCCCACGCTTGTGGGGAACTC TACTAGCATCCTCGAAAAATTCCGCAGCGATT spacer
length: 32 repeater length: 29
5111 1646380 CGGTTTCATCCCCACGCTTGTGGGGAACTC GCCAGAAACAACCGTTTCGTTTACAGTAGATC spacer
length: 32 repeater length: 29
5112 1646441 CGGTTTCATCCCCACGCTTGTGGGGAACTC TTTCACGCAACATAGATATACTATTAAACTA spacer
length: 32 repeater length: 29
5113 1646502 CGGTTTCATCCCCACGCTTGTGGGGAACTC TTTATCATCTAAAATTTCTGCTTCAAGAGGAAT spacer
length: 33 repeater length: 29
5114 1646564 CGGTTTCATCCCCACGCTTGTGGGGAACTC ATACAGAACCAGAAGAACTGGTCGATGGGAA spacer
length: 32 repeater length: 29
5115 1646625 CGGTTTCATCCCCACGCTTGTGGGGAACTC GATAGATGAAGCAATTGAACTACAATCTCAT spacer
length: 32 repeater length: 29
5116 1646686 CGGTTTCATCCCCACGCTTGTGGGGAACTC TCTAATGGTGGGGTTGATTAATTTATATGTTT spacer
length: 32 repeater length: 29
5117 1646747 CGGTTTCATCCCCACGCTTGTGGGGAACTC ATCAATATCAACGCTGTCTAATAGTTTCGGCAA spacer
length: 32 repeater length: 29
5118 1646808 CGGTTTCATCCCCACGCTTGTGGGGAACTC ATATTAATGATCCAAAATTTAATAGTGTTTAT spacer
length: 32 repeater length: 29
5119 1646869 CGGTTTCATCCCCACGCTTGTGGGGAACTC TACTAAGGAAATTAATTACATATTTGTTTTT spacer
length: 32 repeater length: 29
5120 1646930 CGGTTTCATCCCCACGCTTGTGGGGAACTC GTCAATATCAACGCTGTCTAATAGTTTCGACAA spacer
length: 32 repeater length: 29
5121 1646991 CGGTTTCATCCCCACGCTTGTGGGGAACTC ATCATATTATGGTAGAGAATATATTATAGATC spacer
length: 32 repeater length: 29
5122 1647052 CGGTTTCATCCCCACGCTTGTGGGGAACTC TAAATCCCCATTGTTCAAGTTCATCTTCCCAAT spacer
length: 33 repeater length: 29
5123 1647114 CGGTTTCATCCCCACGCTTGTGGGGAACTC TTTTTTGGATATTGAAGTCGATGATGCAGAAT spacer
length: 32 repeater length: 29
5124 1647175 CGGTTTCATCCCCACGCTTGTGGGGAACTC ATTATAAGATTTTGTATTGGGAATAAAAATTT spacer
length: 32 repeater length: 29
5125 1647236 CGGTTTCATCCCCACGCTTGTGGGGAACTC ATGATCGGCGTCGAAATCGGAATGGCGCGCTG spacer
length: 32 repeater length: 29
5126 1647297 CGGTTTCATCCCCACGCTTGTGGGGAACTC CTCTATTTCGCGCAAAAACCATCTTCCCCGGGTG spacer
length: 33 repeater length: 29
5127 1647359 CGGTTTCATCCCCACGCTTGTGGGGAACTC TCCAGTGTCAATTCAGGATAAATGACCTAATGT spacer
length: 32 repeater length: 29
5128 1647420 CGGTTTCATCCCCACGCTTGTGGGGAACTC TACTCATCCCTCAGATCCCTGATTAGTCTCCC spacer
length: 32 repeater length: 29
5129 1647481 CGGTTTCATCCCCACGCTTGTGGGGAACTC AATATCTGAAATGTATAAATCTGGTATCCATT spacer
length: 32 repeater length: 29
5130 1647542 CGGTTTCATCCCCACGCTTGTGGGGAACTC GTTAGGTTGTTCTGTAGTTTTTCTACAAGATC spacer
length: 32 repeater length: 29
5131 1647603 CGGTTTCATCCCCACGCTTGTGGGGAACTC TATATTATGAAGGGTCGGTGATGTATTGTGAT spacer
length: 32 repeater length: 29
5132 1647664 CGGTTTCATCCCCACGCTTGTGGGGAACTC TCCGAATCGCCGGCGGGGACATCGTAGAAAA spacer
length: 32 repeater length: 29
5133 1647725 CGGTTTCATCCCCACGCTTGTGGGGAACTC ATTGGAGCCCATTTCCCCACACCAATGAGTCTC spacer
length: 32 repeater length: 29

5134 1647786 CGGTTCATCCCCACGCTTGTGGGGAATC TCGGTGAACCGGAGATCGGAAAAATCCGCATT spacer
length: 32 repeater length: 29

5135 1647847 CGGTTCATCCCCACGCTTGTGGGGAATC CTAACGCGGTTGCATCCCCCGAGATGCATCTC spacer
length: 32 repeater length: 29

5136 1647908 CGGTTCATCCCCACGCTTGTGGGGAATC GTTCTCCGCAGAGGAGATGGATCGATTAAGAG spacer
length: 32 repeater length: 29

5137 1647969 CGGTTCATCCCCACGCTTGTGGGGAATC CAGACTGCGCCACCCGTCGGGCAGGACTGGAC spacer
length: 32 repeater length: 29

5138 1648030 CGGTTCATCCCCACGCTTGTGGGGAATC CGCCGAGCCTACAACAACCCTCGATCGCCGCT spacer
length: 32 repeater length: 29

5139 1648091 CGGTTCATCCCCACGCTTGTGGGGAATC GTTATCTGCAATGAATCGGAACAGATCGACAC spacer
length: 32 repeater length: 29

5140 1648152 CGGTTCATCCCCACGCTTGTGGGGAATC TTGATCCCGCTTCTCCAGAGCAGCCAGGTCCT spacer
length: 32 repeater length: 29

5141 1648213 CGGTTCATCCCCACGCTTGTGGGGAATC ATCTTTCGCTTGGCCTTGATCTCCTTATCACC spacer
length: 32 repeater length: 29

5142 1648274 CGGTTCATCCCCACGCTTGTGGGGAATC GGGCCCGGTAAAACACGATGTTGAGTTTAAT spacer
length: 32 repeater length: 29

5143 1648335 CGGTTCATCCCCACGCTTGTGGGGAATC AGTCTCCGATTATCAGGTTAGGTTCCCTGTGA spacer
length: 32 repeater length: 29

5144 1648396 CGGTTCATCCCCACGCTTGTGGGGAATC GTTAAACTGCATTTTGGTACAATAATGATGC spacer
length: 32 repeater length: 29

5145 1648457 CGGTTCATCCCCACGCTTGTGGGGAATC CTTTGGTGTGAGAGGATCACTGTGGGTCCTA spacer
length: 32 repeater length: 29

5146 1648518 CGGTTCATCCCCACGCTTGTGGGGAATC GACAGTTAACCTCCGCAGAACTAACTCGGATC spacer
length: 32 repeater length: 29

5147 1648579 CGGTTCATCCCCACGCTTGTGGGGAATC GAGTTCTTTGTCTCATCCCAAACCAGCAGTT spacer
length: 32 repeater length: 29

5148 1648640 CGGTTCATCCCCACGCTTGTGGGGAATC CCTTTCAGTTGGGAACAGTTCAACGTCTACTC spacer
length: 32 repeater length: 29

5149 1648701 CGGTTCATCCCCACGCTTGTGGGGAATC AGCAAAGGGTTCCCCATTACGGAGGCAGCAC spacer
length: 32 repeater length: 29

5150 1648762 CGGTTCATCCCCACGCTTGTGGGGAATC ACTTGCTGCTTTACTCCCGGCCCGGTCAAGA spacer
length: 32 repeater length: 29

5151 1648823 CGGTTCATCCCCACGCTTGTGGGGAATC CAGGTATCGGACTGTGTTGCACATTCGAGGGC spacer
length: 32 repeater length: 29

5152 1648884 CGGTTCATCCCCACGCTTGTGGGGAATC GTGTAGATCTCGATCTTCGCGTCGGCGGATTC spacer
length: 32 repeater length: 29

5153 1648945 CGGTTCATCCCCACGCTTGTGGGGAATC CGTGTAATCGCGCCAACTGCTGCGAGTATCG spacer
length: 32 repeater length: 29

5154 1649006 CGGTTCATCCCCACGCTTGTGGGGAATC CCCTCGAGGC

5155

5156

5157 GCA_000022365.1_ASM2236v1_genomic.fna (PilerCR):

5158 START REPEAT

5159 SPACER

5159 crispr 1

5160 208438 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTTTCGAGTTTAAGCACTTAGTCAAGTCTAAAAAAG spacer
length: 35 repeater length: 30

5161 208503 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TACGCGCTACTACTGATGAGGAAGGTAGCAGAACTCC spacer
length: 37 repeater length: 30

5162 208570 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GGGAAATATACGTCGATATTGACGCTTATAGGGAAAGC spacer
length: 38 repeater length: 30

5163 208638 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTGGGTTGGCTGGTCTTCGGCATTGCCCTCATCGGCCT spacer
length: 38 repeater length: 30

5164 208706 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AGGCCGTCCCCGACGCATGCATGGCATCCGCCGGATCC spacer
length: 38 repeater length: 30

5165 208774 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTTGTCCGTACTTCTTCGCGTAAATTCTGCTCGCCTTTT spacer
length: 39 repeater length: 30

5166 208843 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TTGCCCCGGCGGGGTTACATCTTCTATTTGGGTTTC spacer
length: 36 repeater length: 30

5167 208909 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCCTACTGCG

5168

5169

5170 crispr 2

5171 1221277 GTTGCAATAAGACTCTAGGAGAATTGAAAG GGAGATTGGTCAACTCTGGCTTGACTGGAGGGCTGGT spacer
length: 37 repeater length: 30

5172 1221344 GTTGCAATAAGACTCTAGGAGAATTGAAAG CGCGTAAATGAGGGCCGGTAATTCGCGAGATAAGC spacer
length: 36 repeater length: 30

5173 1221410 GTTGCAATAAGACTCTAGGAGAATTGAAAG ATACTCAAAGCCGGCCCCAACAGCCCCAAAATAATCA spacer
length: 37 repeater length: 30

5174 1221477 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTGGATCTCCACACGGCCTGGGCCTTCTCAACCTGC spacer
length: 37 repeater length: 30
5175 1221544 GTTGCAATAAGACTCTAGGAGAATTGAAAG TAGTTCTTAACGAAACTCCGCACCCTCCTCCTAACTC spacer
length: 37 repeater length: 30
5176 1221611 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTGGGGTGTCTCTACCTCGCTAGGACTGGCAAAAAGAGG spacer
length: 38 repeater length: 30
5177 1221679 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTCATTGAATCCCTCTCAACCTCAAGGTACTCCTTCG spacer
length: 37 repeater length: 30
5178 1221746 GTTGCAATAAGACTCTAGGAGAATTGAAAG GACTTTGGTTCGGGGCCCGCAAAGAGTATCCGAACCTCTCAA
spacer length: 41 repeater length: 30
5179 1221817 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTAAGTGTTTCATGAATTGATACTGGAAGTCGAAACAC spacer
length: 37 repeater length: 30
5180 1221884 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAGCGTTGTTATTTGCCTCATGCCGATCCCCCAT spacer
length: 35 repeater length: 30
5181 1221949 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTTGTCGGGGACTACTTCGTAATGGCACACAACGGCT spacer
length: 37 repeater length: 30
5182 1222016 GTTGCAATAAGACTCTAGGAGAATTGAAAG AACTCGTAAGTGAAGATGTTATAGTTGCTTCTATCGT spacer
length: 37 repeater length: 30
5183 1222083 GTTGCAATAAGACTCTAGGAGAATTGAAAG GAGTTGGTCGTGTGGGTGGGGTTATCAGTGCATGCTT spacer
length: 38 repeater length: 30
5184 1222151 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTCTTCTATGACGTATTTATTGATTTTACTGATTATTG spacer
length: 38 repeater length: 30
5185 1222219 GTTGCAATAAGACTCTAGGAGAATTGAAAG GAGCGAGGTTGGGCATCTCCTCAGCGACGGGAGTGG spacer
length: 36 repeater length: 30
5186 1222285 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAGAGTGCACAAAAGAATACATTTCAACTAAAGAAC spacer
length: 36 repeater length: 30
5187 1222351 GTTGCAATAAGACTCTAGGAGAATTGAAAG AACAAAAACGTGTTTGACTTCCCGGCCTTTACTTTT spacer
length: 37 repeater length: 30
5188 1222418 GTTGCAATAAGACTCTAGGAGAATTGAAAG CCTAATGGCCCCGGTGGTCGGGGCCGCCGACCAAAGCA spacer
length: 38 repeater length: 30
5189 1222486 GTTGCAATAAGACTCTAGGAGAATTGAAAG ACGGGAGCACGGCGGAGATCGAGTACACGGTCAAGG spacer
length: 36 repeater length: 30
5190 1222552 GTTGCAATAAGACTCTAGGAGAATTGAAAG GGTTGAACGTCACGAACTGGCTCAGGCCTTCGTACAG spacer
length: 37 repeater length: 30
5191 1222619 GTTGCAATAAGACTCTAGGAGAATTGAAAG CCCAGCATGG
5192
5193
5194 crispr 3
5195 1857021 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCTACGTCGACGTGAACCTCGACAACCACCCGCCCTCGGCCCCC
spacer length: 44 repeater length: 30
5196 1857095 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCGGAACATACATCCAGAGCTACGACGCCTACGTGGC spacer
length: 37 repeater length: 30
5197 1857162 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CGGGGACGACTGTAAACGTGAATGACTTGCTAAATATCATTA
spacer length: 42 repeater length: 30
5198 1857234 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GTGCCCCTCATCGTGGCGGAGGACTTAACCCCTGCTCAAGCGA
spacer length: 43 repeater length: 30
5199 1857307 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTTGATCCAGCCGCACATGAGTGTTCTTGACAGGGAGAAAC
spacer length: 41 repeater length: 30
5200 1857378 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTGCTCTTCATCAGCGACGTTCTCGACGAGGCCGAAC spacer
length: 38 repeater length: 30
5201 1857446 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TTCAGGTGGGTGCAAAACGTTTACCTCGATGCCAAAGCC
spacer length: 39 repeater length: 30
5202 1857515 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GTGCTGACGCTGACTGAGGGCTCTGTTGGGGCGTACTTG
spacer length: 39 repeater length: 30
5203 1857584 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TAACCGGGTCACCCTCCACGTAGACGGCGCCTCTTA spacer
length: 37 repeater length: 30
5204 1857651 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AGGGCCGTCGATTCCGAAGGTTACTCGGGCGAGACGA spacer
length: 37 repeater length: 30
5205 1857718 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CGGCTACTGGAGCGTTACGAAGACGGTTGACGTCCA spacer
length: 36 repeater length: 30
5206 1857784 CTTTCAATTCTCCTAGAGTCTTATTGCAAC
5207
5208
5209 GCA_000022385.1_ASM2238v1_genomic.fna (PilerCR):
5210 START REPEAT
SPACER
5211 crispr 1
5212 619237 CTTTCAATTCTATAGTAGATTAAC AAGTGAGGAAAAGAACCTTTCAAATCTCCTATCGGTGTA spacer
length: 39 repeater length: 24
5213 619300 CTTTCAATTCTATAGTAGATTAAC TCATTACACCAGTATATTACCATCACTGTCACCTATCG spacer
length: 39 repeater length: 24

5214	619363 CTTTCAATTCTATAGTAGATTAAC length: 40 repeater length: 24	TCGATAATAATCCACTTTCTAATTCTCAACAATTATATTT spacer
5215	619427 CTTTCAATTCTATAGTAGATTAAC length: 38 repeater length: 24	TCAGTAAATGAACAAGTTTCAGCGGTCTTGTCTGAATA spacer
5216	619489 CTTTCAATTCTATAGTAGATTAAC length: 44 repeater length: 24	TTCTTTTTCTTTTTTTGAGAAGCCGTTAAAGAAAGTTAAGCTAA spacer
5217	619557 CTTTCAATTCTATAGTAGATTAAC length: 40 repeater length: 24	ATAAACTATATCCTATTATAACAAGCAAAAACCTTACCAT spacer
5218	619621 CTTTCAATTCTATAGTAGATTAAC length: 41 repeater length: 24	TACGTGTTTCATACATGTTGATGGAATTGCTCCAGTTGCAGA spacer
5219	619686 CTTTCAATTCTATAGTAGATTAAC 36 repeater length: 24	TCTTGAAGACTTGGCAAAGAAAGGGTTCTTAAGCTT spacer length:
5220	619746 CTTTCAATTCTATAGTAGATTAAC length: 40 repeater length: 24	ATGATTTCGCTTAACGATTTTATGAACAGAGTATTATGGTG spacer
5221	619810 CTTTCAATTCTATAGTAGATTAAC length: 40 repeater length: 24	GCTGTTTGAGAGAAGAAATAAATAAAAAACGGGTAGCTT spacer
5222	619874 CTTTCAATTCTATAGTAGATTAAC length: 42 repeater length: 24	ACTGCTTTTGCTTTTTCTTGGTGAGAAGTACAGATGCTCATG spacer
5223	619940 CTTTCAATTCTATAGTAGATTAAC length: 38 repeater length: 24	TTGTGACAACCTTTTAGGTACTACCGTACGCCAGGCTA spacer
5224	620002 CTTTCAATTCTATAGTAGATTAAC length: 41 repeater length: 24	AAAGGGGGGCAAAAATCAGGATTAGAGTCTTTTTTAGATCA spacer
5225	620067 CTTTCAATTCTATAGTAGATTAAC length: 43 repeater length: 24	GGGCATAAGAAGCTGGACAGGATAATACAGTATACGCAAGTCA spacer
5226	620134 CTTTCAATTCTATAGTAGATTAAC length: 40 repeater length: 24	ATAGTGTGTTAAAAATCAGCTATCTAAGCGGATATATAAA spacer
5227	620198 CTTTCAATTCTATAGTAGATTAAC length: 40 repeater length: 24	AGCTAGCCGGTACATTGAAAGTAGGAATCTCGATTACTTT spacer
5228	620262 CTTTCAATTCTATAGTAGATTAAC length: 41 repeater length: 24	AACGCTATGATCACTAGTGCTATAACTATCCAAACCCATAC spacer
5229	620327 CTTTCAATTCTATAGTAGATTAAC length: 39 repeater length: 24	TTTGTTAAACCAGTATTTAAACTTTTTCCCTAACTAGCT spacer
5230	620390 CTTTCAATTCTATAGTAGATTAAC length: 44 repeater length: 24	CCCAGTATTGCCAAAGGTTTTGTTCGATGCCTATACATATGTAA spacer
5231	620458 CTTTCAATTCTATAGTAGATTAAC length: 41 repeater length: 24	ATAGGCGTATTAAGCTCTAGCAACCTCTGGAGCTCATCAGT spacer
5232	620523 CTTTCAATTCTATAGTAGATTAAC length: 41 repeater length: 24	CAGCCTTAATGTTTAAAAATAAAAAATCTCGTTGGAGCAAAG spacer
5233	620588 CTTTCAATTCTATAGTAGATTAAC length: 41 repeater length: 24	GAGGTCGACTTGGATACGATACAAAATGCACAAAGACTGAT spacer
5234	620653 CTTTCAATTCTATAGTAGATTAAC length: 40 repeater length: 24	GTGTTATTACAAGGTACTATACAAAACACAAATACGTCAG spacer
5235	620717 CTTTCAATTCTATAGTAGATTAAC length: 40 repeater length: 24	AAAAAGCTTATCAAGAAATTGTTAAAAATGTAAATTTATC spacer
5236	620781 CTTTCAATTCTATAGTAGATTAAC length: 40 repeater length: 24	ATGGCAAGTCTTAAGGAAATATTAGATCAATTGGAAAAAC spacer
5237	620845 CTTTCAATTCTATAGTAGATTAAC length: 40 repeater length: 24	TCGAAACGATAATTAGGAGAAGAGTTACTATACTAACATA spacer
5238	620909 CTTTCAATTCTATAGTAGATTAAC length: 43 repeater length: 24	GGAAAACCTCGACACTTTATATGTGTTTAGTTTTCTTCTGGA spacer
5239	620976 CTTTCAATTCTATAGTAGATTAAC length: 42 repeater length: 24	TGAAAGGAACCTTAGAAAAAATATTGAAGAGATATTCGTCTAA spacer
5240	621042 CTTTCAATTCTATAGTAGATTAAC length: 40 repeater length: 24	AAATTGATTCATGTCAAACGGTGGTGTGGCATTATCTGT spacer
5241	621106 CTTTCAATTCTATAGTAGATTAAC length: 44 repeater length: 24	TAGGTTAAGTTGTCCTTACTCGTCACATTGGTCTAAGAAGAATA spacer
5242	621174 CTTTCAATTCTATAGTAGATTAAC length: 39 repeater length: 24	CGTTATAGAGTATCTGCCAGCCGTATTCCGATACCCCAT spacer
5243	621237 CTTTCAATTCTATAGTAGATTAAC length: 44 repeater length: 24	ATTATGATGAGTATAAAAGCAGAATCGAACAGAATTATAATTTT spacer
5244	621305 CTTTCAATTCTATAGTAGATTAAC length: 41 repeater length: 24	AAAAGAAATTTTATAAAGCCTTTTTATGGTGATACAAAGGA spacer
5245	621370 CTTTCAATTCTATAGTAGATTAAC length: 42 repeater length: 24	TTCAATTTAGGCTATTCAAATCATTTTTGTGTAAATATAGAC spacer
5246	621436 CTTTCAATTCTATAGTAGATTAAC length: 38 repeater length: 24	CTGTTTCTTTTTCTCTTTCCCATCACAAAAAATTGTAA spacer
5247	621498 CTTTCAATTCTATAGTAGATTAAC length: 40 repeater length: 24	GTATTTTACGGGATAAAATTTTGAAATCGTGAAAAAAGCAG spacer
5248	621562 CTTTCAATTCTATAGTAGATTAAC length: 42 repeater length: 24	CCATATGAAAGGACTTCTCATAAATGGAAAAATACTTAATCA spacer
5249	621628 CTTTCAATTCTATAGTAGATTAAC	TAAAGAAAACTTTAAATATGAGAGTTGGCATAGATAAAATT spacer

length: 41 repeater length: 24
5250 621693 CTTTCAATTCTATAGTAGATTAAC TTAATGAGGGGAAAAGAGTGGTGGATCATTATTATATTAT spacer
length: 40 repeater length: 24
5251 621757 CTTTCAATTCTATAGTAGATTAAC GAGATAAAGAAACAACCTCAAAATGAAAAAGAAGAGTTTTTAAA spacer
length: 44 repeater length: 24
5252 621825 CTTTCAATTCTATAGTAGATTAAC GTCTTTTTCCATCTTCTGTTATGATATCTATTTCGATCAGA spacer
length: 40 repeater length: 24
5253 621889 CTTTCAATTCTATAGTAGATTAAC GCTAATAGTTTTTAATTCTATTAGGTCATTATTGCATATT spacer
length: 40 repeater length: 24
5254 621953 CTTTCAATTCTATAGTAGATTAAC CCCGTGAACTTAGGAAATGCAGAGGCTGAGCTTAGAAAAAT spacer
length: 41 repeater length: 24
5255 622018 CTTTCAATTCTATAGTAGATTAAC TTCCTTCCACGCCCCCTACAAGAAGGATGAGTTTTTG spacer length:
36 repeater length: 24
5256 622078 CTTTCAATTCTATAGTAGATTAAC ACTAAATAATTGGTATAGCGTGGTGTACACGTATAAGTAC spacer
length: 40 repeater length: 24
5257 622142 CTTTCAATTCTATAGTAGATTAAC AATTGGCTCAGAATTCCTCAATAAAATTACGAAGTGGAATG spacer
length: 40 repeater length: 24
5258 622206 CTTTCAATTCTATAGTAGATTAAC ATTTGTTGATTTGCAGTTGCAATAAATCCAGCGATATAAATT spacer
length: 42 repeater length: 24
5259 622272 CTTTCAATTCTATAGTAGATTAAC CTGAGTTTGATGAAGGAATTAATGAAGAAGAAAGAGAAA spacer
length: 39 repeater length: 24
5260 622335 CTTTCAATTCTATAGTAGATTAAC CACAGACTTTCATGGTGTAGAAGTCATCCTGATAAATGTA spacer
length: 40 repeater length: 24
5261 622399 CTTTCAATTCTATAGTAGATTAAC ATGTATGTATCAGTCACGTATTCAATTTCCCTTCCTTGGTTC spacer
length: 41 repeater length: 24
5262 622464 CTTTCAATTCTATAGTAGATTAAC TCGTACATTCTTTTCCTATATGCCATCCAGAAATTACCAA spacer
length: 40 repeater length: 24
5263 622528 CTTTCAATTCTATAGTAGATTAAC AATTAAAGTATTAATGAAGATGAACTTAAGAACCATAA spacer
length: 39 repeater length: 24
5264 622591 CTTTCAATTCTATAGTAGATTAAC ATGTCGTTAACCGCCCTAGTCAAGGTGCCGGTCAACTGAT spacer
length: 40 repeater length: 24
5265 622655 CTTTCAATTCTATAGTAGATTAAC CCCAGGTCGGCTCCAGTACTTCCCCTTGCGTATAAATTGA spacer
length: 40 repeater length: 24
5266 622719 CTTTCAATTCTATAGTAGATTAAC ATTAGACGCGGTGCCTTATCCGCGGGTAAGTTTGTATTTAGG spacer
length: 42 repeater length: 24
5267 622785 CTTTCAATTCTATAGTAGATTAAC ATTCAAACATCTGCTTGAGTACATCAAACGTTACGATGAGAAC spacer
length: 43 repeater length: 24
5268 622852 CTTTCAATTCTATAGTAGATTAAC CCGTAGCTGTGTTTTCAGCTTTGCGTTATCCAACTGTTCA spacer
length: 39 repeater length: 24
5269 622915 CTTTCAATTCTATAGTAGATTAAC ATTTTTGCCCGCTCCTCCTCCTATCGGCATACCCTGACTA spacer
length: 40 repeater length: 24
5270 622979 CTTTCAATTCTATAGTAGATTAAC TGTAAGTTCGGTGTATACAAATATTCTTTCTCAAAAATTT spacer
length: 40 repeater length: 24
5271 623043 CTTTCAATTCTATAGTAGATTAAC ACAAGTTTGATACATTGTTTTTGGTCATCAATTTCAACATT spacer
length: 41 repeater length: 24
5272 623108 CTTTCAATTCTATAGTAGATTAAC AATCCGCCATGTCGTGTGTGTGATCGAATGGGAACATGTCT spacer
length: 41 repeater length: 24
5273 623173 CTTTCAATTCTATAGTAGATTAAC TCGCTATCTTTGTGTACATGGCTTTCTTTGCTAACTCGA spacer
length: 39 repeater length: 24
5274 623236 CTTTCAATTCTATAGTAGATTAAC AACTACGGTATTAGTAAATTAAGGGAAGGTGAAGAGGAAA spacer
length: 40 repeater length: 24
5275 623300 CTTTCAATTCTATAGTAGATTAAC TATAAAACATAATAATTAGATCTGCTTGTGTTGTAGACAAT spacer
length: 40 repeater length: 24
5276 623364 CTTTCAATTCTATAGTAGATTAAC AAGAACTTAGTGACATGATCAATTATCACAGTATAAAT spacer
length: 39 repeater length: 24
5277 623427 CTTTCAATTCTATAGTAGATTAAC GCTTAGTTATGAAACCTGCGAGAACATTGGAGATGTTAAT spacer
length: 40 repeater length: 24
5278 623491 CTTTCAATTCTATAGTAGATTAAC TCGATTAGTTTGTGCGATACAGTCCTGCAGTACGGGGGAAT spacer
length: 40 repeater length: 24
5279 623555 CTTTCAATTCTATAGTAGATTAAC TGAGGTGACCTGACGATGAAGGTGCGCAATATGGATTTCTA spacer
length: 40 repeater length: 24
5280 623619 CTTTCAATTCTATAGTAGATTAAC CGCTTACACTTATTTTATTACAATTGCTACTAATTATCGATA spacer
length: 42 repeater length: 24
5281 623685 CTTTCAATTCTATAGTAGATTAAC CCGCCGTTTCATGGTTTTCAAGAAAATTTGAGTTTGAAA spacer
length: 38 repeater length: 24
5282 623747 CTTTCAATTCTATAGTAGATTAAC AACACTGGGATTGGCAAATGTCCTTCGCCAGTATTAACAA spacer
length: 40 repeater length: 24
5283 623811 CTTTCAATTCTATAGTAGATTAAC TTTAAATATCCCGGAAGCCAAAGATTATTAAGGTTAGTGGA spacer
length: 41 repeater length: 24
5284 623876 CTTTCAATTCTATAGTAGATTAAC CGGGCATCATTACCACCTACCTCCCTACCTCGGTAACTG spacer
length: 40 repeater length: 24

5285 623940 CTTTCAATTCTATAGTAGATTAAC AGCGTAAATTATCCACCTATAGGAGAATGTTTCGATAGATA spacer
length: 40 repeater length: 24

5286 624004 CTTTCAATTCTATAGTAGATTAAC CTCTACTTGTTAGATGCTTGCTACTTACGCTATATTCAA spacer
length: 39 repeater length: 24

5287 624067 CTTTCAATTCTATAGTAGATTAAC TAGACGAGTATACTTATTGCACTGATGTTGATCATTGTTTT spacer
length: 41 repeater length: 24

5288 624132 CTTTCAATTCTATAGTAGATTAAC AGAAACCAAAGCAAGAGCTGGAAACCACATGAGGAGTTTT spacer
length: 40 repeater length: 24

5289 624196 CTTTCAATTCTATAGTAGATTAAC ACAGAGCGCCCTCTGGTATGATGTCCGGATACTTATAAAATA spacer
length: 42 repeater length: 24

5290 624262 CTTTCAATTCTATAGTAGATTAAC TAATTTATACGCCAGTACGCGGCAGATCTACGAATATCGTG spacer
length: 41 repeater length: 24

5291 624327 CTTTCAATTCTATAGTAGATTAAC TGCTAAATTATTAAGAGCTGAAAGCAAAGATGAAATAATTG spacer
length: 41 repeater length: 24

5292 624392 CTTTCAATTCTATAGTAGATTAAC TATTTCGATATGGTGAATTAGCAGTCGACGTTGACCTGTG spacer
length: 39 repeater length: 24

5293 624455 CTTTCAATTCTATAGTAGATTAAC ATACATAATTATTTGATGAAAGATGGAAGTCGATTATAA spacer
length: 39 repeater length: 24

5294 624518 CTTTCAATTCTATAGTAGATTAAC AATAGATAACGGAGCGGAAATACATTACGAGAATGGATATA spacer
length: 41 repeater length: 24

5295 624583 CTTTCAATTCTATAGTAGATTAAC AATATCCCAAATTGAAATATATTGCAACAGTTTATAATGT spacer
length: 40 repeater length: 24

5296 624647 CTTTCAATTCTATAGTAGATTAAC GTAACCTGTACGAAAGAAGAGGAAGTATCCTGTCAACCAGA spacer
length: 41 repeater length: 24

5297 624712 CTTTCAATTCTATAGTAGATTAAC AGAATGGCACCGCAACTGTAGTGGATGCTGAGGTAATATAC spacer
length: 41 repeater length: 24

5298 624777 CTTTCAATTCTATAGTAGATTAAC TTACCATAGCGTGGACTGAAAGCATATCTACACAAGTACCACT spacer
length: 43 repeater length: 24

5299 624844 CTTTCAATTCTATAGTAGATTAAC TTGATGAAGTCCAGAGTACCGACTGCGACTCCGCATTATGC spacer
length: 41 repeater length: 24

5300 624909 CTTTCAATTCTATAGTAGATTAAC TCGCTCTAAAAGAATGAGTAGTCTCTCTTTAGTCCT spacer length:
36 repeater length: 24

5301 624969 CTTTCAATTCTATAGTAGATTAAC GGATCATAGCCAAACGCCTGAAGTAATAAAGCCCAAAGT spacer
length: 39 repeater length: 24

5302 625032 CTTTCAATTCTATAGTAGATTAAC CGGCATAGATAAATTGCCTGAGGAATCGCTCCGCGGGTAT spacer
length: 40 repeater length: 24

5303 625096 CTTTCAATTCTATAGTAGATTAAC ACATTATTTTGACGTAGCAAACGAAGTCCCGTCTCTACT spacer
length: 39 repeater length: 24

5304 625159 CTTTCAATTCTATAGTAGATTAAC TAGGTAACCTGGTACATTTACTTAGAGGAGGGAATAAACGT spacer
length: 40 repeater length: 24

5305 625223 CTTTCAATTCTATAGTAGATTAAC TTAATTCATCATTTTCCAGATGGAAATGTAGTCATAG spacer length:
37 repeater length: 24

5306 625284 CTTTCAATTCTATAGTAGATTAAC ACAATCTAATTTTGTGAATGTTTGTGTTTTGTTAATAGAC spacer
length: 40 repeater length: 24

5307 625348 CTTTCAATTCTATAGTAGATTAAC ATTACAGAATGCTAAAATGATAAAGACAGAAAAAGAGACAT spacer
length: 41 repeater length: 24

5308 625413 CTTTCAATTCTATAGTAGATTAAC TATGTAATCGTGGGTAATTACACTAGTAGAATTCGATTG spacer
length: 39 repeater length: 24

5309 625476 CTTTCAATTCTATAGTAGATTAAC ATAGGACAAATAGCGAGCACGTTAGCGGTATGGACAGAAC spacer
length: 40 repeater length: 24

5310 625540 CTTTCAATTCTATAGTAGATTAAC GGAACCAACACTATTATCGTAGAAGTATCAAGTGTACAAAA spacer
length: 41 repeater length: 24

5311 625605 CTTTCAATTCTATAGTAGATTAAC CAGTTTTACCATCTCCACTTGAGAATATCCAAATTCCTCA spacer
length: 40 repeater length: 24

5312 625669 CTTTCAATTCTATAGTAGATTAAC ACGGGACATTTTATTTCCCTTAAAACGGCGTATAAAAGAGT spacer
length: 41 repeater length: 24

5313 625734 CTTTCAATTCTATAGTAGATTAAC TAAGTGCCGAGCTTTGCTAGACTCCCTCAAGTGCGGAAC spacer
length: 40 repeater length: 24

5314 625798 CTTTCAATTCTATAGTAGATTAAC TCGCATATAACCCCTGTTTTCTCCCCAACAGAAAATGTCATCA spacer
length: 45 repeater length: 24

5315 625867 CTTTCAATTCTATAGTAGATTAAC AGGGTTGTCGTCTATTAGCACGACGTCTCCAGACCCTTA spacer
length: 40 repeater length: 24

5316 625931 CTTTCAATTCTATAGTAGATTAAC ATTAAAGTTAATGAGGATGGAACGATGGAGACACTTCAAGAA spacer
length: 42 repeater length: 24

5317 625997 CTTTCAATTCTATAGTAGATTAAC AGCTAGTTAGCTAGTTATATAATATAGTAACTTATAAAT spacer
length: 39 repeater length: 24

5318 626060 CTTTCAATTCTATAGTAGATTAAC ATTATTATCTTGTACATGTGACACATCATTATACAT spacer length:
36 repeater length: 24

5319 626120 CTTTCAATTCTATAGTAGATTAAC ATGTAATAATTTAGGTCACCTAACGCTATGTACTTCTTTTCCA spacer
length: 43 repeater length: 24

5320 626187 CTTTCAATTCTATAGTAGATTAAC AAGAATGGATGTACCTAGCTATCCCCCTAATCCACAGAATCT spacer

length: 42 repeater length: 24
5321 626253 CTTTCAATTCTATAGTAGATTAAC CTATATAAATCTCTTTACGCTCTTACTTTACGTGAATCTA spacer
length: 40 repeater length: 24
5322 626317 CTTTCAATTCTATAGTAGATTAAC ATACAAATATTTCAACATTAAATGCAATAAGTGTAGATAT spacer
length: 40 repeater length: 24
5323 626381 CTTTCAATTCTATAGTAGATTAAC CTGAAAAAGTTATTAAATTCAATATTACAATGGCTTATGG spacer
length: 40 repeater length: 24
5324 626445 CTTTCAATTCTATAGTAGATTAAC AGAAGAAAAGTTAAATCAAGAACAAAATTTAAATCAGGAGAT spacer
length: 42 repeater length: 24
5325 626511 CTTTCAATTCTATAGTAGATTAAC TCGTTGTAACTCTGCCTTTCCATTATCAACAAAGAATTAA spacer
length: 41 repeater length: 24
5326 626576 CTTTCAATTCTATAGTAGATTAAC CTCCATTCTCGTGGAGCCAGATTGGTTACGTGGGGATAAG spacer
length: 40 repeater length: 24
5327 626640 CTTTCAATTCTATAGTAGATTAAC TTATCGAGGTCTACAACCTAGGACTTTCATAAGAAAAAAT spacer
length: 39 repeater length: 24
5328 626703 CTTTCAATTCTATAGTAGATTAAC ATGCTAATCATTACATTTAAGATAATACACAAATATATAATT spacer
length: 42 repeater length: 24
5329 626769 CTTTCAATTCTATAGTAGATTAAC TGTAGTTTGTCAATCTTTTCATATGGTAACGGAATAGTCAACCT spacer
length: 44 repeater length: 24
5330 626837 CTTTCAATTCTATAGTAGATTAAC CCAACACCTACAACAAACGGGCTGGAAATGATAAATAACCA spacer
length: 41 repeater length: 24
5331 626902 CTTTCAATTCTATAGTAGATTAAC CTCATCATGGGATTTCAAGAGCTATATCTCACGCCGTCAA spacer
length: 40 repeater length: 24
5332 626966 CTTTCAATTCTATAGTAGATTAAC GTGAATTTTCTAATTGATTTAGCTAAGAAATTAAAGAATGA spacer
length: 41 repeater length: 24
5333 627031 CTTTCAATTCTATAGTAGATTAAC TGCTTTACAATTTTTTTCATCGCTGCATATAAAAAAAT spacer length:
37 repeater length: 24
5334 627092 CTTTCAATTCTATAGTAGATTAAC ACGGAGGATC
5335
5336
5337 crispr 2
5338 631173 GTTAATCTACTATAGAATTGAAAG ATTATTTTTACTAAAGAAAGATGGAATAGCAGCAAAAGTGCT spacer
length: 42 repeater length: 24
5339 631239 GTTAATCTACTATAGAATTGAAAG ACTTACGTATTTTGAACAATTTACGTAATCTTGAGTTAGAGA spacer
length: 42 repeater length: 24
5340 631305 GTTAATCTACTATAGAATTGAAAG GTCTCTGGGTAAATCTCATATACTACTTTTATAAGTCCCTTTTT spacer
length: 44 repeater length: 24
5341 631373 GTTAATCTACTATAGAATTGAAAG TGCCTTGCTAAACTTACATGGTAATTTATAATTTTTGGAAA spacer
length: 41 repeater length: 24
5342 631438 GTTAATCTACTATAGAATTGAAAG ATTTATTTTCGTTTTACTCGAGAGTTCATTTAATACTTT spacer
length: 39 repeater length: 24
5343 631501 GTTAATCTACTATAGAATTGAAAG GTATTTTCAATTTAGTCTTAACAAAAGTGGATACAGAACCTAAT spacer
length: 42 repeater length: 24
5344 631567 GTTAATCTACTATAGAATTGAAAG AAACATGACAGAAGACCAGAAAAAGCAATTGTTAATGCAAA spacer
length: 41 repeater length: 24
5345 631632 GTTAATCTACTATAGAATTGAAAG TTCTTTCTTCTACGATATATCCTCTAGCTATAGCCTCAGCT spacer
length: 41 repeater length: 24
5346 631697 GTTAATCTACTATAGAATTGAAAG AATATAAAGTATATCACAAGGGTTGTTTATGCTGTAGATATAG spacer
length: 43 repeater length: 24
5347 631764 GTTAATCTACTATAGAATTGAAAG TTGTTTCTTTCATGATTACTCGGAATAAAAATCGGATCT spacer
length: 39 repeater length: 24
5348 631827 GTTAATCTACTATAGAATTGAAAG ATAGATCCCTCATACTTACTACGAAAATTAGAGGAGTAC spacer
length: 39 repeater length: 24
5349 631890 GTTAATCTACTATAGAATTGAAAG ACTTGACGTCTTGACGGCTTACGATGAGTAAACAAGTAAATTCA spacer
length: 45 repeater length: 24
5350 631959 GTTAATCTACTATAGAATTGAAAG AATTCGGCATGGTTTACAATAATCAATGCTTTTTTCCC spacer length:
37 repeater length: 24
5351 632020 GTTAATCTACTATAGAATTGAAAG TTTTTCGTCAATTCATGAACCTAACTTATCTCATCTTCTT spacer
length: 40 repeater length: 24
5352 632084 GTTAATCTACTATAGAATTGAAAG ACAACCCTAGTGCAGTAGCTATATTCTTTGCGTCTTGGATATCG spacer
length: 44 repeater length: 24
5353 632152 GTTAATCTACTATAGAATTGAAAG TGTTCTATCAGCGTCGTCAAGAAAACGCCACCGTATACGG spacer
length: 40 repeater length: 24
5354 632216 GTTAATCTACTATAGAATTGAAAG AGTAAATTGTACATCAAACGTGCATCATCTGAATGCGGATAT spacer
length: 43 repeater length: 24
5355 632283 GTTAATCTACTATAGAATTGAAAG ATACGAATCACCTTTTTTCCCGATTACGTGACAAAAAC spacer
length: 38 repeater length: 24
5356 632345 GTTAATCTACTATAGAATTGAAAG TCCACAATTCTTCTATATCGTCGCTGTAATACGTAAGCAT spacer
length: 40 repeater length: 24
5357 632409 GTTAATCTACTATAGAATTGAAAG TCAATTTTAAGAGCTTTAGTGGAACATAATTCAACAAAAAC spacer
length: 40 repeater length: 24

5358 632473 GTTAATCTACTATAGAAATTGAAAG ACATGATATACAAGATAAAAAAGTGTACAATAACAGTTAT spacer
length: 41 repeater length: 24
5359 632538 GTTAATCTACTATAGAAATTGAAAG AAAACTAAAAACTTCAATTCACCTTATAGCTTTTTTCTTA spacer
length: 40 repeater length: 24
5360 632602 GTTAATCTACTATAGAAATTGAAAG TACTTCATTT
5361
5362
5363 crispr 3
5364 632726 GTTAATCTACTATAGAAATTGAAAG GTCACATTTAGCAAAAACATACTCTGTTCTTGTCTTATT spacer
length: 40 repeater length: 24
5365 632790 GTTAATCTACTATAGAAATTGAAAG ATTAATCTGTCATATTGCGTAATTTATGATATAAAATATA spacer
length: 40 repeater length: 24
5366 632854 GTTAATCTACTATAGAAATTGAAAG GTTCGTGTTCTGGAGGATTAATTATCGGTTCTGGTTCATGT spacer
length: 41 repeater length: 24
5367 632919 GTTAATCTACTATAGAAATTGAAAG CTCATCTCTTTTAGTTCTCCGTTATCCATCTCGTAGCATCTG spacer
length: 43 repeater length: 24
5368 632986 GTTAATCTACTATAGAAATTGAAAG CACGTAAATATGAGTCAGGTATTACATAGTTGATGACATTGT spacer
length: 42 repeater length: 24
5369 633052 GTTAATCTACTATAGAAATTGAAAG AATATTTTCGGTATCACAAACGAAAATTGTGGTATTTTT spacer
length: 39 repeater length: 24
5370 633115 GTTAATCTACTATAGAAATTGAAAG GACTTAACTGTAAAAAGTTAATTCCTTTTTTCTCTTTTCTTTCT spacer
length: 45 repeater length: 24
5371 633184 GTTAATCTACTATAGAAATTGAAAG AAACGTAAACCGATCGTCATAAATCCACTTCTCAGTTTCG spacer
length: 40 repeater length: 24
5372 633248 GTTAATCTACTATAGAAATTGAAAG CTATTCACTATGCGTTTATTATCTAATATGACAAAGAAAAAGA spacer
length: 43 repeater length: 24
5373 633315 GTTAATCTACTATAGAAATTGAAAG TTATTTCTGTATTCAAATTTGATTTTTTCTTTGTTTCTGA spacer
length: 40 repeater length: 24
5374 633379 GTTAATCTACTATAGAAATTGAAAG TTGTGATTGAACCGCTTAGGCTGAGTTTTCTGAAACTTCTC spacer
length: 41 repeater length: 24
5375 633444 GTTAATCTACTATAGAAATTGAAAG TTAATCATATTTACTAGAGCCGGACCTCCACCAAGTCTATTGAG spacer
length: 44 repeater length: 24
5376 633512 GTTAATCTACTATAGAAATTGAAAG CCTTTTTTCACAGATATCTTAATTATTTCTTGTCTTAAGAT spacer
length: 40 repeater length: 24
5377 633576 GTTAATCTACTATAGAAATTGAAAG ATTTCTTATTTCTAATGAACCTAGAATTACAGTGCTGACTT spacer
length: 42 repeater length: 24
5378 633642 GTTAATCTACTATAGAAATTGAAAG AACAACTTATCATCAAATACATTGAGAAAATCTATGAACATAAT spacer
length: 44 repeater length: 24
5379 633710 GTTAATCTACTATAGAAATTGAAAG TAGCTCTGCTTTCATTAGTTAGAAAATCAATTTATGCAATTCT spacer
length: 43 repeater length: 24
5380 633777 GTTAATCTACTATAGAAATTGAAAG TTTTCTCTTACAATTTCTTCACTAAATGGCACAATTTTTTA spacer
length: 40 repeater length: 24
5381 633841 GTTAATCTACTATAGAAATTGAAAG AAGCAATGGATTGCTGAATATAGAACCTCCTGTACCTCCTGCAC spacer
length: 44 repeater length: 24
5382 633909 GTTAATCTACTATAGAAATTGAAAG TCTATTGCGACAGTTTGTATTGTCATTTCAATTTTAAA spacer
length: 38 repeater length: 24
5383 633971 GTTAATCTACTATAGAAATTGAAAG ATATCTATTTTTAAAAACGCAATTAAGGAATTTTCTTATT spacer
length: 39 repeater length: 24
5384 634034 GTTAATCTACTATAGAAATTGAAAG TATCTTCTCCACAAGAAATTCAGCTCACGGCACAATCTC spacer
length: 39 repeater length: 24
5385 634097 GTTAATCTACTATAGAAATTGAAAG TACTTCGTTTAAAAAGTCAACTGATGTCTCTGCGAAAGC spacer
length: 39 repeater length: 24
5386 634160 GTTAATCTACTATAGAAATTGAAAG CAAATCTATTTTTTGCAATTTTACTAGCTTCAATTTTTGAAA spacer
length: 42 repeater length: 24
5387 634226 GTTAATCTACTATAGAAATTGAAAG TCTCTGCTTGACTCAATAGTGCCGATAACTCTTTCATTTT spacer
length: 40 repeater length: 24
5388 634290 GTTAATCTACTATAGAAATTGAAAG GAACCATAACTCGTGGCAAACGTTACGTCTTCGTAGTCTCC spacer
length: 41 repeater length: 24
5389 634355 GTTAATCTACTATAGAAATTGAAAG CCTACGTCTGCTGCTCTCAGCCCTGCTAATGCTGCTTCAG spacer
length: 40 repeater length: 24
5390 634419 GTTAATCTACTATAGAAATTGAAAG CGCCATATTTTTCAATATCTTTATGATTTCCCTCACGTGCCAT spacer
length: 43 repeater length: 24
5391 634486 GTTAATCTACTATAGAAATTGAAAG TTGATGTTCTCTCATTTGCAATAAGCTGAACGGCATTTAT spacer
length: 40 repeater length: 24
5392 634550 GTTAATCTACTATAGAAATTGAAAG ATTTTGTTTTCTACAAACGTGTTCAATTTTCGGCTCTAAGTAT spacer
length: 42 repeater length: 24
5393 634616 GTTAATCTACTATAGAAATTGAAAG GCGAAACCATAGATTACCTCCTCACCTTCTTAGACCACCC spacer
length: 41 repeater length: 24
5394 634681 GTTAATCTACTATAGAAATTGAAAG ATTACCAGAACGGCAACCCATGATAGTAAACGACCCCAT spacer
length: 40 repeater length: 24
5395 634745 GTTAATCTACTATAGAAATTGAAAG ATAGATCCCTCGTACTTACTACGAAAATTAGAGGAGTACC spacer

length: 40 repeater length: 24
5396 634809 GTTAATCTACTATAGAAATTGAAAG GTCGGGGTGTTTAGTAGCGACCTCTTCCTTAAACTTTTT spacer
length: 39 repeater length: 24
5397 634872 GTTAATCTACTATAGAAATTGAAAG TCCGAAGTCATAGAAGAGATTTACAGGAGAAAGAAGGCGA spacer
length: 40 repeater length: 24
5398 634936 GTTAATCTACTATAGAAATTGAAAG TCAACTGCTATCTCCTGAGCTGTAACACGTTTCATATGT spacer
length: 38 repeater length: 24
5399 634998 GTTAATCTACTATAGAAATTGAAAG GATTCAATAAGATCTTCATACTCTCCAAGAGTATACA spacer length:
37 repeater length: 24
5400 635059 GTTAATCTACTATAGAAATTGAAAG TAATTCGCTTATTAGACAAAATGCACTATTGAAACTAAAAA spacer
length: 41 repeater length: 24
5401 635124 GTTAATCTACTATAGAAATTGAAAG TTCATCTTTACTAGCTAACTTATTTATTTTTACTTTTTAT spacer
length: 39 repeater length: 24
5402 635187 GTTAATCTACTATAGAAATTGAAAG TACATGGAGAAGCAGTATATTGAACTATCTAGAAAATATT spacer
length: 40 repeater length: 24
5403 635251 GTTAATCTACTATAGAAATTGAAAG CGCATATTTCCCAGGAGCAATCTTCGCAACTCATTACTCTAC spacer
length: 42 repeater length: 24
5404 635317 GTTAATCTACTATAGAAATTGAAAG TACGTGGCTTCTAACCAGAAGAACCACCCATCGCACTCA spacer
length: 39 repeater length: 24
5405 635380 GTTAATCTACTATAGAAATTGAAAG TTATTTGTTCCAATTACTAATTTTCCGATACTTCCATAAA spacer
length: 40 repeater length: 24
5406 635444 GTTAATCTACTATAGAAATTGAAAG AACGACTTACAAGCAATTGCCAGGAATTGGCGGATAGGA spacer
length: 40 repeater length: 24
5407 635508 GTTAATCTACTATAGAAATTGAAAG TTTGCGATAAGATTAGAAACGTTAGAAACATCAATACCAG spacer
length: 40 repeater length: 24
5408 635572 GTTAATCTACTATAGAAATTGAAAG TCTTTCTCCTCTTCGCGCTCTTGAAGAACGTAACAATAGCCAC spacer
length: 44 repeater length: 24
5409 635640 GTTAATCTACTATAGAAATTGAAAG CCTCTTCAGCCGTAAGATCTACATACTCCACAGAGATGAC spacer
length: 40 repeater length: 24
5410 635704 GTTAATCTACTATAGAAATTGAAAG ACAGCGTACAAACTGAAGATCCTCAAAGGAACGCCAACAGA spacer
length: 41 repeater length: 24
5411 635769 GTTAATCTACTATAGAAATTGAAAG GTAAGCTGGTAGGTCTGGTTGGTGAAGGGTTTATGTATT spacer
length: 40 repeater length: 24
5412 635833 GTTAATCTACTATAGAAATTGAAAG TTCATGGACATTATACACTAGTAAATCACTGCTGTCTCTCT spacer
length: 40 repeater length: 24
5413 635897 GTTAATCTACTATAGAAATTGAAAG GTGGCGTACAAACAAGCAGATTACATTATTCTTTTCTA spacer
length: 38 repeater length: 24
5414 635959 GTTAATCTACTATAGAAATTGAAAG ATAAGGATCGTTTTTATGTTCTTCTTCGTCATCATCTTC spacer
length: 39 repeater length: 24
5415 636022 GTTAATCTACTATAGAAATTGAAAG CATGAAACATCACAACAACAACTAGAGAATCAAATCA spacer
length: 38 repeater length: 24
5416 636084 GTTAATCTACTATAGAAATTGAAAG ATGGCTACATCTAGTTTCATGGTCTCGCAAGGATATATGCC spacer
length: 41 repeater length: 24
5417 636149 GTTAATCTACTATAGAAATTGAAAG GCAAAATGCTTAATACCTCTAATTTACTTCTGTCTGCTAACAA spacer
length: 43 repeater length: 24
5418 636216 GTTAATCTACTATAGAAATTGAAAG GAAGAGGTATTGAAAGGAAAACGGTGCAAAAACGAAGGAAA spacer
length: 41 repeater length: 24
5419 636281 GTTAATCTACTATAGAAATTGAAAG AAGACTTCCAATGCGAGTTGGAATCCTAACGTAGTTAA spacer
length: 38 repeater length: 24
5420 636343 GTTAATCTACTATAGAAATTGAAAG ATTAGTATTGAAATTAGTAACGACAAACATATTTCTAAAA spacer
length: 40 repeater length: 24
5421 636407 GTTAATCTACTATAGAAATTGAAAG ACCTATTAGTGTTTTTTACGTTTGCTGCCGCATTTACTG spacer
length: 39 repeater length: 24
5422 636470 GTTAATCTACTATAGAAATTGAAAG TAATGTATGCTGAAACTGGCGGTATTTCCGTGATGTTAG spacer
length: 39 repeater length: 24
5423 636533 GTTAATCTACTATAGAAATTGAAAG CCATACTACGTTTTTCTCGGTATAAACAGGCTTCTTCTTT spacer
length: 40 repeater length: 24
5424 636597 GTTAATCTACTATAGAAATTGAAAG TTTTCGTAAACTATTAGATCTGTTTTATCTTCATCACACT spacer
length: 40 repeater length: 24
5425 636661 GTTAATCTACTATAGAAATTGAAAG AGCGGAAGCCTAGAAGCGGATCTCAACAAAAAGTGTTTGG spacer
length: 41 repeater length: 24
5426 636726 GTTAATCTACTATAGAAATTGAAAG CTCAAAAGTAATACTTTTTTCTCTAAACCAAAGTAATATCTTCTTT
spacer length: 48 repeater length: 24
5427 636798 GTTAATCTACTATAGAAATTGAAAG AAAATGTCTTCTGGGGTCATAGCTTCGTGAGCGAGTACTAT spacer
length: 41 repeater length: 24
5428 636863 GTTAATCTACTATAGAAATTGAAAG CCCATAGAAGTCACAGCAGGGTCACCTCATTCCTCCTC spacer
length: 38 repeater length: 24
5429 636925 GTTAATCTACTATAGAAATTGAAAG TTCCCTCAAACAGCTGTTTTAGGGAGTTGAGAGGGAACACCAG spacer
length: 43 repeater length: 24
5430 636992 GTTAATCTACTATAGAAATTGAAAG CAAGAATTGTACCGTTTCTCAGCCTATATGCAAATAATATCTT spacer
length: 43 repeater length: 24

5431 637059 GTTAATCTACTATAGAAATTGAAAG CAAAAATATACTCTGTCTTAGAGTTTAAAAATGTTTCTGTC spacer
length: 41 repeater length: 24

5432 637124 GTTAATCTACTATAGAAATTGAAAG AACCCAATATTTTCATAATCATTGTTAGGTTCAATGTATCTA spacer
length: 41 repeater length: 24

5433 637189 GTTAATCTACTATAGAAATTGAAAG AAACCCCTCTTTTAAGCTGAACATATTCACGATACTTTTGACTGC spacer
length: 44 repeater length: 24

5434 637257 GTTAATCTACTATAGAAATTGAAAG TCTCCTCATTTCATCAATAAGTCTTAACCAGTATCTAT spacer
length: 39 repeater length: 24

5435 637320 GTTAATCTACTATAGAAATTGAAAG GAAGAATCATAAATGTAGTAGTTTTTCCAGTTCCTCTGTTAGA spacer
length: 43 repeater length: 24

5436 637387 GTTAATCTACTATAGAAATTGAAAG CGAGAAAGGGTTTTTGGGGATAGGGATAGGGGCTGCATTAAT spacer
length: 42 repeater length: 24

5437 637453 GTTAATCTACTATAGAAATTGAAAG TCTTTGCTTAAGTTTCTGATATCCTCTAATATACTCCT spacer
length: 38 repeater length: 24

5438 637515 GTTAATCTACTATAGAAATTGAAAG ATGAAACTTCTGTAATGTCTACTGTTATTCCATTAGTTA spacer
length: 39 repeater length: 24

5439 637578 GTTAATCTACTATAGAAATTGAAAG AAGGTTATTGAGATACCTACATTCAACGTACCCGCGTCA spacer
length: 39 repeater length: 24

5440 637641 GTTAATCTACTATAGAAATTGAAAG CTTAGAATGTACTTTTGAACCATAGGAGAATTGAAAATCAT spacer
length: 41 repeater length: 24

5441 637706 GTTAATCTACTATAGAAATTGAAAG GTCTTGTTTATTGTAAGCGACAATTTGTAGGGATTCACTCT spacer
length: 41 repeater length: 24

5442 637771 GTTAATCTACTATAGAAATTGAAAG AAGGAGGATA

5443

5444

5445 GCA_000022405.1_ASM2240v1_genomic.fna (PilerCR):

5446 START REPEAT

5447 SPACER

5448 crispr 1

5448 827532 GATTAATCCTAAAAGGAATTGAAAG CTTACTTTTTTCATGGCACATTCTTGACGCTTGACCGAAC spacer
length: 39 repeater length: 25

5449 827596 GATTAATCCTAAAAGGAATTGAAAG TTTTTCGCTAAAGTGAGTAAATCTAGGTAATGCTTCGA spacer
length: 38 repeater length: 25

5450 827659 GATTAATCCTAAAAGGAATTGAAAG GTAATTTTACTAACTCGTTACAAGCTTACAATCTATATCTG spacer
length: 41 repeater length: 25

5451 827725 GATTAATCCTAAAAGGAATTGAAAG TTTTTTAATATTTTTCTAATTTTCATCACTGATTTTC spacer length:
35 repeater length: 25

5452 827785 GATTAATCCTAAAAGGAATTGAAAG CTTTCGTCTGCACCCATTTTTTTTGCTTAACCTCTTCTAGCAT spacer
length: 41 repeater length: 25

5453 827851 GATTAATCCTAAAAGGAATTGAAAG AAAAAGTCCACGCTATAATCCCATGAATGTTTCGAT spacer length:
35 repeater length: 25

5454 827911 GATTAATCCTAAAAGGAATTGAAAG ATCCGTATATAGTAAATAATGCCACCTAAATCTATTTT spacer
length: 38 repeater length: 25

5455 827974 GATTAATCCTAAAAGGAATTGAAAG TTGTCTAAGCTAAAAGCTAAGCAAAAAGCTTATATACT spacer
length: 38 repeater length: 25

5456 828037 GATTAATCCTAAAAGGAATTGAAAG AATAATTTCTTTGCTTTTTCTTCCTCTTGTTGTAATAATT spacer
length: 40 repeater length: 25

5457 828102 GATTAATCCTAAAAGGAATTGAAAG ATAACAACCTTCGCCCTCCCCGTCGCTTAACGAACCTCA spacer
length: 39 repeater length: 25

5458 828166 GATTAATCCTAAAAGGAATTGAAAG TTTGTATAATAGAACTTGCCTTCCTAAATCTCAGTTT spacer
length: 38 repeater length: 25

5459 828229 GATTAATCCTAAAAGGAATTGAAAG AACACTATTCTCTTCCTTACCTCTTTTACGTCCTC spacer length:
35 repeater length: 25

5460 828289 GATTAATCCTAAAAGGAATTGAAAG AAGTTAGCCGAGGTAGTGATTAGCCATGGATAGATT spacer length:
36 repeater length: 25

5461 828350 GATTAATCCTAAAAGGAATTGAAAG ATTTAAATTTCCAGTACCATAAGCAACTGCTTGTCTATT spacer
length: 39 repeater length: 25

5462 828414 GATTAATCCTAAAAGGAATTGAAAG TAGTATTTATAGCTTCTTTTATCGTAAAAACACCTTTC spacer
length: 38 repeater length: 25

5463 828477 GATTAATCCTAAAAGGAATTGAAAG GTATAGAACAACCACTGCCTAGCACTGTTTGGGTGTCCAT spacer
length: 40 repeater length: 25

5464 828542 GATTAATCCTAAAAGGAATTGAAAG TTAAAATTAGATGATTTGTTAGGCATGTTTGGCTATCCT spacer
length: 39 repeater length: 25

5465 828606 GATTAATCCTAAAAGGAATTGAAAG CCAATAAACCCCTACTGCTTACGTGGCTTAATACGTTAT spacer
length: 39 repeater length: 25

5466 828670 GATTAATCCTAAAAGGAATTGAAAG TTATATCAATAATGATGGTCTTATCACTGCTGTTCTTCTTCC spacer
length: 42 repeater length: 25

5467 828737 GATTAATCCTAAAAGGAATTGAAAG ACGAGTTTGTAGAGTTCAAACGTCTGGTTGAGTATGTT spacer
length: 38 repeater length: 25

5468 828800 GATTAATCCTAAAAGGAATTGAAAG GATTTATCAAAAAGCGGAATAACGAAGACGCCAAATTC spacer
length: 38 repeater length: 25

5469 828863 GATTAATCCTAAAAAGGAATTGAAAG TTCAAAGCTCTAAGCAGGGAGTTAGCCAACGCCTTGTT spacer
length: 38 repeater length: 25
5470 828926 GATTAATCCTAAAAAGGAATTGAAAG TTTATTATATATAACAATACTATATCCTGCGTCCTTTAGT spacer
length: 40 repeater length: 25
5471 828991 GATTAATCCTAAAAAGGAATTGAAAG TATTCTAATAATGGAAAGCTACTATGATTTTGTGCAT spacer
length: 37 repeater length: 25
5472 829053 GATTAATCCTAAAAAGGAATTGAAAG TAATTATCAATAATCCATTGAGTTATTGCATAATATCCTT spacer
length: 40 repeater length: 25
5473 829118 GATTAATCCTAAAAAGGAATTGAAAG ATATCTTGACTCATATTTACACCCGAAAAAATCAAT spacer length:
36 repeater length: 25
5474 829179 GATTAATCCTAAAAAGGAATTGAAAG TTGATATCTAGGGCGGGCGTTAAATTCGTAGAGGCGG spacer
length: 37 repeater length: 25
5475 829241 GATTAATCCTAAAAAGGAATTGAAAG ACGTGTATATCTATATCTGTCTTCAGCATGTAACGATTT spacer
length: 40 repeater length: 25
5476 829306 GATTAATCCTAAAAAGGAATTGAAAG TTTTCGCTTCAGAAAAGTCACTTTAGATCACTTTATATA spacer
length: 38 repeater length: 25
5477 829369 GATTAATCCTAAAAAGGAATTGAAAG CGTAATCGTTCCAACGGGCAATAATTCTATATATCGT spacer
length: 37 repeater length: 25
5478 829431 GATTAATCCTAAAAAGGAATTGAAAG GAGACTTCTACATCTTGTCCGCTCATCTGTGTTCTTTT spacer
length: 38 repeater length: 25
5479 829494 GATTAATCCTAAAAAGGAATTGAAAG AAATTATATGGCCTGAAGTGGGTGTTAAGTACGACAAT spacer
length: 38 repeater length: 25
5480 829557 GATTAATCCTAAAAAGGAATTGAAAG GAGGTTGGACGGCTAACGAATATCCCGCATTAGGCGGAT spacer
length: 39 repeater length: 25
5481 829621 GATTAATCCTAAAAAGGAATTGAAAG TTCAAACCTCCGGGTCTGTCTCTTCGTAATTAATTTTCTTT spacer
length: 40 repeater length: 25
5482 829686 GATTAATCCTAAAAAGGAATTGAAAG TCTAATTTGAATGTTATAACCCTGTTTATAAGTATT spacer length:
36 repeater length: 25
5483 829747 GATTAATCCTAAAAAGGAATTGAAAG GAACTATTGCACCTTTATAAGTATCCTCTTCTTCAGTTTTCTTA spacer
length: 44 repeater length: 25
5484 829816 GATTAATCCTAAAAAGGAATTGAAAG AATACATTAGCTATACTTGGATATCCAAGATTTATACCT spacer
length: 39 repeater length: 25
5485 829880 GATTAATCCTAAAAAGGAATTGAAAG CTTTTGCGTAATAAATTTATACGTCCAATCGGGCATTCTT spacer
length: 40 repeater length: 25
5486 829945 GATTAATCCTAAAAAGGAATTGAAAG GCCGAGCTGT
5487
5488
5489 crispr 2
5490 848254 CTTTCAATTCTATAGTAGATTATC TATACTGGAAGAGGGGACTGTGAAGTAGTTACTGGTGC spacer
length: 38 repeater length: 24
5491 848316 CTTTCAATTCTATAGTAGATTATC ACTAGGACTGTCCGCTTTCGACCCAAAGCGGACTGAAGAGAT spacer
length: 42 repeater length: 24
5492 848382 CTTTCAATTCTATAGTAGATTATC AAGACATAAAACAAATCTGCAGAAGTACAACTCAGGTTG spacer
length: 39 repeater length: 24
5493 848445 CTTTCAATTCTATAGTAGATTATC AGAACAGAAAAAATTATTGCAAGGATTTGATGCGGTTAT spacer
length: 39 repeater length: 24
5494 848508 CTTTCAATTCTATAGTAGATTATC ATAGATGCCCATCCGATAGCTTCAGCGACGCCTTCAGTTGT spacer
length: 41 repeater length: 24
5495 848573 CTTTCAATTCTATAGTAGATTATC TATTTGAAGATGAGGCTAATGCTTATCAAAAATACGCTTA spacer
length: 40 repeater length: 24
5496 848637 CTTTCAATTCTATAGTAGATTATC ACAGGATCCTCAATTGGCAAATACATATGCTAATATAATTGCA spacer
length: 43 repeater length: 24
5497 848704 CTTTCAATTCTATAGTAGATTATC ACTTGTTGTACTATGTTATTTACTATTTTCTTCTTTTT spacer
length: 38 repeater length: 24
5498 848766 CTTTCAATTCTATAGTAGATTATC CTTCTATTACTCCTCCCCCTGGATATTTATTGTGCAATA spacer
length: 40 repeater length: 24
5499 848830 CTTTCAATTCTATAGTAGATTATC TTAACCTATGGGTATATTAGATGCCTATCATGCAGTAA spacer
length: 38 repeater length: 24
5500 848892 CTTTCAATTCTATAGTAGATTATC AGAAGAGCAAACAAGAAAGGAAGAGACTGTAGATCTACG spacer
length: 39 repeater length: 24
5501 848955 CTTTCAATTCTATAGTAGATTATC GAAGCACTGTATTGAATATTGTAACCTATAGCTATTTGTAC spacer
length: 41 repeater length: 24
5502 849020 CTTTCAATTCTATAGTAGATTATC AGTGTTCCCTACGTAATTATGAGCCTCGTCCATAGCTATT spacer
length: 39 repeater length: 24
5503 849083 CTTTCAATTCTATAGTAGATTATC ATATTAAACACAATATAATGATAGATGAGGAATTTGCTTAT spacer
length: 41 repeater length: 24
5504 849148 CTTTCAATTCTATAGTAGATTATC TTGACCTTATCGGCAATTTTCATAAAACCATCTCCTTAAA spacer
length: 40 repeater length: 24
5505 849212 CTTTCAATTCTATAGTAGATTATC TGTCGACAACGGTTATTTAATAATATTAACCTTGATA spacer
length: 38 repeater length: 24
5506 849274 CTTTCAATTCTATAGTAGATTATC ATCAACATCACAACAACAATACAATTGCAAAAAGT spacer length:

36 repeater length: 24

5507 849334 CTTTCAATTCTATAGTAGATTATC TCCAGAACTTGTGCTACTAAAAGTAAATATGTCTATAAA spacer
length: 39 repeater length: 24

5508 849397 CTTTCAATTCTATAGTAGATTATC TCTGGATTTACTGATCTTATTAAGTTATGGCAGAATATAGT spacer
length: 41 repeater length: 24

5509 849462 CTTTCAATTCTATAGTAGATTATC GAAAATTTATTACTTGAGGTGTATATAATTTTTGTAGTAA spacer
length: 40 repeater length: 24

5510 849526 CTTTCAATTCTATAGTAGATTATC TTAATTCAGTTTCGTAGAATCCTAAGTTTGAATTTTG spacer length:
37 repeater length: 24

5511 849587 CTTTCAATTCTATAGTAGATTATC CCTAAAGGACGATAACCATTAGGTATTTCTATATCATG spacer
length: 38 repeater length: 24

5512 849649 CTTTCAATTCTATAGTAGATTATC TATGAGTATGAGCTATATAAAGTTAACGATTACTCAAA spacer
length: 38 repeater length: 24

5513 849711 CTTTCAATTCTATAGTAGATTATC CTGGATTACCTGATATTGCTGCAAGCTCATAAAAGACAAC spacer
length: 40 repeater length: 24

5514 849775 CTTTCAATTCTATAGTAGATTATC TTTCTGTTCGGAAGTGATATATATCACTTTATATCGT spacer
length: 38 repeater length: 24

5515 849837 CTTTCAATTCTATAGTAGATTATC ATATTCTGTCACCGTTATCACTCCCGTCCAGTACTCCGTTGC spacer
length: 42 repeater length: 24

5516 849903 CTTTCAATTCTATAGTAGATTATC AGTAGAACCAAGTAAAGGAGGAGCAGGGGCATTTGCA spacer length:
37 repeater length: 24

5517 849964 CTTTCAATTCTATAGTAGATTATC CATTTTTTACG

5518

5519

5520 crispr 3

5521 854585 GATAATCTACTATAGAATTGAAAG ACACAATCGGCATCTACGCAAAATAACGTACTGGGGACAT spacer
length: 40 repeater length: 24

5522 854649 GATAATCTACTATAGAATTGAAAG GCACCAGGGTGTGTGCTCGTCCAGTGCGATCCATGC spacer length:
37 repeater length: 24

5523 854710 GATAATCTACTATAGAATTGAAAG TCGCCATCGTGGAAAGCGACGCCAACGGATACTATACC spacer
length: 38 repeater length: 24

5524 854772 GATAATCTACTATAGAATTGAAAG ATTATACTTTTCCTTATTGACGCTTTCCAGTGTAACATCTCT spacer
length: 41 repeater length: 24

5525 854837 GATAATCTACTATAGAATTGAAAG TATGTAACAAGAATATCAGACCTCCTAGGGATTCCGA spacer length:
37 repeater length: 24

5526 854898 GATAATCTACTATAGAATTGAAAG TTTTTTTCACCAATATTGTTATTGTTGAACAAATATTTAA spacer
length: 39 repeater length: 24

5527 854961 GATAATCTACTATAGAATTGAAAG TATATTACCGTCATTTCGCTCTTCTTATCCTCAGACCGT spacer
length: 38 repeater length: 24

5528 855023 GATAATCTACTATAGAATTGAAAG AGTAAGATGGCAACATAAACTTTTCCTTTGTCATTGAGTTTG spacer
length: 42 repeater length: 24

5529 855089 GATAATCTACTATAGAATTGAAAG CCTAAGATTGCTAATGCGAGCAATAATGCTAATGGGCTT spacer
length: 39 repeater length: 24

5530 855152 GATAATCTACTATAGAATTGAAAG CAAAATGGACAAATAGCATTAGGTTGATGAAAATTACT spacer
length: 38 repeater length: 24

5531 855214 GATAATCTACTATAGAATTGAAAG TTACCACCATTATTTTTCGATATTTGATGGAACTGGT spacer
length: 39 repeater length: 24

5532 855277 GATAATCTACTATAGAATTGAAAG TGCAACCGCCCTTAGTTTTTCCCTAACCGTTAGACAGAA spacer
length: 40 repeater length: 24

5533 855341 GATAATCTACTATAGAATTGAAAG GGGGAACGTACGGACAACATAGCAAAATATTCTACATCGT spacer
length: 40 repeater length: 24

5534 855405 GATAATCTACTATAGAATTGAAAG TCGCCTATCTGCGTTTCGACTACCACTCCGGCATATATCCC spacer
length: 41 repeater length: 24

5535 855470 GATAATCTACTATAGAATTGAAAG ATAAAGACGCCAACTGGTACCATAGTAAAGAGATACCA spacer
length: 38 repeater length: 24

5536 855532 GATAATCTACTATAGAATTGAAAG AAACCGAAGCCGGCTGCACCCATGCCAAGTGCAAAAACCT spacer
length: 39 repeater length: 24

5537 855595 GATAATCTACTATAGAATTGAAAG TTCCACCCGTTGCTAGGGTTCCATTGAACGCTTGCCAA spacer
length: 38 repeater length: 24

5538 855657 GATAATCTACTATAGAATTGAAAG TTAGATAAAGATATAACGTTGATCCGCTTCCAGTGATT spacer
length: 38 repeater length: 24

5539 855719 GATAATCTACTATAGAATTGAAAG AAGCCCAGCTCCTATGTTTCAGGGTTGCGCTATCATGG spacer length:
37 repeater length: 24

5540 855780 GATAATCTACTATAGAATTGAAAG ATAATACTCAAAATGTTTATACAACACATGTGATGCGAT spacer
length: 39 repeater length: 24

5541 855843 GATAATCTACTATAGAATTGAAAG TTACTAGGGGATAATAAACAGATTTTGCTAATATTTCT spacer
length: 39 repeater length: 24

5542 855906 GATAATCTACTATAGAATTGAAAG GGTCATACCGCCTTTGCCGGAGCTTATTATTCATATGCCG spacer
length: 40 repeater length: 24

5543 855970 GATAATCTACTATAGAATTGAAAG CTTACTGCAGATACATAGGGCTTCCTTATCCTATCTTAACA spacer
length: 41 repeater length: 24

5544 856035 GATAATCTACTATAGAAATTGAAAG TTAGGAAAAGAAGAAATGTATCATGTCGGCACTGATGAA spacer
length: 39 repeater length: 24

5545 856098 GATAATCTACTATAGAAATTGAAAG TTCGAAATAATATATTGTGTAAGCAATGCTAGATACTGTGAA spacer
length: 42 repeater length: 24

5546 856164 GATAATCTACTATAGAAATTGAAAG TTAAAAAGCTATAAAAAACAATCTACAAGTATTACAACC spacer
length: 40 repeater length: 24

5547 856228 GATAATCTACTATAGAAATTGAAAG TTTCTGAAGTTTGTAAAATTAATCTTTTTTACAAATAACCAG spacer
length: 40 repeater length: 24

5548 856292 GATAATCTACTATAGAAATTGAAAG GGTATTCCCATGTTTCTCACTCTGAAGTTGAAATTCCTT spacer
length: 39 repeater length: 24

5549 856355 GATAATCTACTATAGAAATTGAAAG AACGCAAAATAGCCTGGACCCCCCGTTAAACTCCTCCGCTTAT spacer
length: 44 repeater length: 24

5550 856423 GATAATCTACTATAGAAATTGAAAG TTGTACTTAATTGCTGTATAGGGTATATCTTGCCACTTG spacer
length: 39 repeater length: 24

5551 856486 GATAATCTACTATAGAAATTGAAAG GTAATCATGCCAACGGGCAATAATTCTATGTAACGTAAA spacer
length: 39 repeater length: 24

5552 856549 GATAATCTACTATAGAAATTGAAAG TATAAAATTTTTTGCTAAAATTTTTATTTGAAAGATGAA spacer length:
37 repeater length: 24

5553 856610 GATAATCTACTATAGAAATTGAAAG GTACATTTTGCAATTGATAGGGGGAATAAGCAAACGGAAGCTTTC spacer
length: 45 repeater length: 24

5554 856679 GATAATCTACTATAGAAATTGAAAG TTAAACCATCAAGATATAATTTGACTTTCTTTTTTATTCCA spacer
length: 40 repeater length: 24

5555 856743 GATAATCTACTATAGAAATTGAAAG TATAGAGAAAATAACTTAACAACCATATGTAAAAAATGAG spacer
length: 41 repeater length: 24

5556 856808 GATAATCTACTATAGAAATTGAAAG AAATTAATCCCACCTTCTCTTCTAGAGCTATAGGATCT spacer
length: 39 repeater length: 24

5557 856871 GATAATCTACTATAGAAATTGAAAG AACGTGAGCCGTTTAGTACCAGCACTTTAAGAATTATGT spacer
length: 39 repeater length: 24

5558 856934 GATAATCTACTATAGAAATTGAAAG ATCTTCCCCCTATAAACCCCCCAATTCCTAATCCATC spacer length:
37 repeater length: 24

5559 856995 GATAATCTACTATAGAAATTGAAAG GATGTAATTGATAGGGACATACTAGGTAATAGCACCGA spacer
length: 38 repeater length: 24

5560 857057 GATAATCTACTATAGAAATTGAAAG CAGTTGATGGGGAGAAGAAAGAAGATCTTCTTTTTTTTA spacer
length: 38 repeater length: 24

5561 857119 GATAATCTACTATAGAAATTGAAAG CTACTTTAAATGTTACAACCTCTGTTTATAAGTATTACTCG spacer
length: 40 repeater length: 24

5562 857183 GATAATCTACTATAGAAATTGAAAG TATCTATCCAATATGTCGTACCAACACTAAGACCACTAA spacer
length: 39 repeater length: 24

5563 857246 GATAATCTACTATAGAAATTGAAAG TGAAATAAGCGAGGAAGAAGTTGAACGACTAGTACCG spacer length:
37 repeater length: 24

5564 857307 GATAATCTACTATAGAAATTGAAAG ATTGGCACTGAGGGCTATTTTGGATGAAGAATTCAATAT spacer
length: 39 repeater length: 24

5565 857370 GATAATCTACTATAGAAATTGAAAG TATATTGCCAAAAATCACCTACAATATCACCTCCTT spacer length:
37 repeater length: 24

5566 857431 GATAATCTACTATAGAAATTGAAAG AATGAAACCAGTTCGTAATGATGTAGCACTTTCTACGA spacer
length: 38 repeater length: 24

5567 857493 GATAATCTACTATAGAAATTGAAAG TTGTATTTATGTCCTCCCCACTCATATAGTATATA spacer length:
35 repeater length: 24

5568 857552 GATAATCTACTATAGAAATTGAAAG CTCCTTGCTTGCTCCTCTTTTACCCTATTACCCCC spacer length:
37 repeater length: 24

5569 857613 GATAATCTACTATAGAAATTGAAAG ATTATTTTGAATATACTAAGAACGTCCCGCTACCACTAG spacer
length: 40 repeater length: 24

5570 857677 GATAATCTACTATAGAAATTGAAAG ATTTTTGCGTATAATTACAATAGAAATTAGTCTACCTAA spacer
length: 39 repeater length: 24

5571 857740 GATAATCTACTATAGAAATTGAAAG TAATGGAAGTTGGCAAATAGATATTCCTGTGTTACTTGTGTTATT spacer
length: 45 repeater length: 24

5572 857809 GATAATCTACTATAGAAATTGAAAG TCTAATCCTACTCTACAAATATGCTGCTGAAGAAGAGTTG spacer
length: 40 repeater length: 24

5573 857873 GATAATCTACTATAGAAATTGAAAG TCAACATTTACACTTCTAGCATCTACTATGATGCTATCT spacer
length: 39 repeater length: 24

5574 857936 GATAATCTACTATAGAAATTGAAAG ATATAATCGATTTTTGTCTCATTGTTGTTTACAGTTAT spacer
length: 38 repeater length: 24

5575 857998 GATAATCTACTATAGAAATTGAAAG AATAGAATGTATAATGCTAAAGCTAAGAGAGCTAAATATCTA spacer
length: 42 repeater length: 24

5576 858064 GATAATCTACTATAGAAATTGAAAG ATATACGGAGATTGGATAGATGATTGTTGTGTCAAGTA spacer
length: 38 repeater length: 24

5577 858126 GATAATCTACTATAGAAATTGAAAG GCTATACCGGCGCCATAAGGAGAGCTTGGACTGGATGG spacer
length: 38 repeater length: 24

5578 858188 GATAATCTACTATAGAAATTGAAAG GCAGCTCCTCCAATTGCTAAAATTTGCCCGGTGTTGTGC spacer
length: 40 repeater length: 24

5579 858252 GATAATCTACTATAGAAATTGAAAG CTAACTTTGCCAACTTGTTCTTTAACTCTTCATTTTCCCT spacer

length: 40 repeater length: 24

5580 858316 GATAATCTACTATAGAAATTGAAAG GCGGTTGTGGCGTATAAAACATACAAGTCTGACTG spacer length: 35 repeater length: 24

5581 858375 GATAATCTACTATAGAAATTGAAAG TATCCTTACATGATCCCTCGTAAAGTAACGTTAGCAAA spacer length: 38 repeater length: 24

5582 858437 GATAATCTACTATAGAAATTGAAAG TCTGCGTTAATTGAAGGACTATTAACCGTTTGGCCTTACAT spacer length: 41 repeater length: 24

5583 858502 GATAATCTACTATAGAAATTGAAAG TTAGTGCTTACAAAATCACTAGCAATGGGAGAGATACCATA spacer length: 41 repeater length: 24

5584 858567 GATAATCTACTATAGAAATTGAAAG ATATTTACTCCCTTTATGAAACCACTTAAATACGCTATCT spacer length: 40 repeater length: 24

5585 858631 GATAATCTACTATAGAAATTGAAAG TCAAAATATTCAAGTGGTTCTGATTTGTATGCTTTTATAC spacer length: 40 repeater length: 24

5586 858695 GATAATCTACTATAGAAATTGAAAG GAAAATTTTTTAAACCCCAATTTCGTTCTTTAGCTTATGAGT spacer length: 41 repeater length: 24

5587 858760 GATAATCTACTATAGAAATTGAAAG GAAAATATACGACAATTGCTAACAAATAATAAGATGACTT spacer length: 41 repeater length: 24

5588 858825 GATAATCTACTATAGAAATTGAAAG TATCTAACAGTAATGGGAAGCATATCCTCTTATTCCTA spacer length: 38 repeater length: 24

5589 858887 GATAATCTACTATAGAAATTGAAAG ACTAAAGTGCTATAGTGACCTAAGTGAAGATGAGAAAG spacer length: 38 repeater length: 24

5590 858949 GATAATCTACTATAGAAATTGAAAG GATACAATTGCGTTAGCTAACGCTTCTAAACCGCTAGT spacer length: 38 repeater length: 24

5591 859011 GATAATCTACTATAGAAATTGAAAG TACCCTGCATCATTCTCACCCTTCCTTAAGAAGGACC spacer length: 38 repeater length: 24

5592 859073 GATAATCTACTATAGAAATTGAAAG CATTATATACAATCTTTAAAGCAATTGTATGAATAAAA spacer length: 39 repeater length: 24

5593 859136 GATAATCTACTATAGAAATTGAAAG AAATATCCTGGTTGCCATTACGTACCACCTCCACCAGA spacer length: 38 repeater length: 24

5594 859198 GATAATCTACTATAGAAATTGAAAG ACTGCTTGCTGATCAATAGCAAAGAAACCCTCTGGTTT spacer length: 38 repeater length: 24

5595 859260 GATAATCTACTATAGAAATTGAAAG AATATGCCATGAGCAAAGGTAGTATAATATTTCTACTTTCGT spacer length: 42 repeater length: 24

5596 859326 GATAATCTACTATAGAAATTGAAAG TTAGTATTATTGTACGATCGCGAAAGGACAAGAGAAA spacer length: 37 repeater length: 24

5597 859387 GATAATCTACTATAGAAATTGAAAG AGATTATCTATATTAACGTCAAATCTGTTTAAGTTTTCTT spacer length: 40 repeater length: 24

5598 859451 GATAATCTACTATAGAAATTGAAAG CTTAGGTCTTTTTCAAGTTCTGGTTGAAACCGAAATCG spacer length: 38 repeater length: 24

5599 859513 GATAATCTACTATAGAAATTGAAAG TGTAATTCACCTCTAAATATGAAAGTTTACATTCCTTG spacer length: 39 repeater length: 24

5600 859576 GATAATCTACTATAGAAATTGAAAG ATATTTTTACTTCAAACATGAAGACCCATTATTACAAC spacer length: 38 repeater length: 24

5601 859638 GATAATCTACTATAGAAATTGAAAG ATAACCTTTATTGGAAATGGCACTAGCTCTCTTTTCTTTA spacer length: 40 repeater length: 24

5602 859702 GATAATCTACTATAGAAATTGAAAG TTTATATAATGCGTCGTCTAAAGTCTCATCTATACTAGCT spacer length: 40 repeater length: 24

5603 859766 GATAATCTACTATAGAAATTGAAAG ATGTAAGAGGTAGGCCCTCATCCGTAAGTCGGGCCGTGGGG spacer length: 41 repeater length: 24

5604 859831 GATAATCTACTATAGAAATTGAAAG CTTTCCCGTCTCTAAGGTAACGATATTCGGGACAATGTA spacer length: 40 repeater length: 24

5605 859895 GATAATCTACTATAGAAATTGAAAG TCTTCAGAGTGTTGGGGCCGATAATATGGAGTTATCTA spacer length: 39 repeater length: 24

5606 859958 GATAATCTACTATAGAAATTGAAAG CAGATTTCTTCTTCGTTCTCAGAAATTTTGTACTCTTGT spacer length: 39 repeater length: 24

5607 860021 GATAATCTACTATAGAAATTGAAAG AACTATGCTACCGATATGTCAATAGGTCCTGTGTTTCAA spacer length: 39 repeater length: 24

5608 860084 GATAATCTACTATAGAAATTGAAAG ATTTTATAATAGTTGTATATTATTGACTTTACTTGGTTTTGG spacer length: 42 repeater length: 24

5609 860150 GATAATCTACTATAGAAATTGAAAG ATTTAGAATACTTGCGAAATTACCAGAAGTTACCTCATC spacer length: 39 repeater length: 24

5610 860213 GATAATCTACTATAGAAATTGAAAG AAAGATATAGTGGATTTCGTTAGGCATAAAACCAGATG spacer length: 37 repeater length: 24

5611 860274 GATAATCTACTATAGAAATTGAAAG TTTCCACTTGTAATTAGTTCATCAATTTTCATAGCTAATT spacer length: 40 repeater length: 24

5612 860338 GATAATCTACTATAGAAATTGAAAG GATCTAAAGTGTAATACATATTTATATTTTTTCCGCT spacer length: 40 repeater length: 24

5613 860402 GATAATCTACTATAGAAATTGAAAG ATTTCAATATTTATCTCGTTTATCGGTATGCTGTCTTGTGGT spacer length: 42 repeater length: 24

5614 860468 GATAATCTACTATAGAAATTGAAAG AGTACCGCCTAAATACCTCAGGAAATTCACGGCCACAAA spacer length: 39 repeater length: 24

5615 860531 GATAATCTACTATAGAAATTGAAAG ATAGTAATCAACGTGAGTACTGCACCCGTCGAAATTGA spacer
length: 38 repeater length: 24

5616 860593 GATAATCTACTATAGAAATTGAAAG ATATACTCTAGTTACTGAAGGAGCGACACCGAAAAACA spacer
length: 38 repeater length: 24

5617 860655 GATAATCTACTATAGAAATTGAAAG TATTTTTGTAATCACACCTATGTTTTCAAATCGGGGGTTT spacer
length: 40 repeater length: 24

5618 860719 GATAATCTACTATAGAAATTGAAAG AACTATTTTTTATACTTAAAGCTTCTTCTTTATCTTTTAT spacer
length: 40 repeater length: 24

5619 860783 GATAATCTACTATAGAAATTGAAAG TAGTGTGTAATCTTCATAAGTTTCTACTTTCTTCTCCTT spacer
length: 39 repeater length: 24

5620 860846 GATAATCTACTATAGAAATTGAAAG ACTCCTCTTCTTAAAAGCTTATAACTGCTATTTTAAATAG spacer
length: 40 repeater length: 24

5621 860910 GATAATCTACTATAGAAATTGAAAG CACATCTCACCTTTATCTATAACCTTTAAGACGTTAATG spacer
length: 39 repeater length: 24

5622 860973 GATAATCTACTATAGAAATTGAAAG CAAAGATGACCCTACACCCACACAACCTTCACTCCCC spacer length:
37 repeater length: 24

5623 861034 GATAATCTACTATAGAAATTGAAAG GGTGATTAGATGGCAAAAACAATTAGGAACCCCGAAAC spacer
length: 38 repeater length: 24

5624 861096 GATAATCTACTATAGAAATTGAAAG TTTCCCTGGTCGCAAATAGGGTATGTTGGAATAAGAGGC spacer
length: 39 repeater length: 24

5625 861159 GATAATCTACTATAGAAATTGAAAG ACTATTGCTATAAATCCTACCGTTAAAATGTCAAACGCT spacer
length: 39 repeater length: 24

5626 861222 GATAATCTACTATAGAAATTGAAAG AAGAACTTAAAGCCATAATTGTTTCGCATTTAGATTTTGAGCT spacer
length: 42 repeater length: 24

5627 861288 GATAATCTACTATAGAAATTGAAAG CCCAATGCTAATCCGCCACCTATTGCACCGCCGTATAG spacer
length: 38 repeater length: 24

5628 861350 GATAATCTACTATAGAAATTGAAAG TATAGATAACTGTTTCATCATCTTCATTCTTGCAATAT spacer
length: 38 repeater length: 24

5629 861412 GATAATCTACTATAGAAATTGAAAG TTTGATGATAAAGACAATGGCCCACCGTAAGGCTGTATTA spacer
length: 40 repeater length: 24

5630 861476 GATAATCTACTATAGAAATTGAAAG AATCCACGCGTGCAACAACAATGGATTTTACACACTT spacer
length: 38 repeater length: 24

5631 861538 GATAATCTACTATAGAAATTGAAAG ACGAAAGAGAATTTGCTAATTCGTTAATATCTTGAACGC spacer
length: 39 repeater length: 24

5632 861601 GATAATCTACTATAGAAATTGAAAG AATTGCGTCTGTTCTGTCTCTGCACTCTGCACTATTAA spacer
length: 38 repeater length: 24

5633 861663 GATAATCTACTATAGAAATTGAAAG ATGAGCTGAAGGAATTAGTTAAGGTCGTAGAGAAAGAT spacer
length: 38 repeater length: 24

5634 861725 GATAATCTACTATAGAAATTGAAAG CTTATGCGGTCATTAGAACCATAACAGCTCCTGGAGGAGT spacer
length: 39 repeater length: 24

5635 861788 GATAATCTACTATAGAAATTGAAAG TTCTCACATTTATCCTTAGAACCGTCATAATCGTTCAAAATCT spacer
length: 43 repeater length: 24

5636 861855 GATAATCTACTATAGAAATTGAAAG AAATAACCATTGTCATCAAGTTTTACGATGCTTGTTGGTT spacer
length: 40 repeater length: 24

5637 861919 GATAATCTACTATAGAAATTGAAAG CATGCGCTG

5638

5639

5640 GCA_000022425.1_ASM2242v1_genomic.fna (PilerCR):

5641 START REPEAT

SPACER

5642 crispr 1

5643 911634 GATTAATCCTAAAAGGAATTGAAAG AACTATATCTAGGTGTTTCATGGACGGGTCACCTCATTTT spacer
length: 40 repeater length: 25

5644 911699 GATTAATCCTAAAAGGAATTGAAAG ATATTATTCAAAAACTGATTACGTGAATGGATTTAT spacer
length: 37 repeater length: 25

5645 911761 GATTAATCCTAAAAGGAATTGAAAG TTAATTTCTTTGACTGGTAATTTCTGTTCTATTTCTTT spacer
length: 38 repeater length: 25

5646 911824 GATTAATCCTAAAAGGAATTGAAAG TTACCAACCCGTTTTTATTGACAATATAACGGTTGTA spacer
length: 37 repeater length: 25

5647 911886 GATTAATCCTAAAAGGAATTGAAAG TGATCAATCACTTGTATTCTTTTGTGTAAATTTTCGTC spacer
length: 37 repeater length: 25

5648 911948 GATTAATCCTAAAAGGAATTGAAAG AAGAATGATAGAATACACTACCAGTAAACGTCCTAAAA spacer
length: 39 repeater length: 25

5649 912012 GATTAATCCTAAAAGGAATTGAAAG ACATAGAGGGCGTTCCTTGTCCTATTAAACCATGT spacer length:
35 repeater length: 25

5650 912072 GATTAATCCTAAAAGGAATTGAAAG TAATAATGATATATTGTAGATATTATCGTTGCCCGGGGC spacer
length: 39 repeater length: 25

5651 912136 GATTAATCCTAAAAGGAATTGAAAG ACTTTTGCGTTTTTCATTTGTCTCTTCTTCTTCAAGTAG spacer
length: 38 repeater length: 25

5652 912199 GATTAATCCTAAAAGGAATTGAAAG TTTGTTGGGTGTTTCGTCGTTGTCCCGGCATTGAGGTTTA spacer
length: 39 repeater length: 25

5653 912263 GATTAATCCTAAAAAGGAATTGAAAG TAAATTTCTATGTTTCATTTCAAGCATTTTTCTCTACCCT spacer
length: 40 repeater length: 25

5654 912328 GATTAATCCTAAAAAGGAATTGAAAG TATTTATTATAACACAAAGCACTATACACTTCAAAATT spacer
length: 38 repeater length: 25

5655 912391 GATTAATCCTAAAAAGGAATTGAAAG AATTTGATCTATCGCGGGTATTAATTTGTTCATAACTG spacer
length: 38 repeater length: 25

5656 912454 GATTAATCCTAAAAAGGAATTGAAAG ACAATAAGATAGAAGGGTCTCTCGCGATAACTCTGTAGT spacer
length: 39 repeater length: 25

5657 912518 GATTAATCCTAAAAAGGAATTGAAAG TTAAACTTTTACTAACTTACTAACTTACAACTTAC spacer length:
36 repeater length: 25

5658 912579 GATTAATCCTAAAAAGGAATTGAAAG TTCAGTAAGTAAGTTCGATTTTACTTATCGCCCATC spacer length:
36 repeater length: 25

5659 912640 GATTAATCCTAAAAAGGAATTGAAAG ATAGATATGATGAGATGGCAAACAATGTATACTAGGAAA spacer
length: 39 repeater length: 25

5660 912704 GATTAATCCTAAAAAGGAATTGAAAG CTGACTGGTATCAAAGATAACGCTTTCTTAGGGTTCGTA spacer
length: 39 repeater length: 25

5661 912768 GATTAATCCTAAAAAGGAATTGAAAG GCAGTTAGGAAAACCACCAGATTTGGCTAGTTATATAGCCCAG spacer
length: 43 repeater length: 25

5662 912836 GATTAATCCTAAAAAGGAATTGAAAG ACAATACCATGTGCAGAATCAATAACAATATGCTGT spacer
length: 37 repeater length: 25

5663 912898 GATTAATCCTAAAAAGGAATTGAAAG ACTTGATATATCAGATATCATGTCTACTAACGGCAAATT spacer
length: 38 repeater length: 25

5664 912961 GATTAATCCTAAAAAGGAATTGAAAG TATCATCATTCTCCTTGATAAACAGTCTCACTTTCT spacer
length: 37 repeater length: 25

5665 913023 GATTAATCCTAAAAAGGAATTGAAAG AGTTATTTTCGACGTGATTTAACGCACAGTAAGATTTATAA spacer
length: 40 repeater length: 25

5666 913088 GATTAATCCTAAAAAGGAATTGAAAG CTTGTATGCGCACTTACGAAAAGCCAATAATACTCAAA spacer
length: 38 repeater length: 25

5667 913151 GATTAATCCTAAAAAGGAATTGAAAG TCAAAATATATATCGATGATTTCTTCAAGATCACTT spacer length:
36 repeater length: 25

5668 913212 GATTAATCCTAAAAAGGAATTGAAAG ATAATATTCTCTCTACTATTTCTTCTTTCAACTATTCA spacer
length: 38 repeater length: 25

5669 913275 GATTAATCCTAAAAAGGAATTGAAAG CTAAATATTTTCGTGTTTATATCAAATGCATATACTTT spacer
length: 37 repeater length: 25

5670 913337 GATTAATCCTAAAAAGGAATTGAAAG TTATATGTAGTGACGGTAAGTAGTAGCATCTATAACTCT spacer
length: 39 repeater length: 25

5671 913401 GATTAATCCTAAAAAGGAATTGAAAG GATTACTCTTCACAGATAAACATTCTTTAGGTAATTCT spacer
length: 38 repeater length: 25

5672 913464 GATTAATCCTAAAAAGGAATTGAAAG TTTCGTTATCGTTCACGGAATTTATCAATGCAGTTAATT spacer
length: 39 repeater length: 25

5673 913528 GATTAATCCTAAAAAGGAATTGAAAG TATAAGAACCCTAAAAGAATTAATAAGAGTGTTGACGG spacer
length: 38 repeater length: 25

5674 913591 GATTAATCCTAAAAAGGAATTGAAAG TTCATTTCCGGCTCACCCCTAGCCAAATACTCTTTGAAT spacer
length: 38 repeater length: 25

5675 913654 GATTAATCCTAAAAAGGAATTGAAAG GATATCCATTCTCAGCACTCTTAAATCCGCTGAAATT spacer
length: 38 repeater length: 25

5676 913717 GATTAATCCTAAAAAGGAATTGAAAG TAGAATCTAGCAGTACTATGACCCATATAACCATATACA spacer
length: 39 repeater length: 25

5677 913781 GATTAATCCTAAAAAGGAATTGAAAG CTTGTTAGTATATCTATTTTCATATTTATACACCCGAA spacer
length: 38 repeater length: 25

5678 913844 GATTAATCCTAAAAAGGAATTGAAAG ATTAATTCTTTTACTGTATAGAAATATCTCATTTT spacer length:
35 repeater length: 25

5679 913904 GATTAATCCTAAAAAGGAATTGAAAG TCCGTTTCTAACTTATTAAAGTATTCATATAATGC spacer length:
35 repeater length: 25

5680 913964 GATTAATCCTAAAAAGGAATTGAAAG GTATTAAGTCATCAGAATATCCTTCTAATGATAGAG spacer length:
36 repeater length: 25

5681 914025 GATTAATCCTAAAAAGGAATTGAAAG GCTATTAACATTATTAAGTTATAGACATTTTGTCCATATTCTACG
spacer length: 45 repeater length: 25

5682 914095 GATTAATCCTAAAAAGGAATTGAAAG ATTGAAAAGACTTTACGAAGTATATACAAGTGCTCA spacer length:
36 repeater length: 25

5683 914156 GATTAATCCTAAAAAGGAATTGAAAG AAGTACACTTTATTAGCATTTTCTGGCAAACGATTA spacer length:
36 repeater length: 25

5684 914217 GATTAATCCTAAAAAGGAATTGAAAG TGATTCTCATCTATCTCCTCCTCCAATTCCGCGAGGAC spacer
length: 38 repeater length: 25

5685 914280 GATTAATCCTAAAAAGGAATTGAAAG TTATTAATAATTTTTTCGGGTGTTTTCATGTTTGTGCC spacer
length: 37 repeater length: 25

5686 914342 GATTAATCCTAAAAAGGAATTGAAAG AAACTAATTGTATATTAGCAGGGTCACTTTGCACTCT spacer
length: 38 repeater length: 25

5687 914405 GATTAATCCTAAAAAGGAATTGAAAG GTATGCTATGCAACAGTATTTTAATCTTATTTCTCGGATCCT spacer
length: 42 repeater length: 25

5688 914472 GATTAATCCTAAAAAGGAATTGAAAG CTATATATTCGAGAAACAGGAATTTTCCCTGACTTATTT spacer

length: 39 repeater length: 25
5689 914536 GATTAATCCTAAAAGGAATTGAAAG TATTAATAACTTATTAGCAATCATTGCTGCACGTAC spacer
length: 37 repeater length: 25
5690 914598 GATTAATCCTAAAAGGAATTGAAAG TTAAATTCCTTTTAACATCACATAATCTTTATTTTCATATC spacer
length: 41 repeater length: 25
5691 914664 GATTAATCCTAAAAGGAATTGAAAG ATTAATACAATTAAGCTCCGTCTTTGCTAGACTCTTTTA spacer
length: 39 repeater length: 25
5692 914728 GATTAATCCTAAAAGGAATTGAAAG CTAATGAAACATAAGAGCGAAAAGAAGTTTAGTAGAGATTC spacer
length: 41 repeater length: 25
5693 914794 GATTAATCCTAAAAGGAATTGAAAG GCTTGTTTCTGATTGATGATATACCTTATTATTACTGGT spacer
length: 39 repeater length: 25
5694 914858 GATTAATCCTAAAAGGAATTGAAAG ACAAGATTCGTAACACTATTGACGAAGGTAAGAACGTTATTCTTG
spacer length: 45 repeater length: 25
5695 914928 GATTAATCCTAAAAGGAATTGAAAG TTTTACAATCAGATATATTGATAGTTGATTTCTGCTA spacer
length: 37 repeater length: 25
5696 914990 GATTAATCCTAAAAGGAATTGAAAG TAATTTCAATTTTCATTATTTCTCAACTCCCTTAATTAC spacer
length: 38 repeater length: 25
5697 915053 GATTAATCCTAAAAGGAATTGAAAG CTAATAAAACACAATAATATAACACTATATAACACA spacer
length: 39 repeater length: 25
5698 915117 GATTAATCCTAAAAGGAATTGAAAG ATACTCTGTTCCCTTGCTCCATCTTTAGTAATTTGCTAA spacer
length: 38 repeater length: 25
5699 915180 GATTAATCCTAAAAGGAATTGAAAG ACCTTACTTTCTCTTCTCCCTTTAGATTAAGTTTT spacer length:
35 repeater length: 25
5700 915240 GATTAATCCTAAAAGGAATTGAAAG TATAAATAAGCGGTAAAAATGAAGAAAAAACGTTTCTAT spacer
length: 40 repeater length: 25
5701 915305 GATTAATCCTAAAAGGAATTGAAAG AGATATTATCCTTATATTCACCTACTTTTTGCAGATATTTTC spacer
length: 41 repeater length: 25
5702 915371 GATTAATCCTAAAAGGAATTGAAAG TAGAATATCAAGCAGATAAATTAGTAGTACAAGATGTGA spacer
length: 39 repeater length: 25
5703 915435 GATTAATCCTAAAAGGAATTGAAAG TCTATTAATATTGTATGCAACATTATTTTAACTTTGC spacer
length: 37 repeater length: 25
5704 915497 GATTAATCCTAAAAGGAATTGAAAG TAGACAGGTCAGTATAGGTCTTACCATCTAATAAAGCAAG spacer
length: 40 repeater length: 25
5705 915562 GATTAATCCTAAAAGGAATTGAAAG AAATTACTATCTTGAATAGAGATATTAGCGTTGTCTATTGCT spacer
length: 42 repeater length: 25
5706 915629 GATTAATCCTAAAAGGAATTGAAAG CTATATATGGGAAGGCTTATGATCACCTAGTAGAA spacer length:
35 repeater length: 25
5707 915689 GATTAATCCTAAAAGGAATTGAAAG GATGAATATGAAGAATTTGCTACTATAATAGTGAAACTCC spacer
length: 40 repeater length: 25
5708 915754 GATTAATCCTAAAAGGAATTGAAAG CTCATCACCCCATGTTTCTTCAAATCCACCCAGATTCTC spacer
length: 39 repeater length: 25
5709 915818 GATTAATCCTAAAAGGAATTGAAAG AAGAATCCCCAAGGATAAACACTAGCATATCGACC spacer length:
35 repeater length: 25
5710 915878 GATTAATCCTAAAAGGAATTGAAAG TTCCAAATACACGTTTATTCAATATGATATCCAGCAAC spacer
length: 38 repeater length: 25
5711 915941 GATTAATCCTAAAAGGAATTGAAAG TTATTATTTACAGTTATTCTTATCTTTGCCATCCTCACCAC spacer
length: 41 repeater length: 25
5712 916007 GATTAATCCTAAAAGGAATTGAAAG TCAAATGAGTAATTTTTCTTCATGCAACATAATTCAC spacer
length: 38 repeater length: 25
5713 916070 GATTAATCCTAAAAGGAATTGAAAG TCTTTCACATACGTTTCTATACGCTTCTTCTTTCCATC spacer
length: 38 repeater length: 25
5714 916133 GATTAATCCTAAAAGGAATTGAAAG GGACCGCTTA
5715
5716
5717 crispr 2
5718 935641 CTTTCAATTCTATAGTAGATTATC TATAGATTCTAAGCTCATAGTACTAAGCGGCAGACTTC spacer
length: 38 repeater length: 24
5719 935703 CTTTCAATTCTATAGTAGATTATC AGTGTCTTTTGATAAAGTGTAAGTTTCTCTTAATAGAAA spacer
length: 39 repeater length: 24
5720 935766 CTTTCAATTCTATAGTAGATTATC CGTCTGAGGACGGATCCTACGGCGAAGCAGTACTGGAGTT spacer
length: 40 repeater length: 24
5721 935830 CTTTCAATTCTATAGTAGATTATC CGGTTTCGGTGGATTTATATATAGCCACGAGAAGGATGA spacer
length: 39 repeater length: 24
5722 935893 CTTTCAATTCTATAGTAGATTATC GTAAACACGACCTCCACTACTACACTATAAATTACATTGCT spacer
length: 41 repeater length: 24
5723 935958 CTTTCAATTCTATAGTAGATTATC AGTAAGCAGTGGTTATAAAGATACTGATGAACATAAGGG spacer
length: 40 repeater length: 24
5724 936022 CTTTCAATTCTATAGTAGATTATC TTGATATCGATTATGTTATTTATATTAATGTTAAAAAG spacer
length: 38 repeater length: 24
5725 936084 CTTTCAATTCTATAGTAGATTATC CTTGTTTATTATTGAGTTGTTTCAAGATGTTGGTATCAT spacer
length: 39 repeater length: 24

5726 936147 CTTTCAATTCTATAGTAGATTATC TTTGCATATCTACTGACGTCAGCGATGTATCTAAGGTTA spacer
length: 39 repeater length: 24

5727 936210 CTTTCAATTCTATAGTAGATTATC CTTACACTCAACTTAAAAGAAGAAGAGATAATAGCAAA spacer
length: 38 repeater length: 24

5728 936272 CTTTCAATTCTATAGTAGATTATC CCGAGGCATCATTGATATCTAGGGCGGGCGTTAAATTCGTAG spacer
length: 42 repeater length: 24

5729 936338 CTTTCAATTCTATAGTAGATTATC AGGATTATCTCTTCGTCTACGGTGCTCGCGTCCACGATCTT spacer
length: 41 repeater length: 24

5730 936403 CTTTCAATTCTATAGTAGATTATC ACGCGGATTAATAGATTCTGCATATGCGACGTTAGAACAAG spacer
length: 41 repeater length: 24

5731 936468 CTTTCAATTCTATAGTAGATTATC CTTTGTTCTCTCAGAAGCTGTTACGTTACTTCTTAGTAT spacer
length: 39 repeater length: 24

5732 936531 CTTTCAATTCTATAGTAGATTATC ATTATAAAAAAGATAAACGATTAAGCATTCAATTTGAAG spacer
length: 39 repeater length: 24

5733 936594 CTTTCAATTCTATAGTAGATTATC AAATAAATTGAATTTTGACTTACAAGTTTTCTCTTCT spacer
length: 39 repeater length: 24

5734 936657 CTTTCAATTCTATAGTAGATTATC CATCAGATTTAGCTAATATTAACATTCTTCTAGGGGGATA spacer
length: 40 repeater length: 24

5735 936721 CTTTCAATTCTATAGTAGATTATC GCCGGATTTTTTTCATATTTCAAGAAAAAGAATGCGAT spacer
length: 39 repeater length: 24

5736 936784 CTTTCAATTCTATAGTAGATTATC AATTTTATATCGAATCTGATTTTTATTTCAATAATTT spacer length:
37 repeater length: 24

5737 936845 CTTTCAATTCTATAGTAGATTATC CCCGACACTTGAATAATAAGGACTAAATAATTAATTAA spacer
length: 38 repeater length: 24

5738 936907 CTTTCAATTCTATAGTAGATTATC TGAGGAAGAATGATAACACTTTTTGAAGTGTTTCTTAT spacer
length: 38 repeater length: 24

5739 936969 CTTTCAATTCTATAGTAGATTATC AATTTCTTGACCGCCGTATGTGACTTTTTCGGGTCTAT spacer
length: 39 repeater length: 24

5740 937032 CTTTCAATTCTATAGTAGATTATC GCAAAACGATAAACATAATAGTTCCTTCCGGAGCTAGCGGT spacer
length: 41 repeater length: 24

5741 937097 CTTTCAATTCTATAGTAGATTATC CGCCTTCTGCACGAGCGTTGGAGCGAACAAACCGTAGA spacer
length: 38 repeater length: 24

5742 937159 CTTTCAATTCTATAGTAGATTATC TTGTATCACGAACTGTGGGTGCCACCCTGAACGATTAT spacer
length: 39 repeater length: 24

5743 937222 CTTTCAATTCTATAGTAGATTATC AGAATCACCCCGAGCTATTAAAGCCAAACGGCGAAATCGCA spacer
length: 41 repeater length: 24

5744 937287 CTTTCAATTCTATAGTAGATTATC GGAAACTCCCACCTCAAGCGTAAACGTTTGCCAGGGCTT spacer
length: 39 repeater length: 24

5745 937350 CTTTCAATTCTATAGTAGATTATC TACTTTATTTGTGATAGATGAGGCTCATCATCATTTTCAA spacer
length: 40 repeater length: 24

5746 937414 CTTTCAATTCTATAGTAGATTATC ATCCTTATATAATGATATAATAACGCTAGGGTGAGATGA spacer
length: 39 repeater length: 24

5747 937477 CTTTCAATTCTATAGTAGATTATC CTTTAATATTGCGGCAAGTGCTCCAGCTGGTTCTGTTGT spacer
length: 39 repeater length: 24

5748 937540 CTTTCAATTCTATAGTAGATTATC GAACTAGAGGACTTCTTCCTAAGTGGTCTCGATGAAAC spacer
length: 38 repeater length: 24

5749 937602 CTTTCAATTCTATAGTAGATTATC AATAATAAACATTCTAGTGATGATATCATTTTACCAATGG spacer
length: 40 repeater length: 24

5750 937666 CTTTCAATTCTATAGTAGATTATC AATTACTACTCAAGATATAATAGACTTTCTGACTACAAT spacer
length: 39 repeater length: 24

5751 937729 CTTTCAATTCTATAGTAGATTATC TCATGAAATTTATTATTAAACAACAAGATATAATTATTTA spacer
length: 39 repeater length: 24

5752 937792 CTTTCAATTCTATAGTAGATTATC TAGGGTCTCTTCTTCAATTGGGTGAGGGAAGAGAGGATATG spacer
length: 40 repeater length: 24

5753 937856 CTTTCAATTCTATAGTAGATTATC ATAGAGCAAACGCTAGATTGTCGAGAAAGATGTTTATCGTG spacer
length: 41 repeater length: 24

5754 937921 CTTTCAATTCTATAGTAGATTATC CCTCAACTGTTTGAATATCCATAATTAAGTATAATGA spacer length:
37 repeater length: 24

5755 937982 CTTTCAATTCTATAGTAGATTATC ATACTAACTATGGGGCAAACCACCAAGTCTTGCAAGTAAT spacer
length: 40 repeater length: 24

5756 938046 CTTTCAATTCTATAGTAGATTATC TTCAACATTCCCAATTCTCATAAGTTCATTATAGTTTCC spacer
length: 39 repeater length: 24

5757 938109 CTTTCAATTCTATAGTAGATTATC TTGATTTTGGGTGCGGACATGGGATGACCCCGATAAA spacer
length: 38 repeater length: 24

5758 938171 CTTTCAATTCTATAGTAGATTATC CGGCATCCCTGAAACATGCATACTGTATTGTTGAAAGATAA spacer
length: 41 repeater length: 24

5759 938236 CTTTCAATTCTATAGTAGATTATC ACAAAGAAAGAAGAGGAATTCAGTTTAGGGCTTATAGGTTT spacer
length: 42 repeater length: 24

5760 938302 CTTTCAATTCTATAGTAGATTATC CCACTTCTTGATCCTGAAAACGATACGCATCACTGTAAA spacer
length: 39 repeater length: 24

5761 938365 CTTTCAATTCTATAGTAGATTATC AATATGTGGTTGAAACAGTTTCGTCTTCTTCAACGAAGAG spacer

length: 41 repeater length: 24
5762 938430 CTTTCAATTCTATAGTAGATTATC AACAAAGACCTCGACGTCCCGTGAGTCCAGGAAGAGGAT spacer
length: 38 repeater length: 24
5763 938492 CTTTCAATTCTATAGTAGATTATC ATTAATACTCAAGATATAATAGATTTCTTGACTAAAT spacer
length: 38 repeater length: 24
5764 938554 CTTTCAATTCTATAGTAGATTATC GAAACTTTAAAAGTCTGCCAGACAAATGTTTAAATATAG spacer
length: 39 repeater length: 24
5765 938617 CTTTCAATTCTATAGTAGATTATC TTAGAGACAAATGTCACCTCCATAGACTTATAATAGTTTAA spacer
length: 41 repeater length: 24
5766 938682 CTTTCAATTCTATAGTAGATTATC AAAACTTCTATTGAATTTTACTAGATGGTCTTTTTAT spacer length:
37 repeater length: 24
5767 938743 CTTTCAATTCTATAGTAGATTATC TTGTCAATAATTTAGTAGTACCAGTAGCTAAAAGATA spacer length:
37 repeater length: 24
5768 938804 CTTTCAATTCTATAGTAGATTATC AATTAATAAATTATTATTCAGCAGGTCAAAGAATAAGGATT spacer
length: 41 repeater length: 24
5769 938869 CTTTCAATTCTATAGTAGATTATC ACCTGCAGAACTCATTATCCATCATGTAAGAAGTACGAG spacer
length: 39 repeater length: 24
5770 938932 CTTTCAATTCTATAGTAGATTATC ACGCCAATTGACCACAGTGGTCTACTTATTGATGAAGTATT spacer
length: 41 repeater length: 24
5771 938997 CTTTCAATTCTATAGTAGATTATC TCTTTTTTCTTCGTTTCTGTTTCACTTCTATATTTAATCC spacer
length: 40 repeater length: 24
5772 939061 CTTTCAATTCTATAGTAGATTATC CCTTACACGTTCAAACCTAATCATCTCGTTACATTACT spacer
length: 38 repeater length: 24
5773 939123 CTTTCAATTCTATAGTAGATTATC CATATAATGTTGTTCCCTAGTAGATACCCTAATATAACAC spacer
length: 39 repeater length: 24
5774 939186 CTTTCAATTCTATAGTAGATTATC ATAAGGTACTTTACATAGATATAGAAGTTAATAATATAGA spacer
length: 40 repeater length: 24
5775 939250 CTTTCAATTCTATAGTAGATTATC ATTGTAGTCACTACTTTAGCACCGCTAAGAATATATTTA spacer
length: 39 repeater length: 24
5776 939313 CTTTCAATTCTATAGTAGATTATC GAGGAAGAGATGGAGTCTGGTAAGGAGGTTTTCGTTATTTA spacer
length: 41 repeater length: 24
5777 939378 CTTTCAATTCTATAGTAGATTATC AGAAAAGTATTCTATCTTTATCCGGATAATACAGAGTA spacer
length: 38 repeater length: 24
5778 939440 CTTTCAATTCTATAGTAGATTATC CTTTTCTACACAAGAGAGCCGAGAGAAATAGAATTCATT spacer
length: 39 repeater length: 24
5779 939503 CTTTCAATTCTATAGTAGATTATC TAACCACTTAACTCCCCAGTTAAGTGGTTGGAGACTAG spacer
length: 38 repeater length: 24
5780 939565 CTTTCAATTCTATAGTAGATTATC ACTTCGCTCCGCTTTGGGGCGACGAGGACGAGTTCTACAG spacer
length: 40 repeater length: 24
5781 939629 CTTTCAATTCTATAGTAGATTATC TATTAGGAAAGTAAACATCTTCGTTTCCTGATATGATTAC spacer
length: 40 repeater length: 24
5782 939693 CTTTCAATTCTATAGTAGATTATC AGGGGATGTAGGAGGAGGATTTGCGAATGATTTTAGAAGAAT spacer
length: 42 repeater length: 24
5783 939759 CTTTCAATTCTATAGTAGATTATC AAATATTTATAAGGAACAAAAACATAGAGAAGTACAGT spacer
length: 39 repeater length: 24
5784 939822 CTTTCAATTCTATAGTAGATTATC TTAAATATGATTATGAGGGAACAATAAAGATAATTTATTA spacer
length: 40 repeater length: 24
5785 939886 CTTTCAATTCTATAGTAGATTATC ATATAATACCATCTATAAATAAAGATAAGAACTTGTGA spacer
length: 39 repeater length: 24
5786 939949 CTTTCAATTCTATAGTAGATTATC CCGCAAATACCTTACTTCATCACTATTGTAAACCCAC spacer length:
37 repeater length: 24
5787 940010 CTTTCAATTCTATAGTAGATTATC TTAAGTATATTAAGTATCAAAGGGGAAGAAAAAGTAAGG spacer
length: 39 repeater length: 24
5788 940073 CTTTCAATTCTATAGTAGATTATC GGTAACAGTGGTTATAAAGATACTGATGAATTAATAGGAA spacer
length: 41 repeater length: 24
5789 940138 CTTTCAATTCTATAGTAGATTATC CCCCTTCTTAATTTTCTTATTAAAAATGATATTGAATACG spacer
length: 40 repeater length: 24
5790 940202 CTTTCAATTCTATAGTAGATTATC TTTATATCACAAAGATGTATTGAGGGAGTTCCAAAGGA spacer
length: 38 repeater length: 24
5791 940264 CTTTCAATTCTATAGTAGATTATC TGGAAAGAAGTAACCTAGGAAATGTGTACATTACAATA spacer
length: 38 repeater length: 24
5792 940326 CTTTCAATTCTATAGTAGATTATC TGGTGTCCCAATAACACTTGCTTACCGAAGATAAAGG spacer
length: 38 repeater length: 24
5793 940388 CTTTCAATTCTATAGTAGATTATC ACTAGAGCTTTACTGTTGCAAGAAGCACTACAAAATTT spacer
length: 38 repeater length: 24
5794 940450 CTTTCAATTCTATAGTAGATTATC CCATTTGCGTCTAGTAATGTAATAATTCGTGGGTAAATTCA spacer
length: 41 repeater length: 24
5795 940515 CTTTCAATTCTATAGTAGATTATC ATCTACAATTAAGGACAAATCACGAACGAATAATTGTAA spacer
length: 39 repeater length: 24
5796 940578 CTTTCAATTCTATAGTAGATTATC TAAATTTATCGCCAAAATCCTCCACGTTGAATATATAGAGAA spacer
length: 42 repeater length: 24

5797 940644 CTTTCAATTCTATAGTAGATTATC TCCCTCACAGATCTCTATTGAGAATTTCCAACCTTTAG spacer
length: 38 repeater length: 24
5798 940706 CTTTCAATTCTATAGTAGATTATC GTCGTGAAGGTCGAGAAGGGCAAAAACGTCGTCGAGGTGG spacer
length: 40 repeater length: 24
5799 940770 CTTTCAATTCTATAGTAGATTATC TTTATACGCCAATACGCCCCACTCCTTCTAATGTCGTG spacer
length: 38 repeater length: 24
5800 940832 CTTTCAATTCTATAGTAGATTATC AAAGATAACCAAGCCCTAGTTAATGAAAACGGAAAAATCA spacer
length: 40 repeater length: 24
5801 940896 CTTTCAATTCTATAGTAGATTATC ATTCATTAAAAATGCACCTACATATCATGATCCAGG spacer length:
36 repeater length: 24
5802 940956 CTTTCAATTCTATAGTAGATTATC GCTGTTGTAGCTAACATCGCTAGGTTTTGAGGAGATAGGA spacer
length: 40 repeater length: 24
5803 941020 CTTTCAATTCTATAGTAGATTATC ACTACCTTCCGGTGAGAACGAGCCACCTGTTCAATACCT spacer
length: 39 repeater length: 24
5804 941083 CTTTCAATTCTATAGTAGATTATC TAAAGGTGAAAGGAGAAGTATACAAGTTGAGTTACCAA spacer
length: 39 repeater length: 24
5805 941146 CTTTCAATTCTATAGTAGATTATC AAGGGGGAGGTATTTACTCCGGCCTTAGCGAAATATCTAA spacer
length: 40 repeater length: 24
5806 941210 CTTTCAATTCTATAGTAGATTATC TTGTCTCTTCTTCTAATAAGTCCATGCCCTCTGCATCAGA spacer
length: 40 repeater length: 24
5807 941274 CTTTCAATTCTATAGTAGATTATC TAGTAGAAGGCGTAATGGAGACCATGCCGAATATTGAAAT spacer
length: 40 repeater length: 24
5808 941338 CTTTCAATTCTATAGTAGATTATC CCGCCATGTGTTTACTGGTACAAGTAAAAGAAGGAAAG spacer
length: 38 repeater length: 24
5809 941400 CTTTCAATTCTATAGTAGATTATC AGCTTACAATCTCAAAGATAATCGCTGAAAGGGAGGGAA spacer
length: 39 repeater length: 24
5810 941463 CTTTCAATTCTATAGTAGATTATC AGCCACGGGATAGACAGGTTGCCGGAAGAGACGTTAAG spacer
length: 38 repeater length: 24
5811 941525 CTTTCAATTCTATAGTAGATTATC TGAATGCAACAGTAAAGGTTAAATTTGCAACAGTGTAAGT spacer
length: 42 repeater length: 24
5812 941591 CTTTCAATTCTATAGTAGATTATC TGATAGTTGATGCAGAAAAGATATATAAATATATTATTA spacer
length: 39 repeater length: 24
5813 941654 CTTTCAATTCTATAGTAGATTATC TTTCACTATAGTTATCTTGACCCTTATGGCGGGGTTGTT spacer
length: 39 repeater length: 24
5814 941717 CTTTCAATTCTATAGTAGATTATC CATGAAATATCTCGAAGCGGGGAAGATAAATTTCTACA spacer
length: 38 repeater length: 24
5815 941779 CTTTCAATTCTATAGTAGATTATC GTGTAGCGTCACTTGAGAACCTGCACGGTGAAGCTAGG spacer
length: 38 repeater length: 24
5816 941841 CTTTCAATTCTATAGTAGATTATC CGCGTCCATG
5817
5818
5819 crispr 3
5820 946464 GATAATCTACTATAGAATTGAAAG TCATTTTAGACATTGTGTGCGAGGAGCATGGACTTGATGTTG spacer
length: 41 repeater length: 24
5821 946529 GATAATCTACTATAGAATTGAAAG CTAAATATTAAAGTTTTGCATTCTTTGTACGCGTCACCAG spacer
length: 40 repeater length: 24
5822 946593 GATAATCTACTATAGAATTGAAAG GTAAAAATTACAGAATCTCTTTATAAAATTTTAGAGCAGAAG spacer
length: 42 repeater length: 24
5823 946659 GATAATCTACTATAGAATTGAAAG ATCAGAGTTGATTATTTGCCAACTGGTGCAGTTCTTATAGG spacer
length: 41 repeater length: 24
5824 946724 GATAATCTACTATAGAATTGAAAG ATGGTTGAAAGTACGTCATGGAAAGTACTACCGTAT spacer length:
36 repeater length: 24
5825 946784 GATAATCTACTATAGAATTGAAAG CTTCTAATTCTTCTTTTAGCCTTGATGCAATCAGTATCA spacer
length: 39 repeater length: 24
5826 946847 GATAATCTACTATAGAATTGAAAG GTATTGAACGCAGATATTAAAGCAGCATCTTCATATTCCGT spacer
length: 41 repeater length: 24
5827 946912 GATAATCTACTATAGAATTGAAAG CGGCGGTTACAACAACAAGTACTGCATACGTGATGGTGGGTTA spacer
length: 43 repeater length: 24
5828 946979 GATAATCTACTATAGAATTGAAAG TTGATTAACACTAGAAATCGCATTTGAAATAATCGTTACGG spacer
length: 41 repeater length: 24
5829 947044 GATAATCTACTATAGAATTGAAAG GTTCTCTGTTCTGCCATATCGCTATCCAGTAATCACT spacer length:
37 repeater length: 24
5830 947105 GATAATCTACTATAGAATTGAAAG ACCTAGTGGTAATGGGGGATTCGCGTTAAACGTCACCTT spacer
length: 39 repeater length: 24
5831 947168 GATAATCTACTATAGAATTGAAAG ATTTATAACAACTCCAAGAATGGGAGAGAGTAAACAT spacer
length: 38 repeater length: 24
5832 947230 GATAATCTACTATAGAATTGAAAG CTTTTCTGTAATCGCTGGGATTCCTCATTATCAGATAAT spacer
length: 39 repeater length: 24
5833 947293 GATAATCTACTATAGAATTGAAAG TGGCTTGTTAAGCCAGGGAACCTACACACGTAACGTTT spacer
length: 38 repeater length: 24
5834 947355 GATAATCTACTATAGAATTGAAAG AAATCTTTCGCTAACGGAGAGGTTAGATCTGCGGT spacer length:

36 repeater length: 24

5835 947415 GATAATCTACTATAGAATTGAAAG CCAGTTGTCGCTTCATATGCAACATCTATCCAATACGTT spacer
length: 39 repeater length: 24

5836 947478 GATAATCTACTATAGAATTGAAAG AATGGCAAAGGAAGTAGTTGAATCTTCTCTTAAGTTAAA spacer
length: 40 repeater length: 24

5837 947542 GATAATCTACTATAGAATTGAAAG ACTACCATCCAGTCCCTACAATTTACCGGGTACAGGTCTAC spacer
length: 41 repeater length: 24

5838 947607 GATAATCTACTATAGAATTGAAAG TCTGAAGTTGTGCCCCCTCACTTTCCTCTCCTC spacer
length: 38 repeater length: 24

5839 947669 GATAATCTACTATAGAATTGAAAG TGTAACGGTTGAATATATTAATCACGTACACACGTATGT spacer
length: 39 repeater length: 24

5840 947732 GATAATCTACTATAGAATTGAAAG TGGGAAATACTCATCCGCCATGTTTTCACTAAAACATA spacer
length: 38 repeater length: 24

5841 947794 GATAATCTACTATAGAATTGAAAG ATTACTAAAAGGTCGTTCTTGGGATCGTATCTATATC spacer length:
37 repeater length: 24

5842 947855 GATAATCTACTATAGAATTGAAAG ACAAATAGAATTGCGACCGGTACAATTTTGACAACAAACTA spacer
length: 43 repeater length: 24

5843 947922 GATAATCTACTATAGAATTGAAAG CTTACTTTTATGGTCCCTTTCTAATTATGCTGACTTCAG spacer
length: 38 repeater length: 24

5844 947984 GATAATCTACTATAGAATTGAAAG ATATTATCATCATTGAATATCTCTACTGTATATGTTTG spacer
length: 38 repeater length: 24

5845 948046 GATAATCTACTATAGAATTGAAAG CTAGCATATGTTAGATTTAGCGATTGAATTACAGTTCCCGCT spacer
length: 42 repeater length: 24

5846 948112 GATAATCTACTATAGAATTGAAAG GTTAGCAGAAATAATAGCTACATATGACCCTAACAAATGT spacer
length: 39 repeater length: 24

5847 948175 GATAATCTACTATAGAATTGAAAG TTAAGTTATTGGGGACAATACGGGGATTTTTATTCAAT spacer
length: 39 repeater length: 24

5848 948238 GATAATCTACTATAGAATTGAAAG GTAAATCCATATGAGTTCTATCAACTACTTCAGCAAAGTGA spacer
length: 42 repeater length: 24

5849 948304 GATAATCTACTATAGAATTGAAAG TAGAAATAGTATTTCCGTCGGTGGTAGTTAAGTGCTCAAAAAA spacer
length: 43 repeater length: 24

5850 948371 GATAATCTACTATAGAATTGAAAG ATCTTTGGGAGGGCGAGCGGTTTATCCCGAAGTTCGGG spacer
length: 39 repeater length: 24

5851 948434 GATAATCTACTATAGAATTGAAAG AAACCGCATCACAGTGGTTTTGAAGAAGTAAATATTTA spacer
length: 38 repeater length: 24

5852 948496 GATAATCTACTATAGAATTGAAAG TTTGTGAGTTGGAGACCGTTACGGCCACGCATTCCACGCGT spacer
length: 41 repeater length: 24

5853 948561 GATAATCTACTATAGAATTGAAAG ATAATACGGTACCTACGTCCATTTGCGACGTCTCATTAAT spacer
length: 40 repeater length: 24

5854 948625 GATAATCTACTATAGAATTGAAAG AGAACGGGTAAGCATTCCTCTACCTTATGCACCACATCAATCT spacer
length: 43 repeater length: 24

5855 948692 GATAATCTACTATAGAATTGAAAG TAGGGTTTGGGATAGCTAATGCCAATCTAAGTCATCTAT spacer
length: 39 repeater length: 24

5856 948755 GATAATCTACTATAGAATTGAAAG GAACAGGTCGAAAGAGCTGAGCTTTGGCATGCAATTTA spacer
length: 38 repeater length: 24

5857 948817 GATAATCTACTATAGAATTGAAAG TTAGTTTGAACAAGTTGGACATAACGTCCGTAGAACC spacer length:
37 repeater length: 24

5858 948878 GATAATCTACTATAGAATTGAAAG TATTGTCCTGCAGTCTCGTAATATACTTTAGTCCCATACA spacer
length: 40 repeater length: 24

5859 948942 GATAATCTACTATAGAATTGAAAG TCTATATTGAATTCTATGCATATTCAATATTTCTCAACACCTT spacer
length: 43 repeater length: 24

5860 949009 GATAATCTACTATAGAATTGAAAG TCTACAATTTTGGAGGAATTTGGATTAGATTTAACTTTAT spacer
length: 40 repeater length: 24

5861 949073 GATAATCTACTATAGAATTGAAAG TAATTTTTTCGTTGTTTTTATCAAAACACAAAGCACTA spacer
length: 38 repeater length: 24

5862 949135 GATAATCTACTATAGAATTGAAAG GAAGAAGAGTTAGCAATATTAGATCTATATTGCGCAAATATG spacer
length: 42 repeater length: 24

5863 949201 GATAATCTACTATAGAATTGAAAG AATCTACGGTGCAGCAGGTCTATTTTTTGGAGTATTGA spacer
length: 38 repeater length: 24

5864 949263 GATAATCTACTATAGAATTGAAAG AGTACAGGGACGTTCAATGAGTAAGGCTCCGCAAGGTAG spacer
length: 39 repeater length: 24

5865 949326 GATAATCTACTATAGAATTGAAAG TTTGTAACCACCTTTTCGGTTACGCTCTCAAAGTTACCACTAAT spacer
length: 44 repeater length: 24

5866 949394 GATAATCTACTATAGAATTGAAAG AATTCTTTCAATCTTTCTTATTGCCTCGTTAACAATTC spacer
length: 41 repeater length: 24

5867 949459 GATAATCTACTATAGAATTGAAAG TAGACCCTTCTTATCTACTTAGGAAGTTAGACGGTTACC spacer
length: 39 repeater length: 24

5868 949522 GATAATCTACTATAGAATTGAAAG AGAAAGAACTGGGCAGAACTAAGAACTTTATATCAA spacer
length: 38 repeater length: 24

5869 949584 GATAATCTACTATAGAATTGAAAG TCATTTGTATACAATCTTATACATATTTCTTCATTATTCT spacer
length: 40 repeater length: 24

5870 949648 GATAATCTACTATAGAAATTGAAAG ACGTACATAAAAAATTGCTATAGCATTTGGAGCTGCGGCA spacer
length: 39 repeater length: 24

5871 949711 GATAATCTACTATAGAAATTGAAAG TCCAGGACGGAACAAAGCTAGGGGAATTATTTGCAACGTCC spacer
length: 41 repeater length: 24

5872 949776 GATAATCTACTATAGAAATTGAAAG TTATTTCTCAGAATATCAGAGAAATGGGATCGACAAACGGG spacer
length: 41 repeater length: 24

5873 949841 GATAATCTACTATAGAAATTGAAAG TATAATAATTAAATACTTTGGTGTCTAGACTGAAATCTCTT spacer
length: 40 repeater length: 24

5874 949905 GATAATCTACTATAGAAATTGAAAG TACCACCGTTGCATTTGTTATCTCTCGGTAGTATACTTT spacer
length: 39 repeater length: 24

5875 949968 GATAATCTACTATAGAAATTGAAAG TCAAAAATTTGTTCTTGACAGGTCAGAAAAGGACTGGTAAG spacer
length: 41 repeater length: 24

5876 950033 GATAATCTACTATAGAAATTGAAAG TCAACTACTACAACCTCCTGCATATGTATTTCTACAACCTCTT spacer
length: 42 repeater length: 24

5877 950099 GATAATCTACTATAGAAATTGAAAG GTGATAATAATCCAGTTGAAGTTGAAGTAGTCATAGATGT spacer
length: 40 repeater length: 24

5878 950163 GATAATCTACTATAGAAATTGAAAG TGTACTCTGGATAGGGGAACCCGACAATGAAGATAGCCTT spacer
length: 40 repeater length: 24

5879 950227 GATAATCTACTATAGAAATTGAAAG GTTCTAATAGCTTCTGTTTCAGAGATGGGTAGCTAA spacer length:
37 repeater length: 24

5880 950288 GATAATCTACTATAGAAATTGAAAG AAGCCCTATTTAGGGGGTAAACCCCTAAAACCCACGT spacer
length: 39 repeater length: 24

5881 950351 GATAATCTACTATAGAAATTGAAAG CTTGACATTATTCTTATACAATCTAAACAATAACTATGTG spacer
length: 40 repeater length: 24

5882 950415 GATAATCTACTATAGAAATTGAAAG GTTTTATTAGATAAAAAATGAAGTTGAAGAAAAAATTATTA spacer
length: 40 repeater length: 24

5883 950479 GATAATCTACTATAGAAATTGAAAG ACTGATACTCTATCCCATATATTGCAAGATCCCTATC spacer length:
37 repeater length: 24

5884 950540 GATAATCTACTATAGAAATTGAAAG ATCTTCATCTCCAACTACTGCTATTAACCTATCTCACTC spacer
length: 40 repeater length: 24

5885 950604 GATAATCTACTATAGAAATTGAAAG AAACGAAATATCGAAGGCGTCAGATGAGGAAAGGAAGAA spacer
length: 39 repeater length: 24

5886 950667 GATAATCTACTATAGAAATTGAAAG ACGAATCCC

5887

5888

5889 GCA_000022445.1_ASM2244v1_genomic.fna (PilerCR):

5890 START REPEAT
SPACER

5891 crispr 1

5892 837982 CTTTCAATTCTATAGTAGATTATC TATTTATATGAAGAAGGATGAAGGAACGTACAATCTTAACA spacer
length: 41 repeater length: 24

5893 838047 CTTTCAATTCTATAGTAGATTATC AAAACCTTTATTACAATATATGACATCTATTCAACAATCGT spacer
length: 41 repeater length: 24

5894 838112 CTTTCAATTCTATAGTAGATTATC CCCGCATCTAGCGCTCCAATACATGTAGCGTACTTACAACC spacer
length: 41 repeater length: 24

5895 838177 CTTTCAATTCTATAGTAGATTATC TGTGGAGTATATAAAACAACATGAGAGAGTTCATAGATA spacer
length: 38 repeater length: 24

5896 838239 CTTTCAATTCTATAGTAGATTATC AAGGGAAAACAAAGGAAGCAATGGAGGAGCTTGCGAGAGTA spacer
length: 41 repeater length: 24

5897 838304 CTTTCAATTCTATAGTAGATTATC CAGTTTCGATAGTAGCAATTCTTCTGCACAAGCAGTTCA spacer
length: 39 repeater length: 24

5898 838367 CTTTCAATTCTATAGTAGATTATC TAAGCAAAGTTACGAGAGATGTGCAAAGAATACTGGAAT spacer
length: 39 repeater length: 24

5899 838430 CTTTCAATTCTATAGTAGATTATC ACTAGGAAGTTGGGGACTGTGTTTGTGAGAGAGATA spacer length:
37 repeater length: 24

5900 838491 CTTTCAATTCTATAGTAGATTATC ACTAGTAAGGCATGGTAGAAAATCCCACCATGAATTAAC spacer
length: 39 repeater length: 24

5901 838554 CTTTCAATTCTATAGTAGATTATC TAATATCAAAGCGTCAAAATCTTCTTTAGTCCAAGTCTC spacer
length: 39 repeater length: 24

5902 838617 CTTTCAATTCTATAGTAGATTATC GCGACTATTGATATTAATACAGTATTTAGATCTGGATCTAC spacer
length: 41 repeater length: 24

5903 838682 CTTTCAATTCTATAGTAGATTATC GTTCCCTTTTGGAGCATAAAAAGAGAAAAAAGAGAAACGAG spacer
length: 40 repeater length: 24

5904 838746 CTTTCAATTCTATAGTAGATTATC AGAACTTTCCCCTCATTACTCTCTTCTTCCCTTAGTAT spacer
length: 38 repeater length: 24

5905 838808 CTTTCAATTCTATAGTAGATTATC TACATTTAGCATGAAATCCCTAGGGACTTATGCAAATGA spacer
length: 39 repeater length: 24

5906 838871 CTTTCAATTCTATAGTAGATTATC ATCCGAACTTGTTGCATTGAAAGTAAATATGTCTATGAA spacer
length: 40 repeater length: 24

5907 838935 CTTTCAATTCTATAGTAGATTATC CCATAAAAGCAGATGGCGATGACCCCTTACGGGGTG spacer length:
37 repeater length: 24

5908 838996 CTTTCAATTCTATAGTAGATTATC AAGAAAGTTGTTGACTATTTTATTAGTTATGGCAAAGAGT spacer
length: 40 repeater length: 24

5909 839060 CTTTCAATTCTATAGTAGATTATC CATAGAGAACACGATAAAATCCCCAGTTTGTAGTCGGGAAT spacer
length: 39 repeater length: 24

5910 839123 CTTTCAATTCTATAGTAGATTATC AAACAATCAACTACAATAGGAAGAGACAAAGAAGTTGAA spacer
length: 39 repeater length: 24

5911 839186 CTTTCAATTCTATAGTAGATTATC CCGTCATTGTTTGAATGTCTCCTATCTTAACGAGAACC spacer
length: 39 repeater length: 24

5912 839249 CTTTCAATTCTATAGTAGATTATC GAGATGCTAAAATAATGCCTAAATTAAAGTGTCTATTCTCA spacer
length: 41 repeater length: 24

5913 839314 CTTTCAATTCTATAGTAGATTATC TTGGTGAGGATGGTAGGGGTGATGATGGAGAACCGCC spacer length:
37 repeater length: 24

5914 839375 CTTTCAATTCTATAGTAGATTATC ACGTCGAAGCAAATGATGACAGACCTAAGCCACTTTCTGCATG spacer
length: 43 repeater length: 24

5915 839442 CTTTCAATTCTATAGTAGATTATC TTTGTGCCGTCTCTTAGTATCGCTCTTTTCACTTTCTAT spacer
length: 40 repeater length: 24

5916 839506 CTTTCAATTCTATAGTAGATTATC GCGATAGTAAAATTGTCCAATCATTAGAGGAATTAAAAGA spacer
length: 40 repeater length: 24

5917 839570 CTTTCAATTCTATAGTAGATTATC AGAAAGAGTTAGTGAGAGAGTACGGCGTGAGACCACCAAA spacer
length: 40 repeater length: 24

5918 839634 CTTTCAATTCTATAGTAGATTATC CTAATTCTTTTTCTATTATATCTGTATAAAATGTTTCGTT spacer
length: 40 repeater length: 24

5919 839698 CTTTCAATTCTATAGTAGATTATC CCCTACGGGGACGGGAAAGACACTGATGGGCTTGATGAT spacer
length: 39 repeater length: 24

5920 839761 CTTTCAATTCTATAGTAGATTATC CCGTATTACACACATATAGCAATATTCAATCTCATCAATATAT spacer
length: 43 repeater length: 24

5921 839828 CTTTCAATTCTATAGTAGATTATC ACACTCCTCATACTAGCTTTATTTAGCCACGATACTA spacer
length: 38 repeater length: 24

5922 839890 CTTTCAATTCTATAGTAGATTATC AATTAGGATATAGCTGGAGTCAGATAGCTATTTTTGTGTA spacer
length: 40 repeater length: 24

5923 839954 CTTTCAATTCTATAGTAGATTATC ATTGAAATACCATCGGCGGATCCATCCCGTTTAGGTAAGA spacer
length: 40 repeater length: 24

5924 840018 CTTTCAATTCTATAGTAGATTATC TCTAAAGAAATAAAACCGTTTACAATATTATTTATAGACTC spacer
length: 41 repeater length: 24

5925 840083 CTTTCAATTCTATAGTAGATTATC ACATTTGTACATAGTTAATCCCACGTTACATACCATTTTTT spacer
length: 41 repeater length: 24

5926 840148 CTTTCAATTCTATAGTAGATTATC ATGGCTTAAAGAGAATCATCCCGAGCTATTGAAGCCAAA spacer
length: 39 repeater length: 24

5927 840211 CTTTCAATTCTATAGTAGATTATC ATGGCTAGAGGGAAGAGGTGGATTCAAAGGCAATCAAACATAA spacer
length: 44 repeater length: 24

5928 840279 CTTTCAATTCTATAGTAGATTATC CTAATCTGTGTTCCAGTGGCTGCAGAATTACCTGCAGG spacer
length: 38 repeater length: 24

5929 840341 CTTTCAATTCTATAGTAGATTATC CTCCATAGTTTCCCATCTAGCATCTCTGCAGGTATTT spacer
length: 38 repeater length: 24

5930 840403 CTTTCAATTCTATAGTAGATTATC AAGGTTAGTTGCTGCAATAAAGGCAGTAATAAATACCGTGTA spacer
length: 42 repeater length: 24

5931 840469 CTTTCAATTCTATAGTAGATTATC ATGGAATTGAAAAGTATTTAAAAACCAATCCGTTAGTTGCTT spacer
length: 42 repeater length: 24

5932 840535 CTTTCAATTCTATAGTAGATTATC TGTAAGATTGTAAATATTGTTGTAACCTCTGATAGGGTT spacer
length: 39 repeater length: 24

5933 840598 CTTTCAATTCTATAGTAGATTATC AGATAACGAATATAAACTTACTGAGGATGCTGCAGGCAGC spacer
length: 40 repeater length: 24

5934 840662 CTTTCAATTCTATAGTAGATTATC AGAAACCCTTGCCCAATCTGCCAGATCCTCCAGAATTACCTA spacer
length: 42 repeater length: 24

5935 840728 CTTTCAATTCTATAGTAGATTATC AAGGTTATCTGGTCCTGTTTAACGCATAGGCTATAACTAAA spacer
length: 41 repeater length: 24

5936 840793 CTTTCAATTCTATAGTAGATTATC GTGGGTCTTTCCATTCTGCCTTAATTCACCTATATAGT spacer
length: 38 repeater length: 24

5937 840855 CTTTCAATTCTATAGTAGATTATC TTCGAATTATCACTACCAAACACGGGAAAGACAACATT spacer
length: 38 repeater length: 24

5938 840917 CTTTCAATTCTATAGTAGATTATC TTTTAATCACCAATACCTAAAGAACGATCCAACCTCTGAT spacer
length: 39 repeater length: 24

5939 840980 CTTTCAATTCTATAGTAGATTATC ACTTAGGAACAAAGGATACAGTAACGCGGTGTTTAG spacer length:
36 repeater length: 24

5940 841040 CTTTCAATTCTATAGTAGATTATC GCGAGAAAACGGGAAAGAAAATAAACGCTGACATTAA spacer length:
37 repeater length: 24

5941 841101 CTTTCAATTCTATAGTAGATTATC ATAATACTTCATATTTAATATACCACCCGCTAGCCCCTTG spacer
length: 40 repeater length: 24

5942 841165 CTTTCAATTCTATAGTAGATTATC ACTTGTTGCATAGCGGTAGCGAAGTTTTGCTCTGCCTGAG spacer
length: 40 repeater length: 24

5943 841229 CTTTCAATTCTATAGTAGATTATC AGCGGTGGCGTATGGAAGTGGAAATTTAAGTAGACATGTAAT spacer

length: 42 repeater length: 24
5944 841295 CTTTCAATTCTATAGTAGATTATC TGGAGTTGATGTCGTAGTAGAAGAGACTCTTGCGGCAAC spacer
length: 39 repeater length: 24
5945 841358 CTTTCAATTCTATAGTAGATTATC CCCGAAAGTGATAGTGAAGTACCGTTAGGGTTAGTAAA spacer
length: 39 repeater length: 24
5946 841421 CTTTCAATTCTATAGTAGATTATC ATTCATAGTCACCCTTATACTCCAATTCAAATACTTTA spacer
length: 38 repeater length: 24
5947 841483 CTTTCAATTCTATAGTAGATTATC GGGACTTTAGTCCAGAATTGCTTAAACGCGTCAACTACATG spacer
length: 41 repeater length: 24
5948 841548 CTTTCAATTCTATAGTAGATTATC CACATATAGCAATATTCAATCTCATTAATGTGCTAGCAAA spacer
length: 40 repeater length: 24
5949 841612 CTTTCAATTCTATAGTAGATTATC GGTGACACGTACAAAGAATGTGAATCTCTCATATTCAA spacer
length: 38 repeater length: 24
5950 841674 CTTTCAATTCTATAGTAGATTATC ATGTTAATAATCTTATCTGGACCACCAAAAGCAGGCAAA spacer
length: 39 repeater length: 24
5951 841737 CTTTCAATTCTATAGTAGATTATC ATGAGGTCACCTAAGGGATTGAGGGAAAGGTTTAGGTTTA spacer
length: 39 repeater length: 24
5952 841800 CTTTCAATTCTATAGTAGATTATC AATCACTGGAAGCGGATCAACGTTATATCTTTATTTGA spacer
length: 38 repeater length: 24
5953 841862 CTTTCAATTCTATAGTAGATTATC GATCCATAAATTGTGCTATCTAAATTAGGGTACTCCAATA spacer
length: 40 repeater length: 24
5954 841926 CTTTCAATTCTATAGTAGATTATC TTTAAATATATCCTCATTCTAGGGTTGAAATAAGGTAC spacer
length: 39 repeater length: 24
5955 841989 CTTTCAATTCTATAGTAGATTATC GTGTCAGTATATCGTACAACGTCAATAACAGTTCAGCA spacer
length: 38 repeater length: 24
5956 842051 CTTTCAATTCTATAGTAGATTATC AGGAATGAGGTAAAAGAAGAGCAATTAATGAACCTGTTTA spacer
length: 40 repeater length: 24
5957 842115 CTTTCAATTCTATAGTAGATTATC GTTTCTTTTTTATGCTTATGCCTCCTGGCCATGAGAAATT spacer
length: 39 repeater length: 24
5958 842178 CTTTCAATTCTATAGTAGATTATC AATAATGGCATCTTTTGGTATGTATAACATACCTCTGAAAA spacer
length: 41 repeater length: 24
5959 842243 CTTTCAATTCTATAGTAGATTATC ATGAATACCAGCATAAGTGCGCCAGTTGTCGCGTTCAC spacer
length: 38 repeater length: 24
5960 842305 CTTTCAATTCTATAGTAGATTATC ATGAACTAAAACAGCACGCGGAAGCCCTGGCCTTAGGGCT spacer
length: 40 repeater length: 24
5961 842369 CTTTCAATTCTATAGTAGATTATC ATGATGAATTCACGAAAGTGCTAGATGCAGACAATATAAGAAT spacer
length: 43 repeater length: 24
5962 842436 CTTTCAATTCTATAGTAGATTATC TTAGCAGATTCACGTTCTGGTCTTGAATTTTTACTCAT spacer
length: 38 repeater length: 24
5963 842498 CTTTCAATTCTATAGTAGATTATC ATAACGCAGAAGACGTAATGAGGATGTTACAAGGGGTGATT spacer
length: 41 repeater length: 24
5964 842563 CTTTCAATTCTATAGTAGATTATC ATCAAGTCCGAGTTTAAAGACAAACGGATTAGGCGGGT spacer
length: 39 repeater length: 24
5965 842626 CTTTCAATTCTATAGTAGATTATC AACGTTAAATCGTCTATGACTTGTTCAAATATAAAGTC spacer
length: 38 repeater length: 24
5966 842688 CTTTCAATTCTATAGTAGATTATC GATTATATCAGCAAAAATTACACGGTATCTGGGATCCCA spacer
length: 39 repeater length: 24
5967 842751 CTTTCAATTCTATAGTAGATTATC AAAGATTAATCCTTACACCGGTAGGGAAGTGAATTCTT spacer
length: 39 repeater length: 24
5968 842814 CTTTCAATTCTATAGTAGATTATC ATTTTGACATGTAGATATGTTCCGTACTTTTTACTACCCG spacer
length: 40 repeater length: 24
5969 842878 CTTTCAATTCTATAGTAGATTATC GATAAATATTCACCGCCACCGCTCCGCCACCACCACCT spacer
length: 39 repeater length: 24
5970 842941 CTTTCAATTCTATAGTAGATTATC GCTACTTACATTTAAAGAGAATACATTGAAGATGGAAA spacer
length: 39 repeater length: 24
5971 843004 CTTTCAATTCTATAGTAGATTATC CTTTTGTCTC
5972
5973
5974 crispr 2
5975 861533 GATAATCTACTATAGAATTGAAAG GTAGTTCCAGAAAGCGTAAAAATGAAGCTACTAGACGAA spacer
length: 39 repeater length: 24
5976 861596 GATAATCTACTATAGAATTGAAAG TTGAGTTATTGCGTAATATCCTTGTCGCTTGTGTGTGT spacer
length: 39 repeater length: 24
5977 861659 GATAATCTACTATAGAATTGAAAG TTTACGACAAAGTTACCTAGACTTTGAACTGCATTTGTTAAT spacer
length: 42 repeater length: 24
5978 861725 GATAATCTACTATAGAATTGAAAG ACTTTTCTGATATTCTGAGAAATAATGGAATGTCCCACAT spacer
length: 40 repeater length: 24
5979 861789 GATAATCTACTATAGAATTGAAAG TTTTGTGCTGCACTGTTGGAATTTGAAATACATTATTATTT spacer
length: 41 repeater length: 24
5980 861854 GATAATCTACTATAGAATTGAAAG TGTAACTTTACAGTAAGAAGCTGGATTAGGATTTCTTCTACAT spacer
length: 43 repeater length: 24

5981 861921 GATAATCTACTATAGAAATTGAAAG AACCAGGGCCTCTCTCATTTAGAAATGACGGATGCTTCTTT spacer
length: 39 repeater length: 24

5982 861984 GATAATCTACTATAGAAATTGAAAG TGTATCGTGAAGGTCAGGATTATTTTCGTTAGGCTCACAT spacer
length: 39 repeater length: 24

5983 862047 GATAATCTACTATAGAAATTGAAAG CCTCATCTTCATCAATATTATATTCTTCCTTAGCTGCATA spacer
length: 40 repeater length: 24

5984 862111 GATAATCTACTATAGAAATTGAAAG CTTGATTCTTTCTTCTCCCTTTAGATTATCTAGTTTT spacer length:
37 repeater length: 24

5985 862172 GATAATCTACTATAGAAATTGAAAG CTGACCCAACCCTAAAATAACGTATAAGTTCGCTCTCAT spacer
length: 39 repeater length: 24

5986 862235 GATAATCTACTATAGAAATTGAAAG AGCCATCCAGGTCTGAAAATGACTAAGGGGATTATTTG spacer
length: 38 repeater length: 24

5987 862297 GATAATCTACTATAGAAATTGAAAG TCTTTTCATTTCATTCTGCTTTCCCTGATTTTATAGTAG spacer
length: 39 repeater length: 24

5988 862360 GATAATCTACTATAGAAATTGAAAG AGTATGTCCCTATCAATTACATCTGGTATATCCTCAACCT spacer
length: 40 repeater length: 24

5989 862424 GATAATCTACTATAGAAATTGAAAG ATATCTCTCTATGAAATTGTACTACTACATCTTCCTCACT spacer
length: 40 repeater length: 24

5990 862488 GATAATCTACTATAGAAATTGAAAG TCCCATCCCCCAGCTAACTCGATATTACCATCATCTAA spacer
length: 39 repeater length: 24

5991 862551 GATAATCTACTATAGAAATTGAAAG CTTCTCCAAAAGAAGCACCCTTGGTATTATTGTACGAT spacer
length: 39 repeater length: 24

5992 862614 GATAATCTACTATAGAAATTGAAAG AGGGTACTACCAGCGTAAATTCCGCCTACAATTGATATT spacer
length: 39 repeater length: 24

5993 862677 GATAATCTACTATAGAAATTGAAAG TTCTGTTCTGTGTTGTTCTGTTCTATACTCTGTTCTCTG spacer
length: 39 repeater length: 24

5994 862740 GATAATCTACTATAGAAATTGAAAG ATTAAACCAAATGTGCCTTGAGCCAACTTTATTACAAT spacer
length: 39 repeater length: 24

5995 862803 GATAATCTACTATAGAAATTGAAAG TACACCCCTCGCGGGGTCATCGCCATCCGCTTTTA spacer length:
36 repeater length: 24

5996 862863 GATAATCTACTATAGAAATTGAAAG TATTCTGTCTCTCAAGATTCAAGATTTGCAAAACACTTA spacer
length: 39 repeater length: 24

5997 862926 GATAATCTACTATAGAAATTGAAAG ATAACAATTCCCTAGCTCTTCATCCTATATACCGTCTGTT spacer
length: 39 repeater length: 24

5998 862989 GATAATCTACTATAGAAATTGAAAG ATAAATGCTTTTGTGAAAATTTCTTGAAAATTCGCTACATCG spacer
length: 44 repeater length: 24

5999 863057 GATAATCTACTATAGAAATTGAAAG TACAATTTTCGCTAGTTGTATCTACGTTGTTAAACACTAC spacer
length: 39 repeater length: 24

6000 863120 GATAATCTACTATAGAAATTGAAAG CATTCTTTCCCGCCTTCTCATCTTCTATCTTTTTCTTACTG spacer
length: 42 repeater length: 24

6001 863186 GATAATCTACTATAGAAATTGAAAG ATTTTCGCTCTCTAACTCTATTGTTCCAGTTGAGGAAACA spacer
length: 39 repeater length: 24

6002 863249 GATAATCTACTATAGAAATTGAAAG CTTTTAGGCTATAAGACTCATGCAAATATACAGAGAAGA spacer
length: 39 repeater length: 24

6003 863312 GATAATCTACTATAGAAATTGAAAG AACTTATTATGTATTGTTACCATGTGTACATTTCTAGCG spacer
length: 39 repeater length: 24

6004 863375 GATAATCTACTATAGAAATTGAAAG ACTTTCGTTTAGATTTACCTAGGGAGATTCAAGAAAAGT spacer
length: 39 repeater length: 24

6005 863438 GATAATCTACTATAGAAATTGAAAG TATCGGTGCCTTAGCGTCAAACGTTGAAACAATATTAGC spacer
length: 39 repeater length: 24

6006 863501 GATAATCTACTATAGAAATTGAAAG TTTTCACAGAATCCCAGCAGTTGGCAATCGCAGCAGCT spacer
length: 39 repeater length: 24

6007 863564 GATAATCTACTATAGAAATTGAAAG AATATCTGGATCATATATGCCTTAAGTTTTGGATTATATCT spacer
length: 41 repeater length: 24

6008 863629 GATAATCTACTATAGAAATTGAAAG ATAGAATGAATATTGCACCGTCTTTACAACATTACCAA spacer
length: 39 repeater length: 24

6009 863692 GATAATCTACTATAGAAATTGAAAG TTAACACTTAACTTGAGTTATCATCATCAATTGATAAA spacer
length: 39 repeater length: 24

6010 863755 GATAATCTACTATAGAAATTGAAAG CCTATACTAACAATTATTGACAACGACACATTACAAGAAGA spacer
length: 41 repeater length: 24

6011 863820 GATAATCTACTATAGAAATTGAAAG TTGAACGCTTGCCAATTTGCGATACCACTTGCTTGAGTTCCA spacer
length: 42 repeater length: 24

6012 863886 GATAATCTACTATAGAAATTGAAAG ACTCTCAATAGAAAACCTCCCTACCCTGATTTGTTTCATCA spacer
length: 39 repeater length: 24

6013 863949 GATAATCTACTATAGAAATTGAAAG TGCACATGTCTCAAGACTATTGTACTTTTGCTTGCAAAGAT spacer
length: 41 repeater length: 24

6014 864014 GATAATCTACTATAGAAATTGAAAG TCTAAGATTTCCCTATAGTATCTTGACGTTCTTCTAATTC spacer
length: 41 repeater length: 24

6015 864079 GATAATCTACTATAGAAATTGAAAG TTTTTCACCTTCCTCCAGCTTGGCTTCTAATTCTCTGACAC spacer
length: 40 repeater length: 24

6016 864143 GATAATCTACTATAGAAATTGAAAG ATTTAGTTACTGTAAACTCCCCAGTTTACGAAATAATTAAT spacer

length: 41 repeater length: 24
6017 864208 GATAATCTACTATAGAAATTGAAAG TACTGCCTGGAAAATATATATGACATTCAAGAAAACATT spacer
length: 39 repeater length: 24
6018 864271 GATAATCTACTATAGAAATTGAAAG ACAAAAACATGAGCCAAATTCCACTCGATTTGGATATA spacer
length: 38 repeater length: 24
6019 864333 GATAATCTACTATAGAAATTGAAAG ATTTCAATAAACTTAAAAGTTCTTTATCCAGAATCGATAA spacer
length: 40 repeater length: 24
6020 864397 GATAATCTACTATAGAAATTGAAAG ATGACATATTTACAGCACTAAAAGAGGCATTATCAGAGTTAA spacer
length: 42 repeater length: 24
6021 864463 GATAATCTACTATAGAAATTGAAAG TAGGAACACTAATAGGTGAGTAAGTATCGAACCTACAT spacer
length: 39 repeater length: 24
6022 864526 GATAATCTACTATAGAAATTGAAAG TCGTAAGAACGATCCTAAAGTTTGTATCGTAAATCCA spacer
length: 38 repeater length: 24
6023 864588 GATAATCTACTATAGAAATTGAAAG CACTTCCTCAATCTCCTTTACATTATAAGTGACCTTG spacer length:
37 repeater length: 24
6024 864649 GATAATCTACTATAGAAATTGAAAG TCATGGGCTTATCACCTCATTCTTCCTCCTCTTCGTCTT spacer
length: 39 repeater length: 24
6025 864712 GATAATCTACTATAGAAATTGAAAG ACAATTATTGTGCCGGGTTTAGCATATTCTTCAACTAT spacer
length: 38 repeater length: 24
6026 864774 GATAATCTACTATAGAAATTGAAAG ACAAGTGTATTGATATCGGTGCATATGTTGGCGATACTGC spacer
length: 41 repeater length: 24
6027 864839 GATAATCTACTATAGAAATTGAAAG CAAACAGCTGTTCAACAACAAACAGTAACGCAACAAGCCTCGT spacer
length: 43 repeater length: 24
6028 864906 GATAATCTACTATAGAAATTGAAAG ATCCCAATAGCTCGAAAAACCCCTCACTTTTCGTAAACTT spacer
length: 40 repeater length: 24
6029 864970 GATAATCTACTATAGAAATTGAAAG TTTTAATATAGTCCTCGACCATAAGTAGAATCTCAGCAAT spacer
length: 40 repeater length: 24
6030 865034 GATAATCTACTATAGAAATTGAAAG CAATATAAAATAATAATAAAATTGAAAGGAAGTAAGTGCG spacer
length: 40 repeater length: 24
6031 865098 GATAATCTACTATAGAAATTGAAAG TTTCTCTCTATGTTCATTTGTTCTTATAAATGTTTCTCTCT spacer
length: 41 repeater length: 24
6032 865163 GATAATCTACTATAGAAATTGAAAG ACTAGCTCTAGCTCTGCTGGAGGATTTAGTGGCTCAACGCTAT spacer
length: 43 repeater length: 24
6033 865230 GATAATCTACTATAGAAATTGAAAG TAAATTCCTAAATTTTGCAATGCTTCTTGCAATAACAAA spacer
length: 40 repeater length: 24
6034 865294 GATAATCTACTATAGAAATTGAAAG CATGAACATTAATGTAGTTGAGGCCGACCTAACATACAAG spacer
length: 40 repeater length: 24
6035 865358 GATAATCTACTATAGAAATTGAAAG AAGTCCACC
6036
6037
6038 GCA_000022465.1_ASM2246v1_genomic.fna (PilerCR):
6039 START REPEAT
SPACER
6040 crispr 1
6041 698899 CTTTCAATTCTATAGTAGATTAGC CAATTGCGTCAATGAGTTTATTTAAATCGTCAGCAATTAA spacer
length: 40 repeater length: 24
6042 698963 CTTTCAATTCTATAGTAGATTAGC AAAATAACAAATTTCAAAGAAGGTAAAGTGAAAAGTGAC spacer
length: 39 repeater length: 24
6043 699026 CTTTCAATTCTATAGTAGATTAGC TATGAGTTGATAAGATTTTAAACTAAAACACTACAATAAT spacer
length: 40 repeater length: 24
6044 699090 CTTTCAATTCTATAGTAGATTAGC CGAAAATGAAATTGAATATCAACACTTAAATCCAGAGGATG spacer
length: 41 repeater length: 24
6045 699155 CTTTCAATTCTATAGTAGATTAGC GTTGTTTTTAAATTCAAAGATAATGAACTTGTAGAAGTTAG spacer
length: 40 repeater length: 24
6046 699219 CTTTCAATTCTATAGTAGATTAGC CAAAACGAGTTGGCAATAAAACCATTATTAAGGTCGTTCC spacer
length: 40 repeater length: 24
6047 699283 CTTTCAATTCTATAGTAGATTAGC AAATGAAGAGGATGTGGGTAGTTTTTGCAGAAAGACCTTGA spacer
length: 40 repeater length: 24
6048 699347 CTTTCAATTCTATAGTAGATTAGC AAAATTGATTGTATTGATAATTATTGTGAAGATGTTGTAGAA spacer
length: 42 repeater length: 24
6049 699413 CTTTCAATTCTATAGTAGATTAGC AGGTAAGAACACTTTCACTGAAATCTTAGCAGGAATTGTTGA spacer
length: 42 repeater length: 24
6050 699479 CTTTCAATTCTATAGTAGATTAGC TGTAAGAATGTTGATGATGACTTTGGTATACCAGTTGACA spacer
length: 41 repeater length: 24
6051 699544 CTTTCAATTCTATAGTAGATTAGC TTAGTAATCGACATAACGAATACAACGGTAGGCAATATT spacer
length: 39 repeater length: 24
6052 699607 CTTTCAATTCTATAGTAGATTAGC AATATAGAGACTGGATTCACTATAATACCAACAGAATATAA spacer
length: 41 repeater length: 24
6053 699672 CTTTCAATTCTATAGTAGATTAGC GTAGGAGACATAATTGCTGGTGCCGGAGGTAAAGCATTAGC spacer
length: 41 repeater length: 24
6054 699737 CTTTCAATTCTATAGTAGATTAGC GAATAGTCAAGATCTAATAGTTCTAATATATCCCAACATA spacer

length: 40 repeater length: 24
6055 699801 CTTTCAATTCTATAGTAGATTAGC TTTCTATTTTCACAGACCAATTTTGATGCCGTTCTCCTT spacer
length: 38 repeater length: 24
6056 699863 CTTTCAATTCTATAGTAGATTAGC CTAAAAACAAGATACAAGTGTTAAGTTATGTTGACATTAGA spacer
length: 41 repeater length: 24
6057 699928 CTTTCAATTCTATAGTAGATTAGC CTACTTCCTTCACTTCCATCACTATTATAACATATGTACT spacer
length: 41 repeater length: 24
6058 699993 CTTTCAATTCTATAGTAGATTAGC TTACAGGATTTGTTGAAGTGTTAGCCAATGGACACAGTGCATT spacer
length: 43 repeater length: 24
6059 700060 CTTTCAATTCTATAGTAGATTAGC TAGAGCATGCATGAGAGAGACATTAAGAAAGAAATAACATGTT spacer
length: 43 repeater length: 24
6060 700127 CTTTCAATTCTATAGTAGATTAGC AAGTATATTTAGTGAATGGGTCAAATTATGTTAAATTACTAAG spacer
length: 43 repeater length: 24
6061 700194 CTTTCAATTCTATAGTAGATTAGC TAAATAAACATGCAAGTTAAAGATGAATTTGCTAATATTTT spacer
length: 41 repeater length: 24
6062 700259 CTTTCAATTCTATAGTAGATTAGC GGAGGAAAAGTACCGTCGTCTACTAAAACGAATCTATCAACATA spacer
length: 44 repeater length: 24
6063 700327 CTTTCAATTCTATAGTAGATTAGC CAAGATTTCTTGTGATTTTATTTCTTCTATAGACAGATATTAT spacer
length: 43 repeater length: 24
6064 700394 CTTTCAATTCTATAGTAGATTAGC AACAGACAAACTCATATACATAATATTTTGTATATGACAAAT spacer
length: 42 repeater length: 24
6065 700460 CTTTCAATTCTATAGTAGATTAGC GAGCGAATACGGTATAACTGGTCCTAACAGAGCCATTTACCA spacer
length: 42 repeater length: 24
6066 700526 CTTTCAATTCTATAGTAGATTAGC CTATTAGCTTTAAATTTCTTCTCTTGACCTTCAACAACCTT spacer
length: 43 repeater length: 24
6067 700593 CTTTCAATTCTATAGTAGATTAGC TTGAGATATGTAAAAATGAACAAATTGCCCGTGTTATTTATAAAGA
spacer length: 46 repeater length: 24
6068 700663 CTTTCAATTCTATAGTAGATTAGC AAATGTAATGCCATCTGTTGATAGTTTAGATGACATAATA spacer
length: 40 repeater length: 24
6069 700727 CTTTCAATTCTATAGTAGATTAGC TTGAGGAAAG
6070
6071
6072 crispr 2
6073 706738 GCTAATCTACTATAGAATTGAAAG GCAAACAATTGTAAGTGCATAACGGGTTTGGTGTCTGTT spacer
length: 39 repeater length: 24
6074 706801 GCTAATCTACTATAGAATTGAAAG CAATTATTATGAAAATTTCTTTAAGCGAAACTGGAAAGC spacer
length: 38 repeater length: 24
6075 706863 GCTAATCTACTATAGAATTGAAAG ACTTTCTGTACTCTGTTATTTATAATCTTATAACAAACGAT spacer
length: 41 repeater length: 24
6076 706928 GCTAATCTACTATAGAATTGAAAG AACGAGGTCGTGGATAGAGCCAAACGAGGTCGTGCTGAGG spacer
length: 40 repeater length: 24
6077 706992 GCTAATCTACTATAGAATTGAAAG TAAACGATGTTGCAACTAGGTACGCCAATAATGTTAAAT spacer
length: 40 repeater length: 24
6078 707056 GCTAATCTACTATAGAATTGAAAG ATACTTTTTCTAGACGTAAAACAACTCGAGACATTAATTCAA spacer
length: 42 repeater length: 24
6079 707122 GCTAATCTACTATAGAATTGAAAG AGAACTTTTGCAATGCCAGTCTTATGACTTCACTTCTGTA spacer
length: 40 repeater length: 24
6080 707186 GCTAATCTACTATAGAATTGAAAG TCATTATTGATTGTTATATACAATTTATTATTTGATACATA spacer
length: 41 repeater length: 24
6081 707251 GCTAATCTACTATAGAATTGAAAG AGTAGTACGTATAGCGTTGGGAAGAAGCTGAAGAACGA spacer
length: 38 repeater length: 24
6082 707313 GCTAATCTACTATAGAATTGAAAG ACCACCTATCCATATCGTAAACCCAATCGAAGCAGGAATAGGT spacer
length: 43 repeater length: 24
6083 707380 GCTAATCTACTATAGAATTGAAAG ACAGTTACAGAACACACTTATCCTTACCCAAACACAGCTAG spacer
length: 41 repeater length: 24
6084 707445 GCTAATCTACTATAGAATTGAAAG AACGTGCTAGAAAATTACTGAAGACTTGCCCTTACAAAACA spacer
length: 41 repeater length: 24
6085 707510 GCTAATCTACTATAGAATTGAAAG GACTGTATTTCTTCCCATTCAGATTATAGATGTCTTGT spacer
length: 39 repeater length: 24
6086 707573 GCTAATCTACTATAGAATTGAAAG AGTAGTCCCTCATCTCCAAGCTCACCCGGTCTAGGTGG spacer
length: 38 repeater length: 24
6087 707635 GCTAATCTACTATAGAATTGAAAG AAGGCAAAAGAATACCTAAGACAGTTAAAAGAAGGAAA spacer
length: 38 repeater length: 24
6088 707697 GCTAATCTACTATAGAATTGAAAG TTTATATCCACTTTTGCCATTTTGCCAATCTTTATTGGCT spacer
length: 40 repeater length: 24
6089 707761 GCTAATCTACTATAGAATTGAAAG TTACATATCATGACGTGGTTTTCTTTTGCCTCGACTATT spacer
length: 39 repeater length: 24
6090 707824 GCTAATCTACTATAGAATTGAAAG AACAACTCTGATTTCTAAATCGTTCCTCAAACCTCTGATAT spacer
length: 41 repeater length: 24
6091 707889 GCTAATCTACTATAGAATTGAAAG ATTTTCATATTTTTATTTACATTTTTTGTCTCTCCAGCTATATA spacer
length: 44 repeater length: 24

6092 707957 GCTAATCTACTATAGAAATTGAAAG GTAGTATCCTTTTCCTTCTAATCGTAGCAACTACACTGGCTC spacer
length: 41 repeater length: 24
6093 708022 GCTAATCTACTATAGAAATTGAAAG TTTTCTCAAGTGTCTTTTATTCTTTTATTTCATAATTATTTTG spacer
length: 42 repeater length: 24
6094 708088 GCTAATCTACTATAGAAATTGAAAG TTTGCCATGCTAAAAGTACAGGTGTCTCAACATATTG spacer length:
37 repeater length: 24
6095 708149 GCTAATCTACTATAGAAATTGAAAG ACTGTCCAAAAAGGTATTCAAAAAAGTGATGTAACAATTTA spacer
length: 41 repeater length: 24
6096 708214 GCTAATCTACTATAGAAATTGAAAG ACATATGTTATTAATATTGTATCACTTATAGCTCTAAA spacer
length: 38 repeater length: 24
6097 708276 GCTAATCTACTATAGAAATTGAAAG CTTAGGTATGCCACTTTTAAGATAGCATTAGCTTTAGTGA spacer
length: 40 repeater length: 24
6098 708340 GCTAATCTACTATAGAAATTGAAAG TCTTCAGTTTACCGATATCGGTCAGAGTTTTTATTAACGCCT spacer
length: 42 repeater length: 24
6099 708406 GCTAATCTACTATAGAAATTGAAAG GAAATCAGCC

6100

6101

6102 GCA_000022545.1_ASM2254v1_genomic.fna (PilerCR):

6103 START REPEAT

SPACER

6104 crispr 1

6105 1328781 GTTCCAATAAGACTTTAAAAGAATTGAAAG TTACGTAGTTTTTGAGCCGTAGCAACTCTGTCCTTT spacer
length: 36 repeater length: 30

6106 1328847 GTTCCAATAAGACTTTAAAAGAATTGAAAG GTTTGTTTGCTTTCATCTTCGTAAAACTTATGTA spacer
length: 35 repeater length: 30

6107 1328912 GTTCCAATAAGACTTTAAAAGAATTGAAAG ATTATAACGAAAAAGTATACAGACGTCTTTGTCGAGC spacer
length: 37 repeater length: 30

6108 1328979 GTTCCAATAAGACTTTAAAAGAATTGAAAG TTTTCGAACTTCTTCTTATACAGTACCTGCCACCGC spacer
length: 37 repeater length: 30

6109 1329046 GTTCCAATAAGACTTTAAAAGAATTGAAAG ACAAATGAAACAACCTTCACTTGAAAAGATATTACT spacer
length: 36 repeater length: 30

6110 1329112 GTTCCAATAAGACTTTAAAAGAATTGAAAG TGGTAGTAATACAAGTACTTTTTATACGTTAATGCT spacer
length: 36 repeater length: 30

6111 1329178 GTTCCAATAAGACTTTAAAAGAATTGAAAG TTAATGAACCTGATAAGTATTCGTCTAATACGTGTGTAATAG
spacer length: 43 repeater length: 30

6112 1329251 GTTCCAATAAGACTTTAAAAGAATTGAAAG ATGTACATCCAACCTCCCCTGACACATCCTCATACCT spacer
length: 36 repeater length: 30

6113 1329317 GTTCCAATAAGACTTTAAAAGAATTGAAAG ATGCTTTCTCTTTGTGTCGGTGGTAGTGAAGTAATC spacer
length: 36 repeater length: 30

6114 1329383 GTTCCAATAAGACTTTAAAAGAATTGAAAG TTATAAAGGGAAATGCGTTAAACATTAATGCCCTC spacer
length: 36 repeater length: 30

6115 1329449 GTTCCAATAAGACTTTAAAAGAATTGAAAG CATGTTACTATCACTCAACGTAAACCAGAGTAATAC spacer
length: 36 repeater length: 30

6116 1329515 GTTCCAATAAGACTTTAAAAGAATTGAAAG CCGTGTATGCTAAAATCTCTTTCATAACTTTTTTGAA spacer
length: 37 repeater length: 30

6117 1329582 GTTCCAATAAGACTTTAAAAGAATTGAAAG AGAGGTCATTATAGAATCCCCAAGGAGGGAGTGGAGA spacer
length: 37 repeater length: 30

6118 1329649 GTTCCAATAAGACTTTAAAAGAATTGAAAG GAAAGTCGTAGAGTGGAGGAATGGAAATGGCGCGGATG spacer
length: 38 repeater length: 30

6119 1329717 GTTCCAATAAGACTTTAAAAGAATTGAAAG CTGTTCTTGAGGTATGCTTCAAACCTCTTCAAGTGTTA spacer
length: 37 repeater length: 30

6120 1329784 GTTCCAATAAGACTTTAAAAGAATTGAAAG TCAAATCAGAGCACTAGGGTGACAAGAAAAATAGT spacer
length: 36 repeater length: 30

6121 1329850 GTTCCAATAAGACTTTAAAAGAATTGAAAG CAAAAACCTCTTTTTGGTTTTCTCCTCCTTATCATCA spacer
length: 37 repeater length: 30

6122 1329917 GTTCCAATAAGACTTTAAAAGAATTGAAAG TCTTAATTGCTCTTTGTTCTGCTTCTACCATCTTTTC spacer
length: 37 repeater length: 30

6123 1329984 GTTCCAATAAGACTTTAAAAGAATTGAAAG TGGGGTCTCCCAATACCACCATGCCAGCGGTGTGTA spacer
length: 36 repeater length: 30

6124 1330050 GTTCCAATAAGACTTTAAAAGAATTGAAAG ACAAGTCCTACAACCTGGTATGTTGTTCCAAATTGTC spacer
length: 36 repeater length: 30

6125 1330116 GTTCCAATAAGACTTTAAAAGAATTGAAAG CTATTATACTACGCAATAGACTTCCTAGGCAGGGA spacer
length: 35 repeater length: 30

6126 1330181 GTTCCAATAAGACTTTAAAAGAATTGAAAG CAGGGTGAGGAATGATATCGATTTAGAGGCAGGCTTG spacer
length: 37 repeater length: 30

6127 1330248 GTTCCAATAAGACTTTAAAAGAATTGAAAG GTCGACCGCG

6128

6129

6130 GCA_000023945.1_ASM2394v1_genomic.fna (PilerCR):

6131 START REPEAT

SPACER

6132	crispr 1	
6133	1415739 GCTTCAACCCACGAGGGTCCGTCTGAAAC	CAGTCGAGCAGGCGCTCGGCCCGGTCTGAATCTGGA spacer
	length: 37 repeater length: 30	
6134	1415806 GCTTCAACCCACGAGGGTCCGTCTGAAAC	GAGTACAGTAACGACGTCTCAGGGTTGAATACTGTCC spacer
	length: 37 repeater length: 30	
6135	1415873 GCTTCAACCCACGAGGGTCCGTCTGAAAC	GCCCCGACCCCTGGGGGAGCAATCACAATTGCCA spacer
	length: 34 repeater length: 30	
6136	1415937 GCTTCAACCCACGAGGGTCCGTCTGAAAC	CCTTTTCGCCAACCGGACGCCGGCCCTGAAAATCGG spacer
	length: 36 repeater length: 30	
6137	1416003 GCTTCAACCCACGAGGGTCCGTCTGAAAC	GCGACCATGCCGCCGAACATCACCGTCGACAGGA spacer
	length: 34 repeater length: 30	
6138	1416067 GCTTCAACCCACGAGGGTCCGTCTGAAAC	GCGCTCGACGCGATCAAGAACGGCGCGACTGAGAGC spacer
	length: 36 repeater length: 30	
6139	1416133 GCTTCAACCCACGAGGGTCCGTCTGAAAC	GAATACTCAAACGACGTTTCAGGGCTGAATACCATCC spacer
	length: 37 repeater length: 30	
6140	1416200 GCTTCAACCCACGAGGGTCCGTCTGAAAC	TGTCGTCGGTCCGGGATCGACCCTCGATGACTGCAA spacer
	length: 36 repeater length: 30	
6141	1416266 GCTTCAACCCACGAGGGTCCGTCTGAAAC	AATACTCAAACGACGTTTCAGGGCTGAATACCATCC spacer
	length: 36 repeater length: 30	
6142	1416332 GCTTCAACCCACGAGGGTCCGTCTGAAAC	GGTGATGACGCTATTACTCATCTCCCTAAACGCGAT spacer
	length: 36 repeater length: 30	
6143	1416398 GCTTCAACCCACGAGGGTCCGTCTGAAAC	TGGTCGCGCTGTCTGGCCCCGTCGATCGCCGTGATCGT spacer
	length: 37 repeater length: 30	
6144	1416465 GCTTCAACCCACGAGGGTCCGTCTGAAAC	TGGGCATGATCCAGGCTTTCGACTTCCACGTCCGG spacer
	length: 35 repeater length: 30	
6145	1416530 GCTTCAACCCACGAGGGTCCGTCTGAAAC	CTGCCTCACGTTGCTATCCACGAAACCCCAGTCCT spacer
	length: 36 repeater length: 30	
6146	1416596 GCTTCAACCCACGAGGGTCCGTCTGAAAC	CTGCCTCACGTTGCTATCCACGAAACCCCAGTCCT spacer
	length: 36 repeater length: 30	
6147	1416662 GCTTCAACCCACGAGGGTCCGTCTGAAAC	CCGAAGCGGGCCTGGGTGATCGCCAGAGCAGCCAG spacer
	length: 35 repeater length: 30	
6148	1416727 GCTTCAACCCACGAGGGTCCGTCTGAAAC	GATCGCATCACCTTCATCGGGGAGCGTGCCCCGCTC spacer
	length: 36 repeater length: 30	
6149	1416793 GCTTCAACCCACGAGGGTCCGTCTGAAAC	CAGTCAGGTCGGTGTGGTGAACGTCGAACTCACCG spacer
	length: 35 repeater length: 30	
6150	1416858 GCTTCAACCCACGAGGGTCCGTCTGAAAC	CCTGTTTTTCACAGACGGAGTTCTGGGTTCGAATCCA spacer
	length: 36 repeater length: 30	
6151	1416924 GCTTCAACCCACGAGGGTCCGTCTGAAAC	GCCGAGTTCTATGCTCGATGGCCCCGCGATTACGCC spacer
	length: 36 repeater length: 30	
6152	1416990 GCTTCAACCCACGAGGGTCCGTCTGAAAC	CGGCTCGGTGACTGTCTTGATGCCGAGATCCTCGTC spacer
	length: 36 repeater length: 30	
6153	1417056 GCTTCAACCCACGAGGGTCCGTCTGAAAC	GGCGGCCATC
6154		
6155		
6156	crispr 2	
6157	1417185 GCTTCAACCCACGAGGGTCCGTCTGAAAC	CCGACGTCGGCTTTGCCGAAGCCCTCTCCGCTG spacer
	length: 33 repeater length: 30	
6158	1417248 GCTTCAACCCACGAGGGTCCGTCTGAAAC	CCGGGTGGAGGTCCCTTGCCGGTGTGCCCACGACC spacer
	length: 35 repeater length: 30	
6159	1417313 GCTTCAACCCACGAGGGTCCGTCTGAAAC	CCAGCATGGAGGCCGGCCCGTCGAACTACCCGAC spacer
	length: 34 repeater length: 30	
6160	1417377 GCTTCAACCCACGAGGGTCCGTCTGAAAC	CAGCCAGTCACGTCGCGCTTACAGGTATCGCAATA spacer
	length: 35 repeater length: 30	
6161	1417442 GCTTCAACCCACGAGGGTCCGTCTGAAAC	TGGAACGTCAACGTCTTCGGTCCAGGTCACAGAGTCG spacer
	length: 37 repeater length: 30	
6162	1417509 GCTTCAACCCACGAGGGTCCGTCTGAAAC	CGGGCAAGAAGACTCGGTAGCCGTCGCCCTCGGCCTC spacer
	length: 37 repeater length: 30	
6163	1417576 GCTTCAACCCACGAGGGTCCGTCTGAAAC	TAGTCCGCAAGTTCAGCATTGCGAGTCGAGCATC spacer
	length: 36 repeater length: 30	
6164	1417642 GCTTCAACCCACGAGGGTCCGTCTGAAAC	GATTCGGATGTCTTTATGCCCTCGATCAAAACCAA spacer
	length: 35 repeater length: 30	
6165	1417707 GCTTCAACCCACGAGGGTCCGTCTGAAAC	TCGACGAGCTCGAGGAGAAGGTCGACCAGGTCCGCGA spacer
	length: 37 repeater length: 30	
6166	1417774 GCTTCAACCCACGAGGGTCCGTCTGAAAC	GGCTCGACGACGCATGACGCACGCACTGATCGCCGC spacer
	length: 36 repeater length: 30	
6167	1417840 GCTTCAACCCACGAGGGTCCGTCTGAAAC	GAGACGACTTGCGGACCGTCGTCGGTCGGTGCCTC spacer
	length: 35 repeater length: 30	
6168	1417905 GCTTCAACCCACGAGGGTCCGTCTGAAAC	ATACCGGGATCGGGATCGACCCAGATCCGCCGCTT spacer
	length: 35 repeater length: 30	
6169	1417970 GCTTCAACCCACGAGGGTCCGTCTGAAAC	CCGTCGACGCGATCGTCGCCCAGACCGAACCGATCGA spacer
	length: 37 repeater length: 30	

6170 1418037 GCTTCAACCCACGAGGGTCCGTCTGAAAC AAATCCCACACGATGCCATGGTTGTGATTGTCTTGG spacer
length: 36 repeater length: 30

6171 1418103 GCTTCAACCCACGAGGGTCCGTCTGAAAC GACCTCCACGCCGAGGAGGGGCCGATCCCCGTGAG spacer
length: 35 repeater length: 30

6172 1418168 GCTTCAACCCACGAGGGTCCGTCTGAAAC ATCGCCAGGTCGAGCTGGTCCTGCTGCAGCTCCCA spacer
length: 35 repeater length: 30

6173 1418233 GCTTCAACCCACGAGGGTCCGTCTGAAAC ATGCACTCGCCACCGTCGACGATCCCGGACGTCGC spacer
length: 35 repeater length: 30

6174 1418298 GCTTCAACCCACGAGGGTCCGTCTGAAAC CGACGACGGCGCATATGACGAGTTCGCCCCAATCCTC spacer
length: 37 repeater length: 30

6175 1418365 GCTTCAACCCACGAGGGTCCGTCTGAAAC TGCTGGAGATCCTCGCCCCTGGCGACGTCGAGACGCA spacer
length: 37 repeater length: 30

6176 1418432 GCTTCAACCCACGAGGGTCCGTCTGAAAC GCCCCAGGACGTCTACCGCGAGCACATCCTCGCGAC spacer
length: 36 repeater length: 30

6177 1418498 GCTTCAACCCACGAGGGTCCGTCTGAAAC CATCGCCCGCCTTCTGGTCGACCGCGCGGAGAATCTC spacer
length: 37 repeater length: 30

6178 1418565 GCTTCAACCCACGAGGGTCCGTCTGAAAC CCGCGACCGCCCCGATCGCCGTCGACGACCCGAC spacer
length: 34 repeater length: 30

6179 1418629 GCTTCAACCCACGAGGGTCCGTCTGAAAC GGCCGGCGTCTGGGCGAGCGTGTCTGGAGTGCAG spacer
length: 35 repeater length: 30

6180 1418694 GCTTCAACCCACGAGGGTCCGTCTGAAAC TCCGACGCACGGGACCTGTACGTGGTCGGAACCTCTG spacer
length: 37 repeater length: 30

6181 1418761 GCTTCAACCCACGAGGGTCCGTCTGAAAC TTAGAAATCACCCCCGAGATTCATGACAGTCTGCTT spacer
length: 36 repeater length: 30

6182 1418827 GCTTCAACCCACGAGGGTCCGTCTGAAAC GATGTCGGAGATGTTTCGAGAGGGTCCGGCTCATTA spacer
length: 35 repeater length: 30

6183 1418892 GCTTCAACCCACGAGGGTCCGTCTGAAAC CCGCAGTGAACGCACTCCGACATCGTTAGGCCTCCA spacer
length: 36 repeater length: 30

6184 1418958 GCTTCAACCCACGAGGGTCCGTCTGAAAC CCACTGAAATCAAAGTCCGACTCCTCTCCGGATCG spacer
length: 35 repeater length: 30

6185 1419023 GCTTCAACCCACGAGGGTCCGTCTGAAAC CGCGATATATAATATATATGCTCGCGTCCTGAACGT spacer
length: 36 repeater length: 30

6186 1419089 GCTTCAACCCACGAGGGTCCGTCTGAAAC GACGTGCGCA

6187

6188

6189 crispr 3

6190 2114677 CGTCGGCGGCCTCGTCGGCAACA
ATGACGCGACCGAGCCAAGTACGATCCGGGAGACGTACGCGACGGGCGCAGTGGACGGCGGCAACAA spacer length:
67 repeater length: 23

6191 2114767 CGTCGGCGGCCTCGTCGGCAACA
GCGTCAACGACCTCGTGACCGAAAGCTACGCGATTGGGTTCGGTCAACGGGTCGGCATC spacer length: 58
repeater length: 23

6192 2114848 CGTCGGCGGCCTCGTCGGCAACA

6193

6194

6195 GCA_000024185.1_ASM2418v1_genomic.fna (PilerCR):

6196 START REPEAT
SPACER

6197 crispr 1

6198 1033122 ATTTCAATCCCAAAATGGTCTGATTTTAAC ATCAATATCTGAATCAATATTGATATTATTCTTGAA spacer
length: 36 repeater length: 30

6199 1033188 ATTTCAATCCCAAAATGGTCTGATTTTAAC GCTCCAAACTTATCAGCATTTTCAGATTTATAATAA spacer
length: 36 repeater length: 30

6200 1033254 ATTTCAATCCCAAAATGGTCTGATTTTAAC TCATCATTTCCATCTACGATTGGTTCGTTAAAAA spacer
length: 34 repeater length: 30

6201 1033318 ATTTCAATCCCAAAATGGTCTGATTTTAAC TTACGAGAGTAACATTCTTCTGAAGCACAGTTGGTAA spacer
length: 37 repeater length: 30

6202 1033385 ATTTCAATCCCAAAATGGTCTGATTTTAAC AGGTAATAATATGAAATTACCACTACTGTTGGAGTAG spacer
length: 37 repeater length: 30

6203 1033452 ATTTCAATCCCAAAATGGTCTGATTTTAAC AAAACCATTCTCCAATAATATCTTCTGTGCATATTG spacer
length: 36 repeater length: 30

6204 1033518 ATTTCAATCCCAAAATGGTCTGATTTTAAC CACACTTTTGACACCATAATGGACTCTTTCTTG spacer
length: 33 repeater length: 30

6205 1033581 ATTTCAATCCCAAAATGGTCTGATTTTAAC ATTCAATCCCCCTTACTAATTCTACAAGTTTAAAA spacer
length: 35 repeater length: 30

6206 1033646 ATTTCAATCCCAAAATGGTCTGATTTTAAC TAGAGACAGTACAACCTCAATATGGATTAAATAGTGAG spacer
length: 37 repeater length: 30

6207 1033713 ATTTCAATCCCAAAATGGTCTGATTTTAAC AGAATCTACGAGAATTATTCTATCATAACTGGTTAT spacer
length: 36 repeater length: 30

6208 1033779 ATTTCAATCCCAAAATGGTCTGATTTTAAC ATTCTGCTGATGGATTAAAGTTGCACTTTATCTGCTAA spacer
length: 37 repeater length: 30

6209	1033846	ATTTCAATCCCAAAATGGTCTGATTTTAAC	TAATCCTAACCTTTATCGGTAAGTTGATATTGCAA	spacer
		length: 35	repeater length: 30	
6210	1033911	ATTTCAATCCCAAAATGGTCTGATTTTAAC	CCAAAAAACAATAAAAAAAGACTCGGTAGT	spacer
		length: 32	repeater length: 30	
6211	1033973	ATTTCAATCCCAAAATGGTCTGATTTTAAC	TCATCTATGTCTGCCCCATATTGTATGATTCCGTT	spacer
		length: 35	repeater length: 30	
6212	1034038	ATTTCAATCCCAAAATGGTCTGATTTTAAC	TCATCTATGTCTGCCCCATATTGTATGATTCCGTT	spacer
		length: 35	repeater length: 30	
6213	1034103	ATTTCAATCCCAAAATGGTCTGATTTTAAC	TATTTGGTAGAGTCAAACCACATCGGACAGTCATCT	spacer
		length: 36	repeater length: 30	
6214	1034169	ATTTCAATCCCAAAATGGTCTGATTTTAAC	ACAAAGTAGAATTAAATCTTGGTAACTGGGTAAC	spacer
		length: 34	repeater length: 30	
6215	1034233	ATTTCAATCCCAAAATGGTCTGATTTTAAC	GTTTGACTATCACTATCGTGGATGATATTGAGCAT	spacer
		length: 35	repeater length: 30	
6216	1034298	ATTTCAATCCCAAAATGGTCTGATTTTAAC	ATAAATTATTGTTTAATAAAGAACCTGATAAGTTTA	spacer
		length: 36	repeater length: 30	
6217	1034364	ATTTCAATCCCAAAATGGTCTGATTTTAAC	CTTAGTCCAGTATTGGCACCTATGACTAGTGTTA	spacer
		length: 34	repeater length: 30	
6218	1034428	ATTTCAATCCCAAAATGGTCTGATTTTAAC	GGTGCTGAGTTATATGATGTGGAAATTGATTTTAA	spacer
		length: 35	repeater length: 30	
6219	1034493	ATTTCAATCCCAAAATGGTCTGATTTTAAC	CAGAAAGCGATGTTTGGAGAGTTCTTTGAAGATGCT	spacer
		length: 36	repeater length: 30	
6220	1034559	ATTTCAATCCCAAAATGGTCTGATTTTAAC	TATGTATGTTCCGATGATTAGTATCATTGTGTTGAA	spacer
		length: 36	repeater length: 30	
6221	1034625	ATTTCAATCCCAAAATGGTCTGATTTTAAC	ACGGACATATAATTTATGATACAAGCAATGTATACAA	spacer
		length: 37	repeater length: 30	
6222	1034692	ATTTCAATCCCAAAATGGTCTGATTTTAAC	CAGCTTACAAAGAAATAATCGCTGATATCAGTAATAG	spacer
		length: 37	repeater length: 30	
6223	1034759	ATTTCAATCCCAAAATGGTCTGATTTTAAC	AATGACCTTATGGATAATACTAAAACAGTTAAAAA	spacer
		length: 35	repeater length: 30	
6224	1034824	ATTTCAATCCCAAAATGGTCTGATTTTAAC	TGTGCTAGTTAATGCTAATCCTGCTCCTTCATAT	spacer
		length: 34	repeater length: 30	
6225	1034888	ATTTCAATCCCAAAATGGTCTGATTTTAAC	TAGAACCTTTCAAGGAAGACATAGTCTGCTATTGTA	spacer
		length: 36	repeater length: 30	
6226	1034954	ATTTCAATCCCAAAATGGTCTGATTTTAAC	CTTGCAGAACTGGACTTGCTCCTAGAATACAATTA	spacer
		length: 35	repeater length: 30	
6227	1035019	ATTTCAATCCCAAAATGGTCTGATTTTAAC	ATACATATCAAAGACCCTCATATCCGAAACAATGTA	spacer
		length: 36	repeater length: 30	
6228	1035085	ATTTCAATCCCAAAATGGTCTGATTTTAAC	TCTTCGATTTTCGTGGAATAATTGTGTGAAATCGA	spacer
		length: 34	repeater length: 30	
6229	1035149	ATTTCAATCCCAAAATGGTCTGATTTTAAC	ATGTCACCTTGTCCTTAAGTGGTGTCTTAAGTCCTA	spacer
		length: 36	repeater length: 30	
6230	1035215	ATTTCAATCCCAAAATGGTCTGATTTTAAC	CAGTAGAATTCGATGCACAAAGGACAATGAGTAG	spacer
		length: 34	repeater length: 30	
6231	1035279	ATTTCAATCCCAAAATGGTCTGATTTTAAC	GCTCCAACTTATCAGCATTTTCAGATTTATAATAA	spacer
		length: 36	repeater length: 30	
6232	1035345	ATTTCAATCCCAAAATGGTCTGATTTTAAC	TCATCATTTCCATCTACGATTGGTTCGTTAAAAA	spacer
		length: 34	repeater length: 30	
6233	1035409	ATTTCAATCCCAAAATGGTCTGATTTTAAC	TTACGAGAGTAACATTCTTCTGAAGCACAGTTGGTAA	spacer
		length: 37	repeater length: 30	
6234	1035476	ATTTCAATCCCAAAATGGTCTGATTTTAAC	GCACTTGGAAGTCCGATGGTGTGCGAAACATCTT	spacer
		length: 35	repeater length: 30	
6235	1035541	ATTTCAATCCCAAAATGGTCTGATTTTAAC	GAAAAGACATCATGTCAACAATTATGAATTGGAAGA	spacer
		length: 36	repeater length: 30	
6236	1035607	ATTTCAATCCCAAAATGGTCTGATTTTAAC	TTGATGATTTTATACATTCTTTTAGTTTAGAACGT	spacer
		length: 35	repeater length: 30	
6237	1035672	ATTTCAATCCCAAAATGGTCTGATTTTAAC	CCAGAGTTGATAAAAAATGTACAAAACAGTTATTAA	spacer
		length: 36	repeater length: 30	
6238	1035738	ATTTCAATCCCAAAATGGTCTGATTTTAAC	GCGAGGAGTGCCTAAATTCACATTCAAGCAATACTA	spacer
		length: 36	repeater length: 30	
6239	1035804	ATTTCAATCCCAAAATGGTCTGATTTTAAC	GACAATGAAATTAAGAAATTAATAATCATTATTGGAT	spacer
		length: 36	repeater length: 30	
6240	1035870	ATTTCAATCCCAAAATGGTCTGATTTTAAC	CCTTACCATCGCTTCAGATTAGCAGAACTACTGA	spacer
		length: 35	repeater length: 30	
6241	1035935	ATTTCAATCCCAAAATGGTCTGATTTTAAC	TCCAAGGTTGGCTACTTCAATGATACTGACTCTTTG	spacer
		length: 36	repeater length: 30	
6242	1036001	ATTTCAATCCCAAAATGGTCTGATTTTAAC	TTTACGTTGTCCTGTACCGCTTTCATCATCAACCAT	spacer
		length: 36	repeater length: 30	
6243	1036067	ATTTCAATCCCAAAATGGTCTGATTTTAAC	TCGCAATAACACCGAAATTATCTAATACGAATTCAT	spacer
		length: 36	repeater length: 30	
6244	1036133	ATTTCAATCCCAAAATGGTCTGATTTTAAC	TGCAGAAGCCCAGTTCCAAATCTTCAACTTGGACAA	spacer

length: 36 repeater length: 30
6245 1036199 ATTTCAATCCCAAAATGGTCTGATTTTAAC CTCCTCGTAG
6246
6247
6248 crispr 2
6249 1036396 ATTTCAATCCCAAAATGGTCTGATTTTAAC GTGCAAGTCTCCAATAGATTATTTCTCCCTAT spacer
length: 35 repeater length: 30
6250 1036461 ATTTCAATCCCAAAATGGTCTGATTTTAAC CCATATTCTCTCACCCAAATATAAGAATAGGATTTTG spacer
length: 37 repeater length: 30
6251 1036528 ATTTCAATCCCAAAATGGTCTGATTTTAAC TCCTCTGGAGCATAATAATTGAATCCTAATTTTAA spacer
length: 35 repeater length: 30
6252 1036593 ATTTCAATCCCAAAATGGTCTGATTTTAAC AATTCAAATCCAACGATGTAATTTCCATCGCTTAC spacer
length: 35 repeater length: 30
6253 1036658 ATTTCAATCCCAAAATGGTCTGATTTTAAC TATTTAGGATTGAAGAAATTGTTAATGATTGTATTGA spacer
length: 37 repeater length: 30
6254 1036725 ATTTCAATCCCAAAATGGTCTGATTTTAAC TGAAACAAGTTCAAGCCAAGTATAACACCTTTTCAAG spacer
length: 37 repeater length: 30
6255 1036792 ATTTCAATCCCAAAATGGTCTGATTTTAAC AAATTTATTGATATCTTATTTTTATGCCTTTTTTTTA spacer
length: 36 repeater length: 30
6256 1036858 ATTTCAATCCCAAAATGGTCTGATTTTAAC TGTTTCAGTCTCTACAATTAAGTCTCTAGGTTTAT spacer
length: 35 repeater length: 30
6257 1036923 ATTTCAATCCCAAAATGGTCTGATTTTAAC CCGAACCTTACTTTGAAGATGAGGAAACCTTTGAAGATA
spacer length: 39 repeater length: 30
6258 1036992 ATTTCAATCCCAAAATGGTCTGATTTTAAC AAACAAGAAAACACTGCAACTAGTAATATTTTCTAT spacer
length: 36 repeater length: 30
6259 1037058 ATTTCAATCCCAAAATGGTCTGATTTTAAC TATGTTGATGCGAAATACCCTAACAGCTTCAGG spacer
length: 33 repeater length: 30
6260 1037121 ATTTCAATCCCAAAATGGTCTGATTTTAAC TCGTGACCCA
6261
6262
6263 crispr 3
6264 1553107 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT ACATATAGATAAATCCTTATGGATAGAGAGGGTAG
spacer length: 35 repeater length: 37
6265 1553179 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT AAATACTACACAGGTGTTAAATCGGAGAAATTT
spacer length: 35 repeater length: 37
6266 1553251 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT ACTATAAAGAGTTAAAGGCCAAAGCCTTTAAAGAT
spacer length: 35 repeater length: 37
6267 1553323 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT TCAATAGGAATGAAATAACAAATGACGCGCAGAAG
spacer length: 35 repeater length: 37
6268 1553395 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT ATAAGGGTATGTTAAAAACCTAAAAAACTATAAAC
spacer length: 36 repeater length: 37
6269 1553468 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT TATGAAATATAAAGAGTTCTCAGATAAATGGGAGAA
spacer length: 36 repeater length: 37
6270 1553541 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT AGAACGGAGGAATTTCTTATGACTAATGAAAAATCT
spacer length: 36 repeater length: 37
6271 1553614 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT ACATTGCTAGACACATAGGAATGGTGAATATGAT
spacer length: 35 repeater length: 37
6272 1553686 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT CGACTACGAAGCAACTATTAGCAGAATGACCAAAT
spacer length: 35 repeater length: 37
6273 1553758 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT GGCATCGTAG
6274
6275
6276 crispr 4
6277 1571963 GTCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT TATTCAGTAACAATTTTCTCGAAAAACAAGAAGGCA
spacer length: 37 repeater length: 37
6278 1572037 GTCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT AAAAAGACACTTAAAAATTATGGAACAAAAAAGGA
spacer length: 36 repeater length: 37
6279 1572110 GTCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT TCTGATTCCCTTAACAACTCACAATAAGGGAAAAA
spacer length: 36 repeater length: 37
6280 1572183 GTCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ATTAACAAGGAAACAGAAATGGAGATTAAGACACT
spacer length: 35 repeater length: 37
6281 1572255 GTCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ATTTCAATTTTGGACTGATGTTGTTCTTGAAGAAA
spacer length: 35 repeater length: 37
6282 1572327 GTCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT GTAGGTATATTTCTTATAGAATAAATAAAATTTAT
spacer length: 35 repeater length: 37
6283 1572399 GTCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ACAATAACAGAGACAACAGTACTGAAGAAACAGTAA
spacer length: 36 repeater length: 37
6284 1572472 GTCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ATGAAATCATTGAAACACTTGTTGAAATTCATGCA
spacer length: 35 repeater length: 37
6285 1572544 GTCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT TATGGTAGTTGAGAAAGTTACAAAAGTTAGGGCTAA
spacer length: 36 repeater length: 37

6286 1572617 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT CCTTATTGAATGATACCAAAGACAAAGTGGACGAAT
spacer length: 36 repeater length: 37

6287 1572690 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT AGAGTTAAAAGAGAGTTTAGCTATAGCAAGAGTTT
spacer length: 35 repeater length: 37

6288 1572762 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT
AAGAGCTAATAAACAACTAAAGAATATATGCTTAAGCT spacer length: 39 repeater length: 37

6289 1572838 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT ATAAGATTAGTTTTGATATTATTAGATTTTTTTCT
spacer length: 35 repeater length: 37

6290 1572910 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT TCGGTTCTTCCGTCTCTCGTGTGTCCGTCGCGGGTGC
spacer length: 37 repeater length: 37

6291 1572984 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT CCTAATACCTATTGTAAATCTTTTCAATTTAAAAGA
spacer length: 36 repeater length: 37

6292 1573057 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT GACAAACTTTATACCTTAAGAAAGGTTCAAGGTGT
spacer length: 35 repeater length: 37

6293 1573129 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT CAATCATTCAGTATACGATAAAGAGTGTAACGACT
spacer length: 35 repeater length: 37

6294 1573201 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT AGATAATAGATAAATTGAGGTGTTAAATATGTTAT
spacer length: 35 repeater length: 37

6295 1573273 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT ATATCATTATAGACAAATATAGACAAAAAGAAATT
spacer length: 35 repeater length: 37

6296 1573345 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT ATATCATTATAGACAAATATGACAAAAAGAAATT
spacer length: 34 repeater length: 37

6297 1573416 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT GGCAAAATTGAACGATTTAAGCCAATACGACACTT
spacer length: 35 repeater length: 37

6298 1573488 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT AATTAATGAAAATTATATAGGTGATTATTTATGT
spacer length: 34 repeater length: 37

6299 1573559 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT ATGAATTTGACTTAAGAAGCCAACCTTAAGAAGA
spacer length: 35 repeater length: 37

6300 1573631 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT ATCAAAATGTAATGATGCCATACCATTATCATTTA
spacer length: 35 repeater length: 37

6301 1573703 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT ATTATTGTGACACAAAAAGAAATTTTCCTTGACAAA
spacer length: 36 repeater length: 37

6302 1573776 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT CAAAAATACATTTTACAAAGATATGCTTAAAGTCTT
spacer length: 36 repeater length: 37

6303 1573849 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT CCCATATGGAAGTCGCGAGGGAATCAAAGAAGAG
spacer length: 34 repeater length: 37

6304 1573920 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT AAAGTTCAAGGGGTAACAAGACAAGCATACTTCG
spacer length: 34 repeater length: 37

6305 1573991 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT ATCAAAAACTTTTATATTTTTTTATTGGTGATAAAAT
spacer length: 37 repeater length: 37

6306 1574065 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT ATATACAAGTTATAAAAACTTGAGAGTTATAAAAAGC
spacer length: 37 repeater length: 37

6307 1574139 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT AGAGTATGGTTGTCACTTTAGGGAGGATTTCTAA
spacer length: 34 repeater length: 37

6308 1574210 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT ACCTTAGAACTCTTAAAACAAGTAAACATCGAGC
spacer length: 35 repeater length: 37

6309 1574282 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT GAAATACAGATTAAGCAATCAGGCATATAGACAA
spacer length: 34 repeater length: 37

6310 1574353 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT AAAGACACTTTAGATGTAATTGTTTCGCTATAATGAA
spacer length: 36 repeater length: 37

6311 1574426 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT ATTATATTAAAACTCAAATAACTATAGATAGATTT
spacer length: 35 repeater length: 37

6312 1574498 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT TTAATGGACTTATAGTTAGTTATGACTTAAAAGCAC
spacer length: 36 repeater length: 37

6313 1574571 GTCACAATCCTTGTTTTAGTAGATTACTTTTTTGCAAT
CTCCAACATGTCGAGGCCGTTAAGCCAAGGAAGGGGGGCGAT

6314

6315

6316 GCA_000025505.1_ASM2550v1_genomic.fna (PilerCR):

6317 START REPEAT
SPACER

6318 crispr 1

6319 273660 CTTTCAATCCTCTTTTCATCGAG CAAAACTTCTTGAGGAGAAGGGAAACCCAGAGGAGTTCAA spacer
length: 41 repeater length: 23

6320 273724 CTTTCAATCCTCTTTTCATCGAG ATTCTTTTGCTTCCGCTGATAGTTTTGCTGGCACTAATTCCTC spacer
length: 43 repeater length: 23

6321 273790 CTTTCAATCCTCTTTTCATCGAG CGGGATAGGAGGCACAGGCAGATTTATGGACATAATGGTGACTAC spacer
length: 45 repeater length: 23

6322 273858 CTTTCAATCCTCTTTTCATCGAG AAGGAATTTAAAGGAGTCAAACGAAGCTGGACGAATACCG spacer
length: 41 repeater length: 23

6323 273922 CTTTCAATCCTCTTTTCATCGAG TAAATGCCTCAGTTCGGTGGTGGAGGTGGTGGTGGTATAA spacer

length: 40 repeater length: 23
6324 273985 CTTTCAATCCTCTTTTCATCGAG TGTCTCCAGCTTTCAGACTGGAGTTTTCGCAACTCCTGCTC spacer
length: 41 repeater length: 23
6325 274049 CTTTCAATCCTCTTTTCATCGAG AATTGGAAGAAAAGACGAACTTATGACGACATTATACGC spacer
length: 40 repeater length: 23
6326 274112 CTTTCAATCCTCTTTTCATCGAG CGTTCCTACCTGAACCATTCAACTACAGATGCATCCATTATAAT spacer
length: 43 repeater length: 23
6327 274178 CTTTCAATCCTCTTTTCATCGAG ATGAGCACATCAGGTCTCCCCTCTTCGTTTTCTGATACC spacer
length: 40 repeater length: 23
6328 274241 CTTTCAATCCTCTTTTCATCGAG CAAGGAAGAG
6329
6330
6331 crispr 2
6332 676126 CTTTCAATCCTCTTTTCATCGAG TGCTCCGTGAAATTCCTCATCTGATCTACGGTATAATA spacer length:
38 repeater length: 23
6333 676187 CTTTCAATCCTCTTTTCATCGAG AGGAGATTTGTGTTGAGTAGTCTGGTAATGCCGTGCAGTGA spacer
length: 41 repeater length: 23
6334 676251 CTTTCAATCCTCTTTTCATCGAG CGATTGTAGCGGTCCGTCTGGTCTCACTACCGCTGGGA spacer
length: 39 repeater length: 23
6335 676313 CTTTCAATCCTCTTTTCATCGAG ACATCGAACCCTTATCAGAGACAGAATTCGCCAAACGTAT spacer
length: 42 repeater length: 23
6336 676378 CTTTCAATCCTCTTTTCATCGAG TTGATTGGGGACGCGGGAAGTGGGAAGACGACGGAGTTGGT spacer
length: 41 repeater length: 23
6337 676442 CTTTCAATCCTCTTTTCATCGAG CGGTTTTGCCTTGAAGTGTCAATCTCTCGCTGAATGCTC spacer
length: 39 repeater length: 23
6338 676504 CTTTCAATCCTCTTTTCATCGAG GGGAGGGTGGCAAACACCAAGCGAGATTGCAGCACATCATAGAG spacer
length: 44 repeater length: 23
6339 676571 CTTTCAATCCTCTTTTCATCGAG ATTTTTAAATAAAAGGGGGTAGATGCGTGAGAAGGCTTAG spacer
length: 40 repeater length: 23
6340 676634 CTTTCAATCCTCTTTTCATCGAG GAACGAGATGCTGAAGCTCGCCGAAGTTTCAGGAAAGTA spacer
length: 39 repeater length: 23
6341 676696 CTTTCAATCCTCTTTTCATCGAG CCAGAGGAGAAGCGCTCGGACATTACTGCATGAAGTGCAT spacer
length: 40 repeater length: 23
6342 676759 CTTTCAATCCTCTTTTCATCGAG ATTCCAGCACCCTTGTGAAAGAGCTGTTATCGAGGTGATT spacer
length: 41 repeater length: 23
6343 676823 CTTTCAATCCTCTTTTCATCGAG CAGAGTCGGAGGAAAATTGGTTGATGTTAGATACCTTATC spacer
length: 40 repeater length: 23
6344 676886 CTTTCAATCCTCTTTTCATCGAG CCATTGGAGGATTAGAGGAGAAGCAAGATGTAACAATCTTG spacer
length: 41 repeater length: 23
6345 676950 CTTTCAATCCTCTTTTCATCGAG GGCGAGGATGGGAAGCTAACTCCAACAATTTTCAGAGAAC spacer
length: 40 repeater length: 23
6346 677013 CTTTCAATCCTCTTTTCATCGAG GGTGCAAACTCTGATGTCCGATCCATCTGATTTAACAAG spacer
length: 40 repeater length: 23
6347 677076 CTTTCAATCCTCTTTTCATCGAG AAGAGAAGGTTTTACAACTACGAACGAGAGTTAGAAGGGG spacer
length: 41 repeater length: 23
6348 677140 CTTTCAATCCTCTTTTCATCGAG CTAAAGCAGGGAGGTTTCCCATAGGGAAACAATCTTGTAACA spacer
length: 42 repeater length: 23
6349 677205 CTTTCAATCCTCTTTTCATCGAG TTGGATTGGTGGAAACATCTCTATTGATTTTATAGCATCTC spacer
length: 40 repeater length: 23
6350 677268 CTTTCAATCCTCTTTTCATCGAG CATTAGCAAATACTGTGTAATCAGCCGTTGTCGTTCCAGC spacer
length: 40 repeater length: 23
6351 677331 CTTTCAATCCTCTTTTCATCGAG TTCACGCCCCGCTCCCACGAAGTCTGGCTTGGTTTTCTCA spacer
length: 39 repeater length: 23
6352 677393 CTTTCAATCCTCTTTTCATCGAG CAAAGTAAATGTCTGCTTCTGTTGTTGTAGAGCTCCAT spacer
length: 39 repeater length: 23
6353 677455 CTTTCAATCCTCTTTTCATCGAG CTCACACAGTTGCGAAATGGGGCGAGGATTGGCGAGGCGAT spacer
length: 41 repeater length: 23
6354 677519 CTTTCAATCCTCTTTTCATCGAG CCGGAAGTTAAAAAGCTCCAGCCGATAAAGTGCAGGAATTTGCGG spacer
length: 44 repeater length: 23
6355 677586 CTTTCAATCCTCTTTTCATCGAG AGTGGTACAAAGAATACAAAGAGGCTTTAGAGGAATACA spacer
length: 39 repeater length: 23
6356 677648 CTTTCAATCCTCTTTTCATCGAG ATACCACAGAATCAATTGAAAGCCCAGGAACAGTGGCAATTG spacer
length: 42 repeater length: 23
6357 677713 CTTTCAATCCTCTTTTCATCGAG TCAAGGACGAGAAAATAAGCAGAGAACTTAAAAGAAAACCTCTGA spacer
length: 45 repeater length: 23
6358 677781 CTTTCAATCCTCTTTTCATCGAG TTCGGTGAAT
6359
6360
6361 crispr 3
6362 824285 GTTTCAGTCCTCTATTTGAGATTC ACAGTTTCCCTTACCTTGAACCCGAATTTTTCGAGTTCTTCGAGCTTATA
spacer length: 50 repeater length: 24

6363	824359	GTTTCAGTCCTCTATTTGAGATTC	ACGCAGAGGGAGGTTACGGTCATAGAGGACATACAGCTTAT	spacer
		length: 41	repeater length: 24	
6364	824424	GTTTCAGTCCTCTATTTGAGATTC	CTGACTATTTAAGGCAGAACGGCTATGCTGTGTTTGGCAG	spacer
		length: 40	repeater length: 24	
6365	824488	GTTTCAGTCCTCTATTTGAGATTC	AGTGGGCGTGGTTTGGATTAGCAGGCATGAGCTTAGCGAAA	spacer
		length: 41	repeater length: 24	
6366	824553	GTTTCAGTCCTCTATTTGAGATTC	TTGAAGGCTATAGTGGACGAGGGCTGGGAGTGGATATTTAG	spacer
		length: 41	repeater length: 24	
6367	824618	GTTTCAGTCCTCTATTTGAGATTC	GTGTGATAGCTGCGGGAATACCGGTCATCGTTAATATTCTAC	spacer
		length: 42	repeater length: 24	
6368	824684	GTTTCAGTCCTCTATTTGAGATTC	TGAAAGGAAAAAACTGCTGTATTATGCTCGGCGTAACGAAC	spacer
		length: 41	repeater length: 24	
6369	824749	GTTTCAGTCCTCTATTTGAGATTC	ATATGAGCAAGTATGAAAAGAAGGTCAGAGTAGTGGTTGAA	spacer
		length: 41	repeater length: 24	
6370	824814	GTTTCAGTCCTCTATTTGAGATTC	CGAGGTTGTAAGAATTGGTGGAGTTGAGGTATGGATAAG	spacer
		length: 39	repeater length: 24	
6371	824877	GTTTCAGTCCTCTATTTGAGATTC	CTGGAAGGAGTCACCTACACCGAGGAGACTGCAACAATCA	spacer
		length: 40	repeater length: 24	
6372	824941	GTTTCAGTCCTCTATTTGAGATTC	CGGAGCCAGAGGTGGAGTTGACATTCCGGCGGAAGACAAGA	spacer
		length: 41	repeater length: 24	
6373	825006	GTTTCAGTCCTCTATTTGAGATTC	CAACACATATATTACTTACCCCTAAGCAGAGACAGAATGAAGC	spacer
		length: 43	repeater length: 24	
6374	825073	GTTTCAGTCCTCTATTTGAGATTC	TGGAACCACGAGTCATCAGAGACGCCATCGAGAGAGCCAT	spacer
		length: 40	repeater length: 24	
6375	825137	GTTTCAGTCCTCTATTTGAGATTC	TTTTCTGCTACGACTTTCTCGAAAGTGTTCACCAAGTACA	spacer
		length: 42	repeater length: 24	
6376	825203	GTTTCAGTCCTCTATTTGAGATTC	GAAGAATTGAGAAGAGTTTTGGAGACGAAGATATTTTGAA	spacer
		length: 40	repeater length: 24	
6377	825267	GTTTCAGTCCTCTATTTGAGATTC	CAGAAAGAAGGCAGAACGAATTAAGGAATTGAAAAGGAAAAA	spacer
		length: 42	repeater length: 24	
6378	825333	GTTTCAGTCCTCTATTTGAGATTC	TTATCTCTATCTTCCCTGAGGGCATTCTTGAGCCCTCATAA	spacer
		length: 43	repeater length: 24	
6379	825400	GTTTCAGTCCTCTATTTGAGATTC	GACAATTCCG	
6380				
6381				
6382	crispr 4			
6383	1318857	CTCGATGAAAAGAGGATTGAAAG	TCGTGAAGTATCCCGCCTTCTTCTTGGGAGGTGATTTAACGAG	spacer
		length: 43	repeater length: 23	
6384	1318923	CTCGATGAAAAGAGGATTGAAAG	ACATACTCACCACCTCTCACATTCGTGGAGACAATAACCCA	spacer
		length: 41	repeater length: 23	
6385	1318987	CTCGATGAAAAGAGGATTGAAAG	CCAATTGGAAATTTTCGTTGAAAGTTCGAAAAAGTTTTTA	spacer
		length: 39	repeater length: 23	
6386	1319049	CTCGATGAAAAGAGGATTGAAAG	TCGCAACCTTGTTTCGGTCTGTATCTAATCACCTACCAAT	spacer
		length: 40	repeater length: 23	
6387	1319112	CTCGATGAAAAGAGGATTGAAAG	GATTATGGCTTCAGATGGGTTTGGAACACTTTTAAGAGTG	spacer
		length: 40	repeater length: 23	
6388	1319175	CTCGATGAAAAGAGGATTGAAAG	AAGCCATAGTATTCAAGCAGGTAACCATGCCTTCCTAC	spacer
		length: 38	repeater length: 23	
6389	1319236	CTCGATGAAAAGAGGATTGAAAG	TCTTATTTCCCTCCTGTAAACCTCTTCAAAACCTCGTCTG	spacer
		length: 40	repeater length: 23	
6390	1319299	CTCGATGAAAAGAGGATTGAAAG	GCGATTTGGCTACTTTCTTGTAGCCTATCAGCTCGTGAG	spacer
		length: 39	repeater length: 23	
6391	1319361	CTCGATGAAAAGAGGATTGAAAG	ACCTGATCGTCCGTACCATCACAAACGTAATCTCCTGACTTA	spacer
		length: 42	repeater length: 23	
6392	1319426	CTCGATGAAAAGAGGATTGAAAG	TAGAGATACTGTTCTCCTTCTTACCCTCTTAACCTTAGG	spacer
		length: 41	repeater length: 23	
6393	1319490	CTCGATGAAAAGAGGATTGAAAG	GTCTATTGTGTCTTTGTTGGTTATCTTCTTGAAGTCTTCCAA	spacer
		length: 42	repeater length: 23	
6394	1319555	CTCGATGAAAAGAGGATTGAAAG	ATATTATCCCTCCAGTGCAGCTTTTCTTTTGTAGATAGTAGGGA	spacer
		length: 43	repeater length: 23	
6395	1319621	CTCGATGAAAAGAGGATTGAAAG	TTGTCTGTTCCAAATGGAACCTCCAGATCGTCGGCAAAAT	spacer
		length: 40	repeater length: 23	
6396	1319684	CTCGATGAAAAGAGGATTGAAAG	AAGAGAGAGTCTAATCTATGCAGTTATTGTGAATTTATAC	spacer
		length: 40	repeater length: 23	
6397	1319747	CTCGATGAAAAGAGGATTGAAAG	ATCGTAGGGACAGAACCGGGTAGCTTTCGAAATACTTGGTTG	spacer
		length: 42	repeater length: 23	
6398	1319812	CTCGATGAAAAGAGGATTGAAAG	AGAACAGTTGCTGCTGCCGGCTTCTTTTGAGGTAAGAATGGG	spacer
		length: 42	repeater length: 23	
6399	1319877	CTCGATGAAAAGAGGATTGAAAG	TTGGAGGCTTACCGATGCTGTTGGAGCTTTACATAACAGTGT	spacer
		length: 42	repeater length: 23	
6400	1319942	CTCGATGAAAAGAGGATTGAAAG	ACCTTTTTTAAATTCTCTATCCACGTTTGTACTGTAGGAAA	spacer

length: 40 repeater length: 23
6401 1320005 CTCGATGAAAAGAGGATTGAAAG TGTTGTAGGCTTCGTTAGGCGTTCTTGCCCTAATTTTGGC spacer
length: 40 repeater length: 23
6402 1320068 CTCGATGAAAAGAGGATTGAAAG CTCATCGCCCATCCACCTCCTCATAACCAACTCCGCAATTC spacer
length: 41 repeater length: 23
6403 1320132 CTCGATGAAAAGAGGATTGAAAG CTTCTGTGTCCAAGTTGTAGAGCCACAACGCTATCCTGTACCT spacer
length: 42 repeater length: 23
6404 1320197 CTCGATGAAAAGAGGATTGAAAG TGGGGGAGGA
6405
6406
6407 crispr 5
6408 1578275 CTTTCAATCCTCTTTTCATCGAG TTCGTCATAGCAGCAGATTGGAGCATCGATAACATCCAG spacer
length: 39 repeater length: 23
6409 1578337 CTTTCAATCCTCTTTTCATCGAG CTTTCGCCTCCTTCTACCCATCTGTTTGAGCTTTCTAATTCC spacer
length: 41 repeater length: 23
6410 1578401 CTTTCAATCCTCTTTTCATCGAG AAGTTCCACCAGAATATGTTCCACCATATTCTACGTTCCACCAC spacer
length: 43 repeater length: 23
6411 1578467 CTTTCAATCCTCTTTTCATCGAG TTTTAGGTCTGACGAAGATGTCGAGCCACTTGGATCCAG spacer
length: 39 repeater length: 23
6412 1578529 CTTTCAATCCTCTTTTCATCGAG CGAGTCCTTATGTCGATAAAGAGTACGGAATGGTTTACAG spacer
length: 40 repeater length: 23
6413 1578592 CTTTCAATCCTCTTTTCATCGAG AATAATAAAATGAGATTTGGCATTCTCTGGAAGCATACA spacer
length: 40 repeater length: 23
6414 1578655 CTTTCAATCCTCTTTTCATCGAG AGAAAGTTCATCCTGATGCCAAAAGCCGATCTGTTGTCTGA spacer
length: 40 repeater length: 23
6415 1578718 CTTTCAATCCTCTTTTCATCGAG ATTCTGGCAGATTTTTGCCGCCGTTTGAGGTTGATTTTTTA spacer
length: 40 repeater length: 23
6416 1578781 CTTTCAATCCTCTTTTCATCGAG CCACCTTATGATTATCGAACGCTCACCAGAGTCCATAAAACCAT spacer
length: 42 repeater length: 23
6417 1578846 CTTTCAATCCTCTTTTCATCGAG CAATCACACAGATCCCGTACACGATCAGTCCGACGATTGACC spacer
length: 42 repeater length: 23
6418 1578911 CTTTCAATCCTCTTTTCATCGAG TGAAGGTGTT
6419
6420
6421 crispr 6
6422 1597286 CTTTCAATCCTCTTTTCATCGAG CGATCAGCTCGTTCATTCTTCATCCTCCTCTTCATCAGC spacer
length: 39 repeater length: 23
6423 1597348 CTTTCAATCCTCTTTTCATCGAG TCTAATTTTTTTCGAGGTGATTGTGATGGTGCAGGTGACTGTT spacer
length: 43 repeater length: 23
6424 1597414 CTTTCAATCCTCTTTTCATCGAG TTGATCTTCACGTTCAACACCTCACATCAGGTCGTGCTTCT spacer
length: 41 repeater length: 23
6425 1597478 CTTTCAATCCTCTTTTCATCGAG TCTCGAGCTGTGGTCACAAGGGGGACGTCTCCCTTCCCTAG spacer
length: 41 repeater length: 23
6426 1597542 CTTTCAATCCTCTTTTCATCGAG AGGGATTAAGAGGGAGATACTGAGAGATTATAGGAGACTAG spacer
length: 41 repeater length: 23
6427 1597606 CTTTCAATCCTCTTTTCATCGAG ATTCTGATCGCTAAAGAGCCCGATGCTTTCAAAAAGCTCTA spacer
length: 41 repeater length: 23
6428 1597670 CTTTCAATCCTCTTTTCATCGAG TCGTTAAAATCATCGACAAAAGGACGCTTGAAGACTTAACGAT spacer
length: 43 repeater length: 23
6429 1597736 CTTTCAATCCTCTTTTCATCGAG CAAAGAGATTCTTTTGAAGAACTTACACAATCTTTCTTCTGA spacer
length: 42 repeater length: 23
6430 1597801 CTTTCAATCCTCTTTTCATCGAG GGTATATTATTGGTGACGGACATTTGTCTATTAGGGGTAGA spacer
length: 41 repeater length: 23
6431 1597865 CTTTCAATCCTCTTTTCATCGAG TATTGGTGTATCCCCCACCAGACAAACAAAGCACTCTCAA spacer
length: 41 repeater length: 23
6432 1597929 CTTTCAATCCTCTTTTCATCGAG CTGGGACGTTGCAGCACTGGAAATACGAGATGCTCAAGA spacer
length: 39 repeater length: 23
6433 1597991 CTTTCAATCCTCTTTTCATCGAG ACTTAAATAGTTCAGGGTTGCAGTAAGTATTGAGGTGGT spacer
length: 39 repeater length: 23
6434 1598053 CTTTCAATCCTCTTTTCATCGAG GCAGGATGGAAGAGTTCTGTAAAGAGAACAAGGATCAGCTACAG spacer
length: 44 repeater length: 23
6435 1598120 CTTTCAATCCTCTTTTCATCGAG GTCAGACAAAATAATTATAACCGAATGGGTATACATAACA spacer
length: 40 repeater length: 23
6436 1598183 CTTTCAATCCTCTTTTCATCGAG TAGCACCAGACGTAGACCTCGTGATAATAAAGGCGTTCTA spacer
length: 40 repeater length: 23
6437 1598246 CTTTCAATCCTCTTTTCATCGAG ATTCACGCTGTTTTCCGCCACGCTGAAGACTACAACGAGA spacer
length: 40 repeater length: 23
6438 1598309 CTTTCAATCCTCTTTTCATCGAG AATACTTTAGGACTCCCTCTCCCGCTGCGTTTGTGTTGCC spacer
length: 39 repeater length: 23
6439 1598371 CTTTCAATCCTCTTTTCATCGAG CTGCCATACTCATCCCTTATCCATTTAGCTATGCTGAAAA spacer
length: 41 repeater length: 23

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6440 1598435 CTTTCAATCCTCTTTTCATCGAG CATGATCCGC
6441
6442
6443 GCA_000025665.1_ASM2566v1_genomic.fna (PilerCR):
6444 START REPEAT
6445 SPACER
6446 crispr 1
6447 977786 GTTTCACACCACATGGTACTTCTTCTAC TGATTGAAAATGATATATGTTTGAGGTGAGAAAAATG spacer
6448 length: 37 repeater length: 29
6449 977852 GTTTCACACCACATGGTACTTCTTCTAC GGAGTTTGGGATGAAATAAATAAAAAAGTGGAGAATAG spacer
6450 length: 38 repeater length: 29
6451 977919 GTTTCACACCACATGGTACTTCTTCTAC GTAATCTACAAAAAGATAAAACAATAAATTCGTATTG spacer
6452 length: 36 repeater length: 29
6453 977984 GTTTCACACCACATGGTACTTCTTCTAC TGATTGAAAATGATATATGTTTGAGGTGAGAAAAATG spacer
6454 length: 37 repeater length: 29
6455 978050 GTTTCACACCACATGGTACTTCTTCTAC AGATATGGCAAAGGAAATAAGCAAAGTTATTGAAATT spacer
6456 length: 37 repeater length: 29
6457 978116 GTTTCACACCACATGGTACTTCTTCTAC CTTAACTGATGAAAACATAGATAAAATCGTTGGAAAC spacer
6458 length: 37 repeater length: 29
6459 978182 GTTTCACACCACATGGTACTTCTTCTAC TATCTACAATGAAGATACTGATGAGCTTGTTGCAATTAT spacer
6460 length: 39 repeater length: 29
6461 978250 GTTTCACACCACATGGTACTTCTTCTAC TGCTGCCCAGA
6462
6463
6464 crispr 2
6465 983166 GTTTCACACCACATGGTACTTCTTCTAC GGGAGCAAGAAGATTATGACGGGAGGATGATAAGGAT spacer
6466 length: 37 repeater length: 29
6467 983232 GTTTCACACCACATGGTACTTCTTCTAC TCTAAAGCAGAAAATTACAGCAATTCTTGATTCATT spacer
6468 length: 36 repeater length: 29
6469 983297 GTTTCACACCACATGGTACTTCTTCTAC GAAATAAAGAAATACTACGGACTCAAAGGCTACAATAGCCCAG
6470 spacer length: 43 repeater length: 29
6471 983369 GTTTCACACCACATGGTACTTCTTCTAC ACTACGATTTACTCAGGGAATTTATGGGAAATATACG spacer
6472 length: 37 repeater length: 29
6473 983435 GTTTCACACCACATGGTACTTCTTCTAC ATAGAATAACAAAATACATATCAAAGCACAAGGAATTA spacer
6474 length: 38 repeater length: 29
6475 983502 GTTTCACACCACATGGTACTTCTTCTAC ATAAACGAAAATAGTGAATCTTCATGGGAAGATAGAT spacer
6476 length: 37 repeater length: 29
6477 983568 GTTTCACACCACATGGTACTTCTTCTAC TAGATAGACAAATGTTTAATATGTTGTTATCAGATATAAT spacer
6478 length: 40 repeater length: 29
6479 983637 GTTTCACACCACATGGTACTTCTTCTAC TAGATAGACAAATGTTTAATATGTTGTTATCAGATATAAT spacer
6480 length: 40 repeater length: 29
6481 983706 GTTTCACACCACATGGTACTTCTTCTAC GGATATATAACAAAAAAGGATGGCTATAACATATCAG spacer
6482 length: 37 repeater length: 29
6483 983772 GTTTCACACCACATGGTACTTCTTCTAC GAATACAGTCTAATAAACAATGTATTAAAAGAGTTTTATC spacer
6484 length: 40 repeater length: 29
6485 983841 GTTTCACACCACATGGTACTTCTTCTAC TGGAATGAAAGAGGAAGCGGTTAAACCGCAATTGAGATTTT
6486 spacer length: 42 repeater length: 29
6487 983912 GTTTCACACCACATGGTACTTCTTCTAC AGAATATAATCAGGCGTTAAAAGAATACGAGGATATG spacer
6488 length: 37 repeater length: 29
6489 983978 GTTTCACACCACATGGTACTTCTTCTAC CGTGAGGGACAAGAGAGCGACCGCAAGAGCAATAG spacer
6490 length: 35 repeater length: 29
6491 984042 GTTTCACACCACATGGTACTTCTTCTAC TAGCGTGGGCGTATTGGATGAGATATTGAATA spacer length:
6492 32 repeater length: 29
6493 984103 GTTTCACACCACATGGTACTTCTTCTAC GTTCAGGGCG
6494
6495
6496 GCA_000092185.1_ASM9218v1_genomic.fna (PilerCR):
6497 START REPEAT
6498 SPACER
6499 crispr 1
6500 772205 GAAACAATAGAGAAAAAATTGAAAG CAGGGAATTCTTTAAAGCTTTAGAAGCGCAAAAAGTCGAGGA spacer
6501 length: 42 repeater length: 24
6502 772271 GAAACAATAGAGAAAAAATTGAAAG GTTGATGGCTTAACAACAATTGGTTTTGGCGGTGTGA spacer length:
6503 37 repeater length: 24
6504 772332 GAAACAATAGAGAAAAAATTGAAAG ATATATGTAGTATCGGTAAGTGCTAGTGCTGTATCAGCAAATAAA spacer
6505 length: 45 repeater length: 24
6506 772401 GAAACAATAGAGAAAAAATTGAAAG CGTATTACTAATACGCCTTTTCTGCCCTCATCGGTTTCGGTT spacer
6507 length: 42 repeater length: 24
6508 772467 GAAACAATAGAGAAAAAATTGAAAG ACACTTAGTCGTGAAAAATCCAAGCCGAAAGAATACCCTG spacer
6509 length: 40 repeater length: 24
6510 772531 GAAACAATAGAGAAAAAATTGAAAG CGCTATACTCCATCACATAACAAGTTGTCCTCGCCCCGG spacer

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length: 38 repeater length: 24
6483 772593 GAAACAATAGAGAAAAATTGAAAG GTGTTAATAAAGCAACCCTACACGCATACGCTATAATCGTGAA spacer
length: 44 repeater length: 24
6484 772661 GAAACAATAGAGAAAAATTGAAAG TATATTGCTCGCGCAATTCTTTAAGCTCTTTTCTCAA spacer
length: 38 repeater length: 24
6485 772723 GAAACAATAGAGAAAAATTGAAAG ATCGCAGCAACGCTATCGAGCCTATGTGTTGATTTCGTTG spacer
length: 39 repeater length: 24
6486 772786 GAAACAATAGAGAAAAATTGAAAG ACGTTTGAATCCGCGATGGAAACATCGGCTTTAGTAAGA spacer
length: 39 repeater length: 24
6487 772849 GAAACAATAGAGAAAAATTGAAAG ACCGCGAGGAGCGGGGCGAGAAATTATTGTTTCCTGTTG spacer
length: 39 repeater length: 24
6488 772912 GAAACAATAGAGAAAAATTGAAAG CGTGTAAGGTTGCTAACGCTTGATAAGCTAACACCGTTCACCG spacer
length: 43 repeater length: 24
6489 772979 GAAACAATAGAGAAAAATTGAAAG CTACGGGTTTCGAGCTTAAAAAGCCGTTTTTCGAGAGCGA spacer
length: 39 repeater length: 24
6490 773042 GAAACAATAGAGAAAAATTGAAAG TTGAGGCTCTCAGCTAGCTGGGGTATCAGCGATTTGAACACT spacer
length: 42 repeater length: 24
6491 773108 GAAACAATAGAGAAAAATTGAAAG ATTTCTACATTTTATAATTGAGGTGTAATATATGTCCAGAC spacer
length: 42 repeater length: 24
6492 773174 GAAACAATAGAGAAAAATTGAAAG CGAACAAATTAATCATTAGTAATGGCAAATGATATACGA spacer
length: 40 repeater length: 24
6493 773238 GAAACAATAGAGAAAAATTGAAAG TATTGTTAAATGGTGTATTATTGCTGATACAGCACTAGCAC spacer
length: 41 repeater length: 24
6494 773303 GAAACAATAGAGAAAAATTGAAAG TCGCAGGGTCAAATGTGGTTATAGCGGACATTTATATCACCCC spacer
length: 43 repeater length: 24
6495 773370 GAAACAATAGAGAAAAATTGAAAG TGTGCTTTACACGGCTGATGAACCGCTCATTACCCAATTGA spacer
length: 42 repeater length: 24
6496 773436 GAAACAATAGAGAAAAATTGAAAG ATGGAGCTAGAGCTCATAAAGCTAATTATCCTATTTCTAAT spacer
length: 41 repeater length: 24
6497 773501 GAAACAATAGAGAAAAATTGAAAG TCATAGTTGAATATGACTCATAACGCGTTAATGCGTCGTCA spacer
length: 41 repeater length: 24
6498 773566 GAAACAATAGAGAAAAATTGAAAG TACCATAAGCTTTTTTTCATTAGTGATTTACAATGACGGCG spacer
length: 40 repeater length: 24
6499 773630 GAAACAATAGAGAAAAATTGAAAG AAAATTGAAAGTATTTTCACTCCTCCAGGGTGCATTTACACACCCCTT
spacer length: 51 repeater length: 24
6500 773705 GAAACAATAGAGAAAAATTGAAAG AGACAAGACTTCACGATTGGAGTAATAAACGATGTAGTAT spacer
length: 40 repeater length: 24
6501 773769 GAAACAATAGAGAAAAATTGAAAG CTAGTCCCATATGTAAGGTCTAATATGCGTATTGGTGGCTTGA spacer
length: 43 repeater length: 24
6502 773836 GAAACAATAGAGAAAAATTGAAAG TATCCATATTGTTCCGAATGACCTATTCATTTGTGCATT spacer
length: 39 repeater length: 24
6503 773899 GAAACAATAGAGAAAAATTGAAAG TGGGACAGTGCCACTACGCATATGGCTGTGAGCCCACTAT spacer
length: 41 repeater length: 24
6504 773964 GAAACAATAGAGAAAAATTGAAAG AATAAGGAAATGAAGGAAGCGTTTGCAGAAAAGCTAAGA spacer
length: 39 repeater length: 24
6505 774027 GAAACAATAGAGAAAAATTGAAAG GAGGATTGGATTTCCTGGTAACTTGTGTGAGCCAATACTACGT spacer
length: 42 repeater length: 24
6506 774093 GAAACAATAGAGAAAAATTGAAAG CACAACCTCAAACCTCAAATTAGCTATTACGAATTCGCAAATAAG spacer
length: 43 repeater length: 24
6507 774160 GAAACAATAGAGAAAAATTGAAAG CACAAGCATATACAACCTTGCTCGACACAATGGATAAGTATG spacer
length: 41 repeater length: 24
6508 774225 GAAACAATAGAGAAAAATTGAAAG CCGAACCCGTCGTGCTGGGTAGTGTAAAGTTTACGAGCCT spacer
length: 41 repeater length: 24
6509 774290 GAAACAATAGAGAAAAATTGAAAG TGTATTATATCCAATATTCCGTATATTCTAGCACTCATTGCAT spacer
length: 43 repeater length: 24
6510 774357 GAAACAATAGAGAAAAATTGAAAG AAGATAAAAGTGAGCATTGTGAAATAGGGAGTGGAAAAGC spacer
length: 41 repeater length: 24
6511 774422 GAAACAATAGAGAAAAATTGAAAG CTCATTACCGCGCAATTGTTCAAGCTTATTTGCGAATTCGT spacer
length: 41 repeater length: 24
6512 774487 GAAACAATAGAGAAAAATTGAAAG TCACGGCAAAGCCCCTGGAAAACGTACGGCAGCATCGTGGCTACTGC
spacer length: 46 repeater length: 24
6513 774557 GAAACAATAGAGAAAAATTGAAAG TCGCCTTCGACTTCACATCCCTCATCAACATGATAACGCA spacer
length: 40 repeater length: 24
6514 774621 GAAACAATAGAGAAAAATTGAAAG TTAACCGTTTTTCTTCCCCTGTTCCGCCACAGTTGGATTTTT spacer
length: 41 repeater length: 24
6515 774686 GAAACAATAGAGAAAAATTGAAAG CTAAAAACATTAAGCCCAATGGGGATTAAAGGTAAAAGCAGGCT spacer
length: 44 repeater length: 24
6516 774754 GAAACAATAGAGAAAAATTGAAAG TATATTTCGCGTGAGTTTAAAGCGAAATGGCGAGATAGTTGT spacer
length: 41 repeater length: 24
6517 774819 GAAACAATAGAGAAAAATTGAAAG TGAGGATAGGGATTGTCTGGGAGTGCCCGTGGACTCCCAGT spacer
length: 41 repeater length: 24

6518 774884 GAAACAATAGAGAAAAATTGAAAG TTTGATACGGTAAACAAAATACAACATGATTAGTAAGATAAATA spacer
length: 44 repeater length: 24

6519 774952 GAAACAATAGAGAAAAATTGAAAG TTAATTTTACCGGTACGGGATAATTTTTCATCACAAAGG spacer
length: 39 repeater length: 24

6520 775015 GAAACAATAGAGAAAAATTGAAAG TTTTAAATCAATTGGGAAGCGTTAATAGCTCTTACCA spacer length:
37 repeater length: 24

6521 775076 GAAACAATAGAGAAAAATTGAAAG AGACTTGAGACCCAGGGACATGAGACCCACCGAGAAACATA spacer
length: 42 repeater length: 24

6522 775142 GAAACAATAGAGAAAAATTGAAAG TAATAAACGCTCACGGGTGAAACGCTTAGTGATGTAG spacer
length: 38 repeater length: 24

6523 775204 GAAACAATAGAGAAAAATTGAAAG CTTGAAAACCGTCACCTGGCTGGTGTAGTCTCGATGACAACTTTCT
spacer length: 48 repeater length: 24

6524 775276 GAAACAATAGAGAAAAATTGAAAG CTACAACATTGTTTAGACTAATACCTTTATGCTCAGCTAATTG spacer
length: 43 repeater length: 24

6525 775343 GAAACAATAGAGAAAAATTGAAAG TTGTATCGATAGCTATTAACATGGGCTTGTGCTTA spacer length:
36 repeater length: 24

6526 775403 GAAACAATAGAGAAAAATTGAAAG AGCCCAGCCCCGAAGCTCAGCCTTTTTTTCAAGCCCTTTCCT spacer
length: 42 repeater length: 24

6527 775469 GAAACAATAGAGAAAAATTGAAAG TGTGCCCTCCGTAGTGATTGCTACTTTCTGCTGTGTTA spacer
length: 39 repeater length: 24

6528 775532 GAAACAATAGAGAAAAATTGAAAG CAGCACATTGGATATGGTATAAACCTCTATTATAAGTG spacer
length: 38 repeater length: 24

6529 775594 GAAACAATAGAGAAAAATTGAAAG AGAGTGGATTGTGAACAAGGGGACTGTGAGCGAGGAGGAGAA spacer
length: 42 repeater length: 24

6530 775660 GAAACAATAGAGAAAAATTGAAAG TTCTTACATTCTTACGCGGAATTTTCCGCGTGTAAGAATG spacer
length: 40 repeater length: 24

6531 775724 GAAACAATAGAGAAAAATTGAAAG GTCTCGCGTGCTAGCAGGTTGAGTGCGGTCGGGGTTTTAGTC spacer
length: 42 repeater length: 24

6532 775790 GAAACAATAGAGAAAAATTGAAAG ATAACGTTGAGTTGCTGTTCAACGTGCCAGGGATAAGCTCA spacer
length: 42 repeater length: 24

6533 775856 GAAACAATAGAGAAAAATTGAAAG CCATGAACGA

6534

6535

6536 GCA_000092305.1_ASM9230v1_genomic.fna (PilerCR):

6537 START REPEAT
SPACER

6538 crispr 1

6539 109859 GTAAAATAACGCCCTAAGGGGATGGAAAC AGTAGTTGAGCACAGATTTCTCTGTGAATAACATCAA spacer
length: 37 repeater length: 30

6540 109926 GTAAAATAACGCCCTAAGGGGATGGAAAC CATTTACATTTTGCATTTCTTATCATGCACAACTC spacer
length: 35 repeater length: 30

6541 109991 GTAAAATAACGCCCTAAGGGGATGGAAAC AAGACCGTCTATGCATCGTCCGAGAACACCTTGGATAC

6542

6543

6544 crispr 2

6545 235819 GTTTCATCCCCTTAGGGGCGTTATTTTAC TTTATTAGGGTTAAAGAAAATGGATTTATATGCGATTATGTG
spacer length: 42 repeater length: 30

6546 235891 GTTTCATCCCCTTAGGGGCGTTATTTTAC AGAATTTAAAAGTGTTATCATCTACGGAAAGAAAAGA spacer
length: 37 repeater length: 30

6547 235958 GTTTCATCCCCTTAGGGGCGTTATTTTAC TTTGAACGAATTCAGAAATAGAGCAATAATAGAAT spacer
length: 35 repeater length: 30

6548 236023 GTTTCATCCCCTTAGGGGCGTTATTTTAC GATGTGATATTCAGAATAAACTACCTGATGGGTTTAT spacer
length: 38 repeater length: 30

6549 236091 GTTTCATCCCCTTAGGGGCGTTATTTTAC TTAAGACATTATATGATGAAGTGCCTAAAATAA spacer
length: 33 repeater length: 30

6550 236154 GTTTCATCCCCTTAGGGGCGTTATTTTAC CTGGAGACTTCTGAAGCATTAAGGCTCAGCTTGGTTC spacer
length: 38 repeater length: 30

6551 236222 GTTTCATCCCCTTAGGGGCGTTATTTTAC GAATTTTCAGTTATATTTGAAATTTCAATCACTGC spacer
length: 35 repeater length: 30

6552 236287 GTTTCATCCCCTTAGGGGCGTTATTTTAC TTTAATCTTTTTTGTGATGCTAACTTAATTGCATAT spacer
length: 36 repeater length: 30

6553 236353 GTTTCATCCCCTTAGGGGCGTTATTTTAC GCGACGCCCC

6554

6555

6556 crispr 3

6557 245938 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC TAAATTCTCCAAGGTCACAAATGGTTTTAAACGCGT
spacer length: 36 repeater length: 37

6558 246011 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC TCAGTGATTCTTTGTAAGATGTATGTGGAGATACA
spacer length: 35 repeater length: 37

6559 246083 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC AATTTATCTTCTAATATATCTTTTGCGTAGTATGATA
spacer length: 37 repeater length: 37

6560 246157 GTTTGAATCGCCAGTCCATTAAAAACAAGGATGGAAAC CAACCACCT
 6561
 6562
 6563 crispr 4
 6564 246614 GTTTGAATCGCCAGTCCATTAAAAACAAGGATGGAAAC TATACTATAACCGCTAAGTAATTAACCGACAAAA
 spacer length: 34 repeater length: 37
 6565 246685 GTTTGAATCGCCAGTCCATTAAAAACAAGGATGGAAAC AGTATAGATGGTAAAGAGCAGGAATGTCCTGAAATTGT
 spacer length: 38 repeater length: 37
 6566 246760 GTTTGAATCGCCAGTCCATTAAAAACAAGGATGGAAAC CTGTTATCAGTCCTTTTTTCTGAGATATTGCAA
 spacer length: 34 repeater length: 37
 6567 246831 GTTTGAATCGCCAGTCCATTAAAAACAAGGATGGAAAC AATTACGGGTATTTTACAACAGCAGTAAGCCAAGCCA
 spacer length: 37 repeater length: 37
 6568 246905 GTTTGAATCGCCAGTCCATTAAAAACAAGGATGGAAAC TGAGTTCATCTTTTCCAGATCTTATAATATCTTCAATAT
 spacer length: 39 repeater length: 37
 6569 246981 GTTTGAATCGCCAGTCCATTAAAAACAAGGATGGAAAC AAACATTTCATAATAAAACCTCTTCCAGCCATTCCCTT
 spacer length: 36 repeater length: 37
 6570 247054 GTTTGAATCGCCAGTCCATTAAAAACAAGGATGGAAAC AGCAAGAATTTCTTTTCTAAATTTTTCAGCATTGAAGT
 spacer length: 37 repeater length: 37
 6571 247128 GTTTGAATCGCCAGTCCATTAAAAACAAGGATGGAAAC AGCTCTTCTTTGAGCTTTTCTAATGTCAATTTTAGAGA
 spacer length: 38 repeater length: 37
 6572 247203 GTTTGAATCGCCAGTCCATTAAAAACAAGGATGGAAAC TAAATCAAATTTATTGATGCTTCTATTATTGCCTT
 spacer length: 35 repeater length: 37
 6573 247275 GTTTGAATCGCCAGTCCATTAAAAACAAGGATGGAAAC GTAAAGTTTCCAACGTTAGCATTAAATCAATTGGAGAA
 spacer length: 38 repeater length: 37
 6574 247350 GTTTGAATCGCCAGTCCATTAAAAACAAGGATGGAAAC
 TTACTTTTGAGAACTTTTTTAATAACGAAATTAAAGATTATA spacer length: 42 repeater length: 37
 6575 247429 GTTTGAATCGCCAGTCCATTAAAAACAAGGATGGAAAC
 TTACTTTTGAGAACTTTTTTAATAACGAAATTAAAGATTATA spacer length: 42 repeater length: 37
 6576 247508 GTTTGAATCGCCAGTCCATTAAAAACAAGGATGGAAAC CTAACATACACATCTATTTTATGAATTCATCAA
 spacer length: 34 repeater length: 37
 6577 247579 GTTTGAATCGCCAGTCCATTAAAAACAAGGATGGAAAC GTCCCTTA
 6578
 6579
 6580 crispr 5
 6581 531382 GTTTCATCCTTGTTTTAATGGACTGGCGATTCAAAC AGGGTGAAACCAGTTGCTGGAATGTTGACTATGACAT
 spacer length: 38 repeater length: 37
 6582 531457 GTTTCATCCTTGTTTTAATGGACTGGCGATTCAAAC CTAAGCTCTCTTCTCTCTAAGTTGAGAAATAAAGC
 spacer length: 35 repeater length: 37
 6583 531529 GTTTCATCCTTGTTTTAATGGACTGGCGATTCAAAC GTGATAGAAACATCTTTTTTATGAATTGTTTGATTGTA
 spacer length: 38 repeater length: 37
 6584 531604 GTTTCATCCTTGTTTTAATGGACTGGCGATTCAAAC CATTTTGGAGCCATAGGGATAATATGGAGCTTACAA
 spacer length: 36 repeater length: 37
 6585 531677 GTTTCATCCTTGTTTTAATGGACTGGCGATTCAAAC ATGAAGATTGGCAAATGATTAGGCTATTATTCAAGG
 spacer length: 36 repeater length: 37
 6586 531750 GTTTCATCCTTGTTTTAATGGACTGGCGATTCAAAC TGTTCCAAACACAGATGAGTGGTTAGATTGGGCTATCA
 spacer length: 38 repeater length: 37
 6587 531825 GTTTCATCCTTGTTTTAATGGACTGGCGATTCAAAC GAAAATCTCTTAAATACTTAATGAAAATGAAAATCT
 spacer length: 37 repeater length: 37
 6588 531899 GTTTCATCCTTGTTTTAATGGACTGGCGATTCAAAC ACACAACAACCTTACGACTTCCTGAAGTGTTTACA
 spacer length: 35 repeater length: 37
 6589 531971 GTTTCATCCTTGTTTTAATGGACTGGCGATTCAAAC
 AGTGCAGATGAAATACAACTAGAAGAAAACCATTAAGA spacer length: 40 repeater length: 37
 6590 532048 GTTTCATCCTTGTTTTAATGGACTGGCGATTCAAAC TTTTAGACAACTAAAGAAATGGGGGCTAATAGAAA
 spacer length: 36 repeater length: 37
 6591 532121 GTTTCATCCTTGTTTTAATGGACTGGCGATTCAAAC GGGTGTCTGC
 6592
 6593
 6594 crispr 6
 6595 604542 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC TCAAGCCGTCCTCAATTTTTATTTTTTGATCAACAAT
 spacer length: 37 repeater length: 37
 6596 604616 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC GATACTCAAGAGAACTATATCTTGAATATGAGAAAG
 spacer length: 36 repeater length: 37
 6597 604689 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC TTCTGGTAAGTCTTCTAATTCATTAATTATCTTTTC
 spacer length: 36 repeater length: 37
 6598 604762 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC CAGGGCTATTACAGTTCCTACAGCTCTATCTAT
 spacer length: 33 repeater length: 37
 6599 604832 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC ATAAAGAGAAAACATGAAGAGATTAAAGAAACAAAG
 spacer length: 36 repeater length: 37
 6600 604905 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC
 TGATACCCCTAAAAGAGTATTCCTAAGAAAAATAAGAAGAT spacer length: 41 repeater length: 37
 6601 604983 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC TGAAAAGGCATTAATGAGTAGAATTATTCAATATAC

spacer length: 36 repeater length: 37
 6602 605056 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC AAATGAATGAAATAGAATTAAGTGGGGGCATAAAAA
 spacer length: 36 repeater length: 37
 6603 605129 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC
 AATGTATAGAGGAAAATTTGGTGTTAGTGGGTCAATGACAGTGTTGG spacer length: 47 repeater length: 37
 6604 605213 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC AATCCGGGGAGTATCGTCCAATATCCAGAACAGGAT
 spacer length: 36 repeater length: 37
 6605 605286 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC GGAAAAATAGAATGGTTAGAAAAAGAACAAGAAGAGA
 spacer length: 38 repeater length: 37
 6606 605361 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC AAATGGTGATCCAATCACATACATAGATGAGTATAGCA
 spacer length: 38 repeater length: 37
 6607 605436 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC TTATTATATGAAATAATAAGTGAAGTTGAAAAAT
 spacer length: 34 repeater length: 37
 6608 605507 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC GTGTTTTGTGGAAAGTGACAAATGATTGAGAATATT
 spacer length: 36 repeater length: 37
 6609 605580 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC GACAGAGGGGAAGACTACTACGACATGTTGCCAAAAG
 spacer length: 37 repeater length: 37
 6610 605654 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC GACAAAAAAGAAGTTTGAAGAGACAAGAGAAATTTT
 spacer length: 36 repeater length: 37
 6611 605727 GTTTCATCCTTGTTTTAATGGACTGGTGATTCAAAC ATGGGTGTAA
 6612
 6613
 6614 crispr 7
 6615 715925 GTTTCATCCCCTTAGGGGCGTTATTTTAC TTTTGTTAGAGCATTTAAAGGAGACATACTATTACGAT spacer
 length: 38 repeater length: 30
 6616 715993 GTTTCATCCCCTTAGGGGCGTTATTTTAC TAATGTAATATTGGATTTGTCAGTTGTTGAGAAGCTAAAATTT
 spacer length: 43 repeater length: 30
 6617 716066 GTTTCATCCCCTTAGGGGCGTTATTTTAC TATTTAAATTTTTCAATTGATAACTTTTGAATAAATCCAAA
 spacer length: 41 repeater length: 30
 6618 716137 GTTTCATCCCCTTAGGGGCGTTATTTTAC TTACCACCCATTTATTGTTTTGTCGGTTAATTACTTAG spacer
 length: 38 repeater length: 30
 6619 716205 GTTTCATCCCCTTAGGGGCGTTATTTTAC CTTTATAAGTTAAAAAATAAGAATACTACTTTAT spacer
 length: 35 repeater length: 30
 6620 716270 GTTTCATCCCCTTAGGGGCGTTATTTTAC AAGTTCATTAAAAACCATAGAAATTAGAATATTTAATT spacer
 length: 38 repeater length: 30
 6621 716338 GTTTCATCCCCTTAGGGGCGTTATTTTAC AAGGACCTTC
 6622
 6623
 6624 crispr 8
 6625 767939 GTTTGAATCACCAGTCCATTAAAAACAAGGATGGAAAC ATAAATAGATTAAAGGGGCTGGGATTGATTGATAG
 spacer length: 35 repeater length: 37
 6626 768011 GTTTGAATCACCAGTCCATTAAAAACAAGGATGGAAAC GAAATAATTACCCATTACTTCCTTAAAAAGCTTAAC
 spacer length: 37 repeater length: 37
 6627 768085 GTTTGAATCACCAGTCCATTAAAAACAAGGATGGAAAC AGCTATGTTAGGGTATTTGTACTCCAGTAGTCTGAGC
 spacer length: 37 repeater length: 37
 6628 768159 GTTTGAATCACCAGTCCATTAAAAACAAGGATGGAAAC AGGATCAGTATGTCTGGTCTATATAGTTCAAGAATTTT
 spacer length: 38 repeater length: 37
 6629 768234 GTTTGAATCACCAGTCCATTAAAAACAAGGATGGAAAC GTGGGTTTGGAGTAACTACTCATTCATGATCACCTC
 spacer length: 36 repeater length: 37
 6630 768307 GTTTGAATCACCAGTCCATTAAAAACAAGGATGGAAAC
 TTGTTTTTTGTATCTATTGATATGAATACTCCAGTTCCAT spacer length: 40 repeater length: 37
 6631 768384 GTTTGAATCACCAGTCCATTAAAAACAAGGATGGAAAC CGATGTGGCCTATGCAGCGAACGAAGACGGTTACA
 6632
 6633
 6634 crispr 9
 6635 826018 GTTTCATCCCCTTAGGGGCGTTATTTTAC TGATTTGATGGAGAAAGAAGCATTTAATTATTTTCAAGAT
 spacer length: 40 repeater length: 30
 6636 826088 GTTTCATCCCCTTAGGGGCGTTATTTTAC GGGAGCATTTTTTGAAAAAGACGAAAGGCTAAGGTGGAAAGATG
 spacer length: 43 repeater length: 30
 6637 826161 GTTTCATCCCCTTAGGGGCGTTATTTTAC GAAAATTGAAAGTAATTTACCTTTACAAGTTATTTT spacer
 length: 36 repeater length: 30
 6638 826227 GTTTCATCCCCTTAGGGGCGTTATTTTAC TTAAAGCAATTGACAGTAGATGACTTCAATGCCGTT spacer
 length: 36 repeater length: 30
 6639 826293 GTTTCATCCCCTTAGGGGCGTTATTTTAC AAATAAGGAAGGGGTAAAGTCATAGAAATAGGAAGGGAGATT
 spacer length: 43 repeater length: 30
 6640 826366 GTTTCATCCCCTTAGGGGCGTTATTTTAC AGTTATTAGGAACAGGAGTTTCAGAAAAGAGTCTCTGCTCC
 spacer length: 40 repeater length: 30
 6641 826436 GTTTCATCCCCTTAGGGGCGTTATTTTAC ACACAAAAGAAGAGGCTGAGGTTCTTCAGTCTTTGTTTCA
 spacer length: 40 repeater length: 30
 6642 826506 GTTTCATCCCCTTAGGGGCGTTATTTTAC GAACCCGTCGTAATGAAAGTTGTGAAACACGATGTCTT spacer
 length: 38 repeater length: 30

6643 826574 GTTTCATCCCCTTAGGGGCGTTATTTTAC TCCAACTCTCATTGCTATGTGGAAGAGCACGTTGCAC spacer
length: 39 repeater length: 30
6644 826643 GTTTCATCCCCTTAGGGGCGTTATTTTAC AGGAACTCTCTACCCTCTGATCTTCCATCATCCTG spacer
length: 36 repeater length: 30
6645 826709 GTTTCATCCCCTTAGGGGCGTTATTTTAC TACTTGATACCCTAATGAACCTTTTAACTCTGAA spacer
length: 35 repeater length: 30
6646 826774 GTTTCATCCCCTTAGGGGCGTTATTTTAC CGATCTGGAG
6647
6648
6649 crispr 10
6650 834709 GTAAAATAACGCCCTAAGGGGATGGAAAC TTCATCTCTGGTCTTCTCAACATGCAAAATGTGGAATT spacer
length: 38 repeater length: 30
6651 834777 GTAAAATAACGCCCTAAGGGGATGGAAAC ATGCTCCCCTATCTCCACAATCATCTCTAACCTTTTCTA spacer
length: 38 repeater length: 30
6652 834845 GTAAAATAACGCCCTAAGGGGATGGAAAC GACAAAATTTAACCTGTTTATAATATCTGTTGTTTTCC spacer
length: 38 repeater length: 30
6653 834913 GTAAAATAACGCCCTAAGGGGATGGAAAC AACTGATGTGAAGTTAGTATCATTTTACTTATTGATGC spacer
length: 39 repeater length: 30
6654 834982 GTAAAATAACGCCCTAAGGGGATGGAAAC TCCATACGC
6655
6656
6657 crispr 11
6658 1082728 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC TAAGTATCAATTTCTAATGTACCTTGGGTATCTGG
spacer length: 35 repeater length: 37
6659 1082800 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC CTTGTGCTTTTTCTTCTTGCCATTATCTCATTCCTC
spacer length: 36 repeater length: 37
6660 1082873 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC AGATGGACGGGTGTTTTCTCATATCAATGATTTGT
spacer length: 36 repeater length: 37
6661 1082946 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC TTCACAGGAGTATGTTTAGGTGGTGGAAAATCAGATTC
spacer length: 38 repeater length: 37
6662 1083021 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC ATAAAATAAGAGCGTATTCTCTAAAAAACTTTGGCTT
spacer length: 37 repeater length: 37
6663 1083095 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC CCCAGCAGATCTATGTCCTCCATTCCCAGGAAAATGT
spacer length: 38 repeater length: 37
6664 1083170 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC TGAACGCAAACGTCAAGTCGTTCAACGGTACCGACCACC
6665
6666
6667 crispr 12
6668 1111055 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC CGATGGTTTLAGAAGCCCTAACACAATTAATAGAAAA
spacer length: 36 repeater length: 37
6669 1111128 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC CTGGAGTTCCAACAACATACTTTTTTCTCCAAGGCAC
spacer length: 37 repeater length: 37
6670 1111202 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC AAGCAGAGGTAAATACAATAGATAACGAATTAGTGA
spacer length: 36 repeater length: 37
6671 1111275 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC
AAATTCTTCTTTTAACTTTTCTACTATCTCTGATAAG spacer length: 39 repeater length: 37
6672 1111351 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC GCATTAGTTACCATATCTGCATATCTCAACGTAAAC
spacer length: 36 repeater length: 37
6673 1111424 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC CGGAAGGTCGG
6674
6675
6676 crispr 13
6677 1111599 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC TTTTGTGGCTCAGGAGTTGGTGGGAAGATAATT
spacer length: 35 repeater length: 37
6678 1111671 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC AACTAATCTTGGGATTTTGTCTAGGGGTATTCTG
spacer length: 35 repeater length: 37
6679 1111743 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC ATCTTGACGAAAGAACCCAAGAATCCCATATCCATT
spacer length: 36 repeater length: 37
6680 1111816 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC TCAACATAAATTCTCTTAGCACATATGTATTCCTCA
spacer length: 36 repeater length: 37
6681 1111889 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC ACGTGGATAAGAGGTATGTGACATACTACATCATA
spacer length: 35 repeater length: 37
6682 1111961 GTTTGAATCGCCAGTCCATTAAAACAAGGATGGAAAC GATGCCGGTCT
6683
6684
6685 crispr 14
6686 1119925 GTTTCATCCCCTTAGGGGCGTTATTTTAC TGTGCACTACTAGTTGAGGTGAAAAAGATGCTGTA spacer
length: 36 repeater length: 30
6687 1119991 GTTTCATCCCCTTAGGGGCGTTATTTTAC TGGAGTAGGAAAATCATATACTGCTCTACATCTTGCAA spacer
length: 38 repeater length: 30
6688 1120059 GTTTCATCCCCTTAGGGGCGTTATTTTAC TGCTTTTCAATTGGCAAATTGAGCCTGTCAAATAGCTTATAATC

spacer length: 44 repeater length: 30
 6689 1120133 GTTTCCATCCCCTTAGGGGCGTTATTTTAC AACTCCATCTTATCACCTATTTCTTTTCTGGATAT spacer
 length: 37 repeater length: 30
 6690 1120200 GTTTCCATCCCCTTAGGGGCGTTATTTTAC TACTGAAAAATGTAAAGCTGCTGGAGGTGTGCAAAATGAGA
 spacer length: 41 repeater length: 30
 6691 1120271 GTTTCCATCCCCTTAGGGGCGTTATTTTAC GATTGAATATCTTCCAAATGGAACCCTAACTAATAACATT
 spacer length: 40 repeater length: 30
 6692 1120341 GTTTCCATCCCCTTAGGGGCGTTATTTTAC CTTACCATAACTTCATTGTGGATTTTATCCAGTAACTCA
 spacer length: 39 repeater length: 30
 6693 1120410 GTTTCCATCCCCTTAGGGGCGTTATTTTAC TGTATTGTATATAGGGGATATGAATGAGGAACATATGCAAT
 spacer length: 40 repeater length: 30
 6694 1120480 GTTTCCATCCCCTTAGGGGCGTTATTTTAC TTGCCAGCAGGAAAATAGACCTCTCTAAGCCAATTCC spacer
 length: 37 repeater length: 30
 6695 1120547 GTTTCCATCCCCTTAGGGGCGTTATTTTAC ATAACGAAAACAAAAATAAGAGGTGAGAGAGATGGAA spacer
 length: 37 repeater length: 30
 6696 1120614 GTTTCCATCCCCTTAGGGGCGTTATTTTAC CTTAAATCATACGCCTTCAATATATCAACATA spacer
 length: 32 repeater length: 30
 6697 1120676 GTTTCCATCCCCTTAGGGGCGTTATTTTAC GACATTACTCTGCTCAGTAGCAAGTGTAAGTTGTTTG spacer
 length: 38 repeater length: 30
 6698 1120744 GTTTCCATCCCCTTAGGGGCGTTATTTTAC TTACGACAAGATTTTGGGACATGGCTTGACTTTTTTTT spacer
 length: 37 repeater length: 30
 6699 1120811 GTTTCCATCCCCTTAGGGGCGTTATTTTAC CTCCATCTTTCACAATCAGAACTATCTCATCCCC spacer
 length: 34 repeater length: 30
 6700 1120875 GTTTCCATCCCCTTAGGGGCGTTATTTTAC CTTCCGATCA
 6701
 6702
 6703 crispr 15
 6704 1295744 GTAAAAATAACGCCCTAAGGGGATGGAACT ATAGTTATTATGGGATTGCTAAAAATATGGTATC spacer
 length: 34 repeater length: 31
 6705 1295809 GTAAAAATAACGCCCTAAGGGGATGGAACT GCGGGGCTAAACAAAGAAAAAGGGGGGTTGAGAATG spacer
 length: 36 repeater length: 31
 6706 1295876 GTAAAAATAACGCCCTAAGGGGATGGAACT ATTTTTCAGGTTGTTTAAACCTCTTCAATTTCTT spacer
 length: 36 repeater length: 31
 6707 1295943 GTAAAAATAACGCCCTAAGGGGATGGAACT GCCGGCCACA
 6708
 6709
 6710 GCA_000092465.1_ASM9246v1_genomic.fna (PilerCR):
 6711 START REPEAT
 SPACER
 6712 crispr 1
 6713 193884 CCTTCAATTCTTTCTGTGTTGTTAC CAAGTCAAAATATGACTACGATGGAACAGGGAGCAAGGTCCT spacer
 length: 42 repeater length: 25
 6714 193951 CCTTCAATTCTTTCTGTGTTGTTAC AAGGGACTTGGATAACAGACTGGGAAAAAGATAAGATTTGGGA spacer
 length: 43 repeater length: 25
 6715 194019 CCTTCAATTCTTTCTGTGTTGTTAC CTAATGAAATTGGTAGACTACAAACAATAAGCGATGTAAG spacer
 length: 40 repeater length: 25
 6716 194084 CCTTCAATTCTTTCTGTGTTGTTAC CACGGTTTATTCTTACCGTAATTATGAGTGGAAAATAAT spacer
 length: 40 repeater length: 25
 6717 194149 CCTTCAATTCTTTCTGTGTTGTTAC TCGGTCCCGA
 6718
 6719
 6720 crispr 2
 6721 541479 CTTTCAATTTTCTAAATTGTTTC AATAGAAGCGGTAAAGAAGGGCTATTATCACATGGATCG spacer
 length: 39 repeater length: 24
 6722 541542 CTTTCAATTTTCTAAATTGTTTC GGTGTCTGTGTCTGGCTAGGAGTAGTTGTTTCTGATCCACTAC spacer
 length: 43 repeater length: 24
 6723 541609 CTTTCAATTTTCTAAATTGTTTC ATATGTTTCCACTGCTATCAAGTGCTTTAACCTTATTAT spacer
 length: 40 repeater length: 24
 6724 541673 CTTTCAATTTTCTAAATTGTTTC TTTACTTGGAAGCCGTGTGGGACATAGAATCTAACCGTTTG spacer
 length: 41 repeater length: 24
 6725 541738 CTTTCAATTTTCTAAATTGTTTC CAAACATTTTGAAAACACTTGATAATTCCCATAGGCTCC spacer
 length: 39 repeater length: 24
 6726 541801 CTTTCAATTTTCTAAATTGTTTC TTTATTACTAGATACCAATTGTAAACCTTGCTCAATT spacer
 length: 39 repeater length: 24
 6727 541864 CTTTCAATTTTCTAAATTGTTTC GCTCCATATTTGGCTTGACAAAAAGCTAAAAACGTTGATAACT spacer
 length: 43 repeater length: 24
 6728 541931 CTTTCAATTTTCTAAATTGTTTC CTCGGTCTAGCTGCTGCAACAATGAAAGCATAAGCCCCTCTTCA spacer
 length: 45 repeater length: 24
 6729 542000 CTTTCAATTTTCTAAATTGTTTC GGGCAAGAGGGCAAGAGGGCAAAACAAACAATATATTGTTATG spacer
 length: 43 repeater length: 24
 6730 542067 CTTTCAATTTTCTAAATTGTTTC ATCCCTCTCGA

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6731
6732
6733 crispr 3
6734 716212 GTAACAACACAAAAAGAATTGAAGG CTAACGTTTTCTTATTGATCACTAAGAATATGGTATGTAT spacer
length: 41 repeater length: 25
6735 716278 GTAACAACACAAAAAGAATTGAAGG TTGAAAATCAGCATACGCTCTGGTCTCTCGGTGCAAAA spacer
length: 39 repeater length: 25
6736 716342 GTAACAACACAAAAAGAATTGAAGG ACATTTAGCGATGTTGAATATGTATATATATGTGATGGCAC spacer
length: 41 repeater length: 25
6737 716408 GTAACAACACAAAAAGAATTGAAGG GTCTTATCCT
6738
6739
6740 GCA_000144915.1_ASM14491v1_genomic.fna (PilerCR) :
6741 START REPEAT
SPACER
6742 crispr 1
6743 0 GTTTCAACACCATTCCTTGGTTTC CCATTGGTAAATGAGATTGTGGTTACGCATCCAGAGCATAA spacer length:
41 repeater length: 24
6744 65 GTTTCAACACCATTCCTTGGTTTC GCCGTTGAAGTAGTCCTCGTCGTCGTGCACCACCTCCTCCA spacer length:
41 repeater length: 24
6745 130 GTTTCAACACCATTCCTTGGTTTC TGATTGTAAGTGGGGCGCTGACAGGGTACATGTAGGTG spacer length:
38 repeater length: 24
6746 192 GTTTCAACACCATTCCTTGGTTTC ACGTGCCCTATGGAACGCTGAAGGTATACCTATCAAGGTCAA spacer
length: 42 repeater length: 24
6747 258 GTTTCAACACCATTCCTTGGTTTC GCCAGAGTGTCAATTAAGTACCCCAACGTAAGCGGAGGGC spacer length:
40 repeater length: 24
6748 322 GTTTCAACACCATTCCTTGGTTTC ATCTCCTTCTTGTCCCTGCCAGGTACGCAATTATG spacer length: 36
repeater length: 24
6749 382 GTTTCAACACCATTCCTTGGTTTC TTATGTCATACTCCTTTGCTGCCTCGTGGAGCTGTCCTGCTA spacer
length: 42 repeater length: 24
6750 448 GTTTCAACACCATTCCTTGGTTTC TAGAGGACTTTCTTAACAACGCCATTGATATCCTTGTAATCAG spacer
length: 43 repeater length: 24
6751 515 GTTTCAACACCATTCCTTGGTTTC TAGAGCATATAAAGGAGGAAGATATCGAGAAGTTCCT spacer length: 37
repeater length: 24
6752 576 GTTTCAACACCATTCCTTGGTTTC GCCAAGCACAAGCGACAACCCTAACCGCCCCCATGT spacer length: 36
repeater length: 24
6753 636 GTTTCAACACCATTCCTTGGTTTC CAAGAGAAGTTTTATTTGACGCAGTAGACAACAAGGAAAGAG spacer
length: 42 repeater length: 24
6754 702 GTTTCAACACCATTCCTTGGTTTC GCGTAGACCTGGAAGCGGTACTCTGCGTAGACAAGG spacer length: 36
repeater length: 24
6755 762 GTTTCAACACCATTCCTTGGTTTC ACATTTTGTGTTAGGCAGAGGACAGCAAATTTAACAGT spacer length: 37
repeater length: 24
6756 823 GTTTCAACACCATTCCTTGGTTTC TAAATAACTCTCTCGTTCTCGTCTACCTCATAACGGTCGTTTCCTAA spacer
length: 46 repeater length: 24
6757 893 GTTTCAACACCATTCCTTGGTTTC CAAGTTTGTTCAGAAAATTGCCTTGAAAGATTCAAGCTATTTCT spacer
length: 44 repeater length: 24
6758 961 GTTTCAACACCATTCCTTGGTTTC TCGGAAAGAGAGGAAAGAAGGGAAAGGGTAACGTTGTAA spacer
length: 41 repeater length: 24
6759 1026 GTTTCAACACCATTCCTTGGTTTC AGAACAAAAA
6760
6761
6762 crispr 2
6763 5772 GGAAACCACGAGATGGTGTGCAAC GAAGACCAACAGACTCAGGCTCTGAGTCAGGAAGCCTAA spacer
length: 39 repeater length: 25
6764 5836 GGAAACCACGAGATGGTGTGCAAC AACTCCGTTACGTCAATGTCTACCGTGATCATGATGTCAGCC spacer
length: 42 repeater length: 25
6765 5903 GGAAACCACGAGATGGTGTGCAAC GGTGTAACGCTACTTGTGCTAGAAAGTCGTCATCGTTTTCA spacer
length: 41 repeater length: 25
6766 5969 GGAAACCACGAGATGGTGTGCAAC TAGAACGTTAGCGGAATGACGCCAAGCTGGAATGCCGT spacer length:
38 repeater length: 25
6767 6032 GGAAACCACGAGATGGTGTGCAAC TTGCCCTGGCGTGGACCTTAGAACCTGGTGCCTTGA spacer length:
37 repeater length: 25
6768 6094 GGAAACCACGAGATGGTGTGCAAC CTGGGGAGCATGCCCTAGGGAGAAGGCGTTGGCTAAAATAACCCT spacer
length: 44 repeater length: 25
6769 6163 GGAAACCACGAGATGGTGTGCAAC TGAGGCATGGCCTCAGGGTCAAGGCGAAAGAAAGAAATGAA spacer
length: 41 repeater length: 25
6770 6229 GGAAACCACGAGATGGTGTGCAAC TAGTGAAGTCCTTCAGTTCGGCCAAAAAAGCGCCATCA spacer length:
38 repeater length: 25
6771 6292 GGAAACCACGAGATGGTGTGCAAC CAATAAACAC
6772
6773

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6774	crispr 3	
6775	15742 GTTACAACACCATCTCGTGGTTTC	GCGGATGTATCACCTAAAGCCGAAGTTTGTGATAAGG spacer length: 37 repeater length: 24
6776	15803 GTTACAACACCATCTCGTGGTTTC	TGGATTACTTGCGGCAAACATACTTAGTTTCTACTCTTT spacer length: 39 repeater length: 24
6777	15866 GTTACAACACCATCTCGTGGTTTC	CCGAGTATGTTTACGTCCTCTGCCTCAGAAAGGCCGAGCCTTT spacer length: 43 repeater length: 24
6778	15933 GTTACAACACCATCTCGTGGTTTC	GCAGGCTCTGGAAGGCCATACTGTCCCTACAGAACCCAGAC spacer length: 41 repeater length: 24
6779	15998 GTTACAACACCATCTCGTGGTTTC	TTTCTATCTGAGGCGTGAGAGCATGGGTGAGAGGGTTTCTC spacer length: 41 repeater length: 24
6780	16063 GTTACAACACCATCTCGTGGTTTC	GAAGTTTAAGCTATTCTTGCTAACACATATCAATCAACTCAA spacer length: 42 repeater length: 24
6781	16129 GTTACAACACCATCTCGTGGTTTC	AGTTTTTATGAAAAATCCTTAAAGAACTTGGCCTTTCTT spacer length: 40 repeater length: 24
6782	16193 GTTACAACACCATCTCGTGGTTTC	GCGTTTTATTACGCGACCTGGGGCAGCGCAACAGTGGAAGA spacer length: 41 repeater length: 24
6783	16258 GTTACAACACCATCTCGTGGTTTC	GCGTCTTTCTTTTATAATTGACCATTTCATGAATTTTGTGTTT spacer length: 40 repeater length: 24
6784	16322 GTTACAACACCATCTCGTGGTTTC	GTTGTATACGATAACTACGGGTTCTGGGTCCATCCAACCTT spacer length: 41 repeater length: 24
6785	16387 GTTACAACACCATCTCGTGGTTTC	TACAAACACGTTTGCCGTGTTTGAAGAAGCTGGGCCTTATAG spacer length: 41 repeater length: 24
6786	16452 GTTACAACACCATCTCGTGGTTTC	GTCTCAGAATGAAAGCTCGGAGGGGACTCCCCAGACTC spacer length: 38 repeater length: 24
6787	16514 GTTACAACACCATCTCGTGGTTTC	CGAGAGACGTGAGCGAGGTGAGGAATGTGGAGAGCGAGTTGG spacer length: 42 repeater length: 24
6788	16580 GTTACAACACCATCTCGTGGTTTC	ACGGGGAAAGAAACCATCACCGGAACGGTAGTAGGGGGGAATGA spacer length: 44 repeater length: 24
6789	16648 GTTACAACACCATCTCGTGGTTTC	GGCTGTTTCACTGCCTGCAGGAGCACCCAGAGTACTTGG spacer length: 38 repeater length: 24
6790	16710 GTTACAACACCATCTCGTGGTTTC	GAGGTGCTAAAGAACGGGTTCACATCTGTCGTGGGCCACCC spacer length: 41 repeater length: 24
6791	16775 GTTACAACACCATCTCGTGGTTTC	AGGAAGTTCAGTTCGTTGAACTTCTACGACATAATCTTTT spacer length: 40 repeater length: 24
6792	16839 GTTACAACACCATCTCGTGGTTTC	TAGCCGTTTCGGGATTGACGTGGAACGGCTGCGCTCTTATGGG spacer length: 42 repeater length: 24
6793	16905 GTTACAACACCATCTCGTGGTTTC	ATTACATCTCAAGATCAGGGCTAACATGGAGCGGTG spacer length: 37 repeater length: 24
6794	16966 GTTACAACACCATCTCGTGGTTTC	TATTCATTATGGACAAAGCGGTTCAATGTTTACAACAACACCC spacer length: 43 repeater length: 24
6795	17033 GTTACAACACCATCTCGTGGTTTC	TCGTATGGGTCTTTTTTGGGCTCTACGCATGTTTGGAAA spacer length: 39 repeater length: 24
6796	17096 GTTACAACACCATCTCGTGGTTTC	TCAGCGCTACAAACATGTCCTTCCCAGCTGGCTACATAG spacer length: 39 repeater length: 24
6797	17159 GTTACAACACCATCTCGTGGTTTC	TAGCTCTTTTTCTTCGCCTTGCCCCATGGCCCCATGGCC spacer length: 39 repeater length: 24
6798	17222 GTTACAACACCATCTCGTGGTTTC	TATCAGGAGGTTGCCATCAGCATTTGTTCTGGCTGGGGCTAG spacer length: 42 repeater length: 24
6799	17288 GTTACAACACCATCTCGTGGTTTC	CGGCATATGC
6800		
6801		
6802	crispr 4	
6803	19723 GAAACCAAGGAATGGTGTGAAAC	TCTCTAAATACAATCGGCTTCTGATCCTTGGTAAATGC spacer length: 38 repeater length: 24
6804	19785 GAAACCAAGGAATGGTGTGAAAC	CCTCATGTTTATTGGGATATAAATTGACAACATCCACGG spacer length: 40 repeater length: 24
6805	19849 GAAACCAAGGAATGGTGTGAAAC	GCTTCATGCCGATAAGGCCGGCTGACCTAAATTGGTTAAGAA spacer length: 42 repeater length: 24
6806	19915 GAAACCAAGGAATGGTGTGAAAC	CATAGAAAGATAGTTTCAGGGGTTTAAATTTCCATAGGTTTTCAG spacer length: 43 repeater length: 24
6807	19982 GAAACCAAGGAATGGTGTGAAAC	TGACGTTAGCGTGAACGGGGACAGGATAAGCATAACTATAA spacer length: 41 repeater length: 24
6808	20047 GAAACCAAGGAATGGTGTGAAAC	ACTAGAACTTTATCCATGTCCACAAACCATGTTATGGCC spacer length: 39 repeater length: 24
6809	20110 GAAACCAAGGAATGGTGTGAAAC	CGAGAAACCAATTAACCTTAGACGCATACAAAAAGATAATTAACGAGTCAA spacer length: 50 repeater length: 24
6810	20184 GAAACCAAGGAATGGTGTGAAAC	TAAGTATCTTCAAAGCCCTTATAAACTTGCTACCCTCTTGAA spacer length: 43 repeater length: 24
6811	20251 GAAACCAAGGAATGGTGTGAAAC	ACGCAATCATAGCCTTTGATGTTATCGCCACAGCTAACTA spacer length: 40 repeater length: 24

6812	20315 GAAACCAAGGAATGGTGTGAAAC	CCTCCACTGGCCTGTAGGTATAGTTTGC GAAGTGGTATGC spacer
	length: 40 repeater length: 24	
6813	20379 GAAACCAAGGAATGGTGTGAAAC	CAAAAGTCCGTGTGGTCTTCCCCCTCAA AATCGAAATATTGC spacer
	length: 42 repeater length: 24	
6814	20445 GAAACCAAGGAATGGTGTGAAAC	TACTTCAGAG
6815		
6816		
6817	crispr 5	
6818	20589 GAAACCAAGGAATGGTGTGAAAC	CTGCTATTATTTTCGCTTGCATAATCTGTTGGCATACCCCTGTGG spacer
	length: 44 repeater length: 24	
6819	20657 GAAACCAAGGAATGGTGTGAAAC	ATCAGCGTAAGCTGTTCATACTTCCTCTGTGCAATTACAGTC spacer
	length: 42 repeater length: 24	
6820	20723 GAAACCAAGGAATGGTGTGAAAC	ACTTTCCACTCATATCTATTCTGAACGTCAACAATATACA spacer
	length: 40 repeater length: 24	
6821	20787 GAAACCAAGGAATGGTGTGAAAC	AGGTTATACTGCCCCAGCGGCTTCGGCCTCCCCAGC spacer length:
	37 repeater length: 24	
6822	20848 GAAACCAAGGAATGGTGTGAAAC	CCATAGGGGAAGCTCCACTTCTTTCACAACTCTGCG spacer length:
	37 repeater length: 24	
6823	20909 GAAACCAAGGAATGGTGTGAAAC	GCAGCTTTGCCAGTTCTCCCTCAATAGTGTATT CATAT spacer length:
	38 repeater length: 24	
6824	20971 GAAACCAAGGAATGGTGTGAAAC	TTTATGATATTAACGGTAGGCGCCGTGAGGACTATA spacer length:
	36 repeater length: 24	
6825	21031 GAAACCAAGGAATGGTGTGAAAC	CTTGCTATCACGTCCCTAACGTT CATGCCCTGGTCTT spacer length:
	38 repeater length: 24	
6826	21093 GAAACCAAGGAATGGTGTGAAAC	TGGGGCCATTCTCTGCTATCTCATACACTTCTTTCATAT spacer
	length: 39 repeater length: 24	
6827	21156 GAAACCAAGGAATGGTGTGAAAC	TCTCACCCGC
6828		
6829		
6830	crispr 6	
6831	21422 GAAACCAAGGAATGGTGTGAAAC	AGTTCCTTCAAACATCGCAAAAATAGCTGAGGAAAACGT spacer length:
	38 repeater length: 24	
6832	21484 GAAACCAAGGAATGGTGTGAAAC	TTTATATAAAACCTGGTGA ACTACATGGCTACTCGTAAGCTTCT spacer
	length: 44 repeater length: 24	
6833	21552 GAAACCAAGGAATGGTGTGAAAC	ATCCTAATGACGTCCATTGGCACTCCAGGGACTTCCTCAA spacer
	length: 40 repeater length: 24	
6834	21616 GAAACCAAGGAATGGTGTGAAAC	TAGATATTTGGGCTCACGAAAATCTTTCTGTCATGAAGTA spacer
	length: 40 repeater length: 24	
6835	21680 GAAACCAAGGAATGGTGTGAAAC	TGCTGGATGCCGGTAGCGGGCCCCCTTGGCACTTCTACGGTAGAACA spacer
	length: 46 repeater length: 24	
6836	21750 GAAACCAAGGAATGGTGTGAAAC	ACTACGCCGTGGAGGCAATGTCCTTTGCTCTCGAGA spacer length:
	36 repeater length: 24	
6837	21810 GAAACCAAGGAATGGTGTGAAAC	GTCCTCACCAGGCCCACAAGTTCAATTGGTGT TTTAGCGA spacer
	length: 40 repeater length: 24	
6838	21874 GAAACCAAGGAATGGTGTGAAAC	ACTTCCTGCGCGCTCACGCTCTCTCGCCTCGCTTTTCTGTG spacer
	length: 41 repeater length: 24	
6839	21939 GAAACCAAGGAATGGTGTGAAAC	TCTTATTTCTTCGCCGCC CAGCCGCTACTATTTCCGCG spacer
	length: 40 repeater length: 24	
6840	22003 GAAACCAAGGAATGGTGTGAAAC	CAGGTGAAACAAAATATAATATGTCAATTGCGTTGTTTAG spacer
	length: 40 repeater length: 24	
6841	22067 GAAACCAAGGAATGGTGTGAAAC	ATGCACCACAAGGTAGTATCCTTCGTCGAGATACCTACTC spacer
	length: 40 repeater length: 24	
6842	22131 GAAACCAAGGAATGGTGTGAAAC	TCACTGTTTCCCTCGCACGGGTTGGGTAGATTCCACG spacer length:
	37 repeater length: 24	
6843	22192 GAAACCAAGGAATGGTGTGAAAC	TGTGGCAAGCTTTCTCCTTTGCTTTATCTCGCTTATTGTCTTTGC spacer
	length: 45 repeater length: 24	
6844	22261 GAAACCAAGGAATGGTGTGAAAC	ATGGCGTTCGCGCAAGAATGCCGTGCTGTGGTATGTCATAG spacer
	length: 42 repeater length: 24	
6845	22327 GAAACCAAGGAATGGTGTGAAAC	ACCTCCCTCTTCAATTCTTCTTCCAGACTCTCCCCACCTG spacer
	length: 41 repeater length: 24	
6846	22392 GAAACCAAGGAATGGTGTGAAAC	GCTTATTCCAA
6847		
6848		
6849	crispr 7	
6850	1415504 GAATCCGCTCAATGGAATTGAAAG	AATACTATTAGTTATCACAGAGCGTTTATAAATTTTC spacer
	length: 37 repeater length: 24	
6851	1415565 GAATCCGCTCAATGGAATTGAAAG	CAGGGTAAATACGTCGGCCTTGCCATAGGTGCCATTCTCAG spacer
	length: 41 repeater length: 24	
6852	1415630 GAATCCGCTCAATGGAATTGAAAG	CTATTTTAGTCCTCGGCATGGGCGGAAGCGCAAGACTTACT spacer
	length: 42 repeater length: 24	
6853	1415696 GAATCCGCTCAATGGAATTGAAAG	CTCGCCCATGTTAGCCAGCGCAACCGCAGCGTCTGCTAGGTCGGG

spacer length: 46 repeater length: 24
 6854 1415766 GAATCCGCTCAATGGAATTGAAAG TTATTCAAGAAAAAGTCCCGGGCAAAGGCCCTTACGCTTG spacer
 length: 40 repeater length: 24
 6855 1415830 GAATCCGCTCAATGGAATTGAAAG GTTAGCCTTTATGTAGTCCTCTATAGCCTCCCGGACTATT spacer
 length: 40 repeater length: 24
 6856 1415894 GAATCCGCTCAATGGAATTGAAAG ATGACATGGCG
 6857
 6858
 6859 GCA_000145985.1_ASM14598v1_genomic.fna(PilerCR):
 6860 START REPEAT
 SPACER
 6861 crispr 1
 6862 536387 CTTTCAATTCCATATATTGGATTC ATAGAGGTATATACGGGAAGATCCTTGTTTACGATATGTACTACAA
 spacer length: 46 repeater length: 24
 6863 536457 CTTTCAATTCCATATATTGGATTC TGAGCTTATAAAAAGAATTGTTACCGACATAGAGAGACATACTGA spacer
 length: 45 repeater length: 24
 6864 536526 CTTTCAATTCCATATATTGGATTC GGGAATATATGAACACAGCGGTATACCAATTTATGTGATTGATACA
 spacer length: 46 repeater length: 24
 6865 536596 CTTTCAATTCCATATATTGGATTC CTTAAGGAGAATGGCTTTGATCCAACAAGAACAATTGTATTCTACAA
 spacer length: 47 repeater length: 24
 6866 536667 CTTTCAATTCCATATATTGGATTC CACTAGGTTGGCGATTGCAGGCTCAATGATTGGAGAAATACGGG spacer
 length: 44 repeater length: 24
 6867 536735 CTTTCAATTCCATATATTGGATTC AGCTAATCGAGGAAAAAGATTATGACGCAATGGCATTCTATAA spacer
 length: 43 repeater length: 24
 6868 536802 CTTTCAATTCCATATATTGGATTC AATGTTCTCGTTCTTTGGGAACTGGGGCGATCCAGATAAATACAAT
 spacer length: 46 repeater length: 24
 6869 536872 CTTTCAATTCCATATATTGGATTC GAAGGTAGAGCCATAATTGATGTAGCAATGGGTGGTTCAAAAGT spacer
 length: 44 repeater length: 24
 6870 536940 CTTTCAATTCCATATATTGGATTC ATCATGATGACCAAGCAATACGCTGAAGGTGGCGCAA
 6871
 6872
 6873 crispr 2
 6874 546657 GAATCCTATAAATGGAATTGAAAG CTCTGGAATCTCATCGCTTACATTTCATAGTTAGACCTGGCAAGCAGT
 spacer length: 47 repeater length: 24
 6875 546728 GAATCCTATAAATGGAATTGAAAG TACAGACCTATAACATTGAGCAAGTATCCAGAACAGTATGAAAGGAA
 spacer length: 47 repeater length: 24
 6876 546799 GAATCCTATAAATGGAATTGAAAG TTACCCGTGAGCGGATCCATCTTCGAATATGTTATGAGTCCTGTAA
 spacer length: 46 repeater length: 24
 6877 546869 GAATCCTATAAATGGAATTGAAAG ATCGTATCACGGATCTTGGCAAAGACGTCAATATCAGAAATTGAG spacer
 length: 45 repeater length: 24
 6878 546938 GAATCCTATAAATGGAATTGAAAG ATAGAGAAGATATGCAGCCAGACTAGACCTGATAAACTCTACAGTTAA
 spacer length: 50 repeater length: 24
 6879 547012 GAATCCTATAAATGGAATTGAAAG GTAGACGTAGCAACACGCGGCCACAGACCGCCATCCACCTTCAA spacer
 length: 44 repeater length: 24
 6880 547080 GAATCCTATAAATGGAATTGAAAG TGTGGAGAAAACCTGGAAATGATTTTGATCAAACACAGAAATGGAATCT
 spacer length: 49 repeater length: 24
 6881 547153 GAATCCTATAAATGGAATTGAAAG CACTGAGTTCTCATTAGTTTTTTCTTTTAAGGTGTGTCCACCTA spacer
 length: 44 repeater length: 24
 6882 547221 GAATCCTATAAATGGAATTGAAAG CTGAGGGGCTGGCCTCTGTGATTCTGAGAGCCATTTGACAACCTAG spacer
 length: 45 repeater length: 24
 6883 547290 GAATCCTATAAATGGAATTGAAAG TTTCATGTAG
 6884
 6885
 6886 crispr 3
 6887 562778 CTTTCAATTCCATATATTGGATTC CCAGAAATAACTCAGGAGCAGTTACCAAGTTATTTACAAGATGCAATTTCA
 spacer length: 51 repeater length: 24
 6888 562853 CTTTCAATTCCATATATTGGATTC TTAAAGCACATCAGTTTATAGAAGCATTCTTTGAGGAATTGGAG spacer
 length: 44 repeater length: 24
 6889 562921 CTTTCAATTCCATATATTGGATTC ATGCACTATTGATCCTATAGATGATGGTATAATTCCCACAGCTGT spacer
 length: 45 repeater length: 24
 6890 562990 CTTTCAATTCCATATATTGGATTC GGTCTAAGAAAGATATTGTAGAGGAAGCTGTTAGGTTGTATGTACT
 spacer length: 46 repeater length: 24
 6891 563060 CTTTCAATTCCATATATTGGATTC TTCCAGCCTAAGACCTGAGTATACTAGTAACTTGTATACAGTACT spacer
 length: 45 repeater length: 24
 6892 563129 CTTTCAATTCCATATATTGGATTC AGGACACTCTAACAGTTTCAGGTCTGCCTGAGGCAGAATCAATTTG
 spacer length: 47 repeater length: 24
 6893 563200 CTTTCAATTCCATATATTGGATTC TTTCATTGTTGATACAGCGACATTGGCATCGTTACAAAGTTGTTCCA
 spacer length: 47 repeater length: 24
 6894 563271 CTTTCAATTCCATATATTGGATTC ATACTTTGATAGGCAATGTGTAAAGTTTGTGTTGAAGGTGATTAA
 spacer length: 46 repeater length: 24
 6895 563341 CTTTCAATTCCATATATTGGATTC GCGAGAGAGCCCAAGATAGTCGTAAGCGATACGGCAGCTGATG spacer

length: 43 repeater length: 24
6896 563408 CTTTCAATTCCATATATTGGATTC AGACCCTTAGACCTCTCAGAGAATACCCTGTACAGCACATA spacer
length: 41 repeater length: 24
6897 563473 CTTTCAATTCCATATATTGGATTC AATCAACTAACTAATAATCAGAATCAAGTATGGTGAACATGAT spacer
length: 44 repeater length: 24
6898 563541 CTTTCAATTCCATATATTGGATTC TCCAGATCAGAGGCGTGGATTGAGGAGTATAGGAAGTATATG spacer
length: 42 repeater length: 24
6899 563607 CTTTCAATTCCATATATTGGATTC GCCCAACATAGTCATGAAATGGGACTTCGAGGACGGTACACCTCA spacer
length: 45 repeater length: 24
6900 563676 CTTTCAATTCCATATATTGGATTC ATGCTAGATTGAATAAATTCGAAGATGGGTGGGTCATTAAGG spacer
length: 42 repeater length: 24
6901 563742 CTTTCAATTCCATATATTGGATTC CTACTTTATGATAGTCCCTCAGCAAGAGACAGTTGCAAGATCTTA spacer
length: 44 repeater length: 24
6902 563810 CTTTCAATTCCATATATTGGATTC CCGAAGAATTGCCGGAGCTCTATCCGCCTAGGAAACAAACCGAG spacer
length: 44 repeater length: 24
6903 563878 CTTTCAATTCCATATATTGGATTC ATCTTCGCATTAGCAGATAATATCACTACATGGTTAGCAATATCCGT
spacer length: 47 repeater length: 24
6904 563949 CTTTCAATTCCATATATTGGATTC TTCGTGTGGCTGAAGAAATACCTAGGAAGTAAAGACTTGGA spacer
length: 42 repeater length: 24
6905 564015 CTTTCAATTCCATATATTGGATTC CCCGTTTCAGGA
6906
6907
6908 crispr 4
6909 566689 GAATCCTACAAATGGAATTGAAAG AGCAAATAGGACAATTAGACCGCCTTCTGCCCCGCCCTACAGTTTTTC
spacer length: 47 repeater length: 24
6910 566760 GAATCCTACAAATGGAATTGAAAG TCACCAATTGCGGTATCCAGCACATCCACAGCTATACGCTCTGTCTC
spacer length: 47 repeater length: 24
6911 566831 GAATCCTACAAATGGAATTGAAAG GGAAGCTTGCCGACGTCACGGAGCGTTCCAATGTACTGCTCAA spacer
length: 43 repeater length: 24
6912 566898 GAATCCTACAAATGGAATTGAAAG ATCGTCGCGC
6913
6914
6915 crispr 5
6916 566964 GAATCCTATATATGGAATTGAAAG CAGAGACAAAGCATGTTGATGTTACTGAGGAGATTAGGAAGAGG spacer
length: 44 repeater length: 24
6917 567032 GAATCCTATATATGGAATTGAAAG CATTAACCTCTTCTGCCTCTATAGCTTCTTCTCAACGCCTGTA spacer
length: 43 repeater length: 24
6918 567099 GAATCCTATATATGGAATTGAAAG TAACATGTCATTTAGTAGATCCACCAATGAGACCTGACCAGAGAGATAT
spacer length: 49 repeater length: 24
6919 567172 GAATCCTATATATGGAATTGAAAG TGTGCTATACCAGCACCTATCCTCTTAAGTTCACCCAATGTTAT spacer
length: 44 repeater length: 24
6920 567240 GAATCCTATATATGGAATTGAAAG TAAATGCCAACGCTTCATACATGTTTGACATTGTAGTTGAG spacer
length: 41 repeater length: 24
6921 567305 GAATCCTATATATGGAATTGAAAG GTTCAGCAGAATCATGAAGTTCAGCAGAAAGCTGTCTGA spacer
length: 39 repeater length: 24
6922 567368 GAATCCTATATATGGAATTGAAAG TCTATCCCCTGATAATATCTAGCACAGACTTTGCCAAGACCTTGAA
spacer length: 46 repeater length: 24
6923 567438 GAATCCTATATATGGAATTGAAAG TTAGAACTATAGTATCTCACATCTCTCGACATACACCTTCCTCCTCA
spacer length: 47 repeater length: 24
6924 567509 GAATCCTATATATGGAATTGAAAG TGCTCAGAACCCTTGACAGCACAGCGTCTTCTAGGCTGGGCA spacer
length: 42 repeater length: 24
6925 567575 GAATCCTATATATGGAATTGAAAG GATATATCTTAGAACTCTATCCTTAGCCCAATCATATATGACAT spacer
length: 44 repeater length: 24
6926 567643 GAATCCTATATATGGAATTGAAAG GTTTAGGCACTCCTCCTCGATTGACCGCATCTCAATATCTTCATG spacer
length: 45 repeater length: 24
6927 567712 GAATCCTATATATGGAATTGAAAG GAATCTCCGG
6928
6929
6930 crispr 6
6931 856540 CTTTCTACTCCCTTTTGGGAGTTTC TTAACAAGCAGCTATGGATCAGCTGTCATAGTCGGCGTCGCGGACGT
spacer length: 47 repeater length: 25
6932 856612 CTTTCTACTCCCTTTTGGGAGTTTC TTAAGTGTATCAAATCCGCAGTTCTGGTTCAGAGCAACGGACAAATA
spacer length: 47 repeater length: 25
6933 856684 CTTTCTACTCCCTTTTGGGAGTTTC
TGTTGTAACACTTTATTTATAGACTCGAGATCTAGTCTATACGCAATCGAGT spacer length: 52 repeater
length: 25
6934 856761 CTTTCTACTCCCTTTTGGGAGTTTC GTTCTACATAGATAGTAGCGGAATACGGTTTACGTAACCTGCGTAT
spacer length: 46 repeater length: 25
6935 856832 CTTTCTACTCCCTTTTGGGAGTTTC AGATATATGGACAGGTGCTACAGGCTATAGCATCCATCAGAG spacer
length: 42 repeater length: 25
6936 856899 CTTTCTACTCCCTTTTGGGAGTTTC AGGATATAGCCTATAGCAAATATAAACACTCCAAAGAGACACAGAAAC

spacer length: 48 repeater length: 25
 6937 856972 CTTTCTACTCCCTTTTGGGAGTTTC CAGATATGTGTCAGGCTTCCCCGTGCAATAAGGAAATATTTGGAGCAGA
 spacer length: 49 repeater length: 25
 6938 857046 CTTTCTACTCCCTTTTGGGAGTTTC
 CTACTGCTTTGGGTACATATGTCTCTGGCTCTAGCCCTAGGAAGTTGTAGTATGC spacer length: 55 repeater
 length: 25
 6939 857126 CTTTCTACTCCCTTTTGGGAGTTTC ATTTTTTGAGGTGGGAAGATGGGAAGAGACTATGTATACCTTGGAAAAA
 spacer length: 49 repeater length: 25
 6940 857200 CTTTCTACTCCCTTTTGGGAGTTTC TCTCCTCATGCCGAGCTTTACAAGTAATGAGTATGTAACCTATGTCTAG
 spacer length: 48 repeater length: 25
 6941 857273 CTTTCTACTCCCTTTTGGGAGTTTC ACGTATGATTCCTCGATCTTATCCTTCTGGCAGAGTAGCGTTCCAT
 spacer length: 46 repeater length: 25
 6942 857344 CTTTCTACTCCCTTTTGGGAGTTTC GTGGTAGAGTTATCGAGGTGGGTAGGCCAGATGTTGACGTTACGAAGA
 spacer length: 49 repeater length: 25
 6943 857418 CTTTCTACTCCCTTTTGGGAGTTTC TCATTTACAAATCCGTATTGGTCGTTAGGAGAGCTCTCAAAGATAT
 spacer length: 46 repeater length: 25
 6944 857489 CTTTCTACTCCCTTTTGGGAGTTTC ATCAAGCAACAATAAGAGCTTGATCATCATAGCTATTGTACTTAGACCT
 spacer length: 49 repeater length: 25
 6945 857563 CTTTCTACTCCCTTTTGGGAGTTTC AATTGCCTTTGCAGGTTATTTTCCTTGGGGCTTACAGAGACTAC spacer
 length: 43 repeater length: 25
 6946 857631 CTTTCTACTCCCTTTTGGGAGTTTC TTGGCTTGTGATCTGCGGACTTTGCGATTAACCTATCTTGATTAA
 spacer length: 45 repeater length: 25
 6947 857701 CTTTCTACTCCCTTTTGGGAGTTTC TGCTGGACATGGATAACCTCAATGGGCTGTCTTCCGATCATGAC spacer
 length: 44 repeater length: 25
 6948 857770 CTTTCTACTCCCTTTTGGGAGTTTC
 AGGGATACTAACATCTCTATTGCCATTGATATTAACAATAGTTGTCATCATGA spacer length: 53 repeater
 length: 25
 6949 857848 CTTTCTACTCCCTTTTGGGAGTTTC TATATAAGACGTATTCGCAGATAATAGATCTATTCGCTGTAAGC spacer
 length: 44 repeater length: 25
 6950 857917 CTTTCTACTCCCTTTTGGGAGTTTC AATAGACATTTCGTCAATAGCTGTGCCCTGATTGTTGCAACAACAAT
 spacer length: 46 repeater length: 25
 6951 857988 CTTTCTACTCCCTTTTGGGAGTTTC AGGCGTGCTATCATGATTGGCTCTGTGCTGCGATCCTGACTGTG
 spacer length: 45 repeater length: 25
 6952 858058 CTTTCTACTCCCTTTTGGGAGTTTC CTCATGTCGGT
 6953
 6954
 6955 crispr 7
 6956 869201 GAAACTCCCAAAAGGGAGTAGAAAG ATCTACATCACATTATCAGAGCTTCCATCCTATCTCTCAGAATC spacer
 length: 44 repeater length: 25
 6957 869270 GAAACTCCCAAAAGGGAGTAGAAAG GTCACTATAATGATATTGAACAAAGACGAGTCTATAACATATTC spacer
 length: 44 repeater length: 25
 6958 869339 GAAACTCCCAAAAGGGAGTAGAAAG TCTAGACATAGGATATTTAATGATGGAGATAGAGGAGATCAAGAA
 spacer length: 45 repeater length: 25
 6959 869409 GAAACTCCCAAAAGGGAGTAGAAAG CGGAGTCTATTCTGTGCGAGACCTCCTTGTAGACACATTTGTTGC
 spacer length: 45 repeater length: 25
 6960 869479 GAAACTCCCAAAAGGGAGTAGAAAG ATCTACACCACCTCTTTTTTCTGAACATGATTCTATAATATAGCTTTCTT
 spacer length: 50 repeater length: 25
 6961 869554 GAAACTCCCAAAAGGGAGTAGAAAG ACTAGCACCATCTACGTCATTGGTTATCCGTTCCAGTTGCTAC spacer
 length: 43 repeater length: 25
 6962 869622 GAAACTCCCAAAAGGGAGTAGAAAG GCCCAGCCACCGCCGCCCATGGGTTAAAGCATGATAGAT spacer
 length: 39 repeater length: 25
 6963 869686 GAAACTCCCAAAAGGGAGTAGAAAG CAAGATGTTAGAAGAAAGTATGAGGCGATGAGAAGGGAAGCGCTTAA
 spacer length: 47 repeater length: 25
 6964 869758 GAAACTCCCAAAAGGGAGTAGAAAG
 TTGCATAGTGGAGTATTATCCTTACAACATCTGTTGATGCTATTGGGTCCTC spacer length: 52 repeater
 length: 25
 6965 869835 GAAACTCCCAAAAGGGAGTAGAAAG GTGTTTTTCGAGAGGAACATTAGGTGTGAAAGCAGTTTTATTAGGTATGT
 spacer length: 50 repeater length: 25
 6966 869910 GAAACTCCCAAAAGGGAGTAGAAAG GTTAACATCTCTATACTCATTAACACATATCTTAACATTCTCAA spacer
 length: 44 repeater length: 25
 6967 869979 GAAACTCCCAAAAGGGAGTAGAAAG ATGTGCTCAGCTTCAGGTAGTGTCTGCTCAACACTTCTGTGGAAC
 spacer length: 46 repeater length: 25
 6968 870050 GAAACTCCCAAAAGGGAGTAGAAAG ATTAGAAATGCTACTCTTTTCCCTGTCTCCGAGTCTCCCAACTCAG
 spacer length: 47 repeater length: 25
 6969 870122 GAAACTCCCAAAAGGGAGTAGAAAG
 GTAGGCGGTGGCGGTGGCTGTGCTGGCTTTACATATGTTATAGTTGTATTTGT spacer length: 53 repeater
 length: 25
 6970 870200 GAAACTCCCAAAAGGGAGTAGAAAG TCTATGTTAGCTTCTATGTGCGAGTATATAACAATTCCTAAAGAATT
 spacer length: 47 repeater length: 25
 6971 870272 GAAACTCCCAAAAGGGAGTAGAAAG AGCCACGAATATATCCACGCAGCCAAGCTACACCAACTAGCCCTAA
 spacer length: 46 repeater length: 25

6972 870343 GAAACTCCCAAAAAGGGAGTAGAAAAG ATTTGATATAGATGTAGATGCACCTGCATGGATATATCTATTGCCA
 spacer length: 46 repeater length: 25
 6973 870414 GAAACTCCCAAAAAGGGAGTAGAAAAG
 AACGACAAACCAATCCGTCATAGTCGTCGAACCATCCGTACCATAGTGTGTA spacer length: 53 repeater
 length: 25
 6974 870492 GAAACTCCCAAAAAGGGAGTAGAAAAG TATCAGATATAGACGCAATGGACTTGACAGAGCTATCACTGAGAA
 spacer length: 45 repeater length: 25
 6975 870562 GAAACTCCCAAAAAGGGAGTAGAAAAG ATATAATATATATAGTCCAGAGACAGCAGAACACTACTCATCG spacer
 length: 43 repeater length: 25
 6976 870630 GAAACTCCCAAAAAGGGAGTAGAAAAG ATAGGAGAATCATGGTGTAAACAACATTGTTAGATGCTCCTATGATACTGC
 spacer length: 50 repeater length: 25
 6977 870705 GAAACTCCCAAAAAGGGAGTAGAAAAG CTAGACTCATAACCCAAAAGAATATACGCCTGCTCAACAGACTATGCACTA
 spacer length: 51 repeater length: 25
 6978 870781 GAAACTCCCAAAAAGGGAGTAGAAAAG ATGAATACATATGATACATATCCCCTTGTGCCATTCAAGAATCTTATAT
 spacer length: 49 repeater length: 25
 6979 870855 GAAACTCCCAAAAAGGGAGTAGAAAAG AAGACGGGTT
 6980
 6981
 6982 crispr 8
 6983 1242962 GAAACTCCCAAAAAGGGAGTAGAAAAG GACTTTTGGCATGATTTTCCAGATTTTGGCGATAGAGATA spacer
 length: 40 repeater length: 25
 6984 1243027 GAAACTCCCAAAAAGGGAGTAGAAAAG ATGGCTGAAAACGCATCGATTAACGCTGCAAGTGATGATACA spacer
 length: 42 repeater length: 25
 6985 1243094 GAAACTCCCAAAAAGGGAGTAGAAAAG
 ATCCCGCAGTATACTACAGTAGTTTGTCTAGCATGGGTATATGGATACCTAAT spacer length: 52 repeater
 length: 25
 6986 1243171 GAAACTCCCAAAAAGGGAGTAGAAAAG GTCAAGATAATGCCGAAGATTAGGAAGACGAGGAAGCTCTACA spacer
 length: 43 repeater length: 25
 6987 1243239 GAAACTCCCAAAAAGGGAGTAGAAAAG AATGACGTTTAAAGTATCCAAGCTTTGATAAACTCTGGCAGTTCT
 spacer length: 44 repeater length: 25
 6988 1243308 GAAACTCCCAAAAAGGGAGTAGAAAAG TCTTCTTATACTGATCTAGATACATCATAAGTATTGTCTCTAGC
 spacer length: 44 repeater length: 25
 6989 1243377 GAAACTCCCAAAAAGGGAGTAGAAAAG ACCTCTAACACTCTTCCACCTATCAACCCATGTCTCTCAAGAG spacer
 length: 43 repeater length: 25
 6990 1243445 GAAACTCCCAAAAAGGGAGTAGAAAAG
 ACTGAAATATTGTATACAATATGAATAGCCATATATACAATGCAACTGTAGCCA spacer length: 54 repeater
 length: 25
 6991 1243524 GAAACTCCCAAAAAGGGAGTAGAAAAG ATACGATCCTGACTGTGTGGATCTAGATTGCTACTACGAG spacer
 length: 40 repeater length: 25
 6992 1243589 GAAACTCCCAAAAAGGGAGTAGAAAAG ATCACAGACGCAATGTCTATCGCATAATCTTCGCAGAGTCCTGCA
 spacer length: 45 repeater length: 25
 6993 1243659 GAAACTCCCAAAAAGGGAGTAGAAAAG TATCTATCACATAAAGCCTTGAGGCTACCAGCGCTTGTAGCGAAGT
 spacer length: 46 repeater length: 25
 6994 1243730 GAAACTCCCAAAAAGGGAGTAGAAAAG TATACAACCTCTGTGTTTAGTGCTACATTTGATATTGCTGTTGT spacer
 length: 43 repeater length: 25
 6995 1243798 GAAACTCCCAAAAAGGGAGTAGAAAAG
 ATGTTATACTTTGTGAAATAGTGTCTCTTCCCCACTTTGGAGGAAGACCTG spacer length: 52 repeater
 length: 25
 6996 1243875 GAAACTCCCAAAAAGGGAGTAGAAAAG TAGGAGGAGGGAACATGACTACTGTATTAAGATCAACGACGCTGTCTACG
 spacer length: 50 repeater length: 25
 6997 1243950 GAAACTCCCAAAAAGGGAGTAGAAAAG AGAGGACTCGGTCTATGAAGATCGCTGAGTGGAATTCTCCCTTCTTAA
 spacer length: 48 repeater length: 25
 6998 1244023 GAAACTCCCAAAAAGGGAGTAGAAAAG GTGAATATCACTAGGATTGAATCGCTCGACACGTGGCTCTGGATAGTCAG
 spacer length: 50 repeater length: 25
 6999 1244098 GAAACTCCCAAAAAGGGAGTAGAAAAG CTTTCTCACAGCTGTGATCATGGTGAGTATGGATTGTGGTATATAATCT
 spacer length: 49 repeater length: 25
 7000 1244172 GAAACTCCCAAAAAGGGAGTAGAAAAG CATCTTAGAGCTGCTGCTATTCTAGCCATTATGTCTACTCCAGCCTT
 spacer length: 47 repeater length: 25
 7001 1244244 GAAACTCCCAAAAAGGGAGTAGAAAAG GTTGAAAGAGATAGACAGAACTCATGATACGGCATACTATGC spacer
 length: 42 repeater length: 25
 7002 1244311 GAAACTCCCAAAAAGGGAGTAGAAAAG GTATAGTCCATGACATTCTTACAATTAGATCAGTATTTGTGCGGTAGCC
 spacer length: 48 repeater length: 25
 7003 1244384 GAAACTCCCAAAAAGGGAGTAGAAAAG
 CTTAAAGAAATACATCTTCACATCACTTGCAAAAGCCTCTGGAGACCTTAT spacer length: 51 repeater
 length: 25
 7004 1244460 GAAACTCCCAAAAAGGGAGTAGAAAAG GTCTGGGGAAATATAGCGTATTATATCAGGAAGCTTGGGAT spacer
 length: 41 repeater length: 25
 7005 1244526 GAAACTCCCAAAAAGGGAGTAGAAAAG TTGTGATGTTCTTTAGATGTGATACGAACTGCTTTGTTGTTAGAGAGAAG
 spacer length: 50 repeater length: 25
 7006 1244601 GAAACTCCCAAAAAGGGAGTAGAAAAG ATATATATTATATTAGGTAGAGAGAATAGTTTCTGTGCGGTCT spacer
 length: 43 repeater length: 25

7007 1244669 GAAACTCCCAAAAGGGAGTAGAAAG TTATTGGACTTATATATACTGGAAAAGCATCTTTCTCATAATCAAACAT
 spacer length: 49 repeater length: 25
 7008 1244743 GAAACTCCCAAAAGGGAGTAGAAAG AGAGAACCATGTTGAAAGCTCCTGCATTCTAGCATATACCCATCCCTG
 spacer length: 48 repeater length: 25
 7009 1244816 GAAACTCCCAAAAGGGAGTAGAAAG CTTTCTCACAGCTGTGAGCATGGATTGTGGTATGTATTCTGTGG
 spacer length: 45 repeater length: 25
 7010 1244886 GAAACTCCCAAAAGGGAGTAGAAAG AGATAGCAAAGTTTAACTGATAAACATGATTATTGGAGCAT spacer
 length: 42 repeater length: 25
 7011 1244953 GAAACTCCCAAAAGGGAGTAGAAAG CTTCTTAGCATCTTTGTATTCCATAACATCTTTCAAAGCATT spacer
 length: 43 repeater length: 25
 7012 1245021 GAAACTCCCAAAAGGGAGTAGAAAG ATCCCTATGATAGCCATTGCAATCAACAGCCATTCCAATCCTATACCAC
 spacer length: 49 repeater length: 25
 7013 1245095 GAAACTCCCAAAAGGGAGTAGAAAG ATAAATCTATCTAGCCTAATTCCCGACTTATCTGACATTCTAGGAAA
 spacer length: 47 repeater length: 25
 7014 1245167 GAAACTCCCAAAAGGGAGTAGAAAG TCTACAGAACACTATGTATTAGTGCCAATAGAAACCTTGGTAGATGT
 spacer length: 47 repeater length: 25
 7015 1245239 GAAACTCCCAAAAGGGAGTAGAAAG CCAGGACCTG
 7016
 7017
 7018 crispr 9
 7019 1494063 GAATCCAATAAAATGGAATTGAAAG TACAGGTTGTCTTCCGATCATGACTGGAACACCTGCGAGAGGC spacer
 length: 43 repeater length: 24
 7020 1494130 GAATCCAATAAAATGGAATTGAAAG TTGCAAAGAATATTGTTTCAGCTGGGCGAGAACGGGGCATCTGGACACGACT
 spacer length: 51 repeater length: 24
 7021 1494205 GAATCCAATAAAATGGAATTGAAAG TCTTCGATGCGTGGTACGATGAGTCGAAGAAGCAGTACATAG spacer
 length: 42 repeater length: 24
 7022 1494271 GAATCCAATAAAATGGAATTGAAAG TGTTGAAAATACCGCATAATCATAACCACCGTAAAACGCTAGAACACCT
 spacer length: 49 repeater length: 24
 7023 1494344 GAATCCAATAAAATGGAATTGAAAG ATCTTCCGTTATAACAAGGTATTCCGCAAGTGTAGCTAGTTGTG spacer
 length: 44 repeater length: 24
 7024 1494412 GAATCCAATAAAATGGAATTGAAAG TACTTGGGATGATAGGTCTTGGTGTAGCTACATGGATATTTGTTG
 spacer length: 45 repeater length: 24
 7025 1494481 GAATCCAATAAAATGGAATTGAAAG AGGTATGTTATCAGGTAGTAGGTCTGGGCTGGGATAATTACGTGGGGT
 spacer length: 48 repeater length: 24
 7026 1494553 GAATCCAATAAAATGGAATTGAAAG AGCCATATCCCAACCTATTATTGCAAATTATATTTATTTAG spacer
 length: 42 repeater length: 24
 7027 1494619 GAATCCAATAAAATGGAATTGAAAG TTCTTAACAATGTCCTCGACTATATGTATCTGGAGAGCGTTTGGTA
 spacer length: 46 repeater length: 24
 7028 1494689 GAATCCAATAAAATGGAATTGAAAG ATTTCCAGATCGGAAGTTGTTATCATTTATCCACACACTATACTTTATG
 spacer length: 49 repeater length: 24
 7029 1494762 GAATCCAATAAAATGGAATTGAAAG GTATATCCTTAGCTGCTTAAGTTTCTCTTCAAGCATCTTCTCATCTAG
 spacer length: 48 repeater length: 24
 7030 1494834 GAATCCAATAAAATGGAATTGAAAG AACTATGTTATATGTGAAGAACCCTACAAGTGTGTTTGTAATCCA
 spacer length: 46 repeater length: 24
 7031 1494904 GAATCCAATAAAATGGAATTGAAAG AAAGGTCGACACTATCGTGGGTACCATTATACCCATCGCCATACCGC
 7032
 7033
 7034 GCA_000147875.1_ASM14787v1_genomic.fna(PilerCR):
 7035 START REPEAT
 SPACER
 7036 GCA_000148385.1_ASM14838v1_genomic.fna(PilerCR):
 7037 START REPEAT
 SPACER
 7038 crispr 1
 7039 135392 CTTTCAATATTCTAT-TGAAATCTTC GCTACATAACCGTATGGGTGTGGGACTCTATGGCGGAAATGTAC
 spacer length: 44 repeater length: 26
 7040 135462 CTTTCAATATTCTAT-TGAAATCTTC TCCCTGATTGAGGTGAGGTATGAGTCAATGCCTGGCGATATAATA
 spacer length: 45 repeater length: 26
 7041 135533 CTTTCAATATTCTAT-TGAAATCTTC CGTTCCATATCATTGCCCTTTTCAACTTTGGCATCATGAGGAT spacer
 length: 43 repeater length: 26
 7042 135602 CTTTCAATATTCTAT-TGAAATCTTC TGAGGATGGACTACAAATCAGGCTGTTCAAGGGAAGGAAGTA spacer
 length: 42 repeater length: 26
 7043 135670 CTTTCAATATTCTAT-TGAAATCTTC CAAATTGTGTGCTATAAAGTCGGGGAAGATGCATTTAATGGAGAC
 spacer length: 45 repeater length: 26
 7044 135741 CTTTCAATATTCTAT-TGAAATCTTC ACAAGGATATAGAATAGTAAGGGCGAGTGAGGCATTATTACAAAGGG
 spacer length: 47 repeater length: 26
 7045 135814 CTTTCAATATTCTAT-TGAAATCTTC TGCGGAGATGAACGATGCAGGTGTGTGGCAGAAACGCTCAAG spacer
 length: 42 repeater length: 26
 7046 135882 CTTTCAATATTCTAT-TGAAATCTTC GTGACTGGAGGCTTGCCCTCGAGTGTTGGCTTGAGGGTTATCAC spacer
 length: 43 repeater length: 26
 7047 135951 CTTTCAATATTCTAT-TGAAATCTTC CCGGGGACGTACAACGGCACGGTCATGGTCGCCGGCTACCAAGC

spacer length: 44 repeater length: 26
 7048 136021 CTTTCAATATTCTAT-TGAAATCTTC CAGGGAAAGCATTGCTAATGTTTTATCAGCGCATAATGGCATCGT
 spacer length: 46 repeater length: 26
 7049 136093 CTTTCAATATTCTAT-TGAAATCTTC CGGTAGGGCG
 7050
 7051
 7052 crispr 2
 7053 1084986 GAAGATTTCAATAGAAATATTGAAAG
 ATGTTGAGTGACCTAACTCCCTGAGTAATTTAATCGCCTCGCTTGTATTG spacer length: 51 repeater
 length: 25
 7054 1085062 GAAGATTTCAATAGAAATATTGAAAG TTCATTATCGAAATGCCATAATCTTCCGAATCCTGCTATTTGAGA
 spacer length: 45 repeater length: 25
 7055 1085132 GAAGATTTCAATAGAAATATTGAAAG ATTATCATTGATATTAGGTTTCCGTCTCTTTTCGATGCTCTCGATTTTCGTA
 spacer length: 50 repeater length: 25
 7056 1085207 GAAGATTTCAATAGAAATATTGAAAG TAATGAGACGTGAACCTGTTTGGGGGATAATGATGGAGTT spacer
 length: 41 repeater length: 25
 7057 1085273 GAAGATTTCAATAGAAATATTGAAAG CCGTTGCAAAACCTTCCTCCAGTGTTATGAACCGCGAAACACCA
 spacer length: 44 repeater length: 25
 7058 1085342 GAAGATTTCAATAGAAATATTGAAAG AATAGGTCGTGCGGGCTTAATGACGTGAGTATTAGTGCCTGC spacer
 length: 42 repeater length: 25
 7059 1085409 GAAGATTTCAATAGAAATATTGAAAG TATATTGCAACATGCCCATGGATGCGGCCATCGTCAACGTCTACGAG
 7060
 7061
 7062 crispr 3
 7063 1086728 GAAGATTTCAATAGAAATATTGAAAG TCTTCCTAAGAAGCAGTGCCACGCCGGTTGGCAAGTAGCTGTATGAGA
 spacer length: 48 repeater length: 25
 7064 1086801 GAAGATTTCAATAGAAATATTGAAAG ACTGTATGTTTATCTGCACGCCACCACCCTGCTGAGTACAGAG spacer
 length: 43 repeater length: 25
 7065 1086869 GAAGATTTCAATAGAAATATTGAAAG TCCTCAACTCCTTACCGCTGGCGTTGGGGAACATCACCTAAGCAACG
 spacer length: 48 repeater length: 25
 7066 1086942 GAAGATTTCAATAGAAATATTGAAAG TGGATTTCGCCATAGTCGCCAGGCACCATTGGCGCTATCACCTCCTC
 spacer length: 47 repeater length: 25
 7067 1087014 GAAGATTTCAATAGAAATATTGAAAG GTGACGCCACTGAGCGGGGTCGTTAAGCCACTCCACACCATGGTCTT
 spacer length: 47 repeater length: 25
 7068 1087086 GAAGATTTCAATAGAAATATTGAAAG TTGAGTTCAGCGCTGAACGCCTTATCTCGATTTTAAATGGACATCGTGG
 spacer length: 48 repeater length: 25
 7069 1087159 GAAGATTTCAATAGAAATATTGAAAG GGGGACCCGATTGGGCTTGGGCACGCAATGTACTCCTCGA spacer
 length: 40 repeater length: 25
 7070 1087224 GAAGATTTCAATAGAAATATTGAAAG ACTTCCCGGGCATGGAGTCGGTCATCGCGAGGGAAGTCCCCGAG
 spacer length: 44 repeater length: 25
 7071 1087293 GAAGATTTCAATAGAAATATTGAAAG ATTAGGATCGGTAGTAGGGACACCACGATAGACGGCTCACTAAGT
 spacer length: 45 repeater length: 25
 7072 1087363 GAAGATTTCAATAGAAATATTGAAAG TCGACCAGGC
 7073
 7074
 7075 crispr 4
 7076 1102759 GAAGATTTCAATAGAAATATTGAAAG GAAAGGATCATGTGGGTTTTCCCTGTCAATCCCGTGATGTGCG spacer
 length: 42 repeater length: 25
 7077 1102826 GAAGATTTCAATAGAAATATTGAAAG TCATTGTGAATTCCCATACCTGTGTAGCTGATGGTAATTCATATGCC
 spacer length: 47 repeater length: 25
 7078 1102898 GAAGATTTCAATAGAAATATTGAAAG TAGATTTCTACACGGATAAGGGCGTGTTTCGACACCACGAGTGAG
 spacer length: 44 repeater length: 25
 7079 1102967 GAAGATTTCAATAGAAATATTGAAAG TAGCCTGCCAGCCATTTACACCCTCTGCCTCTATTTTTCATTTTTACCT
 spacer length: 48 repeater length: 25
 7080 1103040 GAAGATTTCAATAGAAATATTGAAAG AATAATAGCGCGGAAATTGTGGCTGTCCATGCCTTGCTGGTAA spacer
 length: 43 repeater length: 25
 7081 1103108 GAAGATTTCAATAGAAATATTGAAAG GAATTTTCATCTAAGAACAGTGGGGCCTGCATCTGATAAGTAGTAGCTAG
 spacer length: 49 repeater length: 25
 7082 1103182 GAAGATTTCAATAGAAATATTGAAAG ACGATGCCTCTCGAGGGGGCTCAGGAGAGAATGGGGAGTTGAATGAGG
 spacer length: 48 repeater length: 25
 7083 1103255 GAAGATTTCAATAGAAATATTGAAAG CACGTATGTCGCAACGTCACCATCCCTGAAGCCACCCATAGCAG
 spacer length: 44 repeater length: 25
 7084 1103324 GAAGATTTCAATAGAAATATTGAAAG CTCTCGTGCGG
 7085
 7086
 7087 crispr 5
 7088 1601282 CCTTCTATTCTCTTTAGAGATTATC TCTCGTACTCACACACATACTCGATCCTGGCACTCATGAATTCCTC
 spacer length: 46 repeater length: 25
 7089 1601353 CCTTCTATTCTCTTTAGAGATTATC CTCACCACATTGAGGTCCCTGGCTCATTTCATCGACATACCAAACAACG
 spacer length: 48 repeater length: 25
 7090 1601426 CCTTCTATTCTCTTTAGAGATTATC CGTTCGTTGTATATCCACACGTTGTAAACCGAGTTGTACGTGAA

spacer length: 45 repeater length: 25
 7091 1601496 CCTTCTATTCTCTTTAGAGATTATC TTGGAGTCATTTGTTTTGCCCGTACTGTCAACAGCTACACCGTTAGT
 spacer length: 47 repeater length: 25
 7092 1601568 CCTTCTATTCTCTTTAGAGATTATC CTGAATACGTAGGTGCCTGGTGCCGTGAAGTGAAGCCACTCGAAATAC
 spacer length: 48 repeater length: 25
 7093 1601641 CCTTCTATTCTCTTTAGAGATTATC AGCCTAGGCCTGTCTTGCCGCCGCCGACCGCGGTTCGAGATAGTGA
 spacer length: 45 repeater length: 25
 7094 1601711 CCTTCTATTCTCTTTAGAGATTATC
 GCCGGCCCAGACTCATGTTACTGCAAACCTCGAGGGGATTGGGTGCACGCAGAT spacer length: 53 repeater
 length: 25
 7095 1601789 CCTTCTATTCTCTTTAGAGATTATC AAAAAGTTATAAATCAGTCCTGAGCAAAAACAATGTATGAAAGAAA
 spacer length: 46 repeater length: 25
 7096 1601860 CCTTCTATTCTCTTTAGAGATTATC ATTCCTAATCACCTACACCTCAAATTCGCAGGTAATGGAATAACTTCG
 spacer length: 48 repeater length: 25
 7097 1601933 CCTTCTATTCTCTTTAGAGATTATC TCGTTAAAAGATACGGGGCAGGAAATAATGACATTTGAAGAGGGATTA
 spacer length: 48 repeater length: 25
 7098 1602006 CCTTCTATTCTCTTTAGAGATTATC GTGTCTAAAAATGACGATGCATGTGAGTGGTTTAAGGCGTGGTTGACA
 spacer length: 48 repeater length: 25
 7099 1602079 CCTTCTATTCTCTTTAGAGATTATC TCAGTAGTCATTATGATGTACTGCCAGACGGCCATTCCCCTATTGT
 spacer length: 46 repeater length: 25
 7100 1602150 CCTTCTATTCTCTTTAGAGATTATC TACTGTGAATGCGTTGAATGTCAACACAGCTACTTACCAGCAAA
 spacer length: 44 repeater length: 25
 7101 1602219 CCTTCTATTCTCTTTAGAGATTATC AATACAATAATAAGAGTCCCTGCGGACCCTAACGGTAAGCCGACAG
 spacer length: 46 repeater length: 25
 7102 1602290 CCTTCTATTCTCTTTAGAGATTATC AAAGATGGTGCCAGTATTGCCAGGCAATGAAATTCATGATGGTTT
 spacer length: 45 repeater length: 25
 7103 1602360 CCTTCTATTCTCTTTAGAGATTATC TAAAGCAGTCTATCAAGCATTCCGTGATTTCTTAAGGAAAG spacer
 length: 42 repeater length: 25
 7104 1602427 CCTTCTATTCTCTTTAGAGATTATC TCTCTTATAGTAGGGTAGTTAGGTAGGGTAGGGTTGTGTGTGTGGGGT
 spacer length: 48 repeater length: 25
 7105 1602500 CCTTCTATTCTCTTTAGAGATTATC TCGGTGGTGTGAACCGTGTGGTGCGAAGTTAATTGAGGTTAGTCC
 spacer length: 46 repeater length: 25
 7106 1602571 CCTTCTATTCTCTTTAGAGATTATC TCAACGGTATCGTGGAATTCAAGGTGTTTCGGTAATCACCTCA spacer
 length: 42 repeater length: 25
 7107 1602638 CCTTCTATTCTCTTTAGAGATTATC ATAAATCACCGTACTCAATGCATGAAACGACCTTGATGAAACCCATCACC
 spacer length: 50 repeater length: 25
 7108 1602713 CCTTCTATTCTCTTTAGAGATTATC CCGGAAGATG
 7109
 7110
 7111 crispr 6
 7112 1610753 GATATTCTCTAAAGAGAATAGAAGG GTGCTGTTGATGATCCATGTGTAGCCCTGCCCACTTGATGTGATT
 spacer length: 45 repeater length: 25
 7113 1610823 GATATTCTCTAAAGAGAATAGAAGG AGTTCCCCGTATAACCTAGCCAGGTCTGGCGTTTATGACGC spacer
 length: 42 repeater length: 25
 7114 1610890 GATATTCTCTAAAGAGAATAGAAGG ACTGCTAGTTTCCGCACAATGCCTAACACATACTACTACATCAATG
 spacer length: 46 repeater length: 25
 7115 1610961 GATATTCTCTAAAGAGAATAGAAGG ATAAGTACTTTCCCAACCCAGGTGGTGTGTACTCTATCCA spacer
 length: 40 repeater length: 25
 7116 1611026 GATATTCTCTAAAGAGAATAGAAGG TTGAGCCAGGCGATTGGGCTTGGGTACATGAATGGGACATTGGGG
 spacer length: 45 repeater length: 25
 7117 1611096 GATATTCTCTAAAGAGAATAGAAGG CTGGCTTCTGTGTGGTTGCCACGTCCTTTGGTATGCCGATTGG spacer
 length: 43 repeater length: 25
 7118 1611164 GATATTCTCTAAAGAGAATAGAAGG GTGATTTAGCACCATTGTGTCCATTGAGAAAATTCCTAAGTAAGTAT
 spacer length: 47 repeater length: 25
 7119 1611236 GATATTCTCTAAAGAGAATAGAAGG CAGGATAGACAAGGGATTATTCGATGAACTTGACAAGGAAGCCATAAT
 spacer length: 48 repeater length: 25
 7120 1611309 GATATTCTCTAAAGAGAATAGAAGG GCAGGGAGTATTTACATTGCGGACTTAGATGCTGACTTCAA spacer
 length: 42 repeater length: 25
 7121 1611376 GATATTCTCTAAAGAGAATAGAAGG ATCGATTCCCGTGAACACCAGGACGGCGTTAATGGCGAGTATGC
 spacer length: 44 repeater length: 25
 7122 1611445 GATATTCTCTAAAGAGAATAGAAGG ACATAATCTATATAGATCGTCCGAGAAAACATTTTCAAACCTCA spacer
 length: 43 repeater length: 25
 7123 1611513 GATATTCTCTAAAGAGAATAGAAGG
 TGTGACTCCCTTGAACCCCTGGGATTGGACTCTGACATACTTGATTAGAGCATTTG spacer length: 57 repeater
 length: 25
 7124 1611595 GATATTCTCTAAAGAGAATAGAAGG GTAGATTATTGCGTCATTACTGCTGAACCCAGTGCCTGGGTTGAAAT
 spacer length: 47 repeater length: 25
 7125 1611667 GATATTCTCTAAAGAGAATAGAAGG TGCTAAGCTCAGTACCTGTTTCCACAGTGGGTGCTAGACGAATAGGTTT
 spacer length: 49 repeater length: 25
 7126 1611741 GATATTCTCTAAAGAGAATAGAAGG TCGACGCGACCTTCTCATAATCCGTCTGAGTCTCGGTAGCGTCATGGGT
 spacer length: 50 repeater length: 25

7127 1611816 GATATTCTCTAAAGAGAATAGAAGG TGCTTGATAACTCCCTTACCTTGATTTCAACATTTTTCCCC spacer
 length: 41 repeater length: 25
 7128 1611882 GATATTCTCTAAAGAGAATAGAAGG GATGAAGATGGGGAACATTGAACCTTGGCAGGTTGTGGATTAT spacer
 length: 43 repeater length: 25
 7129 1611950 GATATTCTCTAAAGAGAATAGAAGG CGAATTAACAATGAACCTAATCCAGGAAGCCGTCTCCTCTAGGAGAGA
 spacer length: 48 repeater length: 25
 7130 1612023 GATATTCTCTAAAGAGAATAGAAGG GTGGGTTGTGTGCGCTGGATTGTTGACTCCAATTGACTCACGCTAC
 spacer length: 46 repeater length: 25
 7131 1612094 GATATTCTCTAAAGAGAATAGAAGG GGGAATTTCTGCCAGCCACGTCGCCACCAGCCACATAAATG spacer
 length: 42 repeater length: 25
 7132 1612161 GATATTCTCTAAAGAGAATAGAAGG AAAACAAAACTGTTTACAATCAATCTACACCGTCTACACCGTTAAAG
 spacer length: 48 repeater length: 25
 7133 1612234 GATATTCTCTAAAGAGAATAGAAGG CTTCTTCCCATCCCCACAGTTGAGTTCTAGAAGCTCATTCGACATATTC
 spacer length: 49 repeater length: 25
 7134 1612308 GATATTCTCTAAAGAGAATAGAAGG ATTCCATACAGGCTTGGCTTTTGTCTCCCATTCCTCTTTTTT spacer
 length: 43 repeater length: 25
 7135 1612376 GATATTCTCTAAAGAGAATAGAAGG TTGAATAAAGTGACCTAAGCGTCTGTGATAGTGGACCGTAGCTAAT
 spacer length: 46 repeater length: 25
 7136 1612447 GATATTCTCTAAAGAGAATAGAAGG
 GACATTGGTAAGGCATGCCGATACCTTGCAGAATTAAAAAATGCGTTGAAC spacer length: 51 repeater
 length: 25
 7137 1612523 GATATTCTCTAAAGAGAATAGAAGG ATGAACATGAACCTACTGCGTACGTTTGCTGGTATGAATATCCAG
 spacer length: 45 repeater length: 25
 7138 1612593 GATATTCTCTAAAGAGAATAGAAGG
 ATTCTTCAACCACCTCTGGGTAGTGAACCGCAATGCGGACTAACTGCTTAT spacer length: 51 repeater
 length: 25
 7139 1612669 GATATTCTCTAAAGAGAATAGAAGG ATCCCAGTCCTTGAAGCATGCAAACCTATCGGAGACGTCTCAGTGA
 spacer length: 46 repeater length: 25
 7140 1612740 GATATTCTCTAAAGAGAATAGAAGG CTGAAGTCCCTGGCGAGGAACCTAGCCAAGGAAGTAAAGAGA spacer
 length: 42 repeater length: 25
 7141 1612807 GATATTCTCTAAAGAGAATAGAAGG GCCAAACCGATGGTGGAACACCCATCGTGAACACGCCGTTTCT spacer
 length: 43 repeater length: 25
 7142 1612875 GATATTCTCTAAAGAGAATAGAAGG GTTATGTACCCGGGCACGGTGAACCCGCTTGGAATACGCCA spacer
 length: 42 repeater length: 25
 7143 1612942 GATATTCTCTAAAGAGAATAGAAGG AGAAGCTATCCGTACTACTTCATTGCGCAGGTGCTTAGTTCATGAG
 spacer length: 46 repeater length: 25
 7144 1613013 GATATTCTCTAAAGAGAATAGAAGG AATTCATGAACCTTCGTGGTGTGATAGTATTACAAACGTGCCATTCA
 spacer length: 48 repeater length: 25
 7145 1613086 GATATTCTCTAAAGAGAATAGAAGG CCATGTGGGG
 7146
 7147
 7148 crispr 7
 7149 1946821 GAAGATTTCAATAGAATATTGAAAG
 AAGTACTGGAATGTACCAATTAGGTTTGGCGCTGTGAATTGTAGGTTAAATGTCGATG spacer length: 58
 repeater length: 25
 7150 1946904 GAAGATTTCAATAGAATATTGAAAG TATGTATTCATCCGTCGTTATCAACCTTCGCATGATTGCAGACC
 spacer length: 44 repeater length: 25
 7151 1946973 GAAGATTTCAATAGAATATTGAAAG TGCACAAATAAATTAATTGGGAGCCCAGTCACGAAGTTCCTACCAAT
 spacer length: 47 repeater length: 25
 7152 1947045 GAAGATTTCAATAGAATATTGAAAG TTCCATGGCTTCTTCCATGAATAGCCAAAGCTCATTAATTG spacer
 length: 41 repeater length: 25
 7153 1947111 GAAGATTTCAATAGAATATTGAAAG CTCCTTCTTCATCCTCAACGTCCTGTCCCACACGTATATTGCGTCCCT
 spacer length: 48 repeater length: 25
 7154 1947184 GAAGATTTCAATAGAATATTGAAAG ATTACATATTAATATGCGTCGTGCCTCGTACATTAAATTTATGA
 spacer length: 44 repeater length: 25
 7155 1947253 GAAGATTTCAATAGAATATTGAAAG TCCAGTGTAGCGCTTGCCCTGTTAAGTGGCACTGGAACGCCTAA
 spacer length: 44 repeater length: 25
 7156 1947322 GAAGATTTCAATAGAATATTGAAAG
 7157
 7158
 7159 crispr 8
 7160 2060740 CTTTCAATATTCTATTGAAATCTTC TTGGGTTTTTAACGCTGAATACGATACATGACGTTTTAATG spacer
 length: 40 repeater length: 25
 7161 2060805 CTTTCAATATTCTATTGAAATCTTC GCGGGTCTAAGCAACACCGTGTATCACCATTACTGGGCAGTGTGGC
 spacer length: 47 repeater length: 25
 7162 2060877 CTTTCAATATTCTATTGAAATCTTC TTGATAACGATTGACTTGATGCAGGCAATAACCGTTAACTCGACGACTG
 spacer length: 49 repeater length: 25
 7163 2060951 CTTTCAATATTCTATTGAAATCTTC
 AGGCTGAGATTTACGCGCCATGGGATGGCACGCGTTTTGTTACGTTAGAAGA spacer length: 52 repeater
 length: 25
 7164 2061028 CTTTCAATATTCTATTGAAATCTTC AATAAGGGTTTCAGCGGTTGAAGGGTTTCGTATGAGTATGAGGT

spacer length: 45 repeater length: 25
 7165 2061098 CTTTCAATATTCTATTGAAATCTTC CAGGCGAATAAACCTGGCACTAACCCCTAAGGAACTACACAGGAAA
 spacer length: 46 repeater length: 25
 7166 2061169 CTTTCAATATTCTATTGAAATCTTC ATGGCAGTCCACGAGGCTTATATTAATACCATCATTGCCAATAATCC
 spacer length: 47 repeater length: 25
 7167 2061241 CTTTCAATATTCTATTGAAATCTTC CTCGAGCTGGCTTACTGGTGGTGGCGGTAGTGACTTCGGCACGAG
 spacer length: 45 repeater length: 25
 7168 2061311 CTTTCAATATTCTATTGAAATCTTC AACGAGGGTAGTGAATTCGAGGAGGGTATCATTATGATGCCCGAGAG
 spacer length: 47 repeater length: 25
 7169 2061383 CTTTCAATATTCTATTGAAATCTTC TACTGTGGTGTTTACCAGGGAATTCATGTAGGGAGCTTG spacer
 length: 40 repeater length: 25
 7170 2061448 CTTTCAATATTCTATTGAAATCTTC GGCATGCAAATGGTTCCTATGCGTGGTTGGGCATGGGTGACC spacer
 length: 41 repeater length: 25
 7171 2061514 CTTTCAATATTCTATTGAAATCTTC CCTCCCTGCTGGTCACTCCCCACCACCAGGTAGGGTTAGACTAAT
 spacer length: 45 repeater length: 25
 7172 2061584 CTTTCAATATTCTATTGAAATCTTC TTCTTCATCCATGATTTGCACTGAGGCAATAAAGTGTGGATTTCC
 spacer length: 45 repeater length: 25
 7173 2061654 CTTTCAATATTCTATTGAAATCTTC GTGAAATTGTTTTAGTTGCTCAGGTTACAGAGAGCAACGTTGCTAGA
 spacer length: 47 repeater length: 25
 7174 2061726 CTTTCAATATTCTATTGAAATCTTC
 7175
 7176
 7177 crispr 9
 7178 2188851 GAAGATTTCAATAGAAATATTGAAAG ATACCTGCATATGCCCTAAACCTAACACGGTCATGGTTATGA spacer
 length: 42 repeater length: 25
 7179 2188918 GAAGATTTCAATAGAAATATTGAAAG CTCTCGGGCATCATAATGATACCCTCCTCGAATTCCTACCCTCGTT
 spacer length: 47 repeater length: 25
 7180 2188990 GAAGATTTCAATAGAAATATTGAAAG CTCGTGCCGAAGTCACTACCGCCACCACCAGTAAGCCAGCTCGAG
 spacer length: 45 repeater length: 25
 7181 2189060 GAAGATTTCAATAGAAATATTGAAAG CTATTGATGATTATCCTGTCTCAAAGATCTTGGACATTTTGAGGG
 spacer length: 46 repeater length: 25
 7182 2189131 GAAGATTTCAATAGAAATATTGAAAG TTCTTGAGCACCGTGATTGACGAGGGGTAGTAGGGCAGGTAGTACTT
 spacer length: 47 repeater length: 25
 7183 2189203 GAAGATTTCAATAGAAATATTGAAAG AGTACCTTGCGGATTGAGTCACCGAACATGGCATAACCCATGACCATCA
 spacer length: 49 repeater length: 25
 7184 2189277 GAAGATTTCAATAGAAATATTGAAAG GTGATCCTCTACGTGAGTGGTGCCGGCGCCATCAAACCCGTC spacer
 length: 42 repeater length: 25
 7185 2189344 GAAGATTTCAATAGAAATATTGAAAG CTTCTGTGAGTACAAGAACCAATGCCTCGCTTCCTTTTGTCAACGT
 spacer length: 45 repeater length: 25
 7186 2189414 GAAGATTTCAATAGAAATATTGAAAG AGTTCCTGTAACCTACTGGTCAGTGTTATGACTGCGTCTATTG spacer
 length: 43 repeater length: 25
 7187 2189482 GAAGATTTCAATAGAAATATTGAAAG
 7188
 7189
 7190 GCA_000151205.2_ASM15120v2_genomic.fna (PilerCR):
 7191 START REPEAT
 SPACER
 7192 crispr 1
 7193 464540 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CTCCAATATCGCTTTAAAGCTTATTCTCGGCGTTTC spacer
 length: 36 repeater length: 30
 7194 464606 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TCTATATTGGAAGTCCAAATCTCTGAAGTCTTCTCT spacer
 length: 36 repeater length: 30
 7195 464672 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CGATTGCATAGGTGTCGCTTGCCGTTGTTTACTGTAA spacer
 length: 38 repeater length: 30
 7196 464740 CTTTCAATTCTCCTCGAGTCTTATTGCAAC ATATATCGAGGAGCGGTTGTGGAGGTTATATAACCAA spacer
 length: 37 repeater length: 30
 7197 464807 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GGGGTTCCGGCTGGAGCGTATTTACTTCCACCGGAAT spacer
 length: 37 repeater length: 30
 7198 464874 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CTTCTTATTCTCGGCGTCCCATTCCTCGACCCAATA spacer
 length: 36 repeater length: 30
 7199 464940 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TCCACGTTCAACGTCAGCTTCCACCTAAAGTCAGCCT spacer
 length: 37 repeater length: 30
 7200 465007 CTTTCAATTCTCCTCGAGTCTTATTGCAAC ACCCTCTTCATCCGGCACATCCACCCACGTGATGTTT spacer
 length: 37 repeater length: 30
 7201 465074 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CGCATTGGCGGGGACAATCCGGACAGTAATGAAACG spacer
 length: 37 repeater length: 30
 7202 465141 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GTCCTCGAAGTGTACTCATAAGTGACACTGTCCCCGTC spacer
 length: 39 repeater length: 30
 7203 465210 CTTTCAATTCTCCTCGAGTCTTATTGCAAC AGATCTCGCGAACAATGGTGGCCTCATCGGGACGCT spacer
 length: 36 repeater length: 30
 7204 465276 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TGGAGGTGAAGGCGAGGGAGAGGGTGCTGGCCGCGCTCA spacer

length: 39 repeater length: 30
7205 465345 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TTGATCCCCCGCGTTCCATGCCTTGTCGGCCCTCTTC spacer
length: 37 repeater length: 30
7206 465412 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CGGTTTCGGCCGTGTTTCGAGTTTTTCGATGATTTTGA spacer
length: 36 repeater length: 30
7207 465478 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TGGGAGCGTCGCAACGTCAGTAATGTTGAGCTCAGTCATGA
spacer length: 41 repeater length: 30
7208 465549 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CCACCGGGATTTTGTGCCCCTCTTCGTCGGTCTTTTTTCGTG
spacer length: 41 repeater length: 30
7209 465620 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GCCTGATTTTCGTATTTTGGATCGTCGCGGTACTTCTT spacer
length: 37 repeater length: 30
7210 465687 CTTTCAATTCTCCTCGAGTCTTATTGCAAC AACCTGCGCGAGGACAAATGACAGCGATGTTCCAAC spacer
length: 37 repeater length: 30
7211 465754 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CGATCGGCAT
7212
7213
7214 crispr 2
7215 1219335 GTTGCAATAAGACTCGAGGAGAATTGAAAG GAAGGTGAAGACGGATGGACAGGCGAGCGGGGCCGG spacer
length: 36 repeater length: 30
7216 1219401 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTGACTGGCTCGACAGCGATGAGCTTTTAAACGGTTTACA
spacer length: 39 repeater length: 30
7217 1219470 GTTGCAATAAGACTCGAGGAGAATTGAAAG CAGAAAGCCGTCGAAGGAGATGGAGAACTGGAGCGTGCT
spacer length: 39 repeater length: 30
7218 1219539 GTTGCAATAAGACTCGAGGAGAATTGAAAG TCAAATCTGGCAAGTTGTCTTCCGTCAATTTGCCCCG spacer
length: 37 repeater length: 30
7219 1219606 GTTGCAATAAGACTCGAGGAGAATTGAAAG TGAGTAATTCGATGAGGGCAGGTTGTAGCTTTTCGCCTTC
spacer length: 39 repeater length: 30
7220 1219675 GTTGCAATAAGACTCGAGGAGAATTGAAAG CAATCGTGAACGTGGGTTCGCTTTTCGGCGTATTTTCT spacer
length: 37 repeater length: 30
7221 1219742 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTCTCAAAGAAGAGCTTGCGAAGCTGACTTACACGGA spacer
length: 37 repeater length: 30
7222 1219809 GTTGCAATAAGACTCGAGGAGAATTGAAAG TTCATTAAAATTTTCGGCGTTGTGGCTTATTACATTTGC
spacer length: 39 repeater length: 30
7223 1219878 GTTGCAATAAGACTCGAGGAGAATTGAAAG GTCATCGCAATCGCGGCACTAATCGCGGCGATTGTCTG spacer
length: 37 repeater length: 30
7224 1219945 GTTGCAATAAGACTCGAGGAGAATTGAAAG ATCAGTGATTACGAGAACTGCAGAGATGATCGCGCTATAAAC
spacer length: 42 repeater length: 30
7225 1220017 GTTGCAATAAGACTCGAGGAGAATTGAAAG GGTGTAACGCAACAACTGGCTCAGGCCGTCTAGAGGA
spacer length: 39 repeater length: 30
7226 1220086 GTTGCAATAAGACTCGAGGAGAATTGAAAG GTGACACGAGGAACACGTCCTGTTTGCATGGAGCTT spacer
length: 37 repeater length: 30
7227 1220153 GTTGCAATAAGACTCGAGGAGAATTGAAAG CAGGGCCTCATCCTGATCTTCTCGCGAGTATTGGGGT spacer
length: 38 repeater length: 30
7228 1220221 GTTGCAATAAGACTCGAGGAGAATTGAAAG GCGCTCAATGCCGAGCACTAGGTAAACGTAGTGTAT spacer
length: 36 repeater length: 30
7229 1220287 GTTGCAATAAGACTCGAGGAGAATTGAAAG ATGCGGAATTTGTTTACATCAAGGCCGTGCGGAAA spacer
length: 35 repeater length: 30
7230 1220352 GTTGCAATAAGACTCGAGGAGAATTGAAAG ATCACGGTATCAAGGCATCGCAGGCGGGCACTTACT spacer
length: 36 repeater length: 30
7231 1220418 GTTGCAATAAGACTCGAGGAGAATTGAAAG TGTAGAGTTCAGGGCCAGCCTCGGGCTTCGCGTAAACCAT
spacer length: 40 repeater length: 30
7232 1220488 GTTGCAATAAGACTCGAGGAGAATTGAAAG CAACGTGCTTCTTCAAGCCCTTTGCCGCCGCGAGGATT spacer
length: 38 repeater length: 30
7233 1220556 GTTGCAATAAGACTCGAGGAGAATTGAAAG AAAACTTTAATTATTATTGGTGCCTACGTTTGTGTTGGT spacer
length: 37 repeater length: 30
7234 1220623 GTTGCAATAAGACTCGAGGAGAATTGAAAG CCCAGAAACGGGCGAAACGGCAGACTAAACGGGCTT spacer
length: 36 repeater length: 30
7235 1220689 GTTGCAATAAGACTCGAGGAGAATTGAAAG GAGGGAAGTGAAGGAGGGGCGCCTATGAGGCCGGGGG spacer
length: 37 repeater length: 30
7236 1220756 GTTGCAATAAGACTCGAGGAGAATTGAAAG TGTGTGTGCATTGTGGACGGGCACGGGTCAGGAGCGC spacer
length: 38 repeater length: 30
7237 1220824 GTTGCAATAAGACTCGAGGAGAATTGAAAG ACATGGTGGAGGAGATATACAACCTTGAGGAACTG spacer
length: 35 repeater length: 30
7238 1220889 GTTGCAATAAGACTCGAGGAGAATTGAAAG GAAGAGACCCCTGAAGCTGAAGAGGAGCACGCCCCGT spacer
length: 37 repeater length: 30
7239 1220956 GTTGCAATAAGACTCGAGGAGAATTGAAAG TGGGCATCGGCATACTCTGCATGGCAATATCGGACAGC spacer
length: 38 repeater length: 30
7240 1221024 GTTGCAATAAGACTCGAGGAGAATTGAAAG TACTGAGTCTGCAATCCCCAACGAAGGCTTTTTT spacer
length: 37 repeater length: 30
7241 1221091 GTTGCAATAAGACTCGAGGAGAATTGAAAG GCACGCTACTGATGTTGAAGTGCTCCTCATTGCGAA spacer
length: 36 repeater length: 30

7242	1221157	GTTGCAATAAGACTCGAGGAGAATTGAAAG	CCTGCAGACGCTGAGGGACGTTTCCGGGCTTGGCCTCT	spacer
	length:	38	repeater length:	30
7243	1221225	GTTGCAATAAGACTCGAGGAGAATTGAAAG	TGCCGTACAGAATTGAAGGTATCAGCACGAGAACTGG	spacer
	length:	37	repeater length:	30
7244	1221292	GTTGCAATAAGACTCGAGGAGAATTGAAAG	CGCGGAGGTAGAGGAAAAACCCGCCCTCGGGACGCGC	spacer
	length:	38	repeater length:	30
7245	1221360	GTTGCAATAAGACTCGAGGAGAATTGAAAG	CTGTTGAATGTGCCGATAAAGGTGCTCCCGAGGTACACG	
	spacer length:	39	repeater length:	30
7246	1221429	GTTGCAATAAGACTCGAGGAGAATTGAAAG	CGACGTAGGTCGTGACGGTCGTATCGACGTAGTGCAG	spacer
	length:	37	repeater length:	30
7247	1221496	GTTGCAATAAGACTCGAGGAGAATTGAAAG	GAAATCAAGGTGGCGTCTCAGGTAATAGCTGTATCTCTTTGC	
	spacer length:	42	repeater length:	30
7248	1221568	GTTGCAATAAGACTCGAGGAGAATTGAAAG	TGGAAATATTCGCTCTCTATCCCCGCGTGCGCCACCT	spacer
	length:	37	repeater length:	30
7249	1221635	GTTGCAATAAGACTCGAGGAGAATTGAAAG	ATACCAAAGAACCGCGACAAGCTCTTCGTTGACAG	spacer
	length:	35	repeater length:	30
7250	1221700	GTTGCAATAAGACTCGAGGAGAATTGAAAG	CTGTTTATGATTCCGTAAGAAGCGCCGTCTACGTA	spacer
	length:	35	repeater length:	30
7251	1221765	GTTGCAATAAGACTCGAGGAGAATTGAAAG	TTTGCCCTGAGCCGCCTGAGCCGAGCCGGTTCCC	spacer
	length:	36	repeater length:	30
7252	1221831	GTTGCAATAAGACTCGAGGAGAATTGAAAG	TGAGATAGATTAGTTCTACACGAGCATTTGTTGGTAC	spacer
	length:	38	repeater length:	30
7253	1221899	GTTGCAATAAGACTCGAGGAGAATTGAAAG	ACGGAGACAGCATCACGTACGAGTACAAGTTCGAGG	spacer
	length:	36	repeater length:	30
7254	1221965	GTTGCAATAAGACTCGAGGAGAATTGAAAG	CATGGACTGACATTACTGGCCTAAAGGTAAAGACAGA	spacer
	length:	37	repeater length:	30
7255	1222032	GTTGCAATAAGACTCGAGGAGAATTGAAAG	GCGAAAGGAGTTGATGTCGTCGAGCTTCCGGTCCATGTTGTCTGA	
	spacer length:	44	repeater length:	30
7256	1222106	GTTGCAATAAGACTCGAGGAGAATTGAAAG	TCCTCATGGACGGATTACCGATGCCCCCGCCTTACGGC	
	spacer length:	40	repeater length:	30
7257	1222176	GTTGCAATAAGACTCGAGGAGAATTGAAAG	CCACGGATAT	
7258				
7259				
7260	crispr 3			
7261	1609160	GTTGCAATAAGACTCGAGGAGAATTGAAAG	TCGATATAGAGGGTCACGGCGCTCATCGGGGTTAG	spacer
	length:	35	repeater length:	30
7262	1609225	GTTGCAATAAGACTCGAGGAGAATTGAAAG	TGATTCCATCAATCGCGGTTAAATTCGCGGGCATCCA	spacer
	length:	37	repeater length:	30
7263	1609292	GTTGCAATAAGACTCGAGGAGAATTGAAAG	TGACGTTGTAGCTCTGCAGGGGCAGAGTGAAGCTCACCCC	
	spacer length:	40	repeater length:	30
7264	1609362	GTTGCAATAAGACTCGAGGAGAATTGAAAG	AGACTTCATGGCGGGCACTCAGAAACCACTTGTGCTTA	spacer
	length:	38	repeater length:	30
7265	1609430	GTTGCAATAAGACTCGAGGAGAATTGAAAG	GTGTAACCCCGAGGAAGTCCGCTATCCATTCGGTCAAA	spacer
	length:	38	repeater length:	30
7266	1609498	GTTGCAATAAGACTCGAGGAGAATTGAAAG	GACAAAGCATATTTCGTTGCAAGCGTTGACCTTAAGG	spacer
	length:	36	repeater length:	30
7267	1609564	GTTGCAATAAGACTCGAGGAGAATTGAAAG	AACCGTTTCGCTTCCTTCTTGTCATGGTTCCACATCC	spacer
	length:	37	repeater length:	30
7268	1609631	GTTGCAATAAGACTCGAGGAGAATTGAAAG	TTTTTCAGCAACAACAAAGCAACTAAATCAGATGAAAGTTGCAA	
	spacer length:	43	repeater length:	30
7269	1609704	GTTGCAATAAGACTCGAGGAGAATTGAAAG	TATTCTGTGGGCTCGGTAGGGAGTAGGATTATTTTT	spacer
	length:	36	repeater length:	30
7270	1609770	GTTGCAATAAGACTCGAGGAGAATTGAAAG	TTCAAAATAGTGGGCAATTTCTGCGGGGATTTTGTCA	spacer
	length:	37	repeater length:	30
7271	1609837	GTTGCAATAAGACTCGAGGAGAATTGAAAG	AAGCTCGGCGAGAGCATCTCAATCTCTCTCAGCGCGCC	spacer
	length:	38	repeater length:	30
7272	1609905	GTTGCAATAAGACTCGAGGAGAATTGAAAG	GGAACCACCCTCTGCCAATGATTTTATCGTCTTCGT	spacer
	length:	36	repeater length:	30
7273	1609971	GTTGCAATAAGACTCGAGGAGAATTGAAAG	CAGATACCGATATATTTGTATGTCTACGACGCAGATAA	spacer
	length:	38	repeater length:	30
7274	1610039	GTTGCAATAAGACTCGAGGAGAATTGAAAG	TTTGATAGCTCCGGCGCGCTTCAAATATCTCTCGACGC	spacer
	length:	38	repeater length:	30
7275	1610107	GTTGCAATAAGACTCGAGGAGAATTGAAAG	CCAGATGTGTCCCTCGACGTGGGCATCTGGTAGGCCAAGC	
	spacer length:	40	repeater length:	30
7276	1610177	GTTGCAATAAGACTCGAGGAGAATTGAAAG	TGAGACTAATCAGGAAAAGCGGGATCAGATAGGCCAAAAG	
	spacer length:	40	repeater length:	30
7277	1610247	GTTGCAATAAGACTCGAGGAGAATTGAAAG	TACGGGACATTAGTTACGACAAAAAGAGTTCAGGGAA	spacer
	length:	37	repeater length:	30
7278	1610314	GTTGCAATAAGACTCGAGGAGAATTGAAAG	GGGGTTTTTAAACGAAGCGGGAACCTCAGCGGAGATA	spacer
	length:	37	repeater length:	30
7279	1610381	GTTGCAATAAGACTCGAGGAGAATTGAAAG	CGAAGACGAAGATGGCGCCCTCTATGCCCTTGAGACCC	spacer

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length: 38 repeater length: 30
7280 1610449 GTTGCAATAAGACTCGAGGAGAATTGAAAG GGGTGATATGACTGTCAGCGTTGAAATGTACCCCTCTT spacer
length: 38 repeater length: 30
7281 1610517 GTTGCAATAAGACTCGAGGAGAATTGAAAG ACGACTAATCGAAAGCTTTTCGATAGTACTCCATTAC spacer
length: 37 repeater length: 30
7282 1610584 GTTGCAATAAGACTCGAGGAGAATTGAAAG TGTCTGGGGTCGCTGATCTCTGCGATAATGTAGTTCT spacer
length: 36 repeater length: 30
7283 1610650 GTTGCAATAAGACTCGAGGAGAATTGAAAG CGGTAGCTTCTTCTCGGCTCTGATCCCAAGTAACTAC spacer
length: 37 repeater length: 30
7284 1610717 GTTGCAATAAGACTCGAGGAGAATTGAAAG GGTCTCTCAATGCGGAGATCAGACGCCTCTGCATGTA
7285
7286
7287 GCA_000152265.2_ASM15226v2_genomic.fna (PilerCR) :
7288 START REPEAT
SPACER
7289 crispr 1
7290 14 ATTTCAATTCCTATATGGAATTATTTTAAC TTATTAGACAAACCACTAATATAAAAGAAATGCTTA spacer
length: 37 repeater length: 30
7291 81 ATTTCAATTCCTATATGGAATTATTTTAAC CTAAAAAAGATATAAAGCTCATTTACCTAATTTTTTC spacer
length: 37 repeater length: 30
7292 148 ATTTCAATTCCTATATGGAATTATTTTAAC GGTGCTGCTGGATTTCGATTTAGGAGTTCCTGAAAGC spacer
length: 36 repeater length: 30
7293 214 ATTTCAATTCCTATATGGAATTATTTTAAC TTGATGAACAACGTTGTAATGACGTTTAAATTATTTTAA spacer
length: 39 repeater length: 30
7294 283 ATTTCAATTCCTATATGGAATTATTTTAAC CTGAAAAATTAAGGGATTACAAAAACCAGCTTTTAAAAG spacer
length: 39 repeater length: 30
7295 352 ATTTCAATTCCTATATGGAATTATTTTAAC TGAGGGATTACATTTCCCCGTATCTTTTCCCGCCAGGGC spacer
length: 39 repeater length: 30
7296 421 ATTTCAATTCCTATATGGAATTATTTTAAC CTTCTCGTTGGAGGTTCTCCATGCCAGGATATATCCG spacer
length: 37 repeater length: 30
7297 488 ATTTCAATTCCTATATGGAATTATTTTAAC AATATCTTATAGGTCTCACTGCAACCGTCAGGGAATA spacer
length: 37 repeater length: 30
7298 555 ATTTCAATTCCTATATGGAATTATTTTAAC AAAAAGAGTATTGTTCTGGTAAACTGTTGCACTTGC spacer
length: 36 repeater length: 30
7299 621 ATTTCAATTCCTATATGGAATTATTTTAAC CGTGCCTCAATGCCAAGGAACAGATCCCTTGTGCCAA spacer
length: 37 repeater length: 30
7300 688 ATTTCAATTCCTATATGGAATTATTTTAAC TCTGCACAGGGAATATCATGCCCAGCAGGTCTCCGT spacer
length: 36 repeater length: 30
7301 754 ATTTCAATTCCTATATGGAATTATTTTAAC AGAAAATTCAACGGTTTCATGAAGATGGCGAGATAAT spacer
length: 37 repeater length: 30
7302 821 ATTTCAATTCCTATATGGAATTATTTTAAC GTTGATTTTTTAAATGATTATGCCTTTTTTTGGTCTAG spacer
length: 38 repeater length: 30
7303 889 ATTTCAATTCCTATATGGAATTATTTTAAC GATTGTAGAT
7304
7305
7306 crispr 2
7307 1194567 GTGTTTAGTCTATCTATAAGGGTTTGAAT AAAATAGGTTTTTACGGTAATGAGGGTTGCTGTGGAAT
spacer length: 39 repeater length: 30
7308 1194636 GTGTTTAGTCTATCTATAAGGGTTTGAAT TTTTCATATCTTTTGCCACCTCCGAATTTGATAAAT spacer
length: 36 repeater length: 30
7309 1194702 GTGTTTAGTCTATCTATAAGGGTTTGAAT CGTAAACGGGGGGTAATTAATACCGTGTAGAATATA spacer
length: 37 repeater length: 30
7310 1194769 GTGTTTAGTCTATCTATAAGGGTTTGAAT TTGTCTAAATCCTATCAATTCCTTTGTTTCCATTTTA spacer
length: 38 repeater length: 30
7311 1194837 GTGTTTAGTCTATCTATAAGGGTTTGAAT TAACACCAAGTCCTAATAAATTATTCCATGCCTCTAA spacer
length: 37 repeater length: 30
7312 1194904 GTGTTTAGTCTATCTATAAGGGTTTGAAT TCTGAGGCCTGATTACCTGAGGATTCTTGACCTTG spacer
length: 35 repeater length: 30
7313 1194969 GTGTTTAGTCTATCTATAAGGGTTTGAAT ATAAAATCCTGGACTGTAAACACAATCCGAGCTGCCG spacer
length: 37 repeater length: 30
7314 1195036 GTGTTTAGTCTATCTATAAGGGTTTGAAT TGGACACGCA
7315
7316
7317 GCA_000166095.1_ASM16609v1_genomic.fna (PilerCR) :
7318 START REPEAT
SPACER
7319 GCA_000186365.1_ASM18636v1_genomic.fna (PilerCR) :
7320 START REPEAT
SPACER
7321 crispr 1
7322 969466 CTTTCAATCCTCTTTACATTGAGGC AAAACTATTTAAAAAACTAGGCTAGAGCGTATTTAACTA spacer

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length: 39 repeater length: 25
7323 969530 CTTTCAATCCTCTTTACATTGAGGC TGAACGAGTTGATAAACGCCTATTCATATTATCGTGAACAT spacer
length: 41 repeater length: 25
7324 969596 CTTTCAATCCTCTTTACATTGAGGC AGGTGCTCAACGCGGGCCCCATTGACCTCGTGGTGAATA spacer
length: 40 repeater length: 25
7325 969661 CTTTCAATCCTCTTTACATTGAGGC TCCAGTGGACGCCTTTGGCATCGGTGTAACAATGGT spacer length:
36 repeater length: 25
7326 969722 CTTTCAATCCTCTTTACATTGAGGC TGGTTCTCCCATTACATTTAGGACATCGATGAGATACT spacer
length: 39 repeater length: 25
7327 969786 CTTTCAATCCTCTTTACATTGAGGC TTTAGGACATCGATGAGATACTCGAATTCCCCCGTTATAT spacer
length: 40 repeater length: 25
7328 969851 CTTTCAATCCTCTTTACATTGAGGC CAGCGGAGTGTAGTAAATGGTCAGGGTAATTCATTACGC spacer
length: 39 repeater length: 25
7329 969915 CTTTCAATCCTCTTTACATTGAGGC TCAATGTATAGCCCCCTTCTACTAGTAGTAGCGTCAATGCT spacer
length: 41 repeater length: 25
7330 969981 CTTTCAATCCTCTTTACATTGAGGC TTCGGCATAGGTGTAATAATGGTTGACCGCAAGGTGTTTG spacer
length: 40 repeater length: 25
7331 970046 CTTTCAATCCTCTTTACATTGAGGC CTACGGATTCCAGAGCATTATCTCCAAGCGTATTACAA spacer
length: 39 repeater length: 25
7332 970110 CTTTCAATCCTCTTTACATTGAGGC GTAATCCCATAGCGATGAAACCGTGAAAAGGTATTTCGCT spacer
length: 39 repeater length: 25
7333 970174 CTTTCAATCCTCTTTACATTGAGGC CTAAAATGGTGTTCAGCGCCAACGCACTACCCGTAACCAG spacer
length: 40 repeater length: 25
7334 970239 CTTTCAATCCTCTTTACATTGAGGC GCCGAAGGCCTTCAACGCTACGTAAGCGTCAAGCAGCGTG spacer
length: 40 repeater length: 25
7335 970304 CTTTCAATCCTCTTTACATTGAGGC TATCGGCCGCGAGTACTACACTGGCGACGGAGGCAGT spacer
length: 37 repeater length: 25
7336 970366 CTTTCAATCCTCTTTACATTGAGGC CCTGCGACAGG
7337
7338
7339 crispr 2
7340 970560 CTTTCAATCCTCTTTACATTGAGGC GCCTCCTTATCGCCCTTCGCAGCCTTTATTATCAGCTTCA spacer
length: 40 repeater length: 25
7341 970625 CTTTCAATCCTCTTTACATTGAGGC ACTAGAGGAGGCGGAGCGGAAGCTGGGGATAAAGAAGGA spacer
length: 39 repeater length: 25
7342 970689 CTTTCAATCCTCTTTACATTGAGGC CGGGGAAGTGGTATGTAGCCGCGGTCTCGTTCAGGTTTCGG spacer
length: 40 repeater length: 25
7343 970754 CTTTCAATCCTCTTTACATTGAGGC TTGCGCGAGCTGCAGTTCTCGGAGCTGGAGATCGAGTTAA spacer
length: 40 repeater length: 25
7344 970819 CTTTCAATCCTCTTTACATTGAGGC CCTATGATAAAAGCGGTGCCAGTATCGACACACCTGCA spacer
length: 38 repeater length: 25
7345 970882 CTTTCAATCCTCTTTACATTGAGGC CGACCAGTGCTAGGAACGCCCGGTATATCATCAGTATAA spacer
length: 39 repeater length: 25
7346 970946 CTTTCAATCCTCTTTACATTGAGGC GGAGGATGGTGAGCCGGCTGTCTCGGTTGAAGCCTACA spacer
length: 38 repeater length: 25
7347 971009 CTTTCAATCCTCTTTACATTGAGGC TGTTAGGCACGGCCCTAAGCTACATATTCTACAGGCTA spacer
length: 38 repeater length: 25
7348 971072 CTTTCAATCCTCTTTACATTGAGGC TGAAGAGGTATCTCACCGATGATTTAATCCTTGGCCGA spacer
length: 38 repeater length: 25
7349 971135 CTTTCAATCCTCTTTACATTGAGGC TGAAGCCGTAAAACCCTATATGGTGGTAGCACGGACGAG spacer
length: 39 repeater length: 25
7350 971199 CTTTCAATCCTCTTTACATTGAGGC GTGGGGTGATATATTCTCTGGGCCCTTCGGCAGGCTAT spacer
length: 38 repeater length: 25
7351 971262 CTTTCAATCCTCTTTACATTGAGGC CTAGCTCAAACAGCCACTGATACGACTACTACCACAAT spacer
length: 38 repeater length: 25
7352 971325 CTTTCAATCCTCTTTACATTGAGGC TTAAGCGATACGCCCGTTATACCTAACTATGTGTTCCGCC spacer
length: 40 repeater length: 25
7353 971390 CTTTCAATCCTCTTTACATTGAGGC CGCCGGCCCCGCGGGATCTGCCCGCCAGCACCGCTAGAT spacer
length: 39 repeater length: 25
7354 971454 CTTTCAATCCTCTTTACATTGAGGC CTAGGAGCGATGGTTACATTAGTCAGCTCGAACC GGCG spacer
length: 38 repeater length: 25
7355 971517 CTTTCAATCCTCTTTACATTGAGGC TGTACCTTTCACAGTTGAAAAAGGAAGGGATAATTAGG spacer
length: 38 repeater length: 25
7356 971580 CTTTCAATCCTCTTTACATTGAGGC CGAGCTACGAGGCCTTCAAAACATTAATGAATTTCTCCAG spacer
length: 41 repeater length: 25
7357 971646 CTTTCAATCCTCTTTACATTGAGGC AGCTTGATAATGCCCATGAGTAGCCTGCCGAAGGGGCCAG spacer
length: 40 repeater length: 25
7358 971711 CTTTCAATCCTCTTTACATTGAGGC AAGGCGTTAAGCTGCAGCCCTACAGCACTGGCTACCT spacer
length: 37 repeater length: 25
7359 971773 CTTTCAATCCTCTTTACATTGAGGC AAGAATTAATCGAGCAGGAATGGCTCAACGAGGAGGAGCTTT spacer
length: 42 repeater length: 25

7360 971840 CTTTCAATCCTCTTTACATTGAGGC TTCTACTTCAATGCCGTCAAATTTGTCGTAGAACTAGGCT spacer
length: 40 repeater length: 25
7361 971905 CTTTCAATCCTCTTTACATTGAGGC AGCAGCCCTACCCCCGTAAATATGACGTTGAAGCCGTAT spacer
length: 40 repeater length: 25
7362 971970 CTTTCAATCCTCTTTACATTGAGGC GAAGAAGCTGCTGCGTCTCATTAAAGGAGAACTTGACGA spacer
length: 39 repeater length: 25
7363 972034 CTTTCAATCCTCTTTACATTGAGGC CTTATCTAACTGTGACTAATACCTATACCGTATATGATA spacer
length: 39 repeater length: 25
7364 972098 CTTTCAATCCTCTTTACATTGAGGC TGAACCAGCCCAAACCCAAAACCAAGCCCAT AATTGAAT spacer
length: 39 repeater length: 25
7365 972162 CTTTCAATCCTCTTTACATTGAGGC AAGACTTAGCGGGCTTGACACAGGTTTACCGGTTTAGGCAT spacer
length: 41 repeater length: 25
7366 972228 CTTTCAATCCTCTTTACATTGAGGC AGGAAGGGAAGGACCATTGACGGTGGTGGGATTTTGGGTCT spacer
length: 41 repeater length: 25
7367 972294 CTTTCAATCCTCTTTACATTGAGGC AGGACGGCAC
7368
7369
7370 crispr 3
7371 1000323 ACCTCAATGTAAAGAGGATTGAAAG AGTCTACCGAGGAACAATATGACACGGTTTATCGCATTAA spacer
length: 40 repeater length: 25
7372 1000388 ACCTCAATGTAAAGAGGATTGAAAG TAAGAATAACTACTACGTGTCCCGTCGGGCATACGAGTA spacer
length: 39 repeater length: 25
7373 1000452 ACCTCAATGTAAAGAGGATTGAAAG GAAGGCTATTAGCGATATGAACACGGCTAGATGTATTA spacer
length: 38 repeater length: 25
7374 1000515 ACCTCAATGTAAAGAGGATTGAAAG TAGTAACCACCGGGTGTATTGCTAACCAGCGAATTAAAGT spacer
length: 40 repeater length: 25
7375 1000580 ACCTCAATGTAAAGAGGATTGAAAG ATGGTGTACACGGTTTTATAGTCTAGTGCCTGAGGTCG spacer
length: 39 repeater length: 25
7376 1000644 ACCTCAATGTAAAGAGGATTGAAAG ACTCAGTGTGCTCGGTGGCTTCTACTATAATGGGAA spacer
length: 37 repeater length: 25
7377 1000706 ACCTCAATGTAAAGAGGATTGAAAG ATTATGCAAAAGAAACCCCTAGGCTTCTACCCTTCTAC spacer
length: 39 repeater length: 25
7378 1000770 ACCTCAATGTAAAGAGGATTGAAAG CTAGCACCTGGCGAGACTAAGACTATAACGCTACCATT C spacer
length: 39 repeater length: 25
7379 1000834 ACCTCAATGTAAAGAGGATTGAAAG CACGGTGAAGAAGAAGCCGCCGGGCAACGTCATCTGCTTAA spacer
length: 41 repeater length: 25
7380 1000900 ACCTCAATGTAAAGAGGATTGAAAG ATAGGCTCCTCCTGAGGCTCCTTCATGATGCGTAGGGGAG spacer
length: 40 repeater length: 25
7381 1000965 ACCTCAATGTAAAGAGGATTGAAAG ACTATTCTCGACAGGTCAAGGGTAACTCCTTTCCACTCAT spacer
length: 41 repeater length: 25
7382 1001031 ACCTCAATGTAAAGAGGATTGAAAG TCTCCGCCACCGCGCTGAAAGCACCGTCAAAGGCTACAAG spacer
length: 40 repeater length: 25
7383 1001096 ACCTCAATGTAAAGAGGATTGAAAG ATGACGCCAAGTTAGTTAAATCAGCAGTTGTAATCTCG spacer
length: 38 repeater length: 25
7384 1001159 ACCTCAATGTAAAGAGGATTGAAAG TAATACCCGAGGAGGCAAGGGAATACAGGGATATGTGTA spacer
length: 39 repeater length: 25
7385 1001223 ACCTCAATGTAAAGAGGATTGAAAG GCCATTAACCTCTACTGCTGTCAATACCACTTCCTCATAA spacer
length: 40 repeater length: 25
7386 1001288 ACCTCAATGTAAAGAGGATTGAAAG ATTGTTGAATGGGT CATATACACTTTGCCGTCTAGTAACAC spacer
length: 41 repeater length: 25
7387 1001354 ACCTCAATGTAAAGAGGATTGAAAG ATGACCCAATCACACTCAACATCATTGAGGCACTCTTCCT spacer
length: 40 repeater length: 25
7388 1001419 ACCTCAATGTAAAGAGGATTGAAAG ATACTCCTCGTGCTCCTTCTCGTATTTCTTGCTCCT spacer
length: 38 repeater length: 25
7389 1001482 ACCTCAATGTAAAGAGGATTGAAAG CTTATTGTCCTT CAGCCACCTATACACTATTTCAACGCC spacer
length: 39 repeater length: 25
7390 1001546 ACCTCAATGTAAAGAGGATTGAAAG TTTGGCTGGCGGTTCTGATACTCAGTCCATGATAAATCC spacer
length: 39 repeater length: 25
7391 1001610 ACCTCAATGTAAAGAGGATTGAAAG ACATCACCCTAGTGGGGTATGTTGTGCTTCCCATTTT spacer
length: 38 repeater length: 25
7392 1001673 ACCTCAATGTAAAGAGGATTGAAAG ACTCCCTGAGGGAGTCCCAGTTTATCCCCGGGGTTTCA spacer
length: 38 repeater length: 25
7393 1001736 ACCTCAATGTAAAGAGGATTGAAAG AGCGAATACCCGGTGATCACGCCGGCGAACATGCTTGCA spacer
length: 39 repeater length: 25
7394 1001800 ACCTCAATGTAAAGAGGATTGAAAG TAGAGGTGGTTGGGTATGAGCTACATGGTTGAAGTATGG spacer
length: 39 repeater length: 25
7395 1001864 ACCTCAATGTAAAGAGGATTGAAAG CTGGGATTGATGTTGAAGTTGAGGCTTGCGAGGAGGCTGG spacer
length: 40 repeater length: 25
7396 1001929 ACCTCAATGTAAAGAGGATTGAAAG TCAGAGCCCTCGGGGGCAAAGCCCTCGGGGGCTCGACCT spacer
length: 39 repeater length: 25
7397 1001993 ACCTCAATGTAAAGAGGATTGAAAG CTCCATTCCCTTATACACTCCCACTCGATGTCATCATAG spacer

length: 39 repeater length: 25
7398 1002057 ACCTCAATGTAAAGAGGATTGAAAG ATTAGATCATATAATATTAGGTAAACCTAGCGTTTTAA spacer
length: 38 repeater length: 25
7399 1002120 ACCTCAATGTAAAGAGGATTGAAAG TCATCACCTTGGTGAGTAATCTGAGTAACATCCCCGATGT spacer
length: 40 repeater length: 25
7400 1002185 ACCTCAATGTAAAGAGGATTGAAAG CCTCACTCCCCTTCACCTCCCAGCGCGAGATACGCTAG spacer
length: 38 repeater length: 25
7401 1002248 ACCTCAATGTAAAGAGGATTGAAAG ACTCATCTTCCGTGGGAGGCGAGCCCCTAATGCCATAGG spacer
length: 39 repeater length: 25
7402 1002312 ACCTCAATGTAAAGAGGATTGAAAG CGCATGCCGTTAATGTAGTCATCCTCAAGGGCCCCG spacer
length: 36 repeater length: 25
7403 1002373 ACCTCAATGTAAAGAGGATTGAAAG AGCAAGTAAATAACGACGCTGCGGTGATAACCAATGCCAAC spacer
length: 41 repeater length: 25
7404 1002439 ACCTCAATGTAAAGAGGATTGAAAG GGGTCGGCCAGTATAATGTACTCCACGTCCCGCGGCATAG spacer
length: 40 repeater length: 25
7405 1002504 ACCTCAATGTAAAGAGGATTGAAAG GGGAGCTCCGTGCGGAGCGAGTACTTCACAGCGTACTCC spacer
length: 39 repeater length: 25
7406 1002568 ACCTCAATGTAAAGAGGATTGAAAG TTAACGTCAAGTGCATATACATAATTATCGTCATTTTCA spacer
length: 39 repeater length: 25
7407 1002632 ACCTCAATGTAAAGAGGATTGAAAG GTAAACACCACTTTCCTGGATCTGCTGAAGAACGGCAC spacer
length: 38 repeater length: 25
7408 1002695 ACCTCAATGTAAAGAGGATTGAAAG CATTTACGCTTACAATGCTATCCCTGAAGGTTACATTAA spacer
length: 39 repeater length: 25
7409 1002759 ACCTCAATGTAAAGAGGATTGAAAG TATTCGCTATGGCTGGAGGCATAGGTCTAGGTCTATTCC spacer
length: 39 repeater length: 25
7410 1002823 ACCTCAATGTAAAGAGGATTGAAAG GATTAGTGTAGTTGCCCATGAGGTCAGCACCGGGGATTGC spacer
length: 40 repeater length: 25
7411 1002888 ACCTCAATGTAAAGAGGATTGAAAG TATAATCCGCCAACCGATATGGAACGGGCTCCAGATACA spacer
length: 39 repeater length: 25
7412 1002952 ACCTCAATGTAAAGAGGATTGAAAG ACCTGAGATGTTAACGGGACGAGGCTTATAACCACGGCTAA spacer
length: 41 repeater length: 25
7413 1003018 ACCTCAATGTAAAGAGGATTGAAAG TTGCACCTCTGTAGGGTTTCCCGTGCCTCGGCGAGGATTG spacer
length: 40 repeater length: 25
7414 1003083 ACCTCAATGTAAAGAGGATTGAAAG TAGAGAGGTTTATGGTCTCAATTAGTCAAAAAGTCGAGA spacer
length: 39 repeater length: 25
7415 1003147 ACCTCAATGTAAAGAGGATTGAAAG GCATATATCTCAGAGAAGAAGCCCAAGTCCGATACACTTG spacer
length: 40 repeater length: 25
7416 1003212 ACCTCAATGTAAAGAGGATTGAAAG CCCTTCTTCTCCACTAGTATTAGGTAGCCGTGCTTGTA spacer
length: 38 repeater length: 25
7417 1003275 ACCTCAATGTAAAGAGGATTGAAAG TCCACCGTAG
7418
7419
7420 crispr 4
7421 1028457 GCCTCAATGTAAAGAGGATTGAAAG ATCCGGGCCGAAGTAATCGACATATTGGCCCGTAAATGGG spacer
length: 41 repeater length: 25
7422 1028523 GCCTCAATGTAAAGAGGATTGAAAG GTTCACATTTGCGAACACTATTTCATACCCATAGACAATGT spacer
length: 40 repeater length: 25
7423 1028588 GCCTCAATGTAAAGAGGATTGAAAG ACCTCTATCCTTATCCACTTTTCATAAATGGGCCGGTTTC spacer
length: 40 repeater length: 25
7424 1028653 GCCTCAATGTAAAGAGGATTGAAAG TCGCACTGATTATCGAGGAGGGCTTACTCCTATGGTTCAA spacer
length: 40 repeater length: 25
7425 1028718 GCCTCAATGTAAAGAGGATTGAAAG ATATCCCCGGCGGTGCGCCCCACGGTATATGAAGCCCTCGG spacer
length: 40 repeater length: 25
7426 1028783 GCCTCAATGTAAAGAGGATTGAAAG TCCCAGCTGGAGTAGTCATCCAGATGCGGTTTAACCAT spacer
length: 38 repeater length: 25
7427 1028846 GCCTCAATGTAAAGAGGATTGAAAG TTATAGCTAACGCAATACGCTCGCGTCTTTCTTCCACTAG spacer
length: 40 repeater length: 25
7428 1028911 GCCTCAATGTAAAGAGGATTGAAAG CGAATTAAGACGCCTAACCCCTCCCCAGAGCCTGAGG spacer
length: 36 repeater length: 25
7429 1028972 GCCTCAATGTAAAGAGGATTGAAAG CCAACGAGCTAGGCTGGTACGGCATCCATTACAGGGAGA spacer
length: 39 repeater length: 25
7430 1029036 GCCTCAATGTAAAGAGGATTGAAAG CTCTAAGTATGACCTCCTCGGTAGCCCTCTCAATACATGG spacer
length: 40 repeater length: 25
7431 1029101 GCCTCAATGTAAAGAGGATTGAAAG GTGTAATGCACCATTAAGCCCTGCGTGGTCTTTATGAT spacer
length: 38 repeater length: 25
7432 1029164 GCCTCAATGTAAAGAGGATTGAAAG ACCCAATTGAGGTTTTACCGCTCACATATCCCTGAA spacer
length: 37 repeater length: 25
7433 1029226 GCCTCAATGTAAAGAGGATTGAAAG CTCGGGTTAGTGTAATTGATGCTGGTTACCTGCTGCAGCG spacer
length: 40 repeater length: 25
7434 1029291 GCCTCAATGTAAAGAGGATTGAAAG AGAGGATCCCGAGCTACCTGAAGGCGAGAAGATAATCCTAG spacer
length: 41 repeater length: 25

7435 1029357 GCCTCAATGTAAAGAGGATTGAAAG TTTCTTCAGCTCAAAGCCTATATCGTGGTCTAGCACATA spacer
length: 39 repeater length: 25

7436 1029421 GCCTCAATGTAAAGAGGATTGAAAG ATACTATCGCATTACTCCAGAAGCTATTTGACACGACTGG spacer
length: 40 repeater length: 25

7437 1029486 GCCTCAATGTAAAGAGGATTGAAAG CTATTGCTACTCCACACGCCTCCCCGCTAGTGAACCACG spacer
length: 39 repeater length: 25

7438 1029550 GCCTCAATGTAAAGAGGATTGAAAG TAAATTGTTTAAAATGATTATCACTCAACCTCATGGAC spacer
length: 38 repeater length: 25

7439 1029613 GCCTCAATGTAAAGAGGATTGAAAG GTGGGTACGTATATGGTGCTACCATTAGTAAGGTATAT spacer
length: 38 repeater length: 25

7440 1029676 GCCTCAATGTAAAGAGGATTGAAAG TTGCACAGGCGTTTTCTCTGCTGCTGTTCTAGTTATGGC spacer
length: 38 repeater length: 25

7441 1029739 GCCTCAATGTAAAGAGGATTGAAAG ATTTTCTGCCTTATCTAGGCTGGCCCGGCTCATTAACCA spacer
length: 40 repeater length: 25

7442 1029804 GCCTCAATGTAAAGAGGATTGAAAG CTGAGGAGATCCCCGCAGAGTCGTGAGTCAAGGGCTTTTAT spacer
length: 41 repeater length: 25

7443 1029870 GCCTCAATGTAAAGAGGATTGAAAG TTCAGCTGCTGATCAATTCTGCCCCGCCACTTCAATATTGG spacer
length: 41 repeater length: 25

7444 1029936 GCCTCAATGTAAAGAGGATTGAAAG ATATTGGCGCCAGACTTATTATATTGAACCTCGTTTAAA spacer
length: 39 repeater length: 25

7445 1030000 GCCTCAATGTAAAGAGGATTGAAAG GCTCTAACAAGTTGAGCCGGCTGATAGCCTTGCGGTAGCT spacer
length: 40 repeater length: 25

7446 1030065 GCCTCAATGTAAAGAGGATTGAAAG ATGGATGACTGCTACTGGCAGTACGGCGACTATAGTAGG spacer
length: 39 repeater length: 25

7447 1030129 GCCTCAATGTAAAGAGGATTGAAAG TATAATTATATCGGGAGTGGTTTCGGGTATATATTTTAA spacer
length: 39 repeater length: 25

7448 1030193 GCCTCAATGTAAAGAGGATTGAAAG CTAGATCCCTGATCCTTATAGGATCCTAGACTCGTTAAG spacer
length: 39 repeater length: 25

7449 1030257 GCCTCAATGTAAAGAGGATTGAAAG TAGCTATGTCTTGACAGGGCTTCTCCGCCTTGCTTAAGCCTAT spacer
length: 43 repeater length: 25

7450 1030325 GCCTCAATGTAAAGAGGATTGAAAG AAAATGTCGGGCGGGGTATTTAAGCGTTGTGTTTTGTA spacer
length: 38 repeater length: 25

7451 1030388 GCCTCAATGTAAAGAGGATTGAAAG TTACGATCACCTTGCTTTTCTACTAGTATGAGGTACCCG spacer
length: 39 repeater length: 25

7452 1030452 GCCTCAATGTAAAGAGGATTGAAAG TGCTACCCTTTATCAGCAACGCTAGCTCACGGGCCCCACA spacer
length: 39 repeater length: 25

7453 1030516 GCCTCAATGTAAAGAGGATTGAAAG ACGAGCTGGAAGTATACCGTGGTATACCAGGCTCCCGTGA spacer
length: 40 repeater length: 25

7454 1030581 GCCTCAATGTAAAGAGGATTGAAAG TGGAGACCGTTACCAAGATCAATAGTAGAACTGAGATAG spacer
length: 39 repeater length: 25

7455 1030645 GCCTCAATGTAAAGAGGATTGAAAG GTAACCTATTTTCATTTTCCAGAAGTGGTATTCTACCAT spacer
length: 39 repeater length: 25

7456 1030709 GCCTCAATGTAAAGAGGATTGAAAG TATGGGGTTACAAAAGCTATATGGGATTAAACTGCTGGA spacer
length: 39 repeater length: 25

7457 1030773 GCCTCAATGTAAAGAGGATTGAAAG TGTAGTCAACCCTTGCAACAGGCACAGCCGTGTACACGGT spacer
length: 40 repeater length: 25

7458 1030838 GCCTCAATGTAAAGAGGATTGAAAG CTACCATAGGGGTAGCTTATAAACAGCTGTGTAGTGTAC spacer
length: 39 repeater length: 25

7459 1030902 GCCTCAATGTAAAGAGGATTGAAAG CCAGCTTTTACATATATTTTAAGGTAATGGTATCCGTC spacer
length: 38 repeater length: 25

7460 1030965 GCCTCAATGTAAAGAGGATTGAAAG AAAACATACATATATAGTCAGCAGGCGATATATATA spacer
length: 36 repeater length: 25

7461 1031026 GCCTCAATGTAAAGAGGATTGAAAG ATACTCTCCCTCACAACCGGGACGGGATCCACCATGCA spacer
length: 38 repeater length: 25

7462 1031089 GCCTCAATGTAAAGAGGATTGAAAG ACGTAGGAAGGTATTCCAGGATTCCTTTCCCTTATATCTTT spacer
length: 41 repeater length: 25

7463 1031155 GCCTCAATGTAAAGAGGATTGAAAG TTAAATTTAAAGGCCTCCAACACTACCGCGTCGCCCCGCA spacer
length: 40 repeater length: 25

7464 1031220 GCCTCAATGTAAAGAGGATTGAAAG GTCAGCAACGAGGAGCTTCTGCAGCTACTACGCAACTACGAG spacer
length: 42 repeater length: 25

7465 1031287 GCCTCAATGTAAAGAGGATTGAAAG TTA CTGCCGCCACCTTCTTGCCGTCATACTGCAGTGTGA spacer
length: 39 repeater length: 25

7466 1031351 GCCTCAATGTAAAGAGGATTGAAAG ATAAGCCTAGTGAGAGAAGCTTCTTCTCACGCTCAT spacer
length: 36 repeater length: 25

7467 1031412 GCCTCAATGTAAAGAGGATTGAAAG CCGTCCTGCTTACACCCGGCTTTGCAGGCCTCCCATATT spacer
length: 39 repeater length: 25

7468 1031476 GCCTCAATGTAAAGAGGATTGAAAG CTCACGAATGCCACCGGGTTCAACCCGGCCACAGTGCTGG spacer
length: 40 repeater length: 25

7469 1031541 GCCTCAATGTAAAGAGGATTGAAAG CCACAGTTATAAAGTGGGGCCTGGTGGCCCCGTTTCGGCTA spacer
length: 40 repeater length: 25

7470 1031606 GCCTCAATGTAAAGAGGATTGAAAG ATATATCCACTCCACTGATTTACCAAGGGCTCAGGGCTCC spacer

length: 41 repeater length: 25
7471 1031672 GCCTCAATGTAAAGAGGATTGAAAG AGAACACGGGAAGCGATGGATGGGTTAGGGTAAGGGTT spacer
length: 38 repeater length: 25
7472 1031735 GCCTCAATGTAAAGAGGATTGAAAG ACGGGTTCCTCCCCTGGCGGCGCCAGCTTAATCCACTCAG spacer
length: 40 repeater length: 25
7473 1031800 GCCTCAATGTAAAGAGGATTGAAAG TGTAAGAGTGTAAAAGCTAAGTACAACAAGTGTAAAGGTAA spacer
length: 41 repeater length: 25
7474 1031866 GCCTCAATGTAAAGAGGATTGAAAG ATAAAATAAGGCGCGCTAGGGGGCTGGCCGGGGGGCGGAG spacer
length: 40 repeater length: 25
7475 1031931 GCCTCAATGTAAAGAGGATTGAAAG ATTGGGACAGATTTCAAGCCCTATGGTGCCTCCAAAT spacer
length: 38 repeater length: 25
7476 1031994 GCCTCAATGTAAAGAGGATTGAAAG CTTACCCGGTGGTGAGGTCAACTATATATGGGCTCGG spacer
length: 37 repeater length: 25
7477 1032056 GCCTCAATGTAAAGAGGATTGAAAG ATTAGGTAGGATCCACGGCATCTACCTAGTAGGGACCCCG spacer
length: 41 repeater length: 25
7478 1032122 GCCTCAATGTAAAGAGGATTGAAAG CTGTAACCGTGGTTGAAACATTACCGGCAAGGAGGGTAG spacer
length: 39 repeater length: 25
7479 1032186 GCCTCAATGTAAAGAGGATTGAAAG GTTTCATATGTCTCCCCTCAATTCTCTAATATGCATTTAGAG spacer
length: 42 repeater length: 25
7480 1032253 GCCTCAATGTAAAGAGGATTGAAAG AGTCTTTTACCGGGTTCAACTTGTTTCATTAATTCACGCA spacer
length: 40 repeater length: 25
7481 1032318 GCCTCAATGTAAAGAGGATTGAAAG ACGGCAGCCTCCCGTAGAAAAAGCTGCAGTCTCCCCGTGG spacer
length: 40 repeater length: 25
7482 1032383 GCCTCAATGTAAAGAGGATTGAAAG TAAAGTAATCCAATACCTCCCGGGGATCTCCCTCTGTGGTG spacer
length: 41 repeater length: 25
7483 1032449 GCCTCAATGTAAAGAGGATTGAAAG ATTGTCATAGGTAATAGAACTTGAGTGATTATCGGGATGC spacer
length: 40 repeater length: 25
7484 1032514 GCCTCAATGTAAAGAGGATTGAAAG GGTGCAGGGT
7485
7486
7487 GCA_000189555.1_ASM18955v1_genomic.fna (PilerCR) :
7488 START REPEAT
SPACER
7489 crispr 1
7490 725208 CTTTCAATTCTATAGTAGATTAGC CAGCTGTTTCAGATCATAAGTAATTTGTGCTATTATATAGTC spacer
length: 42 repeater length: 24
7491 725274 CTTTCAATTCTATAGTAGATTAGC TTAGAATGAAAATTGTCTCATTGCCTCTTCTTTAACTTTGTC spacer
length: 42 repeater length: 24
7492 725340 CTTTCAATTCTATAGTAGATTAGC AGGGTTCGATTTGACTTATGCCCTAGTGAAGTCTGATGGCA spacer
length: 40 repeater length: 24
7493 725404 CTTTCAATTCTATAGTAGATTAGC ACGCGGTGAACTTTCTGTCTTTCAGGAATTCGGAAATCTCT spacer
length: 41 repeater length: 24
7494 725469 CTTTCAATTCTATAGTAGATTAGC GAGAGATGTACAAAATCAGAAGGACAGACCCTGGAAGAA spacer
length: 39 repeater length: 24
7495 725532 CTTTCAATTCTATAGTAGATTAGC GCGTAGTTGAGGAGTTTTTTCCTAATTTTGGCATAAGAACTTT spacer
length: 44 repeater length: 24
7496 725600 CTTTCAATTCTATAGTAGATTAGC CGGCAATGAGTTTTTGGGTAAATGTGGTGGAAATTGATA spacer
length: 38 repeater length: 24
7497 725662 CTTTCAATTCTATAGTAGATTAGC CTGGGACACTGAAAGAGAGTTAGTGAGTCTGCACTTTA spacer
length: 38 repeater length: 24
7498 725724 CTTTCAATTCTATAGTAGATTAGC AAGGAGTCACTGATTGGATTATTCGTATTTAGTAAAAAGAA spacer
length: 41 repeater length: 24
7499 725789 CTTTCAATTCTATAGTAGATTAGC TAGGGGCTTCAAACGAACTACCGACTGAAGAAGAATTAC spacer
length: 39 repeater length: 24
7500 725852 CTTTCAATTCTATAGTAGATTAGC ATAAACTTTATATACCACCAAACAATATATTGTAGAT spacer
length: 41 repeater length: 24
7501 725917 CTTTCAATTCTATAGTAGATTAGC CGGATATACAAAGCAGAACTAGGAAAGATCTAATTCATTATAGT spacer
length: 44 repeater length: 24
7502 725985 CTTTCAATTCTATAGTAGATTAGC CACGCCCGATATGTCTATACCTGTAACCTCTTTGGAAAACTG spacer
length: 43 repeater length: 24
7503 726052 CTTTCAATTCTATAGTAGATTAGC TTACTTAACTAAAGTTCTGAGCCAAGTCTTAAACCTAGA spacer
length: 39 repeater length: 24
7504 726115 CTTTCAATTCTATAGTAGATTAGC TGAATTTCTTACAAACATATAAATTGTAATTGATGAATTTG spacer
length: 41 repeater length: 24
7505 726180 CTTTCAATTCTATAGTAGATTAGC TAGTAAAAACGTACTATTTTTTTGATTGCAAGATGATACTCT spacer
length: 43 repeater length: 24
7506 726247 CTTTCAATTCTATAGTAGATTAGC ATGGCATACTACGACGTCAGTAGGGAAGTACTAGATTTACAT spacer
length: 41 repeater length: 24
7507 726312 CTTTCAATTCTATAGTAGATTAGC CTAACATGGTAGCTTTCATGGCAGGCGACGTCAGTAGTGT spacer
length: 40 repeater length: 24
7508 726376 CTTTCAATTCTATAGTAGATTAGC TAGTAAAAACGTACTATTTTTTTGATTGCAAGATGATACTCT spacer

length: 43 repeater length: 24
7509 726443 CTTTCAATTCTATAGTAGATTAGC ATGGCATACTACGACGTCAGTAGGGAAGTACAGATTTACAT spacer
length: 41 repeater length: 24
7510 726508 CTTTCAATTCTATAGTAGATTAGC CTAACATGGTAGCTTTCATGGCAGGCGACGTCAGTAGTGT spacer
length: 40 repeater length: 24
7511 726572 CTTTCAATTCTATAGTAGATTAGC AAAAATTCGCTACTACAAATCTTAGTTAAGTCTGTG spacer
length: 38 repeater length: 24
7512 726634 CTTTCAATTCTATAGTAGATTAGC CATCACTCGTAGCTATATACCTTGGGACAAGGACTCTGG spacer
length: 39 repeater length: 24
7513 726697 CTTTCAATTCTATAGTAGATTAGC AATTGCCTAACTTTTCGCCGCTTATCTCTTCTTAAATA spacer
length: 39 repeater length: 24
7514 726760 CTTTCAATTCTATAGTAGATTAGC CAAATTTCTGGCCGGGGGGCCAGAATATCGGTAATCGAT spacer
length: 39 repeater length: 24
7515 726823 CTTTCAATTCTATAGTAGATTAGC GATATTGTTAATAGAGTTGTAATTGAAGTAATTGGAAAGGA spacer
length: 41 repeater length: 24
7516 726888 CTTTCAATTCTATAGTAGATTAGC TAGGCGTCGCAAAGTTCTTCCGTGACATTGCAGACTGGA spacer
length: 39 repeater length: 24
7517 726951 CTTTCAATTCTATAGTAGATTAGC TGAATGGTGCGATAAATATCCTACATATCCCCGAGTCTCT spacer
length: 40 repeater length: 24
7518 727015 CTTTCAATTCTATAGTAGATTAGC ATGATAATAGAGAGAATAAAGAGAGAACTGGGGAGTTAAA spacer
length: 41 repeater length: 24
7519 727080 CTTTCAATTCTATAGTAGATTAGC CGTGTCAATATCGATTGGGAAGACTTCAAGAAGGATCAAG spacer
length: 40 repeater length: 24
7520 727144 CTTTCAATTCTATAGTAGATTAGC AATAATCGCTCGCCTTCTTAGCCTCTGCAATTATCTGCGA spacer
length: 40 repeater length: 24
7521 727208 CTTTCAATTCTATAGTAGATTAGC TTTATTAGCCCGCGAGGGCTTTACAATTAAAGAAATAGCGTT spacer
length: 42 repeater length: 24
7522 727274 CTTTCAATTCTATAGTAGATTAGC CCATAGAACTAAACGGAAAAATTGTCAGTGTGAGGGTGA spacer
length: 40 repeater length: 24
7523 727338 CTTTCAATTCTATAGTAGATTAGC AGAAAGGGTAGGGAGACTAATAAAAATGCTTCCCAGTAT spacer
length: 39 repeater length: 24
7524 727401 CTTTCAATTCTATAGTAGATTAGC CGAGGTCTCTCCTCATCTATACTTTTGATAATTGATATTAGT spacer
length: 42 repeater length: 24
7525 727467 CTTTCAATTCTATAGTAGATTAGC GGTATTAACGGTTGACGATAAACAATTAGAAGACAGAATA spacer
length: 40 repeater length: 24
7526 727531 CTTTCAATTCTATAGTAGATTAGC ACTATTGATTAGATTTTTTTGAGTCTGCCCAGAAAGATGAAA spacer
length: 41 repeater length: 24
7527 727596 CTTTCAATTCTATAGTAGATTAGC AGAAAGATCTGAAAGGACCTGAACGAAATTGGGCAGAATTG spacer
length: 41 repeater length: 24
7528 727661 CTTTCAATTCTATAGTAGATTAGC CATTTTTGCTATTTAGCCATCCCAGACCGCGAAGGACTTC spacer
length: 40 repeater length: 24
7529 727725 CTTTCAATTCTATAGTAGATTAGC TAGATGAGATTGTTGACCGTTGGCGGTGGGAATATACTA spacer
length: 40 repeater length: 24
7530 727789 CTTTCAATTCTATAGTAGATTAGC TAAGTTTAGGGAAAGGTTTAAAAACGCCTAAAAAGAGAGT spacer
length: 41 repeater length: 24
7531 727854 CTTTCAATTCTATAGTAGATTAGC GATATGAATGGAGAATTACTCCATAATTTGATCCTAAAATCA spacer
length: 42 repeater length: 24
7532 727920 CTTTCAATTCTATAGTAGATTAGC CATTCATGGGGAATTCCTCCATCTTCATCTTCACCACCAC spacer
length: 40 repeater length: 24
7533 727984 CTTTCAATTCTATAGTAGATTAGC GGGTAATAATGGGCATAGGCATAGGGGTGCTATCGGCTT spacer
length: 40 repeater length: 24
7534 728048 CTTTCAATTCTATAGTAGATTAGC GATAAGCGATAAGCCCCGCGACTGCGAAGATGACAAAGAAGA spacer
length: 42 repeater length: 24
7535 728114 CTTTCAATTCTATAGTAGATTAGC TGGTAGTACAACCTGTTACAAATCCTATTGGCAGCTTTAA spacer
length: 39 repeater length: 24
7536 728177 CTTTCAATTCTATAGTAGATTAGC CAGTTGATAAGTATCCATACATTCAAGCACGAGGATG spacer length:
37 repeater length: 24
7537 728238 CTTTCAATTCTATAGTAGATTAGC CGGTGCTGCGGCCCTTCTTCATACTTTTGTGTTAGCGGTCAC spacer
length: 42 repeater length: 24
7538 728304 CTTTCAATTCTATAGTAGATTAGC AACTTTTATAACTGATGATAATAGAGAATTCGTATTTTGTA spacer
length: 41 repeater length: 24
7539 728369 CTTTCAATTCTATAGTAGATTAGC AGGGAGAGCTGTTAAAGGATCTTCAGCATCTCCGTGAAATAG spacer
length: 42 repeater length: 24
7540 728435 CTTTCAATTCTATAGTAGATTAGC CACCCCAAAACAAATCCAAACCCATGGAAAAGGTAATGAA spacer
length: 40 repeater length: 24
7541 728499 CTTTCAATTCTATAGTAGATTAGC TTGGGAGTATATAGTAGAAATACGGTGCATTGGGTAAAA spacer
length: 39 repeater length: 24
7542 728562 CTTTCAATTCTATAGTAGATTAGC TGAGTTCTTTAACGGATTTCATGTGGTGATTAAAAAATA spacer
length: 38 repeater length: 24
7543 728624 CTTTCAATTCTATAGTAGATTAGC ATATAGGTTGCCAAATGATTCTATAACAATTAGTATTCT spacer
length: 39 repeater length: 24

7544	728687 CTTTCAATTCTATAGTAGATTAGC	CATTTCTGCTTCTATGCAATAAGACCACTGCTCTGCTTTT spacer
	length: 40 repeater length: 24	
7545	728751 CTTTCAATTCTATAGTAGATTAGC	TTAAAGCACCGTTCAGGTCATATGAAGCTTGTGTCCTCT spacer
	length: 40 repeater length: 24	
7546	728815 CTTTCAATTCTATAGTAGATTAGC	TGCTACCGTACGGAGTGGCGACCCGTACGGTAAAGAGCG spacer
	length: 39 repeater length: 24	
7547	728878 CTTTCAATTCTATAGTAGATTAGC	ACTTCAATTACGCTTTTGTGCGCCATATGTTATCAGTCTT spacer
	length: 39 repeater length: 24	
7548	728941 CTTTCAATTCTATAGTAGATTAGC	CCAGGAATGTAAGAAGATTAGCAATTCGAAAAAGAATTC spacer
	length: 40 repeater length: 24	
7549	729005 CTTTCAATTCTATAGTAGATTAGC	TTCACTATCAGCTTTATGTGATAATTTAGTCCGATTTAA spacer
	length: 40 repeater length: 24	
7550	729069 CTTTCAATTCTATAGTAGATTAGC	TTGTCTCACCATCTAATTCTATTGCTTTCTCATAATCAT spacer
	length: 39 repeater length: 24	
7551	729132 CTTTCAATTCTATAGTAGATTAGC	AAAATAAAAAATCATTTTACAATCCTTTCTATTTTATCAAGAA spacer
	length: 42 repeater length: 24	
7552	729198 CTTTCAATTCTATAGTAGATTAGC	AAATTAGAGCCATTAGTACGATTAATATTAGACGTAAGTGA spacer
	length: 41 repeater length: 24	
7553	729263 CTTTCAATTCTATAGTAGATTAGC	TAATGTGTTAAATCCTCCCTGGATTTACTTTGTACATCTG spacer
	length: 40 repeater length: 24	
7554	729327 CTTTCAATTCTATAGTAGATTAGC	TTGGGTATGTAAAGTCGGGTCGAAGAAGAACAGCATAGAAGTAAT spacer
	length: 45 repeater length: 24	
7555	729396 CTTTCAATTCTATAGTAGATTAGC	AAAGACCTCTTCAGAGTGGCAAATGTACCTATCATTTTGGTA spacer
	length: 42 repeater length: 24	
7556	729462 CTTTCAATTCTATAGTAGATTAGC	ATGAGAACTCTATATTTGACCATCTCCACATAGAATAAAA spacer
	length: 40 repeater length: 24	
7557	729526 CTTTCAATTCTATAGTAGATTAGC	GGTCACGAAAAAATAAGAAAGAAATAGTAGAATTTGAAG spacer
	length: 39 repeater length: 24	
7558	729589 CTTTCAATTCTATAGTAGATTAGC	GGTTTGCAGACCCCGCCACTTACTCTCTGTCTTCTCCTCTA spacer
	length: 41 repeater length: 24	
7559	729654 CTTTCAATTCTATAGTAGATTAGC	CTGGTCTAAATAGTGGATTTTTAGGAGCGAAATCATTAAC spacer
	length: 40 repeater length: 24	
7560	729718 CTTTCAATTCTATAGTAGATTAGC	TTAGTAATTATCACAACAGTAAAGTCAGTGCCGAAGCTTC spacer
	length: 40 repeater length: 24	
7561	729782 CTTTCAATTCTATAGTAGATTAGC	TAAGTCAGAGAATCACAGCGGAACCTTTATCAATTATTG spacer
	length: 38 repeater length: 24	
7562	729844 CTTTCAATTCTATAGTAGATTAGC	GGTAATGGAGTCGTAGGCGGATCAGTGCCCACTACAACAATATTT spacer
	length: 45 repeater length: 24	
7563	729913 CTTTCAATTCTATAGTAGATTAGC	GATGTGGAGG
7564		
7565		
7566	crispr 2	
7567	730050 CTTTCAATTCTATAGTAGATTAGC	TCAAGGAATTCTACAATGTCATAATTTCTATATTTTTTAT spacer
	length: 40 repeater length: 24	
7568	730114 CTTTCAATTCTATAGTAGATTAGC	CCGGTATTTGGATTTATCGCATACACTAATTGTTCAACC spacer
	length: 39 repeater length: 24	
7569	730177 CTTTCAATTCTATAGTAGATTAGC	AGAGCGATCTATCCAGTAGAGATTAACGAAAAATAATTTTTTTCAT
	spacer length: 46 repeater length: 24	
7570	730247 CTTTCAATTCTATAGTAGATTAGC	CTATACTGTAGGACGTTTTCTGAGTTACACGAGAGCTTTAGA spacer
	length: 42 repeater length: 24	
7571	730313 CTTTCAATTCTATAGTAGATTAGC	GTTGTCATGGATGACGAGCCAAGAAAATGCGATAATAGT spacer
	length: 39 repeater length: 24	
7572	730376 CTTTCAATTCTATAGTAGATTAGC	CACACTCACTTCGTTACGCATTAATTAGCTATTTAGCGAG spacer
	length: 40 repeater length: 24	
7573	730440 CTTTCAATTCTATAGTAGATTAGC	ATAATTTGGTTGCTAACGTTAATCATCAACAAAAGATTGTCAA spacer
	length: 43 repeater length: 24	
7574	730507 CTTTCAATTCTATAGTAGATTAGC	ATCGCAATGCTGGGAATTGGGTGGTGGCTAGGTTCTTCATT spacer
	length: 41 repeater length: 24	
7575	730572 CTTTCAATTCTATAGTAGATTAGC	CTCCATAGGAATTAAATCTAGATTGTCCATGACATTGAT spacer
	length: 39 repeater length: 24	
7576	730635 CTTTCAATTCTATAGTAGATTAGC	ACAATTTTCAGCATGCACTGCGGACGCTTATGTTTGTATTTC spacer
	length: 41 repeater length: 24	
7577	730700 CTTTCAATTCTATAGTAGATTAGC	TTTATATACCAATAGAAGAAGTGAACAGATACCGCCAGATG spacer
	length: 42 repeater length: 24	
7578	730766 CTTTCAATTCTATAGTAGATTAGC	TTATAAAGAGAAATTTTTAGGTTAAGGGAGAAAATTA spacer length:
	37 repeater length: 24	
7579	730827 CTTTCAATTCTATAGTAGATTAGC	CTGATCTTTCTTGAAATCTTCCCAATCAATGTTTACTCTAAT spacer
	length: 42 repeater length: 24	
7580	730893 CTTTCAATTCTATAGTAGATTAGC	CATAAATATGAGTAAGACATTAGAATACATCAAAAAATGT spacer
	length: 41 repeater length: 24	
7581	730958 CTTTCAATTCTATAGTAGATTAGC	CTGAAACTACTGTCGTTTCTGTCGTTAGCGTCAACTAGAA spacer

length: 40 repeater length: 24
7582 731022 CTTTCAATTCTATAGTAGATTAGC ATACGCCGAATTAGAGCTAATCACTGAGAAATACGGTATATCC spacer
length: 43 repeater length: 24
7583 731089 CTTTCAATTCTATAGTAGATTAGC TTACTCTATAGCTAGTGTCTACTTTAAGGCAAGAAAATC spacer
length: 40 repeater length: 24
7584 731153 CTTTCAATTCTATAGTAGATTAGC TTTTGCATACTCTCCCCCTCTGTCTATTTAATTATTCGTTTG spacer
length: 42 repeater length: 24
7585 731219 CTTTCAATTCTATAGTAGATTAGC ACGTCTATTTCTTCCTACCGGAGCAGATCGATAACTTTA spacer
length: 39 repeater length: 24
7586 731282 CTTTCAATTCTATAGTAGATTAGC CTATTAAAAGCACAAATTCAGGAATATGTTTAAAAATTTG spacer
length: 40 repeater length: 24
7587 731346 CTTTCAATTCTATAGTAGATTAGC AGATGTAGTTAGCCACCTATTGGTGGAGGATAATTATTTTGTT spacer
length: 44 repeater length: 24
7588 731414 CTTTCAATTCTATAGTAGATTAGC CGGCTGCAAAGTATCATATATTCAGTTTTTCGCACTATTG spacer
length: 40 repeater length: 24
7589 731478 CTTTCAATTCTATAGTAGATTAGC TCAACTTTGTATCGTACCTTAACGGTGTGATTTATATCGC spacer
length: 40 repeater length: 24
7590 731542 CTTTCAATTCTATAGTAGATTAGC TACGTTACAAAACTGAATAAACACCCCGAGTTTACAGAG spacer
length: 39 repeater length: 24
7591 731605 CTTTCAATTCTATAGTAGATTAGC ACGACTTCAACCCACCACCTAACGATAAACCATATTTCTTAGG spacer
length: 44 repeater length: 24
7592 731673 CTTTCAATTCTATAGTAGATTAGC AAGTTTTTATTTTTTCTGATAATTTATTGAACGAAATGGAC spacer
length: 41 repeater length: 24
7593 731738 CTTTCAATTCTATAGTAGATTAGC CACTGATAGGGATTGCCATTACTGTGATTATTGCACTACT spacer
length: 40 repeater length: 24
7594 731802 CTTTCAATTCTATAGTAGATTAGC TTTAAAGTCTAGCTTACCGTTGTGCAACTTCATAAAGAA spacer
length: 39 repeater length: 24
7595 731865 CTTTCAATTCTATAGTAGATTAGC GCCTTTGCAGGAATTTCTAAAGGATAAGAATAAACAGGAA spacer
length: 40 repeater length: 24
7596 731929 CTTTCAATTCTATAGTAGATTAGC AAGAACTACAACACCACCGTCAATTTCAAGTTCAAACC spacer
length: 40 repeater length: 24
7597 731993 CTTTCAATTCTATAGTAGATTAGC AAGAACAGAAAGGAAAACGATCTGAAAAGGAGAATAATA spacer
length: 39 repeater length: 24
7598 732056 CTTTCAATTCTATAGTAGATTAGC ATAAATTATCTTCAAGAAAGAGGAAAAAGTGATATACAA spacer
length: 39 repeater length: 24
7599 732119 CTTTCAATTCTATAGTAGATTAGC TAGTCAATAAATGTCTGATTGTTGTTTTCCAACCTCTAAA spacer
length: 39 repeater length: 24
7600 732182 CTTTCAATTCTATAGTAGATTAGC CATACCCGACACAAGAAAGTATGTTGAGGATTATGCCAAC spacer
length: 40 repeater length: 24
7601 732246 CTTTCAATTCTATAGTAGATTAGC TTATTCTCAGCGACAAGGTCTTTGAAATAGTAAATGGAAAG spacer
length: 42 repeater length: 24
7602 732312 CTTTCAATTCTATAGTAGATTAGC CTAGATATAATATATTATTTGGTCCATAGGAGGACCAG spacer
length: 40 repeater length: 24
7603 732376 CTTTCAATTCTATAGTAGATTAGC TCTTTAAATCTCATTTCTTTCACCATTATCTTTTCTCA spacer
length: 39 repeater length: 24
7604 732439 CTTTCAATTCTATAGTAGATTAGC AAGAAAATAAAAAGATTGAAATCTTAAAGCTTACAAGAG spacer
length: 40 repeater length: 24
7605 732503 CTTTCAATTCTATAGTAGATTAGC TTGGAATATTTTTACAAGGTGTAGAATTAATTGGAATTT spacer
length: 39 repeater length: 24
7606 732566 CTTTCAATTCTATAGTAGATTAGC TCCGACAGAA
7607
7608
7609 crispr 3
7610 736641 GCTAATCTACTATAGAATTGAAAG ACACTGGGCGATAACGGGAACGACAGGGGCGGGAAAGAC spacer
length: 39 repeater length: 24
7611 736704 GCTAATCTACTATAGAATTGAAAG TTTATTTTTTCAAAC TAATTCGCAAAAATTGAAAGTCGAA spacer
length: 40 repeater length: 24
7612 736768 GCTAATCTACTATAGAATTGAAAG TATAATTATCTTTAGTCTTCCATCCATGGTATTTTCAAGAAA spacer
length: 41 repeater length: 24
7613 736833 GCTAATCTACTATAGAATTGAAAG TATAAATATGGTGTCTAGTGACGAATTAATAAACATAACCAGT spacer
length: 44 repeater length: 24
7614 736901 GCTAATCTACTATAGAATTGAAAG TTACTTCTTAGTGTTTTTACGAAAGTGAAAGCATTATCGC spacer
length: 40 repeater length: 24
7615 736965 GCTAATCTACTATAGAATTGAAAG TCAATATATCTTCCAATGCTGTTTTTGATATAGTCGACAACC spacer
length: 42 repeater length: 24
7616 737031 GCTAATCTACTATAGAATTGAAAG GAAATAGAAAAAGCTTTAAGAATTAAATATCTCTTCTGCCG spacer
length: 42 repeater length: 24
7617 737097 GCTAATCTACTATAGAATTGAAAG AAAGAAGATCAAGATTTAAGATATGTAATGACCTTTGGAC spacer
length: 40 repeater length: 24
7618 737161 GCTAATCTACTATAGAATTGAAAG CAACTTTAACACCAATTTTTTGGTTAATGGCACATAAAA spacer
length: 39 repeater length: 24

7619 737224 GCTAATCTACTATAGAAATTGAAAG TCATCTAAAACGTAGATATTGTATAATGGGGGCATTCTAT spacer
length: 40 repeater length: 24

7620 737288 GCTAATCTACTATAGAAATTGAAAG ATATTGCTTTAATCCTCGACCTACTGTCCTTAGTTAT spacer length:
37 repeater length: 24

7621 737349 GCTAATCTACTATAGAAATTGAAAG CACTAATTATTGAAC TAAGATGGGTTTTGTAACTGTCC spacer
length: 39 repeater length: 24

7622 737412 GCTAATCTACTATAGAAATTGAAAG AAAAAATAGATATTACTTTATGCTTTGTCTCCTAGAGCGAA spacer
length: 41 repeater length: 24

7623 737477 GCTAATCTACTATAGAAATTGAAAG TATAATAAATATTATGTATATGGTTTGATTTACTTGTTA spacer
length: 39 repeater length: 24

7624 737540 GCTAATCTACTATAGAAATTGAAAG ATGTTGATTATAGTTAACTGTCCATTTTGATAAATTTCTATTC spacer
length: 43 repeater length: 24

7625 737607 GCTAATCTACTATAGAAATTGAAAG TTAATTTTATCATCACCCCTATTTTCTCTTGCTAATAACTT spacer
length: 40 repeater length: 24

7626 737671 GCTAATCTACTATAGAAATTGAAAG AATGTATACACTTGATAAATTGGAATTATAACTTTCAATCCA spacer
length: 42 repeater length: 24

7627 737737 GCTAATCTACTATAGAAATTGAAAG GTCTCAAATATGTAGCTATTGCTGAACGTTATGAAAAA spacer
length: 38 repeater length: 24

7628 737799 GCTAATCTACTATAGAAATTGAAAG TGACTGTTGATATAAGCCGTATCATTAATGCGTATAAGGT spacer
length: 40 repeater length: 24

7629 737863 GCTAATCTACTATAGAAATTGAAAG TTATTATATACGATAATATCATAGCCAACGTCTTTCAACA spacer
length: 40 repeater length: 24

7630 737927 GCTAATCTACTATAGAAATTGAAAG CCACCTGGCGTGATATAGATATTCTTATATTCAAGCA spacer length:
37 repeater length: 24

7631 737988 GCTAATCTACTATAGAAATTGAAAG TTACTAAGAAATACTGAACCATACATATTATTTCTAG spacer length:
37 repeater length: 24

7632 738049 GCTAATCTACTATAGAAATTGAAAG ATTATAGAGATATGGACTCTCACAAACAAAAGAACTGTAACTGG spacer
length: 45 repeater length: 24

7633 738118 GCTAATCTACTATAGAAATTGAAAG ATATTGATTGATTAAAATAGCGTTGTTTAGATAGTTGTTAAT spacer
length: 42 repeater length: 24

7634 738184 GCTAATCTACTATAGAAATTGAAAG GTTATCGTACTTAATTAATATGTTGAATGGTAACGTTATGTCTA spacer
length: 44 repeater length: 24

7635 738252 GCTAATCTACTATAGAAATTGAAAG TCATACACCTTGTGATTAATTTTGTGTTGACTTTAACGCT spacer
length: 39 repeater length: 24

7636 738315 GCTAATCTACTATAGAAATTGAAAG AAGTTTATTACCATTTTTTGCTGAAAACGAGGATGAGGCAA spacer
length: 40 repeater length: 24

7637 738379 GCTAATCTACTATAGAAATTGAAAG TTAACACTAGAATTTTAACGTCTTCGTCACCGATATGATATTCCT spacer
length: 45 repeater length: 24

7638 738448 GCTAATCTACTATAGAAATTGAAAG CTTGTTCTTGCTACTAGTTGGTCTGGCACCTCGACTATAACTTTG spacer
length: 44 repeater length: 24

7639 738516 GCTAATCTACTATAGAAATTGAAAG TCATCAGAGACCCCATCCTTAACCTTTCTCATCGCCTTGGAAGG spacer
length: 43 repeater length: 24

7640 738583 GCTAATCTACTATAGAAATTGAAAG TCTATTCTTCCAATACCTCTCTAATTCTCTAAATTCCTCCT spacer
length: 41 repeater length: 24

7641 738648 GCTAATCTACTATAGAAATTGAAAG AGTTCATAGAGCCCTATGGGAATCCCTACTAATCCCGC spacer
length: 38 repeater length: 24

7642 738710 GCTAATCTACTATAGAAATTGAAAG TTTGTGCTATATATAATGTAAGCTTCTGATGAATTGAAAAATATCTG
spacer length: 47 repeater length: 24

7643 738781 GCTAATCTACTATAGAAATTGAAAG TTTTTCAGCGTCAGGCCAGACAGAAGCGATAGTTCTATTCCCT spacer
length: 42 repeater length: 24

7644 738847 GCTAATCTACTATAGAAATTGAAAG TTCTCTATTCCAGCCATCTCAACAACCTCCTCCTTTAACCT spacer
length: 41 repeater length: 24

7645 738912 GCTAATCTACTATAGAAATTGAAAG GTTTCCTAGACCGTGACTGTCGTTTAGCTCCAGCGGACTCG spacer
length: 42 repeater length: 24

7646 738978 GCTAATCTACTATAGAAATTGAAAG AAAAAATATTTATAGAGAGAGATGAGTGAAAGTATATGGCAATAGG spacer
length: 45 repeater length: 24

7647 739047 GCTAATCTACTATAGAAATTGAAAG TTTTTC AATATAAAACTACATTCCTGCCATGAACCATCT spacer
length: 39 repeater length: 24

7648 739110 GCTAATCTACTATAGAAATTGAAAG GAGAAAGATACGTGTTATCTATTCGTAGAGCTTCTTATTCCT spacer
length: 42 repeater length: 24

7649 739176 GCTAATCTACTATAGAAATTGAAAG TCGTTTTTTTAGGGAAGAGTTTGGCGAGTGTGCAGCTTATTA spacer
length: 41 repeater length: 24

7650 739241 GCTAATCTACTATAGAAATTGAAAG TCGCTATTATTGTCAAAGAAATAATACTTTTATCTCCTG spacer
length: 41 repeater length: 24

7651 739306 GCTAATCTACTATAGAAATTGAAAG TTTTATCAACAATAACCTGAAATTCCTCGAATCTAAAT spacer
length: 39 repeater length: 24

7652 739369 GCTAATCTACTATAGAAATTGAAAG CTCAATATTTTCAACCGACTGGAATAATATAATAAATCTGAAA spacer
length: 43 repeater length: 24

7653 739436 GCTAATCTACTATAGAAATTGAAAG TCATTTTCCTAAGATCCCTTACATTTTCCAAGTAAGAGAA spacer
length: 39 repeater length: 24

7654 739499 GCTAATCTACTATAGAAATTGAAAG TTAGGAGTCGTAGCACAGGGAGCTGTACAGTCACAGAA spacer

length: 38 repeater length: 24
7655 739561 GCTAATCTACTATAGAAATTGAAAG ACTATATACTCATAATCTCCTATTATTTGCCTCTCGGCA spacer
length: 39 repeater length: 24
7656 739624 GCTAATCTACTATAGAAATTGAAAG TAAGTGTTACGATCTTTTTTACCGACCCTTTTTCTGATT spacer
length: 39 repeater length: 24
7657 739687 GCTAATCTACTATAGAAATTGAAAG ATTCTGTTCTTTGAGAACGGGTATGAGACTATCTTTAG spacer
length: 38 repeater length: 24
7658 739749 GCTAATCTACTATAGAAATTGAAAG AATATAATTCTTGTAGCCTAACACAATTTTTCTAACTTG spacer
length: 40 repeater length: 24
7659 739813 GCTAATCTACTATAGAAATTGAAAG ATTCTGTTGTAATAGTTCTTGTAACTCTTGTAAATGTTAACA spacer
length: 41 repeater length: 24
7660 739878 GCTAATCTACTATAGAAATTGAAAG TCACTCTATTAGGCTATTGTTGTTTGTGCTTCTTCCCTGT spacer
length: 40 repeater length: 24
7661 739942 GCTAATCTACTATAGAAATTGAAAG AAAATGTTAAACATTCTAAGATCTTGAAAATCTGTTCTTG spacer
length: 40 repeater length: 24
7662 740006 GCTAATCTACTATAGAAATTGAAAG TCTTCTTAGTTACTTTGTTTACGAAATCAATTGCATCCT spacer
length: 39 repeater length: 24
7663 740069 GCTAATCTACTATAGAAATTGAAAG ATTTTGGGTTGAAAAATAATTATATAATTAATAACTA spacer length:
37 repeater length: 24
7664 740130 GCTAATCTACTATAGAAATTGAAAG GGCTGGATAAACTGCACGTGCACCGGTGTTTGGCTAGCGGGCA spacer
length: 43 repeater length: 24
7665 740197 GCTAATCTACTATAGAAATTGAAAG GCGGAATTGGTGTGGAACCTCTATCACAATCCACCTTCTCCAG spacer
length: 44 repeater length: 24
7666 740265 GCTAATCTACTATAGAAATTGAAAG ATGGAATTCTTTCTATATACGCGACCTTTAGGATAACTATAAT spacer
length: 43 repeater length: 24
7667 740332 GCTAATCTACTATAGAAATTGAAAG GCTAGCTGCGAAATTTGTATCGTTAGCTCGTAAGGCAGAC spacer
length: 40 repeater length: 24
7668 740396 GCTAATCTACTATAGAAATTGAAAG CATTGACCTTAAACGTTACAACCTCTCACGGGATCACCTCATA spacer
length: 42 repeater length: 24
7669 740462 GCTAATCTACTATAGAAATTGAAAG TTATTTTATCAGTAGGTACACCTCTGACTATTTTTAATT spacer
length: 39 repeater length: 24
7670 740525 GCTAATCTACTATAGAAATTGAAAG ACACTGTATGTTATGATATGAAAACCTGGAAGGAACCTCGAT spacer
length: 41 repeater length: 24
7671 740590 GCTAATCTACTATAGAAATTGAAAG TTTTGATTTATTTATACTGTTTATTAACCTTAAGATTTTTTTCA spacer
length: 44 repeater length: 24
7672 740658 GCTAATCTACTATAGAAATTGAAAG AGGAATGTAAAATGTACCGCCCTAGGAAACACGAAACTCC spacer
length: 40 repeater length: 24
7673 740722 GCTAATCTACTATAGAAATTGAAAG TCGGAAGAGATAGTTAATTCAATAGTTGTTTTTTCAGTCTTGGT spacer
length: 44 repeater length: 24
7674 740790 GCTAATCTACTATAGAAATTGAAAG AACGGTAAAAACGCGTAAAACAACCTATTTTGGGTTG spacer length:
37 repeater length: 24
7675 740851 GCTAATCTACTATAGAAATTGAAAG TTCTGCACTACTCCTAACCTTAGTTAATACGACACCTATTA spacer
length: 41 repeater length: 24
7676 740916 GCTAATCTACTATAGAAATTGAAAG AATTTAATTTCCAAAATTACAATTCCTAATGGAATAGCGGGAA spacer
length: 43 repeater length: 24
7677 740983 GCTAATCTACTATAGAAATTGAAAG TTAATTTCAACAAAGAAAGAGCCGAATTACTTAACGATCT spacer
length: 40 repeater length: 24
7678 741047 GCTAATCTACTATAGAAATTGAAAG TATACTGGAATGAACCAATACTAACTTCTACATATGCACAA spacer
length: 42 repeater length: 24
7679 741113 GCTAATCTACTATAGAAATTGAAAG GCAGGGTTCGTAGATACTTAAAAGAGCTGTACGGGGAA spacer
length: 38 repeater length: 24
7680 741175 GCTAATCTACTATAGAAATTGAAAG TCCTCTGATGTTGGTGCTAGTTTTACTATCAGCGATGGCAA spacer
length: 41 repeater length: 24
7681 741240 GCTAATCTACTATAGAAATTGAAAG AATTTGCATCTTTATATAGAGAGTACAAGTTCTTTATCT spacer
length: 39 repeater length: 24
7682 741303 GCTAATCTACTATAGAAATTGAAAG TTTCCAGAACACGAATCTCGTCTTTTAGTTTATTTAATTT spacer
length: 40 repeater length: 24
7683 741367 GCTAATCTACTATAGAAATTGAAAG TAAATTGTATACATTTACCTGCTAATTTATATATAACAACAT spacer
length: 43 repeater length: 24
7684 741434 GCTAATCTACTATAGAAATTGAAAG ATTACTGGATCTTTGAGTCCTATTATTCCTATTACTTTGTTAT spacer
length: 43 repeater length: 24
7685 741501 GCTAATCTACTATAGAAATTGAAAG ATGATCATACATCATGTCATAACTTTTCATGAGTTTCTACGC spacer
length: 42 repeater length: 24
7686 741567 GCTAATCTACTATAGAAATTGAAAG TTAGCAATAATTACGCCCCGAGATCATAGGACTGGCTTATGG spacer
length: 41 repeater length: 24
7687 741632 GCTAATCTACTATAGAAATTGAAAG TCTGTTACGCCGAGTGCCGGTAACACTTGAGCCATTTGC spacer
length: 39 repeater length: 24
7688 741695 GCTAATCTACTATAGAAATTGAAAG CAGTTAATGTCGTTAAGTTCTAGGTTTAGCAAAAGTCGA spacer
length: 39 repeater length: 24
7689 741758 GCTAATCTACTATAGAAATTGAAAG TATATTAAGGAGATTCCTAATTCTGAATGCTAACTCTTT spacer
length: 39 repeater length: 24

7690 741821 GCTAATCTACTATAGAAATTGAAAG GGTCTAGCCGTAATTAATGGGAAAAATTGATATGACT spacer length: 37 repeater length: 24

7691 741882 GCTAATCTACTATAGAAATTGAAAG TTTGTAAATTGTATTATATATCCATTCATATCTACAGATC spacer length: 40 repeater length: 24

7692 741946 GCTAATCTACTATAGAAATTGAAAG GCTCCACCGCCTTTTACCATTCCCTGAATATGATAATAGT spacer length: 40 repeater length: 24

7693 742010 GCTAATCTACTATAGAAATTGAAAG CTTTCTTTCTGCTTTTTCGTACTAGGTTTTCTTCTTTTTCT spacer length: 41 repeater length: 24

7694 742075 GCTAATCTACTATAGAAATTGAAAG AAAGTTTCACCGAGTGGTCTATGGTTATTAATAAAATAT spacer length: 39 repeater length: 24

7695 742138 GCTAATCTACTATAGAAATTGAAAG GAGTAAAATCCTAACTTTGAAAGGTAGGCGTCTAAAAAATTGTTGTCCA spacer length: 49 repeater length: 24

7696 742211 GCTAATCTACTATAGAAATTGAAAG AAAAAAGACTTAATAGTTACAGCAAAAATGGTCAAAAAAATACAG spacer length: 45 repeater length: 24

7697 742280 GCTAATCTACTATAGAAATTGAAAG ATACTTTTTTAACGTTTTTCATTTATCATGTTTCTATCACTAA spacer length: 41 repeater length: 24

7698 742345 GCTAATCTACTATAGAAATTGAAAG CTCCTTTTTTCTCCTATAGTAGGAATAGATAAACAACTTCGCT spacer length: 42 repeater length: 24

7699 742411 GCTAATCTACTATAGAAATTGAAAG TTCGTACTGTCCTCTCAGCAAAGCCCTATATTTTTTTCGT spacer length: 39 repeater length: 24

7700 742474 GCTAATCTACTATAGAAATTGAAAG AAAGGAACACCAATTCCTATTCCTACAGCTGCAGCTGTGCCG spacer length: 42 repeater length: 24

7701 742540 GCTAATCTACTATAGAAATTGAAAG TTATTGAATAAAACAGAGTACAAAATATTTAGTGGTGATAA spacer length: 41 repeater length: 24

7702 742605 GCTAATCTACTATAGAAATTGAAAG ATGTCTGCAG

7703
7704

7705 GCA_000189575.1_ASM18957v1_genomic.fna (PilerCR) :

7706 START REPEAT

SPACER

7707 crispr 1

7708 355290 CTTTCAATTCTATAGTAGATTAGC TGAGGGCAAAAATTCTTAGAGATGTTATCGACGACTTGGCG spacer length: 41 repeater length: 24

7709 355355 CTTTCAATTCTATAGTAGATTAGC CACTTTCTTTTCGCCTCGTCAAGTATAGGTGAAACATCAGA spacer length: 40 repeater length: 24

7710 355419 CTTTCAATTCTATAGTAGATTAGC TACGCAGAATCCTGAGCAAATAGGTATCGCCGCCCTCGT spacer length: 39 repeater length: 24

7711 355482 CTTTCAATTCTATAGTAGATTAGC CTTACGAATTGCGTTTGTGTTAGTGTGCCTGATACAACAG spacer length: 40 repeater length: 24

7712 355546 CTTTCAATTCTATAGTAGATTAGC CCGCGTTTACCGCGAATACCGCGATCTCCCCGGATTCTGTAA spacer length: 44 repeater length: 24

7713 355614 CTTTCAATTCTATAGTAGATTAGC AGACTGAGTGAAATTCTGAAAGTGTTGAAGGAACCGGAAA spacer length: 40 repeater length: 24

7714 355678 CTTTCAATTCTATAGTAGATTAGC TGAGGCTGATGAGTCTAGATTTAGAACTGGATATATTCAATG spacer length: 42 repeater length: 24

7715 355744 CTTTCAATTCTATAGTAGATTAGC CATTACCACAGCCTGGTGGAACTTTACCAGGTTCACTTTA spacer length: 40 repeater length: 24

7716 355808 CTTTCAATTCTATAGTAGATTAGC TCGTCAGCCTCTGCCGAATTATGTTTCATATAACCATGTTTTT spacer length: 42 repeater length: 24

7717 355874 CTTTCAATTCTATAGTAGATTAGC GTATTTTTTATATTAGAAAATATGTAAAAAGACTACATGTTCT spacer length: 42 repeater length: 24

7718 355940 CTTTCAATTCTATAGTAGATTAGC CTAAAGAAGTGGCAATCACAACAAAGGATGGTAAAAGCATTA spacer length: 42 repeater length: 24

7719 356006 CTTTCAATTCTATAGTAGATTAGC TTTCACTACTGTAATGTTGTGAGTTTCATGTCTTATCAT spacer length: 39 repeater length: 24

7720 356069 CTTTCAATTCTATAGTAGATTAGC CTTATACCCAAATGTCACATAGATTTGCTAAACCGATAG spacer length: 39 repeater length: 24

7721 356132 CTTTCAATTCTATAGTAGATTAGC CTTTCGTTGATCATTATCTCATCAACAACATAATCATCCCTCACA spacer length: 45 repeater length: 24

7722 356201 CTTTCAATTCTATAGTAGATTAGC GTTACGTTATAGAAACAAGCAGAACTAACAGAAGTATAT spacer length: 39 repeater length: 24

7723 356264 CTTTCAATTCTATAGTAGATTAGC GTCAACTCTCCTAACTCCAATTGAGGAGTGGAAATGAGATCTCAT spacer length: 44 repeater length: 24

7724 356332 CTTTCAATTCTATAGTAGATTAGC CTATGACAAACACGAAACCTATCATGAACAGCGGTGCAAA spacer length: 40 repeater length: 24

7725 356396 CTTTCAATTCTATAGTAGATTAGC CCGATTTCTTGGCGTCTGATTCTGATTCTGGGCAATATG spacer length: 38 repeater length: 24

7726 356458 CTTTCAATTCTATAGTAGATTAGC AAAAAACATATTCGGTTATCCCCACGCCTCTACCACCACC spacer length: 41 repeater length: 24

7727 356523 CTTTCAATTCTATAGTAGATTAGC GTTGTTGATTATAATTATAGCTGTGCGAGTGACAGCAGA spacer length: 39 repeater length: 24

7728 356586 CTTTCAATTCTATAGTAGATTAGC CTATCCATAGATCGCCCCTATTAGTCAACACGTTGTTGTG spacer
length: 40 repeater length: 24

7729 356650 CTTTCAATTCTATAGTAGATTAGC TACTTGTATAACAATAGAGGCAATTATCGCTATGGCATGG spacer
length: 40 repeater length: 24

7730 356714 CTTTCAATTCTATAGTAGATTAGC CGTTAGGAGCGCTAGGTGGTGGACTTTTCGGGATAGCGC spacer
length: 39 repeater length: 24

7731 356777 CTTTCAATTCTATAGTAGATTAGC CTAAAATATCATGGATATCGATAGATAATGAAAAGTATATAAC spacer
length: 43 repeater length: 24

7732 356844 CTTTCAATTCTATAGTAGATTAGC TCGGAATCGTGCCAAGTTAATCAACAACCAGATGGTCACA spacer
length: 40 repeater length: 24

7733 356908 CTTTCAATTCTATAGTAGATTAGC CCGTGCCATTTGGAGCTCCACCTAAAAATGTGTAAAAT spacer
length: 39 repeater length: 24

7734 356971 CTTTCAATTCTATAGTAGATTAGC TAAAAATTAAGCAAGCATTACGTGACGCCGTAAGAGAGA spacer
length: 39 repeater length: 24

7735 357034 CTTTCAATTCTATAGTAGATTAGC ACCAAGATGAAGATAAAAAGAACTATTATCGTTTTGACGT spacer
length: 40 repeater length: 24

7736 357098 CTTTCAATTCTATAGTAGATTAGC ATTAATTTTATTGACAGTCTATCTTATAAATAATCATGAAAA spacer
length: 41 repeater length: 24

7737 357163 CTTTCAATTCTATAGTAGATTAGC CTTCAACAACAGCAAATGCAGGTCTAACAACCTCAGATGT spacer
length: 40 repeater length: 24

7738 357227 CTTTCAATTCTATAGTAGATTAGC CTAATTCTGGTTCAAGCAACATCACTATAATAATAAA spacer length:
37 repeater length: 24

7739 357288 CTTTCAATTCTATAGTAGATTAGC CGGTGCTGCATGCAGCATTATCCGCTCACCTAGTATTAT spacer
length: 40 repeater length: 24

7740 357352 CTTTCAATTCTATAGTAGATTAGC GTTACTCTTTTGATATTTCTCATTTTTTCAATTTTTATTAC spacer
length: 41 repeater length: 24

7741 357417 CTTTCAATTCTATAGTAGATTAGC TGAATGACCTTATAAGACTGATGAGACGAGCTTATGAAGAGAA spacer
length: 43 repeater length: 24

7742 357484 CTTTCAATTCTATAGTAGATTAGC CTGTCGACTTCTACCAAATTGAAGGTAAAACAATATATTATATA spacer
length: 44 repeater length: 24

7743 357552 CTTTCAATTCTATAGTAGATTAGC CCATTCTGTTAAGTGGCACTATGCCTTCCGCCGATTATCTTAGGA spacer
length: 45 repeater length: 24

7744 357621 CTTTCAATTCTATAGTAGATTAGC CCAGCAAATGGCTCAAGTATTACCAGCGTTAGGTGTAACAGA spacer
length: 42 repeater length: 24

7745 357687 CTTTCAATTCTATAGTAGATTAGC CCCGTCGCTATCTTCTACAGTCTCTTGTGTAAAGTAT spacer length:
37 repeater length: 24

7746 357748 CTTTCAATTCTATAGTAGATTAGC TTAGGTAGGTACTCATTTACCCATAAATTATATTGTAGTAT spacer
length: 41 repeater length: 24

7747 357813 CTTTCAATTCTATAGTAGATTAGC TTGTCGACTACTGAAGATAAGGATATCTCTATATGAAT spacer
length: 38 repeater length: 24

7748 357875 CTTTCAATTCTATAGTAGATTAGC TCAAAGTTTACGCGAATAGACCCGGACACCGTGGTATCATAACAA spacer
length: 45 repeater length: 24

7749 357944 CTTTCAATTCTATAGTAGATTAGC GAAGCTGAGGCATTAGAAGCAGAAAGAAGGGGAAGAGTATGAC spacer
length: 43 repeater length: 24

7750 358011 CTTTCAATTCTATAGTAGATTAGC ACAGGGAATTCGCAATACTCTAGTACGTACACACAAATAGCTAAC spacer
length: 45 repeater length: 24

7751 358080 CTTTCAATTCTATAGTAGATTAGC GGAGCTGCTTCTAAATTATTTATAGCGAAATCTATATGTACGG spacer
length: 43 repeater length: 24

7752 358147 CTTTCAATTCTATAGTAGATTAGC TCAAATGGTCTAATTTTTGATGAAATTCAAACCTGGAAAGA spacer
length: 41 repeater length: 24

7753 358212 CTTTCAATTCTATAGTAGATTAGC CTTTGGGGATCCGTTACATTAATCCCACCGTTTAGTATCT spacer
length: 40 repeater length: 24

7754 358276 CTTTCAATTCTATAGTAGATTAGC ACTACTATCCCTTCTACTCTACAAGAAGGGGTTGAGAGATG spacer
length: 41 repeater length: 24

7755 358341 CTTTCAATTCTATAGTAGATTAGC GTTAGGGCATGTTTCATCAATGTTTGGGCATGAAAATGTAATAA spacer
length: 43 repeater length: 24

7756 358408 CTTTCAATTCTATAGTAGATTAGC GAGAAGGAGCGGAAATATTTACGCGAATTGTGGAATGAGG spacer
length: 40 repeater length: 24

7757 358472 CTTTCAATTCTATAGTAGATTAGC AGGATCATCCCGTTCCTTCTGGTGACGGTGGTCTATAAGTTTAA spacer
length: 44 repeater length: 24

7758 358540 CTTTCAATTCTATAGTAGATTAGC GAATTCATGTCTTGCTAATTGTACATGATAATTTACAATTTT spacer
length: 43 repeater length: 24

7759 358607 CTTTCAATTCTATAGTAGATTAGC CGAGTGAATCTATAACGGGTAGTGGAAACACATTAGTAAACG spacer
length: 42 repeater length: 24

7760 358673 CTTTCAATTCTATAGTAGATTAGC TACCAAACACCTCCCTAACCTGACTCTTTGTCAACGTCAG spacer
length: 40 repeater length: 24

7761 358737 CTTTCAATTCTATAGTAGATTAGC TCTGCATTTTTTCACGATTTACGTAAATCTTTTCCATCTA spacer
length: 40 repeater length: 24

7762 358801 CTTTCAATTCTATAGTAGATTAGC TTCAATTATTGCTTCACCATAACTGCCATCATCACTAGT spacer
length: 39 repeater length: 24

7763 358864 CTTTCAATTCTATAGTAGATTAGC TTTATCGAAAGATTTAAATATCTAATTTGCGTACAAGATAAT spacer

length: 42 repeater length: 24
7764 358930 CTTTCAATTCTATAGTAGATTAGC AAAAATATAACGACAGATTGACGGAAATCGAGAAAGACCCGTT spacer
length: 43 repeater length: 24
7765 358997 CTTTCAATTCTATAGTAGATTAGC TTGAGAAAAAAGGGATAATCAAGAGTGAGGGGGATGGAACA spacer
length: 41 repeater length: 24
7766 359062 CTTTCAATTCTATAGTAGATTAGC ACCGGTTCCTTCTTCATGTAAGTATCTATAGCGTTAGTCTG spacer
length: 40 repeater length: 24
7767 359126 CTTTCAATTCTATAGTAGATTAGC ATCAAGAGACCAAGAAAATACTAGACAGTCTTTACGATAAG spacer
length: 41 repeater length: 24
7768 359191 CTTTCAATTCTATAGTAGATTAGC AATGCAGTGGCGGAATCTAAGGATTATTCAATAGATGATA spacer
length: 40 repeater length: 24
7769 359255 CTTTCAATTCTATAGTAGATTAGC ATAGAAGATATTGGAACAATAACTTCAGATAATTTTATAGA spacer
length: 41 repeater length: 24
7770 359320 CTTTCAATTCTATAGTAGATTAGC ATTATTCTAGTTCCTAACAAATGTTTCCTCCAATTTACGAC spacer
length: 41 repeater length: 24
7771 359385 CTTTCAATTCTATAGTAGATTAGC AGAACCTCCTACTTGTGACTCTTTCTAACATGTCAAAAGA spacer
length: 40 repeater length: 24
7772 359449 CTTTCAATTCTATAGTAGATTAGC TTGTCTTGTGGGCATCTTAAGTCTACTACGCCGTTTTGAT spacer
length: 40 repeater length: 24
7773 359513 CTTTCAATTCTATAGTAGATTAGC ACGGGTACTAAGGATAGGATAATGATTAACGAAAAGAAGTTGA spacer
length: 43 repeater length: 24
7774 359580 CTTTCAATTCTATAGTAGATTAGC ACAGACGCTATAAGAAGAAGAATAGAAGAATTGCTGAAGT spacer
length: 40 repeater length: 24
7775 359644 CTTTCAATTCTATAGTAGATTAGC AATTCCGCGGATCAATCTTTACAGAAATGGTACAACCT spacer length:
37 repeater length: 24
7776 359705 CTTTCAATTCTATAGTAGATTAGC ATAAATATCAAATGTTTGCGTATTTTCAGGATAATGAGGCTTA spacer
length: 42 repeater length: 24
7777 359771 CTTTCAATTCTATAGTAGATTAGC GGATAATTCTTCAGAATTTAAGTAACTATGTAGTTTATAT spacer
length: 40 repeater length: 24
7778 359835 CTTTCAATTCTATAGTAGATTAGC TCAATTCCCTCCGCGAATTCTTTTGGAAAAACAAAAGAGATTAG spacer
length: 43 repeater length: 24
7779 359902 CTTTCAATTCTATAGTAGATTAGC AGTGACACATATCGAAATGTCACACTATGGTTGAAAATGTTCC spacer
length: 43 repeater length: 24
7780 359969 CTTTCAATTCTATAGTAGATTAGC ATGGGGACCAGTCACGCTGATACCACCATTTTCAATTCT spacer
length: 39 repeater length: 24
7781 360032 CTTTCAATTCTATAGTAGATTAGC CGGTGTATATGAACAATCCTGGACCAGCGTAACCGTTATACG spacer
length: 42 repeater length: 24
7782 360098 CTTTCAATTCTATAGTAGATTAGC TATTAGTTAACACAAAACCTAATTTTTCTATTTCTCTCAC spacer
length: 40 repeater length: 24
7783 360162 CTTTCAATTCTATAGTAGATTAGC AGTATGTAGTGGAATACATCAAAGATAGCATAGGTGATTTAGCAGA
spacer length: 46 repeater length: 24
7784 360232 CTTTCAATTCTATAGTAGATTAGC AGAAAATAAAAGAATTAAATCAGTACCCGTGTTTAGTAATTGTA spacer
length: 44 repeater length: 24
7785 360300 CTTTCAATTCTATAGTAGATTAGC CTGAGTATTGTATTTTCATCATAGAATGGCGGGTCAGTGAAA spacer
length: 41 repeater length: 24
7786 360365 CTTTCAATTCTATAGTAGATTAGC GAAAACTAAAGAAGAAAGATCTCGTTACTTTCAATATTATTGA spacer
length: 44 repeater length: 24
7787 360433 CTTTCAATTCTATAGTAGATTAGC TCACCCGTTTATGGGGTAGGTAATACCGGGTTTTCTCAAT spacer
length: 41 repeater length: 24
7788 360498 CTTTCAATTCTATAGTAGATTAGC TTGCCCCCATATTTTGTTTAAACGAAAAAATATAAAAGCTTTT spacer
length: 45 repeater length: 24
7789 360567 CTTTCAATTCTATAGTAGATTAGC CTTTGGAGGTGGAGGTGGCGAAGTCCAAGAGATATCTGGAA spacer
length: 41 repeater length: 24
7790 360632 CTTTCAATTCTATAGTAGATTAGC CAAGAGGCCGTGATCGAGAGGGCGTTAGAATCTCTAAAGCG spacer
length: 41 repeater length: 24
7791 360697 CTTTCAATTCTATAGTAGATTAGC TACCATATTATAATGAAATAAAATTTATTTCTAAAATTAC spacer
length: 40 repeater length: 24
7792 360761 CTTTCAATTCTATAGTAGATTAGC TATGGCCCCCAATTAAGTACTTATGCACAATATGATAA spacer
length: 42 repeater length: 24
7793 360827 CTTTCAATTCTATAGTAGATTAGC AATTGAAGGTTCCAATTTTCTCACTTCAAATATTTTAAAA spacer
length: 41 repeater length: 24
7794 360892 CTTTCAATTCTATAGTAGATTAGC ACGATATCGCTGAGATTGTCAGGATCCACGTTGAAAGAGTA spacer
length: 41 repeater length: 24
7795 360957 CTTTCAATTCTATAGTAGATTAGC CCAATACCCCCATCAAAAAATGTATGTTGACTTGAACCT spacer
length: 38 repeater length: 24
7796 361019 CTTTCAATTCTATAGTAGATTAGC TTCAAAATTAAATGTTAAAGATAAACTGTGACAATAAT spacer
length: 39 repeater length: 24
7797 361082 CTTTCAATTCTATAGTAGATTAGC GAGGACCAGCTATGGTCCTCTATAGGTGGACCATCTCAGGACCAGCTA
spacer length: 48 repeater length: 24
7798 361154 CTTTCAATTCTATAGTAGATTAGC ATAGCGACACTGGCTATCGGATGGTGGCTAGGGTCTACATT spacer
length: 41 repeater length: 24

7799 361219 CTTTCAATTCTATAGTAGATTAGC TCGGAGAAGTGGGTAGGTTTTTGGAGAACATAACCGATGA spacer
length: 40 repeater length: 24
7800 361283 CTTTCAATTCTATAGTAGATTAGC ATGGAGAGGGCAAAAAGTCAACTGTCTAACCCCGGGTGGGT spacer
length: 41 repeater length: 24
7801 361348 CTTTCAATTCTATAGTAGATTAGC GCCAGCGCCACCCGTATAAGCAAATGTCATATTAGCATAAAT spacer
length: 42 repeater length: 24
7802 361414 CTTTCAATTCTATAGTAGATTAGC TCGCTATACCGGTATTGATAAATAATGCCTTAGTCTTCTCAGGAT spacer
length: 45 repeater length: 24
7803 361483 CTTTCAATTCTATAGTAGATTAGC CGTAACTTTACAATAAAAAATAAAAAGGAGGTATTGTAAG spacer
length: 39 repeater length: 24
7804 361546 CTTTCAATTCTATAGTAGATTAGC CCCTGCAAAGCCACCGGGCATTCCAGCCGGTAGTATGGGTGG spacer
length: 42 repeater length: 24
7805 361612 CTTTCAATTCTATAGTAGATTAGC TTACTTTAATGGGAAAAACGAGTAGAAAAATTTAAATACT spacer
length: 40 repeater length: 24
7806 361676 CTTTCAATTCTATAGTAGATTAGC ACGGTCGCTCAAAAGGCGACCGTGATAAAAGTCAAGTT spacer
length: 38 repeater length: 24
7807 361738 CTTTCAATTCTATAGTAGATTAGC AGTCCTCCGAGATATTGAAAGCCTTAAGATATTGATAGTA spacer
length: 40 repeater length: 24
7808 361802 CTTTCAATTCTATAGTAGATTAGC CCAGATGAAC
7809
7810
7811 crispr 2
7812 365877 GCTAATCTACTATAGAATTGAAAG ACAACGTTGATCCAATTAATCTTGTTTCGCTGCAGGAGTCGGTG spacer
length: 43 repeater length: 24
7813 365944 GCTAATCTACTATAGAATTGAAAG TTAAATTTAATTTTAAATTCATAACCGTTAGCGTCACCATT spacer
length: 41 repeater length: 24
7814 366009 GCTAATCTACTATAGAATTGAAAG TTTGCACTCACCGTTACGCTAGTAGTGTCATTAATAGAAT spacer
length: 40 repeater length: 24
7815 366073 GCTAATCTACTATAGAATTGAAAG TTTTCGATTTTTTCTCGCTCTCGCGAGAACTTTTCAATCA spacer
length: 41 repeater length: 24
7816 366138 GCTAATCTACTATAGAATTGAAAG ATTAGCCCGTGAAGGATTCACAGTTCAACAGATAGCATT spacer
length: 39 repeater length: 24
7817 366201 GCTAATCTACTATAGAATTGAAAG ACTCAGTGCCTGCTCCTCCAAACGCTTCCGTGCCGTAATAT spacer
length: 41 repeater length: 24
7818 366266 GCTAATCTACTATAGAATTGAAAG AGAACTTAAAAAATGAAGAGATAAAAAGATAAATATGTCATAACT
spacer length: 46 repeater length: 24
7819 366336 GCTAATCTACTATAGAATTGAAAG ATCACGCCTTCCTCTACTTCAAGAGTAAGGAAGTCAGG spacer
length: 38 repeater length: 24
7820 366398 GCTAATCTACTATAGAATTGAAAG GTTGTTAGGGAAAGCGCTTAGATACGATACGTTAGA spacer length:
36 repeater length: 24
7821 366458 GCTAATCTACTATAGAATTGAAAG AACATTTACAAACATAGTCATTACTCCAGAGTTTAACTGTGC spacer
length: 42 repeater length: 24
7822 366524 GCTAATCTACTATAGAATTGAAAG TTAGGCGTTAACCACACCCAACCGATAATTCGTAATCAT spacer
length: 40 repeater length: 24
7823 366588 GCTAATCTACTATAGAATTGAAAG TTTAATTCAAAACCTCCGCCTCTACTAGTTAGTAAATATAA spacer
length: 41 repeater length: 24
7824 366653 GCTAATCTACTATAGAATTGAAAG GTAAAACCATTTTGAATTTTGAATTACCAATCATCTT spacer
length: 40 repeater length: 24
7825 366717 GCTAATCTACTATAGAATTGAAAG TGTCTTCAAGAAGGTGCCTAAGCACCTTCTTTTTGGGGTCTT spacer
length: 42 repeater length: 24
7826 366783 GCTAATCTACTATAGAATTGAAAG GATTAGGTATGAATTTATTGGTTACTATTAGATCTCCT spacer
length: 38 repeater length: 24
7827 366845 GCTAATCTACTATAGAATTGAAAG AGTGCTGTCATCAAATGAAAAAGAAGACTGACTTTTATAA spacer
length: 40 repeater length: 24
7828 366909 GCTAATCTACTATAGAATTGAAAG CATTTTGATATCTTTCCACACGAATTAGATCAGCTAGCTAA spacer
length: 41 repeater length: 24
7829 366974 GCTAATCTACTATAGAATTGAAAG AACGAGATTGAGAAAATCGTTACTGACACAAAGCTAAGAG spacer
length: 40 repeater length: 24
7830 367038 GCTAATCTACTATAGAATTGAAAG TTTCCGCTAAAATTTTTTAATATATAAATGTTTTTACGCCGT spacer
length: 42 repeater length: 24
7831 367104 GCTAATCTACTATAGAATTGAAAG TCAGTCCCGCTAGAAACAATTACATAGTCCATAGCTCCA spacer
length: 39 repeater length: 24
7832 367167 GCTAATCTACTATAGAATTGAAAG TTTAAAGCCAAATTCATGATATTACCAATTGACTGAAATATTAT spacer
length: 45 repeater length: 24
7833 367236 GCTAATCTACTATAGAATTGAAAG TTTTCTATCACTATTATATATTATATATTATGACAAATTTAT spacer
length: 42 repeater length: 24
7834 367302 GCTAATCTACTATAGAATTGAAAG ATCAGTCGAGGGACGGTAAATATCACAAGGCCTATGAAATCCT spacer
length: 43 repeater length: 24
7835 367369 GCTAATCTACTATAGAATTGAAAG CATTCAGTGTATATAGTTCCTAGTTTTTCGATTCCCTATGCATAT spacer
length: 44 repeater length: 24
7836 367437 GCTAATCTACTATAGAATTGAAAG CCTCTCTGTAAACGTAAATACTTATCAATCGATAGTTGTCTT spacer

length: 42 repeater length: 24
7837 367503 GCTAATCTACTATAGAAATTGAAAG ATCATGAGAAAAATAGTCGATACTCTCCCCACTTAAGGAG spacer
length: 41 repeater length: 24
7838 367568 GCTAATCTACTATAGAAATTGAAAG GAAACATTTAGTAAAATAAATCCAAATGCACTTCTATTAATT spacer
length: 42 repeater length: 24
7839 367634 GCTAATCTACTATAGAAATTGAAAG TGAGACTTTTACTACTGGAACTCATAAATTCTGCCCTTGAAGTA spacer
length: 44 repeater length: 24
7840 367702 GCTAATCTACTATAGAAATTGAAAG GCTTTTCGAATATCATAGTCTGGCAAGTTTGTGCGTTCACC spacer
length: 41 repeater length: 24
7841 367767 GCTAATCTACTATAGAAATTGAAAG CAAACTCAAACAAAAAGTGAAAGCGAATATGATTTTTTTAG spacer
length: 40 repeater length: 24
7842 367831 GCTAATCTACTATAGAAATTGAAAG TCCAGTACGTTATGTAAGATGAACCGGCACCGTCACCTACGA spacer
length: 42 repeater length: 24
7843 367897 GCTAATCTACTATAGAAATTGAAAG TTTTATATATCAAAGTTATAGATATAATCGCGGGCCATAT spacer
length: 39 repeater length: 24
7844 367960 GCTAATCTACTATAGAAATTGAAAG TAAGAATTTTCATCTGCTTCGTGCTGAACATTAACATATTT spacer
length: 42 repeater length: 24
7845 368026 GCTAATCTACTATAGAAATTGAAAG TTTATTCATGTCAAATTAGGCTAGAGACCCCACTCCTTGAGG spacer
length: 42 repeater length: 24
7846 368092 GCTAATCTACTATAGAAATTGAAAG CTTAATGTCGGTGGTACAATACCGCCAAAGGCTATAGTGT spacer
length: 40 repeater length: 24
7847 368156 GCTAATCTACTATAGAAATTGAAAG GCTAAAAACAGCTGTTCAAAGTGTGTGAGACCATCACT spacer
length: 39 repeater length: 24
7848 368219 GCTAATCTACTATAGAAATTGAAAG AATTCTATAAATTCTACACTTTCTACTGGAATTGAAAAT spacer
length: 39 repeater length: 24
7849 368282 GCTAATCTACTATAGAAATTGAAAG TCAGCTGGACGTAAAAAAGATGCTGCTATGTCTATACC spacer
length: 38 repeater length: 24
7850 368344 GCTAATCTACTATAGAAATTGAAAG AATTAGAATAATCAGTTACATCGTAATTGTCAAATCGACG spacer
length: 41 repeater length: 24
7851 368409 GCTAATCTACTATAGAAATTGAAAG TCTAAGCTCGTTTACTGAATAATGTGTGACTATGCTTAGA spacer
length: 40 repeater length: 24
7852 368473 GCTAATCTACTATAGAAATTGAAAG TATGCCGTCCCACGTTAGTCCCTTGCTGTCCTAAATTA spacer
length: 39 repeater length: 24
7853 368536 GCTAATCTACTATAGAAATTGAAAG GAATAGGCTATTGTTGCTTATGCTTCTTCCCTGAAGTAATA spacer
length: 41 repeater length: 24
7854 368601 GCTAATCTACTATAGAAATTGAAAG GTAAACTAATGGGAAGGCCAGGGGTTGCGTAAATTTCCAC spacer
length: 41 repeater length: 24
7855 368666 GCTAATCTACTATAGAAATTGAAAG TATTATTTTTTCTACTCGTGCTGTTGGTACATTCTCGTTT spacer
length: 40 repeater length: 24
7856 368730 GCTAATCTACTATAGAAATTGAAAG TTCAAGTGTGTAAATTAGAGTGTGTTGGACAGAGAACTG spacer
length: 41 repeater length: 24
7857 368795 GCTAATCTACTATAGAAATTGAAAG TTTCAAAGGGGCTGAATTTTACGTTGACGATAATATCTAC spacer
length: 40 repeater length: 24
7858 368859 GCTAATCTACTATAGAAATTGAAAG TAACGTAATCAACTAAGCCTGGCGTCGCTATACCAGTATTAAT spacer
length: 43 repeater length: 24
7859 368926 GCTAATCTACTATAGAAATTGAAAG CATAAATTCTGCCCTTGAAGTAAATGTCATAAACTTCAATAC spacer
length: 42 repeater length: 24
7860 368992 GCTAATCTACTATAGAAATTGAAAG TTCGTCTTATTCTCTAATACATTATTATTATATATGAATACTC spacer
length: 43 repeater length: 24
7861 369059 GCTAATCTACTATAGAAATTGAAAG TCTCTCTGGCCACCGGTGGGCCAGCGGAGGACCCGGGGGTC spacer
length: 42 repeater length: 24
7862 369125 GCTAATCTACTATAGAAATTGAAAG GTAAAATACAGTAAAATTTGAATAACTTCGAAGAACTGCA spacer
length: 41 repeater length: 24
7863 369190 GCTAATCTACTATAGAAATTGAAAG TTTATTCCTTTTATCTTCAGAATTCTAGAAGCTATTTTAT spacer
length: 40 repeater length: 24
7864 369254 GCTAATCTACTATAGAAATTGAAAG CGTGGAGCTCCGAACCTTCTCAAACGTCCTACGGTCA spacer
length: 39 repeater length: 24
7865 369317 GCTAATCTACTATAGAAATTGAAAG GAAGAGAGTGAAGAACTAAAGAAAAAGGAAAAGCTGT spacer
length: 38 repeater length: 24
7866 369379 GCTAATCTACTATAGAAATTGAAAG TTTTGAGTTTTGTTAATTGTGATGACATCACGCTCAGTAATA spacer
length: 42 repeater length: 24
7867 369445 GCTAATCTACTATAGAAATTGAAAG GAGAGAAAATACCGCTAATCTCATTACAGTACCAAAATCAT spacer
length: 43 repeater length: 24
7868 369512 GCTAATCTACTATAGAAATTGAAAG CGCCTCACTCCGCCGTTTGCTGCACGGTAGGTGAGGT spacer length:
37 repeater length: 24
7869 369573 GCTAATCTACTATAGAAATTGAAAG TCAGTTAATAACAGTTTTTGGATTGATGATAATGCCAAATTTTC spacer
length: 43 repeater length: 24
7870 369640 GCTAATCTACTATAGAAATTGAAAG GGGCTTCCTATTAGTTATAGTGTAGGAGCAATTTCTTCAT spacer
length: 40 repeater length: 24
7871 369704 GCTAATCTACTATAGAAATTGAAAG CAAGATGCAGAAGATTTAAATTAATTGCTGAATTCTT spacer
length: 38 repeater length: 24

7872 369766 GCTAATCTACTATAGAAATTGAAAG TAGAGCGGGATTACCGTTAAAATGAGAAAGATTAATGAA spacer
length: 39 repeater length: 24

7873 369829 GCTAATCTACTATAGAAATTGAAAG ACTTGACCCCGAGATACTCTTTTTTCTCATTAGTTGTT spacer
length: 38 repeater length: 24

7874 369891 GCTAATCTACTATAGAAATTGAAAG TGGTGTGACGTGTGCTACCGTGATGCCGTGTTCCCTCTT spacer
length: 40 repeater length: 24

7875 369955 GCTAATCTACTATAGAAATTGAAAG CTCGGTTCACTGAGTACACAAGCTTTACTATTATTTTCGC spacer
length: 40 repeater length: 24

7876 370019 GCTAATCTACTATAGAAATTGAAAG TAATTTAACGTTATTATATCATTGTATAGGCTGATAGTG spacer
length: 39 repeater length: 24

7877 370082 GCTAATCTACTATAGAAATTGAAAG TTTGAATGATTGTGGATCTTTGTTGACTCTTTTTGATAC spacer
length: 39 repeater length: 24

7878 370145 GCTAATCTACTATAGAAATTGAAAG CTTTAGACATAGATTAAAATCGGGGGCAAAAAAATGCCACA spacer
length: 42 repeater length: 24

7879 370211 GCTAATCTACTATAGAAATTGAAAG TAACGCTAGTAGTATCGTTTATAGAAATCCCTACCCATGCATCT spacer
length: 44 repeater length: 24

7880 370279 GCTAATCTACTATAGAAATTGAAAG ACTTCGTACCCCGCACCTCCGCAGTCTTTATCAAATCTGT spacer
length: 41 repeater length: 24

7881 370344 GCTAATCTACTATAGAAATTGAAAG ATTTTCATCTTCTGTGACCCATTCTTCCACTTCTTCTTCTTCT spacer
length: 40 repeater length: 24

7882 370408 GCTAATCTACTATAGAAATTGAAAG ATTTTCATCTATTTTCATCTTCTTCTTCTTCTTGTGAACATTTTCTTT spacer
length: 44 repeater length: 24

7883 370476 GCTAATCTACTATAGAAATTGAAAG AGGAATACTTTCCCGTTGACCGCGCTTATATTAAGTGC spacer
length: 38 repeater length: 24

7884 370538 GCTAATCTACTATAGAAATTGAAAG TCATTGACAAAGTTTCGGGTGATAAATTAACATTAGGAATTGA spacer
length: 43 repeater length: 24

7885 370605 GCTAATCTACTATAGAAATTGAAAG CTCGTTATAATTATCGCGATCGCAATGCTGGGAATTGGTT spacer
length: 40 repeater length: 24

7886 370669 GCTAATCTACTATAGAAATTGAAAG TTCTTTGAAGTCCAGGTCCGCAAAGAATACATCAGCCTGGA spacer
length: 41 repeater length: 24

7887 370734 GCTAATCTACTATAGAAATTGAAAG TCTGTGGGTTCACTTCTATTACATTATTCGCCGTAAAGCAACA spacer
length: 43 repeater length: 24

7888 370801 GCTAATCTACTATAGAAATTGAAAG TCTAAGGTCAAATTATAATTATGGCTAGTGCCAGTGGGGT spacer
length: 41 repeater length: 24

7889 370866 GCTAATCTACTATAGAAATTGAAAG ATTCCGAGTAAGGGGGTGAGCTGAGTGGCTAACAAGAGGAA spacer
length: 41 repeater length: 24

7890 370931 GCTAATCTACTATAGAAATTGAAAG ATTATATGTAATAGGAATAACACCAACTTTTGCTTTTCGCTAA spacer
length: 42 repeater length: 24

7891 370997 GCTAATCTACTATAGAAATTGAAAG TATAAAGTCACTTTACAACAAACCTACGCATATGCATTTAG spacer
length: 41 repeater length: 24

7892 371062 GCTAATCTACTATAGAAATTGAAAG CGGGTGGCAATCGTGATTACCATTCCATTTACACCTCTATCT spacer
length: 42 repeater length: 24

7893 371128 GCTAATCTACTATAGAAATTGAAAG AACGACAGATCTTATTTTATTAGAAGAATTACGAAAAGTCTC spacer
length: 43 repeater length: 24

7894 371195 GCTAATCTACTATAGAAATTGAAAG ATTAAGTGTAAAAGTATAGCATGTACGCGGAGGTCTGCTACAG spacer
length: 45 repeater length: 24

7895 371264 GCTAATCTACTATAGAAATTGAAAG CTAAGTTGTTTAGTTTGACGTTTTCTATCGCTTGGGAATAAA spacer
length: 42 repeater length: 24

7896 371330 GCTAATCTACTATAGAAATTGAAAG ACACAAACAATAACACCGTCGAAGAGGTATCGACAAAAAC spacer
length: 40 repeater length: 24

7897 371394 GCTAATCTACTATAGAAATTGAAAG ACTTGACCCCGAGATACTCTTTTTTCTCATTAGTTGTT spacer
length: 38 repeater length: 24

7898 371456 GCTAATCTACTATAGAAATTGAAAG TTGTTTCAGTTACTAGATAATGAAGGAAAAGCATTGGAATTAG spacer
length: 43 repeater length: 24

7899 371523 GCTAATCTACTATAGAAATTGAAAG CGATAACAAAATCTTCAGGATTCAAAAATCAAAATGGT spacer
length: 39 repeater length: 24

7900 371586 GCTAATCTACTATAGAAATTGAAAG CTGGGTTAGGACTGTTTACCTGTTTTATAGCAAACCCTGA spacer
length: 40 repeater length: 24

7901 371650 GCTAATCTACTATAGAAATTGAAAG CAATGAATTCCTTTTCTGTATCAAAGACTCCCTCAGCAA spacer
length: 39 repeater length: 24

7902 371713 GCTAATCTACTATAGAAATTGAAAG CTCGATTTAAATTTGGAGTGGTGAAAGAGATGAAAATAGA spacer
length: 40 repeater length: 24

7903 371777 GCTAATCTACTATAGAAATTGAAAG ATACATCCGCGGTTGGGGTCTGTGTTATGACCCATTCA spacer
length: 39 repeater length: 24

7904 371840 GCTAATCTACTATAGAAATTGAAAG TATTCACCCTGGCAGATATAAGAATTACCTTCAGTTA spacer length:
37 repeater length: 24

7905 371901 GCTAATCTACTATAGAAATTGAAAG TTCAGAGCGTTGATAAATGAATAGAACACTGTATATTTTCG spacer
length: 40 repeater length: 24

7906 371965 GCTAATCTACTATAGAAATTGAAAG TATCAACTTTTATTCTAGTCATGTCTCTACCAACTTCTTC spacer
length: 41 repeater length: 24

7907 372030 GCTAATCTACTATAGAAATTGAAAG GTTTTTTAGTTCTATTACTATTTTCTTCTATATCTTCTTC spacer

length: 40 repeater length: 24
7908 372094 GCTAATCTACTATAGAAATTGAAAG ACTTCATAATTCTACGATATCCATACTGTTGATATGATTT spacer
length: 40 repeater length: 24
7909 372158 GCTAATCTACTATAGAAATTGAAAG ATTGTTTGCATGACGCTCTTCCGTCAGCATCGTATGAA spacer
length: 39 repeater length: 24
7910 372221 GCTAATCTACTATAGAAATTGAAAG CGTGCAGTTGATGATGACTTATCAGAGGCGACGTTTGACAA spacer
length: 41 repeater length: 24
7911 372286 GCTAATCTACTATAGAAATTGAAAG TCGAAAGGTTACGAAGTAGATGAAATTGCTGAAATGTTGA spacer
length: 40 repeater length: 24
7912 372350 GCTAATCTACTATAGAAATTGAAAG TTAGGAATGCCTTTGATAACATACCCTTTGTAGTAT spacer length:
36 repeater length: 24
7913 372410 GCTAATCTACTATAGAAATTGAAAG AGACTATAGTTATAGTTTGTGTTTGACGTAGATATCATTATC spacer
length: 42 repeater length: 24
7914 372476 GCTAATCTACTATAGAAATTGAAAG ATCTTGAGATAATCTCACTCATCGGGACACCCCTAAAT spacer
length: 38 repeater length: 24
7915 372538 GCTAATCTACTATAGAAATTGAAAG TCAGCGTCAGTACTGTACATCTTATAACGTATGACTTTTCCCA spacer
length: 43 repeater length: 24
7916 372605 GCTAATCTACTATAGAAATTGAAAG TATTTCACTAAATACTCCATGTATATCTCAACACACTCA spacer
length: 39 repeater length: 24
7917 372668 GCTAATCTACTATAGAAATTGAAAG GTAATTAGGGGGCTAAGACACGTCCATCTAACCCATTT spacer
length: 38 repeater length: 24
7918 372730 GCTAATCTACTATAGAAATTGAAAG GTGAGTGTAGATTATCTCTTCAGCAATTGCCTCAATCAG spacer
length: 39 repeater length: 24
7919 372793 GCTAATCTACTATAGAAATTGAAAG TTCGTCAAATCCCCTTGTCCTATCAATTCTTTATATTCATC spacer
length: 41 repeater length: 24
7920 372858 GCTAATCTACTATAGAAATTGAAAG CACGTAACCTGACCATACTTCTTCACTGAACCTCCTGAA spacer
length: 38 repeater length: 24
7921 372920 GCTAATCTACTATAGAAATTGAAAG CAACAAAACTCTAAATAACCCCAATTACACAATTTAA spacer
length: 38 repeater length: 24
7922 372982 GCTAATCTACTATAGAAATTGAAAG ATTCTAAAATAAGCATACATTTGGTATCGTTTTGCATCTTTCTGG spacer
length: 45 repeater length: 24
7923 373051 GCTAATCTACTATAGAAATTGAAAG TCTATCATATAGACAATGTATCTCTTTATTTTCTCTAT spacer
length: 38 repeater length: 24
7924 373113 GCTAATCTACTATAGAAATTGAAAG TCACAGATTACCGCTTTGACCTCACGTGGCGGGTTCTT spacer
length: 38 repeater length: 24
7925 373175 GCTAATCTACTATAGAAATTGAAAG TTCTAACGTTAGTTGTACAATAAATAACAGATGCAATAAA spacer
length: 40 repeater length: 24
7926 373239 GCTAATCTACTATAGAAATTGAAAG GAGCGAAGACTTACAAAAGTACATAGGGAACTAGGA spacer length:
37 repeater length: 24
7927 373300 GCTAATCTACTATAGAAATTGAAAG TTCTCGTTCC
7928
7929
7930 crispr 3
7931 740058 GTTTGTAGTTTCTTTGTGTTGTTAC TGACTTTTGAAGGATGTGCGAAAATGATGCAACTGGG spacer length:
37 repeater length: 24
7932 740119 GTTTGTAGTTTCTTTGTGTTGTTAC ATGTGTCCCTCTCTATGATAACGAACTGGCAAGTT spacer length:
36 repeater length: 24
7933 740179 GTTTGTAGTTTCTTTGTGTTGTTAC AACTATTGGTGAGAAAATGGAGGTAGACATAAAATT spacer length:
36 repeater length: 24
7934 740239 GTTTGTAGTTTCTTTGTGTTGTTAC ATTTATTCTCCAAATATTGGCAACCAACAAGTGA spacer length:
35 repeater length: 24
7935 740298 GTTTGTAGTTTCTTTGTGTTGTTAC CAATATCTGATAAGACCCAATGAGAAGTGCACCTATT spacer
length: 38 repeater length: 24
7936 740360 GTTTGTAGTTTCTTTGTGTTGTTAC AAGAGGAAAAAAGCACAAAGTGAAAGTAAATGAGGTGAA spacer
length: 39 repeater length: 24
7937 740423 GTTTGTAGTTTCTTTGTGTTGTTAC ATAAAAAGAATTAATATAACACCATCTGACAAACC spacer length:
35 repeater length: 24
7938 740482 GTTTGTAGTTTCTTTGTGTTGTTAC CTTTGGCACTTCCACTAGCCCCACGCCGGGTATCTT spacer length:
36 repeater length: 24
7939 740542 GTTTGTAGTTTCTTTGTGTTGTTAC AATACATAAGGACAGACGAGCAAGAAAGAGAAGT spacer length: 34
repeater length: 24
7940 740600 GTTTGTAGTTTCTTTGTGTTGTTAC TTTTAGTGTGGAGATCATTTGCATCACCTAATTA spacer length: 34
repeater length: 24
7941 740658 GTTTGTAGTTTCTTTGTGTTGTTAC ATAATATGCTAATTTCTATATTATATAATTAGCT spacer length: 34
repeater length: 24
7942 740716 GTTTGTAGTTTCTTTGTGTTGTTAC AGTTAAGTTTTGTTTTTTCTTCTTAATTTCTAAT spacer length:
35 repeater length: 24
7943 740775 GTTTGTAGTTTCTTTGTGTTGTTAC ATTAGATGAAGAAATCTTTCTTCTGTTTTTAATTT spacer length:
35 repeater length: 24
7944 740834 GTTTGTAGTTTCTTTGTGTTGTTAC CAGAAAACCTGGTTTATTGATGAAATTTTTTCTATTG spacer length:
36 repeater length: 24

7945 740894 GTTTGTAGTTTCTTTGTGTTGTTAC ATAGGCCCGTTATCTCCATTGTCTACTAAGCATTT spacer length: 34
repeater length: 24
7946 740952 GTTTGTAGTTTCTTTGTGTTGTTAC ATTAGGAACAAAAAGAAATTGAAAAAATATTAG spacer length: 34
repeater length: 24
7947 741010 GTTTGTAGTTTCTTTGTGTTGTTAC AATTATTTCATATATTCTATAGTTAATGGCAATCCAGA spacer length:
37 repeater length: 24
7948 741071 GTTTGTAGTTTCTTTGTGTTGTTAC ATTTATTCTCCAAATATTGGCAACCAAACAAGTGA spacer length:
35 repeater length: 24
7949 741130 GTTTGTAGTTTCTTTGTGTTGTTAC TACGTAAAATATCTTAATAAGTGATCGAAAATG spacer length: 33
repeater length: 24
7950 741187 GTTTGTAGTTTCTTTGTGTTGTTAC CTTAGTTTGGGTTCAGGATACCTGAAGATTTCTTTAT spacer length:
37 repeater length: 24
7951 741248 GTTTGTAGTTTCTTTGTGTTGTTAC ACAGCTTCTTCTTCAGTACCAGTTTCCGTTAAAGTT spacer length:
36 repeater length: 24
7952 741308 GTTTGTAGTTTCTTTGTGTTGTTAC ATAGAAGACCTCCTAACAGAACTGCAGACTGAATAA spacer length:
36 repeater length: 24
7953 741368 GTTTGTAGTTTCTTTGTGTTGTTAC AGCAAATAAAGTTAAGTTTAAGATCAAAGCAAAAAG spacer length:
36 repeater length: 24
7954 741428 GTTTGTAGTTTCTTTGTGTTGTTAC AAGAATTGCAAAACAATTATTAACAATTGTAAATTT spacer length:
36 repeater length: 24
7955 741488 GTTTGTAGTTTCTTTGTGTTGTTAC TTTATAAGTGAGGTGTCTGGCAATCCAGCGTAGAAAA spacer length:
37 repeater length: 24
7956 741549 GTTTGTAGTTTCTTTGTGTTGTTAC AAGTCGTCAAAAACAACAGCATAAAACGGAAAGTT spacer length:
35 repeater length: 24
7957 741608 GTTTGTAGTTTCTTTGTGTTGTTAC CTTCAGGAATTCCCTAAGCAGCTGCAAAGTCCTAAT spacer length:
36 repeater length: 24
7958 741668 GTTTGTAGTTTCTTTGTGTTGTTAC GTGATACGAACTATGGTGATTAAAGAAATCTACGA spacer length:
35 repeater length: 24
7959 741727 GTTTGTAGTTTCTTTGTGTTGTTAC CATAATGCTC
7960
7961
7962 crispr 4
7963 741901 TTAGTTTTAGTTTTCTTTGTGTTGTTAC ATGATTTTGCAAGAAGTTTTCAATTTTAGATA spacer length:
32 repeater length: 27
7964 741960 TTAGTTTTAGTTTTCTTTGTGTTGTTAC GAAAGCGAGGACGATTTAATAAGCGTGATTC spacer length: 31
repeater length: 27
7965 742018 TTAGTTTTAGTTTTCTTTGTGTTGTTAC TGCCATCCTG
7966
7967
7968 GCA_000190315.1_ASM19031v1_genomic.fna(PilerCR):
7969 START REPEAT
SPACER
7970 GCA_000191585.1_ASM19158v1_genomic.fna(PilerCR):
7971 START REPEAT
SPACER
7972 GCA_000193375.1_ASM19337v1_genomic.fna(PilerCR):
7973 START REPEAT
SPACER
7974 GCA_000194625.1_ASM19462v1_genomic.fna(PilerCR):
7975 START REPEAT
SPACER
7976 crispr 1
7977 83682 GTTGAAATCAGACTATTGTAGGATTGAAAG AACTGTGACCGAATCGAGAAACGAAAGAAAAGAAAGA spacer
length: 37 repeater length: 30
7978 83749 GTTGAAATCAGACTATTGTAGGATTGAAAG CGTTTAGAAACGTCCCCGGCCATGTCGAGGGGGGCTATTTTGTG
spacer length: 45 repeater length: 30
7979 83824 GTTGAAATCAGACTATTGTAGGATTGAAAG CGAGAAATGGTCAAGCGATAGGGCTGAAAGAAGGCGA spacer
length: 38 repeater length: 30
7980 83892 GTTGAAATCAGACTATTGTAGGATTGAAAG TGCTCGGGGCGTTAAGTGTGGGAAGATAGGAAAGGCA spacer
length: 38 repeater length: 30
7981 83960 GTTGAAATCAGACTATTGTAGGATTGAAAG TCCCACGGTAGCATTCTGGTAGTAAATCCATCACCTG spacer
length: 37 repeater length: 30
7982 84027 GTTGAAATCAGACTATTGTAGGATTGAAAG CCAGATAGCTTCATGAGGAGATAGATAACTGCACCTA spacer
length: 37 repeater length: 30
7983 84094 GTTGAAATCAGACTATTGTAGGATTGAAAG GAGCAGGAGCGGGAGCACTTGGTGGAGCAATAGGCGG spacer
length: 37 repeater length: 30
7984 84161 GTTGAAATCAGACTATTGTAGGATTGAAAG GTTCAGATCGAAGGACAGATCAGGTTGGAGATTAGAAA spacer
length: 38 repeater length: 30
7985 84229 GTTGAAATCAGACTATTGTAGGATTGAAAG CAGATTGGCTGGCAGGCTGGCAAGGGGTCTACGAC spacer
length: 36 repeater length: 30
7986 84295 GTTGAAATCAGACTATTGTAGGATTGAAAG GAGGGAGACGGGCGGTGTGTAGCATGGCAGGGTATAGG spacer

length: 38 repeater length: 30
7987 84363 GTTGAAATCAGACTATTGTAGGATTGAAAG GTATTTAGTGGTGAATGTCTGTATCCTGTACTGGA spacer
length: 36 repeater length: 30
7988 84429 GTTGAAATCAGACTATTGTAGGATTGAAAG CTGGTTCGTTCTTTCTCTCTGCGCGTACGACATCAAGT spacer
length: 38 repeater length: 30
7989 84497 GTTGAAATCAGACTATTGTAGGATTGAAAG TTCCCGTTGACTGTTTCTTCGTCTGCAAATCTCTTCGG spacer
length: 38 repeater length: 30
7990 84565 GTTGAAATCAGACTATTGTAGGATTGAAAG CCGTCAGGTGGTGGTGGAGGTATTGTAATCAAGTAA spacer
length: 36 repeater length: 30
7991 84631 GTTGAAATCAGACTATTGTAGGATTGAAAG ATTGCTACACGTCCAGCACTGGCCGGACTCATTGTAGT spacer
length: 38 repeater length: 30
7992 84699 GTTGAAATCAGACTATTGTAGGATTGAAAG AACAGGAAGATGGACAAGCCCAGCACGCCAGCGAAGATC spacer
length: 39 repeater length: 30
7993 84768 GTTGAAATCAGACTATTGTAGGATTGAAAG TAATGGTTGCCGGAAGGCGATTTTGTTAATGAAAGCG spacer
length: 38 repeater length: 30
7994 84836 GTTGAAATCAGACTATTGTAGGATTGAAAG CATGTCGCATCTATACTGATGCGGTGTTTTAAATGT spacer
length: 37 repeater length: 30
7995 84903 GTTGAAATCAGACTATTGTAGGATTGAAAG TCTGCCGGGAATAAGGGGGAGGATATGATGGATACAAA spacer
length: 38 repeater length: 30
7996 84971 GTTGAAATCAGACTATTGTAGGATTGAAAG GAGTGTGATGAGGGCGGCGCATTCACGAAAATAAACG spacer
length: 38 repeater length: 30
7997 85039 GTTGAAATCAGACTATTGTAGGATTGAAAG AACGGGCACCGGGCCGTTGAGGATTTACTCTCTCAAGA spacer
length: 38 repeater length: 30
7998 85107 GTTGAAATCAGACTATTGTAGGATTGAAAG ACAATTCCT
7999
8000
8001 crispr 2
8002 665146 GTTGAAATCAGACTAATGTAGGATTGAAAG GAGATTTCCCTTTCAATCCTCATCCTCATCTATCTCCC spacer
length: 39 repeater length: 30
8003 665215 GTTGAAATCAGACTAATGTAGGATTGAAAG CTGCGACGTATCAAGAGTCTTTCCGTTAGCCGTTTCAT spacer
length: 38 repeater length: 30
8004 665283 GTTGAAATCAGACTAATGTAGGATTGAAAG GCACAGAAAATTGAGTGCTGGAGAGGATGCAAAAAAT spacer
length: 38 repeater length: 30
8005 665351 GTTGAAATCAGACTAATGTAGGATTGAAAG ATCGGGGAGGGAGATTAGGATGGATATAGAGTGTCTA spacer
length: 37 repeater length: 30
8006 665418 GTTGAAATCAGACTAATGTAGGATTGAAAG GAGTTCCTTTGGCAGAGATAAGTTCAGTAAGGTTATCTCAA
spacer length: 40 repeater length: 30
8007 665488 GTTGAAATCAGACTAATGTAGGATTGAAAG GCGCTATTCTTTTACTTCTCGCAATGCGGTAATCAATG spacer
length: 38 repeater length: 30
8008 665556 GTTGAAATCAGACTAATGTAGGATTGAAAG AAGCGCTTGGCTGCTTACTGCGTGGCTCAGTACTGCGC spacer
length: 38 repeater length: 30
8009 665624 GTTGAAATCAGACTAATGTAGGATTGAAAG GAGGTGGTTAGAGACATCTTGAATAAAATGATGGGCAA spacer
length: 38 repeater length: 30
8010 665692 GTTGAAATCAGACTAATGTAGGATTGAAAG CTTATTGACTTCTTCAATTCTCCCTTTTAGATATAGAT spacer
length: 38 repeater length: 30
8011 665760 GTTGAAATCAGACTAATGTAGGATTGAAAG GCATAACAGAGTGCGCCCTCCGTGCCTCCCGTTCCGT spacer
length: 37 repeater length: 30
8012 665827 GTTGAAATCAGACTAATGTAGGATTGAAAG ATGGGGGAACCTGGCTCGAACTCGCTGATTTCTTCAAGA spacer
length: 39 repeater length: 30
8013 665896 GTTGAAATCAGACTAATGTAGGATTGAAAG CAAATTAGCAAGGGCTACAACGATACCATCATACGGA spacer
length: 37 repeater length: 30
8014 665963 GTTGAAATCAGACTAATGTAGGATTGAAAG ATCAACATCGGTCCGGGACAATATCAGTTCAAGGCGAG spacer
length: 38 repeater length: 30
8015 666031 GTTGAAATCAGACTAATGTAGGATTGAAAG CTATGAGTACTGTAAAAGGAATTTAAATTTAAATAGG spacer
length: 38 repeater length: 30
8016 666099 GTTGAAATCAGACTAATGTAGGATTGAAAG TTCTAATGCCGTGAAGTATGCTCTTTTTGCTTCGGGAG spacer
length: 38 repeater length: 30
8017 666167 GTTGAAATCAGACTAATGTAGGATTGAAAG GATTGTGGCGGTGATTTGGTGGACTTAGGCAACAATGA spacer
length: 38 repeater length: 30
8018 666235 GTTGAAATCAGACTAATGTAGGATTGAAAG TACTTCAGACAATACAATATCCCAATCGAACAACACA spacer
length: 37 repeater length: 30
8019 666302 GTTGAAATCAGACTAATGTAGGATTGAAAG ACGGTGAACGTTGATCATCCTTTGATTGTCTTGCTGGTT spacer
length: 39 repeater length: 30
8020 666371 GTTGAAATCAGACTAATGTAGGATTGAAAG TGTCCATCAAAAGGCCTAACGGAGGATGAGGTTCAAGA spacer
length: 38 repeater length: 30
8021 666439 GTTGAAATCAGACTAATGTAGGATTGAAAG TTCCCACTTGATGATACCCTGACCTTCATTCTTTTCGA spacer
length: 38 repeater length: 30
8022 666507 GTTGAAATCAGACTAATGTAGGATTGAAAG TTGTGGTATAATTAATAGTTCTCATCTGCCATTTTTTAT spacer
length: 39 repeater length: 30
8023 666576 GTTGAAATCAGACTAATGTAGGATTGAAAG GCTCGCAAGGAAATGCTGAACGGAAATAGGCACACC spacer
length: 36 repeater length: 30

8024 666642 GTTGAATCAGACTAATGTAGGATTGAAAG ACTCTTTCACCTCCTAACAGCTTTTTTCTATATACTGTCACTG
spacer length: 43 repeater length: 30

8025 666715 GTTGAATCAGACTAATGTAGGATTGAAAG TCTATACCACCTCAAAAAATGTTTAAGGAAGCAGAATCT spacer
length: 39 repeater length: 30

8026 666784 GTTGAATCAGACTAATGTAGGATTGAAAG TTTGGGGTAACTGGCTTGAGCTTGACAGACTTCTTAGAG spacer
length: 38 repeater length: 30

8027 666852 GTTGAATCAGACTAATGTAGGATTGAAAG GCGAGCATGAACGGGAAGTGCACGAATCCGCGGGCTCCC spacer
length: 39 repeater length: 30

8028 666921 GTTGAATCAGACTAATGTAGGATTGAAAG ATAGCTGCAAAAATCTTTTGCATCCCTGCAAGTCCCCTT spacer
length: 39 repeater length: 30

8029 666990 GTTGAATCAGACTAATGTAGGATTGAAAG GCAAATAATCTATAAACTGTCTCGCTAAGTCGAAAGC spacer
length: 37 repeater length: 30

8030 667057 GTTGAATCAGACTAATGTAGGATTGAAAG CTCGAGTTCCCTGCTCATCCTGCTATATCTCTCAAAAAT spacer
length: 39 repeater length: 30

8031 667126 GTTGAATCAGACTAATGTAGGATTGAAAG AGGATTACAGCCGGAATCCTCAGCCAGCCGACGAAGTAGA
spacer length: 40 repeater length: 30

8032 667196 GTTGAATCAGACTAATGTAGGATTGAAAG AGATTGCCCCCTCAGCATGGCGGGGACATTTCGCGA spacer
length: 37 repeater length: 30

8033 667263 GTTGAATCAGACTAATGTAGGATTGAAAG TATTGTCAACCTTTTAATTCGCTCTTTCAATGCCCTAAA spacer
length: 39 repeater length: 30

8034 667332 GTTGAATCAGACTAATGTAGGATTGAAAG TAGAGGAATGGGAAATTCTGGGGAAGGATGACGAAAAA spacer
length: 38 repeater length: 30

8035 667400 GTTGAATCAGACTAATGTAGGATTGAAAG CTAAGAAGGCTTATAGTTGAGCACAGACACTTGGATTTA spacer
length: 39 repeater length: 30

8036 667469 GTTGAATCAGACTAATGTAGGATTGAAAG TAGGGGGGAGGTAGATGAGGATTGAAAGAGGGAATCTCA spacer
length: 39 repeater length: 30

8037 667538 GTTGAATCAGACTAATGTAGGATTGAAAG GAGAAGAGCTGACGTTCACTGAAGAGGACGGAAACAAC spacer
length: 38 repeater length: 30

8038 667606 GTTGAATCAGACTAATGTAGGATTGAAAG CTGGGGTAACTTTCCGAAGTTCAAATGCAGGCATGAACT spacer
length: 39 repeater length: 30

8039 667675 GTTGAATCAGACTAATGTAGGATTGAAAG GATTCTAAGTTAAAATAGATGGGTTGAATAAAAAAAG spacer
length: 37 repeater length: 30

8040 667742 GTTGAATCAGACTAATGTAGGATTGAAAG GGACATGGGGCAATAAGCAGCCATTTCAGCCCAGAGCCATCT
spacer length: 41 repeater length: 30

8041 667813 GTTGAATCAGACTAATGTAGGATTGAAAG ATAGAGTTCTATGTTGTAGTATGTTCTGCAGAGAGATC spacer
length: 39 repeater length: 30

8042 667882 GTTGAATCAGACTAATGTAGGATTGAAAG CATGCTCTTGCTGAGCCATAGCCAAGCCCATGAAGCGG spacer
length: 38 repeater length: 30

8043 667950 GTTGAATCAGACTAATGTAGGATTGAAAG ACGTAGATTTGACATTCTCAGCGGGCGCAACGAGGCAG spacer
length: 38 repeater length: 30

8044 668018 GTTGAATCAGACTAATGTAGGATTGAAAG TTACATATATCTACAAAAGCTGCACAATCTGCAGCATC spacer
length: 38 repeater length: 30

8045 668086 GTTGAATCAGACTAATGTAGGATTGAAAG AATAAGAGCGGGCGAGTATGGCGACATGAGCGAGGCAA spacer
length: 38 repeater length: 30

8046 668154 GTTGAATCAGACTAATGTAGGATTGAAAG CTTCGAATGGGATAAGGGCTTAGAGGATTTGGCCGAATGGGA
spacer length: 42 repeater length: 30

8047 668226 GTTGAATCAGACTAATGTAGGATTGAAAG CATGCTGAAAACACATTGTCTTCAAGGGCGTTTCTTAT spacer
length: 39 repeater length: 30

8048 668295 GTTGAATCAGACTAATGTAGGATTGAAAG AATCCTGTGACAGTGCAACGTATTACTTTACTATTTCAT spacer
length: 38 repeater length: 30

8049 668363 GTTGAATCAGACTAATGTAGGATTGAAAG GACTCTGTGTGTGAGGTGGTGGTAGAGATGGAGCAAAA spacer
length: 38 repeater length: 30

8050 668431 GTTGAATCAGACTAATGTAGGATTGAAAG TTTTGAGAAAATAAGACGTATAAACCTTTGTAACAATG spacer
length: 38 repeater length: 30

8051 668499 GTTGAATCAGACTAATGTAGGATTGAAAG AAATTCCTCGGACGGGATAAGTTCAGCAAAGTTATCGC spacer
length: 38 repeater length: 30

8052 668567 GTTGAATCAGACTAATGTAGGATTGAAAG GTTTGATGTGCGAATGTGGATACTCGAAGAGGTATGTT spacer
length: 38 repeater length: 30

8053 668635 GTTGAATCAGACTAATGTAGGATTGAAAG TTGAACCATATCTCGTTCTGAGGGAAACTCATCTGAAC spacer
length: 38 repeater length: 30

8054 668703 GTTGAATCAGACTAATGTAGGATTGAAAG GTTCCAGCCTGTGATAATAAAAAGCACACAGCACCGA spacer
length: 38 repeater length: 30

8055 668771 GTTGAATCAGACTAATGTAGGATTGAAAG ACATAAATCATTATCCTGTCTGAAGTTTCAGATTATTTG spacer
length: 38 repeater length: 30

8056 668839 GTTGAATCAGACTAATGTAGGATTGAAAG GATATACCATCAACTGAATTACCTGAATTGCCATTAACA spacer
length: 39 repeater length: 30

8057 668908 GTTGAATCAGACTAATGTAGGATTGAAAG GTTGCGTATGCGCCCAGATATGGTACGAACTGTTCAAAA spacer
length: 39 repeater length: 30

8058 668977 GTTGAATCAGACTAATGTAGGATTGAAAG CGCTGGGACGATAATCAGACTTGTAACGCTGATGCTAC spacer
length: 39 repeater length: 30

8059 669046 GTTGAATCAGACTAATGTAGGATTGAAAG CGCTGATACAGCTTCAGCGGAGTCATACGCTTAATCCT spacer

length: 38 repeater length: 30
8060 669114 GTTGAATCAGACTAATGTAGGATTGAAAG TTCTATTTCTCGTCCGATATCCCTACTGTAGTGTCTTA spacer
length: 38 repeater length: 30
8061 669182 GTTGAATCAGACTAATGTAGGATTGAAAG AATTTATTGGGCCGATGGCAACACGCCAGCTGAGCTT spacer
length: 38 repeater length: 30
8062 669250 GTTGAATCAGACTAATGTAGGATTGAAAG TTTTGTCCCCTGAGCACGTGCACGCTGCGAATGATTG spacer
length: 38 repeater length: 30
8063 669318 GTTGAATCAGACTAATGTAGGATTGAAAG TTCATTCTCTCTTTCAATCTCAGCAATCTTACTCATTA spacer
length: 38 repeater length: 30
8064 669386 GTTGAATCAGACTAATGTAGGATTGAAAG TACTTGCGGAGCTACTACGACAAATACGCCAACTGCTC spacer
length: 39 repeater length: 30
8065 669455 GTTGAATCAGACTAATGTAGGATTGAAAG GTAGGGATTCTTTAATCCAGGTTTCGTCAATTGCTGC spacer
length: 38 repeater length: 30
8066 669523 GTTGAATCAGACTAATGTAGGATTGAAAG ACATCTGAATCTTCGAATACCTCAATGCTGTATATGCTCGCTGTGC
spacer length: 46 repeater length: 30
8067 669599 GTTGAATCAGACTAATGTAGGATTGAAAG AGTACCCTTTCAAGCACAAATCACGGCGATATCGTCTGCA spacer
length: 39 repeater length: 30
8068 669668 GTTGAATCAGACTAATGTAGGATTGAAAG GAGGTTTCTTCCCTCTGGTCTTAGGAACGTGCTGTCCGAAA
8069
8070
8071 GCA_000195895.1_ASM19589v1_genomic.fna (PilerCR) :
8072 START REPEAT
SPACER
8073 crispr 1
8074 356466 GTTAAATCAGGCCTTAGAGGGATTGAAAC TGAAC TTGAAATTCAGGACTGGCTAGCAAAAGAAA spacer
length: 35 repeater length: 30
8075 356531 GTTAAATCAGGCCTTAGAGGGATTGAAAC GTTGAATCAAAATATATCCAGCAAGTATTGTCCTT spacer
length: 36 repeater length: 30
8076 356597 GTTAAATCAGGCCTTAGAGGGATTGAAAC GTAATAGTAAATATAATCTATCATTGATCTCGAAC spacer
length: 37 repeater length: 30
8077 356664 GTTAAATCAGGCCTTAGAGGGATTGAAAC AATGCAAGATATGATCATACAGGCGGACCTGATTTAGT spacer
length: 38 repeater length: 30
8078 356732 GTTAAATCAGGCCTTAGAGGGATTGAAAC CCGCATGGAGAGAAACAGACGGAATCCACGCAAAAG spacer
length: 36 repeater length: 30
8079 356798 GTTAAATCAGGCCTTAGAGGGATTGAAAC TGTGTCTATAACTGATATTCTTAATGCAAACGATA spacer
length: 35 repeater length: 30
8080 356863 GTTAAATCAGGCCTTAGAGGGATTGAAAC TATTCTGAGTCTGGATATCCCGAACTCCCAAAATACT spacer
length: 37 repeater length: 30
8081 356930 GTTAAATCAGGCCTTAGAGGGATTGAAAC AATCTAGGAGTCTTAATCTTTCATCAAGAAGCCCCCTT spacer
length: 37 repeater length: 30
8082 356997 GTTAAATCAGGCCTTAGAGGGATTGAAAC ATTGGAAGCAGCTAGTCGGGGTTGCCTGCGGGTCTG spacer
length: 36 repeater length: 30
8083 357063 GTTAAATCAGGCCTTAGAGGGATTGAAAC CTGTCAAACTCGATGCACAGACACCTGTTAGTATC spacer
length: 36 repeater length: 30
8084 357129 GTTAAATCAGGCCTTAGAGGGATTGAAAC CTTTTTTGGAGCAACACATATGAACCTTAAAAATAT spacer
length: 36 repeater length: 30
8085 357195 GTTAAATCAGGCCTTAGAGGGATTGAAAC TATCCTGGACATAGACACGAAGCAGTATGGATAAGAG spacer
length: 37 repeater length: 30
8086 357262 GTTAAATCAGGCCTTAGAGGGATTGAAAC ATCAATATATAATAATTCCTAGAATTATAAGTATAAAT spacer
length: 38 repeater length: 30
8087 357330 GTTAAATCAGGCCTTAGAGGGATTGAAAC GAATGTGACGGATGTGAAACAATACGGGTGGGAAA spacer
length: 35 repeater length: 30
8088 357395 GTTAAATCAGGCCTTAGAGGGATTGAAAC TTTAGGAATAATCTTCTTAGTTCCCGAGTACAACACGT spacer
length: 38 repeater length: 30
8089 357463 GTTAAATCAGGCCTTAGAGGGATTGAAAC GAGTTCAACCGGTGACCGGCGGAGCAATTGAAAAAT spacer
length: 36 repeater length: 30
8090 357529 GTTAAATCAGGCCTTAGAGGGATTGAAAC TATAATTCTAACAATTGTACGGATTTAAAAAATTG spacer
length: 35 repeater length: 30
8091 357594 GTTAAATCAGGCCTTAGAGGGATTGAAAC TCAGCTACCGAAGGATTTCAAGGGGTTTTACTCT spacer
length: 35 repeater length: 30
8092 357659 GTTAAATCAGGCCTTAGAGGGATTGAAAC ATCAAATCCACTTTTTATATAAGCATCTTTTACGA spacer
length: 35 repeater length: 30
8093 357724 GTTAAATCAGGCCTTAGAGGGATTGAAAC CTAAC TAAGTATTCAAGGAATGCTGGAGGATTAGGAT spacer
length: 37 repeater length: 30
8094 357791 GTTAAATCAGGCCTTAGAGGGATTGAAAC GTTTAATTGGCTCCCAGCAGTCACACCCATAGCAGT spacer
length: 36 repeater length: 30
8095 357857 GTTAAATCAGGCCTTAGAGGGATTGAAAC GAGGATTAGGATGATTGGCAATAAACTAACTTT spacer
length: 35 repeater length: 30
8096 357922 GTTAAATCAGGCCTTAGAGGGATTGAAAC AATGATGATTTTAGTGGAGTGTGTTGGTCTTAAGTCG spacer
length: 36 repeater length: 30
8097 357988 GTTAAATCAGGCCTTAGAGGGATTGAAAC TTGATTCATGGGATATCGGAGGGACGAGCAATGCAG spacer

length: 36 repeater length: 30
 8098 358054 GTTAAATCAGGCCTTAGAGGGATTGAAAC CATATAAAGAAAGTAAATAAGAACTCATGAATTATAA spacer
 length: 38 repeater length: 30
 8099 358122 GTTAAATCAGGCCTTAGAGGGATTGAAAC AATTTAGGTGATCCTGTTCTACTGGTTCCTGTGTT spacer
 length: 35 repeater length: 30
 8100 358187 GTTAAATCAGGCCTTAGAGGGATTGAAAC GAATCTGTGAATTTAATATCTAAAATGTCAAATATG spacer
 length: 36 repeater length: 30
 8101 358253 GTTAAATCAGGCCTTAGAGGGATTGAAAC GTGCTCTTCTTTAACCCCACTTGAAATTTTATATA spacer
 length: 36 repeater length: 30
 8102 358319 GTTAAATCAGGCCTTAGAGGGATTGAAAC ATAAAAACAAAAACGATTGTCTGTCTAAGCTATAC spacer
 length: 35 repeater length: 30
 8103 358384 GTTAAATCAGGCCTTAGAGGGATTGAAAC GTGTATGTTTCTGACAGCTCAATAATAGTTAGATA spacer
 length: 35 repeater length: 30
 8104 358449 GTTAAATCAGGCCTTAGAGGGATTGAAAC AGATATTCTTTTTGAAGCCCTTTAAAATCTATAAGTT spacer
 length: 37 repeater length: 30
 8105 358516 GTTAAATCAGGCCTTAGAGGGATTGAAAC TTAGTTATAAACCATTTATAGACACAGTAGCAGCACT spacer
 length: 37 repeater length: 30
 8106 358583 GTTAAATCAGGCCTTAGAGGGATTGAAAC ATTGCAATATCGAGAATATCTTTTACGGAATTGCA spacer
 length: 36 repeater length: 30
 8107 358649 GTTAAATCAGGCCTTAGAGGGATTGAAAC ATATTCGGATGGAAAACACTCCCTTGGTGTGAAACA spacer
 length: 36 repeater length: 30
 8108 358715 GTTAAATCAGGCCTTAGAGGGATTGAAAC CCTCAAGTTCTCCATCGCTTCAACGAATAGATATCAA spacer
 length: 37 repeater length: 30
 8109 358782 GTTAAATCAGGCCTTAGAGGGATTGAAAC GCATAATACAAAGTACTGTTACTCATTCCGCTCTG spacer
 length: 35 repeater length: 30
 8110 358847 GTTAAATCAGGCCTTAGAGGGATTGAAAC CACGTAACCTTCAAGGACATGATATCTTGTAGAAAC spacer
 length: 36 repeater length: 30
 8111 358913 GTTAAATCAGGCCTTAGAGGGATTGAAAC ACGACTACGGCTAAAGTATTTGCTTCAGCAGTTGGG spacer
 length: 36 repeater length: 30
 8112 358979 GTTAAATCAGGCCTTAGAGGGATTGAAAC ATCAAATGGCGGTATTCAGAAAATCTGTATGGAAAT spacer
 length: 36 repeater length: 30
 8113 359045 GTTAAATCAGGCCTTAGAGGGATTGAAAC GCAATTTCCAAGGTTTCCATTTGGAAATGCAAAAAA spacer
 length: 36 repeater length: 30
 8114 359111 GTTAAATCAGGCCTTAGAGGGATTGAAAC TTATGAGCATCATTATCATGTTTCCGCTTTTTAGC spacer
 length: 35 repeater length: 30
 8115 359176 GTTAAATCAGGCCTTAGAGGGATTGAAAC GGGTAAGATTAAGTCCATGGATAATCGAAGAAGAC spacer
 length: 35 repeater length: 30
 8116 359241 GTTAAATCAGGCCTTAGAGGGATTGAAAC AATCTCAGTCTGTAGGGTATGGGGCAACCTGCTTAA spacer
 length: 36 repeater length: 30
 8117 359307 GTTAAATCAGGCCTTAGAGGGATTGAAAC GCTTCTCTGTTTGATCCAGAAGGGATATTCATTTTTTC spacer
 length: 38 repeater length: 30
 8118 359375 GTTAAATCAGGCCTTAGAGGGATTGAAAC GTTTCACCAAAGAAAATCTCTTTCATTTTCTTAGT spacer
 length: 35 repeater length: 30
 8119 359440 GTTAAATCAGGCCTTAGAGGGATTGAAAC AATCTTCAAATGGCGCTGCTGGCATGATATCCTCACA spacer
 length: 37 repeater length: 30
 8120 359507 GTTAAATCAGGCCTTAGAGGGATTGAAAC ATATAATCTCTACAAATTTTCGTCATATATCCTTGC spacer
 length: 36 repeater length: 30
 8121 359573 GTTAAATCAGGCCTTAGAGGGATTGAAAC AAAAATATGAAAACCAAAGGCGGGGCATTTAAACTG spacer
 length: 39 repeater length: 30
 8122 359642 GTTAAATCAGGCCTTAGAGGGATTGAAAC ATGTTACCATCCCATTCTGATTAAACAAGTTTCCG spacer
 length: 38 repeater length: 30
 8123 359710 GTTAAATCAGGCCTTAGAGGGATTGAAAC AAGAGAAATTTTAGGAATACGGCGGCTGGATAATGAAGC spacer
 length: 39 repeater length: 30
 8124 359779 GTTAAATCAGGCCTTAGAGGGATTGAAAC CTGATCACGG
 8125
 8126
 8127 crispr 2
 8128 366534 TCCACTAAAATAAGGATTGAAAC TTTGCATTTCTCTCTTTTCGAAGAAATTTTCTGAGTCGAGAGGTAGCT
 spacer length: 50 repeater length: 23
 8129 366607 TCCACTAAAATAAGGATTGAAAC CAAGATAATATCTGTTTCTTCTCTCTAATAACCATTCGCGAGCAAGA
 spacer length: 51 repeater length: 23
 8130 366681 TCCACTAAAATAAGGATTGAAAC TCGATAGGGTTGAGACAGATGAAAATTGAGAGATTTCGCGAGCAAGA spacer
 length: 46 repeater length: 23
 8131 366750 TCCACTAAAATAAGGATTGAAAC CATGCCCCGTG
 8132
 8133
 8134 crispr 3
 8135 1660463 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GATATTACGAGTAAAAGGAGAAAACAAAGATCAA
 spacer length: 34 repeater length: 37
 8136 1660534 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AACTATACGCGAGGGAGAGGTACATAGAGTATATT
 spacer length: 35 repeater length: 37

8137	1660606	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GACAACGCAGATGAAGCAAAGCTTACGTAATCCCA
	spacer length: 36	repeater length: 37	
8138	1660679	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CGAGAACATAAATTCCGGTAGCATCCTTTTTTGTAAT
	spacer length: 37	repeater length: 37	
8139	1660753	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CTTTTTCAGCTACTTTATCTGGAAGATCTTTTAGAGT
	spacer length: 37	repeater length: 37	
8140	1660827	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GATATTACGAGTAAAAGGAGAAAACAAAGATCAA
	spacer length: 34	repeater length: 37	
8141	1660898	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAGGTATATATACATTGTTATCATTGTTGTCATT
	spacer length: 34	repeater length: 37	
8142	1660969	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CCCAGGAGATAAAGAAGGGGAGGTACCAGAAGATG
	spacer length: 35	repeater length: 37	
8143	1661041	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTTGTTTCATCAGATAATTTAACATATTCACAAAGTG
	spacer length: 36	repeater length: 37	
8144	1661114	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCTTTTTGACATTCAAAATCTGTTTGCAATCTA
	spacer length: 33	repeater length: 37	
8145	1661184	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCCATTTTTAAATAAACTGGAGGATCATACATTA
	spacer length: 34	repeater length: 37	
8146	1661255	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTAAGTTCACGTATAATTAGATACTTAGCTCTTTT
	spacer length: 35	repeater length: 37	
8147	1661327	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTCCGGAAAGTTACATCAGAAGAACCTCTGCAACG
	spacer length: 35	repeater length: 37	
8148	1661399	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CTTACAAATGTGTCATTATGTGCTAAGGCTGTAAGG
	spacer length: 36	repeater length: 37	
8149	1661472	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CGGGAAGAAA
8150			
8151			
8152	crispr 4		
8153	4007377	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	TCATGGTCTTGTGTTCTGTTGCTGATGTCAAAGCTC
	spacer length: 36	repeater length: 36	
8154	4007449	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	TTTCTGTACGATCTGGTAATGGTACAGCTAGTTTAG
	spacer length: 36	repeater length: 36	
8155	4007521	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	GAGAAGCTACAGGACGCTTATAAAACCGCTAAAAAA
	spacer length: 37	repeater length: 36	
8156	4007594	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	ATAAGCACCATTCTGAATGGTCGCCAGTGTAAGTGTAA
	spacer length: 37	repeater length: 36	
8157	4007667	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	ATGTTATGATTCAATTACTAACCACCGTTTTTGATAC
	spacer length: 37	repeater length: 36	
8158	4007740	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	GTACAAATCCCGCAGTAGTGAGACTTTCCCCAACTAA
	spacer length: 37	repeater length: 36	
8159	4007813	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	TCGATCCTTCGATTACTCCCGAACTTTTAAATCTG
	spacer length: 36	repeater length: 36	
8160	4007885	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	TCGGCCATTTTATTTTATTAGGATCCCCCAATCTT
	spacer length: 36	repeater length: 36	
8161	4007957	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	TCAGTATAAGCCAGAGTCAAAGGGTGCACAGGCATAC
	spacer length: 37	repeater length: 36	
8162	4008030	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	AGAGGTCGACGATACCAACCAGGATTCTGGCAGTTGG
	spacer length: 37	repeater length: 36	
8163	4008103	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	TGCGCTTCTCAAACAGGCTCTGTATCGTTCGATAATA
	spacer length: 38	repeater length: 36	
8164	4008177	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	TGGAACGGCTGTTGTTGGTGTACTCGGTTGGGAAG
	spacer length: 35	repeater length: 36	
8165	4008248	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	ACCTTCTGTGTATACCAAAGAAGTTTCAAATAATCT
	spacer length: 37	repeater length: 36	
8166	4008321	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	TCATCAGTATATTTTTCTGCAATCGTATCATACAATG
	spacer length: 37	repeater length: 36	
8167	4008394	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	TTTATATGGGAATGTCAGTAAACATGTGGTCGGGCT
	spacer length: 36	repeater length: 36	
8168	4008466	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	TTGTAAAAGACCATCTGTATAATTGCCTGCAGTTG
	spacer length: 35	repeater length: 36	
8169	4008537	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	GGGTTTTGAAGTAAACCTTTTCCACATTACCCACAA
	spacer length: 37	repeater length: 36	
8170	4008610	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	TGGCGTTAAAGGTTACCTTCTTGACCAACTCTAGC
	spacer length: 36	repeater length: 36	
8171	4008682	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	CTTCTCTCCTTCCTTCGCATCGCAGCCGAACCCATG
	spacer length: 36	repeater length: 36	
8172	4008754	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	GGAAGTTTTGAAAACGGGCCAGTCTTCGCTGGGGAG
	spacer length: 36	repeater length: 36	
8173	4008826	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	ATACTAAAAACAAAATCCACCCAACAACAGGGCACCTT
	spacer length: 39	repeater length: 36	
8174	4008901	GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC	GAGACGAGACAGTACACAACATGTGAATGCCATACTGT

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spacer length: 39 repeater length: 36
8175 4008976 GCTTCAATTCTGCCACAACCTTTCGGTTATGGAAAC
8176
8177
8178 GCA_000195915.1_ASM19591v1_genomic.fna (PilerCR) :
8179 START      REPEAT
      SPACER
8180 crispr 1
8181 846048 GTAAAATAGAACCTTAATAGGATTGAAAG AGTTCGTTTCAGGCTGAGGGATAAGACCGAAAAAATG spacer
      length: 37 repeater length: 29
8182 846114 GTAAAATAGAACCTTAATAGGATTGAAAG ACGAGTGCCGATGCAATCAAGAACGAAGAGGACTATAA spacer
      length: 38 repeater length: 29
8183 846181 GTAAAATAGAACCTTAATAGGATTGAAAG TCTCACAAGCTTCTACGACCGAGACTGCATCGCCTT spacer
      length: 36 repeater length: 29
8184 846246 GTAAAATAGAACCTTAATAGGATTGAAAG TTCTCTGCAGTCATGGTCAGATTTCAGTCATAGCAGA spacer
      length: 36 repeater length: 29
8185 846311 GTAAAATAGAACCTTAATAGGATTGAAAG TTGGAAAGATCCGTAAGGTCTTTCTGCTGCAAATAA spacer
      length: 36 repeater length: 29
8186 846376 GTAAAATAGAACCTTAATAGGATTGAAAG AGCGACACCTGCTGGGTTCGGTTGTACAAGACAACG spacer
      length: 36 repeater length: 29
8187 846441 GTAAAATAGAACCTTAATAGGATTGAAAG TTCCTCCTCGCCATCATCTTCGACTACCGTTTCGCTC spacer
      length: 36 repeater length: 29
8188 846506 GTAAAATAGAACCTTAATAGGATTGAAAG GTTTACGGCGATCGAAACTGAAGCAGTCTCACCTG spacer
      length: 36 repeater length: 29
8189 846571 GTAAAATAGAACCTTAATAGGATTGAAAG AGAAGAGATATATCCGGAACAACACTACGGGGCTACTA spacer
      length: 36 repeater length: 29
8190 846636 GTAAAATAGAACCTTAATAGGATTGAAAG ATATATATGAACGAAGTGATATATACCGGAAACCGG spacer
      length: 36 repeater length: 29
8191 846701 GTAAAATAGAACCTTAATAGGATTGAAAG CACGTTGACGGTGAAGTTCTGGACGTCAGTATAAC spacer
      length: 35 repeater length: 29
8192 846765 GTAAAATAGAACCTTAATAGGATTGAAAG TCGGAAATAAAGCGTATGCTTGATGAGGGATGGGTCT spacer
      length: 37 repeater length: 29
8193 846831 GTAAAATAGAACCTTAATAGGATTGAAAG AATGGGGATAACGGCAATTTAGAAGTGGGTTCACGT spacer
      length: 37 repeater length: 29
8194 846897 GTAAAATAGAACCTTAATAGGATTGAAAG TAGCCACCTTTCCCATCTTTATGGCCAGGAATGAAGA spacer
      length: 37 repeater length: 29
8195 846963 GTAAAATAGAACCTTAATAGGATTGAAAG AAGTACATCGCATTTCTCAACTATGGCGAAACCCATGCCG spacer
      length: 39 repeater length: 29
8196 847031 GTAAAATAGAACCTTAATAGGATTGAAAG AGTAGAGAAACTCTTGAGAACTGCGTTCCGCGAAG spacer
      length: 36 repeater length: 29
8197 847096 GTAAAATAGAACCTTAATAGGATTGAAAG ACGATATCCTCATCGCAGAACCCGACCGATGTGGGCAAG spacer
      length: 39 repeater length: 29
8198 847164 GTAAAATAGAACCTTAATAGGATTGAAAG ATCTGACCAACTCAAACACCACAGGCACACCCTTCAAC spacer
      length: 38 repeater length: 29
8199 847231 GTAAAATAGAACCTTAATAGGATTGAAAG GTACTTCCCCGGTGGCGAGCAATACAGCGGAAACA spacer
      length: 35 repeater length: 29
8200 847295 GTAAAATAGAACCTTAATAGGATTGAAAG AGACGTGGCACCGCTTATCGCCGACCCGCTTCCAGAC spacer
      length: 37 repeater length: 29
8201 847361 GTAAAATAGAACCTTAATAGGATTGAAAG AAAGTCACGCTGTCACCGACGTCCGTTGGGTCTGG spacer
      length: 36 repeater length: 29
8202 847426 GTAAAATAGAACCTTAATAGGATTGAAAG AATCACCAAAGGAATAGAAGAAACCGCCTCCATTACGG spacer
      length: 38 repeater length: 29
8203 847493 GTAAAATAGAACCTTAATAGGATTGAAAG TAATTGTACGGAGAGGTGCCTCCTGATACCGAAGCA spacer
      length: 36 repeater length: 29
8204 847558 GTAAAATAGAACCTTAATAGGATTGAAAG GATATATTCGGCTGCAACCTTCCTGAACATATCTTTG spacer
      length: 37 repeater length: 29
8205 847624 GTAAAATAGAACCTTAATAGGATTGAAAG AAAATATGGGGTACAAGACCGAAAGAAGGATAAGGGA spacer
      length: 37 repeater length: 29
8206 847690 GTAAAATAGAACCTTAATAGGATTGAAAG AGTTGGTAAAGTTTTTGAAATGGAATACCAGACTAGC spacer
      length: 37 repeater length: 29
8207 847756 GTAAAATAGAACCTTAATAGGATTGAAAG TTTTTGTAGATGTTCTAGATTTCGAGGACTGGATTTAA spacer
      length: 38 repeater length: 29
8208 847823 GTAAAATAGAACCTTAATAGGATTGAAAG ATTTTGATCTGGGCGGATGCTCCGCTGTATGATGATGTT spacer
      length: 39 repeater length: 29
8209 847891 GTAAAATAGAACCTTAATAGGATTGAAAG ATTTATACGGACACGGACAGTTTCTTCGTGGTAAACA spacer
      length: 37 repeater length: 29
8210 847957 GTAAAATAGAACCTTAATAGGATTGAAAG AATGTGCGGAATGCTGACGCCGCGCTGATATTCCCC spacer
      length: 37 repeater length: 29
8211 848023 GTAAAATAGAACCTTAATAGGATTGAAAG GTTAAGCTAAACTTAAAGACCGATGAACTGGAAATTG spacer
      length: 37 repeater length: 29
8212 848089 GTAAAATAGAACCTTAATAGGATTGAAAG ATGAGTGGCAAATATATCATGAAATCGATGAGTTT spacer

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length: 35 repeater length: 29

8213 848153 GTAAAATAGAACCTTAATAGGATTGAAAG ATTGGAATCACGGTGTGATCTTAATAACAGATTTGGCG spacer
length: 39 repeater length: 29

8214 848221 GTAAAATAGAACCTTAATAGGATTGAAAG CCACAAGTGAGATCGGCATAGCCCCTGCATAATAGCTA spacer
length: 38 repeater length: 29

8215 848288 GTAAAATAGAACCTTAATAGGATTGAAAG CCAGAGCTTCGGCTTCTCAACCTCCGGATACGGGA spacer
length: 35 repeater length: 29

8216 848352 GTAAAATAGAACCTTAATAGGATTGAAAG GCGAGAATTCAAAGCCATATATATTATCGGAAAGTCT spacer
length: 37 repeater length: 29

8217 848418 GTAAAATAGAACCTTAATAGGATTGAAAG TTTATGGCTGAAATAACGGGGAATGACCCCAAATATCGT spacer
length: 39 repeater length: 29

8218 848486 GTAAAATAGAACCTTAATAGGATTGAAAG TACACATTCGGCTCTTCCTTAAGCTCCGCAACGCTGT spacer
length: 37 repeater length: 29

8219 848552 GTAAAATAGAACCTTAATAGGATTGAAAG AGTCTTCATTGCTTTACCCCCATAAATCAGATCCTCC spacer
length: 37 repeater length: 29

8220 848618 GTAAAATAGAACCTTAATAGGATTGAAAG CTGGAACGTGATCGACTGCGAATAGCCATATTGATCCG spacer
length: 38 repeater length: 29

8221 848685 GTAAAATAGAACCTTAATAGGATTGAAAG TTTGTTCAGTTCCTTCTTTGAGATCTCGAAACTATT spacer
length: 37 repeater length: 29

8222 848751 GTAAAATAGAACCTTAATAGGATTGAAAG TTCCGCAAGCACTGGGGGATCCTGAATAACAGAAGAGGCG spacer
length: 40 repeater length: 29

8223 848820 GTAAAATAGAACCTTAATAGGATTGAAAG TGCACGCCTGCCCTGAGATGAATCCTCTTCTTCT spacer
length: 35 repeater length: 29

8224 848884 GTAAAATAGAACCTTAATAGGATTGAAAG ACACCTGATCCGACCGAACACCCCTAAAATGAATTA spacer
length: 36 repeater length: 29

8225 848949 GTAAAATAGAACCTTAATAGGATTGAAAG GTATGATGCCTGGACAGTCTGCCCTGGTCAAATGT spacer
length: 36 repeater length: 29

8226 849014 GTAAAATAGAACCTTAATAGGATTGAAAG ATGGGAAATTGCTGCAGCAGATCATGAGGGACCA

8227

8228

8229 GCA_000200715.1_ASM20071v1_genomic.fna(PilerCR):

8230 START REPEAT
SPACER

8231 GCA_000204585.1_ASM20458v1_genomic.fna(PilerCR):

8232 START REPEAT
SPACER

8233 GCA_000204925.1_ASM20492v1_genomic.fna(PilerCR):

8234 START REPEAT
SPACER

8235 crispr 1

8236 985268 CTTTCAACTCCATGAAGGATTCTAC AGGAGGTATAGTGGTGAGTCGTCTGCCTTGAACGTTTACAAG spacer
length: 42 repeater length: 25

8237 985335 CTTTCAACTCCATGAAGGATTCTAC ACACTGAGGACCTGACAGATGAGGACTTGAAGGGATATGGCC spacer
length: 42 repeater length: 25

8238 985402 CTTTCAACTCCATGAAGGATTCTAC CACGGGCATAATATGATAAAGAACTTGGCTACTGTTCTCAT spacer
length: 41 repeater length: 25

8239 985468 CTTTCAACTCCATGAAGGATTCTAC ACGGTTCTACACCGCGCGGAAGGGTTCTTCTTCGTTAAAA spacer
length: 41 repeater length: 25

8240 985534 CTTTCAACTCCATGAAGGATTCTAC AAGACCCAATCGTAGCTGAGTACGATCTGACGTATATGTTA spacer
length: 41 repeater length: 25

8241 985600 CTTTCAACTCCATGAAGGATTCTAC AAACATAATA

8242

8243

8244 crispr 2

8245 985741 CTTTCAACTCCATGAAGGATTCTAC ATGAACAAAAGAAAGGTGAGGACATGATCTTCTATGATG spacer
length: 39 repeater length: 25

8246 985805 CTTTCAACTCCATGAAGGATTCTAC CATACCACACATTATAATTAAACATTCTTATCAAATTGTAA spacer
length: 41 repeater length: 25

8247 985871 CTTTCAACTCCATGAAGGATTCTAC GTAGTAGCGACGTGTTCAAGGCAGTCGTTACATCGTTTA spacer
length: 39 repeater length: 25

8248 985935 CTTTCAACTCCATGAAGGATTCTAC TTGGGTTAGCTACCCTCTTGATTACTTTTCTCAGATCATC spacer
length: 40 repeater length: 25

8249 986000 CTTTCAACTCCATGAAGGATTCTAC TTATATATTGCCATAATAAGTTTGGGGGAAGCTCTG spacer length:
36 repeater length: 25

8250 986061 CTTTCAACTCCATGAAGGATTCTAC GGCGAAATAGTGTGTAATGACGACCGAAACGAAATTATGATT spacer
length: 42 repeater length: 25

8251 986128 CTTTCAACTCCATGAAGGATTCTAC GGGGGCAAGCTCCCCTCTACTCTCACGATAATGATGAGGA spacer
length: 40 repeater length: 25

8252 986193 CTTTCAACTCCATGAAGGATTCTAC TCTTGAGGATTTTTATGCCTCCTCGACAAAGTCCCCCGTG spacer
length: 40 repeater length: 25

8253 986258 CTTTCAACTCCATGAAGGATTCTAC AGATGATATAGAGCTTTACTTTGCACCGAATGGTAATAT spacer

length: 39 repeater length: 25

8254 986322 CTTTCAACTCCATGAAGGATTCTAC ATCAACGCCAAAGACCGTCATCATCAAATCCGTCTACAA spacer
length: 39 repeater length: 25

8255 986386 CTTTCAACTCCATGAAGGATTCTAC TTAGGAGTGAAAATCAATCAACCATTTGAAGATGATAAAA spacer
length: 40 repeater length: 25

8256 986451 CTTTCAACTCCATGAAGGATTCTAC TGAGTAAATCCAAACTCATCATCTTTGACTTTCTCAATCA spacer
length: 40 repeater length: 25

8257 986516 CTTTCAACTCCATGAAGGATTCTAC AAGAAAAACATACTGAGGGTGATCTACACCCTGAGAAAC spacer
length: 40 repeater length: 25

8258 986581 CTTTCAACTCCATGAAGGATTCTAC GACATACATGACATGGAAATTGAGTTATGCATTTTATTCTC spacer
length: 41 repeater length: 25

8259 986647 CTTTCAACTCCATGAAGGATTCTAC GAGAAGGGGAGTAGACGAGTGCATAAGGTGACGTTCTTTAA spacer
length: 41 repeater length: 25

8260 986713 CTTTCAACTCCATGAAGGATTCTAC TTCAACTTTTACTTGATAAAACACTACAATCTTTAA spacer length:
35 repeater length: 25

8261 986773 CTTTCAACTCCATGAAGGATTCTAC TTCAACTTTTACTTGATAAAACACTACAATCTTTAA spacer length:
35 repeater length: 25

8262 986833 CTTTCAACTCCATGAAGGATTCTAC TCGACCGTAGCAGATATCGCAAGTGAAAAAGGAACTG spacer
length: 37 repeater length: 25

8263 986895 CTTTCAACTCCATGAAGGATTCTAC AAAAAATAAGATAAAATGTGATGACAAAACGAATGAAATAA spacer
length: 41 repeater length: 25

8264 986961 CTTTCAACTCCATGAAGGATTCTAC AGTGATACCCTACCTTCAAGGGAAGGGGACGGGAT spacer length:
35 repeater length: 25

8265 987021 CTTTCAACTCCATGAAGGATTCTAC AGAACGCCCTTAAGCTAGCGAAGAAGGCCCTTTCTCAG spacer
length: 38 repeater length: 25

8266 987084 CTTTCAACTCCATGAAGGATTCTAC ACTGTTAGAGAGGCACTTAAGCTAGCGAAGGAGGCTCTA spacer
length: 39 repeater length: 25

8267 987148 CTTTCAACTCCATGAAGGATTCTAC TTTCAAATCATGATGAGATTTGTAGAAAGATTTATAAGCATT spacer
length: 42 repeater length: 25

8268 987215 CTTTCAACTCCATGAAGGATTCTAC AGGTGATCCACGAGTGTGGACTTATGGTATTGGAAATAT spacer
length: 39 repeater length: 25

8269 987279 CTTTCAACTCCATGAAGGATTCTAC AAAAGACCTTCCTCTGCCCTGAGTTATCACATTTTGTT spacer
length: 38 repeater length: 25

8270 987342 CTTTCAACTCCATGAAGGATTCTAC GGGCGTTTACCCCCGCCCGCGGGGTAACTATCTGCT spacer
length: 39 repeater length: 25

8271 987406 CTTTCAACTCCATGAAGGATTCTAC CTTGCTCAGAATCGTAGTAGTACCCAGGTGGACAACCTAGT spacer
length: 40 repeater length: 25

8272 987471 CTTTCAACTCCATGAAGGATTCTAC ACCGGGCGGAGTTCCTTAGAACCCAACCAGCGTAGTAGT spacer
length: 39 repeater length: 25

8273 987535 CTTTCAACTCCATGAAGGATTCTAC AATAAAACCTAATAAAATTGGGTATTTTGACGTTGAAAT spacer
length: 39 repeater length: 25

8274 987599 CTTTCAACTCCATGAAGGATTCTAC CCCCATCTGGTATGCCCTTGAGGAATTCTATATATCGAAA spacer
length: 40 repeater length: 25

8275 987664 CTTTCAACTCCATGAAGGATTCTAC AGGGAAAAAAGTGCCTCATGGCGTTAACTGGCGATAAG spacer
length: 40 repeater length: 25

8276 987729 CTTTCAACTCCATGAAGGATTCTAC TTGCTCGTCTACCGCGTTTACCCCCGCGGCCCGGGTTTG spacer
length: 39 repeater length: 25

8277 987793 CTTTCAACTCCATGAAGGATTCTAC AATTACTAGACCCAGTCTACGAGGGCGTTGGGTGGTCATA spacer
length: 40 repeater length: 25

8278 987858 CTTTCAACTCCATGAAGGATTCTAC TTGATAGTGGTGATGATAAAATGATAATGAAGCCTCAGAT spacer
length: 40 repeater length: 25

8279 987923 CTTTCAACTCCATGAAGGATTCTAC CTACCGCATTTTTTCGGGGCGGTATGTCCTTCTGAGTACA spacer
length: 40 repeater length: 25

8280 987988 CTTTCAACTCCATGAAGGATTCTAC AAATTTTTGTCTCTAAAATGCCCTTGAGGGGGGGGA spacer
length: 37 repeater length: 25

8281 988050 CTTTCAACTCCATGAAGGATTCTAC TTCAAGATTTTTTGACTCTATAAAAGGTGAGTTATT spacer
length: 37 repeater length: 25

8282 988112 CTTTCAACTCCATGAAGGATTCTAC TTATCAGGGCTTGGATCCTTGACCTCTTGAGACAAGTAC spacer
length: 39 repeater length: 25

8283 988176 CTTTCAACTCCATGAAGGATTCTAC AGATAGGTCTGCGGAAAGCTGTGACGCCTTATTGTAACC spacer
length: 39 repeater length: 25

8284 988240 CTTTCAACTCCATGAAGGATTCTAC AAGAAGATCTTGACGATTGTTGTAAAGATAAATACATAAT spacer
length: 40 repeater length: 25

8285 988305 CTTTCAACTCCATGAAGGATTCTAC AAGAAGATCTTGACGATTGTTGTAAAGATAAATACATAAT spacer
length: 40 repeater length: 25

8286 988370 CTTTCAACTCCATGAAGGATTCTAC AATTTTTTACTGAATACGATAGTTATATGATTCTTAAAGT spacer
length: 40 repeater length: 25

8287 988435 CTTTCAACTCCATGAAGGATTCTAC CCGGTTGAGCTACGTGAAGCGGTTCAAGATTATCTTTACTGTTTA
spacer length: 45 repeater length: 25

8288 988505 CTTTCAACTCCATGAAGGATTCTAC AATAATTGAAGCTAAAAATGAGTGGGAAGCTAGATACTTTTT spacer
length: 42 repeater length: 25

8289 988572 CTTTCAACTCCATGAAGGATTCTAC GGGAAGTATAATTTATGATGATGATGACGAACTAATAA spacer
length: 39 repeater length: 25

8290 988636 CTTTCAACTCCATGAAGGATTCTAC GTTGGCGGTGAAGACGTTCCGCAAAGCATGAGTGACGCAA spacer
length: 40 repeater length: 25

8291 988701 CTTTCAACTCCATGAAGGATTCTAC CCGCGGGGAAAGGAACAGAGAAGGAAGAACGTGTTAA spacer
length: 37 repeater length: 25

8292 988763 CTTTCAACTCCATGAAGGATTCTAC AAAAAATGTGATAAGAAAACACTATATAATTGAAAGGGAA spacer
length: 40 repeater length: 25

8293 988828 CTTTCAACTCCATGAAGGATTCTAC ACTTAAACAAGTATAACAGAAACATTACAACGATGTATAT spacer
length: 40 repeater length: 25

8294 988893 CTTTCAACTCCATGAAGGATTCTAC CATCAACGGGCGTCATCTTAGTAACGCCAAGTCTTAATG spacer
length: 39 repeater length: 25

8295 988957 CTTTCAACTCCATGAAGGATTCTAC CAGGAGTGCCAGTTTCTCCACAAATGTCAGATACAGA spacer
length: 37 repeater length: 25

8296 989019 CTTTCAACTCCATGAAGGATTCTAC GCGAAGCTAACTCCTTCCTTAACCTTCTTCACCTCGTCTG spacer
length: 39 repeater length: 25

8297 989083 CTTTCAACTCCATGAAGGATTCTAC GACAGAAAAGAACC GCCCTTATTTTATTGGGCGATTATG spacer
length: 39 repeater length: 25

8298 989147 CTTTCAACTCCATGAAGGATTCTAC TCGCCGCCATCAAAGTCGCCAATATAGACGATAGTTCTGTCCT spacer
length: 43 repeater length: 25

8299 989215 CTTTCAACTCCATGAAGGATTCTAC CTTAGAAAGGCACAAGTAATCAAGGCCCTAAAATGGGCT spacer
length: 39 repeater length: 25

8300 989279 CTTTCAACTCCATGAAGGATTCTAC CTAACCTAACGTGAAAGACGTAGATCTCATAACTATGATGTTA spacer
length: 42 repeater length: 25

8301 989346 CTTTCAACTCCATGAAGGATTCTAC TAAGAAGAAAGGAGAGAGAGGAATTTGTTAATCAACTCTA spacer
length: 40 repeater length: 25

8302 989411 CTTTCAACTCCATGAAGGATTCTAC AGGGGAGGCTCTTCACCTCCACCAACCCCTGTCCCTGA spacer
length: 39 repeater length: 25

8303 989475 CTTTCAACTCCATGAAGGATTCTAC TTGGAAAAGAGAGGTTTAGGTATGGTAATAAAGTAATTAGT spacer
length: 41 repeater length: 25

8304 989541 CTTTCAACTCCATGAAGGATTCTAC ATGAAACCCCTCAGGGGGCGGGGTAAACGCTCCCAAGCT spacer
length: 40 repeater length: 25

8305 989606 CTTTCAACTCCATGAAGGATTCTAC ACGCAACTTTGTGAGAGGTAGGTGCGACAAGGGACTGCAG spacer
length: 40 repeater length: 25

8306 989671 CTTTCAACTCCATGAAGGATTCTAC AAAAAATGCAAGAGATCCATCCCCAAACCCAAAACCCCGC spacer
length: 39 repeater length: 25

8307 989735 CTTTCAACTCCATGAAGGATTCTAC CAAAAGTGGGCCCTAGAACTATTGAAGGAGGAGGGGGGGGA spacer
length: 41 repeater length: 25

8308 989801 CTTTCAACTCCATGAAGGATTCTAC TCAGACAGAGCGAGTCAATCAGTGCGAGTCAGTCAG spacer length:
36 repeater length: 25

8309 989862 CTTTCAACTCCATGAAGGATTCTAC GCAGAAAAGTATTTGAAAGAGGCGTTTAGGCGGATGGAT spacer
length: 39 repeater length: 25

8310 989926 CTTTCAACTCCATGAAGGATTCTAC TTAATAGTCATTATTTTGTGATGAGATAATGGACTTTAT spacer
length: 37 repeater length: 25

8311 989988 CTTTCAACTCCATGAAGGATTCTAC TTGACGTCATTGAAGACTACTTTTATCAAAAAACGGAA spacer
length: 39 repeater length: 25

8312 990052 CTTTCAACTCCATGAAGGATTCTAC TTCTCTGAAAGAGTTGAAAAAGTCATTTTGTACAGATAA spacer
length: 39 repeater length: 25

8313 990116 CTTTCAACTCCATGAAGGATTCTAC CAGTGCGTAAGTGAGTCAGTGAGCGTAACAGTGTAACAATC spacer
length: 41 repeater length: 25

8314 990182 CTTTCAACTCCATGAAGGATTCTAC AAGATGATATTTTTCGAGGCCCGCAAGAGGGCCTTACAAA spacer
length: 39 repeater length: 25

8315 990246 CTTTCAACTCCATGAAGGATTCTAC CGGGTATAGGTGTTCCGGCACTCTTGATAGAGTTC spacer length:
36 repeater length: 25

8316 990307 CTTTCAACTCCATGAAGGATTCTAC TTGTTAACTACCGTTATCACCAATTGGCTGAAGGTGTA spacer
length: 38 repeater length: 25

8317 990370 CTTTCAACTCCATGAAGGATTCTAC TTTCAAAAATTCCGAAGATTGTGTTTGACAAGCCTTCGC spacer
length: 39 repeater length: 25

8318 990434 CTTTCAACTCCATGAAGGATTCTAC ATTTTCGATTTTGTATTTTGAATTATAAGGGGGAGTATA spacer
length: 39 repeater length: 25

8319 990498 CTTTCAACTCCATGAAGGATTCTAC AGTAAAGGGGAGCTTGTCCCCCTACTCTCGATAGATAATCC spacer
length: 41 repeater length: 25

8320 990564 CTTTCAACTCCATGAAGGATTCTAC AGAGCATTTCTTTCGCGGTACCCCGACCACGTCGA spacer length:
35 repeater length: 25

8321 990624 CTTTCAACTCCATGAAGGATTCTAC GTACTGAAGGATAGGCACCTGTGGTAACTGTGAAGTGTAC spacer
length: 40 repeater length: 25

8322 990689 CTTTCAACTCCATGAAGGATTCTAC GTTGAGGAAGATATCCCTAACTGGGAGTGGCGAACAAG spacer
length: 38 repeater length: 25

8323 990752 CTTTCAACTCCATGAAGGATTCTAC AGCAGTTGTATCTCGTTGATCGTATCTCCCGCTTGAT spacer
length: 38 repeater length: 25

8324 990815 CTTTCAACTCCATGAAGGATTCTAC GGTATCCAGGCAAGGCGTCAAAAAACGCCTGGATCA spacer length:

36 repeater length: 25

8325 990876 CTTTCAACTCCATGAAGGATTCTAC GCGACACCTCTCCTAGACAATTGTACTAATATATACTTGAA spacer
length: 41 repeater length: 25

8326 990942 CTTTCAACTCCATGAAGGATTCTAC GGTAGAGATTTTTTGGATATGGGTGTTATCTAGAAATTGAGAAAGT spacer
length: 44 repeater length: 25

8327 991011 CTTTCAACTCCATGAAGGATTCTAC TGTGATAGTGAATAAATACTGTGAAAAAGCTCAGTGTAAG spacer
length: 39 repeater length: 25

8328 991075 CTTTCAACTCCATGAAGGATTCTAC TTCTATGCGGTATGGTTTAGGTCAATGAAATTGCCGGA spacer
length: 38 repeater length: 25

8329 991138 CTTTCAACTCCATGAAGGATTCTAC GTTGAGGGAGAGCCGGAGACTGTGACGTTTTCTATGAC spacer
length: 39 repeater length: 25

8330 991202 CTTTCAACTCCATGAAGGATTCTAC AAAAATTTGACAGAGGTATGTAACATCTGCCTCATCTAAAA spacer
length: 42 repeater length: 25

8331 991269 CTTTCAACTCCATGAAGGATTCTAC ATAAAGTATCCACTCCACATCTCTGAGATCTTCATAAAGCA spacer
length: 41 repeater length: 25

8332 991335 CTTTCAACTCCATGAAGGATTCTAC AAAGATGGAACCTCATAAAATGGCTTATGGGGCTTTTTCA spacer
length: 39 repeater length: 25

8333 991399 CTTTCAACTCCATGAAGGATTCTAC GATGATGAAGTATTAACACAGAAGTCAGAAGGTGAGGAT spacer
length: 39 repeater length: 25

8334 991463 CTTTCAACTCCATGAAGGATTCTAC TGGATTTAATATAACTGTCCCTCCACAGAGTGAATAA spacer
length: 38 repeater length: 25

8335 991526 CTTTCAACTCCATGAAGGATTCTAC GTAATGCCATTGCAGTACGTGTTTCAGCCTCAAGGTACTG spacer
length: 40 repeater length: 25

8336 991591 CTTTCAACTCCATGAAGGATTCTAC GAGAGGAAGATGTGGGGCAGAGTGAGATAATTGCTTCAGA spacer
length: 40 repeater length: 25

8337 991656 CTTTCAACTCCATGAAGGATTCTAC AACGTACATCTCGAACAGTTTCAGCCTGGGCATGATCCC spacer
length: 39 repeater length: 25

8338 991720 CTTTCAACTCCATGAAGGATTCTAC CTATCTCGACCACACCGAAAACCACGACAACACTATAAC spacer
length: 39 repeater length: 25

8339 991784 CTTTCAACTCCATGAAGGATTCTAC AGCCACTTATTCGCTTACTTTAGTGCCAGTGCGA spacer length:
34 repeater length: 25

8340 991843 CTTTCAACTCCATGAAGGATTCTAC AGGGATACTCAAAAAGTAGCATAACAGTTGGGTAGAG spacer
length: 37 repeater length: 25

8341 991905 CTTTCAACTCCATGAAGGATTCTAC CTGCACCTTCTGCTTCTACTACCTCTTCTTCATCTTCTGG spacer
length: 40 repeater length: 25

8342 991970 CTTTCAACTCCATGAAGGATTCTAC CTAACAACCTTCATGGGGTAGTAGTGATGATAAAGTGTTAAC spacer
length: 41 repeater length: 25

8343 992036 CTTTCAACTCCATGAAGGATTCTAC ACATGTCCCCAATAATGACCCTTTCTATCGTAATCACGTTT spacer
length: 41 repeater length: 25

8344 992102 CTTTCAACTCCATGAAGGATTCTAC AAGCATTTGAAGCTCATAGCCCTCTATCTTGCTTTTTCT spacer
length: 39 repeater length: 25

8345 992166 CTTTCAACTCCATGAAGGATTCTAC GGGTATCCTGATCTGGGTGTCTACTTGATTGGGGGACTGTG spacer
length: 41 repeater length: 25

8346 992232 CTTTCAACTCCATGAAGGATTCTAC CTAACCTGAACTAAATTTAACGCATTTTCGGGTACACCG spacer
length: 39 repeater length: 25

8347 992296 CTTTCAACTCCATGAAGGATTCTAC ATGCAAATGCAATAATATATTATTACAAATTAATCGTCTA spacer
length: 41 repeater length: 25

8348 992362 CTTTCAACTCCATGAAGGATTCTAC CTAATTACTGATAACCCAATTTTGAATTTGATCTTAAATAC spacer
length: 41 repeater length: 25

8349 992428 CTTTCAACTCCATGAAGGATTCTAC CTGAACAGATAGCATTATAATCTAATAATAAAATA spacer length:
35 repeater length: 25

8350 992488 CTTTCAACTCCATGAAGGATTCTAC TCATGTACCCGGACGGGATACCAGACAAGATCTCTACGA spacer
length: 39 repeater length: 25

8351 992552 CTTTCAACTCCATGAAGGATTCTAC ATTGATATTTCTTGTCTGGCTACTGTCAAGCTCCCAT spacer
length: 38 repeater length: 25

8352 992615 CTTTCAACTCCATGAAGGATTCTAC AGAAGTACACTTCGATAGTTATAGATACCCTCCTTCTC spacer
length: 38 repeater length: 25

8353 992678 CTTTCAACTCCATGAAGGATTCTAC GAGAACTTAAAGTTAGGTGGATCTGGAGACATAGCAATGG spacer
length: 41 repeater length: 25

8354 992744 CTTTCAACTCCATGAAGGATTCTAC TGATTTAGTTAATGACAAGAAAAGATGTTTAATATCAG spacer
length: 38 repeater length: 25

8355 992807 CTTTCAACTCCATGAAGGATTCTAC AAGAAGAGAGTGGAGAGAAGGAAAAGAAGTATAATATATATAATA
spacer length: 45 repeater length: 25

8356 992877 CTTTCAACTCCATGAAGGATTCTAC GGGGACTTAAATGAGAAAGATTTTTTTCATCATGAT spacer length:
36 repeater length: 25

8357 992938 CTTTCAACTCCATGAAGGATTCTAC TAGATTGGGATGAGCAAAGTATTTATTTAAGATTAGATAA spacer
length: 40 repeater length: 25

8358 993003 CTTTCAACTCCATGAAGGATTCTAC CACTTGTGGTTAATTATGATTGTATAAATGGCTTCAT spacer
length: 37 repeater length: 25

8359 993065 CTTTCAACTCCATGAAGGATTCTAC AAATCAAACCTCTACCTTCGTGGGTAAAGGCGAACGACG spacer
length: 38 repeater length: 25

8360	993128	CTTTCAACTCCATGAAGGATTCTAC	AGGCAACGATATTATCGTCATCAATACGGACAGGACA	spacer
		length: 37	repeater length: 25	
8361	993190	CTTTCAACTCCATGAAGGATTCTAC	TTCTTTATTTTTCTATGTGGTACCAATTAGGGCTGATT	spacer
		length: 38	repeater length: 25	
8362	993253	CTTTCAACTCCATGAAGGATTCTAC	CGGTCGTCGG	
8363				
8364				
8365		crispr 3		
8366	993385	CTTTCAACTCCATGAAGGATTCTAC	TTCACGTTTACTACACAACGTTTAGCAGAATAGGAGAGA	spacer
		length: 39	repeater length: 25	
8367	993449	CTTTCAACTCCATGAAGGATTCTAC	TCATATATTCTGTTATATATGTAGTATATACCCACAGC	spacer
		length: 38	repeater length: 25	
8368	993512	CTTTCAACTCCATGAAGGATTCTAC	ATGACGTATGGTAACACTCCACTAGTTGAGGGTGTAAGT	spacer
		length: 41	repeater length: 25	
8369	993578	CTTTCAACTCCATGAAGGATTCTAC	TTTCACACTTGTTAACAAGATAACATTCAAAACATTCAT	spacer
		length: 39	repeater length: 25	
8370	993642	CTTTCAACTCCATGAAGGATTCTAC	GCTATAGGTAGTGTGATAGCCTGAGGGAACGTGTAGGTGT	spacer
		length: 40	repeater length: 25	
8371	993707	CTTTCAACTCCATGAAGGATTCTAC	TCAGTGTGCTCACCTCGAACACAACGTTCTTACCGTGTT	spacer
		length: 40	repeater length: 25	
8372	993772	CTTTCAACTCCATGAAGGATTCTAC	TCTTCTGTTCCGCCCCACACTCACCTGACAGGAA	spacer length: 34
		length: 34	repeater length: 25	
8373	993831	CTTTCAACTCCATGAAGGATTCTAC	TTGCTATCATCAACTCAGTGAAAGTGAATTATATTATGTT	spacer
		length: 40	repeater length: 25	
8374	993896	CTTTCAACTCCATGAAGGATTCTAC	AATGAAATCATGAAAGTTAGACTTGAAGTTGATGAAA	spacer
		length: 37	repeater length: 25	
8375	993958	CTTTCAACTCCATGAAGGATTCTAC	TGGGCGAGAGGGTGCGCCTCAACACGCCTTAGAGCGTG	spacer
		length: 38	repeater length: 25	
8376	994021	CTTTCAACTCCATGAAGGATTCTAC	TACGTTGATTGAAACTATTGGTTTTTGGGACATAAGAG	spacer
		length: 38	repeater length: 25	
8377	994084	CTTTCAACTCCATGAAGGATTCTAC	CTAAAGGATATCAAATACATATCTACTATAAAGGATGGTA	spacer
		length: 40	repeater length: 25	
8378	994149	CTTTCAACTCCATGAAGGATTCTAC	GGTTTTAATACTAACGGAAGTGAAGTAGCGGGTAATGCGC	spacer
		length: 40	repeater length: 25	
8379	994214	CTTTCAACTCCATGAAGGATTCTAC	AAAAAAGACTTAAATATCAACTAATTGACAACACTACTATC	spacer
		length: 39	repeater length: 25	
8380	994278	CTTTCAACTCCATGAAGGATTCTAC	CTTCCTCTCTATTTAACTGTGGGTCTCTCTTATTTTTTA	spacer
		length: 38	repeater length: 25	
8381	994341	CTTTCAACTCCATGAAGGATTCTAC	GGAGATGGATGGGGATAGTGTTTTTACCATCTTCTGATGA	spacer
		length: 40	repeater length: 25	
8382	994406	CTTTCAACTCCATGAAGGATTCTAC	CGAACCCAACGTTAACATGCCCACTTGCACTAACTAAAT	spacer
		length: 39	repeater length: 25	
8383	994470	CTTTCAACTCCATGAAGGATTCTAC	CAGGTTTGCCAGGTCTGGGGGAAGACTTACATGGCTACAAGAT	spacer
		length: 43	repeater length: 25	
8384	994538	CTTTCAACTCCATGAAGGATTCTAC	TTGATATGGCTAATGATGTAATGAAACAAATAGAAGAAAA	spacer
		length: 40	repeater length: 25	
8385	994603	CTTTCAACTCCATGAAGGATTCTAC	ATGATAGTGGTGATTAGGTAATGTTTTTCAAGCCTCAGAT	spacer
		length: 40	repeater length: 25	
8386	994668	CTTTCAACTCCATGAAGGATTCTAC	AAGTGAGTTGTTGAGTGCGATAACCTCTGTTGGTCA	spacer length: 36
		length: 36	repeater length: 25	
8387	994729	CTTTCAACTCCATGAAGGATTCTAC	TGAGGAGGGAGTGAAGGCGACCTACGAGTGGCTGAA	spacer length: 36
		length: 36	repeater length: 25	
8388	994790	CTTTCAACTCCATGAAGGATTCTAC	ATAGATATGATATATATACTAGTAGTGTAATATAATCAAA	spacer
		length: 42	repeater length: 25	
8389	994857	CTTTCAACTCCATGAAGGATTCTAC	TATCAATGTTACCTATCTTTTCCCTAACGTAAAGTATAG	spacer
		length: 39	repeater length: 25	
8390	994921	CTTTCAACTCCATGAAGGATTCTAC	AAAAATTAAAATAGAAGAATCCTGAAGGGTTAAAATTGTT	spacer
		length: 40	repeater length: 25	
8391	994986	CTTTCAACTCCATGAAGGATTCTAC	AAAGGTATAACGTAACCGTCTACAAAATCGCCTTTCTCTAA	spacer
		length: 41	repeater length: 25	
8392	995052	CTTTCAACTCCATGAAGGATTCTAC	TTCAAGAGAGTATAAAGAAATTCAAGAAGAGATCA	spacer length: 35
		length: 35	repeater length: 25	
8393	995112	CTTTCAACTCCATGAAGGATTCTAC	GTATTTAAACCACTAGAATACAGTTTAACTACTTGCTA	spacer
		length: 39	repeater length: 25	
8394	995176	CTTTCAACTCCATGAAGGATTCTAC	TTAAACGCGGGGCAAACCAACAACGGCCAAGGAGGAAACC	spacer
		length: 40	repeater length: 25	
8395	995241	CTTTCAACTCCATGAAGGATTCTAC	TCAACAAACGTACAGGCTATCCCGTGGACGATAATGAG	spacer
		length: 38	repeater length: 25	
8396	995304	CTTTCAACTCCATGAAGGATTCTAC	AAGCTTTTCCAATATTTTCCAATTTTGTGAAAACCTACTA	spacer
		length: 40	repeater length: 25	
8397	995369	CTTTCAACTCCATGAAGGATTCTAC	TATACATATTTTTTGCAGACTTAACGCCAAACATCACATAC	spacer

length: 41 repeater length: 25
8398 995435 CTTTCAACTCCATGAAGGATTCTAC GAAAAAGATATAATAGTGAATATTGAAGTAAAAGCTA spacer
length: 37 repeater length: 25
8399 995497 CTTTCAACTCCATGAAGGATTCTAC TCACTATAAAAACTAGGATAACTCCAAACGTTTTAGATA spacer
length: 39 repeater length: 25
8400 995561 CTTTCAACTCCATGAAGGATTCTAC GAACGTGTAGGTGTAGTTAGTACTACTAGACCCAACCGTGA spacer
length: 41 repeater length: 25
8401 995627 CTTTCAACTCCATGAAGGATTCTAC ACAGTTAAATGGAATAAAAAACCCATTCAATGTTAAATTTGT spacer
length: 41 repeater length: 25
8402 995693 CTTTCAACTCCATGAAGGATTCTAC CTTAGTAATCTACGTTGTAGCTGGGCACGCGTACAACGA spacer
length: 39 repeater length: 25
8403 995757 CTTTCAACTCCATGAAGGATTCTAC GATGGATTCCAGAGAAAGAGATGATAATGTCAGAAGATG spacer
length: 39 repeater length: 25
8404 995821 CTTTCAACTCCATGAAGGATTCTAC GGGCAAATAATATGCAAAGATGAAACAATAACAGATCTTG spacer
length: 40 repeater length: 25
8405 995886 CTTTCAACTCCATGAAGGATTCTAC TACTATAATGACGTTGAGTATCTTGAGATACCGAAAAA spacer
length: 38 repeater length: 25
8406 995949 CTTTCAACTCCATGAAGGATTCTAC TTAATGTAATAATGAATACAGTAAAAAGATTCAATAAGT spacer
length: 39 repeater length: 25
8407 996013 CTTTCAACTCCATGAAGGATTCTAC AGGACTTAGTCAAACGGATTGAACAGTGTAAAAAGGAGCT spacer
length: 40 repeater length: 25
8408 996078 CTTTCAACTCCATGAAGGATTCTAC GGGAATTACTTGAGAAACAGATGGAAAAGTATGAGAAA spacer
length: 38 repeater length: 25
8409 996141 CTTTCAACTCCATGAAGGATTCTAC GTGCTACCCGTTCCCGTCACTGCCGAGACGTCAGTCAATAG spacer
length: 41 repeater length: 25
8410 996207 CTTTCAACTCCATGAAGGATTCTAC GTGCATAGAACTGTTTGAGTTTCCTAACCGCTAAGTACAA spacer
length: 40 repeater length: 25
8411 996272 CTTTCAACTCCATGAAGGATTCTAC AAAACCCCACCACAGGGGGTAAACTGTGGATGAAGTAAT spacer
length: 40 repeater length: 25
8412 996337 CTTTCAACTCCATGAAGGATTCTAC CTGGTAAAACCTCTCTACCGCATACCTCAACTTTACTTCA spacer
length: 40 repeater length: 25
8413 996402 CTTTCAACTCCATGAAGGATTCTAC ATAAATCTGAGATGAGACTATGACAAGAAGTGATATATTC spacer
length: 40 repeater length: 25
8414 996467 CTTTCAACTCCATGAAGGATTCTAC AAGAAGATGAAGGTGAGTGAGAAAAAGTTGCGGGATTA spacer
length: 38 repeater length: 25
8415 996530 CTTTCAACTCCATGAAGGATTCTAC TCAATTCTTCTATTGGCAGAGGGGGGTAGGGGGGGGCT spacer
length: 38 repeater length: 25
8416 996593 CTTTCAACTCCATGAAGGATTCTAC ACCATTATCTAAAGGGTAGGGTTGACTTGGTTATTGA spacer
length: 37 repeater length: 25
8417 996655 CTTTCAACTCCATGAAGGATTCTAC GAGATCATTTTTATGTAGATGGAGAAGAGAAAAATT spacer length:
36 repeater length: 25
8418 996716 CTTTCAACTCCATGAAGGATTCTAC GAGCTATTGCCAGTAACAGTGTACGTATAGGATTCTAGTCC spacer
length: 41 repeater length: 25
8419 996782 CTTTCAACTCCATGAAGGATTCTAC ATTTTAAGTGTTTTCGCTACATTAGAGGTAAAAGACTATA spacer
length: 40 repeater length: 25
8420 996847 CTTTCAACTCCATGAAGGATTCTAC TCAGCTTCTCCCTCGAACATGGTAAGCATGATATTTAAT spacer
length: 39 repeater length: 25
8421 996911 CTTTCAACTCCATGAAGGATTCTAC CAGGATTCAAGAAACAGATTGATTATAAAGTTGGAA spacer length:
36 repeater length: 25
8422 996972 CTTTCAACTCCATGAAGGATTCTAC CTTTCGTGAGTAAACGTCGTCGATTGTAACAAGTCAATT spacer
length: 41 repeater length: 25
8423 997038 CTTTCAACTCCATGAAGGATTCTAC TGTTTAGGTGAGAAGATTGTCTTTACATATAGGCCT spacer
length: 37 repeater length: 25
8424 997100 CTTTCAACTCCATGAAGGATTCTAC ATGAACTGGCCTAGACCTGACCCCTGATGATGGAATCTC spacer
length: 39 repeater length: 25
8425 997164 CTTTCAACTCCATGAAGGATTCTAC ATAAAGGGGGTTACCATCAAAGTGCTCTCTGATGTTGT spacer
length: 38 repeater length: 25
8426 997227 CTTTCAACTCCATGAAGGATTCTAC CGCGAATGGT
8427
8428
8429 crispr 4
8430 1006629 GTAGAATCCTTCATGGAGTTGAAAG CAACCACATTAAGGAGTATGTGAGGATCAAGTCTGA spacer
length: 36 repeater length: 25
8431 1006690 GTAGAATCCTTCATGGAGTTGAAAG TCTTTATCAATAAAAGCCTCAGAGTCATAACTTAATATCCC spacer
length: 41 repeater length: 25
8432 1006756 GTAGAATCCTTCATGGAGTTGAAAG TATCCCCGGATAGTCCTTAAAAACAAGGGCAAGACGTT spacer
length: 39 repeater length: 25
8433 1006820 GTAGAATCCTTCATGGAGTTGAAAG GTGGGAATGCTTCAGGAAATGCTAGTACAAGCAATCAA spacer
length: 38 repeater length: 25
8434 1006883 GTAGAATCCTTCATGGAGTTGAAAG TTATCCCTTTGATCTTGGGTTTCTTCACACTCTCACCAG spacer
length: 39 repeater length: 25

8435 1006947 GTAGAATCCTTCATGGAGTTGAAAG AAAATAAGGGCAAATAAGTTGCACTGTATACAATATAA spacer
length: 39 repeater length: 25

8436 1007011 GTAGAATCCTTCATGGAGTTGAAAG TTAGTTCTTCCTCTTTTCTCTTTCTCTCTTGCTCTCTTCTC spacer
length: 41 repeater length: 25

8437 1007077 GTAGAATCCTTCATGGAGTTGAAAG TCTCCCTTCTTTCCCTACCCAGCCCCCCCCCTACCCCC spacer
length: 40 repeater length: 25

8438 1007142 GTAGAATCCTTCATGGAGTTGAAAG TCAAACCTGAGGTAGTAAGTGTGATTGATTTGCGTTAAGTGT spacer
length: 41 repeater length: 25

8439 1007208 GTAGAATCCTTCATGGAGTTGAAAG ATAGTAAAAAAGTCGTTAACATAGTTCAGAGAGCTTTAG spacer
length: 40 repeater length: 25

8440 1007273 GTAGAATCCTTCATGGAGTTGAAAG AGTTGATTCTTTTGATAGGACAGAGTAAAGGAGAGCGA spacer
length: 38 repeater length: 25

8441 1007336 GTAGAATCCTTCATGGAGTTGAAAG CTAATAAAATAAAGAAGTAGAAATAATAGATAGAAAACGATAT
spacer length: 44 repeater length: 25

8442 1007405 GTAGAATCCTTCATGGAGTTGAAAG TTGACTCCCTAAGGTTGCCACGCCTTGCTTCCACG spacer length:
35 repeater length: 25

8443 1007465 GTAGAATCCTTCATGGAGTTGAAAG TGTTTAAACAGACTGATAGCCATCTCTAGATACATTTGGT spacer
length: 39 repeater length: 25

8444 1007529 GTAGAATCCTTCATGGAGTTGAAAG TCCAAATAAATATAATTATTCATTCTGTATAGTTATT spacer
length: 38 repeater length: 25

8445 1007592 GTAGAATCCTTCATGGAGTTGAAAG GACCTAATGCGGTTGTACTCACTACTATCTTAGCGTTACCG spacer
length: 41 repeater length: 25

8446 1007658 GTAGAATCCTTCATGGAGTTGAAAG TCATCACAATTAATATTACAATAGTATAAACTTTTAGC spacer
length: 38 repeater length: 25

8447 1007721 GTAGAATCCTTCATGGAGTTGAAAG AGATTTAGTAGTAATCTTATGGAAAAAGATATACAAAA spacer
length: 38 repeater length: 25

8448 1007784 GTAGAATCCTTCATGGAGTTGAAAG TTCCTTATTAGTCCCTCAACAAAGTCATTTTTCTCTTCAC spacer
length: 40 repeater length: 25

8449 1007849 GTAGAATCCTTCATGGAGTTGAAAG TTTCCCATAGCTGAGTTGAGTAACAGTTTGTAGTAAAGG spacer
length: 40 repeater length: 25

8450 1007914 GTAGAATCCTTCATGGAGTTGAAAG TTGTAGAAATGGGGTATGATACAACGTGGTACCATAATTTTC spacer
length: 41 repeater length: 25

8451 1007980 GTAGAATCCTTCATGGAGTTGAAAG TGGGTAAGTTGGTGTACATAACTTTCAATGAGATTGATGA spacer
length: 40 repeater length: 25

8452 1008045 GTAGAATCCTTCATGGAGTTGAAAG TTTTAGTATTTGCTCTATGAATCCTATTAAATATGCGG spacer
length: 38 repeater length: 25

8453 1008108 GTAGAATCCTTCATGGAGTTGAAAG TGTATTCCAACATGCTACTCGTAAGGAGTTACGCAGACAG spacer
length: 40 repeater length: 25

8454 1008173 GTAGAATCCTTCATGGAGTTGAAAG AACGCGTCCCACGTGCCTAACGTGTACTGCGTGTTGTAC spacer
length: 39 repeater length: 25

8455 1008237 GTAGAATCCTTCATGGAGTTGAAAG AAATTAATTATAGTCTTTTGAACATTATTTACCTGTAAT spacer
length: 39 repeater length: 25

8456 1008301 GTAGAATCCTTCATGGAGTTGAAAG GCCGCCCCTGGCGGGTTTTGAGACACTTCCTGAGTCATTT spacer
length: 40 repeater length: 25

8457 1008366 GTAGAATCCTTCATGGAGTTGAAAG GACACCACGCCTGCTAACTCCTCGCCTTCACTTATTTTT spacer
length: 39 repeater length: 25

8458 1008430 GTAGAATCCTTCATGGAGTTGAAAG ATAACGACTTCGCCACTGTTGACAAGCTCGACATTAACGA spacer
length: 40 repeater length: 25

8459 1008495 GTAGAATCCTTCATGGAGTTGAAAG TGAGGACTCCTTTCACGTTAAGGACGTCGTTACGGTTACC spacer
length: 40 repeater length: 25

8460 1008560 GTAGAATCCTTCATGGAGTTGAAAG CAAATCGTGAGTGTGAGTTTTTCATTTCGGGACTTACAC spacer
length: 38 repeater length: 25

8461 1008623 GTAGAATCCTTCATGGAGTTGAAAG AAATTGAAACTCACACTCACGTTTTCCGGGACGTTTTG spacer
length: 38 repeater length: 25

8462 1008686 GTAGAATCCTTCATGGAGTTGAAAG AGAGAGTCAAAAACATTACAGGATCGCTTATGAAGTAGCGCGAG
spacer length: 44 repeater length: 25

8463 1008755 GTAGAATCCTTCATGGAGTTGAAAG AAACCTTCTGGTATGATTTGCTGCAGACCGTTATTGAGT spacer
length: 39 repeater length: 25

8464 1008819 GTAGAATCCTTCATGGAGTTGAAAG AACTCTTTCGCTGCCATTTTCATCCCTCAGTTCGTATGCT spacer
length: 39 repeater length: 25

8465 1008883 GTAGAATCCTTCATGGAGTTGAAAG AATTTTTTGGTGAGACTGTTAGAGTGAGAAGTAGT spacer length:
35 repeater length: 25

8466 1008943 GTAGAATCCTTCATGGAGTTGAAAG AAAC TAGTCTTTGACAAGCCATCATTAACGACGGAGAAAGTCG spacer
length: 43 repeater length: 25

8467 1009011 GTAGAATCCTTCATGGAGTTGAAAG TGAGAACTCAGGCGCTTCGTTTCGTGTTGATGTAGTATTT spacer
length: 39 repeater length: 25

8468 1009075 GTAGAATCCTTCATGGAGTTGAAAG AATCTGTGGGTGTAAGTTCCAAAATTGAAACTCACACTC spacer
length: 39 repeater length: 25

8469 1009139 GTAGAATCCTTCATGGAGTTGAAAG TTTTTTTCGATATTTGGCTCATTTTCTCACTAATAAAAT spacer
length: 39 repeater length: 25

8470 1009203 GTAGAATCCTTCATGGAGTTGAAAG ACTCACAACCGTCCCAGTCTCACTTCTAGTTAAAGCAC spacer

length: 39 repeater length: 25
8471 1009267 GTAGAATCCTTCATGGAGTTGAAAG CTAGGAGAAAGGCCGCGGGCGTCGTACGCCCCCGGTCTG spacer
length: 38 repeater length: 25
8472 1009330 GTAGAATCCTTCATGGAGTTGAAAG ACCCCCTCAACAGAGAGATCACTCTTATCCACACTCGCCC spacer
length: 40 repeater length: 25
8473 1009395 GTAGAATCCTTCATGGAGTTGAAAG TATAAACAATTTGGTGATAGTGTAGTAATAACTGTCAG spacer
length: 38 repeater length: 25
8474 1009458 GTAGAATCCTTCATGGAGTTGAAAG TCAATATAAAAGCTTAAATACCTCTTTTTCTATTCTTAAT spacer
length: 41 repeater length: 25
8475 1009524 GTAGAATCCTTCATGGAGTTGAAAG ATTAGGTATTGTAAGCTGCGTTGTGCTTTGACCAGTAATC spacer
length: 40 repeater length: 25
8476 1009589 GTAGAATCCTTCATGGAGTTGAAAG ATTGATTTTAAATGTTATTATGTCGCTAAGATTGTCAT spacer
length: 38 repeater length: 25
8477 1009652 GTAGAATCCTTCATGGAGTTGAAAG CTGTTGTTTCCTCGTATCTTTGCACCCACTCGTAAGCTCTT spacer
length: 40 repeater length: 25
8478 1009717 GTAGAATCCTTCATGGAGTTGAAAG ATTTTACACGCTTTTAAACATAAATGTCCGCGATCCA spacer
length: 36 repeater length: 25
8479 1009778 GTAGAATCCTTCATGGAGTTGAAAG CTATATATTCTCTCATTTTGTATTAACCTTCTACTTG spacer length:
35 repeater length: 25
8480 1009838 GTAGAATCCTTCATGGAGTTGAAAG AAAATGAACCTACGTTTTTACACTACGTTAAAAATACGTCAT spacer
length: 40 repeater length: 25
8481 1009903 GTAGAATCCTTCATGGAGTTGAAAG TGTTACGGTAGCGAACACGGTTATCTTCACCATTTAA spacer
length: 37 repeater length: 25
8482 1009965 GTAGAATCCTTCATGGAGTTGAAAG TAGAGGAAGGATTTGAACTACCGCTAGTAGAGGCGGCAGCC spacer
length: 41 repeater length: 25
8483 1010031 GTAGAATCCTTCATGGAGTTGAAAG TCAAAATATGTAGAGTTTCTGAAAGTTCTAGTACTGT spacer
length: 37 repeater length: 25
8484 1010093 GTAGAATCCTTCATGGAGTTGAAAG AGATGAGATAGTAACTGAAGCCATAAACGATATGGTCAGGATTG
spacer length: 44 repeater length: 25
8485 1010162 GTAGAATCCTTCATGGAGTTGAAAG GATAGTAATTCTGCATCACGTCAAGGATTGTTTTGATGA spacer
length: 39 repeater length: 25
8486 1010226 GTAGAATCCTTCATGGAGTTGAAAG AGGAAGGACATAACTATTAACCTATCGCCCTGGGAGC spacer
length: 37 repeater length: 25
8487 1010288 GTAGAATCCTTCATGGAGTTGAAAG ATTATACCTAGACCGTACACAATGCCCTGACCAACAGG spacer
length: 38 repeater length: 25
8488 1010351 GTAGAATCCTTCATGGAGTTGAAAG TAGACATTAGTTCAAACGTGGTAACACATTTCGGTTA spacer
length: 36 repeater length: 25
8489 1010412 GTAGAATCCTTCATGGAGTTGAAAG GATTGTATAATCCTGTGAGCGTCAAACGACCTCATTCCG spacer
length: 39 repeater length: 25
8490 1010476 GTAGAATCCTTCATGGAGTTGAAAG TCATATGTCTGATCATTATACTGTTTAGTTATTTGAAAG spacer
length: 39 repeater length: 25
8491 1010540 GTAGAATCCTTCATGGAGTTGAAAG CAACTGACATAACACAACAATTATCAACCACATATTAT spacer
length: 39 repeater length: 25
8492 1010604 GTAGAATCCTTCATGGAGTTGAAAG TATGAGATTAAGACTGCGAACAAGTTACCGATCACTCCACGCAT
spacer length: 44 repeater length: 25
8493 1010673 GTAGAATCCTTCATGGAGTTGAAAG AGATCTCCACCAAATGAGGGGTCAAGAGATATTCTCA spacer
length: 37 repeater length: 25
8494 1010735 GTAGAATCCTTCATGGAGTTGAAAG GATCTACACACCTCAAGCTCCAAGTGTAGATGGTTATAT spacer
length: 39 repeater length: 25
8495 1010799 GTAGAATCCTTCATGGAGTTGAAAG TCTCATCCTCTCCCAGAAAAGGGAGATTCAAGACACTA spacer
length: 38 repeater length: 25
8496 1010862 GTAGAATCCTTCATGGAGTTGAAAG TGAACACCCTGGATTCTTCCCCCATTTAAGTATTAT spacer
length: 36 repeater length: 25
8497 1010923 GTAGAATCCTTCATGGAGTTGAAAG TTTGAATCAGACCAACTTGGTAGTTTGAAAAGAGAGA spacer
length: 37 repeater length: 25
8498 1010985 GTAGAATCCTTCATGGAGTTGAAAG ATCTGGGCAGGAACCTGCACAAGGCAACGTTGTAGGGGCA spacer
length: 40 repeater length: 25
8499 1011050 GTAGAATCCTTCATGGAGTTGAAAG TTGTCACTATACCCATATTGCCATTCCACAGTTATGA spacer
length: 37 repeater length: 25
8500 1011112 GTAGAATCCTTCATGGAGTTGAAAG TTA CTCTTTTCTGATGGCAGAATCTTGTATAGAAGGT spacer
length: 37 repeater length: 25
8501 1011174 GTAGAATCCTTCATGGAGTTGAAAG TTTATACTCCATGGGGTGAAAAACATGGGGTATCTCAA spacer
length: 38 repeater length: 25
8502 1011237 GTAGAATCCTTCATGGAGTTGAAAG ATTATCAAGTAAGTACTTCACTACGTCGTTTATCTTCTG spacer
length: 39 repeater length: 25
8503 1011301 GTAGAATCCTTCATGGAGTTGAAAG AATATAACATATAACGAAAAGGGGAATTTTTTTGAGTACC spacer
length: 40 repeater length: 25
8504 1011366 GTAGAATCCTTCATGGAGTTGAAAG TTGAACCTGATGTATCTAGTAACACTACCACCGTATCCTT spacer
length: 40 repeater length: 25
8505 1011431 GTAGAATCCTTCATGGAGTTGAAAG GAAGCAAGCATGTGAGGAGTTACATGGCTGACACTCTCTT spacer
length: 40 repeater length: 25

8506 1011496 GTAGAATCCTTCATGGAGTTGAAAG TGCGCTAACATGAGTTGGCACGGCATTAGCTCACAT spacer
length: 37 repeater length: 25

8507 1011558 GTAGAATCCTTCATGGAGTTGAAAG ATCTTATCATGTATATACGAAAAACCAATATGCTCTTAC spacer
length: 40 repeater length: 25

8508 1011623 GTAGAATCCTTCATGGAGTTGAAAG ACAGTAGCCACAAGTTGATTAGCCGCTTGTAATCCT spacer
length: 37 repeater length: 25

8509 1011685 GTAGAATCCTTCATGGAGTTGAAAG GCCTCGTTCAGTGGGTGTCTATTACTAGCTTCAT spacer length:
35 repeater length: 25

8510 1011745 GTAGAATCCTTCATGGAGTTGAAAG AACACCACATAATTCCCCTCTTTGTCCCTCTTCAGACT spacer
length: 38 repeater length: 25

8511 1011808 GTAGAATCCTTCATGGAGTTGAAAG CTTCTTTGCGTTCTTGGTTTCTCTTGAGCTTGTCG spacer
length: 36 repeater length: 25

8512 1011869 GTAGAATCCTTCATGGAGTTGAAAG AAAAAGGAATTTGAAACTCAAAGCTTTCACCCGCTAAA spacer
length: 38 repeater length: 25

8513 1011932 GTAGAATCCTTCATGGAGTTGAAAG TATAATTTAGATAAGTATTTGTGAACTCTTCCCTTATGT spacer
length: 39 repeater length: 25

8514 1011996 GTAGAATCCTTCATGGAGTTGAAAG AACACAAGGAGAGGTAGGTAAAGTATACTGAGATCTTGATT spacer
length: 41 repeater length: 25

8515 1012062 GTAGAATCCTTCATGGAGTTGAAAG TAAGGGACATGTCAACGTATCAAACGGCGTAGCTACGCC spacer
length: 40 repeater length: 25

8516 1012127 GTAGAATCCTTCATGGAGTTGAAAG TAAAACACTCCTCAACCCTCTTTACCATCTCTAGATCGC spacer
length: 39 repeater length: 25

8517 1012191 GTAGAATCCTTCATGGAGTTGAAAG GTTACACTACTTACGTCAGTTAGCAATGTTACGAGATGGTTT spacer
length: 42 repeater length: 25

8518 1012258 GTAGAATCCTTCATGGAGTTGAAAG AGGAATAGAGATAGCTCTAGCTACCCTCTTAATCAC spacer
length: 36 repeater length: 25

8519 1012319 GTAGAATCCTTCATGGAGTTGAAAG TCAAGCTCTGGACTAGTGATCCATGCTTCACCCTCACTT spacer
length: 39 repeater length: 25

8520 1012383 GTAGAATCCTTCATGGAGTTGAAAG TAATCCTGTCCGCAAGCTCGTCCCTCAGGTAGGATATCA spacer
length: 39 repeater length: 25

8521 1012447 GTAGAATCCTTCATGGAGTTGAAAG TGTTGCATAGCCTCAATCGGTGGTAGACCAAACCCTTCAAC spacer
length: 41 repeater length: 25

8522 1012513 GTAGAATCCTTCATGGAGTTGAAAG GTCACTACGTACAATGCAGTACCTAGGAGGTAGCCTAGA spacer
length: 39 repeater length: 25

8523 1012577 GTAGAATCCTTCATGGAGTTGAAAG GACCGACG

8524

8525

8526 GCA_000211475.1_ASM21147v1_genomic.fna (PilerCR) :

8527 START REPEAT
SPACER

8528 crispr 1

8529 1491887 CTTTCAATTCTCTTTTAGTCTTATTGGAAC GGGGTTCTCGTCTCAGGGAGGCCAGCTGAGGCCG spacer
length: 38 repeater length: 30

8530 1491955 CTTTCAATTCTCTTTTAGTCTTATTGGAAC TGGAGGGTAGGGGGTGATTGCCCCCTACCGCCAA spacer
length: 36 repeater length: 30

8531 1492021 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CCTATTGTGCTCCAGAATGATGTTATAACAGTTTCAG spacer
length: 37 repeater length: 30

8532 1492088 CTTTCAATTCTCTTTTAGTCTTATTGGAAC TTTACGCGCTGAGGCTCGCGACGGGCCAGCTCGACAGCGCGCTCA
spacer length: 45 repeater length: 30

8533 1492163 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CAACCCTCCCGCACCCGCCCTCCCCGCCCAAATT spacer
length: 37 repeater length: 30

8534 1492230 CTTTCAATTCTCTTTTAGTCTTATTGGAAC GACAGGGAAAATGTTAGTGGGACGTTACTTTTTTGCTG
spacer length: 40 repeater length: 30

8535 1492300 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CCACTACAAAACCCCTGTTCTTGTCATTGCCGTTAT spacer
length: 37 repeater length: 30

8536 1492367 CTTTCAATTCTCTTTTAGTCTTATTGGAAC GCTGAACATAGTCCCGTGGACGGCGTTCCAGGGGTAC spacer
length: 37 repeater length: 30

8537 1492434 CTTTCAATTCTCTTTTAGTCTTATTGGAAC TCTTGGCTAATTCAATGCCGGCCGGGAGTATATCCCCA spacer
length: 38 repeater length: 30

8538 1492502 CTTTCAATTCTCTTTTAGTCTTATTGGAAC ATGACGAGCAAGACAAAAGAATCAATAGACTGTATA spacer
length: 36 repeater length: 30

8539 1492568 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CGGGCGTTCGGCGGGTTGGGCAGGCTCCAGATCTTGCA spacer
length: 38 repeater length: 30

8540 1492636 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CTCGGAGGCGTCGGACGTTGTAGTGGCGGTCACCGTG spacer
length: 37 repeater length: 30

8541 1492703 CTTTCAATTCTCTTTTAGTCTTATTGGAAC GTGGACTGGTGGATGCTCGTCGTGAGGGAGCCGGTCAG spacer
length: 38 repeater length: 30

8542 1492771 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CCAATCGGCCCCCTTCAAGGAGGGGAAGGTCGTGGTCT spacer
length: 37 repeater length: 30

8543 1492838 CTTTCAATTCTCTTTTAGTCTTATTGGAAC GACGTGGCTGGCCTTTGCCAAGACCGCCGTGAAGTAC spacer
length: 37 repeater length: 30

8544	1492905	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	GGGCATGAGCCCCGATCCTCTGCTCGGGCTACTCCT	spacer
		length: 36	repeater length: 30	
8545	1492971	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	ACTGGGAGGAGAGGATGTTTCGTCGATGACCCCGTGC	spacer
		length: 36	repeater length: 30	
8546	1493037	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	GAGGAGTTTGAAAGGTTTGTCTGAGTGGGTGATGGGAG	spacer
		length: 37	repeater length: 30	
8547	1493104	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	GTATTTCGCTGTTGAAAAACATGTACGGTGATCCAAA	spacer
		length: 36	repeater length: 30	
8548	1493170	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	GAGATTTATCCAGCGGCAAGATCGTTCCTTGACTCT	spacer
		length: 36	repeater length: 30	
8549	1493236	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	CAGGTGGACTACCTCCATCTCCTCCCCGATGACGAGG	spacer
		length: 37	repeater length: 30	
8550	1493303	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	AGGTTGGGAAAATCTATGTGAACTTTGTAGTGAAAG	spacer
		length: 36	repeater length: 30	
8551	1493369	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	GGGAGCCCTCGGCCAAGGTCTCCCAGTTGCTGTTGA	spacer
		length: 36	repeater length: 30	
8552	1493435	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	GTCCCTGGGTTGCTGGCGTTTTTCTTCACGCCCTCAA	spacer
		length: 37	repeater length: 30	
8553	1493502	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	TGGACCCCAAAACTAAAATCTTGAAAATCAAAACCT	spacer
		length: 36	repeater length: 30	
8554	1493568	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	CGGCGGTGAAGTTCCTAGAGTGGCTGAGGAGCCCGGA	spacer
		length: 37	repeater length: 30	
8555	1493635	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	GGTAATTGTCCCCAGGGACGCAATTATACTGACCTCCC	spacer
		length: 38	repeater length: 30	
8556	1493703	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	GGGCCAGCTCGTGATCCCGGACACGGACGTGCAAT	spacer
		length: 35	repeater length: 30	
8557	1493768	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	AGTTGCTAAGCAAGGGCTGGAGAGAAAAAGACGTTG	spacer
		length: 36	repeater length: 30	
8558	1493834	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	ACGTGAAGAGCATGCCGTTACCACCGAACACCACCGA	spacer
		length: 37	repeater length: 30	
8559	1493901	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	AAGCTTTTATAAGATCCTCGAGAATACCATCTACCC	spacer
		length: 36	repeater length: 30	
8560	1493967	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	CGTTCCTTGTGTAATGATGCACTTCCCAAGACGAT	spacer
		length: 36	repeater length: 30	
8561	1494033	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	AAGACTTCTGAATCTGAAGCTCAACAAGTCATCGGTATTC	spacer
		length: 40	repeater length: 30	
8562	1494103	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	CTAGGCCGGGGCAAAGGCCCGGCTAGCCCCAATGACC	spacer
		length: 38	repeater length: 30	
8563	1494171	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	GTGGGCGACAAGAGGAACTTTGAGTTTGACGATTTGA	spacer
		length: 37	repeater length: 30	
8564	1494238	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	CGAAGCTGATGGCCGGCGTCTACACCCTGCTGGTGC	spacer
		length: 36	repeater length: 30	
8565	1494304	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	GAGATTTGGGGAGGTCTAGAGCTATTTAAGAACGATTA	spacer
		length: 38	repeater length: 30	
8566	1494372	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	TTCGAGCTCTACCTGAAGTTCCCGCCACAGATAAGC	spacer
		length: 36	repeater length: 30	
8567	1494438	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	GAGCTCGGCGTAGTACTTCAGCGTTATCTGGTGC	spacer
		length: 34	repeater length: 30	
8568	1494502	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	TCGGTCGTCGACGCCGTCTACATACCTGTCGTCGTCAGCG	spacer
		length: 40	repeater length: 30	
8569	1494572	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	AGGGCCTTCAGGGGCTCCCACCAGGCAGGGTCGTCCA	spacer
		length: 37	repeater length: 30	
8570	1494639	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	AGAAAAGCATACGTCGACTCCTTGAGCTTTTCGTTGC	spacer
		length: 37	repeater length: 30	
8571	1494706	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	ATCGAATTCATGTGGAACGGGATACAGGCAGGGAGCA	spacer
		length: 37	repeater length: 30	
8572	1494773	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	TGAGGTTTTATGACGTTAATGGGAATAAGTTACCGTAC	spacer
		length: 38	repeater length: 30	
8573	1494841	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	CGTTGTAGAAGGCGTCGAACTCGGGGAACCTCGGTGCT	spacer
		length: 37	repeater length: 30	
8574	1494908	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	CTTTTTTGTAGATTGTAACTCTGTTTCGTTGCCTTT	spacer
		length: 37	repeater length: 30	
8575	1494975	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	TATGAGAGCTTCGAACTTTGTCTCTAAACGGATTAAG	spacer
		length: 37	repeater length: 30	
8576	1495042	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	TCCTTCTTTGCTCCATATGTAGCTTATTTCTTGTAG	spacer
		length: 37	repeater length: 30	
8577	1495109	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	TAGACACGATAGTCTTTATCGAGTTTATCTATGAGG	spacer
		length: 36	repeater length: 30	
8578	1495175	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	TGGTTAGGAAATGGAGAGTGAGGAGGTAGAAAAAGTT	spacer
		length: 37	repeater length: 30	
8579	1495242	CTTTCAATTCTCTTTTAGTCTTATTGGAAC	TATAACTCTGCTTACATCCTCCACAACAACCTCTATTCCTT	

spacer length: 41 repeater length: 30
 8580 1495313 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CAACGCGATCACCAAGGATAAGGCACTATGCTCTACCTT
 spacer length: 39 repeater length: 30
 8581 1495382 CTTTCAATTCTCTTTTAGTCTTATTGGAAC GGATGGTGGTAGTATGAAGGCGGTGTTCTGAACCTCA spacer
 length: 38 repeater length: 30
 8582 1495450 CTTTCAATTCTCTTTTAGTCTTATTGGAAC GTGCCGTATGCGGGGGACGAGAACATCGCTTTGCTCAT spacer
 length: 38 repeater length: 30
 8583 1495518 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CACGCTGTCCGCATACTTGACGCCAACGCGGAACG spacer
 length: 35 repeater length: 30
 8584 1495583 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CTGCCCTCCTGTCGGCGTAGTTCAGAACCTCCCTAA spacer
 length: 36 repeater length: 30
 8585 1495649 CTTTCAATTCTCTTTTAGTCTTATTGGAAC TCGGCGGAAAAGTGCTCCCGTGCCTGTTTTGGCTGAGAAAAGC
 spacer length: 43 repeater length: 30
 8586 1495722 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CTCGGCGATCTCGTATATCCCCCTTGAAACCCTCTTC spacer
 length: 37 repeater length: 30
 8587 1495789 CTTTCAATTCTCTTTTAGTCTTATTGGAAC GGAGGGCAACCATATACGTGAACCTTGTGTATGTGA spacer
 length: 37 repeater length: 30
 8588 1495856 CTTTCAATTCTCTTTTAGTCTTATTGGAAC TCCTTCCACATAGCCAAGTACACCTATGAAATTGTA spacer
 length: 36 repeater length: 30
 8589 1495922 CTTTCAATTCTCTTTTAGTCTTATTGGAAC ATAGTGCTCGACGCAAACAACCTTCGACGGCTGGGACA spacer
 length: 37 repeater length: 30
 8590 1495989 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CCACTCGTGGCCGCCTTCTGGTATCTTGAAACCCAG spacer
 length: 36 repeater length: 30
 8591 1496055 CTTTCAATTCTCTTTTAGTCTTATTGGAAC GTTGAAGTAGCCACGCGCTATTGGCTCTGACCAGTGCCG
 spacer length: 39 repeater length: 30
 8592 1496124 CTTTCAATTCTCTTTTAGTCTTATTGGAAC AAAAGGGCCACCTCCACGGTGTACTCTGCCAGAAAC spacer
 length: 36 repeater length: 30
 8593 1496190 CTTTCAATTCTCTTTTAGTCTTATTGGAAC TATTAAGTTGCTAAACCTAAAAGAGAAGGTAAACTG spacer
 length: 37 repeater length: 30
 8594 1496257 CTTTCAATTCTCTTTTAGTCTTATTGGAAC ACGTCCGCAGGCGTGAAGTCGTCGAGGGCCTTTCCC spacer
 length: 36 repeater length: 30
 8595 1496323 CTTTCAATTCTCTTTTAGTCTTATTGGAAC GAAACTACAAATGATACAGACAATACTACCCTTATACA spacer
 length: 38 repeater length: 30
 8596 1496391 CTTTCAATTCTCTTTTAGTCTTATTGGAAC AGATAAATGAGGAAGAACAAGAACTGGGGCACTACT spacer
 length: 37 repeater length: 30
 8597 1496458 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CCAGAGAAGGTCGCAATGGGTCTAGGAGGCACATGGCT spacer
 length: 38 repeater length: 30
 8598 1496526 CTTTCAATTCTCTTTTAGTCTTATTGGAAC ATGACGCTATACATGTTGTCCAACGCCCATTTGACCC spacer
 length: 37 repeater length: 30
 8599 1496593 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CGTAGACAACATAGACAACGTTTCTCGGTAACCTCCT spacer
 length: 36 repeater length: 30
 8600 1496659 CTTTCAATTCTCTTTTAGTCTTATTGGAAC TGTAGCCGATGAACTCTTGCAATACCTTAGCATCCTC spacer
 length: 37 repeater length: 30
 8601 1496726 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CTACAACAATTCTCGCAGAAGTTTACAAGATATCAA spacer
 length: 37 repeater length: 30
 8602 1496793 CTTTCAATTCTCTTTTAGTCTTATTGGAAC ACGATGCGACAGAAGAAGAGTTTGAAAAATTCGTAGAG spacer
 length: 38 repeater length: 30
 8603 1496861 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CTGCTCTTGATAGTAAGCACTCCATTAGCGATGCACATT
 spacer length: 39 repeater length: 30
 8604 1496930 CTTTCAATTCTCTTTTAGTCTTATTGGAAC TAGAGCTCCGTTCAACGTACACAGTGATGTACCAGCC spacer
 length: 37 repeater length: 30
 8605 1496997 CTTTCAATTCTCTTTTAGTCTTATTGGAAC TGATGTAAGCCTTCGCTAGAACTGGCAATTCGTCCCA spacer
 length: 37 repeater length: 30
 8606 1497064 CTTTCAATTCTCTTTTAGTCTTATTGGAAC CTCATCCATCTCCGCTATGTATTTCTCCTTGCGTTCC spacer
 length: 37 repeater length: 30
 8607 1497131 CTTTCAATTCTCTTTTAGTCTTATTGGAAC GCAGGTCCTG
 8608
 8609
 8610 crispr 2
 8611 1688111 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTTGCTCGTCGGGCCGAGGAGGGTTGGAAAAACCCT spacer
 length: 36 repeater length: 30
 8612 1688177 CTTTCAATTCTATTTTAGTCTTATTGGAAC TAATAGCTCCCATCGCTCAACTTAGTGTACATGACCG spacer
 length: 37 repeater length: 30
 8613 1688244 CTTTCAATTCTATTTTAGTCTTATTGGAAC GGGTTAACGCCCAAAGGGCGCAAGGTCTGGATGTTTA spacer
 length: 37 repeater length: 30
 8614 1688311 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGTATTCAAGAGGGTAAGGTGAGGTGAGATGACTAGCA spacer
 length: 38 repeater length: 30
 8615 1688379 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTTATGTAGTTGATCCTAGCTATATACCTGACGACATA spacer
 length: 38 repeater length: 30
 8616 1688447 CTTTCAATTCTATTTTAGTCTTATTGGAAC GCGGTAACCTCTGTTTTTATCTATTCTGCTCTTAACG spacer
 length: 37 repeater length: 30

8617	1688514	CTTTCAATTCTATTTTAGTCTTATTGGAAC	TGATGATGAACATCATGAGGGCTATCGAGTTAGCGTAT	spacer
	length:	37	repeater length:	30
8618	1688581	CTTTCAATTCTATTTTAGTCTTATTGGAAC	TTTACCCGAAGTCGAAGTTCAAGGTGTACGTAACGC	spacer
	length:	36	repeater length:	30
8619	1688647	CTTTCAATTCTATTTTAGTCTTATTGGAAC	TAAC TGCCACGCCCAATGCACCGTCAACAGGCGTGTG	spacer
	length:	37	repeater length:	30
8620	1688714	CTTTCAATTCTATTTTAGTCTTATTGGAAC	GTAGGCAATGACCTACGTCAGCAATTCCGTCAACATAA	spacer
	length:	38	repeater length:	30
8621	1688782	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CTACGACAGCCCCTCGCCGAAGAGCGAGCTGTTACGTTT	
	spacer length:	40	repeater length:	30
8622	1688852	CTTTCAATTCTATTTTAGTCTTATTGGAAC	GGGACTCGGCGAACGGGAAGGCCGTCGTGTGGGTGA	spacer
	length:	36	repeater length:	30
8623	1688918	CTTTCAATTCTATTTTAGTCTTATTGGAAC	GTAGACCACTTCCTCCCTGCTGAGCAGTTTGAAGAAGAC	
	spacer length:	39	repeater length:	30
8624	1688987	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CCATGAGCCCCGGCGAAAAGCCGGGTGAGGGGACAGT	spacer
	length:	36	repeater length:	30
8625	1689053	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CTACGAGAGCGTCCTGACCTACATCTTCGCCCAGTAC	spacer
	length:	37	repeater length:	30
8626	1689120	CTTTCAATTCTATTTTAGTCTTATTGGAAC	TTCTACAGAGACTAACCAACACATCCGACGCAACAAC	spacer
	length:	37	repeater length:	30
8627	1689187	CTTTCAATTCTATTTTAGTCTTATTGGAAC	AGCTTTTCGATGTTCCCGTAATCCCTCAACGCCTCGTT	spacer
	length:	38	repeater length:	30
8628	1689255	CTTTCAATTCTATTTTAGTCTTATTGGAAC	AGATTAAGCCGATAATCCTCAACGAAGACCAAATAG	spacer
	length:	36	repeater length:	30
8629	1689321	CTTTCAATTCTATTTTAGTCTTATTGGAAC	TCTATCTTCGTCTGTTGGGAGGCTCATGAAGAATTT	spacer
	length:	36	repeater length:	30
8630	1689387	CTTTCAATTCTATTTTAGTCTTATTGGAAC	AGGTTATCCTTAGAGAGCATAGCCTCAGCCTTAGCCT	spacer
	length:	37	repeater length:	30
8631	1689454	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CCTCTTACTACCATCCTCACCCTTACGCTCAATCTTT	spacer
	length:	37	repeater length:	30
8632	1689521	CTTTCAATTCTATTTTAGTCTTATTGGAAC	GACGCTATGGCCTGAGAAGGGGGGGCTCTTAGTATTGC	spacer
	length:	38	repeater length:	30
8633	1689589	CTTTCAATTCTATTTTAGTCTTATTGGAAC	GAAAATCTTCTATAGCTCCAATATTGCGTTTGAGGTT	spacer
	length:	37	repeater length:	30
8634	1689656	CTTTCAATTCTATTTTAGTCTTATTGGAAC	AGGGGAAGCAGGGGATGGCAGTTTATCAGAAATTTTA	spacer
	length:	37	repeater length:	30
8635	1689723	CTTTCAATTCTATTTTAGTCTTATTGGAAC	ACGTCAAGAAGAATATAGAACTGATTCTAGAAAAGT	spacer
	length:	36	repeater length:	30
8636	1689789	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CTGAATTCAAAGATGGGTTTTGGGTTTGCCCTGTGTG	spacer
	length:	37	repeater length:	30
8637	1689856	CTTTCAATTCTATTTTAGTCTTATTGGAAC	GTGCGTGTTACTCGTTATGAGGTTGTGCTCAAGCTTGA	spacer
	length:	38	repeater length:	30
8638	1689924	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CGAGATGTTTTTTTTCTTTATCTCTTACGTCTGGTGGCAA	
	spacer length:	39	repeater length:	30
8639	1689993	CTTTCAATTCTATTTTAGTCTTATTGGAAC	ATAAAGTACATCGCAAAGAGGCACGGGATGTACGTGA	spacer
	length:	37	repeater length:	30
8640	1690060	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CCGGTGTGAGCCCCGGCCCGGGGGCCGGCGCCAAGGAT	spacer
	length:	37	repeater length:	30
8641	1690127	CTTTCAATTCTATTTTAGTCTTATTGGAAC	AGAGCAGGTTCTGAACCTGATTTTATTATTTTTTGC	spacer
	length:	37	repeater length:	30
8642	1690194	CTTTCAATTCTATTTTAGTCTTATTGGAAC	TCACAACGTTTCAATTCCTCTCCCTCCTCGATCTCAACTTC	
	spacer length:	39	repeater length:	30
8643	1690263	CTTTCAATTCTATTTTAGTCTTATTGGAAC	TTTTTTTCAGAACCTTG TAGGCTAGATATCTGTAAAA	spacer
	length:	36	repeater length:	30
8644	1690329	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CTTCCAATTTTCGAAAATTTTTCTGTTATCTACTTGCT	spacer
	length:	37	repeater length:	30
8645	1690396	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CGCCTCTATCCTGATCAGGGCGTAGGAGCCGTATATC	spacer
	length:	37	repeater length:	30
8646	1690463	CTTTCAATTCTATTTTAGTCTTATTGGAAC	TCACCCCCCTCCTCGAGGCTGTGAGCCACAAAATCA	spacer
	length:	37	repeater length:	30
8647	1690530	CTTTCAATTCTATTTTAGTCTTATTGGAAC	GCAGTCAGCTGGAGAAATGGTGAAGGGTACATAATGCT	spacer
	length:	38	repeater length:	30
8648	1690598	CTTTCAATTCTATTTTAGTCTTATTGGAAC	TTGAAACAAGCTCTTCATCAGAAGTGTAGAGCTGTGGT	spacer
	length:	38	repeater length:	30
8649	1690666	CTTTCAATTCTATTTTAGTCTTATTGGAAC	GGCAATGGCTCTTGGAACAGGGATACAGCGAGAAGA	spacer
	length:	36	repeater length:	30
8650	1690732	CTTTCAATTCTATTTTAGTCTTATTGGAAC	TTTACCACCTTCCAACCTTTTTAAAATATAAAAAAA	spacer
	length:	37	repeater length:	30
8651	1690799	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CTGGAGAGGATGAGGAGTGAAGATTGTAAAGGTTTTG	spacer
	length:	37	repeater length:	30
8652	1690866	CTTTCAATTCTATTTTAGTCTTATTGGAAC	GTAAGTGTGGACACACAAAAGCAACCACCCCCAAAA	spacer

length: 37 repeater length: 30
8653 1690933 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCACTTGGGAGCTACACCCGACAATATACGACAAGATC spacer
length: 38 repeater length: 30
8654 1691001 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTCTAAGATGCGTTTTTCGATAAGATACGAATGAGAT spacer
length: 37 repeater length: 30
8655 1691068 CTTTCAATTCTATTTTAGTCTTATTGGAAC CGTTGAATACGAGGATGTCCCCCTCTCCTGAAGCCTA spacer
length: 38 repeater length: 30
8656 1691136 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTCAACCTAACCACCCTGCCAATTACTTTTCGACGAGATT
spacer length: 39 repeater length: 30
8657 1691205 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATCTTTTAGACGAGAGAGAAGCTCACGCCGTAATGA spacer
length: 36 repeater length: 30
8658 1691271 CTTTCAATTCTATTTTAGTCTTATTGGAAC TGGTCAAGGCGTGGGGCAGATTTGAGGTTCTACGATG spacer
length: 37 repeater length: 30
8659 1691338 CTTTCAATTCTATTTTAGTCTTATTGGAAC GTGGCGAAAGCCAAGACCGTATCGTGGTTTTCTCAA spacer
length: 37 repeater length: 30
8660 1691405 CTTTCAATTCTATTTTAGTCTTATTGGAAC GCCAAGAGGGTTCGTGAAGGAGGTGGGTTAGATGCCG spacer
length: 37 repeater length: 30
8661 1691472 CTTTCAATTCTATTTTAGTCTTATTGGAAC ACCTGCGTGGCCTTGCCGGTCACGACGCTCGCCGTC spacer
length: 36 repeater length: 30
8662 1691538 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTGAGCCTGACCCTCATACCACCACCTCGAAGATCA spacer
length: 36 repeater length: 30
8663 1691604 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGCAGGTCGAGATGGCCAAGGACATGTTTCGGCGTAGAC spacer
length: 38 repeater length: 30
8664 1691672 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCTAAGTGGAAGGTTATTGAGGAAGCGATTAAGCTTT spacer
length: 37 repeater length: 30
8665 1691739 CTTTCAATTCTATTTTAGTCTTATTGGAAC CCCCTAAGCGAATTCATTAAGTTTGTAGAGAAAAGAGA spacer
length: 38 repeater length: 30
8666 1691807 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTCCGATCTTGTTAGTTGCTTTCTCTTTTCTAGAAAT spacer
length: 38 repeater length: 30
8667 1691875 CTTTCAATTCTATTTTAGTCTTATTGGAAC GTATTATGGGAACAGTAGTGCAGTGAGCGAGAGCGA spacer
length: 36 repeater length: 30
8668 1691941 CTTTCAATTCTATTTTAGTCTTATTGGAAC AACATCCTTGTCTGCCTTTATGTCTGTGCGAGCCGT spacer
length: 36 repeater length: 30
8669 1692007 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATGATGCTGTTGAGAAAATAGAGAAAATGCTGGACAAA spacer
length: 38 repeater length: 30
8670 1692075 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTGGTATGCCATAAAAGGCTTCATAGTTTGTGGGTT spacer
length: 36 repeater length: 30
8671 1692141 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATAGCTAAACCAGCTTACCCAGCAGCTACGGTAATCTC spacer
length: 38 repeater length: 30
8672 1692209 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTGATGCTCCATCTAAGCCTGTTGAAGTTCATAAGAA spacer
length: 37 repeater length: 30
8673 1692276 CTTTCAATTCTATTTTAGTCTTATTGGAAC GGAAGTCCTTGACAGGATGTACGTCTCGACCGACCAG spacer
length: 37 repeater length: 30
8674 1692343 CTTTCAATTCTATTTTAGTCTTATTGGAAC CCATTTCAACCACCAGTCGAGGGTCGACTTGACCGC spacer
length: 36 repeater length: 30
8675 1692409 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTGATAAGAGAAATTGAGAAAAGGCTAGAGACCGCA spacer
length: 36 repeater length: 30
8676 1692475 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTCCGCTCTTCTTTTGACGTTTTTCCGAAAAATACCAG spacer
length: 38 repeater length: 30
8677 1692543 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCCATTCTACTGGCAATTGTATCACTGAGAGGTAGTT spacer
length: 37 repeater length: 30
8678 1692610 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTCCAACGGCGGAAGAAAGCCTGGGTGTCTGCTATTGT spacer
length: 38 repeater length: 30
8679 1692678 CTTTCAATTCTATTTTAGTCTTATTGGAAC CCCCAATTGTCAACCTCCCCAACAAAGTTCCAAAAGTGA
spacer length: 39 repeater length: 30
8680 1692747 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGTTAGCATATGAAGCAGAATTCATGGGTTGGGGTTCCC
spacer length: 39 repeater length: 30
8681 1692816 CTTTCAATTCTATTTTAGTCTTATTGGAAC ACCTTCCTTTGTTTCTCCCTGGGACTGGTTTTCTTCC spacer
length: 37 repeater length: 30
8682 1692883 CTTTCAATTCTATTTTAGTCTTATTGGAAC TACTTTAGTTTCTCGACGAAGTCTATTTTCCACTCCA spacer
length: 37 repeater length: 30
8683 1692950 CTTTCAATTCTATTTTAGTCTTATTGGAAC TGGAGACGGGTGAGATTGATAGTGATGTTGCGCCATTG spacer
length: 38 repeater length: 30
8684 1693018 CTTTCAATTCTATTTTAGTCTTATTGGAAC CAATAATCCAATTGAGTTCGACGTTGCAGAAGGCTT spacer
length: 36 repeater length: 30
8685 1693084 CTTTCAATTCTATTTTAGTCTTATTGGAAC TGAGAAACATTAGCGGAAGCGATAAGGCTCCAACCAG spacer
length: 37 repeater length: 30
8686 1693151 CTTTCAATTCTATTTTAGTCTTATTGGAAC ACAACCAAGGTGGGGTTCACGAAAACCGCGGCATGT spacer
length: 37 repeater length: 30
8687 1693218 CTTTCAATTCTATTTTAGTCTTATTGGAAC TGAGCCGAGTTCGACAAAAGAATTCGAGCTGGAGATTG spacer
length: 38 repeater length: 30

8688 1693286 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATCCTACGTTCTGAAGTGGGCAGTTGAGGGACTAAGA spacer
length: 37 repeater length: 30
8689 1693353 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTTCAGAAGAGCTGATGAAGTTATAAGAAAAGAAAAC spacer
length: 37 repeater length: 30
8690 1693420 CTTTCAATTCTATTTTAGTCTTATTGGAAC CCAAAGGCTATTTTGATTTTGAGAGGGGAATACACAAG spacer
length: 38 repeater length: 30
8691 1693488 CTTTCAATTCTATTTTAGTCTTATTGGAAC GCGCTGGGTCGTCAGGCTCATGAGGGACGAGGAGTTC spacer
length: 37 repeater length: 30
8692 1693555 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTTTACTTATGCGTTACTCATATTTAAGTGTTCGGT spacer
length: 37 repeater length: 30
8693 1693622 CTTTCAATTCTATTTTAGTCTTATTGGAAC CCCTTCTTGATAGCTCCAATTTCTGTTGATACTCCC spacer
length: 37 repeater length: 30
8694 1693689 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTGTCCATCTACCGTAAAATATGGCAACTTTGAGCAATCCTAC
spacer length: 43 repeater length: 30
8695 1693762 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGGAGTTTATACATAGGTATATACGAGGACATAAGTG spacer
length: 37 repeater length: 30
8696 1693829 CTTTCAATTCTATTTTAGTCTTATTGGAAC
8697
8698
8699 GCA_000213215.1_ASM21321v1_genomic.fna (PilerCR) :
8700 START REPEAT
SPACER
8701 crispr 1
8702 354892 GTTGCATCCC-AAAAGGGATTGAAA TTATAGCAATATTCCTCATTGTTTTAACACCTTCTTAGCA spacer
length: 40 repeater length: 25
8703 354957 GTTGCATCCC-AAAAGGGATTGAAA TACTTCTATGAAACTATTGCTACCCCATAGGTCATACTT spacer
length: 39 repeater length: 25
8704 355021 GTTGCATCCC-AAAAGGGATTGAAA TTTGCATAAACACCGCCTGCCAGTATGAGGTATTAGCCAG spacer
length: 41 repeater length: 25
8705 355087 GTTGCATCCC-AAAAGGGATTGAAA TCCTATAGTGAAATAGTAATTTGCTATTTTACTCAATT spacer
length: 38 repeater length: 25
8706 355150 GTTGCATCCC-AAAAGGGATTGAAA TATATTGGAAGGGGCTTTGTCTTACCCAATCTTTAGAA spacer
length: 38 repeater length: 25
8707 355213 GTTGCATCCC-AAAAGGGATTGAAA TTTGTTCCGCAAGTACGTTTGTCTTGCCTTCTTATATTAC spacer
length: 40 repeater length: 25
8708 355278 GTTGCATCCC-AAAAGGGATTGAAA TTAATTATTGAATTATCGCGGTCAAATGAACGGTAATAT spacer
length: 40 repeater length: 25
8709 355343 GTTGCATCCC-AAAAGGGATTGAAA TAGAACAATTTCTCATCTATCGGTTCCCGTTAAATTTAA spacer
length: 41 repeater length: 25
8710 355409 GTTGCATCCC-AAAAGGGATTGAAA TGGTTTTTTTCACTTCTTCAGGAGTAGATAAAAAAATCTCC spacer
length: 40 repeater length: 25
8711 355474 GTTGCATCCC-AAAAGGGATTGAAA TTTGAATTTCTCACCAGCGTCCTTAAGATTCATCGCTCTCATC spacer
length: 43 repeater length: 25
8712 355542 GTTGCATCCC-AAAAGGGATTGAAA TAGACACTATATCCTTTTATTGAAAATATCGTCATTATGT spacer
length: 40 repeater length: 25
8713 355607 GTTGCATCCC-AAAAGGGATTGAAA TCAAAGCACGCAAAGTCACTAATAGACATACCACTACCCA spacer
length: 40 repeater length: 25
8714 355672 GTTGCATCCC-AAAAGGGATTGAAA TTCCCTAAGATTTTGTAGCAATAAATTAAGGTATGTTGA spacer
length: 38 repeater length: 25
8715 355735 GTTGCATCCC-AAAAGGGATTGAAA TTCGGTAGCGTCTATAGCAAAGCACATTCCATCAGAAG spacer
length: 38 repeater length: 25
8716 355798 GTTGCATCCC-AAAAGGGATTGAAA TTAACGTATTGGTCAGGGCTAAGAACTTTCCTATATGCA spacer
length: 39 repeater length: 25
8717 355862 GTTGCATCCC-AAAAGGGATTGAAA TAAGTTCGACCCGTACGCGGTATTCGGGAGGACATTTGC spacer
length: 39 repeater length: 25
8718 355926 GTTGCATCCC-AAAAGGGATTGAAA TTTAACAGCATGCTTGTGATAGAATTGTTATGTTTTGCA spacer
length: 39 repeater length: 25
8719 355990 GTTGCATCCC-AAAAGGGATTGAAA TAATAAAATCGGAATAGCAAAACCTATTGCACTCAATTCT spacer
length: 40 repeater length: 25
8720 356055 GTTGCATCCC-AAAAGGGATTGAAA TGGTACTATCTCTACTTGGTCGCATACAGCGTTTATATCT spacer
length: 40 repeater length: 25
8721 356120 GTTGCATCCC-AAAAGGGATTGAAA TTCTAATCTCTTCAAGAAGTTTCATCTTCACGCTTCTGG spacer
length: 40 repeater length: 25
8722 356185 GTTGCATCCC-AAAAGGGATTGAAA TATGAACCTCCAGACCTTGACCTTAACACGTGCGTAGTC spacer
length: 39 repeater length: 25
8723 356249 GTTGCATCCC-AAAAGGGATTGAAA TAGACAAGAACAATGGCATTGCCAACTTCATATAGGTAAAC spacer
length: 41 repeater length: 25
8724 356315 GTTGCATCCC-AAAAGGGATTGAAA TATGACGGTCTCAGATAACGGCTGTATCGTCACAACAGCA spacer
length: 40 repeater length: 25
8725 356380 GTTGCATCCC-AAAAGGGATTGAAA TATCTTAGCTTCAGCGTTATTTACAACGATTTTTATTTTC spacer
length: 40 repeater length: 25

8726 356445 GTTGCATCCC-AAAAGGGATTGAAA TTAGAAAGCTACGGGATCCCCATGGAGCTAAGAGGAATC spacer
length: 39 repeater length: 25

8727 356509 GTTGCATCCC-AAAAGGGATTGAAA GATAACTCTACAATATTCCATTACACATTGACTTATCAT spacer
length: 39 repeater length: 25

8728 356573 GTTGCATCCC-AAAAGGGATTGAAA TAAAAAATGTAATATCTATTTCAGACCCATTGAAATAGT spacer
length: 39 repeater length: 25

8729 356637 GTTGCATCCC-AAAAGGGATTGAAA GATATTGTTGAAAAATAACGGAAAACCTCTTCAGAATAT spacer
length: 39 repeater length: 25

8730 356701 GTTGCATCCC-AAAAGGGATTGAAA GAAAAGGTGATGCGAATGGATCCCCTAAATAAATCTAAATC spacer
length: 41 repeater length: 25

8731 356767 GTTGCATCCC-AAAAGGGATTGAAA GATACGAACTGTTTACAAGGTTAATTAGAGAATACAACAA spacer
length: 40 repeater length: 25

8732 356832 GTTGCATCCC-AAAAGGGATTGAAA GAGATAGGAAACCTTGGTCTTGCTCCATAAAGTTCTGTGTCT spacer
length: 42 repeater length: 25

8733 356899 GTTGCATCCC-AAAAGGGATTGAAA GCTCTCTCAAGATCGGTATATATCTTTTTGACCAAGCAAA spacer
length: 40 repeater length: 25

8734 356964 GTTGCATCCC-AAAAGGGATTGAAA GTTGATGTAATGAAGTCAACGACTTTTTTGCAACTGAAAATC spacer
length: 43 repeater length: 25

8735 357032 GTTGCATCCC-AAAAGGGATTGAAA GAATACCAATGAGTGAGTGAAATAGAATATATCTCCTCT spacer
length: 39 repeater length: 25

8736 357096 GTTGCATCCC-AAAAGGGATTGAAA GTGAAGGAATTACGTCGGTTTAAGCAAATATACGTGATG spacer
length: 39 repeater length: 25

8737 357160 GTTGCATCCC-AAAAGGGATTGAAA GTTATAACAACCAGTAAAGACATTCTCTATTATTTTTGAAA spacer
length: 41 repeater length: 25

8738 357226 GTTGCATCCC-AAAAGGGATTGAAA GTAAACCTCGACCTCCTGGGTTTAACAGTGCTGTTCTCAA spacer
length: 40 repeater length: 25

8739 357291 GTTGCATCCC-AAAAGGGATTGAAA GAGTTTCCTCATATACGTAATCATATTCCGCCTCTAAGTCC spacer
length: 41 repeater length: 25

8740 357357 GTTGCATCCC-AAAAGGGATTGAAA GTTAATTATAACATCTTCATTCTCTTCCTCATCATACCC spacer
length: 39 repeater length: 25

8741 357421 GTTGCATCCC-AAAAGGGATTGAAA GACTATTACTTTTCGTTAAATTCTACTGCAGTAAGCTATC spacer
length: 39 repeater length: 25

8742 357485 GTTGCATCCC-AAAAGGGATTGAAA GGCTTTTTTCGATTTGCTTTTTAATCAATTCAACAAAGGT spacer
length: 39 repeater length: 25

8743 357549 GTTGCATCCC-AAAAGGGATTGAAA GTAGAAGCGTGAAGAAAATCGTTGTAATTGATGAGGCT spacer
length: 38 repeater length: 25

8744 357612 GTTGCATCCC-AAAAGGGATTGAAA GGGATTTAATTTATTTGGATATATGACTACTAATATATC spacer
length: 39 repeater length: 25

8745 357676 GTTGCATCCC-AAAAGGGATTGAAA GTGTGAGAAATTGAGTATAAGTTGTACAACGCGATTAA spacer
length: 38 repeater length: 25

8746 357739 GTTGCATCCC-AAAAGGGATTGAAA GGTGTAGTTCTCTGGGTCAGAGCAATATTCCGCCAAATTTT spacer
length: 40 repeater length: 25

8747 357804 GTTGCATCCC-AAAAGGGATTGAAA GTTTTCACTATAGAAAAGTACTGGATAGCCTTGAACCTTCAT spacer
length: 41 repeater length: 25

8748 357870 GTTGCATCCC-AAAAGGGATTGAAA GACTGTTGTTTAGCCTCTTCCTCCTTCTGAGCCCATTCTC spacer
length: 41 repeater length: 25

8749 357936 GTTGCATCCC-AAAAGGGATTGAAA GCTATACTTCCGTTTTTCATCTTTAATCCTACTTCTAACCC spacer
length: 40 repeater length: 25

8750 358001 GTTGCATCCC-AAAAGGGATTGAAA GATAACTTTACAAGTTCTTCTAAATTCTTTTGAGTCTGC spacer
length: 39 repeater length: 25

8751 358065 GTTGCATCCC-AAAAGGGATTGAAA GTTTATAGCTATTCTGTTAACCTTTATGTTGGTGTGCACA spacer
length: 41 repeater length: 25

8752 358131 GTTGCATCCC-AAAAGGGATTGAAA GACCTATTTGCGTTAATAGAAAGGAGAAATTCCCGAATT spacer
length: 39 repeater length: 25

8753 358195 GTTGCATCCC-AAAAGGGATTGAAA GTTACAGTAACGTTTATTGTTAATTCGTATTTATTGTCAT spacer
length: 40 repeater length: 25

8754 358260 GTTGCATCCC-AAAAGGGATTGAAA CGCTAAGGTA

8755

8756

8757 crispr 2

8758 371234 CTTTCAATCCCTTTTGGGATGCAAC GGAGAGGGTGAAAAAATGGGGAAAACGTATCTTGTAATC spacer
length: 39 repeater length: 25

8759 371298 CTTTCAATCCCTTTTGGGATGCAAC TCACTTACTTCAATATTTTTTGAAAGTGAAGAAACGCC spacer
length: 38 repeater length: 25

8760 371361 CTTTCAATCCCTTTTGGGATGCAAC CTTTAAAATCGCATAGCGAATTATTCTCAAGTTTGATC spacer
length: 38 repeater length: 25

8761 371424 CTTTCAATCCCTTTTGGGATGCAAC TGGAACATTTGTAAAAACAGGGCATTTTATGCCTTTACC spacer
length: 39 repeater length: 25

8762 371488 CTTTCAATCCCTTTTGGGATGCAAC TGGAAAGGGAGGCGGCGCATATTTTGGGCCTTCAATTA spacer
length: 39 repeater length: 25

8763 371552 CTTTCAATCCCTTTTGGGATGCAAC GAAAATACGAAATCATTTATGCTGAATTTCCGCTTAATAA spacer

length: 40 repeater length: 25
8764 371617 CTTTCAATCCCTTTTGGGATGCAAC GGTTCAAAACCAGCCTGGTATAATGAACCAAACCAGGT spacer
length: 38 repeater length: 25
8765 371680 CTTTCAATCCCTTTTGGGATGCAAC AATTGAAGTGAATGGTACAAGATATTGGATAAACACGCC spacer
length: 39 repeater length: 25
8766 371744 CTTTCAATCCCTTTTGGGATGCAAC GAATTATCCGAAAGATGTACAAGATGTTTTTAACATTAGATAAACACGCC
spacer length: 50 repeater length: 25
8767 371819 CTTTCAATCCCTTTTGGGATGCAAC TACTATTTGTGATGAACATGAGCTTTGTCTTTCAAATA spacer
length: 39 repeater length: 25
8768 371883 CTTTCAATCCCTTTTGGGATGCAAC TCCCACCTTAGGTTTCGTCCAGGTTTCATGAACCTCGGTGAT spacer
length: 39 repeater length: 25
8769 371947 CTTTCAATCCCTTTTGGGATGCAAC GCTTCTTTCAAATACTCCAGAAGTTTAGGGGAGTTGTCT spacer
length: 39 repeater length: 25
8770 372011 CTTTCAATCCCTTTTGGGATGCAAC CATGTCCTCA
8771
8772
8773 crispr 3
8774 378317 GTTGCATCCCAAAAGGGATTGAAAG CCGCTTAATATCACAATTGTTCCCAAATTTTCGACTTCAAATTCATAACTT
spacer length: 51 repeater length: 25
8775 378393 GTTGCATCCCAAAAGGGATTGAAAG CCGCTTAATATCTTAGTATTAAGTGAACCTCTGTAACC spacer
length: 38 repeater length: 25
8776 378456 GTTGCATCCCAAAAGGGATTGAAAG GAAATAGACACTGAATAAGTATTGTCTGTTGTCGGTTA spacer
length: 38 repeater length: 25
8777 378519 GTTGCATCCCAAAAGGGATTGAAAG AATATATAGAAGAGTGGTACCAGTCCTAGTAATGTGGC spacer
length: 38 repeater length: 25
8778 378582 GTTGCATCCCAAAAGGGATTGAAAG TGGGATTGGGTTTCACTCACACCCATTACCCCGATTT spacer
length: 38 repeater length: 25
8779 378645 GTTGCATCCCAAAAGGGATTGAAAG ATTTTTATTGTGACATTAGATAGCGTAATACTGTAATGA spacer
length: 39 repeater length: 25
8780 378709 GTTGCATCCCAAAAGGGATTGAAAG GCAGCTTTTGCAGCAGTAGCTTGGGATAATCGCAGTTT spacer
length: 38 repeater length: 25
8781 378772 GTTGCATCCCAAAAGGGATTGAAAG AATTCAATTTTACCTAACTCTCCTATTTTGACCTCTCTTTT spacer
length: 41 repeater length: 25
8782 378838 GTTGCATCCCAAAAGGGATTGAAAG TGGATGACGA
8783
8784
8785 crispr 4
8786 1562888 GTTGAAATAAGGAAGAACTGAAAG TCGACGACTATCTCATCTTTAAGTACTTGCCTTGCAGTCTTC spacer
length: 42 repeater length: 24
8787 1562954 GTTGAAATAAGGAAGAACTGAAAG TTCTCTTTTAGCCTTCTATCCCAGGGATTAAGTA spacer length:
34 repeater length: 24
8788 1563012 GTTGAAATAAGGAAGAACTGAAAG AATCCAGTCAAACCAGCTAATAGTTTTCTGAT spacer length: 33
repeater length: 24
8789 1563069 GTTGAAATAAGGAAGAACTGAAAG TTCTTCTTACTGAACATGAAGAGACCGTATACCC spacer length:
34 repeater length: 24
8790 1563127 GTTGAAATAAGGAAGAACTGAAAG GGATTGTTCTGGATCCATTGACTCTGAAGATTACTA spacer length:
36 repeater length: 24
8791 1563187 GTTGAAATAAGGAAGAACTGAAAG AAAAACAAATCCCCAAATAAATCCCCAAATAATAC spacer length:
36 repeater length: 24
8792 1563247 GTTGAAATAAGGAAGAACTGAAAG GTATCCCTACTGGATTTGTCACCACGGTATAATTTT spacer length:
36 repeater length: 24
8793 1563307 GTTGAAATAAGGAAGAACTGAAAG TCTTTATCCTCTTTTATCATTTGTATCCCCATAC spacer length:
34 repeater length: 24
8794 1563365 GTTGAAATAAGGAAGAACTGAAAG CTTACCTTTATTCTGCTATTTCCCTTCTACCT spacer length:
34 repeater length: 24
8795 1563423 GTTGAAATAAGGAAGAACTGAAAG CAATAGCTTTTCGCCAATTATCAGCCACCGGATCAG spacer length:
35 repeater length: 24
8796 1563482 GTTGAAATAAGGAAGAACTGAAAG TTCTCTTAGTATTTTTACATATCTCAACGAAAAA spacer length:
34 repeater length: 24
8797 1563540 GTTGAAATAAGGAAGAACTGAAAG AACAAAGGACGTATTGAACACCGTCAAGAGGGCAA spacer length:
34 repeater length: 24
8798 1563598 GTTGAAATAAGGAAGAACTGAAAG ATCTTGCAACCTTGTCTGCAGCTTGGCAATAA spacer length: 33
repeater length: 24
8799 1563655 GTTGAAATAAGGAAGAACTGAAAG CAAAAGGAAGGTGGAGCATACCTGGGACTACAGTGT spacer length:
36 repeater length: 24
8800 1563715 GTTGAAATAAGGAAGAACTGAAAG TATCAATATGCCGTTTTAGAGAATTTCCCATAC spacer length:
34 repeater length: 24
8801 1563773 GTTGAAATAAGGAAGAACTGAAAG TTTTTAAAGTCGTAATTAACGATTATTATCGCGT spacer length:
34 repeater length: 24
8802 1563831 GTTGAAATAAGGAAGAACTGAAAG CTACGTTTCCGCCCTACTATCACTACAATATCAT spacer length:
34 repeater length: 24

8803 1563889 GTTGAAATAAGGAAGAACTGAAAG TAATGAGTTTATCAGGCTTAGTATGTCATCAACAG spacer length:
35 repeater length: 24
8804 1563948 GTTGAAATAAGGAAGAACTGAAAG TCAACTGCTCTCCCTATATAGTAAGAAGCCTCTCTTT spacer
length: 37 repeater length: 24
8805 1564009 GTTGAAATAAGGAAGAACTGAAAG AGAGAACGTGAGGATAAAGGAAGTCGATGTTGA spacer length: 33
repeater length: 24
8806 1564066 GTTGAAATAAGGAAGAACTGAAAG CACTTCTATAGAGCTGTAGCAGACAGCCTTTATAC spacer length:
35 repeater length: 24
8807 1564125 GTTGAAATAAGGAAGAACTGAAAG CTAGGCTTTTAGGGCATAAACGGCGTGCTAACTGCT spacer length:
36 repeater length: 24
8808 1564185 GTTGAAATAAGGAAGAACTGAAAG AAATCGGGAAAAAGCCCGGTATTTTTGACGTGTT spacer length:
35 repeater length: 24
8809 1564244 GTTGAAATAAGGAAGAACTGAAAG TATATAACGATATAATAACGCTCTAACTAAGGG spacer length:
34 repeater length: 24
8810 1564302 GTTGAAATAAGGAAGAACTGAAAG ATCACACGGAAAGAAAGTCGTAGTTACCACCTTA spacer length:
34 repeater length: 24
8811 1564360 GTTGAAATAAGGAAGAACTGAAAG GGAACTCCAGAAAAGAATGAGGATCAGACAGTCC spacer length:
34 repeater length: 24
8812 1564418 GTTGAAATAAGGAAGAACTGAAAG GCCCTGTGCTAATACAGGCGCTGCAAGAGTTTGC spacer length:
34 repeater length: 24
8813 1564476 GTTGAAATAAGGAAGAACTGAAAG CTATTTGCCAAGTGGATTAAACGAGTTGGACTA spacer length:
34 repeater length: 24
8814 1564534 GTTGAAATAAGGAAGAACTGAAAG AAATATTATTTTAGAGGTGAGAAAAATAGACGAA spacer length:
34 repeater length: 24
8815 1564592 GTTGAAATAAGGAAGAACTGAAAG TCTTGAAGGGCGAGGTTTGTCGTTTCGTTTCAGTCA spacer length:
34 repeater length: 24
8816 1564650 GTTGAAATAAGGAAGAACTGAAAG ATTCCAGTCTATCAAGTAGGGGATCCCAAAGACC spacer length:
34 repeater length: 24
8817 1564708 GTTGAAATAAGGAAGAACTGAAAG TGAGATATTGGTGTGGGATATGGGTTTAAAGCAAT spacer length:
35 repeater length: 24
8818 1564767 GTTGAAATAAGGAAGAACTGAAAG TTTGCCGTCTTTTTCTTTATAGTTGTACACCAGT spacer length:
34 repeater length: 24
8819 1564825 GTTGAAATAAGGAAGAACTGAAAG GCTACTGGACTTAAATACGTCGCTTCAATTAAAC spacer length:
34 repeater length: 24
8820 1564883 GTTGAAATAAGGAAGAACTGAAAG CTGTTGTAGTTTTCTGTTAGTATTATCCTTAACTA spacer length:
36 repeater length: 24
8821 1564943 GTTGAAATAAGGAAGAACTGAAAG GTAGATTTGGACGTATTACTTAATATCGTGAAGA spacer length:
34 repeater length: 24
8822 1565001 GTTGAAATAAGGAAGAACTGAAAG ATATACTGGACTAACCATGGTGCTTACTTCTTAAT spacer length:
35 repeater length: 24
8823 1565060 GTTGAAATAAGGAAGAACTGAAAG TTCTAATCCATCATTTATTCTAACGCTAATAACTA spacer length:
35 repeater length: 24
8824 1565119 GTTGAAATAAGGAAGAACTGAAAG GTGTACTCTATAGAGAGAAGCTTACCCCGAGGA
8825
8826
8827 crispr 5
8828 1583822 CTTTCAATTCTATAGTAGATTATC TTCCCGTCGATCTCAATTGCGTTAGTGCCTGTGAGCGTACCAAC spacer
length: 44 repeater length: 24
8829 1583890 CTTTCAATTCTATAGTAGATTATC TATGATACAGCGGAACCAGAATTATTAGCACAGTTGGCTA spacer
length: 40 repeater length: 24
8830 1583954 CTTTCAATTCTATAGTAGATTATC TACGTTTCCTACTTCGGCGTCTCTCCAGCACCTTACGGTGG spacer
length: 41 repeater length: 24
8831 1584019 CTTTCAATTCTATAGTAGATTATC TTGTCTTCGGCGTAGAGAGTTACTTTAATCGTTTCAAATTG spacer
length: 41 repeater length: 24
8832 1584084 CTTTCAATTCTATAGTAGATTATC CTCTGTAAGTATCACACTGAAAGTGAACGGATAGTTGGGATT spacer
length: 42 repeater length: 24
8833 1584150 CTTTCAATTCTATAGTAGATTATC GCTGAGATACTTGTTCTTCTTTATGGCGCAGTTATTTCT spacer
length: 39 repeater length: 24
8834 1584213 CTTTCAATTCTATAGTAGATTATC CAAGAGAAAGCTTTTTAAACCCCTTTCCCTTTTCTCATG spacer
length: 41 repeater length: 24
8835 1584278 CTTTCAATTCTATAGTAGATTATC ACGGGTGCCT
8836
8837
8838 crispr 6
8839 1588352 GATAATCTACTATAGAATTGAAAG AACCAGTTGGGCAGAAAGTTTAAATACCAGTCCGCGAAGAG spacer
length: 41 repeater length: 24
8840 1588417 GATAATCTACTATAGAATTGAAAG TATCTGTTACAGTATCCTTGAACCTTTCAAATCTAGTAAT spacer
length: 40 repeater length: 24
8841 1588481 GATAATCTACTATAGAATTGAAAG AAAGATAAGAAGATTGTAATTAACGTTGCACATGATGAACC spacer
length: 41 repeater length: 24
8842 1588546 GATAATCTACTATAGAATTGAAAG GGCCCATGTC

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8843
8844
8845 GCA_000214415.1_ASM21441v1_genomic.fna (PilerCR) :
8846 START      REPEAT
      SPACER
8847 crispr 1
8848 7991 GTTTCATCCTTGTTTTAATGGATGAG TAATTCAAACACGGAGACAGTGCAAAAAGAGTAATTTTAAGGACAGT
      spacer length: 47 repeater length: 27
8849 8065 GTTTCATCCTTGTTTTAATGGATGAG TAATTCAAACATCTATTGTTTTATACTTATGTTTCATGGTCTTTAACCT
      spacer length: 48 repeater length: 27
8850 8140 GTTTCATCCTTGTTTTAATGGATGAG TAATTCAAACAAGAGATATTCAAAGGAACAAGATGGGAAGATTTTCAG
      spacer length: 47 repeater length: 27
8851 8214 GTTTCATCCTTGTTTTAATGGATGAG TAATTCAAACATTAGAAATATCTTCAAGGTATATAATGATAGAAAATT
      spacer length: 48 repeater length: 27
8852 8289 GTTTCATCCTTGTTTTAATGGATGAG CAATTCAAACAAGAACTACTAAAACAAAGACTGTTATTAGAAGTTA
      spacer length: 46 repeater length: 27
8853 8362 GTTTCATCCTTGTTTTAATGGATGAG GTATTCAAACATAAAGTTGTTGAAATGACAACAAATACTACAATTGC
      spacer length: 46 repeater length: 27
8854 8435 GTTTCATCCTTGTTTTAATGGATGAG GTATTCAAACACGATGGGATATTTTCATCAGAGCCGCTTTATTTAGG
      spacer length: 47 repeater length: 27
8855 8509 GTTTCATCCTTGTTTTAATGGATGAG GTATTCAAACGTGGTTAGAGGAAAAATTAAATCCATTCTATGCAA
      spacer length: 45 repeater length: 27
8856 8581 GTTTCATCCTTGTTTTAATGGATGAG GTATTCAAACAACAAAGTTGAAGAAAGTTATGGATTATTTAGATT
      spacer length: 46 repeater length: 27
8857 8654 GTTTCATCCTTGTTTTAATGGATGAG GGGTGTTTCGTT
8858
8859
8860 crispr 2
8861 220885 TTTCCATCCCCCTATGGGTCTGATTTTAA CTATTTAAAGGACTTGTGGAGTGAATTACCTATACAGTAA spacer
      length: 40 repeater length: 29
8862 220954 TTTCCATCCCCCTATGGGTCTGATTTTAA CACTAACATAAAAAGAAGATAGAGAAGAGAAGATATAAG spacer
      length: 39 repeater length: 29
8863 221022 TTTCCATCCCCCTATGGGTCTGATTTTAA CACAGTCATAATCATAGCAAAACCCATTGCCAGCATGTAATG
      spacer length: 42 repeater length: 29
8864 221093 TTTCCATCCCCCTATGGGTCTGATTTTAA TTTTTTGAAAAAGAAGCCCAATAAACGACCTAATGGAG spacer
      length: 39 repeater length: 29
8865 221161 TTTCCATCCCCCTATGGGTCTGATTTTAA TTAAATTTTATTAATTCATCAATATATTTATATGTAATG spacer
      length: 39 repeater length: 29
8866 221229 TTTCCATCCCCCTATGGGTCTGATTTTAA TCATATTTGGAGGCAGAGGATAACAATTATCAGAACATG spacer
      length: 39 repeater length: 29
8867 221297 TTTCCATCCCCCTATGGGTCTGATTTTAA TTATATTAGTGAGATAGCACAAGCAACGGAGAGTATAG spacer
      length: 38 repeater length: 29
8868 221364 TTTCCATCCCCCTATGGGTCTGATTTTAA TCGAGGTTGGTGTTCGTGGCACAAAATTAGAAAACCTTAG spacer
      length: 40 repeater length: 29
8869 221433 TTTCCATCCCCCTATGGGTCTGATTTTAA TTAGAAGTGGATTTAGTGTGAGAGAGGTTAAAGCAGTTG spacer
      length: 40 repeater length: 29
8870 221502 TTTCCATCCCCCTATGGGTCTGATTTTAA TTTCGTTGTTGAAAATATTCCTTAGACCATGTATCTG spacer
      length: 37 repeater length: 29
8871 221568 TTTCCATCCCCCTATGGGTCTGATTTTAA CTTTCGGACAG
8872
8873
8874 crispr 3
8875 295872 GTTTCATCCTTGTTTTAATGGATGAGATATTCAAAC CTGAGGGGGAAGAATGATTGATTTGGAAAAATTAG
      spacer length: 35 repeater length: 37
8876 295944 GTTTCATCCTTGTTTTAATGGATGAGATATTCAAAC TAAGGTCAATAGAGAAGACAAACAAAGCACTTGAGTA
      spacer length: 37 repeater length: 37
8877 296018 GTTTCATCCTTGTTTTAATGGATGAGATATTCAAAC
      AAAAAATTGAAAAACCAGATATTAAACCAGAAATTAAACCTG spacer length: 42 repeater length: 37
8878 296097 GTTTCATCCTTGTTTTAATGGATGAGATATTCAAAC CTTGAAGACC
8879
8880
8881 crispr 4
8882 592555 TCCAGTTAAAATCAGACCCCTTAGGGGGATGGAAATG ACTTCCCACCTATACATTTTTTTCAATAATTTTTCCATCA
      spacer length: 40 repeater length: 36
8883 592631 TCCAGTTAAAATCAGACCCCTTAGGGGGATGGAAATG GAACACCATTCAATATTATGAATCTAAATCT spacer
      length: 31 repeater length: 36
8884 592698 TCCAGTTAAAATCAGACCCCTTAGGGGGATGGAAATG CGTCGAGATCT
8885
8886
8887 crispr 5
8888 592860 GTTAAAATCAGACCCCTTAGGGGGATGGAAAT GTCCCTACCATCCAATAAACAGATGGCTCGGGACT spacer

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length: 35 repeater length: 31
8889 592926 GTTAAAAATCAGACCCCTTAGGGGGATGGAAAT TGCTACTAAAACGCAAAAAGTTTAAGGTTAAAGCAAAGA
spacer length: 39 repeater length: 31
8890 592996 GTTAAAAATCAGACCCCTTAGGGGGATGGAAAT ATTTTAAAGAACTTTAAAACCGAAACATATATATAT spacer
length: 36 repeater length: 31
8891 593063 GTTAAAAATCAGACCCCTTAGGGGGATGGAAAT
AATGGAAAAAGGCACAAAAATGGGCAATATTAATAATTATTGATTTA spacer length: 47 repeater length: 31
8892 593141 GTTAAAAATCAGACCCCTTAGGGGGATGGAAAT ATATAATCAATATACAATATATACACATGTAGTTTT spacer
length: 36 repeater length: 31
8893 593208 GTTAAAAATCAGACCCCTTAGGGGGATGGAAAT TGGTATGATTGTAATTGAATTCTAAATAATCTGATTTCGT
spacer length: 39 repeater length: 31
8894 593278 GTTAAAAATCAGACCCCTTAGGGGGATGGAAAT CTTTTCTAAACCTCCAAGTGTGCTTCAAATCATTAAAGTTAA
spacer length: 41 repeater length: 31
8895 593350 GTTAAAAATCAGACCCCTTAGGGGGATGGAAAT CAACAATTTCTATCTTAATATCACTCTTTTCAACAATTT
spacer length: 39 repeater length: 31
8896 593420 GTTAAAAATCAGACCCCTTAGGGGGATGGAAAT CAACAATTTCTATCTTAATATCACTCTTTTCAACAATTT
spacer length: 39 repeater length: 31
8897 593490 GTTAAAAATCAGACCCCTTAGGGGGATGGAAAT GATGAAGCCCCAAAACCATTAAAGCCATTTGGAAAGG spacer
length: 38 repeater length: 31
8898 593559 GTTAAAAATCAGACCCCTTAGGGGGATGGAAAT GCTGGTGGAGCTGTTAAGTAATTTACATAGATATTAACA
spacer length: 39 repeater length: 31
8899 593629 GTTAAAAATCAGACCCCTTAGGGGGATGGAAAT TGTCGAGGAT
8900
8901
8902 crispr 6
8903 717056 GTTTCATCCTTGTTTTAATGGATGAGGTATTCAAAC TTCGCATACTTAAGCTCAGCAGCCACAGGCAATCTTG
spacer length: 37 repeater length: 37
8904 717130 GTTTCATCCTTGTTTTAATGGATGAGGTATTCAAAC
GAAATTACTTGTTTGAAGAAAGAAAGTCAATTAGGGACGT spacer length: 40 repeater length: 37
8905 717207 GTTTCATCCTTGTTTTAATGGATGAGGTATTCAAAC ACTTCCAAGGCTTTTCTGAAACATCTAATATGGTTA
spacer length: 36 repeater length: 37
8906 717280 GTTTCATCCTTGTTTTAATGGATGAGGTATTCAAAC AATCCAATATACGACCTTGAAAAATTGAATTGCCTC
spacer length: 37 repeater length: 37
8907 717354 GTTTCATCCTTGTTTTAATGGATGAGGTATTCAAAC ACTAACTTCTTCCCAACTTCATTTCCGTTCTTGTCAA
spacer length: 37 repeater length: 37
8908 717428 GTTTCATCCTTGTTTTAATGGATGAGGTATTCAAAC ATTACATTCTATAGGTCAAACATGGTTGAGTATCTTG
spacer length: 36 repeater length: 37
8909 717501 GTTTCATCCTTGTTTTAATGGATGAGGTATTCAAAC TTATAGAGCGAAGACGGGGCGGGATGGGAGGGAGA
spacer length: 35 repeater length: 37
8910 717573 GTTTCATCCTTGTTTTAATGGATGAGGTATTCAAAC AGAGGCATGGCATTGCCAGACGAATTAATGCAATATA
spacer length: 37 repeater length: 37
8911 717647 GTTTCATCCTTGTTTTAATGGATGAGGTATTCAAAC AGGGAATGGGGGTAAAGAAAATTATTGAATTAAT
spacer length: 35 repeater length: 37
8912 717719 GTTTCATCCTTGTTTTAATGGATGAGGTATTCAAAC
ATATATCGCTGTGTGGTATTCTTATGTATGCGTTTCGTTCCGT spacer length: 42 repeater length: 37
8913 717798 GTTTCATCCTTGTTTTAATGGATGAGGTATTCAAAC
ATATATCGCTGTGTGGTATTCTTATGTATGCGTTTCGTTCCGT spacer length: 42 repeater length: 37
8914 717877 GTTTCATCCTTGTTTTAATGGATGAGGTATTCAAAC ATACTATCCACCTATTCTGTTTTTTCATATGAAATTT
spacer length: 36 repeater length: 37
8915 717950 GTTTCATCCTTGTTTTAATGGATGAGGTATTCAAAC TAGCCACCAACTTCCAAGTAAAGTGGAGCAAAAAA
spacer length: 35 repeater length: 37
8916 718022 GTTTCATCCTTGTTTTAATGGATGAGGTATTCAAAC CCAGTTCTCC
8917
8918
8919 crispr 7
8920 952221 GTTTGAATTACTCATCCATTAAAACAAGGATGGAAAC GAACAAGAACCATACGACCTTGCGGCAATTTTTGGT
spacer length: 36 repeater length: 37
8921 952294 GTTTGAATTACTCATCCATTAAAACAAGGATGGAAAC TCCCAACCTCCTTCTCCAAGTTCTCAAATATCTTTCT
spacer length: 37 repeater length: 37
8922 952368 GTTTGAATTACTCATCCATTAAAACAAGGATGGAAAC TATATTCAAATTCTCTGTCTGCTATCTTATCAATA
spacer length: 35 repeater length: 37
8923 952440 GTTTGAATTACTCATCCATTAAAACAAGGATGGAAAC
TCAATTAAGTGGTAATAGTCGAACTATATTTTTCCCTC spacer length: 41 repeater length: 37
8924 952518 GTTTGAATTACTCATCCATTAAAACAAGGATGGAAAC ATCCCTGCTTCTGTTATATACTTCCGTAAATTCTA
spacer length: 36 repeater length: 37
8925 952591 GTTTGAATTACTCATCCATTAAAACAAGGATGGAAAC AGATAATATTAACCTTTTGTGTCTTAATGCCAAATC
spacer length: 36 repeater length: 37
8926 952664 GTTTGAATTACTCATCCATTAAAACAAGGATGGAAAC CGTATGCTTCAACACCTGCTTTGTATTCTATCTACAG
spacer length: 36 repeater length: 37
8927 952737 GTTTGAATTACTCATCCATTAAAACAAGGATGGAAAC AAATCTTTTCCGCTGGCGGGCTCCAGCCAACCGCCT
spacer length: 38 repeater length: 37

8928 952812 GTTGAATTACTCATCCATTAAAAACAAGGATGGAAAC TGAATAATGTTAAAAATTTTCATCTAAATTTGTGTCACC
 spacer length: 38 repeater length: 37
 8929 952887 GTTGAATTACTCATCCATTAAAAACAAGGATGGAAAC TATGCATAGAAATTATTATCTTTTTATTTTTTGTATTATT
 spacer length: 39 repeater length: 37
 8930 952963 GTTGAATTACTCATCCATTAAAAACAAGGATGGAAAC CTTTCCGCAG
 8931
 8932
 8933 crispr 8
 8934 1002621 GTTAAAAATCAGACCCTTAGGGGGATGGAAA CATTCCTTTATCTTTTTATTTTTTCTCTTGCCATTTTGA spacer
 length: 38 repeater length: 30
 8935 1002689 GTTAAAAATCAGACCCTTAGGGGGATGGAAA
 CAAATTTATTGCGTTTATCCATGCCATCATTGTTATTTCTTTTGGG spacer length: 46 repeater length: 30
 8936 1002765 GTTAAAAATCAGACCCTTAGGGGGATGGAAA CACAATTTTCTACATCCTAAAATTTTGAAATCATTATATCCATA
 spacer length: 45 repeater length: 30
 8937 1002840 GTTAAAAATCAGACCCTTAGGGGGATGGAAA CAGATTTTAAACAGTTTTTAAACAAGCATTATCAATAACCATGAG
 spacer length: 44 repeater length: 30
 8938 1002914 GTTAAAAATCAGACCCTTAGGGGGATGGAAA CATTATAGAGTAATGACTGATGAAACTATCCTTTTA spacer
 length: 37 repeater length: 30
 8939 1002981 GTTAAAAATCAGACCCTTAGGGGGATGGAAA CTTTTTCATAATTATCCCCACAAAACCTTTTTTAAAAAT spacer
 length: 38 repeater length: 30
 8940 1003049 GTTAAAAATCAGACCCTTAGGGGGATGGAAA TTCGTCTTTGTATATATTCGCACTACTATGACCCTTCT spacer
 length: 38 repeater length: 30
 8941 1003117 GTTAAAAATCAGACCCTTAGGGGGATGGAAA TTAAGAGTAATCAACCCTAAAGAGCTGGAAGGTATCCCATAC
 spacer length: 42 repeater length: 30
 8942 1003189 GTTAAAAATCAGACCCTTAGGGGGATGGAAA GAGCCCTCCG
 8943
 8944
 8945 crispr 9
 8946 1045114 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT TTAACTCCATGTTCCATCATCATTTTTCGGATAAA spacer
 length: 35 repeater length: 31
 8947 1045180 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT CCAGATAGAGTTGAAGAACTGTGGAAAGTATTGACTT
 spacer length: 38 repeater length: 31
 8948 1045249 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT GCATAATTATCACTCGTTAAATACTCTATCATGTGAGTATAT
 spacer length: 42 repeater length: 31
 8949 1045322 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT ATAATCTTATTTACGCCCTCGCTATCCACCAACCCCC spacer
 length: 37 repeater length: 31
 8950 1045390 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT CCCAATATACTGCCTGAAGAGGGACTATTTTATAATTT
 spacer length: 38 repeater length: 31
 8951 1045459 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT AATATAATT
 8952
 8953
 8954 crispr 10
 8955 1056813 GTTAAAAATCAGACCCATAGGGGGATGGAAAT TGTTATCACCTCCTTTTTGTTTTTTGAGTGGTTTGATAACA
 spacer length: 41 repeater length: 31
 8956 1056885 GTTAAAAATCAGACCCATAGGGGGATGGAAAT TTTACATTTTAAGTTGCACTGTTTAAATATATCACA spacer
 length: 37 repeater length: 31
 8957 1056953 GTTAAAAATCAGACCCATAGGGGGATGGAAAT AACAACTTGCTGAGGAGTGTGGTGTTCAACTGTTGC spacer
 length: 37 repeater length: 31
 8958 1057021 GTTAAAAATCAGACCCATAGGGGGATGGAAAT TTTTGAAATCATCTATTATAGATGCATTAAGATCTTCAAATA
 spacer length: 43 repeater length: 31
 8959 1057095 GTTAAAAATCAGACCCATAGGGGGATGGAAAT AATAAGGCAAGTCTTGAATTAACTCTCAATTAGAAA spacer
 length: 37 repeater length: 31
 8960 1057163 GTTAAAAATCAGACCCATAGGGGGATGGAAAT AGATTCTGATTTTAAAAAAGGGAAAAAAGCATTCAAA spacer
 length: 37 repeater length: 31
 8961 1057231 GTTAAAAATCAGACCCATAGGGGGATGGAAAT GGCGGAAAGG
 8962
 8963
 8964 crispr 11
 8965 1182107 TCCATTAAAAACAAGGATGGAAAC
 ACTAAGCAAAATAAAGAGTTTATGAAGTTACTACAAGAAAGTTTGAATACTCAG spacer length: 54 repeater
 length: 23
 8966 1182184 TCCATTAAAAACAAGGATGGAAAC
 ATTACAATAACATCTTCATCATCAACTAAAACATACCTTCTAAGTTTGAATACTCAG spacer length: 57 repeater
 length: 23
 8967 1182264 TCCATTAAAAACAAGGATGGAAAC CGGTTGGCATGATGTTGAGTATTTAGTGGCAACGTTTGAATTACTCA
 spacer length: 47 repeater length: 23
 8968 1182334 TCCATTAAAAACAAGGATGGAAAC TTTCTATTATTATTGTTTTGTAATCATGTTCAAGTTTGAATTACTCA
 spacer length: 47 repeater length: 23
 8969 1182404 TCCATTAAAAACAAGGATGGAAAC CGTGGTCTAAATCTTCTATGTGTTATTCTTCTATAGTGTGTTGAATTACTCA
 spacer length: 51 repeater length: 23
 8970 1182478 TCCATTAAAAACAAGGATGGAAAC TAATAACCTCAGCCTGTCCCTTTGTAAAACCAACAGTTTGAATTGCTCA

spacer length: 49 repeater length: 23
 8971 1182550 TCCATTAAAAACAAGGATGGAAAC GGTCGGTATG
 8972
 8973
 8974 crispr 12
 8975 1262542 GTTTGAATTACTCATCCATTAAAAACAAGGATGGAAAC AAATAATTTGTTTCTGAAACAACAATCACATTAC
 spacer length: 34 repeater length: 37
 8976 1262613 GTTTGAATTACTCATCCATTAAAAACAAGGATGGAAAC GCCAAAGCTCAGGTGGTTGGGATATTGAGTTGTATT
 spacer length: 36 repeater length: 37
 8977 1262686 GTTTGAATTACTCATCCATTAAAAACAAGGATGGAAAC GAGAGACACACCCACGAGGTGTTCTCCTGGAC
 8978
 8979
 8980 crispr 13
 8981 1280411 GTTTCCATCCTTGTTTTAATGGATGAGTAATTCAAAC TTGCTGGGTTTGGGATGTTAATTTATTTGGTAAAA
 spacer length: 35 repeater length: 37
 8982 1280483 GTTTCCATCCTTGTTTTAATGGATGAGTAATTCAAAC TTGGCGGAGGACAAGGAACGCTTAAAATCATGGATT
 spacer length: 36 repeater length: 37
 8983 1280556 GTTTCCATCCTTGTTTTAATGGATGAGTAATTCAAAC CCCTTTTTCTCTCGGTATCCAATAACACAGCCATTTTG
 spacer length: 38 repeater length: 37
 8984 1280631 GTTTCCATCCTTGTTTTAATGGATGAGTAATTCAAAC TGTTGAAAATATTAAATCACAATATCCGTTTTAT
 spacer length: 35 repeater length: 37
 8985 1280703 GTTTCCATCCTTGTTTTAATGGATGAGTAATTCAAAC TAACATAATCAATATATTATATTACATTATCCACA
 spacer length: 37 repeater length: 37
 8986 1280777 GTTTCCATCCTTGTTTTAATGGATGAGTAATTCAAAC AAAACATTAGTCAATCTGATATTCAATTTATATATCA
 spacer length: 37 repeater length: 37
 8987 1280851 GTTTCCATCCTTGTTTTAATGGATGAGTAATTCAAAC CCTCTCGCAT
 8988
 8989
 8990 crispr 14
 8991 1288479 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT
 CCAGCAAAGTGGCATTGGCATAAGTTAATAGTATTAAGTTAAAATC spacer length: 46 repeater length: 31
 8992 1288556 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT TTAATATGAAAGCATACAACAACACTATCCTTGTTGC spacer
 length: 37 repeater length: 31
 8993 1288624 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT TTGTTCCATAGGTCCATACCAATGATGGTCTAAAAATGTTTAG
 spacer length: 44 repeater length: 31
 8994 1288699 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT AAATCACACACACAACACAGTAATACTTCTGTGTGT spacer
 length: 36 repeater length: 31
 8995 1288766 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT TTCGTTGAAAAAATACTTGAAAAAATTAAAGAACATGCTCC
 spacer length: 41 repeater length: 31
 8996 1288838 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT ACTGCCACACCATTATTAAACAAATTACTTGAACATT spacer
 length: 37 repeater length: 31
 8997 1288906 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT CATATATTAAGAGCCACGCATGCAACTAATTTAATCAA
 spacer length: 38 repeater length: 31
 8998 1288975 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT TAAGTTATTTAATTGGTTTATTTGAACCTGTAAAAGTTAAT
 spacer length: 41 repeater length: 31
 8999 1289047 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT TCATAAATAATTTTTGGTGAAGTAATAAAATCTA spacer
 length: 37 repeater length: 31
 9000 1289115 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT GTTCCTGGGG
 9001
 9002
 9003 crispr 15
 9004 1289182 GTTAAAAATCAGACCCATAGGGGGATGGAAAT
 TGCTGTGCCTTATTAAGTCCAAATGCAGTGGTAATCAATGTCTTTC spacer length: 46 repeater length: 31
 9005 1289259 GTTAAAAATCAGACCCATAGGGGGATGGAAAT AATTAAAACCCCTCCCATCCCAGAAGACAGACAATTGA
 spacer length: 38 repeater length: 31
 9006 1289328 GTTAAAAATCAGACCCATAGGGGGATGGAAAT TTTCGTTTAGAAATTCAGTTTTTAGAAAATAAAGTAAA
 spacer length: 38 repeater length: 31
 9007 1289397 GTTAAAAATCAGACCCATAGGGGGATGGAAAT CGGCTCTTTTAAATGCTTTCCATAGGTATTTAGTTAAGTAG
 spacer length: 40 repeater length: 31
 9008 1289468 GTTAAAAATCAGACCCATAGGGGGATGGAAAT CTTCCCTGAGG
 9009
 9010
 9011 crispr 16
 9012 1346390 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT ATTGTAAATTGGTTCAAAGATTATGGCATTGATGT spacer
 length: 35 repeater length: 31
 9013 1346456 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT TTTCACACTTGTTTATTATGAAATCCATACAAATCTT spacer
 length: 37 repeater length: 31
 9014 1346524 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT TAGTCGTAACATCTTCTTATAGTTTTATCGTTAAATA spacer
 length: 37 repeater length: 31
 9015 1346592 GTTAAAAATCAGACCCTTAGGGGGATGGAAAT CAATTTTCCGTCAGATTAAAATTTTGAAATCATTATATCC
 spacer length: 40 repeater length: 31

9016 1346663 GTTAAAATCAGACCCTTAGGGGGATGGAAAT TACTAATGGATAGAAAAATCCAATAACAACATCCAAT
 9017
 9018
 9019 crispr 17
 9020 1352424 GTTAAAATCAGACCCTTAGGGGGATGGAAAT ATTGTAAATTGGTTCAAAGATTATGGCATTGATGT spacer
 length: 35 repeater length: 31
 9021 1352490 GTTAAAATCAGACCCTTAGGGGGATGGAAAT TTTCACACTTGTTTATTATGAAATCCATACAAATCTT spacer
 length: 37 repeater length: 31
 9022 1352558 GTTAAAATCAGACCCTTAGGGGGATGGAAAT TAGTCGTAACATCTTCTTATAGTTTTATCGTTAAATA spacer
 length: 37 repeater length: 31
 9023 1352626 GTTAAAATCAGACCCTTAGGGGGATGGAAAT CAATTTTCCGTCAGATTAAAATTTTGAAATCATTATATCC
 spacer length: 40 repeater length: 31
 9024 1352697 GTTAAAATCAGACCCTTAGGGGGATGGAAAT TAAATCCCCATCATCATCAATCCAATATGGTAAGCGTTGTC
 spacer length: 41 repeater length: 31
 9025 1352769 GTTAAAATCAGACCCTTAGGGGGATGGAAAT TAAATCCCCATCATCATCAATCCAATATGGTAAGCGTTGTC
 spacer length: 41 repeater length: 31
 9026 1352841 GTTAAAATCAGACCCTTAGGGGGATGGAAAT GGACGACGAG
 9027
 9028
 9029 crispr 18
 9030 1491593 GTTTCATCCCCCTAAGGGTCTGATTTTAAC
 GTTGTAGCACCACAACAAGGTGGACAGCAACAAGACCCGA spacer length: 46 repeater length: 31
 9031 1491670 GTTTCATCCCCCTAAGGGTCTGATTTTAAC TAAACAGAATCGGAGCAAACATAACAGCAATGCTTGAG
 spacer length: 38 repeater length: 31
 9032 1491739 GTTTCATCCCCCTAAGGGTCTGATTTTAAC AGGATGATGTTAAGAAAATCGTAGAGTTTCTTTCTTCATAA
 spacer length: 41 repeater length: 31
 9033 1491811 GTTTCATCCCCCTAAGGGTCTGATTTTAAC TCAAGTTCAGCAATGCACTTAAGAAGTAAAATATCA spacer
 length: 36 repeater length: 31
 9034 1491878 GTTTCATCCCCCTAAGGGTCTGATTTTAAC TGTGAATGCGATGATGGATTAACAGTTAAAGCATT spacer
 length: 35 repeater length: 31
 9035 1491944 GTTTCATCCCCCTAAGGGTCTGATTTTAAC TACATGAATGATGCTAAAAGGGTTGTTATAGTTGTTGAGAAGG
 spacer length: 43 repeater length: 31
 9036 1492018 GTTTCATCCCCCTAAGGGTCTGATTTTAAC GACAATGAAGAGCCAAACCCACTAAACAATAAACTTA spacer
 length: 37 repeater length: 31
 9037 1492086 GTTTCATCCCCCTAAGGGTCTGATTTTAAC ACTTTCCAAACGCATAAGTCCAAATACTGCTAAAAAT spacer
 length: 37 repeater length: 31
 9038 1492154 GTTTCATCCCCCTAAGGGTCTGATTTTAAC GTAACTTTGCAAGTAACTCAAGAATTTCCAGTAACTT spacer
 length: 37 repeater length: 31
 9039 1492222 GTTTCATCCCCCTAAGGGTCTGATTTTAAC CTCATTTATTATGTGCCACACTTAAAAAAGATTAT spacer
 length: 36 repeater length: 31
 9040 1492289 GTTTCATCCCCCTAAGGGTCTGATTTTAAC AATTTGAAAATAAGCAGTTAAACAAATCTCTCAATA spacer
 length: 36 repeater length: 31
 9041 1492356 GTTTCATCCCCCTAAGGGTCTGATTTTAAC ATAACCTCCTCTAATCCGCTGTCTAACATATTCGTTAAAAG
 spacer length: 41 repeater length: 31
 9042 1492428 GTTTCATCCCCCTAAGGGTCTGATTTTAAC AATTTGTTACAACCAAACTTGCAGAAGAGTG spacer
 length: 34 repeater length: 31
 9043 1492493 GTTTCATCCCCCTAAGGGTCTGATTTTAAC TATAGCCAGAAAATACCCATATTTCAAACTCTACA spacer
 length: 36 repeater length: 31
 9044 1492560 GTTTCATCCCCCTAAGGGTCTGATTTTAAC GTATTATTTGATGATTCCGATGAGTATGCTAAAAAAGC
 spacer length: 38 repeater length: 31
 9045 1492629 GTTTCATCCCCCTAAGGGTCTGATTTTAAC TCGTACAGATTACCGTCTGAAATTTTGAAATTCTCAG spacer
 length: 37 repeater length: 31
 9046 1492697 GTTTCATCCCCCTAAGGGTCTGATTTTAAC CTAGGCTGGT
 9047
 9048
 9049 crispr 19
 9050 1515496 ATTTCCATCCCCCTAAGGGTCTGATTTTAACA TGGTTAATAAAAAATGTTATGGATATTTGGTTTTAAAA
 spacer length: 38 repeater length: 32
 9051 1515566 ATTTCCATCCCCCTAAGGGTCTGATTTTAACA GGATATAATATACCTTTAACATCTACATACCA spacer
 length: 32 repeater length: 32
 9052 1515630 ATTTCCATCCCCCTAAGGGTCTGATTTTAACA AAAGGTATCATGTATTCTCTAATTATTTTGATTATTCGCAATC
 spacer length: 43 repeater length: 32
 9053 1515705 ATTTCCATCCCCCTAAGGGTCTGATTTTAACA CGAATGATAAGAGCCTTAAGGTTTCGCATGCAAATT spacer
 length: 35 repeater length: 32
 9054 1515772 ATTTCCATCCCCCTAAGGGTCTGATTTTAACA GTATGGCCTC
 9055
 9056
 9057 crispr 20
 9058 1769305 GTTAAAATCAGACCCTTAGGGGGATGGAAAC ATTACAATTTTACCCACATTATGTTCAATACACCAATTAA
 spacer length: 40 repeater length: 31
 9059 1769376 GTTAAAATCAGACCCTTAGGGGGATGGAAAC TCTAAATCATCGATGTTGTTTATGTGATATGTTTTTA spacer

length: 37 repeater length: 31
9060 1769444 GTTAAAATCAGACCCTTAGGGGGATGGAAAC TCTCTACTCAAACCTGCTATTATATATACTTTTGAAAA
spacer length: 38 repeater length: 31
9061 1769513 GTTAAAATCAGACCCTTAGGGGGATGGAAAC ATCTCTAATGCTCTCATCACATCACCTCACATCTTAGT
spacer length: 38 repeater length: 31
9062 1769582 GTTAAAATCAGACCCTTAGGGGGATGGAAAC AAGGATCTTATCAAATAATATATATCTTTTTAATTTCACTCC
spacer length: 42 repeater length: 31
9063 1769655 GTTAAAATCAGACCCTTAGGGGGATGGAAAC TAGATTGTATGAGCTTTACGTAAGTGCTAAAATGAAAACTCTA
spacer length: 44 repeater length: 31
9064 1769730 GTTAAAATCAGACCCTTAGGGGGATGGAAAC GCGGGCAAATTGACTCCCCATGCCTCAATTTGTTAATCAA
spacer length: 40 repeater length: 31
9065 1769801 GTTAAAATCAGACCCTTAGGGGGATGGAAAC
9066
9067
9068 GCA_000214725.1_ASM21472v1_genomic.fna(PilerCR):
9069 START REPEAT
SPACER
9070 crispr 1
9071 51971 GGTGGTGCTATCTACAATA
ATGGTGGTACTATTAGTTCTTTAAGTGGTTGTACGTTGCTAATAACACTGCAAAGGCTTCT spacer length: 62
repeater length: 19
9072 52052 GGTGGTGCTATCTACAATA CCGGTACTATCACATCTTTAATTGCTTGTACTTTCACAGGCAACAATGCGACTCAA
spacer length: 56 repeater length: 19
9073 52127 GGTGGTGCTATCTACAATA
ATAAGGGGAATAATATTACGTGGAGTGGCTGCACTTTAACAGGTAACACAGCAACTTAT spacer length: 59
repeater length: 19
9074 52205 GGTGGTGCTATCTACAATA TGGGTAACATGAATGTGGGTGGCTGTACTTTCACAGGCAACAATGCAACTAACATG
spacer length: 56 repeater length: 19
9075 52280 GGTGGTGCTATCTACAATA TCTCCGGACCC
9076
9077
9078 crispr 2
9079 1531116 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TTGTGTGATCTGATTCTATGAATAGTTTATCAGTCAC spacer
length: 37 repeater length: 30
9080 1531183 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TGGTATAAGACATAAATTAGATGCATTTATAAATAT spacer
length: 36 repeater length: 30
9081 1531249 ATTTCAATCCTAAAAATAGTCTGATTCTAAC AACACCTGCATACAGCAATATCAATTTAATTTTATAT spacer
length: 37 repeater length: 30
9082 1531316 ATTTCAATCCTAAAAATAGTCTGATTCTAAC CTTTTAGGAACCTGGAGATGGGTTTCATAGAAGTAGCCA spacer
length: 37 repeater length: 30
9083 1531383 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TTACCACCCTTAACGGATGGCGTGATTGATGGTGCAT spacer
length: 37 repeater length: 30
9084 1531450 ATTTCAATCCTAAAAATAGTCTGATTCTAAC GCATTTGTGGACATCCAGATATTACGGTGTGGATGCT spacer
length: 37 repeater length: 30
9085 1531517 ATTTCAATCCTAAAAATAGTCTGATTCTAAC AGGTTTCAAACCTCTTCTTCATATTCAAGAGCCTT spacer
length: 36 repeater length: 30
9086 1531583 ATTTCAATCCTAAAAATAGTCTGATTCTAAC AGTTCATAATTTACATCTGTACCAAATTTACTTTCTT spacer
length: 37 repeater length: 30
9087 1531650 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TCATGATCATGGTGTGTTACCTGATAGTGTGCAAT spacer
length: 36 repeater length: 30
9088 1531716 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TAACTCTTTATGGTTATCCATGTTTAACTTATACCA spacer
length: 36 repeater length: 30
9089 1531782 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TCCTTTTCTTCCATACACATCTATATCTCCAATCTT spacer
length: 36 repeater length: 30
9090 1531848 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TCAAAATGAAAATGGATCGAGATGCTTAGTAGGAAT spacer
length: 36 repeater length: 30
9091 1531914 ATTTCAATCCTAAAAATAGTCTGATTCTAAC AATTTTGGATTCACTACTCCCCTACTCCAAAAGTCAAA spacer
length: 37 repeater length: 30
9092 1531981 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TACACTTATACGGGAACGATAAATTCTAGTATAACTAG spacer
length: 38 repeater length: 30
9093 1532049 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TTAAACGTTGAAAGACTGCTTCCAAACCGATGAGTA spacer
length: 37 repeater length: 30
9094 1532116 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TGAAAGGGAAATTAGTAAACAGATAGACAAATTAGA spacer
length: 36 repeater length: 30
9095 1532182 ATTTCAATCCTAAAAATAGTCTGATTCTAAC CCGCCATGGGACATGATTGGACACCCTACCCCCTCA spacer
length: 36 repeater length: 30
9096 1532248 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TTTTTTACCATTCCCCTTTAATTCTTCTTTTTCTTC spacer
length: 36 repeater length: 30
9097 1532314 ATTTCAATCCTAAAAATAGTCTGATTCTAAC CAAAATCTATATAAGCTATGCTACCTAAGATCAACA spacer
length: 36 repeater length: 30
9098 1532380 ATTTCAATCCTAAAAATAGTCTGATTCTAAC AAAGTTACAACGCTCTTAACGGGTGACGTGCTGTG spacer

	length: 35	repeater length: 30	
9099	1532445	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	CGCTTTCAAAGTAGGAACGCTCCTTTTAGGTGAAAG spacer
	length: 36	repeater length: 30	
9100	1532511	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	ACCTCTTGATGATGAGGAATTAGAGTTTGTAGGCTC spacer
	length: 36	repeater length: 30	
9101	1532577	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	TGCGAGCAGTAAGTGTAGTTGAAACGGAAGTGAAG spacer
	length: 37	repeater length: 30	
9102	1532644	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	AACCATTGTTCTGAAGAATATATTAAAAATAAGGA spacer
	length: 36	repeater length: 30	
9103	1532710	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	TCCAACATACACATCTTGAATGAACTCATCTGTGT spacer
	length: 36	repeater length: 30	
9104	1532776	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	TAATCTTGCATGACGCGACCTCCGTGGTTGTTGTCA spacer
	length: 36	repeater length: 30	
9105	1532842	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	CCTTGTAATAGTAGCAAACAGCAACACCAAAATTGT spacer
	length: 36	repeater length: 30	
9106	1532908	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	CCGCCTTCAAGTTCTTTTAAGATGATATTATTGCT spacer
	length: 35	repeater length: 30	
9107	1532973	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	ATTACCTAATTCTAATGTTCAATGCAATGATGCAGA spacer
	length: 36	repeater length: 30	
9108	1533039	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	GATGGATGTTTTAGGGCAGATCAATTAATTAGATTA spacer
	length: 36	repeater length: 30	
9109	1533105	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	GACTTCTACAACACTTATACGGTTGAAAGCTCCAGC spacer
	length: 36	repeater length: 30	
9110	1533171	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	GAATCAAAATATGAAACGGGCTCATTATGACCAA spacer
	length: 36	repeater length: 30	
9111	1533237	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	GATGCCAGCATTGCAGATGAAACCCAACATCAGCGA spacer
	length: 36	repeater length: 30	
9112	1533303	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	CAGGTGTTGTCTCATATATGATCCCTGTTCCGAAGGA spacer
	length: 37	repeater length: 30	
9113	1533370	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	ACATTTAAGTTGAGGCCTTGAGGGTCGATTTTATCA spacer
	length: 36	repeater length: 30	
9114	1533436	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	TTTAACATTCCCTATGACCAGTAATGAGGTTCAAGAT spacer
	length: 37	repeater length: 30	
9115	1533503	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	CAAGAGCAGTAAATCCAATCTTAATACATTCTCAAT spacer
	length: 37	repeater length: 30	
9116	1533570	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	ACATCTAATAGAAGCAGTTGCTTCTGTATATTCTCTA spacer
	length: 37	repeater length: 30	
9117	1533637	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	TTGATACTTCAGTTCAGTTAGAAACCTTGCTTTTTTC spacer
	length: 36	repeater length: 30	
9118	1533703	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	ATGACAGGAAATGCCAACAAATAGAGTCGAATCTGGC spacer
	length: 37	repeater length: 30	
9119	1533770	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	AAATCAAAGTTATCCATTTTAAGCTCAGTTATGTTG spacer
	length: 36	repeater length: 30	
9120	1533836	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	ATTTTATCAAGTAAGACCTCATGACCTTCCTCACTTC spacer
	length: 37	repeater length: 30	
9121	1533903	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	AACAGATAACCAACAACACTGATAATAATTCAACTGA spacer
	length: 36	repeater length: 30	
9122	1533969	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	AAAAAAAAAGTTAGAAGTGTAATTTCTTACTTCTC spacer
	length: 35	repeater length: 30	
9123	1534034	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	CTTAATATCGGTTGGTGTTCCTTGTAATAACAATT spacer
	length: 36	repeater length: 30	
9124	1534100	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	TCACGCGGTCTTTTTGCTTATGTTTATAAGTAAAAA spacer
	length: 36	repeater length: 30	
9125	1534166	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	TCTTTATATGCGTCTAAATATATTAGGATTGAAAGA spacer
	length: 36	repeater length: 30	
9126	1534232	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	ATAATCATCATTATCCCAAACAAACACATGAATGAA spacer
	length: 36	repeater length: 30	
9127	1534298	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	ATGGTCATATACTTGTGCAACTGCATCAATCGCATTT spacer
	length: 37	repeater length: 30	
9128	1534365	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	TCAAAAATAGGACGTTTATCATTCCCAAGTATAAGT spacer
	length: 36	repeater length: 30	
9129	1534431	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	TCTTTATATGCGTCTAAATATATTAGGATTGAAAGA spacer
	length: 36	repeater length: 30	
9130	1534497	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	ATAATCATCATTATCCCAAACAAACACATGAATGAA spacer
	length: 36	repeater length: 30	
9131	1534563	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	CCATTGTATCACCTCTTTTTTCAGGACATACAACCCA spacer
	length: 36	repeater length: 30	
9132	1534629	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	GTTCTAATCCATAAATAAAGCCTATCATAGAGTGT spacer
	length: 36	repeater length: 30	
9133	1534695	ATTTCAATCCTAAAAATAGTCTGATTCTAAC	TATGTTAGCCCATGTTCTCTGAGCAATACTTTTTTC spacer
	length: 36	repeater length: 30	

9134 1534761 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TTAAATAATAAATGAACAATAAAACAATGTTTAAAAG spacer
length: 37 repeater length: 30

9135 1534828 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TATCCTTAATTGCTTTGGAACATAAGGTCGTATACTA spacer
length: 36 repeater length: 30

9136 1534894 ATTTCAATCCTAAAAATAGTCTGATTCTAAC AGTAGACTGTTTCAAAGTCATAGGGCGGTCACTCTT spacer
length: 36 repeater length: 30

9137 1534960 ATTTCAATCCTAAAAATAGTCTGATTCTAAC ATAAATTTCTCCAACCTCATAATATGTCATATTATAT spacer
length: 37 repeater length: 30

9138 1535027 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TAACAATAAATAGTAAATATGTAAGTGCAATAGCTAA spacer
length: 37 repeater length: 30

9139 1535094 ATTTCAATCCTAAAAATAGTCTGATTCTAAC GGTAAACAAGCTGAAAAATAATTAATTTAATGAA spacer
length: 36 repeater length: 30

9140 1535160 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TCATAAAGACCATTTCTATAAATACTCATATAAACT spacer
length: 36 repeater length: 30

9141 1535226 ATTTCAATCCTAAAAATAGTCTGATTCTAAC CCAATTTGCAGCGTTTGAAGCCCTCATGGTTTCGGTG spacer
length: 37 repeater length: 30

9142 1535293 ATTTCAATCCTAAAAATAGTCTGATTCTAAC AAGATACAACACATTTAAATCAATGATAAAAAAAC spacer
length: 36 repeater length: 30

9143 1535359 ATTTCAATCCTAAAAATAGTCTGATTCTAAC CTCATTTCTTTTTCAATGTTTCTTCTAATTCATCAAA spacer
length: 37 repeater length: 30

9144 1535426 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TGTAATGGTGTTGTATCCGAACCTGTATCAACTGA spacer
length: 36 repeater length: 30

9145 1535492 ATTTCAATCCTAAAAATAGTCTGATTCTAAC ACATGTCATGGTCTAATGTAGCCCACCCGCCACATT spacer
length: 36 repeater length: 30

9146 1535558 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TGCAAGTTCTTGTTCGGTTCTTGCAACCTCATCAAGG spacer
length: 37 repeater length: 30

9147 1535625 ATTTCAATCCTAAAAATAGTCTGATTCTAAC GGAACATGGACTTTTAGGTGGAATGTGGTTGCAA spacer
length: 35 repeater length: 30

9148 1535690 ATTTCAATCCTAAAAATAGTCTGATTCTAAC ATTGAAAACTCGATGGAAAAAGGTTATTCCTTGT spacer
length: 36 repeater length: 30

9149 1535756 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TTGAAAGTCCACTGGCAGATGAACCCGAAAATTTG spacer
length: 36 repeater length: 30

9150 1535822 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TTAAGTTATGGAGATGACTACACGGAAGATTTGGC spacer
length: 35 repeater length: 30

9151 1535887 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TTGTTTCTCTGTTGCATCTGATAAGCTTGTTACGAT spacer
length: 36 repeater length: 30

9152 1535953 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TTTAATCCTTCTAAAGATTATTATGAGGGCAAATTAA spacer
length: 37 repeater length: 30

9153 1536020 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TAACAGATCAGGATCCTACTTTTGCAGAAAATACAT spacer
length: 36 repeater length: 30

9154 1536086 ATTTCAATCCTAAAAATAGTCTGATTCTAAC GTTGAACATGAAATCAAAGAACAGCTAAAAATGCGT spacer
length: 36 repeater length: 30

9155 1536152 ATTTCAATCCTAAAAATAGTCTGATTCTAAC TGAAAGATTGAAGATACCAGAAACAATTACAGTTGC spacer
length: 36 repeater length: 30

9156 1536218 ATTTCAATCCTAAAAATAGTCTGATTCTAAC AAATCTTTAGCGTTGATTGTAGCTGTTTGATCAAC spacer
length: 35 repeater length: 30

9157 1536283 ATTTCAATCCTAAAAATAGTCTGATTCTAAC AAAAAACCAGCTAAAAGAAGAACTCCAAAAGAAATC spacer
length: 36 repeater length: 30

9158 1536349 ATTTCAATCCTAAAAATAGTCTGATTCTAAC CCGGAGCTTC

9159

9160

9161 GCA_000215995.1_ASM21599v1_genomic.fna (PilerCR):

9162 START REPEAT
SPACER

9163 crispr 1

9164 32423 GTTTCCGTAGAACGTAATCGTGTGGAAAG AATTTGTCAATACTCCATGTCATAGCCCTCACCACCGT spacer
length: 38 repeater length: 29

9165 32490 GTTTCCGTAGAACGTAATCGTGTGGAAAG TGTAACTATTGAAGAATTCAACGAAGCTATTAATGAA spacer
length: 37 repeater length: 29

9166 32556 GTTTCCGTAGAACGTAATCGTGTGGAAAG TTCTCTTCGCTCTTCCCACAACCCCATCCCATTAAT spacer
length: 38 repeater length: 29

9167 32623 GTTTCCGTAGAACGTAATCGTGTGGAAAG GTGGATATGTGGGAGGAGGATGGTGCCCTTATCGT spacer
length: 35 repeater length: 29

9168 32687 GTTTCCGTAGAACGTAATCGTGTGGAAAG AGATTGCACCAACAGGTTATCGCATTACTACAGGTG spacer
length: 36 repeater length: 29

9169 32752 GTTTCCGTAGAACGTAATCGTGTGGAAAG TTCATGGTCATCACCTAATAAATAACAGCGTAACCCTCCC spacer
length: 41 repeater length: 29

9170 32822 GTTTCCGTAGAACGTAATCGTGTGGAAAG GCTGACTTTCTTGTGTAGCAGTTGCTGAAGAGGTGCG spacer
length: 38 repeater length: 29

9171 32889 GTTTCCGTAGAACGTAATCGTGTGGAAAG TGTACGGTGTGAGCATGGTCTTCGTCATGGTCTTCTTCGGTGT
spacer length: 43 repeater length: 29

9172 32961 GTTTCCGTAGAACGTAATCGTGTGGAAAG CCACTCCCACCACCCCCACGCATAATAAAAGAACAGGAAT spacer
 length: 40 repeater length: 29
 9173 33030 GTTTCCGTAGAACGTAATCGTGTGGAAAG CTGCTGATGGAAAAACATTCTACATCTGGCCTGAGG spacer
 length: 36 repeater length: 29
 9174 33095 GTTTCCGTAGAACGTAATCGTGTGGAAAG CTCTTCAACAAGCGAATACACTTCAAGGACAAGATCGTCAT spacer
 length: 41 repeater length: 29
 9175 33165 GTTTCCGTAGAACGTAATCGTGTGGAAAG CGACATTCCCCAGCCCTTCGAGGATATCGTCGATTGAT spacer
 length: 38 repeater length: 29
 9176 33232 GTTTCCGTAGAACGTAATCGTGTGGAAAG GGGCGCGTGCTCGTGCCCTCGCCTGCCAGCCGGCAACTGG spacer
 length: 40 repeater length: 29
 9177 33301 GTTTCCGTAGAACGTAATCGTGTGGAAAG TCCACGCGGCCGCTAGCTTCTTCCTCTCCTCCATCCTC spacer
 length: 38 repeater length: 29
 9178 33368 GTTTCCGTAGAACGTAATCGTGTGGAAAG TCTCAAGCACATCTGCTTCTAGCAAATAGTCTGGAAAGT spacer
 length: 39 repeater length: 29
 9179 33436 GTTTCCGTAGAACGTAATCGTGTGGAAAG CTTCATAAAGCAGTACTGGAGCCCAGGGGCATTCTC spacer
 length: 36 repeater length: 29
 9180 33501 GTTTCCGTAGAACGTAATCGTGTGGAAAG GTGTTTTTATCCATAAATCTGTCCCAAGGTCTACGTCA spacer
 length: 38 repeater length: 29
 9181 33568 GTTTCCGTAGAACGTAATCGTGTGGAAAG TGGAGCTCCGGAGGGAGGGGTTCGCTGTGGAGCCCCTCCCG spacer
 length: 41 repeater length: 29
 9182 33638 GTTTCCGTAGAACGTAATCGTGTGGAAAG TAACCTGGGCAAGCTTTGTGCTGTCGTTTCATACACACC spacer
 length: 38 repeater length: 29
 9183 33705 GTTTCCGTAGAACGTAATCGTGTGGAAAG AGTTCCTCCCGACCTTGCGAGGGGAAAAGGGATTCTAT spacer
 length: 38 repeater length: 29
 9184 33772 GTTTCCGTAGAACGTAATCGTGTGGAAAG CCTCCCGGTGAGTTCTACACTGTACCTTAGGGAGATGATTTTC
 spacer length: 42 repeater length: 29
 9185 33843 GTTTCCGTAGAACGTAATCGTGTGGAAAG ATTTCAACGCCCCGATTTGTACCTGGCGAACCTTGAC spacer
 length: 37 repeater length: 29
 9186 33909 GTTTCCGTAGAACGTAATCGTGTGGAAAG TTGCATAACGAAGAATCCTCTCGACTTCGTCTGGGAGAGCATAT
 spacer length: 44 repeater length: 29
 9187 33982 GTTTCCGTAGAACGTAATCGTGTGGAAAG TGATAGAGCTCTTTTAGTTGCCTCTGGATCTCTCTGAA spacer
 length: 38 repeater length: 29
 9188 34049 GTTTCCGTAGAACGTAATCGTGTGGAAAG GAGACCTTGT
 9189
 9190
 9191 crispr 2
 9192 41221 CTTTCAATTCTCTTTGAGTCTTATTGGAAC CCTCAACAACAAGCACAACTATTCTGTCGTCTACAATT spacer
 length: 38 repeater length: 30
 9193 41289 CTTTCAATTCTCTTTGAGTCTTATTGGAAC GCGCAAATAGTTCTCCCCACAGAGCTCGAGCTCTCCACGT spacer
 length: 40 repeater length: 30
 9194 41359 CTTTCAATTCTCTTTGAGTCTTATTGGAAC GAGGGCGGGGCTGGCGTGAGGATGAACGCGGTCTG spacer
 length: 35 repeater length: 30
 9195 41424 CTTTCAATTCTCTTTGAGTCTTATTGGAAC AAAGGAAATAGTTAGTTTCTTTACGGAAGAACCAGAAG spacer
 length: 38 repeater length: 30
 9196 41492 CTTTCAATTCTCTTTGAGTCTTATTGGAAC TTTGGTACGTAAGCGCGATGACGGCAAGTACGAGCTGATAGA
 spacer length: 42 repeater length: 30
 9197 41564 CTTTCAATTCTCTTTGAGTCTTATTGGAAC GGTGATACTAGAGGACGAGGAGGAGTTATTCGAGCTTC spacer
 length: 38 repeater length: 30
 9198 41632 CTTTCAATTCTCTTTGAGTCTTATTGGAAC AAATGTAAAAATGAGGGGGCTTCAGATCCACCCCACG spacer
 length: 37 repeater length: 30
 9199 41699 CTTTCAATTCTCTTTGAGTCTTATTGGAAC TTCAACGTTTCTGGTTGTTATCTCGTCTGGAGCAGCC spacer
 length: 37 repeater length: 30
 9200 41766 CTTTCAATTCTCTTTGAGTCTTATTGGAAC ACTCTCACACGGACACACACAAAATCCTGGTTACAT spacer
 length: 36 repeater length: 30
 9201 41832 CTTTCAATTCTCTTTGAGTCTTATTGGAAC TCCAGCCTGTTGGCCTGGGTGAAGGAGGGGAAGAAGG spacer
 length: 37 repeater length: 30
 9202 41899 CTTTCAATTCTCTTTGAGTCTTATTGGAAC CGTTGTCCCAATAGAGCACTACAACGAGAAGAAGAAGC spacer
 length: 38 repeater length: 30
 9203 41967 CTTTCAATTCTCTTTGAGTCTTATTGGAAC AGCATCCATACGGAAGTTGCGTTAAGCTGTACTATGA spacer
 length: 37 repeater length: 30
 9204 42034 CTTTCAATTCTCTTTGAGTCTTATTGGAAC CCGGCCGGGCCCAAATTCCTTCAGCTCAGCCGTCCGGCTTTTGC
 spacer length: 45 repeater length: 30
 9205 42109 CTTTCAATTCTCTTTGAGTCTTATTGGAAC TATCCATTGCCCCCACCTTTTTTATGATAATTCTATC spacer
 length: 38 repeater length: 30
 9206 42177 CTTTCAATTCTCTTTGAGTCTTATTGGAAC CAGCCCCCTCG
 9207
 9208
 9209 crispr 3
 9210 556583 GTTCCAATAAGACTCAAAGAGAATTGAAAG TCCGGGCTAACCTCGTAAGTCTGGACGTTCTGCTCGGGG spacer
 length: 39 repeater length: 30
 9211 556652 GTTCCAATAAGACTCAAAGAGAATTGAAAG TCCCCTGCTCCGGCTTCTTCATCGTGAAGAAGAACATC spacer

length: 38 repeater length: 30
9212 556720 GTTCCAATAAGACTCAAAGAGAATTGAAAG CCCCCGGCTCGGAGCTCAAATCAGGAAAAGTTCAAAT spacer
length: 37 repeater length: 30
9213 556787 GTTCCAATAAGACTCAAAGAGAATTGAAAG TTCTAATAATCACGAGTACGACGTCTTCGTCGTCAT spacer
length: 36 repeater length: 30
9214 556853 GTTCCAATAAGACTCAAAGAGAATTGAAAG TCGTTTTCTTCATTATTATCTATGTCATTACACCTAT spacer
length: 37 repeater length: 30
9215 556920 GTTCCAATAAGACTCAAAGAGAATTGAAAG CGGGGCGCGAGCCGGCGGGAAATCCGCCCCCGCGGGG spacer
length: 37 repeater length: 30
9216 556987 GTTCCAATAAGACTCAAAGAGAATTGAAAG CTGGATCTCTCTGAATTCTTCTGGATCACTAGTAACCT spacer
length: 38 repeater length: 30
9217 557055 GTTCCAATAAGACTCAAAGAGAATTGAAAG TACTGAGAAGCATTACTATCGTGAACCTCTGGGCTGT spacer
length: 36 repeater length: 30
9218 557121 GTTCCAATAAGACTCAAAGAGAATTGAAAG TCGGGCTTCCGCCCCAGACTGGCCTGTGGACGTAAATCACGACCTC
spacer length: 46 repeater length: 30
9219 557197 GTTCCAATAAGACTCAAAGAGAATTGAAAG GCAGTAGTTTGTGCTGCTCGTTCATAACTACATATAGT spacer
length: 38 repeater length: 30
9220 557265 GTTCCAATAAGACTCAAAGAGAATTGAAAG GTTGGGGCGGAGATAATAGACTTCGAGGGCGCCGCGAGC spacer
length: 39 repeater length: 30
9221 557334 GTTCCAATAAGACTCAAAGAGAATTGAAAG TCATTTCGAGTGTATAAAAACACGTGGTTGGCGGT spacer
length: 35 repeater length: 30
9222 557399 GTTCCAATAAGACTCAAAGAGAATTGAAAG AAGAAGAAGGGTGTGCGAGGATGTCGTTTTTCGACGTGTATCTCG
spacer length: 43 repeater length: 30
9223 557472 GTTCCAATAAGACTCAAAGAGAATTGAAAG CTTTGAAATTCTCGTAGAGGCCATTGGGGTCCCGGGGT spacer
length: 38 repeater length: 30
9224 557540 GTTCCAATAAGACTCAAAGAGAATTGAAAG ACGTACTCTACAAAGATCTCAAATAACTCCTCCTC spacer
length: 35 repeater length: 30
9225 557605 GTTCCAATAAGACTCAAAGAGAATTGAAAG GCCTCCTCCT
9226
9227
9228 crispr 4
9229 693108 GTTCCAATAAGACTCAAAGAGAATTGAAAG AACTTAGTCGGCGATAGGTATGACATAGTTAAGAAA spacer
length: 36 repeater length: 30
9230 693174 GTTCCAATAAGACTCAAAGAGAATTGAAAG CGGGGCCTGATGCGGGCGGGATCCGCCCCCGCGGCCT spacer
length: 37 repeater length: 30
9231 693241 GTTCCAATAAGACTCAAAGAGAATTGAAAG CAAACAACCTGCACCCACGACCGCGCCAGGAGGGCCGGCTAAG
spacer length: 42 repeater length: 30
9232 693313 GTTCCAATAAGACTCAAAGAGAATTGAAAG TTCTAATAATCACGAGTACGACGTCTTCGTCGTCAT spacer
length: 36 repeater length: 30
9233 693379 GTTCCAATAAGACTCAAAGAGAATTGAAAG TCGTTTTCTTCATTATTATCTATGTCATTACACCTAT spacer
length: 37 repeater length: 30
9234 693446 GTTCCAATAAGACTCAAAGAGAATTGAAAG CGGGGCGCGAGCCGGCGGGAAATCCGCCCCCGCGGGG spacer
length: 37 repeater length: 30
9235 693513 GTTCCAATAAGACTCAAAGAGAATTGAAAG CTGGATCTCTCTGAATTCTTCTGGATCACTAGTAACCT spacer
length: 38 repeater length: 30
9236 693581 GTTCCAATAAGACTCAAAGAGAATTGAAAG GGATTTTCTGGAGTACTTTTGGAGTTCCTGGATCGT spacer
length: 36 repeater length: 30
9237 693647 GTTCCAATAAGACTCAAAGAGAATTGAAAG CTCTGCCTTCACTTCCACCACCCCCAAGCCTTCTTC spacer
length: 36 repeater length: 30
9238 693713 GTTCCAATAAGACTCAAAGAGAATTGAAAG GATGACGGCAACAACCTCGCCCGCCCTGTTCTTCGG spacer
length: 36 repeater length: 30
9239 693779 GTTCCAATAAGACTCAAAGAGAATTGAAAG TGCTGGAATGTGGGGCGTCGGCGGTAGGATCAAGTGG spacer
length: 37 repeater length: 30
9240 693846 GTTCCAATAAGACTCAAAGAGAATTGAAAG TTGACGAGATCATCGACGGTCTCGAGAAGGGGGAGGCT spacer
length: 38 repeater length: 30
9241 693914 GTTCCAATAAGACTCAAAGAGAATTGAAAG CGGAACCAGGCGAGGAGGGCCTGCTTCTTTGGGCTCCACGCC
spacer length: 42 repeater length: 30
9242 693986 GTTCCAATAAGACTCAAAGAGAATTGAAAG GGGGAGGCGAGAAGGCTAGGTTTCTTCATAGCATCAG spacer
length: 37 repeater length: 30
9243 694053 GTTCCAATAAGACTCAAAGAGAATTGAAAG CCGCCCTCCCTCGTCCTCATCTCAACCGCCCCACTGC spacer
length: 37 repeater length: 30
9244 694120 GTTCCAATAAGACTCAAAGAGAATTGAAAG TTGATAATCTCTGGATCCTCGAAGCCGGCCTTGAGCA spacer
length: 37 repeater length: 30
9245 694187 GTTCCAATAAGACTCAAAGAGAATTGAAAG ACTCTCTCCCAAAGTAACAAGTCCAGCGCTGGTCTCT spacer
length: 38 repeater length: 30
9246 694255 GTTCCAATAAGACTCAAAGAGAATTGAAAG CATTCAAGGGAATTGGATTTACTGGCTTGTAGCGAA spacer
length: 36 repeater length: 30
9247 694321 GTTCCAATAAGACTCAAAGAGAATTGAAAG CTGTAAAGAAAGTTGACAGTTTCTTGACCTCTTCCCAT spacer
length: 38 repeater length: 30
9248 694389 GTTCCAATAAGACTCAAAGAGAATTGAAAG CCTTTTTAGCAGTTCATCTGCGAGCCGAAACAGAGCCT spacer
length: 38 repeater length: 30

9249 694457 GTTCCAATAAGACTCAAAGAGAATTGAAAG GGCAAAAAAGCTTGGAGAAGCTAGGCCTTTACGGACTG spacer
 length: 38 repeater length: 30
 9250 694525 GTTCCAATAAGACTCAAAGAGAATTGAAAG TATGGATACTGTAGGTACACTCGATACGTCAGCGCAA spacer
 length: 37 repeater length: 30
 9251 694592 GTTCCAATAAGACTCAAAGAGAATTGAAAG GGAGCCCCAGAGGAGTGTTCGGGGCCCCGGGGAGTCCCC spacer
 length: 39 repeater length: 30
 9252 694661 GTTCCAATAAGACTCAAAGAGAATTGAAAG CGTCGTCTTCGTAGATGTCTATTATCTCTACCTCC spacer
 length: 35 repeater length: 30
 9253 694726 GTTCCAATAAGACTCAAAGAGAATTGAAAG TCACTTGTCTCTAACTGCTGGTAAAGCTCTTTTAGTTGC spacer
 length: 38 repeater length: 30
 9254 694794 GTTCCAATAAGACTCAAAGAGAATTGAAAG TTTCGGGGGTTCGGGGCCTGAGCCGGCGGGGAATCCG spacer
 length: 37 repeater length: 30
 9255 694861 GTTCCAATAAGACTCAAAGAGAATTGAAAG TGATGTAGTTAGCGAGATCCTCCTGGAGTCCATTCTAGG
 spacer length: 40 repeater length: 30
 9256 694931 GTTCCAATAAGACTCAAAGAGAATTGAAAG GACCCCGGAATGCCTACGAATTCAGTTAACAACCTCAA spacer
 length: 37 repeater length: 30
 9257 694998 GTTCCAATAAGACTCAAAGAGAATTGAAAG GGAAAGGCTTCCACGTTGAGTTGCCCCGCTCGTCCCT spacer
 length: 37 repeater length: 30
 9258 695065 GTTCCAATAAGACTCAAAGAGAATTGAAAG TTCCTCACCC
 9259
 9260
 9261 crispr 5
 9262 856322 GTTCCAATAAGACTCAAAGAGAATTGAAAG AGAATAGTTAATAAAGACAAAATAAGGGACTATCTGG spacer
 length: 37 repeater length: 30
 9263 856389 GTTCCAATAAGACTCAAAGAGAATTGAAAG AAAATCTTCATCTCCCACCACCTCCCTTCTTTTTGTC spacer
 length: 37 repeater length: 30
 9264 856456 GTTCCAATAAGACTCAAAGAGAATTGAAAG ACCCGCACGACGTCATAAAGCTGCCGAAGAACAGGGC spacer
 length: 37 repeater length: 30
 9265 856523 GTTCCAATAAGACTCAAAGAGAATTGAAAG CATGACAACAAAAATGAGGGGGGTGGTTGGGCGTGAGTTT
 spacer length: 40 repeater length: 30
 9266 856593 GTTCCAATAAGACTCAAAGAGAATTGAAAG AATACGGGGCCCCGTTCCGAGGGCCCTCGGGGCGTG spacer
 length: 36 repeater length: 30
 9267 856659 GTTCCAATAAGACTCAAAGAGAATTGAAAG TTGACTCAGAGTCTGCGAATTGCGCTGAGGATGCTC spacer
 length: 36 repeater length: 30
 9268 856725 GTTCCAATAAGACTCAAAGAGAATTGAAAG CCCTATCTCC
 9269
 9270
 9271 crispr 6
 9272 857085 GTTCCAATAAGACTCAAAGAGAATTGAAAG GTCGCTATCACGAAACAGCTCGGTCTCCTCGTGCTTAGTCCTGG
 spacer length: 44 repeater length: 30
 9273 857159 GTTCCAATAAGACTCAAAGAGAATTGAAAG GGCGGTCCTAGTAGGAGGACACTGGTCTTCTCTGGGT spacer
 length: 37 repeater length: 30
 9274 857226 GTTCCAATAAGACTCAAAGAGAATTGAAAG TTCTTTCTTCAAACCGTCCGGACCAACAGCCACGGTT spacer
 length: 39 repeater length: 30
 9275 857295 GTTCCAATAAGACTCAAAGAGAATTGAAAG TGTTTTCTTCTGAAGAACTGGCGCGGAGGCAGGTCGATTGAGG
 spacer length: 42 repeater length: 30
 9276 857367 GTTCCAATAAGACTCAAAGAGAATTGAAAG TACTATGGTGA
 9277
 9278
 9279 crispr 7
 9280 1231460 GTTTCCGTAGAACGTAGTCGTGTGGAAAG TCAGTCAACCACGCAAATCACCGAAAATATTCAGCCAAC spacer
 length: 39 repeater length: 29
 9281 1231528 GTTTCCGTAGAACGTAGTCGTGTGGAAAG AAGATTTTTGTGAACCCCTTTCGTCTTTTTACTATTGCA spacer
 length: 39 repeater length: 29
 9282 1231596 GTTTCCGTAGAACGTAGTCGTGTGGAAAG ATAATATGTTTGCGATGTTACGCGCTTTATTTCCACGT spacer
 length: 39 repeater length: 29
 9283 1231664 GTTTCCGTAGAACGTAGTCGTGTGGAAAG CGTACCCCTCCTCTGGGTACGCGTAGAATTCTACTGC spacer
 length: 37 repeater length: 29
 9284 1231730 GTTTCCGTAGAACGTAGTCGTGTGGAAAG AGATTTGGCCGGCTGAGCTGAGACTGAGCTGAGATTTGGCCCGAGG
 spacer length: 46 repeater length: 29
 9285 1231805 GTTTCCGTAGAACGTAGTCGTGTGGAAAG GACTGCCACTTAGCAGTACCAGCTGCCTTCACACCCTTG spacer
 length: 39 repeater length: 29
 9286 1231873 GTTTCCGTAGAACGTAGTCGTGTGGAAAG GTTTTGTCTTTAAACAAAAACAAGGTTGCTTTT spacer
 length: 34 repeater length: 29
 9287 1231936 GTTTCCGTAGAACGTAGTCGTGTGGAAAG TTCTTTTGCTTCTGCTGAATTTTTGCTCCTCTGGAG spacer
 length: 36 repeater length: 29
 9288 1232001 GTTTCCGTAGAACGTAGTCGTGTGGAAAG TGCCCCAGCGCTCCGCTTCCTCAAAAACGAGCTCCGCGT spacer
 length: 39 repeater length: 29
 9289 1232069 GTTTCCGTAGAACGTAGTCGTGTGGAAAG AATGTCATCAATGAGTGTGTTTCGTATCGCTGTGCTCCC spacer
 length: 39 repeater length: 29
 9290 1232137 GTTTCCGTAGAACGTAGTCGTGTGGAAAG TAGTATAATGAGAATGGTGCGGAGGTGTGGAAGGATGAGAG

spacer length: 41 repeater length: 29
 9291 1232207 GTTTCCTAGAACGTAGTCGTGTGGAAAG TGGATTTCACTTGTCTAACTGCTGGTAAAGCTCTT spacer
 length: 36 repeater length: 29
 9292 1232272 GTTTCCTAGAACGTAGTCGTGTGGAAAG ATTGATAGAGTGTTATCGCCAGTCAAGTCAATTGGG spacer
 length: 36 repeater length: 29
 9293 1232337 GTTTCCTAGAACGTAGTCGTGTGGAAAG AGGCACTTGTTCAGGCTTGCCGTTCTCATCAAAAGTCCA spacer
 length: 39 repeater length: 29
 9294 1232405 GTTTCCTAGAACGTAGTCGTGTGGAAAG CTTCTCTAACCCCTCTGCTTTTTTGAACAATGTTTCGGGC spacer
 length: 39 repeater length: 29
 9295 1232473 GTTTCCTAGAACGTAGTCGTGTGGAAAG CCTTCTCGCACCAGCCTCTCTAGCGTGCTTCTAAATAC spacer
 length: 38 repeater length: 29
 9296 1232540 GTTTCCTAGAACGTAGTCGTGTGGAAAG CACTATACCCATCTGGATATTCCCCAACGAATTCCTCCT spacer
 length: 39 repeater length: 29
 9297 1232608 GTTTCCTAGAACGTAGTCGTGTGGAAAG AATTCGGAAGAATAGAAATCCACGTTAAAAAGGTAAAA spacer
 length: 38 repeater length: 29
 9298 1232675 GTTTCCTAGAACGTAGTCGTGTGGAAAG TGGAAAGGGCTCGCCGACGCCACCATAGACACCGCCTGGAAGAG
 spacer length: 44 repeater length: 29
 9299 1232748 GTTTCCTAGAACGTAGTCGTGTGGAAAG ACGGAGTATCTCATTGCAATGATTTCTAAAATCTTCAT spacer
 length: 38 repeater length: 29
 9300 1232815 GTTTCCTAGAACGTAGTCGTGTGGAAAG TTCGAGTTGAAAATCTTCTGCACGAACCTTCGTCTTTGATA
 spacer length: 40 repeater length: 29
 9301 1232884 GTTTCCTAGAACGTAGTCGTGTGGAAAG GATGAGGGCGTCTTGGGCCCCGGGTCACCCCCGCCGTTGA
 spacer length: 40 repeater length: 29
 9302 1232953 GTTTCCTAGAACGTAGTCGTGTGGAAAG ACGAAGACAAAGTATCTCTCTGGGTCTCTAGTATCTCT spacer
 length: 39 repeater length: 29
 9303 1233021 GTTTCCTAGAACGTAGTCGTGTGGAAAG ATCCATCAAA
 9304
 9305
 9306 crispr 8
 9307 1272598 TGTTTCCGTAGAACGGAATCGTGTGGAAAG AAAGTAGGTATTTTGGATGAAGGGAGGTGATTGCTGTGAAG
 spacer length: 41 repeater length: 30
 9308 1272669 TGTTTCCGTAGAACGGAATCGTGTGGAAAG TATCACTTTTTCAATGACTTTTCTCCCCCTATCATCC spacer
 length: 37 repeater length: 30
 9309 1272736 TGTTTCCGTAGAACGGAATCGTGTGGAAAG TCGTCGATCAACGTGAACGTCACAAACACAAGCTTGGACG
 spacer length: 40 repeater length: 30
 9310 1272806 TGTTTCCGTAGAACGGAATCGTGTGGAAAG TTACCACTCCCCCTAACACTACTTCAATCTCAAAGTTCTT
 spacer length: 40 repeater length: 30
 9311 1272876 TGTTTCCGTAGAACGGAATCGTGTGGAAAG AAATTCTTCCTGAATTCTCTATACGAATAAATAACAAC spacer
 length: 38 repeater length: 30
 9312 1272944 TGTTTCCGTAGAACGGAATCGTGTGGAAAG ATCGCCGCCGC
 9313
 9314
 9315 crispr 9
 9316 1273090 GTTTCCTAGAACGGAATCGTGTGGAAAG ACATGCTCACGATGAAAATCGACAGTGTTATGACCG spacer
 length: 36 repeater length: 29
 9317 1273155 GTTTCCTAGAACGGAATCGTGTGGAAAG GGTTTTCTCATCCCACTGCGCGTGGATTAGAGCAGAA spacer
 length: 37 repeater length: 29
 9318 1273221 GTTTCCTAGAACGGAATCGTGTGGAAAG CTAAAGCACTGCGTGAGGCGCGTGAGGCCTCAGATGGGCGT
 spacer length: 41 repeater length: 29
 9319 1273291 GTTTCCTAGAACGGAATCGTGTGGAAAG CTTTAGCGTCGAAATTGGGTGCGATGGAAAGAAAGGTT spacer
 length: 37 repeater length: 29
 9320 1273357 GTTTCCTAGAACGGAATCGTGTGGAAAG GTGAAGAACTGACGATCTTCCTTGCTCATTCCACCGACCC
 spacer length: 42 repeater length: 29
 9321 1273428 GTTTCCTAGAACGGAATCGTGTGGAAAG AGGGAGGACGACAGGGCGGGTGCACCCTCCACGATGGTGTT
 9322
 9323
 9324 GCA_000217995.1_ASM21799v1_genomic.fna(PilerCR):
 9325 START REPEAT
 SPACER
 9326 crispr 1
 9327 1562662 GTAGGTGGACTTGTGG
 ATATAATCTAGGTGTTACTGTAAGTAATTCATATGCAACAGGTGAAGTGAACGGAATAATAAA spacer length: 64
 repeater length: 17
 9328 1562743 GTAGGTGGACTTGTGG
 AGATAATTCTGAAACCATTGATAATTCATATTCATCAGGAACAGTTGAAGGTAATGATTAT spacer length: 61
 repeater length: 17
 9329 1562821 GTAGGTGGACTTGTGG
 TCGGAACATTGGAGTGACTATCACAGATTCTTATTCACAGGTGATGTGATCGGTAACAATCAA spacer length: 64
 repeater length: 17
 9330 1562902 GTAGGTGGACTTGTGG
 TTATAATCAGGACGAGAATATTACAGATTCTTACTCCACGGGTGATGTAACCGGTAACAATAAA spacer length: 64

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repeater length: 17
9331 1562983 GTAGGTGGACTTGTGG
TCGGAACATTGGATTGACTATCATAAACTCACATTCCACAGGTGAAGTGACCGGTAACAATCAA spacer length: 64
repeater length: 17
9332 1563064 GTAGGTGGACTTGTGG CTTTCCGGTGA
9333
9334
9335 crispr 2
9336 1678754 GGTTTCATCCCCACGTGTGTGGGGAATC ATTATCATAATCATTGAACCAAACCGTTTTTAAC spacer
length: 33 repeater length: 28
9337 1678815 GGTTTCATCCCCACGTGTGTGGGGAATC GGTCTGAATTTCGAGGTATCATATATTGCATC spacer
length: 33 repeater length: 28
9338 1678876 GGTTTCATCCCCACGTGTGTGGGGAATC ATCCCGCACATAAACCCGTTGTGCGACCCGCTC spacer
length: 33 repeater length: 28
9339 1678937 GGTTTCATCCCCACGTGTGTGGGGAATC GATTGATGCTATCGATTTCTTCCCGTTGTGTC spacer
length: 33 repeater length: 28
9340 1678998 GGTTTCATCCCCACGTGTGTGGGGAATC TCTTTATCCCCCATGGGTGCATAATGTGACCAC spacer
length: 33 repeater length: 28
9341 1679059 GGTTTCATCCCCACGTGTGTGGGGAATC TCTTTCAGCAAGCCTTCTTTTTGCTTCTGAATC spacer
length: 33 repeater length: 28
9342 1679120 GGTTTCATCCCCACGTGTGTGGGGAATC ATATTGCTTCAGCAATATCTAAACCAATATTTTC spacer
length: 33 repeater length: 28
9343 1679181 GGTTTCATCCCCACGTGTGTGGGGAATC TGGTAAAGCAAGGTTTTGTCCAAACTTTAGTCC spacer
length: 33 repeater length: 28
9344 1679242 GGTTTCATCCCCACGTGTGTGGGGAATC GAATTACTCATATCGGTATCAAATAAATTATAC spacer
length: 33 repeater length: 28
9345 1679303 GGTTTCATCCCCACGTGTGTGGGGAATC TGCATCACCATAACCACATCATGATATGCCCCGAC spacer
length: 33 repeater length: 28
9346 1679364 GGTTTCATCCCCACGTGTGTGGGGAATC ATCTAAACTCAAACCTACTCGTTACGATTAAAC spacer
length: 33 repeater length: 28
9347 1679425 GGTTTCATCCCCACGTGTGTGGGGAATC TTCGCATTATATCAGAATTTGATTTACCTGTAGC spacer
length: 34 repeater length: 28
9348 1679487 GGTTTCATCCCCACGTGTGTGGGGAATC TACCCATCATCAGTGAATCCGTCATCTGGTACT spacer
length: 33 repeater length: 28
9349 1679548 GGTTTCATCCCCACGTGTGTGGGGAATC GTAAGTATATTTCGAAGATATCGACAGGGTAAAC spacer
length: 33 repeater length: 28
9350 1679609 GGTTTCATCCCCACGTGTGTGGGGAATC CCGTCACCGCTTTTTTGTGGCAAAACTTTACA spacer
length: 33 repeater length: 28
9351 1679670 GGTTTCATCCCCACGTGTGTGGGGAATC TGGTTCTAAGTTGTCCCATAGTACTAAAAAGCC spacer
length: 33 repeater length: 28
9352 1679731 GGTTTCATCCCCACGTGTGTGGGGAATC
9353
9354
9355 GCA_000220175.2_ASM22017v1_genomic.fna(PilerCR):
9356 START REPEAT
SPACER
9357 GCA_000220645.1_ASM22064v1_genomic.fna(PilerCR):
9358 START REPEAT
SPACER
9359 crispr 1
9360 1030343 CTAAAAGAATAAAGTTGCAAAATAACAAGCATTGAAAC TTACCTCTATCATATACATATTTATCTTATAGATT
spacer length: 35 repeater length: 37
9361 1030415 CTAAAAGAATAAAGTTGCAAAATAACAAGCATTGAAAC ATTTTTCGGGTATCCCATCTGCAAGAATTATATT
spacer length: 35 repeater length: 37
9362 1030487 CTAAAAGAATAAAGTTGCAAAATAACAAGCATTGAAAC CAGTATTAGATATAACTGATCCTGAATGCTACCAAGTT
spacer length: 38 repeater length: 37
9363 1030562 CTAAAAGAATAAAGTTGCAAAATAACAAGCATTGAAAC ACGCTTTTCTTACCATCTCAGTTCTGTGCGTAAGTT
spacer length: 35 repeater length: 37
9364 1030634 CTAAAAGAATAAAGTTGCAAAATAACAAGCATTGAAAC AAAAAAATAATTAAATTTCCCATCCAAAGTCATCAG
spacer length: 37 repeater length: 37
9365 1030708 CTAAAAGAATAAAGTTGCAAAATAACAAGCATTGAAAC TTAATGGTGGCGTATTTTCAATATTTCCCGAAGAG
spacer length: 36 repeater length: 37
9366 1030781 CTAAAAGAATAAAGTTGCAAAATAACAAGCATTGAAAC AAAAAAATAATTAAATTTCCCATCCAAAGTCATCAG
spacer length: 37 repeater length: 37
9367 1030855 CTAAAAGAATAAAGTTGCAAAATAACAAGCATTGAAAC TTAATGGTGGCGTATTTTCAATATTTCCCGAAGAG
spacer length: 36 repeater length: 37
9368 1030928 CTAAAAGAATAAAGTTGCAAAATAACAAGCATTGAAAC AAATGTTTTTGCCGGCAATTCGTAAAGACAGCAGG
spacer length: 36 repeater length: 37
9369 1031001 CTAAAAGAATAAAGTTGCAAAATAACAAGCATTGAAAC ATTTTTTTAAATTCATTTACGAGGATATCTATCCTT
spacer length: 36 repeater length: 37
9370 1031074 CTAAAAGAATAAAGTTGCAAAATAACAAGCATTGAAAC GTTCCGACTGGGACTCTCATTTTTCCGAGTGTGTTAA

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spacer length: 37 repeater length: 37
 9371 1031148 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC AAAATAACTCTTTAATGTCTTCTTTTTTGTATTTATT
 spacer length: 37 repeater length: 37
 9372 1031222 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CCAATGTCTGTTGGTAGTGAAAATATTTTACCAA
 spacer length: 34 repeater length: 37
 9373 1031293 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC ATGGATCAATGGAACAAATGAGGTGACCAACTTGT
 spacer length: 35 repeater length: 37
 9374 1031365 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TAGATGGATTAAGTGCATATAATTTAGATTATAAT
 spacer length: 35 repeater length: 37
 9375 1031437 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC ACCGTTTCACAAAGTTTAAACTGCAGTCTTCACT
 spacer length: 35 repeater length: 37
 9376 1031509 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC GTTCTTTTCCAAGCGTTATAATAAACTCATTACCTC
 spacer length: 36 repeater length: 37
 9377 1031582 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TGCCATCATTCCAAGGTCTTCAAAGAAATTTCAA
 spacer length: 36 repeater length: 37
 9378 1031655 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CTGTCGTTTCAGTCCAATAAGGCGTTAGGTTTGAA
 spacer length: 36 repeater length: 37
 9379 1031728 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC ATGTCATACAATTATAGTCATCCGGCACTGACTCAA
 spacer length: 36 repeater length: 37
 9380 1031801 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC ACTGTTTTTCCTTTTGACTCCATAACAAAAACCG
 spacer length: 34 repeater length: 37
 9381 1031872 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CCTACAATGAAAAGAGAATGACTACCGAATGCGTGTT
 spacer length: 37 repeater length: 37
 9382 1031946 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC
 CTACACGCTTAGAATCTTCTTACTTGCAAGTACCATGGA spacer length: 39 repeater length: 37
 9383 1032022 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TTGCAATTGCGTTAGATTTGTTCACTCGAATATC
 spacer length: 34 repeater length: 37
 9384 1032093 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TAACCCCTGTGATTTTGAATAATTTTGAAGT
 spacer length: 34 repeater length: 37
 9385 1032164 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC
 TCGATGAAGCGGCATTGCTTGATTATGCAATAAGAGAT spacer length: 41 repeater length: 37
 9386 1032242 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TATACTCGTAAAAGAAATATGAATATAGAAACAGA
 spacer length: 35 repeater length: 37
 9387 1032314 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CACGAAGGGGTAGAAGAATGGAGTTAGCAATATATT
 spacer length: 36 repeater length: 37
 9388 1032387 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TTCTCTTTGTCAAATCAATGATAATCCCCCTTACT
 spacer length: 36 repeater length: 37
 9389 1032460 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TAAAAAGAAACCATGTCTTCTTCAGGTACCCTGCCT
 spacer length: 36 repeater length: 37
 9390 1032533 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CTAAAATTAATTTCCGCATTTTATGATATTCGTT
 spacer length: 35 repeater length: 37
 9391 1032605 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TCGGTTTTTGTACGTTCACTTCTGTGTTTACGTATT
 spacer length: 37 repeater length: 37
 9392 1032679 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CATGAAGTTTCAAGACGCAACACTGGTAGAGTTAG
 spacer length: 35 repeater length: 37
 9393 1032751 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC AATCGTATTCTCCTCCTAATAATTGCAGTGTATCCC
 spacer length: 36 repeater length: 37
 9394 1032824 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CACATTTTGATGGTGACTGATCCAGGAATGGGTAA
 spacer length: 36 repeater length: 37
 9395 1032897 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC AGCTTCTTTCGTAATCCATATACTCATTCTTAGGGG
 spacer length: 36 repeater length: 37
 9396 1032970 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TTAAATTACGGCTTAGATTATGAAGATAACGCGCTATT
 spacer length: 38 repeater length: 37
 9397 1033045 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TAAAGACGGAAAAATAATAAAATATACTGGAGAG
 spacer length: 35 repeater length: 37
 9398 1033117 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TCCCACCACAAACCAACACGCTCGGCCGTTCCGTCTGT
 spacer length: 37 repeater length: 37
 9399 1033191 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TAAAGACGGAAAAATAATAAAATATACTGGAGAG
 spacer length: 35 repeater length: 37
 9400 1033263 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC AGGATATCGGGCCAATCTGAGCCGTTAACTAACGTA
 spacer length: 36 repeater length: 37
 9401 1033336 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TATACATGGCAACTGCAAAAGAAGCGGACGATATT
 spacer length: 35 repeater length: 37
 9402 1033408 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CAATTACATTGAATGGATGTGTATCGGATTTGGAAT
 spacer length: 36 repeater length: 37
 9403 1033481 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC GCATTTCAAAAACTTATTATAAACTTCCCTAAGA
 spacer length: 35 repeater length: 37
 9404 1033553 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC GTATAAGATACCTTGAGCAGTTTCAGGCCTCATAAA
 spacer length: 37 repeater length: 37
 9405 1033627 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TTGGATAGCAAGTGTATGATGATTTTGCATATAGT
 spacer length: 36 repeater length: 37

9406 1033700 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC AGTCTTCGATTTCTTCATATTGCTCTTGATTTTCTG
spacer length: 36 repeater length: 37

9407 1033773 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CCGTTACCGAATGCGAAAATGTCGGCAGGGGCTCCATT
spacer length: 38 repeater length: 37

9408 1033848 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC GTTATTTAGATAACCCCTTGTAATAATCCGTACAATG
spacer length: 36 repeater length: 37

9409 1033921 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TACTGTGATAGCCTATTTAGAAAACGGAATAGTA
spacer length: 35 repeater length: 37

9410 1033993 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC ACAGACTTATTTGCAAAAGGAAAATCATTCAAAA
spacer length: 34 repeater length: 37

9411 1034064 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TTGTGCTGATGAAATGTTTCGAGCTGTTGAGGTT
spacer length: 34 repeater length: 37

9412 1034135 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CAAGAATCGATATGACATCATCATACGTTCCAGAA
spacer length: 35 repeater length: 37

9413 1034207 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC GCACACTTCAAGACCGAAAAAAGACAGTTAGGCA
spacer length: 35 repeater length: 37

9414 1034279 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC
TTAGCCCGCCCCGTTTCCCTAATTTACGGTAGCCTGATT spacer length: 41 repeater length: 37

9415 1034357 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CTCGAAATA

9416

9417

9418 GCA_000221185.1_ASM22118v1_genomic.fna (PilerCR):

9419 START REPEAT
SPACER

9420 crispr 1

9421 131234 CTTTCCACACAATTCTGTCCTACGGAAAC GTCATACCAAAGCAGTCGTGGGTGCGGGGTCTCTG spacer
length: 37 repeater length: 29

9422 131300 CTTTCCACACAATTCTGTCCTACGGAAAC TATTCCTCTGACCCACAAGCACGGTTGTATGGCAGGTTATT
spacer length: 41 repeater length: 29

9423 131370 CTTTCCACACAATTCTGTCCTACGGAAAC TTCGAGGACCGCGAGCCTTTCTTCTCTCAAACCTCCT spacer
length: 38 repeater length: 29

9424 131437 CTTTCCACACAATTCTGTCCTACGGAAAC AGAGGGTCCGAGGTTATCCCCATGTCATACGTTCCA spacer
length: 36 repeater length: 29

9425 131502 CTTTCCACACAATTCTGTCCTACGGAAAC CCCGACCAACGACGAGGCAAAGGCCCTTTTCGCCAACCT spacer
length: 39 repeater length: 29

9426 131570 CTTTCCACACAATTCTGTCCTACGGAAAC CAAAAGCGGTTTCTCCTCGCTCATTGGCTCCCGACCTCCTC
spacer length: 42 repeater length: 29

9427 131641 CTTTCCACACAATTCTGTCCTACGGAAAC AAGACGTTGGAATAACCCATTTCCGAACCTCTCGAACCT spacer
length: 38 repeater length: 29

9428 131708 CTTTCCACACAATTCTGTCCTACGGAAAC CAAAACATGCAGGCTGTGGGCGCAGGGGGAGAAAAGTTTT spacer
length: 40 repeater length: 29

9429 131777 CTTTCCACACAATTCTGTCCTACGGAAAC GGGAACCGACGCCGGAACCGGTGTACATAGTGGTGGAGAT spacer
length: 40 repeater length: 29

9430 131846 CTTTCCACACAATTCTGTCCTACGGAAAC GATTTGCAAAAGGTCGCTAACTCTTCAGCCACCTTGA spacer
length: 38 repeater length: 29

9431 131913 CTTTCCACACAATTCTGTCCTACGGAAAC CCGGTGGCCTCGCTACTGATGGACCACATGAGCCTGG spacer
length: 37 repeater length: 29

9432 131979 CTTTCCACACAATTCTGTCCTACGGAAAC GAACATAGTTCTAACGACAAAACCTTCGGGGGTGGTA spacer
length: 36 repeater length: 29

9433 132044 CTTTCCACACAATTCTGTCCTACGGAAAC CCTTGTCACCCACAAGTCGACATACGCTCCGGGCA spacer
length: 35 repeater length: 29

9434 132108 CTTTCCACACAATTCTGTCCTACGGAAAC CTGGGATAACTGAAGGGTCTCAGAGTGGACGGAGT spacer
length: 36 repeater length: 29

9435 132173 CTTTCCACACAATTCTGTCCTACGGAAAC AACAGAGAAGAGGCGATTAGGCGCACGCTTGAGGAGCT spacer
length: 38 repeater length: 29

9436 132240 CTTTCCACACAATTCTGTCCTACGGAAAC TTCAGGAAAGCGATAACGCCGACCCGGACCACCAATCACCT
spacer length: 43 repeater length: 29

9437 132312 CTTTCCACACAATTCTGTCCTACGGAAAC GCTTATGGGCGAGCTTGCGGACGATTAGCAACCACTT spacer
length: 37 repeater length: 29

9438 132378 CTTTCCACACAATTCTGTCCTACGGAAAC CCGCGGCCGTCGTCGTGAGCATGAGGGAACACGGCG spacer
length: 36 repeater length: 29

9439 132443 CTTTCCACACAATTCTGTCCTACGGAAAC CCGCGGCCGTCGTCGTGAGCATGAGGGAACACGGCG spacer
length: 36 repeater length: 29

9440 132508 CTTTCCACACAATTCTGTCCTACGGAAAC TGTTCACTACCGAGGAGGTTACGCCGATTTGAGGACGG spacer
length: 39 repeater length: 29

9441 132576 CTTTCCACACAATTCTGTCCTACGGAAAC AGAGAAAGTTGAGCATTTGGAGGCACTAGACGACTTCC spacer
length: 38 repeater length: 29

9442 132643 CTTTCCACACAATTCTGTCCTACGGAAAC TACTCCTCCCACGGTTCGGGCGGTTCTGGGAAGTTA spacer
length: 36 repeater length: 29

9443 132708 CTTTCCACACAATTCTGTCCTACGGAAAC AAAAGATGGGAGGTGAGGATAGGTGAATGAGGTTGT spacer
length: 36 repeater length: 29

9444 132773 CTTTCCACACAATTCTGTCCTACGGAAAC ATTGGCTGCATCGGACGACGAGGAAAAGAAGAAGGAGGTCCT
 spacer length: 42 repeater length: 29
 9445 132844 CTTTCCACACAATTCTGTCCTACGGAAAC CCGGTGTGTTTTTTCGGAGAGTATAGGGCGGCGGTCTCT spacer
 length: 38 repeater length: 29
 9446 132911 CTTTCCACACAATTCTGTCCTACGGAAAC AGAACTTTGAGAAGCACCTGAATGTGAAGAAGGCCAA spacer
 length: 37 repeater length: 29
 9447 132977 CTTTCCACACAATTCTGTCCTACGGAAAC ATGACAACAATGAAGTTTATTTTGGTCTAAGGGATAAT spacer
 length: 38 repeater length: 29
 9448 133044 CTTTCCACACAATTCTGTCCTACGGAAAC CTACTTCCCTGAGGTCATCGGCCGCCGCTGAGGAATTACA
 spacer length: 41 repeater length: 29
 9449 133114 CTTTCCACACAATTCTGTCCTACGGAAAC TCTCGTAGTCCTCGCTTATGTTCTCGATGTAGTTCGC spacer
 length: 37 repeater length: 29
 9450 133180 CTTTCCACACAATTCTGTCCTACGGAAAC ATCGGTCCGG
 9451
 9452
 9453 crispr 2
 9454 137613 CTTTCCACACAACACTGTTCTACGGAAAC GCCTCGAAACGCTCATCCTGTTCTCTCGGACGAGTATC spacer
 length: 39 repeater length: 29
 9455 137681 CTTTCCACACAACACTGTTCTACGGAAAC GAGAACTTTGGAGTTGTCAACGCGAACGTAGGGGCGAG spacer
 length: 38 repeater length: 29
 9456 137748 CTTTCCACACAACACTGTTCTACGGAAAC TCCTTACCCTGTACTCCTTCTTTCGAGGGAAGGCGT spacer
 length: 37 repeater length: 29
 9457 137814 CTTTCCACACAACACTGTTCTACGGAAAC TCCTTTCCACCCGAGTAAAGCACCGCTGGCCTCCTGC spacer
 length: 37 repeater length: 29
 9458 137880 CTTTCCACACAACACTGTTCTACGGAAAC TAGAGCATGCAAAGGGCGCGTTCCATCGGGTCATG spacer
 length: 35 repeater length: 29
 9459 137944 CTTTCCACACAACACTGTTCTACGGAAAC GAGCTGAGCCCAGCGCGTCATTCTCAATCCTCCTTAGAATCA
 spacer length: 43 repeater length: 29
 9460 138016 CTTTCCACACAACACTGTTCTACGGAAAC AGGATAGGGCCGGGGAAAATCCTCACCGAGACGCT spacer
 length: 35 repeater length: 29
 9461 138080 CTTTCCACACAACACTGTTCTACGGAAAC ACTACTGCGACGTTGAGAAGCTCGACGGCGAGCGCGT spacer
 length: 37 repeater length: 29
 9462 138146 CTTTCCACACAACACTGTTCTACGGAAAC CGCCCTGCGCCATGTGGAAGAGGCTAAGGAAACCTG spacer
 length: 36 repeater length: 29
 9463 138211 CTTTCCACACAACACTGTTCTACGGAAAC TCGATGCAGCGTACTCCAATTACTCATACGTGAGCTTTGA spacer
 length: 40 repeater length: 29
 9464 138280 CTTTCCACACAACACTGTTCTACGGAAAC ATGGTAGGGCATCAGACGGGGTTTGCAGGTAGTCCAA spacer
 length: 37 repeater length: 29
 9465 138346 CTTTCCACACAACACTGTTCTACGGAAAC CATAGTATCAGTTAGGCCGAGGGCCTCAGTTAGGA spacer
 length: 35 repeater length: 29
 9466 138410 CTTTCCACACAACACTGTTCTACGGAAAC CGCCCTTATCCGGCTGTAATTATTGTATAATGCTACGA spacer
 length: 38 repeater length: 29
 9467 138477 CTTTCCACACAACACTGTTCTACGGAAAC AGAGATACGGGCCGCTGTGTGGAATGCAATTGCAAAAA spacer
 length: 38 repeater length: 29
 9468 138544 CTTTCCACACAACACTGTTCTACGGAAAC GGAAAGGAGCCGGCCGTTATAAGCTCGATGTTTACA spacer
 length: 37 repeater length: 29
 9469 138610 CTTTCCACACAACACTGTTCTACGGAAAC AACGTCGTAATGCTTCCGTTAGATGCACCCACCCGC spacer
 length: 37 repeater length: 29
 9470 138676 CTTTCCACACAACACTGTTCTACGGAAAC TCGATGTGATGGAAGTCCACCCGGCGAGGCGGCCGTC spacer
 length: 37 repeater length: 29
 9471 138742 CTTTCCACACAACACTGTTCTACGGAAAC TGACGCGCCCGCTAAACCCACACCCAGTCAGATGGA spacer
 length: 36 repeater length: 29
 9472 138807 CTTTCCACACAACACTGTTCTACGGAAAC TTCTTGACCTGCTGGCGTTTCTGACGACAAGGCGAA spacer
 length: 36 repeater length: 29
 9473 138872 CTTTCCACACAACACTGTTCTACGGAAAC AAAAGCAGCCCCCTGCTCGAGCCATCAGCGCCGGGAGGAGT
 spacer length: 41 repeater length: 29
 9474 138942 CTTTCCACACAACACTGTTCTACGGAAAC AGGCCGCCCGGTCAAGAAGCGCTACAAGGTGGGGGACAT spacer
 length: 39 repeater length: 29
 9475 139010 CTTTCCACACAACACTGTTCTACGGAAAC GTGGGTGTTTCGTGATGAATACGGCGGTATTCATTA spacer
 length: 35 repeater length: 29
 9476 139074 CTTTCCACACAACACTGTTCTACGGAAAC TATGAGGGCGTTCTCAGCCCTTCCCGATACCGGTCA spacer
 length: 37 repeater length: 29
 9477 139140 CTTTCCACACAACACTGTTCTACGGAAAC CTTGCGGAAGTTCGCGAGGGTCTAAATGAAAATTATGTT spacer
 length: 39 repeater length: 29
 9478 139208 CTTTCCACACAACACTGTTCTACGGAAAC ATTATCATGTGCCCTGGGAGAGGGTGGATGATGTGGT spacer
 length: 37 repeater length: 29
 9479 139274 CTTTCCACACAACACTGTTCTACGGAAAC GGACCGAGGACCCGAGGACCCTCGCGGCCGAGTTCGT spacer
 length: 37 repeater length: 29
 9480 139340 CTTTCCACACAACACTGTTCTACGGAAAC AAAGACGTGTACGCGGAAGTGAACGCAGAGGATGGG spacer
 length: 36 repeater length: 29
 9481 139405 CTTTCCACACAACACTGTTCTACGGAAAC TTCTTATTGATGAAAAGATAAAGGAAGGGTACTTTTT spacer

length: 37 repeater length: 29
9482 139471 CTTTCCACACAACACTGTTCTACGGAAAC GGTAGTTGATGAGGCAACTCATTATCAATATGTGTTCCGCT
spacer length: 41 repeater length: 29
9483 139541 CTTTCCACACAACACTGTTCTACGGAAAC CCTCGACAAGACGATAGAGGCCATCTGCAAAGCGTGCGGT spacer
length: 40 repeater length: 29
9484 139610 CTTTCCACACAACACTGTTCTACGGAAAC TAGATTTGGGCGATTTCTGAATCGCTGAGGGCGCGCGTA spacer
length: 39 repeater length: 29
9485 139678 CTTTCCACACAACACTGTTCTACGGAAAC TCGGGCCGCGGTAGCATCACACGGAAGGACCTTTA spacer
length: 36 repeater length: 29
9486 139743 CTTTCCACACAACACTGTTCTACGGAAAC CCGTTCACTCCGGGTGGTGAAAAGATGGCGTCCCCGTG spacer
length: 38 repeater length: 29
9487 139810 CTTTCCACACAACACTGTTCTACGGAAAC CAAATAACTGCTCAAAGGCTGGGTCGACGAAGTATGCTT spacer
length: 39 repeater length: 29
9488 139878 CTTTCCACACAACACTGTTCTACGGAAAC AGCTTACC GTTACTCAGGCCGACGTCTCCGCTATCA spacer
length: 36 repeater length: 29
9489 139943 CTTTCCACACAACACTGTTCTACGGAAAC ACATACATAAGTCGAGGGGTCCGCTCGGAGTTTGGATTT spacer
length: 39 repeater length: 29
9490 140011 CTTTCCACACAACACTGTTCTACGGAAAC TCGATGAAGGACCCGCGAGCATGGAGAGGGACCCCG spacer
length: 36 repeater length: 29
9491 140076 CTTTCCACACAACACTGTTCTACGGAAAC GTATTCCCCG
9492
9493
9494 crispr 3
9495 345767 GTTGCAATAAGACTCTAGGAGAATTGAAAG TGGGCTTAGCGATAAGCCAAAGCGGTATTTTCGTAT spacer
length: 36 repeater length: 30
9496 345833 GTTGCAATAAGACTCTAGGAGAATTGAAAG TGAGGATGAGTCCACCGCTATGATTATCTTAGTCCGG spacer
length: 38 repeater length: 30
9497 345901 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAAACGCAGCTGTGCCCTTGTTGAGGTACTCTGTGAAC spacer
length: 38 repeater length: 30
9498 345969 GTTGCAATAAGACTCTAGGAGAATTGAAAG TCCGCCGGGGGTGGGCCTCTTTGCGGGTTCTCCCCT spacer
length: 37 repeater length: 30
9499 346036 GTTGCAATAAGACTCTAGGAGAATTGAAAG GGTCGGGCAGGCTGGTGAGGGCCAGTTCTATTATGC spacer
length: 37 repeater length: 30
9500 346103 GTTGCAATAAGACTCTAGGAGAATTGAAAG TATGCTCCTCTATACTTTTCCTTTCCATGCTCATGCTT spacer
length: 37 repeater length: 30
9501 346170 GTTGCAATAAGACTCTAGGAGAATTGAAAG GCCCGATACGGGCTACTGGAGGATTCTGCTTTAATT spacer
length: 36 repeater length: 30
9502 346236 GTTGCAATAAGACTCTAGGAGAATTGAAAG TCATCACGAAGAGGGAGAGGGTTATCACCTCGAA spacer
length: 35 repeater length: 30
9503 346301 GTTGCAATAAGACTCTAGGAGAATTGAAAG CGTATTTCGTCGTCCTGTGCGGTGGCGTCTTAAAGTG spacer
length: 37 repeater length: 30
9504 346368 GTTGCAATAAGACTCTAGGAGAATTGAAAG GTGAGCTCGTACTCTGCAAGATCGTTCAGTTCAATC spacer
length: 36 repeater length: 30
9505 346434 GTTGCAATAAGACTCTAGGAGAATTGAAAG TCGGCTGGGTGGCGGGTTTATACGCGCGTGGTCAAAA spacer
length: 38 repeater length: 30
9506 346502 GTTGCAATAAGACTCTAGGAGAATTGAAAG GGTCCAGCTCTACGACCATGAGTTCCAGCCGTGTAACGA
9507
9508
9509 crispr 4
9510 701928 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTACGACCACCTCCGTGTGGGTTTTTCAGTACTCTTT spacer
length: 36 repeater length: 30
9511 701994 GTTGCAATAAGACTCTAGGAGAATTGAAAG CGCTTTGTTAGCTTCCGCTGTAACAATCGCGGTTGTT spacer
length: 37 repeater length: 30
9512 702061 GTTGCAATAAGACTCTAGGAGAATTGAAAG GATGACCTTAAACGTGGTCCCATCTGCCGTATCTCCAT spacer
length: 39 repeater length: 30
9513 702130 GTTGCAATAAGACTCTAGGAGAATTGAAAG CAGAGGGACCACTCCCCCTGTTTCATCTCTGCGTAT spacer
length: 37 repeater length: 30
9514 702197 GTTGCAATAAGACTCTAGGAGAATTGAAAG AGGACGTGGAAAAAGTCGTCAGGGACTTTTTTCGGGTGG spacer
length: 38 repeater length: 30
9515 702265 GTTGCAATAAGACTCTAGGAGAATTGAAAG ACTTCGCGAAGTACCACCCAGGCTGTACAAGCGGCTG spacer
length: 38 repeater length: 30
9516 702333 GTTGCAATAAGACTCTAGGAGAATTGAAAG TAATCTCCAGTGGAAAAATAAAACCCCTTACTCACCC spacer
length: 37 repeater length: 30
9517 702400 GTTGCAATAAGACTCTAGGAGAATTGAAAG CAGTTTTCTCGTTGAGAGGCCAGAGCACGTCGAGAAG spacer
length: 37 repeater length: 30
9518 702467 GTTGCAATAAGACTCTAGGAGAATTGAAAG TAACCTGAACTTCCTGAAGATATAAGTCATTTCCCCA spacer
length: 37 repeater length: 30
9519 702534 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTGAAGTAGTCGTCCCATATCTCGTTAGCCAGGCGAAC spacer
length: 38 repeater length: 30
9520 702602 GTTGCAATAAGACTCTAGGAGAATTGAAAG TGAATTATTTCCACACTTTAAAAAGAACCGCAAAAA spacer
length: 36 repeater length: 30

9521 702668 GTTGCAATAAGACTCTAGGAGAATTGAAAG CACTAAGGTGAAACTGACCCCCAAGGGGTTCTTTTACC spacer
 length: 38 repeater length: 30
 9522 702736 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTAGCAGATACTGGGTATGACATTCGTGATATTGAGA spacer
 length: 37 repeater length: 30
 9523 702803 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTTTATCTCTCTACGACCTTTAAAGCCTCCTTCTC spacer
 length: 37 repeater length: 30
 9524 702870 GTTGCAATAAGACTCTAGGAGAATTGAAAG AACGACGGCCTCACAATTGGGGCGTTCATCACCGGCG spacer
 length: 37 repeater length: 30
 9525 702937 GTTGCAATAAGACTCTAGGAGAATTGAAAG GTTGGTTGATGCTGGGGTTATTTATCGTTGGAGGACC spacer
 length: 37 repeater length: 30
 9526 703004 GTTGCAATAAGACTCTAGGAGAATTGAAAG CACTTGAGAACGGCCACGCCACGGACGAGGACATAG spacer
 length: 36 repeater length: 30
 9527 703070 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTCTGACCACCTCCACCGTCCGTGAAGCCGACCTTG spacer
 length: 36 repeater length: 30
 9528 703136 GTTGCAATAAGACTCTAGGAGAATTGAAAG CGAGGAGAACGTCTATTTCAACGAGTATGACGTGGCA spacer
 length: 37 repeater length: 30
 9529 703203 GTTGCAATAAGACTCTAGGAGAATTGAAAG AACATCGTCGAGAAAATCGTCGCGAGCATCGCCCCGG spacer
 length: 37 repeater length: 30
 9530 703270 GTTGCAATAAGACTCTAGGAGAATTGAAAG CGACTCCCTCGCTGAAGAACTACCAGTTTGATCTTC spacer
 length: 36 repeater length: 30
 9531 703336 GTTGCAATAAGACTCTAGGAGAATTGAAAG TGCATCGATAAGGGTGTGCTCGCCCGTGAGGTTCTGTG spacer
 length: 37 repeater length: 30
 9532 703403 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTGTTTATCACGGGCGGGGCCGTCATTTGGTATCCGG spacer
 length: 37 repeater length: 30
 9533 703470 GTTGCAATAAGACTCTAGGAGAATTGAAAG GTAGACTCTAATGTGCGCCAGCGTCGTATTCGTCAATAG spacer
 length: 38 repeater length: 30
 9534 703538 GTTGCAATAAGACTCTAGGAGAATTGAAAG TGAAAATCCACCAATTCTGACCTGCGCCCCACACGGTTAA
 spacer length: 40 repeater length: 30
 9535 703608 GTTGCAATAAGACTCTAGGAGAATTGAAAG ACCTCCTCCG
 9536
 9537
 9538 crispr 5
 9539 1907424 GTTGCAATAAGACTCTGGGAGAATTGAAA GTCGGGAACGCCCAAGTTTATTACGCGCCGATTACCT spacer
 length: 38 repeater length: 29
 9540 1907491 GTTGCAATAAGACTCTGGGAGAATTGAAA GCGGTTGGCTCATCGGTAGAAACGGGCTCATCTATAATC spacer
 length: 39 repeater length: 29
 9541 1907559 GTTGCAATAAGACTCTGGGAGAATTGAAA GGAGGACGTGGAAAAAGTCGTCAGGGACTTTTTTCGG spacer
 length: 36 repeater length: 29
 9542 1907624 GTTGCAATAAGACTCTGGGAGAATTGAAA GAGATGAAACGCCGTCTGGACATTGACGATGAAGAAA spacer
 length: 37 repeater length: 29
 9543 1907690 GTTGCAATAAGACTCTGGGAGAATTGAAA GCGAAAACGGGTCGGGCTCGAACTCATCAAGCTCAAAGGC
 spacer length: 40 repeater length: 29
 9544 1907759 GTTGCAATAAGACTCTGGGAGAATTGAAA GTTTACTAGCTCTGGTGCTATCAACGCCCAGGTGTAT spacer
 length: 37 repeater length: 29
 9545 1907825 GTTGCAATAAGACTCTGGGAGAATTGAAA GGGAGGACGACGGAGCCCCCTCATAGTCGAGGGGAAAGGA spacer
 length: 39 repeater length: 29
 9546 1907893 GTTGCAATAAGACTCTGGGAGAATTGAAA GAGTAGGTCCCAGTTTGTTAAGTAGCGGCTCAATCTC spacer
 length: 38 repeater length: 29
 9547 1907960 GTTGCAATAAGACTCTGGGAGAATTGAAA GTTGGCCTCGGTGCGGTTACCTGGGTAAAGGTCGCGTT spacer
 length: 39 repeater length: 29
 9548 1908028 GTTGCAATAAGACTCTGGGAGAATTGAAA CTGGTAGAATGTGTTAGGTCCTGGGTTGAGCGTCTAAAG spacer
 length: 39 repeater length: 29
 9549 1908096 GTTGCAATAAGACTCTGGGAGAATTGAAA CTGGAATACTTTGTGGACAGCATTACGCACAAGACG spacer
 length: 37 repeater length: 29
 9550 1908162 GTTGCAATAAGACTCTGGGAGAATTGAAA
 9551
 9552
 9553 GCA_000223395.1_ASM22339v1_genomic.fna (PilerCR):
 9554 START REPEAT
 SPACER
 9555 crispr 1
 9556 388806 GAAACAACCAAGAATGAATTGAAAG CACGCCAGAACTGCTGATCAAGCTGAAGGTGAAGGGAATCCAC spacer
 length: 43 repeater length: 25
 9557 388874 GAAACAACCAAGAATGAATTGAAAG AACGACGTTGACTGGGGCGACGCTAGGGTCATAGTGGTGGACTCGCC
 spacer length: 47 repeater length: 25
 9558 388946 GAAACAACCAAGAATGAATTGAAAG TGCTAGGCTTATGCCCATCGCCCTTTCTGCCTCGTGTATCTTGGT
 spacer length: 45 repeater length: 25
 9559 389016 GAAACAACCAAGAATGAATTGAAAG TTCTTGCCATGGGCGAGCGAGTAGAGGTACCTAGCCGCCAGGAG spacer
 length: 44 repeater length: 25
 9560 389085 GAAACAACCAAGAATGAATTGAAAG CATTGACGTATCTAGGTTCCACCCACAGACGTGCCCTCTGAT spacer
 length: 44 repeater length: 25

9561 389154 GAAACAACCAAGAATGAATTGAAAG AACCTAACACGGCTACTCACAAGCCACCACGGGCCATCG spacer
 length: 39 repeater length: 25
 9562 389218 GAAACAACCAAGAATGAATTGAAAG CACGTCCTCGGGCTTCTGGAGCCGCTTCCTGAGCTTGAATACT spacer
 length: 43 repeater length: 25
 9563 389286 GAAACAACCAAGAATGAATTGAAAG GACCTGGGTTTGGGCGGCCATCCCACACACACCCCGCCGGTCCG
 spacer length: 45 repeater length: 25
 9564 389356 GAAACAACCAAGAATGAATTGAAAG GCACATGTTCTGCAAACCTTACCCCGCTAGAGTCCACCAA spacer
 length: 42 repeater length: 25
 9565 389423 GAAACAACCAAGAATGAATTGAAAG CACAAGATAGCCGGTATTGACATTGATGAAGAGGAGCTGACGG spacer
 length: 43 repeater length: 25
 9566 389491 GAAACAACCAAGAATGAATTGAAAG TAACAGCAACCGGTCAGGTCAAGTTCGTGGTGAAGCAGTAC spacer
 length: 41 repeater length: 25
 9567 389557 GAAACAACCAAGAATGAATTGAAAG CCGGCGGCAGACGCGGTCTGACCTGCACTTGTCTAGCTCTCTG spacer
 length: 43 repeater length: 25
 9568 389625 GAAACAACCAAGAATGAATTGAAAG
 CCTGGCTTGGATACGTCTGGTGCAGCCGTATACGCGACGCTTCCAGTGACAC spacer length: 52 repeater
 length: 25
 9569 389702 GAAACAACCAAGAATGAATTGAAAG TTTCTCACCACGCTGGCTTACCCCGCTCTCCATGCTTTCTGT spacer
 length: 41 repeater length: 25
 9570 389768 GAAACAACCAAGAATGAATTGAAAG TTGAACTTCGTCGGGATGAAGTGCACGTTGATGTACGATGACGGCTT
 spacer length: 47 repeater length: 25
 9571 389840 GAAACAACCAAGAATGAATTGAAAG CAGCCTCATGACTAGCTTGTGCACGGCCTTGACGAGCCCGCCTAGC
 spacer length: 46 repeater length: 25
 9572 389911 GAAACAACCAAGAATGAATTGAAAG GGCCACCACCGTCAGCCCGAAGAGCGTCTCTATAGCGTCCAC spacer
 length: 42 repeater length: 25
 9573 389978 GAAACAACCAAGAATGAATTGAAAG CACCTTTGCCGGCGGCCACTCCTCGACGATCCAGAACGGCTCT spacer
 length: 43 repeater length: 25
 9574 390046 GAAACAACCAAGAATGAATTGAAAG GCGCTATACATCAGCTTGACGGCCACCGTTGTCTTGCCCGTGC spacer
 length: 43 repeater length: 25
 9575 390114 GAAACAACCAAGAATGAATTGAAAG GTTGGATTAGCTCGGTTGCTCCAGGCATACCACCCGACCCCCGAT
 spacer length: 45 repeater length: 25
 9576 390184 GAAACAACCAAGAATGAATTGAAAG GACATCCTCTGGCTTCGCTAGGCGTCGCTTCAGCTTGAAGACAAT
 spacer length: 45 repeater length: 25
 9577 390254 GAAACAACCAAGAATGAATTGAAAG CAGTAGTTCAGCTGGGCCCAGAGGACGCGGTGGTTGACCCCCACG
 spacer length: 45 repeater length: 25
 9578 390324 GAAACAACCAAGAATGAATTGAAAG AACTAATAACTCGCTCAACGTCTGCGGTGAGGAATTTTCGC spacer
 length: 44 repeater length: 25
 9579 390393 GAAACAACCAAGAATGAATTGAAAG CGCCGCGTCTAGCTCCGCCTGCACACGGGCCGCGATGGTGTGAA
 spacer length: 45 repeater length: 25
 9580 390463 GAAACAACCAAGAATGAATTGAAAG TCGATATCCCTGAGGGCGTGCTCTACGAGCATCCTTCCGTA spacer
 length: 41 repeater length: 25
 9581 390529 GAAACAACCAAGAATGAATTGAAAG TGGTGGCAGCAGCTCATAACCTGGTAGCCTGCGCCGCGCAT spacer
 length: 42 repeater length: 25
 9582 390596 GAAACAACCAAGAATGAATTGAAAG TCGGATGTTGAGGTGGCCGTGATACTCCGTACCTCCGCAACAA spacer
 length: 44 repeater length: 25
 9583 390665 GAAACAACCAAGAATGAATTGAAAG GGGGGTGTATACGTATCGGGTTAGAGGCCCTCGGGGGCGCTA spacer
 length: 42 repeater length: 25
 9584 390732 GAAACAACCAAGAATGAATTGAAAG
 TGACCACCCATCGGTAACACGCACTATTGCTTGTGCATACAACGCTCCTCGTTGCTAG spacer length: 57 repeater
 length: 25
 9585 390814 GAAACAACCAAGAATGAATTGAAAG GGCATCAAGTGCCAGGATTAGTGGCTCTTCGCCCGGAATGTCAAT
 spacer length: 45 repeater length: 25
 9586 390884 GAAACAACCAAGAATGAATTGAAAG CGCCTTGAACGTGACGATCCGCATAGATCCGCACCGGTGTTACCC
 spacer length: 45 repeater length: 25
 9587 390954 GAAACAACCAAGAATGAATTGAAAG CCATCCATGCAGACGGTGGTGAATGCCGGACATAGACGATGT spacer
 length: 43 repeater length: 25
 9588 391022 GAAACAACCAAGAATGAATTGAAAG GTTCTCGCCGCCGTAGTACATGCGTATCGTCACCGTCCCGTT spacer
 length: 42 repeater length: 25
 9589 391089 GAAACAACCAAGAATGAATTGAAAG CGAGACCCTCAGCGACGCGCTCTCTAACGCTGTTTAC spacer
 length: 37 repeater length: 25
 9590 391151 GAAACAACCAAGAATGAATTGAAAG TATGCCCTGTGGACGATGTCCCCGAGGAAGAGCCAGGGCTCCTGCATGC
 spacer length: 50 repeater length: 25
 9591 391226 GAAACAACCAAGAATGAATTGAAAG ATTACCTACC
 9592
 9593
 9594 crispr 2
 9595 425839 CTTTCAATTCATTCTTTGTTGTTTC GTCCTCGCGGCGCTAGTGCTACTTGTGCCTGCTCTGGCGGCTAGCAT
 spacer length: 47 repeater length: 25
 9596 425911 CTTTCAATTCATTCTTTGTTGTTTC CGGCAAATGCAGCACGTTGTAGTGCCATACCTATCTGCATGGC spacer
 length: 43 repeater length: 25
 9597 425979 CTTTCAATTCATTCTTTGTTGTTTC CTACAGCCAGTGGCGACGATGGACGATGTGAAGACGCTCCAC spacer

length: 42 repeater length: 25
9598 426046 CTTTCAATTCATTCTTTGTTGTTTC TCGTATACCTGGCGGAGTGGCTCCGTGCTCATTATCGTGTCTAG spacer
length: 44 repeater length: 25
9599 426115 CTTTCAATTCATTCTTTGTTGTTTC CCGCTACGCCGCACTCGTTGACCTTCCGCCCCATCCCAAGAGTAT
spacer length: 45 repeater length: 25
9600 426185 CTTTCAATTCATTCTTTGTTGTTTC CCGTGCGGGCTGGGGAGGGGCGGGCGGAGACACCGAGGCACAGC spacer
length: 44 repeater length: 25
9601 426254 CTTTCAATTCATTCTTTGTTGTTTC GAGCCGCAGCAGAGACTCCTCCTGGCCCCGGCACCGGGT spacer
length: 38 repeater length: 25
9602 426317 CTTTCAATTCATTCTTTGTTGTTTC CACTACGACGACTACCAGCCAACAAGCTTCGACAACGAC spacer
length: 39 repeater length: 25
9603 426381 CTTTCAATTCATTCTTTGTTGTTTC CTCACAGCACGTCACCCCACTACCATGACAACCACCCTGCCA spacer
length: 42 repeater length: 25
9604 426448 CTTTCAATTCATTCTTTGTTGTTTC ACATAGTGCCGCTTGAGCGCATTGACGACCCGGAGCGGTTC spacer
length: 41 repeater length: 25
9605 426514 CTTTCAATTCATTCTTTGTTGTTTC CCGCCCTGCTGTACGCTATCAAACAAAATCCGAACATACTGCGC spacer
length: 44 repeater length: 25
9606 426583 CTTTCAATTCATTCTTTGTTGTTTC GTGCGCATGCTCGTGCTAGTCACCCGCGGATTGCACTACTTC spacer
length: 42 repeater length: 25
9607 426650 CTTTCAATTCATTCTTTGTTGTTTC TTTGGTATCGGTATTCTGCTTGGTGCAATTGCTAACGCCACCAA spacer
length: 44 repeater length: 25
9608 426719 CTTTCAATTCATTCTTTGTTGTTTC CTTATGCCCTCTTTTGCCCACTTGCGGAATAGCTCTATCCACTGA
spacer length: 45 repeater length: 25
9609 426789 CTTTCAATTCATTCTTTGTTGTTTC TACGAGGCGCCCGACTGGCACCCGGAGGGAGTCACGGTAACCGTG
spacer length: 45 repeater length: 25
9610 426859 CTTTCAATTCATTCTTTGTTGTTTC TGGGCAGCCGCCAAAGCCCGTCTATGCCAGCGGCGGCTAC spacer
length: 40 repeater length: 25
9611 426924 CTTTCAATTCATTCTTTGTTGTTTC
TAGGCCTGCTAACACCCTGGCTCATACTAGGAGCAATGGCGACGGGCTACGT spacer length: 52 repeater
length: 25
9612 427001 CTTTCAATTCATTCTTTGTTGTTTC CTGGCCCTGCAGGTCGATCACTGGGGTTATCGTGGTGTT spacer
length: 39 repeater length: 25
9613 427065 CTTTCAATTCATTCTTTGTTGTTTC AAAAGATTGCTAAATGGCTCGAAGAGGACTTGTCTGACGAA spacer
length: 41 repeater length: 25
9614 427131 CTTTCAATTCATTCTTTGTTGTTTC GGGTTCATAGCATGGGCGGTTGGTATAGACGCCGAGATGGCCAGG
spacer length: 45 repeater length: 25
9615 427201 CTTTCAATTCATTCTTTGTTGTTTC TAAGGGCGAGGAGCGCGAGGTTGACATGTGGGTCGTG spacer
length: 37 repeater length: 25
9616 427263 CTTTCAATTCATTCTTTGTTGTTTC CTCGTCGCTACCCTCGATGAGGTACGGTGGTAGCATGAGCGCTGT
spacer length: 45 repeater length: 25
9617 427333 CTTTCAATTCATTCTTTGTTGTTTC GCTCAGGTCTCCGGTGCGTTCTCCAGCGCGTAGTTAAC spacer
length: 39 repeater length: 25
9618 427397 CTTTCAATTCATTCTTTGTTGTTTC GGGCGGACAGTTCTTCCACTACACGGTGTTGTCTGGCTAACG spacer
length: 43 repeater length: 25
9619 427465 CTTTCAATTCATTCTTTGTTGTTTC TATGCCTCGCGCCTTGGCCCAAGAACCTATATCGCGTACTCGTG spacer
length: 44 repeater length: 25
9620 427534 CTTTCAATTCATTCTTTGTTGTTTC CCAGGATGGCCGCCCGCGGCGCAAGATGTCCGCCTCTACCAA spacer
length: 43 repeater length: 25
9621 427602 CTTTCAATTCATTCTTTGTTGTTTC TCGGCTCGGCTTCCGTTCCTAGAGCGGCGGTATCGCCTAGAA spacer
length: 42 repeater length: 25
9622 427669 CTTTCAATTCATTCTTTGTTGTTTC TATGTAACGCCGCGTTTTCAGTGGCATGACGATGAGATGGGTG spacer
length: 42 repeater length: 25
9623 427736 CTTTCAATTCATTCTTTGTTGTTTC ACGAGAGCGGCGGCACGATATGCGAGTGTGAAGCCGACGATGTC spacer
length: 44 repeater length: 25
9624 427805 CTTTCAATTCATTCTTTGTTGTTTC ACAGGGCCTCTCTACTCGACGCCAGGAAGCTGGTAAGGGTA spacer
length: 41 repeater length: 25
9625 427871 CTTTCAATTCATTCTTTGTTGTTTC CACGTTCTCCAGCCACTTTAGGAGCCACTCTTTCTTCTCCC spacer
length: 41 repeater length: 25
9626 427937 CTTTCAATTCATTCTTTGTTGTTTC CCATGCGGCGGCTGCCGCTTCTCCACCAGCCGTCTTCATA spacer
length: 40 repeater length: 25
9627 428002 CTTTCAATTCATTCTTTGTTGTTTC CTCGACCTTATCGCATGGCATGCAGTGAGCATGAGGAATGTC spacer
length: 42 repeater length: 25
9628 428069 CTTTCAATTCATTCTTTGTTGTTTC CGCATACCCTCTATACGCGGTGCGGGGATCCGGAATGGTGG spacer
length: 42 repeater length: 25
9629 428136 CTTTCAATTCATTCTTTGTTGTTTC CAGGCTTGGGTGCTGTCCACGCCCGAAGTCCGGTATCTTGCCAGG
spacer length: 45 repeater length: 25
9630 428206 CTTTCAATTCATTCTTTGTTGTTTC ACGTAGCTTAGGGTGAACATGCCAACCGCTGGCTCTGTGTG spacer
length: 42 repeater length: 25
9631 428273 CTTTCAATTCATTCTTTGTTGTTTC GAGGCTCTGGCAGATGGCCAAGGGCAGTGCTGGCAAGAAGCGG spacer
length: 43 repeater length: 25
9632 428341 CTTTCAATTCATTCTTTGTTGTTTC CGTCCTTCGCGGGTTTACGCGTGGGGGTGCGTGGGATGGAGGCCGC

spacer length: 46 repeater length: 25
 9633 428412 CTTTCAATTCATTCTTTGTTGTTTC ACACGCGTTTTTTCAACTTGC GCGACCTCGCACATCACGATCTGC
 spacer length: 45 repeater length: 25
 9634 428482 CTTTCAATTCATTCTTTGTTGTTTC TTACGCGGTAGGCCCCACGCGGAGGTGGTTCGCGGGTGAAG spacer
 length: 39 repeater length: 25
 9635 428546 CTTTCAATTCATTCTTTGTTGTTTC TATCGCGACAAACGTGCGCAGTGATGGACGAATATACCTC spacer
 length: 40 repeater length: 25
 9636 428611 CTTTCAATTCATTCTTTGTTGTTTC ACAGTGGAGGTGAGCAAGCCATCCGACTGGTCTAGGAACAGGGCTA
 spacer length: 46 repeater length: 25
 9637 428682 CTTTCAATTCATTCTTTGTTGTTTC ATGGGCTGTGTGCGGAGAACTGCTACCACGCGTGTATCATGGCATTG
 spacer length: 47 repeater length: 25
 9638 428754 CTTTCAATTCATTCTTTGTTGTTTC CCGTGTGTGGCAAAAGTCGAAGGCAGAGGCGGCTACAAACCAA spacer
 length: 43 repeater length: 25
 9639 428822 CTTTCAATTCATTCTTTGTTGTTTC CTTGATTCTCAGCGCCACGAACGACGCTCTAGTATCGTCAATGAC
 spacer length: 45 repeater length: 25
 9640 428892 CTTTCAATTCATTCTTTGTTGTTTC AGGCTGAACAGCTAGCACGGGGGAGGACACGAGCCATGAACGA spacer
 length: 43 repeater length: 25
 9641 428960 CTTTCAATTCATTCTTTGTTGTTTC GTGACGGGGTACCTAGCCACGGTTGTACCTCCTAGATGTTTCATA
 spacer length: 45 repeater length: 25
 9642 429030 CTTTCAATTCATTCTTTGTTGTTTC TCGCGGTAATAGTCCCCAGCGTCCGGGTCCACTGGTATCTCGA spacer
 length: 43 repeater length: 25
 9643 429098 CTTTCAATTCATTCTTTGTTGTTTC ACTGAGGCCAGGGAGGAGCGGGAGCAGAAGCCCAGCGAGGCTTG spacer
 length: 44 repeater length: 25
 9644 429167 CTTTCAATTCATTCTTTGTTGTTTC CGCGCGACGTTATGGTCGTTCCCGCCGCGTCCGCCTCAT spacer
 length: 39 repeater length: 25
 9645 429231 CTTTCAATTCATTCTTTGTTGTTTC CTCGCTTCGAGAGGATAGTGATAAGGTGCGAGCCTATGACG spacer
 length: 41 repeater length: 25
 9646 429297 CTTTCAATTCATTCTTTGTTGTTTC GTTAAACTAGAAATGAAAGCGCAAGGTTGTGAAAACGGGTG spacer
 length: 41 repeater length: 25
 9647 429363 CTTTCAATTCATTCTTTGTTGTTTC CCCAGAAATATCTCGAACC GGAAATATCGAGCCCCGATAGGGTCACATTC
 spacer length: 50 repeater length: 25
 9648 429438 CTTTCAATTCATTCTTTGTTGTTTC CTCACCCACCCGACCAGCGACCCATCACTAGCATTGTAGAACTCC
 spacer length: 45 repeater length: 25
 9649 429508 CTTTCAATTCATTCTTTGTTGTTTC GTATTTGCACCACCAGCCGCAAGGCAGTATATGCCGCTTTTTTCA spacer
 length: 44 repeater length: 25
 9650 429577 CTTTCAATTCATTCTTTGTTGTTTC CGCCTGGAGGTCTTCTGCGAGTGCAAGGGGTGTAGAGCCA spacer
 length: 40 repeater length: 25
 9651 429642 CTTTCAATTCATTCTTTGTTGTTTC ATGATCTCAAATCGCGTCTCTTTACCGCCGCGATCCTCTCCAGG spacer
 length: 44 repeater length: 25
 9652 429711 CTTTCAATTCATTCTTTGTTGTTTC CATCAACGCTGTATCGTTCTTCCGCGATACGCCAAACCACTTG spacer
 length: 43 repeater length: 25
 9653 429779 CTTTCAATTCATTCTTTGTTGTTTC GGATGTTACAACCCCAATAGTACCCAGTGTTGCATGTTCT spacer
 length: 40 repeater length: 25
 9654 429844 CTTTCAATTCATTCTTTGTTGTTTC CGCGAGTGGTGGTTCGTGAAGGCGCGTCGCATAACCGTG spacer
 length: 39 repeater length: 25
 9655 429908 CTTTCAATTCATTCTTTGTTGTTTC CGCAGTTCCTGGCCACTGCCCCGCCAGGTGCTAGAGAAGCTCGA spacer
 length: 43 repeater length: 25
 9656 429976 CTTTCAATTCATTCTTTGTTGTTTC TTTGGCTTCTCTTCATCCTCTAGACAATCACCGAGAATCAAGTC spacer
 length: 44 repeater length: 25
 9657 430045 CTTTCAATTCATTCTTTGTTGTTTC ATACATGTATGGGGTGGAGGTAGGTGATGCGACCAGTCATAGGCC
 spacer length: 45 repeater length: 25
 9658 430115 CTTTCAATTCATTCTTTGTTGTTTC GCGCAAATGCTCGATACGTCCGCGGGAATATCCGCCTGTAGGCCTCCAG
 spacer length: 49 repeater length: 25
 9659 430189 CTTTCAATTCATTCTTTGTTGTTTC AAGTCCGGAATCTCGCTGGAGATGCCGAGGCGCGGTTTCGA spacer
 length: 41 repeater length: 25
 9660 430255 CTTTCAATTCATTCTTTGTTGTTTC ACGGCCGCTGGCATATCCTCGCTCAGTAGCGTAGCTCCGATCAA spacer
 length: 44 repeater length: 25
 9661 430324 CTTTCAATTCATTCTTTGTTGTTTC CTGAAGGTTATGCTGGTGGTGTATGATGGTGAATGCCAGTTA spacer
 length: 43 repeater length: 25
 9662 430392 CTTTCAATTCATTCTTTGTTGTTTC GTCAACATCA
 9663
 9664
 9665 crispr 3
 9666 437564 GAAACAACCAAGAATGAATTGAAAG CTTACGCGCGTAGTAGTGGCGCTCGAGACTCCTTGGCGAGTAG spacer
 length: 43 repeater length: 25
 9667 437632 GAAACAACCAAGAATGAATTGAAAG TTCATCACGGTCGGTATGAGTGGGAGCGGCGGGTTTGG spacer
 length: 38 repeater length: 25
 9668 437695 GAAACAACCAAGAATGAATTGAAAG TCCAGGTGCTCGATGGCCCATAGTGGCGCCTCTACAAGCGCGAATG
 spacer length: 46 repeater length: 25
 9669 437766 GAAACAACCAAGAATGAATTGAAAG AAGGATGCGTTTCGAGAACTGATATCGCGTTGTCAATTTCCCTCCGGG
 spacer length: 47 repeater length: 25

9670 437838 GAAACAACCAAGAATGAATTGAAAG GAGAGGAAGGCTGCCCCGACCTCGTCCGCTCTATCGTCGATG spacer
 length: 43 repeater length: 25
 9671 437906 GAAACAACCAAGAATGAATTGAAAG GCTATCATCGCCTCCAGTTTGGCAATGATTTGGTCAGCCTGT spacer
 length: 42 repeater length: 25
 9672 437973 GAAACAACCAAGAATGAATTGAAAG AAGCTTCTTGTACGTCTCAACGTCGGCCTCAACGCGTATTACTTTTC
 spacer length: 46 repeater length: 25
 9673 438044 GAAACAACCAAGAATGAATTGAAAG GCGACGTACGCGATGTGTGGCGACTCGTTGAACTGTGTGTTCTGCC
 spacer length: 46 repeater length: 25
 9674 438115 GAAACAACCAAGAATGAATTGAAAG TACAAACTCGTAGTTCTCTCCGCCACGGTTTATAACGATGA spacer
 length: 41 repeater length: 25
 9675 438181 GAAACAACCAAGAATGAATTGAAAG TGCCTCGAACCTCGCGGCGGCCCTGTTATGGTTCGTGGCGGTGT spacer
 length: 44 repeater length: 25
 9676 438250 GAAACAACCAAGAATGAATTGAAAG AACTATGCTCTGTAGTAGCCTGGGAAGCTCCGCGCTCATCCCCG spacer
 length: 44 repeater length: 25
 9677 438319 GAAACAACCAAGAATGAATTGAAAG TAGTACACGCAATACGGCATTGCACACCCACCACGCGTACACTCTA
 spacer length: 46 repeater length: 25
 9678 438390 GAAACAACCAAGAATGAATTGAAAG TAGTGTGGCAGCAGTGGCTATGACTTAGTGCCGGGCTATAGCCA
 spacer length: 46 repeater length: 25
 9679 438461 GAAACAACCAAGAATGAATTGAAAG GTGACACTATACAACATCACGGACGTCGTGAAGAGGAGCGT spacer
 length: 41 repeater length: 25
 9680 438527 GAAACAACCAAGAATGAATTGAAAG TTAACCCGGCCGCGCGCCGCGACGATCTCGAGATCGCGCCGGCG spacer
 length: 44 repeater length: 25
 9681 438596 GAAACAACCAAGAATGAATTGAAAG GTGATAAAGTACGGCGCGCAATACGGCACCGGGTTCTGGATT spacer
 length: 42 repeater length: 25
 9682 438663 GAAACAACCAAGAATGAATTGAAAG TGATCTCCTGTGGGTTCGGTTTCTCCACCCTGATCTCGACATCA spacer
 length: 44 repeater length: 25
 9683 438732 GAAACAACCAAGAATGAATTGAAAG ATCGGTACGTCTGTAGGACACCCCTCCGGTGATGCCGATGCA
 9684
 9685
 9686 crispr 4
 9687 461091 CTTTCAATTCATTCTTGGTTGTTTC GCAATACTACGTGGTGAAGAGGTGCCGCCAGAGTCAGGCATTGAC
 spacer length: 45 repeater length: 25
 9688 461161 CTTTCAATTCATTCTTGGTTGTTTC GAGAGCATGACGTGTGTGTCACAACCGGCAAGAAGGGCGTGTGTAT
 spacer length: 46 repeater length: 25
 9689 461232 CTTTCAATTCATTCTTGGTTGTTTC CAGCGCCTGCTCCTAGGCCGTGACCGTGACGAGGAGACGGTCTATGTCACC
 spacer length: 51 repeater length: 25
 9690 461308 CTTTCAATTCATTCTTGGTTGTTTC GGGTGTGGTAGCCGAACGATAGCCTGGCTAGTGATAGTGTGTA spacer
 length: 43 repeater length: 25
 9691 461376 CTTTCAATTCATTCTTGGTTGTTTC CCAAACCTGCCACCAATGCCTCAGCCAACACCAAAACCGTAAG spacer
 length: 43 repeater length: 25
 9692 461444 CTTTCAATTCATTCTTGGTTGTTTC TCCCCGCGATTGTGCGATACGCCGGGTGTCGTTACCGTTGG spacer
 length: 40 repeater length: 25
 9693 461509 CTTTCAATTCATTCTTGGTTGTTTC CTGTGTCCGCGCCCCGGGGACACCCCTCCCTCAGCATGTGCTC spacer
 length: 42 repeater length: 25
 9694 461576 CTTTCAATTCATTCTTGGTTGTTTC CCCTTG TAGCGAGCCACGGCCAACACCAACCCGATGCTAGTT spacer
 length: 44 repeater length: 25
 9695 461645 CTTTCAATTCATTCTTGGTTGTTTC ACCGCTCTACGCCACCCCTACCTGAACGTCACGACCGG spacer
 length: 39 repeater length: 25
 9696 461709 CTTTCAATTCATTCTTGGTTGTTTC ACAAACGCGCGATATATAGACGCGCGGGCTATAATATAATATAACGCGA
 spacer length: 51 repeater length: 25
 9697 461785 CTTTCAATTCATTCTTGGTTGTTTC CTCGATAGCTCTACGAATCGCCTCTGAGCGATTTATTCCACG spacer
 length: 42 repeater length: 25
 9698 461852 CTTTCAATTCATTCTTGGTTGTTTC ACGGATACGTCTCGCACAGACGTACCTCTATCGTCACTTTATCTTTT
 spacer length: 47 repeater length: 25
 9699 461924 CTTTCAATTCATTCTTGGTTGTTTC GAAACCCCTCTTGACGGGAATGTGGCAGGGCAAGTGGA spacer
 length: 38 repeater length: 25
 9700 461987 CTTTCAATTCATTCTTGGTTGTTTC CTACCAACGTGCTGGTGGCCGAGCCAGCCTAGCCCCGGACATC spacer
 length: 44 repeater length: 25
 9701 462056 CTTTCAATTCATTCTTGGTTGTTTC GGCGCTGCTGGAAGCCGTGGTGGAGTCTATACCGGTGCTGGAC spacer
 length: 43 repeater length: 25
 9702 462124 CTTTCAATTCATTCTTGGTTGTTTC
 TACCCGACTGCCAGGGGAGTACACGTTTACGCCACTAGCGAGTCACCATGGGT spacer length: 53 repeater
 length: 25
 9703 462202 CTTTCAATTCATTCTTGGTTGTTTC GCTGCTGCAGCCTTTATTGCACAGAACGGCTCGTAGCTTAC spacer
 length: 41 repeater length: 25
 9704 462268 CTTTCAATTCATTCTTGGTTGTTTC CTCGAGAGCCTCTATGAGAGCGTTAGAGGCACTAGCAAGCTCACAGTG
 spacer length: 48 repeater length: 25
 9705 462341 CTTTCAATTCATTCTTGGTTGTTTC TCCAATTGCCAGGATCCTCGAGAAGGAGTTAGGTGAAGTAGCCA spacer
 length: 44 repeater length: 25
 9706 462410 CTTTCAATTCATTCTTGGTTGTTTC CTAGGAGTTGAAGGGTTCTGAAGGCTGAGGCTGGGATGATA spacer
 length: 40 repeater length: 25

9707 462475 CTTTCAATTCATTCTTGGTTGTTTC CTCGTAGGCGAGGTGTACCGCTGGCGTGCCCATCGCCATTGCCTC
spacer length: 45 repeater length: 25

9708 462545 CTTTCAATTCATTCTTGGTTGTTTC GTAGGGGGTTGCGGGTACGCTGCATGGTTGACGAGCCGCTGGG spacer
length: 43 repeater length: 25

9709 462613 CTTTCAATTCATTCTTGGTTGTTTC CCGAGCCCCGAAGGAGCTTGGCGCGCGCTCTTCAAGGGCGA spacer
length: 41 repeater length: 25

9710 462679 CTTTCAATTCATTCTTGGTTGTTTC CGATGGCAACGAGGTTGACGTGCACTTCGACCACCTGGCGCA spacer
length: 42 repeater length: 25

9711 462746 CTTTCAATTCATTCTTGGTTGTTTC GCGTTGGAGAGGCTGCTGGAGGAGCGGAGGGTTGACGCGAG spacer
length: 41 repeater length: 25

9712 462812 CTTTCAATTCATTCTTGGTTGTTTC GCGTAGACCTTCAGCAGCGCCCCCTGCTGGCCGCTTGCCCAG spacer
length: 44 repeater length: 25

9713 462881 CTTTCAATTCATTCTTGGTTGTTTC CAGTAGCATGCCGCTATACTACGAAGTGTTCTGTAAGTGC spacer
length: 40 repeater length: 25

9714 462946 CTTTCAATTCATTCTTGGTTGTTTC ACGCAGTGTAACCCGGGAGAGTACGCGTTCAACGTGTCAGGTCAG
spacer length: 45 repeater length: 25

9715 463016 CTTTCAATTCATTCTTGGTTGTTTC ATCATGGACTTCTTCAACCGCGTGAGCGTCGTTGAGCATA spacer
length: 40 repeater length: 25

9716 463081 CTTTCAATTCATTCTTGGTTGTTTC CGGGGTACGTGGTCACAACCGCATCACCGTGTGTGCAGCGAAC spacer
length: 43 repeater length: 25

9717 463149 CTTTCAATTCATTCTTGGTTGTTTC AAACCAGCGCCGTGCCTCGGAAACGGTGATTATGTAGAAATAGC spacer
length: 44 repeater length: 25

9718 463218 CTTTCAATTCATTCTTGGTTGTTTC CTACGAATAGCATAGGCGGGCACCGTATCTACCTACCCGAGTATGG
spacer length: 46 repeater length: 25

9719 463289 CTTTCAATTCATTCTTGGTTGTTTC GCAACCCGGCCTAGCTGTAGCCATGCTTGTATGCTTCGCCATATAC
spacer length: 46 repeater length: 25

9720 463360 CTTTCAATTCATTCTTGGTTGTTTC AATAGCTCCACTACTTGGTCAACGGCGTACCCCATCCACTT spacer
length: 41 repeater length: 25

9721 463426 CTTTCAATTCATTCTTGGTTGTTTC AGGCGAAGCCCGACGAGGTTGCCGCCGAGATATCTGGTATCC spacer
length: 42 repeater length: 25

9722 463493 CTTTCAATTCATTCTTGGTTGTTTC TAGGATAGAGACGGTGAAGGGCAACGGGGCGTTCTTCGAGACTAGTG
spacer length: 47 repeater length: 25

9723 463565 CTTTCAATTCATTCTTGGTTGTTTC TGATTCTCCCACCCGGCTGAGCGGTGATGACGGCAGCCTCCACT spacer
length: 44 repeater length: 25

9724 463634 CTTTCAATTCATTCTTGGTTGTTTC AGGGCAGTAGGATTAGCGCCAGGAGTGGCGCGAGGGTTATCAAAAA
spacer length: 46 repeater length: 25

9725 463705 CTTTCAATTCATTCTTGGTTGTTTC TACCAGCAGCAGACGGCTACGCCGCGCACCCAGCGAGAGGCTATCGA
spacer length: 48 repeater length: 25

9726 463778 CTTTCAATTCATTCTTGGTTGTTTC TCCGCGCGGAGATCCATCTCTCCCGCCCCGCGCTTCGGGTAG spacer
length: 44 repeater length: 25

9727 463847 CTTTCAATTCATTCTTGGTTGTTTC TCGCTCGAGGAGGTGAGGAGGCTGGCCCAGGAGGGTAG spacer
length: 38 repeater length: 25

9728 463910 CTTTCAATTCATTCTTGGTTGTTTC GTCGCGTAGTATACGCGCCGCGGTGAGCACCCGAGCTGCTC spacer
length: 42 repeater length: 25

9729 463977 CTTTCAATTCATTCTTGGTTGTTTC CTGGCCGTGGCCCCCTCTCGCAATCGGCCTCAGCTTCCTCC spacer
length: 40 repeater length: 25

9730 464042 CTTTCAATTCATTCTTGGTTGTTTC GGAGAAGATGGCGGTCTCAGGGCCCGCCCGCGAGGCGGTCCCA
spacer length: 45 repeater length: 25

9731 464112 CTTTCAATTCATTCTTGGTTGTTTC
ATAGGGGGTCTGCTCTGGCAACACGACCTTCGAGATAACGTTCAACGTGACGAG spacer length: 52 repeater
length: 25

9732 464189 CTTTCAATTCATTCTTGGTTGTTTC CATCGAGGCTCTGGACTACCTCGCCGAGATGATAGACTATAGGG spacer
length: 44 repeater length: 25

9733 464258 CTTTCAATTCATTCTTGGTTGTTTC GCCAGGCCCCGAGGCGGTGAGGTTTGACAACGTGGAGAGGAACGGA
spacer length: 45 repeater length: 25

9734 464328 CTTTCAATTCATTCTTGGTTGTTTC ACCTTGGCGTCCGGCAGTGGCGGGGCCGACGGCCCCACCAGGCCCCGC
spacer length: 48 repeater length: 25

9735 464401 CTTTCAATTCATTCTTGGTTGTTTC GGATTGTTCTAGCATCTGCTCCGAACCCAAATCATAATTCTG spacer
length: 41 repeater length: 25

9736 464467 CTTTCAATTCATTCTTGGTTGTTTC CGTGGCATAGTGATAGTGGCAACGCATACTGACATATTCCACGTGCGTC
spacer length: 49 repeater length: 25

9737 464541 CTTTCAATTCATTCTTGGTTGTTTC TACGGCAGGAGCGCCGAGCAGGTTGAGCTCGCGAGCCTA spacer
length: 39 repeater length: 25

9738 464605 CTTTCAATTCATTCTTGGTTGTTTC TCTAGCTCTACGCTCACGTTGAGGGGCACGGCTCTCACCCC spacer
length: 41 repeater length: 25

9739 464671 CTTTCAATTCATTCTTGGTTGTTTC CATGGGCGCGGTTGAGACCTTCGAGGACAGGATAGCCTCGA spacer
length: 41 repeater length: 25

9740 464737 CTTTCAATTCATTCTTGGTTGTTTC TCTATGGTGGATGGCGAGGACGGCGACATCTGGTACGAG spacer
length: 39 repeater length: 25

9741 464801 CTTTCAATTCATTCTTGGTTGTTTC
CCGTGTCTGGTCAACCAACCAGCTCCTAGCCCCGGGCGTGCGCTGCAGCTCTTCGTA spacer length: 58

9742 464884 CTTTCAATTCATTCTTGGTTGTTTC ACGAGGTGAGAGACTTCACAGAGATAGCCCGCATAGTAGCAAAAACGC
 spacer length: 48 repeater length: 25
 9743 464957 CTTTCAATTCATTCTTGGTTGTTTC TGGAACCGCCGCCACCGTTGGCCTGACGCTATTCGTGATTG spacer
 length: 41 repeater length: 25
 9744 465023 CTTTCAATTCATTCTTGGTTGTTTC TCCGGATCCCCGCACCGCGTATAGAGGGTATGCGCGGGGGTATAA
 spacer length: 45 repeater length: 25
 9745 465093 CTTTCAATTCATTCTTGGTTGTTTC ACATGGAGGAGCCAAGGCTCATAACCGCGATACGCGAGAATG spacer
 length: 42 repeater length: 25
 9746 465160 CTTTCAATTCATTCTTGGTTGTTTC CAGAAGTCTTACGACGGATACTAGTGGTGCAAATAATG spacer
 length: 38 repeater length: 25
 9747 465223 CTTTCAATTCATTCTTGGTTGTTTC ACTACACGACCCTGCAAATTCCTATCGTGTCATAGTGTCATA spacer
 length: 42 repeater length: 25
 9748 465290 CTTTCAATTCATTCTTGGTTGTTTC GCGGTCTGGAGCCCGGTGCACGGATCTACATCTACGATGT spacer
 length: 40 repeater length: 25
 9749 465355 CTTTCAATTCATTCTTGGTTGTTTC CTGGCCGCCGCACTTGGCGTTGAGGGTGTGGAGGCAAGCG spacer
 length: 40 repeater length: 25
 9750 465420 CTTTCAATTCATTCTTGGTTGTTTC ACGAGGCAGTGTGTTAGTGACGATAGGCCGGTGTGTAGCGAGA spacer
 length: 43 repeater length: 25
 9751 465488 CTTTCAATTCATTCTTGGTTGTTTC TTAACAGCGTACTTCAGCGCTTCGCGGACGCCAACGCGTAC spacer
 length: 41 repeater length: 25
 9752 465554 CTTTCAATTCATTCTTGGTTGTTTC CGCGTTGGTCTTGTAGCTCTCTGCGCCGGCGTCCACGCGGGAGTCG
 spacer length: 46 repeater length: 25
 9753 465625 CTTTCAATTCATTCTTGGTTGTTTC CCCGCATGGGTCTACCCCTCTCCCGAGATGCGCAAGGTAGCGACC
 spacer length: 45 repeater length: 25
 9754 465695 CTTTCAATTCATTCTTGGTTGTTTC GTAGCTCTCGATCCACCCGCGGAACACAGGGTCGGCATG spacer
 length: 39 repeater length: 25
 9755 465759 CTTTCAATTCATTCTTGGTTGTTTC CAGCCTCACTAGAATCTCGTATATCTCGCGGGCTTGTGTAT spacer
 length: 42 repeater length: 25
 9756 465826 CTTTCAATTCATTCTTGGTTGTTTC GCTCGGTGTTCAAGTCGGTGGTCTACGACCGTTGCGGGTGCGTCCAGA
 spacer length: 48 repeater length: 25
 9757 465899 CTTTCAATTCATTCTTGGTTGTTTC AGTGATATGCTAGTCGGTGATTTATGGTGATAATAAACGTGCTA spacer
 length: 44 repeater length: 25
 9758 465968 CTTTCAATTCATTCTTGGTTGTTTC GTACTGAAAAGTGTGGTCTACTTGATAAGCTAAGAATGTAT spacer
 length: 42 repeater length: 25
 9759 466035 CTTTCAATTCATTCTTGGTTGTTTC AATACAAAACAATCAAGATATTGACGGGCCTGCCTTTAGTAAATGTAA
 spacer length: 48 repeater length: 25
 9760 466108 CTTTCAATTCATTCTTGGTTGTTTC TTGTAATGCGGGGTGAGGGCATGAACTGAGAGAATTAGTA spacer
 length: 41 repeater length: 25
 9761 466174 CTTTCAATTCATTCTTGGTTGTTTC GACGTCGTAATGCAGATCATGACGCGGTGGTTGCTAACGCCACT spacer
 length: 44 repeater length: 25
 9762 466243 CTTTCAATTCATTCTTGGTTGTTTC TGCGGATAGAGGAGGGGAGGATAACGTTTCCGATCGGGGTG spacer
 length: 41 repeater length: 25
 9763 466309 CTTTCAATTCATTCTTGGTTGTTTC AAAACGATCCGTGTCGAGTCCGGCCTCGCGATAATCAAGGTA spacer
 length: 42 repeater length: 25
 9764 466376 CTTTCAATTCATTCTTGGTTGTTTC
 AGCGTCACGTCCCAGCTTCTCTGCCGTAGGCGGTGTACGCTGGTTGGTCTGGA spacer length: 54 repeater
 length: 25
 9765 466455 CTTTCAATTCATTCTTGGTTGTTTC TCGCTAGGAAGGGCCGCGAGTGGGTGGCTGCCGTGAGTTATGGG spacer
 length: 44 repeater length: 25
 9766 466524 CTTTCAATTCATTCTTGGTTGTTTC ATTATCGGCA
 9767
 9768
 9769 crispr 5
 9770 473826 GAAACAACCAAGAATGAATTGAAAG GCGGAGGTAGAACCAGGCGCGTAGGAGGCGCCTGTAAAACTCT spacer
 length: 44 repeater length: 25
 9771 473895 GAAACAACCAAGAATGAATTGAAAG CATTGACGTATCTAGGTTCCACCCACAGACGTGCCCCCTCTGAT spacer
 length: 44 repeater length: 25
 9772 473964 GAAACAACCAAGAATGAATTGAAAG GCAGCATGGGCACCAACTCTGGGACTCGCTAAGGTGGAAGTTCTT
 spacer length: 45 repeater length: 25
 9773 474034 GAAACAACCAAGAATGAATTGAAAG GTGGCGGTTACCGCCGCATAAAGAAGGACAAAGCGAAGGC spacer
 length: 41 repeater length: 25
 9774 474100 GAAACAACCAAGAATGAATTGAAAG GAGCGTCACGACCTCGCCGGCGTTCTTGGTCTCCGGGAGATGCA spacer
 length: 44 repeater length: 25
 9775 474169 GAAACAACCAAGAATGAATTGAAAG TCAACCAGCTCATCAATCACCTTGAATTCTCCTCAAGCCTCCTAC
 spacer length: 46 repeater length: 25
 9776 474240 GAAACAACCAAGAATGAATTGAAAG GACACTAATGACATTAGCGGGTTTGATTGACAGGTTGACACGG spacer
 length: 43 repeater length: 25
 9777 474308 GAAACAACCAAGAATGAATTGAAAG AGACGGTGACCCGTGTGAGTGTAGAACTGATTACAGGCTCGTCT spacer
 length: 44 repeater length: 25
 9778 474377 GAAACAACCAAGAATGAATTGAAAG CGGGATGATACAGGGCAGGAGGAGCAGCGGCCTGGGCTGCAGGG spacer

length: 44 repeater length: 25
9779 474446 GAAACAACCAAGAATGAATTGAAAG CCCCCACTGGGCCCGGTTCCGGGCGGTTACCGCCTCATAGACGGA spacer
length: 44 repeater length: 25
9780 474515 GAAACAACCAAGAATGAATTGAAAG TTTCGTTGTTCTTTTCCACGCTCATCCAACCCACCGAGTGACTCATCAT
spacer length: 49 repeater length: 25
9781 474589 GAAACAACCAAGAATGAATTGAAAG ATTCCCCTCCAGGCCGGGGCTCGGGGCTAGGCTCTGGCTCGGGCTCCT
spacer length: 50 repeater length: 25
9782 474664 GAAACAACCAAGAATGAATTGAAAG ACATTCTCGAACGCGTCTATGGGCACAATGAGATTGCGGAGTTG
spacer length: 45 repeater length: 25
9783 474734 GAAACAACCAAGAATGAATTGAAAG CGATCGCGAGGATAATCCCGTTACGTAAAGCAACGATGT spacer
length: 39 repeater length: 25
9784 474798 GAAACAACCAAGAATGAATTGAAAG GCCTACGCATGAGCTCGGGGTGGGCCACGGCCAACACCACG spacer
length: 41 repeater length: 25
9785 474864 GAAACAACCAAGAATGAATTGAAAG GATCAGCTTCAACGTGATGATCCTGGCCTTGTCACCTGGTCGCT
spacer length: 45 repeater length: 25
9786 474934 GAAACAACCAAGAATGAATTGAAAG CTCTCGGGTATTTCTCGGCGCCGTAGTGCCCTCGGGCTTGAAGCGCGT
spacer length: 49 repeater length: 25
9787 475008 GAAACAACCAAGAATGAATTGAAAG AACCACCTTGCCGGTTACCACACCCGCGGTTATGATCTTG spacer
length: 40 repeater length: 25
9788 475073 GAAACAACCAAGAATGAATTGAAAG TTATCGGTGCCACGCCCGCCACCCACCTGACACTACCACC spacer
length: 41 repeater length: 25
9789 475139 GAAACAACCAAGAATGAATTGAAAG GAACTGGTGGCACGCATACTGGTACGCTCAGCAGTACGCTCGA spacer
length: 43 repeater length: 25
9790 475207 GAAACAACCAAGAATGAATTGAAAG CACAAGGGCTGGTACACTAGCGTCGAGCACTCTGGAGGCGGA spacer
length: 42 repeater length: 25
9791 475274 GAAACAACCAAGAATGAATTGAAAG CTCGATAGTATTTTTTCATAGCTTTTCAGATTACTCTTGAGCTCGT spacer
length: 44 repeater length: 25
9792 475343 GAAACAACCAAGAATGAATTGAAAG TATCGTCACTTTATCTTTTAGGTTTGGCGTTACAGCCCAGTAG spacer
length: 43 repeater length: 25
9793 475411 GAAACAACCAAGAATGAATTGAAAG GTGATACTCGCTGTGGGGATTAGCGTTGGGACGGCGCTCGCGGCGAA
spacer length: 47 repeater length: 25
9794 475483 GAAACAACCAAGAATGAATTGAAAG GCGTTATACCAGCGCCGATTGACGCGCTCGGGCGCTTCTAG spacer
length: 41 repeater length: 25
9795 475549 GAAACAACCAAGAATGAATTGAAAG CATAACTGAGAACCCAGCGCTCAAGGCGTTGTACGAGCGTAAC spacer
length: 43 repeater length: 25
9796 475617 GAAACAACCAAGAATGAATTGAAAG TTGAGGGGCTTGCACTCTATATCCAGGTGAACCCTAGTCGAT spacer
length: 42 repeater length: 25
9797 475684 GAAACAACCAAGAATGAATTGAAAG TAATTCTCCTGGTAACGCCGCTCGCAACCCCCAGTGTAGCTCCT spacer
length: 44 repeater length: 25
9798 475753 GAAACAACCAAGAATGAATTGAAAG TTTTAGCTAGGAGCGGCCACGCTGCAACGTATTGCGATATGA spacer
length: 42 repeater length: 25
9799 475820 GAAACAACCAAGAATGAATTGAAAG GATGACGATTGATATATGGCGGCGTGCGCGGTATGGAGAG spacer
length: 40 repeater length: 25
9800 475885 GAAACAACCAAGAATGAATTGAAAG CAGTCGCCGTCGTACGGCTGGTGGTTGATGTAGCCGCGTGGG spacer
length: 42 repeater length: 25
9801 475952 GAAACAACCAAGAATGAATTGAAAG CCATCCCTGC
9802
9803
9804 crispr 6
9805 492609 TCTTTCAATTCATTCTTGTTGTTTC
ATATGGGGTGAGGTGTTGATATGGGGCGAAGTTGAGAATTATGCCAGAATAA spacer length: 52 repeater
length: 26
9806 492687 TCTTTCAATTCATTCTTGTTGTTTC TCTGCTCTCCCTCTTCTCCACCATATTCTCGATGTGCTCCTCTA
spacer length: 44 repeater length: 26
9807 492757 TCTTTCAATTCATTCTTGTTGTTTC CAGTCTGTGG
9808
9809
9810 crispr 7
9811 501054 CTTTCAATTCATTCTTGTTGTTTC TACTATCCCCATGCTGCAAGAAGCGCAGGATGTGTAAC spacer
length: 39 repeater length: 25
9812 501118 CTTTCAATTCATTCTTGTTGTTTC ATGGGAGTAGGAGCCGCTTCACGACCATCACCATCCTCG spacer
length: 39 repeater length: 25
9813 501182 CTTTCAATTCATTCTTGTTGTTTC GCACGCTACCTACCCGGGTACGCGCGCCACTATCACCAGCAGGTG
spacer length: 48 repeater length: 25
9814 501255 CTTTCAATTCATTCTTGTTGTTTC GCGAGGCCTACGATTATGTAGTCTTTGAGTGTGAAGCTCTTG spacer
length: 42 repeater length: 25
9815 501322 CTTTCAATTCATTCTTGTTGTTTC GAAGTTTATTGTCATTGGTCGACATAAGTTTACACCGATTGAG spacer
length: 43 repeater length: 25
9816 501390 CTTTCAATTCATTCTTGTTGTTTC ACAAGTACGGGAAGGGCATCAGCGGAATTGCCAAGTACCTT spacer
length: 41 repeater length: 25
9817 501456 CTTTCAATTCATTCTTGTTGTTTC ACGATGTCGATGTATATCATAAATGCTTTGGCGAGTGTAAAC spacer

length: 41 repeater length: 25
9818 501522 CTTTCAATTCATTCTTGGTTGTTTC ATCCTTCCCGACCCTGGGCGAGGCCTTCGGCCTCCCGCCGCTA spacer
length: 43 repeater length: 25
9819 501590 CTTTCAATTCATTCTTGGTTGTTTC TGGAGGAGGACGTGGGGAGGGAGTACGACAGGGAGTACAACCC spacer
length: 43 repeater length: 25
9820 501658 CTTTCAATTCATTCTTGGTTGTTTC ATGGGTGTTGGAACACTCGAAGAAGCTTGACGAGCTTAAA spacer
length: 40 repeater length: 25
9821 501723 CTTTCAATTCATTCTTGGTTGTTTC GTCTAGGGTATGGCGCGGCAATACAACACCAGGAGGTCT spacer
length: 39 repeater length: 25
9822 501787 CTTTCAATTCATTCTTGGTTGTTTC TAATCTCGACTGGTCTGGGCACATTAACCCCCGATGGTAT spacer
length: 40 repeater length: 25
9823 501852 CTTTCAATTCATTCTTGGTTGTTTC
CGTGTCTGGTATTGTAAGGATTGCGTACGAGAAGGGTATACTACGATTTCGCAA spacer length: 53 repeater
length: 25
9824 501930 CTTTCAATTCATTCTTGGTTGTTTC ACAATTACAACCCCAAGAAGCGTACAATAAAGCGGGGGGATAG spacer
length: 43 repeater length: 25
9825 501998 CTTTCAATTCATTCTTGGTTGTTTC AGGAGGAGGTGCGGACGGTAGAGTCGCCACCGTACAACAACGTTAC
spacer length: 46 repeater length: 25
9826 502069 CTTTCAATTCATTCTTGGTTGTTTC
CTGGGTCAACGCCTTCGGCGCAGACCCAGCGATTCTAGACGAGATCATCAACG spacer length: 53 repeater
length: 25
9827 502147 CTTTCAATTCATTCTTGGTTGTTTC ATGCGCTAGATCTAGCATTGCAATAGTATATGCAATGAGCATC spacer
length: 43 repeater length: 25
9828 502215 CTTTCAATTCATTCTTGGTTGTTTC TCTTGAGCCA
9829
9830
9831 GCA_000226975.3_ASM22697v3_genomic.fna (PilerCR):
9832 START REPEAT
SPACER
9833 GCA_000230715.3_ASM23071v3_genomic.fna (PilerCR):
9834 START REPEAT
SPACER
9835 crispr 1
9836 3413160 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TTGTCGTGTACGCGTGTGTTTCGACGAGTTCGAGT spacer
length: 34 repeater length: 30
9837 3413224 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TTCGACAGGAGCGACGACGTGATGAACAGGTATC spacer
length: 35 repeater length: 30
9838 3413289 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCGGGTGGCGTCGGGATCGGGCCGCGAGGCATGCCG spacer
length: 36 repeater length: 30
9839 3413355 GTTTCAGACGAACCCTCGTGGGGTTGAAGC ACCCTCGAAAGCGTCGAAGTTCGGCTCGAGGTCGT spacer
length: 35 repeater length: 30
9840 3413420 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GTGGGTCTCACTGCCAGATATGGAACACGCAA spacer
length: 32 repeater length: 30
9841 3413482 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GAGCGTTGGGAGATGGTGATATGGGTGATGGTGAGA spacer
length: 36 repeater length: 30
9842 3413548 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCGTATTCAACCTCGAGCTCGTCCCCGGCCTCAACGTC spacer
length: 38 repeater length: 30
9843 3413616 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CAAGAGCCGGTCAACACATCAAGTGGGTCAAACAGG spacer
length: 37 repeater length: 30
9844 3413683 GTTTCAGACGAACCCTCGTGGGGTTGAAGC ACACCGTCTGGTGGAGGTCAGGCGCAGGACGA spacer
length: 32 repeater length: 30
9845 3413745 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTTACATGACGACCGCCCGCAGTAGCGCGTCCCCCT spacer
length: 35 repeater length: 30
9846 3413810 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GCCCGGCGGATGCTGGTCGCCGTCAAGGACGGC spacer
length: 33 repeater length: 30
9847 3413873 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GACCACCGTCCTCCCCGGTCTCCTCGCTCGAAGGGT spacer
length: 36 repeater length: 30
9848 3413939 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CACTGCCCCGAGCTGTGGAACGAGATCGAGGGCCC spacer
length: 35 repeater length: 30
9849 3414004 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CATGCCACGGTTTAAAATCAGATGGGCGTAGTAGGGC spacer
length: 37 repeater length: 30
9850 3414071 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GATGTATTTCGATGCCAGTCCGCGTTGAGTAGCTC spacer
length: 34 repeater length: 30
9851 3414135 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GACCGTCCAGTCGTAGATCGGGTAGACGTTGTAAGCGT spacer
length: 38 repeater length: 30
9852 3414203 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CCAGTCACTGATTTCGGACTGTTTGTGCGGTCATACGC spacer
length: 36 repeater length: 30
9853 3414269 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCCTTAAGCCGCCGAGTCACAACCCGAACAGACTG spacer
length: 36 repeater length: 30
9854 3414335 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCACACGCGGGACACTCTGGAATGCCGAGCCCCCT spacer
length: 34 repeater length: 30

9855	3414399	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TTCATCTCGGACATACTCAGCCCTCGTCAGTTTTGAGA	spacer
		length: 38	repeater length: 30	
9856	3414467	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CGAAAGCACCCCAAGCACCCCGAAAGCACCCCA	spacer
		length: 34	repeater length: 30	
9857	3414531	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCGGTGCCCGACTGGGTTGACGAAAGCGACGTGCTT	spacer
		length: 36	repeater length: 30	
9858	3414597	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ACCGACTCGTTGATCCACCAGTTCGCGAGGACGGT	spacer
		length: 35	repeater length: 30	
9859	3414662	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GACGAAGAGTCGCGGACGTGGGACGAGGGCGCTCT	spacer
		length: 35	repeater length: 30	
9860	3414727	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCCGGTGGCGACGTCGTCAAGAGCGTGCACGAGCAA	spacer
		length: 36	repeater length: 30	
9861	3414793	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TCGCGAAGGTCGTCCTCGTCGAGCGTGTCCAGCTGG	spacer
		length: 36	repeater length: 30	
9862	3414859	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GAACTCAACCTGACCACCGACGCCTTTGAGCCGAA	spacer
		length: 35	repeater length: 30	
9863	3414924	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	AATCTCCGATACTCCGACTGTCTGATTCCGTATCCG	spacer
		length: 36	repeater length: 30	
9864	3414990	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GACCGTCGTGCAACAGCGGAGTACTACGACGGG	spacer
		length: 33	repeater length: 30	
9865	3415053	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GCCGGTCGATCACGCCGACCGTGTGGCCCGTACG	spacer
		length: 34	repeater length: 30	
9866	3415117	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TTCCAGAACGTCGCGCACGAGCTGCATCTGTACC	spacer
		length: 34	repeater length: 30	
9867	3415181	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GGACTGTTTGTGCGGTCATACGCCACCGTGAGTGG	spacer
		length: 34	repeater length: 30	
9868	3415245	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ACTGCAGACCCTGTTGACAACAGAGACGTGCTCGA	spacer
		length: 35	repeater length: 30	
9869	3415310	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ACTGCAGACCCTGTTGACAACAGAGACGTGCTC	spacer
		length: 33	repeater length: 30	
9870	3415373	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CGACAGAAGCGAGTCAAAGAAGACTGGCTCGAAGTGC	spacer
		length: 37	repeater length: 30	
9871	3415440	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCCTGGTGTGGACCAAACCGGATCAGCCGAGAGCC	spacer
		length: 36	repeater length: 30	
9872	3415506	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TTCTACTGCACGCGTTGTGAGAACTGACTTCGCCAG	spacer
		length: 37	repeater length: 30	
9873	3415573	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	AGCTCCTCGACGAAGCGACCGATACCTTCCTC	spacer
		length: 32	repeater length: 30	
9874	3415635	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TTCCCCGGGTCGTTACTCATCGTCCTACCCCAGAC	spacer
		length: 36	repeater length: 30	
9875	3415701	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CGGCTGTTATCACGTCGGCACTGTGCAACCTTGTGGGT	spacer
		length: 38	repeater length: 30	
9876	3415769	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCACCACTTGTTGCGCTTTCGCGTGCGTGTCGCCGT	spacer
		length: 36	repeater length: 30	
9877	3415835	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	AAACAAGGCCACTGGATCGCCCACGACGATGGCGTCGA	spacer
		length: 38	repeater length: 30	
9878	3415903	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TCTCTACCGGCAACGCATATCTCGAATTGTGGGATT	spacer
		length: 36	repeater length: 30	
9879	3415969	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCTGGCTGTTGATCTCCTTGTTCGTGAGGAACGC	spacer
		length: 34	repeater length: 30	
9880	3416033	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CTTGTTGCGAAGCGCTCTCCGGTACGTCTCCGGGTCGA	spacer
		length: 38	repeater length: 30	
9881	3416101	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ATCACTGTCCGACAGTTGATGCGCCGCGACCACGAC	spacer
		length: 36	repeater length: 30	
9882	3416167	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ATGGTTACTGGGTCTCTGGACTTTTGATAAACC	spacer
		length: 33	repeater length: 30	
9883	3416230	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCCACCCCGTCGCGTACGCCAGCGCCGCTGGACC	spacer
		length: 35	repeater length: 30	
9884	3416295	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ACCGATCACCCAGACTACGCAGAAGCCGACGAACAC	spacer
		length: 36	repeater length: 30	
9885	3416361	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCAACCACACGTCACTCATACAGACCCACCTCGGAAT	spacer
		length: 37	repeater length: 30	
9886	3416428	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TCCCCGTCGTCGGGCAACAGCGGGGCCGCTTCGTCAC	spacer
		length: 37	repeater length: 30	
9887	3416495	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCGCCGTCGTGAGACCACGAGAACGACCCATACCC	spacer
		length: 35	repeater length: 30	
9888	3416560	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CGTCGGGACCGTCACGTCTTTCTGGGCGTGAACGACC	spacer
		length: 37	repeater length: 30	
9889	3416627	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ATCGGTCGCTCACCTCATCGAGAGTGGCCGTTAGGAC	spacer
		length: 37	repeater length: 30	
9890	3416694	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TACGTCATGGGGGTGATCTGGGACTGATGAGCCTC	spacer

length: 35 repeater length: 30
9891 3416759 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CCTCCGGTCCTTTTCGCGGCCGCTCGCACCGACGCC spacer
length: 35 repeater length: 30
9892 3416824 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TTTCGTCGTCATCTGCATTTGCTACTGATTGGTGGCA spacer
length: 37 repeater length: 30
9893 3416891 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CAAGAACAGGCCGAGAAGTGGTTTGAAAAGCATC spacer
length: 34 repeater length: 30
9894 3416955 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GTCCGTCACGGCCGTATCATCGGTTTCGAGGTGCGTC spacer
length: 37 repeater length: 30
9895 3417022 GTTTCAGACGAACCCTCGTGGGGTTGAAGC AGCACCCCCGAGCACCCCCGAAAGCACCCCGGACT spacer
length: 34 repeater length: 30
9896 3417086 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GTTGACTCATGGCGTCGACGAAAACCTCCTTACACCG spacer
length: 37 repeater length: 30
9897 3417153 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GCATTGACGTAGCCAATGCCGGCCTGTGGGATT spacer
length: 33 repeater length: 30
9898 3417216 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GCCTACCACCCGCGAGGGCGACCTCGAGGACGAGCA spacer
length: 35 repeater length: 30
9899 3417281 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GTGCGATATACGCTAATTATAGTCTGTCCGGATGGT spacer
length: 36 repeater length: 30
9900 3417347 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCGAGGATGTGTGTTAGTCGGTAATCGGTCGGGTCTG spacer
length: 38 repeater length: 30
9901 3417415 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCGACGCGGTCGCGAACGATCTCGAGAACGTCACCCTT spacer
length: 38 repeater length: 30
9902 3417483 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCAACCTGATCGAGACGTTTCATCCACAGCGAGAAC spacer
length: 36 repeater length: 30
9903 3417549 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CGAGGTGACGGTCAACGGCGTCCCCGGCTACGGGTC spacer
length: 36 repeater length: 30
9904 3417615 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GTGTTGCCATATTTTCGTCGCCGTTGTTCGGCGTCGG spacer
length: 35 repeater length: 30
9905 3417680 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GCGGTATTCGAGTTCTCGACCGTCGTCTGATCGTCGT spacer
length: 37 repeater length: 30
9906 3417747 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TTCGCGCACGAAAAGCAGAAGTGGAAGTACAGGC spacer
length: 34 repeater length: 30
9907 3417811 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCGAGTAGTGTAGCCCAACGGCCAGCCAAAATA spacer
length: 34 repeater length: 30
9908 3417875 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCCCGTCTGTTTCGACGAGATACAACGCAACCTGCTCGC spacer
length: 38 repeater length: 30
9909 3417943 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CGAGATACGCCCCGAATTTTCGACACCGTAGTACGCCC spacer
length: 37 repeater length: 30
9910 3418010 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCTCGGAGTGTGCGGGTTGCCGTGGGGTCCTCGGAT spacer
length: 37 repeater length: 30
9911 3418077 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCGATACGATACGGCGAAAAGAAGGAACGACTTCGA spacer
length: 36 repeater length: 30
9912 3418143 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CAACAGTTAAGGGGGATCACCCAGGCGGTTCGATCAA spacer
length: 36 repeater length: 30
9913 3418209 GTTTCAGACGAACCCTCGTGGGGTTGAAGC ACCACGTTTGTGTGCGCGCCGCTTATAGATAACGGCG spacer
length: 37 repeater length: 30
9914 3418276 GTTTCAGACGAACCCTCGTGGGGTTGAAGC ATCCGACTCACCGTCTCATCGTCAAGCGACATAACCGG spacer
length: 38 repeater length: 30
9915 3418344 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCCGAACGCATCGAAGCCAAACAGACATCCCGCTC spacer
length: 35 repeater length: 30
9916 3418409 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCGCGTTGTGGACGAAAGTCAAACCTCCGCTATCGCGA spacer
length: 37 repeater length: 30
9917 3418476 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TGGCTGAGATAGACCGTGTTACGGTCGAACCCACCAC spacer
length: 37 repeater length: 30
9918 3418543 GTTTCAGACGAACCCTCGTGGGGTTGAAGC AACTACGTCTTCGGTCTGTGAGTAACACTGTAGT spacer
length: 35 repeater length: 30
9919 3418608 GTTTCAGACGAACCCTCGTGGGGTTGAAGC ATGCGGTACTACGACTTCATCCACCCGAGGACGA spacer
length: 35 repeater length: 30
9920 3418673 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GAACAGTCGGGACCAACCAGCGCGACGTCGTCGAGA spacer
length: 36 repeater length: 30
9921 3418739 GTTTCAGACGAACCCTCGTGGGGTTGAAGC
AACCGGACTCGTGGCGTACTCCACGCGCCGTCAGAGTTTCAGACGAACCCTCGTGGGGTTGAAGCGTGCGGTGCCGAGTCGCTG
GACGTGCGCATCTCCGGTTTCAGACGAACCCTCGTGGGGTTGAAGCGATGTTGTCCGTTATCTCAGACCAACACTCTTCGGGTTTC
AGACGAACCCCTCGTGGGGTTGAAGCGTCTTCGCGACCGCCACAGTAGCGCTGGACTGCCCGGTTTCAGACGAACCCTCGTGGGGT
TGAAGCCTGACCGACGACGTCCGCGTCTGGACGGTCGACCCGTTTCAGACGAACCCTCGTGGGGTTGAAGCCCGGACAGGTTTCCG
GAGGTGGTACTGCGTCAGCTGTTTCAGACGAACCCTCGTGGGGTTGAAGCCAGCGGTGACCATGGCGTCTTCGGGGTCGGATAAGT
GTTTCAGACGAACCCTCGTGGGGTTGAAGCGCGATCGGGGACTCGAGTGCGGTGTTTCGTCGACGAGTTTCAGACGAACCCTCGTGG
GGTTGAAGCTGGGTCTGGGTGAGATGACGTCCAGGACCGGGGTTTCAGACGAACCCTCGTGGGGTTGAAGCATCTTGTGCGGCAC
CTGCTCGGGATCGAGGACGTGGGTTTCAGACGAACCCTCGTGGGGTTGAAGCTCGGTGAGGTGCGCGTCCAGATCGACGAGCCG
AGGTTTCAGACGAACCCTCGTGGGGTTGAAGCCCCGAGTCGGTACACTCGCCGTAGGTCCCGATCCGGTTTCAGACGAACCCTCG

TGGGGTTGAAGCGTCTCGTCGAACATCCATTTCGGGGCTCTACGAGTTTCAGACGAACCCTCGTGGGGTTGAAGCCTGACCGACGAC
GTCCGCGTCTGGACGGTCGACCCGGGTTTCAGACGAACCCTCGTGGGGTTGAAGCTCGTCTGCTGGCGGTGCTCTTGCTGACGGT
CTACGGTTTCAGACGAACCCTCGTGGGGTTGAAGCCTCGAGCCGGGCGAGTCGCTGCTGGACGTAGCCGCGGTTTCAGACGAACCCT
TCGTGGGGTTGAAGCCCGTATACCTTCGACGGCAGTGGCGACGCGCCGGTTTCAGACGAACCCTCGTGGGGTTGAAGCGAGGTTGA
CGTGGCCGGGATTGCACGGCGGCCGGTTTCAGACGAACCCTCGTGGGGTTGAAGCCTGGCGAGGGTCCGAGTGTCGGATTTCGCAG
GTCGAAGTTTCAGACGAACCCTCGTGGGGTTGAAGCTTCAATCTCGCCCTGGATACGTTTCAGACGGCGTCTCGTTTCAGACGAACC
CTCGTGGGGTTGAAGCCTCGTCTCGCTCACAGCGACGACTACGGCGGCGGCGGTTTCAGACGAACCCTCGTGGGGTTGAAGCTAAGGA
AAGGGATGGGACGCCTCGGAATTGAACCGAGTTTCAGACGAACCCTCGTGGGGTTGAAGCCTCGAGGCCGCCGGCTTCGGTGCGCA
GGTCGATTGAGTTTCAGACGAACCCTCGTGGGGTTGAAGCCTCGTCCGGTTCGGACAAGGCGAGCGTCCGGCGGCTGTTTCAGACGA
ACCCTCGTGGGGTTGAAGCGTTCGTTACCTGCAGGTCGGTTAACGGCAGGTACGGGTTTCAGACGAACCCTCGTGGGGTTGAAGCT
CGCTCTCGCCGATGGAAGTCGAGCCGCCGACCGTTTCAGACGAACCCTCGTGGGGTTGAAGCATGCAAGATAAACTCGAAATGGCA
AAGAACGCCGGCATGTTTCAGACGAACCCTCGTGGGGTTGAAGCCTGTGTTTCGCAAACGACACGGCCACCTTCGGTCCGCGTTTC
AGACGAACCCTCGTGGGGTTGAAGCCTCATCGTCGGCCGGTTCGGGGGTGAGTGATCGTGGTTTCAGACGAACCCTCGTGGGGTTG
AAGCACTTTATAGACCTCTTTTCGCTCCTGTTCGTCGACTTGTTTCAGACGAACCCTCGTGGGGTTGAAGCGAACTCGACTTCCGC
GAGCGGTCCGACGACGCCGGTTTCAGACGAACCCTCGTGGGGTTGAAGCTACTGAAACTGGAATAGACTAAGCCAGTAGCAGCAG
TTTCAGACGAACCCTCGTGGGGTTGAAGCGTGACCTCGTCTCGTTCGACCTCGGTAATTTGCTGTGTTTCAGACGAACCCTCGTGG
GGTTGAAGCCTCCCGAATATCGGTCTTCGTTTCGCTCGTTTCAGACGAACCCTCGTGGGGTTGAAGCGACCATTTCT
GGCCGGCCGACTTCGGCTCGGCCGTGTTTCAGACGAACCCTCGTGGGGTTGAAGCGGGTTCGGAGTGCTGGTTCGTAGAGGACGTGAT
GGTCGTTTCAGACGAACCCTCGTGGGGTTGAAGCGAAGATGAGGACGGCGAGTTTGACGCTGAAGCAC spacer length:
2390 repeater length: 30

9922 3421159 GTTTCAGACGAACCCTCGTGGGGTTGAAGC

9923

9924

9925 crispr 2

9926 3419459 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CCCGCAGTCGGTACACTCGCCGTAGGTCCCGATCCG spacer
length: 36 repeater length: 30

9927 3419525 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GTCTCGTCGAACATCCATTTCGGGCCTCTACGA spacer
length: 32 repeater length: 30

9928 3419587 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTGACCGACGACGTCCGCGTCTGGACGGTCGACCCGG spacer
length: 37 repeater length: 30

9929 3419654 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCGTCTCGTGGCGGTGCTCTTGCTGACGGTCTACG spacer
length: 36 repeater length: 30

9930 3419720 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCGAGCCGGGCGAGTCGCTGCTGGACGTAGCCGCG spacer
length: 36 repeater length: 30

9931 3419786 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CCGTATACCTTCGACGGCAGTGGCGACGCGCCG spacer
length: 33 repeater length: 30

9932 3419849 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GAGGTTGACGTGGCCGGGGATTGCACGGCGGCCG spacer
length: 34 repeater length: 30

9933 3419913 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTGGCGAGGGTCCGAGTGTCGGATTTCGACGGTCGAA spacer
length: 36 repeater length: 30

9934 3419979 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TTCAATCTCGCCCTGGATACGTTTCGACGGCGTCTCTC spacer
length: 36 repeater length: 30

9935 3420045 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCGTCGCTCACAGCGACGACTACGGCGGCGGCG spacer
length: 34 repeater length: 30

9936 3420109 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TAAGGAAAGGGATGGGACGCCTCGGAATTGAACCGA spacer
length: 36 repeater length: 30

9937 3420175 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCGAGGCCGCCGGCTTCGGTGCGCAGGTTCGATTGA spacer
length: 36 repeater length: 30

9938 3420241 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCGTCGGCTCGGACAAGGCGAGCGTCCGGCGGCT spacer
length: 35 repeater length: 30

9939 3420306 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GTTCGTTACCTGCAGGTTCGGTTAACGGCAGGTACGG spacer
length: 36 repeater length: 30

9940 3420372 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCGCTCTCGCCGATGGAAGTCGAGCCGCCGACC spacer
length: 33 repeater length: 30

9941 3420435 GTTTCAGACGAACCCTCGTGGGGTTGAAGC ATGCAAGATAAACTCGAAATGGCAAAGAACGCCGGCAT spacer
length: 38 repeater length: 30

9942 3420503 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTGTGTTTCGCAAACGACACGGCCACCTTCGGTCCGC spacer
length: 37 repeater length: 30

9943 3420570 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCATCGTCGGCCGGTTCGGGGGTGAGTGATCGTG spacer
length: 35 repeater length: 30

9944 3420635 GTTTCAGACGAACCCTCGTGGGGTTGAAGC ACTTTATAGACCTCTTTTCGCTCCTGTTCGTCGACTT spacer
length: 37 repeater length: 30

9945 3420702 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GAACTCGACTTCCGCGAGCGGTCCGACGACGCCG spacer
length: 34 repeater length: 30

9946 3420766 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TACTGAAACTGGAATAGACTAAGCCAGTAGCAGCAC spacer
length: 36 repeater length: 30

9947 3420832 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GTGACCTCGTCTCGTTCGACCTCGGTAATTTGCTGT spacer
length: 36 repeater length: 30

9948 3420898 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCCCGAATATCGGTCTTCGTTTCGCTCGTTTCACTC spacer
length: 37 repeater length: 30

9949 3420965 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GACCATTTCTGGCCGGCCGACTTCGGCTCGGCCT spacer

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length: 34 repeater length: 30
9950 3421029 GTTTCAGACGAACCCCTCGTGGGGTTGAAGC GGGTTCGGAGTGCTGGTCTGAGAGGACGTGATGGTC spacer
length: 36 repeater length: 30
9951 3421095 GTTTCAGACGAACCCCTCGTGGGGTTGAAGC GAAGATGAGGACGGCGAGTTTGACGCTGAAGCAC spacer
length: 34 repeater length: 30
9952 3421159 GTTTCAGACGAACCCCTCGTGGGGTTGAAGC
9953
9954
9955 GCA_000231015.3_ASM23101v3_genomic.fna(PilerCR):
9956 START REPEAT
SPACER
9957 crispr 1
9958 973387 CTTTCAATTCTTTCTATTGTATTC CTATAAACATACTCCACAGAGCTGCAACGCAAGAGATGTT spacer
length: 40 repeater length: 24
9959 973451 CTTTCAATTCTTTCTATTGTATTC GAGGGCGGTCTCAGTCAAGAAAGAGACGTACGAGAAGCTC spacer
length: 40 repeater length: 24
9960 973515 CTTTCAATTCTTTCTATTGTATTC TCAATTAACCTTATATTTTTCTGTGCTTGGTTTTGGGTTTGGGTT spacer
length: 45 repeater length: 24
9961 973584 CTTTCAATTCTTTCTATTGTATTC TATAGTAATTCAAGCAGTCAGAGATGTAAACCGCCGAGCAAA spacer
length: 43 repeater length: 24
9962 973651 CTTTCAATTCTTTCTATTGTATTC GCTGCGAGAAACGAGGCCAGTGAGCTGCTCGGCAAAGTGAC spacer
length: 41 repeater length: 24
9963 973716 CTTTCAATTCTTTCTATTGTATTC ATTTAGAGCTTAAGAAGCAGAGGCTGAATCTGTTGATCGAGCAGATG
spacer length: 47 repeater length: 24
9964 973787 CTTTCAATTCTTTCTATTGTATTC GCGAGGGCGTCTCAGCTAGTGTTGACGTGTATCAAGCTAAATT spacer
length: 43 repeater length: 24
9965 973854 CTTTCAATTCTTTCTATTGTATTC AAAATGATATTCGTAAACCGCCGGATTTCTACGATTTCCCAGGC spacer
length: 44 repeater length: 24
9966 973922 CTTTCAATTCTTTCTATTGTATTC CATTTAATTTAATAGTCATATAGAATGATACATTAGCGAGTGG spacer
length: 43 repeater length: 24
9967 973989 CTTTCAATTCTTTCTATTGTATTC TTCTTTTCAACGTATTCTCCGCCATTATAGCCGTACGTGTTCTC spacer
length: 44 repeater length: 24
9968 974057 CTTTCAATTCTTTCTATTGTATTC CTCGCTATGAGCTGAGCGGTGATCGCAACTGGCAGCGTGAAATC spacer
length: 44 repeater length: 24
9969 974125 CTTTCAATTCTTTCTATTGTATTC GTGATACTAGTTAATATTCTAACATTTGCCGCGCGCAGAAA spacer
length: 41 repeater length: 24
9970 974190 CTTTCAATTCTTTCTATTGTATTC TTCAGGGGTTTATAAACTTTTACGTGGAGGGATGGGGGG spacer
length: 39 repeater length: 24
9971 974253 CTTTCAATTCTTTCTATTGTATTC AATTACTTCTAATTATAAGATGCCCCGTGTCTTCTATATAACA spacer
length: 42 repeater length: 24
9972 974319 CTTTCAATTCTTTCTATTGTATTC TCCCTCAACACAAGCATCTGCCGAAGCACTCTACTGCAGTTCACCTCG
spacer length: 48 repeater length: 24
9973 974391 CTTTCAATTCTTTCTATTGTATTC GACGAGCTTATACAGATTCTAGAGCCTAGCGAAAACAATGAAAAC spacer
length: 45 repeater length: 24
9974 974460 CTTTCAATTCTTTCTATTGTATTC GCTCACAGCATGAGAAGAGCGGGGCAAGCATAGACACTATCCCG spacer
length: 44 repeater length: 24
9975 974528 CTTTCAATTCTTTCTATTGTATTC TACAGGGCACCCCGTCTTCGTGAAGAACTCGCGTAAGAG spacer
length: 40 repeater length: 24
9976 974592 CTTTCAATTCTTTCTATTGTATTC TCTTTCCATTGCTATTATTGATCAGCGCAATGCGAGACCT spacer
length: 40 repeater length: 24
9977 974656 CTTTCAATTCTTTCTATTGTATTC TTCACTGTGAATTGAAGTAGTTCTATTCACTGTGAATGGAGACA spacer
length: 44 repeater length: 24
9978 974724 CTTTCAATTCTTTCTATTGTATTC TGCGGGCCAGGGCGAGGTGAATAGAATGAGCGCTCTCCCCGC spacer
length: 42 repeater length: 24
9979 974790 CTTTCAATTCTTTCTATTGTATTC TGTACGAGTTAAAGACAGATGATGTTATTTTTCTCGA spacer length:
37 repeater length: 24
9980 974851 CTTTCAATTCTTTCTATTGTATTC TATACTCTTCCAAGTCCGTTTCATAGTTGTTTCTGCTGTGGAGAC spacer
length: 44 repeater length: 24
9981 974919 CTTTCAATTCTTTCTATTGTATTC GCCGCCGTCC
9982
9983
9984 GCA_000235685.3_ASM23568v3_genomic.fna(PilerCR):
9985 START REPEAT
SPACER
9986 crispr 1
9987 795217 GAGTTCCCCACATGCGTGGGGATGAACC GCGATGCGCTTTGCAGAATCCTTCCTGACAATAG spacer
length: 34 repeater length: 28
9988 795279 GAGTTCCCCACATGCGTGGGGATGAACC AAAGAAATACAACGGCAAAGTCCCGGAAAAAAC spacer length:
33 repeater length: 28
9989 795340 GAGTTCCCCACATGCGTGGGGATGAACC GAAAACGCGGGGAATTGGCGCGACCTTTCCCAT spacer length:
33 repeater length: 28

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9990 795401 GAGTTCCCCACATGCGTGGGGATGAACC GTTATTGCGGGCTCGTTCAAGACCTTCGCTTGT spacer length:
 33 repeater length: 28
 9991 795462 GAGTTCCCCACATGCGTGGGGATGAACC ACAGTCCGTTTCACTATTATCTGAAGGAATAA spacer length:
 33 repeater length: 28
 9992 795523 GAGTTCCCCACATGCGTGGGGATGAACC ACAAGAGGCTCCGGGCCCCGATGGAAGGTATCC spacer length:
 33 repeater length: 28
 9993 795584 GAGTTCCCCACATGCGTGGGGATGAACC GGATGAACTCCGCCCGGGTCGCCTTCCAGGTCT spacer length:
 33 repeater length: 28
 9994 795645 GAGTTCCCCACATGCGTGGGGATGAACC GTTGATGTGATACCAGCCGTTGGGATACGAGAT spacer length:
 33 repeater length: 28
 9995 795706 GAGTTCCCCACATGCGTGGGGATGAACC ACAGATGGACCGGGTGAGGTCAGCCGGCAGGTT spacer length:
 33 repeater length: 28
 9996 795767 GAGTTCCCCACATGCGTGGGGATGAACC TTTATCAATGGGCCGACGATTTAAGAAAGCATC spacer length:
 33 repeater length: 28
 9997 795828 GAGTTCCCCACATGCGTGGGGATGAACC AACAGCAAAAGACCTCGAAGCATTTCATAGAGAC spacer length:
 33 repeater length: 28
 9998 795889 GAGTTCCCCACATGCGTGGGGATGAACC ATTCTGAATCCAGCCTGACCGCTGCCACCAATCG spacer length:
 33 repeater length: 28
 9999 795950 GAGTTCCCCACATGCGTGGGGATGAACC AACGGTCAGGCCAGGTAACGCGAGTAGCTCGCG spacer length:
 33 repeater length: 28
 10000 796011 GAGTTCCCCACATGCGTGGGGATGAACC TAATACGATAACAGCCACACATACTACAAAAT spacer length:
 33 repeater length: 28
 10001 796072 GAGTTCCCCACATGCGTGGGGATGAACC AAAGTCGAGGCAGAGGATTTCTGACATATATT spacer length:
 33 repeater length: 28
 10002 796133 GAGTTCCCCACATGCGTGGGGATGAACC ACTCGGCATCCTGAAGGGACTCTCTGATCTTGG spacer length:
 33 repeater length: 28
 10003 796194 GAGTTCCCCACATGCGTGGGGATGAACC ATTCACAGATGGAACAAAACAAGAAACTCAT spacer length:
 33 repeater length: 28
 10004 796255 GAGTTCCCCACATGCGTGGGGATGAACC AGTCGACATAGATAAGCGATTTGTCGCTTTGCC spacer length:
 33 repeater length: 28
 10005 796316 GAGTTCCCCACATGCGTGGGGATGAACC AATACGTTGACCTTTTCAGAAGAGGAAGAGGCAA spacer length:
 33 repeater length: 28
 10006 796377 GAGTTCCCCACATGCGTGGGGATGAACC CTATTCTCTATTTTTTTATATCTAAATTCCTA spacer length:
 32 repeater length: 28
 10007 796437 GAGTTCCCCACATGCGTGGGGATGAACC AATCTCTTCGGTTTCTTCACCGTTGGGACTGTC spacer length:
 33 repeater length: 28
 10008 796498 GAGTTCCCCACATGCGTGGGGATGAACC GTCAGAGAGACAATCGTCGAGTGCCATCCGGAC spacer length:
 33 repeater length: 28
 10009 796559 GAGTTCCCCACATGCGTGGGGATGAACC ACTGAAGCGCAAGGTCAATGTCATGAACCATGA spacer length:
 33 repeater length: 28
 10010 796620 GAGTTCCCCACATGCGTGGGGATGAACC GATTGATTATCCGGCTGGGTTCGATCCGGATGC spacer length:
 33 repeater length: 28
 10011 796681 GAGTTCCCCACATGCGTGGGGATGAACC AACAGCAAAAGACCTCGAAGCATTTCATAGAGAC spacer length:
 33 repeater length: 28
 10012 796742 GAGTTCCCCACATGCGTGGGGATGAACC AAGTGTAAGAATAGAAATATCATCCATACTTTC spacer length:
 33 repeater length: 28
 10013 796803 GAGTTCCCCACATGCGTGGGGATGAACC AACGGTCAGGCCAGGTAACGCGAGTAGCTCGCG spacer length:
 33 repeater length: 28
 10014 796864 GAGTTCCCCACATGCGTGGGGATGAACC AGACCTCGTCGCCGTCGCGTTCCAAGTATTTAT spacer length:
 33 repeater length: 28
 10015 796925 GAGTTCCCCACATGCGTGGGGATGAACC GTTGTTCTGGTGAACACCTGCGGATGTTTCC spacer length:
 33 repeater length: 28
 10016 796986 GAGTTCCCCACATGCGTGGGGATGAACC GGAAATAGTGGATTTTTTCGGTGAAGAAAATAA spacer length:
 33 repeater length: 28
 10017 797047 GAGTTCCCCACATGCGTGGGGATGAACC GTGCATAACGGTGCGTCACCGAGTCAAACCAGA spacer length:
 33 repeater length: 28
 10018 797108 GAGTTCCCCACATGCGTGGGGATGAACC CTATGTCGTC
 10019
 10020
 10021 GCA_000243255.1_ASM24325v1_genomic.fna (PilerCR):
 10022 START REPEAT
 SPACER
 10023 GCA_000245095.2_ASM24509v2_genomic.fna (PilerCR):
 10024 START REPEAT
 SPACER
 10025 crispr 1
 10026 900578 CTTTCAATTC-TATAGTAGATTATC ACCTAATGCTACTTTTCGATAGCGGGGCTATAATAATGAT spacer
 length: 39 repeater length: 25
 10027 900642 CTTTCAATTC-TATAGTAGATTATC GTCGTCCGCACCTGCGAGGATGAGCCATTTATAATTCCA spacer
 length: 39 repeater length: 25
 10028 900706 CTTTCAATTC-TATAGTAGATTATC AGGAGCTGCAGGGAGAGAGCTAGGGACTTTAATAAAGAC spacer

length: 39 repeater length: 25
10029 900770 CTTTCAATTC-TATAGTAGATTATC GGCAC TGGTAACAGTCATGAGACTTTTATACGTGTTTAA spacer
length: 38 repeater length: 25
10030 900833 CTTTCAATTC-TATAGTAGATTATC CTTAATCATTTCAACTGTCGATTTAATTGAAGGTATA spacer
length: 37 repeater length: 25
10031 900895 CTTTCAATTC-TATAGTAGATTATC TATATACGATAGGCGTTAATGGGCCAACATAATTAGTAT spacer
length: 39 repeater length: 25
10032 900959 CTTTCAATTC-TATAGTAGATTATC TAATATTTAGTGCTTCTCAGATGGTAATAAGTTATAATA spacer
length: 39 repeater length: 25
10033 901023 CTTTCAATTC-TATAGTAGATTATC GTGACATGATTAACCACCACTGCGGTGGAATTAGCTATC spacer
length: 39 repeater length: 25
10034 901087 CTTTCAATTC-TATAGTAGATTATC CATATTGGTTAGATCTATCATAACGAGGCGGTAACGGG spacer
length: 37 repeater length: 25
10035 901149 CTTTCAATTC-TATAGTAGATTATC ATGGTCGCTACCCAAGTATTATTACTTTGTTTTGACAT spacer
length: 38 repeater length: 25
10036 901212 CTTTCAATTC-TATAGTAGATTATC ATACAGTACAGCATTCTGCTTCATTGTCAGTTTCGCCATT spacer
length: 40 repeater length: 25
10037 901277 CTTTCAATTC-TATAGTAGATTATC TAAAATTCCCCGAGAAGATAATCGAGGGCATCTTTGAATT spacer
length: 39 repeater length: 25
10038 901341 CTTTCAATTC-TATAGTAGATTATC TTAATTGGCATCCAAAGATCTAAGCCCTCTTTATTCACCTT spacer
length: 41 repeater length: 25
10039 901407 CTTTCAATTC-TATAGTAGATTATC GGGGAAAGGCCAAAGAGACATATCACTGAGGTAGAACTTCTGT spacer
length: 43 repeater length: 25
10040 901475 CTTTCAATTC-TATAGTAGATTATC CCACGTTAAGCTATGGACAGGCCTTAGACGTAAGCAT spacer
length: 37 repeater length: 25
10041 901537 CTTTCAATTC-TATAGTAGATTATC CTTTCCGCACTTCGCTTCAAACCTACCAGAAATTAGCA spacer
length: 38 repeater length: 25
10042 901600 CTTTCAATTC-TATAGTAGATTATC ATCTCAACACCTTTAATTTTCCTCACGTACTATATTACT spacer
length: 39 repeater length: 25
10043 901664 CTTTCAATTC-TATAGTAGATTATC CTGTCCCTTGTGTGTGCACTAACAAACAACCAATAGAAC spacer
length: 39 repeater length: 25
10044 901728 CTTTCAATTC-TATAGTAGATTATC GGAGACTTATATTTTTCTACCCCGCCGTCGCCGACACGG spacer
length: 39 repeater length: 25
10045 901792 CTTTCAATTC-TATAGTAGATTATC TCTTAGGTTGTGCTGCAGCTACACCCTGAGGAAACCTC spacer
length: 38 repeater length: 25
10046 901855 CTTTCAATTC-TATAGTAGATTATC AGATACACAGAACTGAAGACATACCAGATGTTATAAATGA spacer
length: 41 repeater length: 25
10047 901921 CTTTCAATTC-TATAGTAGATTATC TATAAAGGATTTGGTTGGAGAAGTGATACAGACTTATTA spacer
length: 39 repeater length: 25
10048 901985 CTTTCAATTC-TATAGTAGATTATC ATGGAGTTGCAAGCTTCCAGCGTGCTGAGGTATAAC spacer length:
36 repeater length: 25
10049 902046 CTTTCAATTC-TATAGTAGATTATC TGGAAAAAGGATGAAAAAGGCGAGGGAGGATTATTGTATT spacer
length: 40 repeater length: 25
10050 902111 CTTTCAATTC-TATAGTAGATTATC TAAAAAAGTAGTGGCGGGGAGAAATAAAGGTTTACCCAGA spacer
length: 40 repeater length: 25
10051 902176 CTTTCAATTC-TATAGTAGATTATC GAAGAAATTCAGAAAGAACAGAAGCTGACGATTGATAGT spacer
length: 39 repeater length: 25
10052 902240 CTTTCAATTC-TATAGTAGATTATC ACCAGCTTCTTTGGCTTCTACCCAACACTGTATATCTTATT spacer
length: 41 repeater length: 25
10053 902306 CTTTCAATTC-TATAGTAGATTATC TATTTTATGGGCTATTAGAGCTAAAGAGGATGAAATTAA spacer
length: 39 repeater length: 25
10054 902370 CTTTCAATTC-TATAGTAGATTATC CTCTACGTCCAGCCTGAGGTTCCGGTCGGCGTACTTT spacer
length: 37 repeater length: 25
10055 902432 CTTTCAATTC-TATAGTAGATTATC AGACAAACGTAAGTACGAGTGTAGGAATTCTAGAGTTAAA spacer
length: 40 repeater length: 25
10056 902497 CTTTCAATTC-TATAGTAGATTATC TGTGGGACATTCCGCTTTTCTTAAGAATTAGTGAAAAA spacer
length: 38 repeater length: 25
10057 902560 CTTTCAATTC-TATAGTAGATTATC CTGTGTCATAAAATCCCTTGTATTCTGAACGGTTGTGTTCCCCA spacer
length: 43 repeater length: 25
10058 902628 CTTTCAATTC-TATAGTAGATTATC AGGGTTTACGGCGTTAATTTTACGTTCTTATTCAATTCAT spacer
length: 41 repeater length: 25
10059 902694 CTTTCAATTC-TATAGTAGATTATC GAATTTTTATTACAAAAATAAGAAAAAGGTCGATAAAGTT spacer
length: 41 repeater length: 25
10060 902760 CTTTCAATTC-TATAGTAGATTATC CCTATTCTAGATCAGGTGTGGCAGCATATACAAAGTTGCC spacer
length: 40 repeater length: 25
10061 902825 CTTTCAATTC-TATAGTAGATTATC TTCAATCAATTGGAAGCTGGTGGAAAGTAAAAGACGCTGG spacer
length: 40 repeater length: 25
10062 902890 CTTTCAATTC-TATAGTAGATTATC CAAGGTCATCAATGCAAACTAAAAAGTTTCGTTTTGT spacer
length: 38 repeater length: 25
10063 902953 CTTTCAATTC-TATAGTAGATTATC CTAGTAGCGGTAGTGCGACGGTTAGCGTGGTCGTGAA spacer
length: 37 repeater length: 25

10064	903015	CTTTCAATTC-TATAGTAGATTATC	TCGATCTTATCATTATTACGCCCCGCAACTTCCTACCTAG	spacer
		length: 40	repeater length: 25	
10065	903080	CTTTCAATTC-TATAGTAGATTATC	GCGTTATTTTCAGTCTGAAGAGTATAATTTGTATAAAGA	spacer
		length: 38	repeater length: 25	
10066	903143	CTTTCAATTC-TATAGTAGATTATC	CAGATGTTACTGCTCTTATGTTGCATAATACTTTAGATCGATC	spacer
		length: 43	repeater length: 25	
10067	903211	CTTTCAATTC-TATAGTAGATTATC	TAATTCCTACTGTGATTAATATAGCTTCCTTAGCGTTGTT	spacer
		length: 40	repeater length: 25	
10068	903276	CTTTCAATTC-TATAGTAGATTATC	ACATTTGGACTTGATAATAACAATGAGTTTGCAACTTGAT	spacer
		length: 40	repeater length: 25	
10069	903341	CTTTCAATTC-TATAGTAGATTATC	ATTTGCCGATAACATCTTAGGGAGACTTTTAGTAACAAACA	spacer
		length: 41	repeater length: 25	
10070	903407	CTTTCAATTC-TATAGTAGATTATC	AACCTTACGTTGTCAAAAACCCTAATGCTCTATTTCGC	spacer
		length: 37	repeater length: 25	
10071	903469	CTTTCAATTC-TATAGTAGATTATC	CTTCATCGCCAGGGCAAAATTACTTGTACAACGAAGTATA	spacer
		length: 40	repeater length: 25	
10072	903534	CTTTCAATTC-TATAGTAGATTATC	ACTACAATTACATTATTTCGCAATTGTAAGTGGTCTTAGCGT	spacer
		length: 41	repeater length: 25	
10073	903600	CTTTCAATTC-TATAGTAGATTATC	ATGTTGTAGTAGAAGAGACTCTTGCGACTGGAAGTGCAGG	spacer
		length: 40	repeater length: 25	
10074	903665	CTTTCAATTC-TATAGTAGATTATC	TAGATACACCGTAGGATTGGGGTATCTATTTTTTGTATGT	spacer
		length: 39	repeater length: 25	
10075	903729	CTTTCAATTC-TATAGTAGATTATC	TATCCTTTGTTTATTAGTTGCCTTATCGCCACAGAGCCAAG	spacer
		length: 41	repeater length: 25	
10076	903795	CTTTCAATTC-TATAGTAGATTATC	CTTTGTGTTCTCTGGACCCAATTGTTACCGCAGTTTC	spacer
		length: 38	repeater length: 25	
10077	903858	CTTTCAATTC-TATAGTAGATTATC	GTCATAGACTTTGACGATGTAAACAGACAGCGGGAGTAT	spacer
		length: 39	repeater length: 25	
10078	903922	CTTTCAATTC-TATAGTAGATTATC	ATTCGATCTTTACACAGCTGTAGCAGACTACGTTTCCAG	spacer
		length: 39	repeater length: 25	
10079	903986	CTTTCAATTC-TATAGTAGATTATC	TTTAATTCATCAAATTTCTTCTTTAAGTCCACGAACTCTC	spacer
		length: 41	repeater length: 25	
10080	904052	CTTTCAATTC-TATAGTAGATTATC	AACCCACCTGCCAACGCATCAGTTAAAAGCATAACAAT	spacer
		length: 39	repeater length: 25	
10081	904116	CTTTCAATTC-TATAGTAGATTATC	AAGAAAACATTAGGTGGTGGAGGTGGTGGCTAATGGTAACT	spacer
		length: 41	repeater length: 25	
10082	904182	CTTTCAATTC-TATAGTAGATTATC	CCTCCTCTCCGCGTTTGCTGCAGCTTCTCTGGCAATTTCTGCTC	spacer
		length: 45	repeater length: 25	
10083	904252	CTTTCAATTC-TATAGTAGATTATC	CCTAGGTCTGTTGTTTGAAGAGCATTTATTATGTTACTAAG	spacer
		length: 41	repeater length: 25	
10084	904318	CTTTCAATTC-TATAGTAGATTATC	GAGGGTTCAAGTTAAGAAGGAGGGCAAAGTCATTTTCACT	spacer
		length: 40	repeater length: 25	
10085	904383	CTTTCAATTC-TATAGTAGATTATC	ACCGGCATTCTGAGGTTTGGTACCATATGCAGAAGCAT	spacer
		length: 38	repeater length: 25	
10086	904446	CTTTCAATTC-TATAGTAGATTATC	AAATCTTTCTCTCTCTTTCCCGCTTTCAAATTTATATAGT	spacer
		length: 40	repeater length: 25	
10087	904511	CTTTCAATTC-TATAGTAGATTATC	CAGCAAAAGAACTCATGTAATAGACAGTAGAAGAGTT	spacer
		length: 37	repeater length: 25	
10088	904573	CTTTCAATTC-TATAGTAGATTATC	ATGCACTCGAATTTACATGAGAAAATGCAGTAGAGTTAT	spacer
		length: 39	repeater length: 25	
10089	904637	CTTTCAATTC-TATAGTAGATTATC	ATAGTTAATAAGTGATGGGGATGGATGAGTGTATGAACATAAGC	spacer
		length: 44	repeater length: 25	
10090	904706	CTTTCAATTC-TATAGTAGATTATC	CTGGAGAAACATGTCCGAGGTAACACACATAACCGTAA	spacer
		length: 38	repeater length: 25	
10091	904769	CTTTCAATTC-TATAGTAGATTATC	AAGTGTCCACAGGATGGGGAAGTAATTGATATGTTAAGAGA	spacer
		length: 41	repeater length: 25	
10092	904835	CTTTCAATTC-TATAGTAGATTATC	TTATTTATTTGAAACTCTATTTTCTCGTTCATAGGATATT	spacer
		length: 40	repeater length: 25	
10093	904900	CTTTCAATTC-TATAGTAGATTATC	TTCTTTGAAAGCAAGTGTTTTAACGCCGTTTGC GTTAG	spacer
		length: 38	repeater length: 25	
10094	904963	CTTTCAATTC-TATAGTAGATTATC	TCGGCACAACAAACACAAGGAGGAGGAGGGTTTATGCAGA	spacer
		length: 40	repeater length: 25	
10095	905028	CTTTCAATTC-TATAGTAGATTATC	TCTGCAGCATTAGACAGTGACTCTCTGATTGCATCTGCATC	spacer
		length: 41	repeater length: 25	
10096	905094	CTTTCAATTC-TATAGTAGATTATC	AGGGGTTGTATAGTGTCAAGACTGTAGATTGAGATGGTGTACT	spacer
		length: 43	repeater length: 25	
10097	905162	CTTTCAATTC-TATAGTAGATTATC	AAGTTCTAATATTTCGTGCTTGCAATAGCGATAGTAATAG	spacer
		length: 39	repeater length: 25	
10098	905226	CTTTCAATTC-TATAGTAGATTATC	TCAATCAACAACACAACAACAAATACAATTACAAAAGT	spacer
		length: 39	repeater length: 25	
10099	905290	CTTTCAATTC-TATAGTAGATTATC	ATTATAGCGTTAATAATTATAAGTACTCTCCCGTTTTTCGA	spacer

length: 41 repeater length: 25
10100 905356 CTTTCAATTC-TATAGTAGATTATC CAAACATGGACAATTGTAGACATTTACGACAGAGGAAG spacer
length: 38 repeater length: 25
10101 905419 CTTTCAATTC-TATAGTAGATTATC AACCAAAAGTTAGAACAACAGGAGCAAGCTTTACAAA spacer
length: 37 repeater length: 25
10102 905481 CTTTCAATTC-TATAGTAGATTATC CCATTTTCAGCGTTTTAAAAAGCCCATTCAGAAAGGAATTGA spacer
length: 40 repeater length: 25
10103 905546 CTTTCAATTC-TATAGTAGATTATC CCTGGCCCCGCCAACGTCTATGTTTAGCGGGGCATAGGC spacer
length: 38 repeater length: 25
10104 905609 CTTTCAATTC-TATAGTAGATTATC TTAAATACAAGGGGGAGAAGTCAAAAAAGTGGGGAAG spacer
length: 38 repeater length: 25
10105 905672 CTTTCAATTC-TATAGTAGATTATC TTGCATGCTATAGGAGAAGAGGGAGAAGTTTGAAACACA spacer
length: 39 repeater length: 25
10106 905736 CTTTCAATTC-TATAGTAGATTATC GATTAAAGTCAATGAAAGACACTTGAATCGCAAAATCTTT spacer
length: 40 repeater length: 25
10107 905801 CTTTCAATTC-TATAGTAGATTATC ATCAAGGAGG
10108
10109
10110 crispr 2
10111 910342 GATAATCTACTATAGAATTGAAAG CTGATATACTATCCTCCGGCTTAACATAGTATATTATAACAA spacer
length: 42 repeater length: 24
10112 910408 GATAATCTACTATAGAATTGAAAG TAGTCCACGAGTACGGTGTTCAGGATTTTCTACACAA spacer
length: 38 repeater length: 24
10113 910470 GATAATCTACTATAGAATTGAAAG TGTAACGCGTATGTTACCCTTCACGCTCACGAAGTTTA spacer
length: 39 repeater length: 24
10114 910533 GATAATCTACTATAGAATTGAAAG TGTAATTCGAGTGCATCAGGATATCCGTTGTTATTT spacer length:
37 repeater length: 24
10115 910594 GATAATCTACTATAGAATTGAAAG ACCACTGCTTACCAATCTTCTTATTGCAACCGATCCTAA spacer
length: 39 repeater length: 24
10116 910657 GATAATCTACTATAGAATTGAAAG TAAGACTGAAAATTCTTACAAATGTTCTATGGCATATG spacer
length: 38 repeater length: 24
10117 910719 GATAATCTACTATAGAATTGAAAG AGTATCGGTATGTCTACGCCATATCTCACACTTACTTGAT spacer
length: 40 repeater length: 24
10118 910783 GATAATCTACTATAGAATTGAAAG CATAACAAATTTTCTGTTTGAGTCGTATTATTTGATAG spacer
length: 38 repeater length: 24
10119 910845 GATAATCTACTATAGAATTGAAAG CTCGAAAACCCAACCACTCCCGTTAACTTTTACTAACT spacer
length: 39 repeater length: 24
10120 910908 GATAATCTACTATAGAATTGAAAG CTGAATTCTCCGCCGTATCTTTCTGCAATATCCTCCAAGT spacer
length: 40 repeater length: 24
10121 910972 GATAATCTACTATAGAATTGAAAG TTCCGTGAAATTATAAAGTTCTGTTACACTACAAATTTA spacer
length: 39 repeater length: 24
10122 911035 GATAATCTACTATAGAATTGAAAG TACATAAAGTTAATCACTATGGATATGGCATCATCTTTA spacer
length: 39 repeater length: 24
10123 911098 GATAATCTACTATAGAATTGAAAG GTAAAAGTACAAATCTACGTATTGACACCAGTATATGC spacer
length: 38 repeater length: 24
10124 911160 GATAATCTACTATAGAATTGAAAG TGAAATTCACCTCTAAAAATCATTGAACTACACTCTTCAT spacer
length: 40 repeater length: 24
10125 911224 GATAATCTACTATAGAATTGAAAG GCCACTCGGAGCTCCCGTTACAAAAGATCTATCAGTTTAT spacer
length: 41 repeater length: 24
10126 911289 GATAATCTACTATAGAATTGAAAG TATATAAATCCGAAAGTGGGAAAGAGAGAGAAAGATTTATA spacer
length: 41 repeater length: 24
10127 911354 GATAATCTACTATAGAATTGAAAG AGCGCAGATCCCGCCCGCTTGGGCAAAATGGACACACTCGT spacer
length: 41 repeater length: 24
10128 911419 GATAATCTACTATAGAATTGAAAG AGCGTAAGTAGATTGTTATCCAGCACGACGTGATAGATTGA spacer
length: 41 repeater length: 24
10129 911484 GATAATCTACTATAGAATTGAAAG TTATATTATCGAAAATGTCTGAAGAACACGTTTAGATCGA spacer
length: 39 repeater length: 24
10130 911547 GATAATCTACTATAGAATTGAAAG AAAGCAAATATAACTTCAGTAATACCTAAATTATTAGAATTAA spacer
length: 43 repeater length: 24
10131 911614 GATAATCTACTATAGAATTGAAAG TTTTTTATCGACTTAGAACCTAGTTGATAACTTTTCGAT spacer
length: 38 repeater length: 24
10132 911676 GATAATCTACTATAGAATTGAAAG GCCATGACGTTGCGAGATTGAAGGTGCAAAACGTGAAGATC spacer
length: 41 repeater length: 24
10133 911741 GATAATCTACTATAGAATTGAAAG GTTTACTATATAAAAACTGAAAAAGTTTAAGGATCAAG spacer
length: 39 repeater length: 24
10134 911804 GATAATCTACTATAGAATTGAAAG TGAGTTATATCGAGGCACATTAACGGGAGTATTGCCAATAAC spacer
length: 42 repeater length: 24
10135 911870 GATAATCTACTATAGAATTGAAAG CAGGAGGTGAGGGGAATGAGCAGTGAAGAGATACCTT spacer length:
37 repeater length: 24
10136 911931 GATAATCTACTATAGAATTGAAAG TTTCTTATTGACTTAGAACCTAGTTGATAACTTTTCGAT spacer
length: 38 repeater length: 24

10137 911993 GATAATCTACTATAGAAATTGAAAG TATGTCATTGATGACCATGTAATGGAACGGGTGAGGAAT spacer
length: 39 repeater length: 24

10138 912056 GATAATCTACTATAGAAATTGAAAG CCTAGTGTATGGAAAGAAGTTGAGAAATTAGAGCAAG spacer length:
37 repeater length: 24

10139 912117 GATAATCTACTATAGAAATTGAAAG TTTCATTGAAACGATAAGGGGTGGAAAGAGTGACTAAGAT spacer
length: 40 repeater length: 24

10140 912181 GATAATCTACTATAGAAATTGAAAG ACACCTTACCCATCCCCAACACCAACCCCACCACCTGCAA spacer
length: 40 repeater length: 24

10141 912245 GATAATCTACTATAGAAATTGAAAG CGCGACTTATACCTAATGATGCTTATGCGAAATATAGA spacer
length: 38 repeater length: 24

10142 912307 GATAATCTACTATAGAAATTGAAAG TACTAGGTGGTTTTTGGTTGGATATTAAAATTTATCATAA spacer
length: 39 repeater length: 24

10143 912370 GATAATCTACTATAGAAATTGAAAG TTTCCACTGTCAATGATAATCGTCGGCTTTTCTTTCTTC spacer
length: 39 repeater length: 24

10144 912433 GATAATCTACTATAGAAATTGAAAG TTTGAAGATAAGTTCTATGGAGTTGCGATAGCATATAG spacer
length: 38 repeater length: 24

10145 912495 GATAATCTACTATAGAAATTGAAAG AATATTTTATCAGTTATGATGATAATCAAATGGGTAGATTCA spacer
length: 42 repeater length: 24

10146 912561 GATAATCTACTATAGAAATTGAAAG AATAACTTCGATAGTGGTTGCAACACCAGGATTTGTATT spacer
length: 39 repeater length: 24

10147 912624 GATAATCTACTATAGAAATTGAAAG ATATTGTGTCTGTAACCATTCCATATATAGGTTCCATGT spacer
length: 39 repeater length: 24

10148 912687 GATAATCTACTATAGAAATTGAAAG ATCTATTTTATTGTTACCTAACATGGTTAAGAAAGTCTTT spacer
length: 40 repeater length: 24

10149 912751 GATAATCTACTATAGAAATTGAAAG ATGCTGCCCCAGCGTTAGATGGTTATGTGCTGTTTTATAAA spacer
length: 41 repeater length: 24

10150 912816 GATAATCTACTATAGAAATTGAAAG TGGTCTGGTCAGCTTTTCATAGGCGTCGCTTTTAACT spacer length:
37 repeater length: 24

10151 912877 GATAATCTACTATAGAAATTGAAAG GATAAAGATTGACTTCTCTTTACACAATAAATATAACTCAGC spacer
length: 42 repeater length: 24

10152 912943 GATAATCTACTATAGAAATTGAAAG TTAGCGAAAGCCAAAGCACCAAGAAAAACAATTACTCTCT spacer
length: 40 repeater length: 24

10153 913007 GATAATCTACTATAGAAATTGAAAG TTTGATAATGGAGGTATTGTACTTGACGTAACGATATCGA spacer
length: 41 repeater length: 24

10154 913072 GATAATCTACTATAGAAATTGAAAG ATTATCAGTACCGAAGGACGGAGCTTTACGGCTTCATCTA spacer
length: 40 repeater length: 24

10155 913136 GATAATCTACTATAGAAATTGAAAG AAAC TTATAACGCCGTTCTGGTTGTGGATGAAAGGAGCG spacer
length: 39 repeater length: 24

10156 913199 GATAATCTACTATAGAAATTGAAAG TCGATAACGGTCTGTGTAAGCGGTTGGATTGTAACA spacer length:
36 repeater length: 24

10157 913259 GATAATCTACTATAGAAATTGAAAG TTTCTCAGTCATGAGTGGATCACCTCATCCCTTACTATT spacer
length: 40 repeater length: 24

10158 913323 GATAATCTACTATAGAAATTGAAAG CAGCAGATATTTCTTGAACAACTCTAACGTCTCCTCATCAAT spacer
length: 42 repeater length: 24

10159 913389 GATAATCTACTATAGAAATTGAAAG ATCCTCAATAGAAAACCTCCCTACCCTGATTTGTTTCATC spacer
length: 38 repeater length: 24

10160 913451 GATAATCTACTATAGAAATTGAAAG ATATCTTATATAATTCTACAATTGAAAAACGGTAATGTG spacer
length: 39 repeater length: 24

10161 913514 GATAATCTACTATAGAAATTGAAAG GACACGGATTGGGTTTACCGAGACGAGAGGACAATACTCAAAT spacer
length: 43 repeater length: 24

10162 913581 GATAATCTACTATAGAAATTGAAAG GTTGTCTGTTTTACCCCGCTCTCAAATCGGTTAATATGT spacer
length: 39 repeater length: 24

10163 913644 GATAATCTACTATAGAAATTGAAAG AAAGTTGAAGACAGAGGAAACCAATACTACATAGAGTTT spacer
length: 39 repeater length: 24

10164 913707 GATAATCTACTATAGAAATTGAAAG TTTATATAAGTCCTAGGAACTATCACCTACCATTTAAAT spacer
length: 40 repeater length: 24

10165 913771 GATAATCTACTATAGAAATTGAAAG ATATATCTTATATCTCTCAGTTTTACGCACAATTTCGTCAATCA spacer
length: 43 repeater length: 24

10166 913838 GATAATCTACTATAGAAATTGAAAG AAATTTTTTCGATTTCAAAGAAGGCGAAATCACATTATAT spacer
length: 39 repeater length: 24

10167 913901 GATAATCTACTATAGAAATTGAAAG TCCTATGTGTTTCTGCCATTCATCATTGTTTTTCAACCT spacer
length: 40 repeater length: 24

10168 913965 GATAATCTACTATAGAAATTGAAAG CTAGCTTCTCCTCTTAATACTCTATCTATATCTCTTCCCAA spacer
length: 41 repeater length: 24

10169 914030 GATAATCTACTATAGAAATTGAAAG TAGTCATTTTCAGACCTGGATGGCTAGGAGTTCCCCTCTT spacer
length: 40 repeater length: 24

10170 914094 GATAATCTACTATAGAAATTGAAAG CTGGGACAAACTGCGTTAAAGAATCTGCTAAAGAAAGGTGTG spacer
length: 42 repeater length: 24

10171 914160 GATAATCTACTATAGAAATTGAAAG CAAGTTCAAATTGAGGAAGTTGAGGTAACCTGAGGTCTATAAT spacer
length: 43 repeater length: 24

10172 914227 GATAATCTACTATAGAAATTGAAAG TGTGAAAAGGACAAGGAAGTTTGGTTGGAGAACGGCGATA spacer

length: 40 repeater length: 24

10173 914291 GATAATCTACTATAGAAATTGAAAG CTCTTCTATATCTTAGTCCTCATAATTGTACCCGCAG spacer length: 37 repeater length: 24

10174 914352 GATAATCTACTATAGAAATTGAAAG ATGTGCATCTTCATCAGTGTATCTAATGTAGGTCTTACCGG spacer length: 41 repeater length: 24

10175 914417 GATAATCTACTATAGAAATTGAAAG CCCGGAACGTTATGACTTGTTACGTCCCCGCCGGTACATTG spacer length: 41 repeater length: 24

10176 914482 GATAATCTACTATAGAAATTGAAAG AAACCTTTATTACAATATATGACATCTGTTCAACAAA spacer length: 37 repeater length: 24

10177 914543 GATAATCTACTATAGAAATTGAAAG ATATCATTTAAATGCATTTGATAGTAAATTTACTGCATTTTC spacer length: 41 repeater length: 24

10178 914608 GATAATCTACTATAGAAATTGAAAG GTCTGCACATCTTCCATGACGATCATATTACCCTCAATA spacer length: 39 repeater length: 24

10179 914671 GATAATCTACTATAGAAATTGAAAG GACTTCATCGCTACTTTTGCTCTATTGCTTTTTGTCTTGT spacer length: 39 repeater length: 24

10180 914734 GATAATCTACTATAGAAATTGAAAG TGGGTTTATATTTCGTAAAATACAAACCACCTTGACATCTTG spacer length: 42 repeater length: 24

10181 914800 GATAATCTACTATAGAAATTGAAAG AAGTATTGCCAACTACGATCTCATTATAAACGGTTATCTCG spacer length: 41 repeater length: 24

10182 914865 GATAATCTACTATAGAAATTGAAAG TATTATCTTTATCTTCTATCACCTCTGCTTTGTTTAGCTT spacer length: 40 repeater length: 24

10183 914929 GATAATCTACTATAGAAATTGAAAG CTCAACTTGGACTTATGAAGACGTTCAAGATTTTCGTTTTA spacer length: 40 repeater length: 24

10184 914993 GATAATCTACTATAGAAATTGAAAG CTCGTTCCACCGTTAATCTGTATTACATCAAGAATCTGAA spacer length: 40 repeater length: 24

10185 915057 GATAATCTACTATAGAAATTGAAAG TCTAATATAATTTATAGTGTGGTAGTCGAGGTTGTGTTTAC spacer length: 41 repeater length: 24

10186 915122 GATAATCTACTATAGAAATTGAAAG AACGTTCCCGAACTTGATCCTAGATTTGTCATTTGAATTA spacer length: 40 repeater length: 24

10187 915186 GATAATCTACTATAGAAATTGAAAG CTTTCTCAATAAGTTTAGTCATGATTTCCTTTGGACTA spacer length: 38 repeater length: 24

10188 915248 GATAATCTACTATAGAAATTGAAAG TTTTAAGGAGATGGTTTTATGAAAATTGCCGATAAGGTCAA spacer length: 41 repeater length: 24

10189 915313 GATAATCTACTATAGAAATTGAAAG TGTCGTATTGATTTAGTTCCTAGCTCGTAGTGATCTATA spacer length: 39 repeater length: 24

10190 915376 GATAATCTACTATAGAAATTGAAAG ACAAAGCTATAGAAGGGGCACTCTAAGCATTCCGCATCC spacer length: 40 repeater length: 24

10191 915440 GATAATCTACTATAGAAATTGAAAG GGATTGATAGATTGATAGATAGAGGTTCCCCAAAATGGCCC spacer length: 41 repeater length: 24

10192 915505 GATAATCTACTATAGAAATTGAAAG TTATATTCCTTCATATTAGAATCTTTTATGATACCATT spacer length: 38 repeater length: 24

10193 915567 GATAATCTACTATAGAAATTGAAAG ATTATTTATGTTTCATACCCAGCCTGGTGGAGATGGGGATGG spacer length: 41 repeater length: 24

10194 915632 GATAATCTACTATAGAAATTGAAAG AACATTGAAGACTATCTAAGTTTTTCGTTAACGGAAGGG spacer length: 39 repeater length: 24

10195 915695 GATAATCTACTATAGAAATTGAAAG ACTTTTtagAAAGAGGAAATGGTTCCCCTTAATACTACGAGA spacer length: 42 repeater length: 24

10196 915761 GATAATCTACTATAGAAATTGAAAG ACGCTTACGGCTTAGCTCAGAGTTTCGATACAATCTTCAA spacer length: 40 repeater length: 24

10197 915825 GATAATCTACTATAGAAATTGAAAG TCCAGAGTTCTATTTTTATCTATTTCTTTCAGAAAGTTTA spacer length: 40 repeater length: 24

10198 915889 GATAATCTACTATAGAAATTGAAAG ATTTGATAATACTTATTTCTCAATTCAACTTCTAAATAG spacer length: 39 repeater length: 24

10199 915952 GATAATCTACTATAGAAATTGAAAG TAGCATTTCCCTATTACTTGTAACACTTGGTGGTTTGCCC spacer length: 39 repeater length: 24

10200 916015 GATAATCTACTATAGAAATTGAAAG AGCTTGC GTTGTGGCATGGATGACCTATACGCCGAAA spacer length: 38 repeater length: 24

10201 916077 GATAATCTACTATAGAAATTGAAAG AATGGGATGAACGTCAGTATACGAATAGGTGCACCTTTG spacer length: 39 repeater length: 24

10202 916140 GATAATCTACTATAGAAATTGAAAG TTATGCGAGAAAAGTTTTCCAAAGATGTGGGTTTAAA spacer length: 37 repeater length: 24

10203 916201 GATAATCTACTATAGAAATTGAAAG GTTTCTAAAAATCAAGTAAAGAAGTGATCGGGCGTATA spacer length: 39 repeater length: 24

10204 916264 GATAATCTACTATAGAAATTGAAAG CATTATAGACATTACAAATCCCAATTCTGGAAATATAG spacer length: 38 repeater length: 24

10205 916326 GATAATCTACTATAGAAATTGAAAG GGTAAATTGATCGATATGAAATATAATATACAAAATAAT spacer length: 39 repeater length: 24

10206 916389 GATAATCTACTATAGAAATTGAAAG ACACGTGAAAATCTTTTGAATGCGTACAAGGTTTACATTAA spacer length: 41 repeater length: 24

10207 916454 GATAATCTACTATAGAAATTGAAAG TGATGAAATAGATCCTGTTGCTCTCGCAGCAGTCTTATT spacer length: 39 repeater length: 24

10208 916517 GATAATCTACTATAGAAATTGAAAG AATTATTTTCAGATTTCAATACTCCCCGCTTTACGAGTT spacer
length: 38 repeater length: 24
10209 916579 GATAATCTACTATAGAAATTGAAAG ATACAATATATGTTATACTAATATATAAGCTTTTCGCTT spacer
length: 40 repeater length: 24
10210 916643 GATAATCTACTATAGAAATTGAAAG AAAGCTTCTTGAAAAGTTAAGTCATGCGTAATTTTTTAA spacer
length: 38 repeater length: 24
10211 916705 GATAATCTACTATAGAAATTGAAAG TTACAGTTATTGAAATCAATAGCGAGAGACAAAACTA spacer
length: 38 repeater length: 24
10212 916767 GATAATCTACTATAGAAATTGAAAG TGGACACTGATATAATAACGCCCCCGTAGCTTCATCTCTTTGC spacer
length: 43 repeater length: 24
10213 916834 GATAATCTACTATAGAAATTGAAAG ATATTTCTTCCCTTTTTGTTTAAAACTTGTGATTTG spacer length:
37 repeater length: 24
10214 916895 GATAATCTACTATAGAAATTGAAAG ACCAAGGATCAGATTATTTTACTAAAATCTCTTACAAAT spacer
length: 39 repeater length: 24
10215 916958 GATAATCTACTATAGAAATTGAAAG TATTATTACTGGTCTTGAAGTAGCTAGTTGCTTTACTGC spacer
length: 39 repeater length: 24
10216 917021 GATAATCTACTATAGAAATTGAAAG CCGACAATTACTGCTGGTCAGACACCAATTCAATAT spacer length:
36 repeater length: 24
10217 917081 GATAATCTACTATAGAAATTGAAAG ATGTAATAATCATCTCCTCTCCCGCCAAACGATAAATGA spacer
length: 39 repeater length: 24
10218 917144 GATAATCTACTATAGAAATTGAAAG ATCCTGTCT
10219
10220
10221 GCA_000245175.2_ASM24517v2_genomic.fna (PilerCR):
10222 START REPEAT
SPACER
10223 crispr 1
10224 858005 GATTAATCCTAAAAGGAATTGAAAG TTACTTTCTTCTCCACTATCTCCCATATGTCACGCTTC spacer
length: 38 repeater length: 25
10225 858068 GATTAATCCTAAAAGGAATTGAAAG ACAATAAGATAGAAGGGTCTCTCGCGATAACTCTGTAGT spacer
length: 39 repeater length: 25
10226 858132 GATTAATCCTAAAAGGAATTGAAAG TTCAGTAAGTAAGTTCGATTTTACTTATCGCCCATC spacer length:
36 repeater length: 25
10227 858193 GATTAATCCTAAAAGGAATTGAAAG ATAGATATGATGAGATGGCAAACAATGTATACTAGGAAA spacer
length: 39 repeater length: 25
10228 858257 GATTAATCCTAAAAGGAATTGAAAG CTGACTGGTATCAAAGATAACGCTTTCTTAGGGTTCGTA spacer
length: 39 repeater length: 25
10229 858321 GATTAATCCTAAAAGGAATTGAAAG GCAGTTAGGAAAACCACCAGATTTGGCTAGTTATATAGCCAG spacer
length: 43 repeater length: 25
10230 858389 GATTAATCCTAAAAGGAATTGAAAG ACAATACCATGTGCAGAATCAATAAACAATATGCTGT spacer
length: 37 repeater length: 25
10231 858451 GATTAATCCTAAAAGGAATTGAAAG ACTTGTATATCAGATATCATGTCTACTAACGGCAAATT spacer
length: 38 repeater length: 25
10232 858514 GATTAATCCTAAAAGGAATTGAAAG TATCATCATTCTCCTTGATAAACAGTCTCACTTTCT spacer
length: 37 repeater length: 25
10233 858576 GATTAATCCTAAAAGGAATTGAAAG AGTTATTTTCGACGTGATTTAACGCACAGTAAGATTTATAA spacer
length: 40 repeater length: 25
10234 858641 GATTAATCCTAAAAGGAATTGAAAG CTTGTATGCGCACTTACGAAAAGCCAATAATACTCAAA spacer
length: 38 repeater length: 25
10235 858704 GATTAATCCTAAAAGGAATTGAAAG TCAAAATATATATCGATGATTTCTTCAAGATCACTT spacer length:
36 repeater length: 25
10236 858765 GATTAATCCTAAAAGGAATTGAAAG ATAATATTCTCTCTACTATTTCTTCTTTCAACTATTCA spacer
length: 38 repeater length: 25
10237 858828 GATTAATCCTAAAAGGAATTGAAAG CTAAATATTTTCGTGTTTATATCAAATGCATATACTTT spacer
length: 37 repeater length: 25
10238 858890 GATTAATCCTAAAAGGAATTGAAAG TTATATGTAGTGACGGTAAGTAGTAGCATCTATAACTCT spacer
length: 39 repeater length: 25
10239 858954 GATTAATCCTAAAAGGAATTGAAAG GATTACTCTTCACAGATAAACATTCTTTAGGTAATTCT spacer
length: 38 repeater length: 25
10240 859017 GATTAATCCTAAAAGGAATTGAAAG TTTCGTTATCGTTCACGGAATTTATCAATGCAGTTAATT spacer
length: 39 repeater length: 25
10241 859081 GATTAATCCTAAAAGGAATTGAAAG TATAAGAACCTAAAAGAATTAATAAGAGTGTGACGG spacer
length: 38 repeater length: 25
10242 859144 GATTAATCCTAAAAGGAATTGAAAG TTCATTTCCGGCTCACCCCTAGCCAAATACTCTTTGAAT spacer
length: 38 repeater length: 25
10243 859207 GATTAATCCTAAAAGGAATTGAAAG GATATCCATTCCCTCAGCACTCTTAAATCCGCTGAAATT spacer
length: 38 repeater length: 25
10244 859270 GATTAATCCTAAAAGGAATTGAAAG TAGAATCTAGCAGTACTATGACCCATATAACCATATACA spacer
length: 39 repeater length: 25
10245 859334 GATTAATCCTAAAAGGAATTGAAAG CTTGTTAGTATATCTATTTTCATATTTATACACCCGAA spacer
length: 38 repeater length: 25

10246 859397 GATTAATCCTAAAAGGAATTGAAAG ATTAATTCTTTTACTGTATAGAAATATCTCATTTT spacer length:
35 repeater length: 25

10247 859457 GATTAATCCTAAAAGGAATTGAAAG TCCGTTTCTAACTTATTAAAGTATTCATATAATGC spacer length:
35 repeater length: 25

10248 859517 GATTAATCCTAAAAGGAATTGAAAG GTATTAAGTCATCAGAATATCCTTCTAATGATAGAG spacer length:
36 repeater length: 25

10249 859578 GATTAATCCTAAAAGGAATTGAAAG GCTATTAACATTATTAAGTTATAGACATTTTGTCCATATTCTACG
spacer length: 45 repeater length: 25

10250 859648 GATTAATCCTAAAAGGAATTGAAAG ATTGAAAAGACTTTACGAAGTATATACAAGTGCTCA spacer length:
36 repeater length: 25

10251 859709 GATTAATCCTAAAAGGAATTGAAAG AAGTACACTTTATTAGCATTTTCTGGCAAACGATTA spacer length:
36 repeater length: 25

10252 859770 GATTAATCCTAAAAGGAATTGAAAG GATATAATGATCTTGGATGAAAAAGCAAGAAAGGTGTTGG spacer
length: 40 repeater length: 25

10253 859835 GATTAATCCTAAAAGGAATTGAAAG TGATTCTCATCTATCTCCTCCTCCAATTCCGCGAGGAC spacer
length: 38 repeater length: 25

10254 859898 GATTAATCCTAAAAGGAATTGAAAG TTATTAATAATTTTTCGGGTGTTTTCATGTTTGTGCC spacer
length: 37 repeater length: 25

10255 859960 GATTAATCCTAAAAGGAATTGAAAG AAAACTAATTGTATATTAGCAGGGTCACTTTGCACTCT spacer
length: 38 repeater length: 25

10256 860023 GATTAATCCTAAAAGGAATTGAAAG GTATGCTATGCAACAGTATTTTAATCTTATTTCTCGGATCCT spacer
length: 42 repeater length: 25

10257 860090 GATTAATCCTAAAAGGAATTGAAAG CTATATATTTCGAGAAACAGGAATTTTCCCTGACTTATTT spacer
length: 39 repeater length: 25

10258 860154 GATTAATCCTAAAAGGAATTGAAAG TATTAATACTTATTAGCAATCATTGCTGCACGTAC spacer
length: 37 repeater length: 25

10259 860216 GATTAATCCTAAAAGGAATTGAAAG ATTAAATTCCTTTTAACATCACATAATCTTTATTTTCATATC spacer
length: 41 repeater length: 25

10260 860282 GATTAATCCTAAAAGGAATTGAAAG ATTAATACAATTAAGCTCCGTCTTTGCTAGACTCTTTTA spacer
length: 39 repeater length: 25

10261 860346 GATTAATCCTAAAAGGAATTGAAAG CTAATGAAACATAAGAGCGAAAAGAAGTTTAGTAGAGATTC spacer
length: 41 repeater length: 25

10262 860412 GATTAATCCTAAAAGGAATTGAAAG GCTTGTTTCTGATTGATGATATACCTTATTATTACTGGT spacer
length: 39 repeater length: 25

10263 860476 GATTAATCCTAAAAGGAATTGAAAG ACAAGATTCGTAACACTATTGACGAAGGTAAGAACGTTATTCTTG
spacer length: 45 repeater length: 25

10264 860546 GATTAATCCTAAAAGGAATTGAAAG TTTTACAATCAGATATATTGATAGTTGATTTCTGCTA spacer
length: 37 repeater length: 25

10265 860608 GATTAATCCTAAAAGGAATTGAAAG TAATTTTCATTTTCATTATTTCTCAACTCCCTTAATTAC spacer
length: 38 repeater length: 25

10266 860671 GATTAATCCTAAAAGGAATTGAAAG TGATTCTCATCTATCTCCTCCTCCAATTCCGCGAGGAC spacer
length: 38 repeater length: 25

10267 860734 GATTAATCCTAAAAGGAATTGAAAG CTAACTAAAACACAACCTAAATATAACACTATATAACACA spacer
length: 39 repeater length: 25

10268 860798 GATTAATCCTAAAAGGAATTGAAAG ATACTCTGTTCCCTTGCTCCATCTTTAGTAATTTGCTAA spacer
length: 38 repeater length: 25

10269 860861 GATTAATCCTAAAAGGAATTGAAAG ACCTTACTTTCTCTTCTCCCTTTAGATTAAGTTTT spacer length:
35 repeater length: 25

10270 860921 GATTAATCCTAAAAGGAATTGAAAG TATAAATAAGCGGTAAAAATGAAGAAAAAACGTTTCTAT spacer
length: 40 repeater length: 25

10271 860986 GATTAATCCTAAAAGGAATTGAAAG AGATATTATCCTTATATTACCTACTTTTTGCAGATATTTTC spacer
length: 41 repeater length: 25

10272 861052 GATTAATCCTAAAAGGAATTGAAAG TAGAATATCAAGCAGATAAATTAGTAGTACAAGATGTGA spacer
length: 39 repeater length: 25

10273 861116 GATTAATCCTAAAAGGAATTGAAAG TCTATTAATATTGTATGCAACATTATTTTAACTTTGC spacer
length: 37 repeater length: 25

10274 861178 GATTAATCCTAAAAGGAATTGAAAG TAGACAGGTCAGTATAGGTCTTACCATCTAATAAAGCAAG spacer
length: 40 repeater length: 25

10275 861243 GATTAATCCTAAAAGGAATTGAAAG AAATTACTATCTTGAATAGAGATATTAGCGTTGTCTATTGCT spacer
length: 42 repeater length: 25

10276 861310 GATTAATCCTAAAAGGAATTGAAAG CTATATATGGGAAGGCTTATGATCACCTAGTAGAA spacer length:
35 repeater length: 25

10277 861370 GATTAATCCTAAAAGGAATTGAAAG GATGAATATGAAGAATTTGCTACTATAATAGTGAAACTCC spacer
length: 40 repeater length: 25

10278 861435 GATTAATCCTAAAAGGAATTGAAAG CTCATCACCCCATGTTTCTTCAAATCCACCCAGATTCTC spacer
length: 39 repeater length: 25

10279 861499 GATTAATCCTAAAAGGAATTGAAAG AAGAATCCCCAAGGATAAACACTAGCATATCGACC spacer length:
35 repeater length: 25

10280 861559 GATTAATCCTAAAAGGAATTGAAAG TTCCAAATACACGTTTATTCAATATGATATCCAGCAAC spacer
length: 38 repeater length: 25

10281 861622 GATTAATCCTAAAAGGAATTGAAAG TTATTATTTACAGTTATTCTTATCTTTGCCATCCTCACCAC spacer

length: 41 repeater length: 25
10282 861688 GATTAATCCTAAAAGGAATTGAAAG TCAAAATGAGTAATTTTTCTTCATGCAACATAATTCAC spacer
length: 39 repeater length: 25
10283 861752 GATTAATCCTAAAAGGAATTGAAAG TCTTTCACATACGTTTCTATACGCTTCTTCTTTCCATC spacer
length: 38 repeater length: 25
10284 861815 GATTAATCCTAAAAGGAATTGAAAG TGTCTTCAG
10285
10286
10287 crispr 2
10288 880517 CTTTCAATTCTATAGTAGATTATC AAGCCAGGGTGTGGGCATACGTACCTCAGCTTTTTTATCT spacer
length: 40 repeater length: 24
10289 880581 CTTTCAATTCTATAGTAGATTATC TATCAAATCAAGATTACACACAAGTAGAAGCGGAAGGCA spacer
length: 39 repeater length: 24
10290 880644 CTTTCAATTCTATAGTAGATTATC TATCCAGGATTTCCCTGTGGAGGCCACCAGAATGATGCGTT spacer
length: 41 repeater length: 24
10291 880709 CTTTCAATTCTATAGTAGATTATC AGAAAGGTAATAAAATTTGAGTACAGACGTACGGGATA spacer
length: 38 repeater length: 24
10292 880771 CTTTCAATTCTATAGTAGATTATC TGCTTCATATTTTAATGTTCTAAGTTTTACTTTTTTGG spacer
length: 38 repeater length: 24
10293 880833 CTTTCAATTCTATAGTAGATTATC GACAAGCAGTTTCGTATGGTACTGGAAATTTAAATAGATATA spacer
length: 42 repeater length: 24
10294 880899 CTTTCAATTCTATAGTAGATTATC TAATCTTAACAGGGCTCGGAATTTTGTCTTAGTCTT spacer length:
37 repeater length: 24
10295 880960 CTTTCAATTCTATAGTAGATTATC TTTATTAAAGGTACTGAATAACCTTCAGCATTAAATAA spacer
length: 38 repeater length: 24
10296 881022 CTTTCAATTCTATAGTAGATTATC AAATAATTAATGAAAATCCTTATGGGAAATTAATATATTT spacer
length: 40 repeater length: 24
10297 881086 CTTTCAATTCTATAGTAGATTATC TCAGTAATTTTCATAAACCGGGTGAATTTGTCCATTTTG spacer
length: 40 repeater length: 24
10298 881150 CTTTCAATTCTATAGTAGATTATC TAGATACAAAAGAAAATTATTCATGACACTATTTGATAT spacer
length: 39 repeater length: 24
10299 881213 CTTTCAATTCTATAGTAGATTATC ATTTTCCTCGAACGTTACCAACGTAAACGTTCTATTCAT spacer
length: 39 repeater length: 24
10300 881276 CTTTCAATTCTATAGTAGATTATC ATAGATAAAAAGCGGATCTATGGGAGAAGTTATGAGGAA spacer
length: 38 repeater length: 24
10301 881338 CTTTCAATTCTATAGTAGATTATC CATAATACTATTATAGTGTCAACTGTACTCTATATTGCAAT spacer
length: 41 repeater length: 24
10302 881403 CTTTCAATTCTATAGTAGATTATC TGGAGATGAACCAGAAATAGAGCTAAAGGAAATCGAAGT spacer
length: 39 repeater length: 24
10303 881466 CTTTCAATTCTATAGTAGATTATC ATTGGATGTCAACAGGGGATTTATACCTATATATGGATAT spacer
length: 40 repeater length: 24
10304 881530 CTTTCAATTCTATAGTAGATTATC TCTGAAGTACCATCTCCCCAATCAATTGTGACAGTAAA spacer
length: 38 repeater length: 24
10305 881592 CTTTCAATTCTATAGTAGATTATC ATAAAGAGATAGTCAGTTTTTATAAGGATTCTCTCGATAG spacer
length: 40 repeater length: 24
10306 881656 CTTTCAATTCTATAGTAGATTATC GTTAAATTTTTCTTTCCGGGAAGATTAATGGTATGAG spacer
length: 38 repeater length: 24
10307 881718 CTTTCAATTCTATAGTAGATTATC CGTCAATTGCCACAGGTGCAGTACTTAAATTAATTACGA spacer
length: 39 repeater length: 24
10308 881781 CTTTCAATTCTATAGTAGATTATC ACCTGTTATATGGATGGTAGTGTTAATGACGTTTGAGAC spacer
length: 39 repeater length: 24
10309 881844 CTTTCAATTCTATAGTAGATTATC ATGACAAAATTAAAGAGTATGATATATGATGCACTTAAAG spacer
length: 40 repeater length: 24
10310 881908 CTTTCAATTCTATAGTAGATTATC CCAGATATGTGAAAGGTTAATACTTGACATCGTAAACA spacer
length: 38 repeater length: 24
10311 881970 CTTTCAATTCTATAGTAGATTATC CTCTTTCCAGTATTTGTTTTGGTCTCTTCAGCTTGAGGAG spacer
length: 40 repeater length: 24
10312 882034 CTTTCAATTCTATAGTAGATTATC AATAAACTAGAATACGAATACCGTCGAACATCATATA spacer
length: 38 repeater length: 24
10313 882096 CTTTCAATTCTATAGTAGATTATC AAATGTAAATGTAGAAGGAAAGCCAAAGTTGATAGTGG spacer
length: 38 repeater length: 24
10314 882158 CTTTCAATTCTATAGTAGATTATC GAAGAGGCTCGAAAGGAAGCTAATAATTTCAAGAAGGCTAG spacer
length: 41 repeater length: 24
10315 882223 CTTTCAATTCTATAGTAGATTATC CTGAAGCACTACTACCACCAGAGACACCGAAACCTCCACC spacer
length: 40 repeater length: 24
10316 882287 CTTTCAATTCTATAGTAGATTATC TCACGGTGTACGACAATATTTCTATTGCCCTCTAAGTACT spacer
length: 41 repeater length: 24
10317 882352 CTTTCAATTCTATAGTAGATTATC TTTGGTATGATGATTTCTGATATGGTATTACAATATACA spacer
length: 40 repeater length: 24
10318 882416 CTTTCAATTCTATAGTAGATTATC TAGGATCAAGCGGAGTGCAGGTAAATACGGGGTATGCG spacer
length: 38 repeater length: 24

10319 882478 CTTTCAATTCTATAGTAGATTATC ATCATAAGCTACTTCACCGGCGGATTAGGTAATGTGTTA spacer
length: 39 repeater length: 24
10320 882541 CTTTCAATTCTATAGTAGATTATC CCTGCTGGTTTTAACACCTGGTCAAGTAAAAACATTAA spacer length:
37 repeater length: 24
10321 882602 CTTTCAATTCTATAGTAGATTATC TAAATAACATCCGAGTACTCACCTAGTGCATCTGGTATAA spacer
length: 40 repeater length: 24
10322 882666 CTTTCAATTCTATAGTAGATTATC ACTATCATCCCCTATAAATTCAATCAAATAGAAGA spacer length:
36 repeater length: 24
10323 882726 CTTTCAATTCTATAGTAGATTATC TAACCACAGG
10324
10325
10326 crispr 3
10327 887347 GATAATCTACTATAGAATTGAAAG CTAACGCAAACGGCGTTAAAACACTTGCTTTCAAAGAAT spacer
length: 39 repeater length: 24
10328 887410 GATAATCTACTATAGAATTGAAAG CATCCGTTAATGGTGGTTTTAATCCAATATAAACTCCAC spacer
length: 39 repeater length: 24
10329 887473 GATAATCTACTATAGAATTGAAAG ATTTTTAGCGGGTTATGTAGGAGGAGGGTTTTACATAA spacer
length: 38 repeater length: 24
10330 887535 GATAATCTACTATAGAATTGAAAG CACTTATACCTAGTACGGGTGGGAGTCAATGACAGAG spacer length:
37 repeater length: 24
10331 887596 GATAATCTACTATAGAATTGAAAG CTATCACTGCGTCATAGGGTTGTATCGTTTGTGTTTTAGT spacer
length: 38 repeater length: 24
10332 887658 GATAATCTACTATAGAATTGAAAG ATCATAGTATCATTTAGAATAACAAAAACATTAACATCT spacer
length: 40 repeater length: 24
10333 887722 GATAATCTACTATAGAATTGAAAG ACGCATAACAGTTCATCCAATAACTACACAACACTCCTCTAT spacer
length: 41 repeater length: 24
10334 887787 GATAATCTACTATAGAATTGAAAG GTAAACACATGGCGGATATGTGATGCCATTGCTATCTTTT spacer
length: 40 repeater length: 24
10335 887851 GATAATCTACTATAGAATTGAAAG ATTACGATGATGATGACGAAGACGGCGAGGGCATAGTCCC spacer
length: 40 repeater length: 24
10336 887915 GATAATCTACTATAGAATTGAAAG TTTCTTGTTCTTTCAGGACTAGGACGTCGTAGTCCAG spacer length:
37 repeater length: 24
10337 887976 GATAATCTACTATAGAATTGAAAG TGATGTTTTGATACGCTGTTTTAAAATCGGCTTTTTTGTA spacer
length: 39 repeater length: 24
10338 888039 GATAATCTACTATAGAATTGAAAG TATAATTCTCCTCATCATCCGCCATTATTATAGGAAAGTTG spacer
length: 41 repeater length: 24
10339 888104 GATAATCTACTATAGAATTGAAAG AAGTTATCCTCGTTATTTAGTTTCTCAATGAAGTAGTACT spacer
length: 40 repeater length: 24
10340 888168 GATAATCTACTATAGAATTGAAAG TCATTCATCGATCCAGCATTGAAGAGAGAAGGACGTTT spacer
length: 38 repeater length: 24
10341 888230 GATAATCTACTATAGAATTGAAAG ATCTCCTATACTGACTTTAAACCCGCCGACTATTTTCTCTA spacer
length: 41 repeater length: 24
10342 888295 GATAATCTACTATAGAATTGAAAG GAATAGAACTATAGCAGAAATAACAGCTTGCACTCCGAA spacer
length: 39 repeater length: 24
10343 888358 GATAATCTACTATAGAATTGAAAG AATTTTATGACTACGCCACCCATACCTTTAGCACGTAA spacer
length: 38 repeater length: 24
10344 888420 GATAATCTACTATAGAATTGAAAG TTCTTGTAATGTCGTTATGTTACCATCATCTTTAATCTC spacer
length: 39 repeater length: 24
10345 888483 GATAATCTACTATAGAATTGAAAG ATATTTTTACTTCAAACATGAAGACCCATTATTACAACCTT spacer
length: 40 repeater length: 24
10346 888547 GATAATCTACTATAGAATTGAAAG TTTAAGGAGATGGTTTTATGAAAATTGCAGATAAGGTCAA spacer
length: 40 repeater length: 24
10347 888611 GATAATCTACTATAGAATTGAAAG TATTTACACCGCCTTTCCCATTACCCTATCGCGGTTT spacer length:
37 repeater length: 24
10348 888672 GATAATCTACTATAGAATTGAAAG CCATATCCAGGATTTCCCTGTGGAGGCCACCAGAATG spacer length:
37 repeater length: 24
10349 888733 GATAATCTACTATAGAATTGAAAG TTGTAATAAATATTGGCTACCATTATGATACTCTACTA spacer
length: 38 repeater length: 24
10350 888795 GATAATCTACTATAGAATTGAAAG TGATTTCCACTTCTTGAAGTGTGTAGTTTGTGTTGATATCA spacer
length: 40 repeater length: 24
10351 888859 GATAATCTACTATAGAATTGAAAG TACTTACACCCTTGTTTTAAGTATCTATTTTTGGGTTT spacer
length: 38 repeater length: 24
10352 888921 GATAATCTACTATAGAATTGAAAG GTGGGGGTGGGGAACCCCCGCGGGTTACTGAACT spacer length: 34
repeater length: 24
10353 888979 GATAATCTACTATAGAATTGAAAG CGTGATAATTATAAATGGGCTGAGGCTATGGGTAATAAAGTT spacer
length: 42 repeater length: 24
10354 889045 GATAATCTACTATAGAATTGAAAG TTAAATGATCCAATAGGATTTGTAATTGTTGTAGAAC spacer length:
37 repeater length: 24
10355 889106 GATAATCTACTATAGAATTGAAAG AACCTAAGGTAAAGGCTTCTACGTGCTGTTTTAGGTCAT spacer
length: 39 repeater length: 24
10356 889169 GATAATCTACTATAGAATTGAAAG AAGTAGGTACGTATAAGTCCGCATTACACGTTTAACC spacer

length: 38 repeater length: 24
10357 889231 GATAATCTACTATAGAAATTGAAAG TCAGTCGTTTTCAACGGCTGTAAACATTGACTATTCAAATG spacer
length: 40 repeater length: 24
10358 889295 GATAATCTACTATAGAAATTGAAAG ACTCCCACCTCGTCTCCACTACCACCCAACTGTATTCAAG spacer
length: 40 repeater length: 24
10359 889359 GATAATCTACTATAGAAATTGAAAG GTGTACATCCATCATTGTCTTTTTATTGAACAGATTATGTCATTA spacer
length: 44 repeater length: 24
10360 889427 GATAATCTACTATAGAAATTGAAAG TCTAGTATAACTTTTATACAAAAGCGGAAGTGC AAATAT spacer
length: 38 repeater length: 24
10361 889489 GATAATCTACTATAGAAATTGAAAG AATAGAATTTGTCCATTTACTGCGGAAATATTTGCTACTA spacer
length: 40 repeater length: 24
10362 889553 GATAATCTACTATAGAAATTGAAAG AATTTCTCATGGCTAGGAGGCACAAGTCACATCATAAA spacer
length: 38 repeater length: 24
10363 889615 GATAATCTACTATAGAAATTGAAAG CTCAGATTTCCATAATTGATCGAATGTTTGAAGGATGGG spacer
length: 39 repeater length: 24
10364 889678 GATAATCTACTATAGAAATTGAAAG ATTGTTTTCTTATTTTCTTATCCATCATACTTTCTTCCCC spacer
length: 40 repeater length: 24
10365 889742 GATAATCTACTATAGAAATTGAAAG GTAATAGATAATTCCTCGTTTCTATCGTTGAAAGGATCG spacer
length: 39 repeater length: 24
10366 889805 GATAATCTACTATAGAAATTGAAAG ATAGCAATATGATGTACTATATTTAAATGAAAACTGT spacer
length: 38 repeater length: 24
10367 889867 GATAATCTACTATAGAAATTGAAAG TACTTTTTCTTCACCTTTGATATTTAATTTTACTATGAT spacer
length: 39 repeater length: 24
10368 889930 GATAATCTACTATAGAAATTGAAAG GTTATTCTATTAAATGTGCATACTTCTTGATTTGCCGCCAT spacer
length: 41 repeater length: 24
10369 889995 GATAATCTACTATAGAAATTGAAAG CTAGTGCCAGGGTTCAGGGGTGTACCCTCACTGCCACA spacer
length: 38 repeater length: 24
10370 890057 GATAATCTACTATAGAAATTGAAAG TTTAGATTAAGTTTTACATAAATTATAGACACGATAACA spacer
length: 39 repeater length: 24
10371 890120 GATAATCTACTATAGAAATTGAAAG ATCATCAGGCCCATGAGCGTTTTGCCGGTGCCGGTCGG spacer
length: 38 repeater length: 24
10372 890182 GATAATCTACTATAGAAATTGAAAG AGGACGTAATTCTACAATTGTTCTAGTAACTCCTTG GGGCGGA spacer
length: 43 repeater length: 24
10373 890249 GATAATCTACTATAGAAATTGAAAG ATAAAATTGAAGGGCATGGAACAAGACGTTATAGAGGAAT spacer
length: 40 repeater length: 24
10374 890313 GATAATCTACTATAGAAATTGAAAG AAATGCGTATCAAGTTGCAGAGCAGAACAATATAAGTAGT spacer
length: 40 repeater length: 24
10375 890377 GATAATCTACTATAGAAATTGAAAG ATCTTCAAAATATGCCTTAATTCGTCTTCGGACGTCGCA spacer
length: 39 repeater length: 24
10376 890440 GATAATCTACTATAGAAATTGAAAG TCATAAGGTTTTACTGTTGCAGTAGGTGTTAAATTAGA spacer
length: 38 repeater length: 24
10377 890502 GATAATCTACTATAGAAATTGAAAG TTCTAATAGCTGAACCCCTGCTTGATAGTCTCTATTAA spacer
length: 38 repeater length: 24
10378 890564 GATAATCTACTATAGAAATTGAAAG AAACAACTTCTCAACCATCAACAACACCACCTACATCG spacer
length: 39 repeater length: 24
10379 890627 GATAATCTACTATAGAAATTGAAAG AACAACTGGATTTTTTTGAATGATTGACACTTTTATGACTAT spacer
length: 41 repeater length: 24
10380 890692 GATAATCTACTATAGAAATTGAAAG ATCGACATGTTGGGGACCTTTAGTATGGGCATATTTGAG spacer
length: 39 repeater length: 24
10381 890755 GATAATCTACTATAGAAATTGAAAG TGGATCTGAGTTTTTAAACGATTTTTCTTAGCAAAC TGGGGAGT spacer
length: 43 repeater length: 24
10382 890822 GATAATCTACTATAGAAATTGAAAG ATGTCGTTAAATGCATTTGATAGTAAATTTACCGCATTTT spacer
length: 40 repeater length: 24
10383 890886 GATAATCTACTATAGAAATTGAAAG TATATGCCATCACTCACACCAGCATTAGCAGTAGCGGT spacer
length: 38 repeater length: 24
10384 890948 GATAATCTACTATAGAAATTGAAAG ATAGAAGGGGCGAAAGGAAGAGCAATAAGTGCTATCATT spacer
length: 39 repeater length: 24
10385 891011 GATAATCTACTATAGAAATTGAAAG GTTAATGACTAATTCTATAGATTTGGAGGAATATTGTAG spacer
length: 39 repeater length: 24
10386 891074 GATAATCTACTATAGAAATTGAAAG AAAATATTGTTTGGTGTGTATTTATTTGTGCCAAATTAG spacer
length: 40 repeater length: 24
10387 891138 GATAATCTACTATAGAAATTGAAAG TATTTATACAGTAAAGTTTTGGCAAATTTCCAATTGTAA spacer
length: 38 repeater length: 24
10388 891200 GATAATCTACTATAGAAATTGAAAG TAGTATAATCCGCGTATTCACCGTTTATCACGTTTTCAAT spacer
length: 40 repeater length: 24
10389 891264 GATAATCTACTATAGAAATTGAAAG ATTAATTCCTTCTTCTTTTGCTCATAATATTTTATTT CATCTT spacer
length: 43 repeater length: 24
10390 891331 GATAATCTACTATAGAAATTGAAAG TATCGCTTAAGTAGGGTAAGAATTGATTAAGATAAGAA spacer
length: 38 repeater length: 24
10391 891393 GATAATCTACTATAGAAATTGAAAG ATTTTATCGAGATATCATAATTACCATATGTTATAG spacer length:
36 repeater length: 24

10392	891453	GATAATCTACTATAGAAATTGAAAG	CTAATTCCAATATATCCTATTTGTGACCAAGGGAATGG	spacer
		length: 38	repeater length: 24	
10393	891515	GATAATCTACTATAGAAATTGAAAG	TATATCATGCGGTATAAATGCGGGGTCGGCTTCCTCGT	spacer
		length: 38	repeater length: 24	
10394	891577	GATAATCTACTATAGAAATTGAAAG	TTTACGGGCACCTTTTCGGTCACCTTTTCGCTCACCTCAT	spacer
		length: 39	repeater length: 24	
10395	891640	GATAATCTACTATAGAAATTGAAAG	AGAGCCGAGATGATAATTAAACAAGCAAAACAATATCTA	spacer
		length: 39	repeater length: 24	
10396	891703	GATAATCTACTATAGAAATTGAAAG	TTTGAATTTTTCTTGCGAAAAAGTATATCTGAACAGCTA	spacer
		length: 39	repeater length: 24	
10397	891766	GATAATCTACTATAGAAATTGAAAG	TGGCAATCGTAATAATGCCCCGTAACCGTAAGCTCTGAGAG	spacer
		length: 40	repeater length: 24	
10398	891830	GATAATCTACTATAGAAATTGAAAG	TATATTATACGAAATACCATCATCTTTCGTGAATGTACCT	spacer
		length: 40	repeater length: 24	
10399	891894	GATAATCTACTATAGAAATTGAAAG	AATAAATATATTATAGATCCTATCAGCATCGCCTTAGGAGT	spacer
		length: 41	repeater length: 24	
10400	891959	GATAATCTACTATAGAAATTGAAAG	TTATTTTGCATCACCTCCTTCTAAGCCCTAAGACTAG	spacer length:
		37	repeater length: 24	
10401	892020	GATAATCTACTATAGAAATTGAAAG	TAGAAAAATTTATCAATAGCCTAGTAACACTGAAGTTTCCTT	spacer
		length: 42	repeater length: 24	
10402	892086	GATAATCTACTATAGAAATTGAAAG	ATTCCAAAGTTACGTCATCGATGACCACGTAATGGAAA	spacer
		length: 38	repeater length: 24	
10403	892148	GATAATCTACTATAGAAATTGAAAG	GAATAAGCGGGGCGAAGCCGACGTGTACGCCGTGTCTTTC	spacer
		length: 40	repeater length: 24	
10404	892212	GATAATCTACTATAGAAATTGAAAG	TCTTATATAAAATCAAAATTGTATGAAATCCAAGCTGAAGTTTTT	spacer
		length: 45	repeater length: 24	
10405	892281	GATAATCTACTATAGAAATTGAAAG	TGCGGAGAA	
10406				
10407				
10408	GCA_000245215.2_ASM24521v2_genomic.fna (PilerCR) :			
10409	START	REPEAT		
10410	SPACER			
10410	crispr 1			
10411	864540	CTTTCAATTCTATAGTAGATTATC	ATAAAAGCAAAAGAGGGAAAGAGAGAGAAAGATTTATA	spacer
		length: 38	repeater length: 24	
10412	864602	CTTTCAATTCTATAGTAGATTATC	AAGTGGTTTTCCAGGGTGCTGGAAAACTACTTATG	spacer length:
		35	repeater length: 24	
10413	864661	CTTTCAATTCTATAGTAGATTATC	GTTTCGATTTATATACTGCAGTAGTAGATTATGTTAGTTC	spacer
		length: 39	repeater length: 24	
10414	864724	CTTTCAATTCTATAGTAGATTATC	TTGTGACAATAAACTATACTTATCATCGTCACTTAGTGATAA	spacer
		length: 42	repeater length: 24	
10415	864790	CTTTCAATTCTATAGTAGATTATC	ATTGATAAATAGTGGTTATAAGGATAGTGATCAACTTAT	spacer
		length: 39	repeater length: 24	
10416	864853	CTTTCAATTCTATAGTAGATTATC	GTGCTGCGGCTACTGGAATACAAGCATCAGGTATCGCAAAT	spacer
		length: 41	repeater length: 24	
10417	864918	CTTTCAATTCTATAGTAGATTATC	AAGATTTCCGCAAAAGAAGGTTTTGGTATCAGTTTAAGGG	spacer
		length: 40	repeater length: 24	
10418	864982	CTTTCAATTCTATAGTAGATTATC	TCGCAACATTGTATATGTCATATTATGATAAGAAGTT	spacer length:
		37	repeater length: 24	
10419	865043	CTTTCAATTCTATAGTAGATTATC	GTAAAATAACTACACAAGGTGCTGAAAATCTCAGGATCGT	spacer
		length: 40	repeater length: 24	
10420	865107	CTTTCAATTCTATAGTAGATTATC	TGATAAAATACAACAATTGTATCCAAATATTCCATT	spacer length:
		36	repeater length: 24	
10421	865167	CTTTCAATTCTATAGTAGATTATC	GTGTTGGATTTTCGGACGGTATACGTACAGTAAAGATAT	spacer
		length: 39	repeater length: 24	
10422	865230	CTTTCAATTCTATAGTAGATTATC	ATCATCATCGGGCATCTGCATACAAATACGTTGAAGTCG	spacer
		length: 39	repeater length: 24	
10423	865293	CTTTCAATTCTATAGTAGATTATC	ATCGCTCTAACATTTTCAGAATCAGTATGGTGTTAATATA	spacer
		length: 39	repeater length: 24	
10424	865356	CTTTCAATTCTATAGTAGATTATC	TGCACTAAATATTGAACTCCATTATGATATTCTACTATAA	spacer
		length: 40	repeater length: 24	
10425	865420	CTTTCAATTCTATAGTAGATTATC	TGGGGTGAGGGTACGTACTGCGATAACTGATATGCATTTT	spacer
		length: 40	repeater length: 24	
10426	865484	CTTTCAATTCTATAGTAGATTATC	ACAACATGCAGATAATATTCTAGCAAGACTTTTAGAACAACA	spacer
		length: 42	repeater length: 24	
10427	865550	CTTTCAATTCTATAGTAGATTATC	AACAAATGCGGTAGGAAGTTTAGGTAACCTTTGTCGTAAA	spacer
		length: 39	repeater length: 24	
10428	865613	CTTTCAATTCTATAGTAGATTATC	CCAAAATAACAATATAAGCCACCCCGATGAATGTGAGGGG	spacer
		length: 40	repeater length: 24	
10429	865677	CTTTCAATTCTATAGTAGATTATC	AGCATTAGATGTTACTATCGGTCCTGGAGGGATTTCCGT	spacer
		length: 39	repeater length: 24	

10430	865740 CTTTCAATTCTATAGTAGATTATC	TCTTCATTAATTTAATGAGGTCATTTTTTCATGAGAAATA spacer
	length: 39 repeater length: 24	
10431	865803 CTTTCAATTCTATAGTAGATTATC	ATGTCGTAGTAGAAGAGACTCTTGCGACTGGAAGTGCAGG spacer
	length: 40 repeater length: 24	
10432	865867 CTTTCAATTCTATAGTAGATTATC	AATCCCTCGTTCAATTAATCTCCTTATCGCTACCGAACCTAA spacer
	length: 42 repeater length: 24	
10433	865933 CTTTCAATTCTATAGTAGATTATC	CGACAATTTCAACGGGTGCAGTGCTTACGTTGATTGTTAT spacer
	length: 40 repeater length: 24	
10434	865997 CTTTCAATTCTATAGTAGATTATC	CGACTAGAATATTTTCGTTTCGTGGTGAATCTTAATGC spacer length:
	37 repeater length: 24	
10435	866058 CTTTCAATTCTATAGTAGATTATC	TCTACTATAAAGAGTGCCTTAGATGACGCTATAGAGAAA spacer
	length: 39 repeater length: 24	
10436	866121 CTTTCAATTCTATAGTAGATTATC	ATTCTAACGACATCAATACTTATCATAGACCTCATTTTCGT spacer
	length: 40 repeater length: 24	
10437	866185 CTTTCAATTCTATAGTAGATTATC	AGAAGGATGAGGGAAAGGAAAGTGCAAAGTGATCCCAT spacer
	length: 38 repeater length: 24	
10438	866247 CTTTCAATTCTATAGTAGATTATC	CCTTGTATCCAAGACACAGTTACTATCACATTAAAAAA spacer
	length: 38 repeater length: 24	
10439	866309 CTTTCAATTCTATAGTAGATTATC	ATCGCATCACATGTGTTGTATAAACATTTTGAATATTAC spacer
	length: 39 repeater length: 24	
10440	866372 CTTTCAATTCTATAGTAGATTATC	TACAGACAATACGGAGAAAGAATAGACCAAAAAATCATA spacer
	length: 39 repeater length: 24	
10441	866435 CTTTCAATTCTATAGTAGATTATC	ATGTAGTAATACTTGACGACCCTGCTAGTTGGATTTCAAAA spacer
	length: 41 repeater length: 24	
10442	866500 CTTTCAATTCTATAGTAGATTATC	TCCCCAAGATTGTTGTACTTGTGTAACATATTGTAATAA spacer
	length: 39 repeater length: 24	
10443	866563 CTTTCAATTCTATAGTAGATTATC	AGGAACTAATAATAACATTGGCGGTTGACGTACTAGCTCT spacer
	length: 40 repeater length: 24	
10444	866627 CTTTCAATTCTATAGTAGATTATC	AGTACATACGGTGCTACGACTTCGGTAAGTCCAGATTC spacer
	length: 38 repeater length: 24	
10445	866689 CTTTCAATTCTATAGTAGATTATC	TAGGAGGAGGGTTTAACATAATACCATCCGTTTCACGGT spacer
	length: 39 repeater length: 24	
10446	866752 CTTTCAATTCTATAGTAGATTATC	GCTGTATCTTTTCTCACAGTGTTGTAGATAAGGTCTAA spacer
	length: 38 repeater length: 24	
10447	866814 CTTTCAATTCTATAGTAGATTATC	TTGGTATTCACGCTAGGGTTTGCTGCTGCTGGTGGC spacer length:
	36 repeater length: 24	
10448	866874 CTTTCAATTCTATAGTAGATTATC	AGGAGCGGGAGAGGCAATCCATGCTCTTGAGGTGGCGAATTT spacer
	length: 42 repeater length: 24	
10449	866940 CTTTCAATTCTATAGTAGATTATC	ACAATAAATATCCAGGGGGGAGGAGTAATAGAAGTAAA spacer
	length: 38 repeater length: 24	
10450	867002 CTTTCAATTCTATAGTAGATTATC	AATAACTCAAACAAGTATCACCTTTACAAAACATAACG spacer
	length: 39 repeater length: 24	
10451	867065 CTTTCAATTCTATAGTAGATTATC	CCTTCTTTCGTTTAAGGGGGAAGAAGAATGTCAACTGG spacer
	length: 38 repeater length: 24	
10452	867127 CTTTCAATTCTATAGTAGATTATC	TTTAGGTATACTTTACGGCATTCTAACTGCGATAGCAA spacer
	length: 38 repeater length: 24	
10453	867189 CTTTCAATTCTATAGTAGATTATC	AAGATAAAGCTCTAAAGTGATTAAGAAATGATGAAGGCT spacer
	length: 39 repeater length: 24	
10454	867252 CTTTCAATTCTATAGTAGATTATC	TATAAGGGATTTCGTTTGAGAAAGTGATACAGACTTATTA spacer
	length: 39 repeater length: 24	
10455	867315 CTTTCAATTCTATAGTAGATTATC	ATCGGCAAATTGCTGCGCTTCTGGATTTCCGAAATCGAA spacer
	length: 39 repeater length: 24	
10456	867378 CTTTCAATTCTATAGTAGATTATC	GTTAGTTTTTGCACCTGGCATGGCTGCAGCCGGTTTCGGTTT spacer
	length: 42 repeater length: 24	
10457	867444 CTTTCAATTCTATAGTAGATTATC	TCGTAATTGTGAAAAATAAGACTGCAGCAAGTGCAAT spacer length:
	37 repeater length: 24	
10458	867505 CTTTCAATTCTATAGTAGATTATC	AATAGTACTTTGAACACCTCATATGCCTCTCTAGCCTCTT spacer
	length: 40 repeater length: 24	
10459	867569 CTTTCAATTCTATAGTAGATTATC	ATACTGAAACACTTTCCCCTACTTGAGGGGACGTAAG spacer length:
	37 repeater length: 24	
10460	867630 CTTTCAATTCTATAGTAGATTATC	AAAAGAAGTTCAGAAACGGCAATAAGGAGATTCAACTACAA spacer
	length: 41 repeater length: 24	
10461	867695 CTTTCAATTCTATAGTAGATTATC	ATATAAATCCGAAAGCACGTTAGTGAGAGAGAAAGATTTATA spacer
	length: 42 repeater length: 24	
10462	867761 CTTTCAATTCTATAGTAGATTATC	AATTCACTTG
10463		
10464		
10465	crispr 2	
10466	872894 GATAATCTACTATAGAATTGAAAG	GTTTCTAAAAGACGGTGAAGTTATTCTTGTATCAGAACA spacer
	length: 39 repeater length: 24	
10467	872957 GATAATCTACTATAGAATTGAAAG	ACTTGTGGAAGCATTAGGGCAAAGAGCCGTACACACTATA spacer

length: 40 repeater length: 24
10468 873021 GATAATCTACTATAGAAATTGAAAG GCGTATCCCTGTGCAGATATCGTTATTCTCCCAGTAAT spacer
length: 38 repeater length: 24
10469 873083 GATAATCTACTATAGAAATTGAAAG TCCATGTGAAATCTTTAACGTTGTTTTTCTATCAACATCAT spacer
length: 42 repeater length: 24
10470 873149 GATAATCTACTATAGAAATTGAAAG TTTAAGATCCCCCTCTTATTCTGTACGGATCATCGTTAAG spacer
length: 39 repeater length: 24
10471 873212 GATAATCTACTATAGAAATTGAAAG AACATATGTGAGGCACAAATGGCCAAATTATTTCGACACTA spacer
length: 40 repeater length: 24
10472 873276 GATAATCTACTATAGAAATTGAAAG TTTCTGCAGCTTTCTCTTCTATTTTATTCAATAACAATT spacer
length: 39 repeater length: 24
10473 873339 GATAATCTACTATAGAAATTGAAAG TTTTGAAATCCAACTAGCAGGGTCATCTAGGATAACTAT spacer
length: 39 repeater length: 24
10474 873402 GATAATCTACTATAGAAATTGAAAG ATCTTTTTTATCAGAAATAGCGTTTTTAAATTTTATAAA spacer
length: 39 repeater length: 24
10475 873465 GATAATCTACTATAGAAATTGAAAG GATATTGAACCGCTTTTCTCGCGAAAAGCTTTTATAGT spacer
length: 39 repeater length: 24
10476 873528 GATAATCTACTATAGAAATTGAAAG GTATTTGTTTTGGTCTCTTCAGCTTGAGGAATGGATGTAC spacer
length: 40 repeater length: 24
10477 873592 GATAATCTACTATAGAAATTGAAAG ACGACAGCCACAACAGCGCCACCTGCAGCGACTGAAGCG spacer
length: 39 repeater length: 24
10478 873655 GATAATCTACTATAGAAATTGAAAG GGTTTCATCACAACCTTACTCCAATAAGTTCGTATACTT spacer length:
37 repeater length: 24
10479 873716 GATAATCTACTATAGAAATTGAAAG CCCTGATTATTAGGCATTTTATTCGCCCTCCTCTCTTAT spacer
length: 39 repeater length: 24
10480 873779 GATAATCTACTATAGAAATTGAAAG TTAGGATCGGTTGCAATAAGGAAATTGGTATCAAAGGATAT spacer
length: 42 repeater length: 24
10481 873845 GATAATCTACTATAGAAATTGAAAG TAGGATTTACTGCGTATGTTTCTTCTTTTACTTTCTCTACT spacer
length: 41 repeater length: 24
10482 873910 GATAATCTACTATAGAAATTGAAAG TAGATTCATCATATTTCATTAAGAATCTTCAAACTTCGCTTT spacer
length: 42 repeater length: 24
10483 873976 GATAATCTACTATAGAAATTGAAAG GTGTTAGTTTGAGAGAATGCAACGTTACTTAGTAATAATGT spacer
length: 41 repeater length: 24
10484 874041 GATAATCTACTATAGAAATTGAAAG AGGGTTATATGAAATTGAAAGCCCTGGAGTAGCGTAAA spacer
length: 38 repeater length: 24
10485 874103 GATAATCTACTATAGAAATTGAAAG AAAAAATTGTTGGAGAGTTCAAAAAAGAGGTGTCCGTT spacer
length: 39 repeater length: 24
10486 874166 GATAATCTACTATAGAAATTGAAAG TTAGACCATAGCGGTTTGTTAATTGATGAAGTAGCAGGGA spacer
length: 40 repeater length: 24
10487 874230 GATAATCTACTATAGAAATTGAAAG TCAATAAACGTAACCGTAACACCATCAGCAACTTCTGG spacer
length: 38 repeater length: 24
10488 874292 GATAATCTACTATAGAAATTGAAAG ACAGTATTGAGACTAACTAAAAATGGTATTACGTTATT spacer
length: 38 repeater length: 24
10489 874354 GATAATCTACTATAGAAATTGAAAG TTAATTCATATGTGACCCAAGCACCAGTAACGTTTATGA spacer
length: 40 repeater length: 24
10490 874418 GATAATCTACTATAGAAATTGAAAG GAATGAAGTCTATTGTGTCAAAGTTTACGCCTAGTTCCGC spacer
length: 40 repeater length: 24
10491 874482 GATAATCTACTATAGAAATTGAAAG ATCAGTTCAAGAATTGGGTGAGCGGGAATGGGTAGGAT spacer
length: 38 repeater length: 24
10492 874544 GATAATCTACTATAGAAATTGAAAG TATTTCTCATGAAAAACGACCTGATTAACTGATGAAG spacer
length: 38 repeater length: 24
10493 874606 GATAATCTACTATAGAAATTGAAAG TACATATCTGCACTTGTAGCATATTGTTTTATAGCATTT spacer
length: 39 repeater length: 24
10494 874669 GATAATCTACTATAGAAATTGAAAG TACTTCCGCGGTGCCGTTTCGCTATAAATAGCCCAGAGCCGTTTA spacer
length: 44 repeater length: 24
10495 874737 GATAATCTACTATAGAAATTGAAAG AATAACGTTCCAGCGAATTCAACTACAGGAGCTTTGATGCT spacer
length: 41 repeater length: 24
10496 874802 GATAATCTACTATAGAAATTGAAAG TGTTTCTTCCCTCCAGATAAGGCGACTACTATTATTAG spacer
length: 38 repeater length: 24
10497 874864 GATAATCTACTATAGAAATTGAAAG CCAATCCCAACCGCTCGAAAACCCAACCACTCCCGTT spacer length:
37 repeater length: 24
10498 874925 GATAATCTACTATAGAAATTGAAAG CTATTTGGTACAATAGTGGTAACATTAGTTATGTTACAG spacer
length: 40 repeater length: 24
10499 874989 GATAATCTACTATAGAAATTGAAAG CTGGTTTCAGCAAACGGCGTCACATCCTTTAACTTCTATT spacer
length: 40 repeater length: 24
10500 875053 GATAATCTACTATAGAAATTGAAAG ACAACACTACCACCGCTAACTAACGGCCCTCCTGAATCCCCCT spacer
length: 43 repeater length: 24
10501 875120 GATAATCTACTATAGAAATTGAAAG GAAGTATCCCAATCTTCTTTATGTCTTCGCCAACCTAA spacer
length: 39 repeater length: 24
10502 875183 GATAATCTACTATAGAAATTGAAAG ATTAGAATCTATGAAGTTGAAGACGGAATAAGGGTCAAAA spacer
length: 40 repeater length: 24

10503 875247 GATAATCTACTATAGAAATTGAAAG TATCTATTCCTTCCCAATATTTCTGTGTTTTACGCTCATATACT spacer
length: 44 repeater length: 24

10504 875315 GATAATCTACTATAGAAATTGAAAG CATTCCACCAACATCGTCCATTGTTATCGATGGTGT spacer length:
36 repeater length: 24

10505 875375 GATAATCTACTATAGAAATTGAAAG CAGCACGCTGGAAGCTAGGGCGTCAGCCTAAATACA spacer length:
36 repeater length: 24

10506 875435 GATAATCTACTATAGAAATTGAAAG GTCTAGTTTTTGTGCCCGTTATTTTGCTATGAT spacer length: 34
repeater length: 24

10507 875493 GATAATCTACTATAGAAATTGAAAG CTCTATTTCTTCTTCGAATTTCCCTTAGTGTGTAATCTTCA spacer
length: 41 repeater length: 24

10508 875558 GATAATCTACTATAGAAATTGAAAG TACTAGAAATCCCGCCACTATTCCTATGAAATTAGTTAGCAA spacer
length: 42 repeater length: 24

10509 875624 GATAATCTACTATAGAAATTGAAAG CAAACTCAGCGATAAGCAAAAGTTTAAACAGCTGTTT spacer
length: 38 repeater length: 24

10510 875686 GATAATCTACTATAGAAATTGAAAG ATGTTTGGTAAGTTTAGCAAGGCAAGTTTGGTTCAGCAAG spacer
length: 40 repeater length: 24

10511 875750 GATAATCTACTATAGAAATTGAAAG CATAGATTCTCATAGGCAATATAGCTACTTTGTCATCAT spacer
length: 39 repeater length: 24

10512 875813 GATAATCTACTATAGAAATTGAAAG GAAAATAAAAAGCTTTTTAGAAATATACTTCTAAATA spacer length:
37 repeater length: 24

10513 875874 GATAATCTACTATAGAAATTGAAAG TTTATTATTGAGTTGTTTCAAGATGTTGGTATCATAG spacer length:
37 repeater length: 24

10514 875935 GATAATCTACTATAGAAATTGAAAG CTGTATCTCCCAATACGTCAATACACTTCCAGAAGACGT spacer
length: 40 repeater length: 24

10515 875999 GATAATCTACTATAGAAATTGAAAG TTTTGTTTGAACCTCCTCCAGTAATTTTTCTATCTCATCTT spacer
length: 40 repeater length: 24

10516 876063 GATAATCTACTATAGAAATTGAAAG ACAAATCCGTATCGGATCTAACACATCAGATCGTTCCAT spacer
length: 39 repeater length: 24

10517 876126 GATAATCTACTATAGAAATTGAAAG ATTTCCGTCTCTATCTCTTCTATATTCGTAGTCTCA spacer length:
36 repeater length: 24

10518 876186 GATAATCTACTATAGAAATTGAAAG AGCAGTTAGAGATATTTTCAAGCTGAAGGAAACGCTGAGAAAGATAT spacer
length: 45 repeater length: 24

10519 876255 GATAATCTACTATAGAAATTGAAAG TTCTGTTTATGCAGCGCAGTAACGAAGTTCACCATTCTG spacer
length: 39 repeater length: 24

10520 876318 GATAATCTACTATAGAAATTGAAAG ATTAAGTTCATCTAGATGATATATAGTTTGTGCTTTT spacer length:
37 repeater length: 24

10521 876379 GATAATCTACTATAGAAATTGAAAG AGAGCAGTTAGACCAATTGTACCACTCCATTCAAAAAAT spacer
length: 39 repeater length: 24

10522 876442 GATAATCTACTATAGAAATTGAAAG CGATGATTTCCCTTACGTTTCATGGTAAACATGTTCAAGC spacer
length: 39 repeater length: 24

10523 876505 GATAATCTACTATAGAAATTGAAAG GGTGTGAAATACGCCACGTGAATTGGAGCGCTAGACGCGGG spacer
length: 41 repeater length: 24

10524 876570 GATAATCTACTATAGAAATTGAAAG TTGGCTGGAACCAGATATTGCTGAGGTAAGCTAGTTCC spacer
length: 38 repeater length: 24

10525 876632 GATAATCTACTATAGAAATTGAAAG AAATTACTAACCTTACTATCAATTTTTTAAGTAAATCTT spacer
length: 39 repeater length: 24

10526 876695 GATAATCTACTATAGAAATTGAAAG ACATCTTTGTGGCCGTGAACCTCCTCAGATATTTTCGGGGCTA spacer
length: 42 repeater length: 24

10527 876761 GATAATCTACTATAGAAATTGAAAG ATACCAAGGCTGAATGGAGGCCTAGAGTAAACCCCCCA spacer
length: 38 repeater length: 24

10528 876823 GATAATCTACTATAGAAATTGAAAG TTCAATGTTAAACTGGAATAAATGGTGTGTAATATCCT spacer
length: 39 repeater length: 24

10529 876886 GATAATCTACTATAGAAATTGAAAG TCTGATCTGTTATCAGGTCTAATGAGTATTTGGCCTTA spacer
length: 38 repeater length: 24

10530 876948 GATAATCTACTATAGAAATTGAAAG TTGCATAATCTTTTCTGAATCCTAATGCCATCTTTTCCTT spacer
length: 40 repeater length: 24

10531 877012 GATAATCTACTATAGAAATTGAAAG ACAATCCGCAATTAATTCTTTACATTCCCTCCAAATATTTT spacer
length: 40 repeater length: 24

10532 877076 GATAATCTACTATAGAAATTGAAAG TTCTTGAGCTCATAAATCGGGCTGAGGTCCTCATAAT spacer length:
37 repeater length: 24

10533 877137 GATAATCTACTATAGAAATTGAAAG AAAACCGGGATACGAACGTGTTCTCTACAGAGGTAATGTA spacer
length: 40 repeater length: 24

10534 877201 GATAATCTACTATAGAAATTGAAAG ATCTTTGAAAGATAATTAATAAGTAGCTCTAGATCCTTT spacer
length: 39 repeater length: 24

10535 877264 GATAATCTACTATAGAAATTGAAAG CTATATCTCCCTAAAACATCGATACATTTCCAGAAAAC spacer
length: 38 repeater length: 24

10536 877326 GATAATCTACTATAGAAATTGAAAG ATTATATTATCAAGACCTTTAGGTGTTGTGTATGAGATA spacer
length: 39 repeater length: 24

10537 877389 GATAATCTACTATAGAAATTGAAAG AATGATTGAACTACTAAAGTCAGTGGCGGAAGTGCAGGCT spacer
length: 40 repeater length: 24

10538 877453 GATAATCTACTATAGAAATTGAAAG AACGGTGAAAGTGCTACTTTATCATACGGGCAAGCATTAGA spacer

length: 41 repeater length: 24
10539 877518 GATAATCTACTATAGAAATTGAAAG GTAATACTCAAAGTGTATATATAACACGTGAGACGCAA spacer
length: 38 repeater length: 24
10540 877580 GATAATCTACTATAGAAATTGAAAG GTAATGATGAACTTTACAAAATTCCTCATTGTATTAGCC spacer
length: 39 repeater length: 24
10541 877643 GATAATCTACTATAGAAATTGAAAG AGGTGTATAGGTGACATGTGATATCTGTTCTCTCTCTGAT spacer
length: 41 repeater length: 24
10542 877708 GATAATCTACTATAGAAATTGAAAG TTTCAAATCATTGTAGTCCCAAATAAAGGGTATTTTTG spacer
length: 38 repeater length: 24
10543 877770 GATAATCTACTATAGAAATTGAAAG CGATACTCGAACGGTTGCGTACCCCAAGGACGTAATTCTA spacer
length: 40 repeater length: 24
10544 877834 GATAATCTACTATAGAAATTGAAAG GTTTCCATAAGATATCGCAGAATAAATGGCGGTAATGGTCT spacer
length: 41 repeater length: 24
10545 877899 GATAATCTACTATAGAAATTGAAAG TCTAATAATACTAATAATAATCAACAACTCAGACTACAT spacer
length: 40 repeater length: 24
10546 877963 GATAATCTACTATAGAAATTGAAAG TAATAATCTGTAACGCTTACAGTTATCTTAACTGGA spacer length:
36 repeater length: 24
10547 878023 GATAATCTACTATAGAAATTGAAAG CATAAAGTATATGTGCTGAAGTCTTCTTTGATCCGATA spacer
length: 38 repeater length: 24
10548 878085 GATAATCTACTATAGAAATTGAAAG AAGATAACACATTTATTTTCTACGTAGTACTTACATACT spacer
length: 39 repeater length: 24
10549 878148 GATAATCTACTATAGAAATTGAAAG CTTATTCCCGAATGATTTCTTCTCCTATAGATTTCTCTCAA spacer
length: 41 repeater length: 24
10550 878213 GATAATCTACTATAGAAATTGAAAG AAGACTTAGATCATGGTGTGATACATCAATATTTAGGA spacer
length: 38 repeater length: 24
10551 878275 GATAATCTACTATAGAAATTGAAAG ATACCCCTACACTGGTATATATTCAGCCGTATATAG spacer length:
36 repeater length: 24
10552 878335 GATAATCTACTATAGAAATTGAAAG GAAAGCGTAAAGATGAAGTTACTAGACGAAATCAAAAA spacer
length: 38 repeater length: 24
10553 878397 GATAATCTACTATAGAAATTGAAAG ATACCTTTTTTAACGTCGGATACCATAATCATTAAATCCCGC spacer
length: 40 repeater length: 24
10554 878461 GATAATCTACTATAGAAATTGAAAG CCCATGATTTTCAATTCACCAATTGTACAAAAATATATTCTT spacer
length: 42 repeater length: 24
10555 878527 GATAATCTACTATAGAAATTGAAAG AACGATGCTACCGCATTTGTTAATAAATTTCTAAGTTTTGT spacer
length: 42 repeater length: 24
10556 878593 GATAATCTACTATAGAAATTGAAAG CCTACCGTGACTGCGACATAATGGGGTATTATTGCATAAT spacer
length: 40 repeater length: 24
10557 878657 GATAATCTACTATAGAAATTGAAAG CGCCGTCGCCGACGCGGGGGTATGTAGTCAGTATTACT spacer
length: 38 repeater length: 24
10558 878719 GATAATCTACTATAGAAATTGAAAG GTAGACGCTACTGCATTAGGCATAGGTGTTATAAACGT spacer
length: 38 repeater length: 24
10559 878781 GATAATCTACTATAGAAATTGAAAG AGATTTGTCATTTGAATTATATAACTATGAGTAAATGTTA spacer
length: 40 repeater length: 24
10560 878845 GATAATCTACTATAGAAATTGAAAG GAAGGCAGTGCAATCTTATATGTGTTCCCTTTTTCTTTTG spacer
length: 40 repeater length: 24
10561 878909 GATAATCTACTATAGAAATTGAAAG AATCAGGGGATGATACTAGTTTTACATACAACGGACAGTCG spacer
length: 42 repeater length: 24
10562 878975 GATAATCTACTATAGAAATTGAAAG GCTTTCTGCCGAACTTTTTCAGCAGTCATTATAGCTCC spacer length:
37 repeater length: 24
10563 879036 GATAATCTACTATAGAAATTGAAAG AGTGTTAGTATAAATCGCGAACAAAATAAGCGGATAAAGA spacer
length: 40 repeater length: 24
10564 879100 GATAATCTACTATAGAAATTGAAAG GTTACGGGTACTGTTTGTGTATAATATGAGGGGTAATCAT spacer
length: 41 repeater length: 24
10565 879165 GATAATCTACTATAGAAATTGAAAG TGTGGCAACACAAATATAGCTTCACAGATAACATCCCTTT spacer
length: 40 repeater length: 24
10566 879229 GATAATCTACTATAGAAATTGAAAG TGGAACCGCTCACGTAAACACTTATAAATCCATTCTCTT spacer
length: 40 repeater length: 24
10567 879293 GATAATCTACTATAGAAATTGAAAG ATTAGTTTTATTAAATGATCCATCAATTCAAACCTTTGACAT spacer
length: 41 repeater length: 24
10568 879358 GATAATCTACTATAGAAATTGAAAG ATTGACTACATTCAAGCCACCAACGGTAACGATAAATTTAC spacer
length: 41 repeater length: 24
10569 879423 GATAATCTACTATAGAAATTGAAAG TTTCATGTTTTTGTATCATTCAATCCTTGGCAATTGAGT spacer
length: 40 repeater length: 24
10570 879487 GATAATCTACTATAGAAATTGAAAG GATTCCGACA
10571
10572
10573 GCA_000245235.2_ASM24523v2_genomic.fna (PilerCR) :
10574 START REPEAT
SPACER
10575 crispr 1
10576 849758 CTTTCAATTCTATAGTAGATTATC CGAAGGGTGGGGCAGAGGTGTATCACCCCTCGCCAGGGCGTCTCGG spacer

length: 45 repeater length: 24
10577 849827 CTTTCAATTCTATAGTAGATTATC ATAAATTTTCCTCGGCTTCATCGCTCAAGTCCTCAGTTAA spacer
length: 39 repeater length: 24
10578 849890 CTTTCAATTCTATAGTAGATTATC TTCAACATTTTATACAATAATTCATGTAAACGCTTTGAACG spacer
length: 40 repeater length: 24
10579 849954 CTTTCAATTCTATAGTAGATTATC TCTGGTTGCCCAATACTTAAGCTTAAAAGAATTAGTTT spacer
length: 39 repeater length: 24
10580 850017 CTTTCAATTCTATAGTAGATTATC CGGATTATCATGGCGTTGGTTGATGTCTGCTTCTGTGCGTA spacer
length: 40 repeater length: 24
10581 850081 CTTTCAATTCTATAGTAGATTATC ACGCTTTAGCACCAGGCACTGGTCAAGGGTATTATGAACT spacer
length: 40 repeater length: 24
10582 850145 CTTTCAATTCTATAGTAGATTATC GCAATTACAAGGGGCAGAAGCTACTGAAAGTATAACAGGAAG spacer
length: 42 repeater length: 24
10583 850211 CTTTCAATTCTATAGTAGATTATC AGCGACCGGTAGGCAGTAGCAGCAGACAGGACCTTAGT spacer
length: 38 repeater length: 24
10584 850273 CTTTCAATTCTATAGTAGATTATC TTAGATCCGTTATAAAATGCATTCAACGTCAGCCATCAATAA spacer
length: 43 repeater length: 24
10585 850340 CTTTCAATTCTATAGTAGATTATC ACGTCTAGATTATTTGAAAGTCCGCACTCACAATAAAT spacer
length: 38 repeater length: 24
10586 850402 CTTTCAATTCTATAGTAGATTATC AAAACAATGAAAAGATGAGAGTAGGAAGTTTTCTAGTGA spacer
length: 39 repeater length: 24
10587 850465 CTTTCAATTCTATAGTAGATTATC CTTCGGCTGTATTGTTATTATTCTTTGTATCGTTCTTTAT spacer
length: 40 repeater length: 24
10588 850529 CTTTCAATTCTATAGTAGATTATC CTCATTATAGACGTTATAAATCCAAATAGCGGAAATAT spacer
length: 38 repeater length: 24
10589 850591 CTTTCAATTCTATAGTAGATTATC AGTGTATTTACTGATAACGGGAATAGAAAGAATCCTTTTCG spacer
length: 40 repeater length: 24
10590 850655 CTTTCAATTCTATAGTAGATTATC GAGAGATGAGTGAAAGTAATATATGGCAATAGGAGAAATTTT spacer
length: 42 repeater length: 24
10591 850721 CTTTCAATTCTATAGTAGATTATC CCCTTATATTATCTAATGCTTTATTTACCGCATCACTTAA spacer
length: 40 repeater length: 24
10592 850785 CTTTCAATTCTATAGTAGATTATC ACGTTACATTGCAGAATGGGCATCTATTCTTTTCGATAC spacer
length: 39 repeater length: 24
10593 850848 CTTTCAATTCTATAGTAGATTATC ACTTAATGACGACGGTTATTTCCGGTGTAATCATAGCCGA spacer
length: 39 repeater length: 24
10594 850911 CTTTCAATTCTATAGTAGATTATC TAGATATAATACATGTAAGTTGCATGTATCACCTTGTTTTG spacer
length: 41 repeater length: 24
10595 850976 CTTTCAATTCTATAGTAGATTATC ACTTTAAACATCTAATATATATGTTAGCGGGAATTTTTA spacer
length: 39 repeater length: 24
10596 851039 CTTTCAATTCTATAGTAGATTATC TGGGGCAGGCGGGATGGTAGTAGCAAGATTTGCTTATGCGG spacer
length: 41 repeater length: 24
10597 851104 CTTTCAATTCTATAGTAGATTATC CACTTTGTGTTCTCTGAACCCAATTGTTACCCGAGTTT spacer
length: 39 repeater length: 24
10598 851167 CTTTCAATTCTATAGTAGATTATC TGCCCTGATTTGGGTTAATGTTAAACTGATGGTCGGT spacer
length: 38 repeater length: 24
10599 851229 CTTTCAATTCTATAGTAGATTATC ATCGTTTTCCCGTTTTTCGCTTTGAGTTCATTAAGCGT spacer length:
37 repeater length: 24
10600 851290 CTTTCAATTCTATAGTAGATTATC AAGGAACAACGAAGATAGTGAAAAATGGGGAAAACAAA spacer
length: 39 repeater length: 24
10601 851353 CTTTCAATTCTATAGTAGATTATC TGGCAAATTGGCAAGCGTTCAACGGAACGTTGGCGACGGG spacer
length: 40 repeater length: 24
10602 851417 CTTTCAATTCTATAGTAGATTATC CTAGCGGTTTGAAGCGTTAGCTAACGCAATTGTATC spacer length:
37 repeater length: 24
10603 851478 CTTTCAATTCTATAGTAGATTATC AGCGTTACGAATCTTGTTGATAACCTCCTCTTGATAAGGATA spacer
length: 42 repeater length: 24
10604 851544 CTTTCAATTCTATAGTAGATTATC TTAGATATTGTAATGCGGTCTGATAATTGCCTTGTTGTA spacer
length: 39 repeater length: 24
10605 851607 CTTTCAATTCTATAGTAGATTATC ATCTTAGAGCACCTAAAGCTGTGCGATTGTTAAGATATC spacer
length: 39 repeater length: 24
10606 851670 CTTTCAATTCTATAGTAGATTATC TTGGGCACAGAACAAAATGAAAAAGGAGGAAAGAGTGA spacer
length: 38 repeater length: 24
10607 851732 CTTTCAATTCTATAGTAGATTATC AGATATTGCAAACCAAGGCATCATGAAATACAATAAGAA spacer
length: 39 repeater length: 24
10608 851795 CTTTCAATTCTATAGTAGATTATC CCCTTAGTAATAGTATTTATAGTTGTTGCATTAATTGTA spacer
length: 39 repeater length: 24
10609 851858 CTTTCAATTCTATAGTAGATTATC GTAGAATTACGTCCTTGGGGTACGCAACCGTTTGAGTATAA spacer
length: 41 repeater length: 24
10610 851923 CTTTCAATTCTATAGTAGATTATC ACGATGAAGAAAAATATGAGGTCATAGTAGAATTAAGAGAATT spacer
length: 44 repeater length: 24
10611 851991 CTTTCAATTCTATAGTAGATTATC AAAATAAATTACATATTGTAGTGATTGATATAATTGAGT spacer
length: 39 repeater length: 24

10612	852054 CTTTCAATTCTATAGTAGATTATC	TTTTATCTATTGATGATGATAACTCAAGTTTAAAGTGTTAA	spacer
	length: 40 repeater length: 24		
10613	852118 CTTTCAATTCTATAGTAGATTATC	TTGAATGGAATTGATAGAGAAAACCGGCAAATCATACGT	spacer
	length: 39 repeater length: 24		
10614	852181 CTTTCAATTCTATAGTAGATTATC	AACGTTAGAACCAGTGAATTCATAGTACCAACCTGC	spacer length: 36
	length: 36 repeater length: 24		
10615	852241 CTTTCAATTCTATAGTAGATTATC	CGTCTATTACCACCTTTTTGGTAATTGCCTGCAGAGATTA	spacer
	length: 39 repeater length: 24		
10616	852304 CTTTCAATTCTATAGTAGATTATC	ATAACCCATCTATACCAGTAAACTATAACCGAAGTTTAT	spacer
	length: 40 repeater length: 24		
10617	852368 CTTTCAATTCTATAGTAGATTATC	TTACCTTCAACATTTACACTTCTAGCATCAACAATAA	spacer length: 37
	length: 37 repeater length: 24		
10618	852429 CTTTCAATTCTATAGTAGATTATC	ATTGTTCTAGTAACTCCTTGCGGTGGACTGATAGAAAA	spacer
	length: 38 repeater length: 24		
10619	852491 CTTTCAATTCTATAGTAGATTATC	GATAACAAATATAAATTTATTAAGAATGTTACAAGCAGC	spacer
	length: 39 repeater length: 24		
10620	852554 CTTTCAATTCTATAGTAGATTATC	ACAACCTTAAAAAGGAAAAGAAGGAGGCGAGGG	spacer length: 32
	length: 32 repeater length: 24		
10621	852610 CTTTCAATTCTATAGTAGATTATC	GATAAAGTTAGGAGTTTGATTTAGCGTTTACGATTGATTG	spacer
	length: 40 repeater length: 24		
10622	852674 CTTTCAATTCTATAGTAGATTATC	TTTATCCCATGTTCGGAACAGGTAAGCTGCATACAGTACA	spacer
	length: 39 repeater length: 24		
10623	852737 CTTTCAATTCTATAGTAGATTATC	AGTTGTTTTACTTCTTTGCCATCTACTGCATGAATGTTT	spacer
	length: 39 repeater length: 24		
10624	852800 CTTTCAATTCTATAGTAGATTATC	GTTTGATATCACTTTTCCAGTGCGGAACTTATTAATA	spacer
	length: 38 repeater length: 24		
10625	852862 CTTTCAATTCTATAGTAGATTATC	AAGACGTATATCAACTTTAAGAGTAATGTAACAATAATACT	spacer
	length: 41 repeater length: 24		
10626	852927 CTTTCAATTCTATAGTAGATTATC	ACGAGCTTCCCCACAATGACTAACGGGATGACGAAAACC	spacer
	length: 39 repeater length: 24		
10627	852990 CTTTCAATTCTATAGTAGATTATC	GAAATTGAGCACGGTAGCTTTCCAGTTTGTCATTAACCCTTTTA	spacer
	length: 44 repeater length: 24		
10628	853058 CTTTCAATTCTATAGTAGATTATC	ATAATATTGTTGTAACCTCGATGTCTGAGACCACGAAATAG	spacer
	length: 40 repeater length: 24		
10629	853122 CTTTCAATTCTATAGTAGATTATC	TGGGCTAAGCCGAATCCATATGGGTTTCCGCCCATGTA	spacer
	length: 38 repeater length: 24		
10630	853184 CTTTCAATTCTATAGTAGATTATC	GTTTTGCATTACCAGCAATTATAATAGATGAACTGATAG	spacer
	length: 40 repeater length: 24		
10631	853248 CTTTCAATTCTATAGTAGATTATC	ACATAACGTAGTACGTAAAAGAATTAGTGTTTACAG	spacer length: 36
	length: 36 repeater length: 24		
10632	853308 CTTTCAATTCTATAGTAGATTATC	TTTCATTCTTTTTTGATTGCTTTTATAATGGGAATTCTAGT	spacer
	length: 40 repeater length: 24		
10633	853372 CTTTCAATTCTATAGTAGATTATC	CAAAGTGGTGGACTGACATCTCTTGTTGGCATGGCTGA	spacer
	length: 38 repeater length: 24		
10634	853434 CTTTCAATTCTATAGTAGATTATC	ACTATAGCATGGATATCCTAGGATTGTTATAACTTTATCATT	spacer
	length: 42 repeater length: 24		
10635	853500 CTTTCAATTCTATAGTAGATTATC	AGTTGGAATAGGTGACATAATGGTGATGGGGAAAGACTTC	spacer
	length: 40 repeater length: 24		
10636	853564 CTTTCAATTCTATAGTAGATTATC	GAAATAACGGCATCTGTTGGAAGATTAAGAGCAAAGGGAAT	spacer
	length: 41 repeater length: 24		
10637	853629 CTTTCAATTCTATAGTAGATTATC	CTCACAATTACTAGGAATGAAGCTTTGCGTTGCGGAAA	spacer
	length: 38 repeater length: 24		
10638	853691 CTTTCAATTCTATAGTAGATTATC	TATAGGTTAAAGGGAAGAGAAGAATTAATAAAATAAAC	spacer
	length: 38 repeater length: 24		
10639	853753 CTTTCAATTCTATAGTAGATTATC	AGATTTCACTTATCACTATTTGAAAAGTGAATCAAAAA	spacer
	length: 38 repeater length: 24		
10640	853815 CTTTCAATTCTATAGTAGATTATC	TATAAATATCTGAGTGACGAAGAGCTATGCTTATTATATA	spacer
	length: 40 repeater length: 24		
10641	853879 CTTTCAATTCTATAGTAGATTATC	ATGAAGCTAAAGAATAATAGACAAGCGGTTGCCTATGGTTC	spacer
	length: 41 repeater length: 24		
10642	853944 CTTTCAATTCTATAGTAGATTATC	TTGTGCCTCCTATGCCTCATGTTGAATTAGGCTATTCCTC	spacer
	length: 40 repeater length: 24		
10643	854008 CTTTCAATTCTATAGTAGATTATC	TAAAAACACCTTTTCGAACTAACCTCATAATTACTGCAT	spacer
	length: 39 repeater length: 24		
10644	854071 CTTTCAATTCTATAGTAGATTATC	TCTCCTAGCTTTTTCACTTCTACTTTTTTATCTTAGGGT	spacer
	length: 39 repeater length: 24		
10645	854134 CTTTCAATTCTATAGTAGATTATC	TTGCAATAATACATACATAAGGCTTAATCAACACTTTTA	spacer
	length: 39 repeater length: 24		
10646	854197 CTTTCAATTCTATAGTAGATTATC	ATTGCTACCTTAATGTCTGCATCACTATGTACAAAGAATTT	spacer
	length: 41 repeater length: 24		
10647	854262 CTTTCAATTCTATAGTAGATTATC	TCCTTCCACCTTTCTATAACAAATTTTCGCTATTTGTT	spacer

length: 38 repeater length: 24
10648 854324 CTTTCAATTCTATAGTAGATTATC ATAGTTCTACTGTATATTATATGAGTTCTTTTGCTGCATT spacer
length: 40 repeater length: 24
10649 854388 CTTTCAATTCTATAGTAGATTATC CATACTTCTTGATTTGCCGCCATCTTTTACCATTATTT spacer
length: 39 repeater length: 24
10650 854451 CTTTCAATTCTATAGTAGATTATC CGGCACTGGAACGGCACCTGCAGCAGGTGCTGCAGCCAC spacer
length: 39 repeater length: 24
10651 854514 CTTTCAATTCTATAGTAGATTATC AAATCGCTTCTCTCGATCTCGGAAAGTTCGGGGAATAGATA spacer
length: 40 repeater length: 24
10652 854578 CTTTCAATTCTATAGTAGATTATC GGTCTTATAATACGCCGTCTAGTATTACTTTGTACGAAAA spacer
length: 40 repeater length: 24
10653 854642 CTTTCAATTCTATAGTAGATTATC ACATATCTCAATGGCTTTAGCATACTCTAAGTCAATATCTTG spacer
length: 42 repeater length: 24
10654 854708 CTTTCAATTCTATAGTAGATTATC AATACCACCTCGGCGACTATAATCTTGGGTGCCACAAA spacer
length: 38 repeater length: 24
10655 854770 CTTTCAATTCTATAGTAGATTATC GCAGAGTCGGGGATGGACTCTGTGGGGTTGAACTGATTAG spacer
length: 40 repeater length: 24
10656 854834 CTTTCAATTCTATAGTAGATTATC ATTAAAAGCCGATTACACCTAAGCAAAAGCGGAAATCA spacer
length: 38 repeater length: 24
10657 854896 CTTTCAATTCTATAGTAGATTATC ACTTGAGAAGAATAAAGACTATAATACTAATAACAGATGC spacer
length: 40 repeater length: 24
10658 854960 CTTTCAATTCTATAGTAGATTATC AGTCAGAGTGTGAATAGCTGAGTAGTTAATTGAACTAGG spacer
length: 40 repeater length: 24
10659 855024 CTTTCAATTCTATAGTAGATTATC TTAGTAATAGTATTTGTAGTTGTTGCATTAATCGCAGGA spacer
length: 39 repeater length: 24
10660 855087 CTTTCAATTCTATAGTAGATTATC AATAAGGGTGAAAAAATGCCCATAAATGTAAATGAGTTAGA spacer
length: 41 repeater length: 24
10661 855152 CTTTCAATTCTATAGTAGATTATC GACCATTACCGCCATTCATTTTAAGATATTTAATGGAGAC spacer
length: 40 repeater length: 24
10662 855216 CTTTCAATTCTATAGTAGATTATC AACGCTTCAAGTGCTTGTGAAAACCCGTTTTCTAACGAATT spacer
length: 41 repeater length: 24
10663 855281 CTTTCAATTCTATAGTAGATTATC AAAGAGATAACAACATCAATAGGACGTTTACGTGCTAA spacer
length: 38 repeater length: 24
10664 855343 CTTTCAATTCTATAGTAGATTATC ATGTATCATTTAGTATTACGACAAAGAGATGAAAGTAC spacer
length: 38 repeater length: 24
10665 855405 CTTTCAATTCTATAGTAGATTATC CGCTAGTTTCGTTGATGCTAGTCGGTTCATAGACTGAGGT spacer
length: 40 repeater length: 24
10666 855469 CTTTCAATTCTATAGTAGATTATC CTTTGCCCGAAAGTCCGCTAGTTAGAAGCGGTGGCGT spacer
length: 38 repeater length: 24
10667 855531 CTTTCAATTCTATAGTAGATTATC CAGTTGCGTATGGTACTGGAAATTTAAATCGATATGCGAT spacer
length: 40 repeater length: 24
10668 855595 CTTTCAATTCTATAGTAGATTATC TCTACATTTGCGAAGAATATTGCGAATTACTACGGTCTAA spacer
length: 40 repeater length: 24
10669 855659 CTTTCAATTCTATAGTAGATTATC GGTTTATATTTCGTAAAATACAAACCATCGCCACAACGC spacer
length: 39 repeater length: 24
10670 855722 CTTTCAATTCTATAGTAGATTATC ACAGTTTAAGGCAAGGGGAGTACCTAAGTAAAGTGAGTTAAA spacer
length: 42 repeater length: 24
10671 855788 CTTTCAATTCTATAGTAGATTATC GTACGGTATG
10672
10673
10674 crispr 2
10675 860408 GATAATCTACTATAGAATTGAAAG AATTAAATCAAGAAGAAAAAGAAGTAGATGAGTTTTTTTT spacer
length: 39 repeater length: 24
10676 860471 GATAATCTACTATAGAATTGAAAG AATGAAATTACAGAAAAACTTTTTGAGGAATTTGGATTAG spacer
length: 40 repeater length: 24
10677 860535 GATAATCTACTATAGAATTGAAAG GTATTGTTAATCACCAACTCACCGTTTTGCCAGTACGG spacer
length: 38 repeater length: 24
10678 860597 GATAATCTACTATAGAATTGAAAG TTTATAAATAGAGAGTTTGTTTTTAGCGTATCTACTTTCTCT spacer
length: 42 repeater length: 24
10679 860663 GATAATCTACTATAGAATTGAAAG ACAGAAGAAGATAAAAAGAAAGTCTATCAGAGCATAGATGA spacer
length: 41 repeater length: 24
10680 860728 GATAATCTACTATAGAATTGAAAG ACCCGCATTCACCCCGCGGGGAATCCCCCGGCCCA spacer
length: 38 repeater length: 24
10681 860790 GATAATCTACTATAGAATTGAAAG ACGTTAGAGGAAGTACGCAAAACGTTAAGTACCGTCAAA spacer
length: 39 repeater length: 24
10682 860853 GATAATCTACTATAGAATTGAAAG CAAGGCTATGTACCAGTGCAAATAATAGGGCAAAGCGCC spacer
length: 39 repeater length: 24
10683 860916 GATAATCTACTATAGAATTGAAAG TGAAAGTGTGTATCACACCACACTACTACATTCTCAT spacer length:
37 repeater length: 24
10684 860977 GATAATCTACTATAGAATTGAAAG GCTAGGGCGGTGGCAAACCATGTTTTACCAGTTCCAG spacer length:
37 repeater length: 24

10685 861038 GATAATCTACTATAGAAATTGAAAG GAAACTGAAGCACCTTGAGGCGAAGGGCCAAGCGGTGAT spacer
length: 39 repeater length: 24
10686 861101 GATAATCTACTATAGAAATTGAAAG ATGGTGC GCCTTGTGTCTAAAAGTCTTGCTAATATAT spacer
length: 39 repeater length: 24
10687 861164 GATAATCTACTATAGAAATTGAAAG ACGGGGTTAGCATTATTAGATTCCAATCGTAGAATAAGCCC spacer
length: 41 repeater length: 24
10688 861229 GATAATCTACTATAGAAATTGAAAG CAAATCTACAAGATACGTGGGTACTATCTCACCGCG spacer length:
37 repeater length: 24
10689 861290 GATAATCTACTATAGAAATTGAAAG TGCAGTAAAACCGCAAAATGGACAAATTCCACCTGGTTT spacer
length: 39 repeater length: 24
10690 861353 GATAATCTACTATAGAAATTGAAAG TTCCCTTGTGTAATTAGTAACTGTTGTATCTGATTTG spacer length:
37 repeater length: 24
10691 861414 GATAATCTACTATAGAAATTGAAAG TCAAATGTACCCCGCAATATCCTCTTTCTACATTCACTT spacer
length: 40 repeater length: 24
10692 861478 GATAATCTACTATAGAAATTGAAAG AAATTTGATGTTTAAATGTTGGTAGTGTAAAGTTTGAAGGAA spacer
length: 41 repeater length: 24
10693 861543 GATAATCTACTATAGAAATTGAAAG GGTTGATATGCATATGTTTGTGTAAGTGTACGCGAAAATA spacer
length: 40 repeater length: 24
10694 861607 GATAATCTACTATAGAAATTGAAAG AGCCAAAAAGTACTTCCTTTTTGCACATAAAAATTGAAC spacer
length: 39 repeater length: 24
10695 861670 GATAATCTACTATAGAAATTGAAAG CCTCTTCTTGGTCTTCCTTTACAACCTCTTCCTCATCCT spacer
length: 39 repeater length: 24
10696 861733 GATAATCTACTATAGAAATTGAAAG TACTAACCTTATCTTGCGCCCTAAGAGTAAGACCGTATC spacer
length: 39 repeater length: 24
10697 861796 GATAATCTACTATAGAAATTGAAAG TTACAGAGTGTGAAAGAAGTCAGGTAAGAGATTAAGG spacer length:
37 repeater length: 24
10698 861857 GATAATCTACTATAGAAATTGAAAG GCTAATTCTCTTTCTGCATTTCTCTCTAAATTTAATTCA spacer
length: 39 repeater length: 24
10699 861920 GATAATCTACTATAGAAATTGAAAG ATCAAGGATCAGGCAATATTATTAAATGTAATGGAGATG spacer
length: 39 repeater length: 24
10700 861983 GATAATCTACTATAGAAATTGAAAG TTAAATAGATCTGTGAATCCTTCTCTTGAGAGATGATACGC spacer
length: 41 repeater length: 24
10701 862048 GATAATCTACTATAGAAATTGAAAG CCCAATACGTTGAACCAATGCTAAGACCAGTTACAATAG spacer
length: 39 repeater length: 24
10702 862111 GATAATCTACTATAGAAATTGAAAG ATCGAATTTCCATCTCATCAGGAACCTGCACAAGTTGCCG spacer
length: 40 repeater length: 24
10703 862175 GATAATCTACTATAGAAATTGAAAG TCCTCATCTATATACATCACACCACTGAAATATATTAT spacer
length: 38 repeater length: 24
10704 862237 GATAATCTACTATAGAAATTGAAAG ATCGATCAAGAGACTTATGAGTTATTAATAAGCAGTAGA spacer
length: 41 repeater length: 24
10705 862302 GATAATCTACTATAGAAATTGAAAG ATACTATCACCTGTAGAGAGATACTGTGTCAGCAATAATTT spacer
length: 41 repeater length: 24
10706 862367 GATAATCTACTATAGAAATTGAAAG AGTTAGATCAAACCTCGGGAAGCAGTAAGAAAAGAAGTGTT spacer
length: 40 repeater length: 24
10707 862431 GATAATCTACTATAGAAATTGAAAG AATGCTTGCCTTAGCTGAGATTTTAGAACAGGTTTAA spacer length:
37 repeater length: 24
10708 862492 GATAATCTACTATAGAAATTGAAAG AATGGACTCCTCACACGTTTAAAGTTGGGAAATCCAGTTAT spacer
length: 41 repeater length: 24
10709 862557 GATAATCTACTATAGAAATTGAAAG CTTTCATTTTGTCTAGCTTATATTGAATAATATTTAATGAT spacer
length: 41 repeater length: 24
10710 862622 GATAATCTACTATAGAAATTGAAAG CATTAACGCAAACCTACTAGCACTTTCGCATTTACTTATG spacer
length: 39 repeater length: 24
10711 862685 GATAATCTACTATAGAAATTGAAAG CAGGATGGGGAAGTAATTGATATGTTAAGAGATGGAAGTTT spacer
length: 41 repeater length: 24
10712 862750 GATAATCTACTATAGAAATTGAAAG TCTGAAGTAATCCGTATTGTCCTGCAGTCTCGTAATATACTT spacer
length: 42 repeater length: 24
10713 862816 GATAATCTACTATAGAAATTGAAAG CACTACTATAGAATGATGGTATGATGGTGTACGGGTCGGTAT spacer
length: 42 repeater length: 24
10714 862882 GATAATCTACTATAGAAATTGAAAG AGGTCTGTCGATTGAAGAGCATTTATTATGTTACTAAGA spacer
length: 39 repeater length: 24
10715 862945 GATAATCTACTATAGAAATTGAAAG CTATTTCCATCAGTTGATTGGTCTCCGACGTTAGGTGAGA spacer
length: 40 repeater length: 24
10716 863009 GATAATCTACTATAGAAATTGAAAG CTGTTAAAGTCCTCATTGATGTATAATTCTAACCCTT spacer length:
37 repeater length: 24
10717 863070 GATAATCTACTATAGAAATTGAAAG TTTTGGCTTAGCAGATTTAAAGTTCAAGCATATCATTG spacer
length: 38 repeater length: 24
10718 863132 GATAATCTACTATAGAAATTGAAAG ATAGTGTGTTTCAGGTACTGGGCGTATTCCAACATACTCAAG spacer
length: 41 repeater length: 24
10719 863197 GATAATCTACTATAGAAATTGAAAG AATGCTTTAAGTTTTTGTCTATATCTTCTACTTTTTGT spacer
length: 39 repeater length: 24
10720 863260 GATAATCTACTATAGAAATTGAAAG AATGTCGCTCTTTATAGCGTCCATAGCGTCATTTCTCA spacer

length: 38 repeater length: 24
10721 863322 GATAATCTACTATAGAATTGAAAG CAAATTCATCAGTTAAAAGCATAACAATAACTAATCAC spacer
length: 38 repeater length: 24
10722 863384 GATAATCTACTATAGAATTGAAAG ACGAAATGAGGACGGTGATAAGTATTGATGTCGTTACTATC spacer
length: 41 repeater length: 24
10723 863449 GATAATCTACTATAGAATTGAAAG TCATACATTCAAAAGCTTATATTAGATAATAAAGATAATT spacer
length: 40 repeater length: 24
10724 863513 GATAATCTACTATAGAATTGAAAG TATACCGCCGTGAAGTACAATGGATATGATGAAGGAACTG spacer
length: 40 repeater length: 24
10725 863577 GATAATCTACTATAGAATTGAAAG GGATAATGAATGTGACGTGCAATATCGTTGATAATATCA spacer
length: 39 repeater length: 24
10726 863640 GATAATCTACTATAGAATTGAAAG GACATCATATGACTACGGTTATCAATGGTCAGTAGGG spacer length:
37 repeater length: 24
10727 863701 GATAATCTACTATAGAATTGAAAG TCTATGACCTTCTCTGGGATTTTATCTATCGCGAACATT spacer
length: 39 repeater length: 24
10728 863764 GATAATCTACTATAGAATTGAAAG TATCAGGGGATGTAGATTTACCGGTTTACTTTTTACCA spacer
length: 38 repeater length: 24
10729 863826 GATAATCTACTATAGAATTGAAAG TGAACAGGTTTCGTACTCAGGCACAGGCTCGTATTCCCTCT spacer
length: 40 repeater length: 24
10730 863890 GATAATCTACTATAGAATTGAAAG TGTTACTTTTACCTTCCCATCCTATTATTTCTTTTGACAT spacer
length: 39 repeater length: 24
10731 863953 GATAATCTACTATAGAATTGAAAG AAATAGTTTAGAAGCTTTTGTGGCGTAACTGGTGTGAA spacer
length: 38 repeater length: 24
10732 864015 GATAATCTACTATAGAATTGAAAG TTCCACCTTTAGCAATCCATTTTCATAGATAAGAATTAGAAA spacer
length: 41 repeater length: 24
10733 864080 GATAATCTACTATAGAATTGAAAG AGGTTTTAGGTGAAAAGCTTAATCGGGTGAAAAATGTA spacer
length: 38 repeater length: 24
10734 864142 GATAATCTACTATAGAATTGAAAG ATAAGCGGAAAGTTTGAGAGTGTAACGGAGAAAGTTACAA spacer
length: 40 repeater length: 24
10735 864206 GATAATCTACTATAGAATTGAAAG TCTTAGACGCGACGAACCTCCTCATATACTTTATCGCG spacer
length: 38 repeater length: 24
10736 864268 GATAATCTACTATAGAATTGAAAG CAAATGGCACCGTATGGTTCAGTAATGGTTAATACCTTAATG spacer
length: 42 repeater length: 24
10737 864334 GATAATCTACTATAGAATTGAAAG GTAATAGATAATTCCTCGTTTCTATCGTTGAAAGGATCG spacer
length: 39 repeater length: 24
10738 864397 GATAATCTACTATAGAATTGAAAG ATAGCAATATGATGTACTATATTTAAATGAAAACTGT spacer
length: 38 repeater length: 24
10739 864459 GATAATCTACTATAGAATTGAAAG TACTTTTCTTCACCTTTGATATTTAATTTTACTATGAT spacer
length: 38 repeater length: 24
10740 864521 GATAATCTACTATAGAATTGAAAG GTTATTCTATTAAATGTGCATACTTCTTGATTTGCCGCCAT spacer
length: 41 repeater length: 24
10741 864586 GATAATCTACTATAGAATTGAAAG CTAGTGCCAGGGTTCAGGGGTGTACCCTCACTGCCACA spacer
length: 38 repeater length: 24
10742 864648 GATAATCTACTATAGAATTGAAAG TTTAGATTAAGTTTTACATAAATTATAGACACGATAACA spacer
length: 39 repeater length: 24
10743 864711 GATAATCTACTATAGAATTGAAAG ATAAACTAAATATTGACGTGAAACCGCAACTAATAGATAA spacer
length: 40 repeater length: 24
10744 864775 GATAATCTACTATAGAATTGAAAG ATAACAATAATAAATGTTACTATTGAGGGCGTATTATTCCCAG spacer
length: 43 repeater length: 24
10745 864842 GATAATCTACTATAGAATTGAAAG ATGTAGTTGCATCTCCTTATTGCCGTTTCTGAACTTCTTTT spacer
length: 41 repeater length: 24
10746 864907 GATAATCTACTATAGAATTGAAAG AAAAGAGTATTAATTGATCTGGCTATAGCGTCTTCCTTAT spacer
length: 41 repeater length: 24
10747 864972 GATAATCTACTATAGAATTGAAAG AGATTTTGTAGTGCTTCTTGCAGCAGTAAAGCTCTAG spacer length:
37 repeater length: 24
10748 865033 GATAATCTACTATAGAATTGAAAG CTATCGGCTTATATCTAACATCCTCTGGGAGGCTTTCCAT spacer
length: 40 repeater length: 24
10749 865097 GATAATCTACTATAGAATTGAAAG GTATGCTTATCGTATAAAGTAATTTGCCAAAGTTGTACG spacer
length: 39 repeater length: 24
10750 865160 GATAATCTACTATAGAATTGAAAG TTCGATTTTGGGAATCCCACCGCCCAGCAATTCGCAGAC spacer
length: 39 repeater length: 24
10751 865223 GATAATCTACTATAGAATTGAAAG AACTCCAGTACTGCTTCGCCGTAGGATCCGTCCTCAGACG spacer
length: 40 repeater length: 24
10752 865287 GATAATCTACTATAGAATTGAAAG TTTCTATTAAGAGAAAGTTACACTTTTATCAAAGACACT spacer
length: 39 repeater length: 24
10753 865350 GATAATCTACTATAGAATTGAAAG AGAAACAGTGTATGGGATAAATTAGGTATAAGTGGCG spacer length:
37 repeater length: 24
10754 865411 GATAATCTACTATAGAATTGAAAG CCACCACCACAGTATATAATACATTTGATGGATTATTAA spacer
length: 39 repeater length: 24
10755 865474 GATAATCTACTATAGAATTGAAAG TACTTCATCACGTCCACGTTTGTATTTTTTGTGATTTAA spacer
length: 40 repeater length: 24

10756 865538 GATAATCTACTATAGAAATTGAAAG ATTCCAAAGTTACGTCATCGATGACCACGTAATGGAAA spacer
length: 38 repeater length: 24

10757 865600 GATAATCTACTATAGAAATTGAAAG GAATAAGCGGGGCGAAGCCGACGTGTACGCCGTGTCTTTC spacer
length: 40 repeater length: 24

10758 865664 GATAATCTACTATAGAAATTGAAAG TCTTATATAAAATCAAAATTGTATGAAATCCAAGCTGAAGTTTTT spacer
length: 45 repeater length: 24

10759 865733 GATAATCTACTATAGAAATTGAAAG GTCATCCTC

10760

10761

10762 GCA_000245275.2_ASM24527v2_genomic.fna (PilerCR):

10763 START REPEAT
SPACER

10764 crispr 1

10765 853200 GATTAATCCTAAAAGGAATTGAAAG ATTATCAAACGGATGGGTAAACCTATATAAAACATCGCCT spacer
length: 40 repeater length: 25

10766 853265 GATTAATCCTAAAAGGAATTGAAAG ATAGTCTATTTATCGTCTTCTTACCCTACAGCGAATTCCA spacer
length: 40 repeater length: 25

10767 853330 GATTAATCCTAAAAGGAATTGAAAG TTTATACAATGAACATAATTCTTCATCGTTGTATTGTT spacer
length: 38 repeater length: 25

10768 853393 GATTAATCCTAAAAGGAATTGAAAG ATAATTATGAATAGATCAAATAATAAGAGAAACGATT spacer
length: 37 repeater length: 25

10769 853455 GATTAATCCTAAAAGGAATTGAAAG AACGTACCGCATGTTTCATATCCCTGTAAAGTATTTAGA spacer
length: 38 repeater length: 25

10770 853518 GATTAATCCTAAAAGGAATTGAAAG CTATCTAGTTCCTCTCTAATATTTTTATTAATCTTAAGATA spacer
length: 41 repeater length: 25

10771 853584 GATTAATCCTAAAAGGAATTGAAAG TCTTCGGAGTAGTAAGGAACTCTTATTTACCTAAAAAAA spacer
length: 39 repeater length: 25

10772 853648 GATTAATCCTAAAAGGAATTGAAAG TCACTTATTTTCTTCATTATCTGAGTGTGACAACGTCTTG spacer
length: 41 repeater length: 25

10773 853714 GATTAATCCTAAAAGGAATTGAAAG ACAATTCCTACGCCTGGGACTTTTACTTTCTCCTTCTCCT spacer
length: 40 repeater length: 25

10774 853779 GATTAATCCTAAAAGGAATTGAAAG TTCATGGGCGGGTCACCTCATCCTTTCCCTTTATTTTCATT spacer
length: 40 repeater length: 25

10775 853844 GATTAATCCTAAAAGGAATTGAAAG CCTTGTAACCTTTACAGTAAGAAGCTGGATTAGGATTTTC spacer
length: 38 repeater length: 25

10776 853907 GATTAATCCTAAAAGGAATTGAAAG AAGAATTTTGCTAACTGTTCTTTATTCGCAAGAGTTAC spacer
length: 38 repeater length: 25

10777 853970 GATTAATCCTAAAAGGAATTGAAAG CCTCGGATAC

10778

10779

10780 crispr 2

10781 854093 GATTAATCCTAAAAGGAATTGAAAG TAGATTAAACGAAGAGGAAAAGAGAATGCTAGAAGA spacer length:
36 repeater length: 25

10782 854154 GATTAATCCTAAAAGGAATTGAAAG GTACCAGCAAACGGTTATGGTCTGATTTATGCTTATTTTT spacer
length: 40 repeater length: 25

10783 854219 GATTAATCCTAAAAGGAATTGAAAG ACATAGATGATCTTATAACCCCTTAACGTCTCTTCCGGCAAC spacer
length: 42 repeater length: 25

10784 854286 GATTAATCCTAAAAGGAATTGAAAG AACTCTAGTTTTATTGGTTTCTTTTCCCCCTTATTCTC spacer
length: 38 repeater length: 25

10785 854349 GATTAATCCTAAAAGGAATTGAAAG AAATATTAAAGTTTTGCATTCTTTGTACGCGTCACCAA spacer
length: 39 repeater length: 25

10786 854413 GATTAATCCTAAAAGGAATTGAAAG ATATTTTTAAGCTTCTTAGTAAAGAAGGATATCTT spacer length:
36 repeater length: 25

10787 854474 GATTAATCCTAAAAGGAATTGAAAG ATTGTTAAATCAGTTATTCTCGGTCTCATTATAAAATTCA spacer
length: 40 repeater length: 25

10788 854539 GATTAATCCTAAAAGGAATTGAAAG CACTACTTGTGTATATGCGTAACTATTAGAATTGATATT spacer
length: 40 repeater length: 25

10789 854604 GATTAATCCTAAAAGGAATTGAAAG TTCAAATACCCTAATTGTTCTCTCTACCTCATTTAGATC spacer
length: 39 repeater length: 25

10790 854668 GATTAATCCTAAAAGGAATTGAAAG GGTGACGGAA

10791

10792

10793 crispr 3

10794 854807 GATTAATCCTAAAAGGAATTGAAAG ATATTTTCAACTCTATAGCCGTTTTTCATGCATTCTTCTGAT spacer
length: 42 repeater length: 25

10795 854874 GATTAATCCTAAAAGGAATTGAAAG TCGTATATCTGTACAATCTTCAATTTCGTTAAGTAGTTTC spacer
length: 39 repeater length: 25

10796 854938 GATTAATCCTAAAAGGAATTGAAAG AATTCCTTTTATCTTTGCTTCCAGCTCTTCTATCTTCTTT spacer
length: 39 repeater length: 25

10797 855002 GATTAATCCTAAAAGGAATTGAAAG TTAGCTAGATCAGCTGCTTCAGCTTCTCTCAGCGCTCTC spacer
length: 39 repeater length: 25

10798	855066	GATTAATCCTAAAAGGAATTGAAAG	CCGCCCTACTTGTTTTTATATTAAATGCTATTCCC	spacer length: 35 repeater length: 25
10799	855126	GATTAATCCTAAAAGGAATTGAAAG	TTAAGTCCTTTGATGTGACAGATTATATCAAAATTGAT	spacer length: 38 repeater length: 25
10800	855189	GATTAATCCTAAAAGGAATTGAAAG	TGATAATCTTCAACCTTAATAAATTCGAAATAAATATC	spacer length: 38 repeater length: 25
10801	855252	GATTAATCCTAAAAGGAATTGAAAG	TTAGAACAAATCGTAAATGAGTATTATGATATGAAGTGCC	spacer length: 40 repeater length: 25
10802	855317	GATTAATCCTAAAAGGAATTGAAAG	ACTTTATACTGTAGATATTTACCGGGTAGGACAAAGTAT	spacer length: 39 repeater length: 25
10803	855381	GATTAATCCTAAAAGGAATTGAAAG	CTTGAATAAGCACTTATAGAATTTTTATTAATAGCTTCAG	spacer length: 40 repeater length: 25
10804	855446	GATTAATCCTAAAAGGAATTGAAAG	TCTTGTCTAGTTCATCTAACAATTTTAATAGCGTCTCGA	spacer length: 39 repeater length: 25
10805	855510	GATTAATCCTAAAAGGAATTGAAAG	ATAGTCACGTATATTGGATACCCAAGCTTCTCATAATTA	spacer length: 39 repeater length: 25
10806	855574	GATTAATCCTAAAAGGAATTGAAAG	ATCAGTATTGGGAAGTAGATTGCTTTGCCTTTATTCTCT	spacer length: 39 repeater length: 25
10807	855638	GATTAATCCTAAAAGGAATTGAAAG	CAATAATGTTTATGTCTTTTGTTCCTAAATTCTT	spacer length: 36 repeater length: 25
10808	855699	GATTAATCCTAAAAGGAATTGAAAG	TTTTTCTTTCACCTCGATGTAAATATTTACTTCTTCAA	spacer length: 38 repeater length: 25
10809	855762	GATTAATCCTAAAAGGAATTGAAAG	CTAAACCTATCAGAGTTAGCAGAATATAGTAATATTGATATT	spacer length: 42 repeater length: 25
10810	855829	GATTAATCCTAAAAGGAATTGAAAG	AGGATCTCAAGACATATGGTAACAAGTTTGTTCCTT	spacer length: 37 repeater length: 25
10811	855891	GATTAATCCTAAAAGGAATTGAAAG	ATTCGTACATCAAGTATTTTGATGACAGTAAGAAATATTG	spacer length: 41 repeater length: 25
10812	855957	GATTAATCCTAAAAGGAATTGAAAG	ACCATATCTTTCATGCATCAGTTTCTTGACTTCCATAC	spacer length: 39 repeater length: 25
10813	856021	GATTAATCCTAAAAGGAATTGAAAG	AAATCAATATATAGTGCTTCAGATAGTGGCACATAT	spacer length: 36 repeater length: 25
10814	856082	GATTAATCCTAAAAGGAATTGAAAG	ATATATTTCTTTACTAGTTGCTGTGACGATTTAACGCTGCT	spacer length: 41 repeater length: 25
10815	856148	GATTAATCCTAAAAGGAATTGAAAG	CTAGTTATCCCTGCCCTACCGGTAAGTCTAACGAATATA	spacer length: 39 repeater length: 25
10816	856212	GATTAATCCTAAAAGGAATTGAAAG	TCTTGTAGAACTTTATCCACTTTACTTTTTCTTCGC	spacer length: 37 repeater length: 25
10817	856274	GATTAATCCTAAAAGGAATTGAAAG	ATATTCTTGCAATTGCTTCTAAAGTTCCAATGCTTATTG	spacer length: 39 repeater length: 25
10818	856338	GATTAATCCTAAAAGGAATTGAAAG	AGGTAACTTCTAAGATAGTAAGGTAATGCTAAACGAACCAT	spacer length: 41 repeater length: 25
10819	856404	GATTAATCCTAAAAGGAATTGAAAG	GTTACAAAATTAGAATACTATTTAACAACTTATCAAA	spacer length: 38 repeater length: 25
10820	856467	GATTAATCCTAAAAGGAATTGAAAG	TTTAATTCTTTAATATAAGTAAGCTGTTCTACATAGAA	spacer length: 38 repeater length: 25
10821	856530	GATTAATCCTAAAAGGAATTGAAAG	GACTACAATTGGCAAAGATCATTGAGTTGGTAGTATAC	spacer length: 38 repeater length: 25
10822	856593	GATTAATCCTAAAAGGAATTGAAAG	TATTCATATCTGCCAATGAGTAATGTATACTTCTAT	spacer length: 36 repeater length: 25
10823	856654	GATTAATCCTAAAAGGAATTGAAAG	GAAAGTTCTTTTTGCAGACGTTTCGCTAATCGAATAATAT	spacer length: 40 repeater length: 25
10824	856719	GATTAATCCTAAAAGGAATTGAAAG	GTAAATACCAGGTTCCCTACTATAATCGTTACTGCC	spacer length: 37 repeater length: 25
10825	856781	GATTAATCCTAAAAGGAATTGAAAG	ATATATAGGTTCCATGTCATTGCTCCCCAACCATATC	spacer length: 38 repeater length: 25
10826	856844	GATTAATCCTAAAAGGAATTGAAAG	ACGTTCAACTTTAGCGATTTCATCTACTTTCTCTTCATT	spacer length: 38 repeater length: 25
10827	856907	GATTAATCCTAAAAGGAATTGAAAG	TAAGCTTATCAGATATTCTACAGCTTTGTCAAATTCTTT	spacer length: 39 repeater length: 25
10828	856971	GATTAATCCTAAAAGGAATTGAAAG	TCTTTTAGTGTTGAAAGATTGCTTTATCATTTAAAAAT	spacer length: 39 repeater length: 25
10829	857035	GATTAATCCTAAAAGGAATTGAAAG	TCGTGAGGGCAGAGATAGCAAAGAAGTCAAAGTATAATGC	spacer length: 40 repeater length: 25
10830	857100	GATTAATCCTAAAAGGAATTGAAAG	ATAAGTTTAACGCCCTAGGGTACTCCCTGCGTAAATTC	spacer length: 37 repeater length: 25
10831	857162	GATTAATCCTAAAAGGAATTGAAAG	GTTAAGCTCTATGTCCTGCAGGATAATACTTTTG	spacer length: 34 repeater length: 25
10832	857221	GATTAATCCTAAAAGGAATTGAAAG	AATCATATACTGTATCGTTTCGTTACAATCACGTTATAT	spacer length: 38 repeater length: 25
10833	857284	GATTAATCCTAAAAGGAATTGAAAG	TTGCTAATGATTCAACGTTAGTCTCTACTATTTCTT	spacer length:

36 repeater length: 25
 10834 857345 GATTAATCCTAAAAGGAATTGAAAG TTCATGAAAACATCTCTGTCAAGTCTTTTTAATCCTAAA spacer
 length: 39 repeater length: 25
 10835 857409 GATTAATCCTAAAAGGAATTGAAAG TATTACTCTTAGCAGCTTGCTCATAATTTATACTAA spacer length:
 36 repeater length: 25
 10836 857470 GATTAATCCTAAAAGGAATTGAAAG ATCATGGGAG
 10837
 10838
 10839 crispr 4
 10840 857609 GATTAATCCTAAAAGGAATTGAAAG TCTCATCTTTAGCAATAAATCATGAGTTACTGGAA spacer length:
 35 repeater length: 25
 10841 857669 GATTAATCCTAAAAGGAATTGAAAG ATTTTTATCGCCCCGTCAATCATCAGATCTTTAACG spacer length:
 36 repeater length: 25
 10842 857730 GATTAATCCTAAAAGGAATTGAAAG ATAGATAGAAATTACTCTCTACTGGATCCGCAACTTC spacer
 length: 37 repeater length: 25
 10843 857792 GATTAATCCTAAAAGGAATTGAAAG TTAGGAAGAAGGGGGACTACTGTAGTGTGTGTTACAATA spacer
 length: 39 repeater length: 25
 10844 857856 GATTAATCCTAAAAGGAATTGAAAG CATATATAGTGAATTTCTTTTGAGATAATAGATTAT spacer length:
 36 repeater length: 25
 10845 857917 GATTAATCCTAAAAGGAATTGAAAG TAGACAGGTCAGTATAGGTCTTACCATCTAATAAAGCAAG spacer
 length: 40 repeater length: 25
 10846 857982 GATTAATCCTAAAAGGAATTGAAAG ATTACACTTAAGATTGTTGCTTTTTTACCTATTACTG spacer
 length: 37 repeater length: 25
 10847 858044 GATTAATCCTAAAAGGAATTGAAAG TTCTACACTTTCAGAGAACATAGTTTCTTTATTTACA spacer
 length: 37 repeater length: 25
 10848 858106 GATTAATCCTAAAAGGAATTGAAAG ATAACTCTACTACTATTTTCTCATGTAAATTCCTAGTGCAT spacer
 length: 41 repeater length: 25
 10849 858172 GATTAATCCTAAAAGGAATTGAAAG CTGTTACTCAAATATTATTACCTCCATCTTTTGT spacer length:
 35 repeater length: 25
 10850 858232 GATTAATCCTAAAAGGAATTGAAAG TTTAATCTTATTTCTTATGTCTATGCCTTCTTCACGT spacer
 length: 37 repeater length: 25
 10851 858294 GATTAATCCTAAAAGGAATTGAAAG ATTTAAATTATATTTTAGGGCGTATCTGTCTAGCAGTTGTA spacer
 length: 41 repeater length: 25
 10852 858360 GATTAATCCTAAAAGGAATTGAAAG TTATTATTTACAGTTATTCTTATCTTTGCCATCCTCACCAC spacer
 length: 41 repeater length: 25
 10853 858426 GATTAATCCTAAAAGGAATTGAAAG TCAAAATGAGTAATTTTTCTTCATGCAACATAATTAC spacer
 length: 38 repeater length: 25
 10854 858489 GATTAATCCTAAAAGGAATTGAAAG TCTTTCACATACGTTTCTATACGCTTCTTCTTTCCATC spacer
 length: 38 repeater length: 25
 10855 858552 GATTAATCCTAAAAGGAATTGAAAG GTCCTTTATAG
 10856
 10857
 10858 crispr 5
 10859 878511 CTTTCAATTCTATAGTAGATTATC ACCTAATGCTACTTTCGATAGCGGGGCTATAATAATGAT spacer
 length: 39 repeater length: 24
 10860 878574 CTTTCAATTCTATAGTAGATTATC TAGGTTAAGAAGGGGAGAATTTTCTCAGTCTGGAGGAGG spacer
 length: 39 repeater length: 24
 10861 878637 CTTTCAATTCTATAGTAGATTATC GTATAAGTTATAATACAAATCCTAACACGTCATTCTGG spacer
 length: 38 repeater length: 24
 10862 878699 CTTTCAATTCTATAGTAGATTATC ACCTAAAAAGAAGAAAATAGTAAATAATATAATACAAC spacer
 length: 38 repeater length: 24
 10863 878761 CTTTCAATTCTATAGTAGATTATC GGACTCCGTTCTTG TAGAGCCGAACAGCCCCACTCTGAG spacer
 length: 39 repeater length: 24
 10864 878824 CTTTCAATTCTATAGTAGATTATC AATTTTTGTTTTAATGAAGGGTTATTAGCAATTAATTGTT spacer
 length: 40 repeater length: 24
 10865 878888 CTTTCAATTCTATAGTAGATTATC TAAATAGGCGTTCATAATGGTAGAATAAGCGTTTAAT spacer
 length: 39 repeater length: 24
 10866 878951 CTTTCAATTCTATAGTAGATTATC TAATATCGTGTTTTCAATCATGGGCTATAAGTACTATA spacer
 length: 38 repeater length: 24
 10867 879013 CTTTCAATTCTATAGTAGATTATC ACTTCTTTATCTTGCTAAGCAATCTTACGAGAAGAGCTA spacer
 length: 39 repeater length: 24
 10868 879076 CTTTCAATTCTATAGTAGATTATC GGAAC TACTTGAGGATGAGGGAATAAAAGGTACTGCAAAC spacer
 length: 40 repeater length: 24
 10869 879140 CTTTCAATTCTATAGTAGATTATC TGAGGCAACGCATTGCTTATCGGTGCTTCTTCGTTATTC spacer
 length: 39 repeater length: 24
 10870 879203 CTTTCAATTCTATAGTAGATTATC ACCTGCAACATCAAAAATGAAAAC TTGGGTGTAAAAA spacer
 length: 38 repeater length: 24
 10871 879265 CTTTCAATTCTATAGTAGATTATC ATCATCAGTACAAAATGTTGATGCTAATAATCTCTATG spacer
 length: 38 repeater length: 24
 10872 879327 CTTTCAATTCTATAGTAGATTATC AAGTGTAATGATAATGCAGTGGTATTAATAAATCCCGATAC spacer
 length: 42 repeater length: 24

10873	879393	CTTTC AATTCTATAGTAGATTATC	ATTATATTGAGTGAATATAATAACTTTAATGATGAGATTAG	spacer
		length: 41	repeater length: 24	
10874	879458	CTTTC AATTCTATAGTAGATTATC	TAATAGTTTTATTATATTTCTGCAGCTTGTGTATAACTTTG	spacer
		length: 41	repeater length: 24	
10875	879523	CTTTC AATTCTATAGTAGATTATC	ATGGCAAAAACAATTAGGAACCCCGAAACCGCAGTAAATAAC	spacer
		length: 42	repeater length: 24	
10876	879589	CTTTC AATTCTATAGTAGATTATC	AAGAAGCTCTAATGTTTCGGTTTCCAGGGTATAGATGTCAC	spacer
		length: 40	repeater length: 24	
10877	879653	CTTTC AATTCTATAGTAGATTATC	CTGTTAAAACGAACAACCTTAGTCTTAGGTTTAACCACAG	spacer
		length: 39	repeater length: 24	
10878	879716	CTTTC AATTCTATAGTAGATTATC	CTCGCAACGGCTAGGGGTAAGACATTCTCAGACATTCTAAA	spacer
		length: 41	repeater length: 24	
10879	879781	CTTTC AATTCTATAGTAGATTATC	AAAAAATTAGAGTAGGTAGTTTTGTAAAGCGTATAAAATA	spacer
		length: 40	repeater length: 24	
10880	879845	CTTTC AATTCTATAGTAGATTATC	AAGAAGCTCTAATGTTTCGGTTTCCAGGGTATAGATGTCAC	spacer
		length: 40	repeater length: 24	
10881	879909	CTTTC AATTCTATAGTAGATTATC	CTGTTAAAACGAACAACCTTAGTCTTAGGTTTAACCACAG	spacer
		length: 39	repeater length: 24	
10882	879972	CTTTC AATTCTATAGTAGATTATC	CTCGCAACGGCTAGGGGTAAGACATTCTCAGACATTCTAAA	spacer
		length: 41	repeater length: 24	
10883	880037	CTTTC AATTCTATAGTAGATTATC	AAAAAATTAGAGTAGGTAGTTTTGTAAAGCGTATAAAATA	spacer
		length: 40	repeater length: 24	
10884	880101	CTTTC AATTCTATAGTAGATTATC	TCTTTGGACCGATGGAAAGCGGAAAGACTACATTCTGTTAAA	spacer
		length: 42	repeater length: 24	
10885	880167	CTTTC AATTCTATAGTAGATTATC	TAGATCCACTAAATCCTCCAGCAGAGCTAGAGCTACTAGTA	spacer
		length: 41	repeater length: 24	
10886	880232	CTTTC AATTCTATAGTAGATTATC	GGAGCTATTCTTCTAAGTCTTGAAC TACTAACTGATTAA	spacer
		length: 40	repeater length: 24	
10887	880296	CTTTC AATTCTATAGTAGATTATC	TATGCGTTTATACCATCACCTGCAGTATTATTTCCA ACTA	spacer
		length: 40	repeater length: 24	
10888	880360	CTTTC AATTCTATAGTAGATTATC	TAGGTTTACGTCCTTGAATGAAGTCTATGACGTCAAG	spacer length: 37
		repeater length: 24		
10889	880421	CTTTC AATTCTATAGTAGATTATC	ACAACTAATTACCAAGGGGTGAGCTAAATGGTAGATAAA	spacer
		length: 40	repeater length: 24	
10890	880485	CTTTC AATTCTATAGTAGATTATC	TCTTTAATAGCTCTTGGTTTACTTTACCTAAAATCGTATT	spacer
		length: 40	repeater length: 24	
10891	880549	CTTTC AATTCTATAGTAGATTATC	TTTTGAGGGATGCAGTCATAGCATA CATCTCAAATAAGCT	spacer
		length: 40	repeater length: 24	
10892	880613	CTTTC AATTCTATAGTAGATTATC	GAAATTTTAGAAATGGGCGGAAAAATTATAGTAGGAGTATA	spacer
		length: 41	repeater length: 24	
10893	880678	CTTTC AATTCTATAGTAGATTATC	ATGCAACACTAATCAATGTCCAATTCAATATTCTACAAAT	spacer
		length: 40	repeater length: 24	
10894	880742	CTTTC AATTCTATAGTAGATTATC	AATTTCCCTAATTCCTCGTTGTAGGAGAAGCCTTCGAT	spacer length: 37
		repeater length: 24		
10895	880803	CTTTC AATTCTATAGTAGATTATC	ATCATTCGTTTTTTAAACCTAATATTATATTT CATATAAT	spacer
		length: 39	repeater length: 24	
10896	880866	CTTTC AATTCTATAGTAGATTATC	GCGTTGAGCCACTAAGTCCAGTAGAGCTAGAACTAGAGCTATT	spacer
		length: 43	repeater length: 24	
10897	880933	CTTTC AATTCTATAGTAGATTATC	ATTAGTTCATCAGTATCTTTATATCCTTTTGCTATCA	spacer length: 37
		repeater length: 24		
10898	880994	CTTTC AATTCTATAGTAGATTATC	TTTCTAACGACAGTCTCAGATGAGGTTACAAAAGGCATAA	spacer
		length: 40	repeater length: 24	
10899	881058	CTTTC AATTCTATAGTAGATTATC	CAGATAAGTGAATACGTGATGAGGGCAAATCACGGAT	spacer length: 37
		repeater length: 24		
10900	881119	CTTTC AATTCTATAGTAGATTATC	TCTGAACAGGCTCTCCGACCTCCGAACCCCGTCTACCCAT	spacer
		length: 40	repeater length: 24	
10901	881183	CTTTC AATTCTATAGTAGATTATC	CTTGTGACTGAAGACTTTCTAATTAAGCAATTTATGA	spacer length: 37
		repeater length: 24		
10902	881244	CTTTC AATTCTATAGTAGATTATC	TGGGCAGAACTAAGAACTTTATATCAAGAATTCATGGT	spacer
		length: 39	repeater length: 24	
10903	881307	CTTTC AATTCTATAGTAGATTATC	ATGCAGCAAAAGAACTCATGTAATAAACAGTAGAACTATT	spacer
		length: 40	repeater length: 24	
10904	881371	CTTTC AATTCTATAGTAGATTATC	GTGATTTTAGCATGATATACACGTTTTACGTAAAGCA	spacer length: 37
		repeater length: 24		
10905	881432	CTTTC AATTCTATAGTAGATTATC	GTGTTTGA ACTATATTAAGAAGCAGGTGATAAAATAT	spacer length: 37
		repeater length: 24		
10906	881493	CTTTC AATTCTATAGTAGATTATC	GTATGTTATAAGATGTCGTGTAATAGACCGGCTCCTTAT	spacer
		length: 39	repeater length: 24	
10907	881556	CTTTC AATTCTATAGTAGATTATC	ACAAAAAGTAGAAGATATAGAACAAAACTTAAAGCATT	spacer
		length: 39	repeater length: 24	
10908	881619	CTTTC AATTCTATAGTAGATTATC	GTACAAGATGTCAATGA ACTAGCTAATTCTCTAGCACTCGA	spacer

length: 41 repeater length: 24
10909 881684 CTTTCAATTCTATAGTAGATTATC AAATGCTATAAAACAATATGCTACAAGTGCAGATATGTA spacer
length: 39 repeater length: 24
10910 881747 CTTTCAATTCTATAGTAGATTATC GTGGGAAATAAATGTAACACTTACCAATCAAAATATACCAT spacer
length: 41 repeater length: 24
10911 881812 CTTTCAATTCTATAGTAGATTATC ATAAAATGTAAATAGTCATGTTTCATCATCAACTACAATTTTC spacer
length: 41 repeater length: 24
10912 881877 CTTTCAATTCTATAGTAGATTATC AAAAATGATTACAATAAAAGAGCAAAATTATCAGGTACCG spacer
length: 40 repeater length: 24
10913 881941 CTTTCAATTCTATAGTAGATTATC TGTCTCATACTCTAGTTGCAAACGCATCTTTACTGCATT spacer
length: 39 repeater length: 24
10914 882004 CTTTCAATTCTATAGTAGATTATC ATAGCAATAGTGATAAATGGTACAAGATACACTGAAGTTG spacer
length: 40 repeater length: 24
10915 882068 CTTTCAATTCTATAGTAGATTATC ATAGTCAAGACTTTGCACATTTATGTTACCACTAAGGTACAC spacer
length: 42 repeater length: 24
10916 882134 CTTTCAATTCTATAGTAGATTATC AACTTAACGATAGTATGATTGATGCATTGATGGATAGAAT spacer
length: 40 repeater length: 24
10917 882198 CTTTCAATTCTATAGTAGATTATC ATTCGCAATTGTAAGTGGTCTTAGTATTGGTTCAACGTATT spacer
length: 41 repeater length: 24
10918 882263 CTTTCAATTCTATAGTAGATTATC GACGATTATTACGTTTATATTAGCGAACTACTGATGAAAA spacer
length: 41 repeater length: 24
10919 882328 CTTTCAATTCTATAGTAGATTATC AAGCCAAGAAAAAGCGTGGAGCAAAACTTAAAGCATT spacer
length: 38 repeater length: 24
10920 882390 CTTTCAATTCTATAGTAGATTATC GCGTATTTACAGGAAACCAATTATGCAACTCTTATACATGT spacer
length: 41 repeater length: 24
10921 882455 CTTTCAATTCTATAGTAGATTATC AACGCTTCAAGTGCTTGTGAAAACCCGTTTTCTAACGAATT spacer
length: 41 repeater length: 24
10922 882520 CTTTCAATTCTATAGTAGATTATC GATCACAAGAAATAACTACTGCAACATTTTATGCATCAGA spacer
length: 40 repeater length: 24
10923 882584 CTTTCAATTCTATAGTAGATTATC AATATGTTATACAGTATTGTATACGTAGCTAAATA spacer length:
35 repeater length: 24
10924 882643 CTTTCAATTCTATAGTAGATTATC TAACGAATTAGGGAAACTCATAAGCTAAATAACAACGTC spacer
length: 39 repeater length: 24
10925 882706 CTTTCAATTCTATAGTAGATTATC TAAATCTTTCTCTCTCACTAACGTGCTTTTCGGATTTAATA spacer
length: 40 repeater length: 24
10926 882770 CTTTCAATTCTATAGTAGATTATC CACTATCAAATAGTGGGAATACATTAACAATAAGTGTCT spacer
length: 39 repeater length: 24
10927 882833 CTTTCAATTCTATAGTAGATTATC TAGTGCCAAATAGCGATATCAGTTTGCTAATTACTGAAAC spacer
length: 40 repeater length: 24
10928 882897 CTTTCAATTCTATAGTAGATTATC TGGATGGGCATTTTTTTCACCCTAATTTAACTAACTCATTCT spacer
length: 41 repeater length: 24
10929 882962 CTTTCAATTCTATAGTAGATTATC GCCCAATGTAGTAAAGAATTTCTGGAACAAATTACTAGG spacer
length: 40 repeater length: 24
10930 883026 CTTTCAATTCTATAGTAGATTATC CAACACCATCGCTATGTTTTGTCTGGAATTTGAAGATCAT spacer
length: 40 repeater length: 24
10931 883090 CTTTCAATTCTATAGTAGATTATC TAAAGTTTTCTGTTTTCAAAAAGTGAAAAGCTTTATAATA spacer
length: 40 repeater length: 24
10932 883154 CTTTCAATTCTATAGTAGATTATC CTTTCATCAGTTTAATCAGGTCGTTTTTCATGAGAAATA spacer
length: 38 repeater length: 24
10933 883216 CTTTCAATTCTATAGTAGATTATC GAAAGAAGGTTGCGAAGAATATACTTCTAACGCTAAAGT spacer
length: 39 repeater length: 24
10934 883279 CTTTCAATTCTATAGTAGATTATC AGTACTCCAGTTATCGAGCTTAGGTTTATTGCAGACGTTG spacer
length: 40 repeater length: 24
10935 883343 CTTTCAATTCTATAGTAGATTATC AAGAAGTATATCTATATCCGTTACTATTCACTAAGTCAAT spacer
length: 40 repeater length: 24
10936 883407 CTTTCAATTCTATAGTAGATTATC CTACATGAGGAAATGCTATACTTTATTGTAAGACGTAG spacer
length: 38 repeater length: 24
10937 883469 CTTTCAATTCTATAGTAGATTATC GTTGCTGCAGCACTTAAATTAATCACGATGGGTTTCATCCT spacer
length: 40 repeater length: 24
10938 883533 CTTTCAATTCTATAGTAGATTATC ACTCCACGCTGTCTCTTTTTGAACGTTTCGATCATCAT spacer
length: 38 repeater length: 24
10939 883595 CTTTCAATTCTATAGTAGATTATC GCCATCAATAAGTTCAACTGGGTTGAGGGTGTGTCCTAA spacer
length: 40 repeater length: 24
10940 883659 CTTTCAATTCTATAGTAGATTATC TATATTTAAATTATATGCTAACTCGTTATTCATTACTTTC spacer
length: 40 repeater length: 24
10941 883723 CTTTCAATTCTATAGTAGATTATC AAAAGAAATAACGGCATCTATTGGGAGACTTCGTGCTAA spacer
length: 39 repeater length: 24
10942 883786 CTTTCAATTCTATAGTAGATTATC TACTAAATCATATAACAACCGTGCTTCATATTCATTTAG spacer
length: 39 repeater length: 24
10943 883849 CTTTCAATTCTATAGTAGATTATC CTGCAGATGCCTGGCCTATAAGAGTTTATAATCCTTAAT spacer
length: 39 repeater length: 24

10944	883912	CTTTC AATTCTATAGTAGATTATC	GCATCATCAAGTGGTCTAAATATTTTCATCAGTATCTAT	spacer
		length: 38	repeater length: 24	
10945	883974	CTTTC AATTCTATAGTAGATTATC	GGCCGG	
10946				
10947				
10948		crispr 6		
10949	888595	GATAATCTACTATAGAATTGAAAG	TGTTTTGTATACAGACTCACGAAGTTATAGCCGTACCAA	spacer
		length: 39	repeater length: 24	
10950	888658	GATAATCTACTATAGAATTGAAAG	GCGACGGCGGGGTAGAAAAATATAAGTCTCCCCGCCAG	spacer
		length: 39	repeater length: 24	
10951	888721	GATAATCTACTATAGAATTGAAAG	TTTGCTGTACGTAAATTTGTATACCATTAGTAGATGGAG	spacer
		length: 39	repeater length: 24	
10952	888784	GATAATCTACTATAGAATTGAAAG	GGCGATGATGTTAATTCAGTCTCATAAAATCCTAGATTAGAA	spacer
		length: 42	repeater length: 24	
10953	888850	GATAATCTACTATAGAATTGAAAG	CAAACAAACATCTATGTGTTATGCTTACCGACAAACACA	spacer
		length: 39	repeater length: 24	
10954	888913	GATAATCTACTATAGAATTGAAAG	CAACTATGAAGACGAAAATGTAGATGATGTAGCTAGGTATGA	spacer
		length: 42	repeater length: 24	
10955	888979	GATAATCTACTATAGAATTGAAAG	ATCTCCTATACTGACTTTAAACCCGCCGACTATTTTCTCTA	spacer
		length: 41	repeater length: 24	
10956	889044	GATAATCTACTATAGAATTGAAAG	GAATAGAACTATAGCAGAAATAACAGCTTGCCTCCGAA	spacer
		length: 39	repeater length: 24	
10957	889107	GATAATCTACTATAGAATTGAAAG	AATTTTATGACTACGCCACCCATACCTTTAGCACGTAA	spacer
		length: 38	repeater length: 24	
10958	889169	GATAATCTACTATAGAATTGAAAG	TTCTTGTAATGTCGTTATGTTACCATCATCTTTAATCTC	spacer
		length: 39	repeater length: 24	
10959	889232	GATAATCTACTATAGAATTGAAAG	ATATTTTTACTTCAAACATGAAGACCCATTATTACAACCTT	spacer
		length: 40	repeater length: 24	
10960	889296	GATAATCTACTATAGAATTGAAAG	TTTAAGGAGATGGTTTTATGAAAATTGCAGATAAGGTCAA	spacer
		length: 40	repeater length: 24	
10961	889360	GATAATCTACTATAGAATTGAAAG	TATTTACACCGCCTTTCCCATACCCTATCGCGGTTT	spacer length: 37
		repeater length: 24		
10962	889421	GATAATCTACTATAGAATTGAAAG	CCATATCCAGGATTTCCCTGTGGAGGCCACCAGAATG	spacer length: 37
		repeater length: 24		
10963	889482	GATAATCTACTATAGAATTGAAAG	TTGTAATAAATATTGGCTACCATTATGATACTCTACTA	spacer
		length: 38	repeater length: 24	
10964	889544	GATAATCTACTATAGAATTGAAAG	GTGATTTCCACTTCTTGAAGTGTGTAGTTTGTGTTGATATCA	spacer
		length: 41	repeater length: 24	
10965	889609	GATAATCTACTATAGAATTGAAAG	TACTTACACCTTGTTTTAAGTATCTATTTTTGGGTTT	spacer
		length: 38	repeater length: 24	
10966	889671	GATAATCTACTATAGAATTGAAAG	GTGGGGGTGGGGGAACCCCCCGCGGGGTTTACTGAACT	spacer
		length: 38	repeater length: 24	
10967	889733	GATAATCTACTATAGAATTGAAAG	CGTGATAATTATAAATGGGCTGAGGCTATGGGTAATAAAGTT	spacer
		length: 42	repeater length: 24	
10968	889799	GATAATCTACTATAGAATTGAAAG	TTAAATGATCCAATAGGATTTGTAATTGTTGTAGAAC	spacer length: 37
		repeater length: 24		
10969	889860	GATAATCTACTATAGAATTGAAAG	AACCTAAGGTTAAGGCTTCTACGTGCTGTTTTAGGTCAT	spacer
		length: 39	repeater length: 24	
10970	889923	GATAATCTACTATAGAATTGAAAG	AAGTAGGTACGTATAAGTCCGCATTCACACGTTTAACC	spacer
		length: 38	repeater length: 24	
10971	889985	GATAATCTACTATAGAATTGAAAG	TCAGTCGTTTCAACGGCTGTAAACATTGACTATTCAAATG	spacer
		length: 40	repeater length: 24	
10972	890049	GATAATCTACTATAGAATTGAAAG	ACTCCACCTCGTCTCCACTACCACCAACTGTATTCAAG	spacer
		length: 40	repeater length: 24	
10973	890113	GATAATCTACTATAGAATTGAAAG	GTGTACATCCATCATTGCTTTTATTGAACAGATTATGTCATTA	spacer
		length: 43	repeater length: 24	
10974	890180	GATAATCTACTATAGAATTGAAAG	GCACCCTCACTAGCCTTTATAAGATCAGTAGAAATTTTC	spacer
		length: 39	repeater length: 24	
10975	890243	GATAATCTACTATAGAATTGAAAG	TCTAGTATAACTTTATACAAAAGCGGAACTGCAAATAT	spacer
		length: 38	repeater length: 24	
10976	890305	GATAATCTACTATAGAATTGAAAG	ATTGTTTTCTTATTTTCTTATCCATCATACTTTCTTCCCC	spacer
		length: 40	repeater length: 24	
10977	890369	GATAATCTACTATAGAATTGAAAG	GTAATAGATAAATTCCTCGTTTCTATCGTTGAAAGGATCG	spacer
		length: 39	repeater length: 24	
10978	890432	GATAATCTACTATAGAATTGAAAG	ATAGCAATATGATGTACTATATTTAAATGAAAACTGT	spacer
		length: 38	repeater length: 24	
10979	890494	GATAATCTACTATAGAATTGAAAG	TACTTTTTCTTCACCTTTGATATTTAATTTTACTATGAT	spacer
		length: 39	repeater length: 24	
10980	890557	GATAATCTACTATAGAATTGAAAG	GTTATTCTATTAAATGTGCATACTTCTTGATTTGCCGCCAT	spacer
		length: 41	repeater length: 24	
10981	890622	GATAATCTACTATAGAATTGAAAG	CTAGTGCCAGGGTTCAGGGGTGTACCCTCACTGCCACA	spacer

length: 38 repeater length: 24
10982 890684 GATAATCTACTATAGAATTGAAAG TTTAGATTAAGTTTTACATAAATTATAGACACGATAACA spacer
length: 39 repeater length: 24
10983 890747 GATAATCTACTATAGAATTGAAAG ATCATCAGGCCCATGAGCGTTTTGCCGGTGCCGGTCGG spacer
length: 38 repeater length: 24
10984 890809 GATAATCTACTATAGAATTGAAAG AGGACGTAATTCTACAATTGTTCTAGTAACTCCTTGGGGCGGA spacer
length: 43 repeater length: 24
10985 890876 GATAATCTACTATAGAATTGAAAG ATAAAATTGAAGGGCATGGAACAAGACGTTATAGAGGAAT spacer
length: 40 repeater length: 24
10986 890940 GATAATCTACTATAGAATTGAAAG AAATGCGTATCAAGTTGCAGAGCAGAACAATATAAGTAGT spacer
length: 40 repeater length: 24
10987 891004 GATAATCTACTATAGAATTGAAAG ATCTTCAAATATGCCTTAATTCGTCTTCGGACGTCGCA spacer
length: 39 repeater length: 24
10988 891067 GATAATCTACTATAGAATTGAAAG TCATAAGGTTTTACTGTTGCAGTAGGTGTTAAATTAGA spacer
length: 38 repeater length: 24
10989 891129 GATAATCTACTATAGAATTGAAAG TTCTAATAGCTGAACCCCTGCTTGATAGTCTCTATTAA spacer
length: 38 repeater length: 24
10990 891191 GATAATCTACTATAGAATTGAAAG AAACAACTTCTCAACCATCAACAACACCACCTACATCG spacer
length: 39 repeater length: 24
10991 891254 GATAATCTACTATAGAATTGAAAG GTTGAAAGAACAACCTGGATTTTTTGAATGATTGACACTTTTATGACTAT
spacer length: 49 repeater length: 24
10992 891327 GATAATCTACTATAGAATTGAAAG ATCGACATGTTGGGGACCTTTAGTATGGGCATATTTGAG spacer
length: 39 repeater length: 24
10993 891390 GATAATCTACTATAGAATTGAAAG TGGATCTGAGTTTTTAACGATTTTTCTTAGCAAACCTGGGGGAGT spacer
length: 44 repeater length: 24
10994 891458 GATAATCTACTATAGAATTGAAAG ATGTCGTTAAATGCATTTGATAGTAAATTTACCGCATTTT spacer
length: 40 repeater length: 24
10995 891522 GATAATCTACTATAGAATTGAAAG TATATGCCATCACTCACACCAGCATTAGCAGTAGCGGT spacer
length: 38 repeater length: 24
10996 891584 GATAATCTACTATAGAATTGAAAG ATAGAAGGGGCGAAAGGAAGAGCAATAAGTGCTATCATT spacer
length: 39 repeater length: 24
10997 891647 GATAATCTACTATAGAATTGAAAG GTTAATGACTAATTCTATAGATTTGGAGGAATATTGTAG spacer
length: 39 repeater length: 24
10998 891710 GATAATCTACTATAGAATTGAAAG AAAATATTGTTTGGTGTGTATTTATTTGTGCCAAATTAG spacer
length: 40 repeater length: 24
10999 891774 GATAATCTACTATAGAATTGAAAG TATTTATACAGTAAAGTTTTGGCAAATTCCAATTGTAA spacer
length: 38 repeater length: 24
11000 891836 GATAATCTACTATAGAATTGAAAG TAGTATAATCCGCGTATTCACCGTTTATCACGTTTTCAAT spacer
length: 40 repeater length: 24
11001 891900 GATAATCTACTATAGAATTGAAAG ATTAATTCTTTCTTCTTTTGTCTATAATATTTTATTTTCATCTT spacer
length: 43 repeater length: 24
11002 891967 GATAATCTACTATAGAATTGAAAG ATTTTTTCCCAAACCGATTTGAGAAACGAAAAAACTCATC spacer
length: 41 repeater length: 24
11003 892032 GATAATCTACTATAGAATTGAAAG ATAACTAAATATTGACGTGAAACCGCAACTAATAGATAA spacer
length: 40 repeater length: 24
11004 892096 GATAATCTACTATAGAATTGAAAG ATAACAATAATAAATGTTACTATTGAGGGCGTATTATTCCCAG spacer
length: 43 repeater length: 24
11005 892163 GATAATCTACTATAGAATTGAAAG TTGTAGTTGCATCTCCTTATTGCCGTTTCTGAACCTCTTTT spacer
length: 41 repeater length: 24
11006 892228 GATAATCTACTATAGAATTGAAAG AAAAGAGTATTAATTGATCTGGCTATAGCGTCCTTCCTTAT spacer
length: 41 repeater length: 24
11007 892293 GATAATCTACTATAGAATTGAAAG AGATTTTGTAGTGCTTCTTGCAGCAGTAAAGCTCTAG spacer length:
37 repeater length: 24
11008 892354 GATAATCTACTATAGAATTGAAAG CTATCGGCTTATATCTAACATCCTCTGGGAGGCTTTCCAT spacer
length: 40 repeater length: 24
11009 892418 GATAATCTACTATAGAATTGAAAG GGCGTGTGCGCTCATCTTTATCAATTTCGTAAAGCTCCATC spacer
length: 40 repeater length: 24
11010 892482 GATAATCTACTATAGAATTGAAAG GTATGCTTATCGTATAAAGTAATTTGCCAAAGTTGTACG spacer
length: 39 repeater length: 24
11011 892545 GATAATCTACTATAGAATTGAAAG TTCGATTTTGGGAATCCCACCGCCCAGCAATTTCGAGAC spacer
length: 39 repeater length: 24
11012 892608 GATAATCTACTATAGAATTGAAAG AACTCCAGTACTGCTTCGCCGTAGGATCCGTCCTCAGACG spacer
length: 40 repeater length: 24
11013 892672 GATAATCTACTATAGAATTGAAAG TTTCTATTAAGAGAAAGTTACACTTTTATCAAAGACACT spacer
length: 39 repeater length: 24
11014 892735 GATAATCTACTATAGAATTGAAAG AGAAACAGTGTATGGGATAAATTAGGTATAAGTGGCG spacer length:
37 repeater length: 24
11015 892796 GATAATCTACTATAGAATTGAAAG CCACCACCACAGTATATAATACATTTGATGGATTATTAA spacer
length: 39 repeater length: 24
11016 892859 GATAATCTACTATAGAATTGAAAG TACTTCATCACGTCCACGTTTGTATTTTTGTTGATTAA spacer
length: 40 repeater length: 24

11017 892923 GATAATCTACTATAGAAATTGAAAG ATTCCAAAGTTACGTCATCGATGACCACGTAATGGAAA spacer
length: 38 repeater length: 24
11018 892985 GATAATCTACTATAGAAATTGAAAG GAATAAGCGGGGCGAAGCCGACGTGTACGCCGTGTCTTTC spacer
length: 40 repeater length: 24
11019 893049 GATAATCTACTATAGAAATTGAAAG TCTTATATAAAATCAAAATTGTATGAAATCCAAGCTGAAGTTTTT spacer
length: 45 repeater length: 24
11020 893118 GATAATCTACTATAGAAATTGAAAG CGGCGATGC
11021
11022
11023 GCA_000246985.3_ASM24698v3_genomic.fna (PilerCR):
11024 START REPEAT
SPACER
crispr 1
11025
11026 28 CTTTCAATTCTTCTAAAGTCTTATTGGAAC AGCTTGATGGCTTTGAATGAAAAAACTGCGCTCTTGA spacer
length: 37 repeater length: 30
11027 95 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TAAACTTGCTTGAGATTTTCGCGGCGATTTTACTATA spacer
length: 36 repeater length: 30
11028 161 CTTTCAATTCTTCTAAAGTCTTATTGGAAC AAAGACAACCTCGTAACAATTGGGTTGGTCTTGCTGTT spacer
length: 37 repeater length: 30
11029 228 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TTGAAAAAGAACTCAGGGAGCAATCAACCTATACAACGA spacer
length: 39 repeater length: 30
11030 297 CTTTCAATTCTTCTAAAGTCTTATTGGAAC ACAGTAGAGCAGACAGTAAATGCGCTCGCAAGCATACCTA spacer
length: 40 repeater length: 30
11031 367 CTTTCAATTCTTCTAAAGTCTTATTGGAAC ACGGGAACGCGACCGAAGAGGACGTCGAACTATTGTTAAAGAA
spacer length: 43 repeater length: 30
11032 440 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TCCCCCTTATGTTAGCTATAGGGTTTCTAGGTCTTTTG spacer
length: 38 repeater length: 30
11033 508 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GGGCGAACTAGAGTCCCTAAAGCCGGATGGCTAGAA spacer
length: 37 repeater length: 30
11034 575 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TAGAGGGGCAACGACCGCCCAAATAATGCAGATTTT spacer
length: 36 repeater length: 30
11035 641 CTTTCAATTCTTCTAAAGTCTTATTGGAAC ATAGACTTTAACCCATGCTGTACAGTCTATAAAATCT spacer
length: 37 repeater length: 30
11036 708 CTTTCAATTCTTCTAAAGTCTTATTGGAAC AAGAATACCTAGAAACGAAATTCGGGGGCGGTGAATGA spacer
length: 38 repeater length: 30
11037 776 CTTTCAATTCTTCTAAAGTCTTATTGGAAC ACGGATGGCATAGAAATATTATTCCATGCCATCACGAA spacer
length: 38 repeater length: 30
11038 844 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TCTACGTCGCCCATTATGGCTATGCTCTCTTGTAATGCT spacer
length: 39 repeater length: 30
11039 913 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GGAATTTTCGGTCTGAATGGAAAGTAACGGATAAAGGCAAATTT
spacer length: 43 repeater length: 30
11040 986 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GGGCGCCGTAAGTCGCCCCCTAAGTACCCGCCTTAAGG spacer
length: 38 repeater length: 30
11041 1054 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CACTTTTTGTTAATTATGCTTTTGTCTTCTTTTAA spacer
length: 36 repeater length: 30
11042 1120 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CAAATTCGATATATTAGAACGAACCGCCGGGCTTA spacer
length: 36 repeater length: 30
11043 1186 CTTTCAATTCTTCTAAAGTCTTATTGGAAC AGTTATTCTTTAACGGCCGATGGGGCTTTAAATGAAGA spacer
length: 38 repeater length: 30
11044 1254 CTTTCAATTCTTCTAAAGTCTTATTGGAAC ACGGGAACGCGACCGAAGAGGACGTCGAACTATTGTTAAAGAA
spacer length: 43 repeater length: 30
11045 1327 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TTCCCCCTTATGTTAGCTAATAGGGTTTCTAGGTCTTTTGG spacer
length: 41 repeater length: 30
11046 1398 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GGGGCGAACTAGAGTCCCTAAAGCCGGATGGCTAGAA spacer
length: 38 repeater length: 30
11047 1466 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TAGAGGGGCAACGACCGCCCAAATAATGCAGATTTT spacer
length: 36 repeater length: 30
11048 1532 CTTTCAATTCTTCTAAAGTCTTATTGGAAC ATAGACTTTAACCCATGCTGTACAGTCTATAAAATCT spacer
length: 37 repeater length: 30
11049 1599 CTTTCAATTCTTCTAAAGTCTTATTGGAAC AAGAATACCTAGAAACGAAATTCGGGGGCGGTGAATGA spacer
length: 38 repeater length: 30
11050 1667 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CGACTAAATCCGTTTTTATCGTCGCGGAATTATCGA spacer
length: 36 repeater length: 30
11051 1733 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CTAGCCTTTCCCGCTCTTATCTCTCATATAAATGT spacer
length: 36 repeater length: 30
11052 1799 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TTTACGACGCCGTCCGCGACTATTTTGAAGGCGGTACCTTT spacer
length: 41 repeater length: 30
11053 1870 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TTAAAACATTAATGAACATTGAGAAACATTAAAAAATTT spacer
length: 39 repeater length: 30
11054 1939 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CCGGTTTCGGACGGGGCGGCTACGGGCTAGCATTCATAC spacer
length: 38 repeater length: 30

11055 2007 CTTTCAATTCTTCTAAAGTCTTATTGGAAC AAGCCGTTCTACAAAATGAAGACGAAGAAGACGAA spacer
length: 35 repeater length: 30
11056 2072 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CCAGTCCGAGCTTAACGCATGGGCTAAAGCACTAGAAAAGA spacer
length: 41 repeater length: 30
11057 2143 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CCTTTACAATAAGCGGCGCTGAGTTACGTATAAGG spacer
length: 35 repeater length: 30
11058 2208 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GGTAGATTAAGAACGGCGTTTATTCTTAGTATTT spacer
length: 34 repeater length: 30
11059 2272 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TAGCTCTTGAAGTTATCACACCGTTAGGTATATGGA spacer
length: 36 repeater length: 30
11060 2338 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GTGGTGTTCGGACGCCGAAATCCAAATTAAAGACAATC spacer
length: 39 repeater length: 30
11061 2407 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TGAAGTTGATAGTTGGATGTTTAATGGTAGAAGTTTT spacer
length: 37 repeater length: 30
11062 2474 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CAAGAAGGACACCTGGAGAAACACTTAACCTTGCAAGT spacer
length: 38 repeater length: 30
11063 2542 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TTAAAAGTTCTCTTTGGTGGTCAAACAGTCTTCCAAGCAT spacer
length: 40 repeater length: 30
11064 2612 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CTTGAAGCGGCAATAAACTTTTTTAGGCACAACATATT spacer
length: 38 repeater length: 30
11065 2680 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GATGAGAACGGGACGAAGCTAAGTTACTACGTGGAGAGT spacer
length: 39 repeater length: 30
11066 2749 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GCCTTCTTGA
11067
11068
11069 crispr 2
11070 208871 GTTCCAATAAGACTTTAAAAGAATTGAAAG AGTTGGTCTTTTTTCTATACCGTATTCTTCCGCCCC spacer
length: 36 repeater length: 30
11071 208937 GTTCCAATAAGACTTTAAAAGAATTGAAAG GAGGATACCCAGCCATTCTGGAAACATAAGTTCGAAA spacer
length: 37 repeater length: 30
11072 209004 GTTCCAATAAGACTTTAAAAGAATTGAAAG TTTCTTACTCCCAACATTTTCAGCATTTCTAACTAATC spacer
length: 37 repeater length: 30
11073 209071 GTTCCAATAAGACTTTAAAAGAATTGAAAG CTTTTCAAATTCATGGTATCTCTGCCTTGCTTCATGG spacer
length: 37 repeater length: 30
11074 209138 GTTCCAATAAGACTTTAAAAGAATTGAAAG TTGAAGACCTTTGGGGTCTCTGGCATGATGTCATCAA spacer
length: 38 repeater length: 30
11075 209206 GTTCCAATAAGACTTTAAAAGAATTGAAAG ACAGCTTCATCTAACTTGACGACAATCTCGACATCAG spacer
length: 37 repeater length: 30
11076 209273 GTTCCAATAAGACTTTAAAAGAATTGAAAG ACTTCTTTTCCACAGATACTACATTTCTTCTTTTCTTCCATA
spacer length: 42 repeater length: 30
11077 209345 GTTCCAATAAGACTTTAAAAGAATTGAAAG AGGGGGGACGCTAGAACCCCTTAAAATATTGA spacer
length: 32 repeater length: 30
11078 209407 GTTCCAATAAGACTTTAAAAGAATTGAAAG TTCTTTTAGTTTCTTGAACGTTATTTCTATTTCTCTT spacer
length: 37 repeater length: 30
11079 209474 GTTCCAATAAGACTTTAAAAGAATTGAAAG TAAAATATTGAAAAAGAAGTTACGACGGATTTAGAAA spacer
length: 38 repeater length: 30
11080 209542 GTTCCAATAAGACTTTAAAAGAATTGAAAG AAAATGGATTATTAGCCGACGGGGCGGTACCGATG spacer
length: 36 repeater length: 30
11081 209608 GTTCCAATAAGACTTTAAAAGAATTGAAAG AAAACCGTAGCTACGGGTATTTTGTTCCTTCCGGGG spacer
length: 37 repeater length: 30
11082 209675 GTTCCAATAAGACTTTAAAAGAATTGAAAG AAAGCTGGGGAGAGTGATTAAATGAAAATGAAAG spacer
length: 34 repeater length: 30
11083 209739 GTTCCAATAAGACTTTAAAAGAATTGAAAG AGAATATTCCATCTCTAGCGCACGGCTATAAATTTCC spacer
length: 37 repeater length: 30
11084 209806 GTTCCAATAAGACTTTAAAAGAATTGAAAG CTAGCTTCGTCAATGATATAAAGCAAATAGGGGGCATG spacer
length: 38 repeater length: 30
11085 209874 GTTCCAATAAGACTTTAAAAGAATTGAAAG AAACATTTTCCACGAAAAGGCTACCCTAGTGGGCATGA spacer
length: 38 repeater length: 30
11086 209942 GTTCCAATAAGACTTTAAAAGAATTGAAAG ATATTCTAAATTTATCGAATTCTTAGAAGACTACCTA spacer
length: 37 repeater length: 30
11087 210009 GTTCCAATAAGACTTTAAAAGAATTGAAAG GCCGACGACGTGGACGGCTAGAGAAGCGTTAAATTTA spacer
length: 37 repeater length: 30
11088 210076 GTTCCAATAAGACTTTAAAAGAATTGAAAG TCCCAGATC
11089
11090
11091 crispr 3
11092 210219 GTTCCAATAAGACTTTAAAAGAATTGAAAG AGTTACTACTACAGTAACGAACGACACCGCTAGGTTT spacer
length: 37 repeater length: 30
11093 210286 GTTCCAATAAGACTTTAAAAGAATTGAAAG TAGGTCTTTTGAAATTTGAGGTATACCTTTACCGTTT spacer
length: 37 repeater length: 30
11094 210353 GTTCCAATAAGACTTTAAAAGAATTGAAAG CGGTCTAAAGGGACGCGTTCACCGTCTAAGTCCGCACAAA

spacer length: 40 repeater length: 30
 11095 210423 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TAGGGTCTTAATGTTTCAACGAGAATAATGAGGTCAATCGAAG
 spacer length: 43 repeater length: 30
 11096 210496 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TCAACCAGCTTGAGTATCAGGGCGATTGTAATTGCGAGAGC
 spacer length: 41 repeater length: 30
 11097 210567 GTTCCAATAAGACTTTAAAAAGAATTGAAAG ATGTCTCTCATTCTCTCTGTTTTTTCACCGCTGACACC spacer
 length: 38 repeater length: 30
 11098 210635 GTTCCAATAAGACTTTAAAAAGAATTGAAAG GAAGAGATCGATGCAAACCTATGTTCTCCACCAATTGGA spacer
 length: 38 repeater length: 30
 11099 210703 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TATTGAAAACGACCCCGTGAGTAAAAAGGCAACTCT spacer
 length: 36 repeater length: 30
 11100 210769 GTTCCAATAAGACTTTAAAAAGAATTGAAAG GAGCTTGGGTATCTAAAGACAAGTGTGAGCCGTCTTG spacer
 length: 38 repeater length: 30
 11101 210837 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CTTTAAGCTGGGAGATTTACGTAGAGGTTGATGCATAC spacer
 length: 38 repeater length: 30
 11102 210905 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CACTTCCTCCGGTAAAGCCCCTTCACTTACCAAGTCGC spacer
 length: 38 repeater length: 30
 11103 210973 GTTCCAATAAGACTTTAAAAAGAATTGAAAG GTAAGTCGTAGTTCACAAGGTCGCTTTGGAGCTTAGA spacer
 length: 37 repeater length: 30
 11104 211040 GTTCCAATAAGACTTTAAAAAGAATTGAAAG AATTTGAAGCAACTTTTAGTTCTGCTGATGGGCTTAC spacer
 length: 37 repeater length: 30
 11105 211107 GTTCCAATAAGACTTTAAAAAGAATTGAAAG GTCTGGTTCGCTAAGCACTTCTTGTGCTACGTCATCG spacer
 length: 37 repeater length: 30
 11106 211174 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TGCATTGACCCTTGCAGAGAATGTGAAATGATCCGT spacer
 length: 36 repeater length: 30
 11107 211240 GTTCCAATAAGACTTTAAAAAGAATTGAAAG ATTCATATTTTTCTCAGCATCTATTTTATGGCTTAAC spacer
 length: 37 repeater length: 30
 11108 211307 GTTCCAATAAGACTTTAAAAAGAATTGAAAG AGAATTGGAGCACCAGCGTAGTAGGCAATTGAGAGT spacer
 length: 36 repeater length: 30
 11109 211373 GTTCCAATAAGACTTTAAAAAGAATTGAAAG AAGCTCTTTACGATTTCAACGACTTCATACGGGATGT spacer
 length: 37 repeater length: 30
 11110 211440 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CGGATGGACTCACTGGACAAAGTGCGGTTACTGAATA spacer
 length: 37 repeater length: 30
 11111 211507 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TAGGAAATCCCTCTTTAGAGTCCCAATGATTGCAGAG spacer
 length: 37 repeater length: 30
 11112 211574 GTTCCAATAAGACTTTAAAAAGAATTGAAAG GGAATGATGAAGAATATTAGGCCAACCCCTATCACGA spacer
 length: 37 repeater length: 30
 11113 211641 GTTCCAATAAGACTTTAAAAAGAATTGAAAG ATAGGCCGATGCCTTGACATCAACGTGCCGTGGAATCCAC
 spacer length: 40 repeater length: 30
 11114 211711 GTTCCAATAAGACTTTAAAAAGAATTGAAAG ATCAATTGAAGGCTTGAAGAGGCCGCGTCCGCTTGG spacer
 length: 36 repeater length: 30
 11115 211777 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TCGCATAGGCTTCCAAAAGGTCTTCCGGCTTGCGG spacer
 length: 35 repeater length: 30
 11116 211842 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TCCTTCGCCGTCAAGGCCTTTCGTCTGATGCTTTCCTCA spacer
 length: 39 repeater length: 30
 11117 211911 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TGAGTGGTGGGATGAGAACGTGTACTAACCCTTCT spacer
 length: 35 repeater length: 30
 11118 211976 GTTCCAATAAGACTTTAAAAAGAATTGAAAG ACGTTTGGGACAAAGTTTAGGGACACGGGAACAGTAG spacer
 length: 37 repeater length: 30
 11119 212043 GTTCCAATAAGACTTTAAAAAGAATTGAAAG ACAGGACTAAGCGGGCAGTTTACGAGGGCTATATT spacer
 length: 36 repeater length: 30
 11120 212109 GTTCCAATAAGACTTTAAAAAGAATTGAAAG GTTATCCTCGAAGTATTCTCTCTCGTAATCCCCGTAG spacer
 length: 37 repeater length: 30
 11121 212176 GTTCCAATAAGACTTTAAAAAGAATTGAAAG ACCCACTTTCGGAACACTGTTATCATGTCATCGATGTT spacer
 length: 38 repeater length: 30
 11122 212244 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CGCTTATGCC
 11123
 11124
 11125 crispr 4
 11126 406449 GTTCCAATAAGACTTTAAAAAGAATTGAAA TTAGAAAGAAAAGAGGTCAAGTATTTGTTTCAAGTATAA spacer
 length: 40 repeater length: 29
 11127 406518 GTTCCAATAAGACTTTAAAAAGAATTGAAA TATATTAAAGATTCCCCTACCGTTAACCCGTCTAAAA spacer
 length: 37 repeater length: 29
 11128 406584 GTTCCAATAAGACTTTAAAAAGAATTGAAA TTCATTAGCCAGATAGACACCATAGAACACCTAAAAAC spacer
 length: 38 repeater length: 29
 11129 406651 GTTCCAATAAGACTTTAAAAAGAATTGAAA TGAATTGGAAGTTTTAGTCGTAAAAGACAAAGAAGAAG spacer
 length: 38 repeater length: 29
 11130 406718 GTTCCAATAAGACTTTAAAAAGAATTGAAA TTCAACGAACCAACACCATACACCACGAACGTACCCCT spacer
 length: 38 repeater length: 29
 11131 406785 GTTCCAATAAGACTTTAAAAAGAATTGAAA TCACGTGATAACATAGTCCCCGCGCGGGGTCGTTAAATA spacer
 length: 40 repeater length: 29

11132	406854	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TTTTCCATACAGTTGACCGGGAATTCCCCCTTATGTTAG	spacer
		length: 39	repeater length: 29	
11133	406922	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TTTTCTCGAAATTGATTTTTTAAGCCCACGTGGGCGTAGTAA	
		spacer length: 41	repeater length: 29	
11134	406992	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TAATAAATTCTACTACTTCGTCAAGTACATTTTACAA	spacer
		length: 37	repeater length: 29	
11135	407058	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TCGAATTTTCGGGCGTATTCTTCTATTAGCTCTATCACT	spacer
		length: 39	repeater length: 29	
11136	407126	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TTATTTTATGGCAGTGACTTAATAAGCGTTAGGTTTTGCCGGAA	
		spacer length: 44	repeater length: 29	
11137	407199	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TTGATAAACCCCCCTGTATTTGCCGCCCGAACCGGTG	spacer
		length: 38	repeater length: 29	
11138	407266	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TTAAATAACATTGACCTAGAACTTTTAAGCATGCTAGAAAA	
		spacer length: 41	repeater length: 29	
11139	407336	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TAAAATAACGGGGTTCACGTGAATGTTTAGCCCCTTTT	spacer
		length: 38	repeater length: 29	
11140	407403	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TATTGCACCCGTATTATTTCCCTTTGTGTCGTCCATGCTTC	
		spacer length: 41	repeater length: 29	
11141	407473	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TTTATTTAACCATTATAACCCATTTAATACGGCTTTTC	spacer
		length: 39	repeater length: 29	
11142	407541	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TATGGGTGCCGGGAATCAATGAAAACTTAAAAATCCA	spacer
		length: 37	repeater length: 29	
11143	407607	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TTTAGAATAGTGTACACTTTTTAACTAAAAAATGAACG	spacer
		length: 38	repeater length: 29	
11144	407674	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TAGCGACTTCTCAATGGACACGCCCGTCGCGAGGTTCGT	spacer
		length: 39	repeater length: 29	
11145	407742	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TCCTACTTCGGTCACTTGATCAGAGAGCCATTCTGCAA	spacer
		length: 39	repeater length: 29	
11146	407810	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TGTGTTTTTGCATGTATTCAATCTTCATGCGAGTAAATGAGGAAAA	
		spacer length: 47	repeater length: 29	
11147	407886	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TACTATCCCGCTTTGTGAGGTTTAGACGCTACGAACTGTTCCA	
		spacer length: 44	repeater length: 29	
11148	407959	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TTCATGAACTCATCACCATAATGAACTTAGTTTCATT	spacer
		length: 39	repeater length: 29	
11149	408027	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TTTCACTTTAACCACCACTTGATGCCTAACCTCTTTAC	spacer
		length: 38	repeater length: 29	
11150	408094	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TCCCATTACCCCTCCTTTGAATGTCACGCTCTCGAAGGGTTTTG	
		spacer length: 44	repeater length: 29	
11151	408167	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TAATTTTCATTAAAGGTTCTCATCGTATTTTTTGATAATAA	spacer
		length: 39	repeater length: 29	
11152	408235	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TAAGTCCTTTTGCTAATGCGATAGCTTCGTTTACCTTCTC	spacer
		length: 40	repeater length: 29	
11153	408304	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TTTTTTTTGTTAATTCCTGAAGATAATTGGGATATTACCACCC	
		spacer length: 44	repeater length: 29	
11154	408377	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TAACCTCAATTGCTTGTTTTATTCCTTTCCTAAATTGC	spacer
		length: 38	repeater length: 29	
11155	408444	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TTAGAACTTATGAAAGCTATGTAATTGAAGAGCAGAAAGA	spacer
		length: 40	repeater length: 29	
11156	408513	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TCAGTAACTTAACCACGTGTTGAATGTTCTTTTTAAT	spacer
		length: 38	repeater length: 29	
11157	408580	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TAGCCCTTTCCCCTAACATCCGCTACCTTTTTGCCCAAAT	spacer
		length: 40	repeater length: 29	
11158	408649	GTTCCAATAAGACTTTTAAAAGAATTGAAA	GTTTCGATGCCCTTAACGTAACCTCCCTCTATTACGGG	spacer
		length: 38	repeater length: 29	
11159	408716	GTTCCAATAAGACTTTTAAAAGAATTGAAA	TTCAATCAGT	
11160				
11161				
11162	crispr	5		
11163	860432	CTTTCAATTCTTTTAAAGTCTTATTGGAAC	TGGAAGGTTTCCAGGTATCCTTATACCGTGATCCTCC	spacer
		length: 37	repeater length: 30	
11164	860499	CTTTCAATTCTTTTAAAGTCTTATTGGAAC	TAGACGATGTTAAGAAGTTTGCTTTTGAAGTTCAAGA	spacer
		length: 37	repeater length: 30	
11165	860566	CTTTCAATTCTTTTAAAGTCTTATTGGAAC	CCGGCGACTGTCCAAGAGGTAAATGGTCGTTTTGCGGTTCTTAAG	
		spacer length: 45	repeater length: 30	
11166	860641	CTTTCAATTCTTTTAAAGTCTTATTGGAAC	TTACTCCACCGATAACCGCACCGGCTATTGTTCCAACCTCC	
		spacer length: 40	repeater length: 30	
11167	860711	CTTTCAATTCTTTTAAAGTCTTATTGGAAC	ATCCTGACGCCTTAAGAACATAATGCCAGTCTGTGCT	spacer
		length: 37	repeater length: 30	
11168	860778	CTTTCAATTCTTTTAAAGTCTTATTGGAAC	GTTCTAATAGGCGTTGGAGTACTCTACATGTTGCTGAG	spacer
		length: 38	repeater length: 30	
11169	860846	CTTTCAATTCTTTTAAAGTCTTATTGGAAC	GCCGAGAACAACTCGCTGACCAAGTCGCCGGAACACT	spacer

length: 37 repeater length: 30
11170 860913 CTTTCAATTCTTTTAAAGTCTTATTGGAAC CAGCTAAGGAAGGTGACTATTCTACAGCCATAGTCGG spacer
length: 37 repeater length: 30
11171 860980 CTTTCAATTCTTTTAAAGTCTTATTGGAAC CGGGAGCCTCGCTTACTCTCTTCAAGAACTCCCT spacer
length: 34 repeater length: 30
11172 861044 CTTTCAATTCTTTTAAAGTCTTATTGGAAC GCTCGTC
11173
11174
11175 crispr 6
11176 861992 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TTGCCGTAATACATCCTTATGTTTGCCTCCCGTTCCCTTGGATAA
spacer length: 46 repeater length: 30
11177 862068 CTTTCAATTCTTTTAAAGTCTTATTGGAAC GCGAAAGCGTTATTAAGATGTAGTGTCTTACCCTTCAT spacer
length: 38 repeater length: 30
11178 862136 CTTTCAATTCTTTTAAAGTCTTATTGGAAC GACAAAGTTTAGGGACACGGGAACAGTAGATATAATGGT spacer
length: 39 repeater length: 30
11179 862205 CTTTCAATTCTTTTAAAGTCTTATTGGAAC AGCATGGGTAAAGTCTGGAGTTGTAAAATACAAACAA spacer
length: 37 repeater length: 30
11180 862272 CTTTCAATTCTTTTAAAGTCTTATTGGAAC GCTTCAATTGTTATATCATCTTTTGAGCATGAAATTGA spacer
length: 38 repeater length: 30
11181 862340 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TTGTTCTGGGCTTATCTTGTCTAGTGACAACTCCCAGAT spacer
length: 39 repeater length: 30
11182 862409 CTTTCAATTCTTTTAAAGTCTTATTGGAAC AGCATTAATGTACCACCCGGAGTAACGGAGTCAAAGAG spacer
length: 38 repeater length: 30
11183 862477 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TCAAAAGTCTTAAACAATTATTTACCTATTCAATTTT spacer
length: 37 repeater length: 30
11184 862544 CTTTCAATTCTTTTAAAGTCTTATTGGAAC ACGCTGAAAGCGACATTTCGCACGTGCAGACGGGCAATATT
spacer length: 40 repeater length: 30
11185 862614 CTTTCAATTCTTTTAAAGTCTTATTGGAAC AGGTGGTTTTCTGCCCCGATATCGTACACTTTCGACTAC spacer
length: 37 repeater length: 30
11186 862681 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TCCGAGTTTTTCTGCAACAATAAGTGTAGTCCCAGCCC spacer
length: 38 repeater length: 30
11187 862749 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TGGGAGGTTAAACATAGCAGGGACAACTTTGATATT spacer
length: 37 repeater length: 30
11188 862816 CTTTCAATTCTTTTAAAGTCTTATTGGAAC CTTCCAGCCATCCTGAGTTTCAACAAAATCAAAAACCTT spacer
length: 39 repeater length: 30
11189 862885 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TCCCGCTAAGGGACAGTTACCAGTACGAAATCTACTTG spacer
length: 38 repeater length: 30
11190 862953 CTTTCAATTCTTTTAAAGTCTTATTGGAAC GTACATTAATGCTGTTTGTCTGTACTGCTTGATTTA spacer
length: 39 repeater length: 30
11191 863022 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TTAGGGGAGATACGGATAGGGTGTTCGCCGAGTTTA spacer
length: 36 repeater length: 30
11192 863088 CTTTCAATTCTTTTAAAGTCTTATTGGAAC ATAGTCGAATATGAGGGATACCAAGTTGGAGCTATTGCTTC
spacer length: 41 repeater length: 30
11193 863159 CTTTCAATTCTTTTAAAGTCTTATTGGAAC CCTTTATCGTCAAATACGGGCGTATTCCTATAAAATC spacer
length: 37 repeater length: 30
11194 863226 CTTTCAATTCTTTTAAAGTCTTATTGGAAC CCAGAGTTCAGCAACAATTATCGATGAGTTCAAGCTC spacer
length: 37 repeater length: 30
11195 863293 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TACGAAAGACACTTTAGCACAGCTTTTAATATAACCGA spacer
length: 38 repeater length: 30
11196 863361 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TTAGTTGCGCTCACGTTCAAGGTGATGGTCTCGTTGTA spacer
length: 38 repeater length: 30
11197 863429 CTTTCAATTCTTTTAAAGTCTTATTGGAAC CTCGAAGTGATCAAGAAGTTGAAAGTGCCTATGCAA spacer
length: 37 repeater length: 30
11198 863496 CTTTCAATTCTTTTAAAGTCTTATTGGAAC CGCTAACCCTACGTAACTCTTGATGGTTCTACTGAT spacer
length: 38 repeater length: 30
11199 863564 CTTTCAATTCTTTTAAAGTCTTATTGGAAC GAAATAGCCCATACGGCTAAACCAAAAACGGAACTGT spacer
length: 38 repeater length: 30
11200 863632 CTTTCAATTCTTTTAAAGTCTTATTGGAAC GGAATTCCTAAAAATCCGCGACCACCAAAAGGTAAATGAA
spacer length: 40 repeater length: 30
11201 863702 CTTTCAATTCTTTTAAAGTCTTATTGGAAC CTCTAAATTAAGCGTTTTGTCTGGGGGGTTTTAGAAA spacer
length: 38 repeater length: 30
11202 863770 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TTCAAGAAAAACGGAAATAACTACGATATTTATATAAA spacer
length: 38 repeater length: 30
11203 863838 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TCACTACCAGCTGGTTATTCTCAAATAACCGGGTTTTAT spacer
length: 39 repeater length: 30
11204 863907 CTTTCAATTCTTTTAAAGTCTTATTGGAAC GTTTCGGGGTTCATTATGTCCCTTAGCTTAAAGTATAGC spacer
length: 39 repeater length: 30
11205 863976 CTTTCAATTCTTTTAAAGTCTTATTGGAAC GTCCGAGCTTAACGCATGGGCTAAAGCACTAGAAAAGA spacer
length: 38 repeater length: 30
11206 864044 CTTTCAATTCTTTTAAAGTCTTATTGGAAC ATACGGGGGCGGGTACGAATGAGCGAAAAGCTAGCGAA spacer
length: 38 repeater length: 30

11207 864112 CTTTCAATTCTTTTAAAGTCTTATTGGAAC AAACCTTGAAGGTTTTTCGGGCTTATCGGCCGTTCTGG spacer
length: 37 repeater length: 30
11208 864179 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TTACCACCTAGAGAAATAGCCGAAGAAAGAAAAGAATA spacer
length: 38 repeater length: 30
11209 864247 CTTTCAATTCTTTTAAAGTCTTATTGGAAC ACGATTTCCTTGGGCTTTTAATTCTGTTCGAAAATTCTA spacer
length: 39 repeater length: 30
11210 864316 CTTTCAATTCTTTTAAAGTCTTATTGGAAC CATTTATTAAAGTCTACGGCGCGGATAGGGTTACAATAG spacer
length: 39 repeater length: 30
11211 864385 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TTGAAAGCCGGTATATAGAGACGGTTAGGGTCATCCGGGGCG
spacer length: 42 repeater length: 30
11212 864457 CTTTCAATTCTTTTAAAGTCTTATTGGAAC ACTACCCCCAATTATTTAATTAAAGGAGATGGTGATAAA spacer
length: 39 repeater length: 30
11213 864526 CTTTCAATTCTTTTAAAGTCTTATTGGAAC CGGACTTAGACGGTGAACGCGTCCCTTTAGACCG spacer
length: 34 repeater length: 30
11214 864590 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TTTCTGCACGGTTTAACACCTTTTCGAAGGCCTTAATAG spacer
length: 39 repeater length: 30
11215 864659 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TAACGAAGCGAATACTACAAAATAAGCCGTACCATTTTCTAGCGA
spacer length: 45 repeater length: 30
11216 864734 CTTTCAATTCTTTTAAAGTCTTATTGGAAC CGGTGTTTATGGCTTTAGCTAGGCCGTCGACGATATTA spacer
length: 38 repeater length: 30
11217 864802 CTTTCAATTCTTTTAAAGTCTTATTGGAAC ATAACACTTGGGTTCTACTAACATTTTCATGAAGCAG spacer
length: 37 repeater length: 30
11218 864869 CTTTCAATTCTTTTAAAGTCTTATTGGAAC GTTGAAGACTTTGTTGATGTAGTGCTTGCTGTTTGTT spacer
length: 37 repeater length: 30
11219 864936 CTTTCAATTCTTTTAAAGTCTTATTGGAAC ATTGGGAAGCTCTACTTAGGTCGCACTAGATTTATTTG spacer
length: 38 repeater length: 30
11220 865004 CTTTCAATTCTTTTAAAGTCTTATTGGAAC GGGCGCCGAAGGCGCCCACTTTGTTGATTTTCCCCTAAAGCGT
spacer length: 43 repeater length: 30
11221 865077 CTTTCAATTCTTTTAAAGTCTTATTGGAAC TCTTCGATGATTTAAATCAGTTTTTCATTTTATTT spacer
length: 36 repeater length: 30
11222 865143 CTTTCAATTCTTTTAAAGTCTTATTGGAAC CTGGTCCCTCC
11223
11224
11225 crispr 7
11226 1226230 GTTCCAATAAGACTTTTAAAAGAATTGAAAG ACGGCGACGCAGTCTTTGAGTTCTTCGATGATTTTGAT spacer
length: 38 repeater length: 30
11227 1226298 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TTTATTAAAGCGAGACCATTACCGAGCACACGGCCGAC spacer
length: 38 repeater length: 30
11228 1226366 GTTCCAATAAGACTTTTAAAAGAATTGAAAG ACGAGAGCAGCAGGAGAGATTTAAGGTAGGGTTAGGG spacer
length: 37 repeater length: 30
11229 1226433 GTTCCAATAAGACTTTTAAAAGAATTGAAAG ATTACTGCAACTGCTACAAGTCCAATCCCCAGAGAAA spacer
length: 37 repeater length: 30
11230 1226500 GTTCCAATAAGACTTTTAAAAGAATTGAAAG AAAATCCTCTCTTGTCTCTTTTGGCAATTTTAAG spacer
length: 36 repeater length: 30
11231 1226566 GTTCCAATAAGACTTTTAAAAGAATTGAAAG GAATCACTTTTCACCCTTTCACCTTTCACCCTATCGG spacer
length: 37 repeater length: 30
11232 1226633 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TGATGAAGGAGAGTGGAGGTTCTTTGATGTTGACTATGTAA
spacer length: 41 repeater length: 30
11233 1226704 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TTACCAAAAGAGACAACAACCTTTTACTACATTGAAATCC
spacer length: 39 repeater length: 30
11234 1226773 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TGTGAGTATCGACCAACTGCCCGTTCACGTAAGTACGG spacer
length: 38 repeater length: 30
11235 1226841 GTTCCAATAAGACTTTTAAAAGAATTGAAAG ATCAGGGTCTGGCTGGATGCCAAAGTCTATTGTAAGT spacer
length: 37 repeater length: 30
11236 1226908 GTTCCAATAAGACTTTTAAAAGAATTGAAAG CTCAATGGTTCTTACATTCTTACATGACCTTACATAT spacer
length: 38 repeater length: 30
11237 1226976 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TTATTTGTGAGGGTAACGGTAAAGGTTACTTGCGTGTTG
spacer length: 40 repeater length: 30
11238 1227046 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TATTCCTCTTTTGTATCTCCTTTCTCCGTTTTCTGCC spacer
length: 37 repeater length: 30
11239 1227113 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TATCATCAAGATCAATCCTTAACACTCTCTCATAGTCCA
spacer length: 39 repeater length: 30
11240 1227182 GTTCCAATAAGACTTTTAAAAGAATTGAAAG GTAGTCAAGGACGCACTAGCAAACAGCACTCTTGACAC spacer
length: 38 repeater length: 30
11241 1227250 GTTCCAATAAGACTTTTAAAAGAATTGAAAG GCTCTACTCTCTTCGTTACTCGTCCCCGATCTAATGCA spacer
length: 38 repeater length: 30
11242 1227318 GTTCCAATAAGACTTTTAAAAGAATTGAAAG GCTCTGAGCTGTCTTCTAATAACTCCCTTAGCACATTA spacer
length: 38 repeater length: 30
11243 1227386 GTTCCAATAAGACTTTTAAAAGAATTGAAAG GTATTCAAGATAAACACATCTCCAGCACTTGATTA spacer
length: 37 repeater length: 30
11244 1227453 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TAAATATGATTTATGTTTTATTTTTATCATGGTGCGT spacer

length: 38 repeater length: 30
11245 1227521 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CTTTGCAGTAAAACAGTTTTTCGATGAATACGGTCAT spacer
length: 37 repeater length: 30
11246 1227588 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TTAAGACCGAACTCGACGAACTGAAAGTTTCCCCGAAACA
spacer length: 40 repeater length: 30
11247 1227658 GTTCCAATAAGACTTTAAAAAGAATTGAAAG ACTCTACAGCGCGAGAAGGGCTTCTACTACTACACGAC spacer
length: 38 repeater length: 30
11248 1227726 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TGAGGACAATGGAGAGCGTCATAGCAGTAGCCAA spacer
length: 34 repeater length: 30
11249 1227790 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CCACCATGAGTAAGAGAAGGGAGAGAATGATAATAAGAA
spacer length: 39 repeater length: 30
11250 1227859 GTTCCAATAAGACTTTAAAAAGAATTGAAAG AAGGGAGAGTGGCGATTCTTAAAGAAACAAGGATGCT spacer
length: 37 repeater length: 30
11251 1227926 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CCTGGTGGGAGTTAGATGTCCTGCACAGGAGAACCGAC spacer
length: 38 repeater length: 30
11252 1227994 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CCCGTGTCGTAAATCCACACCTGGAAGTGGTTCAAGTC spacer
length: 38 repeater length: 30
11253 1228062 GTTCCAATAAGACTTTAAAAAGAATTGAAAG GTGTATCTCCGTTTTTCAGGATATTCGTCTGAGTACC spacer
length: 37 repeater length: 30
11254 1228129 GTTCCAATAAGACTTTAAAAAGAATTGAAAG GTGCTGTCCATGAAAGTCACTGAAATATTGCCAGCTG spacer
length: 38 repeater length: 30
11255 1228197 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CAGGATGGTAGATATAGACTTAATCGTGCTAGGGCTCG spacer
length: 38 repeater length: 30
11256 1228265 GTTCCAATAAGACTTTAAAAAGAATTGAAAG AACCTTACCACCATTTCAGGTCCACCAGCCCTTTGTTC spacer
length: 37 repeater length: 30
11257 1228332 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TTCACACCACCCCATCAATCCACCAACCCGGCTCTCCA
spacer length: 39 repeater length: 30
11258 1228401 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TAACTACGCTTATGTTGTAGTTCGGTAGGTAAACACCC spacer
length: 38 repeater length: 30
11259 1228469 GTTCCAATAAGACTTTAAAAAGAATTGAAAG GCAAAAAGTTTTTTGCGAGAGTTTTTTCAAGCTTTTTAGA
spacer length: 40 repeater length: 30
11260 1228539 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CTGCATTTTTTGAGCGCTATTCCATCTTTGCCAACAGT spacer
length: 37 repeater length: 30
11261 1228606 GTTCCAATAAGACTTTAAAAAGAATTGAAAG AGTAGACATGGATAAACCTGTCAAGGAAGTGATTGCG spacer
length: 37 repeater length: 30
11262 1228673 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TCGAATACAGGGTTAGCTCCTAATGGGTCTTGGAACAC spacer
length: 38 repeater length: 30
11263 1228741 GTTCCAATAAGACTTTAAAAAGAATTGAAAG AAAAATAAAAGCGGGACTTTCTCGAAATTGATTTTTTAA spacer
length: 38 repeater length: 30
11264 1228809 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CACTTCGAAGGCATTAAGCACCTTCGCGGGCATTTC spacer
length: 36 repeater length: 30
11265 1228875 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CCGTAACGTCCCTGTTGAGCGGATTGTATATAGTAAG spacer
length: 37 repeater length: 30
11266 1228942 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TATCCTCGTCCATGTTCTCAAGGTTTGCAACAATGCT spacer
length: 37 repeater length: 30
11267 1229009 GTTCCAATAAGACTTTAAAAAGAATTGAAAG AACGGGAAGAAATATCTCTATGATGACTATCTTGACG spacer
length: 37 repeater length: 30
11268 1229076 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CCGCCGATAAGGAATAATATAACTGCTAAGGCCAAGTATGG
spacer length: 41 repeater length: 30
11269 1229147 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CGGGGCCGCA
11270
11271
11272 crispr 8
11273 1229303 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TGATAGGAACATTTTTGTTCCAATTCTGGAACAAA spacer
length: 35 repeater length: 30
11274 1229368 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CTTAGTGTGTCAGTAACTACTGCACCCGTGAACCCTGCATAACC
spacer length: 44 repeater length: 30
11275 1229442 GTTCCAATAAGACTTTAAAAAGAATTGAAAG CACTTCGCAGTTATAGAGACATACGCATATGATGAG spacer
length: 36 repeater length: 30
11276 1229508 GTTCCAATAAGACTTTAAAAAGAATTGAAAG GCCGTTTTAAGTGCAGTGGCTTTTAGGTATGCCCT spacer
length: 37 repeater length: 30
11277 1229575 GTTCCAATAAGACTTTAAAAAGAATTGAAAG ACGCATTGTCTTCCTGTCGTAGACCACGGCTTCATAATC
spacer length: 39 repeater length: 30
11278 1229644 GTTCCAATAAGACTTTAAAAAGAATTGAAAG AGAATGAATAAATCATATTCTCGTTCATCAAGTCCTTAGT
spacer length: 40 repeater length: 30
11279 1229714 GTTCCAATAAGACTTTAAAAAGAATTGAAAG TTGATGCCTTGCTAAAGTCCTCACTGCTCATATAGTCAA
spacer length: 39 repeater length: 30
11280 1229783 GTTCCAATAAGACTTTAAAAAGAATTGAAAG AACTTTATGTTTGCTTCCTTAACAATGCCGTTTATTA spacer
length: 37 repeater length: 30
11281 1229850 GTTCCAATAAGACTTTAAAAAGAATTGAAAG ATGCCTTATCAAAAACCTTCCTTTCTTCATCATTTAA spacer
length: 36 repeater length: 30

11282 1229916 GTTCCAATAAGACTTTAAAAGAATTGAAAG TTAGCCAAATTGGGCATCAAGGCAGTTGACTATTACA spacer
length: 37 repeater length: 30

11283 1229983 GTTCCAATAAGACTTTAAAAGAATTGAAAG ATTCTCAAGATTGTCTTCTCTGAAAAAGAAGCGGAGGTC
spacer length: 39 repeater length: 30

11284 1230052 GTTCCAATAAGACTTTAAAAGAATTGAAAG CATATTTAGTGTTATCCCGCTGAGGTACCTCGGGGATGAGA
spacer length: 41 repeater length: 30

11285 1230123 GTTCCAATAAGACTTTAAAAGAATTGAAAG CAGGCTTTACACACTTTCGGTGGTGTCTCCGACCTTG spacer
length: 36 repeater length: 30

11286 1230189 GTTCCAATAAGACTTTAAAAGAATTGAAAG TAAGTTAATCTTTCATCTCTACTATGAGTTCTCCTCGA spacer
length: 38 repeater length: 30

11287 1230257 GTTCCAATAAGACTTTAAAAGAATTGAAAG TACCTTAGCCGTCTTATTCACTGCGTCCCAAGTCTCC spacer
length: 37 repeater length: 30

11288 1230324 GTTCCAATAAGACTTTAAAAGAATTGAAAG CTTTTTACAACATACTCAATTGCCGTCCCATTGCA spacer
length: 36 repeater length: 30

11289 1230390 GTTCCAATAAGACTTTAAAAGAATTGAAAG CATTATAAGCCTCTATAGCTGCATTAGCATATGTAG spacer
length: 36 repeater length: 30

11290 1230456 GTTCCAATAAGACTTTAAAAGAATTGAAAG AGAACTTCTCCATAGCCCTTGCTGAAATCTTGACGTGCTCCAC
spacer length: 44 repeater length: 30

11291 1230530 GTTCCAATAAGACTTTAAAAGAATTGAAAG AGGTAATACTTACCAGAGGAATCTGGAGACACTACTT spacer
length: 37 repeater length: 30

11292 1230597 GTTCCAATAAGACTTTAAAAGAATTGAAAG AGAGAAACCATTTTTCTCAGAACTCTAAATACCTCGC spacer
length: 38 repeater length: 30

11293 1230665 GTTCCAATAAGACTTTAAAAGAATTGAAAG GCTCTTAACCTCGAACTCTGAAGCAAAATCTGTAT spacer
length: 34 repeater length: 30

11294 1230729 GTTCCAATAAGACTTTAAAAGAATTGAAAG TATGTAGCCTTCAATTAATGAAAACGTATATTCGATGT spacer
length: 38 repeater length: 30

11295 1230797 GTTCCAATAAGACTTTAAAAGAATTGAAAG CTGATGGATTGCTTGGGCTCGACGACAGGCTCATCG spacer
length: 37 repeater length: 30

11296 1230864 GTTCCAATAAGACTTTAAAAGAATTGAAAG TTGGCGACGT

11297

11298

11299 GCA_000253055.1_ASM25305v1_genomic.fna (PilerCR):

11300 START REPEAT

SPACER

11301 crispr 1

11302 225269 CCTTCAAATCTCTATCTGAGATTC AATAGCTGGATGGGGATTGGCGCATGCGCTTGGCTGGAACCC spacer
length: 42 repeater length: 24

11303 225335 CCTTCAAATCTCTATCTGAGATTC CTTGCTCATAGTCGAAGCAATACATCTTGGGACGGCGACCTCCT spacer
length: 44 repeater length: 24

11304 225403 CCTTCAAATCTCTATCTGAGATTC CTCGACTGCGTCGAACCTCATATCGCGCTCAACGCGCACGTA spacer
length: 42 repeater length: 24

11305 225469 CCTTCAAATCTCTATCTGAGATTC CGCTCGGTTGGACACGTGGACTCGATAGCTTGGCGCATCTG spacer
length: 41 repeater length: 24

11306 225534 CCTTCAAATCTCTATCTGAGATTC AGATCCATGTGCCGATCTTCGTGTTGCCCCTCTCGTCGAATAT spacer
length: 43 repeater length: 24

11307 225601 CCTTCAAATCTCTATCTGAGATTC ATAACAAGATCAACCTTGTGCGCAATGAGCTCGCTAAGCAAGGG spacer
length: 44 repeater length: 24

11308 225669 CCTTCAAATCTCTATCTGAGATTC GAGAACATCGCAATAAAGATAACGGAGGAACAGCTACGC spacer
length: 39 repeater length: 24

11309 225732 CCTTCAAATCTCTATCTGAGATTC CGCCGTACTTCTTCAGCACCTCCTTCACCCGTTCTTCAGAAA spacer
length: 43 repeater length: 24

11310 225799 CCTTCAAATCTCTATCTGAGATTC GTGCAGATATGTGAACAAGCCGTACGCGAAGCCGGTCAGGATAAG spacer
length: 45 repeater length: 24

11311 225868 CCTTCAAATCTCTATCTGAGATTC GGTCCGTCTCGATTCCGGATTGGCTGTGATAGTGACAAAAGA spacer
length: 42 repeater length: 24

11312 225934 CCTTCAAATCTCTATCTGAGATTC CAGAAGAGCTCGAACTTTACGACCTTGCCTCCGATATATTCGTA spacer
length: 44 repeater length: 24

11313 226002 CCTTCAAATCTCTATCTGAGATTC GGCGATTTCAAATACCGCTATGAGGCGATATCCTACTGGGT spacer
length: 41 repeater length: 24

11314 226067 CCTTCAAATCTCTATCTGAGATTC GAGTAGAGGTACCCTCCGTCGACGACCGCCCCCTGCGTGATGCTCAGTTG
spacer length: 50 repeater length: 24

11315 226141 CCTTCAAATCTCTATCTGAGATTC AGGTGTAGTCGGTATAGCTGATGCCGTTGCACTGCACCTGGTA spacer
length: 43 repeater length: 24

11316 226208 CCTTCAAATCTCTATCTGAGATTC ACGATCTCGCCATGCTTGAGACGAAGCTTAGGTTGGGCTTTC spacer
length: 42 repeater length: 24

11317 226274 CCTTCAAATCTCTATCTGAGATTC TGGAGCGTATTTTCGCAATACGAGGATGCCGCACATATATCCAAT spacer
length: 44 repeater length: 24

11318 226342 CCTTCAAATCTCTATCTGAGATTC AGCAATCCGCCGCGGGTCGGCGCATGCCAACACAGCGTCCAA spacer
length: 42 repeater length: 24

11319 226408 CCTTCAAATCTCTATCTGAGATTC AATTGGAGGGAAACCACGGCCGTGCTGACAGACGCCGGCAA spacer
length: 41 repeater length: 24

11320 226473 CCTTCAAATCTCTATCTGAGATTC CCTGTATTGCCGGCCGTCCGGCCCCCTCCACGACGAAGAAGTT spacer
length: 42 repeater length: 24
11321 226539 CCTTCAAATCTCTATCTGAGATTC ATTGCTGATAGTGTTCCTGCTAGTTGTCAATTTGGCCTATACTAAG spacer
length: 45 repeater length: 24
11322 226608 CCTTCAAATCTCTATCTGAGATTC CCAGAGTGCTCGATGAGGCGGGCATAGACAGGTACTCCATCACCGA
spacer length: 46 repeater length: 24
11323 226678 CCTTCAAATCTCTATCTGAGATTC GTATAGCCGCTCACAGGGGTGAACGATACAGACTGTGCGCCG spacer
length: 42 repeater length: 24
11324 226744 CCTTCAAATCTCTATCTGAGATTC TGTTTAGGGAGAAGATTAGGGAGAAAAATTGAAAGAGAAA spacer
length: 40 repeater length: 24
11325 226808 CCTTCAAATCTCTATCTGAGATTC ACTATCTCGATGTGAACAACATATGCATCAATGTCGGCGCCGG spacer
length: 43 repeater length: 24
11326 226875 CCTTCAAATCTCTATCTGAGATTC TATCGAAAGA
11327
11328
11329 crispr 2
11330 345410 TTTCTACTATCTTTTGATTTCAC ACGCGCTCTACGCCGTCCACGCGAGGCTATATAGCATCGCGATA spacer
length: 44 repeater length: 24
11331 345478 TTTCTACTATCTTTTGATTTCAC TCAATGGCGATACAGCGTGGGGGCTGTAGTGCCATGGCTCACA spacer
length: 44 repeater length: 24
11332 345546 TTTCTACTATCTTTTGATTTCAC CGAAGAGGTCTCTGGAGCGGCTGGGGAGCTAAAATATCCCCTCCCGTAC
spacer length: 49 repeater length: 24
11333 345619 TTTCTACTATCTTTTGATTTCAC CCCCCTTTTTCTCCGACCACGTAAGTGTGGAAGTCAAACGTGATC
spacer length: 47 repeater length: 24
11334 345690 TTTCTACTATCTTTTGATTTCAC GCACCTACCTCTCTGTGTGTGGCCAGTCCATCGGAGATAACC spacer
length: 44 repeater length: 24
11335 345758 TTTCTACTATCTTTTGATTTCAC AGCTAGGCTACATTTCTAAGACTGGCGGTGCTCACTTTGTGGAAGC
spacer length: 46 repeater length: 24
11336 345828 TTTCTACTATCTTTTGATTTCAC TCCCTGAGTC
11337
11338
11339 crispr 3
11340 1075973 CTTTCAATCCTCTCTTTGAGATTC CAAAACGGCGCCTGGAAGTAGAGTAGCCAGAACTCCTGGTA spacer
length: 42 repeater length: 24
11341 1076039 CTTTCAATCCTCTCTTTGAGATTC ATCGCTTGCATACAAATTAGAGTATACAGAAAAAGAAGTTG spacer
length: 41 repeater length: 24
11342 1076104 CTTTCAATCCTCTCTTTGAGATTC AGTTCAGTGTTGAGATAACGATAAAGAAAAGCTATGTAGAGAAAA
spacer length: 45 repeater length: 24
11343 1076173 CTTTCAATCCTCTCTTTGAGATTC ACTGCAAGGG
11344
11345
11346 crispr 4
11347 1076317 CTTTCAATCCTCTCTTTGAGATTC CGTATATTCCATGTTTTCTCTTATCAGCATGATCCTGTGACATG spacer
length: 44 repeater length: 24
11348 1076385 CTTTCAATCCTCTCTTTGAGATTC GTTGTCCGTCCTCTTTGACGGCTCAGTGCTGTCCGTCAGGCC spacer
length: 42 repeater length: 24
11349 1076451 CTTTCAATCCTCTCTTTGAGATTC CAATGGTGTGTTCAAGCTGATATTGTTAGCTTCGTCATCAATAGAT
spacer length: 46 repeater length: 24
11350 1076521 CTTTCAATCCTCTCTTTGAGATTC CTTACGATGGTATCGATGTTAATTGTGCCGATGTTGATCGTCGC
spacer length: 45 repeater length: 24
11351 1076590 CTTTCAATCCTCTCTTTGAGATTC CGAAAAAGAAGGGATTAGGAGGTGGTAGCGGACACGACT spacer
length: 40 repeater length: 24
11352 1076654 CTTTCAATCCTCTCTTTGAGATTC CCAGGAAGAAAGCCAGGAGATCCTCGTCGACAGAATGAGGGAAAAG
spacer length: 46 repeater length: 24
11353 1076724 CTTTCAATCCTCTCTTTGAGATTC AGATTTCGAGCTCTTTGCTGGCAGATTGGGATACCTCGAGAAGA spacer
length: 43 repeater length: 24
11354 1076791 CTTTCAATCCTCTCTTTGAGATTC ATAGTACATAGCCGCCGCGCCTAAAGGTTTTTCTCAATCG spacer
length: 43 repeater length: 24
11355 1076858 CTTTCAATCCTCTCTTTGAGATTC GCCCATCAGAAAATTCAGCAATTCTTTATAGAATATTCTCAA spacer
length: 42 repeater length: 24
11356 1076924 CTTTCAATCCTCTCTTTGAGATTC TGGCGCGAATATGTGCGCTATATTGAGGAGCTGTACAGGGATT spacer
length: 43 repeater length: 24
11357 1076991 CTTTCAATCCTCTCTTTGAGATTC AGCCATCGGAGAAAAAGCGCAAGAAGGGCTATCTAGTCAAGA spacer
length: 42 repeater length: 24
11358 1077057 CTTTCAATCCTCTCTTTGAGATTC CTGTGAAGAACACGTTTATCAAGTAGGCCACAAAGGCGAACTGC spacer
length: 44 repeater length: 24
11359 1077125 CTTTCAATCCTCTCTTTGAGATTC AAGTATATTGACTCTCCAATCGGCATAACGTGTATCCGCCAGT spacer
length: 43 repeater length: 24
11360 1077192 CTTTCAATCCTCTCTTTGAGATTC ATCGACTGGAGGGGGCTGACGGAGGGGTTGAGGAGCGTGCCCCGCAAGG
spacer length: 49 repeater length: 24
11361 1077265 CTTTCAATCCTCTCTTTGAGATTC TGTCGCACTTGCTCAGCATGCGGCCGTCTGGGTGGTACTCTA spacer

length: 42 repeater length: 24
11362 1077331 CTTTCAATCCTCTCTTTGAGATTC CGACGAGACACTGTGAGTGCTTGCGCTGCGTGTACACGAGC spacer
length: 41 repeater length: 24
11363 1077396 CTTTCAATCCTCTCTTTGAGATTC ACATCCTCCAGCACGTCTGGAACATATAGCGCAGTGG spacer
length: 38 repeater length: 24
11364 1077458 CTTTCAATCCTCTCTTTGAGATTC ACACATTTCGGACAGCGGCTCACCGCCGAGAGCGACTCGA spacer
length: 40 repeater length: 24
11365 1077522 CTTTCAATCCTCTCTTTGAGATTC GAAGAAAAGATCGAGGAAATACCGGGCGAGTGGTTAAGCA spacer
length: 40 repeater length: 24
11366 1077586 CTTTCAATCCTCTCTTTGAGATTC GCGACGTACCACGCCAGGATGTCTTGTATCCGCTCCCCGCGA spacer
length: 43 repeater length: 24
11367 1077653 CTTTCAATCCTCTCTTTGAGATTC CCGCCTTCAAAGGGCCCCCTCTGTGTATATACGTGTATATAG spacer
length: 41 repeater length: 24
11368 1077718 CTTTCAATCCTCTCTTTGAGATTC ACGCGGATCTACGTGGTCAGGCATGCGATCGCATATCCGACTTCG
spacer length: 45 repeater length: 24
11369 1077787 CTTTCAATCCTCTCTTTGAGATTC TGAGGCGCTCTGAAACACAGCTGTGATGTTAAATACG spacer
length: 37 repeater length: 24
11370 1077848 CTTTCAATCCTCTCTTTGAGATTC TGGGAAGGAGCCAGTCGGCTCCCCAGACGGCCGGGGCGAAGA spacer
length: 42 repeater length: 24
11371 1077914 CTTTCAATCCTCTCTTTGAGATTC GCGTCGGGGATGTCCGTGACGTCAACGCCCTTTGTGTCA spacer
length: 39 repeater length: 24
11372 1077977 CTTTCAATCCTCTCTTTGAGATTC AAGATGAGAAAAAGAGGTTAACGATCGCGGATGTACTT spacer
length: 39 repeater length: 24
11373 1078040 CTTTCAATCCTCTCTTTGAGATTC TATACGACGCCTACGTGGGCCTCTTCCTCCTCCTCCCCGTGAGCGGCGAG
spacer length: 50 repeater length: 24
11374 1078114 CTTTCAATCCTCTCTTTGAGATTC GCGGACATTTGCGCCGCACGAATAATCAACTACATCTCTCAATACA
spacer length: 46 repeater length: 24
11375 1078184 CTTTCAATCCTCTCTTTGAGATTC GAATCAGGGA
11376
11377
11378 crispr 5
11379 1081876 GAATCTCAAAGAGAGGATTGAAAG TCTGGACTGTGTGTTGCAACAGCGAAGTCGCGAACACCTCGAC spacer
length: 43 repeater length: 24
11380 1081943 GAATCTCAAAGAGAGGATTGAAAG CGTTGATGTGGCCGGGACTGGCTGACTCAGCTATTACGTT spacer
length: 40 repeater length: 24
11381 1082007 GAATCTCAAAGAGAGGATTGAAAG ACTTCAAGGCGTGCTTGCTGGCGTTTTAGGCGACGATGAGCT spacer
length: 42 repeater length: 24
11382 1082073 GAATCTCAAAGAGAGGATTGAAAG CTCTTTTTCTGCCCCGTTCTTCCAACCTCTTCGCCGGTCGT spacer
length: 41 repeater length: 24
11383 1082138 GAATCTCAAAGAGAGGATTGAAAG CCGAGTAGCCGACGGCGCGTCCGCTCACTTAAGATCTCA spacer
length: 39 repeater length: 24
11384 1082201 GAATCTCAAAGAGAGGATTGAAAG TGTGATAGATGAGATAGACAAAATCAAGTTCAGCACCACGT spacer
length: 41 repeater length: 24
11385 1082266 GAATCTCAAAGAGAGGATTGAAAG GCGCACTAATTACCGCCCCGGCGCAGGATTACCAATCTTGCCGGGCGCGTT
spacer length: 51 repeater length: 24
11386 1082341 GAATCTCAAAGAGAGGATTGAAAG TTGGTCTCAGGCGCGCGGTAGCCTTCCAGCTGTACGACCAACTCGAT
spacer length: 47 repeater length: 24
11387 1082412 GAATCTCAAAGAGAGGATTGAAAG TCCGGAGGAGGCGGCGAAGAGGATGATAGAGTTGGCCAGGCTGG spacer
length: 44 repeater length: 24
11388 1082480 GAATCTCAAAGAGAGGATTGAAAG GGCATGATTGGTTGCGCCGGGAGCTCTGGGATGTGATCCGCCA spacer
length: 43 repeater length: 24
11389 1082547 GAATCTCAAAGAGAGGATTGAAAG CTACTTGGAGTATGCCGGTCAAATTCGGTGGGGCGGACGTCGTACC
spacer length: 46 repeater length: 24
11390 1082617 GAATCTCAAAGAGAGGATTGAAAG TTTGTTGAAATAATCACCGTAACCCAGGCTTTCCAACCATCTT spacer
length: 43 repeater length: 24
11391 1082684 GAATCTCAAAGAGAGGATTGAAAG ATCGCTTGTCCAACCGGGCTCCTCTATAATTGTCGTCATTAGCTTA
spacer length: 46 repeater length: 24
11392 1082754 GAATCTCAAAGAGAGGATTGAAAG ACTGGATCATCGATGGGCAGAATGCGGGCGTGTGCGCTATATG spacer
length: 43 repeater length: 24
11393 1082821 GAATCTCAAAGAGAGGATTGAAAG CAAGTCGTCGAGAAGTATTTTGGTCTGCTGAAGCAGTACGGTTTCG
spacer length: 46 repeater length: 24
11394 1082891 GAATCTCAAAGAGAGGATTGAAAG GTACCACGACATCAGCCATGTGACTGTTGCGCCTAGCTCAATCTC
spacer length: 45 repeater length: 24
11395 1082960 GAATCTCAAAGAGAGGATTGAAAG ACTTGAATTTCAACAATGTCACCAGCACATATGTCCAGGCTAGG spacer
length: 44 repeater length: 24
11396 1083028 GAATCTCAAAGAGAGGATTGAAAG ATTTTTATTCTCATAAACATGGTCTCAAGGTCAGAACTAAGCC spacer
length: 44 repeater length: 24
11397 1083096 GAATCTCAAAGAGAGGATTGAAAG AATGGCTCCAAGGGATCGTTCTCTAGACTCCAATTTTTCTAAT spacer
length: 43 repeater length: 24
11398 1083163 GAATCTCAAAGAGAGGATTGAAAG TTTGTGACGGGATCTTGCGACATGCGGTACGCTGCAGTGTGCG spacer
length: 43 repeater length: 24

11399	1083230	GAATCTCAAAGAGAGGATTGAAAG	GCTCCACCGACCAGTACCCATATAGCGTGAACCTCTTTCGCCGGA	spacer
		length: 44	repeater length: 24	
11400	1083298	GAATCTCAAAGAGAGGATTGAAAG	AGTGCGCAGACCCCTGCACAGGCCGGCGTCCTTCACAAA	spacer
		length: 40	repeater length: 24	
11401	1083362	GAATCTCAAAGAGAGGATTGAAAG	ATGTAGAGCTTGACCGGCCCCAGGATAGGGCACCGGGCCG	spacer
		length: 42	repeater length: 24	
11402	1083428	GAATCTCAAAGAGAGGATTGAAAG	TCTGTATCCCGCCGGCGCGTGGAGAAGGCGTTTCTCCACAACGTCGTCCTC	spacer
		length: 51	repeater length: 24	
11403	1083503	GAATCTCAAAGAGAGGATTGAAAG	TCGAGGACGATGTAGTCGGGATTGCTCGCGTTTATCAGCTTGA	spacer
		length: 43	repeater length: 24	
11404	1083570	GAATCTCAAAGAGAGGATTGAAAG	CTCGTGGATACTCCAAGCGAAAGAGTTCACGTTATACGGCTAC	spacer
		length: 43	repeater length: 24	
11405	1083637	GAATCTCAAAGAGAGGATTGAAAG	TCCACAAGCCTCACGGCCGTCTTCACGGCGCGGCCCGGTCTGACGG	spacer
		length: 46	repeater length: 24	
11406	1083707	GAATCTCAAAGAGAGGATTGAAAG	GGATATACTACACGGCCCTGCGCGTCATCGGGAACAAGCGCATGG	spacer
		length: 46	repeater length: 24	
11407	1083777	GAATCTCAAAGAGAGGATTGAAAG	TATTCGCTAGATTCCGGCGTAAAAGGTCTGGGCGGCGAT	spacer
		length: 39	repeater length: 24	
11408	1083840	GAATCTCAAAGAGAGGATTGAAAG	CCGTGCACCTATGACTTTCAAGTACTCAAGGACGTTAG	spacer
		length: 38	repeater length: 24	
11409	1083902	GAATCTCAAAGAGAGGATTGAAAG	AACGCTTGGACAAATACCGTACCGCTACCCTCATATTGATA	spacer
		length: 41	repeater length: 24	
11410	1083967	GAATCTCAAAGAGAGGATTGAAAG	CTCCCTCAGG	
11411				
11412				
11413	crispr 6			
11414	1095379	CTTTCAATCCTCTTTTTGAGATTC	CGAGCTCAATTTCCCCGGCCTCATTGACTTTGTACTTGGGT	spacer
		length: 41	repeater length: 24	
11415	1095444	CTTTCAATCCTCTTTTTGAGATTC	TGAAGGCCCAAACCTCAGATCCAGAAAAGAATAAAAAATAAT	spacer
		length: 41	repeater length: 24	
11416	1095509	CTTTCAATCCTCTTTTTGAGATTC	CGTGCTACTTCCGGCCGGGACAACCTATCACGTACTCGTTCTCCGC	spacer
		length: 45	repeater length: 24	
11417	1095578	CTTTCAATCCTCTTTTTGAGATTC	CGCCGGGCTCCCCGCGGCCATCATCGCGTCAGGCTGTCTG	spacer
		length: 39	repeater length: 24	
11418	1095641	CTTTCAATCCTCTTTTTGAGATTC	TAGGTTCTACGGATAATATAATGCAGGTATTTGTAGAAAGTTCA	spacer
		length: 44	repeater length: 24	
11419	1095709	CTTTCAATCCTCTTTTTGAGATTC	TATCGTTACGTTGTCTGTACCAAACGACTTGAGCCGGCTGAT	spacer
		length: 41	repeater length: 24	
11420	1095774	CTTTCAATCCTCTTTTTGAGATTC	GAGATACATATCGTTGAGCGTGGCATTAGATGCTTTGTCTGATA	spacer
		length: 43	repeater length: 24	
11421	1095841	CTTTCAATCCTCTTTTTGAGATTC	CGAGCCAGGCGGGCACGTTCAACTGGTGGGATCTCAT	spacer
		length: 37	repeater length: 24	
11422	1095902	CTTTCAATCCTCTTTTTGAGATTC	CCCGAAACCCAAATGGACAGCAGAATTCTGGCGATAAAGGCGGAGAT	spacer
		length: 47	repeater length: 24	
11423	1095973	CTTTCAATCCTCTTTTTGAGATTC	AAGAGGTAGTTAAGCACTTCAACGCAATAGGCTTTATGCCCTG	spacer
		length: 43	repeater length: 24	
11424	1096040	CTTTCAATCCTCTTTTTGAGATTC	TATATGAGACCAACCACGAGACTGAGTTCTATATTGATCCATTA	spacer
		length: 44	repeater length: 24	
11425	1096108	CTTTCAATCCTCTTTTTGAGATTC	CGACGCCCGCGTCATCCCCAACGTCGGAGATGCAGGT	spacer
		length: 37	repeater length: 24	
11426	1096169	CTTTCAATCCTCTTTTTGAGATTC	AGCGTGGCTCCACTCGTCGGAGCATGCGACGAAGGCCGGC	spacer
		length: 40	repeater length: 24	
11427	1096233	CTTTCAATCCTCTTTTTGAGATTC	CCTGGCTGTGTAAAGGTTGTCTGAAGTACCTGGTCAAC	spacer
		length: 37	repeater length: 24	
11428	1096294	CTTTCAATCCTCTTTTTGAGATTC	AGCACGATGAGGAGGCCGAGGAACCCCTTGAACCTGTCCC	spacer
		length: 40	repeater length: 24	
11429	1096358	CTTTCAATCCTCTTTTTGAGATTC	TTCTTCAGCCACCACCAGAATAGGAAGGCCGCCACGATGAA	spacer
		length: 41	repeater length: 24	
11430	1096423	CTTTCAATCCTCTTTTTGAGATTC	AGCCACCGCGAAGTAGTTGAGACAGCGCCGGCGTGACGTTCAA	spacer
		length: 43	repeater length: 24	
11431	1096490	CTTTCAATCCTCTTTTTGAGATTC	AAAGCCGAGGTGAACAATTTTTATTGGTCTTAATGTATTCCC	spacer
		length: 42	repeater length: 24	
11432	1096556	CTTTCAATCCTCTTTTTGAGATTC	AGGGAACATATACAAATTATAAGGCCTTAATAACAATAGAGAACTGCGA	spacer
		length: 49	repeater length: 24	
11433	1096629	CTTTCAATCCTCTTTTTGAGATTC	ACTGTTATGAGACCGTCCCCGTACTGGTAGACCTTGTACCCCTTGCTCTGA	spacer
		length: 51	repeater length: 24	
11434	1096704	CTTTCAATCCTCTTTTTGAGATTC	GGTTCACTGAGAGGTACGGAGAATCCATGCACTGGCCTTGCGG	spacer
		length: 43	repeater length: 24	
11435	1096771	CTTTCAATCCTCTTTTTGAGATTC	AAACAAATTAGGAGATGTAGTGATAGCGAAAAGGAACGAGG	spacer
		length: 41	repeater length: 24	
11436	1096836	CTTTCAATCCTCTTTTTGAGATTC	CACGAGCATCCCCAAGCCCGAAGTAATTGTCAAATACCCAGAGCT	

spacer length: 45 repeater length: 24
 11437 1096905 CTTTCAATCCTCTTTTTGAGATTC AAAGCTTAGAATTGGAATTTCTACTATTGCGCTTAGATAGCTAT spacer
 length: 44 repeater length: 24
 11438 1096973 CTTTCAATCCTCTTTTTGAGATTC CCGCCACCGC
 11439
 11440
 11441 crispr 7
 11442 1103069 GAATCTCAAAGAGAGGATTGAAAG TCAAATTCACAATCAACTTTCTACTGAACTTCCCGTCATGGA spacer
 length: 42 repeater length: 24
 11443 1103135 GAATCTCAAAGAGAGGATTGAAAG GCGCGCTGTATACAGCGCGCCTTTCGCGGCAGATATCGCCCTCAGC
 spacer length: 46 repeater length: 24
 11444 1103205 GAATCTCAAAGAGAGGATTGAAAG CTTCTGTCGAGAAGTCCTCGACGCTCAGAGACATATTCTACAACAA
 spacer length: 45 repeater length: 24
 11445 1103274 GAATCTCAAAGAGAGGATTGAAAG CTTCTTACTTCTCTCAAGTCTCTGGCTATCTCCTGAATTTTTTC spacer
 length: 44 repeater length: 24
 11446 1103342 GAATCTCAAAGAGAGGATTGAAAG AGGCTACGCGATGTGCTAATTCAGTTGCGCGACGTGGCCGACTC spacer
 length: 44 repeater length: 24
 11447 1103410 GAATCTCAAAGAGAGGATTGAAAG TCGACGACGATGAAGTCCGGATTGCTCGCGCTTATCAGCCTGAAC
 spacer length: 45 repeater length: 24
 11448 1103479 GAATCTCAAAGAGAGGATTGAAAG GTAGATCTCGACTGCCACCGCCGGCTTGGCGCCGCGCCACGTGTAAATT
 spacer length: 49 repeater length: 24
 11449 1103552 GAATCTCAAAGAGAGGATTGAAAG GGATAGACACGGCGGAAGCAATATGGACATCTGATCTCATCGA spacer
 length: 43 repeater length: 24
 11450 1103619 GAATCTCAAAGAGAGGATTGAAAG CTTTTATACATCTTTCTTTTTTCGGCTATGTGCGACAACT spacer
 length: 39 repeater length: 24
 11451 1103682 GAATCTCAAAGAGAGGATTGAAAG TCTAGCTCAACTACCTTTTCGCCCATGTCCAAAGGCCAGACCT spacer
 length: 44 repeater length: 24
 11452 1103750 GAATCTCAAAGAGAGGATTGAAAG AACATAATGATATCGTGTGCAAAGATAGACAAAAGCGGC spacer
 length: 40 repeater length: 24
 11453 1103814 GAATCTCAAAGAGAGGATTGAAAG CTTGGGCGTTGGAGCGGACAGAGCCCGCGCGCTCTTGAGGGAGAGG
 spacer length: 46 repeater length: 24
 11454 1103884 GAATCTCAAAGAGAGGATTGAAAG CTTCTCACTGCGCACTCTCTCGTACTTGCACAGTTTGGC spacer
 length: 40 repeater length: 24
 11455 1103948 GAATCTCAAAGAGAGGATTGAAAG ACCGCCAGCTTGAGCATGTGCGTAGTCCCGCCGGTCTCCCACG spacer
 length: 43 repeater length: 24
 11456 1104015 GAATCTCAAAGAGAGGATTGAAAG
 TCTGGTGAACCATAAACGGCAAAACCAATTCATCGTCCCAGACTTTGATTTTGT spacer length: 55 repeater
 length: 24
 11457 1104094 GAATCTCAAAGAGAGGATTGAAAG TTCGCCCTCC
 11458
 11459
 11460 GCA_000258425.1_ASM25842v1_genomic.fna(PilerCR):
 11461 START REPEAT
 SPACER
 11462 crispr 1
 11463 36 GAATCTCTCAGATAGAATTGAAAG TTGGCATATTTACTCCCCTTGCTCAGAATCAAGCATT spacer length: 37
 repeater length: 24
 11464 97 GAATCTCTCAGATAGAATTGAAAG TTCACAAATTTAGTCACAAATGCGCTAGGAAACAGAA spacer length: 37
 repeater length: 24
 11465 158 GAATCTCTCAGATAGAATTGAAAG TCAAACCCATGCTTTCTTAGTATTTCTGCTGCTTCT spacer length: 36
 repeater length: 24
 11466 218 GAATCTCTCAGATAGAATTGAAAG CTCTTGCTAATGCTCTAGCAGTCGATCATAGTAGGC spacer length: 36
 repeater length: 24
 11467 278 GAATCTCTCAGATAGAATTGAAAG AATAGCAAAATCCACTTATCGCCTACCCAATCTTTAAA spacer length:
 38 repeater length: 24
 11468 340 GAATCTCTCAGATAGAATTGAAAG ATTTTAAGCGGGATCGTGGCTCCTGTGCTGTCAACCG spacer length: 37
 repeater length: 24
 11469 401 GAATCTCTCAGATAGAATTGAAAG TTGCCTTTATCGGTAATGTATATTTTCCGGCTTACAT spacer length: 37
 repeater length: 24
 11470 462 GAATCTCTCAGATAGAATTGAAAG AACCATCCCCAAACATATTGAATACCGCTAAGTATAGC spacer length:
 38 repeater length: 24
 11471 524 GAATCTCTCAGATAGAATTGAAAG CTTGAGACCCCTTGCCCAACTCCTGCTGAAACACTTAT spacer length:
 38 repeater length: 24
 11472 586 GAATCTCTCAGATAGAATTGAAAG TATACAGACCATCTCTCAGCATCAGCTACAGCCAT spacer length: 37
 repeater length: 24
 11473 647 GAATCTCTCAGATAGAATTGAAAG AGAATTGTAAGTGAAGCAATCGCAACAACAATAACTAA spacer length:
 38 repeater length: 24
 11474 709 GAATCTCTCAGATAGAATTGAAAG AACTCTTCCATGTATTCAACCAAACTTTCCAAATCCT spacer length: 37
 repeater length: 24
 11475 770 GAATCTCTCAGATAGAATTGAAAG CAAGTGGCGG
 11476

11477
11478 crispr 2
11479 13207 CTTTCAATTCTATCTGAGAGATTC AGTGGGCTTACAAGACATTTTTAGTCTAAGAGAGAG spacer length:
36 repeater length: 24
11480 13267 CTTTCAATTCTATCTGAGAGATTC AAATCAAGCAATTATGTGAAAGCGGCAAGCTGGTCAG spacer length:
37 repeater length: 24
11481 13328 CTTTCAATTCTATCTGAGAGATTC AAATAGCTGATGCATTAGGGTCTTCATAACTATCACA spacer length:
38 repeater length: 24
11482 13390 CTTTCAATTCTATCTGAGAGATTC ATGTCGATATACTTATTTTTTCGCCTTTTGCCTTTTT spacer length:
37 repeater length: 24
11483 13451 CTTTCAATTCTATCTGAGAGATTC ACGTTAAGCGTGGCAGCACTTGAAGCAATATTCACAT spacer length:
37 repeater length: 24
11484 13512 CTTTCAATTCTATCTGAGAGATTC TGTGGGCTGGTAAATACTTCAAGCCGTGCTGCCGA spacer length:
36 repeater length: 24
11485 13572 CTTTCAATTCTATCTGAGAGATTC AAGTCAAGCCCTGTCCCAGCTATTTTTGTTGAGGCG spacer length:
36 repeater length: 24
11486 13632 CTTTCAATTCTATCTGAGAGATTC AACGCTGGCTTTAATGAATTGAATTTCTTCACCT spacer length: 34
repeater length: 24
11487 13690 CTTTCAATTCTATCTGAGAGATTC ATGGTGAAGTTGTTGAAGAACAGCCCGGTTTTATAAT spacer length:
37 repeater length: 24
11488 13751 CTTTCAATTCTATCTGAGAGATTC CGGAAGAAATAGCACAGCAAGTTAAGCTCATACTTGA spacer length:
37 repeater length: 24
11489 13812 CTTTCAATTCTATCTGAGAGATTC AACCCAAACCCCAAACCAAGTAAAAGATCCTAGAGC spacer length:
36 repeater length: 24
11490 13872 CTTTCAATTCTATCTGAGAGATTC GTAGTTCAAATTAGCGTTGATCAAATTATGGTGCCGGA spacer length:
38 repeater length: 24
11491 13934 CTTTCAATTCTATCTGAGAGATTC CAATGCGTTTGAATTTACTGAAATGCATTTGGTAATA spacer length:
37 repeater length: 24
11492 13995 CTTTCAATTCTATCTGAGAGATTC ACAGCATGGGATCCTTCAGCCTATCCAAGTTGCTCTCAC spacer
length: 39 repeater length: 24
11493 14058 CTTTCAATTCTATCTGAGAGATTC TACAAAATAATGCTAAAGTATTTGAAGCAGTTACAAAG spacer length:
38 repeater length: 24
11494 14120 CTTTCAATTCTATCTGAGAGATTC TCTCCCGTGA
11495
11496
11497 crispr 3
11498 55253 CTTTCAATTCTATCTAACAGATTC TTGAACAGTATGGGGGGGATCCTCGCGAGACCAATA spacer length:
36 repeater length: 24
11499 55313 CTTTCAATTCTATCTAACAGATTC CCCGCAGGCAGGCGATAGAAAACATTGTTAATGCGCT spacer length:
37 repeater length: 24
11500 55374 CTTTCAATTCTATCTAACAGATTC TAACCGGGCTGGTTTGTGCAGTATTCGACGGGATCG spacer length:
36 repeater length: 24
11501 55434 CTTTCAATTCTATCTAACAGATTC GCAATTTGCTAATTGCCACAAGAATAAAACAACACTACT spacer length:
37 repeater length: 24
11502 55495 CTTTCAATTCTATCTAACAGATTC AGCAGTCGGGCCACGTTAATCCGGGGCTAATTTCCCTTT spacer
length: 39 repeater length: 24
11503 55558 CTTTCAATTCTATCTAACAGATTC ACTCTCAATGTCAGCGTTACTAACTCGCAGCTAAATG spacer length:
37 repeater length: 24
11504 55619 CTTTCAATTCTATCTAACAGATTC TTGGTAGGCGCAATTACGTTTATTAGCCAACTGAACGC spacer length:
38 repeater length: 24
11505 55681 CTTTCAATTCTATCTAACAGATTC AGCTAAGCAACCGCAACAACAACAACAAGCACACTTGC spacer
length: 39 repeater length: 24
11506 55744 CTTTCAATTCTATCTAACAGATTC ACTACCTTTGGCAGGAGTTATACGAGAAGAACTAA spacer length:
36 repeater length: 24
11507 55804 CTTTCAATTCTATCTAACAGATTC AAAACAATCGAAGAGGACATAGAAAACCTTAAGAGAA spacer length:
37 repeater length: 24
11508 55865 CTTTCAATTCTATCTAACAGATTC GGATCCCCAGCGTTGACATATACGAAACGAACCTCGTC spacer length:
37 repeater length: 24
11509 55926 CTTTCAATTCTATCTAACAGATTC CGAAGACAAAAGTAAGCAAGATGAAATAGCGGATTT spacer length:
36 repeater length: 24
11510 55986 CTTTCAATTCTATCTAACAGATTC AATTTATCGCTGGCCAATACTCTTAAAGATCATGGCTT spacer length:
38 repeater length: 24
11511 56048 CTTTCAATTCTATCTAACAGATTC AAGCGTTATATTTGAGCTTACTATAGTAGCGTTCACAT spacer length:
38 repeater length: 24
11512 56110 CTTTCAATTCTATCTAACAGATTC CAGAGGGTAAGATAAACGAGGGGCTGATCGCCCTAT spacer length:
36 repeater length: 24
11513 56170 CTTTCAATTCTATCTAACAGATTC GTACAGGGC
11514
11515
11516 crispr 4
11517 61767 GAATCTGTTAGATAGAATTGAAAG TGAGGATGACTACATTGTAGTGCCTCCACAGAGACAGC spacer length:

38 repeater length: 24
 11518 61829 GAATCTGTTAGATAGAATTGAAAG TGTCAACTTCAAGCTGAATTACTTGCTGCTGATCGCT spacer length:
 37 repeater length: 24
 11519 61890 GAATCTGTTAGATAGAATTGAAAG TTTGTGCCACTTTTTGCGATCGGCGCGATTGTGCTAAAT spacer
 length: 39 repeater length: 24
 11520 61953 GAATCTGTTAGATAGAATTGAAAG AAATCCGCTATTTTCATCTTGCTTACTTTTGTCTTCG spacer length:
 36 repeater length: 24
 11521 62013 GAATCTGTTAGATAGAATTGAAAG GACGAGTTCGTTTCGTATATGTCAACGCTGGGGATCC spacer length:
 37 repeater length: 24
 11522 62074 GAATCTGTTAGATAGAATTGAAAG TTCTCTTAAGTTTTCTATGTCCTCTTCGATTGTTTTT spacer length:
 37 repeater length: 24
 11523 62135 GAATCTGTTAGATAGAATTGAAAG TTAGTTTCTTCTCGTATAACTCCTGCCAAAGGTAGT spacer length:
 36 repeater length: 24
 11524 62195 GAATCTGTTAGATAGAATTGAAAG GCAAGTGTGCTTTGTTGTTGTTGTTGCGGTTGCTTAGCT spacer
 length: 39 repeater length: 24
 11525 62258 GAATCTGTTAGATAGAATTGAAAG GCGTTCAGTTGGCTAATAAACGTAATTGCGCCTACCAA spacer length:
 38 repeater length: 24
 11526 62320 GAATCTGTTAGATAGAATTGAAAG CTCCAATGCCTGGGGCACTAGAGTTATTATTATTAT spacer length:
 36 repeater length: 24
 11527 62380 GAATCTGTTAGATAGAATTGAAAG TAATAACGAGGCCTTCGTTCTCGAGCTGTTTCAAAT spacer length:
 36 repeater length: 24
 11528 62440 GAATCTGTTAGATAGAATTGAAAG ACTCCTAGCCCAATATCAATTAATGCAAGTTCTGTAGA spacer length:
 38 repeater length: 24
 11529 62502 GAATCTGTTAGATAGAATTGAAAG TATAACATGCATCTTATCACCTAAGCTATCATCTTCCTG spacer
 length: 39 repeater length: 24
 11530 62565 GAATCTGTTAGATAGAATTGAAAG GCTTTAGATATCTCGTGTTTCCTTCAGATAGTATTTAA spacer length:
 37 repeater length: 24
 11531 62626 GAATCTGTTAGATAGAATTGAAAG CTTGTTATTTTTCTTGGCTAACGAGACTGTCTAAGT spacer length:
 37 repeater length: 24
 11532 62687 GAATCTGTTAGATAGAATTGAAAG TTAGACACGGCGAGACGCAGATAATACCCTGGACCGGA spacer length:
 38 repeater length: 24
 11533 62749 GAATCTGTTAGATAGAATTGAAAG TATCGTGCATAACGAGTTTAAAGAGTGAGTACCAATCGA spacer
 length: 39 repeater length: 24
 11534 62812 GAATCTGTTAGATAGAATTGAAAG TCAGATGAT
 11535
 11536
 11537 GCA_000263735.1_ASM26373v1_genomic.fna (PilerCR) :
 11538 START REPEAT
 SPACER
 11539 crispr 1
 11540 110558 GTTTCGGAAGAACTAAATAGTATGGAAAG TTTCCCTTATCTCATACATTGCCGATCACCAATTGTATG spacer
 length: 39 repeater length: 29
 11541 110626 GTTTCGGAAGAACTAAATAGTATGGAAAG CTGGTAAATGGTGGGTCGGTCGGTAATACTAGCGAGCAGCAAA
 spacer length: 43 repeater length: 29
 11542 110698 GTTTCGGAAGAACTAAATAGTATGGAAAG AGATTACCGTCAATTCTATATGTAATACTACTGCGAACCACCA
 spacer length: 41 repeater length: 29
 11543 110768 GTTTCGGAAGAACTAAATAGTATGGAAAG ACGTTGCCTGCTCGACTGATATAATGCCATCTCTAACCG spacer
 length: 39 repeater length: 29
 11544 110836 GTTTCGGAAGAACTAAATAGTATGGAAAG TGTCCAATTCTCTTTTATGTCTTTTGAAAACAAATCA spacer
 length: 37 repeater length: 29
 11545 110902 GTTTCGGAAGAACTAAATAGTATGGAAAG CCCTCTTCAAAAACGCTAACCACTCAGATATCCAA spacer
 length: 36 repeater length: 29
 11546 110967 GTTTCGGAAGAACTAAATAGTATGGAAAG TTGTCCATCGGGTGCAGCACCCATGTACATTTTTTGTG spacer
 length: 37 repeater length: 29
 11547 111033 GTTTCGGAAGAACTAAATAGTATGGAAAG GACTTCAAGGATAACAAAATCGCCGAGGTTGGTTTTCTGGGCA
 spacer length: 43 repeater length: 29
 11548 111105 GTTTCGGAAGAACTAAATAGTATGGAAAG GATCATATCC
 11549
 11550
 11551 crispr 2
 11552 154587 GTTCCAATAAGACTATAAGAGAATTGAAAG CAAGAGGATCCAGAAGCCAGCTGATGAGCGTCTCTGGGTTCCA
 spacer length: 43 repeater length: 30
 11553 154660 GTTCCAATAAGACTATAAGAGAATTGAAAG GGGGCTGTAAAAGGGCTGAAAAAGAGGCTATGGGG spacer
 length: 36 repeater length: 30
 11554 154726 GTTCCAATAAGACTATAAGAGAATTGAAAG ATTCGCCAGAAAAGCCGAAGAAGAACTCAAAACCTTC spacer
 length: 37 repeater length: 30
 11555 154793 GTTCCAATAAGACTATAAGAGAATTGAAAG CTCTTAAACTGACTTATTATCTCAGATTTGGCTCCAG spacer
 length: 37 repeater length: 30
 11556 154860 GTTCCAATAAGACTATAAGAGAATTGAAAG TATTTTCAACAAATAAGACATAGAAAGCAAGAGCTTTAT spacer
 length: 39 repeater length: 30
 11557 154929 GTTCCAATAAGACTATAAGAGAATTGAAAG GAACTGTGCTGGCTCGGAGAGCTTCTTGGCGCCGGCG spacer

length: 37 repeater length: 30
11558 154996 GTTCCAATAAGACTATAAGAGAATTGAAAG TGGGCTCGATTTTCATCCCATGGGGGCTACTGATAATC spacer
length: 37 repeater length: 30
11559 155063 GTTCCAATAAGACTATAAGAGAATTGAAAG CTCGCAGTT
11560
11561
11562 crispr 3
11563 155198 GTTCCAATAAGACT-AAAAAAGAATTGAAAG GTGGAATCCTATCAATTTTCGTTTCGCGGAGGCTCTA spacer
length: 36 repeater length: 31
11564 155265 GTTCCAATAAGACT-AAAAAAGAATTGAAAG TCATAGATAAGGGATTCTCCCTCATGGTATCTTGTTCAT spacer
length: 38 repeater length: 31
11565 155334 GTTCCAATAAGACT-AAAAAAGAATTGAAAG CTCTTCCTTACCAGTCTGTCTGTCCTTGTAGACCGCCC spacer
length: 38 repeater length: 31
11566 155403 GTTCCAATAAGACT-AAAAAAGAATTGAAAG CCAGGTGTTGGAGGAGATGGGGAGGGCTTCTTTAGGG spacer
length: 37 repeater length: 31
11567 155471 GTTCCAATAAGACT-AAAAAAGAATTGAAAG TCGGACATCGA
11568
11569
11570 crispr 4
11571 800423 CTTTCAATTC-TTTTTTAGTCTTATTGGAAC AAAAATCGGAGTGGACATAAACACGGACAAGCTCGC spacer
length: 37 repeater length: 31
11572 800491 CTTTCAATTC-TTTTTTAGTCTTATTGGAAC TTTACGTCTCGGACATTGACTCAGTTATGATGCAGTATT
spacer length: 39 repeater length: 31
11573 800561 CTTTCAATTC-TTTTTTAGTCTTATTGGAAC TAGCCGCTGAGGAGAAGTGGGCAAAGAGGATCATGC spacer
length: 36 repeater length: 31
11574 800628 CTTTCAATTC-TTTTTTAGTCTTATTGGAAC TACAAGCCGATAGAAGGAGACAGAACCCAGCAACCCT spacer
length: 38 repeater length: 31
11575 800697 CTTTCAATTC-TTTTTTAGTCTTATTGGAAC TAAGCTTAAATCCCTCTGGAGTTATGTCGTAAATGTA spacer
length: 37 repeater length: 31
11576 800765 CTTTCAATTC-TTTTTTAGTCTTATTGGAAC ACAACTCCGGT
11577
11578
11579 crispr 5
11580 800828 TTTCAATTCTCTTATAGTCTTATTGGAAC TTGATGCTCCTTCTAAGCCTGTTGAGATACATAAGAAC spacer
length: 38 repeater length: 29
11581 800895 TTTCAATTCTCTTATAGTCTTATTGGAAC TCGAATGGGTCTCTAAAAATCAGGGGGATGTTGAAATAAC spacer
length: 40 repeater length: 29
11582 800964 TTTCAATTCTCTTATAGTCTTATTGGAAC GCCGAGGCCCCACCCGGGGGCCGGGGGAACCCCCAAGC spacer
length: 38 repeater length: 29
11583 801031 TTTCAATTCTCTTATAGTCTTATTGGAAC AAGATCTACCTCCACAATGTCCCATCCTTAATTCCCA spacer
length: 38 repeater length: 29
11584 801098 TTTCAATTCTCTTATAGTCTTATTGGAAC CAAAAACATCCTTATACGGGTGCAACACTCCACCGACA spacer
length: 38 repeater length: 29
11585 801165 TTTCAATTCTCTTATAGTCTTATTGGAAC GCGAGATCCTAAGGGACAAGTACGGCTTTGACTTTTCGGA spacer
length: 40 repeater length: 29
11586 801234 TTTCAATTCTCTTATAGTCTTATTGGAAC CTTATGTCAGGTACTATTCTCCTGATTATCATACTGAATA spacer
length: 40 repeater length: 29
11587 801303 TTTCAATTCTCTTATAGTCTTATTGGAAC GCTGTGCGGG
11588
11589
11590 crispr 6
11591 987458 CTTTCCATACTATTTAGTTCTTCGGAAAC TTCAGAATACTGTAAGAGGGACACCGAGATTGTCCTAAGGTTCGT
spacer length: 45 repeater length: 29
11592 987532 CTTTCCATACTATTTAGTTCTTCGGAAAC CCTTTCTTTGGGGGTGTTGTTGTGCAGGTGATTTTTCC spacer
length: 38 repeater length: 29
11593 987599 CTTTCCATACTATTTAGTTCTTCGGAAAC AAGTGATGACACCGGACGTTGAGCCACCCAACAACCTT spacer
length: 37 repeater length: 29
11594 987665 CTTTCCATACTATTTAGTTCTTCGGAAAC TTGATGAGCTGGGGCCGGTAGGGGCCCCAGACAGCA spacer
length: 36 repeater length: 29
11595 987730 CTTTCCATACTATTTAGTTCTTCGGAAAC AAGTTCTAGGTATGAAAGAGATTGCCTTGTCTGTTTGTCTGTTT
spacer length: 44 repeater length: 29
11596 987803 CTTTCCATACTATTTAGTTCTTCGGAAAC AAGGCCAGGGAGGTCGGGAAGCGCTTGATCGGCGGT spacer
length: 36 repeater length: 29
11597 987868 CTTTCCATACTATTTAGTTCTTCGGAAAC ATGAGTTATATGAAGAGTTTAATGATTACATTCAAAGCAAAT
spacer length: 43 repeater length: 29
11598 987940 CTTTCCATACTATTTAGTTCTTCGGAAAC TCTTCACTTCAACCCCAGAATACCTAACAAGGTCAG spacer
length: 36 repeater length: 29
11599 988005 CTTTCCATACTATTTAGTTCTTCGGAAAC
CTAAATAGTATGGAAAGCACCAGGAGGCGGTAAACTCATAATCACTCGGCAACC spacer length: 54 repeater
length: 29
11600 988088 CTTTCCATACTATTTAGTTCTTCGGAAAC TGTAAACCACATAGAATAGTAAAGTGAGCCTGGGCGTAA spacer

length: 38 repeater length: 29
988155 CTTTCCATACTATTTAGTTCTTCGGAAAC ATGAACGGAT

crispr 7

1081854 GTTCCAATAAGACT-AAAAAAGAATTGAAAG GGAGTCAATGTTGCACTCAATACGTGACATTAGACACGG
spacer length: 39 repeater length: 31
1081924 GTTCCAATAAGACT-AAAAAAGAATTGAAAG GGTATCCAAATAGCTTGAAAAACCGACAAGCCATCCT spacer
length: 37 repeater length: 31
1081992 GTTCCAATAAGACT-AAAAAAGAATTGAAAG TACATCGACACGAGCGAATACTACCACATCGAGGCAA spacer
length: 37 repeater length: 31
1082060 GTTCCAATAAGACT-AAAAAAGAATTGAAAG CCGTGTCTCTGTAGTAGTATAATAAACCTGGGCGTC spacer
length: 37 repeater length: 31
1082128 GTTCCAATAAGACT-AAAAAAGAATTGAAAG ATGAGCCCTCCTTTTGACGGCTTGGTACTTTGGTACGCCCC
spacer length: 41 repeater length: 31
1082200 GTTCCAATAAGACT-AAAAAAGAATTGAAAG TCTTCAATCATGTTCTCAATGGAATAGACGTCTATAA spacer
length: 37 repeater length: 31
1082268 GTTCCAATAAGACT-AAAAAAGAATTGAAAG GAGGAGGTAGCAAATGCGATTTGGAATGTGAACTGA spacer
length: 37 repeater length: 31
1082336 GTTCCAATAAGACT-AAAAAAGAATTGAAAG CGTGGTTCTGGAGTATCTTACCCTCGAGCTGCGGGTTTG
spacer length: 39 repeater length: 31
1082406 GTTCCAATAAGACT-AAAAAAGAATTGAAAG GCCGATTCAGTTCGAGACTGTGAGGCAGTCAGGAAGT spacer
length: 37 repeater length: 31
1082474 GTTCCAATAAGACT-AAAAAAGAATTGAAAG CCGCAGAACA

crispr 8

1466644 CTTTCCATACTATTTAGTTCTTCGGAAAC AGTGGCCTTGCAGAGAATACTCAGAATAGAGATAGTTACCGAGGA
spacer length: 45 repeater length: 29
1466718 CTTTCCATACTATTTAGTTCTTCGGAAAC AAGAAGTATTATAGAGCGTTGAGGAATGGTAAGCAGGTTTTGTG
spacer length: 44 repeater length: 29
1466791 CTTTCCATACTATTTAGTTCTTCGGAAAC ACGAAAACACCCCATTGGGAGGCGTTACGTTTCTTTGACGGTGAT
spacer length: 45 repeater length: 29
1466865 CTTTCCATACTATTTAGTTCTTCGGAAAC TTGTGTCGTCATGGAGATACTCTTTTACATATAAGTTTTTCGG
spacer length: 42 repeater length: 29
1466936 CTTTCCATACTATTTAGTTCTTCGGAAAC CGGCTCCTGACGTCTTTATTTTTTTTGCACCCTCTTA spacer
length: 36 repeater length: 29
1467001 CTTTCCATACTATTTAGTTCTTCGGAAAC CGACGAAGA

crispr 9

1689949 GTTCCAATAAGACT-AAAAAAGAATTGAAAG TTTGGCTGAAACTCTTCTGAGAGAGCCGCTATTTTTT spacer
length: 36 repeater length: 31
1690016 GTTCCAATAAGACT-AAAAAAGAATTGAAAG ATGTAGAACTTAGGGCACCAGCTACAGGGTTTTTTGAAGTAGA
spacer length: 43 repeater length: 31
1690090 GTTCCAATAAGACT-AAAAAAGAATTGAAAG TGGCTAAATGGTGGTCCGCTTGTGATGATCATTAGT spacer
length: 36 repeater length: 31
1690157 GTTCCAATAAGACT-AAAAAAGAATTGAAAG GTATATGGGAGTGTTATTTCTTGCCCACTTTCTATTT spacer
length: 37 repeater length: 31
1690225 GTTCCAATAAGACT-AAAAAAGAATTGAAAG CCGATGACGCCTGCCTTCTCAGCCTCGTCCTGCTTGA spacer
length: 37 repeater length: 31
1690293 GTTCCAATAAGACT-AAAAAAGAATTGAAAG GAACTTTATCTTGTCAATCAGCCAGCCTATTGCTCCT spacer
length: 37 repeater length: 31
1690361 GTTCCAATAAGACT-AAAAAAGAATTGAAAG CTGCATTTCAGCGAAGCAATATCTCCTGACTTCCAGT spacer
length: 36 repeater length: 31
1690428 GTTCCAATAAGACT-AAAAAAGAATTGAAAG GGGACTTTAAGCGGAAGGTTGATCCCAGGCTCTACAT spacer
length: 37 repeater length: 31
1690496 GTTCCAATAAGACT-AAAAAAGAATTGAAAG

GCA_000264495.1_ASM26449v1_genomic.fna (PilerCR):

START REPEAT

SPACER

crispr 1

967782 CTTTCAATTCTTCTTGATTGCTTC ACAGTAGCACTAGCGACGGCGTTACCGCGTATGAGTTGAAAG spacer
length: 43 repeater length: 24
967849 CTTTCAATTCTTCTTGATTGCTTC ACGTTAGGATCGAGATTGTACACGTTTATGTGCGACGGATC spacer
length: 41 repeater length: 24
967914 CTTTCAATTCTTCTTGATTGCTTC AGGAAAGAGATCACAGCAATCATCGCCTCACTAATACTCGTAATAAT
spacer length: 47 repeater length: 24
967985 CTTTCAATTCTTCTTGATTGCTTC TCGTGTGGGCGTACTGTGACTACCACAAGAAGTACGACATATGTA spacer

length: 45 repeater length: 24
11645 968054 CTTTCAATTCTTCTTGATTGCTTC CTTCTGCAGGCACGCATCCAGTGTAGCGTACTCGCTCAAG spacer
length: 40 repeater length: 24
11646 968118 CTTTCAATTCTTCTTGATTGCTTC ACCGAGGAGCAGAAGAAGGTGCTGGACGCCCTCAACGAGCTGATCC
spacer length: 46 repeater length: 24
11647 968188 CTTTCAATTCTTCTTGATTGCTTC TTGTTACAGAGTTGGTTGTAGTACTCCGTCAGGAGATATCTGATTA
spacer length: 46 repeater length: 24
11648 968258 CTTTCAATTCTTCTTGATTGCTTC GGCTGTGACGCGGAGGAGGGACATCCTAGATGCGTAC spacer length:
37 repeater length: 24
11649 968319 CTTTCAATTCTTCTTGATTGCTTC TTTCTGGAGGCGCGTGGAGGACCTTCTAAAAGACATTTAC spacer
length: 41 repeater length: 24
11650 968384 CTTTCAATTCTTCTTGATTGCTTC ATGAGTTGATCAACAAATACAATAAGGGCGAGTTGATCCCT spacer
length: 41 repeater length: 24
11651 968449 CTTTCAATTCTTCTTGATTGCTTC TAGTAGTCCCTCGCAGTTCTCAACGTGTACGTAAACATGCC spacer
length: 41 repeater length: 24
11652 968514 CTTTCAATTCTTCTTGATTGCTTC TGGCAGAGAGGTAGGGCGTGAACCTCGAGACGAGAATACTCGT spacer
length: 43 repeater length: 24
11653 968581 CTTTCAATTCTTCTTGATTGCTTC AGAAAATGTATGTCCGCACATACCCAAGGAATACATAGAAA spacer
length: 41 repeater length: 24
11654 968646 CTTTCAATTCTTCTTGATTGCTTC TCACTGGCGTCAAGAAGAGGTACGTGGCTCACGTGGTCTGGG spacer
length: 42 repeater length: 24
11655 968712 CTTTCAATTCTTCTTGATTGCTTC ACCTCCTGGCAGAGGCTGACGCCCTGCTCAAGAAGCAGGAGAT spacer
length: 43 repeater length: 24
11656 968779 CTTTCAATTCTTCTTGATTGCTTC CTCACCTAGGGGTCGTCCTCGTAGTCGTCGTCCTCGTAGTCCT spacer
length: 43 repeater length: 24
11657 968846 CTTTCAATTCTTCTTGATTGCTTC ATTGAAGACTATCTTGTCTCGTCCACACCCTTGATGCACTCCGAT
spacer length: 46 repeater length: 24
11658 968916 CTTTCAATTCTTCTTGATTGCTTC ACGGGTGTCAAGAAGGGCGAATGGGGCGCGGGAAAAAAA spacer
length: 40 repeater length: 24
11659 968980 CTTTCAATTCTTCTTGATTGCTTC AATATCGGCGAGAACGCGTTTCGTATCGCGTCGAAGATACCGCCGA
spacer length: 46 repeater length: 24
11660 969050 CTTTCAATTCTTCTTGATTGCTTC TTGAGATGCGTTAGGTTAATTAGCCCGCATTAACTGTATATAAT spacer
length: 44 repeater length: 24
11661 969118 CTTTCAATTCTTCTTGATTGCTTC
TAATTCACCTGTTGTACCCGCTCCAGTCCTCCTCCACCCTGAAGTACTTCCGCG spacer length: 55 repeater
length: 24
11662 969197 CTTTCAATTCTTCTTGATTGCTTC ACTAGAAGTGTATCGTGATGTTCTGTGGTGGTACCACGATC spacer
length: 41 repeater length: 24
11663 969262 CTTTCAATTCTTCTTGATTGCTTC ACCCTATCACCGTGAGAAGTTATGTGTTAGAGGGAAAAA spacer
length: 39 repeater length: 24
11664 969325 CTTTCAATTCTTCTTGATTGCTTC TTCTTTCAGTTTTTTCATAGGTGGGAGTCCTAACATAGATTG spacer
length: 41 repeater length: 24
11665 969390 CTTTCAATTCTTCTTGATTGCTTC GATAGAGAAGCCGAGCTGGCTCGACCCGATTCTGCGAGACTA spacer
length: 42 repeater length: 24
11666 969456 CTTTCAATTCTTCTTGATTGCTTC GCCTGGGTGCTGACGCGCCAAGGCATCGAGATAAACGTC spacer
length: 39 repeater length: 24
11667 969519 CTTTCAATTCTTCTTGATTGCTTC ATGCTGTGTGGAAGGCGGCGCACAAGAGGCTCGGCCCCGATAC spacer
length: 42 repeater length: 24
11668 969585 CTTTCAATTCTTCTTGATTGCTTC TCGACTCCTCGAGCTCTGCTAATATCTCCTCGTCGAGAACCG spacer
length: 42 repeater length: 24
11669 969651 CTTTCAATTCTTCTTGATTGCTTC ATGGTGAGGCTGTAATCAATGGACGCAGAATTGTATTCCCATAC spacer
length: 44 repeater length: 24
11670 969719 CTTTCAATTCTTCTTGATTGCTTC CTGTACTCGTGAAGCTGGTTCACGACAGTTTTAATTTTCGCG spacer
length: 42 repeater length: 24
11671 969785 CTTTCAATTCTTCTTGATTGCTTC AGCCAAAAAGCTGGAGCTATACATGGGCTTTATGCTAAGCGGTAAA
spacer length: 46 repeater length: 24
11672 969855 CTTTCAATTCTTCTTGATTGCTTC CCGGGATAGACGTGGACAAATACGCCGACTCGATACTGGAGCTGACA
spacer length: 47 repeater length: 24
11673 969926 CTTTCAATTCTTCTTGATTGCTTC TTAATGTACGCCACTTTTCGGGCGGTACACGTATCTTTGTTT spacer
length: 42 repeater length: 24
11674 969992 CTTTCAATTCTTCTTGATTGCTTC GGCGACGGAAATAGTTAAATCGGAGTGCGAGGTGTTAAAGACTTGC
spacer length: 46 repeater length: 24
11675 970062 CTTTCAATTCTTCTTGATTGCTTC AGCTACCATGCGGATAACTAACTCCGACTCGGCGGCTAGG spacer
length: 41 repeater length: 24
11676 970127 CTTTCAATTCTTCTTGATTGCTTC TGGTGCCTCGAAGCGTACGAGGCGGGGCTGAAATATGCTGGCGGCG
spacer length: 46 repeater length: 24
11677 970197 CTTTCAATTCTTCTTGATTGCTTC AGAACCTGGCCACGCGAGAGGAGGCGGCAGAGATACTGCGTCACCA
spacer length: 46 repeater length: 24
11678 970267 CTTTCAATTCTTCTTGATTGCTTC AAGTATTTTAACTACTGATCCAAGCCTCATTCATCTAAC spacer
length: 42 repeater length: 24
11679 970333 CTTTCAATTCTTCTTGATTGCTTC TCGCGCGCGTGGGCGCCACCACAGCTGTGTACGCCAAGA spacer

length: 39 repeater length: 24
11680 970396 CTTTCAATTCTTCTTGATTGCTTC GTTGCGGATGTCGAGTTCGAAAGCGGCAGGCACGCGGTC spacer
length: 39 repeater length: 24
11681 970459 CTTTCAATTCTTCTTGATTGCTTC GTCAACGAGGTAGGAGTCTTGGAGCTTTGGATATTCAAATTG spacer
length: 43 repeater length: 24
11682 970526 CTTTCAATTCTTCTTGATTGCTTC TTCCAAGCCGTAGAGCGTGATAAGACCAATGAACACTATAA spacer
length: 41 repeater length: 24
11683 970591 CTTTCAATTCTTCTTGATTGCTTC CCCCAGAAACACTTTTTTTCATCGCGGGTAATATTCCCTG spacer
length: 41 repeater length: 24
11684 970656 CTTTCAATTCTTCTTGATTGCTTC CCCGTCTTCTTCGACGCCGTGTACACCACGTAAAGCTTAT spacer
length: 40 repeater length: 24
11685 970720 CTTTCAATTCTTCTTGATTGCTTC CCCACGACCTTCAAGGCAACACACCCCCACAAGCTTATTAGCC spacer
length: 43 repeater length: 24
11686 970787 CTTTCAATTCTTCTTGATTGCTTC ATCGGGCCGAGGCGCTTGTGCGCCGCTTCCACACAGCATTAG spacer
length: 43 repeater length: 24
11687 970854 CTTTCAATTCTTCTTGATTGCTTC ACGTCGAGCAGGCTGTAAACCCGGGCTATTTAGCCGTGAACCT spacer
length: 43 repeater length: 24
11688 970921 CTTTCAATTCTTCTTGATTGCTTC TGAGGAGGTACCAGCCGCCAGACTGGTGGAAACATACCTGCC spacer
length: 41 repeater length: 24
11689 970986 CTTTCAATTCTTCTTGATTGCTTC GTCATACTCG
11690
11691
11692 crispr 2
11693 974999 GAAGCAATCAAGAAGAATTGAAAG CGGACACCACAGCTGTGGCACCACAGGCTACGGCACAGGCTCCG spacer
length: 44 repeater length: 24
11694 975067 GAAGCAATCAAGAAGAATTGAAAG ACGATCGAGGAGGTCACGATACGAGACCCGGTAACTAAGCAGC spacer
length: 43 repeater length: 24
11695 975134 GAAGCAATCAAGAAGAATTGAAAG GAACTCGATCATTGCGACCTGGCCTCAGTGCTTGCCTTCTTC spacer
length: 43 repeater length: 24
11696 975201 GAAGCAATCAAGAAGAATTGAAAG GCATAGCCGAGCTCGCCGAGACCAGGCTGAAGGGGGGTGCGGGCA spacer
length: 45 repeater length: 24
11697 975270 GAAGCAATCAAGAAGAATTGAAAG CGAGCATCTGCTTGAAAGCCGTGAACAATCCGAGCTCGGGGTATG spacer
length: 45 repeater length: 24
11698 975339 GAAGCAATCAAGAAGAATTGAAAG AGCACTTGACTCGCTCTAGAGAAGTCGTAGCCATACTCAT spacer
length: 40 repeater length: 24
11699 975403 GAAGCAATCAAGAAGAATTGAAAG TACAAGGTGATGGAAGAGGCCGCTACACCACTCCGAGCC spacer
length: 40 repeater length: 24
11700 975467 GAAGCAATCAAGAAGAATTGAAAG TTAGTACTGGTTTACCATCGGTTGTTGTAAAGTACTCTACTTT spacer
length: 43 repeater length: 24
11701 975534 GAAGCAATCAAGAAGAATTGAAAG CATTTTTACCTTCGCCCCCTACGGTAAAGAATAGCCGTGGA spacer
length: 41 repeater length: 24
11702 975599 GAAGCAATCAAGAAGAATTGAAAG TTACTAAGTCTTGAACAGCTTTCCGCGTTCATTGAGTAGTAG spacer
length: 43 repeater length: 24
11703 975666 GAAGCAATCAAGAAGAATTGAAAG CCTTAGAGCTCTTGAAGGGGATGACAATCCTGTCTCCT spacer
length: 39 repeater length: 24
11704 975729 GAAGCAATCAAGAAGAATTGAAAG GTTTAGCGTCGTGTCTGAAGATTCGTATTCTGTCGAAGATTC spacer
length: 41 repeater length: 24
11705 975794 GAAGCAATCAAGAAGAATTGAAAG ACTTGAGAGTAGCCTCGTGAGTTTAGCATAAACATACTCA spacer
length: 40 repeater length: 24
11706 975858 GAAGCAATCAAGAAGAATTGAAAG CGGGGACGGAGAGCAGCTCGTCTTCGACGAAGTGTACGAGC spacer
length: 41 repeater length: 24
11707 975923 GAAGCAATCAAGAAGAATTGAAAG ACTCCATGATACAAAAACGCCCTTTCAAATTTCCCTCCTTTAG spacer
length: 43 repeater length: 24
11708 975990 GAAGCAATCAAGAAGAATTGAAAG GGCGACTACTACGACTACGAGTGGAATCTTCAACGAATAT spacer
length: 42 repeater length: 24
11709 976056 GAAGCAATCAAGAAGAATTGAAAG TCAGCTAACCCATCACTCACTATTGGAACACAACATACACCATCCCAGT
spacer length: 50 repeater length: 24
11710 976130 GAAGCAATCAAGAAGAATTGAAAG ACTACCGCATATTGACCAGCCTGACCCAACCAGAGGTTAAACAG spacer
length: 44 repeater length: 24
11711 976198 GAAGCAATCAAGAAGAATTGAAAG TTTTACCCCAGTCAAACAGGACATCTATAATGTGATACTT spacer
length: 40 repeater length: 24
11712 976262 GAAGCAATCAAGAAGAATTGAAAG TTTATGGTGTGGACCGCTACACGTACCCGCGTTTCACAGT spacer
length: 41 repeater length: 24
11713 976327 GAAGCAATCAAGAAGAATTGAAAG GTACTTTTTCCAGTCTTCAAGACCCACGGATCCTTAA spacer
length: 38 repeater length: 24
11714 976389 GAAGCAATCAAGAAGAATTGAAAG TTTTTTAAATATAAGTTGCATACCCTTCTCCTAGGTGATGAGG spacer
length: 43 repeater length: 24
11715 976456 GAAGCAATCAAGAAGAATTGAAAG AGACAGATAATCATTCACCCCAAGAACATCACGGTGCCTT spacer
length: 41 repeater length: 24
11716 976521 GAAGCAATCAAGAAGAATTGAAAG TTCCACGGGAGTCGCCTTTTATTCTTATTTATAAATATTTA spacer
length: 41 repeater length: 24

11717 976586 GAAGCAATCAAGAAGAATTGAAAG AAGAAGAGCT
 11718
 11719
 11720 GCA_000265525.1_ASM26552v1_genomic.fna (PilerCR) :
 11721 START REPEAT
 SPACER
 11722 crispr 1
 11723 47 GTTGCAATAAGACTCTGGGAGAATTGAAA CATTAGTATCACGGGCAGGCTTATCGCCCCCTGCTACTA spacer
 length: 38 repeater length: 29
 11724 114 GTTGCAATAAGACTCTGGGAGAATTGAAA CTAGAGTATCACTTGCTCCACGCCATTGGCTTTAGCCTCA spacer
 length: 40 repeater length: 29
 11725 183 GTTGCAATAAGACTCTGGGAGAATTGAAA CTAAGCATTTTTTGCCTTCGTGTCGTATGTAGTCTTAA spacer
 length: 38 repeater length: 29
 11726 250 GTTGCAATAAGACTCTGGGAGAATTGAAA CCTGGCAACAGCATAAAGTACTGCCACCTGTTACCAA spacer
 length: 38 repeater length: 29
 11727 317 GTTGCAATAAGACTCTGGGAGAATTGAAA CGGCTGCCCCCTGGGTACTCTATTACCGCTGCCGTCCTA spacer
 length: 39 repeater length: 29
 11728 385 GTTGCAATAAGACTCTGGGAGAATTGAAA CAGTTTAAGAAGGCCGTTTACGACGGAGAGGGCTTTT spacer
 length: 37 repeater length: 29
 11729 451 GTTGCAATAAGACTCTGGGAGAATTGAAA CGTTGGCGGCATGAGCGTGGGCGAGGGCATCGTGAAC spacer
 length: 37 repeater length: 29
 11730 517 GTTGCAATAAGACTCTGGGAGAATTGAAA CATAATCCTTTTGTGTATAGTTCACTACTCTTAATGT spacer
 length: 39 repeater length: 29
 11731 585 GTTGCAATAAGACTCTGGGAGAATTGAAA CCTGATTACGGAAACATATCCGATATCCTTATTAAATA
 11732
 11733
 11734 crispr 2
 11735 100515 TTTCAATTCTCCCAGAGTCTTATTGCAAC GTGATGACGCCCCACCACATCTTTTTAGTTTATGTTAC spacer
 length: 38 repeater length: 29
 11736 100582 TTTCAATTCTCCCAGAGTCTTATTGCAAC GGGCTTCATGAACGGCTCATTCTCCTTTCAATTCTTC spacer
 length: 37 repeater length: 29
 11737 100648 TTTCAATTCTCCCAGAGTCTTATTGCAAC CAGCTTTGAAATGCTCGCGAGGAAGTTCGACATCCCCAC spacer
 length: 39 repeater length: 29
 11738 100716 TTTCAATTCTCCCAGAGTCTTATTGCAAC CTGGGTTGGCGTCAAGATAATACAATGCCCCCTCCCC spacer
 length: 37 repeater length: 29
 11739 100782 TTTCAATTCTCCCAGAGTCTTATTGCAAC TGTGCTGTGGGCCTTTGCAAAGACTCTCTCCTATGTCAC spacer
 length: 39 repeater length: 29
 11740 100850 TTTCAATTCTCCCAGAGTCTTATTGCAAC CTGCCTACCGTAACGGCCTTGGTAAACTGCGTTTCCCC spacer
 length: 38 repeater length: 29
 11741 100917 TTTCAATTCTCCCAGAGTCTTATTGCAAC GAAGCGGTTGATTTGGCTCAACCGCTCATCAACGTA spacer
 length: 36 repeater length: 29
 11742 100982 TTTCAATTCTCCCAGAGTCTTATTGCAAC GCGAAAATTTTGGATTTTTTGGCACAGAAAGTTAGCAA spacer
 length: 38 repeater length: 29
 11743 101049 TTTCAATTCTCCCAGAGTCTTATTGCAAC ACACCACGGTCGCCCACCTTCCGCTCAATCCTGAA spacer
 length: 35 repeater length: 29
 11744 101113 TTTCAATTCTCCCAGAGTCTTATTGCAAC TCAAAAACAAAACCACCGTTCCCGCCGTTCCCCTTATA spacer
 length: 38 repeater length: 29
 11745 101180 TTTCAATTCTCCCAGAGTCTTATTGCAAC CCATCATAACCGCCATACTACTCCCCAACATAACCA spacer
 length: 36 repeater length: 29
 11746 101245 TTTCAATTCTCCCAGAGTCTTATTGCAAC TAGCGGCTGACCCACAAGTTAAAGCCGCTAATCTGGTA spacer
 length: 38 repeater length: 29
 11747 101312 TTTCAATTCTCCCAGAGTCTTATTGCAAC CTCTCTTCTTATAAAAGGTTTACTTCCAGTGAACACCA spacer
 length: 39 repeater length: 29
 11748 101380 TTTCAATTCTCCCAGAGTCTTATTGCAAC TCCATGGCCCCGGCCAATGCGATGAACGCGTCGGCCAA spacer
 length: 38 repeater length: 29
 11749 101447 TTTCAATTCTCCCAGAGTCTTATTGCAAC AGAGATAAAGGGGAAAGCCGCTACAAACCTGGAAAAA spacer
 length: 37 repeater length: 29
 11750 101513 TTTCAATTCTCCCAGAGTCTTATTGCAAC ACCGCCGACTACAAGTTCTACATCGTGCCGAATCCA spacer
 length: 36 repeater length: 29
 11751 101578 TTTCAATTCTCCCAGAGTCTTATTGCAAC AAAATCCTTGAGCGCGTGTTCAGGAGGCAGTGAAGACA spacer
 length: 39 repeater length: 29
 11752 101646 TTTCAATTCTCCCAGAGTCTTATTGCAAC CCGCTATGGCGAGTATCCCTACACTTGCCTGCAACTCA spacer
 length: 38 repeater length: 29
 11753 101713 TTTCAATTCTCCCAGAGTCTTATTGCAAC GGGCGCTCAAGACTGCTTTATGATAAAACCCCGATACTA spacer
 length: 39 repeater length: 29
 11754 101781 TTTCAATTCTCCCAGAGTCTTATTGCAAC GCGCAGTAAAAACAGTGCCCGACTGCCTGGAATAATGCA spacer
 length: 39 repeater length: 29
 11755 101849 TTTCAATTCTCCCAGAGTCTTATTGCAAC CTCTGGCCTTGGCCTTATCTTTAACCTTCAGCTTCAA spacer
 length: 37 repeater length: 29
 11756 101915 TTTCAATTCTCCCAGAGTCTTATTGCAAC TTCCGTTCTGCTTGAAGTATTCAACGATAAATTCAA spacer
 length: 36 repeater length: 29

11757 101980 TTTCAATTCTCCCAGAGTCTTATTGCAAC AGGACGTTGAGCGGGTGAGGGAAGTCTGAGGGAGACTTTA spacer
length: 38 repeater length: 29
11758 102047 TTTCAATTCTCCCAGAGTCTTATTGCAAC AGCCTCTTATGCACTGAACCAGAATTCTCCAGAATTCA spacer
length: 38 repeater length: 29
11759 102114 TTTCAATTCTCCCAGAGTCTTATTGCAAC AAAATCCTTGAGCGCGTGTTCAGGAGGCAGTGAAGACA spacer
length: 39 repeater length: 29
11760 102182 TTTCAATTCTCCCAGAGTCTTATTGCAAC GCTTAAGTAGGCGTTGCCTTCTTTTGTACATAATAA spacer
length: 37 repeater length: 29
11761 102248 TTTCAATTCTCCCAGAGTCTTATTGCAAC ACCTTATCTCTCTCACTCATTCTCGCTCACCTCTCGA spacer
length: 37 repeater length: 29
11762 102314 TTTCAATTCTCCCAGAGTCTTATTGCAAC CATCTTGCCGTCTTTCTGCTAAGTTGGTGGCAAATTCA spacer
length: 38 repeater length: 29
11763 102381 TTTCAATTCTCCCAGAGTCTTATTGCAAC CGAGACAGACGTTCCAAATAAAATGGAACAGAAA spacer
length: 34 repeater length: 29
11764 102444 TTTCAATTCTCCCAGAGTCTTATTGCAAC TTCTGGAGGTTTGGACTAAGGAGGCTGACGGCCACCCCA spacer
length: 39 repeater length: 29
11765 102512 TTTCAATTCTCCCAGAGTCTTATTGCAAC GACCATCGCCGAAGCCTGCCCTTGTGTGCTTCGTCA spacer
length: 37 repeater length: 29
11766 102578 TTTCAATTCTCCCAGAGTCTTATTGCAAC ACTAAAACCGCCTCGCTCGATTGGGTTTGTGGTGAAAGTGA
spacer length: 41 repeater length: 29
11767 102648 TTTCAATTCTCCCAGAGTCTTATTGCAAC GGCCTGGAGGAGTTTGAGGCGCCGTAAGTTCCGTAGA spacer
length: 38 repeater length: 29
11768 102715 TTTCAATTCTCCCAGAGTCTTATTGCAAC CTATGACGTCGAGCTTTTTGATTTTTGTCTGGGTCGAGA spacer
length: 38 repeater length: 29
11769 102782 TTTCAATTCTCCCAGAGTCTTATTGCAAC TCGGAGAGTGGGAGGGCTTTCTCGCGGTAACGGATAGA spacer
length: 38 repeater length: 29
11770 102849 TTTCAATTCTCCCAGAGTCTTATTGCAAC GCTGAGCATGTGGGTAAGCTGGTTGAGGTGAAGGGTCGA spacer
length: 39 repeater length: 29
11771 102917 TTTCAATTCTCCCAGAGTCTTATTGCAAC ATTCAGCCTCATTCTCTGCTATTTCTGCTATTTCTCTCA spacer
length: 38 repeater length: 29
11772 102984 TTTCAATTCTCCCAGAGTCTTATTGCAAC TTCTTCTCATTGTGCGAGGTAGATGATGACTCCGTAGA spacer
length: 37 repeater length: 29
11773 103050 TTTCAATTCTCCCAGAGTCTTATTGCAAC CGGGGAGTCG
11774
11775
11776 crispr 3
11777 347446 GTTGCAATAAGACTCTAGGAGAATTGAAAC GTTACCAACGCCCGCGGCGAGGTCGTCGCCGTGG spacer
length: 34 repeater length: 30
11778 347510 GTTGCAATAAGACTCTAGGAGAATTGAAAC AGGAGGAGGCCTGGCGGAGGGTCGAGAGAATCCACATGG spacer
length: 39 repeater length: 30
11779 347579 GTTGCAATAAGACTCTAGGAGAATTGAAAC ACACACGAAGTTATTGCAATTTTGGCGTTATTGGTGGGG spacer
length: 39 repeater length: 30
11780 347648 GTTGCAATAAGACTCTAGGAGAATTGAAAC TTGGCTGAGCGTCGGTAACCTTGTGCGCTTGCAATAGT spacer
length: 38 repeater length: 30
11781 347716 GTTGCAATAAGACTCTAGGAGAATTGAAAC ATACTTGCCACCGCTGTAATACAGAACCTCGCCCGTG spacer
length: 37 repeater length: 30
11782 347783 GTTGCAATAAGACTCTAGGAGAATTGAAAC CACGAGGCGACAACACTACTCGAATATAAAAGACAAC spacer
length: 36 repeater length: 30
11783 347849 GTTGCAATAAGACTCTAGGAGAATTGAAAC GGGGTCGAGTGATGAGCACGACGCGCCAGAATGCTTG spacer
length: 36 repeater length: 30
11784 347915 GTTGCAATAAGACTCTAGGAGAATTGAAAC GTATAAGTAGCCGTCTCAATCCCTCGACTGCCACCTG spacer
length: 38 repeater length: 30
11785 347983 GTTGCAATAAGACTCTAGGAGAATTGAAAC GTAGTAGCGTTATAGTCTATGCTGAGGCTGCTAACAG spacer
length: 37 repeater length: 30
11786 348050 GTTGCAATAAGACTCTAGGAGAATTGAAAC CTCTTCTTTATCGTGCCTATAATCGCTGGTAGCGTGT spacer
length: 37 repeater length: 30
11787 348117 GTTGCAATAAGACTCTAGGAGAATTGAAAC CTGTGCTTCTTGTAGATGGCCTCAAGGACTTCGTTGAA spacer
length: 38 repeater length: 30
11788 348185 GTTGCAATAAGACTCTAGGAGAATTGAAAC TCATTTCTGAGGGCGACATAAAGGCCTATAACTACAC spacer
length: 37 repeater length: 30
11789 348252 GTTGCAATAAGACTCTAGGAGAATTGAAAC GGCCGTCCCGGTGAGCGTTGCCGCTGAGACGGATAAA spacer
length: 37 repeater length: 30
11790 348319 GTTGCAATAAGACTCTAGGAGAATTGAAAC GCACTTCCGCGTCAATCCACCTCGGGTCGCTGTCGTG spacer
length: 38 repeater length: 30
11791 348387 GTTGCAATAAGACTCTAGGAGAATTGAAAC AAGCTTAAACGGGGGTATCTCGTAAAAATCGCCGCCT spacer
length: 37 repeater length: 30
11792 348454 GTTGCAATAAGACTCTAGGAGAATTGAAAC ATCGACGAAAATTTAATAATCGGGCTGGTGGGTGGTTGA spacer
length: 39 repeater length: 30
11793 348523 GTTGCAATAAGACTCTAGGAGAATTGAAAC AGTAACCTTATCAGGTCCTTAGCCCTTCCCTCCGCT spacer
length: 36 repeater length: 30
11794 348589 GTTGCAATAAGACTCTAGGAGAATTGAAAC CAAGCTTTACATATGCCTCATTCCCCGCCAGTATAAA spacer

length: 38 repeater length: 30
11795 348657 GTTGCAATAAGACTCTAGGAGAATTGAAAC TGTTGTACGTGAACATACCCTCTTCCATGGCATCAAG spacer
length: 37 repeater length: 30
11796 348724 GTTGCAATAAGACTCTAGGAGAATTGAAAC GTGAGCATTTTCATATTTTTGCCCTTTGTTATACAAA spacer
length: 37 repeater length: 30
11797 348791 GTTGCAATAAGACTCTAGGAGAATTGAAAC GCACGCTCAGCGGCGGCTACATTGCAATCGACAGCA spacer
length: 36 repeater length: 30
11798 348857 GTTGCAATAAGACTCTAGGAGAATTGAAAC ATGCCAACGTCAGCATGGAGGACGTTCTCAAGGCGA spacer
length: 36 repeater length: 30
11799 348923 GTTGCAATAAGACTCTAGGAGAATTGAAAC AGGAAGAGTTACATCATACTGGTGGACCCGGAGGTC spacer
length: 36 repeater length: 30
11800 348989 GTTGCAATAAGACTCTAGGAGAATTGAAAC GCGATCGGGTTTTTCAGTCTTAATCCACACCACTAGGGC spacer
length: 38 repeater length: 30
11801 349057 GTTGCAATAAGACTCTAGGAGAATTGAAAC CTGAGTAATTTTAGGCTCGTTGAGGACCTCGGCGTCGT spacer
length: 38 repeater length: 30
11802 349125 GTTGCAATAAGACTCTAGGAGAATTGAAAC TCGTCGAGCGTTACGGGGTCCCGCTTCATGCTCGCGG spacer
length: 37 repeater length: 30
11803 349192 GTTGCAATAAGACTCTAGGAGAATTGAAAC AGACTGCATCAAGGAAGGCTGCGACAGTGACGTTTTT spacer
length: 37 repeater length: 30
11804 349259 GTTGCAATAAGACTCTAGGAGAATTGAAAC GTCATTGCGAGCATTGCGATGCTACCGATGACGAGGA spacer
length: 37 repeater length: 30
11805 349326 GTTGCAATAAGACTCTAGGAGAATTGAAAC GGTAGATAATCCAGAAAGCCCTGGCCGTCTCTGCAAG spacer
length: 37 repeater length: 30
11806 349393 GTTGCAATAAGACTCTAGGAGAATTGAAAC TTGCCTCGGTGCTCTGCTGTACGGTGATGTTATGTTGC spacer
length: 38 repeater length: 30
11807 349461 GTTGCAATAAGACTCTAGGAGAATTGAAAC AACAGAACCATCTCAGAGTTTGTCTATGCCTATCACCT spacer
length: 37 repeater length: 30
11808 349528 GTTGCAATAAGACTCTAGGAGAATTGAAAC AGGGCAACGCTTATAATCAGTTTCAGCGCGTAGTTCGT spacer
length: 38 repeater length: 30
11809 349596 GTTGCAATAAGACTCTAGGAGAATTGAAAC CTTGCTTATAAGGGGCAGAATTCTACCCCTTTTCGG spacer
length: 36 repeater length: 30
11810 349662 GTTGCAATAAGACTCTAGGAGAATTGAAAC AGAGCGGTGCTTATCTTCTCTGGAAGCCTTGACTCTTC spacer
length: 38 repeater length: 30
11811 349730 GTTGCAATAAGACTCTAGGAGAATTGAAAC GTACCTGAGGCCGAACCGCCTCCAGCCCCAAACCTTGAC
spacer length: 40 repeater length: 30
11812 349800 GTTGCAATAAGACTCTAGGAGAATTGAAAC GAAGTATCTCATCGAGAACAAAGACGCGTTGCGTGTT spacer
length: 37 repeater length: 30
11813 349867 GTTGCAATAAGACTCTAGGAGAATTGAAAC CAGTCGGGTCGCTCTTGCTCTCGTAGGCGCTGCCAAT spacer
length: 37 repeater length: 30
11814 349934 GTTGCAATAAGACTCTAGGAGAATTGAAAC GGTATAAGGCGCTGGACCAAATATCCTCTGACAAA spacer
length: 35 repeater length: 30
11815 349999 GTTGCAATAAGACTCTAGGAGAATTGAAAC AGGGGCTTCC
11816
11817
11818 crispr 4
11819 1709597 GTTTCCAAACATTATGTGGTTCTGAAAC
TCGAAGAAATCAGGAATACAATAGACGATTTTCGACGAGCTCCCCGACAT spacer length: 49 repeater length:
28
11820 1709674 GTTTCCAAACATTATGTGGTTCTGAAAC ACCATAACTTAAATGAAGCGTTTCGGTAACGCTCAAACCT spacer
length: 39 repeater length: 28
11821 1709741 GTTTCCAAACATTATGTGGTTCTGAAAC CGGGGAGTGCGATAAGCTTCCTCAGTTTTGCTAAGGAG spacer
length: 38 repeater length: 28
11822 1709807 GTTTCCAAACATTATGTGGTTCTGAAAC
GCGGATGAAGTTTGGAAGGCTATTAAAGAGGGTAAATTAAGGGGTTAGTATTGGTGG spacer length: 59
repeater length: 28
11823 1709894 GTTTCCAAACATTATGTGGTTCTGAAAC
TCGTGAAAGTTGATGGTAATGTAGGATTCTTCAACGGAGAGCGCTCGG spacer length: 49 repeater length:
28
11824 1709971 GTTTCCAAACATTATGTGGTTCTGAAAC
ATCATTTCCAAGCGAAATGTCACCAACCAAGTTAGAGTTGATAACTGCTC spacer length: 49 repeater length:
28
11825 1710048 GTTTCCAAACATTATGTGGTTCTGAAAC
11826
11827
11828 crispr 5
11829 1722314 CTTTCCACACAATTCTGTCCTACGGAAAC TCTACGATGCAGACAACGATCTTGACGTGACAATGCTTTC
spacer length: 40 repeater length: 29
11830 1722383 CTTTCCACACAATTCTGTCCTACGGAAAC TTCGTCAAGGCATGGGATCTCATTCTTACACAATTCGA spacer
length: 38 repeater length: 29
11831 1722450 CTTTCCACACAATTCTGTCCTACGGAAAC TCCTGGACGTCAAGGAAGAGTACGTACTCCCCGGGTTCGT
spacer length: 40 repeater length: 29

11832	1722519	CTTTCCACACAATTCTGTCCTACGGAAAC	GGGCAGAATCAGAACGTTTCAGCGCTCGCGAACATGACGA
		spacer length: 40 repeater length: 29	
11833	1722588	CTTTCCACACAATTCTGTCCTACGGAAAC	GCACAGAAGCCCTTGAGGCAATCAGCTCGCTGAGAGTG spacer
		length: 38 repeater length: 29	
11834	1722655	CTTTCCACACAATTCTGTCCTACGGAAAC	AGAAGTGATTAGAGCGGAGGAAGGCCAAAGGTAACC spacer
		length: 36 repeater length: 29	
11835	1722720	CTTTCCACACAATTCTGTCCTACGGAAAC	ACATCACAAACCGCTCCTGGCCGACCTGGACGAAGTAA spacer
		length: 38 repeater length: 29	
11836	1722787	CTTTCCACACAATTCTGTCCTACGGAAAC	CAGAGAAATTCGGGGCTTTCAAGATTCCGGACGACAA spacer
		length: 37 repeater length: 29	
11837	1722853	CTTTCCACACAATTCTGTCCTACGGAAAC	TGCAGTTGCACGTGCCGTTGCTAATCCCCGTCCAGTTCACG
		spacer length: 41 repeater length: 29	
11838	1722923	CTTTCCACACAATTCTGTCCTACGGAAAC	AAAACGCTGTTTTTCGTCCTCCTCTTCGACTTCGAAATCGA
		spacer length: 40 repeater length: 29	
11839	1722992	CTTTCCACACAATTCTGTCCTACGGAAAC	ATGTTTCGAGGAGGTTGAGAAGAATGGAGGCTGAAAAGGT spacer
		length: 39 repeater length: 29	
11840	1723060	CTTTCCACACAATTCTGTCCTACGGAAAC	AAGGAGGTGAAGACATGAGCACCCGCCTCTTTGACGT spacer
		length: 37 repeater length: 29	
11841	1723126	CTTTCCACACAATTCTGTCCTACGGAAAC	AGTATGACCCTCTCGACCTCCATCATGCCCACCACCTT spacer
		length: 38 repeater length: 29	
11842	1723193	CTTTCCACACAATTCTGTCCTACGGAAAC	TTATTGTTGCAGCAAGATCAGTATATATGTCAGGAGCA spacer
		length: 38 repeater length: 29	
11843	1723260	CTTTCCACACAATTCTGTCCTACGGAAAC	ATGAGCGTGAACGTGGAACTTTACCCCTCCAGCGCGGCCGT
		spacer length: 41 repeater length: 29	
11844	1723330	CTTTCCACACAATTCTGTCCTACGGAAAC	TCATGAGCGACCCTCCTTCTCTACAGGGGGCAGTTCTT spacer
		length: 38 repeater length: 29	
11845	1723397	CTTTCCACACAATTCTGTCCTACGGAAAC	ACGACCTCAGGGACGGCCCCACCGAGGTAAACGAGCT spacer
		length: 37 repeater length: 29	
11846	1723463	CTTTCCACACAATTCTGTCCTACGGAAAC	TCCGCGAGGTCCGGGTCCATGCTGAGAAGGTGATTA spacer
		length: 36 repeater length: 29	
11847	1723528	CTTTCCACACAATTCTGTCCTACGGAAAC	TTGACTTCTACTCGAACGTTTACAGGCAGAAGGTCAT spacer
		length: 37 repeater length: 29	
11848	1723594	CTTTCCACACAATTCTGTCCTACGGAAAC	CCTTCACTTCCGGCGGAACCTACGTCCCGAATTCTAT spacer
		length: 36 repeater length: 29	
11849	1723659	CTTTCCACACAATTCTGTCCTACGGAAAC	TCCGGGACCGGGAACGTGCGCCCGTCCCTGGTCACA spacer
		length: 36 repeater length: 29	
11850	1723724	CTTTCCACACAATTCTGTCCTACGGAAAC	
11851			
11852			
11853	crispr 6		
11854	1739900	CTTTCCACACAATTCTGTCCTACGGAAAC	AGCTTGGTGGTGGGCGCGGGAGCACTCAAGGAGGTGGG spacer
		length: 38 repeater length: 29	
11855	1739967	CTTTCCACACAATTCTGTCCTACGGAAAC	CGAGTTCCAAGGCCTTGAAATTGGCTTCAACGAGTT spacer
		length: 36 repeater length: 29	
11856	1740032	CTTTCCACACAATTCTGTCCTACGGAAAC	TTGCAGAGAACGAAGATGTGTTTCCGGGGGTGATAAAG spacer
		length: 38 repeater length: 29	
11857	1740099	CTTTCCACACAATTCTGTCCTACGGAAAC	TCAGCCTCAGGATCAGCAGATTGACAAAGAAACACAG spacer
		length: 37 repeater length: 29	
11858	1740165	CTTTCCACACAATTCTGTCCTACGGAAAC	AAGAGATGAAGCGCCTCATTCCATCATCACCTCACGCCCTG
		spacer length: 41 repeater length: 29	
11859	1740235	CTTTCCACACAATTCTGTCCTACGGAAAC	GAATGAGTCTGGAGGACTTTCTTATGCCTACTGAAGAAG spacer
		length: 39 repeater length: 29	
11860	1740303	CTTTCCACACAATTCTGTCCTACGGAAAC	TGTTGGGGTTGAGACTGGAGTAGAAGCTCTCGCAGAAT spacer
		length: 38 repeater length: 29	
11861	1740370	CTTTCCACACAATTCTGTCCTACGGAAAC	GTATTTAAATCAATTACGGAACTAAGCCCTAATTC spacer
		length: 36 repeater length: 29	
11862	1740435	CTTTCCACACAATTCTGTCCTACGGAAAC	CTCATAGCGAAGGAGCTGGGAGTTCTGAAGAGGGAT spacer
		length: 36 repeater length: 29	
11863	1740500	CTTTCCACACAATTCTGTCCTACGGAAAC	AAGGAGTATGAGGAACTTCAACGGCAGGTAAAAAGTCT spacer
		length: 38 repeater length: 29	
11864	1740567	CTTTCCACACAATTCTGTCCTACGGAAAC	AGGATACCAGTCCAGTGGCAGGTAGTTGAAGCGAAGTT spacer
		length: 38 repeater length: 29	
11865	1740634	CTTTCCACACAATTCTGTCCTACGGAAAC	CGGTTTCACAGGTGGCCAAGAATACCCCTCCTTTTT spacer
		length: 36 repeater length: 29	
11866	1740699	CTTTCCACACAATTCTGTCCTACGGAAAC	GGGCATCATCACCACGATAGCGGCCTTCGGCCTTGCGA spacer
		length: 38 repeater length: 29	
11867	1740766	CTTTCCACACAATTCTGTCCTACGGAAAC	GTAACAGTCTTAACAGGCGTGCTTTTTCCGTCTATG spacer
		length: 36 repeater length: 29	
11868	1740831	CTTTCCACACAATTCTGTCCTACGGAAAC	CGGACAACGACGGGAGAACGCCGACGAATGAGGAACTTA spacer
		length: 39 repeater length: 29	
11869	1740899	CTTTCCACACAATTCTGTCCTACGGAAAC	

11870
11871
11872 crispr 7
11873 1745613 CTTTCCACACAACACTGTTCTACGGAAAC TGCTTTGGATTGCCCATATCTCGCTTTTCTGGATTGG spacer
length: 37 repeater length: 29
11874 1745679 CTTTCCACACAACACTGTTCTACGGAAAC CTCCGAGGTTTCGAGAGCGAGGAGATACCGCTGACTTCCAT
spacer length: 40 repeater length: 29
11875 1745748 CTTTCCACACAACACTGTTCTACGGAAAC TCTGTCTCAGGGTGGCCGTTGAGGTTCTGAAGGG spacer
length: 35 repeater length: 29
11876 1745812 CTTTCCACACAACACTGTTCTACGGAAAC GGTGAATTACAATGAAGTGTCTGTCTGCGGTGGGGAGT spacer
length: 39 repeater length: 29
11877 1745880 CTTTCCACACAACACTGTTCTACGGAAAC CTCCTTCTTAGCCGCGTTCAACTGGTTCTGGATTTCT spacer
length: 38 repeater length: 29
11878 1745947 CTTTCCACACAACACTGTTCTACGGAAAC TGAAAACGTCGTCGATTGAAGACTGGTCGCAGAGAT spacer
length: 36 repeater length: 29
11879 1746012 CTTTCCACACAACACTGTTCTACGGAAAC TTGATGTCGCAGGGCTTCTTGGTGGTGACAATGCAA spacer
length: 36 repeater length: 29
11880 1746077 CTTTCCACACAACACTGTTCTACGGAAAC TGGTAAGTGTTCGACTTGCTTTAAGAGATGGGTTGCTTA spacer
length: 39 repeater length: 29
11881 1746145 CTTTCCACACAACACTGTTCTACGGAAAC CATAGACCGCTCCCGCTACCGAACTCCCTAATAATAT spacer
length: 37 repeater length: 29
11882 1746211 CTTTCCACACAACACTGTTCTACGGAAAC GTTCCAAAGTTCATGATCTGGGATGGAGACTATATTA spacer
length: 37 repeater length: 29
11883 1746277 CTTTCCACACAACACTGTTCTACGGAAAC GGGAGTTTTTGGCTACGTATTGGGTTCTCTTTTC spacer
length: 34 repeater length: 29
11884 1746340 CTTTCCACACAACACTGTTCTACGGAAAC
11885
11886
11887 crispr 8
11888 1868114 GTTTCAGAACCACATGATGTTTGGAAAC
GAGCTAATGAAGCTTCTGAAGGAGTTTAACATCACGAACCCCCGCACCCAGCTCCCA spacer length: 57 repeater
length: 28
11889 1868199 GTTTCAGAACCACATGATGTTTGGAAAC
TAACCCAGCTTGACGAACTCCTCTGGAGGGAGTGTTTTGTTGTCAATCCACGA spacer length: 53 repeater
length: 28
11890 1868280 GTTTCAGAACCACATGATGTTTGGAAAC GTCCCCCTTCCAGCGATGCCGTCACAATCTCGGGGTAAAGGTTTAC
spacer length: 47 repeater length: 28
11891 1868355 GTTTCAGAACCACATGATGTTTGGAAAC AGCGCCTTGAGGAGCTTAAGCTCCTCGTCGACTATG spacer
length: 36 repeater length: 28
11892 1868419 GTTTCAGAACCACATGATGTTTGGAAAC
TCGTCCATGGAGCCACTGACGTCGACGAATACTATGAGGAGTGGCGCCTTCTT spacer length: 53 repeater
length: 28
11893 1868500 GTTTCAGAACCACATGATGTTTGGAAAC
11894
11895
11896 crispr 9
11897 1877270 GTTTCAGAACCACATAATGTTTGGAAAC CGACATTTTTCTGCCTCCCAGATCTTATCCACAATACTACACGCAAC
spacer length: 47 repeater length: 28
11898 1877345 GTTTCAGAACCACATAATGTTTGGAAAC AAAAGGGGGCCCACTACAAAATTCCTCATGGTTCACCCCTCCACAAA
spacer length: 47 repeater length: 28
11899 1877420 GTTTCAGAACCACATAATGTTTGGAAAC GAACGGCTCATTCTCGAAATACACACCCGTGACGGAATTATAA
spacer length: 43 repeater length: 28
11900 1877491 GTTTCAGAACCACATAATGTTTGGAAAC
TGGGGAGCACCCCGTCAACGTTACCGTCGTTGAAGTCTATCGTGACCCTACCGT spacer length: 54 repeater
length: 28
11901 1877573 GTTTCAGAACCACATAATGTTTGGAAAC
GACACCTCAATCTCAAACCTCAACGAGGGTGTAGTCCTTTCTTCTTCTTCT spacer length: 52 repeater
length: 28
11902 1877653 GTTTCAGAACCACATAATGTTTGGAAAC
CCACGCTGACGATATAGGACACAACCTTACCGAGTGGGCTATCCGACTT spacer length: 49 repeater length:
28
11903 1877730 GTTTCAGAACCACATAATGTTTGGAAAC
CATCCTTGAATAGTGCAGCGAAAGTTATTTTCGACACGGTCCCAGAGCACAA spacer length: 51 repeater
length: 28
11904 1877809 GTTTCAGAACCACATAATGTTTGGAAAC
11905
11906
11907 crispr 10
11908 1878039 GTTTCAGAACCACATAATGTTTGGAAAC ACCCTACCGCGGCGGTAATAGATTACCTCCCCCTGAATGG spacer
length: 40 repeater length: 28
11909 1878107 GTTTCAGAACCACATAATGTTTGGAAAC GCTATGGCCAATATGAACGGTACAACGTACGCCAGGAACATGTTGA

spacer length: 46 repeater length: 28
 11910 1878181 GTTTCAGAACCACATAATGTTTGGAAAC CTTTGATGTGCGGACTTCCGACGGAAAAACCTTCGACATTGACCCGT
 spacer length: 47 repeater length: 28
 11911 1878256 GTTTCAGAACCACATAATGTTTGGAAAC
 CCCACCGCGCTTCCGGTGTTTCATCGCGAGGTTTCTCGTCGAGACTATGCGGGCG spacer length: 54 repeater
 length: 28
 11912 1878338 GTTTCAGAACCACATAATGTTTGGAAAC
 11913
 11914
 11915 crispr 11
 11916 1949365 GTTGCAATAAGACTCTGGGAGAATTGAAAC GCGGGCACTTCATCACCCGACCGCACCCAATCACCCAT spacer
 length: 38 repeater length: 30
 11917 1949433 GTTGCAATAAGACTCTGGGAGAATTGAAAC CACAGGGTATAAAGTCCGTGCTGATGGCGTGAACGTG spacer
 length: 37 repeater length: 30
 11918 1949500 GTTGCAATAAGACTCTGGGAGAATTGAAAC GGGGCGGGTGCTTGTATTCTCTATCATCATACGTAGGT spacer
 length: 38 repeater length: 30
 11919 1949568 GTTGCAATAAGACTCTGGGAGAATTGAAAC GAAATACTGAAAAGCTTTAACTGCCCTGCTTTTCTGC spacer
 length: 37 repeater length: 30
 11920 1949635 GTTGCAATAAGACTCTGGGAGAATTGAAAC GGGTAAGAGGGCTGAGGACAGATATAAGCGGCTGGTCTGAG
 spacer length: 41 repeater length: 30
 11921 1949706 GTTGCAATAAGACTCTGGGAGAATTGAAAC CAATAAGGAGAAAGCTAGAGCGTAAGATAGAGGAGA spacer
 length: 36 repeater length: 30
 11922 1949772 GTTGCAATAAGACTCTGGGAGAATTGAAAC AAGTGGGCGTGGGGTGGAACGTAGGGCGTCCGTGGGCG spacer
 length: 38 repeater length: 30
 11923 1949840 GTTGCAATAAGACTCTGGGAGAATTGAAAC TAGAGTTAGAGAACGGGTGCGCGGAAATCTACGTT spacer
 length: 35 repeater length: 30
 11924 1949905 GTTGCAATAAGACTCTGGGAGAATTGAAAC TTCAAGGCGTGTGTTGGCGTGGAGCCGGTCTTCGGCGA spacer
 length: 38 repeater length: 30
 11925 1949973 GTTGCAATAAGACTCTGGGAGAATTGAAAC CATGCATCAGCAGCCACACCTATCAGATATTTTACGCT spacer
 length: 37 repeater length: 30
 11926 1950040 GTTGCAATAAGACTCTGGGAGAATTGAAAC TGCCCAAAGTGGCTAGATTAGCCGAGGCGGCTAATT spacer
 length: 36 repeater length: 30
 11927 1950106 GTTGCAATAAGACTCTGGGAGAATTGAAAC ACAAAGGCAACAGGGATATATGGAACATGCACCCCC spacer
 length: 36 repeater length: 30
 11928 1950172 GTTGCAATAAGACTCTGGGAGAATTGAAAC
 11929
 11930
 11931 GCA_000270325.1_ASM27032v1_genomic.fna(PilerCR):
 11932 START REPEAT
 SPACER
 11933 crispr 1
 11934 103679 CTTTCAATTCCCTCTCGCGGGATCAG TTCGTGCTCTTCCACGGGGAGCCAATCAATCGAAATGGTTTCTCGT
 spacer length: 47 repeater length: 26
 11935 103752 CTTTCAATTCCCTCTCGCGGGATCAG AGCGAAAGAGGCGCGAGCCAGATAATCGGCTATGAGGAGAT spacer
 length: 41 repeater length: 26
 11936 103819 CTTTCAATTCCCTCTCGCGGGATCAG TATTATGTTGAGCGGTGCGCTGAGGAGGCGGCCAACTATT spacer
 length: 40 repeater length: 26
 11937 103885 CTTTCAATTCCCTCTCGCGGGATCAG ACTCATAGCGGTACTGGTCATGGTTGGTCTTATGATACAA spacer
 length: 40 repeater length: 26
 11938 103951 CTTTCAATTCCCTCTCGCGGGATCAG ATGTTTCATGTCATCGAGAGGTTACATGAGAGCATACGCATATTGCAAA
 spacer length: 48 repeater length: 26
 11939 104025 CTTTCAATTCCCTCTCGCGGGATCAG TCAGAAAAACCACTTCACATTCATGGTGGTGAGGTAGATGCCA spacer
 length: 43 repeater length: 26
 11940 104094 CTTTCAATTCCCTCTCGCGGGATCAG CACGTATGAGAAAGTAGAGCAGATTGTTCTGCCAATAGTTGTC spacer
 length: 43 repeater length: 26
 11941 104163 CTTTCAATTCCCTCTCGCGGGATCAG ACTCATAGCGGTACTGGTCATGGTTGGTCTTATGATACAA spacer
 length: 40 repeater length: 26
 11942 104229 CTTTCAATTCCCTCTCGCGGGATCAG TTTTAACTAAGACCCGGCTCATACGACTCATCAGAC spacer
 length: 36 repeater length: 26
 11943 104291 CTTTCAATTCCCTCTCGCGGGATCAG TGAATTTCAAAGCTGAAGATCGATTCGACAACCTTTTTTA spacer
 length: 41 repeater length: 26
 11944 104358 CTTTCAATTCCCTCTCGCGGGATCAG TGAGAGCGAACCTCATAGGTGTGGGAATGGATTTGAAAAGTGA spacer
 length: 43 repeater length: 26
 11945 104427 CTTTCAATTCCCTCTCGCGGGATCAG ACTGCATCGACTGCCAAAAAGTTCTGAAGCCGACGAGGACAA spacer
 length: 42 repeater length: 26
 11946 104495 CTTTCAATTCCCTCTCGCGGGATCAG TTAAATACCTTTATCCAGAGGCTCAGGGTATGGCGAAATTAA spacer
 length: 42 repeater length: 26
 11947 104563 CTTTCAATTCCCTCTCGCGGGATCAG CCGCGATGACTTTTCCGTCTGCGTTTAAATGCCTCGACGAAA spacer
 length: 41 repeater length: 26
 11948 104630 CTTTCAATTCCCTCTCGCGGGATCAG ACCCACCAAACCTTTATCATAAAATTCTATCAAACCTTATATACTTT
 spacer length: 46 repeater length: 26

11949 104702 CTTTCAATTCCCTCTCGCGGGATCAG AAATACGCTTGCTTTTGTGTTAGACAATTCCTGCCAAGCAA spacer
length: 42 repeater length: 26
11950 104770 CTTTCAATTCCCTCTCGCGGGATCAG ATGTTGTGGAAGGCAAATGGCTGAAAGGTGTTCCGGAGCCGAT spacer
length: 43 repeater length: 26
11951 104839 CTTTCAATTCCCTCTCGCGGGATCAG AGTCTCTCAGATTATTAATCGACAAGCATAAGCCCCACCTTGAG
spacer length: 44 repeater length: 26
11952 104909 CTTTCAATTCCCTCTCGCGGGATCAG TGAGTTTCCAACACAATCAACGTAAACACTTTTTCTAAAAT spacer
length: 41 repeater length: 26
11953 104976 CTTTCAATTCCCTCTCGCGGGATCAG AAAAGTTAAGGGGTATGTTTTGGTGGTGGGGTGTGAATGTCCAAAGTGT
spacer length: 49 repeater length: 26
11954 105051 CTTTCAATTCCCTCTCGCGGGATCAG TCGGGGAGTGGAGTAGGTAGTGGGAGTATGGGGTTGTGGT spacer
length: 40 repeater length: 26
11955 105117 CTTTCAATTCCCTCTCGCGGGATCAG AGAGATGGTTTAGTCTTGGATTGGATGACGTGGGCTGTGG spacer
length: 41 repeater length: 26
11956 105184 CTTTCAATTCCCTCTCGCGGGATCAG ATAACACGAGCTGCAGCCCCCACCAGGATGCATGCCTACTGGGA
spacer length: 44 repeater length: 26
11957 105254 CTTTCAATTCCCTCTCGCGGGATCAG CTGGGCAGGTAATACCCTCTTTATCTGGCCTGAGAAAGTTTAATAC
spacer length: 46 repeater length: 26
11958 105326 CTTTCAATTCCCTCTCGCGGGATCAG ACACTTGACTGACGCTGGGTAATTCCCAGTGGGCCCCCAAT spacer
length: 42 repeater length: 26
11959 105394 CTTTCAATTCCCTCTCGCGGGATCAG ATAGAATAACATTTGAAATGGCGAGACGAGGTGTTCTCTTTAA spacer
length: 43 repeater length: 26
11960 105463 CTTTCAATTCCCTCTCGCGGGATCAG GACGGCAAGGCAATCGTAGTCTTTTGTGAAGTGAAGACACAAA spacer
length: 43 repeater length: 26
11961 105532 CTTTCAATTCCCTCTCGCGGGATCAG ACTTTCCCACTCAGAGCCTTTGCCCTTAGCCCCGCTCATAGTACAC
spacer length: 48 repeater length: 26
11962 105606 CTTTCAATTCCCTCTCGCGGGATCAG TCGGATACCTTTTCCGCCAGCCAGACCAAGCCGTTGTGTATC spacer
length: 42 repeater length: 26
11963 105674 CTTTCAATTCCCTCTCGCGGGATCAG AAATCGTACAAGAGCGCTGTCACAGCTGCAGACATAGACAAG spacer
length: 42 repeater length: 26
11964 105742 CTTTCAATTCCCTCTCGCGGGATCAG AAATGGATAAGCTCCTCGGCGGGAATTGTTTCGCTGATGATT spacer
length: 42 repeater length: 26
11965 105810 CTTTCAATTCCCTCTCGCGGGATCAG ACCGCCTGCTAAGCCTCCGGTGAAAAAGCCGGAGAAAACCTCAA spacer
length: 43 repeater length: 26
11966 105879 CTTTCAATTCCCTCTCGCGGGATCAG AGAAGTATCTGAAATACAGAGGCGAGAAGATTGGGTATA spacer
length: 39 repeater length: 26
11967 105944 CTTTCAATTCCCTCTCGCGGGATCAG AACTAAATCTTCATGATCTTTATCAGACATAGCATTAGTATA spacer
length: 42 repeater length: 26
11968 106012 CTTTCAATTCCCTCTCGCGGGATCAG TAGTGCGGATTTTAGTGCTCTTCAGAAGGAAAAGTTCTGGATCTGGTT
spacer length: 49 repeater length: 26
11969 106087 CTTTCAATTCCCTCTCGCGGGATCAG AGTCAAGGAC
11970
11971
11972 crispr 2
11973 723497 CTTTCCATCCTCTTTTCATTGACAG ATAGATATTGAGAGTGCAGAAATTATAACATCAAAATCTAGT spacer
length: 42 repeater length: 25
11974 723564 CTTTCCATCCTCTTTTCATTGACAG TGTCGTTGACGAATTTGGTAAACGCGTTTGGCAATGATTCTAAGAAG
spacer length: 47 repeater length: 25
11975 723636 CTTTCCATCCTCTTTTCATTGACAG TTTCTCGGCCCCCTGGGGTCGGGAAATCGCAAATTGTA spacer
length: 39 repeater length: 25
11976 723700 CTTTCCATCCTCTTTTCATTGACAG ATACAGTGCAGCGTCTGCGGCTCAGAGCATCCAGCCAAAATGA spacer
length: 43 repeater length: 25
11977 723768 CTTTCCATCCTCTTTTCATTGACAG TATCCTCATAGACCCGCCATGGCATCTCAAATATGACCAG spacer
length: 40 repeater length: 25
11978 723833 CTTTCCATCCTCTTTTCATTGACAG TTTATAGTGTCTTCTCGGAACATCGGACATATGTAGA spacer
length: 37 repeater length: 25
11979 723895 CTTTCCATCCTCTTTTCATTGACAG GCAGGGTTATCCCCGTTATCTGCTCGGCGCCGTCGAAGTCA spacer
length: 41 repeater length: 25
11980 723961 CTTTCCATCCTCTTTTCATTGACAG TTCTGAAGAGGTGCCAGAACATCATGAGATATAAAGCTTTG spacer
length: 41 repeater length: 25
11981 724027 CTTTCCATCCTCTTTTCATTGACAG ATCAGCAGGA
11982
11983
11984 crispr 3
11985 896967 CTGATCCCGCGAGAGGGAATTGAAAG ATCTGAATCCCATCCCCTATGATACACATTTGACTCTGCACCCT
spacer length: 45 repeater length: 26
11986 897038 CTGATCCCGCGAGAGGGAATTGAAAG ATGTTTAGCGGGTCTATTCCGTCGCCTGACACTGTATATCT spacer
length: 41 repeater length: 26
11987 897105 CTGATCCCGCGAGAGGGAATTGAAAG GAGCTCGAGAAGAAACGCATAGCCGAGGAAATAGCCAGGCTC spacer
length: 42 repeater length: 26
11988 897173 CTGATCCCGCGAGAGGGAATTGAAAG ACTTCGGTATTGTAGTCACCAAGTCTCCAAAGAAGATTATCTG spacer

length: 43 repeater length: 26
11989 897242 CTGATCCCGCGAGAGGGAATTGAAAG CTTGGGGGGTGAAGACATGAGTTTCACAGGACTACGTCAACCT
spacer length: 44 repeater length: 26
11990 897312 CTGATCCCGCGAGAGGGAATTGAAAG CTATGCTGGTGGAAAAACCTCCGAAAGCGCCCTAACAG spacer
length: 38 repeater length: 26
11991 897376 CTGATCCCGCGAGAGGGAATTGAAAG ACTCCGAGGATGTTGATGATTGGTGTGTCAGGACATCGAATATCA spacer
length: 43 repeater length: 26
11992 897445 CTGATCCCGCGAGAGGGAATTGAAAG CCATGGAAAAAAGGAGGGGGAGTTTGTGCAATGTAGCAGGTT spacer
length: 43 repeater length: 26
11993 897514 CTGATCCCGCGAGAGGGAATTGAAAG TAAGACATCAACGATAGGCATCAGGATTTCTACGACAGTC spacer
length: 40 repeater length: 26
11994 897580 CTGATCCCGCGAGAGGGAATTGAAAG GCTGAAACTCGCTGACCATTTTCGTCACCCCTCCCGCCGGGAGGCTT
spacer length: 47 repeater length: 26
11995 897653 CTGATCCCGCGAGAGGGAATTGAAAG TATAAAGTGAAGTTTGAGGGCATGTTTAGTAAGATAGTTT spacer
length: 40 repeater length: 26
11996 897719 CTGATCCCGCGAGAGGGAATTGAAAG ACATTAAGCAGACGGGAGAGGAGGAACCTCAAAGACCTCGTC spacer
length: 41 repeater length: 26
11997 897786 CTGATCCCGCGAGAGGGAATTGAAAG CCGATAGCCAGCCGAAACCTATGAACTCCTGTCTGAGACC spacer
length: 41 repeater length: 26
11998 897853 CTGATCCCGCGAGAGGGAATTGAAAG TAAGGCATTTCTTTTTAAGCAATCCGAGGTTGTTGGCTTTTGCCA
spacer length: 45 repeater length: 26
11999 897924 CTGATCCCGCGAGAGGGAATTGAAAG AGCAGAGCCG
12000
12001
12002 crispr 4
12003 966204 CTGATCCCGCAAGAGGGAATTGAAAG CATCATTTGAACTCGGTGCGCTTAATGAATTGACCTAACGCC spacer
length: 41 repeater length: 26
12004 966271 CTGATCCCGCAAGAGGGAATTGAAAG TCAACACCTATATCACCAGTTGCTTCCGCATAAATGTCTGT spacer
length: 41 repeater length: 26
12005 966338 CTGATCCCGCAAGAGGGAATTGAAAG CTTCCACAGTAACATACAGACGGCTGCCGACGAACAAGGAGCTCAA
spacer length: 46 repeater length: 26
12006 966410 CTGATCCCGCAAGAGGGAATTGAAAG CTTCCACAGTAATTGTGGTGGATGTCGAGCCGCCGAGAACTCC
spacer length: 45 repeater length: 26
12007 966481 CTGATCCCGCAAGAGGGAATTGAAAG CAATGAAAACCCAGGATTGCCAGAGCCATGTCTCTGGATATAA spacer
length: 43 repeater length: 26
12008 966550 CTGATCCCGCAAGAGGGAATTGAAAG CTGTGAGCGGTGTGGGACTTTGCTTATTGAGCATT spacer
length: 36 repeater length: 26
12009 966612 CTGATCCCGCAAGAGGGAATTGAAAG GTGTTCTCAGCTATGCTGCCCAGATTAGACCTGACAGTATA spacer
length: 41 repeater length: 26
12010 966679 CTGATCCCGCAAGAGGGAATTGAAAG GATGCCTCTAAGTGGCGACAGCGGCAGCAGCTCTGGCA spacer
length: 38 repeater length: 26
12011 966743 CTGATCCCGCAAGAGGGAATTGAAAG ATACTATGCATGGCTAAAGTGGTCAGCATCAGTATCCCAGAT spacer
length: 42 repeater length: 26
12012 966811 CTGATCCCGCAAGAGGGAATTGAAAG CTTTTGGCTGTCTCAGGGGTAAAGCCATGTTTTCTGTGCAACCCT
spacer length: 44 repeater length: 26
12013 966881 CTGATCCCGCAAGAGGGAATTGAAAG TGCTATGTGGTTACAGTAAACGCAACGATTTATCTTCACAA spacer
length: 41 repeater length: 26
12014 966948 CTGATCCCGCAAGAGGGAATTGAAAG TTATCTGCCGAGTGAGCTTGAGGCTGCAGTTAAGCGTCTC spacer
length: 40 repeater length: 26
12015 967014 CTGATCCCGCAAGAGGGAATTGAAAG TCATCGCTTCGCCAAGGCTTCGCAGGAAACCAGCGGTCTTC spacer
length: 41 repeater length: 26
12016 967081 CTGATCCCGCAAGAGGGAATTGAAAG TGTTACTAGTGTGTGCTTTTATTCTGCTCTATCTGCTT spacer
length: 38 repeater length: 26
12017 967145 CTGATCCCGCAAGAGGGAATTGAAAG CATCGGCTGCAGCGCCGGTCATGTTTCGCTAGTTTTGCTCCAC spacer
length: 43 repeater length: 26
12018 967214 CTGATCCCGCAAGAGGGAATTGAAAG GTATCCTTCCCCGGGCACGCTCATGGACAGCCTCAGGTAACCCCT
spacer length: 45 repeater length: 26
12019 967285 CTGATCCCGCAAGAGGGAATTGAAAG TGGTGCCTGACACGCCTGAGCTCTCAGCATATAAG spacer length:
35 repeater length: 26
12020 967346 CTGATCCCGCAAGAGGGAATTGAAAG TAAAGACATAGGCAGGTATGGTTTTCTCTCCAGCTGCCT spacer
length: 39 repeater length: 26
12021 967411 CTGATCCCGCAAGAGGGAATTGAAAG TTATGCTACTTCAGAGCACAAGCTTATCATAGAATTAGAGC spacer
length: 41 repeater length: 26
12022 967478 CTGATCCCGCAAGAGGGAATTGAAAG CATCGGAGGC
12023
12024
12025 crispr 5
12026 967548 CTGATCCCGCAAGAGGGAATTGAAAG AATCGTCTCATAACATTCATGGGCGAGGCTGACCACGATGGCGTCAA
spacer length: 47 repeater length: 26
12027 967621 CTGATCCCGCAAGAGGGAATTGAAAG TCGGCGACTTCGTCAGAGATGTTGCGGAAGTTAATATTAGCG spacer
length: 42 repeater length: 26

12028 967689 CTGATCCCGCAAGAGGGAATTGAAAG TCTACCACCTCTTCATCGTTGCTATATTTTTGTGAATTACTTT spacer
length: 42 repeater length: 26

12029 967757 CTGATCCCGCAAGAGGGAATTGAAAG AACTCATGCCGCTTATAATATATCTACGCTTAACAACCCCGC spacer
length: 42 repeater length: 26

12030 967825 CTGATCCCGCAAGAGGGAATTGAAAG CCTCAGAAACAGTAGATAATTTTTACCTACAATTCCATATG spacer
length: 41 repeater length: 26

12031 967892 CTGATCCCGCAAGAGGGAATTGAAAG CCATGTAGTGCTGAAAACCTTGCAATTCCAAATTGCATCTTGAG spacer
length: 43 repeater length: 26

12032 967961 CTGATCCCGCAAGAGGGAATTGAAAG CTAGGTCTCCAGGAGCGGATGGACTTTATCATGGCTAAAG spacer
length: 40 repeater length: 26

12033 968027 CTGATCCCGCAAGAGGGAATTGAAAG CCGCGGATGTTCTTTTGAACATCAACTGCTGCGATGGCTACTA spacer
length: 43 repeater length: 26

12034 968096 CTGATCCCGCAAGAGGGAATTGAAAG CGAGTTGCACATCATTGACCTCGGCATCATTTCTGAAAATCT spacer
length: 42 repeater length: 26

12035 968164 CTGATCCCGCAAGAGGGAATTGAAAG CACCTATACGCCGAGACCAGCCACTTCTACCCTGGCCGCGCGC
spacer length: 44 repeater length: 26

12036 968234 CTGATCCCGCAAGAGGGAATTGAAAG TCCTGATTGGTTGGGGGCTCTGCCTCGGACTCGGTCTCAGA spacer
length: 42 repeater length: 26

12037 968302 CTGATCCCGCAAGAGGGAATTGAAAG CATCTACTAGTTCGCCAACCTGCCCACGCCTACCGCGAATCCC spacer
length: 43 repeater length: 26

12038 968371 CTGATCCCGCAAGAGGGAATTGAAAG TTTAATAGTTATTCTTTTAACAGTGC GCGATTCTGCATCGCG spacer
length: 42 repeater length: 26

12039 968439 CTGATCCCGCAAGAGGGAATTGAAAG TCTTCAGCGATGCTAATCAACACCCTCGCCATAACCGCCG spacer
length: 40 repeater length: 26

12040 968505 CTGATCCCGCAAGAGGGAATTGAAAG TGTGTGTTGAACGACTCGGATAAGCGTTCAGCCAGCCATGAAA spacer
length: 42 repeater length: 26

12041 968573 CTGATCCCGCAAGAGGGAATTGAAAG TTATGCTGCTGGTGATTCTCTGACGACTACTTCTACTTCTACT spacer
length: 43 repeater length: 26

12042 968642 CTGATCCCGCAAGAGGGAATTGAAAG TTGGCGATGTGCCAAGGTAGCTGTTTCGAGGTCCGGCGAGACAAT
spacer length: 44 repeater length: 26

12043 968712 CTGATCCCGCAAGAGGGAATTGAAAG ACCACATCGGCAATCACATTTCGCTTGATGGCTTGTGGCT spacer
length: 40 repeater length: 26

12044 968778 CTGATCCCGCAAGAGGGAATTGAAAG TGAAAGCATGAACGAAATAATGGTAGCGAATAATTCTTCCGT spacer
length: 42 repeater length: 26

12045 968846 CTGATCCCGCAAGAGGGAATTGAAAG GCAACCGTCAGCACGTGGCTTGCAGGGACGAGGTTCTCCCTAAGCTT
spacer length: 47 repeater length: 26

12046 968919 CTGATCCCGCAAGAGGGAATTGAAAG TATTATCATAATTGGTTGAGGTGAATGAAGTGATAGAAAGTTCGGAA
spacer length: 47 repeater length: 26

12047 968992 CTGATCCCGCAAGAGGGAATTGAAAG CGAGACCATG

12048

12049

12050 crispr 6

12051 1130892 CTTTCAATTCCCTCTCGCGGGATCAG GAAGGCGAGGTGGTTGAGATGAAAGTAGTAGAGCTTCGGG spacer
length: 40 repeater length: 26

12052 1130958 CTTTCAATTCCCTCTCGCGGGATCAG ATTAGAGTATTCAAGGACAAGGTTCTGCTTATGCTCAGGAG spacer
length: 41 repeater length: 26

12053 1131025 CTTTCAATTCCCTCTCGCGGGATCAG ACGTATTACAGCCAATTCATGCCTGCTACTATCGTCAACAATCTA
spacer length: 45 repeater length: 26

12054 1131096 CTTTCAATTCCCTCTCGCGGGATCAG GCCGCTGTATCTCCTGCTTCCGTCTCTCCTCAAGGCTTATA spacer
length: 41 repeater length: 26

12055 1131163 CTTTCAATTCCCTCTCGCGGGATCAG AGAACTGTTGACGGACGGAGAGTTCGACGAATTCGAGA spacer
length: 38 repeater length: 26

12056 1131227 CTTTCAATTCCCTCTCGCGGGATCAG ATGAGGGGGCAGCGAGGTTGTTGTCGTCTCTGTTAAATGT spacer
length: 40 repeater length: 26

12057 1131293 CTTTCAATTCCCTCTCGCGGGATCAG ATGTCCACTATCATCTCTACGCCCGCATTGAGGACATCATGG spacer
length: 42 repeater length: 26

12058 1131361 CTTTCAATTCCCTCTCGCGGGATCAG CAGAAAAACACAGACTATACCACGAACCAGATTGTCCACGAGTTGT
spacer length: 46 repeater length: 26

12059 1131433 CTTTCAATTCCCTCTCGCGGGATCAG CTGGAGGCTACGCACTTTTCGACCATGATGGAGAACTATG spacer
length: 40 repeater length: 26

12060 1131499 CTTTCAATTCCCTCTCGCGGGATCAG TGCCTAAGTCAGGCAGCAGCAAAACAACACGTATCCACATCCAGGA
spacer length: 46 repeater length: 26

12061 1131571 CTTTCAATTCCCTCTCGCGGGATCAG AAAGTTTGAACGCATCAACCGCAAACCTTGACAATATCTCAT spacer
length: 41 repeater length: 26

12062 1131638 CTTTCAATTCCCTCTCGCGGGATCAG ATAATACTTAAGCATGGCAAAACATCACCAAAAAAATAGTTA spacer
length: 42 repeater length: 26

12063 1131706 CTTTCAATTCCCTCTCGCGGGATCAG AGATAGGTATTATCACGCCTCTAAAGTATCAACTTAATGC spacer
length: 40 repeater length: 26

12064 1131772 CTTTCAATTCCCTCTCGCGGGATCAG TTAGCAGCGGGTTGCGTGAGTTGTTGGAAGAGTTGCTAAGAG spacer
length: 42 repeater length: 26

12065 1131840 CTTTCAATTCCCTCTCGCGGGATCAG TGGAATTGTAGGTAAAAATTATCTGCTGTTTCTGAG spacer

length: 36 repeater length: 26
12066 1131902 CTTTCAATTCCCTCTCGCGGGATCAG TGGAAATTGTAGGTAAAAATTATCTGCTGTTTCTGAG spacer
length: 36 repeater length: 26
12067 1131964 CTTTCAATTCCCTCTCGCGGGATCAG TTCAGAGATGTTCTCACCGATGAGGAGCAGGATTTGGTGA spacer
length: 40 repeater length: 26
12068 1132030 CTTTCAATTCCCTCTCGCGGGATCAG GACAGCGGCGGCTGCATTCAATAGAGTTGTGAAGAGCCGG spacer
length: 40 repeater length: 26
12069 1132096 CTTTCAATTCCCTCTCGCGGGATCAG TGGAAATTGTAGGTAAAAATTATCTGCTGTTTCTGAG spacer
length: 36 repeater length: 26
12070 1132158 CTTTCAATTCCCTCTCGCGGGATCAG TGGAAATTGTAGGTAAAAATTATCTGCTGTTTCTGAG spacer
length: 36 repeater length: 26
12071 1132220 CTTTCAATTCCCTCTCGCGGGATCAG TTCAGAGATGTTCTCACCGATGAGGAGCAGGATTTGGTGA spacer
length: 40 repeater length: 26
12072 1132286 CTTTCAATTCCCTCTCGCGGGATCAG GACAGCGGCGGCTGCATTCAATAGAGTTGTGAAGAGCCGG spacer
length: 40 repeater length: 26
12073 1132352 CTTTCAATTCCCTCTCGCGGGATCAG AACATTTTTTCCGCTTGTAACGGGGTTGTGTGGCTGAGAA spacer
length: 41 repeater length: 26
12074 1132419 CTTTCAATTCCCTCTCGCGGGATCAG TCTGGCAATTCTAGACGCACCATTTGTCACGTGGCTTGGGTCG spacer
length: 42 repeater length: 26
12075 1132487 CTTTCAATTCCCTCTCGCGGGATCAG TGGAAAGAGAACATTCCACTACATCGGCGCAGAGCATAAGATTGT
spacer length: 44 repeater length: 26
12076 1132557 CTTTCAATTCCCTCTCGCGGGATCAG TG TAGTTGAGGAGT GCGGCTACTGCGCAAATCACTCATATC spacer
length: 42 repeater length: 26
12077 1132625 CTTTCAATTCCCTCTCGCGGGATCAG GAGGCGTTT GACTGCAGCCTCAAGCTCACTCGGCAGATAAAGT
spacer length: 43 repeater length: 26
12078 1132694 CTTTCAATTCCCTCTCGCGGGATCAG CCGCTATAATTTTGATAGATGTTAGCGGCTCCGTTAGCGA spacer
length: 40 repeater length: 26
12079 1132760 CTTTCAATTCCCTCTCGCGGGATCAG TTGCGTCATG
12080
12081
12082 crispr 7
12083 1132829 CTTTCAATTCCCTCTCGCGGGATCAG
TGGATGGATTCCATTCTTTAACGCCGCCACAGGTAAAATACAGTTCTTGCGCGGCAGAA spacer length: 59
repeater length: 26
12084 1132914 CTTTCAATTCCCTCTCGCGGGATCAG TGCGACGGTGAAGTTTCGTAGGGTGACGGTGGATGAGGCAA spacer
length: 41 repeater length: 26
12085 1132981 CTTTCAATTCCCTCTCGCGGGATCAG AAGCGAGGGCCCTCGCATAGGCGGAGAAAGAAGGTTGAGCAG spacer
length: 42 repeater length: 26
12086 1133049 CTTTCAATTCCCTCTCGCGGGATCAG AAGTGTAACTCGAAGTCGGCGATTTCGACGATTCAAGTCATTTA
spacer length: 44 repeater length: 26
12087 1133119 CTTTCAATTCCCTCTCGCGGGATCAG ATGGGGGTGAAAGAAAAAATGAGTTACGATCTT GACTCGGCAAT
spacer length: 44 repeater length: 26
12088 1133189 CTTTCAATTCCCTCTCGCGGGATCAG CCCCCTGGCA
12089
12090
12091 crispr 8
12092 1133331 CTTTCAATTCCCTCTCGCGGGATCAG TTGCAAAAGAGAGTTGAGCGTCTAAACAAATTAATAGCAAATGT
spacer length: 44 repeater length: 26
12093 1133401 CTTTCAATTCCCTCTCGCGGGATCAG ATATTAAAACGTTTTGTTTTTTGTGTTGTTATGGATAAAAT spacer
length: 41 repeater length: 26
12094 1133468 CTTTCAATTCCCTCTCGCGGGATCAG TCGCCTTTTTTAGTGCTTCGTCGCTCGGCAGGGGGCCGAAGT spacer
length: 42 repeater length: 26
12095 1133536 CTTTCAATTCCCTCTCGCGGGATCAG AGGCTGCTCAACCCAAAACAAGGAGCTGCTGCTGCAGACTT spacer
length: 41 repeater length: 26
12096 1133603 CTTTCAATTCCCTCTCGCGGGATCAG AGGAGTAATGGCGAAAAAGAAAGCCAAACTAACAATAGATACGA
spacer length: 44 repeater length: 26
12097 1133673 CTTTCAATTCCCTCTCGCGGGATCAG CCAAAACACTCGCTCACGCAGGCGTCCCAATCCTCACCTTGA
spacer length: 43 repeater length: 26
12098 1133742 CTTTCAATTCCCTCTCGCGGGATCAG TAGGCATAGAAGCGGGCAAAGATGCGGTTACCATGAA spacer
length: 39 repeater length: 26
12099 1133807 CTTTCAATTCCCTCTCGCGGGATCAG AGCATTCTTTGAACATAGACGAGGTCTTTGCTGCTTTCATAAAGT
spacer length: 45 repeater length: 26
12100 1133878 CTTTCAATTCCCTCTCGCGGGATCAG GGGGTTATATACTTCGGTATTACGCTGGTCATATGGAATTGT spacer
length: 42 repeater length: 26
12101 1133946 CTTTCAATTCCCTCTCGCGGGATCAG TGTTTCGCAGCTCAGCCTGCACCATCAGCTCAGACCATTTA spacer
length: 41 repeater length: 26
12102 1134013 CTTTCAATTCCCTCTCGCGGGATCAG TCACAGCTTTCAATTTCATCAAAATCATATGTCTTAAGATAATA
spacer length: 43 repeater length: 26
12103 1134082 CTTTCAATTCCCTCTCGCGGGATCAG AGCCTTTGCCTTTTCGCACCTGCCTCATAATACTGACCTCGC
spacer length: 43 repeater length: 26
12104 1134151 CTTTCAATTCCCTCTCGCGGGATCAG TGTTTCATACTCTGCGAGGCTGATGAGCCCCCTCGCGCGCTTGA

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spacer length: 43 repeater length: 26
12105 1134220 CTTTCAATTCCCTCTCGCGGGATCAG TTAGTCTCAGCTAAAGAGGCGGCTTTGTTATTGACATTCTGA
spacer length: 43 repeater length: 26
12106 1134289 CTTTCAATTCCCTCTCGCGGGATCAG TCTGCACCAGTAGGCGGCAAATTCTTCAAAGCATCC spacer
length: 36 repeater length: 26
12107 1134351 CTTTCAATTCCCTCTCGCGGGATCAG GCAGACGGTC
12108
12109
12110 GCA_000275605.1_ASM27560v1_genomic.fna(PilerCR):
12111 START REPEAT
SPACER
12112 crispr 1
12113 59724 GTTCCAATAAGACTACAAAAGAATTGAAAG TGTTTCATCGCACTTCTTCTTCTGACTCTGCTCCACTTAG spacer
length: 39 repeater length: 30
12114 59793 GTTCCAATAAGACTACAAAAGAATTGAAAG GCGTTAATGAACAATAAGCCTGACACGAACATAAACA spacer
length: 37 repeater length: 30
12115 59860 GTTCCAATAAGACTACAAAAGAATTGAAAG TTTCAATAAGGAGTTTCAAATGGCTCGATGGAATTAT spacer
length: 37 repeater length: 30
12116 59927 GTTCCAATAAGACTACAAAAGAATTGAAAG AGAACCTCCGCAATCTCCTTTGGAGAAAGGCCCTTCTTGAGA
spacer length: 42 repeater length: 30
12117 59999 GTTCCAATAAGACTACAAAAGAATTGAAAG CTTCTTCGAAGTCGTAGTTTAGTGTGTCAAGATATTCT spacer
length: 38 repeater length: 30
12118 60067 GTTCCAATAAGACTACAAAAGAATTGAAAG TTCTAGAAGTTCTCTTGCGAGAGCCAAGAGCGCGGCT spacer
length: 37 repeater length: 30
12119 60134 GTTCCAATAAGACTACAAAAGAATTGAAAG GTGTACTTAAGAATTTCTTTCATAACTTTTCTGAAGA spacer
length: 37 repeater length: 30
12120 60201 GTTCCAATAAGACTACAAAAGAATTGAAAG ACATAAGAGACGGAGAGCTTGTTATCTGGAAAGCAAAT spacer
length: 38 repeater length: 30
12121 60269 GTTCCAATAAGACTACAAAAGAATTGAAAG AGTTATAACAAACCAGCATGACCCGCTCTCGGCTGAGTGGCAG
spacer length: 43 repeater length: 30
12122 60342 GTTCCAATAAGACTACAAAAGAATTGAAAG CTACCATGGCCATCACCAATAATTAATTGTAAGTTAG spacer
length: 37 repeater length: 30
12123 60409 GTTCCAATAAGACTACAAAAGAATTGAAAG ATTTGCTGACAAGCCATCGCAAAATTCTTCTGTTTT spacer
length: 36 repeater length: 30
12124 60475 GTTCCAATAAGACTACAAAAGAATTGAAAG AACTCCACGACAGCATAAGGGACATTTACCATCGTAT spacer
length: 37 repeater length: 30
12125 60542 GTTCCAATAAGACTACAAAAGAATTGAAAG CGACATTATC
12126
12127
12128 crispr 2
12129 60689 GTTCCAATAAGACTACAAAAGAATTGAAAG TGGGATAATAAAGCCTCTATACTTCTTTGAATAATAG spacer
length: 37 repeater length: 30
12130 60756 GTTCCAATAAGACTACAAAAGAATTGAAAG TCCAACATGGTTAACTTCCATCCTCTTAAAAGGAACT spacer
length: 37 repeater length: 30
12131 60823 GTTCCAATAAGACTACAAAAGAATTGAAAG GTAAGGTATTCTTCATAGACACCGCTCTGCATAACGT spacer
length: 37 repeater length: 30
12132 60890 GTTCCAATAAGACTACAAAAGAATTGAAAG TTGAGGCTGGAGAGGGCTTCTTTGTTACTACTTGCGT spacer
length: 37 repeater length: 30
12133 60957 GTTCCAATAAGACTACAAAAGAATTGAAAG TTAACTCGTTTAGTTTTATGTTTCATGTTCCACACTAA spacer
length: 37 repeater length: 30
12134 61024 GTTCCAATAAGACTACAAAAGAATTGAAAG CTAATTTACGCTTTAGCTCGTGATCAACCCTAATCCCTA spacer
length: 39 repeater length: 30
12135 61093 GTTCCAATAAGACTACAAAAGAATTGAAAG TGGTGCTCATG
12136
12137
12138 crispr 3
12139 112272 GTTCCAATAAGACTACAAAAGAATTGAAAG GAATGTTGCTCAATGCAAAGGGCTCACCGCTGCTGGT spacer
length: 37 repeater length: 30
12140 112339 GTTCCAATAAGACTACAAAAGAATTGAAAG TTGAGTTGAAGCGCCACTCTTTGAAGCCTATCAGA spacer
length: 35 repeater length: 30
12141 112404 GTTCCAATAAGACTACAAAAGAATTGAAAG GCTTCAGGTCTTCAATATTCAATCCCGGTCCCTTTCA spacer
length: 37 repeater length: 30
12142 112471 GTTCCAATAAGACTACAAAAGAATTGAAAG TCGGGTCCCTTGGAGTTCCGAACGGGCTCCCGAGGCT spacer
length: 37 repeater length: 30
12143 112538 GTTCCAATAAGACTACAAAAGAATTGAAAG TTGATTCCCTTATAGATGTTTCGTTTTCCACACAACTAA spacer
length: 38 repeater length: 30
12144 112606 GTTCCAATAAGACTACAAAAGAATTGAAAG CTGTATATCCTTTTCGTTTGTCTTCCACACTTTCAACTCT spacer
length: 39 repeater length: 30
12145 112675 GTTCCAATAAGACTACAAAAGAATTGAAAG TATGTTTCGTTCTCGTTCACTGTTATTCTCTTTTGTTC spacer
length: 38 repeater length: 30
12146 112743 GTTCCAATAAGACTACAAAAGAATTGAAAG AAAAATAAAAAAAGAAGAGGTGGTGGTGAAGAATGT spacer

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length: 37 repeater length: 30
12147 112810 GTTCCAATAAGACTACAAAAGAATTGAAAG CTTTTCCTGCTCCTGCTTAACAAAAGAATTGTTGGCTT spacer
length: 38 repeater length: 30
12148 112878 GTTCCAATAAGACTACAAAAGAATTGAAAG GGAACCACAGACCCAATCGCAGTAATTTGGGTTGAC spacer
length: 36 repeater length: 30
12149 112944 GTTCCAATAAGACTACAAAAGAATTGAAAG TCATGTATTTTTCTTCTCCCAAATCCAGGGGCTCCCA spacer
length: 37 repeater length: 30
12150 113011 GTTCCAATAAGACTACAAAAGAATTGAAAG TCTCAATTGGGGAGTTGCTTTAATGGCTTTTGGAGTG spacer
length: 37 repeater length: 30
12151 113078 GTTCCAATAAGACTACAAAAGAATTGAAAG AAGATAATCGCTCAACAGTTTCAATGCTATACTTGTCAG spacer
length: 39 repeater length: 30
12152 113147 GTTCCAATAAGACTACAAAAGAATTGAAAG TAATCTCAATAACTTTGGCTTCTTTTCTGTGTTTGTGTT spacer
length: 38 repeater length: 30
12153 113215 GTTCCAATAAGACTACAAAAGAATTGAAAG
GATTTTCAGAGAACAACGGTGAATTTAAGAATTTCTGACTTTCAATT spacer length: 47 repeater length: 30
12154 113292 GTTCCAATAAGACTACAAAAGAATTGAAAG ACACGAACTCCCAACATTCTTACCACCCCTCCTTCT spacer
length: 37 repeater length: 30
12155 113359 GTTCCAATAAGACTACAAAAGAATTGAAAG TTGCTGATTACGAAGGCATATCCTTCAATTGTTGCTCGT spacer
length: 39 repeater length: 30
12156 113428 GTTCCAATAAGACTACAAAAGAATTGAAAG ATAGACTTCCCTTGTGTACTTTAGTAGTTCTGCAAGTAA spacer
length: 39 repeater length: 30
12157 113497 GTTCCAATAAGACTACAAAAGAATTGAAAG GAAGGATAGCAGGATCTAATGTAATTCTCGCGACATCTTTAAA
spacer length: 43 repeater length: 30
12158 113570 GTTCCAATAAGACTACAAAAGAATTGAAAG GATGAGGAGTGAAAGTTCTTGCAAAGCCCTTTCCAAAAG spacer
length: 39 repeater length: 30
12159 113639 GTTCCAATAAGACTACAAAAGAATTGAAAG AGTATCGCTACTGTTTTTCATGCACCACTGCACCCAT spacer
length: 36 repeater length: 30
12160 113705 GTTCCAATAAGACTACAAAAGAATTGAAAG AATCAATCCGAGAATCGAATTTTCTATACGCTTTT spacer
length: 36 repeater length: 30
12161 113771 GTTCCAATAAGACTACAAAAGAATTGAAAG TTTGTTTTTGGCTCCTGTGTCTTGTGGTGATAAAAT spacer
length: 35 repeater length: 30
12162 113836 GTTCCAATAAGACTACAAAAGAATTGAAAG ACGGAGTGTT
12163
12164
12165 crispr 4
12166 426204 CTTTCAATTCTATTTTGGTCTTATTGTAAC AGGTGGTTAGACGGGTGGTTTGGCTGGAGACTTAGGACT spacer
length: 38 repeater length: 30
12167 426272 CTTTCAATTCTATTTTGGTCTTATTGTAAC GCAGTCCAGTACAAAGGCACAATTCTCGGTGGAATACT spacer
length: 38 repeater length: 30
12168 426340 CTTTCAATTCTATTTTGGTCTTATTGTAAC CTCCTTACAATAAGCTCACCGTTGCTGATGTTGTGCGC spacer
length: 38 repeater length: 30
12169 426408 CTTTCAATTCTATTTTGGTCTTATTGTAAC TTGTAAGGAGACCAAGACCACAGGTTTATAGGGGACTCA spacer
length: 39 repeater length: 30
12170 426477 CTTTCAATTCTATTTTGGTCTTATTGTAAC ATGGTGATTATGGCGACACTATTGAGTGGTTCGTT spacer
length: 35 repeater length: 30
12171 426542 CTTTCAATTCTATTTTGGTCTTATTGTAAC AGCTGAGAAGGTGTGAGGGATGTGAAGGCTAGGT spacer
length: 35 repeater length: 30
12172 426607 CTTTCAATTCTATTTTGGTCTTATTGTAAC GCGGGAGCAAGGTGTTGCAAACCTTGATAGAGTTCCA spacer
length: 37 repeater length: 30
12173 426674 CTTTCAATTCTATTTTGGTCTTATTGTAAC TGGGCATTGATTTTCGACATTGCAAAAATTTTTCATTGC spacer
length: 38 repeater length: 30
12174 426742 CTTTCAATTCTATTTTGGTCTTATTGTAAC TCGGAGTTACCGATTGCTGAAGTAAATGAGAGATTCAAGATA
spacer length: 42 repeater length: 30
12175 426814 CTTTCAATTCTATTTTGGTCTTATTGTAAC GTTGTTAATGTATTTCGTTGAGGCAGGGAAGTATAAGG spacer
length: 37 repeater length: 30
12176 426881 CTTTCAATTCTATTTTGGTCTTATTGTAAC GACTTTTGTATTACAAAATCAGCGTAGTTTACTATCAG spacer
length: 38 repeater length: 30
12177 426949 CTTTCAATTCTATTTTGGTCTTATTGTAAC ACAAACACAGAAAAGAAGCCAAAGTTATTGAGATTA spacer
length: 36 repeater length: 30
12178 427015 CTTTCAATTCTATTTTGGTCTTATTGTAAC TAGCTAATGTCCATGAGAGTGTGTGAAAAGCTAGTGAA spacer
length: 38 repeater length: 30
12179 427083 CTTTCAATTCTATTTTGGTCTTATTGTAAC GCCAAGCTAGTTATTGATGTGTTGCATACCGTATACAC spacer
length: 38 repeater length: 30
12180 427151 CTTTCAATTCTATTTTGGTCTTATTGTAAC TATTCATGGCATGTGGCAATGTTTCTTGATAGGGCACT spacer
length: 38 repeater length: 30
12181 427219 CTTTCAATTCTATTTTGGTCTTATTGTAAC CTTTCTTTGCATCTTTTGTATATCCCTTAGACCCAAATCT
spacer length: 40 repeater length: 30
12182 427289 CTTTCAATTCTATTTTGGTCTTATTGTAAC TTAATTCTTGGGAAAAACAGGGATTATATTATCCAC spacer
length: 36 repeater length: 30
12183 427355 CTTTCAATTCTATTTTGGTCTTATTGTAAC AGGAACGGTCTCCAAGAGGACTTGGCGAATTACGTGAC spacer
length: 38 repeater length: 30

12184	427423	CTTTC AATTCTATTTTGGTCTTATTGTAAC	TATTTTGTCTACTTTGTATGACAATGTCTTATGTGG	spacer
		length: 37	repeater length: 30	
12185	427490	CTTTC AATTCTATTTTGGTCTTATTGTAAC	ATATAATAGGTATGTAGATAAATCACCCCTCTGAGAAGG	spacer
		length: 38	repeater length: 30	
12186	427558	CTTTC AATTCTATTTTGGTCTTATTGTAAC	CGAATTTCGATAGATTTCGAGAAGCTTGTAAGGGTAGAGA	spacer
		length: 38	repeater length: 30	
12187	427626	CTTTC AATTCTATTTTGGTCTTATTGTAAC	CTATTATATATACAGATGTCTTGCATTATGATGCTTA	spacer
		length: 37	repeater length: 30	
12188	427693	CTTTC AATTCTATTTTGGTCTTATTGTAAC	CGCTATGATATGCTGACGGATGAGGAGTATGCTGAGA	spacer
		length: 37	repeater length: 30	
12189	427760	CTTTC AATTCTATTTTGGTCTTATTGTAAC	TGAAAATAGTGGACGTCATCCCTCCAAGCCAAGTGCCT	spacer
		length: 38	repeater length: 30	
12190	427828	CTTTC AATTCTATTTTGGTCTTATTGTAAC	TATGACTCTGACACAGGTACTAAAATCGAGGAGTTCC	spacer
		length: 37	repeater length: 30	
12191	427895	CTTTC AATTCTATTTTGGTCTTATTGTAAC	CACAAGCACTAGTCCTGCTAGCGTTTTTCAGGAGTGGT	spacer
		length: 37	repeater length: 30	
12192	427962	CTTTC AATTCTATTTTGGTCTTATTGTAAC	ACGAGCATTAGGACTGTGTTATTGTTTTGATCTTTT	spacer
		length: 36	repeater length: 30	
12193	428028	CTTTC AATTCTATTTTGGTCTTATTGTAAC	GTGAGCGCCCTCAAGTACTACGTGAACCATTCCCTT	spacer
		length: 37	repeater length: 30	
12194	428095	CTTTC AATTCTATTTTGGTCTTATTGTAAC	CTCAATGCAAAGGGCTCACCGCTGCTGGTGAGTATGGTC	spacer
		length: 39	repeater length: 30	
12195	428164	CTTTC AATTCTATTTTGGTCTTATTGTAAC	CCTTGATCTCAGCATGTCCAGAAACGAAGTCCTGGCT	spacer
		length: 37	repeater length: 30	
12196	428231	CTTTC AATTCTATTTTGGTCTTATTGTAAC	GACCTCACCA	
12197				
12198				
12199	crispr	5		
12200	499026	GTTACAATAAGACTAAAAATAGAATTGAAAG	AGTGAAGAATTTGACGTACAAATGTCCTTAGTGGAAC	spacer
		length: 37	repeater length: 30	
12201	499093	GTTACAATAAGACTAAAAATAGAATTGAAAG	TGATGTAGATCTCTGTACCTTTCGGGACCTGTAGGTC	spacer
		length: 37	repeater length: 30	
12202	499160	GTTACAATAAGACTAAAAATAGAATTGAAAG	CAGTTCTACTTTGATAAGACTGTGGTGGTTAATGGTAAA	spacer
		length: 39	repeater length: 30	
12203	499229	GTTACAATAAGACTAAAAATAGAATTGAAAG	CTCTTATGGTGAAGCTTTCGACATTTTCTTTGGATGT	spacer
		length: 37	repeater length: 30	
12204	499296	GTTACAATAAGACTAAAAATAGAATTGAAAG	CGTCTTCTCTGAGATTCTTGGCTCGTTCTAGAGCCAT	spacer
		length: 37	repeater length: 30	
12205	499363	GTTACAATAAGACTAAAAATAGAATTGAAAG	GAGAGTATCAGGAGCTTCTGACCTCCTTATACAGCT	spacer
		length: 37	repeater length: 30	
12206	499430	GTTACAATAAGACTAAAAATAGAATTGAAAG	GACAAAGAACTCCCTAGCGTCCCTCCCCGTGTA CTTGA	spacer
		length: 38	repeater length: 30	
12207	499498	GTTACAATAAGACTAAAAATAGAATTGAAAG	CCACACTTCTATCTCAGCACCCCCAAACGTGAAACTG	spacer
		length: 37	repeater length: 30	
12208	499565	GTTACAATAAGACTAAAAATAGAATTGAAAG	TTCTGCCGTCCCTTTTCTCGACGAACCTCATACCGA	spacer
		length: 36	repeater length: 30	
12209	499631	GTTACAATAAGACTAAAAATAGAATTGAAAG	TTGAGGAGATGCTTACTGCGGTAAAAAGGACATTGCAG	spacer
		length: 39	repeater length: 30	
12210	499700	GTTACAATAAGACTAAAAATAGAATTGAAAG	GGTGCTTGAGCTCGCTAGTGCCCTCCTCTGGGCTAT	spacer
		length: 37	repeater length: 30	
12211	499767	GTTACAATAAGACTAAAAATAGAATTGAAAG	TAATGCTGTACAGGATTGACAAGGAGGCTTACGCTTCT	spacer
		length: 38	repeater length: 30	
12212	499835	GTTACAATAAGACTAAAAATAGAATTGAAAG	TACTATAGGCGGAACCTCCCTGCAATGAAAAATTTTGTG	spacer
		length: 37	repeater length: 30	
12213	499902	GTTACAATAAGACTAAAAATAGAATTGAAAG	GCACCTTCTTCACCATCGCCGTCTGGATTGCTGGTAG	spacer
		length: 37	repeater length: 30	
12214	499969	GTTACAATAAGACTAAAAATAGAATTGAAAG	TGTTTTCGAATATTGTTACTTCTTGTGTATCTCTGAA	spacer
		length: 37	repeater length: 30	
12215	500036	GTTACAATAAGACTAAAAATAGAATTGAAAG	ATTCACTGGGTCTTCAGAAAGTTCATAAATTCACCG	spacer
		length: 37	repeater length: 30	
12216	500103	GTTACAATAAGACTAAAAATAGAATTGAAAG	CCTTCTTCTTTTTTAAATTTTTTAATTTTCATTAA	spacer
		length: 34	repeater length: 30	
12217	500167	GTTACAATAAGACTAAAAATAGAATTGAAAG	TGATCTAGGCGTCGGGTAATTCTGTAAGGTCTCTGGCTCAT	spacer
		length: 41	repeater length: 30	
12218	500238	GTTACAATAAGACTAAAAATAGAATTGAAAG	ATGACTATCAGGATGATAATCGTTTTTTTATGCTCGCTTACAA	spacer
		length: 43	repeater length: 30	
12219	500311	GTTACAATAAGACTAAAAATAGAATTGAAAG	ACAGGCAATTAGAAACTCTTTCAAAAACGCAGTTCAG	spacer
		length: 37	repeater length: 30	
12220	500378	GTTACAATAAGACTAAAAATAGAATTGAAAG	TAGTGTAACAACATCATATGGAAAGTCTCCCACGTTG	spacer
		length: 37	repeater length: 30	
12221	500445	GTTACAATAAGACTAAAAATAGAATTGAAAG	GGGTTTACTCCGAACGGTGTTCTGCTAACTGATATAGT	spacer

length: 38 repeater length: 30
12222 500513 GTTACAATAAGACTAAAAATAGAATTGAAAG ACTTAGCCACCTCCGAGATGTTTTCGTAATAGTTAT spacer
length: 36 repeater length: 30
12223 500579 GTTACAATAAGACTAAAAATAGAATTGAAAG TTGTAGGCTCGTGGACTTGGCTTCCACACAATAATT spacer
length: 37 repeater length: 30
12224 500646 GTTACAATAAGACTAAAAATAGAATTGAAAG CTTCTTCTCTTACAAAGTCTTCAATGATAGTAAATAT spacer
length: 37 repeater length: 30
12225 500713 GTTACAATAAGACTAAAAATAGAATTGAAAG TGGGGTCTCGTCGCAATCGGTGCAGTATTCCTAAGCCT spacer
length: 38 repeater length: 30
12226 500781 GTTACAATAAGACTAAAAATAGAATTGAAAG GCAATTGGGCTTTTTGTAGCTGGAATCTTGGGTGAT spacer
length: 36 repeater length: 30
12227 500847 GTTACAATAAGACTAAAAATAGAATTGAAAG AAAGATTCTGATTCCCGAAAGGCTTTTTCCGACACC spacer
length: 36 repeater length: 30
12228 500913 GTTACAATAAGACTAAAAATAGAATTGAAAG TCACCATTACCTCCTAATCCAATCATCTAACATTGAA spacer
length: 37 repeater length: 30
12229 500980 GTTACAATAAGACTAAAAATAGAATTGAAAG TAACTCTAATGTTTCATCGACTAACATGTCAATTTTCAT spacer
length: 38 repeater length: 30
12230 501048 GTTACAATAAGACTAAAAATAGAATTGAAAG TTGGATTTGCTACTCTCACGTATAGGGTCCCTACCTCT spacer
length: 38 repeater length: 30
12231 501116 GTTACAATAAGACTAAAAATAGAATTGAAAG TGATATAGTCGTCTGCTCCTGATACCCAATATATG spacer
length: 35 repeater length: 30
12232 501181 GTTACAATAAGACTAAAAATAGAATTGAAAG AGGAGGCTCTAGATGAGCTAATCAGCGCAGAAGGTGG spacer
length: 37 repeater length: 30
12233 501248 GTTACAATAAGACTAAAAATAGAATTGAAAG ACCACCCCTGGGAAAGGCCTTATGGTACTACCTAA spacer
length: 35 repeater length: 30
12234 501313 GTTACAATAAGACTAAAAATAGAATTGAAAG CTTAAAAATACTACCCTCAACAATCAATATTGCAA spacer
length: 35 repeater length: 30
12235 501378 GTTACAATAAGACTAAAAATAGAATTGAAAG CTCTCTTACTTCTATAAGACTGAAACTTCACACCTAA spacer
length: 37 repeater length: 30
12236 501445 GTTACAATAAGACTAAAAATAGAATTGAAAG TAACGCTTATTTACCCTGCTTAACACTCTTAACCCCA spacer
length: 38 repeater length: 30
12237 501513 GTTACAATAAGACTAAAAATAGAATTGAAAG ACATCCCTACATAATAATACGCCACTTGTCCAAAAAC spacer
length: 37 repeater length: 30
12238 501580 GTTACAATAAGACTAAAAATAGAATTGAAAG ATCTCCATCATACCAATGCTGTGCAAAATCAATCTT spacer
length: 36 repeater length: 30
12239 501646 GTTACAATAAGACTAAAAATAGAATTGAAAG TTGAAAAGGTTGGGTGATAGGGTTAAGGAGGAGTTAGTGA
spacer length: 40 repeater length: 30
12240 501716 GTTACAATAAGACTAAAAATAGAATTGAAAG TAAACTTAAGCTGGGATGGGCTATATACAAAGACAGACA spacer
length: 39 repeater length: 30
12241 501785 GTTACAATAAGACTAAAAATAGAATTGAAAG GAGATAGAGCTGGTTTTACGTTATGGCAAAATCTTAGA spacer
length: 38 repeater length: 30
12242 501853 GTTACAATAAGACTAAAAATAGAATTGAAAG TGGTTCATACAATTCTGGAAGGTTGTAGAAACCAAC spacer
length: 36 repeater length: 30
12243 501919 GTTACAATAAGACTAAAAATAGAATTGAAAG GATGCCCAAACCTGAATATACCCCGCACTAACTAAGT spacer
length: 37 repeater length: 30
12244 501986 GTTACAATAAGACTAAAAATAGAATTGAAAG TAAATGAGAT
12245
12246
12247 crispr 6
12248 865557 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CGGAGGCTCTACCTAATCATCCTCTTGACACAACCTC spacer
length: 36 repeater length: 30
12249 865623 CTTTCAATTCTTTTGTAGTCTTATTGGAAC AGTTGACTTCACTACTACTTCTTCATCTATAATTCTA spacer
length: 37 repeater length: 30
12250 865690 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GAAGAGAGGTTAGAATAACAGCTATTAGCGTTTTACA spacer
length: 37 repeater length: 30
12251 865757 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TTTGGAGATAGAGTTGCAGTAGAAATGATAAGGAA spacer
length: 35 repeater length: 30
12252 865822 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CACGGCCTACCTCGCTGAGATCCGGGTAGATGACAGC spacer
length: 37 repeater length: 30
12253 865889 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GGGGAGATGA
12254
12255
12256 crispr 7
12257 866046 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CTTATAAGATTTTCCCATTTAAGCAGAGCTTAGATAA spacer
length: 37 repeater length: 30
12258 866113 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CTGACTTTAGAGACTTATACAATAACAACAACATATCTAAAGTCC
spacer length: 45 repeater length: 30
12259 866188 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GCTACAACCCTCCCTCGTAGTAGTACTTCCCATCGT spacer
length: 37 repeater length: 30
12260 866255 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CCTTATATGGGTGTTGTGAAGCAGGATAGAACTCTTGA spacer
length: 38 repeater length: 30

12261 866323 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GTCCCCGTAGTCCCTTAGAACTTTGTAGCCCTTCTTC spacer
length: 37 repeater length: 30
12262 866390 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CTTCCAGCATTCTCTGCCTTCACGTAACTTCTGTACCCT
spacer length: 40 repeater length: 30
12263 866460 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GCCAATTAAGTTCCTCCAGACAGATGAAGCCAGCAA spacer
length: 37 repeater length: 30
12264 866527 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CGAGGAAGGCTCCCTCTAAACCAGCCAAGGAGGTAA spacer
length: 37 repeater length: 30
12265 866594 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TGGCCACCCACTCCAATGCGCCTTTCACTTTTTGGCCAA spacer
length: 39 repeater length: 30
12266 866663 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TATCAAAAGGTTAAGGCTTCTGTAAAAGAACTTA spacer
length: 34 repeater length: 30
12267 866727 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CCCGAGCGAGAGCTCGGGGTGATCATCATTGGAAACTC spacer
length: 38 repeater length: 30
12268 866795 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TAAGTGATTGGCTAAATCCTCATAGAATCCCAACTCC spacer
length: 37 repeater length: 30
12269 866862 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TGTAATGTTTGTAAATATGTGTATGCAATCATTGTTG spacer
length: 37 repeater length: 30
12270 866929 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TATCAAAAGGTTAAGGCTTCTGTAAAAGAACTTA spacer
length: 34 repeater length: 30
12271 866993 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TTCTATAGCTCCCCTGTCAACCCAAATTACTGCGAT spacer
length: 36 repeater length: 30
12272 867059 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TTGGGTAAGATGGAGGGTAGAAGATACAGAAGATTAG spacer
length: 37 repeater length: 30
12273 867126 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TTCCCCCAACCTCCGATTTGTTTTTGAGGTTTTTGAGTC spacer
length: 39 repeater length: 30
12274 867195 CTTTCAATTCTTTTGTAGTCTTATTGGAAC AGAAGTAACAAGGAGGTGGGAGATGGAAGAAATGAAA spacer
length: 37 repeater length: 30
12275 867262 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CTTGAACTTAAGCCACTCTATTGCGTATGGGTAGAGCTC spacer
length: 39 repeater length: 30
12276 867331 CTTTCAATTCTTTTGTAGTCTTATTGGAAC
TCTCCACTTGCTCCAGTGGAACACACCTTTACGTTTGCCAAGTTCAG spacer length: 49 repeater length:
30
12277 867410 CTTTCAATTCTTTTGTAGTCTTATTGGAAC
TGTAGGAATATCTATAAGATTAAATGTCAGAGCTTCAGCGATCGAAGTT spacer length: 49 repeater length:
30
12278 867489 CTTTCAATTCTTTTGTAGTCTTATTGGAAC AGTGGCAGAGAACAGAAATTTGTCAAAAACGGAAAA spacer
length: 37 repeater length: 30
12279 867556 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TTGCCAGTGGATATCATTAAGGTTCTGAGGGAGGCAGTCA
spacer length: 40 repeater length: 30
12280 867626 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GAGTTCGTAGGATAATAACAAGGAACGAAAAGTTTAA spacer
length: 37 repeater length: 30
12281 867693 CTTTCAATTCTTTTGTAGTCTTATTGGAAC AAGGCGTGGGAAGAACAATATCGGGAATTAAGATAGTT spacer
length: 38 repeater length: 30
12282 867761 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TTGCACTCACGTGTAACAAGTACCTGTACAATAGATA spacer
length: 37 repeater length: 30
12283 867828 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CAATATTTTTTCAATGTCTGTCTATTGTCCACCTCCT spacer
length: 37 repeater length: 30
12284 867895 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TGTTTTCACTAATCGAAGACTTCGTAAGAGATAACGA spacer
length: 37 repeater length: 30
12285 867962 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CTGAAGTGCTCTCAGCCGCAAGGACCGCATACTACAA spacer
length: 37 repeater length: 30
12286 868029 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GGTAACCGCA
12287
12288
12289 crispr 8
12290 893670 CTTCAATTCTTTTGTAGTCTTATTGGAAC CTACGGTTAAAAACCCTGCAGATTCTCCAGCATAGTCCCC
spacer length: 41 repeater length: 29
12291 893740 CTTCAATTCTTTTGTAGTCTTATTGGAAC CCAGTAGAGTTCACGACGAGTGGGTGCAGTATTCTCG spacer
length: 37 repeater length: 29
12292 893806 CTTCAATTCTTTTGTAGTCTTATTGGAAC TTAAGGTTGAGACGGAGAAGGCGTTTCTTGATCTTTA spacer
length: 38 repeater length: 29
12293 893873 CTTCAATTCTTTTGTAGTCTTATTGGAAC CCCGAAGACGTTCTCAAAGATTTAAAAGAGATTTGCG spacer
length: 38 repeater length: 29
12294 893940 CTTCAATTCTTTTGTAGTCTTATTGGAAC GTAACAAAGGTGGGCGTTTCTAGAGAGGTTGGGCAAG spacer
length: 37 repeater length: 29
12295 894006 CTTCAATTCTTTTGTAGTCTTATTGGAAC GGGCTACGAGGACGCCCTGAGGATTATGAAAGAGGTCTT spacer
length: 39 repeater length: 29
12296 894074 CTTCAATTCTTTTGTAGTCTTATTGGAAC CGGAAGCTCATAGAGTTCAATGGAAGGTTGAAGCTCAT spacer
length: 38 repeater length: 29
12297 894141 CTTCAATTCTTTTGTAGTCTTATTGGAAC GTTTGGGCGTATGGTGCCTTAGTGCACGAGTTCCACCGT spacer

length: 39 repeater length: 29
12298 894209 CTTCAATTCTTTTGTAGTCTTATTGGAAC TTTTCACGTAGTTTATCACGTCGTCTGCATTTCTTCCT spacer
length: 38 repeater length: 29
12299 894276 CTTCAATTCTTTTGTAGTCTTATTGGAAC TCAAAGACTGTGTGTGGAGCAGCTATTTGCTTCGGCAT spacer
length: 38 repeater length: 29
12300 894343 CTTCAATTCTTTTGTAGTCTTATTGGAAC TACTCCATGG
12301
12302
12303 crispr 9
12304 1465453 CTTTCAATTCTATTTTAG-TCTTATTGGAAC
AATTGTGGAAGTTCATCTCAGATTAAATCAGATGTGGGGCCCTCT spacer length: 46 repeater length: 31
12305 1465530 CTTTCAATTCTATTTTAG-TCTTATTGGAAC CATGCCCCGAGCCCCCGGCTCGGGGCACTCATCTTGGAAGCTC
spacer length: 43 repeater length: 31
12306 1465604 CTTTCAATTCTATTTTAG-TCTTATTGGAAC ATTGCATGATCAGTTTACTGTCTCCTTACCAGATTCTCT
spacer length: 39 repeater length: 31
12307 1465674 CTTTCAATTCTATTTTAG-TCTTATTGGAAC
GTGTAGGATGTAGTCTAGCCTTCTATGTCCCGTGATTTTGCTGATTATT spacer length: 49 repeater length:
31
12308 1465754 CTTTCAATTCTATTTTAG-TCTTATTGGAAC ATGGTATTCTCACCTGGAAGAACGACGTAAGTCTGA spacer
length: 37 repeater length: 31
12309 1465822 CTTTCAATTCTATTTTAG-TCTTATTGGAAC GAGCAACGCTGAGAACCAAATAATCGCCGCACTCTA spacer
length: 37 repeater length: 31
12310 1465890 CTTTCAATTCTATTTTAG-TCTTATTGGAAC AGACATGAAAACTGTTTGAGGAGGGGACAATGTTC spacer
length: 37 repeater length: 31
12311 1465958 CTTTCAATTCTATTTTAG-TCTTATTGGAAC TGACCAGCAAGCTCTTCGTTGCAAAGAACTATCACAAA
spacer length: 40 repeater length: 31
12312 1466029 CTTTCAATTCTATTTTAG-TCTTATTGGAAC ATGAAAACAACACATGTGGGGTGGTTGGAATGGCTTGGAAC
spacer length: 42 repeater length: 31
12313 1466102 CTTTCAATTCTATTTTAG-TCTTATTGGAAC CCCCTGAAC
12314
12315
12316 crispr 10
12317 1466245 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTGTCGGATGAGGAGGTGAGGGAGTTGGAGAGGAAGTT spacer
length: 38 repeater length: 30
12318 1466313 CTTTCAATTCTATTTTAGTCTTATTGGAAC CCAGTTGAGGCAACCCTTGCAAGGTTTGGGGTTGATT spacer
length: 37 repeater length: 30
12319 1466380 CTTTCAATTCTATTTTAGTCTTATTGGAAC TGAAGTAGACGTTGAGAACGGTACCTTCATCGTGGTGGTG
spacer length: 40 repeater length: 30
12320 1466450 CTTTCAATTCTATTTTAGTCTTATTGGAAC CATCTTGTCCCTAAGGGGAATTTGGGCATTTCTACTCC spacer
length: 38 repeater length: 30
12321 1466518 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATAGAGTACAGAGGATTGTATGCTCTTAGGGAGACAG spacer
length: 37 repeater length: 30
12322 1466585 CTTTCAATTCTATTTTAGTCTTATTGGAAC ACAGAGAGCTGGACTAGTAGAATGGAAGAACTTTGTG spacer
length: 37 repeater length: 30
12323 1466652 CTTTCAATTCTATTTTAGTCTTATTGGAAC GCACTACTTGAGCAACCTCCTTCATCAATTCTAGCTCC spacer
length: 38 repeater length: 30
12324 1466720 CTTTCAATTCTATTTTAGTCTTATTGGAAC GTGGGTTGAGGGAAGAAAGGCTGCAGGAGATGAGACC spacer
length: 37 repeater length: 30
12325 1466787 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTCCCAAGACACCCAGGAATTTTCATCTACTCCATCA spacer
length: 37 repeater length: 30
12326 1466854 CTTTCAATTCTATTTTAGTCTTATTGGAAC GAGGGGTGATGTTTGGCTGAGCGGATTGCGTTTAATAG spacer
length: 38 repeater length: 30
12327 1466922 CTTTCAATTCTATTTTAGTCTTATTGGAAC TAAGAAACGCTCCATACACCATTGAGAACCCAACCCT spacer
length: 37 repeater length: 30
12328 1466989 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTCCACAATCATCCCCATGCTTGTGCCAACGCTCCAG spacer
length: 38 repeater length: 30
12329 1467057 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCAAAAACATAGACGCCAGAGTTAAGGAAAGTGTT spacer
length: 37 repeater length: 30
12330 1467124 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGTCAAGTTTTGACTGGATCCGTATCCGCAAGTATG spacer
length: 36 repeater length: 30
12331 1467190 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGGAACTATTTGGGGGGTATTACCGCAAGAAATACAG spacer
length: 37 repeater length: 30
12332 1467257 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTGGAATTCAACAGTGGCAAAGGTTCTATCAGGAATAA spacer
length: 38 repeater length: 30
12333 1467325 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCGCTTGAGGGAGCGACGGCTCAGGCTCAGACCGCT spacer
length: 36 repeater length: 30
12334 1467391 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGGTTCAAGGCTGGGAGGCTTGACCCGAGAATAGCGCA spacer
length: 37 repeater length: 30
12335 1467458 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCCTTCCAGAGCCCGTTACCGTGTCCACGCTGTC spacer
length: 35 repeater length: 30
12336 1467523 CTTTCAATTCTATTTTAGTCTTATTGGAAC CAAAAATTTTTCATTGCGGGGGTTCTGACTAATTTGT spacer

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length: 38 repeater length: 30
12337 1467591 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTATTTCTGATGGTGTAAAGATTAGACTAAACAACCTCA spacer
length: 38 repeater length: 30
12338 1467659 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTGCCGGCCCCCGCGGGGTCTAATGACCGCATAGGAG
spacer length: 39 repeater length: 30
12339 1467728 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGAGATGATTGAAATTTTACGATCAAAGAGGTTCTGT spacer
length: 37 repeater length: 30
12340 1467795 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATAGTATACCCTTGACCTTTCAATCCCTTATAGATTCT spacer
length: 38 repeater length: 30
12341 1467863 CTTTCAATTCTATTTTAGTCTTATTGGAAC AAAAGCGGTGAGGGAAAAGAAAAACGGGCAAAAAA spacer
length: 37 repeater length: 30
12342 1467930 CTTTCAATTCTATTTTAGTCTTATTGGAAC TATTTTTTTTTATGTGCAGTAATCGGCAATTTGCTAA spacer
length: 36 repeater length: 30
12343 1467996 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTGGGCAAGTTCTGGCCTATACTGTCTCCTAATGTCT spacer
length: 37 repeater length: 30
12344 1468063 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATATACCTCAAGACCAACCACACTGGATATGCAGCAA spacer
length: 37 repeater length: 30
12345 1468130 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGACACATTAGAGCAGTTATAAAAACACACGGCACGC spacer
length: 37 repeater length: 30
12346 1468197 CTTTCAATTCTATTTTAGTCTTATTGGAAC ACCCGTTCAATTTTTTCTTTACTTTTGTAAAGTTTTGA spacer
length: 38 repeater length: 30
12347 1468265 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCGACTGTAATAACGTCAATTGTCGAGAGGACAGTAGTG
spacer length: 39 repeater length: 30
12348 1468334 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGGGCTGGTGGTGGGTCAAGTTCAACGCCTCACTAC spacer
length: 36 repeater length: 30
12349 1468400 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGCGAAAGCCTGGGAAGAAAACCTTTACGCACATTTCC spacer
length: 38 repeater length: 30
12350 1468468 CTTTCAATTCTATTTTAGTCTTATTGGAAC TGTTTATGTTTCGTGTCAGGCTTATTGTTTATTAACGC spacer
length: 37 repeater length: 30
12351 1468535 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTGCCAGTATCCGAAGATTGAGAAAAATTCAGCATAAGAG
spacer length: 40 repeater length: 30
12352 1468605 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCGACCCAGAGCGGGTTGTAGCAGTAAAGTATGACC spacer
length: 36 repeater length: 30
12353 1468671 CTTTCAATTCTATTTTAGTCTTATTGGAAC GGAGTATTTTGGTATGAAAGTTTCGGGTGCAGAACCGG spacer
length: 38 repeater length: 30
12354 1468739 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATGCGAATGC
12355
12356
12357 GCA_000275865.1_ASM27586v1_genomic.fna (PilerCR) :
12358 START REPEAT
SPACER
12359 crispr 1
12360 1417005 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGGGGTCGACGTGGCCACCGTCAACAACGTCTT spacer
length: 33 repeater length: 32
12361 1417070 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC AATCCGTCGGCACCATCCAGCTCGCCTTCTTC spacer
length: 32 repeater length: 32
12362 1417134 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGGGTGCTCGTAGGGATTGTAGTAATCCGTGAG spacer
length: 33 repeater length: 32
12363 1417199 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC TCGGGCAAAAACACCGGATTAAACAGCCAAGAT spacer
length: 33 repeater length: 32
12364 1417264 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC TTAACAAGGTCGTCCCCGGGAAAGGCTGCGCCCT spacer
length: 34 repeater length: 32
12365 1417330 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GATTTCCAGGAGATGTTGCCCGGGTTTCTTCAG spacer
length: 33 repeater length: 32
12366 1417395 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GATTTGAGGCCAGGAAGTGCATACTGTGGGGTCA spacer
length: 35 repeater length: 32
12367 1417462 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC ACGGCGTCCAGGATGCTGCCGAAGATGCCGGT spacer
length: 32 repeater length: 32
12368 1417526 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGGCGTCGAGGTACAGTTCTCGGTGGTCTCCGG spacer
length: 34 repeater length: 32
12369 1417592 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC AGTGGTCTGACCCGGACGGCGGGGGTGGT spacer
length: 32 repeater length: 32
12370 1417656 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GACGCCTCGGCGAGGTCGTCCAGATACGCGA spacer
length: 31 repeater length: 32
12371 1417719 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC ATACCTATGAGTTGGAACCCTTTTTCTACCT spacer
length: 32 repeater length: 32
12372 1417783 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GGCCGGGACCTCGATCAACTGTGGGCATATTAT spacer
length: 33 repeater length: 32
12373 1417848 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CATCGGGCTGACGTTCTACGACCCGACACTATC spacer
length: 34 repeater length: 32
12374 1417914 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC AGTTTGACTGTTTCAAGTCTTATAAAAGTGTGG spacer

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length: 33 repeater length: 32
12375 1417979 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GTTCGATATAGCCGCTGACCCCTGCACCTCCGA spacer
length: 34 repeater length: 32
12376 1418045 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GTGGGTGGTCGGCGTCCGGGCGTTCGTGAGGCGA spacer
length: 34 repeater length: 32
12377 1418111 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC TCCGGAAGGTTTCGAGAGGTCTGCATCATGTATCT spacer
length: 34 repeater length: 32
12378 1418177 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGTCTCCCACCAACCAACCCTGCAAAAGCACT spacer
length: 32 repeater length: 32
12379 1418241 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GATCCACCTTTGCGTCAAACGCCGCTGCGTTAA spacer
length: 34 repeater length: 32
12380 1418307 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GGTCTGCTCATGCAGCCTCGCCGGGAATGCT spacer
length: 32 repeater length: 32
12381 1418371 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGCCAGCGCTGATCACTTGGTGGGGCGCCACATC spacer
length: 34 repeater length: 32
12382 1418437 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CAGATGCCCTGGTGATCGGGGATGGGTTCGCTGA spacer
length: 34 repeater length: 32
12383 1418503 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CATCTACCGTCGGGGATGCCTCTGAGACCCGGCCGCG
spacer length: 37 repeater length: 32
12384 1418572 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CCGGGCAGGTAAACTGTGCCCCGTACTGGTCGG spacer
length: 33 repeater length: 32
12385 1418637 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GAGGCGACTCCAGATACCCCCCGACACCTCCCG spacer
length: 34 repeater length: 32
12386 1418703 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CCGGACAGAGGCGGCGGCGAACGCCGCATCGAA spacer
length: 33 repeater length: 32
12387 1418768 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GGGCCGACCTGGTCCGGGCCCTCGGCATCGCT spacer
length: 32 repeater length: 32
12388 1418832 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CTGGTGGATTTCCTTTTACGGAGATCGACA spacer
length: 33 repeater length: 32
12389 1418897 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CCTCGTCGCCGGGGCTGGGCTCTGGGCGATTGC spacer
length: 33 repeater length: 32
12390 1418962 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CCGCCGATACCCCCGCTGCCGTCGCGTGGCGTCG spacer
length: 34 repeater length: 32
12391 1419028 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CTGGCAAAGGGCATTGTGGATCTGGCGAGTG spacer
length: 31 repeater length: 32
12392 1419091 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GGCCTCGAAAACGGCAACGGCGATCGAAAATC spacer
length: 33 repeater length: 32
12393 1419156 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGCCCGCATCGAGTATTACCCGGAGGCGGTCT spacer
length: 32 repeater length: 32
12394 1419220 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CACTGGCAAAGGGCATTGTGGATCTGGCGAGTG spacer
length: 33 repeater length: 32
12395 1419285 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC AACAGTGGTAGCCCTCTCCATGTTTTTGGGGAGG spacer
length: 34 repeater length: 32
12396 1419351 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC TAGGATATGTGCTCGACCAGATCATCATAGGCAA spacer
length: 34 repeater length: 32
12397 1419417 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGAACCACGACGATCAAGCAACGCCAACCCTT spacer
length: 33 repeater length: 32
12398 1419482 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CTTTCGAGGGCGAGACGACGATCACGCTGGCCGA spacer
length: 33 repeater length: 32
12399 1419547 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GGGGCAAGGACATCGGCGACTCCCGCGCAATC spacer
length: 32 repeater length: 32
12400 1419611 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CTTTCATGTCGGCAGGATTCTCGCAGGAAAACCT spacer
length: 33 repeater length: 32
12401 1419676 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CCGCTGGTCCTGGTTGCAGACCCGAGGCCGTA spacer
length: 33 repeater length: 32
12402 1419741 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC ATGACCTCGGTCCCGGTCCGCATCTCCGGGAC spacer
length: 32 repeater length: 32
12403 1419805 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC ACCAGTTGGTCGCGGTCTCAGCGGAGGCGTCGGT spacer
length: 34 repeater length: 32
12404 1419871 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC TTTGCCGGTGTTCCTCTCGCACGGTTTCGCTTT spacer
length: 33 repeater length: 32
12405 1419936 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GTGCTATTACGGGGCGATTGCCGAGCTGCGGAT spacer
length: 33 repeater length: 32
12406 1420001 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC TTGACCAGACGGTATCCCCGCCGACCATTACATT spacer
length: 34 repeater length: 32
12407 1420067 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC AGGCGGTCAAATAACCGTGTACGTGCCTGGA spacer
length: 32 repeater length: 32
12408 1420131 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGTCGAGGTGCTCGCCGACGGATACATCACTGA spacer
length: 33 repeater length: 32
12409 1420196 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC ACGACCCCGCCGCCGATCCCTCATTGTGCGGC spacer
length: 32 repeater length: 32

12410	1420260	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	TCACCCCGGACGCCGACGCCCCGCGATACTCG	spacer
	length:	32	repeater length:	32
12411	1420324	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	GTGATTGTTCTGTGCTTGGTTTTGCATTAACATT	spacer
	length:	34	repeater length:	32
12412	1420390	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	ATGCAGCAGGTATCGCACACGGCGACGCCAC	spacer
	length:	32	repeater length:	32
12413	1420454	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	AGTTGAAATCCACATTTCCGACACCGGAACGAA	spacer
	length:	33	repeater length:	32
12414	1420519	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CACCAACACCTACGGCTCAGGCACGCCTGAAGT	spacer
	length:	33	repeater length:	32
12415	1420584	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CACCGTCTCTCGGCAACACCTCCGGCACCGCCGG	spacer
	length:	33	repeater length:	32
12416	1420649	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGCCCTGGCGGACCTCAACCGGCACCTGAAC	spacer
	length:	31	repeater length:	32
12417	1420712	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	ATGGCTATGTGTCTGGGTACTGGACCTCTCTG	spacer
	length:	32	repeater length:	32
12418	1420776	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	TGCCCCATACTCAGGCCGCTCAGAACACTCAT	spacer
	length:	33	repeater length:	32
12419	1420841	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	AGACAACGTCGCCAGACACATGGTCGTAACGG	spacer
	length:	32	repeater length:	32
12420	1420905	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCGGCCTTGAAAGAAGAACATCCGTGGCTTAAG	spacer
	length:	33	repeater length:	32
12421	1420970	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	GATGACCCACTGGAAAAATATCGCCACCTCTAC	spacer
	length:	33	repeater length:	32
12422	1421035	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CTCGACCACGGATGCCTTCATCCCGGATGGGAC	spacer
	length:	33	repeater length:	32
12423	1421100	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCGCCTGCTCATGGATGACCACGACACCCTTCT	spacer
	length:	33	repeater length:	32
12424	1421165	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCCGGTTTGCGGGCACGTTGATCATGCCGATGT	spacer
	length:	33	repeater length:	32
12425	1421230	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCTTCTGCATCACATATTCGACATCGGCCTCCGT	spacer
	length:	34	repeater length:	32
12426	1421296	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CAGGTAGCACCGGCCTTCAACCGGCATCTGCGG	spacer
	length:	33	repeater length:	32
12427	1421361	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCATAGGCCCTCCGAGTTTGTGAGAGATTTCGGT	spacer
	length:	35	repeater length:	32
12428	1421428	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGACTACTCGAGTTTCAATGGTGTGTCGTTGTA	spacer
	length:	34	repeater length:	32
12429	1421494	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CACCGGCTTACCCATCGCCATGCACTCCTGCTC	spacer
	length:	33	repeater length:	32
12430	1421559	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CATCCGATCCTCCGTGACCATGCGGAACCACTCA	spacer
	length:	34	repeater length:	32
12431	1421625	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGGGTGCCTCGGCTACCTTAGAACCGTCAAAGAC	spacer
	length:	34	repeater length:	32
12432	1421691	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCGGATCGGGTGTATCATGTGCCCCATGCAGGGCAC	spacer
	length:	36	repeater length:	32
12433	1421759	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGCCCGCCCTCATCATCTCCCCTGCCGCCCGTGAT	spacer
	length:	35	repeater length:	32
12434	1421826	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGAGGTGTCGAGTTTCATCCGGGCGCATTATCCT	spacer
	length:	34	repeater length:	32
12435	1421892	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CATCGTCTTATGCGCATGTGGAACGCCCGAT	spacer
	length:	34	repeater length:	32
12436	1421958	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CACCTGCCCCGCACACCTCGCACGTGAAGATCAT	spacer
	length:	35	repeater length:	32
12437	1422025	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGGGAGAGGTCCCACACGGTGAGGGCGACCCCTGA	spacer
	length:	35	repeater length:	32
12438	1422092	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGAGATCACAGCATGACACACATCGAGATCAGC	spacer
	length:	33	repeater length:	32
12439	1422157	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGTCAAGGGCGTTTCGGGTCAAGACGTTTCGACGT	spacer
	length:	33	repeater length:	32
12440	1422222	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCGACCTGGGTGCTTGTGTGATCTTTACAGCCGAC	spacer
	length:	35	repeater length:	32
12441	1422289	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCCTGTCTCTGATCGGCAACCGCCGGGGCGACAT	spacer
	length:	34	repeater length:	32
12442	1422355	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCTGATGCCCCCTTCTGCGTCTCCACCACACCTT	spacer
	length:	35	repeater length:	32
12443	1422422	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGCATTCATCCCCGCCATCACGGCACCTCGATATA	spacer
	length:	35	repeater length:	32
12444	1422489	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGGCGAACCCGGCGAGAGTGGAATACATCCCAT	spacer
	length:	34	repeater length:	32
12445	1422555	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGGCGAGGTCAAGCCGGTATCGGAGTTCTACCG	spacer


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length: 33 repeater length: 32
12446 1422620 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GCCTTCGTTGCCGAAGCCGATCAGACGATCTTC spacer
length: 33 repeater length: 32
12447 1422685 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGCGCGCTCTTGTGGTTCGTCGTATCCGGTATG spacer
length: 33 repeater length: 32
12448 1422750 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CTTTCAGTTCCCGCCGAGGAAGCCCAAGCACGACCC spacer
length: 36 repeater length: 32
12449 1422818 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CACGCCCCGAACGTTTTATGACTGTATCACCGG spacer
length: 33 repeater length: 32
12450 1422883 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CCCGA
12451
12452
12453 GCA_000299365.1_ASM29936v1_genomic.fna (PilerCR) :
12454 START REPEAT
SPACER
12455 GCA_000299395.1_ASM29939v1_genomic.fna (PilerCR) :
12456 START REPEAT
SPACER
12457 GCA_000300255.2_ASM30025v2_genomic.fna (PilerCR) :
12458 START REPEAT
SPACER
12459 crispr 1
12460 867780 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC TGCGGAGTCCGTTGCCTTTGTTATTGA spacer
length: 27 repeater length: 36
12461 867843 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC AAACGGTAGCCCAGGAAGGCTGGCCA spacer
length: 26 repeater length: 36
12462 867905 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC GACGGAAGTGATAGGGTAACCGCACCTC spacer
length: 28 repeater length: 36
12463 867969 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC GATGCATCCGCAATGTGTGCCTGCTC spacer
length: 26 repeater length: 36
12464 868031 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC GTACCTTGACCGCAAAAAGTGAACCGA spacer
length: 27 repeater length: 36
12465 868094 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC TAACATGACAGGAAATCCACCCGAT spacer length:
25 repeater length: 36
12466 868155 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC CCTCGGCGGCAGATGTGGAGACAGAA spacer
length: 26 repeater length: 36
12467 868217 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC ACATCAAGCCCCCTCCAGTCATCCGTCC spacer
length: 27 repeater length: 36
12468 868280 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC ATTAAAAGGGGCAGTGCCGAACCGA spacer length:
25 repeater length: 36
12469 868341 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC CCACTTCACAGCCAAAAGCGTATCTTT spacer
length: 27 repeater length: 36
12470 868404 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC CAACCAAATATGGCCCGTTGTTGTTTGC spacer
length: 28 repeater length: 36
12471 868468 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC CAACCAAATATGGCCCGTTGTTGTTTGC spacer
length: 28 repeater length: 36
12472 868532 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC ACTTATGACGACATTTTTAGGGCATAAC spacer
length: 27 repeater length: 36
12473 868595 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC CCCTGCCGCCTGAATATCTTTGCACCT spacer
length: 27 repeater length: 36
12474 868658 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC GCCGGAGGCGTGGCGGGATGGTTCCT spacer
length: 26 repeater length: 36
12475 868720 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC GTTTCGCCCTCTCTCGGTTTCATCAA spacer length:
25 repeater length: 36
12476 868781 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC TCGCCTTGTCTCGAGGCGGTCTTGT spacer
length: 26 repeater length: 36
12477 868843 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC CTTCAGATCTTCAGGATCATCCTCAA spacer
length: 26 repeater length: 36
12478 868905 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC GGTGACGCAGCTGACCGCCGAACGCGA spacer
length: 27 repeater length: 36
12479 868968 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC TCTCTCCTTCATCTGGCCTGTCCGTT spacer
length: 26 repeater length: 36
12480 869030 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC GAACGCCCCGAGGTCTGAAGCCGCAAG spacer
length: 27 repeater length: 36
12481 869093 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC TGTGCGGCTCGTCGCTTTCCCCGTGGTA spacer
length: 28 repeater length: 36
12482 869157 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC TACCCCTTCCTCCGTACGTAGTCTTT spacer
length: 26 repeater length: 36
12483 869219 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC CACAGCCGACTTCATCAGGAAGAGAC spacer
length: 26 repeater length: 36
12484 869281 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC CCACGAAAGCCTTACGCTCCGCTTTGA spacer

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length: 27 repeater length: 36
12485 869344 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC ATGCGCTCCGCGATCAACTCCATCGA spacer
length: 26 repeater length: 36
12486 869406 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC CAGGCGGACATGGAAAGCGCGATAGC spacer
length: 26 repeater length: 36
12487 869468 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC ACGCTGAAGATAGACGACGTGAGCTTT spacer
length: 27 repeater length: 36
12488 869531 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC TAACCTTCCGTAAGTAACACGTTTATATC spacer
length: 29 repeater length: 36
12489 869596 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC CGATCATCGCAGACGAGGTAGATTCAT spacer
length: 27 repeater length: 36
12490 869659 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC AACAGTGTCTGTTACGTGTGGTATTCTT spacer
length: 29 repeater length: 36
12491 869724 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC CCGGTCTGCGTCTTGGCGAAGCTCT spacer
length: 26 repeater length: 36
12492 869786 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC AAGAAGGCCGTGGTGGTCACCGCCACT spacer
length: 27 repeater length: 36
12493 869849 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GCACCACGTGGGCGACCCTCATCAG spacer length:
25 repeater length: 36
12494 869910 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC AGACGTTGAATCTCTGGCGTTGCT spacer length:
25 repeater length: 36
12495 869971 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC CAGGTCGAACTTGAGAACGGAAGACTT spacer
length: 27 repeater length: 36
12496 870034 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC CTGCAGCGCACTGTTCCCAATTTTAA spacer
length: 26 repeater length: 36
12497 870096 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC CGCCCGAAGAAGCCCAGGAATTCTAC spacer
length: 26 repeater length: 36
12498 870158 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GTTCACGGCACCGTGGGGAATATCGTT spacer
length: 27 repeater length: 36
12499 870221 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC TCCGGTCTTGGAGTAGTGAGCCACTT spacer
length: 26 repeater length: 36
12500 870283 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GGGAGTTCGACCAGTTCATAACCTGGAA spacer
length: 28 repeater length: 36
12501 870347 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GGAGCAGTATTAGACTTAATCGTCTG spacer
length: 26 repeater length: 36
12502 870409 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GGCGCGGCCCGCAGCTTCCTGACCGA spacer
length: 26 repeater length: 36
12503 870471 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GAGTTTTAGACGGGAGTTCGACCAGTTCATAACCTGGAA
spacer length: 39 repeater length: 36
12504 870546 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GGAGCAGTATTAGACTTAATCGTCTG spacer
length: 26 repeater length: 36
12505 870608 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GAAATCTACA
12506
12507
12508 crispr 2
12509 873169 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC CGGATTATGGGTCCGCAGAATGAGGGT spacer
length: 27 repeater length: 36
12510 873232 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC AACATGTAACACAATGCCCAAGTTGGA spacer
length: 27 repeater length: 36
12511 873295 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC TTACAGGAGGCAGATAAATGCGTATTC spacer
length: 27 repeater length: 36
12512 873358 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC TTGGAATCTA
12513
12514
12515 GCA_000303155.1_ASM30315v1_genomic.fna (PilerCR) :
12516 START REPEAT
SPACER
12517 crispr 1
12518 281179 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTAAC ATTTTGAAGGCACGAGAAACAACTATTCTGAATATC
spacer length: 37 repeater length: 37
12519 281253 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTAAC TACAGATTTCTTGCAATTCTAACGCTCAAAGATGAATG
spacer length: 38 repeater length: 37
12520 281328 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTAAC TGA CTGGCATTGTAATACCGCCAGATTGGCTAGGTA
spacer length: 36 repeater length: 37
12521 281401 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTAAC CAGATGAAAATATGAGTTTACATTTACTGCATGTATACT
spacer length: 39 repeater length: 37
12522 281477 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTAAC TCTCTGTCTGGTTCATGCCGTTGTTCCGCGTAGGTGC
spacer length: 37 repeater length: 37
12523 281551 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTAAC
CAAAGCGTCAGCAACCAGGTAAATGAGCGCATGCAACAAA spacer length: 40 repeater length: 37
12524 281628 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTAAC

TACAACCTCTGGCTATCGGGCTACAATCCCCGGGAGATAAG spacer length: 41 repeater length: 37
 12525 281706 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC TAGACGTTTCATGCACCTTTGTTAAGATGTTTGAAGTTCCT
 spacer length: 39 repeater length: 37
 12526 281782 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC TTATGTGTTAGAGGTCATTACCCGCGACTGGTACTT
 spacer length: 36 repeater length: 37
 12527 281855 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 TCAATATGGAATTTTCGCCAGAGAAAAACGGCGTGGTGCA spacer length: 40 repeater length: 37
 12528 281932 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 AATACTACAAAAAGATGCGCAAGATGTATGGCAACATTTAC spacer length: 41 repeater length: 37
 12529 282010 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 GGGCATTATGTCAGTTAGCTTTTACGAGATAGGCAAACCT spacer length: 40 repeater length: 37
 12530 282087 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 GTATTGGAGAAAGGCGCAACTACATGAGTGAGATATTCTG spacer length: 40 repeater length: 37
 12531 282164 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC TTACAAAACAGTGTTTACCACTATGTGGGCATAGCA
 spacer length: 36 repeater length: 37
 12532 282237 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 GAGCGATGCCAAGAACCCTAGGCCCATGAATCCAGTATGGGC spacer length: 42 repeater length: 37
 12533 282316 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC TTGTTTCCATGTCCATAAGCTTGATGACTTGCATGTAAG
 spacer length: 39 repeater length: 37
 12534 282392 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 AGATACGACAGTAAAAAAGAGCAGCAGCGTCGTATTATTT spacer length: 41 repeater length: 37
 12535 282470 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC GTACCATACGTGACTCCATCGAAAACGACGCCAACAT
 spacer length: 37 repeater length: 37
 12536 282544 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC GTTGACAGACAGGAGCGCCTTTAGGAACGTGTCAGGCG
 spacer length: 38 repeater length: 37
 12537 282619 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 TGCTTGTGTGGGTATCAGTCGGCGACAAATTCAAGCCCTT spacer length: 40 repeater length: 37
 12538 282696 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC CTGAATGTCTTGTGTTGCTTCCTGCTCTACGATTTTCCC
 spacer length: 38 repeater length: 37
 12539 282771 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC CTTGTTCAATACTGCTAGATGGGCCTCCCAGTCAA
 spacer length: 35 repeater length: 37
 12540 282843 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 TCGTTAACGTCGGAGTAAACGACTTTTCATGTTATTGTAATC spacer length: 41 repeater length: 37
 12541 282921 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 AAGAAGGCAAGAGAAACAGTTGATGTCACCGACTATACGGT spacer length: 41 repeater length: 37
 12542 282999 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC AAGACTCCTGAAACGGTGGGATTGCTCAACCACATAGG
 spacer length: 39 repeater length: 37
 12543 283075 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 CTGGTAGCCAGGCTATCCCTGCCAGGCCACGCTTGGCACCA spacer length: 41 repeater length: 37
 12544 283153 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 AACAAGTACAAACGGAATAGACATAGATAATAGATATAGG spacer length: 40 repeater length: 37
 12545 283230 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC GCAGAACGGCAGAGTGCTGAGTGCTGACCTATC
 spacer length: 33 repeater length: 37
 12546 283300 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC TGTATTAAACTCCGCTTTCTGACCAAAGAAACAAAG
 spacer length: 37 repeater length: 37
 12547 283374 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 AACGACCATGAGGTCATGGCGTTTCCTGTTTTCGTATCAGC spacer length: 40 repeater length: 37
 12548 283451 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC AGGAGCCAGTATTTGAATGTCAACAAGTACAAACGGAAT
 spacer length: 39 repeater length: 37
 12549 283527 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 CAGGGCCCCGCTCTCACCAAGGAACAAGTCGTCTACAATCT spacer length: 40 repeater length: 37
 12550 283604 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC GAATCCATGTTTCCTGCGTATGTCGCAAGCGTCCCCTGA
 spacer length: 38 repeater length: 37
 12551 283679 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC GCCATGGCCGAAGCCACTTGGGCTGGCATGTATGTCC
 spacer length: 37 repeater length: 37
 12552 283753 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 GCTTTGGTGTCTGGTACAGATCGCAAGGCGGGCAACTGGA spacer length: 40 repeater length: 37
 12553 283830 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC AGATGAAGCGACTGATCAAGCTCCTAAAAGAAGAATAAA
 spacer length: 39 repeater length: 37
 12554 283906 CTTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC GTAATGTACC
 12555
 12556
 12557 crispr 2
 12558 668019 ATCGTCTCCGTTGCCGCC GCTTATTAGGTCGTTGCCCGATCCGCCTTCAATCAT spacer length: 36
 repeater length: 18
 12559 668073 ATCGTCTCCGTTGCCGCC CCATAACTTGTCAATTACCGTCGCCTCCAATGATGCA spacer length: 36
 repeater length: 18
 12560 668127 ATCGTCTCCGTTGCCGCC TCCATTCTCTC
 12561
 12562
 12563 GCA_000306725.1_ASM30672v1_genomic.fna(PilerCR):

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12564 START REPEAT
12565 GCA_000317795.1_ASM31779v1_genomic.fna(PilerCR):
12566 START REPEAT
12567 GCA_000327485.1_ASM32748v1_genomic.fna(PilerCR):
12568 START REPEAT
12569 spacer
12570 crispr 1
2098627 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG AAAAAACAGGGGTGGATCAACCTCATGAATCGGG
spacer length: 34 repeater length: 37
12571 2098698 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GACATTTACCCAATGGCTGATTGGCAGTTAGCGAT
spacer length: 35 repeater length: 37
12572 2098770 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG
TATTTACGGCGTTCTGTTCATCTTAACCGCCGGATAGG spacer length: 39 repeater length: 37
12573 2098846 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GTTACGGGGGAGAAGGGACTGCATTGCGGTCTTACAT
spacer length: 37 repeater length: 37
12574 2098920 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG ACCGAGCAGGGCAAACGCTCGCTGGCGGTTCTTGA
spacer length: 35 repeater length: 37
12575 2098992 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CAGGGGTAACCTTGTCTGGGTTCAAGCAGGTGTGTCCGA
spacer length: 38 repeater length: 37
12576 2099067 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TCCTATAACATCGCACGCAACAGTGGTCTTTTCGGG
spacer length: 35 repeater length: 37
12577 2099139 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CAAGAGGCGGAAAACAAACACCTCACGGTTGACGG
spacer length: 35 repeater length: 37
12578 2099211 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GGAATTATCTTGTATTAGTCATTTCGCACGATGGCT
spacer length: 36 repeater length: 37
12579 2099284 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CCTATAGGTAATATAGGTAATTGTCGCCCCGGCTTG
spacer length: 35 repeater length: 37
12580 2099356 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG AAACCTCTCATTTTGGGCTTCTTTTCCAAGTGGTTT
spacer length: 35 repeater length: 37
12581 2099428 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TGTTTTATCCGAGCGGTGCGCCCCGGGTCAAAGG
spacer length: 34 repeater length: 37
12582 2099499 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GGTACTCGAAATCATTGATAGTCGTAGTGTGTTGG
spacer length: 34 repeater length: 37
12583 2099570 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CAGAATTGAATGAACAGATTGCAGAACTCGAAGCAAAA
spacer length: 38 repeater length: 37
12584 2099645 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CCAGAATATAGTATTATGCATTTGTAGCCGGTGA
spacer length: 34 repeater length: 37
12585 2099716 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CATCGAGAAGGACGGCGGGTTGCTCGTCAAGGGTG
spacer length: 35 repeater length: 37
12586 2099788 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG
TTTACAGTATTGCGGGTGATTATTCATCTGCACGATTT spacer length: 39 repeater length: 37
12587 2099864 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG AGACGAAATGGAAAAAAGAAATTGACGCACTGCG
spacer length: 35 repeater length: 37
12588 2099936 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GTACATATTAATCATCTCAGACCATGTTTCTTATCA
spacer length: 36 repeater length: 37
12589 2100009 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TCGTCTGGCTTACGCTCTTTCTTTTCAGCCATCTTT
spacer length: 36 repeater length: 37
12590 2100082 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG AGGGTATGATACCTTACAACAATCTTTTGTGAGGTG
spacer length: 37 repeater length: 37
12591 2100156 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GTCCACCTGGTAAGCGGTATTTTAGTGTTTTTGTG
spacer length: 34 repeater length: 37
12592 2100227 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TGCGGCAAGGTCTATGTTGAAATGAAATTCGTTGTT
spacer length: 36 repeater length: 37
12593 2100300 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GTAATGGTTCCAAATTCCGATCTGGTGTTATCAA
spacer length: 34 repeater length: 37
12594 2100371 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GGAAAGCGTCACATCGTCCACTACCGCAGATCCGGCG
spacer length: 37 repeater length: 37
12595 2100445 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TACGGAAATTCTGCGACATTTTCCCACCGTCGGGA
spacer length: 35 repeater length: 37
12596 2100517 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CGTGTGGGTTGTGCGAGGGGTGATACCGTGGTTTTCA
spacer length: 36 repeater length: 37
12597 2100590 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GGGGATCAATGGAGACTATACTATAACCGGAAATGA
spacer length: 35 repeater length: 37
12598 2100662 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG ATACACCGGCTGGTTATGGCACGGGCGCATGGTG
spacer length: 34 repeater length: 37
12599 2100733 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TTTAATGTCTGTTGAACCAACATCGGAACCAACAG
spacer length: 35 repeater length: 37
12600 2100805 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GGAATGAACACAGAGAGTGTTTCATCAATGTGGA
spacer length: 34 repeater length: 37

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12601	2100876	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TCTGGCATAACCGCTTGATACTCTTCATAGAGTT
		spacer length: 34 repeater length: 37	
12602	2100947	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	ATGATTGTAGGATCGAAGGCGAAGAAGAAGATGAAT
		spacer length: 36 repeater length: 37	
12603	2101020	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TGCTTCTTTTCTTGTGTAGAACACTTTTCCTATGA
		spacer length: 35 repeater length: 37	
12604	2101092	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GTGAAACCATGTTAGCACCCGATACAATCAAACGAA
		spacer length: 36 repeater length: 37	
12605	2101165	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	
		CAAGCTTTGCTACAATCTAATGTTGTCTTGGGGTATATT	spacer length: 39 repeater length: 37
12606	2101241	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GTGAAACCATGTTAGCACCCGATACAATCAAACGAA
		spacer length: 36 repeater length: 37	
12607	2101314	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	CCGTTCTGTTCCTTAAAGAGGGGAGGGGAGGGG
		spacer length: 35 repeater length: 37	
12608	2101386	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TGACAATCGGTTGGGTATATCCATCATTCTGAT
		spacer length: 34 repeater length: 37	
12609	2101457	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TGTGGGGTCCCAATCGGGCCCTTCTTTCGTCCACG
		spacer length: 35 repeater length: 37	
12610	2101529	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	CCAGCCGGAGGCGATCATGGCTCCGTTGATCGCACCA
		spacer length: 37 repeater length: 37	
12611	2101603	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	AAACGCCCCGGAACGGTCAAGGCGCCCGTTAAGAAAAA
		spacer length: 37 repeater length: 37	
12612	2101677	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	CATACTTACCGCGGGGAACGAGGCACATTCTGGA
		spacer length: 36 repeater length: 37	
12613	2101750	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	AAGTAGTTCTCGGATCTCCACATCTCGTAAGTTT
		spacer length: 34 repeater length: 37	
12614	2101821	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TATTTCTTAATTAATAATATACAATTAGGCTCAAA
		spacer length: 35 repeater length: 37	
12615	2101893	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TGAATATTTCTTTTCAGGCAGTCTTTACCATTTT
		spacer length: 34 repeater length: 37	
12616	2101964	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GGAACGGGTGTTCTGTAGTAGTTGGAATAGGTGT
		spacer length: 35 repeater length: 37	
12617	2102036	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GTATTGCGGGAAACTGATCACGGCCCGGGATGAAT
		spacer length: 35 repeater length: 37	
12618	2102108	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	CTCTCTCCGGAGTACTTGCATACATAACATAACA
		spacer length: 36 repeater length: 37	
12619	2102181	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	CCGGAACTCTTTCATGTACGGCAGATAATCACGG
		spacer length: 34 repeater length: 37	
12620	2102252	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	AAGTCGAAGAATTTAAGATACTGTCACATGATTG
		spacer length: 34 repeater length: 37	
12621	2102323	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GCATCTCCTCAAAAATCCTCTACGCGTGGAGAGG
		spacer length: 34 repeater length: 37	
12622	2102394	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GCAAAGTGCGCGGAATTTTGCATGCGGTTTGTAAGG
		spacer length: 37 repeater length: 37	
12623	2102468	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GTATTAGGGGATGCATGGCACAACCAGTTTAATCCGCA
		spacer length: 38 repeater length: 37	
12624	2102543	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TCATATCAATGTCATATTGGTATGCCCGGTGGTG
		spacer length: 34 repeater length: 37	
12625	2102614	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TATCAGGTTTTCTGTTGCTTGTGTGGCATGGCCCT
		spacer length: 35 repeater length: 37	
12626	2102686	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TGGACTGGTCACGACACCGCATTCACATTCCAATA
		spacer length: 35 repeater length: 37	
12627	2102758	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	CCAACAGGTCAGTTCTACAACCATGCGTTATCATAG
		spacer length: 36 repeater length: 37	
12628	2102831	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TTATCCTACCAGTGACCACGGAACCCGAGATATGGA
		spacer length: 36 repeater length: 37	
12629	2102904	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	CAGGTGGTAGTTGAACGACCCTTATACCTGATCGA
		spacer length: 35 repeater length: 37	
12630	2102976	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	ACTGATCACGGGACGATCTATTACGAGCGGAGAG
		spacer length: 34 repeater length: 37	
12631	2103047	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	CCAGTACAAAGGATACCCTGGTGGATACGCTTGGCTGA
		spacer length: 38 repeater length: 37	
12632	2103122	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GTACTTCTGCACCGTCACACTGGATCGGGCGCTGGA
		spacer length: 36 repeater length: 37	
12633	2103195	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GATACCACATTTTAGATCGAACTAATACTTTCTTC
		spacer length: 35 repeater length: 37	
12634	2103267	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TGTTGAGAATCCATCGTCACCGAATGACCAATTG
		spacer length: 34 repeater length: 37	
12635	2103338	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TTCCGCCCCGGACAACACCGGCAAGCCTGGTGGATG
		spacer length: 35 repeater length: 37	
12636	2103410	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GGTGGAGTATATACCTGGACAGAGATTGGCAGCCCAT

spacer length: 37 repeater length: 37
 12637 2103484 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CCAGACCCAGATATTCGGATCTCCTGATGAGGTATCAG
 spacer length: 38 repeater length: 37
 12638 2103559 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TGGAGCCTACAAGTCCACTTCGCACACCTGAGCAGA
 spacer length: 36 repeater length: 37
 12639 2103632 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG AAGTCTGCTATTCCATTACCATTGGCAGCATATAT
 spacer length: 35 repeater length: 37
 12640 2103704 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG AATAGTCTCTAATGAGAAGTAACTAAAATCAAAGA
 spacer length: 35 repeater length: 37
 12641 2103776 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG
 12642
 12643
 12644 crispr 2
 12645 2643850 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TTATGGCGGTCTGTTTCATGTGACGAGTGCCGAAG spacer
 length: 33 repeater length: 32
 12646 2643915 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TATTTTTTCAAATCTGTTGCGTGTAGATCCGGGG spacer
 length: 34 repeater length: 32
 12647 2643981 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TCGATTCTCGGGGCATGGTCAGGGAAGTGGGGA spacer
 length: 33 repeater length: 32
 12648 2644046 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TTCACCGATCCGCCATACGTCAAGGAGCTCTAT spacer
 length: 33 repeater length: 32
 12649 2644111 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC CACCGTCCTTCTCTCCCATCACGACAAGCGCCTG spacer
 length: 34 repeater length: 32
 12650 2644177 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TCCGGAATACAGCACAGTGCCCCCGGTACTATCC spacer
 length: 34 repeater length: 32
 12651 2644243 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TAGGAGATGACCCTAGAATATGGGCTTTTGAT spacer
 length: 32 repeater length: 32
 12652 2644307 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TTCAGGAGTCGTTCCCGTACCGGCAGGTTTGTTC spacer
 length: 35 repeater length: 32
 12653 2644374 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TGTCGAGCCACGACCGGACCAACAGGTAACCCGT spacer
 length: 34 repeater length: 32
 12654 2644440 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TTGCATCGCCCTTTGTTTCAATGGCGATGGAAT spacer
 length: 33 repeater length: 32
 12655 2644505 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC GCTATTCTGTGAACACCTTTTATTGATGGACCA spacer
 length: 33 repeater length: 32
 12656 2644570 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TGCCCCGCTCGTCAATGACCATCCCGTTGGAAA spacer
 length: 33 repeater length: 32
 12657 2644635 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TCCTGGTTTGACCGCAGTTTATCGTATTCTGGAA spacer
 length: 34 repeater length: 32
 12658 2644701 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TGCAAATGGCAGAGTATACCGAAAGATCGATGCA spacer
 length: 34 repeater length: 32
 12659 2644767 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TTCTTTCAAGCAGGGGATTTTATGGAGCTCTGT spacer
 length: 33 repeater length: 32
 12660 2644832 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC
 12661
 12662
 12663 crispr 3
 12664 2646672 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC CTTTTTACTGGTTGTCATGACAATCTTTGTAATCAG spacer
 length: 36 repeater length: 32
 12665 2646740 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TTAAATATGTTGTACTAGAAATCAATCTCTATA spacer
 length: 32 repeater length: 32
 12666 2646804 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC CAGTGTTCCAAAGCTCTGGATCGTGCCGTGGAAGA spacer
 length: 35 repeater length: 32
 12667 2646871 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC CTGCAATGTTTCAAAGGTTGTTAGCCTTACGCA spacer
 length: 33 repeater length: 32
 12668 2646936 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC GTTACCATTCTTTTTTCATCTCCTGCTCTAATATAA spacer
 length: 35 repeater length: 32
 12669 2647003 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TTGCGATCATGCAGATTAACGCCTGCGCTGCAAT spacer
 length: 34 repeater length: 32
 12670 2647069 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TGAAGTGGTGGATGGATTCCACCGGACCCGCGTTG spacer
 length: 35 repeater length: 32
 12671 2647136 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC ATGGTGACGGCATTATTGCACCATTACGGT spacer
 length: 32 repeater length: 32
 12672 2647200 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TTCCGGGGAATCGCGGATGCCTTTGCGGATCAATGGGG
 spacer length: 38 repeater length: 32
 12673 2647270 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TAATACAAAACCACTTCATTATCTGTCTAAAATT spacer
 length: 34 repeater length: 32
 12674 2647336 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC TCGGTGGTCTGTTGACCGGATCAAGGATGGTAAGCG spacer
 length: 36 repeater length: 32
 12675 2647404 ATTTCAACCCACACTCCCGCGAAGGGAGTGAC GTCTCTTTTGTGTTGACCGTATATCTACCACAAAA spacer
 length: 33 repeater length: 32

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12676 2647469 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC CGGGACCACCAGCGTTGCATCGCGCCGGTAATCAAA spacer
length: 36 repeater length: 32
12677 2647537 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC GCTCCGAGATCGCGTTGCTGATCGTGGAGATGCT spacer
length: 34 repeater length: 32
12678 2647603 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC GAAAAGGAGGGAGAGGAGGAAGCGGCAGAAACAGAGT
spacer length: 37 repeater length: 32
12679 2647672 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TCACTCCTGCACAGCAGGCGTTGGTTATCGAACT spacer
length: 34 repeater length: 32
12680 2647738 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TTAGATGGGCAATTGTATTACCCGTTCCGGAT spacer
length: 33 repeater length: 32
12681 2647803 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC GCGTTCCTGAAGACGGGGCCGCATGTCCTGACGG spacer
length: 34 repeater length: 32
12682 2647869 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC GGGGATCCTTGAGCGACTCGCTCCGACCTTGATA spacer
length: 34 repeater length: 32
12683 2647935 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TCCCTTGATAGGGTGCGAGTGGACCGGGTTGTAT spacer
length: 34 repeater length: 32
12684 2648001 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TACTATTGCAAGTATCCGTTTTACATCCATGA spacer
length: 32 repeater length: 32
12685 2648065 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TTGATGAGCTCGGGATGTGATCTGGATGTTTCATCG spacer
length: 35 repeater length: 32
12686 2648132 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC GTAAAGTTTACTGTTTACGCGCAATCCCATTAAG spacer
length: 34 repeater length: 32
12687 2648198 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TATTACGCTGAATACAGGGATTGGAGGGCAAAG spacer
length: 33 repeater length: 32
12688 2648263 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TTAGGTTCTAAATTTGTTGCTGTATAATTTCCA spacer
length: 33 repeater length: 32
12689 2648328 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TTTATCTATCGGTTAAATGGTGTGCAACATGGT spacer
length: 33 repeater length: 32
12690 2648393 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TTTTACGTTTCCCTGGTTTTTAACCCTTAAATTT spacer
length: 34 repeater length: 32
12691 2648459 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC
12692
12693
12694 GCA_000327505.1_ASM32750v1_genomic.fna(PilerCR):
12695 START REPEAT
12696 SPACER
12697 crispr 1
12698 503070 CTTTCAATCCCAACATGGTCTGATTCTAAC ATCCTCAATTCGTTATGAGATAGATTTTACAGATACCAC spacer
length: 39 repeater length: 30
12699 503139 CTTTCAATCCCAACATGGTCTGATTCTAAC TTCCTTATCTATTATATCCTCAACTTTAGACAATAAAT spacer
length: 38 repeater length: 30
12700 503207 CTTTCAATCCCAACATGGTCTGATTCTAAC ACTGCTGATGGCGTATTTGGTTTCGCTGGTGTGAGG spacer
length: 36 repeater length: 30
12701 503273 CTTTCAATCCCAACATGGTCTGATTCTAAC AAGAGAGATTGCAAAAACAAAATAGATCACTAGCTGC spacer
length: 37 repeater length: 30
12702 503340 CTTTCAATCCCAACATGGTCTGATTCTAAC ACATGAGAAAACACCCACTTTTTTTATAGGAAATCA spacer
length: 36 repeater length: 30
12703 503406 CTTTCAATCCCAACATGGTCTGATTCTAAC GGCGAAAAGCTGTATAGACACTACATACAAGACGGCGAGA
spacer length: 40 repeater length: 30
12704 503476 CTTTCAATCCCAACATGGTCTGATTCTAAC ATGTGAAACTTTTTATAGCGACAATGCCAGGTATGAAC spacer
length: 38 repeater length: 30
12705 503544 CTTTCAATCCCAACATGGTCTGATTCTAAC TTTGATGAGGTCCGGGAGAAGGATAAAAGGTTCCGGATCC spacer
length: 39 repeater length: 30
12706 503613 CTTTCAATCCCAACATGGTCTGATTCTAAC GTTGAGCCTCGCAACCTTGTCCGCCTCCTGGAGCTTCT spacer
length: 38 repeater length: 30
12707 503681 CTTTCAATCCCAACATGGTCTGATTCTAAC AACATATCCGAAGTTAGGAGGACCCCCATGCATTGCA spacer
length: 38 repeater length: 30
12708 503749 CTTTCAATCCCAACATGGTCTGATTCTAAC AATGAGCAAACCGCGGAGGTCAAGTGTGTGCGATTATG spacer
length: 38 repeater length: 30
12709 503817 CTTTCAATCCCAACATGGTCTGATTCTAAC TCGATCCAACCAAGCCATTCCGCCTGGAGATATATCTC spacer
length: 38 repeater length: 30
12710 503885 CTTTCAATCCCAACATGGTCTGATTCTAAC CTGAGATATA
12711
12712 crispr 2
12713 1374796 CTTTCAATCCCAACATGGTCTGATTCTAAC TATCGTCCAGGGTGAGGCTCTTCTCCTTCCTGGATAGCT
spacer length: 39 repeater length: 30
12714 1374865 CTTTCAATCCCAACATGGTCTGATTCTAAC GATCCAGGCTCCAGCAAACGTTTCAGAGTTCTTACACAAT
spacer length: 39 repeater length: 30
12715 1374934 CTTTCAATCCCAACATGGTCTGATTCTAAC TACTGCGCAGACTGGCACGATAATTTTCAGGTGTTACAAC
spacer length: 39 repeater length: 30

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12716 1375003 CTTTCAATCCCAACATGGTCTGATTCTAAC CGAGGAATCATCGTATTGCCCGACAGAGGAATAAAAGGCA
spacer length: 40 repeater length: 30
12717 1375073 CTTTCAATCCCAACATGGTCTGATTCTAAC CTCATCCGCTATCTTTTTTCAGTATCCACGCCGCTCCCT
spacer length: 39 repeater length: 30
12718 1375142 CTTTCAATCCCAACATGGTCTGATTCTAAC CTCACCTTCCTTAACCACCCTTTCCAGTTCCTCTGCAACAC
spacer length: 41 repeater length: 30
12719 1375213 CTTTCAATCCCAACATGGTCTGATTCTAAC CTCGTGCTCATCGGTATTTTCCTGGGCTCTCACGAATTT spacer
length: 38 repeater length: 30
12720 1375281 CTTTCAATCCCAACATGGTCTGATTCTAAC TTTCGTGAACCTTTAGTTTGAAATACTGTGAAATCCTACCCA
spacer length: 42 repeater length: 30
12721 1375353 CTTTCAATCCCAACATGGTCTGATTCTAAC TTGAGGGGAGAGATATACCCGCAGATGCGGAGAAATT spacer
length: 37 repeater length: 30
12722 1375420 CTTTCAATCCCAACATGGTCTGATTCTAAC TTCCGGGACT
12723
12724
12725 GCA_000328525.1_ASM32852v1_genomic.fna (PilerCR):
12726 START REPEAT
SPACER
12727 GCA_000338775.1_ASM33877v1_genomic.fna (PilerCR):
12728 START REPEAT
SPACER
12729 crispr 1
12730 1648591 GTTTtagtttcttgTCGTTATTAC ATCATTGGAATTGGGCTAGCCCTATTTTTCTTGATA spacer length:
36 repeater length: 24
12731 1648651 GTTTtagtttcttgTCGTTATTAC AGTTGGTAGTGGGCAGATATCTAGCCCTGACCACT spacer length:
35 repeater length: 24
12732 1648710 GTTTtagtttcttgTCGTTATTAC TGATGTCGAATACCGGAGTCAAGATGTTGATGAAAA spacer length:
36 repeater length: 24
12733 1648770 GTTTtagtttcttgTCGTTATTAC AAATAACGAAGATTTAAGTGGTTTTGAACCAAGAGAA spacer
length: 37 repeater length: 24
12734 1648831 GTTTtagtttcttgTCGTTATTAC TGATCACATGTTTTATCGGTAGTACATAATGTAGAAA spacer
length: 37 repeater length: 24
12735 1648892 GTTTtagtttcttgTCGTTATTAC GAGGAGTTTGATAAACTTTTGAATTTCTTGAGAG spacer length:
35 repeater length: 24
12736 1648951 GTTTtagtttcttgTCGTTATTAC GAAATATAGCAAGAGTTCTGTGGTCGCTATATTA spacer length:
34 repeater length: 24
12737 1649009 GTTTtagtttcttgTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAATC spacer
length: 37 repeater length: 24
12738 1649070 GTTTtagtttcttgTCGTTATTAC CTCAAAAATATAATGCGTAAGCTTAAATACCCAAC spacer length:
35 repeater length: 24
12739 1649129 GTTTtagtttcttgTCGTTATTAC TTTTtattctatatttGAATAAAGCATAAAGTAATC spacer length:
36 repeater length: 24
12740 1649189 GTTTtagtttcttgTCGTTATTAC CTAATATTAATGGCAGTAGAAGTCTCGAACAACAC spacer length:
35 repeater length: 24
12741 1649248 GTTTtagtttcttgTCGTTATTAC TATCTCGCAATAAATGAGAGAGAGTCGGCGAGTGT spacer length:
35 repeater length: 24
12742 1649307 GTTTtagtttcttgTCGTTATTAC TATGTTTGTtGtattGCTAGCGTAATATTGTATTACA spacer
length: 37 repeater length: 24
12743 1649368 GTTTtagtttcttgTCGTTATTAC ACACAATATCTTAGTCATTACTGGAATGACTACAAC spacer length:
36 repeater length: 24
12744 1649428 GTTTtagtttcttgTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAATC spacer
length: 37 repeater length: 24
12745 1649489 GTTTtagtttcttgTCGTTATTAC TGtagTAAATTGATATAATCGGATTGAAGAGAGTG spacer length:
35 repeater length: 24
12746 1649548 GTTTtagtttcttgTCGTTATTAC AGGGATATCTGGAAGTAATACACCAGTACTATAC spacer length:
34 repeater length: 24
12747 1649606 GTTTtagtttcttgTCGTTATTAC GCCATTCAACTCAAACTTATAGAAGATTACGAAATA spacer
length: 37 repeater length: 24
12748 1649667 GTTTtagtttcttgTCGTTATTAC CCAAATGCTAAAAATAGAAAAGGTAGGAGAGTTATTA spacer
length: 37 repeater length: 24
12749 1649728 GTTTtagtttcttgTCGTTATTAC CGGTCTTCCAAAATTACTTAATGCTCTTGATAATAAA spacer
length: 37 repeater length: 24
12750 1649789 GTTTtagtttcttgTCGTTATTAC TAAGGCTAATTTTGATCGATAAAGATGAAGAAGAAAG spacer
length: 37 repeater length: 24
12751 1649850 GTTTtagtttcttgTCGTTATTAC TATCTAACCTCTCTTTTTCAACTCTTTGAAGATAAAA spacer
length: 38 repeater length: 24
12752 1649912 GTTTtagtttcttgTCGTTATTAC CCTCCCTGATATTCACCTTCTCCATTTCTGTAGCAA spacer
length: 37 repeater length: 24
12753 1649973 GTTTtagtttcttgTCGTTATTAC ACCAACTCTCAATTACTCATAATATTCAAACTAAAT spacer length:
36 repeater length: 24
12754 1650033 GTTTtagtttcttgTCGTTATTAC ATTCCGACTTGCTTAAATTCAGCTTTTTTGTACAA spacer length:

35 repeater length: 24

12755 1650092 GTTT TAGTTT CTTGTCGTTATTAC ACAGTAGTAGCTCCGGCTGTCATTCCTAATAATAT spacer length: 35 repeater length: 24

12756 1650151 GTTT TAGTTT CTTGTCGTTATTAC AAATGATATAAAAAATGAACAACAGAATATAAAA spacer length: 34 repeater length: 24

12757 1650209 GTTT TAGTTT CTTGTCGTTATTAC AACAAGAATTGATGAAGTATTCAAAAGAGCGATATGAA spacer length: 38 repeater length: 24

12758 1650271 GTTT TAGTTT CTTGTCGTTATTAC CTTTCAGAGGGCGAGATCGCAGAGTACTTGAGAATAGCG spacer length: 39 repeater length: 24

12759 1650334 GTTT TAGTTT CTTGTCGTTATTAC ATTTCTGCAAATGTATAATACATCAATTTTATAAT spacer length: 35 repeater length: 24

12760 1650393 GTTT TAGTTT CTTGTCGTTATTAC GCATCAGCAATTATGGAAGTCGCTAGATATTACTA spacer length: 35 repeater length: 24

12761 1650452 GTTT TAGTTT CTTGTCGTTATTAC AGGAATGTGTACAACAGCTATAAAAAAGAAAGAATTGT spacer length: 39 repeater length: 24

12762 1650515 GTTT TAGTTT CTTGTCGTTATTAC TTTGGAATATCTTGCGAGGCGAGGGTGAGTGAACCT spacer length: 36 repeater length: 24

12763 1650575 GTTT TAGTTT CTTGTCGTTATTAC AATAAAAGGAGATTTTCATAGACTCTATTCTCAAAA spacer length: 35 repeater length: 24

12764 1650634 GTTT TAGTTT CTTGTCGTTATTAC TTGTTCTAGAAGTGGCGCATTAACGGCAGTTTTTTG spacer length: 36 repeater length: 24

12765 1650694 GTTT TAGTTT CTTGTCGTTATTAC GAGAGACAAAATTTCCAAGTAAGTGAAGTCTGAAAATT spacer length: 37 repeater length: 24

12766 1650755 GTTT TAGTTT CTTGTCGTTATTAC AATATACGCTGCATAATATACGCTCTCTTACGCTAAG spacer length: 37 repeater length: 24

12767 1650816 GTTT TAGTTT CTTGTCGTTATTAC AGAGTGGCATACTTATTTGTTTTGTTGAGTTATGAAG spacer length: 38 repeater length: 24

12768 1650878 GTTT TAGTTT CTTGTCGTTATTAC TTCCATTTTCTTCATAAGTAGCATCTCTCAACAAT spacer length: 35 repeater length: 24

12769 1650937 GTTT TAGTTT CTTGTCGTTATTAC ATAACAATTGTCGGTAACTTATTTAGACGCTTA spacer length: 33 repeater length: 24

12770 1650994 GTTT TAGTTT CTTGTCGTTATTAC TTTGATACGATTACAATAAAGTTCACTTAAAGTAGAC spacer length: 37 repeater length: 24

12771 1651055 GTTT TAGTTT CTTGTCGTTATTAC AAAGTCTATTTTTATTTTATCTTTATCTATCAGC spacer length: 34 repeater length: 24

12772 1651113 GTTT TAGTTT CTTGTCGTTATTAC ATTGGATAGTCAGTACCAAAGGTACATTAAGCCACT spacer length: 37 repeater length: 24

12773 1651174 GTTT TAGTTT CTTGTCGTTATTAC ATCATTAATAGAATACGAAAAGCTAAAAGCAAAAAA spacer length: 36 repeater length: 24

12774 1651234 GTTT TAGTTT CTTGTCGTTATTAC ATGTAGATAACATCACTATATTGATAAAGAGACTCGT spacer length: 37 repeater length: 24

12775 1651295 GTTT TAGTTT CTTGTCGTTATTAC AAAATCATTGAACTATAATGTAGATCTTGACAGTA spacer length: 34 repeater length: 24

12776 1651353 GTTT TAGTTT CTTGTCGTTATTAC TTTCCAGCCCAGCCTCTTTGCAGCTTCTAGCCTAT spacer length: 35 repeater length: 24

12777 1651412 GTTT TAGTTT CTTGTCGTTATTAC ATCTAGTGAGACAAAAGAACCTCAGTCTCAGAGTT spacer length: 36 repeater length: 24

12778 1651472 GTTT TAGTTT CTTGTCGTTATTAC TTCCTTATACACATCAAGTAACACAGGCGAGTTCATC spacer length: 37 repeater length: 24

12779 1651533 GTTT TAGTTT CTTGTCGTTATTAC TGCGGGATACTACTTCGCCCCAAGTTCTGTAAAGAC spacer length: 36 repeater length: 24

12780 1651593 GTTT TAGTTT CTTGTCGTTATTAC TGGTGAAGTGGTACAGATACCTTATGAAGAA spacer length: 34 repeater length: 24

12781 1651651 GTTT TAGTTT CTTGTCGTTATTAC CCATTACTGGACAAAGACTATGTCATCACAGCTGGTG spacer length: 37 repeater length: 24

12782 1651712 GTTT TAGTTT CTTGTCGTTATTAC TTAACACTGGTTGAATTCGCAAGGAAAGTGATAGGT spacer length: 36 repeater length: 24

12783 1651772 GTTT TAGTTT CTTGTCGTTATTAC AGATATTTAGCGTTAAACTGCAGGAGACAGGGGCAC spacer length: 37 repeater length: 24

12784 1651833 GTTT TAGTTT CTTGTCGTTATTAC AAGTTTTTGATATCTGTCCCTGCAGTGTCTAGTG spacer length: 34 repeater length: 24

12785 1651891 GTTT TAGTTT CTTGTCGTTATTAC CTTCATACTCATACCAATTGTAAGTGTTCCTTGTGTTGA spacer length: 40 repeater length: 24

12786 1651955 GTTT TAGTTT CTTGTCGTTATTAC TCTTGGAAGACCTTAAAAAAGGATTGATTTATT spacer length: 35 repeater length: 24

12787 1652014 GTTT TAGTTT CTTGTCGTTATTAC TCGCATGCCTTAAATCGATCGTTTTTCTCTACATCT spacer length: 35 repeater length: 24

12788 1652073 GTTT TAGTTT CTTGTCGTTATTAC TACGCTCCATGCCAGCTGTGCTCTCATCAACACATAG spacer length: 38 repeater length: 24

12789 1652135 GTTT TAGTTT CTTGTCGTTATTAC GCGAGAAAGACTTCTACTGGGGCGCCGAATTTAAC spacer length: 35 repeater length: 24

12790	1652194	GTTTGTAGTTTCTTGTCTGTTATTAC	ATCGCTGAGATCCTAGCGACTTTCTACCTGCCCGAT	spacer length: 36	repeater length: 24
12791	1652254	GTTTGTAGTTTCTTGTCTGTTATTAC	CGCTAAAGAACGCCCTAAGGGAAGCCTTCAAATA	spacer length: 34	repeater length: 24
12792	1652312	GTTTGTAGTTTCTTGTCTGTTATTAC	TATCGCCTCACGCCATCTCTTTGGCGTGGTATAAT	spacer length: 35	repeater length: 24
12793	1652371	GTTTGTAGTTTCTTGTCTGTTATTAC	AAGTCGCAAAAGAACTGCTAGACAAATTTGACAGTGAA	spacer length: 38	repeater length: 24
12794	1652433	GTTTGTAGTTTCTTGTCTGTTATTAC	TGACTTATTTTTTTGTCTTAACCTCACTACTCATTTTCT	spacer length: 38	repeater length: 24
12795	1652495	GTTTGTAGTTTCTTGTCTGTTATTAC	AAAGAACTCATTATCTTTAAGGACAAAGTCAGGGGT	spacer length: 36	repeater length: 24
12796	1652555	GTTTGTAGTTTCTTGTCTGTTATTAC	TTCCCTGCGGATACTTCTGCCTCAATTTGGTCACA	spacer length: 36	repeater length: 24
12797	1652615	GTTTGTAGTTTCTTGTCTGTTATTAC	AAACCTTTTCAGAGGCTTACCTCATCAATGTGGAA	spacer length: 35	repeater length: 24
12798	1652674	GTTTGTAGTTTCTTGTCTGTTATTAC	AAAGAAAAAGAAAAGGCGGGGCGAGGGCATGGA	spacer length: 34	repeater length: 24
12799	1652732	GTTTGTAGTTTCTTGTCTGTTATTAC	TCTGTGTAAACGTATCAGCAATGCGCTTTGTTATAT	spacer length: 35	repeater length: 24
12800	1652791	GTTTGTAGTTTCTTGTCTGTTATTAC	GCGGATTTCCACTGTTTCCAGCCTGAGCTTGGGC	spacer length: 34	repeater length: 24
12801	1652849	GTTTGTAGTTTCTTGTCTGTTATTAC	AGCAAATTTTTTAACAAATGTATTCCATTCTTGAAGT	spacer length: 36	repeater length: 24
12802	1652909	GTTTGTAGTTTCTTGTCTGTTATTAC	AATTTTATAATGTCTGTAAACTAAAACATTGTTTT	spacer length: 36	repeater length: 24
12803	1652969	GTTTGTAGTTTCTTGTCTGTTATTAC	AAGGGATCTAGCCTGGCTAGAGAGCTTGCCGCTTTAATTAA	spacer length: 41	repeater length: 24
12804	1653034	GTTTGTAGTTTCTTGTCTGTTATTAC	ATGGGTGCACCACCAGAAGTAGTAGAAGAGGTCGAG	spacer length: 36	repeater length: 24
12805	1653094	GTTTGTAGTTTCTTGTCTGTTATTAC	TGTATTGCCCACAATGTCCCGTTTTCGTTGTACAGG	spacer length: 36	repeater length: 24
12806	1653154	GTTTGTAGTTTCTTGTCTGTTATTAC	CAAGAGAAAGGAGCTAGGAAGAGGATCTTTTCCCT	spacer length: 35	repeater length: 24
12807	1653213	GTTTGTAGTTTCTTGTCTGTTATTAC	ATTAGGACTCGAAAAATTTATATAAAAAAAGACATT	spacer length: 36	repeater length: 24
12808	1653273	GTTTGTAGTTTCTTGTCTGTTATTAC	TTCTCATCAACATTTGCTGTACAAATTCATAATCAT	spacer length: 37	repeater length: 24
12809	1653334	GTTTGTAGTTTCTTGTCTGTTATTAC	ACCAGTCTTACTCAACAAGTCAGCCCTTACTTATAAT	spacer length: 37	repeater length: 24
12810	1653395	GTTTGTAGTTTCTTGTCTGTTATTAC	CTCAGTCAGATACGTCTTCTTTAGCTGGCTTATGT	spacer length: 35	repeater length: 24
12811	1653454	GTTTGTAGTTTCTTGTCTGTTATTAC	ATCGAGTGGAAGGCGTTAGACCCAGTAGCTGCCGC	spacer length: 35	repeater length: 24
12812	1653513	GTTTGTAGTTTCTTGTCTGTTATTAC	AGCCTGGATCTGAAGAAACATAACCATGAGATAT	spacer length: 34	repeater length: 24
12813	1653571	GTTTGTAGTTTCTTGTCTGTTATTAC	AGGTCAGGAATATAGATTATTCGTACTTTGCTAT	spacer length: 34	repeater length: 24
12814	1653629	GTTTGTAGTTTCTTGTCTGTTATTAC	AAGTCTTCAGAAAATCATCAACACGCATATACTG	spacer length: 34	repeater length: 24
12815	1653687	GTTTGTAGTTTCTTGTCTGTTATTAC	TTTGATTAAAATGGGTTGGTATGGCATAAAAAAT	spacer length: 34	repeater length: 24
12816	1653745	GTTTGTAGTTTCTTGTCTGTTATTAC	ATCGGAATTATAGGCGGATTTTTTAACAATATTCCTAACAT	spacer length: 40	repeater length: 24
12817	1653809	GTTTGTAGTTTCTTGTCTGTTATTAC	GGAGACAAAGTTTGTCTGTGCAATATATCCCAA	spacer length: 33	repeater length: 24
12818	1653866	GTTTGTAGTTTCTTGTCTGTTATTAC	AGAAAGAGGAACATAAGGTCTAGATCTTACCCAA	spacer length: 34	repeater length: 24
12819	1653924	GTTTGTAGTTTCTTGTCTGTTATTAC	TAATTCATCTTTATAGTGTAACCTTTTGAATAAA	spacer length: 35	repeater length: 24
12820	1653983	GTTTGTAGTTTCTTGTCTGTTATTAC	AACTAAGAAAAATTCAGTCAGCAGTATTAATACTACTA	spacer length: 39	repeater length: 24
12821	1654046	GTTTGTAGTTTCTTGTCTGTTATTAC	TACACCAGTGAGAATGTCTTCCCGAACTACAAGAA	spacer length: 36	repeater length: 24
12822	1654106	GTTTGTAGTTTCTTGTCTGTTATTAC	AATTGGCAACTAAGAAGTTTGTACAAATAACATAA	spacer length: 35	repeater length: 24
12823	1654165	GTTTGTAGTTTCTTGTCTGTTATTAC	GAATAGGGGATGCGATAAACCAGTTAGCACAAACA	spacer length: 35	repeater length: 24
12824	1654224	GTTTGTAGTTTCTTGTCTGTTATTAC	GGCATATAGAATTTTTCGCTTTGTTGCCTCTTTAA	spacer length: 35	repeater length: 24
12825	1654283	GTTTGTAGTTTCTTGTCTGTTATTAC	ATTCAATTTTTTTTCGTTTTGTGCGTGAAAATAAAA	spacer length: 35	repeater length: 24

35 repeater length: 24
 12826 1654342 GTTTtagtttcttgTCGTTATTAC GCTTGTGGTAACTATTCCATCGTCATCAGCAATC spacer length:
 34 repeater length: 24
 12827 1654400 GTTTtagtttcttgTCGTTATTAC AACGCATTATTGCTAATGCACGGTGCTAACAATCTAG spacer
 length: 37 repeater length: 24
 12828 1654461 GTTTtagtttcttgTCGTTATTAC GTTTAAACGGTAAATAGATAAAACCAAGAAAATG spacer length:
 35 repeater length: 24
 12829 1654520 GTTTtagtttcttgTCGTTATTAC ACGTCTTGTCGCTGACTTGTAACATCGCTGTTCTT spacer length:
 35 repeater length: 24
 12830 1654579 GTTTtagtttcttgTCGTTATTAC AAAGAAGTGCAAAAAAATGGCTACGGTGTACATT spacer length:
 34 repeater length: 24
 12831 1654637 GTTTtagtttcttgTCGTTATTAC ATGCATTcattTAAAGACTTAACAATTCAAGAGTT spacer length:
 34 repeater length: 24
 12832 1654695 GTTTtagtttcttgTCGTTATTAC AAGTTTCTTAATTTATTACAGTTATATGAACAGC spacer length:
 34 repeater length: 24
 12833 1654753 GTTTtagtttcttgTCGTTATTAC ACAATAGCCCGCAAATGTCAGTATCATCACGTTGTT spacer length:
 36 repeater length: 24
 12834 1654813 GTTTtagtttcttgTCGTTATTAC AGATTTTATGAAACATTAActATTTATTTTATCTAT spacer length:
 36 repeater length: 24
 12835 1654873 GTTTtagtttcttgTCGTTATTAC ATTAATCAGATAGAACTAGCAGTGTTTTTTATGTT spacer length:
 36 repeater length: 24
 12836 1654933 GTTTtagtttcttgTCGTTATTAC ACCTTCACTTATTGAAGATGGGGCTGAAACAACCTT spacer length:
 36 repeater length: 24
 12837 1654993 GTTTtagtttcttgTCGTTATTAC TTGGTTACTGATATTTTCTGAACTCCAGCAAATGT spacer length:
 35 repeater length: 24
 12838 1655052 GTTTtagtttcttgTCGTTATTAC CGTTAAACAGACTAGGCTCAGGACAAGCATTCACT spacer length:
 35 repeater length: 24
 12839 1655111 GTTTtagtttcttgTCGTTATTAC AGCCCAAATCTGTTATCTCTTTAGAAATGAAATTTT spacer length:
 35 repeater length: 24
 12840 1655170 GTTTtagtttcttgTCGTTATTAC AGAGTACCTTTACCTAACCAGAGCGTCGTATATTAT spacer length:
 36 repeater length: 24
 12841 1655230 GTTTtagtttcttgTCGTTATTAC TGtagTCTTGCGCAATACCTGCGCTCTTTAGCAGT spacer length:
 35 repeater length: 24
 12842 1655289 GTTTtagtttcttgTCGTTATTAC AGAAGCTATACAACGAGGCTATATAAATAAAATG spacer length:
 34 repeater length: 24
 12843 1655347 GTTTtagtttcttgTCGTTATTAC GTGAAGATGTCGATAGTGACGATAGCTGAGATAGT spacer length:
 35 repeater length: 24
 12844 1655406 GTTTtagtttcttgTCGTTATTAC AAAGTAAGCCCGATAGTCCTTAGGTCAGGATCCCTTTA spacer
 length: 38 repeater length: 24
 12845 1655468 GTTTtagtttcttgTCGTTATTAC TATATTTGGTCAAGTGTCTTCTACAGCATTTTAAT spacer length:
 34 repeater length: 24
 12846 1655526 GTTTtagtttcttgTCGTTATTAC GCAGAGTCTTTCGCTACGTCTTTCAGCGTCTCAAA spacer length:
 35 repeater length: 24
 12847 1655585 GTTTtagtttcttgTCGTTATTAC GATCACAGTAATGCGTTATATAAAAAGGCAGAATTCA spacer
 length: 37 repeater length: 24
 12848 1655646 GTTTtagtttcttgTCGTTATTAC CTTTGATCAATTACTAAATTCTGTAATTGTGCCTCTA spacer
 length: 37 repeater length: 24
 12849 1655707 GTTTtagtttcttgTCGTTATTAC GTAGAAAGTCATAACCCAAAActTCATTTTTTTGTT spacer length:
 36 repeater length: 24
 12850 1655767 GTTTtagtttcttgTCGTTATTAC ACAGGCTGTACCAAGCTGTTAGCGATGTAGTTAAT spacer length:
 35 repeater length: 24
 12851 1655826 GTTTtagtttcttgTCGTTATTAC AGCTCCCATTAATAATCACGACCTCCAAATATCA spacer length:
 35 repeater length: 24
 12852 1655885 GTTTtagtttcttgTCGTTATTAC AGTTATAATCTATCTCCGGAACATTAAATATTTTA spacer length:
 36 repeater length: 24
 12853 1655945 GTTTtagtttcttgTCGTTATTAC ATAGTTGGTGGGACGGAATGGAGAAACAGCTAAAA spacer length:
 35 repeater length: 24
 12854 1656004 GTTTtagtttcttgTCGTTATTAC TATAAAAAAGCATTTGCACAGTCTTGGAACCACTATTT spacer
 length: 39 repeater length: 24
 12855 1656067 GTTTtagtttcttgTCGTTATTAC ATGCTCGCCCACCAGCACACCGGACAGATCGACATA spacer length:
 36 repeater length: 24
 12856 1656127 GTTTtagtttcttgTCGTTATTAC AACTGAAGGAACCTTGtagAGCGGTATGCTTTGCTTCTTCTC spacer
 length: 42 repeater length: 24
 12857 1656193 GTTTtagtttcttgTCGTTATTAC AACTGGAGCAACGTATTGTTGAATATAGCCCTATGA spacer
 length: 37 repeater length: 24
 12858 1656254 GTTTtagtttcttgTCGTTATTAC AATGAGATATTCACTGAGGTCATGGAGCGTGAAA spacer length:
 34 repeater length: 24
 12859 1656312 GTTTtagtttcttgTCGTTATTAC TTTCTTATTTTTTTAACGAGGGAAATGGTCAGGCTAAAA spacer
 length: 39 repeater length: 24
 12860 1656375 GTTTtagtttcttgTCGTTATTAC TACGGTAAACTGGGGAGTTAACTCAGCATCCA spacer length: 32
 repeater length: 24

12861	1656431	GTTTGTAGTTTCTTGTGCGTTATTAC	CTTTCGCATACTTCCTCGCCCTCCTTGAGATATTTTCT	spacer
		length: 38	repeater length: 24	
12862	1656493	GTTTGTAGTTTCTTGTGCGTTATTAC	GACCATGAAA	
12863				
12864				
12865	crispr 2			
12866	1668884	GTAATAACGACAAGAACTAAAAC	ATCTTCTCTGTCCTCTACTACTTTCTGCTCTTCTTT	spacer length: 36
		repeater length: 24		
12867	1668944	GTAATAACGACAAGAACTAAAAC	TGAAAAGTTCATAAAAAAGTACCCTAACGTAGAACA	spacer length: 36
		repeater length: 24		
12868	1669004	GTAATAACGACAAGAACTAAAAC	AATTTTATGATATCGCTTTTGTTCAGGAAACAT	spacer length: 34
		repeater length: 24		
12869	1669062	GTAATAACGACAAGAACTAAAAC	AATTCTAAGTGCACAAGAAGGACTAGAAGAGGCAGGCCT	spacer length: 39
		repeater length: 24		
12870	1669125	GTAATAACGACAAGAACTAAAAC	TAATGCCAGTAACATAGATGCCTCCTTGATTAT	spacer length: 34
		repeater length: 24		
12871	1669183	GTAATAACGACAAGAACTAAAAC	AATTTGGATTGACGTCACCTCAAGATCTATTACCT	spacer length: 35
		repeater length: 24		
12872	1669242	GTAATAACGACAAGAACTAAAAC	ATATTTAAGCCTTACTCTTTACATTAAAAGTAACAA	spacer length: 36
		repeater length: 24		
12873	1669302	GTAATAACGACAAGAACTAAAAC	TCGACGTTAGTCTTAGATTTTTATCATTTTTAGGT	spacer length: 35
		repeater length: 24		
12874	1669361	GTAATAACGACAAGAACTAAAAC	TTGTGCTCTTTAATGTCAAACAGTGTGATCTATT	spacer length: 34
		repeater length: 24		
12875	1669419	GTAATAACGACAAGAACTAAAAC	ACAGTGCATGAAGTAGCATCATATGTCGTAAGTGA	spacer length: 35
		repeater length: 24		
12876	1669478	GTAATAACGACAAGAACTAAAAC	TCTCTGGGTAAAGTGCAAAGAGCACTGGGATTACAA	spacer length: 36
		repeater length: 24		
12877	1669538	GTAATAACGACAAGAACTAAAAC	CAACAAGGCTGAGAAGATAGCAAAGAAGCTAGTA	spacer length: 34
		repeater length: 24		
12878	1669596	GTAATAACGACAAGAACTAAAAC	TACAATAATTTTCCAGTAAATGATACAAATTC	spacer length: 38
		repeater length: 24		
12879	1669658	GTAATAACGACAAGAACTAAAAC	TTGTCATTAAACTGACAACCTTTGTCTCTGACCCAAA	spacer length: 36
		repeater length: 24		
12880	1669718	GTAATAACGACAAGAACTAAAAC	AGTAGCGGTATACAAAAATGTATTTGTTGTGATA	spacer length: 34
		repeater length: 24		
12881	1669776	GTAATAACGACAAGAACTAAAAC	TGGCTCACAGGCATTAATACCTGCAAAGCCTAGG	spacer length: 34
		repeater length: 24		
12882	1669834	GTAATAACGACAAGAACTAAAAC	AAAAGTTTGCCAATTTAGGTGCTGTGCAGGAAGCATTTA	spacer length: 39
		repeater length: 24		
12883	1669897	GTAATAACGACAAGAACTAAAAC	GAATAATTGTAGATCAGCCATCAACTTCCACACG	spacer length: 34
		repeater length: 24		
12884	1669955	GTAATAACGACAAGAACTAAAAC	AGAAAATGAGTAGTGAGATAAAGACAAAAAATAAGT	spacer length: 36
		repeater length: 24		
12885	1670015	GTAATAACGACAAGAACTAAAAC	AATTTCTATATAATCCAAGAGACACAGAGAGGTTTCTAC	spacer length: 39
		repeater length: 24		
12886	1670078	GTAATAACGACAAGAACTAAAAC	TACATTACTTTTAGAAATATAGTATGAGCGTAACATA	spacer length: 37
		repeater length: 24		
12887	1670139	GTAATAACGACAAGAACTAAAAC	CAGTACACAAAGTGGATAGGAAAAGTCAACAAT	spacer length: 33
		repeater length: 24		
12888	1670196	GTAATAACGACAAGAACTAAAAC	ATCGTATATTATATTGGGGCAGAAAAAATGAATGAT	spacer length: 36
		repeater length: 24		
12889	1670256	GTAATAACGACAAGAACTAAAAC	CAGGTTCAATTTTCAAGTAAATAATGGCATTACAAT	spacer length: 34
		repeater length: 24		
12890	1670314	GTAATAACGACAAGAACTAAAAC	AACATCAGACTTTTGCACCTTTATTAGAAGGCTTTGGA	spacer length: 38
		repeater length: 24		
12891	1670376	GTAATAACGACAAGAACTAAAAC	GATACATTGCATATATTGGCAATCAGCAATACAA	spacer length: 34
		repeater length: 24		
12892	1670434	GTAATAACGACAAGAACTAAAAC	ACTATATATTGTTTGGAGCTTATCATAAACTTCATC	spacer length: 36
		repeater length: 24		
12893	1670494	GTAATAACGACAAGAACTAAAAC	CTGAATAGAGAGATGATAGAAGAAACGGTAAGTA	spacer length: 34
		repeater length: 24		
12894	1670552	GTAATAACGACAAGAACTAAAAC	TCAGCCTCTAATTCTGCTGCAACTTCCATCAATTTCTT	spacer length: 39
		repeater length: 24		
12895	1670615	GTAATAACGACAAGAACTAAAAC	ATTAATTCCAAAGGACATTGAGAAGAAATTTGGCTTAAA	spacer length: 39
		repeater length: 24		
12896	1670678	GTAATAACGACAAGAACTAAAAC	ATATGAGCAACAGCAACTCAAATCTTTATATGAAGTC	spacer length: 37
		repeater length: 24		
12897	1670739	GTAATAACGACAAGAACTAAAAC	CACCAAAGAGTTTTTGTCCAAAGCCTTTTATGGA	spacer length: 34
		repeater length: 24		
12898	1670797	GTAATAACGACAAGAACTAAAAC	CAGTCTCAATGTCTTTATGAGACAATTCTATATCCAA	spacer length: 34

length: 37 repeater length: 24

12899 1670858 GTAATAACGACAAGAACTAAAAC GCACTTCTACTTGCTTAACGCTATAGCAAGCAAGAA spacer length:
36 repeater length: 24

12900 1670918 GTAATAACGACAAGAACTAAAAC GTTCATCAACCTCATGCTGAGTAAGACTATTAGTATGT spacer
length: 38 repeater length: 24

12901 1670980 GTAATAACGACAAGAACTAAAAC CTCGTATTTCGTAAAAGCCCTCGTGGGTGGTGACGAT spacer length:
36 repeater length: 24

12902 1671040 GTAATAACGACAAGAACTAAAAC CTTTACAACATAATTTTTTCAGGAAAACAAATTGAA spacer length:
35 repeater length: 24

12903 1671099 GTAATAACGACAAGAACTAAAAC TATGTCTTAGATAGTTGAAAAAGCTAAAGCTTTT spacer length:
34 repeater length: 24

12904 1671157 GTAATAACGACAAGAACTAAAAC GAATGTGTCCCCCTAGAGGTTTTACCAAACAACCA spacer length:
36 repeater length: 24

12905 1671217 GTAATAACGACAAGAACTAAAAC AAAAAACCTTTAACCTCTATCGAATGCTGTCAAAAA spacer length:
36 repeater length: 24

12906 1671277 GTAATAACGACAAGAACTAAAAC AACGTTACGACCCTACTACTCAGAAGAAGATAGT spacer length:
35 repeater length: 24

12907 1671336 GTAATAACGACAAGAACTAAAAC GAGGGATGAAGGCAAATCAGTATCAGCAATAGTAGAG spacer
length: 37 repeater length: 24

12908 1671397 GTAATAACGACAAGAACTAAAAC GAAGTAGAACAGCTGTTTTTCAGGATTGAAATTAT spacer length:
35 repeater length: 24

12909 1671456 GTAATAACGACAAGAACTAAAAC AAGAGAATACTTTCTCGCCTCAGCAAGAATCGTATCAAT spacer
length: 39 repeater length: 24

12910 1671519 GTAATAACGACAAGAACTAAAAC GTATGTGGGAGAGCTTTATGAGTGGTAAGACACAC spacer length:
35 repeater length: 24

12911 1671578 GTAATAACGACAAGAACTAAAAC ATGCAGGTACTTACTGAGCCTGATGAACAGCA spacer length: 33
repeater length: 24

12912 1671635 GTAATAACGACAAGAACTAAAAC AAATTTAAGGAAAATGGAGTGTATGTATATAAAT spacer length:
34 repeater length: 24

12913 1671693 GTAATAACGACAAGAACTAAAAC CTCAATTATTTTCAATGCTTTTTCTTTTTCGTTGT spacer length:
35 repeater length: 24

12914 1671752 GTAATAACGACAAGAACTAAAAC ACATCAGCACTTATGGATACTACGCCATGCTCATCT spacer length:
36 repeater length: 24

12915 1671812 GTAATAACGACAAGAACTAAAAC ACTATTACTTTTGAAAATATGTAGATAAGACTGGT spacer length:
35 repeater length: 24

12916 1671871 GTAATAACGACAAGAACTAAAAC TTACAGTTGTTCCGTTAGGAAGTATATAGTTACT spacer length:
34 repeater length: 24

12917 1671929 GTAATAACGACAAGAACTAAAAC AAAATAATCATAAAACCCGAGCATTACGAAGAATTGA spacer
length: 37 repeater length: 24

12918 1671990 GTAATAACGACAAGAACTAAAAC TGTAAGGACTTCTTAAAAAGGTTAGAGGGGTTTCTC spacer
length: 37 repeater length: 24

12919 1672051 GTAATAACGACAAGAACTAAAAC GTAATTATTCTGATGGGTGCTATAATCTCGATGGC spacer length:
35 repeater length: 24

12920 1672110 GTAATAACGACAAGAACTAAAAC AGCGATTAGTTTAGTCGAATTAGCTATTGCGACTT spacer length:
35 repeater length: 24

12921 1672169 GTAATAACGACAAGAACTAAAAC ATGGGATCCTGATAATTCGGCATCAGCACAATTC spacer length:
34 repeater length: 24

12922 1672227 GTAATAACGACAAGAACTAAAAC CTCTTCATTTGTCTCGTGAAATATAGGGTTTTTCA spacer length:
35 repeater length: 24

12923 1672286 GTAATAACGACAAGAACTAAAAC ATAGGGTAGTTCACAAAGAGCCAGCCCTCGTCAAC spacer length:
35 repeater length: 24

12924 1672345 GTAATAACGACAAGAACTAAAAC CTTTACGTAGTAGTTATAGAGCTTCGTTACGTGCT spacer length:
35 repeater length: 24

12925 1672404 GTAATAACGACAAGAACTAAAAC CTTGAACCATTGAACCTGCGATTGCAGGGATTAAGTAT spacer
length: 38 repeater length: 24

12926 1672466 GTAATAACGACAAGAACTAAAAC GCTGACTGGGGGTGAGCCAGAAATGAAGACTGGAAG spacer length:
36 repeater length: 24

12927 1672526 GTAATAACGACAAGAACTAAAAC TAAAATTAGTCTGCTGGCCAATTAAGAACAAACTCT spacer length:
36 repeater length: 24

12928 1672586 GTAATAACGACAAGAACTAAAAC GTGCAACAGGGTGAAACATAGATGAGCACATTTTT spacer length:
35 repeater length: 24

12929 1672645 GTAATAACGACAAGAACTAAAAC ATTATGCTCATTATCTCTGATTTTCGACCTTAAAGC spacer length:
35 repeater length: 24

12930 1672704 GTAATAACGACAAGAACTAAAAC CTACATTGTCCTGAAGTCCTAACTTCTTTAATTCCTT spacer
length: 37 repeater length: 24

12931 1672765 GTAATAACGACAAGAACTAAAAC TTTTTATTTTCAGTAGCTATCACCATAGTAGCCCTAAAA spacer
length: 39 repeater length: 24

12932 1672828 GTAATAACGACAAGAACTAAAAC TACTCCCCAGGCTTACCCAGCAAGAAGAGGAAGCCTT spacer
length: 37 repeater length: 24

12933 1672889 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
35 repeater length: 24

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12934 1672948 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
35 repeater length: 24
12935 1673007 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
35 repeater length: 24
12936 1673066 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
35 repeater length: 24
12937 1673125 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
35 repeater length: 24
12938 1673184 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
35 repeater length: 24
12939 1673243 GTAATAACGACAAGAACTAAAAC CATTTTAGCTCAAGCATCACCAGCATCAATTGAAAG spacer length:
36 repeater length: 24
12940 1673303 GTAATAACGACAAGAACTAAAAC ACCGTTCCGTAGATATTATTACTGTAACCTCCCTCCC spacer length:
36 repeater length: 24
12941 1673363 GTAATAACGACAAGAACTAAAAC ACTGGGCTCCCCGTGATCACTCCAGGTCCTTATGTTG spacer
length: 37 repeater length: 24
12942 1673424 GTAATAACGACAAGAACTAAAAC GACGCTAAAAAGCAAGAACAACAATCACAACAATCG spacer length:
36 repeater length: 24
12943 1673484 GTAATAACGACAAGAACTAAAAC TTTCTTAGTGAATCCCATGTACGTATATCTAATTTA spacer length:
36 repeater length: 24
12944 1673544 GTAATAACGACAAGAACTAAAAC
12945
12946
12947 crispr 3
12948 1784393 ACTTTCATCCCTTATGGGATTCTTC CTACCTTTTGAGATGCTTTCACCGATCTATGTTAAAGCAA spacer
length: 40 repeater length: 26
12949 1784459 ACTTTCATCCCTTATGGGATTCTTC CTCGTTTTCAATAAATGTCTATAGGGATGAATGTG spacer
length: 35 repeater length: 26
12950 1784520 ACTTTCATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATAT spacer
length: 36 repeater length: 26
12951 1784582 ACTTTCATCCCTTATGGGATTCTTC
12952
12953
12954 crispr 4
12955 1823993 CTTTCAATCCCTTTTGGGATTCATC AGAGTCCCCTTCAACATAAAACCTAACTTGGTTTGG spacer
length: 36 repeater length: 25
12956 1824054 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGAT spacer
length: 38 repeater length: 25
12957 1824117 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAGC spacer
length: 37 repeater length: 25
12958 1824179 CTTTCAATCCCTTTTGGGATTCATC TGCGGAAATATGGAAAGAAGTATTATGAAAAAGGAGAAAA spacer
length: 41 repeater length: 25
12959 1824245 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAACT spacer
length: 36 repeater length: 25
12960 1824306 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTATACCC spacer
length: 38 repeater length: 25
12961 1824369 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGCT spacer
length: 37 repeater length: 25
12962 1824431 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTTGAG spacer
length: 39 repeater length: 25
12963 1824495 CTTTCAATCCCTTTTGGGATTCATC TATGAACTAACAGATAAAGGGAAGAGAAGTGTTCACAAAAC spacer
length: 42 repeater length: 25
12964 1824562 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGAG spacer
length: 39 repeater length: 25
12965 1824626 CTTTCAATCCCTTTTGGGATTCATC
12966
12967
12968 GCA_000340315.1_ASM34031v1_genomic.fna (PilerCR) :
12969 START REPEAT
SPACER
12970 crispr 1
12971 1650672 GTTTGTAGTTTCTTGTCGTTATTAC ATCATTTGGAATTGGGCTAGCCCTATTTTTCTTGATA spacer length:
36 repeater length: 24
12972 1650732 GTTTGTAGTTTCTTGTCGTTATTAC AGTTGGTAGTGGGCAGATATCTAGCCCTGACCACT spacer length:
35 repeater length: 24
12973 1650791 GTTTGTAGTTTCTTGTCGTTATTAC TGATGTCGAATACCGGAGTCAAGATGTTGATGAAAA spacer length:
36 repeater length: 24
12974 1650851 GTTTGTAGTTTCTTGTCGTTATTAC AAATAACGAAGATTTAAGTGGTTTTGAACCAAGAGAA spacer
length: 37 repeater length: 24
12975 1650912 GTTTGTAGTTTCTTGTCGTTATTAC TGATCACATGTTTTATCGGTAGTACATAATGTAGAAA spacer
length: 37 repeater length: 24

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12976	1650973	GTTTGTAGTTTCTTGTCTGTTATTAC	GAGGAGTTTGATAAACTTTTGAATTTCTTGAGAG	spacer length: 35
12977	1651032	GTTTGTAGTTTCTTGTCTGTTATTAC	GAAATATAGCAAGAGTTCTGTGGTCGCTATATTA	spacer length: 34
12978	1651090	GTTTGTAGTTTCTTGTCTGTTATTAC	ATCATTAGCACGATATTTTCATCATCACTGCAGTAATC	spacer length: 37
12979	1651151	GTTTGTAGTTTCTTGTCTGTTATTAC	CTCAAAAATATAATGCGTAAGCTTAAATACCCAAC	spacer length: 35
12980	1651210	GTTTGTAGTTTCTTGTCTGTTATTAC	TTTTTATTCTATATTTGAATAAAGCATAAAGTAATC	spacer length: 36
12981	1651270	GTTTGTAGTTTCTTGTCTGTTATTAC	CTAATATTAATGGCAGTAGAAGTCTCGAACAACAC	spacer length: 35
12982	1651329	GTTTGTAGTTTCTTGTCTGTTATTAC	TATCTCGCAATAAATGAGAGAGAGTCGGCGAGTGT	spacer length: 35
12983	1651388	GTTTGTAGTTTCTTGTCTGTTATTAC	TATGTTTGTTGTATTGCTAGCGTAATATTGTATTACA	spacer length: 37
12984	1651449	GTTTGTAGTTTCTTGTCTGTTATTAC	ACACAATATCTTAGTCATTACTGGAATGACTACAAC	spacer length: 36
12985	1651509	GTTTGTAGTTTCTTGTCTGTTATTAC	ATCATTAGCACGATATTTTCATCATCACTGCAGTAATC	spacer length: 37
12986	1651570	GTTTGTAGTTTCTTGTCTGTTATTAC	TGTAGTAAATTGATATAATCGGATTGAAGAGAGTG	spacer length: 35
12987	1651629	GTTTGTAGTTTCTTGTCTGTTATTAC	AGGGATATCTGGAAGTAATACACCAGTACTATAC	spacer length: 34
12988	1651687	GTTTGTAGTTTCTTGTCTGTTATTAC	GCCATTCAACTCAAACTTATAGAAGATTACGAAATA	spacer length: 37
12989	1651748	GTTTGTAGTTTCTTGTCTGTTATTAC	CCAAATGCTAAAAATAGAAAAGGTAGGAGAGTTATTA	spacer length: 37
12990	1651809	GTTTGTAGTTTCTTGTCTGTTATTAC	CGGTCTTCCAAAATTACTTAATGCTCTTGATAATAAA	spacer length: 37
12991	1651870	GTTTGTAGTTTCTTGTCTGTTATTAC	TAAGGCTAATTTTGATCGATAAAGATGAAGAAGAAAG	spacer length: 37
12992	1651931	GTTTGTAGTTTCTTGTCTGTTATTAC	TATCTAACCCCTCTCTTTTTCAACTCTTTGAAGATAAAA	spacer length: 38
12993	1651993	GTTTGTAGTTTCTTGTCTGTTATTAC	CCTCCCTGATATTCACCTTCTCCATTTCTGTAGCAA	spacer length: 37
12994	1652054	GTTTGTAGTTTCTTGTCTGTTATTAC	ACCAACTCTCAATTACTCATAATATTCAAATAAAT	spacer length: 36
12995	1652114	GTTTGTAGTTTCTTGTCTGTTATTAC	ATTCCGACTTGCTTAAATTCAGCTTTTTTGTAACA	spacer length: 35
12996	1652173	GTTTGTAGTTTCTTGTCTGTTATTAC	ACAGTAGTAGCTCCGGCTGTCATTCCCTAATAATAT	spacer length: 35
12997	1652232	GTTTGTAGTTTCTTGTCTGTTATTAC	AAATGATATAAAAAATGAACAACAGAATATAAAA	spacer length: 34
12998	1652290	GTTTGTAGTTTCTTGTCTGTTATTAC	AACAAGAATTGATGAAGTATTCAAAAGAGCGATATGAA	spacer length: 38
12999	1652352	GTTTGTAGTTTCTTGTCTGTTATTAC	CTTTCAGAGGGCGAGATCGCAGAGTACTTGAGAATAGCG	spacer length: 39
13000	1652415	GTTTGTAGTTTCTTGTCTGTTATTAC	ATTTCTGCAAATGTATAATACATCAATTTTATAAT	spacer length: 35
13001	1652474	GTTTGTAGTTTCTTGTCTGTTATTAC	GCATCAGCAATTATGGAAGTCGCTAGATATTACTA	spacer length: 35
13002	1652533	GTTTGTAGTTTCTTGTCTGTTATTAC	AGGAATGTGTACAACAGCTATAAAAAAAGAAAGATTGT	spacer length: 39
13003	1652596	GTTTGTAGTTTCTTGTCTGTTATTAC	TTTGGAATATCTTGCGAGGCGAGGGTGAGTGAACCT	spacer length: 36
13004	1652656	GTTTGTAGTTTCTTGTCTGTTATTAC	AATAAAAAGGAGATTTTCATAGACTCTATTCTCAAAA	spacer length: 35
13005	1652715	GTTTGTAGTTTCTTGTCTGTTATTAC	TTGTTCTAGAAGTGGCGCATTAACGGCAGTTTTTG	spacer length: 36
13006	1652775	GTTTGTAGTTTCTTGTCTGTTATTAC	GAGAGACAAAATTTCCAAGTAAGTACTCTGAAAATT	spacer length: 37
13007	1652836	GTTTGTAGTTTCTTGTCTGTTATTAC	AATATACGCTGCATAATATACGCTCTCTTACGCTAAG	spacer length: 37
13008	1652897	GTTTGTAGTTTCTTGTCTGTTATTAC	AGAGTGGCATACTTATTTGTTTTGTTGAGTTATGAAG	spacer length: 38
13009	1652959	GTTTGTAGTTTCTTGTCTGTTATTAC	TTCCATTTTCTTCATAAGTAGCATCTCTCAACAAT	spacer length: 35
13010	1653018	GTTTGTAGTTTCTTGTCTGTTATTAC	ATAACAATTGTCGGTAACTTATTTAGACGCTTA	spacer length: 33
13011	1653075	GTTTGTAGTTTCTTGTCTGTTATTAC	TTTGATACGATTACAATAAAGTTCACTTAAAGTAGAC	spacer

length: 37 repeater length: 24

13012 1653136 GTTTtagtttcttgTCGTTATTAC AAAGTCTATTTTTATTTTATCTTTATCTATCAGC spacer length:
34 repeater length: 24

13013 1653194 GTTTtagtttcttgTCGTTATTAC ATTGGATAGTCAGTACCAAAAGGTACATTAAGCCACT spacer
length: 37 repeater length: 24

13014 1653255 GTTTtagtttcttgTCGTTATTAC ATCATTAATAGAATACGAAAAGCTAAAAGCAAAAAA spacer length:
36 repeater length: 24

13015 1653315 GTTTtagtttcttgTCGTTATTAC ATGTAGATAACATCACTATATTGATAAAGAGACTCGT spacer
length: 37 repeater length: 24

13016 1653376 GTTTtagtttcttgTCGTTATTAC AAAATCATTGAACTATAATGTAGATCTTGCAGTA spacer length:
34 repeater length: 24

13017 1653434 GTTTtagtttcttgTCGTTATTAC TTTCCAGCCCAGCCTCTTTCAGCTTCTAGCCTAT spacer length:
35 repeater length: 24

13018 1653493 GTTTtagtttcttgTCGTTATTAC ATCTAGTGAGACAAAAAGAACCTCAGTCTCAGAGTT spacer length:
36 repeater length: 24

13019 1653553 GTTTtagtttcttgTCGTTATTAC TTCCTTATACACATCAAGTAACACAGGCGAGTTCATC spacer
length: 37 repeater length: 24

13020 1653614 GTTTtagtttcttgTCGTTATTAC TGCGGGATACTACTTCGCCCCAAGTTCTGTAAAGAC spacer length:
36 repeater length: 24

13021 1653674 GTTTtagtttcttgTCGTTATTAC TGGTGAAGTGGTACAGATACATCCTTATGAAGAA spacer length:
34 repeater length: 24

13022 1653732 GTTTtagtttcttgTCGTTATTAC CCATTACTGGACAAAGACTATGTCATCACAGCTGGTG spacer
length: 37 repeater length: 24

13023 1653793 GTTTtagtttcttgTCGTTATTAC TTAACACTGGTTGAATTCGCAAGGAAAGTGATAGGT spacer length:
36 repeater length: 24

13024 1653853 GTTTtagtttcttgTCGTTATTAC AGATATTTAGCGTTAAACTGCAGGAGACAGGGGCAC spacer
length: 37 repeater length: 24

13025 1653914 GTTTtagtttcttgTCGTTATTAC AAGTTTTTGATATCTGTCCCTGCAGTGTCTAGTG spacer length:
34 repeater length: 24

13026 1653972 GTTTtagtttcttgTCGTTATTAC CTTCATACTCATACCAATTGTAAGTGTTCCTTGTGTTGA spacer
length: 40 repeater length: 24

13027 1654036 GTTTtagtttcttgTCGTTATTAC TCTTGAAAGACCTTAAAAAAGGATTGATTTATT spacer length:
35 repeater length: 24

13028 1654095 GTTTtagtttcttgTCGTTATTAC TCGCATGCCTTAAATCGATCGTTTTCTCTACATCT spacer length:
35 repeater length: 24

13029 1654154 GTTTtagtttcttgTCGTTATTAC TACGCTCCATGCCCAGCTGTGCTCTCATCAACACATAG spacer
length: 38 repeater length: 24

13030 1654216 GTTTtagtttcttgTCGTTATTAC GCGAGAAAGACTTCTACTGGGGCGCCGAATTTAAC spacer length:
35 repeater length: 24

13031 1654275 GTTTtagtttcttgTCGTTATTAC ATCGCTGAGATCCTAGCGACTTTCTACCTGCCCGAT spacer length:
36 repeater length: 24

13032 1654335 GTTTtagtttcttgTCGTTATTAC CGCTAAAGAACGCCCTAAGGGAAGCCTTCAAATA spacer length:
34 repeater length: 24

13033 1654393 GTTTtagtttcttgTCGTTATTAC TATCGCCTCACGCCATCTCTTTGGCGTGGTATAAT spacer length:
35 repeater length: 24

13034 1654452 GTTTtagtttcttgTCGTTATTAC AAGTCGCAAAAGAACTGCTAGACAAATTTGACAGTGAA spacer
length: 38 repeater length: 24

13035 1654514 GTTTtagtttcttgTCGTTATTAC TGACTTATTTTTTGTCTTAACTTCACTACTCATTTTCT spacer
length: 38 repeater length: 24

13036 1654576 GTTTtagtttcttgTCGTTATTAC AAAGAACTCATTATCTTTAAGGACAAAGTCAGGGGT spacer length:
36 repeater length: 24

13037 1654636 GTTTtagtttcttgTCGTTATTAC TTCCCTGCGGATACTTCTGCCTCAATTTGGTCACA spacer length:
36 repeater length: 24

13038 1654696 GTTTtagtttcttgTCGTTATTAC AAACCTTTTCAGAGGCTTACCTCATCAATGTGGAA spacer length:
35 repeater length: 24

13039 1654755 GTTTtagtttcttgTCGTTATTAC AAAGAAAAAGAAAAGGCGGGGCGAGGGCATGGA spacer length:
34 repeater length: 24

13040 1654813 GTTTtagtttcttgTCGTTATTAC TCTGTGTAACGTATCAGCAATGCGCTTTGTTATAT spacer length:
35 repeater length: 24

13041 1654872 GTTTtagtttcttgTCGTTATTAC GCGGATTTCCACTGTTTCCAGCCTGAGCTTGGGC spacer length:
34 repeater length: 24

13042 1654930 GTTTtagtttcttgTCGTTATTAC AGCAAATTTTTAACAATGTATTCCATTCTTGAAGT spacer length:
36 repeater length: 24

13043 1654990 GTTTtagtttcttgTCGTTATTAC AATTTTATAATGTCTGTAAACTAAAACATTGTTTT spacer length:
36 repeater length: 24

13044 1655050 GTTTtagtttcttgTCGTTATTAC AAGGGATCTAGCCTGGCTAGAGAGCTTGCCGCTTTAATTAA spacer
length: 41 repeater length: 24

13045 1655115 GTTTtagtttcttgTCGTTATTAC ATGGGTGCACCACCAGAAGTAGTAGAAGAGGTCGAG spacer length:
36 repeater length: 24

13046 1655175 GTTTtagtttcttgTCGTTATTAC TGTATTGCCACAATGTCCCGTTTTCGTTGTACAGG spacer length:
36 repeater length: 24

13047	1655235 GTTTGTAGTTTCTTGTCGTTATTAC	CAAGAGAAAGGAGCTAGGAAGAGGATCTTTTCCCT	spacer length: 35 repeater length: 24
13048	1655294 GTTTGTAGTTTCTTGTCGTTATTAC	ATTAGGACTCGAAAAATTTATATAAAAAAGACATT	spacer length: 36 repeater length: 24
13049	1655354 GTTTGTAGTTTCTTGTCGTTATTAC	TTCTCATCAACATTTGCTGTACAAATTTACATAATCAT	spacer length: 37 repeater length: 24
13050	1655415 GTTTGTAGTTTCTTGTCGTTATTAC	ACCAGTCTTACTCAACAAGTCAGCCCTTACTTATAAT	spacer length: 37 repeater length: 24
13051	1655476 GTTTGTAGTTTCTTGTCGTTATTAC	CTCAGTCAGATACGTCTTCTTTAGCTGGCTTATGT	spacer length: 35 repeater length: 24
13052	1655535 GTTTGTAGTTTCTTGTCGTTATTAC	ATCGAGTGGAAGGCGTTAGACCCAGTAGCTGCCGC	spacer length: 35 repeater length: 24
13053	1655594 GTTTGTAGTTTCTTGTCGTTATTAC	AGCCTGGATCTGAAGAAACATAACCATGAGATAT	spacer length: 34 repeater length: 24
13054	1655652 GTTTGTAGTTTCTTGTCGTTATTAC	AGGTCAGGAATATAGATTATTCGTACTTTGCTAT	spacer length: 34 repeater length: 24
13055	1655710 GTTTGTAGTTTCTTGTCGTTATTAC	AAGTCTTCAGAAAATCATCAACACGCATATACTG	spacer length: 34 repeater length: 24
13056	1655768 GTTTGTAGTTTCTTGTCGTTATTAC	TTTGATTAAAAATGGGTTGGTATGGCATAAAAAAT	spacer length: 34 repeater length: 24
13057	1655826 GTTTGTAGTTTCTTGTCGTTATTAC	ATCGGAATTATAGGCGGATTTTTAACAAATATTCCTAACAT	spacer length: 40 repeater length: 24
13058	1655890 GTTTGTAGTTTCTTGTCGTTATTAC	GGAGACAAAGTTTGTCTGTGCAATATATCCCAA	spacer length: 33 repeater length: 24
13059	1655947 GTTTGTAGTTTCTTGTCGTTATTAC	AGAAAGAGGAACATAAGGTCTAGATCTTACCCAA	spacer length: 34 repeater length: 24
13060	1656005 GTTTGTAGTTTCTTGTCGTTATTAC	TAATTCATCTTTATAGTGTAACTTTTTGAAATAAA	spacer length: 35 repeater length: 24
13061	1656064 GTTTGTAGTTTCTTGTCGTTATTAC	AACTAAGAAAAATTCAGTCAGCAGTATTAATACTACTACTA	spacer length: 39 repeater length: 24
13062	1656127 GTTTGTAGTTTCTTGTCGTTATTAC	TACACCAGTGAGAATGTCTTCCCGAACTACAAGAA	spacer length: 36 repeater length: 24
13063	1656187 GTTTGTAGTTTCTTGTCGTTATTAC	AATTGGCAACTAAGAAGTTTGTACAAATAACATAA	spacer length: 35 repeater length: 24
13064	1656246 GTTTGTAGTTTCTTGTCGTTATTAC	GAATAGGGGATGCGATAAACAGTTAGCACAAACAA	spacer length: 35 repeater length: 24
13065	1656305 GTTTGTAGTTTCTTGTCGTTATTAC	GGCATATAGAATTTTTTCGCTTTGTTGCCTCTTTAA	spacer length: 35 repeater length: 24
13066	1656364 GTTTGTAGTTTCTTGTCGTTATTAC	ATTCAATTTTTTTTCGTTTTGTGCGTGAAAATAAAA	spacer length: 35 repeater length: 24
13067	1656423 GTTTGTAGTTTCTTGTCGTTATTAC	GCTTGTGGTAACATATCCATCGTCATCAGCAATC	spacer length: 34 repeater length: 24
13068	1656481 GTTTGTAGTTTCTTGTCGTTATTAC	AACGCATTATTGCTAATGCACGGTGCTAACAACTCTAG	spacer length: 37 repeater length: 24
13069	1656542 GTTTGTAGTTTCTTGTCGTTATTAC	GTTTAAACGGTAAATAGATAAAACCAAGAAAATG	spacer length: 35 repeater length: 24
13070	1656601 GTTTGTAGTTTCTTGTCGTTATTAC	ACGTCTTGTGCTGACTTGTAACATCGCTGTTCTT	spacer length: 35 repeater length: 24
13071	1656660 GTTTGTAGTTTCTTGTCGTTATTAC	AAAGAAGTGCAAAAAAATGGCTACGGTGTACATT	spacer length: 34 repeater length: 24
13072	1656718 GTTTGTAGTTTCTTGTCGTTATTAC	ATGCATTCAATTAAGACTTAACAATTCAAGAGTT	spacer length: 34 repeater length: 24
13073	1656776 GTTTGTAGTTTCTTGTCGTTATTAC	AAGTTTCTTAATTTATTACAGTTATATGAACAGC	spacer length: 34 repeater length: 24
13074	1656834 GTTTGTAGTTTCTTGTCGTTATTAC	ACAATAGCCCGCAAATGTCAGTATCATCACGTTGTT	spacer length: 36 repeater length: 24
13075	1656894 GTTTGTAGTTTCTTGTCGTTATTAC	AGATTTTATGAAACATTAACATTTTATTTTATCTAT	spacer length: 36 repeater length: 24
13076	1656954 GTTTGTAGTTTCTTGTCGTTATTAC	ATTAATCAGATAGAACTAGCAGTGTTTTTTATGTT	spacer length: 36 repeater length: 24
13077	1657014 GTTTGTAGTTTCTTGTCGTTATTAC	ACCTTCACTTATTGAAGATGGGGCTGAAACAACTTT	spacer length: 36 repeater length: 24
13078	1657074 GTTTGTAGTTTCTTGTCGTTATTAC	TTGGTTACTGATATTTTCTGAACTCCAGCAAATGT	spacer length: 35 repeater length: 24
13079	1657133 GTTTGTAGTTTCTTGTCGTTATTAC	CGTTAAACAGACTAGGCTCAGGACAAGCATTCACT	spacer length: 35 repeater length: 24
13080	1657192 GTTTGTAGTTTCTTGTCGTTATTAC	AGCCCAAATCTGTTATCTCTTTAGAATGAAATTTT	spacer length: 35 repeater length: 24
13081	1657251 GTTTGTAGTTTCTTGTCGTTATTAC	AGAGTACCTTTACCTAACAGAGCGTCGTATATTAT	spacer length: 36 repeater length: 24
13082	1657311 GTTTGTAGTTTCTTGTCGTTATTAC	TGTAGTCTTGCGCAATACCTGCGCTCTTTAGCAGT	spacer length: 35 repeater length: 24

35 repeater length: 24
 13083 1657370 GTTTtagtttcttgTCGTTATTAC AGAAGCTATACAACGAGGCTATATAAATAAAATG spacer length:
 34 repeater length: 24
 13084 1657428 GTTTtagtttcttgTCGTTATTAC GTGAAGATGTCGATAGTGACGATAGCTGAGATAGT spacer length:
 35 repeater length: 24
 13085 1657487 GTTTtagtttcttgTCGTTATTAC AAAGTAAGCCCGATAGTCCTTAGGTCAGGATCCCTTTA spacer
 length: 38 repeater length: 24
 13086 1657549 GTTTtagtttcttgTCGTTATTAC TATATTTGGTCAAGTGTCTACAGCATTTTAAT spacer length:
 34 repeater length: 24
 13087 1657607 GTTTtagtttcttgTCGTTATTAC GCAGAGTCTTCGCTACGTCTTCAGCGTCTCAAA spacer length:
 35 repeater length: 24
 13088 1657666 GTTTtagtttcttgTCGTTATTAC GATCACAGTAATGCGTTATATAAAAAGGCAGAATTCA spacer
 length: 37 repeater length: 24
 13089 1657727 GTTTtagtttcttgTCGTTATTAC CTTTGATCAATTACTAAATTCTGTAATTGTGCCTCTA spacer
 length: 37 repeater length: 24
 13090 1657788 GTTTtagtttcttgTCGTTATTAC GTAGAAAGTCATAACCCAAAACCTTCATTTTTTTGTT spacer length:
 36 repeater length: 24
 13091 1657848 GTTTtagtttcttgTCGTTATTAC ACAGGCTGTACCAAGCTGTTAGCGATGTAGTTAAT spacer length:
 35 repeater length: 24
 13092 1657907 GTTTtagtttcttgTCGTTATTAC AGCTCCCATTAATAATCACGACCACTCCAAATATCA spacer length:
 35 repeater length: 24
 13093 1657966 GTTTtagtttcttgTCGTTATTAC AGTTATAATCTATCTCCGGAACATTAAATATTTTA spacer length:
 36 repeater length: 24
 13094 1658026 GTTTtagtttcttgTCGTTATTAC ATAGTTGGTGGGACGGAATGGAGAAACAGCTAAAA spacer length:
 35 repeater length: 24
 13095 1658085 GTTTtagtttcttgTCGTTATTAC TATAAAAAAGCATTTGCACAGTCTTGAAACCACTATTT spacer
 length: 39 repeater length: 24
 13096 1658148 GTTTtagtttcttgTCGTTATTAC ATGCTCGCCCACCAGCACACCGGACAGATCGACATA spacer length:
 36 repeater length: 24
 13097 1658208 GTTTtagtttcttgTCGTTATTAC AACTGAAGGAACCTTGTAGAGCGGTATGCTTTGCTTCTTCTC spacer
 length: 42 repeater length: 24
 13098 1658274 GTTTtagtttcttgTCGTTATTAC AACTGGAGCAACGTATTGTTGAATATAGCCCCTATGA spacer
 length: 37 repeater length: 24
 13099 1658335 GTTTtagtttcttgTCGTTATTAC AATGAGATATTCAGTGGGTCATGGAGCGTGAAA spacer length:
 34 repeater length: 24
 13100 1658393 GTTTtagtttcttgTCGTTATTAC TTTCTTATTTTTTAACGAGGGAAATGGTCAGGCTAAAA spacer
 length: 39 repeater length: 24
 13101 1658456 GTTTtagtttcttgTCGTTATTAC TACGGTAAACTGGGGAGTTAACTCAGCATCCA spacer length: 32
 repeater length: 24
 13102 1658512 GTTTtagtttcttgTCGTTATTAC CTTTCGCATACTTCCTCGCCCTCCTTGAGATATTTTCT spacer
 length: 38 repeater length: 24
 13103 1658574 GTTTtagtttcttgTCGTTATTAC CTCTTCAGGA
 13104
 13105
 13106 crispr 2
 13107 1670965 GTAATAACGACAAGAACTAAAAC ATCTTCTCTGTCCTCTACTACTTTCTGCTCTTCTTT spacer length:
 36 repeater length: 24
 13108 1671025 GTAATAACGACAAGAACTAAAAC TGAAAAGTTCATAAAAAAGTACCCTAACGTAGAACA spacer length:
 36 repeater length: 24
 13109 1671085 GTAATAACGACAAGAACTAAAAC AATTTTATGATATCGCTTTTGTTCAGGAAACAT spacer length:
 34 repeater length: 24
 13110 1671143 GTAATAACGACAAGAACTAAAAC AATTCTAAGTGCACAAGAAGGACTAGAAGAGGCAGGCCT spacer
 length: 39 repeater length: 24
 13111 1671206 GTAATAACGACAAGAACTAAAAC TAATGCCAGTAACATAGATGCCTCCTTGATTAT spacer length:
 34 repeater length: 24
 13112 1671264 GTAATAACGACAAGAACTAAAAC AATTTGGATTGACGTCACCTCAAGATCTATTACCT spacer length:
 35 repeater length: 24
 13113 1671323 GTAATAACGACAAGAACTAAAAC ATATTTAAGCCTTACTCTTTACATTAAGTAACAA spacer length:
 36 repeater length: 24
 13114 1671383 GTAATAACGACAAGAACTAAAAC TCGACGTTAGTCTTAGATTTTTATCATTTTTAGGT spacer length:
 35 repeater length: 24
 13115 1671442 GTAATAACGACAAGAACTAAAAC TTGTGCTCTTTAATGTCAAACAGTGTGATCTATT spacer length:
 34 repeater length: 24
 13116 1671500 GTAATAACGACAAGAACTAAAAC ACAGTGCATGAAGTAGCATCATATGTCGTAAGTGA spacer length:
 35 repeater length: 24
 13117 1671559 GTAATAACGACAAGAACTAAAAC TCTCTGGGTAAAGTGCAAAGAGCACTGGGATTACAA spacer length:
 36 repeater length: 24
 13118 1671619 GTAATAACGACAAGAACTAAAAC CAACAAGGCTGAGAAGATAGCAAAGAAGCTAGTA spacer length:
 34 repeater length: 24
 13119 1671677 GTAATAACGACAAGAACTAAAAC TACAATAATTTAGATTTCCAGTAAATGATACAAATTC spacer
 length: 38 repeater length: 24

13120	1671739	GTAATAACGACAAGAACTAAAAC	TTGTCATTAAACTGACAACCTTTGTCTCTGACCCAAA	spacer length: 36
13121	1671799	GTAATAACGACAAGAACTAAAAC	AGTAGCGGTATACAAAAATGTATTTGTTGTGATA	spacer length: 34
13122	1671857	GTAATAACGACAAGAACTAAAAC	TGGCTCACAGGCATTAATACCTGCAAAGCCTAGG	spacer length: 34
13123	1671915	GTAATAACGACAAGAACTAAAAC	AAAAGTTTGCCAATTTAGGTGCTGTGCAGGAAGCATTTA	spacer length: 39
13124	1671978	GTAATAACGACAAGAACTAAAAC	GAATAATTGTAGATCAGCCATCAACTTCCACACG	spacer length: 34
13125	1672036	GTAATAACGACAAGAACTAAAAC	AGAAAATGAGTAGTGAGATAAAGACAAAAAATAAGT	spacer length: 36
13126	1672096	GTAATAACGACAAGAACTAAAAC	AATTTCTATATAATCCAAGAGACACAGAGAGGTTTCTAC	spacer length: 39
13127	1672159	GTAATAACGACAAGAACTAAAAC	TACATTACTTTTAGAAATATAGTATGAGCGTAACATA	spacer length: 37
13128	1672220	GTAATAACGACAAGAACTAAAAC	CAGTACACAAAGTGGATAGGAAAAGTCAACAAT	spacer length: 33
13129	1672277	GTAATAACGACAAGAACTAAAAC	ATCGTATATTATATTGGGGCAGAAAAAATGAATGAT	spacer length: 36
13130	1672337	GTAATAACGACAAGAACTAAAAC	CAGGTTCAATTTTCAAGTAAATAATGGCATTACAAT	spacer length: 34
13131	1672395	GTAATAACGACAAGAACTAAAAC	AACATCAGACTTTTGCACCTTTTATTAGAAGGCTTTGGA	spacer length: 38
13132	1672457	GTAATAACGACAAGAACTAAAAC	GATACATTGCATATATTGGCAATCAGCAATACAA	spacer length: 34
13133	1672515	GTAATAACGACAAGAACTAAAAC	ACTATATATTGTTTGGAGCTTATCATAAACTTCATC	spacer length: 36
13134	1672575	GTAATAACGACAAGAACTAAAAC	CTGAATAGAGAGATGATAGAAGAAACGGTAAGTA	spacer length: 34
13135	1672633	GTAATAACGACAAGAACTAAAAC	TCAGCCTCTAATTCTGCTGCAACTTCCATCAATTTCTT	spacer length: 39
13136	1672696	GTAATAACGACAAGAACTAAAAC	ATTAATTCCAAAGGACATTGAGAAGAAATTTGGCTTAAA	spacer length: 39
13137	1672759	GTAATAACGACAAGAACTAAAAC	ATATGAGCAACAGCAACTCAAATCTTTATATGAAGTC	spacer length: 37
13138	1672820	GTAATAACGACAAGAACTAAAAC	CACCAAAGAGTTTTTGTCCAAAGCCTTTTATGGA	spacer length: 34
13139	1672878	GTAATAACGACAAGAACTAAAAC	CAGTCTCAATGTCTTTATGAGACAATTCTATATCCAA	spacer length: 37
13140	1672939	GTAATAACGACAAGAACTAAAAC	GCACTTCTACTTGCTTAACGCTATAGCAAGCAAGAA	spacer length: 36
13141	1672999	GTAATAACGACAAGAACTAAAAC	GTTTCATCAACCTCATGCTGAGTAAGACTATTAGTATGT	spacer length: 38
13142	1673061	GTAATAACGACAAGAACTAAAAC	CTCGTATTCGTAAAAGCCCTCGTGGGTGGTGACGAT	spacer length: 36
13143	1673121	GTAATAACGACAAGAACTAAAAC	CTTTACAACATAATTTTTTCAGGAAAACAAATTGAA	spacer length: 35
13144	1673180	GTAATAACGACAAGAACTAAAAC	TATGTCTTAGATAGTTGAAAAAGCTAAAGCTTTT	spacer length: 34
13145	1673238	GTAATAACGACAAGAACTAAAAC	GAATGTGTCCCCCTAGAGGTTTTACCAAACAACCA	spacer length: 36
13146	1673298	GTAATAACGACAAGAACTAAAAC	AAAAAACCTTTAACCTCTATCGAATGCTGTCAAAAA	spacer length: 36
13147	1673358	GTAATAACGACAAGAACTAAAAC	AACGTTACGACCCTACTACTCAGAAGAAGATAGT	spacer length: 35
13148	1673417	GTAATAACGACAAGAACTAAAAC	GAGGGATGAAGGCAAATCAGTATCAGCAATAGTAGAG	spacer length: 37
13149	1673478	GTAATAACGACAAGAACTAAAAC	GAAGTAGAACAGCTGTTTTTCAGGATTGAAATTAT	spacer length: 35
13150	1673537	GTAATAACGACAAGAACTAAAAC	AAGAGAATACTTTCTCGCCTCAGCAAGAATCGTATCAAT	spacer length: 39
13151	1673600	GTAATAACGACAAGAACTAAAAC	GTATGTGGGAGAGCTTTATGAGTGGTAAGACACAC	spacer length: 35
13152	1673659	GTAATAACGACAAGAACTAAAAC	ATGCAGGTACTATACTGAGCCTGATGAACAGCA	spacer length: 33
13153	1673716	GTAATAACGACAAGAACTAAAAC	AAATTTAAGGAAAATGGAGTGTATGTATATAAAT	spacer length: 34
13154	1673774	GTAATAACGACAAGAACTAAAAC	CTCAATTATTTTCAATGCTTTTTCTTTTTCGTTGT	spacer length: 35
13155	1673833	GTAATAACGACAAGAACTAAAAC	ACATCAGCACTTATGGATACTACGCCATGCTCATCT	spacer length:

36 repeater length: 24
 13156 1673893 GTAATAACGACAAGAACTAAAAC ACTATTACTTTTGAAAATATGTAGATAAGACTGGT spacer length:
 35 repeater length: 24
 13157 1673952 GTAATAACGACAAGAACTAAAAC TTACAGTTGTTCCGTTAGGAAGTATATAGTTACT spacer length:
 34 repeater length: 24
 13158 1674010 GTAATAACGACAAGAACTAAAAC AAAATAATCATAAAACCCGAGCATTACGAAGAATTGA spacer
 length: 37 repeater length: 24
 13159 1674071 GTAATAACGACAAGAACTAAAAC TGTAAGGACTTCTTAAAAAGGTTAGAGGGGTTTCTC spacer
 length: 37 repeater length: 24
 13160 1674132 GTAATAACGACAAGAACTAAAAC GTAATTATTCTGATGGGTGCTATAATCTCGATGGC spacer length:
 35 repeater length: 24
 13161 1674191 GTAATAACGACAAGAACTAAAAC AGCGATTAGTTTAGTTCGAATTAGCTATTGCGACTT spacer length:
 35 repeater length: 24
 13162 1674250 GTAATAACGACAAGAACTAAAAC ATGGGATCCTGATAATTCGGCATCAGCACAAATTC spacer length:
 34 repeater length: 24
 13163 1674308 GTAATAACGACAAGAACTAAAAC CTCTTCATTTGTCTCGTGAAATATAGGGTTTTTCA spacer length:
 35 repeater length: 24
 13164 1674367 GTAATAACGACAAGAACTAAAAC ATAGGGTAGTTCACAAAGAGCCAGCCCTCGTCAAC spacer length:
 35 repeater length: 24
 13165 1674426 GTAATAACGACAAGAACTAAAAC CTTTACGTAGTAGTTATAGAGCTTCGTTACGTGCT spacer length:
 35 repeater length: 24
 13166 1674485 GTAATAACGACAAGAACTAAAAC CTTGAACCATTGAACCTGCGATTGCAGGGATTAAGTAT spacer
 length: 38 repeater length: 24
 13167 1674547 GTAATAACGACAAGAACTAAAAC GCTGACTGGGGGTGAGCCAGAAATGAAGACTGGAAG spacer length:
 36 repeater length: 24
 13168 1674607 GTAATAACGACAAGAACTAAAAC TAAAATTAGTCTGCTGGCCAATTAAGAACAACTCT spacer length:
 36 repeater length: 24
 13169 1674667 GTAATAACGACAAGAACTAAAAC GTGCAACAGGGTGAAACATAGATGAGCACATTTTT spacer length:
 35 repeater length: 24
 13170 1674726 GTAATAACGACAAGAACTAAAAC ATTATGCTCATTATCTCTGATTTGACCTTAAAGC spacer length:
 35 repeater length: 24
 13171 1674785 GTAATAACGACAAGAACTAAAAC CTACATTGTCCTGAAGTCCTAACTTCTTTAATTCCTT spacer
 length: 37 repeater length: 24
 13172 1674846 GTAATAACGACAAGAACTAAAAC TTTTTATTTTCAGTAGCTATCACCATAGTAGCCCTAAAA spacer
 length: 39 repeater length: 24
 13173 1674909 GTAATAACGACAAGAACTAAAAC TACTCCCCAGGCTTACCCAGCAAGAAGAGGAAGCCTT spacer
 length: 37 repeater length: 24
 13174 1674970 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
 35 repeater length: 24
 13175 1675029 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
 35 repeater length: 24
 13176 1675088 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
 35 repeater length: 24
 13177 1675147 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
 35 repeater length: 24
 13178 1675206 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
 35 repeater length: 24
 13179 1675265 GTAATAACGACAAGAACTAAAAC CATTTTAGCTCAAGCATCACCAGCATCAATTGAAAG spacer length:
 36 repeater length: 24
 13180 1675325 GTAATAACGACAAGAACTAAAAC ACCGTTCCGTAGATATTATTACTGTAACCTCCCTCCC spacer length:
 36 repeater length: 24
 13181 1675385 GTAATAACGACAAGAACTAAAAC ACTGGGCTCCCCGTGATCACTCCAGGTCCTTATGTTG spacer
 length: 37 repeater length: 24
 13182 1675446 GTAATAACGACAAGAACTAAAAC GACGCTAAAAAGCAAGAACAACAATCACAACAATCG spacer length:
 36 repeater length: 24
 13183 1675506 GTAATAACGACAAGAACTAAAAC TTTCTTAGTGAATCCCATGTACGTATATCTAATTTA spacer length:
 36 repeater length: 24
 13184 1675566 GTAATAACGACAAGAACTAAAAC
 13185
 13186
 13187 crispr 3
 13188 1786205 ACTTTCATCCCTTATGGGATTCTTC CTACCTTTTGAGATGCTTTCACCGATCTATGTTAAAGCAA spacer
 length: 40 repeater length: 26
 13189 1786271 ACTTTCATCCCTTATGGGATTCTTC CTCGTTTTCAATAAATGTCTATAGGGATGAATGTG spacer
 length: 35 repeater length: 26
 13190 1786332 ACTTTCATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATAT spacer
 length: 36 repeater length: 26
 13191 1786394 ACTTTCATCCCTTATGGGATTCTTC
 13192
 13193
 13194 crispr 4

13195 1825805 CTTTCAATCCCTTTTGGGATTCATC AGAGTCCCCTTCAACATAAAACCTAACTTGGTTTGG spacer
length: 36 repeater length: 25

13196 1825866 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGAT spacer
length: 38 repeater length: 25

13197 1825929 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAGC spacer
length: 37 repeater length: 25

13198 1825991 CTTTCAATCCCTTTTGGGATTCATC TGCGGAAATATGGAAAGAAGTATTATGAAAAAGGAGAAAA spacer
length: 41 repeater length: 25

13199 1826057 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAACT spacer
length: 36 repeater length: 25

13200 1826118 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTATACCC spacer
length: 38 repeater length: 25

13201 1826181 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGCT spacer
length: 37 repeater length: 25

13202 1826243 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTTGAG spacer
length: 39 repeater length: 25

13203 1826307 CTTTCAATCCCTTTTGGGATTCATC TATGAACTAACAGATAAAGGGAAGAGAAGTGTTCCTCCAAAAT spacer
length: 42 repeater length: 25

13204 1826374 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGAG spacer
length: 39 repeater length: 25

13205 1826438 CTTTCAATCCCTTTTGGGATTCATC

13206

13207

13208 GCA_000341715.1_ASM34171v1_genomic.fna (PilerCR):

13209 START REPEAT
SPACER
crispr 1

13210 577546 TATGTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT TCTATACGAAAATGAAATATTGACTGATGAAAG
spacer length: 33 repeater length: 40

13212 577619 TATGTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT GAAGATGAATATAATAATTTAGAACAGAGTAT
spacer length: 32 repeater length: 40

13213 577691 TATGTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT CGACCAGTCC

13214

13215

13216 GCA_000350305.1_ASM35030v1_genomic.fna (PilerCR):

13217 START REPEAT
SPACER
crispr 1

13218 675992 GTTTGAGAGTGTTGTCAAATACGAGGTAACCTCAATC TACCCTTGACAAGACCTCGATGCAGGCATC spacer
length: 30 repeater length: 36

13220 676058 GTTTGAGAGTGTTGTCAAATACGAGGTAACCTCAATC ATTGTCTGCCGGTGATTACTCAGGATTCCA spacer
length: 30 repeater length: 36

13221 676124 GTTTGAGAGTGTTGTCAAATACGAGGTAACCTCAATC ACATGGGCAT

13222

13223

13224 GCA_000364745.1_ASM36474v1_genomic.fna (PilerCR):

13225 START REPEAT
SPACER
crispr 1

13227 344176 CTTTCAATTCTATAGTAGATTAGC GGGGTTTTAGGGGATGTCCCCCTAATGCCGGCCTCCCAAGT spacer
length: 41 repeater length: 24

13228 344241 CTTTCAATTCTATAGTAGATTAGC AGTTAAAGTTGAAAGAAGCGGCACAAAACGAAGAGAAAGT spacer
length: 40 repeater length: 24

13229 344305 CTTTCAATTCTATAGTAGATTAGC TCACCAACTTGACGGGCACATTTGCTTGCCCCCATCTCC spacer
length: 41 repeater length: 24

13230 344370 CTTTCAATTCTATAGTAGATTAGC CTATTGCAAGCTTTTGGATATGATTACAAAAGATGGATACAGA spacer
length: 44 repeater length: 24

13231 344438 CTTTCAATTCTATAGTAGATTAGC ATGGAAAATCACGCTGAACTATATACTTTCACTTACAGA spacer
length: 39 repeater length: 24

13232 344501 CTTTCAATTCTATAGTAGATTAGC CTCTCGCAAAAAACGGGCAATATCGTTAGGAGAGGGCG spacer
length: 38 repeater length: 24

13233 344563 CTTTCAATTCTATAGTAGATTAGC TTTGTACAATACTGTGTACATAACTGTTGCACATCTTCTA spacer
length: 40 repeater length: 24

13234 344627 CTTTCAATTCTATAGTAGATTAGC ATTCAGTAGAAAGATTGCTAGAAGTTAGAATCAATTCGTTAG spacer
length: 42 repeater length: 24

13235 344693 CTTTCAATTCTATAGTAGATTAGC AAATAATTAAGTACTTACCGGAACCTATACAACGTGTTCTCA spacer
length: 42 repeater length: 24

13236 344759 CTTTCAATTCTATAGTAGATTAGC ATTGATAGATTGAGAAAGAGAGATTGAAAGATAGAAAGGTTTATA spacer
length: 45 repeater length: 24

13237 344828 CTTTCAATTCTATAGTAGATTAGC ATTCGATATTTATGTAAAAGGCAGAATGTACGAATTTCCAG spacer
length: 41 repeater length: 24

13238	344893	CTTTC AATTCTATAGTAGATTAGC	AGACAGTATCGGCGGAGTTGTTAGGGATGGTATCATTT spacer
		length: 38 repeater length: 24	
13239	344955	CTTTC AATTCTATAGTAGATTAGC	AGTTATAGAAATAAGTACATTAGCTTTGCAATTTCAACTA spacer
		length: 40 repeater length: 24	
13240	345019	CTTTC AATTCTATAGTAGATTAGC	AAGTTTTGAGTAAGGAGGAGTTAGAACAGTTGTTAAAGGA spacer
		length: 40 repeater length: 24	
13241	345083	CTTTC AATTCTATAGTAGATTAGC	ACTGATTAGTCTAGTGTCTGTTAGGGCAAAAATGGATCTTTAA spacer
		length: 42 repeater length: 24	
13242	345149	CTTTC AATTCTATAGTAGATTAGC	AAGCTGTTAACGTTGATCGCTATCAAGAGTGCTTTCTATGA spacer
		length: 41 repeater length: 24	
13243	345214	CTTTC AATTCTATAGTAGATTAGC	AGAAGTTCGGAGTTATTGCCAAAGCGTGGAAAAACCAGGATCAG spacer
		length: 44 repeater length: 24	
13244	345282	CTTTC AATTCTATAGTAGATTAGC	AAAATCATGCTGAGTTGTACGTCTTTACAGTGAGCAAAGGT spacer
		length: 41 repeater length: 24	
13245	345347	CTTTC AATTCTATAGTAGATTAGC	ATGGAGTAAGTGAGGAATGCATAAGACAAGCGATATCGAGT spacer
		length: 41 repeater length: 24	
13246	345412	CTTTC AATTCTATAGTAGATTAGC	TCATCATTTTACCATTCCATCAAACAGCACAAAGTAAGGGGGT spacer
		length: 41 repeater length: 24	
13247	345477	CTTTC AATTCTATAGTAGATTAGC	CTATTCCTTTTCGAAAAGGATGCAAACGATACCAATATTT spacer
		length: 41 repeater length: 24	
13248	345542	CTTTC AATTCTATAGTAGATTAGC	ATCCGTAACTTTACAATAAAAGTAGAAAGGAGGTATTGTAAG spacer
		length: 42 repeater length: 24	
13249	345608	CTTTC AATTCTATAGTAGATTAGC	TAGACAAGTTTTTTTTATGAGTGAAGTAGCTTTGAAAGAAT spacer
		length: 40 repeater length: 24	
13250	345672	CTTTC AATTCTATAGTAGATTAGC	ACTTCTAAGTAGAAGTCAAATTC AATATAGAAATATAAG spacer
		length: 40 repeater length: 24	
13251	345736	CTTTC AATTCTATAGTAGATTAGC	CTATGCTCTCATTTTAGTATCTCTGAAGTCAAAGATGA spacer
		length: 38 repeater length: 24	
13252	345798	CTTTC AATTCTATAGTAGATTAGC	TTAATGATTCTGACCTTCTAGTGGTTATGAATGATCAAGAAG spacer
		length: 42 repeater length: 24	
13253	345864	CTTTC AATTCTATAGTAGATTAGC	GGCAGTGGGATATCTATCAGAGCTCTGGCGTATTTTGTAAC spacer
		length: 41 repeater length: 24	
13254	345929	CTTTC AATTCTATAGTAGATTAGC	TTTCATTGTTAGGCATTGATAGTTTTAATGCCATAATGTAAC spacer
		length: 42 repeater length: 24	
13255	345995	CTTTC AATTCTATAGTAGATTAGC	TATGCTCACCTGGAGAGAGACAAATCTACGGAAGTTT spacer
		length: 38 repeater length: 24	
13256	346057	CTTTC AATTCTATAGTAGATTAGC	AGAGGTTGGGGGGAGAGAGGTGAAGTCCCTAAAATCTTTCTA spacer
		length: 42 repeater length: 24	
13257	346123	CTTTC AATTCTATAGTAGATTAGC	AGTGTAACGGACTAGAAGATGGATCCTGTAACGTCATGA spacer
		length: 40 repeater length: 24	
13258	346187	CTTTC AATTCTATAGTAGATTAGC	CTAAAGCAGTCATTGTCCCTATATCCTAGGTATTCTAAGAATAT spacer
		length: 44 repeater length: 24	
13259	346255	CTTTC AATTCTATAGTAGATTAGC	GACAATGCCTATTGATAATATTACAATTATACCAAACAA spacer
		length: 39 repeater length: 24	
13260	346318	CTTTC AATTCTATAGTAGATTAGC	CTGCCCATTTAATTCTCCTAGCAATCTTACTATATTT spacer length:
		37 repeater length: 24	
13261	346379	CTTTC AATTCTATAGTAGATTAGC	GTTACTAGAGAGGAATACAAAGAACTTATTGGATTTCTCTGA spacer
		length: 41 repeater length: 24	
13262	346444	CTTTC AATTCTATAGTAGATTAGC	CAGTAGCCAATATGCCGTTGCGCTTCATCCTTTACGCTG spacer
		length: 39 repeater length: 24	
13263	346507	CTTTC AATTCTATAGTAGATTAGC	TATATAATTATCGATGACGAAACAATCTTCATTAAATTT spacer
		length: 39 repeater length: 24	
13264	346570	CTTTC AATTCTATAGTAGATTAGC	TGGCCTTACATTGCGGGTGCTGCTATTGCAGCAGCAGGCAT spacer
		length: 41 repeater length: 24	
13265	346635	CTTTC AATTCTATAGTAGATTAGC	TACTTCAGTCCATAGATCACCGTTTGCCGTGATGATACTTTT spacer
		length: 42 repeater length: 24	
13266	346701	CTTTC AATTCTATAGTAGATTAGC	TTCTTGATTGTCTACATTTCCGTTAACATAAGAACC spacer length:
		37 repeater length: 24	
13267	346762	CTTTC AATTCTATAGTAGATTAGC	AAGCTAAGAAAGAGCAAGAGAGAGATAAGCAGCTAAGGGATC spacer
		length: 42 repeater length: 24	
13268	346828	CTTTC AATTCTATAGTAGATTAGC	AAAGTTTTATAGCCTCCCTAATGACCTCGCTTCGGCTTAGA spacer
		length: 41 repeater length: 24	
13269	346893	CTTTC AATTCTATAGTAGATTAGC	ATTAATTTTTTAAAGAGATGAATGTTAAGTTTCAAGTAAA spacer
		length: 41 repeater length: 24	
13270	346958	CTTTC AATTCTATAGTAGATTAGC	CAATAGAGGCAAACCTATCACCTTCCATGATTCTCTTTAA spacer
		length: 40 repeater length: 24	
13271	347022	CTTTC AATTCTATAGTAGATTAGC	GCGTCCAGAATAATAGATGATATCCTCGATGAACATATGACG spacer
		length: 42 repeater length: 24	
13272	347088	CTTTC AATTCTATAGTAGATTAGC	AAAATGACACCCCAAAACCTTGAAACCAAAAATATGAAAG spacer
		length: 40 repeater length: 24	
13273	347152	CTTTC AATTCTATAGTAGATTAGC	AAAATGGAGGAAGTAAAATTAAACGTGTATAACAAAATTG spacer

length: 40 repeater length: 24
13274 347216 CTTTCAATTCTATAGTAGATTAGC ATAACAATCCCCAAAAGTATTGCGGAAGAACTCTTGAGGAA spacer
length: 41 repeater length: 24
13275 347281 CTTTCAATTCTATAGTAGATTAGC GGTAATTCTTGGTTATTGTTTCAGTCATCCCAGACCAAGA spacer
length: 39 repeater length: 24
13276 347344 CTTTCAATTCTATAGTAGATTAGC CAAGGCACGAGAGAGTTAATCGTAGAAGCCATAGCGAG spacer
length: 38 repeater length: 24
13277 347406 CTTTCAATTCTATAGTAGATTAGC ATAAATATGGAGATACTGAAAAAATATTTAAAAAATTT spacer
length: 39 repeater length: 24
13278 347469 CTTTCAATTCTATAGTAGATTAGC TAAGGGGTTTGTGTGTGTGGGGTTATCTATAGATAGAGAGATA spacer
length: 43 repeater length: 24
13279 347536 CTTTCAATTCTATAGTAGATTAGC CTGACTTCTCTCGTTAATGAGCCTGTTAGCTGATATGTT spacer
length: 39 repeater length: 24
13280 347599 CTTTCAATTCTATAGTAGATTAGC CCCTTCTCTTCATGAAGAAGTACGTTAAAAAATAAGGC spacer
length: 38 repeater length: 24
13281 347661 CTTTCAATTCTATAGTAGATTAGC ACAAAAACCCGGGGGGATTCCCCGGTTTCCCCGGATTCCC spacer
length: 40 repeater length: 24
13282 347725 CTTTCAATTCTATAGTAGATTAGC TCGGAAGGATTCTATTTCAGAAATGAGAAAGATTTCTAC spacer
length: 38 repeater length: 24
13283 347787 CTTTCAATTCTATAGTAGATTAGC GAAATAATATTGACGTATGATGAAATCAGGGAAATGATTTT spacer
length: 42 repeater length: 24
13284 347853 CTTTCAATTCTATAGTAGATTAGC TTGAAGGATTTTTTCAATATTGCAGAAAGAGATGAGTTAG spacer
length: 40 repeater length: 24
13285 347917 CTTTCAATTCTATAGTAGATTAGC AAGTATCAAATATCCTATCTTGGACTAAATGTACATTATAAATT spacer
length: 44 repeater length: 24
13286 347985 CTTTCAATTCTATAGTAGATTAGC ATTTTTTACGGCCTGCTGCATGAAAAAATACAACTGTATA spacer
length: 41 repeater length: 24
13287 348050 CTTTCAATTCTATAGTAGATTAGC AACATTACACTAGCTCCAGTTAGTGAAAAACCTCATAA spacer
length: 38 repeater length: 24
13288 348112 CTTTCAATTCTATAGTAGATTAGC TAAGTTTAACCCCGCTTTTCACATTAAACGGACAAACCGTAA spacer
length: 41 repeater length: 24
13289 348177 CTTTCAATTCTATAGTAGATTAGC ATCTTCTTGAGATACTGCTTTATCTCCTCTTCTTTTCATGTT spacer
length: 41 repeater length: 24
13290 348242 CTTTCAATTCTATAGTAGATTAGC TAGCTCTCTAATTTTCGTGGTCTAATTCTAGGAATAGTTCTTTTTT spacer
length: 44 repeater length: 24
13291 348310 CTTTCAATTCTATAGTAGATTAGC CTTAGTCTTTTCTTCTGCTTCTACGAATTTCTTAAAGAACC spacer
length: 40 repeater length: 24
13292 348374 CTTTCAATTCTATAGTAGATTAGC GGTAATCCCCCTATACCAGATGGAATGACCTAAGTAAAG spacer
length: 40 repeater length: 24
13293 348438 CTTTCAATTCTATAGTAGATTAGC AAGAAAAGTAGAAAATTGTTAGAAAAAATGGCAATGGAAGTGCT spacer
length: 44 repeater length: 24
13294 348506 CTTTCAATTCTATAGTAGATTAGC AAAATTAAGACACTACTGAGAGCAGGAGGGATATATGTTAG spacer
length: 41 repeater length: 24
13295 348571 CTTTCAATTCTATAGTAGATTAGC CCTAATTCTTTTGAGACTAGTCTAGCTAAGCGTAACGGATAATT spacer
length: 44 repeater length: 24
13296 348639 CTTTCAATTCTATAGTAGATTAGC TCAGAAACAGAAACAGCTCCTTCTTCAGTATCATTGCGGT spacer
length: 41 repeater length: 24
13297 348704 CTTTCAATTCTATAGTAGATTAGC ATGCTGATGACGTAATTAGGAGGGTGAAAAAATCGCTA spacer
length: 38 repeater length: 24
13298 348766 CTTTCAATTCTATAGTAGATTAGC GTATACCCAGTTTGCAAAAACGTTTCAATTTGTTGTCTTAA spacer
length: 41 repeater length: 24
13299 348831 CTTTCAATTCTATAGTAGATTAGC GTCTTATAACGCCGTTTGGTATAGTTTGGTCAAGTTTAC spacer
length: 39 repeater length: 24
13300 348894 CTTTCAATTCTATAGTAGATTAGC TTCATATTCGTACTCGGACTTTTCTACTTGAATATTTAG spacer
length: 39 repeater length: 24
13301 348957 CTTTCAATTCTATAGTAGATTAGC TGAGCATAAGTTGAAGTATCTATTGAATCTGCATTATCAAAGTT spacer
length: 45 repeater length: 24
13302 349026 CTTTCAATTCTATAGTAGATTAGC ATGCATTTATTCCAGTTACTGTAGTATCTTTAATTGATTCAATAG spacer
length: 45 repeater length: 24
13303 349095 CTTTCAATTCTATAGTAGATTAGC CCTTCATTTTTCCAACCCCTAACTCAAATCTTAATACGC spacer
length: 39 repeater length: 24
13304 349158 CTTTCAATTCTATAGTAGATTAGC GAATTTGCCAGACAATTCGCCTAAGCTTCTAGACTATTTAA spacer
length: 41 repeater length: 24
13305 349223 CTTTCAATTCTATAGTAGATTAGC AATATATCATCAGTACCATACGTATCTTGAATCTCTCCT spacer
length: 39 repeater length: 24
13306 349286 CTTTCAATTCTATAGTAGATTAGC TTTTATCGGTGGTAATGGATTATTCCCCCAATACAGATAC spacer
length: 40 repeater length: 24
13307 349350 CTTTCAATTCTATAGTAGATTAGC TCATATGCTTCCTGTAAATGATATATGGCGTCATTATACC spacer
length: 40 repeater length: 24
13308 349414 CTTTCAATTCTATAGTAGATTAGC ATCGGGCACGCGGGCACTGTTCAACTAGTAAATCAGTTATG spacer
length: 41 repeater length: 24

13309	349479	CTTTC AATTCTATAGTAGATTAGC	CATCAGATCAAGACCTAGTTTTTGTCCAGGTCTTATTATGAC	spacer
	length:	42	repeater length:	24
13310	349545	CTTTC AATTCTATAGTAGATTAGC	TAGATGATTCTGAAGTTGTCGAGTTCGTCGACAACAACGGTG	spacer
	length:	42	repeater length:	24
13311	349611	CTTTC AATTCTATAGTAGATTAGC	GAGCATTGATAACGTCTTCAGTCGTTACGAAATATTTTACATTT	spacer
	length:	44	repeater length:	24
13312	349679	CTTTC AATTCTATAGTAGATTAGC	GAAGAAGTGAAAGATCATCTTAAAGAACTATACTATTGAC	spacer
	length:	41	repeater length:	24
13313	349744	CTTTC AATTCTATAGTAGATTAGC	ACGGCAAGGT	
13314				
13315				
13316		crispr 2		
13317	353819	GCTAATCTACTATAGAATTGAAAG	TTACTAGAATGACAAAGGAAGCACTAGGGCGTTTAAAGGT	spacer
	length:	40	repeater length:	24
13318	353883	GCTAATCTACTATAGAATTGAAAG	TTCGATTAAAGGAAATATTTTTTGACTTACATTTTGCATA	spacer
	length:	40	repeater length:	24
13319	353947	GCTAATCTACTATAGAATTGAAAG	TATTTCTAATTTGCAAATTAATAGATATGAAAAACCAAACCTTTTA	spacer
	length:	46	repeater length:	24
13320	354017	GCTAATCTACTATAGAATTGAAAG	TAATCAATACATAAAACTGTGTAGAAAACCTTTATATACCCC	spacer
	length:	41	repeater length:	24
13321	354082	GCTAATCTACTATAGAATTGAAAG	TCCTTATTTTAGGTATTAGTTTATCCCAATCCAGGGTAG	spacer
	length:	39	repeater length:	24
13322	354145	GCTAATCTACTATAGAATTGAAAG	ACAAGTTAGGGACTACTTCTTGTAAGTCTCGGAGAACGCTT	spacer
	length:	42	repeater length:	24
13323	354211	GCTAATCTACTATAGAATTGAAAG	TAGATGACTCTTTACTTTTCGATCTGAGTTTTCTTAATCT	spacer
	length:	39	repeater length:	24
13324	354274	GCTAATCTACTATAGAATTGAAAG	ATTAATTCGGTTATAACTTATGCGAAGAGTTTGATAGA	spacer
	length:	38	repeater length:	24
13325	354336	GCTAATCTACTATAGAATTGAAAG	TTCTAGTAGCCTTTTCGAAATTCGGGCATTGTAGTAAACGA	spacer
	length:	40	repeater length:	24
13326	354400	GCTAATCTACTATAGAATTGAAAG	TTTCCTTTTGCAAAATGTAATCCGGATCCGCCCAATTTTCAG	spacer
	length:	42	repeater length:	24
13327	354466	GCTAATCTACTATAGAATTGAAAG	CGTTCAATCATGACAGAGGCTAACCCCATTTGCCCTTAAGTTGTC	spacer
	length:	44	repeater length:	24
13328	354534	GCTAATCTACTATAGAATTGAAAG	TTAAGCTTTCTATGATGTCATTGTTGATTATTATAACTTTA	spacer
	length:	41	repeater length:	24
13329	354599	GCTAATCTACTATAGAATTGAAAG	TAGACTCTAGCGTAGACTTTAAAATAAAAGAGAGGTGAT	spacer
	length:	39	repeater length:	24
13330	354662	GCTAATCTACTATAGAATTGAAAG	TTCTAGTAATATGGATTCTATACTATTCAAACGGGTATT	spacer
	length:	39	repeater length:	24
13331	354725	GCTAATCTACTATAGAATTGAAAG	CATACCACCGACTTCTCTATCTTATTAAGGTTTTATA	spacer length:
	length:	37	repeater length:	24
13332	354786	GCTAATCTACTATAGAATTGAAAG	TTTGGCGGGTAAGTTCTCATTCTCATAAAGTTCCACGCGG	spacer
	length:	40	repeater length:	24
13333	354850	GCTAATCTACTATAGAATTGAAAG	TATTTTCGTTTTCCCTGAGGGGGATTGATTGTTTTCCA	spacer
	length:	39	repeater length:	24
13334	354913	GCTAATCTACTATAGAATTGAAAG	ATCCAGACATGACCAAATGGGTCATGTCTAGACCGTAAATT	spacer
	length:	41	repeater length:	24
13335	354978	GCTAATCTACTATAGAATTGAAAG	TTAATATCGTAAAATATCTCAAGTAAAACCTTCATTTGG	spacer
	length:	38	repeater length:	24
13336	355040	GCTAATCTACTATAGAATTGAAAG	GTATTATTAACGCGAAAAATATCGTTATTATTAATACAA	spacer
	length:	39	repeater length:	24
13337	355103	GCTAATCTACTATAGAATTGAAAG	CTTAAAGCACCTACGCCGGCACCTATTAGTGACCAATAC	spacer
	length:	40	repeater length:	24
13338	355167	GCTAATCTACTATAGAATTGAAAG	TTATCATTTCCAATTACTATCTCATGTGTATCGTGATATGC	spacer
	length:	41	repeater length:	24
13339	355232	GCTAATCTACTATAGAATTGAAAG	AACATAAGTAGAATTGAAAGAAGAGTAACATGTAGTACAACCTCTCAA	spacer
	length:	47	repeater length:	24
13340	355303	GCTAATCTACTATAGAATTGAAAG	CTGTCAATAATGAAGGTTACGTCTTTTATCCCTACTTCCTT	spacer
	length:	41	repeater length:	24
13341	355368	GCTAATCTACTATAGAATTGAAAG	AATTCTTCTAAAAAATTAATTATTTCTCTTTTATTTTCAT	spacer
	length:	40	repeater length:	24
13342	355432	GCTAATCTACTATAGAATTGAAAG	GCACCTATGGCGACCCAAAACAGCGTGGATCCGCTGA	spacer length:
	length:	37	repeater length:	24
13343	355493	GCTAATCTACTATAGAATTGAAAG	ATATTTTTGATTATATTCTTTTTCTCAAGTATTTTATG	spacer
	length:	39	repeater length:	24
13344	355556	GCTAATCTACTATAGAATTGAAAG	AATTATATCATATCAGTAAGCCAACTAGTATCTCGAGCACAC	spacer
	length:	43	repeater length:	24
13345	355623	GCTAATCTACTATAGAATTGAAAG	GATCTTTCTTGTGCCAGCAGTTCCTCTAGCTCCTTGCTGC	spacer
	length:	41	repeater length:	24
13346	355688	GCTAATCTACTATAGAATTGAAAG	TAGGATTTACACCATAATAAATATCGGCGGTCTCCCTGTA	spacer

length: 40 repeater length: 24
13347 355752 GCTAATCTACTATAGAAATTGAAAG AATACCTCAATTATTTTCGCCTTTAGTTAACAATAATGGTTTT spacer
length: 42 repeater length: 24
13348 355818 GCTAATCTACTATAGAAATTGAAAG TCCCATAACGCCTCAATGGGGAACGCGTGCTGATATTTT spacer
length: 39 repeater length: 24
13349 355881 GCTAATCTACTATAGAAATTGAAAG CATACCATTTATAAGGCTCCACCTTCGCCTTAGCCTTACCATC spacer
length: 43 repeater length: 24
13350 355948 GCTAATCTACTATAGAAATTGAAAG GAGTTTGACTTATCTCTCTACTGTTTTCCATTAGACTCACCCC spacer
length: 43 repeater length: 24
13351 356015 GCTAATCTACTATAGAAATTGAAAG CTGTTATTTTCGTTGAACTGAACTACTACCGGAAGCTCTAA spacer
length: 40 repeater length: 24
13352 356079 GCTAATCTACTATAGAAATTGAAAG CCTATGGACCTTCTTAGGACCTCGTTTGTTAATCTTGGCCG spacer
length: 41 repeater length: 24
13353 356144 GCTAATCTACTATAGAAATTGAAAG TCTTGAAATTAAATCTAGAATTGATGGTATCGGCGTATAA spacer
length: 40 repeater length: 24
13354 356208 GCTAATCTACTATAGAAATTGAAAG TTATAAAAATTCAAAATGTATACAACCATTACAGCATACAA spacer
length: 40 repeater length: 24
13355 356272 GCTAATCTACTATAGAAATTGAAAG AGGTTTTGGATTAAAGGTTGCTAGAGCATTAATAGGATTGG spacer
length: 42 repeater length: 24
13356 356338 GCTAATCTACTATAGAAATTGAAAG ATTTCTTCACGGTGTTTGAGGCAATACTCCCTATACTTCT spacer
length: 40 repeater length: 24
13357 356402 GCTAATCTACTATAGAAATTGAAAG TGCAATAACAGTTGTAGTAGTACTACTACTACCAGCAGA spacer
length: 39 repeater length: 24
13358 356465 GCTAATCTACTATAGAAATTGAAAG GCCCCACCAGCCATAGAGATCAAGTTCAGAAGGAAAGGTA spacer
length: 40 repeater length: 24
13359 356529 GCTAATCTACTATAGAAATTGAAAG TAGGCTTTATTTTCTTTATAACACTGTAACGCTCTTTATTTAT spacer
length: 43 repeater length: 24
13360 356596 GCTAATCTACTATAGAAATTGAAAG TTGGTTTTTTTGCTTGGCAATTTTTGTCACTGGGAATAATA spacer
length: 40 repeater length: 24
13361 356660 GCTAATCTACTATAGAAATTGAAAG ATTCTAACGTTCCGTTTTTTGAATGCTATCTTGAGAGGTTTCTAGA spacer
length: 43 repeater length: 24
13362 356727 GCTAATCTACTATAGAAATTGAAAG TCTTCGGGGATCGGTATCATGCCCCAATCACACACAATATT spacer
length: 42 repeater length: 24
13363 356793 GCTAATCTACTATAGAAATTGAAAG ATTATACCGTGAAAGTAACTTATAATTAATCAAAAATAG spacer
length: 39 repeater length: 24
13364 356856 GCTAATCTACTATAGAAATTGAAAG TTTCTTTTATTTGAAATCAGTAATCTGTTAGTGTTATTAA spacer
length: 39 repeater length: 24
13365 356919 GCTAATCTACTATAGAAATTGAAAG AGTCAAAGCGACTGGTATGCCCCAGTTCTCCGCATAAAAT spacer
length: 40 repeater length: 24
13366 356983 GCTAATCTACTATAGAAATTGAAAG TCTGCCCAGAGAATTCTTTATGGTTCTGGATATCCTTGGTC spacer
length: 41 repeater length: 24
13367 357048 GCTAATCTACTATAGAAATTGAAAG TTGGACTGATGAAAAGTGGATATTGCTCTATGAAATCAT spacer
length: 39 repeater length: 24
13368 357111 GCTAATCTACTATAGAAATTGAAAG TTACCAATTAATTCATAAACTCATCTTGACTAATTTTTTAT spacer
length: 41 repeater length: 24
13369 357176 GCTAATCTACTATAGAAATTGAAAG GGATGACCGGCTTCAAAAATTCCTTGTATCTAAATTTA spacer
length: 40 repeater length: 24
13370 357240 GCTAATCTACTATAGAAATTGAAAG TATAATAGATTCTCTTTATTTTTTCAGGTTAAATCCAATAT spacer
length: 40 repeater length: 24
13371 357304 GCTAATCTACTATAGAAATTGAAAG GGGCAAAAAGTAGAGAGTAAAGTTAGAAAGTAAAAACAG spacer
length: 39 repeater length: 24
13372 357367 GCTAATCTACTATAGAAATTGAAAG AATCTAATAGAGGAGCTCGAAAAGTACAAAAAGAAGGAGA spacer
length: 41 repeater length: 24
13373 357432 GCTAATCTACTATAGAAATTGAAAG TATTTTTCAATTTTGCAGAAGTGCTTGGGCCCTTTGTCGGTCAGT spacer
length: 45 repeater length: 24
13374 357501 GCTAATCTACTATAGAAATTGAAAG TCTGAATTATTGAATTTATACATAAATTACTATCAACATT spacer
length: 40 repeater length: 24
13375 357565 GCTAATCTACTATAGAAATTGAAAG AAAATACTTTTAACTTGATTTGCTACGGCGGAATTATG spacer
length: 39 repeater length: 24
13376 357628 GCTAATCTACTATAGAAATTGAAAG ATTCCTAAAGTTGTAATATTTACGCTTACATTTGTTTTTACTA spacer
length: 43 repeater length: 24
13377 357695 GCTAATCTACTATAGAAATTGAAAG TTTCGTGGCTATGGTATTATCTTATCTTCTTCTCCGGTA spacer
length: 39 repeater length: 24
13378 357758 GCTAATCTACTATAGAAATTGAAAG TTTTCTCCTGATTTACTTCTTTTCTTTCTTCACTCATTTTC spacer
length: 41 repeater length: 24
13379 357823 GCTAATCTACTATAGAAATTGAAAG GAGAAATTAAGAAATGATGGTTTTGAAGTGTTATGGACACT spacer
length: 41 repeater length: 24
13380 357888 GCTAATCTACTATAGAAATTGAAAG TCCGAATAATTACTTCCGTGTAGCTATCAAGAAGATTAT spacer
length: 39 repeater length: 24
13381 357951 GCTAATCTACTATAGAAATTGAAAG AGAATTTACAAAGAACTCAGAGGAGCATAATAGGGTAATG spacer
length: 40 repeater length: 24

13382	358015	GCTAATCTACTATAGAAATTGAAAG	AATTTCTATACTTCTTTTGAGTAAAATTGGAGCACCCCTGCTA	spacer
		length: 43	repeater length: 24	
13383	358082	GCTAATCTACTATAGAAATTGAAAG	TCATCAATTCCTAAAGCCTCTTCAATTTCTTCAATGTACAG	spacer
		length: 42	repeater length: 24	
13384	358148	GCTAATCTACTATAGAAATTGAAAG	GTAAAGTTGCTGAAAGTGGAGGTTACGTAGAACTATACCTACT	spacer
		length: 44	repeater length: 24	
13385	358216	GCTAATCTACTATAGAAATTGAAAG	TATCCGTTAACATGAACATATCGGCAAAACCGAAGGGGAT	spacer
		length: 40	repeater length: 24	
13386	358280	GCTAATCTACTATAGAAATTGAAAG	AACTTGTTTGACAAAGTCAGTATTGCAGACATAAGCAG	spacer
		length: 39	repeater length: 24	
13387	358343	GCTAATCTACTATAGAAATTGAAAG	ATTTCTATCAATTTCTTAAACTCTTCACTTGAAAGTTCTA	spacer
		length: 40	repeater length: 24	
13388	358407	GCTAATCTACTATAGAAATTGAAAG	ATATGAACAAAGGTTTATGCTACTGAACAACGCAAAATT	spacer
		length: 39	repeater length: 24	
13389	358470	GCTAATCTACTATAGAAATTGAAAG	AAGACGAAGATTATCAGACCTTTATTCATGTCAAATTAGGCTA	spacer
		length: 43	repeater length: 24	
13390	358537	GCTAATCTACTATAGAAATTGAAAG	AGTTGAAGGAGATGAACGTCTGAGTCATGGGGAGAGTCAA	spacer
		length: 40	repeater length: 24	
13391	358601	GCTAATCTACTATAGAAATTGAAAG	TAAATTATGCCCATAGCCCCAAAAAGCTCTTGAAAAAGCAA	spacer
		length: 41	repeater length: 24	
13392	358666	GCTAATCTACTATAGAAATTGAAAG	GTTTTTGAAAAAATTTTTATAATAAACATTTTCAAGGGTTTGT	spacer
		length: 41	repeater length: 24	
13393	358731	GCTAATCTACTATAGAAATTGAAAG	TAACACATATGAGCTGGAATTATGTTATGAGGAAAACGGAA	spacer
		length: 41	repeater length: 24	
13394	358796	GCTAATCTACTATAGAAATTGAAAG	GAGCGGGGGTATAGCAATTTTTCGAAAGCAGAAGAGAAAAAT	spacer
		length: 42	repeater length: 24	
13395	358862	GCTAATCTACTATAGAAATTGAAAG	ACCATTTAGTACTGCAGGGAAAAGGGAAGGGCTACAGGAC	spacer
		length: 40	repeater length: 24	
13396	358926	GCTAATCTACTATAGAAATTGAAAG	TCTATGTGAAAAGAGCAACCATGCATCTTCTCTGCATTAAA	spacer
		length: 42	repeater length: 24	
13397	358992	GCTAATCTACTATAGAAATTGAAAG	ACCTTGTTTACCATACCACCTTAACCTACCAACAACTCTA	spacer
		length: 41	repeater length: 24	
13398	359057	GCTAATCTACTATAGAAATTGAAAG	CGATATTCGAAATACTTACCGCCCTCACCTAACTTTACGTC	spacer
		length: 41	repeater length: 24	
13399	359122	GCTAATCTACTATAGAAATTGAAAG	ACCCGCATTCTAACACAACACTACGTTTCGCTTTTCGGCAT	spacer
		length: 41	repeater length: 24	
13400	359187	GCTAATCTACTATAGAAATTGAAAG	AACCAATTATCTCATAATCGTCAGTATTATCGATAACGCG	spacer
		length: 40	repeater length: 24	
13401	359251	GCTAATCTACTATAGAAATTGAAAG	ATTTTTTATTCACCTACCGATTTGTGACGAAACGAAACGGAA	spacer
		length: 42	repeater length: 24	
13402	359317	GCTAATCTACTATAGAAATTGAAAG	TTAATATTTTTTTTTTGGCAAGCCTATTTTTTCTCAACATTTT	spacer
		length: 42	repeater length: 24	
13403	359383	GCTAATCTACTATAGAAATTGAAAG	CTAACTTTTTTTTTGATATACTCTAATTTCTTACTCATTCTTTT	spacer
		length: 43	repeater length: 24	
13404	359450	GCTAATCTACTATAGAAATTGAAAG	ATTTTTTTAAAGAGGCCACTTTTTATTCTAGTCTGAAA	spacer
		length: 39	repeater length: 24	
13405	359513	GCTAATCTACTATAGAAATTGAAAG	CATTTAGCCTTAACTCAAACCTTTGCATACCCGAATCCTCAA	spacer
		length: 43	repeater length: 24	
13406	359580	GCTAATCTACTATAGAAATTGAAAG	ATGGCACTGGGGTCGTCAAAAAGCACTACGTCATAACGTT	spacer
		length: 40	repeater length: 24	
13407	359644	GCTAATCTACTATAGAAATTGAAAG	CTCCCTCTCTCTGTCTATCCTAACTTTTGAACTTACTTTCTC	spacer
		length: 42	repeater length: 24	
13408	359710	GCTAATCTACTATAGAAATTGAAAG	AGTGATTATTTTAGAATATGTCCCGCCATACCAATAGAAAGT	spacer
		length: 42	repeater length: 24	
13409	359776	GCTAATCTACTATAGAAATTGAAAG	GTATTGCTCATTATTGATTTGATTAACGACTTATCTAACTG	spacer
		length: 41	repeater length: 24	
13410	359841	GCTAATCTACTATAGAAATTGAAAG	AATTGATGAAATATTCTTCTATCCAATGTCGTTTAATGA	spacer
		length: 39	repeater length: 24	
13411	359904	GCTAATCTACTATAGAAATTGAAAG	TTCTCCTTTCTCCTCTTTCCATTTCCCGATAAGTATTATTA	spacer
		length: 41	repeater length: 24	
13412	359969	GCTAATCTACTATAGAAATTGAAAG	GTGATAGGGTTAAAAATAAGGGATAAACACATAGGA	spacer length:
		36	repeater length: 24	
13413	360029	GCTAATCTACTATAGAAATTGAAAG	GATCTTGACCGGGTTTGACCTATGGAAACAGCAATAATAG	spacer
		length: 40	repeater length: 24	
13414	360093	GCTAATCTACTATAGAAATTGAAAG	TGTCTAGCTAATTGTAAATGATAATTAATAACTTTTGGATA	spacer
		length: 41	repeater length: 24	
13415	360158	GCTAATCTACTATAGAAATTGAAAG	AATGACGATTTCTGTTCTCAACGTTGACGCAAAAGACGGCGA	spacer
		length: 41	repeater length: 24	
13416	360223	GCTAATCTACTATAGAAATTGAAAG	AAATGTCCTCAAAAACAACGTGATAGATCCTTACGAGACAGA	spacer
		length: 42	repeater length: 24	
13417	360289	GCTAATCTACTATAGAAATTGAAAG	GGTCTTGCTCTCATGAAGACCACTGCCTCACCAACTGATA	spacer

length: 40 repeater length: 24
13418 360353 GCTAATCTACTATAGAAATTGAAAG CACTCTTTCTCCTATTGCTATTTTTCCCTCTTCATCATTTTCT spacer
length: 43 repeater length: 24
13419 360420 GCTAATCTACTATAGAAATTGAAAG GGGAATCATAGATTAAGATAGAGGGTGGAAATAAATGTCCCA spacer
length: 42 repeater length: 24
13420 360486 GCTAATCTACTATAGAAATTGAAAG ACTTTGACTTGTTTTTGCATCTTTTTATCCCAATA spacer length:
36 repeater length: 24
13421 360546 GCTAATCTACTATAGAAATTGAAAG TTTCGCTTAAGAATAACGCCTTTTCTACTTTCTCTTTGTTC spacer
length: 41 repeater length: 24
13422 360611 GCTAATCTACTATAGAAATTGAAAG TTGGAATTACGTAAAATTTCTAAATTATTCTTACGTAA spacer
length: 38 repeater length: 24
13423 360673 GCTAATCTACTATAGAAATTGAAAG TTTTTATTATTATCCTTAAGTTATATCCCTATCAATGATTTTT spacer
length: 43 repeater length: 24
13424 360740 GCTAATCTACTATAGAAATTGAAAG ATCATAAAAGAATGGCAAAAGTACAGTACTCAACAATTAACAGAG spacer
length: 45 repeater length: 24
13425 360809 GCTAATCTACTATAGAAATTGAAAG ACGATATAAACATGCCTAAAGAAGTCTTCCAGATCAAGTTT spacer
length: 41 repeater length: 24
13426 360874 GCTAATCTACTATAGAAATTGAAAG CTCTGATAGCTGCATAAGTATATAAGAAATAAGAAATTCT spacer
length: 40 repeater length: 24
13427 360938 GCTAATCTACTATAGAAATTGAAAG CCGCCGGCCC
13428
13429
13430 crispr 3
13431 573743 GTTTGTAGTTTCTTTGTGTTGTTAC ATTCTCAATATTTTAGTGCCAATTTGCCATATTAT spacer length:
35 repeater length: 24
13432 573802 GTTTGTAGTTTCTTTGTGTTGTTAC AGTATGAATGGCAGACGAAAAGTTGTATCGTAAAAA spacer length:
36 repeater length: 24
13433 573862 GTTTGTAGTTTCTTTGTGTTGTTAC GCGTTAGGCGCAATTAATGCAGAATATAAAGAAAT spacer length:
35 repeater length: 24
13434 573921 GTTTGTAGTTTCTTTGTGTTGTTAC AAAAGTTAAGTAAATTTGTAGATCAGTTTTTTGAA spacer length:
35 repeater length: 24
13435 573980 GTTTGTAGTTTCTTTGTGTTGTTAC TCCAGGTGAGGAAGTTGGTGAAGAGAATAAACAGC spacer length:
36 repeater length: 24
13436 574040 GTTTGTAGTTTCTTTGTGTTGTTAC ATTGGAGAAGTAAACGATAGTTTCATATTGCTCTAT spacer length:
36 repeater length: 24
13437 574100 GTTTGTAGTTTCTTTGTGTTGTTAC ATTTCTTTTATAATCACTTTCACTTAGCCTCAAGGGCT spacer length:
37 repeater length: 24
13438 574161 GTTTGTAGTTTCTTTGTGTTGTTAC ACTGCTTGACTATTTACAGAACGCCAGGTCTCCTT spacer length:
36 repeater length: 24
13439 574221 GTTTGTAGTTTCTTTGTGTTGTTAC ATATTAAAGAACTTATGGAATTTTACGGAATAAA spacer length:
35 repeater length: 24
13440 574280 GTTTGTAGTTTCTTTGTGTTGTTAC AAATTGATACATTTGTTTGGGTGAGGTAGCATGA spacer length: 34
repeater length: 24
13441 574338 GTTTGTAGTTTCTTTGTGTTGTTAC AAAGTGGGGATAAAAAATGAATGTAAGTCAAAAAGAA spacer length:
37 repeater length: 24
13442 574399 GTTTGTAGTTTCTTTGTGTTGTTAC AAATATATTGTTTGATCTTCCCGATAATACAGC spacer length: 33
repeater length: 24
13443 574456 GTTTGTAGTTTCTTTGTGTTGTTAC ATAAATGAAGTTAGAGGAATTTATTATGTTCCACAAA spacer length:
37 repeater length: 24
13444 574517 GTTTGTAGTTTCTTTGTGTTGTTAC ATATAAGCAGCTTTCATTATGATATTTTTGTACC spacer length: 34
repeater length: 24
13445 574575 GTTTGTAGTTTCTTTGTGTTGTTAC AGCCGTTTCAAGACCAGTGATTATAAGGTATGTGATA spacer length:
37 repeater length: 24
13446 574636 GTTTGTAGTTTCTTTGTGTTGTTAC ATCAGCAACGCATATACATATGCCAGCCTATCAGC spacer length:
35 repeater length: 24
13447 574695 GTTTGTAGTTTCTTTGTGTTGTTAC AATTATTAAAGTCACGGATACAATAGAATTGGTGG spacer length:
35 repeater length: 24
13448 574754 GTTTGTAGTTTCTTTGTGTTGTTAC CTTCATGATATCGCAATAACTAAGGACGGAAAAATAT spacer length:
37 repeater length: 24
13449 574815 GTTTGTAGTTTCTTTGTGTTGTTAC GCGAAAGGCGATTGTGGAATGTTATCAGCTAAAAT spacer length:
35 repeater length: 24
13450 574874 GTTTGTAGTTTCTTTGTGTTGTTAC CTGTCTTTTGACATCGTCCGCACCTGCGAGAATC spacer length: 34
repeater length: 24
13451 574932 GTTTGTAGTTTCTTTGTGTTGTTAC TTAGAATACATAATAAAAACATTTCAAATAGCAA spacer length: 34
repeater length: 24
13452 574990 GTTTGTAGTTTCTTTGTGTTGTTAC CTCTACTATTGTATCCAACTCTGCTACAAAATG spacer length: 34
repeater length: 24
13453 575048 GTTTGTAGTTTCTTTGTGTTGTTAC TACGCATACGGGAGAATCATGAGGCTTGTCGAGAA spacer length:
35 repeater length: 24
13454 575107 GTTTGTAGTTTCTTTGTGTTGTTAC GCGATTCTAACTTTACTGCAGTACCTAAATTAATA spacer length:
35 repeater length: 24

13455 575166 GTTTGTAGTTTCTTTGTGTTGTTAC GAGTACTGTAGTAGCGGTCAATCAATAAAGGA spacer length: 33
repeater length: 24
13456 575223 GTTTGTAGTTTCTTTGTGTTGTTAC TTACTTACTAAATGGAGCGAATAATCAGGTCAAT spacer length: 34
repeater length: 24
13457 575281 GTTTGTAGTTTCTTTGTGTTGTTAC CTACATACACAATCAATTACGCACCTAGGGCAAAT spacer length:
35 repeater length: 24
13458 575340 GTTTGTAGTTTCTTTGTGTTGTTAC AAATAGATGTCTGATGAAATAAATAAAGCATATCTAA spacer length:
37 repeater length: 24
13459 575401 GTTTGTAGTTTCTTTGTGTTGTTAC TGGAAATTTTGTGAGCAACTGGCCCGACATTT spacer length: 33
repeater length: 24
13460 575458 GTTTGTAGTTTCTTTGTGTTGTTAC CGCGGATCGC
13461
13462
13463 crispr 4
13464 584661 GTTTGTAGTTTCTTTGTGTTGTTAC ATACACAAAATTCTATTGAAATTAGCAGAAAGGAA spacer length:
35 repeater length: 24
13465 584720 GTTTGTAGTTTCTTTGTGTTGTTAC AAGCAGATATTCTTGAAAGTATGTATATAAAGTTAGAA spacer
length: 38 repeater length: 24
13466 584782 GTTTGTAGTTTCTTTGTGTTGTTAC TTTCTATTTTTTCAAATTTAAAACCATATCTATTTAT spacer length:
36 repeater length: 24
13467 584842 GTTTGTAGTTTCTTTGTGTTGTTAC ATCGAGTTGAGATGAAAATATTTCCAACAGGTTAT spacer length:
35 repeater length: 24
13468 584901 GTTTGTAGTTTCTTTGTGTTGTTAC TGAAAAGGATGCAAAAAAATATCAACCATATGCA spacer length: 34
repeater length: 24
13469 584959 GTTTGTAGTTTCTTTGTGTTGTTAC TTGACTTTCATTTATTTGGGCTTTCATTTTTTTATT spacer length:
35 repeater length: 24
13470 585018 GTTTGTAGTTTCTTTGTGTTGTTAC ATATACTGATATTAGCATTGAGGTCAACAAGGT spacer length: 34
repeater length: 24
13471 585076 GTTTGTAGTTTCTTTGTGTTGTTAC CCTGAACTGTTCTGGCGTTCCTTGGCGTAAATTTA spacer length:
35 repeater length: 24
13472 585135 GTTTGTAGTTTCTTTGTGTTGTTAC TAGGAGTTGAAGTAGCAGAACTGATAAAATTGCAA spacer length:
36 repeater length: 24
13473 585195 GTTTGTAGTTTCTTTGTGTTGTTAC CGAATGGTGGGAATATGAAGACCAATATTTAAAAT spacer length:
35 repeater length: 24
13474 585254 GTTTGTAGTTTCTTTGTGTTGTTAC AAGGGGCAAGTAACCAGGTCAACAATTTTCATTAAT spacer length:
35 repeater length: 24
13475 585313 GTTTGTAGTTTCTTTGTGTTGTTAC AAGGGAAGTTCATAAGACGAATGGAAGACTGGGCT spacer length:
35 repeater length: 24
13476 585372 GTTTGTAGTTTCTTTGTGTTGTTAC ATTAGAAGCGCCTATCGCCATCAGCAGATTTGTTTT spacer length:
36 repeater length: 24
13477 585432 GTTTGTAGTTTCTTTGTGTTGTTAC AATCGACATTAATAGGATAAGGATGACTAAAAAGT spacer length:
35 repeater length: 24
13478 585491 GTTTGTAGTTTCTTTGTGTTGTTAC GGGGTTTCTAGAAGCGGTAGCTGGACTTTTCCATTCGA spacer length:
36 repeater length: 24
13479 585551 GTTTGTAGTTTCTTTGTGTTGTTAC AAACCTAGCTTGCCATTTTCGCGTACCTTTGCGAAT spacer length:
35 repeater length: 24
13480 585610 GTTTGTAGTTTCTTTGTGTTGTTAC TGAATAACTGTCAATAATTGAAAGAACTGCTACAA spacer length:
35 repeater length: 24
13481 585669 GTTTGTAGTTTCTTTGTGTTGTTAC TACAAATTAGTTTATCGACAGTTCCATCTCCACTT spacer length:
35 repeater length: 24
13482 585728 GTTTGTAGTTTCTTTGTGTTGTTAC TTTGTTGTCTGGAGACGTAAGGATCGACGGAACACTTT spacer length:
37 repeater length: 24
13483 585789 GTTTGTAGTTTCTTTGTGTTGTTAC TTTTGCAAATTATAGTTATGGACAATTATTATTTAT spacer length:
36 repeater length: 24
13484 585849 GTTTGTAGTTTCTTTGTGTTGTTAC AGAACAAAAGAAAAAATCAAATTTGAATACAGAATT spacer length:
36 repeater length: 24
13485 585909 GTTTGTAGTTTCTTTGTGTTGTTAC CCCACCCACCCCCCACCCTCAATTTGCCTTGGA spacer length:
36 repeater length: 24
13486 585969 GTTTGTAGTTTCTTTGTGTTGTTAC TTTAATATCAACGTGCCCCCTTTGGCAAATCACATTA spacer length:
36 repeater length: 24
13487 586029 GTTTGTAGTTTCTTTGTGTTGTTAC TTTTCAGTTCTATAACAATATTTCTTCTTACTGAA spacer length:
35 repeater length: 24
13488 586088 GTTTGTAGTTTCTTTGTGTTGTTAC ATGTTTTTATAATGAATTATATGATTTTTTAATT spacer length: 33
repeater length: 24
13489 586145 GTTTGTAGTTTCTTTGTGTTGTTAC TTCGGAGATA
13490
13491
13492 crispr 5
13493 597388 GTAACAACACAAAGAACTAAAAAC AAAAAGTCATTCTTTTTTTTTATAATCCAAGAGATAAT spacer length:
37 repeater length: 24
13494 597449 GTAACAACACAAAGAACTAAAAAC ATAATCAGAAATCATAAAATAGAGAAAAATGCAAATC spacer

length: 38 repeater length: 24
13495 597511 GTAACAACACAAAAGAACTAAAAAC TGGATTACCATTTTTTCCACCTCTATTCTCTATAAA spacer length:
35 repeater length: 24
13496 597570 GTAACAACACAAAAGAACTAAAAAC TAGAGTTAAGGTCGCATGACAATAACATAATAATTG spacer length:
36 repeater length: 24
13497 597630 GTAACAACACAAAAGAACTAAAAAC AACGTTAATAGAGACACTTGGGTCTTATTTTCACA spacer length:
35 repeater length: 24
13498 597689 GTAACAACACAAAAGAACTAAAAAC AAAATTTAGAAAGTAGGAGAAAAGAACAATCTATAGAGT spacer
length: 39 repeater length: 24
13499 597752 GTAACAACACAAAAGAACTAAAAAC ACTGGAGCTTTTGCAATAACTTTTCCATAAAAT spacer length: 33
repeater length: 24
13500 597809 GTAACAACACAAAAGAACTAAAAAC ATGAATTTTATGAGTTGACAAAAGATAAAAAATTTTT spacer length:
37 repeater length: 24
13501 597870 GTAACAACACAAAAGAACTAAAAAC TTAAAATACTCATCAATGTAAGGTATTTTATAAC spacer length:
35 repeater length: 24
13502 597929 GTAACAACACAAAAGAACTAAAAAC TAAAAGTTCCGTGTTTTTGCAGCAGCGTGAAATTTTA spacer length:
37 repeater length: 24
13503 597990 GTAACAACACAAAAGAACTAAAAAC AATCTCTCTTTTTTGACCATTTTCATCATAATAAAT spacer length:
36 repeater length: 24
13504 598050 GTAACAACACAAAAGAACTAAAAAC CAACAATATATTTTGAATGGAGCTAAGGTAATCGC spacer length:
35 repeater length: 24
13505 598109 GTAACAACACAAAAGAACTAAAAAC TAATGTAAATGCCAGCTTTGTTTCACCAGATACCTT spacer length:
36 repeater length: 24
13506 598169 GTAACAACACAAAAGAACTAAAAAC TTATTTGTCAGTAGCAAGCGGAAGTAAGGCAAAG spacer length: 34
repeater length: 24
13507 598227 GTAACAACACAAAAGAACTAAAAAC ACAAAAAGGAGTTACGTTAGCAAAAGAAGACTAGAA spacer length:
36 repeater length: 24
13508 598287 GTAACAACACAAAAGAACTAAAAAC ATGTCTATGCTTGGGCTACTGGAAAATGCACAGTT spacer length:
35 repeater length: 24
13509 598346 GTAACAACACAAAAGAACTAAAAAC ATAGTGATTGTGGCTTCATCAGAAAGATTAAGAT spacer length: 34
repeater length: 24
13510 598404 GTAACAACACAAAAGAACTAAAAAC TTCGCTATTATTAGCGTTATACCTAGCGAAAAAACT spacer length:
36 repeater length: 24
13511 598464 GTAACAACACAAAAGAACTAAAAAC TTTTTTGTCTTCTGTTTTGTCATTTATTTTTACCCC spacer length:
36 repeater length: 24
13512 598524 GTAACAACACAAAAGAACTAAAAAC AGCCCTCACCAGAGTGATGATTAGCGAAAGAACCAT spacer length:
36 repeater length: 24
13513 598584 GTAACAACACAAAAGAACTAAAAAC TCTTCGTCAAAAAAATAATATGTTCTTATTTGATCT spacer length:
36 repeater length: 24
13514 598644 GTAACAACACAAAAGAACTAAAAAC AATTGGTGGATTAATCAACCTAAGTCGCAAAATCAATC spacer
length: 38 repeater length: 24
13515 598706 GTAACAACACAAAAGAACTAAAAAC ACCGTATAGTGTCCTATTTCCCATAGTCGTCAT spacer length:
35 repeater length: 24
13516 598765 GTAACAACACAAAAGAACTAAAAAC TATGCTTTTGAATGTCTGTTCTTCTGAATTCGATAT spacer length:
36 repeater length: 24
13517 598825 GTAACAACACAAAAGAACTAAAAAC AAAAGAAAACTTAAAAAGAAGAAGAAAATAAAAAAG spacer length:
37 repeater length: 24
13518 598886 GTAACAACACAAAAGAACTAAAAAC TAATTTTTTCTGCTATGGCGGAACCTCATGCATACA spacer length:
35 repeater length: 24
13519 598945 GTAACAACACAAAAGAACTAAAAAC TCTTCTTTCATACAAAGGAATTTTCTGTTCTTCTT spacer length:
35 repeater length: 24
13520 599004 GTAACAACACAAAAGAACTAAAAAC AACACCCTAGGTTCCCTTAGCACCTCAGGTTGTT spacer length: 34
repeater length: 24
13521 599062 GTAACAACACAAAAGAACTAAAAAC AAAAAAGATTAACCTGGAAACAATTCCGCAAGAACCTT spacer
length: 38 repeater length: 24
13522 599124 GTAACAACACAAAAGAACTAAAAAC CGTTATGGCG

13523
13524
13525 GCA_000385565.1_ASM38556v1_genomic.fna(PilerCR):
13526 START REPEAT
SPACER
13527 crispr 1
13528 1129025 CTTTCAATCCTACAATAGTCTGATTTTAAC GTTGTAACATCCCTAACAGCAAATCTGATGACATCTG spacer
length: 38 repeater length: 30
13529 1129093 CTTTCAATCCTACAATAGTCTGATTTTAAC GAAGAGCGAACTACTCTAAAAATCAAAGCAGTAAACG spacer
length: 37 repeater length: 30
13530 1129160 CTTTCAATCCTACAATAGTCTGATTTTAAC TCTTGTGGTTCTATCGACTCGACCTTAAATGTCGCTTT spacer
length: 38 repeater length: 30
13531 1129228 CTTTCAATCCTACAATAGTCTGATTTTAAC CCAGTGGACCGC
13532
13533

13534	crispr 2	
13535	1137980 CTTTCAATCCTACAATAGTCTGATTTTAAAC	ATTCAAAGTTTGTATTTTATCGCATCAATAAACAAGC spacer
	length: 37 repeater length: 30	
13536	1138047 CTTTCAATCCTACAATAGTCTGATTTTAAAC	AGAAAGATCCATCAAACATCGAAGTCGAGGTTTCAGATC spacer
	length: 38 repeater length: 30	
13537	1138115 CTTTCAATCCTACAATAGTCTGATTTTAAAC	AATGTTGGATTTCATGACGAGACTCTTTTACAATGAGA spacer
	length: 37 repeater length: 30	
13538	1138182 CTTTCAATCCTACAATAGTCTGATTTTAAAC	GGCTCACTCTTGGTAGTTGGGATCCAATTAAGAAGGAT spacer
	length: 38 repeater length: 30	
13539	1138250 CTTTCAATCCTACAATAGTCTGATTTTAAAC	GGAGTTTGATGAAGCGGAGAGGTTTATTAGAGAAATTGACG
	spacer length: 41 repeater length: 30	
13540	1138321 CTTTCAATCCTACAATAGTCTGATTTTAAAC	AAAAATAACTACATGTATGTGCATTGCGCCATTTTGT spacer
	length: 37 repeater length: 30	
13541	1138388 CTTTCAATCCTACAATAGTCTGATTTTAAAC	AAACATGTTTCCTGAGGCTGTTATGTGTGAATATTTTCGA
	spacer length: 39 repeater length: 30	
13542	1138457 CTTTCAATCCTACAATAGTCTGATTTTAAAC	CTGCATCTCCAGCCCACATCTGTTGCCTCGAGCCTTCCACCGCA
	spacer length: 44 repeater length: 30	
13543	1138531 CTTTCAATCCTACAATAGTCTGATTTTAAAC	CACCATCAACAACAAAATTCCACAAGCAGACATGAACA spacer
	length: 38 repeater length: 30	
13544	1138599 CTTTCAATCCTACAATAGTCTGATTTTAAAC	GTTGGCGACTTCAAGATGGGAGGGTTTATGAATCTGCATCCT
	spacer length: 42 repeater length: 30	
13545	1138671 CTTTCAATCCTACAATAGTCTGATTTTAAAC	AAGTTTTTCGCATGCAATACCTCCTTATGTGGAGTACTG spacer
	length: 38 repeater length: 30	
13546	1138739 CTTTCAATCCTACAATAGTCTGATTTTAAAC	TTAACAACCTCAGGACAGCTTTACTTTTGGATTGAAAGC spacer
	length: 38 repeater length: 30	
13547	1138807 CTTTCAATCCTACAATAGTCTGATTTTAAAC	ATTCAACACTTGTTTAAACATAGTATATATTGATTATTGCAAATA
	spacer length: 44 repeater length: 30	
13548	1138881 CTTTCAATCCTACAATAGTCTGATTTTAAAC	CTAAATAAAAGTTTGACCAATCCTGAAATCCGAACAATATTGT
	spacer length: 43 repeater length: 30	
13549	1138954 CTTTCAATCCTACAATAGTCTGATTTTAAAC	AAGGGATATGCTTCAGATGGCACTAACTATGACATTGT spacer
	length: 38 repeater length: 30	
13550	1139022 CTTTCAATCCTACAATAGTCTGATTTTAAAC	GTATTACAAAGGACAGACGCCCAAGGATTATGATATAA spacer
	length: 38 repeater length: 30	
13551	1139090 CTTTCAATCCTACAATAGTCTGATTTTAAAC	AGGTAGTCTCTCAGAGAACCGTCGCCACAAACCAAAC spacer
	length: 38 repeater length: 30	
13552	1139158 CTTTCAATCCTACAATAGTCTGATTTTAAAC	GTGAATGGATTTAGTCCAGTGGTTTCTATGTGAAAACCTAT
	spacer length: 41 repeater length: 30	
13553	1139229 CTTTCAATCCTACAATAGTCTGATTTTAAAC	TTGTTTAGAAAGACTGATGTTGTTATCGTAGATATCGC spacer
	length: 38 repeater length: 30	
13554	1139297 CTTTCAATCCTACAATAGTCTGATTTTAAAC	ATAAAGCAGTATCCTGTGTGTTTGTAACCTATATCGCA spacer
	length: 37 repeater length: 30	
13555	1139364 CTTTCAATCCTACAATAGTCTGATTTTAAAC	CTGTATTGCTGAAGTTCATGGACTGCTCACCTCTCTTATAT
	spacer length: 41 repeater length: 30	
13556	1139435 CTTTCAATCCTACAATAGTCTGATTTTAAAC	TGAAATATCAGAGCCGTGTAATGAAATACCACGAATCCC
	spacer length: 39 repeater length: 30	
13557	1139504 CTTTCAATCCTACAATAGTCTGATTTTAAAC	ATCAATACATCTGCATGTAATAACCTTAGAGTTATA spacer
	length: 36 repeater length: 30	
13558	1139570 CTTTCAATCCTACAATAGTCTGATTTTAAAC	GGTTTTTGTAGGAGCTTTTACACCTTTGAGGAAAAA spacer
	length: 37 repeater length: 30	
13559	1139637 CTTTCAATCCTACAATAGTCTGATTTTAAAC	TGAGCTTTACAGACAAGGTTATTTGAACAAAACAGTTC spacer
	length: 38 repeater length: 30	
13560	1139705 CTTTCAATCCTACAATAGTCTGATTTTAAAC	AAGTTTAACAAATGTGCACCCGTCGCAATATGGTTT spacer
	length: 36 repeater length: 30	
13561	1139771 CTTTCAATCCTACAATAGTCTGATTTTAAAC	ATTTTTATATACGGAGTGACAAAGATAGTATTGGGTGA spacer
	length: 38 repeater length: 30	
13562	1139839 CTTTCAATCCTACAATAGTCTGATTTTAAAC	GAAGAGCGAACTACTCTAAAAATCAAAGCAGTAAACG spacer
	length: 37 repeater length: 30	
13563	1139906 CTTTCAATCCTACAATAGTCTGATTTTAAAC	AAGAGGTATGCTGAAAGATATAGTAAAGAGAAAGTGGGG
	spacer length: 39 repeater length: 30	
13564	1139975 CTTTCAATCCTACAATAGTCTGATTTTAAAC	CAGCCAGCGTAGGCGGAGCGGCAACATCTGATAGCAGT spacer
	length: 38 repeater length: 30	
13565	1140043 CTTTCAATCCTACAATAGTCTGATTTTAAAC	ACGCTTGTGAATACAAACAAGGGGTGGGCGTTGTACTT spacer
	length: 38 repeater length: 30	
13566	1140111 CTTTCAATCCTACAATAGTCTGATTTTAAAC	TTCGCTCAGAACCCTCGATAAGAAAAGAGTTGTCAAATGTGC
	spacer length: 42 repeater length: 30	
13567	1140183 CTTTCAATCCTACAATAGTCTGATTTTAAAC	TCAGTTCCTGGTGCTGCTGATAGTGTTAAAGCATTTTT spacer
	length: 38 repeater length: 30	
13568	1140251 CTTTCAATCCTACAATAGTCTGATTTTAAAC	TGTTTCAGCAACAGAAAGTCTCTGGTCTCGAAATACTCAAC
	spacer length: 40 repeater length: 30	
13569	1140321 CTTTCAATCCTACAATAGTCTGATTTTAAAC	CTGCTCCCATTCCCGACATATCCACAACAACCTTCTG spacer
	length: 37 repeater length: 30	

13570	1140388	CTTTCAATCCTACAATAGTCTGATTTTAAAC	CGTTGAGTTCACGCTCACGGGACTGAACAAGCTCGCTGTTTAC
		spacer length: 43 repeater length: 30	
13571	1140461	CTTTCAATCCTACAATAGTCTGATTTTAAAC	CATCGACGAGATTGATGAAACCCCTCGTTGCTACGAATG
		spacer length: 39 repeater length: 30	
13572	1140530	CTTTCAATCCTACAATAGTCTGATTTTAAAC	GCAAGATGAAGGTGATTGATAAGAGGATTCCAGACG
		length: 36 repeater length: 30	spacer
13573	1140596	CTTTCAATCCTACAATAGTCTGATTTTAAAC	AGTACCAGATTAAGGTTAAACTCCTGACCAATAATCT
		length: 37 repeater length: 30	spacer
13574	1140663	CTTTCAATCCTACAATAGTCTGATTTTAAAC	AAGATCTTCCACAAGAATTTTCATCCGCCTGAAGGAAAG
		length: 38 repeater length: 30	spacer
13575	1140731	CTTTCAATCCTACAATAGTCTGATTTTAAAC	TAGTACTCAAGCTTGTTGATCTCGATCTCGTAGCTCAC
		length: 38 repeater length: 30	spacer
13576	1140799	CTTTCAATCCTACAATAGTCTGATTTTAAAC	ATTTTCGGGATTGGCTTTCCGGCGGTTATCCCTCTTCCAG
		spacer length: 39 repeater length: 30	
13577	1140868	CTTTCAATCCTACAATAGTCTGATTTTAAAC	TCTGTTCAATGTCGTCGTCGAGCTAATAGACAAAATAG
		length: 38 repeater length: 30	spacer
13578	1140936	CTTTCAATCCTACAATAGTCTGATTTTAAAC	TCTACTGCGGATTCTATTGAGTTTGCAATCCCTTCTG
		length: 37 repeater length: 30	spacer
13579	1141003	CTTTCAATCCTACAATAGTCTGATTTTAAAC	GAAAACTAGTGGAAGCAGTTAAGATATCTATGGATTTC
		length: 38 repeater length: 30	spacer
13580	1141071	CTTTCAATCCTACAATAGTCTGATTTTAAAC	AGGATATGTC
13581			
13582			
13583	crispr 3		
13584	1141215	CTTTCAATCCTACAATAGTCTGATTTTAAAC	TGTCCCAGTGGTATTAAAAACAACCTCAACATCTAC
		length: 36 repeater length: 30	spacer
13585	1141281	CTTTCAATCCTACAATAGTCTGATTTTAAAC	CTTTGACGGGGATCGAGTGGTTGTGGAGTGAGGTAA
		length: 37 repeater length: 30	spacer
13586	1141348	CTTTCAATCCTACAATAGTCTGATTTTAAAC	AAGTGGTCACGGGCAACAGCGGCTAAGGTGACAGATTT
		length: 38 repeater length: 30	spacer
13587	1141416	CTTTCAATCCTACAATAGTCTGATTTTAAAC	TAGGGGAGTGGATTGGTGAAGTAAAGCATACCTAAT
		length: 37 repeater length: 30	spacer
13588	1141483	CTTTCAATCCTACAATAGTCTGATTTTAAAC	CCTGAAAAGTTGCAGATCGATGTTTCAGATATACTTAG
		length: 38 repeater length: 30	spacer
13589	1141551	CTTTCAATCCTACAATAGTCTGATTTTAAAC	TATATCCAGGAATTGTTTTACTCCCGTCGCCACTCCTG
		length: 38 repeater length: 30	spacer
13590	1141619	CTTTCAATCCTACAATAGTCTGATTTTAAAC	TCGATGTTCCAGAAGATTATTACGAAAGAACAAAGAAA
		length: 38 repeater length: 30	spacer
13591	1141687	CTTTCAATCCTACAATAGTCTGATTTTAAAC	TGAGCTTTGAGGAGATGAGGAAGCATGGGGTACACTAC
		length: 38 repeater length: 30	spacer
13592	1141755	CTTTCAATCCTACAATAGTCTGATTTTAAAC	GCTGATGCTCATTGACCTGTTCCCGTTCATGATGCTGCT
		spacer length: 39 repeater length: 30	
13593	1141824	CTTTCAATCCTACAATAGTCTGATTTTAAAC	TGCATGTTGATCCAGAGTATGCCAAGAAGTTAAGCAA
		length: 37 repeater length: 30	spacer
13594	1141891	CTTTCAATCCTACAATAGTCTGATTTTAAAC	CTGGACAGAAATCACATATACTGAAACCATAACCAGA
		length: 36 repeater length: 30	spacer
13595	1141957	CTTTCAATCCTACAATAGTCTGATTTTAAAC	AAATCCCAGTGTCTATGTTCAACTATCAGTTTACGGAG
		length: 38 repeater length: 30	spacer
13596	1142025	CTTTCAATCCTACAATAGTCTGATTTTAAAC	AAAAAGATAAAGTTGTATCCATACTTTGTCCTAAGCAC
		length: 38 repeater length: 30	spacer
13597	1142093	CTTTCAATCCTACAATAGTCTGATTTTAAAC	TATATCCAGGAATTGTTTTACTCCCGTCGCCACTCCTG
		length: 38 repeater length: 30	spacer
13598	1142161	CTTTCAATCCTACAATAGTCTGATTTTAAAC	GGTCGCCCTC
13599			
13600			
13601	GCA_000403645.1_ASM40364v1_genomic.fna (PilerCR) :		
13602	START	REPEAT	
	SPACER		
13603	GCA_000404165.1_ASM40416v1_genomic.fna (PilerCR) :		
13604	START	REPEAT	
	SPACER		
13605	crispr 1		
13606	134104	ATTTCAATCCCATAATGGTCTTATTTTAAAT	AAGCAAGAAATGATTAATTACGACGTTATAGACG
		length: 34 repeater length: 30	spacer
13607	134168	ATTTCAATCCCATAATGGTCTTATTTTAAAT	TTATAGAGAATGTTGAAGAGTATGTGCGAGAATTTTA
		length: 37 repeater length: 30	spacer
13608	134235	ATTTCAATCCCATAATGGTCTTATTTTAAAT	AATTAAATCATATGCTTTTAGCCTCTTTAACTCTAT
		length: 36 repeater length: 30	spacer
13609	134301	ATTTCAATCCCATAATGGTCTTATTTTAAAT	AAGTAACTTATCATCTATATCTGCTTTATAATTAGA
		length: 36 repeater length: 30	spacer
13610	134367	ATTTCAATCCCATAATGGTCTTATTTTAAAT	TAAACCGTACTGGTATCAACGGTAGGGTATTGACCAA
			spacer

length: 37 repeater length: 30
13611 134434 ATTTCAATCCCATAATGGTCTTATTTTAAT ATTGAAAGGAAAAAATTATAATTCTCCTTTCTCATT spacer
length: 37 repeater length: 30
13612 134501 ATTTCAATCCCATAATGGTCTTATTTTAAT ATATACTCTACTATACAATATTAAATTGTAGTTTG spacer
length: 35 repeater length: 30
13613 134566 ATTTCAATCCCATAATGGTCTTATTTTAAT TTATTCTGAATGTTGATATTGAAAATCTTCGATTAGT spacer
length: 36 repeater length: 30
13614 134632 ATTTCAATCCCATAATGGTCTTATTTTAAT TTTGATTTCAGTTATATGTAGTTTTGGTGATTTAGG spacer
length: 35 repeater length: 30
13615 134697 ATTTCAATCCCATAATGGTCTTATTTTAAT ATGGAGTCCGAGGAATTCACACCACTTTTTGGTGAA spacer
length: 36 repeater length: 30
13616 134763 ATTTCAATCCCATAATGGTCTTATTTTAAT AATATTAAGCATATTGATATTAAGAGACTATAACAAG spacer
length: 37 repeater length: 30
13617 134830 ATTTCAATCCCATAATGGTCTTATTTTAAT CTTTAAACCGTTTTTTTAAAATAAATAGGATGGAAA spacer
length: 35 repeater length: 30
13618 134895 ATTTCAATCCCATAATGGTCTTATTTTAAT CAGGAACTCATCAACACTATTCAGATTATGATAAT spacer
length: 35 repeater length: 30
13619 134960 ATTTCAATCCCATAATGGTCTTATTTTAAT ATTATATAATACTTTTAATTTAGCATTTGTCCCTGTTA spacer
length: 38 repeater length: 30
13620 135028 ATTTCAATCCCATAATGGTCTTATTTTAAT TAAATCTATTTCTAATAGGGATACTGAAATATCAAT spacer
length: 36 repeater length: 30
13621 135094 ATTTCAATCCCATAATGGTCTTATTTTAAT GATATTAACCTTAAATATAATGATGAGAATAACAAA spacer
length: 36 repeater length: 30
13622 135160 ATTTCAATCCCATAATGGTCTTATTTTAAT ATAAATATCTAAGCTCCTAAATCGAAAGGTATAGCAA spacer
length: 37 repeater length: 30
13623 135227 ATTTCAATCCCATAATGGTCTTATTTTAAT GATATTGGATTGTTGAAAATCCAAACCTTTATATACTA spacer
length: 38 repeater length: 30
13624 135295 ATTTCAATCCCATAATGGTCTTATTTTAAT ACTATAATGGTTCAAATATGGTTAATCCTTTAAGTA spacer
length: 36 repeater length: 30
13625 135361 ATTTCAATCCCATAATGGTCTTATTTTAAT TCACATATCATTTTTCACGGTTTAGGGGTATGTTTGA spacer
length: 37 repeater length: 30
13626 135428 ATTTCAATCCCATAATGGTCTTATTTTAAT TCAATTAACGGCAACAACACTATATTACAGTTGATGGT spacer
length: 36 repeater length: 30
13627 135494 ATTTCAATCCCATAATGGTCTTATTTTAAT TCAATTAACGGCAACAACACTATATTACAGTTGATGGT spacer
length: 36 repeater length: 30
13628 135560 ATTTCAATCCCATAATGGTCTTATTTTAAT GATATGATCCACCTTGAAATTGTTTGTATTAATTG spacer
length: 35 repeater length: 30
13629 135625 ATTTCAATCCCATAATGGTCTTATTTTAAT TGTTTCGTTGTCTTCTTCATGTTTTTCAGATTTTCAAA spacer
length: 36 repeater length: 30
13630 135691 ATTTCAATCCCATAATGGTCTTATTTTAAT GAGAGGAAATCAACACTCCAATCATTATGCTTGATAAT spacer
length: 38 repeater length: 30
13631 135759 ATTTCAATCCCATAATGGTCTTATTTTAAT TTAAAAGGGTTGCAAGGATACTTCGTAACACTGCAT spacer
length: 36 repeater length: 30
13632 135825 ATTTCAATCCCATAATGGTCTTATTTTAAT TTAATATAAGTATTGATGAGGTTCTTGATAGTGAAT spacer
length: 36 repeater length: 30
13633 135891 ATTTCAATCCCATAATGGTCTTATTTTAAT AAAAATGATAAAGTGGAAATGAATTTTGAAATTAAAG spacer
length: 37 repeater length: 30
13634 135958 ATTTCAATCCCATAATGGTCTTATTTTAAT TTTATCTTTTTTTTGTTCATCTTACCAAATTCGCGGTT spacer
length: 37 repeater length: 30
13635 136025 ATTTCAATCCCATAATGGTCTTATTTTAAT CCATCATTCTCGGGGTATCCTTTACGAAGATAATACT spacer
length: 37 repeater length: 30
13636 136092 ATTTCAATCCCATAATGGTCTTATTTTAAT TTCTTTTTTCAAGCTCTTTAATTTTCTTTTCCATTTCT spacer
length: 37 repeater length: 30
13637 136159 ATTTCAATCCCATAATGGTCTTATTTTAAT TAATATAGGCGGCGACCTTATAGACTGTATTATTTA spacer
length: 36 repeater length: 30
13638 136225 ATTTCAATCCCATAATGGTCTTATTTTAAT CTTTATATACTATGCATTACAATGTATTATTGTAGT spacer
length: 36 repeater length: 30
13639 136291 ATTTCAATCCCATAATGGTCTTATTTTAAT TCGGTTGTGCCTCTCGGTTCGGTGGGTTGTGTGCT spacer
length: 35 repeater length: 30
13640 136356 ATTTCAATCCCATAATGGTCTTATTTTAAT TAAATCATTATTATAGTAGTTCATATGGTATATAA spacer
length: 37 repeater length: 30
13641 136423 ATTTCAATCCCATAATGGTCTTATTTTAAT CAGAAAGTGGAAAATGGAACCTGAATTATAATATG spacer
length: 35 repeater length: 30
13642 136488 ATTTCAATCCCATAATGGTCTTATTTTAAT ATGTTTGATGGTATATCTTTAAGGTTACATTTAAGCA spacer
length: 37 repeater length: 30
13643 136555 ATTTCAATCCCATAATGGTCTTATTTTAAT TATTAAAGTTATATATTCCAGTTTCTATTGTAATAC spacer
length: 36 repeater length: 30
13644 136621 ATTTCAATCCCATAATGGTCTTATTTTAAT TTTATGATTTTATTATCTTTAATTTTCATCGTATTGTT spacer
length: 37 repeater length: 30
13645 136688 ATTTCAATCCCATAATGGTCTTATTTTAAT GGCATTGAAAGATAAGGGGCATAGTGTTAAGAGTGT spacer
length: 36 repeater length: 30

13646	136754	ATTTC AATCCCATAATGGTCTTATTTTAAAT	ATTCTTTAACTTTAACTCTTCTGAAAGGTTTAAAA	spacer
		length: 35 repeater length: 30		
13647	136819	ATTTC AATCCCATAATGGTCTTATTTTAAAT	CAGAGGCTACTGTGAATATCCTGTTTGAGAATTTTA	spacer
		length: 36 repeater length: 30		
13648	136885	ATTTC AATCCCATAATGGTCTTATTTTAAAT	AAAGAGATCAATAGAATTTTTTAATAAATATATAATA	spacer
		length: 36 repeater length: 30		
13649	136951	ATTTC AATCCCATAATGGTCTTATTTTAAAT	AGTTACTTAGATTATGTAAGGATAAAGGTTTTAAAG	spacer
		length: 36 repeater length: 30		
13650	137017	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TAAAAAAATTGAAACAGCTGGAACAAACCAAATTA	spacer
		length: 35 repeater length: 30		
13651	137082	ATTTC AATCCCATAATGGTCTTATTTTAAAT	GAACCAAACACTAATTACAGTAAAAAATTTTTGTAT	spacer
		length: 36 repeater length: 30		
13652	137148	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TACTATTTTATAAAAAAAGTATTACTCGAAGATCTTG	spacer
		length: 36 repeater length: 30		
13653	137214	ATTTC AATCCCATAATGGTCTTATTTTAAAT	CTTATAATATATTTTCGTGAAATGAAATTTTTATAA	spacer
		length: 35 repeater length: 30		
13654	137279	ATTTC AATCCCATAATGGTCTTATTTTAAAT	AGGTTTTTACCATTACGCATAGTCCACAATGTATGGTA	spacer
		length: 37 repeater length: 30		
13655	137346	ATTTC AATCCCATAATGGTCTTATTTTAAAT	GTATTGCTCCACAGTGTTTCGCATACTTGTTCTGCG	spacer
		length: 35 repeater length: 30		
13656	137411	ATTTC AATCCCATAATGGTCTTATTTTAAAT	ATGGTGATAAAATGAAAACACAATACAGAATGGAAA	spacer
		length: 36 repeater length: 30		
13657	137477	ATTTC AATCCCATAATGGTCTTATTTTAAAT	GGATTAAACAGTAATTCCAAAAAAGCAAAATACAGT	spacer
		length: 36 repeater length: 30		
13658	137543	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TTATACACCACCACAAATAGATAATGATATATTAG	spacer
		length: 35 repeater length: 30		
13659	137608	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TCATAAAGGTATATCCTACATCTATGGTTAAACGGT	spacer
		length: 36 repeater length: 30		
13660	137674	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TCTTTCCCAAGCGGCAGGACCTGCATTTCGAAAGGTT	spacer
		length: 36 repeater length: 30		
13661	137740	ATTTC AATCCCATAATGGTCTTATTTTAAAT	CATTCTATTTAATTTCCTCTTCACTTGAATATAATT	spacer
		length: 36 repeater length: 30		
13662	137806	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TAAAAAAGGATTATTAACAACCTATAAAGCTGTATTAC	spacer
		length: 37 repeater length: 30		
13663	137873	ATTTC AATCCCATAATGGTCTTATTTTAAAT	GATGAGGATTATAATACCATTATTGAACCGTTACTTA	spacer
		length: 37 repeater length: 30		
13664	137940	ATTTC AATCCCATAATGGTCTTATTTTAAAT	CTTTTTATTTTCATCCACTTTTAAACATACTCCTGC	spacer
		length: 35 repeater length: 30		
13665	138005	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TTTGTTTAATTATTTAATACTTATTTTATAGGTTGT	spacer
		length: 36 repeater length: 30		
13666	138071	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TCCAGACTTCATTTTTGCATAGGGCAACTCTTTAATC	spacer
		length: 37 repeater length: 30		
13667	138138	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TAGTTTTTACCATCTCTTGGTTCAAATACACTAATCTC	spacer
		length: 38 repeater length: 30		
13668	138206	ATTTC AATCCCATAATGGTCTTATTTTAAAT	ATACACAGGGTAAAAGCAGTGAACAGGAATTGGTC	spacer
		length: 35 repeater length: 30		
13669	138271	ATTTC AATCCCATAATGGTCTTATTTTAAAT	ACACCACAGTACTAATAGAGACAGGGGTAGCAGCTGC	spacer
		length: 37 repeater length: 30		
13670	138338	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TAGTGAGGGTAAATTGGATATTAAATGTAAGGACCT	spacer
		length: 36 repeater length: 30		
13671	138404	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TCTTTGATAATCTTATCGCATTATATGTTTCCTGAT	spacer
		length: 36 repeater length: 30		
13672	138470	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TATCATTATTGCTTTTCGGAGTGCAACCTTCAAAGGT	spacer
		length: 36 repeater length: 30		
13673	138536	ATTTC AATCCCATAATGGTCTTATTTTAAAT	GGAAGAAAACCGAAAGAAAAAATAGATGTTAAATAG	spacer
		length: 37 repeater length: 30		
13674	138603	ATTTC AATCCCATAATGGTCTTATTTTAAAT	GTGAAGTTGCCTGGGACAAGTTTTGGCAGGCAATTAA	spacer
		length: 37 repeater length: 30		
13675	138670	ATTTC AATCCCATAATGGTCTTATTTTAAAT	AAGAGAAATTCCTTAAACACATCATGGATGAAATCGT	spacer
		length: 37 repeater length: 30		
13676	138737	ATTTC AATCCCATAATGGTCTTATTTTAAAT	AATCGATGAGTTAGTGCAAAATGATGAGTTTTCAA	spacer
		length: 35 repeater length: 30		
13677	138802	ATTTC AATCCCATAATGGTCTTATTTTAAAT	AAGCTTGAAGATTTTTCCCTAATGTGTGATAATTGTAG	spacer
		length: 38 repeater length: 30		
13678	138870	ATTTC AATCCCATAATGGTCTTATTTTAAAT	ATTTCCCTCAGCAGAATAATCCTTGAATATATTTTCA	spacer
		length: 36 repeater length: 30		
13679	138936	ATTTC AATCCCATAATGGTCTTATTTTAAAT	CGGCGGCCGCTACCTTAGGATATGATGCTAGTCTT	spacer
		length: 35 repeater length: 30		
13680	139001	ATTTC AATCCCATAATGGTCTTATTTTAAAT	CTCCTATTATTTTTTTGAATTCGGATTCTGTTATTGT	spacer
		length: 37 repeater length: 30		
13681	139068	ATTTC AATCCCATAATGGTCTTATTTTAAAT	AAATGTAAAAAGAAGATACTTCAACAGAAACCTCAT	spacer

	length: 36	repeater length: 30	
13682	139134	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TGAATGAAAATAAGTAATATGAAAGAATTGAATGAT spacer
	length: 36	repeater length: 30	
13683	139200	ATTTC AATCCCATAATGGTCTTATTTTAAAT	GTGGATATGGAGCAATTATCATATGATGTTGAATG spacer
	length: 35	repeater length: 30	
13684	139265	ATTTC AATCCCATAATGGTCTTATTTTAAAT	CAGGTAGAAAGCACAACCAATAATACTAATTATCATAC spacer
	length: 37	repeater length: 30	
13685	139332	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TGTAAACTCCATTAACTCAGGTGCTTTTTTACCCCA spacer
	length: 36	repeater length: 30	
13686	139398	ATTTC AATCCCATAATGGTCTTATTTTAAAT	ACTACAATACACCTGTCTGTTATGTGTCTTGTATAA spacer
	length: 36	repeater length: 30	
13687	139464	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TCCTTTTTCAATGTATAGTATCCATCATCGTCAGGT spacer
	length: 36	repeater length: 30	
13688	139530	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TTAAAGACCTCTTTATTATCGAGGCGAGGCTTGTAT spacer
	length: 36	repeater length: 30	
13689	139596	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TATTATATGGAAAGAATATTGTTGAGGATATGAAAGA spacer
	length: 37	repeater length: 30	
13690	139663	ATTTC AATCCCATAATGGTCTTATTTTAAAT	AGCAATACAATCTATTGCTTTTTTGGAGAAGTTCCTT spacer
	length: 36	repeater length: 30	
13691	139729	ATTTC AATCCCATAATGGTCTTATTTTAAAT	ACGTTGGGAATTTCCAGCCGGTTTTGATTGAGTAC spacer
	length: 35	repeater length: 30	
13692	139794	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TTACAGATAATTTAAACCTCTAAGACTTAATTCTT spacer
	length: 36	repeater length: 30	
13693	139860	ATTTC AATCCCATAATGGTCTTATTTTAAAT	AAAAAATAAGAAATGAATATTTAATTGATTTTCAAT spacer
	length: 36	repeater length: 30	
13694	139926	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TGTGCGGCGG
13695			
13696			
13697		crispr 2	
13698	145014	ATTTC AATCCCATAATGGTCTTATTTTAAAT	ACGCCGCCTCCTGCCTTGCTATACTTTTTTAATATGT spacer
	length: 36	repeater length: 30	
13699	145080	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TGGTAGCGGTGACCATTTTGCTAAAACTGTACATCATCC spacer
	length: 39	repeater length: 30	
13700	145149	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TTTATTTATCACAAAAGTTGACCATACTTTTGAAGG spacer
	length: 36	repeater length: 30	
13701	145215	ATTTC AATCCCATAATGGTCTTATTTTAAAT	AAAAATTACTGATAAACTAAAGCGACCCGTAAATA spacer
	length: 36	repeater length: 30	
13702	145281	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TACCTACAGTGTTCGTTTCGTTTTAGTGCCATATGTTA spacer
	length: 37	repeater length: 30	
13703	145348	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TTTTTCAAACCTCTTTTATGGCCTCCTCTTTACTCCT spacer
	length: 36	repeater length: 30	
13704	145414	ATTTC AATCCCATAATGGTCTTATTTTAAAT	GCGCTAAGTGTAATTTTTTTTTGTGTTGTTGTATTGT spacer
	length: 37	repeater length: 30	
13705	145481	ATTTC AATCCCATAATGGTCTTATTTTAAAT	AAGTGCCAGTCTTAATGCTGAGCCAGTTACAAAAAC spacer
	length: 36	repeater length: 30	
13706	145547	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TAGTGAATGAGTTAGTTGAATTTACTGGTGAGGAAGG spacer
	length: 37	repeater length: 30	
13707	145614	ATTTC AATCCCATAATGGTCTTATTTTAAAT	GAAGAAAAAGAACTCATCACAGAAGAAGAACTTTTAA spacer
	length: 37	repeater length: 30	
13708	145681	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TCATAAAAACAGTAATCCAAAATTACAGTAGAAATG spacer
	length: 36	repeater length: 30	
13709	145747	ATTTC AATCCCATAATGGTCTTATTTTAAAT	CTTTGATGGGGATTTTTTCCCGCCATAAAGGTTACAC spacer
	length: 37	repeater length: 30	
13710	145814	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TTTCACCCCCATAACATTAGTTTGTAGAAAAGTATTT spacer
	length: 35	repeater length: 30	
13711	145879	ATTTC AATCCCATAATGGTCTTATTTTAAAT	ATACTCAGGTAAAACGAATAGTAATGGTACAGTTACATT spacer
	length: 39	repeater length: 30	
13712	145948	ATTTC AATCCCATAATGGTCTTATTTTAAAT	CTGTATCTGTAAAGGACGATTTAAATCCTGTGATAAT spacer
	length: 37	repeater length: 30	
13713	146015	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TTAACCCTTCTTTACTACATTCTCAATTATTAC spacer
	length: 34	repeater length: 30	
13714	146079	ATTTC AATCCCATAATGGTCTTATTTTAAAT	AGTACTCAAACCCTCCAAATTTGTTTTTACCAGATTT spacer
	length: 37	repeater length: 30	
13715	146146	ATTTC AATCCCATAATGGTCTTATTTTAAAT	AAGACTGCACAATAAAAGTATCCACCTAAAAAA spacer
	length: 34	repeater length: 30	
13716	146210	ATTTC AATCCCATAATGGTCTTATTTTAAAT	GGATATTACCCTGTAAAATGTAGCTATGACGGTAACAA spacer
	length: 38	repeater length: 30	
13717	146278	ATTTC AATCCCATAATGGTCTTATTTTAAAT	TATGATTTCAATGAGGATTATGAAAAAATATAGAA spacer
	length: 36	repeater length: 30	
13718	146344	ATTTC AATCCCATAATGGTCTTATTTTAAAT	CTAGAGACTGGTGTAATCTAGGATTATCCAT spacer
	length: 32	repeater length: 30	

13719	146406	ATTTCAATCCCATAATGGTCTTATTTTAAT	TGTTGAAACCCAGTCTGGAGGAAAACATATTTACCTT	spacer
		length: 37	repeater length: 30	
13720	146473	ATTTCAATCCCATAATGGTCTTATTTTAAT	GGTATCTTAAATGAGATTATTAAGAGTATCAATCTA	spacer
		length: 37	repeater length: 30	
13721	146540	ATTTCAATCCCATAATGGTCTTATTTTAAT	TGCGAACTTCTTAAAAGAGAAGGGCAAGATATAATG	spacer
		length: 36	repeater length: 30	
13722	146606	ATTTCAATCCCATAATGGTCTTATTTTAAT	GAGCAAAATTGATAATCTTCTACACGACCTATTACAA	spacer
		length: 37	repeater length: 30	
13723	146673	ATTTCAATCCCATAATGGTCTTATTTTAAT	TCAGTACTGTCAGGTAATCTTAGTTGATATGCAAGT	spacer
		length: 36	repeater length: 30	
13724	146739	ATTTCAATCCCATAATGGTCTTATTTTAAT	GAGCAGACCGTCATAGTCCTGGTGCAATTGCAAGAATG	spacer
		length: 38	repeater length: 30	
13725	146807	ATTTCAATCCCATAATGGTCTTATTTTAAT	TGACACTACTAATTTCTTTAAAGTAGAAAATATCCGG	spacer
		length: 37	repeater length: 30	
13726	146874	ATTTCAATCCCATAATGGTCTTATTTTAAT	CAGCTTAACTGCGATGCCTGCTAATTATGATACTTT	spacer
		length: 36	repeater length: 30	
13727	146940	ATTTCAATCCCATAATGGTCTTATTTTAAT	GAAGACTAGGTGTACATATACAGGCACATAATAACC	spacer
		length: 36	repeater length: 30	
13728	147006	ATTTCAATCCCATAATGGTCTTATTTTAAT	AACTCATCAATCTGCTCCTCTAACTCTTTTCTTTTCT	spacer
		length: 37	repeater length: 30	
13729	147073	ATTTCAATCCCATAATGGTCTTATTTTAAT	TGGAATTTAATCTGTGACGGTGGACTATAAAAATGT	spacer
		length: 36	repeater length: 30	
13730	147139	ATTTCAATCCCATAATGGTCTTATTTTAAT	TTGCAGCATAATCATAACCAATTCCATGTTAAGAAC	spacer
		length: 36	repeater length: 30	
13731	147205	ATTTCAATCCCATAATGGTCTTATTTTAAT	AGGAGGTACCATTTTTTTGAGTTGTTTTCAAGGTC	spacer
		length: 35	repeater length: 30	
13732	147270	ATTTCAATCCCATAATGGTCTTATTTTAAT	TGATAATAAAAGTCTTCTTATTCATGATCTTGTGTA	spacer
		length: 36	repeater length: 30	
13733	147336	ATTTCAATCCCATAATGGTCTTATTTTAAT	TCGCATATTTCTCTTCTTTATCAAACCTTTTCATG	spacer
		length: 36	repeater length: 30	
13734	147402	ATTTCAATCCCATAATGGTCTTATTTTAAT	TGGATCATTAACAATCAATGAGGTAAGGTCAGGTTA	spacer
		length: 36	repeater length: 30	
13735	147468	ATTTCAATCCCATAATGGTCTTATTTTAAT	AGTAATCCACTCCATATGGAGGGTCTGTTAGTAAT	spacer
		length: 35	repeater length: 30	
13736	147533	ATTTCAATCCCATAATGGTCTTATTTTAAT	ATGATACAGTAAACAATATCTTATATATACACACCCA	spacer
		length: 37	repeater length: 30	
13737	147600	ATTTCAATCCCATAATGGTCTTATTTTAAT	TGTAAGTATACATCAACAGCGACTATGCCAATTCTT	spacer
		length: 36	repeater length: 30	
13738	147666	ATTTCAATCCCATAATGGTCTTATTTTAAT	TTTTCACCAACTTGTAATAGCAATTCTCCAGGATT	spacer
		length: 35	repeater length: 30	
13739	147731	ATTTCAATCCCATAATGGTCTTATTTTAAT	CTTTTCCTTTCTCTTGATTAACCTTTTTACTCTTTTTA	spacer
		length: 36	repeater length: 30	
13740	147797	ATTTCAATCCCATAATGGTCTTATTTTAAT	TTACATACCGTAAACAGTCCGTTGAAAATAATGCTC	spacer
		length: 36	repeater length: 30	
13741	147863	ATTTCAATCCCATAATGGTCTTATTTTAAT	TCGAACTCCTGAAGATTTTTTTCTTCTTCACTATAATGTT	spacer
		length: 40	repeater length: 30	
13742	147933	ATTTCAATCCCATAATGGTCTTATTTTAAT	CAAGTGATACGTTGTAATTTATTACCCATATTTGT	spacer
		length: 35	repeater length: 30	
13743	147998	ATTTCAATCCCATAATGGTCTTATTTTAAT	CGTTAGTATCAGTTACTTTGAACTGAATGGTGTAGG	spacer
		length: 36	repeater length: 30	
13744	148064	ATTTCAATCCCATAATGGTCTTATTTTAAT	TACACCAACACTCCGTCTATTTGACTCAATAAATGA	spacer
		length: 36	repeater length: 30	
13745	148130	ATTTCAATCCCATAATGGTCTTATTTTAAT	ACTTCTTGGTGTGAAAGGTATAAACACATTGAAGT	spacer
		length: 36	repeater length: 30	
13746	148196	ATTTCAATCCCATAATGGTCTTATTTTAAT	ACCTGCATATCCACTATTGGCGGTAAATTAACACC	spacer
		length: 36	repeater length: 30	
13747	148262	ATTTCAATCCCATAATGGTCTTATTTTAAT	GGTATAAAAGCATAATGCCCAATAACCTTACATTCAA	spacer
		length: 37	repeater length: 30	
13748	148329	ATTTCAATCCCATAATGGTCTTATTTTAAT	ATTTTAGGCATTTCTAAGCACCTCCTTTAATTGATT	spacer
		length: 36	repeater length: 30	
13749	148395	ATTTCAATCCCATAATGGTCTTATTTTAAT	AATTTTGAGTGCAATATCACAGGAACATAACAATACAT	spacer
		length: 37	repeater length: 30	
13750	148462	ATTTCAATCCCATAATGGTCTTATTTTAAT	TCCTTTAATGTTTTTTTTTATTTAATTGTATGTTTAT	spacer
		length: 36	repeater length: 30	
13751	148528	ATTTCAATCCCATAATGGTCTTATTTTAAT	GATGAACAACATGACGAAATACTATGTCTAGACTG	spacer
		length: 35	repeater length: 30	
13752	148593	ATTTCAATCCCATAATGGTCTTATTTTAAT	AATACCCTGTTCTCAGTATAAACCATCTCATAATCGA	spacer
		length: 37	repeater length: 30	
13753	148660	ATTTCAATCCCATAATGGTCTTATTTTAAT	ATTATCACCTGCAGATTACCAGTTCCAAATTGGTAAC	spacer
		length: 37	repeater length: 30	
13754	148727	ATTTCAATCCCATAATGGTCTTATTTTAAT	AAAACCTTTTCGATATAAACCTGGAGATCATATAGAA	spacer

length: 37 repeater length: 30
13755 148794 ATTTCAATCCCATAATGGTCTTATTTTAAT AAGTTAATGGATAAGAATAAAGGTTAATCCCATTTTC spacer
length: 36 repeater length: 30
13756 148860 ATTTCAATCCCATAATGGTCTTATTTTAAT ATACAGTACTGATGATCTTGAAGCAAGAAAAATTTTC spacer
length: 37 repeater length: 30
13757 148927 ATTTCAATCCCATAATGGTCTTATTTTAAT CTTTCAGTTAATGTTTCCTTCAACTAAACCAAACTTT spacer
length: 36 repeater length: 30
13758 148993 ATTTCAATCCCATAATGGTCTTATTTTAAT CGGATAATGTTGCAGAATTGTTAACAATCAATATATGC spacer
length: 38 repeater length: 30
13759 149061 ATTTCAATCCCATAATGGTCTTATTTTAAT GGGTTCTAACTGACCAAGATGTTTTATCTAATCAAG spacer
length: 36 repeater length: 30
13760 149127 ATTTCAATCCCATAATGGTCTTATTTTAAT TTCTACAGAACATGAGAATAATATATAATCAGAAGA spacer
length: 36 repeater length: 30
13761 149193 ATTTCAATCCCATAATGGTCTTATTTTAAT TACTTGATCCCTTTTTTAATTCTTGATACTCTTCAAT spacer
length: 36 repeater length: 30
13762 149259 ATTTCAATCCCATAATGGTCTTATTTTAAT TTGCTTTCTTGAAAACTAAAAAGGTGATTACGAA spacer
length: 35 repeater length: 30
13763 149324 ATTTCAATCCCATAATGGTCTTATTTTAAT GAAGGATATGAAAAAATTGAAGAATTTGTTACAA spacer
length: 35 repeater length: 30
13764 149389 ATTTCAATCCCATAATGGTCTTATTTTAAT TTATAGGGCAGGTTTGTACGACATTATCAATTACAT spacer
length: 36 repeater length: 30
13765 149455 ATTTCAATCCCATAATGGTCTTATTTTAAT GTTTTTTTTTGTTGTAATAATGAAAGTTTGAAAATTTG spacer
length: 37 repeater length: 30
13766 149522 ATTTCAATCCCATAATGGTCTTATTTTAAT TGATTAAAGATTTTTTGAAAACGGCAGGATAGTTGA spacer
length: 37 repeater length: 30
13767 149589 ATTTCAATCCCATAATGGTCTTATTTTAAT TACTGCATACATTAACCCAACTGCTACAGGTAAAGA spacer
length: 36 repeater length: 30
13768 149655 ATTTCAATCCCATAATGGTCTTATTTTAAT TGCCTCTTGAGATAACACCTACAATGTTTCGTTCCGT spacer
length: 36 repeater length: 30
13769 149721 ATTTCAATCCCATAATGGTCTTATTTTAAT AACATATTTCAAATATGAGGGAACAACATACAAAA spacer
length: 35 repeater length: 30
13770 149786 ATTTCAATCCCATAATGGTCTTATTTTAAT TTCTAGATCATAGATGGCATATGCACACCACCTATTTTCAA
spacer length: 41 repeater length: 30
13771 149857 ATTTCAATCCCATAATGGTCTTATTTTAAT ACAGCAGGAACAAAACTAACACACATGAATTTTA spacer
length: 35 repeater length: 30
13772 149922 ATTTCAATCCCATAATGGTCTTATTTTAAT TAGGAGGTACCATTTTTTTTGAGTTGTTTTCAAGGTC spacer
length: 36 repeater length: 30
13773 149988 ATTTCAATCCCATAATGGTCTTATTTTAAT TGTATCCATCAGTTAAAAACCCCTTTTTCTTTTCTA spacer
length: 36 repeater length: 30
13774 150054 ATTTCAATCCCATAATGGTCTTATTTTAAT CTTTCTATCCGTTCTGCTTCGGCGGTTCTTTGCCTA spacer
length: 36 repeater length: 30
13775 150120 ATTTCAATCCCATAATGGTCTTATTTTAAT ATTATAATGTCCAATTACAACAACATGATTACTAGAA spacer
length: 37 repeater length: 30
13776 150187 ATTTCAATCCCATAATGGTCTTATTTTAAT AGGATATCCGCCGCTCATCAAGTGTGAATGATTTCGT spacer
length: 37 repeater length: 30
13777 150254 ATTTCAATCCCATAATGGTCTTATTTTAAT AACACACCGTCGACACAGTGACCATCTCAAGTTACAC spacer
length: 38 repeater length: 30
13778 150322 ATTTCAATCCCATAATGGTCTTATTTTAAT GGCCCTCCTA

13779
13780
13781 GCA_000404225.1_ASM40422v1_genomic.fna (PilerCR):
13782 START REPEAT
SPACER
13783 crispr 1
13784 930279 GTTAGAAATCCATCTAACTAGAATGTAAAT GCGGCTCGAGCTGAACGAATCCAAAGAGATATAGTA spacer
length: 36 repeater length: 31
13785 930346 GTTAGAAATCCATCTAACTAGAATGTAAAT GAGGTAGCTGAATTAATACTACTGGGATTATTACATCA spacer
length: 36 repeater length: 31
13786 930413 GTTAGAAATCCATCTAACTAGAATGTAAAT ATTGCCTGAAGTGCATCGTTGCCATACGCATCCCTT spacer
length: 36 repeater length: 31
13787 930480 GTTAGAAATCCATCTAACTAGAATGTAAAT GTTATTAGATACTCCCTGCGAAGGGGGTTATATCG spacer
length: 37 repeater length: 31
13788 930548 GTTAGAAATCCATCTAACTAGAATGTAAAT TTGAACAGTCGGTAGGCTTGAACACTTCAGCGGTAG spacer
length: 36 repeater length: 31
13789 930615 GTTAGAAATCCATCTAACTAGAATGTAAAT AGGACGTGTATAGGCGAAATGCCGCTTCGCGGAATGA spacer
length: 37 repeater length: 31
13790 930683 GTTAGAAATCCATCTAACTAGAATGTAAAT ATACAAAGGGACAGCATCACGTCTAAAACCATCCTG spacer
length: 36 repeater length: 31
13791 930750 GTTAGAAATCCATCTAACTAGAATGTAAAT AGAGATATAGCAGCATCAAGAGTACCACGAGCAGCA spacer
length: 36 repeater length: 31
13792 930817 GTTAGAAATCCATCTAACTAGAATGTAAAT TAACGAAACAGAGCAAGAGCGTGTGGAGCGCTATCGA spacer

length: 37 repeater length: 31
13793 930885 GTTAGAAATCCATCTAAACTAGAATGTAAAT AAAGTTATCATATAGCGTCTTCACAGTTTCATAGATA spacer
length: 37 repeater length: 31
13794 930953 GTTAGAAATCCATCTAAACTAGAATGTAAAT TCTTTGAGCATGCATTGCATATACGTTTATAACTATT spacer
length: 37 repeater length: 31
13795 931021 GTTAGAAATCCATCTAAACTAGAATGTAAAT AAGTGGTACGATATAACAGCATCTAAGGAGAACTAC spacer
length: 37 repeater length: 31
13796 931089 GTTAGAAATCCATCTAAACTAGAATGTAAAT GCCTTCTTTCCTTCAAGCTCCGCCCCAATGAAAAAT spacer
length: 36 repeater length: 31
13797 931156 GTTAGAAATCCATCTAAACTAGAATGTAAAT GTAGTAGCCCACGATACCTCACCATCCATACTGTTA spacer
length: 36 repeater length: 31
13798 931223 GTTAGAAATCCATCTAAACTAGAATGTAAAT TATCTACTTCTCCTTCCCTTAGTCGATAATCTTCATC spacer
length: 37 repeater length: 31
13799 931291 GTTAGAAATCCATCTAAACTAGAATGTAAAT GATTATTATACAGATGGCGATAAAGGCAGAGTTAA spacer
length: 35 repeater length: 31
13800 931357 GTTAGAAATCCATCTAAACTAGAATGTAAAT CTTGAGGCTAAATAATCCGCCTTCATTAAATGTTCA spacer
length: 37 repeater length: 31
13801 931425 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTAAATAGTGATAGAGATATCTCGTATCAAACCACA spacer
length: 36 repeater length: 31
13802 931492 GTTAGAAATCCATCTAAACTAGAATGTAAAT GCCTCATAACTGAGTCCAGTGGGATCGACGGGCAG spacer
length: 35 repeater length: 31
13803 931558 GTTAGAAATCCATCTAAACTAGAATGTAAAT ACACATGTAAGAAATTTTGACTATGTTCTAAAGGAAG spacer
length: 37 repeater length: 31
13804 931626 GTTAGAAATCCATCTAAACTAGAATGTAAAT GCAGATATAACAGTATCGAGAGTAGAACGAGCAATA spacer
length: 36 repeater length: 31
13805 931693 GTTAGAAATCCATCTAAACTAGAATGTAAAT CTGTCAGACTGATACGGTCTGATTAAACCCTTTTCC spacer
length: 36 repeater length: 31
13806 931760 GTTAGAAATCCATCTAAACTAGAATGTAAAT AGAGTGTTTGTTTTTACAAATGAGTATCCAAAGTACG spacer
length: 37 repeater length: 31
13807 931828 GTTAGAAATCCATCTAAACTAGAATGTAAAT GAGACCAATTTAACCCAGGACTTGTTAGAATCACCAA spacer
length: 37 repeater length: 31
13808 931896 GTTAGAAATCCATCTAAACTAGAATGTAAAT AAATGCTCAGTTAAGACCCTGGCAACAGCACTTAGT spacer
length: 36 repeater length: 31
13809 931963 GTTAGAAATCCATCTAAACTAGAATGTAAAT ACTCAATAGGAAGAAAAGCCGAAGAAGGAAGTCCAT spacer
length: 36 repeater length: 31
13810 932030 GTTAGAAATCCATCTAAACTAGAATGTAAAT CCCGAAGTTGATCTTGTTACTGTAGTTCTACCTGCTG spacer
length: 37 repeater length: 31
13811 932098 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTAGGGTATCACGTCACAGATACTCATATCAACAAG spacer
length: 36 repeater length: 31
13812 932165 GTTAGAAATCCATCTAAACTAGAATGTAAAT GCTGGTTGAGCGTCTGCTGATTAAGCAGGAACCGC spacer
length: 35 repeater length: 31
13813 932231 GTTAGAAATCCATCTAAACTAGAATGTAAAT AACTGGCAGTAAACGGATTAAGCCAATTGTGAGTAG spacer
length: 37 repeater length: 31
13814 932299 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTAAGAACTAGATACTATTACGATTTTATTCAAAGT spacer
length: 36 repeater length: 31
13815 932366 GTTAGAAATCCATCTAAACTAGAATGTAAAT CATGTGTTCCAAATAGGCACGCACTCGTCTAATGTCAGC spacer
length: 38 repeater length: 31
13816 932435 GTTAGAAATCCATCTAAACTAGAATGTAAAT GAGGAAATTTAAATACCCCTCTGCCAGCTAGTGACCA spacer
length: 36 repeater length: 31
13817 932502 GTTAGAAATCCATCTAAACTAGAATGTAAAT GAACTAGGAAGCGAGCCTAAGGTTGATTATGTTGCC spacer
length: 36 repeater length: 31
13818 932569 GTTAGAAATCCATCTAAACTAGAATGTAAAT CTTTAGGATATGTATTTGACATTACCAATATTTTTTA spacer
length: 36 repeater length: 31
13819 932636 GTTAGAAATCCATCTAAACTAGAATGTAAAT TGAGCGTGTATTACAACGGACGTGAGCTTGTTGAAA spacer
length: 36 repeater length: 31
13820 932703 GTTAGAAATCCATCTAAACTAGAATGTAAAT TGCTTGAAGATATTAATGTATCTTCATTTATGTATT spacer
length: 36 repeater length: 31
13821 932770 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTGGAACAAAATTTAAACAGGAAGCCAGTATCTCCGG spacer
length: 36 repeater length: 31
13822 932837 GTTAGAAATCCATCTAAACTAGAATGTAAAT GTGGATACTTGTTAAAAGAGACAACGTATAAGATCAAA spacer
length: 38 repeater length: 31
13823 932906 GTTAGAAATCCATCTAAACTAGAATGTAAAT TGTAGAAAGCTTGATTGACGGTCACGGGCAGTTTTTA spacer
length: 36 repeater length: 31
13824 932973 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTATACTGGAGAATTGGTCAGTTACATCAGGATAAT spacer
length: 36 repeater length: 31
13825 933040 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTTTTCCTGACAGTCAGTATACAATCAGTGGAACA spacer
length: 37 repeater length: 31
13826 933108 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTTATTCTTGTCATCTCAATGTTAACGGTTGACTGGTCAG
spacer length: 40 repeater length: 31
13827 933179 GTTAGAAATCCATCTAAACTAGAATGTAAAT ACCTCAAGAGGGATTTCAATCCTCACACGGATCTAT spacer
length: 36 repeater length: 31

13828	933246	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GGCGGTACGCTGGTGATCCTATACCCATATCGCTTG	spacer
		length: 36 repeater length: 31		
13829	933313	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CTGCCCATGCCAGACTCTTACCCTACCCTCAACTC	spacer
		length: 36 repeater length: 31		
13830	933380	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TAATGCGAACTGTGTGACTGTTAACCCTCTTAAGCCA	spacer
		length: 37 repeater length: 31		
13831	933448	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TGAGTCTGTTGCTTCTTCTACATGAGCTTCAGGTAT	spacer
		length: 36 repeater length: 31		
13832	933515	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CCATGGTATCAATACAGGCAACATAATCAACCTTAG	spacer
		length: 36 repeater length: 31		
13833	933582	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTCGAATGAAGAATACATCTATAAGTGTGAGATGCC	spacer
		length: 36 repeater length: 31		
13834	933649	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CTTGTACATTGATATGCCGATCCGGCGGTAATAGTCA	spacer
		length: 37 repeater length: 31		
13835	933717	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CTACCTCGAAATCATCAAGAACTAACTAATGGAGT	spacer
		length: 36 repeater length: 31		
13836	933784	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTGTAGTACCTACATAAGAACCATCAGCAAACCTGAC	spacer
		length: 36 repeater length: 31		
13837	933851	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTGTTAGTATCAATGTTATCCCTAATTGCACATTAGG	spacer
		length: 37 repeater length: 31		
13838	933919	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TAAGCTCGGTCCGAGATTAACATTAGACGAATGCGT	spacer
		length: 36 repeater length: 31		
13839	933986	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	AAAGAAATCATACAATGGGTTCATAGCAGTTATAAAAT	
		spacer length: 39 repeater length: 31		
13840	934056	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CTAAATTAGCTAGGAGGCTGGCGGGGGATGAAATCAG	spacer
		length: 37 repeater length: 31		
13841	934124	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	ACGACTCGCTAAAAAATGGAGCATGCGTCTCTGCTC	spacer
		length: 36 repeater length: 31		
13842	934191	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GTGGGTGGCAGGCGCTTGTATATACCACACGCATCGG	spacer
		length: 37 repeater length: 31		
13843	934259	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TGGCATGGAAC TAGAAGTAAGGAAGTCGTGGTATAAATG	
		spacer length: 39 repeater length: 31		
13844	934329	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	ACAATATTGTTTAACTTACTGGACTTCCCCAGTCT	spacer
		length: 36 repeater length: 31		
13845	934396	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CTGCTGATGGGTTACAGACCTCTCAATCGTGAAGTTA	spacer
		length: 37 repeater length: 31		
13846	934464	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TGGGTGGCAGGCGCTTGTATATATCACACGCATCGG	spacer
		length: 36 repeater length: 31		
13847	934531	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTTGAGGGCTGCAAGCCCTCTTAATCTTGTCTAATAC	spacer
		length: 37 repeater length: 31		
13848	934599	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TCTTATATGGTGGTGACGGCATTGTATCCGGCCCTA	spacer
		length: 36 repeater length: 31		
13849	934666	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GATACGATTTCGCCATGGGTAAGTATTTGAATGATA	spacer
		length: 36 repeater length: 31		
13850	934733	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTCGTTATGCGAACAAGACCAGGGTTGAACATGTCAC	spacer
		length: 37 repeater length: 31		
13851	934801	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TGTATAACAAGGGGTATTCCCTTAGGAACTTCCCAC	spacer
		length: 35 repeater length: 31		
13852	934867	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GAAAGCAACAATGAACAAACAAATATATAAAGACTAA	spacer
		length: 37 repeater length: 31		
13853	934935	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TCTACGCGATATTGCATTTCTACTGTTGTCTCAAAA	spacer
		length: 36 repeater length: 31		
13854	935002	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TACCAAAGTCTGCATCATTTGTATGTGTCTAGCTCAA	spacer
		length: 36 repeater length: 31		
13855	935069	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TCTTTCCTTTCATATTCCCAAGAGTCTGTTGCTTCT	spacer
		length: 36 repeater length: 31		
13856	935136	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTCAAAAACTTATCATTGCTTGTCTGTAGTCTTAC	spacer
		length: 36 repeater length: 31		
13857	935203	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TCGTCTACTCTGCCTGTAGATCCTACTGGTTTGAGT	spacer
		length: 36 repeater length: 31		
13858	935270	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	ACACAATGGGCACAGAAATAGAAGATAATGATGTCTGA	spacer
		length: 37 repeater length: 31		
13859	935338	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TCTAAGTGGGAATACATCGGTAGAGAGACATTACACA	spacer
		length: 36 repeater length: 31		
13860	935405	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GCATACAGTTTACATCACTAAAGCAGAAAAACGCCTA	spacer
		length: 37 repeater length: 31		
13861	935473	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GCGCGAACATGCGCCTAATGTCTACGCGCGTGTAGG	spacer
		length: 36 repeater length: 31		
13862	935540	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CCCAATATTCGCGCGCGAACTGTTCCGACAGGCCAG	spacer
		length: 36 repeater length: 31		
13863	935607	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GATTCATACGTTGTTTATCCAGCTCTACAAATGCCG	spacer

length: 36 repeater length: 31
13864 935674 GTTAGAAATCCATCTAAACTAGAATGTAAAT CAACCAAAGAACCTTTACATGCAACCTTAAAGAAGC spacer
length: 36 repeater length: 31
13865 935741 GTTAGAAATCCATCTAAACTAGAATGTAAAT ATTTAACAGCTGGCAGACCTCGGAATTTTGGTAAA spacer
length: 36 repeater length: 31
13866 935808 GTTAGAAATCCATCTAAACTAGAATGTAAAT GCATATACGGGTATCTAAATACAAGCCGCTGCATGG spacer
length: 36 repeater length: 31
13867 935875 GTTAGAAATCCATCTAAACTAGAATGTAAAT CAGGGTAGCGGTGAGTGCATCATAGACGCTGAGAAT spacer
length: 36 repeater length: 31
13868 935942 GTTAGAAATCCATCTAAACTAGAATGTAAAT CTGACTGTCTCTAACAGCCGGTTGAGTCTATAGTAG spacer
length: 36 repeater length: 31
13869 936009 GTTAGAAATCCATCTAAACTAGAATGTAAAT GCTGGTGAAGCATAACCAATCTAAAAACATTTACATA spacer
length: 38 repeater length: 31
13870 936078 GTTAGAAATCCATCTAAACTAGAATGTAAAT ATGTCAAGATAAGAACGATAAACACCGTCCCTATCAA spacer
length: 37 repeater length: 31
13871 936146 GTTAGAAATCCATCTAAACTAGAATGTAAAT TGATGCCGATCTGCGGTTACAGACGGAGTGCAGTA spacer
length: 36 repeater length: 31
13872 936213 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTGGTGTTCCTGAGCCGGTTGTAACTGCTCCAATCA spacer
length: 37 repeater length: 31
13873 936281 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTCTGTGAGGTGGGTGATATTCTGTGAATCGTCGT spacer
length: 35 repeater length: 31
13874 936347 GTTAGAAATCCATCTAAACTAGAATGTAAAT CGAACTATGGGAATGTATGGGCGTATGATCTAGCAA spacer
length: 37 repeater length: 31
13875 936415 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTCAGTGCTCCTGAAATTGTGGAGGTGATCGTATTA spacer
length: 36 repeater length: 31
13876 936482 GTTAGAAATCCATCTAAACTAGAATGTAAAT CAGGCTGATTACTGTCAAATAACGGTGTATTGGCGGA spacer
length: 37 repeater length: 31
13877 936550 GTTAGAAATCCATCTAAACTAGAATGTAAAT ATAACAATCGTCATTGGCGCGTTTCTGGTTAACGTC spacer
length: 36 repeater length: 31
13878 936617 GTTAGAAATCCATCTAAACTAGAATGTAAAT CTTGGCAGAACAATAAAAGATCTTACCGTGTGG spacer
length: 35 repeater length: 31
13879 936683 GTTAGAAATCCATCTAAACTAGAATGTAAAT GCACCTGGCTATAAACCTGATGAGGAATTGATAGACG spacer
length: 37 repeater length: 31
13880 936751 GTTAGAAATCCATCTAAACTAGAATGTAAAT GAAAGAAGGGGCAGTCCCCTGGATTTCATTACAAGAA spacer
length: 36 repeater length: 31
13881 936818 GTTAGAAATCCATCTAAACTAGAATGTAAAT TAGGAATGGCTAACATTGCATCCGGCATTATAGACAG spacer
length: 37 repeater length: 31
13882 936886 GTTAGAAATCCATCTAAACTAGAATGTAAAT ACGTTTTATACACAAGATGGAAACGATTAGTTGACTT spacer
length: 37 repeater length: 31
13883 936954 GTTAGAAATCCATCTAAACTAGAATGTAAAT GAAATCAATCGGCTTTTTGTTCATCCATGTTTCACTC spacer
length: 36 repeater length: 31
13884 937021 GTTAGAAATCCATCTAAACTAGAATGTAAAT CAAGATCTTAATCAAAGGCCTTGGAGAAGGAGTTGA spacer
length: 36 repeater length: 31
13885 937088 GTTAGAAATCCATCTAAACTAGAATGTAAAT ACAAGCACCTGGTGTGACGCCCAGTGTGATCAATTA spacer
length: 36 repeater length: 31
13886 937155 GTTAGAAATCCATCTAAACTAGAATGTAAAT TATAACGTTGCGTACGAAGGAGCGAGATTAAAGCGA spacer
length: 36 repeater length: 31
13887 937222 GTTAGAAATCCATCTAAACTAGAATGTAAAT TACATATATCGAGAGCCTTCTAATCTGGTGCTGATAG spacer
length: 37 repeater length: 31
13888 937290 GTTAGAAATCCATCTAAACTAGAATGTAAAT CCAGTAACTTAAGAACTCCGCACTCTTCGAAGCTTC spacer
length: 37 repeater length: 31
13889 937358 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTTTGAGGTGTGTTTATGCAAGTAAATAATGTTAAAT spacer
length: 37 repeater length: 31
13890 937426 GTTAGAAATCCATCTAAACTAGAATGTAAAT GGCATCTTCGATCTTAAGCAAGATCTTCATACTAAAA spacer
length: 37 repeater length: 31
13891 937494 GTTAGAAATCCATCTAAACTAGAATGTAAAT CACTAAGCAAGCGGCAAAAGCGTTTGACGATTTAG spacer
length: 35 repeater length: 31
13892 937560 GTTAGAAATCCATCTAAACTAGAATGTAAAT GGCACCTCACAGAAAAGGAAATAAGAGCAGTAAGCAA spacer
length: 36 repeater length: 31
13893 937627 GTTAGAAATCCATCTAAACTAGAATGTAAAT CATCTTCAGAAAAAAGGGATCTTCTCAGAACATACG spacer
length: 36 repeater length: 31
13894 937694 GTTAGAAATCCATCTAAACTAGAATGTAAAT GACATCAGGAGGATCGCCGACATCGCCCACCGGCATG

13895
13896
13897 GCA_000415965.1_J07B_scf56329a_trim_genomic.fna(PilerCR):
13898 START REPEAT
SPACER
13899 GCA_000415985.1_HQW2_08err_032412a_genomic.fna(PilerCR):
13900 START REPEAT
SPACER
13901 GCA_000446015.1_ASM44601v1_genomic.fna(PilerCR):

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13902 START REPEAT
13903 SPACER
13904 crispr 1
13904 356234 CTTTCAATTCATTCTGTTTCTGATAC AGCGATATAGTGAAGAAAATGAATGAAATCATATCTACAAA spacer
length: 41 repeater length: 25
13905 356300 CTTTCAATTCATTCTGTTTCTGATAC AATTCGCTGAGAAGGCGAGGCAGAGTGTCAAGCTCTACAC spacer
length: 40 repeater length: 25
13906 356365 CTTTCAATTCATTCTGTTTCTGATAC TATGATGATAACCCACCGTGGATTCTTACGTCTCATCGCATAT spacer
length: 43 repeater length: 25
13907 356433 CTTTCAATTCATTCTGTTTCTGATAC GGTGTCAAGGT
13908
13909
13910 crispr 2
13911 359211 ACTTTCAATTCATTCTTTTCTGATAC TTGGTATTACTATCAAGGGTAAGAGCGTTAGCTTTCCGA spacer
length: 39 repeater length: 26
13912 359276 ACTTTCAATTCATTCTTTTCTGATAC ATGTCAAATTATTAGAAAAGGTGAGCGGGAAATGAGCG spacer
length: 38 repeater length: 26
13913 359340 ACTTTCAATTCATTCTTTTCTGATAC CCCTGTGGGC
13914
13915
13916 crispr 3
13917 370565 CTTTCAATTCATTCTTTTCTGATAC AGGGTGGGATAATGGGAACAAGAAGTGAGATAATAGTTTG spacer
length: 40 repeater length: 25
13918 370630 CTTTCAATTCATTCTTTTCTGATAC GCTTCGTCTTGTTCTACAGCATAATTGCCACTATCCT spacer
length: 37 repeater length: 25
13919 370692 CTTTCAATTCATTCTTTTCTGATAC TCATAAACAAAACTTCTCTATTACAAAAAACATGG spacer
length: 38 repeater length: 25
13920 370755 CTTTCAATTCATTCTTTTCTGATAC ACCTTCAACG
13921
13922
13923 crispr 4
13924 404162 CTTTCAATTCTTTCTGAGTTGCATC GTGGAAAGCTGAATGGGAAAATGTTCTAAAGATGAGAG spacer
length: 38 repeater length: 25
13925 404225 CTTTCAATTCTTTCTGAGTTGCATC TTGAGCATAGAATTTAGAGGAATCAACATCAACAAAGGCACATCA
spacer length: 45 repeater length: 25
13926 404295 CTTTCAATTCTTTCTGAGTTGCATC GGTGTTTCAC
13927
13928
13929 crispr 5
13930 417399 CTTTCAATTCTTTCTTAGTTGCATC GGTCTTGCACAAATACGAGGCGAGGGGCTTGATTAGGATTCT spacer
length: 42 repeater length: 25
13931 417466 CTTTCAATTCTTTCTTAGTTGCATC CCGGTAGCAATGAAGGGGGTAGCCGTTGCGTCCCCGATATT spacer
length: 41 repeater length: 25
13932 417532 CTTTCAATTCTTTCTTAGTTGCATC TGAGCTGGAGTACGATGAGGTAACTGTACTGAGCATCGAA spacer
length: 41 repeater length: 25
13933 417598 CTTTCAATTCTTTCTTAGTTGCATC GGGATACTCTAACGATTCATGTCTTTGATGGGAAAGAGTGGAAGC
spacer length: 46 repeater length: 25
13934 417669 CTTTCAATTCTTTCTTAGTTGCATC AGTGAGATATGGGACGACTTGTTGATACCATTTCGAAAGCG spacer
length: 41 repeater length: 25
13935 417735 CTTTCAATTCTTTCTTAGTTGCATC CTGAAGACGCTCATAGCATATGGATACCTGGACATGA spacer
length: 37 repeater length: 25
13936 417797 CTTTCAATTCTTTCTTAGTTGCATC CATAACCTCTTACCCAGCAGACTCGTGACACTCAACCTCACCGC
spacer length: 46 repeater length: 25
13937 417868 CTTTCAATTCTTTCTTAGTTGCATC GAGGGTCAGAGCGTATACTTTGGCCCCGACACATTGTCAATCA spacer
length: 42 repeater length: 25
13938 417935 CTTTCAATTCTTTCTTAGTTGCATC ACGACTATACGATTCCGTCAGGGATAAGATTTGCGGCCTTG spacer
length: 41 repeater length: 25
13939 418001 CTTTCAATTCTTTCTTAGTTGCATC GAAACCAATCGAACAACTTACGGTTTGGGATTAATTTTA spacer
length: 39 repeater length: 25
13940 418065 CTTTCAATTCTTTCTTAGTTGCATC AGACTTCTCTGATTAGAATGCTTATCCCCACCTTCTACAAAG spacer
length: 43 repeater length: 25
13941 418133 CTTTCAATTCTTTCTTAGTTGCATC TTGAGAAATAGTTTCGTAGTAGCTAACGCAGACGCCCTAA spacer
length: 40 repeater length: 25
13942 418198 CTTTCAATTCTTTCTTAGTTGCATC GCCATCTCCC
13943
13944
13945 crispr 6
13946 421677 CTTTCAATTCTTTCTTAGTTGCATC CACGATTACGCTTGAGCCGGTAACCCCAATGTAGTCAA spacer
length: 39 repeater length: 25
13947 421741 CTTTCAATTCTTTCTTAGTTGCATC GGAGACCCCTGCTAAGAGAAGGAATTAAAATAGCGGA spacer
length: 38 repeater length: 25

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13948 421804 CTTTCAATTCTTTCTTAGTTGCATC ACAAGCTTGTACAGTACGTCTTGAAGTATTACGGCACCTTGAA spacer
length: 43 repeater length: 25
13949 421872 CTTTCAATTCTTTCTTAGTTGCATC AGATTTATTGTTATGAAGATTGGAGACAAGAGGTTTCTC spacer
length: 39 repeater length: 25
13950 421936 CTTTCAATTCTTTCTTAGTTGCATC GCTCTTGTAGTTTACGCCATATTTCGTATAGCGGCTCG spacer
length: 37 repeater length: 25
13951 421998 CTTTCAATTCTTTCTTAGTTGCATC TGTACAGCTTCACGTGTCGAGTGGGGCTACTTGGATATGCAT spacer
length: 42 repeater length: 25
13952 422065 CTTTCAATTCTTTCTTAGTTGCATC TCGACCCAGT
13953
13954
13955 crispr 7
13956 432491 GATGCAACTGAGAAAGAATTGAAAGC GAAAAGTCCTGCTATGCAGTAGTCATTTTCGCACAAAAGA spacer
length: 40 repeater length: 26
13957 432557 GATGCAACTGAGAAAGAATTGAAAGC TAATAGCAAAATCTGGTTCAATTTTCCATGTCTGC spacer length:
35 repeater length: 26
13958 432618 GATGCAACTGAGAAAGAATTGAAAGC AAGTCTATGGCATGAAAAACGACGCGCCCGTCGGTGAG spacer
length: 38 repeater length: 26
13959 432682 GATGCAACTGAGAAAGAATTGAAAGC GTGGTGGGGCTTCTTCGGGCATGTGCTGTCGTCCATGAG
13960
13961
13962 crispr 8
13963 455242 CTTTCAATTCATTCGTTTCTGATAC AAAACTCGAAAGATTTTAGCATTGCTTGGACAGATTAAAG spacer
length: 41 repeater length: 25
13964 455308 CTTTCAATTCATTCGTTTCTGATAC TTAGACTCTCTGTATCTGTATTATCGACCGAGAAGGTCCCC spacer
length: 41 repeater length: 25
13965 455374 CTTTCAATTCATTCGTTTCTGATAC ACTACTTCGAGCTCAGTGAGGTTACACACATCCCTGAGCT spacer
length: 40 repeater length: 25
13966 455439 CTTTCAATTCATTCGTTTCTGATAC AATATGGGGA
13967
13968
13969 crispr 9
13970 467213 CTTTCAATTCTTTCTTAGTTGCATC TAGGGGCGGCGGCTTTGGAAGCTGCGGTGGTTCCATTCT spacer
length: 39 repeater length: 25
13971 467277 CTTTCAATTCTTTCTTAGTTGCATC CCAGAGTGGGAGGCCTTAAAGAGAATGAGGGTCTTACGCGATGT spacer
length: 44 repeater length: 25
13972 467346 CTTTCAATTCTTTCTTAGTTGCATC GAGGCTGAAAAAGCGGGCTACACGGAGGGGGCAATAAACA spacer
length: 41 repeater length: 25
13973 467412 CTTTCAATTCTTTCTTAGTTGCATC CCGTCAGAGTTTATTCCAAAGCTGGGCATCACATCAGC spacer
length: 38 repeater length: 25
13974 467475 CTTTCAATTCTTTCTTAGTTGCATC AAAGGCGAGTTCGGCGTCGTGGGTGGAGAAAAGATTGCATTGGCAA
spacer length: 46 repeater length: 25
13975 467546 CTTTCAATTCTTTCTTAGTTGCATC ACTGAAAAGAGACTTGTTTACCTCTACAAAGCGATAA spacer
length: 37 repeater length: 25
13976 467608 CTTTCAATTCTTTCTTAGTTGCATC AGGGCTTCCGCGTGCCTGATACTAACCGTGACCGATATTGAGG spacer
length: 43 repeater length: 25
13977 467676 CTTTCAATTCTTTCTTAGTTGCATC TCATTAGATATCAATGCCGCGCTCAACATCCTCAAAAAGC spacer
length: 42 repeater length: 25
13978 467743 CTTTCAATTCTTTCTTAGTTGCATC TGGAGGTTGGGGACTTCGAGGAACGAAAACTCTTTTAGA spacer
length: 40 repeater length: 25
13979 467808 CTTTCAATTCTTTCTTAGTTGCATC CTCGAGGTCTAGGATTGCACTCTTAAGCCTAATATAGTT spacer
length: 39 repeater length: 25
13980 467872 CTTTCAATTCTTTCTTAGTTGCATC TCTACCTGGCTAAAAGATTTGATTACTATTTCTTCCA spacer
length: 37 repeater length: 25
13981 467934 CTTTCAATTCTTTCTTAGTTGCATC AGAGAAATCTGAGAACTATTAAAAGTCCTATTGCATA spacer
length: 38 repeater length: 25
13982 467997 CTTTCAATTCTTTCTTAGTTGCATC TCAACTCTTGATGCGTCAGGGACACGCTGTCATATTCA spacer
length: 38 repeater length: 25
13983 468060 CTTTCAATTCTTTCTTAGTTGCATC ACAACACAGA
13984
13985
13986 crispr 10
13987 570239 CTTTCAATTCATTCGTTTCTGATAC ATGCAAAATGGGTGCCCTTACTATGCCCAACTCTCTGTC spacer
length: 39 repeater length: 25
13988 570303 CTTTCAATTCATTCGTTTCTGATAC GTCATGGTACTTGGGAGACGGTAAGAGACATCAATTTATTT spacer
length: 41 repeater length: 25
13989 570369 CTTTCAATTCATTCGTTTCTGATAC GTATATACGTATGACTTAAGAATTTACATACACTGGCGG spacer
length: 40 repeater length: 25
13990 570434 CTTTCAATTCATTCGTTTCTGATAC ACATAAGGGGCATATATGTGAAGATCCGTATCTATAATGAGG spacer
length: 42 repeater length: 25
13991 570501 CTTTCAATTCATTCGTTTCTGATAC ATTCCCAGGCAGGCAATAATAATTGCGGTCACGATGAACAC spacer

length: 41 repeater length: 25
13992 570567 CTTTCAATTCATTCGTTTCTGATAC TTGTTCACTGTGCCCCGCGAAAAAGGCGGCACGCTGAAGAA spacer
length: 41 repeater length: 25
13993 570633 CTTTCAATTCATTCGTTTCTGATAC CGCCTTTTTCTCGAGTCCATACAACAAAAATACAGAAAA spacer
length: 40 repeater length: 25
13994 570698 CTTTCAATTCATTCGTTTCTGATAC CTATCTTCCGCTCGGCACTCGCCCAATCTTCAAATAAC spacer
length: 38 repeater length: 25
13995 570761 CTTTCAATTCATTCGTTTCTGATAC AGACCTATGGTAGAACGTATAGATCTATATAAGCAGCTGTTT spacer
length: 42 repeater length: 25
13996 570828 CTTTCAATTCATTCGTTTCTGATAC GACGATGATA
13997
13998
13999 crispr 11
14000 620736 CCTTCAATTCTTTCTTAGTTGCATC TGCTCTTGATTTTCGGCTTCGCTATTTTCGGCTTCGGCTTCG spacer
length: 42 repeater length: 25
14001 620803 CCTTCAATTCTTTCTTAGTTGCATC ATCGGAAACACTTATTTTCTGGTTTATGTCCTTATTCAT spacer
length: 39 repeater length: 25
14002 620867 CCTTCAATTCTTTCTTAGTTGCATC AGGTGGCTCCGCGCCCTCGAGTCCCCCGCAGACACTCGTGTG spacer
length: 42 repeater length: 25
14003 620934 CCTTCAATTCTTTCTTAGTTGCATC ACACATATTCTTCACACCGCACGAGCTCCAGCCAGTGTAGCACC
spacer length: 45 repeater length: 25
14004 621004 CCTTCAATTCTTTCTTAGTTGCATC GTACAGACAGACAGCACAGGCAGAATAGTGTACAATAGAATT spacer
length: 42 repeater length: 25
14005 621071 CCTTCAATTCTTTCTTAGTTGCATC AGCACGTATATCCACCACATTTTTCTGCACCTCTTTTTTCAA spacer
length: 42 repeater length: 25
14006 621138 CCTTCAATTCTTTCTTAGTTGCATC GTCGAGCGCATGGATTATTCGAGCGTCACGAAGAACAAC spacer
length: 40 repeater length: 25
14007 621203 CCTTCAATTCTTTCTTAGTTGCATC TCGATATCGTTTTTCGACGCCCCGCGAACCCACACAGGACCCTA spacer
length: 43 repeater length: 25
14008 621271 CCTTCAATTCTTTCTTAGTTGCATC TAATCTGGGGCGTGGAATCTATGTAGCCACTTCGTTCA spacer
length: 38 repeater length: 25
14009 621334 CCTTCAATTCTTTCTTAGTTGCATC TACCATGTTTGCTTTTCTAGCAGGTGTAATTTCAAGTA spacer
length: 38 repeater length: 25
14010 621397 CCTTCAATTCTTTCTTAGTTGCATC AGAAGTGGCAGGGGAGGAATTGTATCCGCTTATACGC spacer
length: 37 repeater length: 25
14011 621459 CCTTCAATTCTTTCTTAGTTGCATC GTAACGAGGCAAAGCACACAGCAATTGATTGCCTACATCCTCTT spacer
length: 44 repeater length: 25
14012 621528 CCTTCAATTCTTTCTTAGTTGCATC CAGACAGCTTAAGGAGTTCAGTTGAGGATGGAGAGGCTCC spacer
length: 41 repeater length: 25
14013 621594 CCTTCAATTCTTTCTTAGTTGCATC TCAAGCGAGTCTGGGTCACTTGCTTTTGCTTTTTTCAAAG spacer
length: 39 repeater length: 25
14014 621658 CCTTCAATTCTTTCTTAGTTGCATC AGGAGGCGTGACGGGAAGGAATACGAGTATGGCATGGTGT spacer
length: 40 repeater length: 25
14015 621723 CCTTCAATTCTTTCTTAGTTGCATC AATGAATAGGCAAAGAAAGCTAGGAAAGCTGTTAAAGCAA spacer
length: 40 repeater length: 25
14016 621788 CCTTCAATTCTTTCTTAGTTGCATC GCTAGAATTTTCAAAGCTCGACCTATCCCTTACCAGCTTCG spacer
length: 41 repeater length: 25
14017 621854 CCTTCAATTCTTTCTTAGTTGCATC TGTGGGAAAATGGTTCAACACCTCAAACCTAGATTCAATCTA spacer
length: 41 repeater length: 25
14018 621920 CCTTCAATTCTTTCTTAGTTGCATC AGGATTGGCCTCTTGAAGAAAGCAGATGGGGAAAGCAT spacer
length: 38 repeater length: 25
14019 621983 CCTTCAATTCTTTCTTAGTTGCATC GGCCTAGGACTTATAAGCATCACCTATAGGATTATCAAGT spacer
length: 41 repeater length: 25
14020 622049 CCTTCAATTCTTTCTTAGTTGCATC GTTGGCTAATGGGGATGACCAAGGTATACGCGTATGTGA spacer
length: 39 repeater length: 25
14021 622113 CCTTCAATTCTTTCTTAGTTGCATC AACGCAAGGGTTGAGGAATATAGGGAAACACTGCAGTCAAT spacer
length: 41 repeater length: 25
14022 622179 CCTTCAATTCTTTCTTAGTTGCATC CACAGCTATGAAACCAGTAATATTTCTCGATAAATCG spacer
length: 37 repeater length: 25
14023 622241 CCTTCAATTCTTTCTTAGTTGCATC TATTTCTGGCTTTTGAAGTTTCCAGAGATAAATAGCAATT spacer
length: 40 repeater length: 25
14024 622306 CCTTCAATTCTTTCTTAGTTGCATC GACAGGGTGAGGCCGGGGACGCCACACAGATAATCGC spacer
length: 37 repeater length: 25
14025 622368 CCTTCAATTCTTTCTTAGTTGCATC AGTCATTTACCCGTGACGATGTCCCCAAAATCAGTGCCGCTGC spacer
length: 43 repeater length: 25
14026 622436 CCTTCAATTCTTTCTTAGTTGCATC TCCTCCCAGT
14027
14028
14029 crispr 12
14030 632341 CCTTCAATTCTTTCTGAGTTGCATC CCAATACATTGAGCAAATGTTTTCAAAGGGCAGCGGTAGAG spacer
length: 41 repeater length: 25

14031 632407 CCTTCAATTCTTTCTGAGTTGCATC TACAGCTAATACAGGCCGCAATCGCCATCATGATAACAAT spacer
length: 40 repeater length: 25
14032 632472 CCTTCAATTCTTTCTGAGTTGCATC TAGGGTGTCAATCGATGTTATTGTTACCTCAACAAATTCAAT spacer
length: 42 repeater length: 25
14033 632539 CCTTCAATTCTTTCTGAGTTGCATC CGGAAATCCTAGAAAATTCGAGTACTTTCTTCTGAACTACAAAT spacer
length: 44 repeater length: 25
14034 632608 CCTTCAATTCTTTCTGAGTTGCATC GCGAGTTCTTCGATGTCCCTGTCCCGCAGTGATTTCTGCATCG spacer
length: 43 repeater length: 25
14035 632676 CCTTCAATTCTTTCTGAGTTGCATC CTCGATTATGAGGCCGAGGACAAGGGCGATCAGGAAAAAGTT spacer
length: 42 repeater length: 25
14036 632743 CCTTCAATTCTTTCTGAGTTGCATC TTGGTATATCACGCAAGAGGACTTAGACAAGGCTCTACAATACGC
spacer length: 45 repeater length: 25
14037 632813 CCTTCAATTCTTTCTGAGTTGCATC ATATTATACCGTAAGCCAACTTTTCACATATGGAAGCATTG spacer
length: 41 repeater length: 25
14038 632879 CCTTCAATTCTTTCTGAGTTGCATC GGCTTGCTTGATGTCTCTATTTCTGCCGTAATTGCTTTTAGT spacer
length: 43 repeater length: 25
14039 632947 CCTTCAATTCTTTCTGAGTTGCATC AGCCGGGGCAGGGGAGGACCAGCCCCAAATATACATTAT spacer
length: 39 repeater length: 25
14040 633011 CCTTCAATTCTTTCTGAGTTGCATC ACTGTATGATGGAAGAGACTATCACGGCCCCTTCCACACCT spacer
length: 41 repeater length: 25
14041 633077 CCTTCAATTCTTTCTGAGTTGCATC TTCTACGTTGCCGACCAGGTTTCAATGGCACTTTATGGT spacer
length: 39 repeater length: 25
14042 633141 CCTTCAATTCTTTCTGAGTTGCATC CCTCTCCAGCATCCTCGCGGTGCGCAGAGACGAAGGGGA spacer
length: 38 repeater length: 25
14043 633204 CCTTCAATTCTTTCTGAGTTGCATC TCTAACACAGCTGCGCAGCTTTATTTATGAATGGATAA spacer
length: 38 repeater length: 25
14044 633267 CCTTCAATTCTTTCTGAGTTGCATC CAAGGTGTTGAAAATTATCTTGTATCCATTTATTTCT spacer
length: 37 repeater length: 25
14045 633329 CCTTCAATTCTTTCTGAGTTGCATC TCAATGTCAGCCCTAGCATACTTAATCTGCCCATTT spacer length:
36 repeater length: 25
14046 633390 CCTTCAATTCTTTCTGAGTTGCATC TTACTGGCTCCGAGGTGCAAGCGAAGCTTCACACAGCTGT spacer
length: 40 repeater length: 25
14047 633455 CCTTCAATTCTTTCTGAGTTGCATC TGCCTTGGGA
14048
14049
14050 crispr 13
14051 646646 TTCAATTCTTTCTGAGTTGCATC AACAAATTTCCGATTCATGCAACATTTAATGGATACACCTTTCC spacer
length: 43 repeater length: 23
14052 646712 TTCAATTCTTTCTGAGTTGCATC TGGCAACAATTAGAGAGATGGACAAGGCTGTTTCTAGAGGCC spacer
length: 42 repeater length: 23
14053 646777 TTCAATTCTTTCTGAGTTGCATC TAAAAGGCTTCTGGCTCGGGGTGGCCGAGGGCCTGGCCCTCC spacer
length: 42 repeater length: 23
14054 646842 TTCAATTCTTTCTGAGTTGCATC CCTAAGCGCCTTGGTCTCTATGGTCTGGGTTATCTTCGACCC spacer
length: 42 repeater length: 23
14055 646907 TTCAATTCTTTCTGAGTTGCATC CGATATCGCTGACGCCTTGACGCTGAGGTTAGCGAAGAACC spacer
length: 41 repeater length: 23
14056 646971 TTCAATTCTTTCTGAGTTGCATC CCGCGCAATAGGCATCGACCTAGAAAACGAGGGATACTCAAACC spacer
length: 44 repeater length: 23
14057 647038 TTCAATTCTTTCTGAGTTGCATC TAAGCTGAGCGGTCTGGGCCGAGCCGAGAAGGTTACCCTGATCC spacer
length: 44 repeater length: 23
14058 647105 TTCAATTCTTTCTGAGTTGCATC CTGGTCAGAGGGCGTTGACCTACCCGCCGACGCGGTGCTAGTAGCCT
spacer length: 47 repeater length: 23
14059 647175 TTCAATTCTTTCTGAGTTGCATC ACAGTCCAGTTGCTCGGGAGCACCCCGCAGCTCGTTGCTCT spacer
length: 41 repeater length: 23
14060 647239 TTCAATTCTTTCTGAGTTGCATC CTCTAAACAG
14061
14062
14063 GCA_000499765.1_Methanobacterium_genomic.fna (PilerCR):
14064 START REPEAT
SPACER
14065 crispr 1
14066 356491 ATTTCAATCCTAAAAATAGTCTGATTTTAAC TTGATATTATTGTGTATCATATATCATTACCCTTGTG spacer
length: 37 repeater length: 30
14067 356558 ATTTCAATCCTAAAAATAGTCTGATTTTAAC ACTTGGGCATAACATTTTACCTGATCTATAAATAAA spacer
length: 36 repeater length: 30
14068 356624 ATTTCAATCCTAAAAATAGTCTGATTTTAAC AATATCTTTACCGTTATGTATGAAAAATTGTCTATT spacer
length: 36 repeater length: 30
14069 356690 ATTTCAATCCTAAAAATAGTCTGATTTTAAC TGTTACATCAAAAAGGGGATTGTATTCTTCAGAAT spacer
length: 36 repeater length: 30
14070 356756 ATTTCAATCCTAAAAATAGTCTGATTTTAAC TAAATATTCAAGGGCATCAGTAATAGGCCTTATAG spacer
length: 35 repeater length: 30

14071	356821	ATTTCATCCTAAAAAGTCTGATTTTAAC	CACGTGCATTCTCTACGGCAGCAATTGGCTGAAGCA	spacer
		length: 36	repeater length: 30	
14072	356887	ATTTCATCCTAAAAAGTCTGATTTTAAC	CAAAACCGGTGGTAATCACATATTCGTAGATGGTTGC	spacer
		length: 37	repeater length: 30	
14073	356954	ATTTCATCCTAAAAAGTCTGATTTTAAC	TCATTAATAATAGAAATACCAGAAGCAGACCTAACAC	spacer
		length: 36	repeater length: 30	
14074	357020	ATTTCATCCTAAAAAGTCTGATTTTAAC	GTA CT TGAGATTGAGGTACATTTGTAAAACAGAGAA	spacer
		length: 36	repeater length: 30	
14075	357086	ATTTCATCCTAAAAAGTCTGATTTTAAC	CTTACAAGAGGATAGATCATGATCGATGATCCCCC	spacer
		length: 35	repeater length: 30	
14076	357151	ATTTCATCCTAAAAAGTCTGATTTTAAC	CTATAAACCTGAAACCATATATTCTGGAGAAGTAAC	spacer
		length: 37	repeater length: 30	
14077	357218	ATTTCATCCTAAAAAGTCTGATTTTAAC	TATAACCACAACCTGACCCTACTAATCAAACCATAAT	spacer
		length: 36	repeater length: 30	
14078	357284	ATTTCATCCTAAAAAGTCTGATTTTAAC	TTGTATCAACCCCTATTCCAGAAGTGGCCAACTAT	spacer
		length: 36	repeater length: 30	
14079	357350	ATTTCATCCTAAAAAGTCTGATTTTAAC	ACAATCTTTCTACCATCTCCGAATTCTTCATTCTATA	spacer
		length: 36	repeater length: 30	
14080	357416	ATTTCATCCTAAAAAGTCTGATTTTAAC	CTCTCCGTCTTTGCAATTAGTTTATTTCTTGTTTAT	spacer
		length: 36	repeater length: 30	
14081	357482	ATTTCATCCTAAAAAGTCTGATTTTAAC	GTTAAAATGCAGAATAAGAAGTGACGAACCATGAAA	spacer
		length: 36	repeater length: 30	
14082	357548	ATTTCATCCTAAAAAGTCTGATTTTAAC	GCTGGACCAGGTCAAAAAAAAAATACCTTAAAGTAAA	spacer
		length: 36	repeater length: 30	
14083	357614	ATTTCATCCTAAAAAGTCTGATTTTAAC	TAGCGATAGCCGGCGAAATATTAACCAGAATAGCTAA	spacer
		length: 37	repeater length: 30	
14084	357681	ATTTCATCCTAAAAAGTCTGATTTTAAC	AGATCTTAAAAGAAGAGGTATTATACTACTACTAT	spacer
		length: 36	repeater length: 30	
14085	357747	ATTTCATCCTAAAAAGTCTGATTTTAAC	AAGAATTTAACCTAACAAAATCAAAGAGTGATACAA	spacer
		length: 36	repeater length: 30	
14086	357813	ATTTCATCCTAAAAAGTCTGATTTTAAC	AGGGGACATTTTGAAAGATGGTTTTAAAGTGGAAC	spacer
		length: 36	repeater length: 30	
14087	357879	ATTTCATCCTAAAAAGTCTGATTTTAAC	GATTCAGACTACGATGGTGTCACTGGAATTGATAAA	spacer
		length: 36	repeater length: 30	
14088	357945	ATTTCATCCTAAAAAGTCTGATTTTAAC	TATTATTAAGGAAAGGAGGTAAAAAGTGTTAAACAT	spacer
		length: 36	repeater length: 30	
14089	358011	ATTTCATCCTAAAAAGTCTGATTTTAAC	GTACATTTCTATACTCTCCCCGTTTCATCGCCGCTATC	spacer
		length: 37	repeater length: 30	
14090	358078	ATTTCATCCTAAAAAGTCTGATTTTAAC	GCCTTCAGGAAAAATACACTGCAGATATCTACGCTA	spacer
		length: 36	repeater length: 30	
14091	358144	ATTTCATCCTAAAAAGTCTGATTTTAAC	CTGTGAGAAAGTGGGTTTGTGAGGCCGACTCCTTC	spacer
		length: 36	repeater length: 30	
14092	358210	ATTTCATCCTAAAAAGTCTGATTTTAAC	TTTTTTTTTGATCTAAACTCTATTTTTTTAATATT	spacer
		length: 35	repeater length: 30	
14093	358275	ATTTCATCCTAAAAAGTCTGATTTTAAC	AAGGCACTATTGATGTAATTAAATATGAACTCCCTC	spacer
		length: 36	repeater length: 30	
14094	358341	ATTTCATCCTAAAAAGTCTGATTTTAAC	TCCGAGGATCTCAACTTCTAAAAGACATTCTAATATT	spacer
		length: 37	repeater length: 30	
14095	358408	ATTTCATCCTAAAAAGTCTGATTTTAAC	GAGCTGGTGGGTGGTAGTACCGTTACTTATCGTGA	spacer
		length: 36	repeater length: 30	
14096	358474	ATTTCATCCTAAAAAGTCTGATTTTAAC	CGGACATTGTACCGGATACTGTGCCGATTTTGCGC	spacer
		length: 36	repeater length: 30	
14097	358540	ATTTCATCCTAAAAAGTCTGATTTTAAC	CCATCTGAAGGGCTACATGTACAATTACGAACAGGG	spacer
		length: 36	repeater length: 30	
14098	358606	ATTTCATCCTAAAAAGTCTGATTTTAAC	GTAGAGGAGGCTCTCAAACCTCCGCTGCGGCCTC	spacer
		length: 36	repeater length: 30	
14099	358672	ATTTCATCCTAAAAAGTCTGATTTTAAC	TTTAAATGATGTAATCCAAAGTCAATCCATGCAAAA	spacer
		length: 36	repeater length: 30	
14100	358738	ATTTCATCCTAAAAAGTCTGATTTTAAC	TTAATATAACATTGAATAATTTTCTGTTTGATATAC	spacer
		length: 37	repeater length: 30	
14101	358805	ATTTCATCCTAAAAAGTCTGATTTTAAC	ATGTATGAAATAGATGAAAATACGATAAGACTCAAT	spacer
		length: 36	repeater length: 30	
14102	358871	ATTTCATCCTAAAAAGTCTGATTTTAAC	AAAATGGGTGAAAAAAGCCTATAACGAATCATTAAC	spacer
		length: 36	repeater length: 30	
14103	358937	ATTTCATCCTAAAAAGTCTGATTTTAAC	CCAGAGCATACTAATCAGGACAGATTCATACTTGGA	spacer
		length: 36	repeater length: 30	
14104	359003	ATTTCATCCTAAAAAGTCTGATTTTAAC	AAGACTACAATCTTCCCTGATCATATTGAATTTTT	spacer
		length: 36	repeater length: 30	
14105	359069	ATTTCATCCTAAAAAGTCTGATTTTAAC	AGAAAAAATTAGATAAATCAATTGGGGTCCCCCAC	spacer
		length: 36	repeater length: 30	
14106	359135	ATTTCATCCTAAAAAGTCTGATTTTAAC	ATCTATACTCAGGATGAAACCATCGAAATTCACCA	spacer

length: 36 repeater length: 30
14107 359201 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TAGAACCACCTGTTCCGTTACCTTTAAACATGAATCC spacer
length: 37 repeater length: 30
14108 359268 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GTGACCATTTTGTATGGGAGAGGATTATAATGACAGA spacer
length: 36 repeater length: 30
14109 359334 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AACTGTGGCATATTATGATTATGCTTCCATTTCTGA spacer
length: 36 repeater length: 30
14110 359400 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CATGTGAATGTCATCCAGATCACCCATGGTTTCCAC spacer
length: 36 repeater length: 30
14111 359466 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AAGTGCCTGGGAACAGGAATTTGCCCTTTTTGGTGG spacer
length: 36 repeater length: 30
14112 359532 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TTCCATAACTATGTATTAATTCACCAAGACAATCTA spacer
length: 36 repeater length: 30
14113 359598 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CCTCGTGGTCTTATCAGCCCATCACTAATATTCTGTAC spacer
length: 37 repeater length: 30
14114 359665 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TCCTTCAAACGCCCTTATTACTTTACGTCATATTTA spacer
length: 36 repeater length: 30
14115 359731 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GATCCGGGTAGTACATACTATTAATTTCTACACCTA spacer
length: 36 repeater length: 30
14116 359797 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TGTACTCATGTTTGGCTTGATGATTGAGGGGTTGAA spacer
length: 36 repeater length: 30
14117 359863 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC ATACTTATGAGTAATTAATAACAGGAGTTGATACTA spacer
length: 36 repeater length: 30
14118 359929 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC ATAATAGCATAATAAAAGTCAATGAAATATTCTTTTC spacer
length: 37 repeater length: 30
14119 359996 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AGGGGATTGAGCGGGAACAAGTTTACCATATCCTTA spacer
length: 36 repeater length: 30
14120 360062 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CTACTTCCACCCTGGAGGAATGTACGGAGGTTACAC spacer
length: 36 repeater length: 30
14121 360128 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AAAAATTGTGGCAAATGGTAGAAGTTTAAAAAATGTA spacer
length: 37 repeater length: 30
14122 360195 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CCCCCAATCAATGAAAATAGATATCTTATTAAATGC spacer
length: 36 repeater length: 30
14123 360261 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GGAGAACTATCCGGCCATTATATCCTGCGTTTACAC spacer
length: 36 repeater length: 30
14124 360327 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CATTATATGTGGAGTTGGTTTTTCAGTTGCCTTGTAT spacer
length: 36 repeater length: 30
14125 360393 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TCATTCTTCATCGCAGTTAAACTATCAGTTAAACTC spacer
length: 36 repeater length: 30
14126 360459 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TCCTCATTTTACCGGTTTTGTCCACGAATTTATCGAG spacer
length: 37 repeater length: 30
14127 360526 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GCCCAAGCTTTCCTCTACGGCGACCCAATGTCCTAC spacer
length: 36 repeater length: 30
14128 360592 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GTCTTATGAGGATTGGAAAGCCAGACAACCAAACAGC spacer
length: 37 repeater length: 30
14129 360659 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CTGCGGGTGTAAACTCATACCGCCTAAGAGTAGTGA spacer
length: 36 repeater length: 30
14130 360725 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC ATGCCTGAAATCTATAAATGAGAGCAGGCCGTACC spacer
length: 35 repeater length: 30
14131 360790 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CTTAGACGCTTCCTTAAATTGGATACGGATGAGATTG spacer
length: 37 repeater length: 30
14132 360857 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CGATTTTTTCATTTTGAGGATCTGGAGTTTCTTTTAC spacer
length: 36 repeater length: 30
14133 360923 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CTTTTTCAACTTCTACTATTTCTTCTTCTAATTCCCA spacer
length: 37 repeater length: 30
14134 360990 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC ATTGTCAAGGTTCTAGGAACATCAGAGTACTATAAA spacer
length: 36 repeater length: 30
14135 361056 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GTTCCAACAAGGGCTTCGTCTTCACGAATTTCTAGT spacer
length: 36 repeater length: 30
14136 361122 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CTCTTCTGACACTCTAGTTGATGATTGAGTAGTTAC spacer
length: 36 repeater length: 30
14137 361188 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GGGGGCATCATGTTAATGTGGTTCTTTTCAATATTCA spacer
length: 37 repeater length: 30
14138 361255 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TCTCTACATTCTTACTGGCATCTTTTAAACACGCTTG spacer
length: 36 repeater length: 30
14139 361321 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TTATTCCCCCAGGGTTTTCCATTATACCATATATTTAT spacer
length: 37 repeater length: 30
14140 361388 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AACAGAACGCTCCCAAACCTTTAGACCCCACTGGA spacer
length: 35 repeater length: 30
14141 361453 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AGGATGACTTAAAATATACTCTCCTTTCTATTTACA spacer
length: 36 repeater length: 30

14142 361519 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AAGCCATGGT
14143
14144
14145 crispr 2
14146 392575 GTTGCAGAAGCATTTCCAATAAAACAAGGATTGAAAC CCCATAATCTGAGGGGTACGGTGTGGGCAGATAAACC
spacer length: 37 repeater length: 37
14147 392649 GTTGCAGAAGCATTTCCAATAAAACAAGGATTGAAAC TTATCTAAAATTTTCATGCCCGTTTCGTGATTTTCATAG
spacer length: 36 repeater length: 37
14148 392722 GTTGCAGAAGCATTTCCAATAAAACAAGGATTGAAAC TTATCTAAAATTTTCATGCCCGTTTCGTGATTTTCATAG
spacer length: 36 repeater length: 37
14149 392795 GTTGCAGAAGCATTTCCAATAAAACAAGGATTGAAAC CCACCATCTGCTACATCTTTTAAAGCTTTTTTAATAAA
spacer length: 38 repeater length: 37
14150 392870 GTTGCAGAAGCATTTCCAATAAAACAAGGATTGAAAC CCCTCCTTTCTTTTTTCAATACGTGGAATAAATGG
spacer length: 35 repeater length: 37
14151 392942 GTTGCAGAAGCATTTCCAATAAAACAAGGATTGAAAC CCCTCCTTTCTTTTTTCAATACGTGGAATAAATGG
spacer length: 35 repeater length: 37
14152 393014 GTTGCAGAAGCATTTCCAATAAAACAAGGATTGAAAC CCATATAGCTCTTGTATGTCTTCATTTTCTACCAA
spacer length: 35 repeater length: 37
14153 393086 GTTGCAGAAGCATTTCCAATAAAACAAGGATTGAAAC ATTCCATGCTCAGCTCTCTTTTCTTTGTCTTTGAACA
spacer length: 37 repeater length: 37
14154 393160 GTTGCAGAAGCATTTCCAATAAAACAAGGATTGAAAC CTTTCCACCAGTTATTCTTCTCGTCCATTTTTATT
spacer length: 35 repeater length: 37
14155 393232 GTTGCAGAAGCATTTCCAATAAAACAAGGATTGAAAC AGATTACCTTCCCACGGAGTGTTCCTTGTTCTCA
spacer length: 36 repeater length: 37
14156 393305 GTTGCAGAAGCATTTCCAATAAAACAAGGATTGAAAC GGAACGCGCGCCAGGCGACATCGCAGGACGTCGTAAA
14157
14158
14159 GCA_000504205.1_ASM50420v1_genomic.fna (PilerCR):
14160 START REPEAT
SPACER
14161 crispr 1
14162 782131 ATTCAAATGTAAGATCCATTTAAAACAAGGATTGAAAT ATTTAGCTACTGGATACATCAGCCGCCGACCTGTGCAA
spacer length: 38 repeater length: 37
14163 782206 ATTCAAATGTAAGATCCATTTAAAACAAGGATTGAAAT CACTTCCTTTGTTATGGGGAACCTGCAGGTTCTTCC
spacer length: 36 repeater length: 37
14164 782279 ATTCAAATGTAAGATCCATTTAAAACAAGGATTGAAAT CTATGAAAGATTGATAATCTGTCTGTTCCGAATTGGC
spacer length: 36 repeater length: 37
14165 782352 ATTCAAATGTAAGATCCATTTAAAACAAGGATTGAAAT TATTTCCACCACCATCTACTGGCCACTGTGTTTTAA
spacer length: 36 repeater length: 37
14166 782425 ATTCAAATGTAAGATCCATTTAAAACAAGGATTGAAAT TCAATAGCATATACTGTTCTTGTGCTATCAGAATAAA
spacer length: 37 repeater length: 37
14167 782499 ATTCAAATGTAAGATCCATTTAAAACAAGGATTGAAAT CCCGATGAAGATATAGAAGGCGTGAGAATTCCAAAGA
spacer length: 37 repeater length: 37
14168 782573 ATTCAAATGTAAGATCCATTTAAAACAAGGATTGAAAT TGATTCTACCGTCTGGTGTATACAATGCGTGATTTTTG
spacer length: 39 repeater length: 37
14169 782649 ATTCAAATGTAAGATCCATTTAAAACAAGGATTGAAAT CTTATATTTCTTATTCCTTCATGCAATGCGGACTCTAA
spacer length: 36 repeater length: 37
14170 782724 ATTCAAATGTAAGATCCATTTAAAACAAGGATTGAAAT TACATGTAAAGTCAAGACCTGTCAATATGGGTCTT
spacer length: 35 repeater length: 37
14171 782796 ATTCAAATGTAAGATCCATTTAAAACAAGGATTGAAAT
AAATTGAAGATGACAATCAGAACACAATTATACGACAGTACCAGG spacer length: 45 repeater length: 37
14172 782878 ATTCAAATGTAAGATCCATTTAAAACAAGGATTGAAAT AATGTATAAGTTTTATTTTCGGTAACAGTAAAAACG
spacer length: 36 repeater length: 37
14173 782951 ATTCAAATGTAAGATCCATTTAAAACAAGGATTGAAAT ATAGGACTTGGTGTGTCATTCTGCTGCTCTATTTT
spacer length: 35 repeater length: 37
14174 783023 ATTCAAATGTAAGATCCATTTAAAACAAGGATTGAAAT TTAACCATCCTGTCTTCCTCACTGAAGTTTGCAGAGATG
spacer length: 39 repeater length: 37
14175 783099 ATTCAAATGTAAGATCCATTTAAAACAAGGATTGAAAT ATGAACCAGCAAAATTCCAGTATCCGCCGCTTTTCAG
spacer length: 36 repeater length: 37
14176 783172 ATTCAAATGTAAGATCCATTTAAAACAAGGATTGAAAT ATCCCGAGATG
14177
14178
14179 crispr 2
14180 804145 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC CAGACTATTATTTTCTCACTGGAATGATAGCATAGACC
spacer length: 38 repeater length: 37
14181 804220 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC ATGAATCATATATGAATGATTTCATTAGATGATGAATT
spacer length: 37 repeater length: 37
14182 804294 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC GAGAAAGGATCTATCGGTATCTCCCTTGTAGATACAA
spacer length: 37 repeater length: 37
14183 804368 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC CTGAAAGTATAGACATTTTCAGAAAAATCAAGTAA
spacer length: 34 repeater length: 37

14184	804439	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	ATAGATTAGATATTTTTGAGATAAAAGAAGGCTTGT
		spacer length: 36 repeater length: 37	
14185	804512	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	TTTAGGACGAACTGTTTCGCACTGATTAACAGATT
		spacer length: 36 repeater length: 37	
14186	804585	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	AGTAAATGGACTGTGGAGCATCGCGGCTGGTTACCGT
		spacer length: 37 repeater length: 37	
14187	804659	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	TATATTTCCCTATAAAGCATAACCCTACTTAAAGCTGT
		spacer length: 38 repeater length: 37	
14188	804734	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	AATACTATAGAGTACTATAGTATATTGGTAATGTATG
		spacer length: 37 repeater length: 37	
14189	804808	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	CTTTAAACCCTTCATATTAGGGTTTTCTTTATATT
		spacer length: 36 repeater length: 37	
14190	804881	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	TTTCCTTTATTATGGGGAACCTGCAGGTTCTTCCATGTC
		spacer length: 39 repeater length: 37	
14191	804957	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	CATGATTAGCCTCTGTTTCAAAATAGCTCATTAAC
		spacer length: 35 repeater length: 37	
14192	805029	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	ATTCTACTAGCATTTTATATTCTTCTAATGATAT
		spacer length: 34 repeater length: 37	
14193	805100	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	ATAAAATCAATGGCTTCGCTATATGGAGGATTTGTA
		spacer length: 36 repeater length: 37	
14194	805173	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	TGATAGTTGCCGGTGTTCTTGGTATGTCTGCACGCCG
		spacer length: 37 repeater length: 37	
14195	805247	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	TTGTAGTGCCTGATATTGTAGCCGGTGGTCTCAGGTC
		spacer length: 37 repeater length: 37	
14196	805321	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	ACTAATATAATCATAACAGGCATGTAATGATATTGGATT
		spacer length: 38 repeater length: 37	
14197	805396	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	ATTTTTCTGTATCTTCTTTTGCTTCTGCCTGATTG
		spacer length: 36 repeater length: 37	
14198	805469	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	TAGTTCTCACAAGTTTCTACTCTAGATTCAATTTT
		spacer length: 35 repeater length: 37	
14199	805541	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	AAGTAAATCCATTGTAGCGGGAGTACTTGCCATAAT
		spacer length: 37 repeater length: 37	
14200	805615	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	ATACTCCTGTAGGAAGCATGCCATTCATAGTTATA
		spacer length: 35 repeater length: 37	
14201	805687	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	AGGTTTACCATTTGAAAGCCCCCTAAAAAAGGGT
		spacer length: 35 repeater length: 37	
14202	805759	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	GACATTATTGCCCTCCGCCACATGATTACAGCCTCGA
		spacer length: 39 repeater length: 37	
14203	805835	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	ACTTCATACAAGAGTAATCCCCCACTGCCGG
		length: 32 repeater length: 37	spacer
14204	805904	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	TTATGGGAACATATCCGAAAATGATTTCTCTTCTT
		spacer length: 35 repeater length: 37	
14205	805976	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	AAACAGATTTCATATTCAATTGTTTCAATCACTGTTG
		spacer length: 36 repeater length: 37	
14206	806049	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	CTGATAAGGGTATTGTCAAATCTCGTCTCCTTGTTTG
		spacer length: 37 repeater length: 37	
14207	806123	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	CTGGATACCTGGAAAGGACCAGAAATTAAATCATAAA
		spacer length: 37 repeater length: 37	
14208	806197	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	TTTTAGGATCCTTCAGGAATCCCGGCAAAAACATAA
		spacer length: 35 repeater length: 37	
14209	806269	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	TAGGATGCATCAACCCATGTATCAACTTCATTACA
		spacer length: 35 repeater length: 37	
14210	806341	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	ATAAGTTAATTGTAGTACCTGCTATTGCCGCTGGCGGG
		spacer length: 38 repeater length: 37	
14211	806416	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	TGTCTTTGAGTGCCTTGTCAAAGAACTTATCACCGA
		spacer length: 36 repeater length: 37	
14212	806489	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	CTGGATACCTGGAAAGGACCAGAAATTAAATCATAA
		spacer length: 36 repeater length: 37	
14213	806562	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	ACTGGAATATTTCAACACCTTTTGTTTTACGCCATCTT
		spacer length: 39 repeater length: 37	
14214	806638	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	TGAAGTCATCAAAAAGACTCATGCTTCAGCCCCCAC
		spacer length: 36 repeater length: 37	
14215	806711	ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC	CATCGCAA
14216			
14217			
14218	GCA_000508305.1_ASM50830v1_genomic.fna (PilerCR) :		
14219	START	REPEAT	
	SPACER		
14220	crispr 1		
14221	1845967	CTTTCAATCCCTTTTGGGATGCATC TCTGAAAGTGTTAAGGGCTAGCTCTGGGCAAACTAGAG	spacer
		length: 38 repeater length: 25	

14222	1846030	CTTTCAATCCCTTTTGGGATGCATC	TACGCTACGTTGAAGAATTTGCGCGTTCTGGATACTA spacer
		length: 37 repeater length: 25	
14223	1846092	CTTTCAATCCCTTTTGGGATGCATC	AAAATAATACCTGAGGCATGGCTAAACGCATTACAACAATT spacer
		length: 41 repeater length: 25	
14224	1846158	CTTTCAATCCCTTTTGGGATGCATC	GGATTCTGGTTGTTCTTTAATGATGCTCTATGGATTAA spacer
		length: 38 repeater length: 25	
14225	1846221	CTTTCAATCCCTTTTGGGATGCATC	GAGCATTACGTGAAGTAGTATCAGATGCTGTGGTAAGGGG spacer
		length: 40 repeater length: 25	
14226	1846286	CTTTCAATCCCTTTTGGGATGCATC	ATAAAAGATTTACAAAAGGGCTAAAAAGCGGAGTCTA spacer
		length: 38 repeater length: 25	
14227	1846349	CTTTCAATCCCTTTTGGGATGCATC	AACGAGCGACGCCAAATTCACGGAGCCTGAAATGGT spacer
		length: 36 repeater length: 25	
14228	1846410	CTTTCAATCCCTTTTGGGATGCATC	CTTTAGGATTGGCTAGGATATTCGTGACGGTTTTAAGTAA spacer
		length: 40 repeater length: 25	
14229	1846475	CTTTCAATCCCTTTTGGGATGCATC	AGGTTTTATAGCTTAATTGTTAAGCGTTTAACTTTTTAT spacer
		length: 39 repeater length: 25	
14230	1846539	CTTTCAATCCCTTTTGGGATGCATC	TAGATGACTGGTTGATATTCCTAAAGGACTATATCATAAATCTAG
		spacer length: 45 repeater length: 25	
14231	1846609	CTTTCAATCCCTTTTGGGATGCATC	TTGGAATATAAGGTATTGCCGGGTATTTACATATTGATA spacer
		length: 39 repeater length: 25	
14232	1846673	CTTTCAATCCCTTTTGGGATGCATC	TAAAAATTTTAACTTTTTTTGATCAATTTTCTCATGGAT spacer
		length: 39 repeater length: 25	
14233	1846737	CTTTCAATCCCTTTTGGGATGCATC	TTGTGGTATGTAATGGTGAGGGGTTAGATGAGGATAAA spacer
		length: 38 repeater length: 25	
14234	1846800	CTTTCAATCCCTTTTGGGATGCATC	TTACACGACAAGACCTAAGCTCACAGACCTAGCCAC spacer
		length: 36 repeater length: 25	
14235	1846861	CTTTCAATCCCTTTTGGGATGCATC	CAGAAATGAGGTACGATAAGTTTTTCAGTTAATGTCCAAGA spacer
		length: 40 repeater length: 25	
14236	1846926	CTTTCAATCCCTTTTGGGATGCATC	AAAATAGGAGGTGGGTCAGCAAAGGGGTATGGTATTTCAA spacer
		length: 40 repeater length: 25	
14237	1846991	CTTTCAATCCCTTTTGGGATGCATC	TAGATATTTGATAGTTTCCTTTAGGCGAATACTACCG spacer
		length: 36 repeater length: 25	
14238	1847052	CTTTCAATCCCTTTTGGGATGCATC	CTAGACAGCAACAGAAGAATCAGCCCCACTACGAGTTT spacer
		length: 38 repeater length: 25	
14239	1847115	CTTTCAATCCCTTTTGGGATGCATC	TTATAATAGATTTATTTCAGAAATGTTGAGTCATATGTTAA spacer
		length: 40 repeater length: 25	
14240	1847180	CTTTCAATCCCTTTTGGGATGCATC	TTTTCTTACGGCTAGCGTTATGCTCATAATCCCAGTCTTCCC spacer
		length: 42 repeater length: 25	
14241	1847247	CTTTCAATCCCTTTTGGGATGCATC	CAAGAACTTTTAAAGGGAGGGGTTGATAACATCATTAGTAA spacer
		length: 41 repeater length: 25	
14242	1847313	CTTTCAATCCCTTTTGGGATGCATC	AAGATATATAATATTTACTAATGTGAATGCGAATCAATTAAT spacer
		length: 42 repeater length: 25	
14243	1847380	CTTTCAATCCCTTTTGGGATGCATC	GATCTTCATAATCTGATATTATTACTTTCAATTCATTTAA spacer
		length: 40 repeater length: 25	
14244	1847445	CTTTCAATCCCTTTTGGGATGCATC	TTTTAACGCAAAATATATTAACAACAATAACATAATAAG spacer
		length: 39 repeater length: 25	
14245	1847509	CTTTCAATCCCTTTTGGGATGCATC	ATTAAATATTTGAGAATCTATGGGACTGCCAATGTTAG spacer
		length: 38 repeater length: 25	
14246	1847572	CTTTCAATCCCTTTTGGGATGCATC	AAGAAGAAGATATGGAGATCATGTCTTTGAGAAAATTAA spacer
		length: 39 repeater length: 25	
14247	1847636	CTTTCAATCCCTTTTGGGATGCATC	TCTAGCGCTGTGTTAACCCACTCTGTGGGGTTTTATT spacer
		length: 38 repeater length: 25	
14248	1847699	CTTTCAATCCCTTTTGGGATGCATC	CTCAGCGTTATCAACAGGGTTAGAAAATTGCGTATGGACT spacer
		length: 40 repeater length: 25	
14249	1847764	CTTTCAATCCCTTTTGGGATGCATC	CGAAAACAGCCTTCACTGCTCCGGCTTAAATGTTATCAT spacer
		length: 39 repeater length: 25	
14250	1847828	CTTTCAATCCCTTTTGGGATGCATC	AATACGTATACAATAAACATATTGTTTAGCTTAAAACAA spacer
		length: 39 repeater length: 25	
14251	1847892	CTTTCAATCCCTTTTGGGATGCATC	CGAACTGTGGTTACCCAACACAGCATATACTAATACATA spacer
		length: 39 repeater length: 25	
14252	1847956	CTTTCAATCCCTTTTGGGATGCATC	AAAGATAAAGTTACCCGAAAGTGCAATCGATGCATTATA spacer
		length: 39 repeater length: 25	
14253	1848020	CTTTCAATCCCTTTTGGGATGCATC	CCAACGATAACAGCCACTGTATCCGGTGGTACAAGTACGA spacer
		length: 40 repeater length: 25	
14254	1848085	CTTTCAATCCCTTTTGGGATGCATC	TCCCAGACACCCAAACGATAAGTATGATATGTTAGTGTT spacer
		length: 39 repeater length: 25	
14255	1848149	CTTTCAATCCCTTTTGGGATGCATC	AGGCGCCGGGTATGCTATAATATTAAATAATATTTGATT spacer
		length: 39 repeater length: 25	
14256	1848213	CTTTCAATCCCTTTTGGGATGCATC	GGTTATGGTCTTCCATATGGGGAAATACAATAACGGTAAA spacer
		length: 40 repeater length: 25	
14257	1848278	CTTTCAATCCCTTTTGGGATGCATC	ATGCGGTTTGGGGGGTAATTGGTATCCCCACAGTAGCCGC spacer

length: 40 repeater length: 25
14258 1848343 CTTTCAATCCCTTTTGGGATGCATC GGGCTTTTACTCATTTTTTTTTTATCACCCTCTATGATA spacer
length: 37 repeater length: 25
14259 1848405 CTTTCAATCCCTTTTGGGATGCATC AATGGACAATTTACAATTTCCGCACCATTACAATCGGGATA spacer
length: 41 repeater length: 25
14260 1848471 CTTTCAATCCCTTTTGGGATGCATC GCTGATAACCGCTTACGGAAATACCAGTTTGTTCATAT spacer
length: 39 repeater length: 25
14261 1848535 CTTTCAATCCCTTTTGGGATGCATC CCGGTAAAAGTGCTAAAGTTGGTACAGAAAGTACACAC spacer
length: 38 repeater length: 25
14262 1848598 CTTTCAATCCCTTTTGGGATGCATC CCAATACTGCTACCAAGGGATAAAATAATGATAGAAGCA spacer
length: 39 repeater length: 25
14263 1848662 CTTTCAATCCCTTTTGGGATGCATC AATATATGAGTGAAAACGAAAACGAAAGTGGAAAGAAAAA spacer
length: 40 repeater length: 25
14264 1848727 CTTTCAATCCCTTTTGGGATGCATC TGGAAGACTTCTATTTCAGAGCTAATATCACAACCTACATC spacer
length: 39 repeater length: 25
14265 1848791 CTTTCAATCCCTTTTGGGATGCATC TTGATGGTAAGGCTGAATGTGAGAGTTACGGGTATTA spacer
length: 37 repeater length: 25
14266 1848853 CTTTCAATCCCTTTTGGGATGCATC TGATGAGTGGGGATATATTTACAGTGTGTTAGTAAATACA spacer
length: 40 repeater length: 25
14267 1848918 CTTTCAATCCCTTTTGGGATGCATC TAATTTGTCTAGTATACATAGTGTACTTACTTAAGTAATC spacer
length: 40 repeater length: 25
14268 1848983 CTTTCAATCCCTTTTGGGATGCATC TGTCTAACGTCATTAATATCATGATTCTTCGCATATCTT spacer
length: 39 repeater length: 25
14269 1849047 CTTTCAATCCCTTTTGGGATGCATC ACTTGGATAATAACTGGCTAACAGAAAACCTGGAGTAGTAC spacer
length: 40 repeater length: 25
14270 1849112 CTTTCAATCCCTTTTGGGATGCATC AGTAAATAGAGAGAGAAGATAGGTAGGCTATTGATG spacer
length: 36 repeater length: 25
14271 1849173 CTTTCAATCCCTTTTGGGATGCATC TATTGTTAGTGTACTGATAATGAAAGGTTTATTATTAA spacer
length: 39 repeater length: 25
14272 1849237 CTTTCAATCCCTTTTGGGATGCATC CTATCAAGTTACATTACGATGTACAGTATGTGCAAACGACGTTTTT
spacer length: 46 repeater length: 25
14273 1849308 CTTTCAATCCCTTTTGGGATGCATC TTAATTATCCCTATTCCTTTTATTATATATATATTAGGGAA spacer
length: 41 repeater length: 25
14274 1849374 CTTTCAATCCCTTTTGGGATGCATC TTTATGTGGCCTTTTATATATGTTGTTGAAGTTATAATCT spacer
length: 40 repeater length: 25
14275 1849439 CTTTCAATCCCTTTTGGGATGCATC AAATATCACCTTATCATCTTGTAATATTCTAACATGACCTTTTA
spacer length: 44 repeater length: 25
14276 1849508 CTTTCAATCCCTTTTGGGATGCATC CATGGGCTGATGTGCAAACATGTGTTAAAGGTGTACAAC spacer
length: 39 repeater length: 25
14277 1849572 CTTTCAATCCCTTTTGGGATGCATC GTTAACGTCGTAAAAGTAAGGAGATTAATGCGTAAATA spacer
length: 39 repeater length: 25
14278 1849636 CTTTCAATCCCTTTTGGGATGCATC GTGGGGTGTGCGTCCCAAGAACCCTATTTCCAGTTCTGTTCT spacer
length: 42 repeater length: 25
14279 1849703 CTTTCAATCCCTTTTGGGATGCATC ATGTGATTGCACATTTTTATGATCATTTTATGCGGGAAGA spacer
length: 40 repeater length: 25
14280 1849768 CTTTCAATCCCTTTTGGGATGCATC TGAAGTTGTTGACATTATAATGGAGTCAGAGTATATTAG spacer
length: 39 repeater length: 25
14281 1849832 CTTTCAATCCCTTTTGGGATGCATC TTGATACTGAAAGGAAGACGATTACAGTCAAACCTAGAGAT spacer
length: 40 repeater length: 25
14282 1849897 CTTTCAATCCCTTTTGGGATGCATC CGGACACTGACAAAATCGCAGAAGAATGGATTAATAAAG spacer
length: 39 repeater length: 25
14283 1849961 CTTTCAATCCCTTTTGGGATGCATC TTAATCAATATCGCGCGAAAGTAAATGCTTTATTGGGTGT spacer
length: 40 repeater length: 25
14284 1850026 CTTTCAATCCCTTTTGGGATGCATC GGATGCATCATTTATATTGGTTCCGCGCACGGGCATATCCACCCAA
spacer length: 46 repeater length: 25
14285 1850097 CTTTCAATCCCTTTTGGGATGCATC AAATAATTTCTAAATAACGTGGTATGGTAAGGGTATACTCAA spacer
length: 43 repeater length: 25
14286 1850165 CTTTCAATCCCTTTTGGGATGCATC GACAAGAACTTCAGGAAAGAGCCATACAGTATTTGACAG spacer
length: 39 repeater length: 25
14287 1850229 CTTTCAATCCCTTTTGGGATGCATC CTATATGCAAATTATCTTAGATGATGATATTACTATAGCA spacer
length: 40 repeater length: 25
14288 1850294 CTTTCAATCCCTTTTGGGATGCATC AAGCTCTCGATAATAATGAACGTAAGATCTGCCTAATA spacer
length: 38 repeater length: 25
14289 1850357 CTTTCAATCCCTTTTGGGATGCATC ATCACAAATGAGGTAGTGCCGACTGGTCTTCAGCTTCT spacer
length: 38 repeater length: 25
14290 1850420 CTTTCAATCCCTTTTGGGATGCATC AATAATACATCTCAACCTATTATACTAAATAAAGAGCTCTG spacer
length: 41 repeater length: 25
14291 1850486 CTTTCAATCCCTTTTGGGATGCATC GAGAAAATAAGCAAGTTCTTTTTATTGGTCAAAATGAAT spacer
length: 39 repeater length: 25
14292 1850550 CTTTCAATCCCTTTTGGGATGCATC ACAAAGAAAAGACGAGGTAATGACGTGGCATATTAAAGTTG spacer
length: 42 repeater length: 25

14293	1850617	CTTTCAATCCCTTTTGGGATGCATC	TAATGGCAGATAAATTCCGAATCCTTGTTTTAATTTTAT	spacer
		length: 39	repeater length: 25	
14294	1850681	CTTTCAATCCCTTTTGGGATGCATC	AGAGAGATCAATATTGATGAAATCAGAAGTATATTAGATCA	spacer
		length: 41	repeater length: 25	
14295	1850747	CTTTCAATCCCTTTTGGGATGCATC	ATTACTTAGCGAATTAATAGACACATTAACAGATGTCAA	spacer
		length: 39	repeater length: 25	
14296	1850811	CTTTCAATCCCTTTTGGGATGCATC	AACTTCTCATCCAGCGTCTGCTTATCCAATTGTGAATAGTAC	spacer
		length: 42	repeater length: 25	
14297	1850878	CTTTCAATCCCTTTTGGGATGCATC	ACGAGTACACTAACAATAAATTGGTCTATGCCAGTTACC	spacer
		length: 39	repeater length: 25	
14298	1850942	CTTTCAATCCCTTTTGGGATGCATC	GAAATTGTAAGCACGATCGCGTTACTGGCAGAAAAACAAA	spacer
		length: 40	repeater length: 25	
14299	1851007	CTTTCAATCCCTTTTGGGATGCATC	TAATCGTATTTCGTATTAGGTATTGAATGCATATACAAATA	spacer
		length: 40	repeater length: 25	
14300	1851072	CTTTCAATCCCTTTTGGGATGCATC	AAGGTTAATCGAGGCTAAGAGGGTTAACTTGCACATTTATGA	spacer
		length: 42	repeater length: 25	
14301	1851139	CTTTCAATCCCTTTTGGGATGCATC	ATAAATGCCGTTACTGATCTGTATTGGCGCCGTACCT	spacer
		length: 37	repeater length: 25	
14302	1851201	CTTTCAATCCCTTTTGGGATGCATC	AAAAGTAGAAGATTTAGCGGAAATCGAGTTTGCCAATAC	spacer
		length: 39	repeater length: 25	
14303	1851265	CTTTCAATCCCTTTTGGGATGCATC	CAATTAAAGTATATTGAACAATTTGCGAGTGCCGGATATTA	spacer
		length: 41	repeater length: 25	
14304	1851331	CTTTCAATCCCTTTTGGGATGCATC	TTAATTCAACGAGACTGCGAAGCACCGAGGGAAATAGTACG	spacer
		length: 41	repeater length: 25	
14305	1851397	CTTTCAATCCCTTTTGGGATGCATC	TTAAGTAAGGCGTTTTTCGCGGGATAGATATATTTTTCCC	spacer
		length: 39	repeater length: 25	
14306	1851461	CTTTCAATCCCTTTTGGGATGCATC	TCGAGCAACACTCGTTAGCTCGTCTTCTGCTGCAGACGTTTG	spacer
		length: 42	repeater length: 25	
14307	1851528	CTTTCAATCCCTTTTGGGATGCATC	TAAGTACGTGATTGAGGCTTAACTTTGGGGATTATCTAC	spacer
		length: 40	repeater length: 25	
14308	1851593	CTTTCAATCCCTTTTGGGATGCATC	TAGTAGTAAGTAGTCTGGACACTTACATTTAACACTTTTG	spacer
		length: 40	repeater length: 25	
14309	1851658	CTTTCAATCCCTTTTGGGATGCATC	ACGTTAAC TGAGGAAAGACTACTAGCGCTCTCGACCCACGCAT	spacer
		length: 43	repeater length: 25	
14310	1851726	CTTTCAATCCCTTTTGGGATGCATC	CAAAAAAGAAGACACAAACCACACTCAGCTTACACTCCA	spacer
		length: 39	repeater length: 25	
14311	1851790	CTTTCAATCCCTTTTGGGATGCATC	TAAAGAAGGAATACTGAAGATTGTAAATGAAATGGTAA	spacer
		length: 38	repeater length: 25	
14312	1851853	CTTTCAATCCCTTTTGGGATGCATC	CTGGCTAACATATAATAACGGTACACTCGCTCTCGCCA	spacer
		length: 38	repeater length: 25	
14313	1851916	CTTTCAATCCCTTTTGGGATGCATC	CAAAAAGTACCGTAAAATCAATACAAC TGTATATCTAC	spacer
		length: 39	repeater length: 25	
14314	1851980	CTTTCAATCCCTTTTGGGATGCATC	ACAAGTATGGAATGGTTTGGTTGCATTTGGTAATGATGTC	spacer
		length: 40	repeater length: 25	
14315	1852045	CTTTCAATCCCTTTTGGGATGCATC	ATTTTTTCGTATGGGT TACCGTTTGACGTTGGCTTTACCAT	spacer
		length: 41	repeater length: 25	
14316	1852111	CTTTCAATCCCTTTTGGGATGCATC	GTAAGAGAGATT CATT TTTCTGAGTGGGGTGAGATGAA	spacer
		length: 38	repeater length: 25	
14317	1852174	CTTTCAATCCCTTTTGGGATGCATC	AACACACACGTTATAGTTTTTAAATCACTGAGTGAATTATTTAATG	spacer
		length: 45	repeater length: 25	
14318	1852244	CTTTCAATCCCTTTTGGGATGCATC	CAACATACTTCTGTTAGTTTCAACTGGTATAGATAGCAAAAG	spacer
		length: 42	repeater length: 25	
14319	1852311	CTTTCAATCCCTTTTGGGATGCATC	TTAATTGTGTCATTCTGAGTCACCCTCAACCCATAGCGTAG	spacer
		length: 41	repeater length: 25	
14320	1852377	CTTTCAATCCCTTTTGGGATGCATC	ATGTATTTCGTATACGAGGTACTAGGGAACTTATATACA	spacer
		length: 39	repeater length: 25	
14321	1852441	CTTTCAATCCCTTTTGGGATGCATC	GACAGATATGGTAGTGGATGCCTATGGAATTGAAAGTCTTAT	spacer
		length: 42	repeater length: 25	
14322	1852508	CTTTCAATCCCTTTTGGGATGCATC	CAATGACATGGATAGTGAAGATAATAAGAATATATAAAAA	spacer
		length: 40	repeater length: 25	
14323	1852573	CTTTCAATCCCTTTTGGGATGCATC	TTAACTACCCCCACAATAGCTGCTGATGGAAGACTTGAGTG	spacer
		length: 41	repeater length: 25	
14324	1852639	CTTTCAATCCCTTTTGGGATGCATC	CAAATATAATGTGAAGACAACATTGCGTAATACCAACTTATAT	spacer
		length: 43	repeater length: 25	
14325	1852707	CTTTCAATCCCTTTTGGGATGCATC	ACTATTATAGAGGGCAATGCGAGGAGGAAGGTTTGTTAT	spacer
		length: 39	repeater length: 25	
14326	1852771	CTTTCAATCCCTTTTGGGATGCATC	TAATCCTTTTACCTAAATATCGAGATACTATTATATCTTCTTCT	spacer
		length: 44	repeater length: 25	
14327	1852840	CTTTCAATCCCTTTTGGGATGCATC	AAGAAATAAGAGCGAGAAACAAAACGAAAACGAAATCAT	spacer
		length: 40	repeater length: 25	
14328	1852905	CTTTCAATCCCTTTTGGGATGCATC	TAGAGAAGGGTCTTCTAGAAAGAAGACCGGTAAAGAA	spacer

length: 37 repeater length: 25
14329 1852967 CTTTCAATCCCTTTTGGGATGCATC ATGCACGTATTGCGAATAATGCAACGTGTGGCACTGTGACATT spacer
length: 43 repeater length: 25
14330 1853035 CTTTCAATCCCTTTTGGGATGCATC CATGGTCTCACACCCTCTGTGCTAAATGCTTAATCATCTCT spacer
length: 41 repeater length: 25
14331 1853101 CTTTCAATCCCTTTTGGGATGCATC AGGGGAAAACAAGAGTATATGAGTTTAGTGATGGTATCTT spacer
length: 40 repeater length: 25
14332 1853166 CTTTCAATCCCTTTTGGGATGCATC CAGAAAGAGGCTAAGAACAGTAGGTTAGCGCGCGTAACCTC spacer
length: 41 repeater length: 25
14333 1853232 CTTTCAATCCCTTTTGGGATGCATC ACGATGTAATGAGGCATTACAGAAAAGCAGATGAAGAGACTGG spacer
length: 43 repeater length: 25
14334 1853300 CTTTCAATCCCTTTTGGGATGCATC AGCACCTGCTAAAGCGACACTATTGTTGTAAGGATCCC spacer
length: 38 repeater length: 25
14335 1853363 CTTTCAATCCCTTTTGGGATGCATC GAGCAAGTTGCAGTTAATCGCTCAATGCTGAAGATAAGG spacer
length: 39 repeater length: 25
14336 1853427 CTTTCAATCCCTTTTGGGATGCATC ATATAAGGGGAGATATATATTGTATATTACAATTTCACT spacer
length: 39 repeater length: 25
14337 1853491 CTTTCAATCCCTTTTGGGATGCATC CCACAAATGAAGGCGAAAATATACGCGTTAAGTGAGAGGAA spacer
length: 41 repeater length: 25
14338 1853557 CTTTCAATCCCTTTTGGGATGCATC TTGGTCGATACCTTGAGGTTTTGAAATACGTAAGTA spacer
length: 36 repeater length: 25
14339 1853618 CTTTCAATCCCTTTTGGGATGCATC TTGGTCGATACCTTGAGGTTTTGAAATACGTAAGTA spacer
length: 36 repeater length: 25
14340 1853679 CTTTCAATCCCTTTTGGGATGCATC
14341
14342
14343 crispr 2
14344 1853743 CTTTCAATCCCTTTTGGGATGCATC AAATGTATATAATCTTGTATTTCAGCCAGCGTATGATGAGTACGTGTTGA
spacer length: 50 repeater length: 25
14345 1853818 CTTTCAATCCCTTTTGGGATGCATC ATATACGATTTCCAAATAAGGAGTAAAAGTAGAGAGGGTT spacer
length: 40 repeater length: 25
14346 1853883 CTTTCAATCCCTTTTGGGATGCATC CAGCGTTACCGTCAGACCCAGATTTGCCCAAGCGTTTAA spacer
length: 40 repeater length: 25
14347 1853948 CTTTCAATCCCTTTTGGGATGCATC TCGAATATTGAAGTGAGAATCATAAATTATTAATACACA spacer
length: 39 repeater length: 25
14348 1854012 CTTTCAATCCCTTTTGGGATGCATC GTGGGAGATTTCGTGAAATTGCATGGAAGATGTTGGCGGAAG spacer
length: 41 repeater length: 25
14349 1854078 CTTTCAATCCCTTTTGGGATGCATC TAAAAAATTGTTAAGGCTGGCAAATCTTGAAAAGGTACC spacer
length: 39 repeater length: 25
14350 1854142 CTTTCAATCCCTTTTGGGATGCATC ATGATGGAACATGGTGTAAATTATGCATGAGATTGTCTGA spacer
length: 38 repeater length: 25
14351 1854205 CTTTCAATCCCTTTTGGGATGCATC AATATCCTTACCTTTTGCACCGTCCACTCCATAACTTCGT spacer
length: 40 repeater length: 25
14352 1854270 CTTTCAATCCCTTTTGGGATGCATC TTGATTTTGCCTTTGATTTCAGAGGTATTATACTACAAGGATATCAA
spacer length: 46 repeater length: 25
14353 1854341 CTTTCAATCCCTTTTGGGATGCATC TATATTTTATTTCAACTTTTAAGCGTTTAACTTTTTATTATTAT
spacer length: 44 repeater length: 25
14354 1854410 CTTTCAATCCCTTTTGGGATGCATC AACGTTACAATGATGGTAAGTGGAGATTATATTAAGTACG spacer
length: 40 repeater length: 25
14355 1854475 CTTTCAATCCCTTTTGGGATGCATC AATGGATGTCGATGAAGCTGTCTCAAAGGTTTCATGTTGTTT spacer
length: 41 repeater length: 25
14356 1854541 CTTTCAATCCCTTTTGGGATGCATC
14357
14358
14359 crispr 3
14360 1854666 CTTTCAATCCCTTTTGGGATGCATC ATTGACCGGAAACAAACCATCATTATCATTACTTGATG spacer
length: 38 repeater length: 25
14361 1854729 CTTTCAATCCCTTTTGGGATGCATC AAAAATATTAAGTCAATATGAAGAGCCGCGTTATGCTAA spacer
length: 39 repeater length: 25
14362 1854793 CTTTCAATCCCTTTTGGGATGCATC ATATTACAATCACCATGAAGGTAAAACAGTTGGATGAAA spacer
length: 39 repeater length: 25
14363 1854857 CTTTCAATCCCTTTTGGGATGCATC AAACGAGGCACAAATAAGACGTGAGTTAACAGTATATCA spacer
length: 40 repeater length: 25
14364 1854922 CTTTCAATCCCTTTTGGGATGCATC ATTTAAAATGAATACTATAATATATTCCACTCAATTATAT spacer
length: 40 repeater length: 25
14365 1854987 CTTTCAATCCCTTTTGGGATGCATC CAATACCTTCCAATATTAGCCACTGTAGCAATAGTAATA spacer
length: 39 repeater length: 25
14366 1855051 CTTTCAATCCCTTTTGGGATGCATC CAATACCTTCCAATATTAGCCACTGTAGCAATAGTAATA spacer
length: 39 repeater length: 25
14367 1855115 CTTTCAATCCCTTTTGGGATGCATC TGCAATTTTTTACATGTCATATTTAGTATTTAGTATTAC spacer
length: 39 repeater length: 25

14368	1855179	CTTTCAATCCCTTTTGGGATGCATC	CGTCATATGTAGCGCAATGCGTAGCACTTGGCGGAACAACC	spacer
	length:	41	repeater length:	25
14369	1855245	CTTTCAATCCCTTTTGGGATGCATC		
14370				
14371				
14372	crispr 4			
14373	1855305	CTTTCAATCCCTTTTGGGATGCATC	GGATTGAAAGTTATGACAAAGGAGGTTGATATTGAGGGTTTTAGA	
	spacer length:	45	repeater length:	25
14374	1855375	CTTTCAATCCCTTTTGGGATGCATC	ACGATGGTAGAGAAATTGTTTTATGCGGGGGTGATTAATGA	spacer
	length:	41	repeater length:	25
14375	1855441	CTTTCAATCCCTTTTGGGATGCATC	CCCAACGGGCACGGGGAGTTTTTCAGACGTCCCTAAGCC	spacer
	length:	39	repeater length:	25
14376	1855505	CTTTCAATCCCTTTTGGGATGCATC	AAGTTCCTTCGCAACTTCAACATTCTGCGCCGGCTCCAA	spacer
	length:	39	repeater length:	25
14377	1855569	CTTTCAATCCCTTTTGGGATGCATC	CGTGGCGCTTAAGGCTTAATATATTTTAAGGCTTAAC	spacer
	length:	37	repeater length:	25
14378	1855631	CTTTCAATCCCTTTTGGGATGCATC	TTTATAGTTGCTGTGGATGCAGACATTTGGGTCATGATAT	spacer
	length:	40	repeater length:	25
14379	1855696	CTTTCAATCCCTTTTGGGATGCATC	CCGGGACTAAGTATATCATGGGGATAAAAAAATGAA	spacer
	length:	36	repeater length:	25
14380	1855757	CTTTCAATCCCTTTTGGGATGCATC	AAAGACAGAACTAATGATGTAAATGTAAATAACTACTTAAA	spacer
	length:	41	repeater length:	25
14381	1855823	CTTTCAATCCCTTTTGGGATGCATC	AGAAGTAAGCGTTCCTATCTTGCAACGTCCTATAAACTCG	spacer
	length:	40	repeater length:	25
14382	1855888	CTTTCAATCCCTTTTGGGATGCATC	AGATGAAGTCAGGATCTCCATAGTTAAATGGCACAACAATAATAAC	
	spacer length:	46	repeater length:	25
14383	1855959	CTTTCAATCCCTTTTGGGATGCATC	ATTTAGTAGTAGCAATTAACATAATAGTATTTTCTCCTTTT	spacer
	length:	41	repeater length:	25
14384	1856025	CTTTCAATCCCTTTTGGGATGCATC	CAGAAATAGATTTCTGGGGTTGTTACCGCATACTTTGGTG	spacer
	length:	40	repeater length:	25
14385	1856090	CTTTCAATCCCTTTTGGGATGCATC	CACAAATAAGGCAGGGGTTTTACAACGAACAGCAAATAAA	spacer
	length:	40	repeater length:	25
14386	1856155	CTTTCAATCCCTTTTGGGATGCATC	TGATTTTCAGTCAGAAATATTGCTCTATAAGGATATTAG	spacer
	length:	39	repeater length:	25
14387	1856219	CTTTCAATCCCTTTTGGGATGCATC	CTAGAGGATATGGGAGCCCCGCCAGATGTTGTCTGA	spacer length:
	35	repeater length:	25	
14388	1856279	CTTTCAATCCCTTTTGGGATGCATC	AGAGTTTCGGCAATCGCCCAACAGGCACTAGCCGTGTGGGA	spacer
	length:	41	repeater length:	25
14389	1856345	CTTTCAATCCCTTTTGGGATGCATC	TTATATAATGCGTAGTGCCGTTGATGAGAACATTTATATG	spacer
	length:	40	repeater length:	25
14390	1856410	CTTTCAATCCCTTTTGGGATGCATC	AGGTTATGAAGTGGGGTATCAAAGTTGTGAAGATAACGAA	spacer
	length:	40	repeater length:	25
14391	1856475	CTTTCAATCCCTTTTGGGATGCATC	CCTTTTTTCAATTCATCAGCACTCAGGTTACTAAATACT	spacer
	length:	39	repeater length:	25
14392	1856539	CTTTCAATCCCTTTTGGGATGCATC	ATCATTGTAGCGGTTATATAATTTAAATAGCCATATGCAC	spacer
	length:	40	repeater length:	25
14393	1856604	CTTTCAATCCCTTTTGGGATGCATC	AGAATTTATTACGAGTTGGATAATAATTGCAGAAATAT	spacer
	length:	38	repeater length:	25
14394	1856667	CTTTCAATCCCTTTTGGGATGCATC	ATAGCCGATTGCAACATTTTCTACGTTTGCAGTATCTGT	spacer
	length:	39	repeater length:	25
14395	1856731	CTTTCAATCCCTTTTGGGATGCATC	TAGGTCACACTGTTTTAAGCAGCCTAGAGACAGGGTTTAA	spacer
	length:	40	repeater length:	25
14396	1856796	CTTTCAATCCCTTTTGGGATGCATC	TTGGCGAAGGCGCAGTTAGAATGGGAAGATTTAAAAATGTT	spacer
	length:	41	repeater length:	25
14397	1856862	CTTTCAATCCCTTTTGGGATGCATC		
14398				
14399				
14400	crispr 5			
14401	1878951	CTTTCAATCCCTTTTGGGATGCATC	TATTTTCATCAAATTGCATTTTCGTTTACAGAAAGAGAG	spacer
	length:	37	repeater length:	25
14402	1879013	CTTTCAATCCCTTTTGGGATGCATC	ATGGCAGAAGCAAAAGGTAAAAAACATCTGATATTTTTTTT	spacer
	length:	41	repeater length:	25
14403	1879079	CTTTCAATCCCTTTTGGGATGCATC	ATTGCTAGTGTCTCATGGTTAACTCCATGGGATTAC	spacer
	length:	36	repeater length:	25
14404	1879140	CTTTCAATCCCTTTTGGGATGCATC	TTGCACATCAGCCCATGCTTTCCCGCCGGGCATGCGCATT	spacer
	length:	40	repeater length:	25
14405	1879205	CTTTCAATCCCTTTTGGGATGCATC	ACTAGACGAAAGAGATGAAGAGGATATACGAAGAAGATAT	spacer
	length:	40	repeater length:	25
14406	1879270	CTTTCAATCCCTTTTGGGATGCATC	ATTTATATGGGGCTATAGATACTATGTAGCAGATTATTATTT	spacer
	length:	42	repeater length:	25
14407	1879337	CTTTCAATCCCTTTTGGGATGCATC	AGGCTACTATAGTGCTACACGAGTTAGTTGAAAGCTAT	spacer

length: 38 repeater length: 25
14408 1879400 CTTTCAATCCCTTTTGGGATGCATC GAGAGGAATGACTCAATTAATTACATTAGAAGAAATATT spacer
length: 39 repeater length: 25
14409 1879464 CTTTCAATCCCTTTTGGGATGCATC GACAAAAAGCCACTACTATTACCTCTGGTGAAGTATG spacer
length: 37 repeater length: 25
14410 1879526 CTTTCAATCCCTTTTGGGATGCATC TTGATTTTACAGAGGTTGACAGAAAAATTCAGCTTATCA spacer
length: 39 repeater length: 25
14411 1879590 CTTTCAATCCCTTTTGGGATGCATC AAAATATTAGTTCAGGCAGGATGGAGAAGGAGTATCTT spacer
length: 38 repeater length: 25
14412 1879653 CTTTCAATCCCTTTTGGGATGCATC TATTAGAGAACAAGTGGAAAATTATAAAATGAATGCATT spacer
length: 39 repeater length: 25
14413 1879717 CTTTCAATCCCTTTTGGGATGCATC GAATTATTTTGATTTATTTGTTTCAATATCATCACAT spacer
length: 37 repeater length: 25
14414 1879779 CTTTCAATCCCTTTTGGGATGCATC ATTACAAACATTAAAAGATATACCTGATATAGTTTTTGAT spacer
length: 40 repeater length: 25
14415 1879844 CTTTCAATCCCTTTTGGGATGCATC TTTTTGAAACATCAATGCAAATTGAAGTTGTTGGAAA spacer
length: 37 repeater length: 25
14416 1879906 CTTTCAATCCCTTTTGGGATGCATC AAAATTTGCCGTAAATAACACTGAAATAACCACAAGTAA spacer
length: 39 repeater length: 25
14417 1879970 CTTTCAATCCCTTTTGGGATGCATC TTGTTTGTCTGTCGATTAATATGCCATGTGATGCTAGACTG spacer
length: 40 repeater length: 25
14418 1880035 CTTTCAATCCCTTTTGGGATGCATC ATATGTAAATCCAAATCTTAAGTATTTTGTTTTTTTAGA spacer
length: 39 repeater length: 25
14419 1880099 CTTTCAATCCCTTTTGGGATGCATC TAACGTATTGCGCCGTGAGAAAAATTAGCCATAAAAAAT spacer
length: 38 repeater length: 25
14420 1880162 CTTTCAATCCCTTTTGGGATGCATC ATACAAAATATGTATACATTATACGTTAACGCATTAATGG spacer
length: 40 repeater length: 25
14421 1880227 CTTTCAATCCCTTTTGGGATGCATC GAGACCATGTCCGGACCCATAATTGTCCAGGAACCAGATGA spacer
length: 41 repeater length: 25
14422 1880293 CTTTCAATCCCTTTTGGGATGCATC GGATGCATCAAGTGGATATCGCCGACCCACAGTACTATCATTCTTATATT
spacer length: 50 repeater length: 25
14423 1880368 CTTTCAATCCCTTTTGGGATGCATC CCGGCTGTGAGTTTTGCACCGTTATCGCCCATGTGGGATATA spacer
length: 42 repeater length: 25
14424 1880435 CTTTCAATCCCTTTTGGGATGCATC TGGTTACGATTATTTCCGTTTAGATAAAATTGATGTTTG spacer
length: 39 repeater length: 25
14425 1880499 CTTTCAATCCCTTTTGGGATGCATC TTGGCTACGATTATTTTCGGCTGGAGCAAGTTGATATGT spacer
length: 39 repeater length: 25
14426 1880563 CTTTCAATCCCTTTTGGGATGCATC GTAACATTAATAGGTGAAGATGTATTATTGACTAGAGG spacer
length: 38 repeater length: 25
14427 1880626 CTTTCAATCCCTTTTGGGATGCATC CTACCGGCGAAAAATAGCTGCTGCCTTAGATATTGCGTATGG spacer
length: 41 repeater length: 25
14428 1880692 CTTTCAATCCCTTTTGGGATGCATC AGACTATGACACACATGACAGGGCAATTCTATATCTGA spacer
length: 38 repeater length: 25
14429 1880755 CTTTCAATCCCTTTTGGGATGCATC ACAGATGTTGACCCAATGGTATGGATAGCAAAAATAATA spacer
length: 39 repeater length: 25
14430 1880819 CTTTCAATCCCTTTTGGGATGCATC AAGCGGAAGATATCTGAATATTTATGCCAATAGAATTTTC spacer
length: 40 repeater length: 25
14431 1880884 CTTTCAATCCCTTTTGGGATGCATC CAGACTTTTCCATCTTCGGTATGACCGCTTACCGCCTCTA spacer
length: 40 repeater length: 25
14432 1880949 CTTTCAATCCCTTTTGGGATGCATC GGGATGTGAGTGAAAAATCGTATAATCCATTGATGGATA spacer
length: 39 repeater length: 25
14433 1881013 CTTTCAATCCCTTTTGGGATGCATC AAAGAGAGAAAAATAAAACAATTTATCAACTTAGTGGTGGG spacer
length: 40 repeater length: 25
14434 1881078 CTTTCAATCCCTTTTGGGATGCATC TTTTATTATTATTATATAAAGTAAATGTATAATAAATA spacer
length: 38 repeater length: 25
14435 1881141 CTTTCAATCCCTTTTGGGATGCATC CTGCAGACGTGTTTCATTATGGACTGTGAGGGCTGTGA spacer
length: 37 repeater length: 25
14436 1881203 CTTTCAATCCCTTTTGGGATGCATC TTTTTGAAACATCAATGCAAATTGAAGTTGTTGGAAA spacer
length: 37 repeater length: 25
14437 1881265 CTTTCAATCCCTTTTGGGATGCATC AAAATTTGCCGTAAATAACACTGAAATAACCACAAGTAA spacer
length: 39 repeater length: 25
14438 1881329 CTTTCAATCCCTTTTGGGATGCATC TTAATCAGTTAAGCGTGTGAGTAGTAGAATATTTCCA spacer
length: 37 repeater length: 25
14439 1881391 CTTTCAATCCCTTTTGGGATGCATC GGCGTATTTGTTTCTCGCGCAATTATAGCCATAAGTATCC spacer
length: 40 repeater length: 25
14440 1881456 CTTTCAATCCCTTTTGGGATGCATC ATGGAAAATTGATGATCAATATTGGTGAGGACAAATTTAT spacer
length: 40 repeater length: 25
14441 1881521 CTTTCAATCCCTTTTGGGATGCATC TAATATCCATCTTTGCACAACAGTTCGCGCAGCATTTGTA spacer
length: 40 repeater length: 25
14442 1881586 CTTTCAATCCCTTTTGGGATGCATC AACTGACTATGAATACGGCGAACCGGAAAGGGCTTTAAT spacer
length: 39 repeater length: 25

14443 1881650 CTTTCAATCCCTTTTGGGATGCATC GAAATTGTGCGAAAAGCAATAAGGCTATACTACGAGCAGA spacer
length: 40 repeater length: 25
14444 1881715 CTTTCAATCCCTTTTGGGATGCATC AGCGTTGGCGGGTAATACGCTGACTTACATTAGTGATGA spacer
length: 39 repeater length: 25
14445 1881779 CTTTCAATCCCTTTTGGGATGCATC CCAGGGTTACAAAGGCTAACATTGAAAATTAACACGCAAG spacer
length: 41 repeater length: 25
14446 1881845 CTTTCAATCCCTTTTGGGATGCATC AATAAAGAGATTTCAGCTGATCAAGAGACTGAAGGACG spacer
length: 37 repeater length: 25
14447 1881907 CTTTCAATCCCTTTTGGGATGCATC TAGTGAGACCAGGCGACGAAGTTATCATGAAACCATTAAAG spacer
length: 40 repeater length: 25
14448 1881972 CTTTCAATCCCTTTTGGGATGCATC TCAGTTAGTATTAGCGGTGCTTCAGGGTATAAATAACTACC spacer
length: 41 repeater length: 25
14449 1882038 CTTTCAATCCCTTTTGGGATGCATC ACTGTATCGTTATCTCTATGTTTTTTGTTGCTAATCTA spacer
length: 38 repeater length: 25
14450 1882101 CTTTCAATCCCTTTTGGGATGCATC GGGGCAGACTTATTCCATGAAATCGCTTTCAGTTGCAGAA spacer
length: 41 repeater length: 25
14451 1882167 CTTTCAATCCCTTTTGGGATGCATC CTGATGAATTGAAAAAAGGATTAAAAGACAAAACCTTAT spacer
length: 38 repeater length: 25
14452 1882230 CTTTCAATCCCTTTTGGGATGCATC AAAAATAATTTGTGCCGATGCGTGTGATAAACTACAGTTGA spacer
length: 41 repeater length: 25
14453 1882296 CTTTCAATCCCTTTTGGGATGCATC AATCCTTCCTCCTCGCATTCTCCTCTGTACATTTGTAA spacer
length: 38 repeater length: 25
14454 1882359 CTTTCAATCCCTTTTGGGATGCATC AAGTGATTCTGCGCCATGCATTGCCAATAAAGTGTTACAGT spacer
length: 41 repeater length: 25
14455 1882425 CTTTCAATCCCTTTTGGGATGCATC ATGATACTGAATCATGACCCCATCTTCTATTCTTTTAAAG spacer
length: 40 repeater length: 25
14456 1882490 CTTTCAATCCCTTTTGGGATGCATC ATATCTACAATCATGACCGAAGCGCTATTGTCCTGGCAAA spacer
length: 40 repeater length: 25
14457 1882555 CTTTCAATCCCTTTTGGGATGCATC GTCTTCTCTCTAAACCCACGAGTACATTACAATAACTT spacer
length: 39 repeater length: 25
14458 1882619 CTTTCAATCCCTTTTGGGATGCATC CAGCACCCAAACATTTACAGACGAGAGACTACTGTAAGATT spacer
length: 41 repeater length: 25
14459 1882685 CTTTCAATCCCTTTTGGGATGCATC ACGCGGTAAAAGCGCAACTATTAAGCGTGGTAGAAAAGTA spacer
length: 40 repeater length: 25
14460 1882750 CTTTCAATCCCTTTTGGGATGCATC ATACGGCATCACTGATGCCATGTTATCGGTAATGAAAACGTAGAAAAGTA
spacer length: 50 repeater length: 25
14461 1882825 CTTTCAATCCCTTTTGGGATGCATC AACTTCACTCGCAAATAAGGTATCCGCGGGCAAATCCTC spacer
length: 40 repeater length: 25
14462 1882890 CTTTCAATCCCTTTTGGGATGCATC AACACGAGACCAAAGCCCTCACATCCTGACGGGATAAACA spacer
length: 40 repeater length: 25
14463 1882955 CTTTCAATCCCTTTTGGGATGCATC GTGAGGATCAACACACGGAGAAACCTTGGAGAGGTCTTAATA spacer
length: 42 repeater length: 25
14464 1883022 CTTTCAATCCCTTTTGGGATGCATC CAGTCCCCCGCGCCCAGTGGGGAAGTTTCGAGTGAAAAA spacer
length: 39 repeater length: 25
14465 1883086 CTTTCAATCCCTTTTGGGATGCATC TTACAATTCAAGTTGACGGGCAAACGCTCTCAGTAAC spacer
length: 37 repeater length: 25
14466 1883148 CTTTCAATCCCTTTTGGGATGCATC GTTATTTGTTCTCCCAGTGTAGCTCCCGGTATTTGTGT spacer
length: 38 repeater length: 25
14467 1883211 CTTTCAATCCCTTTTGGGATGCATC
14468
14469
14470 GCA_000513315.1_ANOR1_genomic.fna (PilerCR) :
14471 START REPEAT
SPACER
14472 GCA_000513855.1_ASM51385v1_genomic.fna (PilerCR) :
14473 START REPEAT
SPACER
14474 crispr 1
14475 930723 GAATACAATAGAAAGAATTGAAAG CACGTCGTAGGCGTTCACGACTACCGTTACGGATCCGGACGAGGCGA
spacer length: 47 repeater length: 24
14476 930794 GAATACAATAGAAAGAATTGAAAG TACGCATTTCATCGAGTTGAGTTTCAAGGATTTTCATCTGGGATAA spacer
length: 44 repeater length: 24
14477 930862 GAATACAATAGAAAGAATTGAAAG AAGGCCGACAAGGAGGAGGGCGTCGTCGTTTACCCACACGTAC spacer
length: 43 repeater length: 24
14478 930929 GAATACAATAGAAAGAATTGAAAG CATTCCAGCATCCTGTCCACTCTACCTACAAAGGT spacer length:
35 repeater length: 24
14479 930988 GAATACAATAGAAAGAATTGAAAG TCGGGTCTCCGCGAGCTCCACGAGACGGCAGGTCGATCTTGCTGA spacer
length: 45 repeater length: 24
14480 931057 GAATACAATAGAAAGAATTGAAAG TATTGTAGAATCTCAAGAGATCTCTACGCTCCTTGAAGAACTCTA spacer
length: 45 repeater length: 24
14481 931126 GAATACAATAGAAAGAATTGAAAG TACTGGCCCGTGTCAACGGTGAGTCTCACGTAGTCGCCAGCGTT spacer

length: 44 repeater length: 24
14482 931194 GAATACAATAGAAAGAATTGAAAG CTTACTGAGCCAACACTAACACTACCAATGTAGACACTACCATA spacer
length: 44 repeater length: 24
14483 931262 GAATACAATAGAAAGAATTGAAAG CCTCAGTATAGCCAAGCTGGGCTAGCTTTTCCTTAAACGTCTC spacer
length: 43 repeater length: 24
14484 931329 GAATACAATAGAAAGAATTGAAAG CGTTCACCTCATAACTAGTAAAGCCCTGTTCCCATACGATC spacer
length: 41 repeater length: 24
14485 931394 GAATACAATAGAAAGAATTGAAAG ACTGGGGGAGGCGGGGGCGATAGCATTGAAATCCCAAAGAG spacer
length: 41 repeater length: 24
14486 931459 GAATACAATAGAAAGAATTGAAAG TAACTTTAAAGTTAACTTTACCATAAACCCACTTTTACATTT spacer
length: 43 repeater length: 24
14487 931526 GAATACAATAGAAAGAATTGAAAG GCTCCCTCACCATTCTGATCGCATCTGCTATTGAAAC spacer
length: 38 repeater length: 24
14488 931588 GAATACAATAGAAAGAATTGAAAG TATCACCACCTCACCACCGTGGCTATCAAATTCTGTCTCCCA spacer
length: 42 repeater length: 24
14489 931654 GAATACAATAGAAAGAATTGAAAG AAGAAATACAGCCTTGATATGTGAAAAAAGACATGCTTGAGA spacer
length: 43 repeater length: 24
14490 931721 GAATACAATAGAAAGAATTGAAAG TATAGTAATTACTACGGAAACGTTGGTATCTGTTTCTATGA spacer
length: 41 repeater length: 24
14491 931786 GAATACAATAGAAAGAATTGAAAG TTTATATAGATAACTGTGTACCTCTGCTTTGTAGTAGCATCCGTGAA
spacer length: 47 repeater length: 24
14492 931857 GAATACAATAGAAAGAATTGAAAG CGGCTTGAGTCTCAATTTGTTGATTCTCCAATTTCTCTAAGTAT spacer
length: 44 repeater length: 24
14493 931925 GAATACAATAGAAAGAATTGAAAG GCTGAGTCAGCATGTTACGAACCTCATCCCTCGAGATGCG spacer
length: 40 repeater length: 24
14494 931989 GAATACAATAGAAAGAATTGAAAG GACTCATACACTAGCGCTAAGTGAGAGACGTCGCACGCTA spacer
length: 40 repeater length: 24
14495 932053 GAATACAATAGAAAGAATTGAAAG ACTCATACTACCTCACTCGGACTCTGGGGCTGTCTCTGGGGCGAA spacer
length: 45 repeater length: 24
14496 932122 GAATACAATAGAAAGAATTGAAAG CAATTATACTAATTAAGAGTACCCGAGCCTGGGTTTATAAATCC spacer
length: 44 repeater length: 24
14497 932190 GAATACAATAGAAAGAATTGAAAG TATCCGCGCCTGAGGGTATTCTATCGATGCCTTTCTCCAACA spacer
length: 42 repeater length: 24
14498 932256 GAATACAATAGAAAGAATTGAAAG ATTGAACAACCCGCCCCCACCAGTACGGGACCGAAGTATTCA spacer
length: 43 repeater length: 24
14499 932323 GAATACAATAGAAAGAATTGAAAG GTAGCTCCCTGTCCACCAGATATATGTAATGCTGTGGATCTA spacer
length: 42 repeater length: 24
14500 932389 GAATACAATAGAAAGAATTGAAAG CTCATTGATCACACCCTATCGGGGTGAACGAGCTGTCTTCT spacer
length: 41 repeater length: 24
14501 932454 GAATACAATAGAAAGAATTGAAAG CCGTCATG
14502
14503
14504 GCA_000517445.1_ASM51744v1_genomic.fna (PilerCR):
14505 START REPEAT
SPACER
14506 crispr 1
14507 553727 GTTTCATAAGACTTTAGAGAATTGAAAT ATGAAGAACTATTTTTGTTGGCTCCCCGTCTGGGGTA spacer
length: 37 repeater length: 30
14508 553794 GTTTCATAAGACTTTAGAGAATTGAAAT TAGCTGGACTTCCTTCTATTTCTAAAGAAAACCCAAA spacer
length: 38 repeater length: 30
14509 553862 GTTTCATAAGACTTTAGAGAATTGAAAT TTCTTTTTGTTTTGTATGTTGTCCACTTCTCTAAGT spacer
length: 37 repeater length: 30
14510 553929 GTTTCATAAGACTTTAGAGAATTGAAAT GACCTCAATTGTTTGGCTCTTTGTGGTGTTCCTAACAA spacer
length: 38 repeater length: 30
14511 553997 GTTTCATAAGACTTTAGAGAATTGAAAT TTTCTAGCACCTTGCTAGCTTTTGTATTCTTGCATA spacer
length: 37 repeater length: 30
14512 554064 GTTTCATAAGACTTTAGAGAATTGAAAT ATTGATGGCTATGAGGGTGTGGAAGTTGGAGAAAGCT spacer
length: 37 repeater length: 30
14513 554131 GTTTCATAAGACTTTAGAGAATTGAAAT GCTTTATTGAGCCAGAGCGGAATTCTTTCTTTTGTATTA
spacer length: 40 repeater length: 30
14514 554201 GTTTCATAAGACTTTAGAGAATTGAAAT GCTTGCTATCTCTTTTGATGACAGTGGTCTTAAGGAAAA spacer
length: 39 repeater length: 30
14515 554270 GTTTCATAAGACTTTAGAGAATTGAAAT AATGGTTACAAAATCGAAATCTACATTATGGACTTAGTG spacer
length: 39 repeater length: 30
14516 554339 GTTTCATAAGACTTTAGAGAATTGAAAT GAAAAATCAAGTTTGTACCATAGCAACCTTCAAAGCTT spacer
length: 38 repeater length: 30
14517 554407 GTTTCATAAGACTTTAGAGAATTGAAAT GTTGAGGACCTTATCTGCATCAAGCATATCAACGACT spacer
length: 37 repeater length: 30
14518 554474 GTTTCATAAGACTTTAGAGAATTGAAAT GCGGCTCATCAGACTCCTTATCAAAGATTATCGAGT spacer
length: 36 repeater length: 30
14519 554540 GTTTCATAAGACTTTAGAGAATTGAAAT CCTACAATGCTGATGAAGAACAACGAGAATGCCAC spacer

length: 35 repeater length: 30
14520 554605 GTTTCATAAGACTTTAGAGAATTGAAAT TTGCACCTTCAGCAAGACCTACTGTTCCCCCATCCAAT spacer
length: 38 repeater length: 30
14521 554673 GTTTCATAAGACTTTAGAGAATTGAAAT TCCAGCAGACCTCTTAAGCCTCACATCTACACCCCTCCGC
spacer length: 40 repeater length: 30
14522 554743 GTTTCATAAGACTTTAGAGAATTGAAAT TTTATAGAGGAAGGCTTGAAGACACTTAGGAACGTGG spacer
length: 37 repeater length: 30
14523 554810 GTTTCATAAGACTTTAGAGAATTGAAAT GTACGGCATT
14524
14525
14526 crispr 2
14527 855388 CTTTCAATTCTCTTAGAGTCTTATTGAAAC AATGTAGAATTGCTGAACATCCTCGCTAGCACTAAGCA spacer
length: 38 repeater length: 30
14528 855456 CTTTCAATTCTCTTAGAGTCTTATTGAAAC CGAGCTTGTCAATGAGATTAAGCCAGTCAAAATTAAGG spacer
length: 38 repeater length: 30
14529 855524 CTTTCAATTCTCTTAGAGTCTTATTGAAAC TTATGAAATGTTACAAAATGAATTGCATACAAAGTTTA spacer
length: 38 repeater length: 30
14530 855592 CTTTCAATTCTCTTAGAGTCTTATTGAAAC TCCTTTTACTGTGTTGAATTGCTCTTCATCTTCAATG spacer
length: 37 repeater length: 30
14531 855659 CTTTCAATTCTCTTAGAGTCTTATTGAAAC ACAGCTGTAGCTGAACCACCTAGTGCAAAAATCCAAG spacer
length: 37 repeater length: 30
14532 855726 CTTTCAATTCTCTTAGAGTCTTATTGAAAC AGAAATGAAAGTAGATAAAGAAAAAATCAGAGAAATG spacer
length: 37 repeater length: 30
14533 855793 CTTTCAATTCTCTTAGAGTCTTATTGAAAC CCAGAACTCTCGCAAACGTTGAAATATCGAGCTTTGT spacer
length: 37 repeater length: 30
14534 855860 CTTTCAATTCTCTTAGAGTCTTATTGAAAC CATTTTCCCACCTCTTGTATGCATCCAAGAAATGTAT spacer
length: 37 repeater length: 30
14535 855927 CTTTCAATTCTCTTAGAGTCTTATTGAAAC ACAAACCTTGCACTCTTGAGTCTAATCCTGATTATTAT spacer
length: 38 repeater length: 30
14536 855995 CTTTCAATTCTCTTAGAGTCTTATTGAAAC CTGTCACAGTTACTGAATCAGCGTTGGGGAAGTTGCT spacer
length: 37 repeater length: 30
14537 856062 CTTTCAATTCTCTTAGAGTCTTATTGAAAC GATTTTCAGGACTGTTATTAAGTCCCTGGTAGAACCAG spacer
length: 37 repeater length: 30
14538 856129 CTTTCAATTCTCTTAGAGTCTTATTGAAAC TGAGCCTGGCATTTACACATTCAGAATCGAGGCAAT spacer
length: 36 repeater length: 30
14539 856195 CTTTCAATTCTCTTAGAGTCTTATTGAAAC ATACACTACTGTATGATATGCTAACTTACTCCTATGT spacer
length: 37 repeater length: 30
14540 856262 CTTTCAATTCTCTTAGAGTCTTATTGAAAC TTTCCATCAGTAGCAATTTCTAAGTCAATTCCCATGTA spacer
length: 38 repeater length: 30
14541 856330 CTTTCAATTCTCTTAGAGTCTTATTGAAAC CATGGCTGCTATTGACCGTAGCGGGGTGATAGCCCG spacer
length: 37 repeater length: 30
14542 856397 CTTTCAATTCTCTTAGAGTCTTATTGAAAC TCCAATCTCCTCGAAACCCGCTTAACAACAATAGCCTTTGT
spacer length: 41 repeater length: 30
14543 856468 CTTTCAATTCTCTTAGAGTCTTATTGAAAC ATACACCGTTCCAGACGAGAAAAGACGACTTGAAGGC spacer
length: 37 repeater length: 30
14544 856535 CTTTCAATTCTCTTAGAGTCTTATTGAAAC CCACAAACAATACAACGACCCTCCTCATCCCCAAAGGT spacer
length: 38 repeater length: 30
14545 856603 CTTTCAATTCTCTTAGAGTCTTATTGAAAC CCCAAAGATGACGATTTAGACCCCTATGAGCTTGCACA spacer
length: 38 repeater length: 30
14546 856671 CTTTCAATTCTCTTAGAGTCTTATTGAAAC GTTATACTCCTAGTTATGACCTTCAATTCTTTCCCTT spacer
length: 37 repeater length: 30
14547 856738 CTTTCAATTCTCTTAGAGTCTTATTGAAAC AATACTTGGTCAATTTGACCTCTGAACACCTTCATTC spacer
length: 37 repeater length: 30
14548 856805 CTTTCAATTCTCTTAGAGTCTTATTGAAAC CGTCGATTTCCCATTTGCCCTCTCTGAATAATTTTGT spacer
length: 37 repeater length: 30
14549 856872 CTTTCAATTCTCTTAGAGTCTTATTGAAAC CGAGTTCAAACAAGAACGTTCTCTTTATCAAGCTTA spacer
length: 36 repeater length: 30
14550 856938 CTTTCAATTCTCTTAGAGTCTTATTGAAAC CCTAGCCTTTTTTAATAAAAAATAAGGTTTATCGGTAAT spacer
length: 37 repeater length: 30
14551 857005 CTTTCAATTCTCTTAGAGTCTTATTGAAAC TCACGATTCTGCAAAACGGCTCAGTTGTGCTTGATTT spacer
length: 37 repeater length: 30
14552 857072 CTTTCAATTCTCTTAGAGTCTTATTGAAAC GTTATACTCCTAGTTATGACCTTCAATTCTTTCCCTT spacer
length: 37 repeater length: 30
14553 857139 CTTTCAATTCTCTTAGAGTCTTATTGAAAC AATACTTGGTCAATTTGACCTCTGAACACCTTCATTC spacer
length: 37 repeater length: 30
14554 857206 CTTTCAATTCTCTTAGAGTCTTATTGAAAC AATACTTGGTCAATTTGACCTCTGAACACCTTCATTC spacer
length: 37 repeater length: 30
14555 857273 CTTTCAATTCTCTTAGAGTCTTATTGAAAC CTATGAATAT
14556
14557
14558 crispr 3

14559	857425	TCTTTCAATTCTCTTAGAGTCTTATTGAAAC	CCTAGCCTTTTTTAATAAAAAATAAGGTTTATCGGTAA	spacer
		length: 36	repeater length: 31	
14560	857492	TCTTTCAATTCTCTTAGAGTCTTATTGAAAC	TCACGATTCTGCAAAACGGCTCAGTTGTGCTTGATT	spacer
		length: 36	repeater length: 31	
14561	857559	TCTTTCAATTCTCTTAGAGTCTTATTGAAAC	GATTCCTCCTTTCTTTCTTCGCCATGTGTTAAAC	spacer
		length: 36	repeater length: 31	
14562	857626	TCTTTCAATTCTCTTAGAGTCTTATTGAAAC	TGTAGACTAT	
14563				
14564				
14565		crispr 4		
14566	954067	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	TGGGTCACAATCAACTTCGAAGGCGACGCTGACAAGG	spacer
		length: 37	repeater length: 30	
14567	954134	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	GCACCGCTCCAAGTCGGCAATGCATTGATGCTGTCAAG	spacer
		length: 38	repeater length: 30	
14568	954202	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	CTGATCACCGAGGCTAAGCTTTGATGGGTTGAGCAAT	spacer
		length: 37	repeater length: 30	
14569	954269	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	CGTAAGTATCGTTGAACTTAACCCAAACCAAGTAATT	spacer
		length: 37	repeater length: 30	
14570	954336	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	GGTCTTGCAAAGCCAAGATACAGCTTCTATATACTCAT	spacer
		length: 38	repeater length: 30	
14571	954404	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	CTCCGCGGGGGGACTTAGATGTGAGGCTTAAGAAGTTTGC	
		spacer length: 40	repeater length: 30	
14572	954474	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	ATCTTCCAGGACAAAGTGCATGGTCCAGGAAGATAT	spacer
		length: 36	repeater length: 30	
14573	954540	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	CATCGGCATTAGGATCCCAAAAGAGGTTGCCGAAGTGA	spacer
		length: 38	repeater length: 30	
14574	954608	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	TCACTTTGAGGGTGTAGTTGCCCATCTTTGGCAGAGGAGT	
		spacer length: 40	repeater length: 30	
14575	954678	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	TGAAAAGTGCATGATAAAGCCTTAATCCACCCTTCTTCG	spacer
		length: 39	repeater length: 30	
14576	954747	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	AGGAACTCGGAATAACAAAACAAAACCTCAAGAAGCT	spacer
		length: 37	repeater length: 30	
14577	954814	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	ATAGCGAGCCGAGACAGGGAATAAAAGCTGATGTGGT	spacer
		length: 37	repeater length: 30	
14578	954881	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	CGTAAGTATCGTTGAACTTAACCCAAACCAAGTAATT	spacer
		length: 37	repeater length: 30	
14579	954948	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	TTGAGGAGTTAAGAGAGAAGGGCTACGAGGATGCACTA	spacer
		length: 38	repeater length: 30	
14580	955016	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	GGGGAGAACAGAAAAGCCTAAGCATTGACGACGAAGTT	spacer
		length: 38	repeater length: 30	
14581	955084	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	CTAACTCTAAGATCGATTAAACTGTATTGCTGAGCGA	spacer
		length: 37	repeater length: 30	
14582	955151	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	CCCCAGCATGGGGATAGGGGTTAGGCGTCATAGGAAT	spacer
		length: 37	repeater length: 30	
14583	955218	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	CAATAACTTCCCTCTCAAGAGGTTTCCAGGATAGAAGTA	spacer
		length: 37	repeater length: 30	
14584	955285	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	AAATGTTTTGCGATGAAGCTACAGCAATCTTTATTCA	spacer
		length: 37	repeater length: 30	
14585	955352	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	TTGCTCTACTTAGAAGTTTTGCACCTTCCCTCTATAAA	spacer
		length: 38	repeater length: 30	
14586	955420	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	TCTTACCGACATTTTCATCAGGCTTGAACGAGAACAGA	spacer
		length: 37	repeater length: 30	
14587	955487	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	AAGTAGAAAACAAAAGGTTTTAGAGATTGAGCTTTT	spacer
		length: 37	repeater length: 30	
14588	955554	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	CCGTGCATTGTTCCCGCAATCCCCTTGCCAGGAACAATTAC	
		spacer length: 41	repeater length: 30	
14589	955625	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	CTCCGCCAACTCTTAGTATGCCTAAACCTCCCGAATCTCT	
		spacer length: 40	repeater length: 30	
14590	955695	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	TTGAAGACCGATTTGAGGCTGATTTTAGATGGAAAGG	spacer
		length: 37	repeater length: 30	
14591	955762	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	TCTTGTAATC	
14592				
14593				
14594		crispr 5		
14595	955829	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	TCAATGCAAACCATCTGCCATCGTGCTTCACATCGTCT	spacer
		length: 38	repeater length: 30	
14596	955897	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	TCTCACCGACAACATATCATCGCCGTCATGATTTTTGT	spacer
		length: 37	repeater length: 30	
14597	955964	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	TGAACCGCTATGGCAACCTTTGCCCTGCTGCTACGT	spacer
		length: 37	repeater length: 30	
14598	956031	ATTTCAATTCTTCTAAAGTCTTATTGAAAC	CAATTACATGCTTAGAGAAGCTATTCTCAAGGTCGAGGT	spacer

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length: 39 repeater length: 30
14599 956100 ATTTCAATTCTTCTAAAGTCTTATTGAAAC ACATCATTACGATGAAGCTACAGCAATCTTTATTCA spacer
length: 37 repeater length: 30
14600 956167 ATTTCAATTCTTCTAAAGTCTTATTGAAAC CACCACATACA
14601
14602
14603 GCA_000585495.1_ASM58549v1_genomic.fna(PilerCR):
14604 START REPEAT
SPACER
14605 crispr 1
14606 182627 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTGTTTTTTCAGTCGTCAAGCCAAGCAACGCAAAAAGC spacer
length: 37 repeater length: 30
14607 182694 GTTGCAATAAGACTCTAGGAGAATTGAAAG AATTTTTCAGGTTCTAGCCAGCCCCAAAGGACCAACTTC spacer
length: 37 repeater length: 30
14608 182761 GTTGCAATAAGACTCTAGGAGAATTGAAAG CCTCCTGTTGTGTTATAGTTATAGTCTCATTCTAACTC spacer
length: 38 repeater length: 30
14609 182829 GTTGCAATAAGACTCTAGGAGAATTGAAAG CGAACTCCGTTTTTCTCATGCCATTTCTGTGTGCTCC spacer
length: 37 repeater length: 30
14610 182896 GTTGCAATAAGACTCTAGGAGAATTGAAAG TATTGAGCATTGGATTACTTTTTCGTTGGAATGTAGA spacer
length: 37 repeater length: 30
14611 182963 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAAAATTTTTCAGTCCAGTTCCTTGAGAACATTAGAGAG spacer
length: 38 repeater length: 30
14612 183031 GTTGCAATAAGACTCTAGGAGAATTGAAAG GGGTCTCCCTCACCATTGACCTTGACGCCATAAGCC spacer
length: 36 repeater length: 30
14613 183097 GTTGCAATAAGACTCTAGGAGAATTGAAAG ATCCCCCAAACCATAGCCCCAAGCCCGAGGCCAATAAG spacer
length: 37 repeater length: 30
14614 183164 GTTGCAATAAGACTCTAGGAGAATTGAAAG TATTTGTCTTTTATCGTCAATCTCAACGTCCCATCGA spacer
length: 37 repeater length: 30
14615 183231 GTTGCAATAAGACTCTAGGAGAATTGAAAG CCTCCTGCGCGGGATTCTCCTTTTACAGCCCTACCCA spacer
length: 38 repeater length: 30
14616 183299 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAAGTATGGCCCTGTGAAGAGGATTGGCTTTGAGCTA spacer
length: 37 repeater length: 30
14617 183366 GTTGCAATAAGACTCTAGGAGAATTGAAAG ACGAGGTTTGGGTGAAGCTCAGCGAGGGCGGTCTCTA spacer
length: 37 repeater length: 30
14618 183433 GTTGCAATAAGACTCTAGGAGAATTGAAAG GAGACGGGGAAACGACGGAGAGTAAAGAACTGGAGGG spacer
length: 37 repeater length: 30
14619 183500 GTTGCAATAAGACTCTAGGAGAATTGAAAG TGCGGCCAGCTCCGACCAGAAGCAGGCGATTCTGAA spacer
length: 36 repeater length: 30
14620 183566 GTTGCAATAAGACTCTAGGAGAATTGAAAG GTTATCATATCCCACTCGCCACGTGCTGTTTCTCCAT spacer
length: 37 repeater length: 30
14621 183633 GTTGCAATAAGACTCTAGGAGAATTGAAAG GATTTTTCAGCTGAAATACAGGCAACCCCTAGCCAG spacer
length: 35 repeater length: 30
14622 183698 GTTGCAATAAGACTCTAGGAGAATTGAAAG GACCGGTGTCGAGCATCTGCTTGATTTCTGAAGCGTA spacer
length: 37 repeater length: 30
14623 183765 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTCGTGCTTGGTCAGGCGCTTTCCTTCGGCAACCTTC spacer
length: 37 repeater length: 30
14624 183832 GTTGCAATAAGACTCTAGGAGAATTGAAAG TGACTGCTGTCGTGCCGATGGGGATGAGTGGCTTCCGT spacer
length: 38 repeater length: 30
14625 183900 GTTGCAATAAGACTCTAGGAGAATTGAAAG GAGGTGGTGGACAATGAATGAGCGCATCTTGAAGGAG spacer
length: 37 repeater length: 30
14626 183967 GTTGCAATAAGACTCTAGGAGAATTGAAAG GGGCGAGGAACATTGACATCGTTGGGTGGTTTGTGG spacer
length: 36 repeater length: 30
14627 184033 GTTGCAATAAGACTCTAGGAGAATTGAAAG AGGGTTGCGTTCTGCTGGAAGGAATCCAGAAAGG spacer
length: 35 repeater length: 30
14628 184098 GTTGCAATAAGACTCTAGGAGAATTGAAAG CGCTATAAACCCGACGTGTTTAAACACGTTGCGATGT spacer
length: 37 repeater length: 30
14629 184165 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTTTGCAGGGACGTCGTTTTATTATTCCGCATACCGG spacer
length: 37 repeater length: 30
14630 184232 GTTGCAATAAGACTCTAGGAGAATTGAAAG CCGTAAACGTGCTCGGAGACCCAGCGGGGCACTTCC spacer
length: 36 repeater length: 30
14631 184298 GTTGCAATAAGACTCTAGGAGAATTGAAAG ACCCCAAGGAGGATAAGAAGCTCGCCGAGAGCATGTT spacer
length: 37 repeater length: 30
14632 184365 GTTGCAATAAGACTCTAGGAGAATTGAAAG AGCGAACTACTTTCCCGGCTTAAATTGCGGAATAAA spacer
length: 36 repeater length: 30
14633 184431 GTTGCAATAAGACTCTAGGAGAATTGAAAG GGGTGCAGAGCTGCTGGACAAAGTAGGCGATAGGCTG spacer
length: 37 repeater length: 30
14634 184498 GTTGCAATAAGACTCTAGGAGAATTGAAAG GTACGTTGAGAAGGGCGTTTATGCAATCAAGTTCAGCG spacer
length: 38 repeater length: 30
14635 184566 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTCACCGCCCAGAGCATTTACCACGCCAGCATTGAC spacer
length: 36 repeater length: 30
14636 184632 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAGGGGCTTTCTTTTTGCGTGGCATCACTTAGCACCCCCCT

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spacer length: 41 repeater length: 30

14637 184703 GTTGAATAAGACTCTAGGAGAATTGAAAG AGCTCGTTTCGAGGGACTGTTTCGAGTACAACGACTT
14638
14639
14640 crispr 2
14641 451541 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GTGAGCGCCATGGGTACAGGAGCCAGCCTGGTAATAG spacer
length: 37 repeater length: 30
14642 451608 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CTTCTATTTACCGGCACCACCAAGACCAAGACAGAAA spacer
length: 37 repeater length: 30
14643 451675 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GTCCTCTCTTAGCCAAGTGCTCTATCCTGCTCCTCCA spacer
length: 38 repeater length: 30
14644 451743 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TATAGGACGACGGTAACACTATCAGAGGTCCACGTG spacer
length: 36 repeater length: 30
14645 451809 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TTCCCTGGCGGACGTGGCCATCGAGCTTGAGCTTCT spacer
length: 36 repeater length: 30
14646 451875 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ATACACGCCAACAAAGTGTGATACAACCTTCAAACACT spacer
length: 37 repeater length: 30
14647 451942 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GCTGGCGACAGGCTCTGAGGACGTTGAGAAGGTTT spacer
length: 35 repeater length: 30
14648 452007 CTTTCAATTCTCTTCGAGTCTTATTGCAAC AAGAAAAGTGGGGTCGTGAAGGGTAAGGAGTGGCTTA spacer
length: 37 repeater length: 30
14649 452074 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CCAGCTGTGGAGCTTCGCCCTCCAACCGCCTTTCTTG spacer
length: 37 repeater length: 30
14650 452141 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GCGGACAACGCGCCTTCCAAGGCGCGCCTTGAGATAC spacer
length: 37 repeater length: 30
14651 452208 CTTTCAATTCTCTTCGAGTCTTATTGCAAC AAAGGCGAGGTCTGGCTGGCTGAGCGTTTAGGCCCTG spacer
length: 37 repeater length: 30
14652 452275 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CTATTTTCTTTGATTCTCCACCCTTGAGGTAGATGC spacer
length: 36 repeater length: 30
14653 452341 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TTGTTTCGCCGGGCATCCGCCTGACACTGACGGGACGA spacer
length: 37 repeater length: 30
14654 452408 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ACTCAGTTCTGTTTTTATAGTATCCCTTCTCGACGACT spacer
length: 38 repeater length: 30
14655 452476 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GTTATTTCAAGGACTTCGCCATGAACTTGCCCTACATTC spacer
length: 39 repeater length: 30
14656 452545 CTTTCAATTCTCTTCGAGTCTTATTGCAAC AGGCACATGTTTCGGTATTTTGTGAAGGCTCAACAAC spacer
length: 37 repeater length: 30
14657 452612 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ACGCCACCACCATAACCGTAACTCTCTCAGATAACGA spacer
length: 37 repeater length: 30
14658 452679 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ATAGCTCCCTCACCCGAGTAGGACCATCAGCACCTG spacer
length: 36 repeater length: 30
14659 452745 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CTCTTTCAAGAAGTCAAGGACTGGGGAGCGGATCCCC spacer
length: 37 repeater length: 30
14660 452812 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ACCTCGGGAGGCTTCATAGACCTTAAGAAGTATTTTCG spacer
length: 37 repeater length: 30
14661 452879 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CCTCGACCGCGAGGCGCGAGAGATTGTTGATAAGGTG spacer
length: 37 repeater length: 30
14662 452946 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GGATGGCCACCCTCCCATGCCAGAGCATCCTCCG spacer
length: 36 repeater length: 30
14663 453012 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TCTGCATTGTGAGCGCTGATAGTGCTCCAGGTTTTTG spacer
length: 37 repeater length: 30
14664 453079 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CTGTATGAGGGTGCTCATACACTCACTTCGAGAAAAG spacer
length: 38 repeater length: 30
14665 453147 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CCAGAGACTTAGAGCGGATCCTGATAATGTAGCTCC spacer
length: 36 repeater length: 30
14666 453213 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TGGGTTTTTGCTGGGTTCCTACGTGGACAGAAAAAC spacer
length: 37 repeater length: 30
14667 453280 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GTGGAGTGGCTGGTGGATATATAGGTGGAGCGATCCT spacer
length: 37 repeater length: 30
14668 453347 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CATCACAATACGCTCGTTTCGGCAAACTGAGACCTT spacer
length: 36 repeater length: 30
14669 453413 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CAGAGAAGGCCGTTCGAATTGGGTGAACATCATCAG spacer
length: 36 repeater length: 30
14670 453479 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GCACAGCTGAAAGAGAAGCTGAGGAGTCAGCAGGACAT spacer
length: 38 repeater length: 30
14671 453547 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CTACTGAAGTCATTGCGTCGCTGAAATGGAAAATGCAG spacer
length: 38 repeater length: 30
14672 453615 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TTTACGAGCCGAAGCAGAGGGTCATCATCTGGTTCAA spacer
length: 37 repeater length: 30
14673 453682 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TGCAATAAGCCCGTACTCTAATAACACCCGCTCTGCCA spacer
length: 38 repeater length: 30

14674 453750 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CGCGGTAATCAGCTTCCTGTTCAGTTTTGCTTTAGGGAG spacer
length: 39 repeater length: 30
14675 453819 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ATTTTCTCATTTCAGCCCCTCCACAATCGTTTGAATAT spacer
length: 37 repeater length: 30
14676 453886 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CACTTTCAGCGCAGGGTATGCTTCGGCCTGGAGCCT spacer
length: 36 repeater length: 30
14677 453952 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TTTTCTCCCACTCGTAGCCGAAGCGTTCAAGCTCGT spacer
length: 37 repeater length: 30
14678 454019 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CTCATTGATGAGGTTTCAGAACCTCCTCCAGCACCCCGA spacer
length: 38 repeater length: 30
14679 454087 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ACGCATGGCGTTGGAGATAGAAGGGGAAGCGAAACGC spacer
length: 37 repeater length: 30
14680 454154 CTTTCAATTCTCTTCGAGTCTTATTGCAAC AATCAACCGTGTAATACCTCAATCCCACGAAATGGA spacer
length: 36 repeater length: 30
14681 454220 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CAGGCCAAGGGACGAAAGCCTTGGGGTGAGTTCGTT spacer
length: 36 repeater length: 30
14682 454286 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CCAGTTCTCGCTCTATGACGTTGACTCAGTCATCTTC spacer
length: 37 repeater length: 30
14683 454353 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TCGAAGTCATCAACTTCATACAGGGCAGAGCAGAACG spacer
length: 37 repeater length: 30
14684 454420 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TGGTCTCGTTAAAGAGAGTCGCCACGTTGCCGCTA spacer
length: 35 repeater length: 30
14685 454485 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TCTCCACATTGAGGCAAAGAAGTTAGATAATACGC spacer
length: 35 repeater length: 30
14686 454550 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ACGAACCTTCCTACTCCTGGCCTCCTGATAATAGAAG spacer
length: 37 repeater length: 30
14687 454617 CTTTCAATTCTCTTCGAGTCTTATTGCAAC AAAGGTTAAGGCCCTGGTCGAAAAGGGCCTCTTAATC spacer
length: 37 repeater length: 30
14688 454684 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GG TAGCAATATTGCATTTTTCTACTGCAAATGAGCA spacer
length: 35 repeater length: 30
14689 454749 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GCGGTTAAGGTGGGGTTGAGATGGGCGACATAACG spacer
length: 35 repeater length: 30
14690 454814 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GAGGTTAAGGTAGGCTCGATGAGTCAGGAGAACATGA spacer
length: 37 repeater length: 30
14691 454881 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ACGGGTCAGGGACGAGATGAAGGCTTTTTGCGTTGCT spacer
length: 37 repeater length: 30
14692 454948 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TATTAGAATTTCTTTATCCTGTGCTGTGGCGTTGAAC spacer
length: 37 repeater length: 30
14693 455015 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GAGCGTTAAGGAGCTGGAGATAAACAGGGAACATAAC spacer
length: 37 repeater length: 30
14694 455082 CTTTCAATTCTCTTCGAGTCTTATTGCAAC AGGGGGTGGTTTGGTTTGGTTAAGGTGCGTAACATCTT spacer
length: 37 repeater length: 30
14695 455149 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TATGTAGACC
14696
14697
14698 crispr 3
14699 678264 TTTCAATTCTCCTCGAGTCTTATTGCAAC ATTTTGTCCCACTGCGAGGCTATCATCACTAAATCTAC spacer
length: 38 repeater length: 29
14700 678331 TTTCAATTCTCCTCGAGTCTTATTGCAAC CGAAAATTTTGATGATAGCCAACCCACCAAACGTTTC spacer
length: 38 repeater length: 29
14701 678398 TTTCAATTCTCCTCGAGTCTTATTGCAAC GCATAAGCTAGAGTTTGTAACACGGGTAGTGAAATAAC spacer
length: 39 repeater length: 29
14702 678466 TTTCAATTCTCCTCGAGTCTTATTGCAAC ACGTCCTGACGAATCGTGTAACGGCCCCGTGAAGTG spacer
length: 38 repeater length: 29
14703 678533 TTTCAATTCTCCTCGAGTCTTATTGCAAC GTCGCCAAGCCCCATGAGCATCACCGTTTATTCCTTAG spacer
length: 38 repeater length: 29
14704 678600 TTTCAATTCTCCTCGAGTCTTATTGCAAC TGCCGTAAAAAGAAGAACAGTGGTGATAGGGGTGGGAG spacer
length: 38 repeater length: 29
14705 678667 TTTCAATTCTCCTCGAGTCTTATTGCAAC ACTCTTGCCACCCAGCAGAACCTCAACCAGACCTACGG spacer
length: 38 repeater length: 29
14706 678734 TTTCAATTCTCCTCGAGTCTTATTGCAAC ACTCCTGAAGTAGCGGTCAACTTTCATCATATCATTGCTG spacer
length: 40 repeater length: 29
14707 678803 TTTCAATTCTCCTCGAGTCTTATTGCAAC TGAGGATGTG
14708
14709
14710 crispr 4
14711 706004 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CTGTCCACAAGGGACGCCTTATCCAGCTCTATGTTC spacer
length: 36 repeater length: 30
14712 706070 CTTTCAATTCTCCTCGAGTCTTATTGCAAC ATTACCGCCGAGGAAGCCTACAACCTCGTCTCCAGT spacer
length: 37 repeater length: 30
14713 706137 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TGAGCTTCGCAACGAAGTTTCGTTACCGTGCTCCTT spacer

length: 37 repeater length: 30
14714 706204 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TCGCGGGTCCTCCTTCTTTGCCTTCTTCCGTTTCTG spacer
length: 36 repeater length: 30
14715 706270 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TCGTTGGCAAGCGGAAGAACAAGCAGGCTTGTGGT spacer
length: 36 repeater length: 30
14716 706336 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GAACATGGGAGAGTTTTTCCAGCTCGGGCTTTTCTTCC spacer
length: 38 repeater length: 30
14717 706404 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CGAGGCGTGCGGCACGGGAGCGGTAGCGGTAACCCAG spacer
length: 38 repeater length: 30
14718 706472 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TTCCTCCTTCTGCAGGCCGATACCGCACCCCTTATC spacer
length: 36 repeater length: 30
14719 706538 CTTTCAATTCTCCTCGAGTCTTATTGCAAC ACGCTCGAACAGCACATAAAAGCGATAGCTGACGC spacer
length: 35 repeater length: 30
14720 706603 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GTTGGTTCGGGGTTCAAATCCCCTCCCCGGCTCCAG spacer
length: 36 repeater length: 30
14721 706669 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GACAGAACCCTCCTTTTTCGACTGAAATCACGTTATCG spacer
length: 37 repeater length: 30
14722 706736 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CTTTCATTCCGGTCCTTGCACGAGCTTACAACGAAC spacer
length: 36 repeater length: 30
14723 706802 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GAGCACCGTGCTTTACGGGGGGGACCCGTATGAGGA spacer
length: 37 repeater length: 30
14724 706869 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CGTCTCAGCCTTCAACTCCTGAATTAACTCGCGATA spacer
length: 37 repeater length: 30
14725 706936 CTTTCAATTCTCCTCGAGTCTTATTGCAAC AAAAGCGGGATTGGGGGCACACATTACGCGAAAATCG spacer
length: 37 repeater length: 30
14726 707003 CTTTCAATTCTCCTCGAGTCTTATTGCAAC ATGACCGAAGGTAAGATAGATTACGACGCTCAGATTT spacer
length: 37 repeater length: 30
14727 707070 CTTTCAATTCTCCTCGAGTCTTATTGCAAC AGTATATTTTCGCGTTTGAAGGCCGAAGCGGCTGAGGA spacer
length: 37 repeater length: 30
14728 707137 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CTCCGCTCCAGGTCGGCAGAGCGTTGATGCCGTCCA spacer
length: 36 repeater length: 30
14729 707203 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TAAACTAAGTAGCCCCCACAAACAGGGCAACTACC spacer
length: 36 repeater length: 30
14730 707269 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GAACTCTGACCATGTTGCCGCTGATGTCATAGACTTCT spacer
length: 38 repeater length: 30
14731 707337 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CTTCTCCTTCTTATAACTCTCCTCCAGGCCACCTTAT spacer
length: 38 repeater length: 30
14732 707405 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TTTTCTTTTCTTTGGAGAGCTCACGGATTGGGTACC spacer
length: 36 repeater length: 30
14733 707471 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CGAGCTAAAGCGCGAACTCTACGAAACAATACTCAAAT spacer
length: 38 repeater length: 30
14734 707539 CTTTCAATTCTCCTCGAGTCTTATTGCAAC ATTACCGCCGAGGAAGCCTACAACCTCGTCTCCAGT spacer
length: 37 repeater length: 30
14735 707606 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TCCTTGCGGTTGAGCTCCTCGACAGGCTGAAAGAAAT spacer
length: 37 repeater length: 30
14736 707673 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GAAATTGAGAGAGATAGAAAAAGCCGCATGGCAACA spacer
length: 36 repeater length: 30
14737 707739 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CCAGGTGGTGGCCTATGAGTTAGTGAAGACTCTCAC spacer
length: 36 repeater length: 30
14738 707805 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CTGAAGGAGGAAGAGCGGAAGGCCTTGCACACGGCGA spacer
length: 37 repeater length: 30
14739 707872 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TATGCCTTTAACTCTGGAGTCTCATTTAAGGACGTTT spacer
length: 37 repeater length: 30
14740 707939 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GCCCACCTTCCAGCTCGGGAGCGTAACCTTAAACGG spacer
length: 36 repeater length: 30
14741 708005 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TTACCAACACCCTCCGCCTGCTCCTCAAGCGCCTTCG spacer
length: 37 repeater length: 30
14742 708072 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TCAAGCGCTGGAGGGTGTGATATGGCTGAGAACGCGT spacer
length: 37 repeater length: 30
14743 708139 CTTTCAATTCTCCTCGAGTCTTATTGCAAC ACTCTCCTCGACATCATTAGACTGCTCAATAAAGTCA spacer
length: 37 repeater length: 30
14744 708206 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TTCCCCCGAAATCCCCCGGTGAAATTTGGTGAAATC spacer
length: 36 repeater length: 30
14745 708272 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TACCTCGAAACTCAAGCAGGGGATTCTGAAAAAGTA spacer
length: 36 repeater length: 30
14746 708338 CTTTCAATTCTCCTCGAGTCTTATTGCAAC ATGGCTAAGCCAAAGTATGTGTATCGGTTTAAGTTTG spacer
length: 37 repeater length: 30
14747 708405 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TTCAGCACGTAGCGATTAAGCGCGTTGAGCTTTACGA spacer
length: 37 repeater length: 30
14748 708472 CTTTCAATTCTCCTCGAGTCTTATTGCAAC ACACGAGGGTGAGGGTGAACGGCTACGAGGTTCTAAG spacer
length: 37 repeater length: 30

14749 708539 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CTTTCAGCGCGCTTTTTTCAGCCTATCAAAACTTTCTGA spacer
length: 37 repeater length: 30
14750 708606 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TGAGCTTTTTTCGTGGCTAAAGGGCTGGATTTTCAAG spacer
length: 37 repeater length: 30
14751 708673 CTTTCAATTCTCCTCGAGTCTTATTGCAAC ACAGGTTAAGCCACAGGCGAGAACATCAGGAAAGGAA spacer
length: 37 repeater length: 30
14752 708740 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CCGTGGAGGC
14753
14754
14755 crispr 5
14756 1461759 TTTCAATTCTCCTCGAGTCTTATTGCAAC GTCCGACCACCTTCATTTTTTCCACCTCCGTTCCCTGCG spacer
length: 39 repeater length: 29
14757 1461827 TTTCAATTCTCCTCGAGTCTTATTGCAAC ACGACCTTAACGTCCCCCGGCTGTGGGGCGAAGCCATG spacer
length: 38 repeater length: 29
14758 1461894 TTTCAATTCTCCTCGAGTCTTATTGCAAC CTTCTCGTCCACCAGCAGGAAGATGGCCAGCACCAGG spacer
length: 37 repeater length: 29
14759 1461960 TTTCAATTCTCCTCGAGTCTTATTGCAAC TTCGCTCATCATAGACATTTCAAAGCTCCAACGTG spacer
length: 36 repeater length: 29
14760 1462025 TTTCAATTCTCCTCGAGTCTTATTGCAAC ATAGTAAACATTACCGTCGCGTCCGATTTTACCGCG spacer
length: 37 repeater length: 29
14761 1462091 TTTCAATTCTCCTCGAGTCTTATTGCAAC TCGGGCACGTAGTCCGTTGCCCTTTGCTTCACGTAGG spacer
length: 37 repeater length: 29
14762 1462157 TTTCAATTCTCCTCGAGTCTTATTGCAAC CTTCTTCTTCCACGCCTCGTAGTCGAAGTCGGCAGGGG spacer
length: 38 repeater length: 29
14763 1462224 TTTCAATTCTCCTCGAGTCTTATTGCAAC TCTATGACCTGAGTGGCAACATGGTCAGAGTGCCGGCGAAG
spacer length: 41 repeater length: 29
14764 1462294 TTTCAATTCTCCTCGAGTCTTATTGCAAC ATGAGAACGGCCGAGAGGTCCTCATCGTCATCTTCGAGG spacer
length: 39 repeater length: 29
14765 1462362 TTTCAATTCTCCTCGAGTCTTATTGCAAC CTTCAGGCCTTAGTCTTGGGGCTATCGTTTACATCAACGCG
spacer length: 41 repeater length: 29
14766 1462432 TTTCAATTCTCCTCGAGTCTTATTGCAAC AAGCGGTTAAGGTGGGGTTGAGATGGGCGACATAACGG spacer
length: 38 repeater length: 29
14767 1462499 TTTCAATTCTCCTCGAGTCTTATTGCAAC GTAGCGGACAAGACAACAAAGCGGTAGTCTATTCTTG spacer
length: 38 repeater length: 29
14768 1462566 TTTCAATTCTCCTCGAGTCTTATTGCAAC CCTTCGGCAGTTTCTTTATCTGCTTGAGAAAATGCATGG spacer
length: 39 repeater length: 29
14769 1462634 TTTCAATTCTCCTCGAGTCTTATTGCAAC CATTTTGTATGACGTGGCTTGATGACTGAGAAACAGG spacer
length: 37 repeater length: 29
14770 1462700 TTTCAATTCTCCTCGAGTCTTATTGCAAC CGTTTTACACTTTTTCTTAATCGTGACGACTTCATGAG spacer
length: 39 repeater length: 29
14771 1462768 TTTCAATTCTCCTCGAGTCTTATTGCAAC AGGTCGGCAGGGTGGCATAAGCTAGAGTTTGTAACAG spacer
length: 38 repeater length: 29
14772 1462835 TTTCAATTCTCCTCGAGTCTTATTGCAAC ATACCGGCAAGCGATAACTATAACAAACGAGAACAGCAG spacer
length: 39 repeater length: 29
14773 1462903 TTTCAATTCTCCTCGAGTCTTATTGCAAC TATCAAGATTGGCAACCTTGGCCAAAGGAGAAAGGAAG spacer
length: 38 repeater length: 29
14774 1462970 TTTCAATTCTCCTCGAGTCTTATTGCAAC GTCGACATCA
14775
14776
14777 GCA_000591035.1_ASM59103v1_genomic.fna (PilerCR) :
14778 START REPEAT
SPACER
14779 crispr 1
14780 679470 GAATCTTCGAGATAGAATTGCAAG GAGCCGGGGGCGGTGAAATATGCGGCGTGTAGCTTGGCC spacer
length: 39 repeater length: 24
14781 679533 GAATCTTCGAGATAGAATTGCAAG TCGATATAACACTCGATCTAGCCGCCGTCGAACCAACAGCC spacer
length: 41 repeater length: 24
14782 679598 GAATCTTCGAGATAGAATTGCAAG TTATCAGCGGCGGAGGGCGCGCGGATGCTATAACAGATATGCTAG
spacer length: 46 repeater length: 24
14783 679668 GAATCTTCGAGATAGAATTGCAAG AAGCACACTTTGAGCTCGCTCGCGAGCGGCGAAAAGTCTGTCAA spacer
length: 44 repeater length: 24
14784 679736 GAATCTTCGAGATAGAATTGCAAG CTACTTTGAGCAAATCTACAAGAGGTTGAGGGCATGGATTAGCTTCGG
spacer length: 48 repeater length: 24
14785 679808 GAATCTTCGAGATAGAATTGCAAG ATCAAGATTATACTAGCTGGAGTGGAGGGTGAGCATGCAGAGTTCC
spacer length: 46 repeater length: 24
14786 679878 GAATCTTCGAGATAGAATTGCAAG TGTTTCATGGGGTAAACGTAAATTTGCTAAACACACTATGCTAT spacer
length: 44 repeater length: 24
14787 679946 GAATCTTCGAGATAGAATTGCAAG TGTAGAGCTCAGAGAGAGGCTTCTCACCATCCTCGACAGCCTTCCTAAC
spacer length: 49 repeater length: 24
14788 680019 GAATCTTCGAGATAGAATTGCAAG TTTATTATATTAAATACTGTAGTTAGATCTAGCATGTTACC spacer
length: 41 repeater length: 24

14789 680084 GAATCTTCGAGATAGAAATTGCAAG ACACTGTTAAAGAGGAAATGAAAGTCGGGGAGTTATCGAACTACAT
 spacer length: 46 repeater length: 24
 14790 680154 GAATCTTCGAGATAGAAATTGCAAG CATGGCCTGGGCTTGACGCCTGAACCTGGCTGTCCAGCTA spacer
 length: 40 repeater length: 24
 14791 680218 GAATCTTCGAGATAGAAATTGCAAG GGCTAGCCCAGCGCCTGGAAGCACCCCTTCATAAACAAGTGCAG spacer
 length: 43 repeater length: 24
 14792 680285 GAATCTTCGAGATAGAAATTGCAAG ATGCGGCTGACAGCTTCCACGTACTTTAGTGCTACTGTATCTGT spacer
 length: 44 repeater length: 24
 14793 680353 GAATCTTCGAGATAGAAATTGCAAG GTCGTTAAAGTAGCCATTGGTTGGGTCTAGTGCCTGTGCTATCC spacer
 length: 44 repeater length: 24
 14794 680421 GAATCTTCGAGATAGAAATTGCAAG ACTGTATATCCGCTGAATCTTTGCTCCACACCTGGGGCAGGG spacer
 length: 42 repeater length: 24
 14795 680487 GAATCTTCGAGATAGAAATTGCAAG TGGACTACAA
 14796
 14797
 14798 crispr 2
 14799 737713 GCATATCCCTAAAGGGAATAGAAAAG TTCAGGGATAGGCTTGGCAAGAAGCTTTTCCTAGTGCAACAGC spacer
 length: 43 repeater length: 25
 14800 737781 GCATATCCCTAAAGGGAATAGAAAAG AATGAGAAGATGAGTTGGGCACATGCCAAAGACGCCTACG spacer
 length: 40 repeater length: 25
 14801 737846 GCATATCCCTAAAGGGAATAGAAAAG CTAGCCAGGGTGGCCAGGGAAACGCTTGAGGAGAAGGTT spacer
 length: 39 repeater length: 25
 14802 737910 GCATATCCCTAAAGGGAATAGAAAAG ATAGCCCCGATGAACCGGGGTAAAACCTCCTGGATGGAGGCC spacer
 length: 42 repeater length: 25
 14803 737977 GCATATCCCTAAAGGGAATAGAAAAG AACACTCTTTTCCTTAATAATGAATTCTTGATCTTGGCCC spacer
 length: 40 repeater length: 25
 14804 738042 GCATATCCCTAAAGGGAATAGAAAAG CAGTCTAAGGGTGGGTACACCTGTGTACAGAACGAGAGG spacer
 length: 39 repeater length: 25
 14805 738106 GCATATCCCTAAAGGGAATAGAAAAG CTA ACTCTCTTTCCAGCCGTCGGTTCAGGCGGATCTTGACA spacer
 length: 41 repeater length: 25
 14806 738172 GCATATCCCTAAAGGGAATAGAAAAG CTA ACTCTCTATTACTGATAAGAAACGGTAAGACGCT spacer
 length: 37 repeater length: 25
 14807 738234 GCATATCCCTAAAGGGAATAGAAAAG TTAAACTCTCAAGCCTGTTATATTTATCAGCAATACTAGCTGA spacer
 length: 43 repeater length: 25
 14808 738302 GCATATCCCTAAAGGGAATAGAAAAG TACGTGAGGCAGTATCTGGATGGTGA CTGGGGTGGCTG spacer
 length: 39 repeater length: 25
 14809 738366 GCATATCCCTAAAGGGAATAGAAAAG CTCAGCCTCCCCAGCAGCTCCATCGCCACATGCCTCGCC spacer
 length: 39 repeater length: 25
 14810 738430 GCATATCCCTAAAGGGAATAGAAAAG TACGCCATGAGCCCCAGGTACAGCGAGCTGGTGGGCAGGC spacer
 length: 40 repeater length: 25
 14811 738495 GCATATCCCTAAAGGGAATAGAAAAG CGCCTTGTCGTCGGGGAACCCCATGTACTTCAGCTCCGCGT spacer
 length: 41 repeater length: 25
 14812 738561 GCATATCCCTAAAGGGAATAGAAAAG CCTCCCAGCCCGGACTTTACAGAGTCTTCTATAAACTTCTCGA spacer
 length: 43 repeater length: 25
 14813 738629 GCATATCCCTAAAGGGAATAGAAAAG TTACGTTTATTTTTGTTGCACCCACGGGCCTCGACTGATACGTAG
 spacer length: 45 repeater length: 25
 14814 738699 GCATATCCCTAAAGGGAATAGAAAAG AGGAACCTGGCTACCAGGCTTGCTAGTCTCCTGGCGTCC spacer
 length: 39 repeater length: 25
 14815 738763 GCATATCCCTAAAGGGAATAGAAAAG TGCTTCGAGGCTGGGAAGATGGCGTGCTAGGTGAGTTAGCAC spacer
 length: 42 repeater length: 25
 14816 738830 GCATATCCCTAAAGGGAATAGAAAAG AGCCCCCTGGCTCCATGGAAGCGTATAGCAAGAATAGTACCGG spacer
 length: 43 repeater length: 25
 14817 738898 GCATATCCCTAAAGGGAATAGAAAAG AGCCCCCTACCTCGCCGCGGGCGAACCCGACCCAGATG spacer
 length: 38 repeater length: 25
 14818 738961 GCATATCCCTAAAGGGAATAGAAAAG ATGGTGATGTAGGCCTCCAGGACGGCCATACTGTGTAGTG spacer
 length: 40 repeater length: 25
 14819 739026 GCATATCCCTAAAGGGAATAGAAAAG AGGCAGGCGGGGGCTGAGGGTGTGGGTGAGAGGATAGGCAGGGC spacer
 length: 44 repeater length: 25
 14820 739095 GCATATCCCTAAAGGGAATAGAAAAG GCAACCTCGTCAGGCTTCCACACGTTGCTAGCCACGGCC spacer
 length: 39 repeater length: 25
 14821 739159 GCATATCCCTAAAGGGAATAGAAAAG TCGCAACCTCCTATCTGGCCGTTGTCACCGTTGCGG spacer length:
 36 repeater length: 25
 14822 739220 GCATATCCCTAAAGGGAATAGAAAAG GGCAAATACTGTGTAAGGTCTACGGATGCCGTCTGCGCGGTTGT spacer
 length: 44 repeater length: 25
 14823 739289 GCATATCCCTAAAGGGAATAGAAAAG CTGCATGAGCCCGTGTGTGCTGCTGGGCGGTATGCCAGCG spacer
 length: 41 repeater length: 25
 14824 739355 GCATATCCCTAAAGGGAATAGAAAAG GGCCTGGGACCGCGGCTCTCGCCTGGCTAGCCCTCTACAGGA spacer
 length: 42 repeater length: 25
 14825 739422 GCATATCCCTAAAGGGAATAGAAAAG GCTATAGTAGCGTAGGTGCCAGAGTTGTTGAGATCATATTG spacer
 length: 41 repeater length: 25
 14826 739488 GCATATCCCTAAAGGGAATAGAAAAG ATGATACTCGAGGAGTATGGGGGTGATGGGTTGTGGAGC spacer

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length: 40 repeater length: 25
14827 739553 GCATATCCCTAAAGGGAATAGAAAG TTCATAACAGCGTTTAGCCAGGTCACACCTATCCACCCCA spacer
length: 44 repeater length: 25
14828 739622 GCATATCCCTAAAGGGAATAGAAAG ATGCCACAGCTCAGCCTCTATCTCACTGCTAGCCAAGCT spacer
length: 39 repeater length: 25
14829 739686 GCATATCCCTAAAGGGAATAGAAAG GGCGGGCGTGGACTACAGGCTCCAGCCGTACCTGCCAA spacer
length: 38 repeater length: 25
14830 739749 GCATATCCCTAAAGGGAATAGAAAG AGGCGGTGGTAGCGGGGGCTCGGGCGGCAGCGGCGGTGGCT spacer
length: 41 repeater length: 25
14831 739815 GCATATCCCTAAAGGGAATAGAAAG CAGGTTGCGTTGACCGGTCTTCACGAGTTCACCCACTATCT spacer
length: 41 repeater length: 25
14832 739881 GCATATCCCTAAAGGGAATAGAAAG AGCGGACG
14833
14834
14835 crispr 3
14836 1224280 TGAATCTTCGAGATAGAATTGCAAG CACGTCTGCAGCCAGCCCCAATCCCCGACATAACGGTTTA spacer
length: 40 repeater length: 25
14837 1224345 TGAATCTTCGAGATAGAATTGCAAG GTAGGCCCTCCGGGTTTGCAATAGCACCCCTTGTCCTT spacer
length: 37 repeater length: 25
14838 1224407 TGAATCTTCGAGATAGAATTGCAAG CTGCATTTTCGTTGTCGCCGCGATGGCGGGGCTACTGGTTCG spacer
length: 40 repeater length: 25
14839 1224472 TGAATCTTCGAGATAGAATTGCAAG CGTAGAGG
14840
14841
14842 GCA_000591055.1_ASM59105v1_genomic.fna(PilerCR):
14843 START REPEAT
SPACER
14844 GCA_000698785.1_ASM69878v1_genomic.fna(PilerCR):
14845 START REPEAT
SPACER
14846 crispr 1
14847 1475493 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC TTAAGGAGAAAGAAAGAACTATTCGTTTGGTGGTG
spacer length: 36 repeater length: 37
14848 1475566 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC AACAACTGGAAATAGGTGAGCTGTACTCTTTTGAAA
spacer length: 36 repeater length: 37
14849 1475639 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC CAATACTCGAGGTATTAGGCTTTGAAAATAGAAA
spacer length: 34 repeater length: 37
14850 1475710 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC AGACTGGTTCAGGGCTATCTGCCGCAAGTATGGGTA
spacer length: 36 repeater length: 37
14851 1475783 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC TCAACATTTCTATGGGAAGAGGGATAAGAATGAC
spacer length: 34 repeater length: 37
14852 1475854 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC CCTGTTCAAAGCACCCCTTCAGAGCTGTAAGTTCAG
spacer length: 36 repeater length: 37
14853 1475927 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC AAGATGACACTCGACGGTACCAACTATTATGCAA
spacer length: 34 repeater length: 37
14854 1475998 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC ATGCCAATTTCCAGCTTAATGAGTACGGCGTGAAATT
spacer length: 37 repeater length: 37
14855 1476072 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC TTCGATATTTGGAAACATAACAGAAAGTGATTCTA
spacer length: 35 repeater length: 37
14856 1476144 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC TCCATACCACAGAATCCAACGAAATCTCAATGACA
spacer length: 35 repeater length: 37
14857 1476216 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC GCTTGTTATGAACGACTATGCCGACCTTGGCTTCAT
spacer length: 37 repeater length: 37
14858 1476290 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC TGCTACGGACCCGGCAGCTACATACTGATCAAGGC
spacer length: 35 repeater length: 37
14859 1476362 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC ACAACGACGACGATGAGGAGGCCGACGACAACAAAAA
spacer length: 37 repeater length: 37
14860 1476436 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC TCCCAGAGTGTGCCTATTACATAATCGTATTCCTTAG
spacer length: 37 repeater length: 37
14861 1476510 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC GACGGAGGCTATCTTTTCTGGAAGGAAGTATCAA
spacer length: 35 repeater length: 37
14862 1476582 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC CCCAAGTAGAAGCCACCGAGTCAGTGGTGGTATCTAC
spacer length: 37 repeater length: 37
14863 1476656 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC GATAGGCAAGGACCTGTGCGACCAGCAGCTTTCGA
spacer length: 35 repeater length: 37
14864 1476728 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC GTCATCTGTCAGGTGGAACAGGCCCGCTAGTCTA
spacer length: 34 repeater length: 37
14865 1476799 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC GTACGTGAAATTGTTTGCCCTGCAACCAGCCGCA
spacer length: 34 repeater length: 37
14866 1476870 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC CTCTATGGTCATCCAGCATTGACTACGGACTAGA
spacer length: 35 repeater length: 37

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14867	1476942	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	GCATGCAAACGTCGTGTTGACTGGAAGAATGACGTCA
		spacer length: 37	repeater length: 37
14868	1477016	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	CGGGATATCGAGCCTAACCTAGTGACTGCAATAGA
		spacer length: 35	repeater length: 37
14869	1477088	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	GTATATCTCTCAGTCACTTCGGATAGCGACAGAG
		spacer length: 34	repeater length: 37
14870	1477159	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	CATTTGACCAGTCACGCGCATACTCAAATGAGAGGAT
		spacer length: 37	repeater length: 37
14871	1477233	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	TCTATCACGTATGATGCCCACCCTCTCACTGGTAGA
		spacer length: 36	repeater length: 37
14872	1477306	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	GATCGTTATAGCGCCGTCGCCTACTGCATTAAAG
		spacer length: 34	repeater length: 37
14873	1477377	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ATCTTGACCTTAGGCATAAACACGCCTGCAAGCG
		spacer length: 34	repeater length: 37
14874	1477448	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	TAAAGGGCCAAAAACCGGGAGAGAGGTGGTTAACGA
		spacer length: 36	repeater length: 37
14875	1477521	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	AAGAAAGTCCTTGACGGCTATGGTAGTATCCTTTG
		spacer length: 35	repeater length: 37
14876	1477593	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	GAATCAAAATTAAGACACGCTTGGCACGTTGGCG
		spacer length: 34	repeater length: 37
14877	1477664	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	CTCCTCCAGAGCCTACTCCTGCAGGACTTAGCTCTA
		spacer length: 36	repeater length: 37
14878	1477737	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	TCCCTTACCATATACTCGATTATTGCCTTTAGGTTG
		spacer length: 36	repeater length: 37
14879	1477810	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ATGCTAGAGCGGGTAATCATACATGCCAAGAGTTTCAA
		spacer length: 38	repeater length: 37
14880	1477885	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ACATCTTCGACTACCACGGCGTGGTGCCGACAAGGA
		spacer length: 36	repeater length: 37
14881	1477958	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	AATCTTTTTTCCCTCTCCTTTTATTTTGTAAATATGA
		spacer length: 36	repeater length: 37
14882	1478031	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ACCCGTTTTTTCGTCCTTTATCCCTACGTCGGCATG
		spacer length: 36	repeater length: 37
14883	1478104	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	CTCTCTGGATTCTCACCTTGTACATACAGTTAGGA
		spacer length: 35	repeater length: 37
14884	1478176	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ATCTCAAAACACTTGCCAACCAGTAAGAGTAGCAC
		spacer length: 35	repeater length: 37
14885	1478248	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ACTAGTAGGTGAAGATCACCTAATTTATTCTATAAA
		spacer length: 36	repeater length: 37
14886	1478321	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	CTTCTGTATATTTTCCACCCTTACAACATAGTAAGCC
		spacer length: 37	repeater length: 37
14887	1478395	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ATACATCGTTTTCTTGTCGGTGATTGACGGCTTGCGA
		spacer length: 37	repeater length: 37
14888	1478469	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	GAGATCACC GAATATGCAGAGAACTGGCTTCTGTT
		spacer length: 35	repeater length: 37
14889	1478541	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ATATTTCGGCCAGCTCGTGGACGTCGTTGGTATCCCT
		spacer length: 37	repeater length: 37
14890	1478615	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	AGGGCTACGAAAGACGTTTCCAGTAGGTTTATGCC
		spacer length: 35	repeater length: 37
14891	1478687	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	TCAAATAATTTACGAGTTAGCTCTAGGGTAAGTGT
		spacer length: 35	repeater length: 37
14892	1478759	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	AGCTGGAGGGGATTCTACCCTTACTTCTGATTTTAT
		spacer length: 36	repeater length: 37
14893	1478832	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	TGAAAGGACCAGGGCGGACAAGGGAGTCCAGTACAT
		spacer length: 36	repeater length: 37
14894	1478905	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	GATCGCCACC
14895			
14896			
14897	crispr 2		
14898	2174923	GTTTGAATCGCACTATTATAGGATTGAAAG	CAGGCTAAGGATGCGTTGTCTGGAGTGGAACATAGAG spacer
		length: 36	repeater length: 30
14899	2174989	GTTTGAATCGCACTATTATAGGATTGAAAG	GAAGTACCAGGTATTGAGAGAGATGGTAGAAGTAGA spacer
		length: 36	repeater length: 30
14900	2175055	GTTTGAATCGCACTATTATAGGATTGAAAG	TACGGCAATTCGGCAAGGATAGCCACAGGCTA spacer
		length: 33	repeater length: 30
14901	2175118	GTTTGAATCGCACTATTATAGGATTGAAAG	TCAGCAATCATCCCCGGATGTTGCCGTTAATCATG spacer
		length: 36	repeater length: 30
14902	2175184	GTTTGAATCGCACTATTATAGGATTGAAAG	TAGTTGGCGCCGCTGTCGTTGCAGCCGTCGCATCCGT spacer
		length: 37	repeater length: 30
14903	2175251	GTTTGAATCGCACTATTATAGGATTGAAAG	CAGTTAGCAGACTATCAATACAACATCTGGCAGTCGG spacer
		length: 37	repeater length: 30
14904	2175318	GTTTGAATCGCACTATTATAGGATTGAAAG	ACAATCCACAGTTAGGTACAGGCATACCATCAAGTGT spacer

length: 37 repeater length: 30
14905 2175385 GTTTGAATCGCACTATTATAGGATTGAAAG GTTTGGGTACGGCAGGGATTTTGTCTTTGCCCTTTAG spacer
length: 37 repeater length: 30
14906 2175452 GTTTGAATCGCACTATTATAGGATTGAAAG TAAAGAGACCGAGGCCGATGATTCCAACCACTATGCC spacer
length: 37 repeater length: 30
14907 2175519 GTTTGAATCGCACTATTATAGGATTGAAAG CTTTGAGACGACCTTCCGCCTTCCATAGTCGTATTT spacer
length: 36 repeater length: 30
14908 2175585 GTTTGAATCGCACTATTATAGGATTGAAAG AATATGATAAAGGATAGGTTATACGCTCCATGTCCT spacer
length: 36 repeater length: 30
14909 2175651 GTTTGAATCGCACTATTATAGGATTGAAAG TTGTAAAAGGAGTGCCAAGAACTACGTTTTTGATTG spacer
length: 36 repeater length: 30
14910 2175717 GTTTGAATCGCACTATTATAGGATTGAAAG AGCAGGGAGTTTCTCCCGTTCTCTCATCATTACCCA spacer
length: 36 repeater length: 30
14911 2175783 GTTTGAATCGCACTATTATAGGATTGAAAG TAAAGCGCGCCGTGGCGCGTGCCGCTCGCCTCCAC spacer
length: 35 repeater length: 30
14912 2175848 GTTTGAATCGCACTATTATAGGATTGAAAG CCCCCTTACTTGCCGTTGCTCAGTGCGTTCAACGCTG spacer
length: 37 repeater length: 30
14913 2175915 GTTTGAATCGCACTATTATAGGATTGAAAG CTGTTAACAATTTGGATGTCAAGCCCCACATACTTA spacer
length: 36 repeater length: 30
14914 2175981 GTTTGAATCGCACTATTATAGGATTGAAAG GCAGCAGGTGCCGGCAATCCGGACGCAATAATGAGT spacer
length: 36 repeater length: 30
14915 2176047 GTTTGAATCGCACTATTATAGGATTGAAAG CCGCTTGACGACGACTTTGAAGACGACGACGCTCCC spacer
length: 36 repeater length: 30
14916 2176113 GTTTGAATCGCACTATTATAGGATTGAAAG AAAAAGTTAAAGAATTGGCAAAAAGCGTGCCTGCTC spacer
length: 36 repeater length: 30
14917 2176179 GTTTGAATCGCACTATTATAGGATTGAAAG ATTGTTGCAGTAAAGATATGGCCTATTTGCGCGCTA spacer
length: 36 repeater length: 30
14918 2176245 GTTTGAATCGCACTATTATAGGATTGAAAG AATATCCTTGGGAAATCACGTTGATGTCTAGCCATC spacer
length: 36 repeater length: 30
14919 2176311 GTTTGAATCGCACTATTATAGGATTGAAAG AGCACCATGAAAGGAATCTTGCGCTTGCGTTTTTTG spacer
length: 36 repeater length: 30
14920 2176377 GTTTGAATCGCACTATTATAGGATTGAAAG TAATTTGGCTCTCTGAAAGACCGCCCCACATGCTCT spacer
length: 36 repeater length: 30
14921 2176443 GTTTGAATCGCACTATTATAGGATTGAAAG GGTAGACAAATACGTAATGGGGTGGGCCTGGTAAA spacer
length: 36 repeater length: 30
14922 2176509 GTTTGAATCGCACTATTATAGGATTGAAAG GGTATCAGGACCATCAACAGCCCCAAGCACAATTAA spacer
length: 36 repeater length: 30
14923 2176575 GTTTGAATCGCACTATTATAGGATTGAAAG GACGTTCCACCGCCGCCAGTGAAGGCGGGCTGCCGC spacer
length: 37 repeater length: 30
14924 2176642 GTTTGAATCGCACTATTATAGGATTGAAAG ATCTCCAAACCAAGTAGTAAATGCGTATGGTATCAAG spacer
length: 37 repeater length: 30
14925 2176709 GTTTGAATCGCACTATTATAGGATTGAAAG CTTCAACGCTCAACGAGGATAACCCGATGTCGCTC spacer
length: 35 repeater length: 30
14926 2176774 GTTTGAATCGCACTATTATAGGATTGAAAG ACCGGGCCATGCCTTGTTTTACTCGTCCGCATGGCTC spacer
length: 37 repeater length: 30
14927 2176841 GTTTGAATCGCACTATTATAGGATTGAAAG AGGTCTATCTTGCAACCGGCAAAAAGATCGCAATAGA spacer
length: 37 repeater length: 30
14928 2176908 GTTTGAATCGCACTATTATAGGATTGAAAG AGTTCATGAGAGCACTGCAGGTGGTATTTACCTAGA spacer
length: 36 repeater length: 30
14929 2176974 GTTTGAATCGCACTATTATAGGATTGAAAG
14930
14931
14932 GCA_000725425.1_ASM72542v1_genomic.fna (PilerCR) :
14933 START REPEAT
SPACER
14934 crispr 1
14935 735976 GTTCCAATAAGACTTTAGAAAGTATTGAAAG TTGGGGAAAAAGAAGAGTTCAAAGAAGAAGAACAGC spacer
length: 36 repeater length: 30
14936 736042 GTTCCAATAAGACTTTAGAAAGTATTGAAAG TTTTAATAATGTCTAGCTCTTTGAATTGTTCAAAGA spacer
length: 37 repeater length: 30
14937 736109 GTTCCAATAAGACTTTAGAAAGTATTGAAAG TTGTAGAGACTTCTAGTTCACTGTCGGCTTTTGAAA spacer
length: 36 repeater length: 30
14938 736175 GTTCCAATAAGACTTTAGAAAGTATTGAAAG AACCGGAGAACTTTGTGGAATTTTGGGAATTTTCGAG spacer
length: 38 repeater length: 30
14939 736243 GTTCCAATAAGACTTTAGAAAGTATTGAAAG ATCGGGCAGGTTGCGGAGTGGGTAGTTGAAAAAGTG spacer
length: 36 repeater length: 30
14940 736309 GTTCCAATAAGACTTTAGAAAGTATTGAAAG CTCTGGCGTGAGAGGTGCAAAGTTTGCAAAGATATTA spacer
length: 37 repeater length: 30
14941 736376 GTTCCAATAAGACTTTAGAAAGTATTGAAAG CACTCAAGGCGTTGCAGCACATTGAGATTGAGATCCG spacer
length: 37 repeater length: 30
14942 736443 GTTCCAATAAGACTTTAGAAAGTATTGAAAG TCATCTTTAGCATGAAGTAGCTCAAAGGAGTGTGTTG spacer

length: 36 repeater length: 30
14943 736509 GTTCCAATAAGACTTTAGAAAGTATTGAAAG GACAACATTAAGTGCCTCCCTCGTTTTAGTATAGATC spacer
length: 37 repeater length: 30
14944 736576 GTTCCAATAAGACTTTAGAAAGTATTGAAAG TCGTAATCATAGAGATAAAACGTTCTGTCCATGATGGAGA
spacer length: 41 repeater length: 30
14945 736647 GTTCCAATAAGACTTTAGAAAGTATTGAAAG CGTATCTAAGCACGTCTTGAGGATTATCGGCGCTCTTGAG
spacer length: 40 repeater length: 30
14946 736717 GTTCCAATAAGACTTTAGAAAGTATTGAAAG TAAAGTCTTCGTTTTTGCTAAAAAGCCTATCATGCT spacer
length: 36 repeater length: 30
14947 736783 GTTCCAATAAGACTTTAGAAAGTATTGAAAG ACATTTGTCGTTACAACGCGAAGTTCTCAAATGAGA spacer
length: 37 repeater length: 30
14948 736850 GTTCCAATAAGACTTTAGAAAGTATTGAAAG GGCTTTTGATCCTGCTACTATGCCATAGCTAACTAA spacer
length: 36 repeater length: 30
14949 736916 GTTCCAATAAGACTTTAGAAAGTATTGAAAG GGCTGAAACCAGGCTCATAGTCTTTGGCCAGGTTGCT spacer
length: 37 repeater length: 30
14950 736983 GTTCCAATAAGACTTTAGAAAGTATTGAAAG AGGGAAATGGTAGCTGAGCCTGCCCTGCTGTGCAGCAG spacer
length: 39 repeater length: 30
14951 737052 GTTCCAATAAGACTTTAGAAAGTATTGAAAG CACAAGGACGAATGCGAGGAATTTTGGGACTTGGAT spacer
length: 36 repeater length: 30
14952 737118 GTTCCAATAAGACTTTAGAAAGTATTGAAAG AATTGTAGAGGGCGCACAACTGCGCTCTTGAGGAGAGGAAGG
spacer length: 42 repeater length: 30
14953 737190 GTTCCAATAAGACTTTAGAAAGTATTGAAAG CGAAGAATTGAAGCTAAAGAACACGCAAGCGCACTAT spacer
length: 37 repeater length: 30
14954 737257 GTTCCAATAAGACTTTAGAAAGTATTGAAAG GGGGACATGATTATGTTTCTGAATGGACAGGCAGAAC spacer
length: 37 repeater length: 30
14955 737324 GTTCCAATAAGACTTTAGAAAGTATTGAAAG AAAGACATATTAGAAGGATTATTAAGGCGTTTGAAG spacer
length: 36 repeater length: 30
14956 737390 GTTCCAATAAGACTTTAGAAAGTATTGAAAG CTCATCAGAGCACTATGAGGAGGAGTTCAAGGCTGC spacer
length: 36 repeater length: 30
14957 737456 GTTCCAATAAGACTTTAGAAAGTATTGAAAG AAGATGAAGGTTGAAAGAAAAGATTTGATTGGGTTG spacer
length: 36 repeater length: 30
14958 737522 GTTCCAATAAGACTTTAGAAAGTATTGAAAG AGATATTCCTAACTCTTTTGCTATTTGTGATGCTGA spacer
length: 36 repeater length: 30
14959 737588 GTTCCAATAAGACTTTAGAAAGTATTGAAAG AGATTAATTGAGAAAGTCCCAAAATTGAGAGAAA spacer
length: 35 repeater length: 30
14960 737653 GTTCCAATAAGACTTTAGAAAGTATTGAAAG ACAATAGAAGAAGCGGTCGAGTGGCTTAAGGAAAAG spacer
length: 36 repeater length: 30
14961 737719 GTTCCAATAAGACTTTAGAAAGTATTGAAAG CTGGCGAATACACCCACAGAGATGGCGAGGTACATG spacer
length: 36 repeater length: 30
14962 737785 GTTCCAATAAGACTTTAGAAAGTATTGAAAG CTCATTGTGGAGAAGTTAATTGAAGTTTCAGCAG spacer
length: 34 repeater length: 30
14963 737849 GTTCCAATAAGACTTTAGAAAGTATTGAAAG TTTTATGGCTCTTGGACTIONTAGCGAGGAGGAGTTTG spacer
length: 37 repeater length: 30
14964 737916 GTTCCAATAAGACTTTAGAAAGTATTGAAAG TCTGGAACATTCACGCTGATAACTGAGCGTGTGAAC spacer
length: 36 repeater length: 30
14965 737982 GTTCCAATAAGACTTTAGAAAGTATTGAAAG AGCTTGATTAGAGTTGAAAAGCAGATTGCGGGGCTTA spacer
length: 37 repeater length: 30
14966 738049 GTTCCAATAAGACTTTAGAAAGTATTGAAAG CTCAGGATTAAGACGAGGAGGCTCCTCTTCTTCCCA spacer
length: 36 repeater length: 30
14967 738115 GTTCCAATAAGACTTTAGAAAGTATTGAAAG CTGAGAGTTCAAGAGTATCTAAAAGTTCAAAGCGT spacer
length: 35 repeater length: 30
14968 738180 GTTCCAATAAGACTTTAGAAAGTATTGAAAG CGCCGCAGGAGCTCGATTATGATTTGTTCTGGTTTTTC spacer
length: 38 repeater length: 30
14969 738248 GTTCCAATAAGACTTTAGAAAGTATTGAAAG ACGCGGGCGGAGCGGGCTAATTATCTTTTAAGACGT spacer
length: 36 repeater length: 30
14970 738314 GTTCCAATAAGACTTTAGAAAGTATTGAAAG ACTGCTTTCTCAAGCTCCTTCACGAACCTCAACTCCTC spacer
length: 38 repeater length: 30
14971 738382 GTTCCAATAAGACTTTAGAAAGTATTGAAAG ATACGGGTTTCATGAAGCAGAGAAAGGAAGCGCAAG spacer
length: 36 repeater length: 30
14972 738448 GTTCCAATAAGACTTTAGAAAGTATTGAAAG TTACAGCTGATGGAATCAATAATGAACCTCAATACAAA spacer
length: 37 repeater length: 30
14973 738515 GTTCCAATAAGACTTTAGAAAGTATTGAAAG TTACAGCTGATGGAATCAATAATGAACCTCAATACAAA spacer
length: 37 repeater length: 30
14974 738582 GTTCCAATAAGACTTTAGAAAGTATTGAAAG TTACAGCTGATGGAATCAATAATGAACCTCAATACAAA spacer
length: 37 repeater length: 30
14975 738649 GTTCCAATAAGACTTTAGAAAGTATTGAAAG TTCACCACCTCCTTAACGGCTCTCACGCTCCTTCTTCT spacer
length: 38 repeater length: 30
14976 738717 GTTCCAATAAGACTTTAGAAAGTATTGAAAG GCATTTAGACTAATCACTGCTGAAACTATCCACCAA spacer
length: 36 repeater length: 30
14977 738783 GTTCCAATAAGACTTTAGAAAGTATTGAAAG CAAAGAGGAAGGAGGGCGATAGCATGAGTAGATTT spacer
length: 35 repeater length: 30

14978	738848	GTTCCAATAAGACTTTAGAAAGTATTGAAAG	CTTGCAAGAGGGAAGCTCTTCATCATACGTTGAGCCTG	spacer
		length: 38	repeater length: 30	
14979	738916	GTTCCAATAAGACTTTAGAAAGTATTGAAAG	TGGAGTGTGTTTGTTCAGAGTGGCAAGAATCTGAG	spacer
		length: 36	repeater length: 30	
14980	738982	GTTCCAATAAGACTTTAGAAAGTATTGAAAG	TATTTTCGTTGGTTGGCTACCAGCACAGCTTATCTTTGG	spacer
		length: 38	repeater length: 30	
14981	739050	GTTCCAATAAGACTTTAGAAAGTATTGAAAG	TACATTCTTCTCATTGAGTTGTATAGGCTCTATCGA	spacer
		length: 36	repeater length: 30	
14982	739116	GTTCCAATAAGACTTTAGAAAGTATTGAAAG	CAGTGCAATGTTTGTAGGTCTAAGAGAGCAATGGACT	spacer
		length: 37	repeater length: 30	
14983	739183	GTTCCAATAAGACTTTAGAAAGTATTGAAAG	GCTGGAATGGATGCAGTTAATAGCGTTGTTTTGAAA	spacer
		length: 36	repeater length: 30	
14984	739249	GTTCCAATAAGACTTTAGAAAGTATTGAAAG	ACTGTCGTCGATGAACAGGAAATGATCTTACTTCAATG	spacer
		length: 38	repeater length: 30	
14985	739317	GTTCCAATAAGACTTTAGAAAGTATTGAAAG	TGCTGCCTCCTCTACATCCTCCATTTGAGAATTGGA	spacer
		length: 37	repeater length: 30	
14986	739384	GTTCCAATAAGACTTTAGAAAGTATTGAAAG	GGAACAGCGA	
14987				
14988				
14989	crispr 2			
14990	1003933	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TGAGCTGGCAGAACGTGCTTTAACAGCAACGGAGCTTAA	spacer
		length: 39	repeater length: 29	
14991	1004001	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TGAGCTGGCAGAACGTGCTTTAACAGCAACGGAGCTTAA	spacer
		length: 39	repeater length: 29	
14992	1004069	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TCAGTGCCCTTTCTCGTCATCGAGGCGACAGGGTGGAG	spacer
		length: 38	repeater length: 29	
14993	1004136	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TTTGAAGGACCTCCAACCTCGAGCTTTTCGACAGCAGT	spacer
		length: 38	repeater length: 29	
14994	1004203	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TCATTTTTGTGCGCAAGGCCACAGCGGCGGCACTGAAA	spacer
		length: 38	repeater length: 29	
14995	1004270	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TGACTTTACGAAGCACAACAAGGATATTCTACCGATTTTCAG	spacer
		length: 42	repeater length: 29	
14996	1004341	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TATGAGATGCTTAGTTTTGATGATATTAGCCTGGTCT	spacer
		length: 37	repeater length: 29	
14997	1004407	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TTGACCCTGAGCGGCCTGGCGTATATGGAGCTTTCGGA	spacer
		length: 38	repeater length: 29	
14998	1004474	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TTAGAGAAAGTTAGGGAGGAGTTGGGAGAGGCTAATG	spacer
		length: 37	repeater length: 29	
14999	1004540	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TTCAATTCTGCGAGGGGGGAGCATTACAATTTATCTTTA	spacer
		length: 39	repeater length: 29	
15000	1004608	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TATGGTGCTTAATTTTGTATGAAAAAACGCTTTTTTAG	spacer
		length: 38	repeater length: 29	
15001	1004675	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TATTGCGTTATTGTCTTTAGTGTAACCACTGAGCCG	spacer
		length: 37	repeater length: 29	
15002	1004741	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TTAAGGGGTGTAATAGTCTTCAACTCATTGTAAATTGT	spacer
		length: 38	repeater length: 29	
15003	1004808	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TTGCAAGTATCGAAAGACGGGGATTTATTGGCAATAT	spacer
		length: 37	repeater length: 29	
15004	1004874	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TCGGTCTTGAGGTTATCTCGGTTTTGGAGGAGCTTGA	spacer
		length: 37	repeater length: 29	
15005	1004940	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TTTGACTACCGCTTTGGTAGTAGATTTACGGTAACCGC	spacer
		length: 39	repeater length: 29	
15006	1005008	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TTTGTGTTGCTAAAGGCATAATAAAGGGTTACTGAA	spacer
		length: 36	repeater length: 29	
15007	1005073	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TAACTTTGGGAAAACCTGGAAAACAAGGGCTTCTTTGGG	spacer
		length: 38	repeater length: 29	
15008	1005140	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TAGTGATAAGGTGATATACATGGAAGAATTTAAGGAT	spacer
		length: 37	repeater length: 29	
15009	1005206	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TTTCCTTGGAAGATCAATTGAGTTGTTAGTAAGTGTA	spacer
		length: 38	repeater length: 29	
15010	1005273	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TTTCCTTGGAAGATCAATTGAGTTGTTAGTAAGTGTA	spacer
		length: 38	repeater length: 29	
15011	1005340	GTTCCAATAAGACTTTAGAAAGTATTGAAA	TTTTATGTGCACCCTACTTATCCTGCAAAGAAAATAGACTT	spacer
		length: 41	repeater length: 29	
15012	1005410	GTTCCAATAAGACTTTAGAAAGTATTGAAA	GTATTAATTAACAGCTGTTTGGCTGTTTCGTAGTCAA	spacer
		length: 37	repeater length: 29	
15013	1005476	GTTCCAATAAGACTTTAGAAAGTATTGAAA	GGTGAGAAATGGAGTGGAGGCAGTTAAATCCCTCTTCACAGT	spacer
		length: 42	repeater length: 29	
15014	1005547	GTTCCAATAAGACTTTAGAAAGTATTGAAA	GAGTGTATTTGAGCTTGATCGTTTCACTGGAGCAACT	spacer
		length: 37	repeater length: 29	
15015	1005613	GTTCCAATAAGACTTTAGAAAGTATTGAAA	GCAGTCGTTG	

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15016
15017
15018 crispr 3
15019 1426423 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TGCACCTAAGGTTAAAGAACTTATCGCTCCTATTGC spacer
length: 36 repeater length: 30
15020 1426489 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TCATAGATGGCAGAAAATTCCGCTTTTGGCAAGAAACA spacer
length: 38 repeater length: 30
15021 1426557 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TGGAGGGGTGAGCGGTGGCAAGTAGGAAGAGAAAACCTT spacer
length: 38 repeater length: 30
15022 1426625 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TTTCTCAGAAAACCCAAACATCAATAGACCAGACCC spacer
length: 36 repeater length: 30
15023 1426691 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GTTGGTATAGAATTATTTGACAAATTCAGCGATAAGA spacer
length: 37 repeater length: 30
15024 1426758 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CGGTTATAAAGAGCTTTACAAATACGAAAACGGCCGA spacer
length: 37 repeater length: 30
15025 1426825 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CTGTAACAGGATTATAAACCTCCTCAGCCCCTATTG spacer
length: 36 repeater length: 30
15026 1426891 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TTTTGGAACTGCACCGTAGTAACTCCAAAATTTATAA spacer
length: 37 repeater length: 30
15027 1426958 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GGTGAACAACACTCCAAAAGCCGGTCTAATCTATGTT spacer
length: 37 repeater length: 30
15028 1427025 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CAGGATAATTCAAACGTTTACATTGACAACAACCAT spacer
length: 36 repeater length: 30
15029 1427091 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TAACCCTAAGCTTTTCCCACAAGTACTAAAGTTTACA spacer
length: 37 repeater length: 30
15030 1427158 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CTTTGAGGACAAGGTAGATAGAACAAATGAGTTCTT spacer
length: 36 repeater length: 30
15031 1427224 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TGCAGCAATACACAAGCAAGACAATCACAATAAACGT spacer
length: 37 repeater length: 30
15032 1427291 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GCTTTTACTACTCGTTTCAGGCCTTTTGCAAGTATGA spacer
length: 37 repeater length: 30
15033 1427358 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CCGCCCACCAAACCCCTTTCGATTAAACCTACTT spacer
length: 35 repeater length: 30
15034 1427423 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GAACACTAGGCAAAGGGTAAAAGAGTTATACGAAAG spacer
length: 36 repeater length: 30
15035 1427489 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CATATCTGTTGCATACACTACTGCTTCGCTGAGGATA spacer
length: 37 repeater length: 30
15036 1427556 CTTTCAATTCTTCTAAAGTCTTATTGGAAC AGAGGGTGAGGATTTAACGATTATTAGATTTAGCAC spacer
length: 36 repeater length: 30
15037 1427622 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CCATTTGAACATTTTGAACGCTTAGAGGTTTGTAATT spacer
length: 37 repeater length: 30
15038 1427689 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CTTGCACCCAGCAGTATCCATGTCTGAGATTACAA spacer
length: 35 repeater length: 30
15039 1427754 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CACCGGATTGGGTGTTACGCTATTAGCCGCTTTAT spacer
length: 36 repeater length: 30
15040 1427820 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TTAAACAGTCAGAACTAAAACAAATACTGAGCAAGAT spacer
length: 37 repeater length: 30
15041 1427887 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CCTCGAAGGGGATAAAAATAATAATTGAAAAAGCGAA spacer
length: 36 repeater length: 30
15042 1427953 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TCATAGCTAGTGCCGTTTCTGAAAACAATGAAGTTAA spacer
length: 37 repeater length: 30
15043 1428020 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TGTGATTATTGTGAATATTGTTTTAGTATTGTTAG spacer
length: 35 repeater length: 30
15044 1428085 CTTTCAATTCTTCTAAAGTCTTATTGGAAC AGTTCCTAACCTGCCTATCAGAAACCCCCAGTATCC spacer
length: 36 repeater length: 30
15045 1428151 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CGATTCTCCGATCACAATGGCGAACATTGCCAGAGCT spacer
length: 38 repeater length: 30
15046 1428219 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CCTCTTAGTCCGGTTATAACTGATGAGTATAGAGTAG spacer
length: 37 repeater length: 30
15047 1428286 CTTTCAATTCTTCTAAAGTCTTATTGGAAC AGCCAGCCGTGCAGCTCGCTTATGTAACCCTCCCCAA spacer
length: 37 repeater length: 30
15048 1428353 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TTGCTAAAGCCAAGAATCTAGCTAAAATTCCAAGAA spacer
length: 36 repeater length: 30
15049 1428419 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TTGAAAGGGATGAAATGACGGGTGAATGGATGTTTAAAGC
spacer length: 40 repeater length: 30
15050 1428489 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CATAGACATC
15051
15052
15053 GCA_000730285.1_ASM73028v1_genomic.fna (PilerCR) :
15054 START REPEAT
SPACER

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15055 crispr 1
15056 2110970 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC ACATGGAACGCAACGGTAACAGCACAAACGCCAG
spacer length: 34 repeater length: 37
15057 2111041 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC ATTCTTTGCAACATACTGTGAGAGCCAAAGACACTTGG
spacer length: 38 repeater length: 37
15058 2111116 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC AGACAAGAATCTCCCAAAAAGCTCGTCATGGTTCAG
spacer length: 36 repeater length: 37
15059 2111189 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC GGAAGCGGCAAGGATCAGGGTCGCCATCGAAGACGC
spacer length: 36 repeater length: 37
15060 2111262 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC GCTTGGCAGATTCAATTTCCATATTTCCGCAACTCA
spacer length: 36 repeater length: 37
15061 2111335 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC TGCTGTCAACATTCTAGTGCGGGAGCGCCTAGAA
spacer length: 34 repeater length: 37
15062 2111406 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC AGGAATCAATGTGCGCAAGCCTGTAGCTCAAACAA
spacer length: 35 repeater length: 37
15063 2111478 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC ACAAAGAGATCAAGATGCCTCCGACACCCGAACCTAGA
spacer length: 37 repeater length: 37
15064 2111552 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC TTCAACGACTACACTGCATCAACAGGTAGACCAGA
spacer length: 35 repeater length: 37
15065 2111624 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC AAGCGTCTCTCCCTTGACAGAGCCGTTTCATCTTG
spacer length: 34 repeater length: 37
15066 2111695 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC ACGCGTACCCCGTCATGGCGCCTATCTGCCCCCTTGT
spacer length: 36 repeater length: 37
15067 2111768 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC TCTTTCTTGTGACTTCGGTGAAAGAGAGTGCTGA
spacer length: 35 repeater length: 37
15068 2111840 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC ATCTCCTTGTGACCGGAAAGTCGCCATAGAACGCGG
spacer length: 37 repeater length: 37
15069 2111914 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC TTGGGGCCAGTTCTGCCAGAACGTTGAGGCATTCTG
spacer length: 35 repeater length: 37
15070 2111986 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC CTATCTTCTGCCATCTCAATAGCTCAGCTCCAGGA
spacer length: 35 repeater length: 37
15071 2112058 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC CTGCTATCGTCAAAGTTCAAAGCAACCGTGTAGA
spacer length: 34 repeater length: 37
15072 2112129 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC GGCCAGAATCCCGCTAGAGCTGGTCAAGTCAAGCA
spacer length: 36 repeater length: 37
15073 2112202 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC CGCGAGAATCAGGGGAAATTCTGACGAGGCCAAGAC
spacer length: 36 repeater length: 37
15074 2112275 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC TTGCCCCCTATTCCCTTCTCACGAGCAAGTTTGTA
spacer length: 34 repeater length: 37
15075 2112346 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC TGCGGCTCTTGCGGCGCTCTGATAGAGTGCGACAA
spacer length: 35 repeater length: 37
15076 2112418 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC ACAAAGTCAGGAGTTTCCCATTTCGTCCATGGGGAT
spacer length: 35 repeater length: 37
15077 2112490 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC GTGTCGGTGTGCTATACTGGCCATTGCGATCCTTG
spacer length: 36 repeater length: 37
15078 2112563 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC GGCAAGTTTGAGCGCGAAGAAAAGCCGGTCGATTACA
spacer length: 37 repeater length: 37
15079 2112637 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC TGGTTAAAGAACCTCCCCCCCCTAAAACCGA spacer
length: 31 repeater length: 37
15080 2112705 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC GGCAGGAAAAGGAGGGAAATAGAAAGGAGTAAAG
spacer length: 34 repeater length: 37
15081 2112776 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC ATTATCACTATCAACACGGACAACACCGTAGACGA
spacer length: 35 repeater length: 37
15082 2112848 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC GGCACAAAGACGGACCTATCGGAAAAGCTTGGGATC
spacer length: 36 repeater length: 37
15083 2112921 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC TTCGTTGCGTCGGCGCGCCGTCAATAATGGCATAGA
spacer length: 36 repeater length: 37
15084 2112994 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC ACCACCAATCGAGAATGAGGTATCCCTTGTTATAG
spacer length: 35 repeater length: 37
15085 2113066 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC GATTTCAGAAGAGGCTCACGACATCGCCGTTGAGCA
spacer length: 35 repeater length: 37
15086 2113138 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC ACACCACGAGAGACAAGAACAACGACGGGAAAAGCA
spacer length: 36 repeater length: 37
15087 2113211 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC TCCGAAATTGCGGGTATGGAGGTAGAGGCGGAGA
spacer length: 34 repeater length: 37
15088 2113282 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC CCAAAGGCGGAGGCAGATATTACAATAGAAAACA
spacer length: 34 repeater length: 37
15089 2113353 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC CGTAAAGGAGGTGTCCGAGTCGATAAACGTCTTGA
spacer length: 35 repeater length: 37
15090 2113425 GTTTCAATCCTTGGTGTGGTGGATTTCGTCTTTCAGAC ACAATGTTTGCCCCGCCGCAAGTCATTTATCAGGCTGA
spacer length: 37 repeater length: 37

15091	2113499	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	GACCCGCACAACTACCAAAGGCTCCAAGGCTATG
		spacer length: 35 repeater length: 37	
15092	2113571	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TTCTCGGTTGGCGGGTTTCCTGCTCCGCTGGCAACG
		spacer length: 36 repeater length: 37	
15093	2113644	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TTTTCGGAACGGGTCAAGTCGCGCCCGATGATGACA
		spacer length: 36 repeater length: 37	
15094	2113717	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	GCCTATTTCCGTCGCTTCCGGTAGCTGTAATAA
		spacer length: 34 repeater length: 37	
15095	2113788	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	CTTCATTTACCAATGTGATAGCTCCTGCAGGAGAG
		spacer length: 35 repeater length: 37	
15096	2113860	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TTGTAAACCTCCATTGTTTTACCGTAGGCGGTTT
		spacer length: 34 repeater length: 37	
15097	2113931	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TCGATATGATATAGTCGGGGTTGCGTGAGACTGT
		spacer length: 34 repeater length: 37	
15098	2114002	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AAAGGACGGCTGCTGCCTTGCGCCTCACTGATTCA
		spacer length: 35 repeater length: 37	
15099	2114074	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TATTTTTGCGCTCAATTTGCCCGCAACCGTATGTG
		spacer length: 35 repeater length: 37	
15100	2114146	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AATCTGCTCCCTCAGGATATTCATCTCCTTCTGCAATG
		spacer length: 38 repeater length: 37	
15101	2114221	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	ATCTATTGAAGGCACGAATCTTCTTCTATGACATT
		spacer length: 35 repeater length: 37	
15102	2114293	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TTGAATGCTTCGCTTCCGAAGGCGCCGACGTTCAAC
		spacer length: 36 repeater length: 37	
15103	2114366	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	CGTATATCATTGTACTATTCGGTTTTCGGGCACTGA
		spacer length: 35 repeater length: 37	
15104	2114438	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	ATACAGGATAGTTCCACATTGCGGACATGCCATGA
		spacer length: 35 repeater length: 37	
15105	2114510	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AGCCGGTGGAGAAAAACAACGAGTGGAGGACGAAGG
		spacer length: 36 repeater length: 37	
15106	2114583	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	ACGAGGATTTCAATCCTGAGGAGTTCGTAAGAGA
		spacer length: 34 repeater length: 37	
15107	2114654	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AAGCAAGCGGTAGACATGGCCAACGAGTTGAAAAATA
		spacer length: 37 repeater length: 37	
15108	2114728	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AATTGACGCCTTTTGCTCGGGCTCGGGCTTTAGGT
		spacer length: 35 repeater length: 37	
15109	2114800	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	GTAACGGGTCTTGCTACCAATTACGGAGAGGAGTTTGG
		spacer length: 38 repeater length: 37	
15110	2114875	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AGTTGCAGTTCGAGGGCGTTCTCTTGTTTCGTGAGTATA
		spacer length: 38 repeater length: 37	
15111	2114950	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AGGATATCCACTACTGGTACAGGTATGCCGCAA
		spacer length: 34 repeater length: 37	
15112	2115021	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TCGATTTTGGCCTTTCTGCTGCAGTGGACGTCCAGA
		spacer length: 36 repeater length: 37	
15113	2115094	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TCTAAAATCCGCGGTATAAGGACCATCGAGAAAA
		spacer length: 34 repeater length: 37	
15114	2115165	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AGGCAGTTGATCTTACGATTGGCGTGCCTACAATACA
		spacer length: 38 repeater length: 37	
15115	2115240	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	CTTTAGCGCCTCTCGTATCACTTCTTTGTTAAAG
		spacer length: 34 repeater length: 37	
15116	2115311	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	ACTCTGCCCTGTGAAGCGAGATGATGCTGTGCACAA
		spacer length: 36 repeater length: 37	
15117	2115384	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	GATGGTGTGCTCGCCCTGCTTGTCCATGTTGGCAT
		spacer length: 35 repeater length: 37	
15118	2115456	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	GACCAACGACAGGGAATACTTTGACGACGAGGTTAT
		spacer length: 36 repeater length: 37	
15119	2115529	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	ACACAGATGGCACTCATGGCGCAGTCGGTGAATATC
		spacer length: 36 repeater length: 37	
15120	2115602	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	ATGTCAAGCCAGCGTTCCTTTATCATGCCCTGCAGCCC
		spacer length: 38 repeater length: 37	
15121	2115677	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TATGTTACGCAGTCAGATTTGGACGCAGGCACGA
		spacer length: 34 repeater length: 37	
15122	2115748	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	CGTAGTGTAGTTGGGCTGCTTGCCGTACTGGAAA
		spacer length: 34 repeater length: 37	
15123	2115819	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TGTTTGTCTGTGCTTGATGTGCCTGTGGTGAGTG
		spacer length: 34 repeater length: 37	
15124	2115890	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	CATAAAAAAGAGGAGGAAATGGTGGAAAAATGAG
		spacer length: 34 repeater length: 37	
15125	2115961	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AATTCTTCTACCTGAAGAGGCCAGCCGAGCCGGGGC
		spacer length: 36 repeater length: 37	
15126	2116034	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	GCTCTTCCAGGAATGGATGACAAAGTACGTGGAGA

spacer length: 35 repeater length: 37
 15127 2116106 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC TCAGGGAACAGCAATACCGCCAATGCCGCTGATGA
 spacer length: 35 repeater length: 37
 15128 2116178 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC TATTGCTCGTGGCGGAAATCTGACTATTTACCTTTA
 spacer length: 36 repeater length: 37
 15129 2116251 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC AGAATGAGGACGAGCTGGCGCTTGCCTGCGCAGTTG
 spacer length: 36 repeater length: 37
 15130 2116324 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC CTTTTTCGATGTTGCCATGCCTAACTACTTGTAGT
 spacer length: 35 repeater length: 37
 15131 2116396 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC
 15132
 15133
 15134 crispr 2
 15135 2116557 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC GTTAAAAGCGACACAGAGAAGTCACCTTCTATCTA
 spacer length: 35 repeater length: 37
 15136 2116629 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC GAGTCCCAGTCCGTGCGGGGTGTTCCGGGCCTTGAT
 spacer length: 35 repeater length: 37
 15137 2116701 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC CGTCCTTTTGTGGCGGGTCTTCAACCACTAGTTTTGG
 spacer length: 37 repeater length: 37
 15138 2116775 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC AGCACATTCACTTTGCGCTTGCCTTCCGGAAGTTG
 spacer length: 36 repeater length: 37
 15139 2116848 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC AAGTTCCAAGTCACCAACGAACAGGGCTGGGTAACAAA
 spacer length: 38 repeater length: 37
 15140 2116923 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC GCAGCAAATCAATCTGTACCGATGCGATTTGTTG
 spacer length: 34 repeater length: 37
 15141 2116994 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC TTCGGGAACCTTTTTGCTTGCGCCGTATTTGGTGG
 spacer length: 35 repeater length: 37
 15142 2117066 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC GCTATCTGTTATAACGCTACTTTCTAGTCATAAAA
 spacer length: 35 repeater length: 37
 15143 2117138 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC TACAGCAGGGACGAATCTTAGTGAAAAATAGATTCT
 spacer length: 36 repeater length: 37
 15144 2117211 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC TGTAACAAGCTGAAAAATCGTCTTTGTTATCTTTA
 spacer length: 35 repeater length: 37
 15145 2117283 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC AGCCGGTGGAGAAAAACAACGAGTGGAGGACGAAGG
 spacer length: 36 repeater length: 37
 15146 2117356 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC ACGAGGATTTCAATCCTGAGGAGTTCGTAAGAGA
 spacer length: 34 repeater length: 37
 15147 2117427 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC AAGCAAGCGGTAGACATGGCCAACGAGTTGAAAAATA
 spacer length: 37 repeater length: 37
 15148 2117501 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC AGCTTATGAGCAAGGACCCTAGACTTGAGCGCAGGG
 spacer length: 36 repeater length: 37
 15149 2117574 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC CAGGCATTTCGTCTACGAATGCAGCTATCGGGTCCT
 spacer length: 35 repeater length: 37
 15150 2117646 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC GGATGGTGCAAACAACAAGACGATAAGAACGTCCTA
 spacer length: 36 repeater length: 37
 15151 2117719 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC GGCCATAGAACAAAGGTCCTTTATGTTTGGCTTCA
 spacer length: 35 repeater length: 37
 15152 2117791 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC TTTGCAGGCAACGGAACGACAGCGTAGGCTCTAA
 spacer length: 35 repeater length: 37
 15153 2117863 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC ATCTTTTGTCTAGCTCTTCTTTGTTATAATGCG
 spacer length: 34 repeater length: 37
 15154 2117934 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC CCAGCAAGGGGCAAGACACAACCTTTGGAATGGACCG
 spacer length: 37 repeater length: 37
 15155 2118008 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC AGTTTTAGGTTTAAGGTCTACGATGTTGTCTACAGA
 spacer length: 36 repeater length: 37
 15156 2118081 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC ATGCTATCTAGCTTCATATCCTTGTATTTTTTCTTG
 spacer length: 36 repeater length: 37
 15157 2118154 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC
 15158
 15159
 15160 GCA_000734035.1_ASM73403v1_genomic.fna (PilerCR):
 15161 START REPEAT
 SPACER
 15162 crispr 1
 15163 147 GTTGAAATCAGACCAAAATGGGATTGAAAG AATCATTGTATCTGACAAAGGTTGTATATATCTCCTGTA spacer
 length: 39 repeater length: 30
 15164 216 GTTGAAATCAGACCAAAATGGGATTGAAAG ATATTTGTTTCATATAGCAGATGATGAAAGCATTGCAAA spacer
 length: 38 repeater length: 30
 15165 284 GTTGAAATCAGACCAAAATGGGATTGAAAG ACTTATATATTTTTCTCATTACACCAAATGTCCA spacer
 length: 36 repeater length: 30
 15166 350 GTTGAAATCAGACCAAAATGGGATTGAAAG CTTTTTTAACTCTCCCATAACTCTGTCAAATGCATCTCCTTAA

spacer length: 45 repeater length: 30

15167 425 GTTGAAATCAGACCAAAATGGGATTGAAAG TATTTATCTTCCCTGAACCTCTTGAGAACTCCTTA spacer
length: 36 repeater length: 30

15168 491 GTTGAAATCAGACCAAAATGGGATTGAAAG TTGTAGTCGTCCCCTTACTGTCAAATCACCCAAAAC spacer
length: 37 repeater length: 30

15169 558 GTTGAAATCAGACCAAAATGGGATTGAAAG ATTGATGACAATGTTGATGATGGGTTTCAGGACAGTGA spacer
length: 38 repeater length: 30

15170 626 GTTGAAATCAGACCAAAATGGGATTGAAAG AACACTTCTGTCCAACCTCATCAAAAAACATCCACTTGTTAT spacer
length: 41 repeater length: 30

15171 697 GTTGAAATCAGACCAAAATGGGATTGAAAG CTAACCTACCTCTGTGCATGCCCTCTTATCCCTTGCATAAT spacer
length: 40 repeater length: 30

15172 767 GTTGAAATCAGACCAAAATGGGATTGAAAG TCCTTTTCAAACCTTAGCCAAAAAATACGGAGCAGA spacer
length: 37 repeater length: 30

15173 834 GTTGAAATCAGACCAAAATGGGATTGAAAG ACAACTCCAAAACCAAAACCATCGACCTCAAGACAC spacer
length: 36 repeater length: 30

15174 900 GTTGAAATCAGACCAAAATGGGATTGAAAG GATAAATGTTTTTGCAGTGAAGAAGTCCACTGCC spacer
length: 35 repeater length: 30

15175 965 GTTGAAATCAGACCAAAATGGGATTGAAAG CTTTCTATAACCGTTTACGTCGATAAGCGTATCTTTGCCG spacer
length: 40 repeater length: 30

15176 1035 GTTGAAATCAGACCAAAATGGGATTGAAAG AACTCTTAGCCTGTGACGGCGTTATTGTTGCGGTTCT spacer
length: 37 repeater length: 30

15177 1102 GTTGAAATCAGACCAAAATGGGATTGAAAG AACTCAACCCTAATTCTCAACCTATTTTGGGGGTGA spacer
length: 36 repeater length: 30

15178 1168 GTTGAAATCAGACCAAAATGGGATTGAAAG TAAATTCATGTAGTACTCTTCGATTACTTTGTGTAGT spacer
length: 38 repeater length: 30

15179 1236 GTTGAAATCAGACCAAAATGGGATTGAAAG AACTCTTTCCCGCTCCTCCGGCTTCTCAACTTCCATC spacer
length: 38 repeater length: 30

15180 1304 GTTGAAATCAGACCAAAATGGGATTGAAAG ATTGAAGGCTCTGGCACGGTGGCAATTGAGATTCCA spacer
length: 36 repeater length: 30

15181 1370 GTTGAAATCAGACCAAAATGGGATTGAAAG AAAGAACGACAACGGAGGAATTAATGAGTCAATATGA spacer
length: 37 repeater length: 30

15182 1437 GTTGAAATCAGACCAAAATGGGATTGAAAG CGGCACAGCTTGATTCTCGAAGTTGGTCACGTATTCGT spacer
length: 38 repeater length: 30

15183 1505 GTTGAAATCAGACCAAAATGGGATTGAAAG TGTTACAGTGCCGTCTTGCAGGATGAAGGCTTTATCAAGCT spacer
length: 41 repeater length: 30

15184 1576 GTTGAAATCAGACCAAAATGGGATTGAAAG GAGGAAATCAACATTGAAGCCAGAAAACAGTTCCT spacer
length: 36 repeater length: 30

15185 1642 GTTGAAATCAGACCAAAATGGGATTGAAAG CCTATTGGCAGCATACCTCTTGGATACTACTCTGCAGG spacer
length: 38 repeater length: 30

15186 1710 GTTGAAATCAGACCAAAATGGGATTGAAAG GGCTCCGTTTTGAATAACCACTTCCCTAATCTGTGTC spacer
length: 37 repeater length: 30

15187 1777 GTTGAAATCAGACCAAAATGGGATTGAAAG ATCGACGTACGCAAAATCAGACCTCTGAAGGCTCGACG spacer
length: 38 repeater length: 30

15188 1845 GTTGAAATCAGACCAAAATGGGATTGAAAG GTTGAAAGACTGGCAAAGAGTCCAGGAATATGGGAACTCT spacer
length: 41 repeater length: 30

15189 1916 GTTGAAATCAGACCAAAATGGGATTGAAAG CTCTCCCATGGACACAACCGCATACTCCGAGAAGGTAA spacer
length: 38 repeater length: 30

15190 1984 GTTGAAATCAGACCAAAATGGGATTGAAAG ACTCAAAAAA

15191

15192

15193 crispr 2

15194 2116 GTTGAAATCAGACCAAAATGGGATTGAAAG TGGTAAAAATCGAAGAGTTTGATTGTTCTGGGAGTTT spacer
length: 38 repeater length: 30

15195 2184 GTTGAAATCAGACCAAAATGGGATTGAAAG GGTTGTAGGATGGAGCGAGGATGAATGAATCGAGCTTGATGA
spacer length: 44 repeater length: 30

15196 2258 GTTGAAATCAGACCAAAATGGGATTGAAAG ATCAAACCTCTGTCAATTTCTCACCTTAATATATGTC spacer
length: 36 repeater length: 30

15197 2324 GTTGAAATCAGACCAAAATGGGATTGAAAG TGTAGTAGCTTGTTGGTCTCGTTGTTCTTGATGGGGATT spacer
length: 39 repeater length: 30

15198 2393 GTTGAAATCAGACCAAAATGGGATTGAAAG GAGGACTACAGGGTCTTTTGGATGGGCCACAGGGGTG spacer
length: 37 repeater length: 30

15199 2460 GTTGAAATCAGACCAAAATGGGATTGAAAG TGTTTCTTGAGCACGCTTACGTAGTGCTCTATCCTGT spacer
length: 37 repeater length: 30

15200 2527 GTTGAAATCAGACCAAAATGGGATTGAAAG TGAGCTGCTCACCTCACTTTAAACCCTCCCATAATCCAG spacer
length: 40 repeater length: 30

15201 2597 GTTGAAATCAGACCAAAATGGGATTGAAAG ATGGACGGAAACGAGTTCCAGCAGTTCGTAGTTGATA spacer
length: 37 repeater length: 30

15202 2664 GTTGAAATCAGACCAAAATGGGATTGAAAG CTTTAATTGCCCATCTGTCTTTTTTCTTCAATGCGTC spacer
length: 37 repeater length: 30

15203 2731 GTTGAAATCAGACCAAAATGGGATTGAAAG GTTGTTGCGAACGGCAATAACCTTGACATCTATGCCGT spacer
length: 38 repeater length: 30

15204	2799	GTTGAAATCAGACCAAAATGGGATTGAAAG	AGAAAGTAAATATTGCTTGGGTCTTGAAAAAGTAACGTA	spacer
		length: 39	repeater length: 30	
15205	2868	GTTGAAATCAGACCAAAATGGGATTGAAAG	ATCTCAATTTCAAGCTTTTGGTTACTGAAATTGCTG	spacer
		length: 36	repeater length: 30	
15206	2934	GTTGAAATCAGACCAAAATGGGATTGAAAG	GTAGCTTCTTGTTCATTTACTCACCATCCCATAGCCT	spacer
		length: 37	repeater length: 30	
15207	3001	GTTGAAATCAGACCAAAATGGGATTGAAAG	TTTCTTTTTCTGCCCCCTCGGGATTGCAACAGCTGTTG	spacer
		length: 38	repeater length: 30	
15208	3069	GTTGAAATCAGACCAAAATGGGATTGAAAG	TGCATATTGCACAAACCAGCTTAGAACGCTTACCTGAT	spacer
		length: 38	repeater length: 30	
15209	3137	GTTGAAATCAGACCAAAATGGGATTGAAAG	CGTTTCCTTGTAAGTGAAGTCCCTCTCGGAGATCTTCT	spacer
		length: 38	repeater length: 30	
15210	3205	GTTGAAATCAGACCAAAATGGGATTGAAAG	TACTAAGTCTCGCATCCTCAACCCTCGCAGCCATCGCT	spacer
		length: 38	repeater length: 30	
15211	3273	GTTGAAATCAGACCAAAATGGGATTGAAAG	ACAACTTTTTTGGACATTACATCACCCCGGACAAATCAAC	spacer
		length: 41	repeater length: 30	
15212	3344	GTTGAAATCAGACCAAAATGGGATTGAAAG	TTTGTGCGCGGTGCTATTGTTGCAGGCATAGGGCTTT	spacer
		length: 37	repeater length: 30	
15213	3411	GTTGAAATCAGACCAAAATGGGATTGAAAG	TGGGGATTTTACTGGCTCGGGGTCGTCGAGGTAGG	spacer
		length: 36	repeater length: 30	
15214	3477	GTTGAAATCAGACCAAAATGGGATTGAAAG	GTCATATTAGCTGCTCCAAAACAGGCCTGAAAGCAG	spacer
		length: 37	repeater length: 30	
15215	3544	GTTGAAATCAGACCAAAATGGGATTGAAAG	ATAGCTCTCTGTAACCTCACTTCTTCCCCATACCATGTTTCTA	spacer
		length: 42	repeater length: 30	
15216	3616	GTTGAAATCAGACCAAAATGGGATTGAAAG	AGCATCTTCGTCTTCTTTATCCTCTTCAGGAGCTCTAA	spacer
		length: 38	repeater length: 30	
15217	3684	GTTGAAATCAGACCAAAATGGGATTGAAAG	GAAGTTTGCCTTTGTTCCAGAAGTTGTAGAGTGCCA	spacer
		length: 37	repeater length: 30	
15218	3751	GTTGAAATCAGACCAAAATGGGATTGAAAG	AATGCTAATCGGATTCTCTGGTCCATCTGCAAGTGGCA	spacer
		length: 38	repeater length: 30	
15219	3819	GTTGAAATCAGACCAAAATGGGATTGAAAG	TGCTTCATCTTTCTCCAACACTTCTACAATCTTGACT	spacer
		length: 37	repeater length: 30	
15220	3886	GTTGAAATCAGACCAAAATGGGATTGAAAG	AAGACTACGACTCTTGTAATCCATCGTTGCCTCTAATC	spacer
		length: 39	repeater length: 30	
15221	3955	GTTGAAATCAGACCAAAATGGGATTGAAAG	GGAACCCCGTAACTGGCTGCCTTCACGGCTGCGATTACTGCTAC	spacer
		length: 44	repeater length: 30	
15222	4029	GTTGAAATCAGACCAAAATGGGATTGAAAG	ATCAAGAGCCCATGCCGTCAGAGAATGCGTTGAGGAGT	spacer
		length: 38	repeater length: 30	
15223	4097	GTTGAAATCAGACCAAAATGGGATTGAAAG	TCTGATTTTTTCGGCAACAACAAACCTGAACTCAGAATTGC	spacer
		length: 40	repeater length: 30	
15224	4167	GTTGAAATCAGACCAAAATGGGATTGAAAG	CCTTATCTCATCCTCAGCACCATAAGGCATTTGACCCTT	spacer
		length: 39	repeater length: 30	
15225	4236	GTTGAAATCAGACCAAAATGGGATTGAAAG	TTTCTTCTTTTGATGTATAATCTGAAGACTCAGACGATT	spacer
		length: 39	repeater length: 30	
15226	4305	GTTGAAATCAGACCAAAATGGGATTGAAAG	CGAGACATTAACACAATTTATTGGGCATGTCCTGACGG	spacer
		length: 38	repeater length: 30	
15227	4373	GTTGAAATCAGACCAAAATGGGATTGAAAG	GCAGACGACGTACACTACTGGGGCGTTGTCAAGGAACA	spacer
		length: 38	repeater length: 30	
15228	4441	GTTGAAATCAGACCAAAATGGGATTGAAAG	TAAGAACATCTCATAAACTTGTGTTGGACTCGGTAGCTCCCAA	spacer
		length: 43	repeater length: 30	
15229	4514	GTTGAAATCAGACCAAAATGGGATTGAAAG	ATAAAGGGCTTTTCTTGCCATAATTCTATAGCTCTCGC	spacer
		length: 38	repeater length: 30	
15230	4582	GTTGAAATCAGACCAAAATGGGATTGAAAG	ACGAACAACCTATCTCTGCTTGGTGAAAACCTTATCTGAG	spacer
		length: 38	repeater length: 30	
15231	4650	GTTGAAATCAGACCAAAATGGGATTGAAAG	AGCGTAACCACCAACTCCAACCTCCAGCTCCCAATGCTGC	spacer
		length: 39	repeater length: 30	
15232	4719	GTTGAAATCAGACCAAAATGGGATTGAAAG	TCAGGTCTGCGATAATCATCTGGCCGCTCGTCCAAT	spacer
		length: 36	repeater length: 30	
15233	4785	GTTGAAATCAGACCAAAATGGGATTGAAAG	CAGAACTCTCCAACGAGGCTCTCGGCAAACCTCAGG	spacer
		length: 36	repeater length: 30	
15234	4851	GTTGAAATCAGACCAAAATGGGATTGAAAG	ATCGTCTTCTGGAACGAATGCATCTGCAGGAATGTAAAAA	spacer
		length: 40	repeater length: 30	
15235	4921	GTTGAAATCAGACCAAAATGGGATTGAAAG	TTTGATTGAGTGGGTAAAGGCCTAAATACGGGCTACA	spacer
		length: 38	repeater length: 30	
15236	4989	GTTGAAATCAGACCAAAATGGGATTGAAAG	TCTGGAAGTCCCTCGACCTCAGCCCCATTAGGCATGG	spacer
		length: 38	repeater length: 30	
15237	5057	GTTGAAATCAGACCAAAATGGGATTGAAAG	TGGGGATTTTACTGGCTCTGGGTCGTCGAGGTAGGGG	spacer
		length: 38	repeater length: 30	
15238	5125	GTTGAAATCAGACCAAAATGGGATTGAAAG	CGATTTAGGCCTAAAAACGTCTCTTACTCCAAACCTTGTT	spacer
		length: 41	repeater length: 30	
15239	5196	GTTGAAATCAGACCAAAATGGGATTGAAAG	GCTTGAAAATGAAGTCGATGGGGTCCTTAGCCTGGGCT	spacer

length: 38 repeater length: 30
15240 5264 GTTGAATCAGACCAAAATGGGATTGAAAG GTCTACAGCCTTATAGATGTAGGCAAGCCACTCAACAA spacer
length: 38 repeater length: 30
15241 5332 GTTGAATCAGACCAAAATGGGATTGAAAG CATGTTTTGCATGAAAGGGAAGTCCCGCAGCCGGTA spacer
length: 36 repeater length: 30
15242 5398 GTTGAATCAGACCAAAATGGGATTGAAAG ACAGCAAAGGAAAAGGCACTGCTTTCTGAAGGAGCACCG spacer
length: 39 repeater length: 30
15243 5467 GTTGAATCAGACCAAAATGGGATTGAAAG TAGTACGGTCGGCCGAGCTTCTCGGCAATCTCTGCATAGTT spacer
length: 41 repeater length: 30
15244 5538 GTTGAATCAGACCAAAATGGGATTGAAAG CCGTGCGGTGGAAGAGAGAAGGGGGAGAGCCAGAGTCTT spacer
length: 39 repeater length: 30
15245 5607 GTTGAATCAGACCAAAATGGGATTGAAAG GGTCGACATC
15246
15247
15248 crispr 3
15249 372934 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTACTGTGTTCCGAGCTTTTCAGAGGCAGGCCAAGAGCT spacer
length: 38 repeater length: 30
15250 373002 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTTTCATGTGCTCTCAACCAGTAGTATATTGTCCTAACTG spacer
length: 39 repeater length: 30
15251 373071 CTTTCAATCCCATTTTGGTCTGATTTCAAC AGGCCCCGAATCAACAGGAACACCTGATACACGAATA spacer
length: 37 repeater length: 30
15252 373138 CTTTCAATCCCATTTTGGTCTGATTTCAAC ATGCGGAATTAACAGCATTATCAGGAAAGCGATTATGA spacer
length: 38 repeater length: 30
15253 373206 CTTTCAATCCCATTTTGGTCTGATTTCAAC GGGGGGAGGATGAGAGCTCTGTTTGCCGTTCTGGTGT spacer
length: 37 repeater length: 30
15254 373273 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTTCTGGCATGGGGAGTTAGCAGGAACGTGGCAGGCTA spacer
length: 38 repeater length: 30
15255 373341 CTTTCAATCCCATTTTGGTCTGATTTCAAC GTTAAGCTCTCGGTCGGGCTCTTTGCTCGGTAGAACC spacer
length: 37 repeater length: 30
15256 373408 CTTTCAATCCCATTTTGGTCTGATTTCAAC GACTGTAATCTCAACTCCTCCGCCATCTTCTGAAACTC spacer
length: 38 repeater length: 30
15257 373476 CTTTCAATCCCATTTTGGTCTGATTTCAAC CACATTGACGTGGCGGATTAAGCGCTTGTGGAAAGTGTTTT
spacer length: 41 repeater length: 30
15258 373547 CTTTCAATCCCATTTTGGTCTGATTTCAAC GATGAAGCCATATTTGTGCGATTATTCCACGACGTC spacer
length: 36 repeater length: 30
15259 373613 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTTCTCAACTATCGGTTGTTTGACATTTGTATCCTTTC spacer
length: 38 repeater length: 30
15260 373681 CTTTCAATCCCATTTTGGTCTGATTTCAAC GAAGTTCACATTCCCGTGACTTTCAAGAAGATTATG spacer
length: 37 repeater length: 30
15261 373748 CTTTCAATCCCATTTTGGTCTGATTTCAAC ACAATCTGATCGAACAGATTACCAGTCAAAGCAACTCC spacer
length: 38 repeater length: 30
15262 373816 CTTTCAATCCCATTTTGGTCTGATTTCAAC GATAGACAGCGTTGATAAGGGTTTTAACTTCATTCCA spacer
length: 37 repeater length: 30
15263 373883 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTGTCAGTTCTCTTCTGATCGATTTCGCCAGAGTGGTATATT
spacer length: 42 repeater length: 30
15264 373955 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTGAGTCTGCTTACTCCAAGATTTATGTCTCTGTATGTCT
spacer length: 40 repeater length: 30
15265 374025 CTTTCAATCCCATTTTGGTCTGATTTCAAC CAGAGAAACATCTATCCTTTATGCACCTGCTGAACTTGCAT
spacer length: 41 repeater length: 30
15266 374096 CTTTCAATCCCATTTTGGTCTGATTTCAAC AAAGATGGAGGATTGCGTGGTGAGCATATAATCTGTCT spacer
length: 38 repeater length: 30
15267 374164 CTTTCAATCCCATTTTGGTCTGATTTCAAC TCAGGATATGTTGATTTGGAAACACAACACTACAGTCAAA spacer
length: 38 repeater length: 30
15268 374232 CTTTCAATCCCATTTTGGTCTGATTTCAAC CCGGCAAAACAAGATACCACGATTTCTTCCCATGCCA spacer
length: 37 repeater length: 30
15269 374299 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTCCGACTATCACCCAGTCAAACCCCTCGAAGTCCGA spacer
length: 37 repeater length: 30
15270 374366 CTTTCAATCCCATTTTGGTCTGATTTCAAC TGGATCATTTTTGGTTGGAATCACAATATGTAAAA spacer
length: 35 repeater length: 30
15271 374431 CTTTCAATCCCATTTTGGTCTGATTTCAAC GAACCCAAATATCTTATGCGTTTTTCCAAACCCATTTT spacer
length: 38 repeater length: 30
15272 374499 CTTTCAATCCCATTTTGGTCTGATTTCAAC TGTCGTCCGACAGGTTTAAGGTCGTGTAGTCGAAGTACA spacer
length: 39 repeater length: 30
15273 374568 CTTTCAATCCCATTTTGGTCTGATTTCAAC ACGTCTCCGCTCAGAGGGCGCATGCATTGACCAAAATATGTCAGT
spacer length: 45 repeater length: 30
15274 374643 CTTTCAATCCCATTTTGGTCTGATTTCAAC AAGAGGAACGATCCTGCGGATCCTGCGCGACGATATTACCG
spacer length: 41 repeater length: 30
15275 374714 CTTTCAATCCCATTTTGGTCTGATTTCAAC AAGCAGGACGGTTGCGTAGCTCAGCGCCTGGATGAAGAT spacer
length: 39 repeater length: 30
15276 374783 CTTTCAATCCCATTTTGGTCTGATTTCAAC AAGGCCAGCCTGCTAATGGAGGAGGAACCGGTGAAAC spacer
length: 37 repeater length: 30

15277	374850	CTTTCAATCCCATTTTGGTCTGATTTCAAC	AAGTTCTTCACGTTTGTGTTTGTAGTTATTAGGTCGTCAGA	spacer
		length: 39	repeater length: 30	
15278	374919	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GTTACCACATGCTGTTAATGTCATGCAGTATTGGGAAAT	spacer
		length: 39	repeater length: 30	
15279	374988	CTTTCAATCCCATTTTGGTCTGATTTCAAC	ACAGTGCAGTCATTATGATTCCAATAACCCATGCATA	spacer
		length: 37	repeater length: 30	
15280	375055	CTTTCAATCCCATTTTGGTCTGATTTCAAC	ATTCCCTCAAGTATTACGTATGGCAAAGCTGGTGTTA	spacer
		length: 37	repeater length: 30	
15281	375122	CTTTCAATCCCATTTTGGTCTGATTTCAAC	CAAGTAGTCCGTTATTAGGTTGTTAATGTCAGTTTGTATT	
		spacer length: 40	repeater length: 30	
15282	375192	CTTTCAATCCCATTTTGGTCTGATTTCAAC	AAGCTATAATAAGCGAACACTTCACGCATAAAGAACAGAT	
		spacer length: 40	repeater length: 30	
15283	375262	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GACCCCGCCGAGTTCATTGAAGACCTAAACGACGCA	spacer
		length: 36	repeater length: 30	
15284	375328	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TTACGTTGAAGTGGCTGATTCCGCTTCGCTGCACTTTAA	spacer
		length: 39	repeater length: 30	
15285	375397	CTTTCAATCCCATTTTGGTCTGATTTCAAC	CTGTCGTCGACATGGTGAAAGATCTTGAACCTCAACTCT	spacer
		length: 38	repeater length: 30	
15286	375465	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GCTGCCATGAAGCTGTCCGCTTCCTGACTCATTACG	spacer
		length: 36	repeater length: 30	
15287	375531	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GTAGCAGACATGAAACACTTTTCCGCCTGCAGTCAAA	spacer
		length: 37	repeater length: 30	
15288	375598	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TCCTAAGTCAAGCTTGAGAACATCTTTTGGAATGCAAC	spacer
		length: 39	repeater length: 30	
15289	375667	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GGTTCATATCCACGCTGAGGTATCCGAGATGAGTGA	spacer
		length: 36	repeater length: 30	
15290	375733	CTTTCAATCCCATTTTGGTCTGATTTCAAC	CCGATGATGTACCTGAAGCTCCAGAAGTTGTGTACCA	spacer
		length: 37	repeater length: 30	
15291	375800	CTTTCAATCCCATTTTGGTCTGATTTCAAC	AACTCTATGACGGCAGTCCCGTAGTCCGCCAAAAAC	spacer
		length: 36	repeater length: 30	
15292	375866	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GTTTTCTCAATCTTGCTCTGCATCGAATTCAGGAACT	spacer
		length: 37	repeater length: 30	
15293	375933	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TAAGGCCACCTATGCGAGCCTGATCGAGGGGCTCGGGCTCA	
		spacer length: 41	repeater length: 30	
15294	376004	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TGGGGTAATGATGAATTCTATTGGATACAGCTTGAGGAGG	
		spacer length: 40	repeater length: 30	
15295	376074	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TGAATCTCCTATTTTGATAACGTCAGTGTTGGAAC	spacer
		length: 36	repeater length: 30	
15296	376140	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GTGCTTCGAGCTCGGCTGCGAGAGCAGGCCGAGATCA	spacer
		length: 38	repeater length: 30	
15297	376208	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GGCAAAGAGAGGTTATGACGTGCGGCATACCCTAAACTCCTCG	
		spacer length: 44	repeater length: 30	
15298	376282	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GAACTACTTACCCTAACTTTAAACCCTCCTGTAATCCTA	spacer
		length: 39	repeater length: 30	
15299	376351	CTTTCAATCCCATTTTGGTCTGATTTCAAC	AAGAAGGAAAAAGAGGAGAAGGAACTAATAGTTCAA	spacer
		length: 37	repeater length: 30	
15300	376418	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TCTGGGAGGGATGGTTATATTTAGGTGTTGGCGATTCA	spacer
		length: 38	repeater length: 30	
15301	376486	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TGATGATGTATTATGCTCAGACGAGACTAAATCCCTAAACAA	
		spacer length: 42	repeater length: 30	
15302	376558	CTTTCAATCCCATTTTGGTCTGATTTCAAC	AAAACGGAGTGAAAACGGGGAGGGACTGGAGGGGATGAGAT	
		spacer length: 41	repeater length: 30	
15303	376629	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TGAAGCAAAGCCAATATACAAAAGCAGGACAGTGAT	spacer
		length: 36	repeater length: 30	
15304	376695	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TTTCTCGCCAGTCTTTGCTGTAGCGTAGTAGTAAACCA	spacer
		length: 39	repeater length: 30	
15305	376764	CTTTCAATCCCATTTTGGTCTGATTTCAAC	AGTCTATGCCAGCAACATTGATAATGATGTTATTGTA	spacer
		length: 37	repeater length: 30	
15306	376831	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TTGCCTAAAGTGAAAGAAGCATTAGACATGAAGATACGAG	
		spacer length: 40	repeater length: 30	
15307	376901	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GATATTGATATTAGAATACATAGTTGCAATATTGTTTG	spacer
		length: 38	repeater length: 30	
15308	376969	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TACCTTATGATAGTGGTGAAGCGTTAAAGATTGGAAAG	spacer
		length: 38	repeater length: 30	
15309	377037	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TTTTTTATATTAAAGCACCTAAATGTGAAGATTGCAAAGG	
		spacer length: 41	repeater length: 30	
15310	377108	CTTTCAATCCCATTTTGGTCTGATTTCAAC	CATTTTGTGCAAATCCTGCCATCATACACAACATAGTA	spacer
		length: 38	repeater length: 30	
15311	377176	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TTGTGACAGTCACTCATACTTGTGTGTTGCTGTCAGTGCG	
		spacer length: 40	repeater length: 30	
15312	377246	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GGTTGATGATGTTGTGGATAGTTTGAGCTAACAAC	spacer

length: 36 repeater length: 30
15313 377312 CTTTCAATCCCATTTTGGTCTGATTTCAAC GCATATTTGTTGAAGGAGTTGAATAAAGAAAAGATG spacer
length: 36 repeater length: 30
15314 377378 CTTTCAATCCCATTTTGGTCTGATTTCAAC ATTGATACGGCACATAGAGAGTTTGTGGGTTTATAAGT spacer
length: 39 repeater length: 30
15315 377447 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTGAGGAGGAGGTGATTGAGATGGATGGGGAGTTAGAA spacer
length: 38 repeater length: 30
15316 377515 CTTTCAATCCCATTTTGGTCTGATTTCAAC GCACGAAATACTTCTACGAATCGACAGTCTAGAATCT spacer
length: 37 repeater length: 30
15317 377582 CTTTCAATCCCATTTTGGTCTGATTTCAAC TAGAGCTAGGGAGATAGCATATAAAGATTATACAAAAGTT
spacer length: 40 repeater length: 30
15318 377652 CTTTCAATCCCATTTTGGTCTGATTTCAAC GTAAAGAATAGATTTGTTGAGCAGTTGAGACGTATAATTT
spacer length: 40 repeater length: 30
15319 377722 CTTTCAATCCCATTTTGGTCTGATTTCAAC TGTGCCAACACATCGCCAACAGTGAAATTGCTAAT spacer
length: 35 repeater length: 30
15320 377787 CTTTCAATCCCATTTTGGTCTGATTTCAAC CATATGCGCG
15321
15322
15323 crispr 4
15324 539226 GTTGCCGTTCTCCTTATGAGATTC GAATGTGCCTGAGTTTAGGGAGTTCTGGATTGAGAGGTTTGG spacer
length: 42 repeater length: 24
15325 539292 GTTGCCGTTCTCCTTATGAGATTC AAGGTTTTTCAGCTCTCACTACGGCAAGGGTGGCAACTACGG spacer
length: 41 repeater length: 24
15326 539357 GTTGCCGTTCTCCTTATGAGATTC AAGGTTTTTCAGCTCTCACTACGGCAAGGGTGGCAACTACGG spacer
length: 41 repeater length: 24
15327 539422 GTTGCCGTTCTCCTTATGAGATTC TTACTTTGACTCCTGACGAGGGTGAAGCGCTGAGAATTA spacer
length: 39 repeater length: 24
15328 539485 GTTGCCGTTCTCCTTATGAGATTC AAACGTAGAGGAGCATCCGGAGCTAGGATACTCCTC spacer
length: 38 repeater length: 24
15329 539547 GTTGCCGTTCTCCTTATGAGATTC CGGAGCAACTAATGAAGGCATAGATGACTGCGAGGATATATT spacer
length: 42 repeater length: 24
15330 539613 GTTGCCGTTCTCCTTATGAGATTC AAAAAAATGAGGAAATACTTAGCAGGGCGTTTGGTAA spacer length:
37 repeater length: 24
15331 539674 GTTGCCGTTCTCCTTATGAGATTC CGGGCAGTATAGAATTCCTGCCGAGGAGGTCAAGAGAATCT spacer
length: 41 repeater length: 24
15332 539739 GTTGCCGTTCTCCTTATGAGATTC ATTGGTATTTAGTAGCCTTTGAATCAGCAGGCTATTAC spacer
length: 38 repeater length: 24
15333 539801 GTTGCCGTTCTCCTTATGAGATTC TGCATGGAGAAGATGGTTGAATTGAGTAACTACGAGCTGGGCTACTA
spacer length: 47 repeater length: 24
15334 539872 GTTGCCGTTCTCCTTATGAGATTC GAGGTGGGACGAATGGACTATGACAGAATAGTTATTA spacer length:
37 repeater length: 24
15335 539933 GTTGCCGTTCTCCTTATGAGATTC GGAGAGGGTGCAGAGTTTGAAGTATAAGCTTAGGAAGACTAATC spacer
length: 44 repeater length: 24
15336 540001 GTTGCCGTTCTCCTTATGAGATTC TTAAAGAAGCGAGACTTGAGGCGAAGGAGAAGTTCCTT spacer
length: 38 repeater length: 24
15337 540063 GTTGCCGTTCTCCTTATGAGATTC AAGCACGAGTTTGAAGCTTTGGTGGGGGAGGAAATTACTGA spacer
length: 41 repeater length: 24
15338 540128 GTTGCCGTTCTCCTTATGAGATTC GATTCTTGAAGACTTTGGTGATGAGGTTATAGTAACAACTAT spacer
length: 42 repeater length: 24
15339 540194 GTTGCCGTTCTCCTTATGAGATTC GAAGGTGAAAATGGAAGATGCAGTGAGAGATGCTATGATTG spacer
length: 41 repeater length: 24
15340 540259 GTTGCCGTTCTCCTTATGAGATTC ATGAGAAGTTGAAGAAGGTGATAGGATGAGGGCGAAGATAA spacer
length: 41 repeater length: 24
15341 540324 GTTGCCGTTCTCCTTATGAGATTC TTGTCTGGATAAGCCGACACGAGCTAACCAAGGAGAATTATG spacer
length: 42 repeater length: 24
15342 540390 GTTGCCGTTCTCCTTATGAGATTC CAACAATGAAAAAGATGGATTTACAGTGTGCTGGCAGCTGA spacer
length: 41 repeater length: 24
15343 540455 GTTGCCGTTCTCCTTATGAGATTC GTAAAAGTGTTATTTACGTTGATCCTGAGTGGGGTTGTC spacer
length: 39 repeater length: 24
15344 540518 GTTGCCGTTCTCCTTATGAGATTC GTCATTTTTTGGCGTTTGTGAGAGTGCCTGTACTTG spacer length:
36 repeater length: 24
15345 540578 GTTGCCGTTCTCCTTATGAGATTC TGGTTGAATGGGTAAAGAATACTGTAACAGCAGAAGATT spacer
length: 39 repeater length: 24
15346 540641 GTTGCCGTTCTCCTTATGAGATTC AAATGGTAGGTGATAAAATGGAAGATGGAGTCCTAAAACA spacer
length: 40 repeater length: 24
15347 540705 GTTGCCGTTCTCCTTATGAGATTC TGGTAAGTGGTTGGAACACCGAGAGATTACGGGATGATACAAC spacer
length: 43 repeater length: 24
15348 540772 GTTGCCGTTCTCCTTATGAGATTC TATATGATGACCGAGTGAGAACTGAGGCAGATAAAATC spacer
length: 38 repeater length: 24
15349 540834 GTTGCCGTTCTCCTTATGAGATTC TTATTAATATGGTGTATGTTTACCACCCACGAAATTTTA spacer
length: 39 repeater length: 24

15350 540897 GTTGCCGTTCTCCTTATGAGATTC TATCAAGAGAGTGC GGATTAACGGGCGGTATTTCTATC spacer
length: 38 repeater length: 24
15351 540959 GTTGCCGTTCTCCTTATGAGATTC CAAGCAACGAGTACAGCGTAGCAACGACCCCATTTGG spacer length:
37 repeater length: 24
15352 541020 GTTGCCGTTCTCCTTATGAGATTC GTGGAGATACCATTTT CAGAATATTTAACCACGAATTTG spacer
length: 38 repeater length: 24
15353 541082 GTTGCCGTTCTCCTTATGAGATTC GGTAAGATGGCATTC CAGAGCGGTGCAACAACCCCATCG spacer
length: 40 repeater length: 24
15354 541146 GTTGCCGTTCTCCTTATGAGATTC TAGTCGTGGACGTC GGAGGAAACTTGAGCCAGAAAA spacer length:
37 repeater length: 24
15355 541207 GTTGCCGTTCTCCTTATGAGATTC CAGAATGGAGAAGTC CTAGTGTGGAAGGAGGACACATGG spacer
length: 39 repeater length: 24
15356 541270 GTTGCCGTTCTCCTTATGAGATTC GCAGTAGTGTCCGTAG GTGTAATATGACCAGTTCTCAGCATAT spacer
length: 43 repeater length: 24
15357 541337 GTTGCCGTTCTCCTTATGAGATTC CTCAGAGAGAAGCTT AAGGGATTCTATGAGGACTACAAGTA spacer
length: 41 repeater length: 24
15358 541402 GTTGCCGTTCTCCTTATGAGATTC TTTGAGAGGGGTAGA ATAGTTATCGAGCACAAAAACAGC spacer
length: 39 repeater length: 24
15359 541465 GTTGCCGTTCTCCTTATGAGATTC CGAAAATCTACAGGC AAAGCGGTTCACTTGCATTGATAATTC spacer
length: 42 repeater length: 24
15360 541531 GTTGCCGTTCTCCTTATGAGATTC TATGGTATACATGT ACCACCCAAGAGATTTCTCGAAAAA spacer
length: 39 repeater length: 24
15361 541594 GTTGCCGTTCTCCTTATGAGATTC TGAAACAAACGAAAT GGTGTACTTTGCAGACTATCTA spacer length:
37 repeater length: 24
15362 541655 GTTGCCGTTCTCCTTATGAGATTC CACATGCCATACAAC TACCTCCTCGAGATACTGAA spacer length:
35 repeater length: 24
15363 541714 GTTGCCGTTCTCCTTATGAGATTC TAAGAAATTTGAAAT GCTGATGCGGATGAGGAATGCATC spacer
length: 40 repeater length: 24
15364 541778 GTTGCCGTTCTCCTTATGAGATTC TGCAGAGGTTGGTG GAATTTCCCATTTGTTAAGACGGTGTTTAA spacer
length: 42 repeater length: 24
15365 541844 GTTGCCGTTCTCCTTATGAGATTC CTGTGCAGATTGCCG TCCCGAGGATAAGCTGTACCGTAA spacer
length: 40 repeater length: 24
15366 541908 GTTGCCGTTCTCCTTATGAGATTC TGTTAGAGATGTCCT CGAGGGCATTGGTGGGCCAACTAC spacer
length: 39 repeater length: 24
15367 541971 GTTGCCGTTCTCCTTATGAGATTC ATAAGATGAGTGGGG TAGTTGGGTGAACCAGTTTGGTGT spacer
length: 40 repeater length: 24
15368 542035 GTTGCCGTTCTCCTTATGAGATTC GTGTAATTAGAAGTG AGCCTGTAATAGCCTACTGGAAAA spacer
length: 39 repeater length: 24
15369 542098 GTTGCCGTTCTCCTTATGAGATTC ACTTAATAAGAGATT GAGGAAACAGGTGCTTGAGGAAA spacer
length: 38 repeater length: 24
15370 542160 GTTGCCGTTCTCCTTATGAGATTC CGAAGGCAGCTACTT TCCAGATACGGACGTGAACACAGC spacer
length: 39 repeater length: 24
15371 542223 GTTGCCGTTCTCCTTATGAGATTC TGAGGATTGGAGCAG GGC AACAGTTGGGCAGATAACGGA spacer
length: 39 repeater length: 24
15372 542286 GTTGCCGTTCTCCTTATGAGATTC GATGCCGAGT
15373
15374
15375 crispr 5
15376 555444 TTGCCGTTCTCCTTATGAGATTC GAGGCAGTGTTTGAG GGAATTGAAGAGAAGGAGAGCAAGTAG spacer
length: 42 repeater length: 23
15377 555509 TTGCCGTTCTCCTTATGAGATTC CAAAGCAGAACGCAA ACGAGGCAGACCTCAGATTTCTGAACCGG spacer
length: 44 repeater length: 23
15378 555576 TTGCCGTTCTCCTTATGAGATTC GTAAAATAGGTGATG GATGGAGATTATACAATAAACTTGC spacer
length: 40 repeater length: 23
15379 555639 TTGCCGTTCTCCTTATGAGATTC TTCGACTCAAAAAAG GATCGGAAATTGCTGAGAGAAG spacer length:
37 repeater length: 23
15380 555699 TTGCCGTTCTCCTTATGAGATTC GGAGGATGAGTTGCT CGACATCCTTAGCCTGAGAGCTGAAGAG spacer
length: 43 repeater length: 23
15381 555765 TTGCCGTTCTCCTTATGAGATTC ACTTTATTTTCGCTT CTCCAGCCTTCTTGTGCTTCCTTTAG spacer
length: 40 repeater length: 23
15382 555828 TTGCCGTTCTCCTTATGAGATTC TATGCAGGAGACGGA AGTCAAGCGCGTTCTGGACCAGATTG spacer
length: 41 repeater length: 23
15383 555892 TTGCCGTTCTCCTTATGAGATTC TCGAGTATTTCAATG AGTTCCAATGATTGCGGGTGATGGTCTAG spacer
length: 44 repeater length: 23
15384 555959 TTGCCGTTCTCCTTATGAGATTC TTTTTTTGAGGTGGT TGCTGCTGACAGAGCAGGAAATTTG spacer
length: 42 repeater length: 23
15385 556024 TTGCCGTTCTCCTTATGAGATTC TGGCAGAACTCGCGG ACGCGTTAATTAGTCCGGAAGTAAGG spacer
length: 41 repeater length: 23
15386 556088 TTGCCGTTCTCCTTATGAGATTC TAAAGACAGTTTACC AAAAGACTACTACATCCCACAAATAG spacer
length: 41 repeater length: 23
15387 556152 TTGCCGTTCTCCTTATGAGATTC TTTGCTAATTTACATA ACCAGTACAACCTATCTTCATATAGTGTG spacer

length: 45 repeater length: 23
15388 556220 TTGCCGTTCTCCTTATGAGATTC AGGGTTGTATTAGAGTATCCAGAACCAGAAGGAACTGTATG spacer
length: 42 repeater length: 23
15389 556285 TTGCCGTTCTCCTTATGAGATTC TATCATAGCCTGTATGTACTTTGACTACAAAACAATG spacer length:
37 repeater length: 23
15390 556345 TTGCCGTTCTCCTTATGAGATTC TCATATGCTGGCTTAAAAGTCGTTTCAATTGGTTCACCTG spacer
length: 40 repeater length: 23
15391 556408 TTGCCGTTCTCCTTATGAGATTC GTAAAGAACCTCGTCGGCTACATAAACCCAATGCGTTATCG spacer
length: 41 repeater length: 23
15392 556472 TTGCCGTTCTCCTTATGAGATTC TTTGACACGGGAGGCGACATTACAACGGGAACAATCCTG spacer
length: 39 repeater length: 23
15393 556534 TTGCCGTTCTCCTTATGAGATTC TACGTAACCGATGCATGGGACAGTGGTCTTACTGTTCTCAA spacer
length: 41 repeater length: 23
15394 556598 TTGCCGTTCTCCTTATGAGATTC TGAGAAGCAAGAGGGAAGAAGCAAAGAGAGCCCGCCAAGCAGC spacer
length: 43 repeater length: 23
15395 556664 TTGCCGTTCTCCTTATGAGATTC CCTCAAGCTCGCCGACCCTGCCGACGTTGTTTCTATTGCC spacer
length: 40 repeater length: 23
15396 556727 TTGCCGTTCTCCTTATGAGATTC TTACGCTTCCCTAATCACCGCTAGAACAAGATTAATGCTTTTA spacer
length: 43 repeater length: 23
15397 556793 TTGCCGTTCTCCTTATGAGATTC CTGACGAACTGACCTTCAAGGACAAGCTTGCTGACGCTTCAAGA spacer
length: 44 repeater length: 23
15398 556860 TTGCCGTTCTCCTTATGAGATTC TTTGTGACTTCACCAAGCGTACAAACACCGTTAACGTCAGTA spacer
length: 42 repeater length: 23
15399 556925 TTGCCGTTCTCCTTATGAGATTC TTCCTTGAAGGACTGAAAGTTGCTAACCTCGGTTGGAAATAG spacer
length: 42 repeater length: 23
15400 556990 TTGCCGTTCTCCTTATGAGATTC ACAACTCAGTGCTTAAAGCTAACCCGCCATCAACAAGCTTAAG spacer
length: 43 repeater length: 23
15401 557056 TTGCCGTTCTCCTTATGAGATTC AATGGAGTTCTTCGGACACAAGCGTTTATCATACATTCTG spacer
length: 40 repeater length: 23
15402 557119 TTGCCGTTCTCCTTATGAGATTC CGCGAAGGCG
15403
15404
15405 crispr 6
15406 557884 TTGCCGTTCTCCTTATGAGATTC ACTGAATAAAGAGACTGCGGAAGTTCACGTTGTCAGAGAG spacer
length: 40 repeater length: 23
15407 557947 TTGCCGTTCTCCTTATGAGATTC AAGGAGGTGAGAGAAATGGATGTTGAAGTCATCAGGATGG spacer
length: 40 repeater length: 23
15408 558010 TTGCCGTTCTCCTTATGAGATTC TAAGGATAAAAAAGGCGGTGCAAGGGTTTATCTTCTCAAAG spacer
length: 42 repeater length: 23
15409 558075 TTGCCGTTCTCCTTATGAGATTC TCGACCGAGGACAATTACATAAAAATGAAAAAGAAGCAGG spacer
length: 41 repeater length: 23
15410 558139 TTGCCGTTCTCCTTATGAGATTC AGATAGTCATGAGAGTTGGGACTGACTTAAATAAGTTTATG spacer
length: 41 repeater length: 23
15411 558203 TTGCCGTTCTCCTTATGAGATTC CAGGAGATGGCGAAGAGGAAGAGGAAGGGGGAGAGTTACCACCG spacer
length: 44 repeater length: 23
15412 558270 TTGCCGTTCTCCTTATGAGATTC TTATCTCAAGAGAGATTAAGAAGTATCAGAAGACCCTAAAG spacer
length: 41 repeater length: 23
15413 558334 TTGCCGTTCTCCTTATGAGATTC TCAAAAGGTCATTTCAGCATGCTCTTCGGATTTACAGAA spacer length:
38 repeater length: 23
15414 558395 TTGCCGTTCTCCTTATGAGATTC CAGATCTTAACGCTCGCTATGCAGACAGCAACCTCGCAAG spacer
length: 40 repeater length: 23
15415 558458 TTGCCGTTCTCCTTATGAGATTC TGAGCGGAGAGATCGACCCATTCGGTACGGAGTACGACATCGTTAAA
spacer length: 47 repeater length: 23
15416 558528 TTGCCGTTCTCCTTATGAGATTC GAAGACATATCGGGTTATGTGCCAGCGTTTTTGTAGCAA spacer
length: 39 repeater length: 23
15417 558590 TTGCCGTTCTCCTTATGAGATTC TCAAACCGAAAGAATACTGGGAGGAAATCCAGAACAA spacer length:
37 repeater length: 23
15418 558650 TTGCCGTTCTCCTTATGAGATTC AGGAAGTGTAGGGGGGTCGGAAGTGGAAGAGCGAGTTAAA spacer
length: 40 repeater length: 23
15419 558713 TTGCCGTTCTCCTTATGAGATTC TACTAAAAAGTATGCAGTTGTTAAGTCTGCGTTTAAGAA spacer
length: 39 repeater length: 23
15420 558775 TTGCCGTTCTCCTTATGAGATTC TGAGCGGAGAGATCGACCCATTCGGTACGGAGTACGACATCGTTAAA
spacer length: 47 repeater length: 23
15421 558845 TTGCCGTTCTCCTTATGAGATTC GTCGACATCCGCCTCAACCAGCACGGCAACGGCAGGAA spacer length:
38 repeater length: 23
15422 558906 TTGCCGTTCTCCTTATGAGATTC GCAGATCTCTTTTACTTTATTCTCTTATCCACGATTCTA spacer
length: 40 repeater length: 23
15423 558969 TTGCCGTTCTCCTTATGAGATTC AAAACCGAGCAAAGCTAAACTAAAGCCAACCTATAA spacer length: 35
repeater length: 23
15424 559027 TTGCCGTTCTCCTTATGAGATTC CGAAATCACCCGCCGGCGGTGTTAGCGTATGCGGTATTCTA spacer
length: 41 repeater length: 23

15425 559091 TTGCCGTTCTCCTTATGAGATTC TGATGTAATATGGCAAGGAAGGGAACGAGAAGCCAGATTATA spacer
length: 42 repeater length: 23

15426 559156 TTGCCGTTCTCCTTATGAGATTC TTTTGATAGTACCGCTCGACGATGTGGTGTGTATGCTA spacer length:
38 repeater length: 23

15427 559217 TTGCCGTTCTCCTTATGAGATTC TGGTGTAATGTGAGCAACAGCAACGAAATTGTTTGAAAGCA spacer
length: 42 repeater length: 23

15428 559282 TTGCCGTTCTCCTTATGAGATTC AAATACGAACTCGTCTGAGAAACAATTAAGAAAGACCTTCCA spacer
length: 42 repeater length: 23

15429 559347 TTGCCGTTCTCCTTATGAGATTC AGATTGGATT

15430

15431

15432 crispr 7

15433 1849399 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CACTCCAAGCCCCCTCCTTTTCTATATCTCGGAATAACG
spacer length: 38 repeater length: 37

15434 1849474 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AAGCAGGATTTGATAAGAATACTTACTGGCATACTTAA
spacer length: 38 repeater length: 37

15435 1849549 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
TCACCAAACTTCTCGTCCATCCAATCCTTCCACTCATCA spacer length: 39 repeater length: 37

15436 1849625 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTTGACGGGTGGGTAGATGACATTACTCCAATAATAC
spacer length: 37 repeater length: 37

15437 1849699 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TAATAAGAAATTATGTAAACACTTGGGTGAATATAAAC
spacer length: 38 repeater length: 37

15438 1849774 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACATTGTCATCAATCAGCTCACATAAAAAATATTAAATC
spacer length: 38 repeater length: 37

15439 1849849 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
AAATCATGTGCTTCAAATGTTATGTTATACACTGCATTTTC spacer length: 41 repeater length: 37

15440 1849927 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCTCTCTGCCCCAGAATCCCTGCGATTTCCCTGATTAT
spacer length: 38 repeater length: 37

15441 1850002 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CAAGTTGCTTCAATCTATCTTCAACCTGCTTATACCAT
spacer length: 38 repeater length: 37

15442 1850077 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACAAATCGTCCCCGACAACATCGTGCCATTTCATTA
spacer length: 37 repeater length: 37

15443 1850151 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATTTCTTCATAATTCTCAAACCTCAAACCTCAAATTA
spacer length: 37 repeater length: 37

15444 1850225 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACAATAGTTGAAATCCCATTCTTCATCGCTTCCTTTAT
spacer length: 38 repeater length: 37

15445 1850300 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
TTAAGTGATATCCAAAATCAAATCTTAAATCATACTTG spacer length: 39 repeater length: 37

15446 1850376 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CCAGTAACCTTTGTATCCCATGTTATCAATCTCATCGT
spacer length: 38 repeater length: 37

15447 1850451 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTCCATACTTTGCAATGCTTTTCATCATCTGCTATATGA
spacer length: 38 repeater length: 37

15448 1850526 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GACCTACTACAAACATCCTCTCATACGTAATATAACC
spacer length: 37 repeater length: 37

15449 1850600 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CGTAATATTGCCCCTTCAACTCTGTTTTTATATTTGT
spacer length: 37 repeater length: 37

15450 1850674 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
TAATATACTCAACAAATCCCTTAAGCTCTGGCACTCTTG spacer length: 39 repeater length: 37

15451 1850750 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCTATACTGTGATTTCGTGGAAGTATTTTCGTGCACAA
spacer length: 37 repeater length: 37

15452 1850824 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
ATTGATAAGTTGGAAGTGATGATGGTGAGACATGGGAGG spacer length: 40 repeater length: 37

15453 1850901 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACATCCACTTTCTACTACCACCCCCAACTCAAATAT
spacer length: 37 repeater length: 37

15454 1850975 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
GAGAGAGAATGCGAGTGCTCAGAGACAGATTGTATGAGA spacer length: 39 repeater length: 37

15455 1851051 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACATCAATACCCTTCTCTCTACAAGCTTCAAAAAATT
spacer length: 37 repeater length: 37

15456 1851125 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CATCAAACCTCATATTCCTTAACAACAACCAAAAAATGCA
spacer length: 38 repeater length: 37

15457 1851200 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTGCTCTCTCCTTATTGACTAATCCAGCAATAAAATCA
spacer length: 38 repeater length: 37

15458 1851275 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AGTTATTTTTTGTGACTTTGAAGATGGCATATACTC
spacer length: 37 repeater length: 37

15459 1851349 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
ACCAATTCTCTCTCATCAATATGTGCTCCACTAATATTCA spacer length: 40 repeater length: 37

15460 1851426 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TGTAACAACTTCTTTTCGTCTAAACAACACACCCTTAT
spacer length: 38 repeater length: 37

15461 1851501 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
GTAACTTTGTCCCGCACAAATATTTCTGCAACAATACA spacer length: 39 repeater length: 37

15462 1851577 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CATATATTAAATATGTCATCCACCTCTCCATATACG

spacer length: 36 repeater length: 37
 15463 1851650 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATAATATATCCAATACGCTGCTCTGTCAACACTGACAT
 spacer length: 38 repeater length: 37
 15464 1851725 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTGGAGAGACTGTTGCAAGGGGACTTGCCTATCAGGG
 spacer length: 37 repeater length: 37
 15465 1851799 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AAACCCAAATATTTGCTCAAATGCTTCCCTAACTCTA
 spacer length: 37 repeater length: 37
 15466 1851873 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GTAATTATGAATACCACTCCATCTCTCACCTTGAACA
 spacer length: 37 repeater length: 37
 15467 1851947 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
 AATATCCCTCTAACCCAACCATGCCATGTCACGTGTCGAAT spacer length: 40 repeater length: 37
 15468 1852024 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
 TTATGCCTATCACTAACAGACTGCATGAGAACCCCTTA spacer length: 39 repeater length: 37
 15469 1852100 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TAGAAATATATTTTGGTTACAAGGTGTCACGAATATCA
 spacer length: 38 repeater length: 37
 15470 1852175 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
 TTATCATTGGGTCTTTCAACCCCGGTATGGGCACCTTCAA spacer length: 39 repeater length: 37
 15471 1852251 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
 AATCATCGAGTTTGCTCTCGATGACATTAAGCTTATTTT spacer length: 39 repeater length: 37
 15472 1852327 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
 TCAACTTCTTTAACCTTCAGCACCAGCTCGTCGTCCTTC spacer length: 39 repeater length: 37
 15473 1852403 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATATCGTCAACTCCTTGCCCATCAATACTATGATTGGC
 spacer length: 38 repeater length: 37
 15474 1852478 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CCATACCAACCATCTCAACCACCTCAACTTATCTTGA
 spacer length: 37 repeater length: 37
 15475 1852552 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTATACCTGTATGCTTCATATTCCACAACCTCAACCTT
 spacer length: 38 repeater length: 37
 15476 1852627 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATCTCTGCATCTACACCAAAAAACCCAAACGGACTAT
 spacer length: 37 repeater length: 37
 15477 1852701 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCGACTATGCCCTTGCAAACATCGCAATACTCTGCTA
 spacer length: 37 repeater length: 37
 15478 1852775 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AGATTATGTCCTCCTCACTTCCCTCAATCCCAGCCTT
 spacer length: 37 repeater length: 37
 15479 1852849 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
 TGATTAGTATCCCTGTCAGCACTCCAACGACATTGATGC spacer length: 39 repeater length: 37
 15480 1852925 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TATTCCAAATGATTGGCACAATATAACCAAACCTCCTC
 spacer length: 37 repeater length: 37
 15481 1852999 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTGTTCTCCTCAAACACACTTGATGTGTATAACCGT
 spacer length: 36 repeater length: 37
 15482 1853072 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CTGATTATTTCGTGCCTTTTTGTGCGGCTTCCATTTCATT
 spacer length: 38 repeater length: 37
 15483 1853147 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TATTAGCATGTTTTGCATATGTTATGGCACCAGATGG
 spacer length: 37 repeater length: 37
 15484 1853221 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTATTGTTGATTGCTTATGTGGTAGGCCTTGCAGAT
 spacer length: 37 repeater length: 37
 15485 1853295 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
 GTCAGCAAATCTTCTCGTAACAAAACCTCATCCACCTCC spacer length: 39 repeater length: 37
 15486 1853371 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GCATATTCTGGATAATGCTTCTTTGCCCACTCCTTAAT
 spacer length: 38 repeater length: 37
 15487 1853446 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TATATGGGTAAATTGACAAAATGCATGAGAAGGCAA
 spacer length: 36 repeater length: 37
 15488 1853519 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
 ATATTAACATTCAAACCTTGCTCCATCCGCGCTACAACTCA spacer length: 40 repeater length: 37
 15489 1853596 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTGTTGCACTCTGCAACCTTATGTGCTGCATCTTCCAA
 spacer length: 38 repeater length: 37
 15490 1853671 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATAAAGCGTCTTTAACAATCTCCACAGTTAATTTTCGA
 spacer length: 38 repeater length: 37
 15491 1853746 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTCTACTCCCAATCCTCACAAACCTCTACAACCTC
 spacer length: 37 repeater length: 37
 15492 1853820 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACCAACCCCAATCCATCATACCACCTCATTCATCGT
 spacer length: 37 repeater length: 37
 15493 1853894 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACATCATCTGCTATCTGCTTCAACTCATCTGGCTCAT
 spacer length: 37 repeater length: 37
 15494 1853968 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTGCCTTCCCAAGCGCCACATTTGATGCATCTATCTT
 spacer length: 37 repeater length: 37
 15495 1854042 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
 TATACTTGCTCTCTTCCTTCAGCTTGTGCCACTTCTCTG spacer length: 39 repeater length: 37
 15496 1854118 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATCTTTGTCCCATCTGACATTGAAACATATTCCCGCA
 spacer length: 37 repeater length: 37
 15497 1854192 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTAATCCATTTTGCAACTCTCCATGCAACCTTTCTTGC
 spacer length: 38 repeater length: 37

15498 1854267 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACCTCACCCACCATGTTGACCACCTCAAAAAATATTAG
spacer length: 38 repeater length: 37
15499 1854342 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CTAAGTGCAGGAGCGTTGCCAAAGTGCTCCTTAATGGC
spacer length: 38 repeater length: 37
15500 1854417 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATTAAGTTCGCAAAGGATTGTTACCGCATAGTCT
spacer length: 34 repeater length: 37
15501 1854488 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATTGTCCACGTGATAACTAAATCGTCATTTGGGTAA
spacer length: 37 repeater length: 37
15502 1854562 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTATTCTCGTTATCCAGTTAATCGCTCCCTCAAATTT
spacer length: 37 repeater length: 37
15503 1854636 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATTCTACGCATTTGCCGTTACCGCAACAGGTGTAACAA
spacer length: 38 repeater length: 37
15504 1854711 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AAATGTAGCTGTGCGTTCGCTCTGCGTATTAAAAGT
spacer length: 36 repeater length: 37
15505 1854784 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACACATCGTTGAGTACGAACGGTGGAGACGTAATTGT
spacer length: 37 repeater length: 37
15506 1854858 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCAACACTTTGATGATCTGTGTGGCTACTTTGTCCAAG
spacer length: 38 repeater length: 37
15507 1854933 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCAAAAATGGAGCAGTCGAGCAATATCGAGATAACG
spacer length: 36 repeater length: 37
15508 1855006 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTAATCAACTTCTCTGCCTCCTCCTCACTCTGCACTTC
spacer length: 38 repeater length: 37
15509 1855081 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TGAAGGAAGAGCTGCTGCAGAAGATGAAAAAAGCAAA
spacer length: 37 repeater length: 37
15510 1855155 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AAGACAACACACTGTGGATTGTGAAAGGAGAAATA
spacer length: 35 repeater length: 37
15511 1855227 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TGAATCGTCAATCCAGCCGCTTCGGCTGCAGCTCCCT
spacer length: 37 repeater length: 37
15512 1855301 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACGTCGGCGTGGTCACGGAGGTTAGAGAGATAAACGAC
spacer length: 38 repeater length: 37
15513 1855376 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CATGATTTGAGCAAATGACGCATCAGGTGGTAAAGCTC
spacer length: 38 repeater length: 37
15514 1855451 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
AAAAAGACTATCCGACGCATTTGGTGAACCTAAACCACCA spacer length: 39 repeater length: 37
15515 1855527 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATAGAGGGCGGATATTTGCGCATTAAGATATGGGAAG
spacer length: 37 repeater length: 37
15516 1855601 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCTAATTCGCTGATTTGGCCGCTTTTGAACATTCCGCA
spacer length: 38 repeater length: 37
15517 1855676 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACTTTTCGAGGTCTTCAAGCGTCGGCATCTTA
spacer length: 32 repeater length: 37
15518 1855745 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACAAGATAGAGCAGCTGGTGAACCTTCTACGCCGAGAGA
spacer length: 38 repeater length: 37
15519 1855820 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TGAAGAGTTAGAAAAGGCTGGTTTTTCCAACAACTTC
spacer length: 37 repeater length: 37
15520 1855894 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
GCACCACTTCGTCGGCTGAGTGAACGAGCCAGCTCCAGA spacer length: 39 repeater length: 37
15521 1855970 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CCCTCGAAGCGGGCCTGCTGCTTGAACCTTACGGTTGT
spacer length: 38 repeater length: 37
15522 1856045 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
ACTGCAGGGGTGTGGACACAAGTGGACCGCAACAGAGGT spacer length: 39 repeater length: 37
15523 1856121 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
15524
15525
15526 GCA_000739065.1_ASM73906v1_genomic.fna (PilerCR) :
15527 START REPEAT
SPACER
15528 crispr 1
15529 152746 TGTTAAAATCAGACCGTTACGGTATGGAAAC CCATTTGTGTTAATAATGAAATGAATTTTCATCA spacer
length: 33 repeater length: 31
15530 152810 TGTTAAAATCAGACCGTTACGGTATGGAAAC AAGATGTTATAAAAAGTAGTGATTGGAACATTT spacer
length: 34 repeater length: 31
15531 152875 TGTTAAAATCAGACCGTTACGGTATGGAAAC ATTAGGTAAAGGTTCTGGAAAATCTACTATGTGTTG spacer
length: 36 repeater length: 31
15532 152942 TGTTAAAATCAGACCGTTACGGTATGGAAAC CATAAATCAATAACAATTGAAGTATTTTCATCTAT spacer
length: 35 repeater length: 31
15533 153008 TGTTAAAATCAGACCGTTACGGTATGGAAAC CTTTCAGGTT
15534
15535
15536 crispr 2
15537 153077 GTTAAAATCAGACCGTTACGGTATGGAAAC TCCTTCTCAATAACATAAACGTGCTTAATCTTGCCAGCTTCTT
spacer length: 43 repeater length: 30

15538 153150 GTTAAAAATCAGACCGTTACGGTATGGAAAC ATCTCTATACAGACTGAAAATGGATACATAACAA spacer
length: 34 repeater length: 30

15539 153214 GTTAAAAATCAGACCGTTACGGTATGGAAAC
TAGGATAACGGGTAAATAGTGGTTTACTCGACGTCCATCGAGAAATGG

15540

15541

15542 crispr 3

15543 160574 GTTTCATACCGAAACGGTCTGATTTTAAC AACATTCCTAAGCAATTGATACTTGTATAATTTATAGGT spacer
length: 39 repeater length: 30

15544 160643 GTTTCATACCGAAACGGTCTGATTTTAAC CTCATCGTCTGTAAATCTATTGTAGTCGTCTCCAT spacer
length: 36 repeater length: 30

15545 160709 GTTTCATACCGAAACGGTCTGATTTTAAC TAAATGGTGATAAAAATGGCATATAGAATAATTAG spacer
length: 36 repeater length: 30

15546 160775 GTTTCATACCGAAACGGTCTGATTTTAAC
AAATTTTAACAGTGTGTGATGATAAATCATACCATAATTTTGTAGTATCATT spacer length: 52 repeater
length: 30

15547 160857 GTTTCATACCGAAACGGTCTGATTTTAAC AATTTAAAAATAAAAAGAAAATATTTAATAAAAAA spacer
length: 36 repeater length: 30

15548 160923 GTTTCATACCGAAACGGTCTGATTTTAAC TGTGTTAGTATGTCTTGAAATTAAAGCAAAATCTGT spacer
length: 36 repeater length: 30

15549 160989 GTTTCATACCGAAACGGTCTGATTTTAAC CGGATTACGA

15550

15551

15552 crispr 4

15553 287173 GTTTCATACCGTAACGGTCTGATTTTAAC
TATTGTTTATTTCTTCAGTTGCAGGGGAATCAATCTTAGATATGAAGTATA spacer length: 51 repeater
length: 30

15554 287254 GTTTCATACCGTAACGGTCTGATTTTAAC AGGACTGGATAAGTCATGCCGTAGAGAGGCCAGGAGCACTA
spacer length: 41 repeater length: 30

15555 287325 GTTTCATACCGTAACGGTCTGATTTTAAC TACTACATATATGTAAATTGGTGATAAAATGGCTGATGTAA
spacer length: 41 repeater length: 30

15556 287396 GTTTCATACCGTAACGGTCTGATTTTAAC GCCGTTTAATTCTCTTACCGCCTCACACCCTCCCTTGCAATA
spacer length: 42 repeater length: 30

15557 287468 GTTTCATACCGTAACGGTCTGATTTTAAC AACTTCTATAGGAATAGTTATTTTACAGTATAATTCATC spacer
length: 39 repeater length: 30

15558 287537 GTTTCATACCGTAACGGTCTGATTTTAAC TTATAAAATGAAAATAAAAGGCAGTATTGGAATGATTGA spacer
length: 39 repeater length: 30

15559 287606 GTTTCATACCGTAACGGTCTGATTTTAAC TTGCATACATTGCTAAAAAATATCTGTAGGTGAAACTA spacer
length: 38 repeater length: 30

15560 287674 GTTTCATACCGTAACGGTCTGATTTTAAC TATCACTTGTGGTTACCGTAAAACTAAATGA spacer
length: 32 repeater length: 30

15561 287736 GTTTCATACCGTAACGGTCTGATTTTAAC
GATGCAATAACTTCATTAGCCCCACCTGTATTAAATACGGAGCATTT spacer length: 47 repeater length: 30

15562 287813 GTTTCATACCGTAACGGTCTGATTTTAAC CAAATTCCTCACTAACACCGAAACTATCTCCCTAT spacer
length: 36 repeater length: 30

15563 287879 GTTTCATACCGTAACGGTCTGATTTTAAC ATCCCTTTAGATTCTCAATTCTGTAGGCAGTTAGAA spacer
length: 36 repeater length: 30

15564 287945 GTTTCATACCGTAACGGTCTGATTTTAAC TTAATCTTAAAAGTGGTGAATAGGAGCTGGTGGTGGGGC
spacer length: 40 repeater length: 30

15565 288015 GTTTCATACCGTAACGGTCTGATTTTAAC CATTAAGTATAATAATACAATTGATAGATTAAAAA spacer
length: 36 repeater length: 30

15566 288081 GTTTCATACCGTAACGGTCTGATTTTAAC AAAATAGATGAAAATACTTCAATTGTTATTGATTTATG spacer
length: 38 repeater length: 30

15567 288149 GTTTCATACCGTAACGGTCTGATTTTAAC TTTAAGTTTTGTTATTGTTTCGTAAATTTTAAATAATTCTTG
spacer length: 42 repeater length: 30

15568 288221 GTTTCATACCGTAACGGTCTGATTTTAAC AAGATTGACGAATATCAACACCTTCAGAAAAAAGAATATTTAGA
spacer length: 44 repeater length: 30

15569 288295 GTTTCATACCGTAACGGTCTGATTTTAAC TTTTGATGTTTCTGGAGTTTATTCACATAATTGT spacer
length: 34 repeater length: 30

15570 288359 GTTTCATACCGTAACGGTCTGATTTTAAC CAATGTAGAATTTGATATTACTAATATTTGGGATATATCTTA
spacer length: 42 repeater length: 30

15571 288431 GTTTCATACCGTAACGGTCTGATTTTAAC AATTTTAATGTATCTTTTACTGCTGGTGGCATATCCTT spacer
length: 38 repeater length: 30

15572 288499 GTTTCATACCGTAACGGTCTGATTTTAAC TCCCTCCAAT

15573

15574

15575 crispr 5

15576 320288 AGTTTCATACCGAAACGGTCTGATTTTAAC ATTCTAACTCATATCTTGGACTCTCAAAGTAGT spacer
length: 33 repeater length: 31

15577 320352 AGTTTCATACCGAAACGGTCTGATTTTAAC AAAATTGTAATATTGCCTTCCTTTGATGCCCTAA spacer
length: 34 repeater length: 31

15578 320417 AGTTTCCATACCGAAACGGTCTGATTTTAAAC CGCATGACCT
15579
15580
15581 crispr 6
15582 320491 ATTTCCATACCGAAACGGTCTGATTTTAAAC
TATAAGTTTGTTCATAATACTATACCAACGCTCTAACTGCTCCCTA spacer length: 47 repeater length: 30
15583 320568 ATTTCCATACCGAAACGGTCTGATTTTAAAC GAGTATAGAAATAAAATCTGGGGTTATTGTTACAAAAAATTAAGA
spacer length: 46 repeater length: 30
15584 320644 ATTTCCATACCGAAACGGTCTGATTTTAAAC CAAATTCTATTTCAAATTCATAAGTGTCTCCAGACAAATCAA
spacer length: 42 repeater length: 30
15585 320716 ATTTCCATACCGAAACGGTCTGATTTTAAAC AAAACATTCAATTATATAACAAAAGCATTAAATTTCTGA spacer
length: 37 repeater length: 30
15586 320783 ATTTCCATACCGAAACGGTCTGATTTTAAAC TTTCATTGTAGTATCAAATAAATCATTATTACCTGC spacer
length: 36 repeater length: 30
15587 320849 ATTTCCATACCGAAACGGTCTGATTTTAAAC ATTATATATATCATTATTATATGAACAAATGAATGT spacer
length: 36 repeater length: 30
15588 320915 ATTTCCATACCGAAACGGTCTGATTTTAAAC TATGTGGAGAAAGACTTGTGGAGAGGATATTTATGAAATAG
spacer length: 42 repeater length: 30
15589 320987 ATTTCCATACCGAAACGGTCTGATTTTAAAC AATTCAACATTTCTTGTTTTAAATGTATCATCAATAGTATCAA
spacer length: 42 repeater length: 30
15590 321059 ATTTCCATACCGAAACGGTCTGATTTTAAAC TTCTGTGCATATCAATGAGAATACTTGGGTTAGTCTCCATGTC
spacer length: 43 repeater length: 30
15591 321132 ATTTCCATACCGAAACGGTCTGATTTTAAAC CTAAATCACCAAAGTTATATAGTGCTTTTATATCAAT spacer
length: 37 repeater length: 30
15592 321199 ATTTCCATACCGAAACGGTCTGATTTTAAAC TGCACCGTCAAGTTTTTCTTCAATATAAACTTTATCATC spacer
length: 39 repeater length: 30
15593 321268 ATTTCCATACCGAAACGGTCTGATTTTAAAC AAAATATGCACCTAAAAAGCAAAAAGTGAAAAAGTT spacer
length: 36 repeater length: 30
15594 321334 ATTTCCATACCGAAACGGTCTGATTTTAAAC ATTAAAGGGA
15595
15596
15597 crispr 7
15598 432712 GTTTCATACCGAAACGGTCTGATTTTAAAC GATGAAATAAACATTATAAACGCAGTTTCAGTTGATGCAA
spacer length: 40 repeater length: 30
15599 432782 GTTTCATACCGAAACGGTCTGATTTTAAAC AGAATTATACGTCCCTTCTGAATTTACAACATTT spacer
length: 34 repeater length: 30
15600 432846 GTTTCATACCGAAACGGTCTGATTTTAAAC GGTAAGCGTGGATTTTCTCAAGTAATTCTGGTGTCTATCTT
spacer length: 40 repeater length: 30
15601 432916 GTTTCATACCGAAACGGTCTGATTTTAAAC ATGGATAATACCACAATTAAAACAAATACATCAACAT spacer
length: 37 repeater length: 30
15602 432983 GTTTCATACCGAAACGGTCTGATTTTAAAC CTGTTTTGCCATTTAAACTATTATCATTAATATT spacer
length: 34 repeater length: 30
15603 433047 GTTTCATACCGAAACGGTCTGATTTTAAAC GGATAGAGGA
15604
15605
15606 crispr 8
15607 769283 GTTAAATCAGACCGTTTCGGTATGGAAAC TGCATAAAATTTAGCTTGTTCATAATAATCTAATTCGTTAA
spacer length: 42 repeater length: 30
15608 769355 GTTAAATCAGACCGTTTCGGTATGGAAAC ATCGGTTAGGTAGGTTGTGGTAGGTAGTAACCGAAA spacer
length: 36 repeater length: 30
15609 769421 GTTAAATCAGACCGTTTCGGTATGGAAAC AATGATATCAACGTATTAATTCAAGAAACAAATAGG spacer
length: 36 repeater length: 30
15610 769487 GTTAAATCAGACCGTTTCGGTATGGAAAC AAGGATGAGATTGAAGAACTGATGAAATGAAACCG spacer
length: 36 repeater length: 30
15611 769553 GTTAAATCAGACCGTTTCGGTATGGAAAC TATTAGAAAATAACACAATAGTTGACTGGAAAACCTTCTAAATATTC
spacer length: 46 repeater length: 30
15612 769629 GTTAAATCAGACCGTTTCGGTATGGAAAC AATGATCCAAATTTGGTTATTGGAAGATTAGC spacer
length: 32 repeater length: 30
15613 769691 GTTAAATCAGACCGTTTCGGTATGGAAAC GCCACTATCGGTTGGATATTTTTTGTATTTGT spacer
length: 32 repeater length: 30
15614 769753 GTTAAATCAGACCGTTTCGGTATGGAAAC
CATTTTGATTTTACTTCAATTGATTTTACAATTTTACATTTATCTATA spacer length: 48 repeater length: 30
15615 769831 GTTAAATCAGACCGTTTCGGTATGGAAAC AATTTGTCATTATCAATCATAGTAAAAATATTTTTATAATA
spacer length: 41 repeater length: 30
15616 769902 GTTAAATCAGACCGTTTCGGTATGGAAAC GATCTCATTT
15617
15618
15619 crispr 9
15620 769969 GTTAAATCAGACCGTTACGGTATGGAAAC ACACTACTGAACATATTTTGTAAATCCTGTAAATATCCCGCA
spacer length: 42 repeater length: 30
15621 770041 GTTAAATCAGACCGTTACGGTATGGAAAC TACTCTCTCACCTCACTTGTTTTTTTTAAAGATTATGTTTTA

spacer length: 41 repeater length: 30
 15622 770112 GTTAAAAATCAGACCGTTACGGTATGGAAAC GATTGGGTGCTTATTTTAGTTGTAGTTATTTTAGTTGT spacer
 length: 38 repeater length: 30
 15623 770180 GTTAAAAATCAGACCGTTACGGTATGGAAAC TTTTCCATGGACAATTAAAAATACCGTCTGACCTAT
 15624
 15625
 15626 crispr 10
 15627 784069 GTTAAAAATCAGACCGATTTCGGTATGGAAAC AAAATTAAAAATGCCAAAAGTTGCAACACAATTAGCAAAAAGA
 spacer length: 41 repeater length: 30
 15628 784140 GTTAAAAATCAGACCGATTTCGGTATGGAAAC GATATTAATTTATCACTTCCAGACATCTTTAAGAAA spacer
 length: 36 repeater length: 30
 15629 784206 GTTAAAAATCAGACCGATTTCGGTATGGAAAC AAAAATCAAAGACATCGAATACAAAATTAATCTCAT spacer
 length: 36 repeater length: 30
 15630 784272 GTTAAAAATCAGACCGATTTCGGTATGGAAAC GAATAATAATCCTTATCAAAAATGTATATCCCTCTTA spacer
 length: 37 repeater length: 30
 15631 784339 GTTAAAAATCAGACCGATTTCGGTATGGAAAC CATTATCAACCTTTATAACTGCAAAAAGTAATTTTTGTTTATG
 spacer length: 43 repeater length: 30
 15632 784412 GTTAAAAATCAGACCGATTTCGGTATGGAAAC ATTTTTTTAATTTTTGTCTCGTTTAGTATTTTTTGA spacer
 length: 37 repeater length: 30
 15633 784479 GTTAAAAATCAGACCGATTTCGGTATGGAAAC AGAGGTTTCGTT
 15634
 15635
 15636 crispr 11
 15637 974311 GTTAAAAATCAGACCGTTACGGTATGGAAAC TTCAGCACCGCACCAACAACAAGAAATAACTACAAAAAATC
 spacer length: 42 repeater length: 30
 15638 974383 GTTAAAAATCAGACCGTTACGGTATGGAAAC CTCGTTAACGTTCCATTTCTTATTATTGGTGTA AAAAGTGCT
 spacer length: 42 repeater length: 30
 15639 974455 GTTAAAAATCAGACCGTTACGGTATGGAAAC AAAGTTACAGCAATTGAGACCAATGTTTCAGCAAAT spacer
 length: 36 repeater length: 30
 15640 974521 GTTAAAAATCAGACCGTTACGGTATGGAAAC GAATATGAGAATATTGAAATAAAAAACCTGTGCTTT spacer
 length: 37 repeater length: 30
 15641 974588 GTTAAAAATCAGACCGTTACGGTATGGAAAC AATGTACTCGCAACATCTGCGCCGTCTATGTATGTGAGTA
 spacer length: 40 repeater length: 30
 15642 974658 GTTAAAAATCAGACCGTTACGGTATGGAAAC TTCGGCAGGGATATAATAATATAATATACACATTGC spacer
 length: 36 repeater length: 30
 15643 974724 GTTAAAAATCAGACCGTTACGGTATGGAAAC GCCCCTATTGGGTGATACTGTGGGTGAGCAAAATAGCCGTATA
 spacer length: 42 repeater length: 30
 15644 974796 GTTAAAAATCAGACCGTTACGGTATGGAAAC TTAGCCTGTG
 15645
 15646
 15647 crispr 12
 15648 1439421 GTTAAAAATCAGACCGTTTCGGTATGGAAAC CTAAATATATAATTTTACTTCTTGGTGATATTTCTTGTTAAA
 spacer length: 42 repeater length: 30
 15649 1439493 GTTAAAAATCAGACCGTTTCGGTATGGAAAC ACTTCATATATGACATCTTTATCTATACAACCGCATAAAA
 spacer length: 40 repeater length: 30
 15650 1439563 GTTAAAAATCAGACCGTTTCGGTATGGAAAC TCTTTTACTCCCTTCAAACATCCTCTAAAGTTATCTCTACCATA
 spacer length: 45 repeater length: 30
 15651 1439638 GTTAAAAATCAGACCGTTTCGGTATGGAAAC TTTGGGATTGTGGCAACACATTAAACATTGTTGGT spacer
 length: 35 repeater length: 30
 15652 1439703 GTTAAAAATCAGACCGTTTCGGTATGGAAAC CATTATCTACATACCATAAATTTTTAACCACAGCCTCACC
 spacer length: 40 repeater length: 30
 15653 1439773 GTTAAAAATCAGACCGTTTCGGTATGGAAAC TTAACAAAGTTCATCCTTTTCATACCAACTTCTGG spacer
 length: 35 repeater length: 30
 15654 1439838 GTTAAAAATCAGACCGTTTCGGTATGGAAAC
 AATAAATATAAAAGGAGCTCCAAACCCTTCCCCTAATCTATGAAACCTT spacer length: 49 repeater length:
 30
 15655 1439917 GTTAAAAATCAGACCGTTTCGGTATGGAAAC TTCTCAATGAATTCTTTTTCCATAAATTCTTTTAATT spacer
 length: 37 repeater length: 30
 15656 1439984 GTTAAAAATCAGACCGTTTCGGTATGGAAAC ATCAAACATGTTCTTAACAATTTTCTTTGCTTTGTCT spacer
 length: 37 repeater length: 30
 15657 1440051 GTTAAAAATCAGACCGTTTCGGTATGGAAAC TCTATTGTTTCCTCCAGTAATTATCTGGGGAAAGTCTGGGTATG
 spacer length: 43 repeater length: 30
 15658 1440124 GTTAAAAATCAGACCGTTTCGGTATGGAAAC ACTTATTGGGTTAGGGAGAGCCCGTACTTTCCAAAACCTAAC
 spacer length: 43 repeater length: 30
 15659 1440197 GTTAAAAATCAGACCGTTTCGGTATGGAAAC
 TCTTCTTCTGCTACTTAGCCATGCCCTATATGCTCTCATACTTCTAAAGTG spacer length: 51 repeater
 length: 30
 15660 1440278 GTTAAAAATCAGACCGTTTCGGTATGGAAAC TTTTTATCTAAGAATTGACAAAACCTTTTCATAAAGCTCGTT
 spacer length: 41 repeater length: 30
 15661 1440349 GTTAAAAATCAGACCGTTTCGGTATGGAAAC ACTAATAACGTTGATACACTAAATTTAATAGTAGGA spacer
 length: 36 repeater length: 30

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15662 1440415 GTTAAATCAGACCGTTTCGGTATGGAAAC GCCAATAGAAGAGTGAATTACATCGTTAGATTTATCAAA
spacer length: 40 repeater length: 30
15663 1440485 GTTAAATCAGACCGTTTCGGTATGGAAAC GAGAAAAGAGAATGTGTTTGATGTTAAAATAATATTC spacer
length: 37 repeater length: 30
15664 1440552 GTTAAATCAGACCGTTTCGGTATGGAAAC GGGAAGCGAG
15665
15666
15667 crispr 13
15668 1464713 GTTAAATCAGACCGTTTCGGTATGGAAAC TTTAGTTGATTTGTTTGATTTTGGCTTTGCTGTTTT spacer
length: 36 repeater length: 30
15669 1464779 GTTAAATCAGACCGTTTCGGTATGGAAAC AAATAGATGTCCTAACGATGTGGAAAGGTGTCAATTTT spacer
length: 38 repeater length: 30
15670 1464847 GTTAAATCAGACCGTTTCGGTATGGAAAC AATCTACGTATCTTCTTATATATATACACAACCAAC spacer
length: 36 repeater length: 30
15671 1464913 GTTAAATCAGACCGTTTCGGTATGGAAAC CCCCCACAAGCCCTTTGAAATTATCATTTAATTTG spacer
length: 35 repeater length: 30
15672 1464978 GTTAAATCAGACCGTTTCGGTATGGAAAC CTTGTCCTTGTCCTAGTAGTGTCTTTTATGTGT spacer
length: 35 repeater length: 30
15673 1465043 GTTAAATCAGACCGTTTCGGTATGGAAAC TCTTTTTAATCTTCTCTAAGTCAATCATAAAAACC spacer
length: 35 repeater length: 30
15674 1465108 GTTAAATCAGACCGTTTCGGTATGGAAAC TCTTTTTAATCTTCTCTAAGTCAATCATAAAAACC spacer
length: 35 repeater length: 30
15675 1465173 GTTAAATCAGACCGTTTCGGTATGGAAAC AGCTACTGATTATTTTCACTGCTGTTGTTATCATCCCCATCATT
spacer length: 44 repeater length: 30
15676 1465247 GTTAAATCAGACCGTTTCGGTATGGAAAC GCTTTTACCCTCCCCCGACGCCCCGTGATTGCGAG spacer
length: 36 repeater length: 30
15677 1465313 GTTAAATCAGACCGTTTCGGTATGGAAAC AATTTTAGCTATTTGATTAAGTGAATCCCATTCTT spacer
length: 35 repeater length: 30
15678 1465378 GTTAAATCAGACCGTTTCGGTATGGAAAC GACCCGACGGATTGGACCGCGTACTGAAGGACTGCGA
15679
15680
15681 crispr 14
15682 1466617 TGTTAAATCAGACCGTTTACGGTATGGAAAC TACGCCAGTTAAGTGCTATAATTTATGGACTATTAATAGT
spacer length: 41 repeater length: 31
15683 1466689 TGTTAAATCAGACCGTTTACGGTATGGAAAC CCTAATTTTTTTATTATGTATCTTAATTCATTATG spacer
length: 35 repeater length: 31
15684 1466755 TGTTAAATCAGACCGTTTACGGTATGGAAAC GTGTTTTATGAGTTCTTCTGGTGTGAATGCTGGTGGTTTGT
spacer length: 41 repeater length: 31
15685 1466827 TGTTAAATCAGACCGTTTACGGTATGGAAAC GCCTTCTGACC
15686
15687
15688 crispr 15
15689 1522151 GTTTCATTCCGAATCGGTCTGATTTTAACA AGTAGAATTAATAAAGTCGCATATGACAAAAGCAGATAAAGAA
spacer length: 43 repeater length: 31
15690 1522225 GTTTCATTCCGAATCGGTCTGATTTTAACA TCTTCATTCAAGTCCCTCCTTTGAAAATGTATGCGCCTTATAA
spacer length: 44 repeater length: 31
15691 1522300 GTTTCATTCCGAATCGGTCTGATTTTAACA AGCAAACCTAGAAGACCCCGATATTATAGAGTTGTT spacer
length: 36 repeater length: 31
15692 1522367 GTTTCATTCCGAATCGGTCTGATTTTAACA GACGGTCGGGA
15693
15694
15695 GCA_000744315.1_ASM74431v1_genomic.fna (PilerCR):
15696 START REPEAT
SPACER
15697 crispr 1
15698 22 GTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TTTCTCATATTTATTTTAAGGCTATGCGTTTCTGAA spacer
length: 36 repeater length: 37
15699 95 GTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GGGAACCCTGAGTTTATCACAATCGAACTCTCA spacer
length: 34 repeater length: 37
15700 166 GTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AACTATAATGAACCCGAAAATATTCAATCCTATGAAAA
spacer length: 38 repeater length: 37
15701 241 GTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CGGATAAGCCGCTGCAATGAATACAAGGACTGCCA
spacer length: 36 repeater length: 37
15702 314 GTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AAAGATTTACCTGATCTGGACCTTCAAGGCGGGTTTT
spacer length: 37 repeater length: 37
15703 388 GTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TCGATAAACTCCCTTAAGTCCAGTATCCAATTTAT
spacer length: 36 repeater length: 37
15704 461 GTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ACAGTTCCCATAGATATTTTCAATTCCTCCAG spacer
length: 34 repeater length: 37
15705 532 GTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TGAGTACGGTTGGATTATTACTCTCTACAGTATTTG
spacer length: 36 repeater length: 37

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15706 605 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AAGTTTTGCATGAGCCGGATAAAGAAGTCCTGCAG spacer
length: 35 repeater length: 37
15707 677 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TTGAAATGCTGATGATTAGCGGCATTCTGAGTAT spacer
length: 35 repeater length: 37
15708 749 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GTTGGTATGATGGAAATAACAGATTTAATGGATTTTT
spacer length: 37 repeater length: 37
15709 823 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TCGAATACTGTACTATTATTAGATCCATTAAATCTAT
spacer length: 37 repeater length: 37
15710 897 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ATGGGTACTGACATGGTATCTAGGATACAGAAT spacer
length: 34 repeater length: 37
15711 968 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CAATCACTATGACCTTCCTCAAGCATGATATTATTTA
spacer length: 37 repeater length: 37
15712 1042 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CTTTCCACTTCTAAACTTCCTACACAAGTACTTAT
spacer length: 35 repeater length: 37
15713 1114 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GCTTTGCATGAGCTGGATAACAAGAGCCCCGCAG spacer
length: 33 repeater length: 37
15714 1184 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CCAGGCATCAGATGGAGCCCTCCCCATAATAGACTT
spacer length: 36 repeater length: 37
15715 1257 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CCTTACAGACCTCTTGGAAGCTGGGTATTCATAGAG
spacer length: 36 repeater length: 37
15716 1330 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CCAGATATCTGAAATCTGATAAACATAACAATTTT
spacer length: 35 repeater length: 37
15717 1402 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GATCTTGAGAAGTGGAATTACCTGGCACTCATGAA
spacer length: 36 repeater length: 37
15718 1475 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GTATTTTTTTCAGATGAATCTATAGCTCCATCATTTT
spacer length: 37 repeater length: 37
15719 1549 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT
AAAGGAGCGAAAACATGCTACGTAAAATAAATACTTCTTTT spacer length: 42 repeater length: 37
15720 1628 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AGAAAATGAGAACCGGATTTTGTACGACGACATTG
spacer length: 35 repeater length: 37
15721 1700 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CGTCAGGAGTGAAATAGTAAGTATTCCAGATCCATTTT
spacer length: 38 repeater length: 37
15722 1775 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GCTGATTCCTTCGAGATTACTGCCGATTTTGAAA spacer
length: 34 repeater length: 37
15723 1846 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ATGATTAAATTCTCATTCCGCCGCTCTTGAAA spacer
length: 33 repeater length: 37
15724 1916 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CTTAAAGTCTTTGAGGTAAACATTGTTATTCCT spacer
length: 34 repeater length: 37
15725 1987 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TTTTGATTTTCCCTTTTATATCTACTTGACTTTTTTT
spacer length: 37 repeater length: 37
15726 2061 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TTTAACGTGCTCCATGTATCCAGCTGTGTATTTTT
spacer length: 35 repeater length: 37
15727 2133 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GACATCACCTGCAGGAGTGATAAAATTTACAGATAGG
spacer length: 37 repeater length: 37
15728 2207 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CACTAATGAAATTAATTCCTATAGTCGCTATTCA spacer
length: 34 repeater length: 37
15729 2278 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CTCTAACGTAATCTACATCACAGAGTGCCATGACA
spacer length: 35 repeater length: 37
15730 2350 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CGGGGATCTTCTCGGGGATCTTCTAAGAGCTTCT spacer
length: 34 repeater length: 37
15731 2421 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TCTGTGCATATAGTCTTTAGAACATGGCTTAACT spacer
length: 34 repeater length: 37
15732 2492 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AAAAATGACTGAAGACAACGTAACTATGAACACT
spacer length: 36 repeater length: 37
15733 2565 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ATTTAGGCACTCTCTAGTTGCCAGGGTAGACGGAG
spacer length: 35 repeater length: 37
15734 2637 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GACACAGAAGAGGCTTAACCATGCTAACTAAAGAG
spacer length: 35 repeater length: 37
15735 2709 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TTTGTGTGTATTATTTGCTCTCCGTTTCATTACAG spacer
length: 34 repeater length: 37
15736 2780 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TCTGAAAGATTGTGACTTCCAGCATGTTTCATATT spacer
length: 34 repeater length: 37
15737 2851 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ATTGTTAAACAGAAATGCAATTGGATTTGATAATGAT
spacer length: 37 repeater length: 37
15738 2925 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CCGTTGAGTTCCGAGGAATATACCTCGTCAGCCAGGCGAT
spacer length: 40 repeater length: 37
15739 3002 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TGAAGCCCAGATAAGCTTTTTCCGGGCTTTGGGAT
spacer length: 35 repeater length: 37
15740 3074 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TCCTACATCA
15741
15742

15743 crispr 2
15744 3235185 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AATATTGTACTAGGGCACCTGCAAAAAACCATATT
spacer length: 35 repeater length: 37
15745 3235257 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTAACTGTTTAGTTGCTTCCCTTGCGGAATCCCA
spacer length: 35 repeater length: 37
15746 3235329 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTATTAACCCGCTTCTCTTCTTATTTGCAGCTTCA
spacer length: 36 repeater length: 37
15747 3235402 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CACTCGTACTCGTTCCCTACATCAATTGTAGCAGCCA
spacer length: 37 repeater length: 37
15748 3235476 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAAAATTAAAGTCACGCATGTACGTGCTCCTAAAGT
spacer length: 37 repeater length: 37
15749 3235550 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGGATATTCAAGAGTCAAGGTGCTGTAGCTGGAGC
spacer length: 34 repeater length: 37
15750 3235621 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAGTACTGTAGATGCAATAAGGGCTAAACCTGTATCT
spacer length: 37 repeater length: 37
15751 3235695 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTCAAGAGGTAGAAGAGCAGGAAGAACCAGAACAG
spacer length: 35 repeater length: 37
15752 3235767 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CTCTGTGAAAAATCCTTTTCTCCAAAACGTTCTT
spacer length: 35 repeater length: 37
15753 3235839 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TATGGATCTGCCAATACATCATTGAGTTTTTGGTGAT
spacer length: 37 repeater length: 37
15754 3235913 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATATTAAACCATATTGTAGGTGTTTTACCTTTCA
spacer length: 34 repeater length: 37
15755 3235984 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TACGCAGCATGATAGGAAAAGTGAAAATTCCAAATG
spacer length: 36 repeater length: 37
15756 3236057 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TACTCCCTTAGTGTAGAGGTCAATCACGGAGGGCCTTG
spacer length: 38 repeater length: 37
15757 3236132 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAAAAGTAAAACATTAAGAAGAGCACTCTTCAGATT
spacer length: 37 repeater length: 37
15758 3236206 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CTTTATCAGGAGTTCCTAATAGCCCGTCTGTAATTT
spacer length: 36 repeater length: 37
15759 3236279 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTATTCAAGAGTCGCAGGGAGAAGAGCCCGATACCT
spacer length: 36 repeater length: 37
15760 3236352 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTTTCAGTTTTTGCTCCATGCTTTCAGTTTTGGTA
spacer length: 35 repeater length: 37
15761 3236424 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AACAGTCCTCACAATAAAAAATCATCACCGTACCAAA
spacer length: 36 repeater length: 37
15762 3236497 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC GAAGCGGAATAATTAGCAATTGCTTTTGCTACACCAG
spacer length: 37 repeater length: 37
15763 3236571 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCCAGCCTCTAAGTTGAGTATCAAGCTGTTTCTT
spacer length: 35 repeater length: 37
15764 3236643 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTTCTCAGCCGGGTGCTCTGCTTCAACAAGTATCTC
spacer length: 37 repeater length: 37
15765 3236717 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCTTGGCTACTTCAAATTCAGTTTGTAGTTTATTAA
spacer length: 37 repeater length: 37
15766 3236791 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAACGTTATCCCACTTTTCTTTGGTGATTCCATAGG
spacer length: 37 repeater length: 37
15767 3236865 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCAATCACACATTCTTTAAAGTCTTCTATCGTAACTTT
spacer length: 38 repeater length: 37
15768 3236940 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAAGTTAGATGTACGTGGCGCATAAGATACACTTC
spacer length: 36 repeater length: 37
15769 3237013 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC GTTTTATAGTTGTTACTACTATAATAATCACCTCTA
spacer length: 36 repeater length: 37
15770 3237086 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTCATTCCCTCGAAGCTACAAACACAACAAATCTAAATT
spacer length: 38 repeater length: 37
15771 3237161 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CCTCGCTCTTGCCGGATGGGACGTAAATGAAATCAT
spacer length: 36 repeater length: 37
15772 3237234 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAACTCCTGCTTCAATCTGTTTCGGGGGTTGCTACGT
spacer length: 37 repeater length: 37
15773 3237308 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CCTCGTTTCTTTTTTTTTGAAAATCCCAGATTATGACGT
spacer length: 38 repeater length: 37
15774 3237383 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTCTCAGGGAGCGCGGAGGCACAGCGAGAAGACC
spacer length: 34 repeater length: 37
15775 3237454 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTAAGAAGTCTGAACCTGTGGAGCAGTTGAAAAA
spacer length: 34 repeater length: 37
15776 3237525 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAATTGGCGATTTCTTTAGAGTTAAAGGTAAGA
spacer length: 33 repeater length: 37
15777 3237595 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ACATAGTCATACATGCTGTCATAGAGGTTACGTATC
spacer length: 37 repeater length: 37
15778 3237669 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAGCTATCTTAGCTATCTTTTCGGCTCGTTGGAA
spacer length: 34 repeater length: 37

15779	3237740	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	CATTCAACGATATTTACAAGCCTAGTGTAATCCCCT
		spacer length: 36 repeater length: 37	
15780	3237813	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AACCTTCTACAAGATAATCCAGCCACATTTTTTTTA
		spacer length: 35 repeater length: 37	
15781	3237885	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	CCACCTTGTAGGTAATAATCTTTCCGATTACTAC
		spacer length: 34 repeater length: 37	
15782	3237956	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTCCAAGAGCCGTGTAAGTGCATGTTGCGGCTTTC
		spacer length: 35 repeater length: 37	
15783	3238028	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCCCTCCTTAAGTTGTCACCGTTCCGAGTCCAA
		spacer length: 33 repeater length: 37	
15784	3238098	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTAAAAAATGTTCTTTCTTGCAAATCCGGTTAACT
		spacer length: 36 repeater length: 37	
15785	3238171	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	GTTCTCCTGATTGTTATCTATGCGATGTAATACACA
		spacer length: 37 repeater length: 37	
15786	3238245	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTATGGTGATCCAGAGAAGGATATTCCGGCGAAAGAG
		spacer length: 37 repeater length: 37	
15787	3238319	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TATTCATGCTTCAACTTCCTGCGTTCCTTGCTCCA
		spacer length: 36 repeater length: 37	
15788	3238392	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	ACCCTGGGTCTTCTGAATGGTACTGGACAGGTTTCAG
		spacer length: 36 repeater length: 37	
15789	3238465	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	GGGTATATAGTATGTTGTAGTAACGTAGGAGGAAA
		spacer length: 35 repeater length: 37	
15790	3238537	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AATAGTGTATCTGTGACACTTACAACCGGCACTGAG
		spacer length: 36 repeater length: 37	
15791	3238610	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCGTGTCTTCTATGTCGAAAAATAATCCTCATCGT
		spacer length: 36 repeater length: 37	
15792	3238683	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAATTCCAAGATCACCATGCCAGATGGCTCTAATC
		spacer length: 35 repeater length: 37	
15793	3238755	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	ACGTAATTGATGTATAACGATATACATTTTCCTT
		spacer length: 34 repeater length: 37	
15794	3238826	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AGATTGATCTTACCATCTCCTATTATTGTAAGCAA
		spacer length: 35 repeater length: 37	
15795	3238898	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGTCTCCTCCAACGTGCATCACTTCTTCATACACTTT
		spacer length: 37 repeater length: 37	
15796	3238972	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCAAGAAGAGTAGTGCATTAAACATCTAGAATCCA
		spacer length: 36 repeater length: 37	
15797	3239045	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	
15798			
15799			
15800	crispr 3		
15801	4060459	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	AGAAGTCCAAGTAGAGAACGGTCTCCAAATCCATT
		spacer length: 35 repeater length: 37	
15802	4060531	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	TCTATACGAAAATGAAATATTGACTGATGAAAGTAT
		spacer length: 36 repeater length: 37	
15803	4060604	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	TATTAGGGTTGAGAGTTGATTTTATCATCCTCCCA
		spacer length: 35 repeater length: 37	
15804	4060676	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	CTTTTAGTTCAGATTCTGAATAGATAAAGCCGCA
		spacer length: 35 repeater length: 37	
15805	4060748	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	CAATCATGGATATTTATGTGACTCGAATTTATGAAA
		spacer length: 36 repeater length: 37	
15806	4060821	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	TGTTAGGACCGCACTTCTGGGCCTTGCGGGGTCTA
		spacer length: 35 repeater length: 37	
15807	4060893	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	AATGATCTAAAAAACGCTTTTGCGCACTTAGTAAAAAT
		spacer length: 37 repeater length: 37	
15808	4060967	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	ATATTTGCAGGTGAGTGTGTCAGGAGTCCCAAAG
		spacer length: 35 repeater length: 37	
15809	4061039	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	AGAAGACAATGCAAGAGGAAATAATCGACACCCTCTT
		spacer length: 37 repeater length: 37	
15810	4061113	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	TATGGGACGACACGACATTAGGCGCAGACGTGGAAT
		spacer length: 37 repeater length: 37	
15811	4061187	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	TATGAAATTAACGTTTAAGTATGCTCCTGATTATAC
		spacer length: 36 repeater length: 37	
15812	4061260	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	TACCTATTGTGCATGTTTATATTGCGAATACTTTCAA
		spacer length: 37 repeater length: 37	
15813	4061334	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	AAACCTTTTACGGACTATGGACACCGTGAAGTTCTGCA
		spacer length: 38 repeater length: 37	
15814	4061409	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	AACTTAGTGGAGACTTTCCTCCCTAAATTTTTTAG
		spacer length: 35 repeater length: 37	
15815	4061481	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	TCAACAGCGACCGAGCGCGCCTCTGGTAACATTTT
		spacer length: 36 repeater length: 37	
15816	4061554	GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT	GTATTTTGCCTTGTTGAATCTGGACAAGCAGATA

spacer length: 34 repeater length: 37
 15817 4061625 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT GAAAAGCACGCCAAGAGACGAGCAGCTCAGAAATT
 spacer length: 35 repeater length: 37
 15818 4061697 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT CAAACTCTTGAATAATAGCATTGTGGTATTTTTTCCA
 spacer length: 35 repeater length: 37
 15819 4061769 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT CGACATTACGGACCCTGAAATTGATGACCTGATCCA
 spacer length: 36 repeater length: 37
 15820 4061842 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT ACTACCGGGAATAGCGGTTTCGGTTGCTGTTAGTG
 spacer length: 35 repeater length: 37
 15821 4061914 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT AATAATACCATTACTGGAAATTATCATGCGGGTA
 spacer length: 34 repeater length: 37
 15822 4061985 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT AGACCCGAAGGGGCTCTACACGTCAATACAATAAT
 spacer length: 37 repeater length: 37
 15823 4062059 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT TTATCTGGCTCAGGTCGCCAGTACGGCGAAGTTGTG
 spacer length: 36 repeater length: 37
 15824 4062132 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT TCTGAAATCCCCAAAATAACACCTAATAAATATT
 spacer length: 37 repeater length: 37
 15825 4062206 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT GCCGGAGTTTCGTGGCAGGTGTAGTCGCCCAGGATA
 spacer length: 36 repeater length: 37
 15826 4062279 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT GTGCGAGTTCAGCGACTATTATGGCGACATTTGTAA
 spacer length: 36 repeater length: 37
 15827 4062352 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT AGTGGGGCCACATATTTTCATAGCCTCGCCGAGCTGAG
 spacer length: 37 repeater length: 37
 15828 4062426 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT GCAGGATAAATGCCCGGGTGTCACTGGTTGGTCGT
 spacer length: 35 repeater length: 37
 15829 4062498 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT TCACTCCCTTTACCGCGTAACACCAATTTATTACAAAA
 spacer length: 38 repeater length: 37
 15830 4062573 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT ATTACTGATGTGGGCCAGGCAATGAGGAGAGGCCAGA
 spacer length: 37 repeater length: 37
 15831 4062647 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT TGTTGATAAGGTGACCTGATGGAACCTTCTAACTT
 spacer length: 34 repeater length: 37
 15832 4062718 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT TTCAGGAAATAGTACAGAAGTTAGGGCAAGATTCT
 spacer length: 35 repeater length: 37
 15833 4062790 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT GAGAGTGTGAGCTGCTACCAGGTTAGGGACAATGAT
 spacer length: 36 repeater length: 37
 15834 4062863 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT GAGAGTGTGAGCTGCTACCAGGTTAGGGACAATGAT
 spacer length: 36 repeater length: 37
 15835 4062936 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT AGCAAAGGTGTATAACATGCTTCTAACCGTAAAGTC
 spacer length: 36 repeater length: 37
 15836 4063009 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT GCCCCGCCGGTGAGGGCAGCCCCACCGAACCCCATAT
 spacer length: 37 repeater length: 37
 15837 4063083 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT TCTTAACGCTAATTTTGACAATAATTCAGAGGATA
 spacer length: 35 repeater length: 37
 15838 4063155 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT GATTATAATTTTGATACGCATCCGTTATTTGGCAATA
 spacer length: 37 repeater length: 37
 15839 4063229 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT AAAGCCGAAGCAATCTACAACCTATTGAATCATACTTA
 spacer length: 38 repeater length: 37
 15840 4063304 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT ACAAATGCAATATCCGGCTGTTTCGATGCAGGTGTA
 spacer length: 35 repeater length: 37
 15841 4063376 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT TAGGAATAATAGCCGCCAGGAACAATAACTCGCAT
 spacer length: 35 repeater length: 37
 15842 4063448 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT CATGAGTACGTTACCGCCCCTGTTTTTTCATCAAGA
 spacer length: 36 repeater length: 37
 15843 4063521 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT TACTGTAGAACTGACGGGGGAAACATGAGGAAAA
 spacer length: 34 repeater length: 37
 15844 4063592 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT AGTATTACAGACCTCGAATCGATTGGCTGTGCAT
 spacer length: 34 repeater length: 37
 15845 4063663 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT
 TTTTCAACCTGCAATAATCTGTATTTTATTGTGTGCGGA spacer length: 39 repeater length: 37
 15846 4063739 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT TGATTGGTTGGAATTGCTCTATACTATACTATACTA
 spacer length: 36 repeater length: 37
 15847 4063812 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT AAAACGGTTCCTCACTTACAGCAACGGAAATCTGGA
 spacer length: 35 repeater length: 37
 15848 4063884 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT CAATCTGCTTGACCGACGTTGCTTTTACAAGATCGGC
 spacer length: 38 repeater length: 37
 15849 4063959 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT CGACTCACATACTGCAAGAATTCAGACTTTTATAA
 spacer length: 35 repeater length: 37
 15850 4064031 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT GAAAGACAGTTTGCTGAAAAAATGGGCGAACTTGC
 spacer length: 35 repeater length: 37
 15851 4064103 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT GGTCTGAACCCGATATGGACTATTTTTTTCATTGGGTAA
 spacer length: 38 repeater length: 37

15852 4064178 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT TTCTTCGCGTGGGATCATATCGAAGACGAAGCGATCA
 spacer length: 37 repeater length: 37
 15853 4064252 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT TAA AATTGTTTTCTCGACAATAATATCTTAGCCGA
 spacer length: 36 repeater length: 37
 15854 4064325 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT
 15855
 15856
 15857 GCA_000744455.1_ASM74445v1_genomic.fna (PilerCR) :
 15858 START REPEAT
 SPACER
 15859 GCA_000762265.1_ASM76226v1_genomic.fna (PilerCR) :
 15860 START REPEAT
 SPACER
 15861 GCA_000789255.1_ASM78925v1_genomic.fna (PilerCR) :
 15862 START REPEAT
 SPACER
 15863 crispr 1
 15864 648739 AGGTTAAAATCAGACCTTGAAGGGATTGAAAG AGAGGAAGATGAGGAAGAGGGGTTTATAATTATCA spacer
 length: 35 repeater length: 32
 15865 648806 AGGTTAAAATCAGACCTTGAAGGGATTGAAAG TGTT CAGGGCGGAAGTATGCGAGGTAATCTTCGATC spacer
 length: 36 repeater length: 32
 15866 648874 AGGTTAAAATCAGACCTTGAAGGGATTGAAAG TAAATTCTGG
 15867
 15868
 15869 crispr 2
 15870 977405 AAAC TTTCAATCCCTTCAAGGTCTGATTTTAACC TATAGAAAAGGTAAAGGAGCAGGTGAAGTAATA spacer
 length: 34 repeater length: 34
 15871 977473 AAAC TTTCAATCCCTTCAAGGTCTGATTTTAACC CAAATGATGAATATCTTGAGTTTAAGGATGAC spacer
 length: 32 repeater length: 34
 15872 977539 AAAC TTTCAATCCCTTCAAGGTCTGATTTTAACC TCCTCCTCTA
 15873
 15874
 15875 crispr 3
 15876 1354027 CTTTCAATCCCTTAAAGGTCTGATTTCAAC GATATACTTATGCTACTGGTTGGGTCAAGAGTGAATG spacer
 length: 38 repeater length: 30
 15877 1354095 CTTTCAATCCCTTAAAGGTCTGATTTCAAC TTCGAAGGAGTCTCCAAACCCAAATCTAATGATGTGTT spacer
 length: 38 repeater length: 30
 15878 1354163 CTTTCAATCCCTTAAAGGTCTGATTTCAAC ATGTTTACCGCATAAGCCCCGAATATGCTTTTCTGG spacer
 length: 36 repeater length: 30
 15879 1354229 CTTTCAATCCCTTAAAGGTCTGATTTCAAC GCTGGGGATTGGCTTAAACAGCAAATACAAACCTACAT spacer
 length: 38 repeater length: 30
 15880 1354297 CTTTCAATCCCTTAAAGGTCTGATTTCAAC AAAAAATCTATCAGCTAAAAACGACGCTTATAGAATT spacer
 length: 37 repeater length: 30
 15881 1354364 CTTTCAATCCCTTAAAGGTCTGATTTCAAC TCAGCAAGTGGAGGAGCATGAATTAAGGTGCCGAGATCATC
 spacer length: 41 repeater length: 30
 15882 1354435 CTTTCAATCCCTTAAAGGTCTGATTTCAAC CCATCCGGTTCTATAGCATACTTG CAGTCATCTTTA spacer
 length: 36 repeater length: 30
 15883 1354501 CTTTCAATCCCTTAAAGGTCTGATTTCAAC CTTTCCTCGTTAGTTATATAGTTGTAAACTGAGATA spacer
 length: 36 repeater length: 30
 15884 1354567 CTTTCAATCCCTTAAAGGTCTGATTTCAAC CCTTAGAGGGGTTCAAGAAGTCCATGTTGATCTCAT spacer
 length: 36 repeater length: 30
 15885 1354633 CTTTCAATCCCTTAAAGGTCTGATTTCAAC ACTCGGATTCCCGTATGCGATGTT CAGCTCGCTCGAAT spacer
 length: 38 repeater length: 30
 15886 1354701 CTTTCAATCCCTTAAAGGTCTGATTTCAAC GCAGCAGCAAGCTGCAACAGTTACCCAGAACACTGCAC spacer
 length: 38 repeater length: 30
 15887 1354769 CTTTCAATCCCTTAAAGGTCTGATTTCAAC TATGAGATAGACAAAAAGTATTGGGACATGCTCAAAG spacer
 length: 37 repeater length: 30
 15888 1354836 CTTTCAATCCCTTAAAGGTCTGATTTCAAC ACCAATCTTAATTGGAGGTA ACTCTAACATAGTTATTG spacer
 length: 38 repeater length: 30
 15889 1354904 CTTTCAATCCCTTAAAGGTCTGATTTCAAC AAGGCAATAATAACAGCATGCATGAACTATAAAGAGG spacer
 length: 37 repeater length: 30
 15890 1354971 CTTTCAATCCCTTAAAGGTCTGATTTCAAC CCTCTATCTC
 15891
 15892
 15893 crispr 4
 15894 1415495 CTTTCAATCCCTTAAAGGTCTGATTTTAAC GGAGATTTACAGCGTTGATGGAGTTCTGCAGGCTTC spacer
 length: 36 repeater length: 30
 15895 1415561 CTTTCAATCCCTTAAAGGTCTGATTTTAAC GAAGAAGGCCATGAGTGAATTGCTGAGACGAGAAGGA spacer
 length: 38 repeater length: 30
 15896 1415629 CTTTCAATCCCTTAAAGGTCTGATTTTAAC CCACTACAGAAGGCCGA ACTCACAGAACATATATGAAA spacer
 length: 38 repeater length: 30

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15897 1415697 CTTTCAATCCCTTAAAGGTCTGATTTTAAC ATATATGCTTGTTTTTCGTGTCTGGCTTTATCCTTGCT spacer
length: 37 repeater length: 30
15898 1415764 CTTTCAATCCCTTAAAGGTCTGATTTTAAC GAAACTGTCTGAAGTCCTTGAACCTGATTCCTCTGCTTT
spacer length: 39 repeater length: 30
15899 1415833 CTTTCAATCCCTTAAAGGTCTGATTTTAAC CACCGAGCATGGCAACGAGATTAAGTCCGACTGCGAGAGT
spacer length: 40 repeater length: 30
15900 1415903 CTTTCAATCCCTTAAAGGTCTGATTTTAAC CTTGTACTTCGTTACCTGTGTACATTCTGCACCACACG
spacer length: 39 repeater length: 30
15901 1415972 CTTTCAATCCCTTAAAGGTCTGATTTTAAC AACGAAAACGAGCATATAAGCCCAATTATAAAGATCCC spacer
length: 38 repeater length: 30
15902 1416040 CTTTCAATCCCTTAAAGGTCTGATTTTAAC TAGAAACCCTTAAAAAGTTGAATTGCAGAAAAGTTAAT spacer
length: 38 repeater length: 30
15903 1416108 CTTTCAATCCCTTAAAGGTCTGATTTTAAC TCAATTATTTTTGGAGGTGTATATGTGTGGTGAGGGT spacer
length: 37 repeater length: 30
15904 1416175 CTTTCAATCCCTTAAAGGTCTGATTTTAAC GGATTTTCGAAAAACGGCTTTGGTTGATTATGATTT spacer
length: 36 repeater length: 30
15905 1416241 CTTTCAATCCCTTAAAGGTCTGATTTTAAC TGAGAGTATTGAGTGTATCACCACGCCAAGCACAAAGTA spacer
length: 38 repeater length: 30
15906 1416309 CTTTCAATCCCTTAAAGGTCTGATTTTAAC ATGGACGGCC
15907
15908
15909 crispr 5
15910 1644185 CTTTCAATCCCTTCAAGGTCTGATTTTAAC CATAAGTTCAATTTCTGCAAAGCTCTTTCAAGTGGATT
spacer length: 39 repeater length: 30
15911 1644254 CTTTCAATCCCTTCAAGGTCTGATTTTAAC GAGTTTTTCAGCGTTGAAAAGAGCAGAGTTTGAAAAGGCCA
spacer length: 40 repeater length: 30
15912 1644324 CTTTCAATCCCTTCAAGGTCTGATTTTAAC GAAATGCGATAACTGCGGAAAAATCATTGAAAATGACA spacer
length: 38 repeater length: 30
15913 1644392 CTTTCAATCCCTTCAAGGTCTGATTTTAAC GAAGTGGCATATAGACTGTCAAATGAAGTTCTCACA spacer
length: 36 repeater length: 30
15914 1644458 CTTTCAATCCCTTCAAGGTCTGATTTTAAC CCCTCACCCAA
15915
15916
15917 GCA_000800805.1_ASM80080v1_genomic.fna(PilerCR):
15918 START REPEAT
15919 SPACER
15919 crispr 1
15920 1022609 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT AATGCAGTTAAGCTATTAGCTTAACT spacer
length: 26 repeater length: 35
15921 1022670 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT GAGGGATGGACTACTTGCCCAGACGTAA spacer
length: 28 repeater length: 35
15922 1022733 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT GTAATGTGTCAAGCACATACTATGCGT spacer
length: 27 repeater length: 35
15923 1022795 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT TAGATATACTCGAAGTCTCGAACATG spacer
length: 26 repeater length: 35
15924 1022856 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT AGATCAACTTCGATCATCCGAGGAT spacer length:
25 repeater length: 35
15925 1022916 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT AACGGAGAACGAAAGATCCTGTCCTCC spacer
length: 27 repeater length: 35
15926 1022978 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT TAACATAACCTTCGCTTCCTGTATCGA spacer
length: 27 repeater length: 35
15927 1023040 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT ACGTTCACATACTCACTGGCTGTAAG spacer
length: 27 repeater length: 35
15928 1023102 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT TTTGTGAACGAAATAACTGCCACATC spacer
length: 26 repeater length: 35
15929 1023163 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT GTATGAGAACCTTGTGATTGGGGTAT spacer
length: 26 repeater length: 35
15930 1023224 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT TCGGAGCTCCAGGGCGGAATGTGCGCG spacer
length: 27 repeater length: 35
15931 1023286 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT TATACGGTATCGGATAACGCAGGAT spacer length:
25 repeater length: 35
15932 1023346 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT AGTGCGCCCTCAAGTACGGAAAATAG spacer
length: 26 repeater length: 35
15933 1023407 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT AAGTAGTCAAGGACTTTTGTAACGGC spacer
length: 26 repeater length: 35
15934 1023468 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT TCTCAAGATACTGGTTCTGATCGCAG spacer
length: 26 repeater length: 35
15935 1023529 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT AGTATCGCCGAGTAGTCCCAATTCAAC spacer
length: 27 repeater length: 35
15936 1023591 CTCAAAACATTCGAATCTCTACTCTTTGTAGAT AAATACACACCAACAGAGTTTTTAAC spacer length:
25 repeater length: 35

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15937 1023651 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT TAATAAGAAGGAACGCCTAAGTTGGAA spacer
length: 27 repeater length: 35
15938 1023713 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT TAACAGCAACCAAGGCCATCACAGTATA spacer
length: 28 repeater length: 35
15939 1023776 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT TCAGGTAATGTTTCCTTCTCAGACAGT spacer
length: 26 repeater length: 35
15940 1023837 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT GACGCCATTCTCGGTGCGTATCGACT spacer
length: 26 repeater length: 35
15941 1023898 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT CAAGATACACACCCGGTGTGTAAGGAG spacer
length: 27 repeater length: 35
15942 1023960 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT TGTAAGAAAAGGGGGTGGTTCGGTGCTG spacer
length: 28 repeater length: 35
15943 1024023 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT CTCACTCAGCTAACGAACCTCACAGA spacer
length: 26 repeater length: 35
15944 1024084 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT CACAACAGATCGGCCTTGATGCATGGG spacer
length: 27 repeater length: 35
15945 1024146 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT AACACGTCCATAATCTTAACCAGATA spacer
length: 26 repeater length: 35
15946 1024207 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT AAGTCCGCCCATAACCTTTCTTTGTC spacer
length: 26 repeater length: 35
15947 1024268 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT GTCATGGATACGAGGCTTGATTGTGC spacer
length: 26 repeater length: 35
15948 1024329 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT AAATTCGGTGATGGACAGGGCACGGCG spacer
length: 27 repeater length: 35
15949 1024391 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT AGTTATCATTTTCGCGCTCAAACCTCTT spacer
length: 26 repeater length: 35
15950 1024452 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT AATATATATACGCGCGAGCAACTGGC spacer
length: 26 repeater length: 35
15951 1024513 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT GGCAGCAATCCGCGGATGAGCCCAAG spacer
length: 26 repeater length: 35
15952 1024574 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT CGACACCCCG
15953
15954
15955 GCA_000802205.2_ASM80220v2_genomic.fna (PilerCR) :
15956 START REPEAT
SPACER
15957 GCA_000812185.1_ASM81218v1_genomic.fna (PilerCR) :
15958 START REPEAT
SPACER
15959 GCA_000813245.1_ASM81324v1_genomic.fna (PilerCR) :
15960 START REPEAT
SPACER
15961 crispr 1
15962 311022 GATGCAACTCAGAAAAGAATTGAAAG GTAATACATCGCTATTGCAAACTCAAGATCATTCAAGGCTAAT spacer
length: 42 repeater length: 25
15963 311089 GATGCAACTCAGAAAAGAATTGAAAG ATGCTCGACCCCCAGCTGTGATAGCGCGTAGTGGAGGACA spacer
length: 40 repeater length: 25
15964 311154 GATGCAACTCAGAAAAGAATTGAAAG CAAACGAGGCGTGGAGAGCAGCAGCCATGCAGGCAGCCGACC spacer
length: 42 repeater length: 25
15965 311221 GATGCAACTCAGAAAAGAATTGAAAG TTACCACCTTGATTGCAATGGTATTGTTGTCTCCGAATTCC spacer
length: 41 repeater length: 25
15966 311287 GATGCAACTCAGAAAAGAATTGAAAG TGCGCTATGCGAAGCTCAGGGAGACTTTTCCAGAGCTGCA spacer
length: 40 repeater length: 25
15967 311352 GATGCAACTCAGAAAAGAATTGAAAG ACAGGCTAGAACGACAGCTTGCACCTACACCAACAACAAGCTAAT
spacer length: 45 repeater length: 25
15968 311422 GATGCAACTCAGAAAAGAATTGAAAG AGAATCATCCTTGCCACGCCACTTGAGCTTCTCCTCCCT spacer
length: 39 repeater length: 25
15969 311486 GATGCAACTCAGAAAAGAATTGAAAG AGGATGGAAAGATAAAGGTCACGGCGCTGAAGAAGCTCA spacer
length: 39 repeater length: 25
15970 311550 GATGCAACTCAGAAAAGAATTGAAAG ATTGTAACATATCTGCCGAAGCCGACCCTGCCGCCCCCGAA spacer
length: 41 repeater length: 25
15971 311616 GATGCAACTCAGAAAAGAATTGAAAG GTCATAGAGGACTACAGGCCAGACATCGGCATCAAGCCTT spacer
length: 40 repeater length: 25
15972 311681 GATGCAACTCAGAAAAGAATTGAAAG CTCCCTGAAGTGCTCGTTTAGAAACCTCTTGAGGAGCCAG spacer
length: 40 repeater length: 25
15973 311746 GATGCAACTCAGAAAAGAATTGAAAG TTCTCGTAGTCCACGACCCAGAGCTCGACCGCGTGTATAGCC spacer
length: 42 repeater length: 25
15974 311813 GATGCAACTCAGAAAAGAATTGAAAG ACGCCCAGGTACTAGTAAACGCCCCACAGCCGGAACA spacer
length: 38 repeater length: 25
15975 311876 GATGCAACTCAGAAAAGAATTGAAAG CTAGACAAGTCTTCCTCAACTACAAGAAGATATACAAC spacer
length: 38 repeater length: 25

15976 311939 GATGCAACTCAGAAAAGAATTGAAAG TCCAGGGCCTAGGCTTAAGGTTCCCAGACCGCTAAAACCTTTGTT spacer
length: 44 repeater length: 25
15977 312008 GATGCAACTCAGAAAAGAATTGAAAG TGAGGGTAGATGCCAATCCTCCGAGTAGCACCTCTTATTAG spacer
length: 42 repeater length: 25
15978 312075 GATGCAACTCAGAAAAGAATTGAAAG TAGTTGGAAGTGTATGCAGATTTAACAATTTCTTCGGC spacer
length: 38 repeater length: 25
15979 312138 GATGCAACTCAGAAAAGAATTGAAAG GTCGGAACAACGAAATGCTATTCAACGTAAAAGGCAGATTA spacer
length: 42 repeater length: 25
15980 312205 GATGCAACTCAGAAAAGAATTGAAAG TTGCCAAATT
15981
15982
15983 crispr 2
15984 1320433 TCTTCAATTCATTCTTTTCTGATAC GTCATCTATGACCTGAGCCCCATCATGGGCTGGAGAGCCA spacer
length: 40 repeater length: 26
15985 1320499 TCTTCAATTCATTCTTTTCTGATAC ATGTGACTCCAAGCGCAACACCTTTGGAAGTGTACCTA spacer
length: 39 repeater length: 26
15986 1320564 TCTTCAATTCATTCTTTTCTGATAC GTACAATGTGGGACTACCGCTTCCCAATAACATCCAAATTA spacer
length: 41 repeater length: 26
15987 1320631 TCTTCAATTCATTCTTTTCTGATAC ACGTAGGTGG
15988
15989
15990 crispr 3
15991 1354040 CTTTCAATTCCTTCTGAGTTGCATC GTGGAAAGCTGAATGGGAAAATGTTCTAAAGATGAGAG spacer
length: 38 repeater length: 25
15992 1354103 CTTTCAATTCCTTCTGAGTTGCATC TTGAGCATAGAATTTAGAGGAATCAACATCAACAAAGGCACATCA
spacer length: 45 repeater length: 25
15993 1354173 CTTTCAATTCCTTCTGAGTTGCATC AATGGACACC
15994
15995
15996 crispr 4
15997 1367277 CTTTCAATTCCTTCTTAGTTGCATC GGTCTTGACAAATACGAGGCGAGGGGCTTGATTAGGATTCT spacer
length: 42 repeater length: 25
15998 1367344 CTTTCAATTCCTTCTTAGTTGCATC CCGGTAGCAATGAAGGGGTAGCCGTTGCGTCCCCGATATT spacer
length: 41 repeater length: 25
15999 1367410 CTTTCAATTCCTTCTTAGTTGCATC TGAGCTGGAGTACGATGAGGTTAACTGTACTGAGCATCGAA spacer
length: 41 repeater length: 25
16000 1367476 CTTTCAATTCCTTCTTAGTTGCATC GGGATACTCTAACGATTCATGTCTTTGATGGGAAAGAGTGGAAAGC
spacer length: 46 repeater length: 25
16001 1367547 CTTTCAATTCCTTCTTAGTTGCATC AGTGAGATATGGGACGACTTGGTTGATACCATTTCGAAAGCG spacer
length: 41 repeater length: 25
16002 1367613 CTTTCAATTCCTTCTTAGTTGCATC CTGAAGACGCTCATAGCATATGGATACCTGGACATGA spacer
length: 37 repeater length: 25
16003 1367675 CTTTCAATTCCTTCTTAGTTGCATC CATAACCTCTTACCCAGCAGACTCGTGGACACTCAACCTCACCGC
spacer length: 46 repeater length: 25
16004 1367746 CTTTCAATTCCTTCTTAGTTGCATC GAGGGTCAGAGCGTATACTTTGGCCCGACACATTGTCAATCA spacer
length: 42 repeater length: 25
16005 1367813 CTTTCAATTCCTTCTTAGTTGCATC ACGACTATACGATTCCGTCAGGGATAAGATTTGCGGCCTTG spacer
length: 41 repeater length: 25
16006 1367879 CTTTCAATTCCTTCTTAGTTGCATC GAAACCAATCGAACAACCTACGGTTTGGGATTAATTTTA spacer
length: 39 repeater length: 25
16007 1367943 CTTTCAATTCCTTCTTAGTTGCATC AGACTTCTCTGATTAGAATGCTTATCCCCACCTTCTACAAAG spacer
length: 43 repeater length: 25
16008 1368011 CTTTCAATTCCTTCTTAGTTGCATC GCTGGCACTT
16009
16010
16011 crispr 5
16012 1371490 CTTTCAATTCCTTCTTAGTTGCATC CACGATTACGCTTGGAGCCGGTAACCCCAATGTAGTCAA spacer
length: 39 repeater length: 25
16013 1371554 CTTTCAATTCCTTCTTAGTTGCATC GGAGACCCCCTGCTAAGAGAAGGAATTAAATAGCGGA spacer
length: 38 repeater length: 25
16014 1371617 CTTTCAATTCCTTCTTAGTTGCATC ACAAGCTTGACAGTACGTCTTGAAGTATTACGGCACCTTGAA spacer
length: 43 repeater length: 25
16015 1371685 CTTTCAATTCCTTCTTAGTTGCATC AGATTTATTGTTATGAAGATTGGAGACAAGAGGTTTCTC spacer
length: 39 repeater length: 25
16016 1371749 CTTTCAATTCCTTCTTAGTTGCATC GCTCTTGTAGTTTACGCCATATTCGTATAGCGGCTCG spacer
length: 37 repeater length: 25
16017 1371811 CTTTCAATTCCTTCTTAGTTGCATC CTCTTTCGCCTCGTCTAGGGCCTTCTTGAGGTCTTGT spacer
length: 37 repeater length: 25
16018 1371873 CTTTCAATTCCTTCTTAGTTGCATC GTATCTACATT
16019
16020

16021 crispr 6
16022 1408044 CCTTCAATTCATTCGTTTCTGATAC AAAACTCGAAAGATTTTAGCATTGCTTGGACAGATTAAAA spacer
length: 40 repeater length: 26
16023 1408110 CCTTCAATTCATTCGTTTCTGATAC TTAGACTCTCTGTATCTGTATTATCGACCGAGAAGGTCCC spacer
length: 40 repeater length: 26
16024 1408176 CCTTCAATTCATTCGTTTCTGATAC ATAGGTGATC
16025
16026
16027 crispr 7
16028 1419992 CTTTCAATTCTTTCTTAGTTGCATC GTGAAGCGTCTTATCTCTCGTAGAAGCTTCGCTGTTTTAACTATCT
spacer length: 46 repeater length: 25
16029 1420063 CTTTCAATTCTTTCTTAGTTGCATC TAGAAACTTTTTTCTTGAACACGTATGGAGACAAGAA spacer
length: 37 repeater length: 25
16030 1420125 CTTTCAATTCTTTCTTAGTTGCATC GGGGTGTTGAGCTGGGGGGCTGGGCGTGGGCTGGGG spacer
length: 36 repeater length: 25
16031 1420186 CTTTCAATTCTTTCTTAGTTGCATC ATAAAGGTCAAGTCTGTTTACGGCGTCCGTATTATCAACA spacer
length: 40 repeater length: 25
16032 1420251 CTTTCAATTCTTTCTTAGTTGCATC GGCAACGCATCACTAATCCAGGCCGCAATCGCGATAATGATAATGAT
spacer length: 47 repeater length: 25
16033 1420323 CTTTCAATTCTTTCTTAGTTGCATC TCGGAAAGCCAGCAATACGTATTGGAGGTAAGGAAAACCCCT spacer
length: 42 repeater length: 25
16034 1420390 CTTTCAATTCTTTCTTAGTTGCATC TCGAGGCCCATACACCCGCATCGTCCCAGATTATTGCT spacer
length: 38 repeater length: 25
16035 1420453 CTTTCAATTCTTTCTTAGTTGCATC ATAGATGTATGTAGAGTCTGCTGTTACATAGAATGTTCCCTTAG
spacer length: 44 repeater length: 25
16036 1420522 CTTTCAATTCTTTCTTAGTTGCATC GGCAGGACTGAGGAAGCGTACGACGCGCTCGACAGGGTCTCGT spacer
length: 43 repeater length: 25
16037 1420590 CTTTCAATTCTTTCTTAGTTGCATC CAAGAAACCC
16038
16039
16040 crispr 8
16041 1522762 CTTTCAATTCATTCGTTTCTGATAC ATGCAAAATGGGTGCCCTTACTATGCCCAACTCTCTGTC spacer
length: 39 repeater length: 25
16042 1522826 CTTTCAATTCATTCGTTTCTGATAC GTCATGGTACTTGGGAGACGGTAAGAGACATCAATTTATTT spacer
length: 41 repeater length: 25
16043 1522892 CTTTCAATTCATTCGTTTCTGATAC GTATATACGTATGACTTAAGAATTTACATACACTGGCGG spacer
length: 40 repeater length: 25
16044 1522957 CTTTCAATTCATTCGTTTCTGATAC ACATAAGGGGCATATATGTGAAGATCCGTATCTATAATGAGG spacer
length: 42 repeater length: 25
16045 1523024 CTTTCAATTCATTCGTTTCTGATAC TTGTTCACTGTGCCCCGCGGAAAAAGGCGGCACGCTGAAGAA spacer
length: 41 repeater length: 25
16046 1523090 CTTTCAATTCATTCGTTTCTGATAC CGCCTTTTTCTCGAGTCCATACAACAAAAATACAGAAAA spacer
length: 40 repeater length: 25
16047 1523155 CTTTCAATTCATTCGTTTCTGATAC CTATCTTCCGCTCGGCACTCGCCCAATCTTCAAATAAC spacer
length: 38 repeater length: 25
16048 1523218 CTTTCAATTCATTCGTTTCTGATAC AGACCTATGGTAGAACGTATAGATCTATATAAGCAGCTGTTT spacer
length: 42 repeater length: 25
16049 1523285 CTTTCAATTCATTCGTTTCTGATAC TCGGGGAATGCGTCTGTAACGCCCCACCGATATATGCA spacer
length: 38 repeater length: 25
16050 1523348 CTTTCAATTCATTCGTTTCTGATAC GGGGTTATGA
16051
16052
16053 crispr 9
16054 1574748 CCTTCAATTCTTTCTGAGTTGCATC AGTGACACCCCCAGGGGCGTGGAAGGGGTTGGGGACGTAAA spacer
length: 41 repeater length: 25
16055 1574814 CCTTCAATTCTTTCTGAGTTGCATC AAAGACATTAAGCAAAGTTGGTAAGAGGACAACCATGAGCAAT spacer
length: 43 repeater length: 25
16056 1574882 CCTTCAATTCTTTCTGAGTTGCATC
CCTCAGCAAGCTCCCGCTAATATTAGATGAACAACAAAAAGAATCACTCGT spacer length: 51 repeater
length: 25
16057 1574958 CCTTCAATTCTTTCTGAGTTGCATC GGGCGCAAAAATGCTCCTAGTGCGGCCAGTAGAAAAAGCGCGC spacer
length: 43 repeater length: 25
16058 1575026 CCTTCAATTCTTTCTGAGTTGCATC CGTTGCCACTACGACATAGGCGTTCAGTCGTGGCTCAT spacer
length: 38 repeater length: 25
16059 1575089 CCTTCAATTCTTTCTGAGTTGCATC TCCGAATAGAACCTACGAAGTTACCTGCCATTGTCACCCTTT spacer
length: 42 repeater length: 25
16060 1575156 CCTTCAATTCTTTCTGAGTTGCATC TTGCTCAGCCAGCTTGCAATCAGTAATCCCCAACTACTA spacer
length: 40 repeater length: 25
16061 1575221 CCTTCAATTCTTTCTGAGTTGCATC AGTAGCAAAGGAACATTTGAGGAACGCCCTGAACTATCTAGA spacer
length: 42 repeater length: 25
16062 1575288 CCTTCAATTCTTTCTGAGTTGCATC TTTCGGAGAATGCGTCTGCGATGCACCACCGATATATGC spacer

length: 39 repeater length: 25
16063 1575352 CCTTCAATTCTTTCTGAGTTGCATC AATGGCTGTAAATTCCACCCTGTTAGCATCTGTGGTGGGTATGG
spacer length: 44 repeater length: 25
16064 1575421 CCTTCAATTCTTTCTGAGTTGCATC AGCTCCACCGGGTACAATTGGTTCTCCAAGACATGGACTAT spacer
length: 41 repeater length: 25
16065 1575487 CCTTCAATTCTTTCTGAGTTGCATC CTCCTCTGCAATTTTGCAGGCTAAGTTTTTCAGCTCGGGATAT spacer
length: 43 repeater length: 25
16066 1575555 CCTTCAATTCTTTCTGAGTTGCATC ACATTGTTCAACATAAGCGGTTTACGGTACGCTTAACGTGT spacer
length: 40 repeater length: 25
16067 1575620 CCTTCAATTCTTTCTGAGTTGCATC TTAATACTAATACTAATAAGTAATACTAATACTAGTAATTAA spacer
length: 41 repeater length: 25
16068 1575686 CCTTCAATTCTTTCTGAGTTGCATC CATTGCAATTACGTAGTTCAAGAGTGCCTTGACCTTAGCA spacer
length: 40 repeater length: 25
16069 1575751 CCTTCAATTCTTTCTGAGTTGCATC GCGCTGGCGAAGGCCACGAACGGCTGGCTAGCCCTGGC spacer
length: 38 repeater length: 25
16070 1575814 CCTTCAATTCTTTCTGAGTTGCATC CGTGGCCAAAGCCCAGGCAGAGGCACAGAAGGCGCTACAGC spacer
length: 41 repeater length: 25
16071 1575880 CCTTCAATTCTTTCTGAGTTGCATC GAGAATATCTAGCCTGCTTGGACAAGTGTCAAAGACTGGCTAC spacer
length: 43 repeater length: 25
16072 1575948 CCTTCAATTCTTTCTGAGTTGCATC AAGACAATATCGGGGATGTCAAAGTAGTCGTTTCTCGTGATGTCAA
spacer length: 46 repeater length: 25
16073 1576019 CCTTCAATTCTTTCTGAGTTGCATC TCGGGCTTTGATTTTTGGATATGCTTTTCCGTCAATCAAT spacer
length: 40 repeater length: 25
16074 1576084 CCTTCAATTCTTTCTGAGTTGCATC ATGACTTGGTAAACCAATATCGCGTTGAGAGAGTAATA spacer
length: 38 repeater length: 25
16075 1576147 CCTTCAATTCTTTCTGAGTTGCATC AAAGCGGGGATAAATCTTGAACCCTATAAGGACGCCTTAA spacer
length: 40 repeater length: 25
16076 1576212 CCTTCAATTCTTTCTGAGTTGCATC TGTCTCCTCGAAGCCGTGTATAAGACCGAGTACAAAG spacer
length: 37 repeater length: 25
16077 1576274 CCTTCAATTCTTTCTGAGTTGCATC CTGAGGGCGTAGAACAAGCAATAGAAAAGCTCGTAGAATATATTAAT
spacer length: 47 repeater length: 25
16078 1576346 CCTTCAATTCTTTCTGAGTTGCATC ATCGCTGGCGCGGGAAGTGGACTAAAAGCCACGTTTTCT spacer
length: 39 repeater length: 25
16079 1576410 CCTTCAATTCTTTCTGAGTTGCATC GGAAGAGGAGTGGGCGATAGACTTCGAGAACCAGGACT spacer
length: 38 repeater length: 25
16080 1576473 CCTTCAATTCTTTCTGAGTTGCATC GCCTTGTTGCGTGGCATGAGCGTGACTATCTGTTTTGCT spacer
length: 39 repeater length: 25
16081 1576537 CCTTCAATTCTTTCTGAGTTGCATC TAGTTGATGCTTGTGAAGTGTATCTGTGTCGGGCAGTGGTT spacer
length: 41 repeater length: 25
16082 1576603 CCTTCAATTCTTTCTGAGTTGCATC CACTCTTAAGTATCACTGCATGACCGTATTGACTACCTGCAAAT
spacer length: 44 repeater length: 25
16083 1576672 CCTTCAATTCTTTCTGAGTTGCATC AAAGACAATCAAGGGGGTAGTTACCGCTGTCTACCTGTTGG spacer
length: 41 repeater length: 25
16084 1576738 CCTTCAATTCTTTCTGAGTTGCATC ATAGAAATAGTGTGTGATGCGATAGAATATTCGCTAGATAT spacer
length: 41 repeater length: 25
16085 1576804 CCTTCAATTCTTTCTGAGTTGCATC CTTCTCGCTGTATCCTGCGGCTTCTGCGGCTTCTGCAATGCT spacer
length: 42 repeater length: 25
16086 1576871 CCTTCAATTCTTTCTGAGTTGCATC ACAATTGTAAAACAGGGTCCCGTAAAAGGGTCCAAAATCAG spacer
length: 41 repeater length: 25
16087 1576937 CCTTCAATTCTTTCTGAGTTGCATC TGATGTCTAAGCCTTCTGTAATCTTTAGCATAGTGTCA spacer
length: 38 repeater length: 25
16088 1577000 CCTTCAATTCTTTCTGAGTTGCATC ATGACTTATATTTATGTATTGGGAAATCTCTACATAACCATGA spacer
length: 42 repeater length: 25
16089 1577067 CCTTCAATTCTTTCTGAGTTGCATC CTACATCATTGACGTGAATACTGCCGAGATACTGCGGAAAAT spacer
length: 42 repeater length: 25
16090 1577134 CCTTCAATTCTTTCTGAGTTGCATC TACAGTCTGTGCTGTTGCGCCGTTTGTCCACACTGCGC spacer
length: 38 repeater length: 25
16091 1577197 CCTTCAATTCTTTCTGAGTTGCATC TCTATTTTCCTCTCACCCTCGACCATGGCTCGAATAG spacer
length: 38 repeater length: 25
16092 1577260 CCTTCAATTCTTTCTGAGTTGCATC ATAGGTTTTTTATAGGGCTGGTGAAACATTGTTGATAACTATG spacer
length: 43 repeater length: 25
16093 1577328 CCTTCAATTCTTTCTGAGTTGCATC TCGGGGACTG
16094
16095
16096 GCA_000816105.1_ASM81610v1_genomic.fna (PilerCR) :
16097 START REPEAT
SPACER
16098 crispr 1
16099 457101 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AGTATGCGCGGCGAAAAAAGAGGAAGACGACGCCCGC spacer
length: 38 repeater length: 30
16100 457169 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTGCTCTTCCTCGTGATGGCCCTGGTCGGCATCATCAGG spacer

length: 39 repeater length: 30
16101 457238 CTTTCAATTCTCCTAGAGTCTTATTGCAAC ACATTAAGCTGATTGTCTCTATTGTTAGCTGGGCTCT spacer
length: 37 repeater length: 30
16102 457305 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CGCCGTGAAACGGCCCGGAGAGCTAAAAAGAAAAGTCA spacer
length: 39 repeater length: 30
16103 457374 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GCAGCGCCGAGCTAACCGGAGTCACCCTCTATGTTGA spacer
length: 37 repeater length: 30
16104 457441 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GCTCTAGCTGGGGGTGTGGTGCTATGAAGAGGCTTC spacer
length: 36 repeater length: 30
16105 457507 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GTGTACGGCGTTGACAAGCAGGACATGCACGCCGTCG spacer
length: 37 repeater length: 30
16106 457574 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GGAGCCAGAGTCTCCCTCCCATTGAACTTGGTCTC spacer
length: 36 repeater length: 30
16107 457640 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCGTCCGTGCG
16108
16109
16110 crispr 2
16111 604298 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GCACGTGAGAACTACCGTTTGGCAAAGCCCCACG spacer
length: 35 repeater length: 30
16112 604363 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AAGCCAACTTCCTGTTTAACCCCCGAAACAAAGCTAA spacer
length: 38 repeater length: 30
16113 604431 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TGGCCTTGGCTACGCCTACAAGGTTTACAACGAAAAG spacer
length: 37 repeater length: 30
16114 604498 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCGTGTCAAAGTCATCAAAGAACTCGAACACTTGCT spacer
length: 36 repeater length: 30
16115 604564 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CGGGAGGGATTATTTGCATGTCGGGCTCTGGTTCCTC spacer
length: 37 repeater length: 30
16116 604631 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GTTGTACTTGGGTCGTGGTCTGGGACTGAGACTGAC spacer
length: 36 repeater length: 30
16117 604697 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CGATGCCCCGCGCCAACGAAGAGCTTGAAGTACGCTCTGTAA
spacer length: 42 repeater length: 30
16118 604769 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AGCACACCGAATCGCCACGGCCATCACGCTCCACCA spacer
length: 36 repeater length: 30
16119 604835 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CGGACGATAAGGGGCTGGAGTATGATTACTACCTCAG spacer
length: 37 repeater length: 30
16120 604902 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCCCTGTCCACAATCGTGGGGGTGGTTAATGTCCCCG spacer
length: 37 repeater length: 30
16121 604969 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GTTTGGAACGCGGTAAATGTGGATTGGTGATAACAA spacer
length: 36 repeater length: 30
16122 605035 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AATCAGCGCTTAGGATTTTAGCTAACGCGTCTTTGA spacer
length: 36 repeater length: 30
16123 605101 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCTCAAACATAGTGGCAAGCTCGTGGTAGAAACCCC spacer
length: 36 repeater length: 30
16124 605167 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TAAGCACAGCGCGGTCTTGTGGGCCTTCTGGAAAAA spacer
length: 37 repeater length: 30
16125 605234 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTGCAAGCGGGACGATGAAAATCACGATAAAGAGGGTTGG
spacer length: 40 repeater length: 30
16126 605304 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCACCCACCGTCGCGTATTGCACCACCAACCCGACT spacer
length: 37 repeater length: 30
16127 605371 CTTTCAATTCTCCTAGAGTCTTATTGCAAC ATCCAAAACCCTAATAGCACATTACCAAGAGATTTT spacer
length: 36 repeater length: 30
16128 605437 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTTTAACTTCCCTCCATAAAGTATCCAATAAATATTCTTGG
spacer length: 41 repeater length: 30
16129 605508 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCAAACAGGGAAAAAGAAAAGCAGGAATGTAAGCT spacer
length: 36 repeater length: 30
16130 605574 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCCC GCCGTATCATCCTTTACCTTCCACTGATTCTCCTC spacer
length: 39 repeater length: 30
16131 605643 CTTTCAATTCTCCTAGAGTCTTATTGCAAC ATATGCTCATAAGGCTCGACGGTCGGCGGGTTGGATG spacer
length: 37 repeater length: 30
16132 605710 CTTTCAATTCTCCTAGAGTCTTATTGCAAC ACGCGGTACGCAATACCTCCGCACGGCCCTTCCCCCTCTCA
spacer length: 42 repeater length: 30
16133 605782 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTCGATCTTGATGTATATCTCCGTCCCCTTTGCGAT spacer
length: 36 repeater length: 30
16134 605848 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AAATGAACAGGGTCGTAAAGTAATCTATGTCCTCCT spacer
length: 36 repeater length: 30
16135 605914 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AGATAAGCGTCAGTGGCCGCGTCAGTGCCGATCTTC spacer
length: 36 repeater length: 30
16136 605980 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GTGATTATATCGAGTTTTTGATGGGCTTTTCTGC spacer
length: 34 repeater length: 30
16137 606044 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCCCCCGCCG
16138

16139
16140 crispr 3
16141 1798197 GTTGCAATAAGACTCGAAGAGAATTGAAAG GAATCACATGTGCGGGAAGTATACATCGTTGGGCAG spacer
length: 36 repeater length: 30
16142 1798263 GTTGCAATAAGACTCGAAGAGAATTGAAAG ATCTTGCCGATTACGCGGAATTTGGCGCCGCTCGGGCCCTCA
spacer length: 42 repeater length: 30
16143 1798335 GTTGCAATAAGACTCGAAGAGAATTGAAAG CAGCAAGATCGACCAGATGCCTGCTGTTACGGATCAG spacer
length: 37 repeater length: 30
16144 1798402 GTTGCAATAAGACTCGAAGAGAATTGAAAG GCAGTGGCGGTGAGGAAGTCGAGCGGGGTGCCGTCG spacer
length: 36 repeater length: 30
16145 1798468 GTTGCAATAAGACTCGAAGAGAATTGAAAG TTGCGTCCACCCACGCCGAGCCGTCCCAGACCTTGAC spacer
length: 37 repeater length: 30
16146 1798535 GTTGCAATAAGACTCGAAGAGAATTGAAAG TTTCAATGAGTTTACGAAGGCTGTGCAGCAGGAGATGG spacer
length: 38 repeater length: 30
16147 1798603 GTTGCAATAAGACTCGAAGAGAATTGAAAG GGAGTAACATCAAGGTGGGATTATGTAATTGTCCGCA spacer
length: 37 repeater length: 30
16148 1798670 GTTGCAATAAGACTCGAAGAGAATTGAAAG TCTTTATACCAACGCATGGCTTCCACACTTCAACTTT spacer
length: 37 repeater length: 30
16149 1798737 GTTGCAATAAGACTCGAAGAGAATTGAAAG CTTTCACGCGTTCGGGCCGTGAGCGGCTTGCTCTCC spacer
length: 36 repeater length: 30
16150 1798803 GTTGCAATAAGACTCGAAGAGAATTGAAAG CTTTCACGCGTTCGGGCCGTGAGCGGCTTGCTCTCTGCAA
spacer length: 41 repeater length: 30
16151 1798874 GTTGCAATAAGACTCGAAGAGAATTGAAAG GTTTTAACCTCGTGGACAACCTGACCCTCTCCCCCTAC spacer
length: 37 repeater length: 30
16152 1798941 GTTGCAATAAGACTCGAAGAGAATTGAAAG AAATGCCCTCGCTCTGGACGAGGCCCTTCCTGCAAG spacer
length: 37 repeater length: 30
16153 1799008 GTTGCAATAAGACTCGAAGAGAATTGAAAG TCTTCTTCTATGGTTTGCCACGCTTCGACTGCTTCCC spacer
length: 37 repeater length: 30
16154 1799075 GTTGCAATAAGACTCGAAGAGAATTGAAAG TGTTTTTTGATGTGTGCTATTATTTTCTCTCCGGCTT spacer
length: 37 repeater length: 30
16155 1799142 GTTGCAATAAGACTCGAAGAGAATTGAAAG CAATCTCCTTTTGGGCTTCGCGTAAGGCTTTGATAAAA spacer
length: 38 repeater length: 30
16156 1799210 GTTGCAATAAGACTCGAAGAGAATTGAAAG AACGCTGGGCTTCAACTGCGCGGGAGGGGAAGGCAGG spacer
length: 37 repeater length: 30
16157 1799277 GTTGCAATAAGACTCGAAGAGAATTGAAAG AAATGGCGTTTACTGTATAATGCTGATTATGGGGCGA spacer
length: 37 repeater length: 30
16158 1799344 GTTGCAATAAGACTCGAAGAGAATTGAAAG TAACTAAAGTTTAACCTCTATATAAACTTTTCCTTA spacer
length: 36 repeater length: 30
16159 1799410 GTTGCAATAAGACTCGAAGAGAATTGAAAG AAAGCTCCTCGGGGATGAGCCCGACGAACTCACCGCTC spacer
length: 38 repeater length: 30
16160 1799478 GTTGCAATAAGACTCGAAGAGAATTGAAAG CGGAGCCGCCGGCGGCTATGGTGCCGAGCTCAAGCGT spacer
length: 37 repeater length: 30
16161 1799545 GTTGCAATAAGACTCGAAGAGAATTGAAAG GCATCAGCGGCGGCAGCATCAGCGAGGGCCAGGTCG spacer
length: 36 repeater length: 30
16162 1799611 GTTGCAATAAGACTCGAAGAGAATTGAAAG TCATCTTTTCCACCTCCATCCCCTGCCGGGCCAAGCGT spacer
length: 38 repeater length: 30
16163 1799679 GTTGCAATAAGACTCGAAGAGAATTGAAAG CGCGGGGTCACGGCGGCTTGACCTCGCAGCGGCGGCAA spacer
length: 38 repeater length: 30
16164 1799747 GTTGCAATAAGACTCGAAGAGAATTGAAAG GAGTCACGCGGTACGCAATGCCGCCGTATGGCCCTTCC spacer
length: 38 repeater length: 30
16165 1799815 GTTGCAATAAGACTCGAAGAGAATTGAAAG AACATGAGCGTGATGATCGGGTTCTTATGGTAGAAC spacer
length: 36 repeater length: 30
16166 1799881 GTTGCAATAAGACTCGAAGAGAATTGAAAG AGGAGTTTGTGTTAGGGCTCGGTGTATTGCTTTATATT spacer
length: 37 repeater length: 30
16167 1799948 GTTGCAATAAGACTCGAAGAGAATTGAAAG ATTCAGTTTACGTTTATGGGCTCGTTGTGGCATGGGG spacer
length: 37 repeater length: 30
16168 1800015 GTTGCAATAAGACTCGAAGAGAATTGAAAG ACGACCTCTTTAAAATGCTGGAGGAGGTGGAAGAAT spacer
length: 36 repeater length: 30
16169 1800081 GTTGCAATAAGACTCGAAGAGAATTGAAAG TAGGGTTAGCATGGATATAAATGTCGTGTTTCATGAA spacer
length: 37 repeater length: 30
16170 1800148 GTTGCAATAAGACTCGAAGAGAATTGAAAG
16171
16172
16173 GCA_000828555.1_ASM82855v1_genomic.fna (PilerCR) :
16174 START REPEAT
SPACER
16175 crispr 1
16176 1010041 CTA AAAAGAGT AAAATGCAATAGAACAAAGCATTGAAAC ATAAAATGTGTCGAGGAAAACGTATGATTTCTTTTAAG
spacer length: 38 repeater length: 37
16177 1010116 CTA AAAAGAGT AAAATGCAATAGAACAAAGCATTGAAAC TTTCA GTTGATAATTCTTTCTCACCATATTTGTT
spacer length: 34 repeater length: 37

16178	1010187	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	GAGTGTGTGGCTCTGAATGTGTCGGGGATTAAC
		spacer length: 35 repeater length: 37	
16179	1010259	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TTTAACACCCCGTCATTAATAAATACACCTGATGAT
		spacer length: 36 repeater length: 37	
16180	1010332	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	ATTTTTTAAGCCCCCCCCAAAGAGTGAGAATATGA
		spacer length: 35 repeater length: 37	
16181	1010404	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	AAAGCATGGGTTGAAATGAACACAACAGAAAAAAG
		spacer length: 35 repeater length: 37	
16182	1010476	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TCCCTTATGGTTTCAATTTCTTTTTTAAATTCTGCT
		spacer length: 36 repeater length: 37	
16183	1010549	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	GTCCATGTTAATCCGTAGTCAGTAGACCGGTAGATATC
		spacer length: 38 repeater length: 37	
16184	1010624	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	GATAGTTGTCTGTCGTATCTTGGATTTTTCAGTTCAA
		spacer length: 36 repeater length: 37	
16185	1010697	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TTAATGCCAAGCAGTTTAAAGGCTTTAAGCTCTGAAC
		spacer length: 38 repeater length: 37	
16186	1010772	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	ATACCTCGACTTCTACGACTCCGAGCCATCCCAT
		spacer length: 34 repeater length: 37	
16187	1010843	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TAATAAGTTTTTTGAATTGTTAAAGACGTGTACCA
		spacer length: 36 repeater length: 37	
16188	1010916	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	ATGGATCAATGGAACAAATGAGGTGACCAACTTGTG
		spacer length: 36 repeater length: 37	
16189	1010989	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	CCCATCATTCCAGGGCCCTTACCAGTTGCACCTGTGGG
		spacer length: 38 repeater length: 37	
16190	1011064	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	AAATTAGATGTTAAAGATATAAAAGCTGTTCAATT
		spacer length: 35 repeater length: 37	
16191	1011136	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TGTGTAATCTCCCCATAGTTCTTCCCCTAAACTTCCTT
		spacer length: 38 repeater length: 37	
16192	1011211	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TATTTCTCGCAGGTCAAAAGTATAATCGAACCCGTTTG
		spacer length: 39 repeater length: 37	
16193	1011287	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TCAGAAGCGGATAAATTAGTAAATAAAGTATTAAGAC
		spacer length: 37 repeater length: 37	
16194	1011361	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	CTCTTAAAAACTTCTCTTTATACCATTCTATAAACT
		spacer length: 36 repeater length: 37	
16195	1011434	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	ATCAAAGCAGTAAATAGTGAAAAAGAAGTATATGTGGA
		spacer length: 38 repeater length: 37	
16196	1011509	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	CTATTCTTTGAGTATAATTTATACACCCCTGCTTTCTA
		spacer length: 38 repeater length: 37	
16197	1011584	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TGTATGCTTCGCTATCTCCAGAAATACGGCCTTGAATT
		spacer length: 38 repeater length: 37	
16198	1011659	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	GCCTTTTCGATTTTTCAGTTTCTCGTTCATCTGAATGTATG
		spacer length: 40 repeater length: 37	
16199	1011736	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TTTTTGATGGTTCGGTTTTCAGTTGGATAGTATCGTTTAA
		spacer length: 40 repeater length: 37	
16200	1011813	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	CAATTACCGACTCTGTAAGCGTTGCAATCTCTTTC
		spacer length: 35 repeater length: 37	
16201	1011885	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	GAAGTAATGAAACGAAAAGGTGAAATTATGAATGCAA
		spacer length: 37 repeater length: 37	
16202	1011959	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	GCATTTTAATGGGGATATACTGTCCCCCTACAAAA
		spacer length: 35 repeater length: 37	
16203	1012031	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	AATCCTCCGGCTTCATACTCATAAAATATTCATAAAT
		spacer length: 37 repeater length: 37	
16204	1012105	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	GTATTACAGGTAATCACATAATACCAGATAGTATCAT
		spacer length: 37 repeater length: 37	
16205	1012179	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	AATTTGATGTAAATGATGCAAATTCGGATATAAAAGA
		spacer length: 37 repeater length: 37	
16206	1012253	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	ATGATAAGGGGGAATTTGTTGGTTCAAACCAATTG
		spacer length: 36 repeater length: 37	
16207	1012326	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	ATAATTTTGAAGCGGTAGATCTTGAAGATTTTTTTGA
		spacer length: 37 repeater length: 37	
16208	1012400	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TTTCCTTTATGTGGAAAAATCGTTGTACTTTGTATCAACTT
		spacer length: 40 repeater length: 37	
16209	1012477	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TTTGTCAAGAGGTGAAAAATTGACGGAAAAATAATGATT
		spacer length: 38 repeater length: 37	
16210	1012552	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	AAAATAAACGTTAATTCATTAAGGATTATAAAACATT
		spacer length: 37 repeater length: 37	
16211	1012626	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	ATAGTTTCTGGCAACGCTATATTACTATTTAGA
		spacer length: 33 repeater length: 37	
16212	1012696	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	CATTATTAAACTCAAGTTGTGCTTTTGTATCATTA
		spacer length: 35 repeater length: 37	
16213	1012768	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TTAGTGCGATTAGTGCACCTTAGCAATTGCAAATT

spacer length: 36 repeater length: 37
 16214 1012841 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TGTGTTTTGAATTGTTCCAGTATTGCTTCCCTTACA
 spacer length: 36 repeater length: 37
 16215 1012914 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC CCATTGTACTCAATACGGTTGGTGGCGAATTAGCACCT
 spacer length: 38 repeater length: 37
 16216 1012989 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC CTTGCGTTTTTTAAATCGTCGATTTTGTACCTTGG
 spacer length: 35 repeater length: 37
 16217 1013061 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TTTCAACGCTAATTTTCATGATATCAACCTAATTAG
 spacer length: 36 repeater length: 37
 16218 1013134 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC GAATCTCCAAACATTGGAGTAAACCGTGCTGCAATG
 spacer length: 36 repeater length: 37
 16219 1013207 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC AAACCTACACAAAATGCAATAATCTGGACTATTTTGAA
 spacer length: 37 repeater length: 37
 16220 1013281 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC CTAATAACGATTTTCATAGTTTCACCTTTAATTTAATA
 spacer length: 37 repeater length: 37
 16221 1013355 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC GATGTTTCGAG
 16222
 16223
 16224 GCA_000875775.1_ASM87577v1_genomic.fna (PilerCR):
 16225 START REPEAT
 SPACER
 16226 GCA_000955905.3_ASM95590v3_genomic.fna (PilerCR):
 16227 START REPEAT
 SPACER
 16228 GCA_000956175.1_ASM95617v1_genomic.fna (PilerCR):
 16229 START REPEAT
 SPACER
 16230 GCA_000968355.2_ASM96835v2_genomic.fna (PilerCR):
 16231 START REPEAT
 SPACER
 16232 crispr 1
 16233 2112738 GATTAATCCCAAAAGGAATTGAAAG TCACATCCCTCACAATCCATAATGAAAATGTCGGCAT spacer
 length: 37 repeater length: 25
 16234 2112800 GATTAATCCCAAAAGGAATTGAAAG ATTTTAGCAATGCAATAGATCAACAATTGAAAGAACT spacer
 length: 38 repeater length: 25
 16235 2112863 GATTAATCCCAAAAGGAATTGAAAG ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTTC spacer
 length: 39 repeater length: 25
 16236 2112927 GATTAATCCCAAAAGGAATTGAAAG TGTTTCACAAATTTCAAACCTTGCAAACGCAACAATTAAATA spacer
 length: 41 repeater length: 25
 16237 2112993 GATTAATCCCAAAAGGAATTGAAAG GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTGG spacer
 length: 40 repeater length: 25
 16238 2113058 GATTAATCCCAAAAGGAATTGAAAG TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACTC spacer
 length: 38 repeater length: 25
 16239 2113121 GATTAATCCCAAAAGGAATTGAAAG GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAGT spacer
 length: 39 repeater length: 25
 16240 2113185 GATTAATCCCAAAAGGAATTGAAAG CAATAGAATTTTCTTAGTTGGCATTGACAAGTATAATTCT spacer
 length: 41 repeater length: 25
 16241 2113251 GATTAATCCCAAAAGGAATTGAAAG CAAAATTCCAAACTTTGGGAATTTCTAGTTTCCAAATTTTC spacer
 length: 40 repeater length: 25
 16242 2113316 GATTAATCCCAAAAGGAATTGAAAG TTTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGAC spacer
 length: 39 repeater length: 25
 16243 2113380 GATTAATCCCAAAAGGAATTGAAAG CGCTTTCGACTGCGACAACCTGTCGTTTGGCTCATTTGTTGC spacer
 length: 41 repeater length: 25
 16244 2113446 GATTAATCCCAAAAGGAATTGAAAG TTATTTCAAATACTATTATCTCCGCCATATGTTTACAT spacer
 length: 38 repeater length: 25
 16245 2113509 GATTAATCCCAAAAGGAATTGAAAG ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATTT spacer
 length: 38 repeater length: 25
 16246 2113572 GATTAATCCCAAAAGGAATTGAAAG TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTCA spacer
 length: 40 repeater length: 25
 16247 2113637 GATTAATCCCAAAAGGAATTGAAAG CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAATA spacer
 length: 39 repeater length: 25
 16248 2113701 GATTAATCCCAAAAGGAATTGAAAG AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTTC
 spacer length: 44 repeater length: 25
 16249 2113770 GATTAATCCCAAAAGGAATTGAAAG GCTTTAACTTGGTACGCACTTTACGCCATGATAAACG spacer
 length: 37 repeater length: 25
 16250 2113832 GATTAATCCCAAAAGGAATTGAAAG GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGTT spacer
 length: 39 repeater length: 25
 16251 2113896 GATTAATCCCAAAAGGAATTGAAAG GTTGAATTTTGGCAACTGGTATGTTGTATTTTGGCA spacer
 length: 36 repeater length: 25
 16252 2113957 GATTAATCCCAAAAGGAATTGAAAG AATTTGTTACACGGCTAGGATTTTTTTTCTTAGATGTACAAT spacer
 length: 42 repeater length: 25

16253	2114024	GATTAATCCCAAAAAGGAATTGAAAG	TTCTAATCTTTTGCCATTACTGCATCATATCTACTAG	spacer
	length:	38	repeater length:	25
16254	2114087	GATTAATCCCAAAAAGGAATTGAAAG	ATCTTTACCTTTATATAAATCTTGTTTCGTAACAAATAA	spacer
	length:	38	repeater length:	25
16255	2114150	GATTAATCCCAAAAAGGAATTGAAAG	ACAAAACGAGGAGTTTATAGTAAATCAACTATGAAA	spacer
	length:	37	repeater length:	25
16256	2114212	GATTAATCCCAAAAAGGAATTGAAAG	ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAAG	spacer length:
	length:	35	repeater length:	25
16257	2114272	GATTAATCCCAAAAAGGAATTGAAAG	AACTACAACGAGGTGAGAAACGATGACTAAACGTTT	spacer
	length:	36	repeater length:	25
16258	2114333	GATTAATCCCAAAAAGGAATTGAAAG	TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATTG	spacer
	length:	38	repeater length:	25
16259	2114396	GATTAATCCCAAAAAGGAATTGAAAG	TAGATATATGGCGATGAATTGCATTAGTCAGTGGTG	spacer
	length:	36	repeater length:	25
16260	2114457	GATTAATCCCAAAAAGGAATTGAAAG	ATTTTAAACGCTATGACGCTAGCCCTCATGTTAGCTTTT	spacer
	length:	39	repeater length:	25
16261	2114521	GATTAATCCCAAAAAGGAATTGAAAG	AAAGTTTGTTCTTCTGTTTCGTTTTGTTGTTCTGACT	spacer
	length:	37	repeater length:	25
16262	2114583	GATTAATCCCAAAAAGGAATTGAAAG	CCCCTTTTGCCGTCTTTTGTAGTTACCACAATGCACCAA	spacer
	length:	38	repeater length:	25
16263	2114646	GATTAATCCCAAAAAGGAATTGAAAG	CCGTATCCAGAAATAATTAACCAATCGCTTGTGTTGAC	spacer
	length:	39	repeater length:	25
16264	2114710	GATTAATCCCAAAAAGGAATTGAAAG	AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCAA	spacer
	length:	37	repeater length:	25
16265	2114772	GATTAATCCCAAAAAGGAATTGAAAG	GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGTG	spacer
	length:	42	repeater length:	25
16266	2114839	GATTAATCCCAAAAAGGAATTGAAAG	GCATCTGTCGGCAACCTCACTTATTCACGTGGGGGTGCG	spacer
	length:	39	repeater length:	25
16267	2114903	GATTAATCCCAAAAAGGAATTGAAAG	TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTGA	spacer
	length:	37	repeater length:	25
16268	2114965	GATTAATCCCAAAAAGGAATTGAAAG	TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTTG	spacer
	length:	39	repeater length:	25
16269	2115029	GATTAATCCCAAAAAGGAATTGAAAG	TTGAACCTGTAGAAATTGTTTCATATGAAACAGCATAATTTTC	spacer
	length:	42	repeater length:	25
16270	2115096	GATTAATCCCAAAAAGGAATTGAAAG	TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAACG	spacer
	length:	40	repeater length:	25
16271	2115161	GATTAATCCCAAAAAGGAATTGAAAG	CTCATTATTTTCATCATAAAGATTATCCACTGCAATT	spacer
	length:	36	repeater length:	25
16272	2115222	GATTAATCCCAAAAAGGAATTGAAAG	ATGCATTCCACCTCTGTTTCTTCCTCTTTACGCATTTCT	spacer
	length:	39	repeater length:	25
16273	2115286	GATTAATCCCAAAAAGGAATTGAAAG	CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGCG	spacer
	length:	36	repeater length:	25
16274	2115347	GATTAATCCCAAAAAGGAATTGAAAG	ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACAT	spacer
	length:	39	repeater length:	25
16275	2115411	GATTAATCCCAAAAAGGAATTGAAAG	TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTATG	spacer
	length:	41	repeater length:	25
16276	2115477	GATTAATCCCAAAAAGGAATTGAAAG	ATTTTGAATGTTACGACTCTCGTCATTTTCCACCTCTTCT	spacer
	length:	41	repeater length:	25
16277	2115543	GATTAATCCCAAAAAGGAATTGAAAG	GGAGTAATCTTTCAGTCAAAAGACTTTCAGCCCTC	spacer
	length:	36	repeater length:	25
16278	2115604	GATTAATCCCAAAAAGGAATTGAAAG	TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAATC	spacer
	length:	36	repeater length:	25
16279	2115665	GATTAATCCCAAAAAGGAATTGAAAG	ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTGT	spacer
	length:	39	repeater length:	25
16280	2115729	GATTAATCCCAAAAAGGAATTGAAAG	ATATTACCTTGCTGGATAAAGTTAATGATTTTCAT	spacer length:
	length:	34	repeater length:	25
16281	2115788	GATTAATCCCAAAAAGGAATTGAAAG	ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCAT	spacer
	length:	38	repeater length:	25
16282	2115851	GATTAATCCCAAAAAGGAATTGAAAG	TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCATT	spacer
	length:	40	repeater length:	25
16283	2115916	GATTAATCCCAAAAAGGAATTGAAAG	CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCGG	spacer
	length:	40	repeater length:	25
16284	2115981	GATTAATCCCAAAAAGGAATTGAAAG	GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTCTG	spacer
	length:	40	repeater length:	25
16285	2116046	GATTAATCCCAAAAAGGAATTGAAAG	CCATCCAAGCCTTGATTTGATATTCCTTTTAAATGTCTGC	spacer
	length:	39	repeater length:	25
16286	2116110	GATTAATCCCAAAAAGGAATTGAAAG	TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCATT	spacer
	length:	40	repeater length:	25
16287	2116175	GATTAATCCCAAAAAGGAATTGAAAG	CCCCACTGGAATGCACCATTTCTTGCAAGTAATACATTT	spacer
	length:	39	repeater length:	25
16288	2116239	GATTAATCCCAAAAAGGAATTGAAAG	ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTGC	spacer

length: 40 repeater length: 25
16289 2116304 GATTAATCCCAAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATACT spacer
length: 38 repeater length: 25
16290 2116367 GATTAATCCCAAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCAG spacer
length: 39 repeater length: 25
16291 2116431 GATTAATCCCAAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCTT spacer
length: 37 repeater length: 25
16292 2116493 GATTAATCCCAAAAAGGAATTGAAAG TTTTATTTAAGAACACTGATGGAAAGATCTATAG spacer length:
35 repeater length: 25
16293 2116553 GATTAATCCCAAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAAATGATTCTA spacer
length: 37 repeater length: 25
16294 2116615 GATTAATCCCAAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGAT spacer
length: 38 repeater length: 25
16295 2116678 GATTAATCCCAAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACATT spacer
length: 39 repeater length: 25
16296 2116742 GATTAATCCCAAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCCTTTTGTAAAGACATTCTCA spacer
length: 40 repeater length: 25
16297 2116807 GATTAATCCCAAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCGG spacer
length: 40 repeater length: 25
16298 2116872 GATTAATCCCAAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATTC spacer
length: 39 repeater length: 25
16299 2116936 GATTAATCCCAAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTCGTC spacer
length: 42 repeater length: 25
16300 2117003 GATTAATCCCAAAAAGGAATTGAAAG GTATTCAAAAGAGAACTGGGGGATTCAAGGTAATACCT spacer
length: 38 repeater length: 25
16301 2117066 GATTAATCCCAAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATACAGTAAAGTAGCAGTTTT spacer
length: 36 repeater length: 25
16302 2117127 GATTAATCCCAAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTGT spacer
length: 37 repeater length: 25
16303 2117189 GATTAATCCCAAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAGT spacer
length: 36 repeater length: 25
16304 2117250 GATTAATCCCAAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTGA spacer
length: 39 repeater length: 25
16305 2117314 GATTAATCCCAAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTTCGTT spacer
length: 38 repeater length: 25
16306 2117377 GATTAATCCCAAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTTT spacer
length: 38 repeater length: 25
16307 2117440 GATTAATCCCAAAAAGGAATTGAAAG TCAAACCTCATGAAGCTACTGTAATCCATTTACATAAA spacer
length: 38 repeater length: 25
16308 2117503 GATTAATCCCAAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAAATT spacer
length: 38 repeater length: 25
16309 2117566 GATTAATCCCAAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCGAAAATGATTT spacer
length: 40 repeater length: 25
16310 2117631 GATTAATCCCAAAAAGGAATTGAAAG AAAAATTTTTCACATTCGACATTAAAAATAAAATAATTTTG spacer
length: 42 repeater length: 25
16311 2117698 GATTAATCCCAAAAAGGAATTGAAAG AATTCGTATACCTTAGTAGTATTATCATCAATATTGTAT spacer
length: 39 repeater length: 25
16312 2117762 GATTAATCCCAAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTAG spacer
length: 39 repeater length: 25
16313 2117826 GATTAATCCCAAAAAGGAATTGAAAG TCTACGTTGTAAATTCATATACAGCTTGGCTCATAT spacer
length: 37 repeater length: 25
16314 2117888 GATTAATCCCAAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTAT spacer
length: 38 repeater length: 25
16315 2117951 GATTAATCCCAAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTGATAGCTTTCATCTT spacer
length: 41 repeater length: 25
16316 2118017 GATTAATCCCAAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTAC spacer
length: 40 repeater length: 25
16317 2118082 GATTAATCCCAAAAAGGAATTGAAAG CAGCAAGAAGTTCACCTCTCTACATCTTATGATTTTCGG spacer
length: 37 repeater length: 25
16318 2118144 GATTAATCCCAAAAAGGAATTGAAAG CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCCT spacer
length: 36 repeater length: 25
16319 2118205 GATTAATCCCAAAAAGGAATTGAAAG ACCTTTATTTTAAGTCCTAGCCTCTTCCCTATCCAT spacer
length: 36 repeater length: 25
16320 2118266 GATTAATCCCAAAAAGGAATTGAAAG TTGTTTCACCTCCTTATTAAAAGCGACAGACGGTCGAC spacer
length: 38 repeater length: 25
16321 2118329 GATTAATCCCAAAAAGGAATTGAAAG TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTTT spacer
length: 37 repeater length: 25
16322 2118391 GATTAATCCCAAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGATG spacer
length: 40 repeater length: 25
16323 2118456 GATTAATCCCAAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAATTATA spacer
length: 38 repeater length: 25

16324	2118519	GATTAATCCCAAAAAGGAATTGAAAG	TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGCC	spacer
	length:	40	repeater length:	25
16325	2118584	GATTAATCCCAAAAAGGAATTGAAAG	CAGCTCGACGATGACGAATACAAGATGCTGTATAATGCG	spacer
	length:	39	repeater length:	25
16326	2118648	GATTAATCCCAAAAAGGAATTGAAAG	TTTCTCAACTGATCCACGGCTTCAGAGAAGATGTTTGGAT	spacer
	length:	40	repeater length:	25
16327	2118713	GATTAATCCCAAAAAGGAATTGAAAG	GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGATG	spacer
	length:	39	repeater length:	25
16328	2118777	GATTAATCCCAAAAAGGAATTGAAAG	CTCAGCAGATTTAAACTAACGATATTAATTGTACACACTG	spacer
	length:	40	repeater length:	25
16329	2118842	GATTAATCCCAAAAAGGAATTGAAAG	TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCAA	spacer
	length:	39	repeater length:	25
16330	2118906	GATTAATCCCAAAAAGGAATTGAAAG	CAAGTGCAATAGCAAACACTACTACTAAATATAACATATAT	spacer
	length:	39	repeater length:	25
16331	2118970	GATTAATCCCAAAAAGGAATTGAAAG	CTATATGGGGTCAGGGTGGAACATAAATCGTGGCTTTA	spacer
	length:	38	repeater length:	25
16332	2119033	GATTAATCCCAAAAAGGAATTGAAAG	CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAGT	spacer
	length:	39	repeater length:	25
16333	2119097	GATTAATCCCAAAAAGGAATTGAAAG	GAACTCTCTATTGCTGACGAACTAAGAGAAAATTGTTTCAA	spacer
	length:	41	repeater length:	25
16334	2119163	GATTAATCCCAAAAAGGAATTGAAAG	TCTAACAATGAATCTGTCTATAAAGTGCCCGCAACTCTT	spacer
	length:	38	repeater length:	25
16335	2119226	GATTAATCCCAAAAAGGAATTGAAAG	AGATTATCAATCAAGTGATAGAGATATTGCAATTTT	spacer
	length:	36	repeater length:	25
16336	2119287	GATTAATCCCAAAAAGGAATTGAAAG	TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATGT	spacer
	length:	39	repeater length:	25
16337	2119351	GATTAATCCCAAAAAGGAATTGAAAG	AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTTT	spacer
	length:	39	repeater length:	25
16338	2119415	GATTAATCCCAAAAAGGAATTGAAAG	ACTACTCTTACTTTTTGCATTCCTTTTGGAGTAGGC	spacer
	length:	36	repeater length:	25
16339	2119476	GATTAATCCCAAAAAGGAATTGAAAG	TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCTC	spacer
	length:	39	repeater length:	25
16340	2119540	GATTAATCCCAAAAAGGAATTGAAAG	TCGTAAACTTGAAACTGACCCGTATATCCGAATTTAC	spacer
	length:	37	repeater length:	25
16341	2119602	GATTAATCCCAAAAAGGAATTGAAAG	GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCTA	spacer
	length:	39	repeater length:	25
16342	2119666	GATTAATCCCAAAAAGGAATTGAAAG	CGTGATTACATGGAACATTACTTTTCCACCGAATATT	spacer
	length:	37	repeater length:	25
16343	2119728	GATTAATCCCAAAAAGGAATTGAAAG	TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCTA	spacer
	length:	39	repeater length:	25
16344	2119792	GATTAATCCCAAAAAGGAATTGAAAG	GTCAGTTATACGCTACATATGAAAAGATAAATGAAG	spacer
	length:	36	repeater length:	25
16345	2119853	GATTAATCCCAAAAAGGAATTGAAAG	ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCCT	spacer
	length:	38	repeater length:	25
16346	2119916	GATTAATCCCAAAAAGGAATTGAAAG	TCTATCTTTATTGTTACAACTTTTGCATACGACATAATTT	spacer
	length:	40	repeater length:	25
16347	2119981	GATTAATCCCAAAAAGGAATTGAAAG	TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACTT	spacer
	length:	39	repeater length:	25
16348	2120045	GATTAATCCCAAAAAGGAATTGAAAG	TAATACTGCAGTAACGGTACAAGTCATTGACAGCGCT	spacer
	length:	37	repeater length:	25
16349	2120107	GATTAATCCCAAAAAGGAATTGAAAG		
16350				
16351				
16352	crispr 2			
16353	2134655	CTTCAATTCCTTTTAGGATTAATC	TTGAAGATAGAGTTAAATGAACTTTTGATGACACAAAA	spacer
	length:	38	repeater length:	25
16354	2134718	CTTCAATTCCTTTTAGGATTAATC	GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCAA	spacer
	length:	41	repeater length:	25
16355	2134784	CTTCAATTCCTTTTAGGATTAATC	AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTGA	spacer
	length:	39	repeater length:	25
16356	2134848	CTTCAATTCCTTTTAGGATTAATC	ACCAAGTGAACTTGGAATATATAACCAAAAAGATAT	spacer
	length:	37	repeater length:	25
16357	2134910	CTTCAATTCCTTTTAGGATTAATC	GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAAT	spacer
	length:	38	repeater length:	25
16358	2134973	CTTCAATTCCTTTTAGGATTAATC	AGTAATAGAACTCATTCAGAGTCTCTTCCAACCCGTACA	spacer
	length:	40	repeater length:	25
16359	2135038	CTTCAATTCCTTTTAGGATTAATC	CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGCG	spacer length:
	length:	35	repeater length:	25
16360	2135098	CTTCAATTCCTTTTAGGATTAATC	TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG	spacer
	length:	39	repeater length:	25
16361	2135162	CTTCAATTCCTTTTAGGATTAATC	TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG	spacer

length: 39 repeater length: 25
16362 2135226 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAATATTGGTGGAGTAGTTGATTTTCGATAATAT spacer
length: 41 repeater length: 25
16363 2135292 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTAA spacer
length: 39 repeater length: 25
16364 2135356 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGATA spacer
length: 39 repeater length: 25
16365 2135420 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGAA spacer
length: 37 repeater length: 25
16366 2135482 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGAT spacer
length: 37 repeater length: 25
16367 2135544 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTGA spacer
length: 40 repeater length: 25
16368 2135609 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTACA spacer
length: 38 repeater length: 25
16369 2135672 CTTTCAATTCCTTTTAGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAAA spacer
length: 40 repeater length: 25
16370 2135737 CTTTCAATTCCTTTTAGGATTAATC GAGTGAGACCATGATCATTAACTGATATTACGGTAAG spacer
length: 39 repeater length: 25
16371 2135801 CTTTCAATTCCTTTTAGGATTAATC AACAAAACCTTACCAGTGATGGAACATTTGAATGTAA spacer
length: 37 repeater length: 25
16372 2135863 CTTTCAATTCCTTTTAGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATACT spacer
length: 40 repeater length: 25
16373 2135928 CTTTCAATTCCTTTTAGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATAT spacer
length: 42 repeater length: 25
16374 2135995 CTTTCAATTCCTTTTAGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACGG spacer
length: 38 repeater length: 25
16375 2136058 CTTTCAATTCCTTTTAGGATTAATC CCGTGATCAGATACAGTAACAGTCATGTTTTTATCT spacer
length: 36 repeater length: 25
16376 2136119 CTTTCAATTCCTTTTAGGATTAATC CATGGAAACGGGAGGAGGTGAGACAATGAAGGTTAC spacer
length: 37 repeater length: 25
16377 2136181 CTTTCAATTCCTTTTAGGATTAATC CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAACT spacer
length: 38 repeater length: 25
16378 2136244 CTTTCAATTCCTTTTAGGATTAATC GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTAG spacer
length: 40 repeater length: 25
16379 2136309 CTTTCAATTCCTTTTAGGATTAATC AAATTCCTGCAAAGGTAACACAATTGACGAGGTAAA spacer length:
35 repeater length: 25
16380 2136369 CTTTCAATTCCTTTTAGGATTAATC CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCAA spacer
length: 40 repeater length: 25
16381 2136434 CTTTCAATTCCTTTTAGGATTAATC TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAACT spacer
length: 40 repeater length: 25
16382 2136499 CTTTCAATTCCTTTTAGGATTAATC GGCATAACCGCTGCTTTCGGCTGCTGCTGCTAATTGGTCTC spacer
length: 41 repeater length: 25
16383 2136565 CTTTCAATTCCTTTTAGGATTAATC CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCTT spacer
length: 39 repeater length: 25
16384 2136629 CTTTCAATTCCTTTTAGGATTAATC ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAAT spacer
length: 38 repeater length: 25
16385 2136692 CTTTCAATTCCTTTTAGGATTAATC AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTAG spacer
length: 40 repeater length: 25
16386 2136757 CTTTCAATTCCTTTTAGGATTAATC GGCATTAGAATATGGGTAAAACTTATAGCGACGAAGA spacer
length: 38 repeater length: 25
16387 2136820 CTTTCAATTCCTTTTAGGATTAATC TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGAT spacer
length: 36 repeater length: 25
16388 2136881 CTTTCAATTCCTTTTAGGATTAATC TTTACCACCGCTCAGACTTCTTGAGATGTTTAAACC spacer
length: 37 repeater length: 25
16389 2136943 CTTTCAATTCCTTTTAGGATTAATC GAATTCATCAAGTATTGCGGAAGTAAATACTTCATATTTATCA
spacer length: 44 repeater length: 25
16390 2137012 CTTTCAATTCCTTTTAGGATTAATC TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGTG spacer
length: 38 repeater length: 25
16391 2137075 CTTTCAATTCCTTTTAGGATTAATC CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGCT spacer
length: 36 repeater length: 25
16392 2137136 CTTTCAATTCCTTTTAGGATTAATC CACATTAGCAAGAATCGTGCTAGCTACAGTTGGATT spacer
length: 36 repeater length: 25
16393 2137197 CTTTCAATTCCTTTTAGGATTAATC AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTTC spacer
length: 39 repeater length: 25
16394 2137261 CTTTCAATTCCTTTTAGGATTAATC TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTCT spacer
length: 41 repeater length: 25
16395 2137327 CTTTCAATTCCTTTTAGGATTAATC GGTAATGGTCTGTATATTGTCTTTAAGTATTTAT spacer length:
34 repeater length: 25
16396 2137386 CTTTCAATTCCTTTTAGGATTAATC AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTAA spacer
length: 39 repeater length: 25

16397	2137450	CTTTC AATTCCTTTT TAGGATTAATC	CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAAG	spacer
		length: 40	repeater length: 25	
16398	2137515	CTTTC AATTCCTTTT TAGGATTAATC	ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCATT	spacer
		length: 40	repeater length: 25	
16399	2137580	CTTTC AATTCCTTTT TAGGATTAATC	ATTAGCTAAACCATTTCAAAGGCTAACATCTTCTATGT	spacer
		length: 38	repeater length: 25	
16400	2137643	CTTTC AATTCCTTTT TAGGATTAATC	ATAAATCCACAAAGTGGCCGTTCAAAGCAAAGAGTTTATT	spacer
		length: 40	repeater length: 25	
16401	2137708	CTTTC AATTCCTTTT TAGGATTAATC	TGATATTTATTTTCTCGTGAAAAGTGGAGGGCCTAGAAC	spacer
		length: 39	repeater length: 25	
16402	2137772	CTTTC AATTCCTTTT TAGGATTAATC	ATTATATCATGGAGACCCAGGTGCTGTGACTATCAA	spacer
		length: 36	repeater length: 25	
16403	2137833	CTTTC AATTCCTTTT TAGGATTAATC	AATTAGCCAGCGTGCCATCTGGGTAAACGTGTATTTTGGTTAA	spacer
		length: 43	repeater length: 25	
16404	2137901	CTTTC AATTCCTTTT TAGGATTAATC	ATAATATATTTTCGTTCCAACCTACACCTAATGGATTCTGGG	spacer
		length: 39	repeater length: 25	
16405	2137965	CTTTC AATTCCTTTT TAGGATTAATC	TAATTGTCTGCCCTTGAGTTCCACTGAGAGAAACGC	spacer
		length: 36	repeater length: 25	
16406	2138026	CTTTC AATTCCTTTT TAGGATTAATC	AAAAGACGTACAAATATACATCGCACCGAACGGACACAT	spacer
		length: 39	repeater length: 25	
16407	2138090	CTTTC AATTCCTTTT TAGGATTAATC	GGGTGCGTGCCCCACAGGTCGCGGGTCTACCCCTTGC	spacer
		length: 37	repeater length: 25	
16408	2138152	CTTTC AATTCCTTTT TAGGATTAATC	TTATGTCGTTATCTTCTTCGTTTTTGTGCGTTGTTT	spacer
		length: 37	repeater length: 25	
16409	2138214	CTTTC AATTCCTTTT TAGGATTAATC	GATAAAATATTAAATTCTCAAATTCCATTTAGAG	spacer length:
		34	repeater length: 25	
16410	2138273	CTTTC AATTCCTTTT TAGGATTAATC	AAAATTTGAAACAATATCGCATCTTGAATAATTAT	spacer length:
		35	repeater length: 25	
16411	2138333	CTTTC AATTCCTTTT TAGGATTAATC	GCTTCTTCCCAACGCTGTACGTACTCTTAGGTGTCACA	spacer
		length: 38	repeater length: 25	
16412	2138396	CTTTC AATTCCTTTT TAGGATTAATC	AATTACAGGAAAAAGACGAACCTAAATGAGGAAGAAATG	spacer
		length: 38	repeater length: 25	
16413	2138459	CTTTC AATTCCTTTT TAGGATTAATC	TACTCAATTTGTGCGCAGTTTTTCATTGAGGGAGACTT	spacer
		length: 38	repeater length: 25	
16414	2138522	CTTTC AATTCCTTTT TAGGATTAATC	AAAAATCTGAGTGCAATGTATAATGAAAATATGGATAATA	spacer
		length: 41	repeater length: 25	
16415	2138588	CTTTC AATTCCTTTT TAGGATTAATC	TGTTGTCCAAATAAATGCTGTACCGACTAACAAATATGTA	spacer
		length: 40	repeater length: 25	
16416	2138653	CTTTC AATTCCTTTT TAGGATTAATC	CAGGAGTTGGAGGTATTATCGGAGCATTGTTAGCAT	spacer
		length: 36	repeater length: 25	
16417	2138714	CTTTC AATTCCTTTT TAGGATTAATC	ATGATTTGAAAATAGATGAAGAGCTATCTAAACTCATTCC	spacer
		length: 40	repeater length: 25	
16418	2138779	CTTTC AATTCCTTTT TAGGATTAATC	ACCACATTATGAAGGTACTCCAGAATTCTCTAAGAT	spacer
		length: 36	repeater length: 25	
16419	2138840	CTTTC AATTCCTTTT TAGGATTAATC	TAGATCTATTTCGCAGAGTTTGCATCAACACATAAGTAC	spacer
		length: 38	repeater length: 25	
16420	2138903	CTTTC AATTCCTTTT TAGGATTAATC	ATAATATGGTGAAAATTGAAGGTGAATCATTAGCAAA	spacer
		length: 37	repeater length: 25	
16421	2138965	CTTTC AATTCCTTTT TAGGATTAATC	AATTTTTTGTTTAAAGATGATTCAAGTGAAGAATATTA	spacer
		length: 38	repeater length: 25	
16422	2139028	CTTTC AATTCCTTTT TAGGATTAATC	CAATCCCCAAAAGTAAATCCCCAATCTTCAAATAATATGG	spacer
		length: 40	repeater length: 25	
16423	2139093	CTTTC AATTCCTTTT TAGGATTAATC		
16424				
16425				
16426	crispr 3			
16427	2150492	GATAATCTCTTATAGAATTGAAAG	TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGGC	spacer
		length: 38	repeater length: 24	
16428	2150554	GATAATCTCTTATAGAATTGAAAG	CAACGCCAACTCCGCCAATTTCCGCATTGATGTTGCTGG	spacer
		length: 40	repeater length: 24	
16429	2150618	GATAATCTCTTATAGAATTGAAAG	TCTTCAAACCTCCCACGGCACACGGAGGCATGCAAATTATT	spacer
		length: 42	repeater length: 24	
16430	2150684	GATAATCTCTTATAGAATTGAAAG	GTAGTAAGCTTTCCTTCTTTATCCTCTAGACCGCTGTAGT	spacer
		length: 40	repeater length: 24	
16431	2150748	GATAATCTCTTATAGAATTGAAAG	AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTCA	spacer
		length: 38	repeater length: 24	
16432	2150810	GATAATCTCTTATAGAATTGAAAG	GAAGTGTGCTGGTGTTCATGAAATATGGGTATGCATATT	spacer
		length: 39	repeater length: 24	
16433	2150873	GATAATCTCTTATAGAATTGAAAG	GCAAAGAGTCCATTCAATAACACATATTTTGCACATAAG	spacer
		length: 39	repeater length: 24	
16434	2150936	GATAATCTCTTATAGAATTGAAAG	AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGCT	spacer

length: 39 repeater length: 24
16435 2150999 GATAATCTCTTATAGAATTGAAAG ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTCT spacer
length: 39 repeater length: 24
16436 2151062 GATAATCTCTTATAGAATTGAAAG CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTAA spacer
length: 40 repeater length: 24
16437 2151126 GATAATCTCTTATAGAATTGAAAG CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGAG spacer
length: 39 repeater length: 24
16438 2151189 GATAATCTCTTATAGAATTGAAAG ACCACGAGCACGACCTCAAATATAACACCGCCAAAAATC spacer
length: 39 repeater length: 24
16439 2151252 GATAATCTCTTATAGAATTGAAAG TATCTTCCAGATGTCTCAGAAACGCCTTAAAATTATTGAT spacer
length: 40 repeater length: 24
16440 2151316 GATAATCTCTTATAGAATTGAAAG TACATTAGACCCTAGTTGGTTTATCGCTGGTAACGTCG spacer
length: 38 repeater length: 24
16441 2151378 GATAATCTCTTATAGAATTGAAAG ACACTTAGCGACATAAAAACCGCACTGACTTACAATTACC spacer
length: 40 repeater length: 24
16442 2151442 GATAATCTCTTATAGAATTGAAAG CGACATACATATATATGCATTTCCGTGGGAGTGTTACAAA spacer
length: 40 repeater length: 24
16443 2151506 GATAATCTCTTATAGAATTGAAAG ACATATGGTTGGTCTCCAACATTTGGTGAGTATATCT spacer
length: 37 repeater length: 24
16444 2151567 GATAATCTCTTATAGAATTGAAAG GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCTT spacer
length: 38 repeater length: 24
16445 2151629 GATAATCTCTTATAGAATTGAAAG ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCAA spacer
length: 39 repeater length: 24
16446 2151692 GATAATCTCTTATAGAATTGAAAG AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGAA spacer
length: 38 repeater length: 24
16447 2151754 GATAATCTCTTATAGAATTGAAAG CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTAT spacer
length: 38 repeater length: 24
16448 2151816 GATAATCTCTTATAGAATTGAAAG TCTGATAGCACCAGACAAGTAAAGCGTATATCCTAGTCAA spacer
length: 41 repeater length: 24
16449 2151881 GATAATCTCTTATAGAATTGAAAG AACATATTCTGGTACGGGTTGCCATCTGGTACACCATT spacer
length: 39 repeater length: 24
16450 2151944 GATAATCTCTTATAGAATTGAAAG TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAAA spacer
length: 39 repeater length: 24
16451 2152007 GATAATCTCTTATAGAATTGAAAG AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAGG spacer
length: 37 repeater length: 24
16452 2152068 GATAATCTCTTATAGAATTGAAAG CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGTC spacer
length: 38 repeater length: 24
16453 2152130 GATAATCTCTTATAGAATTGAAAG ACATCGCAAGCGATCTATTGTTCACTTATTCCTGGCGGC spacer
length: 40 repeater length: 24
16454 2152194 GATAATCTCTTATAGAATTGAAAG AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA spacer
length: 38 repeater length: 24
16455 2152256 GATAATCTCTTATAGAATTGAAAG CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA spacer
length: 37 repeater length: 24
16456 2152317 GATAATCTCTTATAGAATTGAAAG AATTTGAACATAATTCCGCCTCGTCAGTTTTCCACAGATA spacer
length: 40 repeater length: 24
16457 2152381 GATAATCTCTTATAGAATTGAAAG TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT spacer
length: 39 repeater length: 24
16458 2152444 GATAATCTCTTATAGAATTGAAAG TTTACTGACAACGCCATCATACTTACTAGCCCACTAA spacer
length: 38 repeater length: 24
16459 2152506 GATAATCTCTTATAGAATTGAAAG GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGGA spacer
length: 40 repeater length: 24
16460 2152570 GATAATCTCTTATAGAATTGAAAG TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT spacer
length: 41 repeater length: 24
16461 2152635 GATAATCTCTTATAGAATTGAAAG CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG spacer
length: 37 repeater length: 24
16462 2152696 GATAATCTCTTATAGAATTGAAAG ATCTGAATTTCCCTCAGCTTCCATTGCATAATTTATTCTA spacer
length: 39 repeater length: 24
16463 2152759 GATAATCTCTTATAGAATTGAAAG TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT spacer
length: 40 repeater length: 24
16464 2152823 GATAATCTCTTATAGAATTGAAAG ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTC spacer
length: 38 repeater length: 24
16465 2152885 GATAATCTCTTATAGAATTGAAAG TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAGC spacer
length: 38 repeater length: 24
16466 2152947 GATAATCTCTTATAGAATTGAAAG GTCAAAATTGCCCAACCGAAGCTTAGCAAAATGCAGCAC spacer
length: 40 repeater length: 24
16467 2153011 GATAATCTCTTATAGAATTGAAAG TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA spacer
length: 41 repeater length: 24
16468 2153076 GATAATCTCTTATAGAATTGAAAG GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAACC spacer
length: 39 repeater length: 24
16469 2153139 GATAATCTCTTATAGAATTGAAAG GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGTT spacer
length: 39 repeater length: 24

16470 2153202 GATAATCTCTTATAGAATTGAAAG TCACTCTTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT spacer
length: 40 repeater length: 24

16471 2153266 GATAATCTCTTATAGAATTGAAAG GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT spacer length:
35 repeater length: 24

16472 2153325 GATAATCTCTTATAGAATTGAAAG GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC spacer
length: 39 repeater length: 24

16473 2153388 GATAATCTCTTATAGAATTGAAAG CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAAT spacer length:
36 repeater length: 24

16474 2153448 GATAATCTCTTATAGAATTGAAAG AATGCCTGAAGCAATAACGCCCCAAGTTACATGCTCTTG spacer
length: 38 repeater length: 24

16475 2153510 GATAATCTCTTATAGAATTGAAAG ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATTA spacer
length: 38 repeater length: 24

16476 2153572 GATAATCTCTTATAGAATTGAAAG GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAAG spacer
length: 38 repeater length: 24

16477 2153634 GATAATCTCTTATAGAATTGAAAG AATCACGAAAGCGATACTAAGGGCAATACAATACAAACATG spacer
length: 41 repeater length: 24

16478 2153699 GATAATCTCTTATAGAATTGAAAG CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTGC spacer
length: 39 repeater length: 24

16479 2153762 GATAATCTCTTATAGAATTGAAAG AGATTGTTTTATTAATACCAAGTAGACAATTATATATTTT spacer
length: 40 repeater length: 24

16480 2153826 GATAATCTCTTATAGAATTGAAAG CCAAAACATGTCACATGTGCCGATATTGATATTTACAAA spacer
length: 39 repeater length: 24

16481 2153889 GATAATCTCTTATAGAATTGAAAG AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGAA spacer
length: 38 repeater length: 24

16482 2153951 GATAATCTCTTATAGAATTGAAAG GGGAGTTCCCATTCGATTTTGGGAACCCTCAAGCACAGTCTGTG spacer
length: 44 repeater length: 24

16483 2154019 GATAATCTCTTATAGAATTGAAAG TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCAT spacer
length: 41 repeater length: 24

16484 2154084 GATAATCTCTTATAGAATTGAAAG CTAACCTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTGT spacer
length: 38 repeater length: 24

16485 2154146 GATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTCTGCAGTCTTTGTT spacer length:
36 repeater length: 24

16486 2154206 GATAATCTCTTATAGAATTGAAAG AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTAT spacer
length: 39 repeater length: 24

16487 2154269 GATAATCTCTTATAGAATTGAAAG ATCCGTTCTCCGTCCCGATCCGTACCGTTCTCTGTACT spacer
length: 38 repeater length: 24

16488 2154331 GATAATCTCTTATAGAATTGAAAG AGCATAACTTCATCTTCTTCTACAACCTCGACAGCTT spacer
length: 37 repeater length: 24

16489 2154392 GATAATCTCTTATAGAATTGAAAG TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATTA spacer
length: 42 repeater length: 24

16490 2154458 GATAATCTCTTATAGAATTGAAAG ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCAT spacer
length: 39 repeater length: 24

16491 2154521 GATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGGT spacer
length: 40 repeater length: 24

16492 2154585 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATA spacer
length: 37 repeater length: 24

16493 2154646 GATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCCC spacer
length: 38 repeater length: 24

16494 2154708 GATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATACA spacer
length: 39 repeater length: 24

16495 2154771 GATAATCTCTTATAGAATTGAAAG ACGAACACACCCCTTAAACTCTTTTTCCAACATTACCT spacer
length: 40 repeater length: 24

16496 2154835 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGAG spacer
length: 40 repeater length: 24

16497 2154899 GATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATTCCGACCAAAGCTAATA spacer
length: 39 repeater length: 24

16498 2154962 GATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGGT spacer
length: 40 repeater length: 24

16499 2155026 GATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTAG spacer
length: 43 repeater length: 24

16500 2155093 GATAATCTCTTATAGAATTGAAAG ATACAGATTTTCGTTATCCATATCCTACATGACTTTCC spacer
length: 37 repeater length: 24

16501 2155154 GATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAAATTAGATATCCATTGACTGTTAT spacer
length: 39 repeater length: 24

16502 2155217 GATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTATT spacer
length: 40 repeater length: 24

16503 2155281 GATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAACG spacer
length: 40 repeater length: 24

16504 2155345 GATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTGGCCTGAGTA spacer
length: 38 repeater length: 24

16505 2155407 GATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGAT spacer

length: 40 repeater length: 24
16506 2155471 GATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAAATGCCATATA spacer
length: 44 repeater length: 24
16507 2155539 GATAATCTCTTATAGAATTGAAAG CTAAGCAGTGACTCACAGTTTAGACATTACAAGTATC spacer
length: 38 repeater length: 24
16508 2155601 GATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAAGATCTATCTGACAACACGAACTATG spacer
length: 41 repeater length: 24
16509 2155666 GATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGAC spacer
length: 40 repeater length: 24
16510 2155730 GATAATCTCTTATAGAATTGAAAG CAATCCCATTTCGTTTTACTCACTTCTAAGAACCTCGC spacer
length: 37 repeater length: 24
16511 2155791 GATAATCTCTTATAGAATTGAAAG AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTCT spacer
length: 40 repeater length: 24
16512 2155855 GATAATCTCTTATAGAATTGAAAG ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCTG spacer
length: 40 repeater length: 24
16513 2155919 GATAATCTCTTATAGAATTGAAAG GTCTTTATGGCCCTCTGGGTCTTTCCACCATTGAGAGGA spacer
length: 39 repeater length: 24
16514 2155982 GATAATCTCTTATAGAATTGAAAG TTATCCTCATTCTATCGGTGAGTGGAACAAATTGGGTAGC spacer
length: 40 repeater length: 24
16515 2156046 GATAATCTCTTATAGAATTGAAAG ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTTT spacer
length: 40 repeater length: 24
16516 2156110 GATAATCTCTTATAGAATTGAAAG AGTTACAATACTTTATTGTCAAAGAAGCAAGGATATGCG spacer
length: 40 repeater length: 24
16517 2156174 GATAATCTCTTATAGAATTGAAAG TTCAAAC TAGATCTAGAAGATTTCTATCGGCATCTTTACAT spacer
length: 41 repeater length: 24
16518 2156239 GATAATCTCTTATAGAATTGAAAG ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTTC spacer
length: 40 repeater length: 24
16519 2156303 GATAATCTCTTATAGAATTGAAAG GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTATT spacer
length: 39 repeater length: 24
16520 2156366 GATAATCTCTTATAGAATTGAAAG TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT spacer
length: 37 repeater length: 24
16521 2156427 GATAATCTCTTATAGAATTGAAAG ATCTACTACATCATCCTCTACCACGGCAAGCCAACAAC TCGT spacer
length: 43 repeater length: 24
16522 2156494 GATAATCTCTTATAGAATTGAAAG ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT spacer
length: 38 repeater length: 24
16523 2156556 GATAATCTCTTATAGAATTGAAAG ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACTA spacer
length: 41 repeater length: 24
16524 2156621 GATAATCTCTTATAGAATTGAAAG ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTCT spacer
length: 39 repeater length: 24
16525 2156684 GATAATCTCTTATAGAATTGAAAG AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT spacer
length: 37 repeater length: 24
16526 2156745 GATAATCTCTTATAGAATTGAAAG ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT spacer
length: 39 repeater length: 24
16527 2156808 GATAATCTCTTATAGAATTGAAAG ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTGC spacer
length: 41 repeater length: 24
16528 2156873 GATAATCTCTTATAGAATTGAAAG AAGCCTACACAGGATAGGATACTCAAATTATATGAAAAT spacer
length: 39 repeater length: 24
16529 2156936 GATAATCTCTTATAGAATTGAAAG TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCAT spacer
length: 42 repeater length: 24
16530 2157002 GATAATCTCTTATAGAATTGAAAG CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA spacer
length: 37 repeater length: 24
16531 2157063 GATAATCTCTTATAGAATTGAAAG TGTTCTGTCGTTACTGTCTGTAAGCACGTCCTATTAT spacer
length: 37 repeater length: 24
16532 2157124 GATAATCTCTTATAGAATTGAAAG ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC spacer
length: 38 repeater length: 24
16533 2157186 GATAATCTCTTATAGAATTGAAAG TCCTTGAGATGTTGATGTTTTATACGGTATTATGTGAA spacer
length: 39 repeater length: 24
16534 2157249 GATAATCTCTTATAGAATTGAAAG GCACAATTCGCCAACGATTTTCGGTTCGCTTTATACCTT spacer
length: 38 repeater length: 24
16535 2157311 GATAATCTCTTATAGAATTGAAAG CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTGG spacer
length: 41 repeater length: 24
16536 2157376 GATAATCTCTTATAGAATTGAAAG AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG spacer
length: 40 repeater length: 24
16537 2157440 GATAATCTCTTATAGAATTGAAAG ATTAGAAAAGTTTAAGATTACGCATGCAAAATATGTTTTTGAT spacer
length: 42 repeater length: 24
16538 2157506 GATAATCTCTTATAGAATTGAAAG TTCTGTTTCGAAGAAAACCCGCCTCAGATTCATTATGGG spacer
length: 39 repeater length: 24
16539 2157569 GATAATCTCTTATAGAATTGAAAG AAATCAAACGGAACTCCCCGATATTATCATGTCTAAA spacer
length: 39 repeater length: 24
16540 2157632 GATAATCTCTTATAGAATTGAAAG CCTCATCGTAAACATGCAATCTTGCATATTCAGTGTA spacer
length: 37 repeater length: 24

16541 2157693 GATAATCTCTTATAGAATTGAAAG GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCT spacer
length: 39 repeater length: 24
16542 2157756 GATAATCTCTTATAGAATTGAAAG ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT spacer
length: 41 repeater length: 24
16543 2157821 GATAATCTCTTATAGAATTGAAAG GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCGT spacer
length: 38 repeater length: 24
16544 2157883 GATAATCTCTTATAGAATTGAAAG ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA spacer
length: 39 repeater length: 24
16545 2157946 GATAATCTCTTATAGAATTGAAAG AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA spacer
length: 37 repeater length: 24
16546 2158007 GATAATCTCTTATAGAATTGAAAG CGTTCCTAGAGCTAAACGATGCATACGCGGTGGTACAACATA spacer
length: 40 repeater length: 24
16547 2158071 GATAATCTCTTATAGAATTGAAAG ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATTT spacer
length: 41 repeater length: 24
16548 2158136 GATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACCTCTGGGTAAGCCCACAATACGCAA spacer
length: 40 repeater length: 24
16549 2158200 GATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAAC spacer
length: 38 repeater length: 24
16550 2158262 GATAATCTCTTATAGAATTGAAAG TAACTAGATCCTTATATTTTACGTAAATGTAAAGGGG spacer
length: 38 repeater length: 24
16551 2158324 GATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTGCAATA spacer
length: 38 repeater length: 24
16552 2158386 GATAATCTCTTATAGAATTGAAAG GTTCATCAGTTCTACCTTTTGGTCCAAAGGCTGATCCAA spacer
length: 39 repeater length: 24
16553 2158449 GATAATCTCTTATAGAATTGAAAG
16554
16555
16556 crispr 4
16557 2557813 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGTG spacer
length: 39 repeater length: 24
16558 2557876 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAACCTCAAATA spacer
length: 42 repeater length: 24
16559 2557942 GATAATCTACTATAGAATTGAAAG CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAACATTA spacer
length: 39 repeater length: 24
16560 2558005 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTGA spacer
length: 41 repeater length: 24
16561 2558070 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTCACTCTGCGTATCATTATGGATAA spacer
length: 44 repeater length: 24
16562 2558138 GATAATCTACTATAGAATTGAAAG CCCGCCAGCCAGACTGTTTTTCAGCCCAAACCGGCTAATT spacer
length: 40 repeater length: 24
16563 2558202 GATAATCTACTATAGAATTGAAAG
16564
16565
16566 GCA_000968395.2_ASM96839v2_genomic.fna (PilerCR):
16567 START REPEAT
SPACER
crispr 1
16569 2112738 GATTAATCCCAAAAGGAATTGAAAG TCACATCCCTCACAATCCATAATGAAAATGTCGGCAT spacer
length: 37 repeater length: 25
16570 2112800 GATTAATCCCAAAAGGAATTGAAAG ATTTTAGCAATGCAATAGATCAACAATTGAAAGAACT spacer
length: 38 repeater length: 25
16571 2112863 GATTAATCCCAAAAGGAATTGAAAG ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTTC spacer
length: 39 repeater length: 25
16572 2112927 GATTAATCCCAAAAGGAATTGAAAG TGTTTCACAAATTTCAAACCTTGCAAACGCAACAATTAAATA spacer
length: 41 repeater length: 25
16573 2112993 GATTAATCCCAAAAGGAATTGAAAG GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTGG spacer
length: 40 repeater length: 25
16574 2113058 GATTAATCCCAAAAGGAATTGAAAG TAGTCAACGACAAAGTGCTTAAAACCGTGTTATACTC spacer
length: 38 repeater length: 25
16575 2113121 GATTAATCCCAAAAGGAATTGAAAG GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAGT spacer
length: 39 repeater length: 25
16576 2113185 GATTAATCCCAAAAGGAATTGAAAG CAATAGAATTTTCTTAGTTGGCATTGACAAGTATAATTCT spacer
length: 41 repeater length: 25
16577 2113251 GATTAATCCCAAAAGGAATTGAAAG CAAATTTCCAAACTTTGGGAATTTCTAGTTTCCAAATTTTC spacer
length: 40 repeater length: 25
16578 2113316 GATTAATCCCAAAAGGAATTGAAAG TTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGAC spacer
length: 39 repeater length: 25
16579 2113380 GATTAATCCCAAAAGGAATTGAAAG CGCTTTCGACTGCGACAACCTGTCGTTTGGCTCATTTGTTGC spacer
length: 41 repeater length: 25
16580 2113446 GATTAATCCCAAAAGGAATTGAAAG TTATTTCAAATACTATTATCTCCGCCATATGTTTACAT spacer
length: 38 repeater length: 25

16581	2113509	GATTAATCCCAAAAAGGAATTGAAAG	ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATTT spacer
		length: 38 repeater length: 25	
16582	2113572	GATTAATCCCAAAAAGGAATTGAAAG	TTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTCA spacer
		length: 40 repeater length: 25	
16583	2113637	GATTAATCCCAAAAAGGAATTGAAAG	CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAATA spacer
		length: 39 repeater length: 25	
16584	2113701	GATTAATCCCAAAAAGGAATTGAAAG	AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTTC
		spacer length: 44 repeater length: 25	
16585	2113770	GATTAATCCCAAAAAGGAATTGAAAG	GCTTTAACTTGGTACGCACTTTACGCCATGATAAACG spacer
		length: 37 repeater length: 25	
16586	2113832	GATTAATCCCAAAAAGGAATTGAAAG	GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGTT spacer
		length: 39 repeater length: 25	
16587	2113896	GATTAATCCCAAAAAGGAATTGAAAG	GTTGAATTTTTGCAACTGGTATGTTGTATTTTTGCA spacer
		length: 36 repeater length: 25	
16588	2113957	GATTAATCCCAAAAAGGAATTGAAAG	AATTTGTTACACGGCTAGGATTTTTTTTCTAGATGTACAAT spacer
		length: 42 repeater length: 25	
16589	2114024	GATTAATCCCAAAAAGGAATTGAAAG	TTCTAATCTTTTGCCATTACTGCATCATATCTACTAG spacer
		length: 38 repeater length: 25	
16590	2114087	GATTAATCCCAAAAAGGAATTGAAAG	ATCTTTACCTTTATATAAATCTTGTTTCGTAACAAATAA spacer
		length: 38 repeater length: 25	
16591	2114150	GATTAATCCCAAAAAGGAATTGAAAG	ACAAAACGAGGAGTTTATAGTAAATCAACTATGAAA spacer
		length: 37 repeater length: 25	
16592	2114212	GATTAATCCCAAAAAGGAATTGAAAG	ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAAG spacer length:
		35 repeater length: 25	
16593	2114272	GATTAATCCCAAAAAGGAATTGAAAG	AACTACAACGAGGTGAGAAACGATGACTAAACGTTT spacer
		length: 36 repeater length: 25	
16594	2114333	GATTAATCCCAAAAAGGAATTGAAAG	TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATTG spacer
		length: 38 repeater length: 25	
16595	2114396	GATTAATCCCAAAAAGGAATTGAAAG	TAGATATATGGCGATGAATTGCATTAGTCAGTGGTG spacer
		length: 36 repeater length: 25	
16596	2114457	GATTAATCCCAAAAAGGAATTGAAAG	ATTTTAAACGCTATGACGCTAGCCCTCATGTTAGCTTTT spacer
		length: 39 repeater length: 25	
16597	2114521	GATTAATCCCAAAAAGGAATTGAAAG	AAAGTTTGTCTCTGTTTCGTTTTGTTGTTCTGACT spacer
		length: 37 repeater length: 25	
16598	2114583	GATTAATCCCAAAAAGGAATTGAAAG	CCCCTTTTGCCGTCTTTTGTAGTTACCACAATGCACCAA spacer
		length: 38 repeater length: 25	
16599	2114646	GATTAATCCCAAAAAGGAATTGAAAG	CCGTATCCAGAAATAATTAACCAATCGCTTGTTTGTGAC spacer
		length: 39 repeater length: 25	
16600	2114710	GATTAATCCCAAAAAGGAATTGAAAG	AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCAA spacer
		length: 37 repeater length: 25	
16601	2114772	GATTAATCCCAAAAAGGAATTGAAAG	GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGTG spacer
		length: 42 repeater length: 25	
16602	2114839	GATTAATCCCAAAAAGGAATTGAAAG	GCATCTGTCGGCAACCTCACTTATTCACGTGGGGGTGCG spacer
		length: 39 repeater length: 25	
16603	2114903	GATTAATCCCAAAAAGGAATTGAAAG	TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTGA spacer
		length: 37 repeater length: 25	
16604	2114965	GATTAATCCCAAAAAGGAATTGAAAG	TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTTG spacer
		length: 39 repeater length: 25	
16605	2115029	GATTAATCCCAAAAAGGAATTGAAAG	TTGAACTTGTAGAAATTGTTTCATATGAAACAGCATAATTTTC spacer
		length: 42 repeater length: 25	
16606	2115096	GATTAATCCCAAAAAGGAATTGAAAG	TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAACG spacer
		length: 40 repeater length: 25	
16607	2115161	GATTAATCCCAAAAAGGAATTGAAAG	CTCATTATTTTCATCATAAAGATTATCCACTGCAATT spacer
		length: 36 repeater length: 25	
16608	2115222	GATTAATCCCAAAAAGGAATTGAAAG	ATGCATTCCACCTCTGTTTCTTCTCTTTACGCATTTCT spacer
		length: 39 repeater length: 25	
16609	2115286	GATTAATCCCAAAAAGGAATTGAAAG	CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGCG spacer
		length: 36 repeater length: 25	
16610	2115347	GATTAATCCCAAAAAGGAATTGAAAG	ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACAT spacer
		length: 39 repeater length: 25	
16611	2115411	GATTAATCCCAAAAAGGAATTGAAAG	TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTATG spacer
		length: 41 repeater length: 25	
16612	2115477	GATTAATCCCAAAAAGGAATTGAAAG	ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTCT spacer
		length: 41 repeater length: 25	
16613	2115543	GATTAATCCCAAAAAGGAATTGAAAG	GGAGTAATCTTCCAGTCAAAGACTTTCAGCCCTC spacer
		length: 36 repeater length: 25	
16614	2115604	GATTAATCCCAAAAAGGAATTGAAAG	TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAATC spacer
		length: 36 repeater length: 25	
16615	2115665	GATTAATCCCAAAAAGGAATTGAAAG	ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTGT spacer
		length: 39 repeater length: 25	
16616	2115729	GATTAATCCCAAAAAGGAATTGAAAG	ATATTACCTTGCTGGATAAAGTTAATGATTTTAT spacer length:

34 repeater length: 25

16617 2115788 GATTAATCCCAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCAT spacer
length: 38 repeater length: 25

16618 2115851 GATTAATCCCAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCATT spacer
length: 40 repeater length: 25

16619 2115916 GATTAATCCCAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCGG spacer
length: 40 repeater length: 25

16620 2115981 GATTAATCCCAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTCTG spacer
length: 40 repeater length: 25

16621 2116046 GATTAATCCCAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTGC spacer
length: 39 repeater length: 25

16622 2116110 GATTAATCCCAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTCTATACCCTTGTGTTTCATT spacer
length: 40 repeater length: 25

16623 2116175 GATTAATCCCAAAAGGAATTGAAAG CCCCACTGGAATGCACCATTTCTTGCAAGTAATACATTT spacer
length: 39 repeater length: 25

16624 2116239 GATTAATCCCAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTGC spacer
length: 40 repeater length: 25

16625 2116304 GATTAATCCCAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATACT spacer
length: 38 repeater length: 25

16626 2116367 GATTAATCCCAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCAG spacer
length: 39 repeater length: 25

16627 2116431 GATTAATCCCAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCTT spacer
length: 37 repeater length: 25

16628 2116493 GATTAATCCCAAAAGGAATTGAAAG TTTTATTTAAGAACACTGATGGAAAGATCTATAG spacer length:
35 repeater length: 25

16629 2116553 GATTAATCCCAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCTA spacer
length: 37 repeater length: 25

16630 2116615 GATTAATCCCAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGAT spacer
length: 38 repeater length: 25

16631 2116678 GATTAATCCCAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACATT spacer
length: 39 repeater length: 25

16632 2116742 GATTAATCCCAAAAGGAATTGAAAG CACTACATCTATTGTTTTCTTTTGTAAGACATTCCTCA spacer
length: 40 repeater length: 25

16633 2116807 GATTAATCCCAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCGG spacer
length: 40 repeater length: 25

16634 2116872 GATTAATCCCAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATTC spacer
length: 39 repeater length: 25

16635 2116936 GATTAATCCCAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTCGTC spacer
length: 42 repeater length: 25

16636 2117003 GATTAATCCCAAAAGGAATTGAAAG GTATTCAAAGAGAACTGGGGGATTCAAGGTAATACCT spacer
length: 38 repeater length: 25

16637 2117066 GATTAATCCCAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATAACAGTAAAGTAGCAGTTTT spacer
length: 36 repeater length: 25

16638 2117127 GATTAATCCCAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTGT spacer
length: 37 repeater length: 25

16639 2117189 GATTAATCCCAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAGT spacer
length: 36 repeater length: 25

16640 2117250 GATTAATCCCAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTGA spacer
length: 39 repeater length: 25

16641 2117314 GATTAATCCCAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTTCGTT spacer
length: 38 repeater length: 25

16642 2117377 GATTAATCCCAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTTT spacer
length: 38 repeater length: 25

16643 2117440 GATTAATCCCAAAAGGAATTGAAAG TCAAACCTCATGAAGCTACTGTAATCCATTTACATAAA spacer
length: 38 repeater length: 25

16644 2117503 GATTAATCCCAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAATT spacer
length: 38 repeater length: 25

16645 2117566 GATTAATCCCAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCGAAAATGATTT spacer
length: 40 repeater length: 25

16646 2117631 GATTAATCCCAAAAGGAATTGAAAG AAAAATTTTTCACATTCGACATTAATAAATAAATAATTTTG spacer
length: 42 repeater length: 25

16647 2117698 GATTAATCCCAAAAGGAATTGAAAG AATTCGTATACCTTAGTAGTATTATCATCAATATTGTAT spacer
length: 39 repeater length: 25

16648 2117762 GATTAATCCCAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTAG spacer
length: 39 repeater length: 25

16649 2117826 GATTAATCCCAAAAGGAATTGAAAG TCTACGTTGTAAATTCATATACAGCTTGGCTCATAT spacer
length: 37 repeater length: 25

16650 2117888 GATTAATCCCAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTAT spacer
length: 38 repeater length: 25

16651 2117951 GATTAATCCCAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTGATAGCTTTGCATCTT spacer
length: 41 repeater length: 25

16652	2118017	GATTAATCCCAAAAAGGAATTGAAAG	CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTAC	spacer
		length: 40	repeater length: 25	
16653	2118082	GATTAATCCCAAAAAGGAATTGAAAG	CAGCAAGAAGTTCACTCTCTACATCTTATGATTTTCGG	spacer
		length: 37	repeater length: 25	
16654	2118144	GATTAATCCCAAAAAGGAATTGAAAG	CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCCT	spacer
		length: 36	repeater length: 25	
16655	2118205	GATTAATCCCAAAAAGGAATTGAAAG	ACCTTTATTTTAAGTCCTAGCCTCTTCCCTATCCAT	spacer
		length: 36	repeater length: 25	
16656	2118266	GATTAATCCCAAAAAGGAATTGAAAG	TTGTTTTCACCTCCTTATTTAAAAGCGACAGACGGTCGAC	spacer
		length: 38	repeater length: 25	
16657	2118329	GATTAATCCCAAAAAGGAATTGAAAG	TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTTT	spacer
		length: 37	repeater length: 25	
16658	2118391	GATTAATCCCAAAAAGGAATTGAAAG	CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGATG	spacer
		length: 40	repeater length: 25	
16659	2118456	GATTAATCCCAAAAAGGAATTGAAAG	AGCTTTATGACACTCATTATCATATACTCAAATTATA	spacer
		length: 38	repeater length: 25	
16660	2118519	GATTAATCCCAAAAAGGAATTGAAAG	TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGCC	spacer
		length: 40	repeater length: 25	
16661	2118584	GATTAATCCCAAAAAGGAATTGAAAG	CAGCTCGACGATGACGAATACAAGATGCTGTATAATGCG	spacer
		length: 39	repeater length: 25	
16662	2118648	GATTAATCCCAAAAAGGAATTGAAAG	TTTCTCAACTGATCCACGGCTTCAGAGAAGATGTTTGGAT	spacer
		length: 40	repeater length: 25	
16663	2118713	GATTAATCCCAAAAAGGAATTGAAAG	GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGATG	spacer
		length: 39	repeater length: 25	
16664	2118777	GATTAATCCCAAAAAGGAATTGAAAG	CTCAGCAGATTTAACTAACGATATTAATTGTACACACTG	spacer
		length: 40	repeater length: 25	
16665	2118842	GATTAATCCCAAAAAGGAATTGAAAG	TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCAA	spacer
		length: 39	repeater length: 25	
16666	2118906	GATTAATCCCAAAAAGGAATTGAAAG	CAAGTGCAATAGCAAACACTACTACTAAATATAACATATAT	spacer
		length: 39	repeater length: 25	
16667	2118970	GATTAATCCCAAAAAGGAATTGAAAG	CTATATGGGGTCAGGGTGGAACATAAATCGTGGCTTTA	spacer
		length: 38	repeater length: 25	
16668	2119033	GATTAATCCCAAAAAGGAATTGAAAG	CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAGT	spacer
		length: 39	repeater length: 25	
16669	2119097	GATTAATCCCAAAAAGGAATTGAAAG	GAACTCTCTATTGCTGACGAACATAAGAGAAAATTGTTTCAA	spacer
		length: 41	repeater length: 25	
16670	2119163	GATTAATCCCAAAAAGGAATTGAAAG	TCTAACAATGAATCTGTCTATAAAGTGCCCGCAACTCTT	spacer
		length: 38	repeater length: 25	
16671	2119226	GATTAATCCCAAAAAGGAATTGAAAG	AGATTATCAATCAAGTGATAGAGATATTGCAATTTT	spacer
		length: 36	repeater length: 25	
16672	2119287	GATTAATCCCAAAAAGGAATTGAAAG	TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATGT	spacer
		length: 39	repeater length: 25	
16673	2119351	GATTAATCCCAAAAAGGAATTGAAAG	AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTTT	spacer
		length: 39	repeater length: 25	
16674	2119415	GATTAATCCCAAAAAGGAATTGAAAG	ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGGC	spacer
		length: 36	repeater length: 25	
16675	2119476	GATTAATCCCAAAAAGGAATTGAAAG	TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCTC	spacer
		length: 39	repeater length: 25	
16676	2119540	GATTAATCCCAAAAAGGAATTGAAAG	TCGTAAACTTGAAACTGACCCGTATATCCGAATTTAC	spacer
		length: 37	repeater length: 25	
16677	2119602	GATTAATCCCAAAAAGGAATTGAAAG	GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCTA	spacer
		length: 39	repeater length: 25	
16678	2119666	GATTAATCCCAAAAAGGAATTGAAAG	CGTGATTACATGGAACATTACTTTTCCACCGAATATT	spacer
		length: 37	repeater length: 25	
16679	2119728	GATTAATCCCAAAAAGGAATTGAAAG	TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCTA	spacer
		length: 39	repeater length: 25	
16680	2119792	GATTAATCCCAAAAAGGAATTGAAAG	GTCAGTTATACGCTACATATGAAAAGATAAATGAAG	spacer
		length: 36	repeater length: 25	
16681	2119853	GATTAATCCCAAAAAGGAATTGAAAG	ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCCT	spacer
		length: 38	repeater length: 25	
16682	2119916	GATTAATCCCAAAAAGGAATTGAAAG	TCTATCTTTATTGTTACAACTTTTGCATACGACATAATTT	spacer
		length: 40	repeater length: 25	
16683	2119981	GATTAATCCCAAAAAGGAATTGAAAG	TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACTT	spacer
		length: 39	repeater length: 25	
16684	2120045	GATTAATCCCAAAAAGGAATTGAAAG	TAATACTGCAGTAACGGTACAAGTCATTGACAGCGCT	spacer
		length: 37	repeater length: 25	
16685	2120107	GATTAATCCCAAAAAGGAATTGAAAG		
16686				
16687				
16688	crispr 2			
16689	2134655	CTTTC AATTCCCTTTTAGGATTAATC	TTGAAGATAGAGTTAAATGAACTTTTGATGACACAAAA	spacer

length: 38 repeater length: 25
16690 2134718 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCCTCTATTATGATATCATATTTGTCAA spacer
length: 41 repeater length: 25
16691 2134784 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTGA spacer
length: 39 repeater length: 25
16692 2134848 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATAT spacer
length: 37 repeater length: 25
16693 2134910 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAAT spacer
length: 38 repeater length: 25
16694 2134973 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAACTCATTGAGAGTCTCTTCCAACCCGTACA spacer
length: 40 repeater length: 25
16695 2135038 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGCG spacer length:
35 repeater length: 25
16696 2135098 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG spacer
length: 39 repeater length: 25
16697 2135162 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG spacer
length: 39 repeater length: 25
16698 2135226 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAATATTGGTGGAGTAGTTGATTTGATAATAT spacer
length: 41 repeater length: 25
16699 2135292 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTAA spacer
length: 39 repeater length: 25
16700 2135356 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGATA spacer
length: 39 repeater length: 25
16701 2135420 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGAA spacer
length: 37 repeater length: 25
16702 2135482 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGAT spacer
length: 37 repeater length: 25
16703 2135544 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTGAGGAAGTGTTAGAAGAGGTGTATGGTGA spacer
length: 40 repeater length: 25
16704 2135609 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTACA spacer
length: 38 repeater length: 25
16705 2135672 CTTTCAATTCCTTTTAGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAAA spacer
length: 40 repeater length: 25
16706 2135737 CTTTCAATTCCTTTTAGGATTAATC GAGTGAGACCATGATCATTAACACTGATATTACGGTAAG spacer
length: 39 repeater length: 25
16707 2135801 CTTTCAATTCCTTTTAGGATTAATC AACAAAACCTTACCAGTGATGGAACATTTGAATGTAA spacer
length: 37 repeater length: 25
16708 2135863 CTTTCAATTCCTTTTAGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATACT spacer
length: 40 repeater length: 25
16709 2135928 CTTTCAATTCCTTTTAGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATAT spacer
length: 42 repeater length: 25
16710 2135995 CTTTCAATTCCTTTTAGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACGG spacer
length: 38 repeater length: 25
16711 2136058 CTTTCAATTCCTTTTAGGATTAATC CCGTGATCAGATACAGTAACAGTCATGTTTTTATCT spacer
length: 36 repeater length: 25
16712 2136119 CTTTCAATTCCTTTTAGGATTAATC CATGGAAACGGGAGGAGGGTGAGACAATGAAGGTTAC spacer
length: 37 repeater length: 25
16713 2136181 CTTTCAATTCCTTTTAGGATTAATC CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAACT spacer
length: 38 repeater length: 25
16714 2136244 CTTTCAATTCCTTTTAGGATTAATC GTAGTGAGTAGTAGTGTAGTAGTAGTGGCCTGAATAAGTAG spacer
length: 40 repeater length: 25
16715 2136309 CTTTCAATTCCTTTTAGGATTAATC AAATCTGCAAAGGTAACACAATTGACGAGGTAAA spacer length:
35 repeater length: 25
16716 2136369 CTTTCAATTCCTTTTAGGATTAATC CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCAA spacer
length: 40 repeater length: 25
16717 2136434 CTTTCAATTCCTTTTAGGATTAATC TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAACT spacer
length: 40 repeater length: 25
16718 2136499 CTTTCAATTCCTTTTAGGATTAATC GGCATAACCGCTGCTTTCCGCTGCTGCTGCTAATTGGTCTC spacer
length: 41 repeater length: 25
16719 2136565 CTTTCAATTCCTTTTAGGATTAATC CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCTT spacer
length: 39 repeater length: 25
16720 2136629 CTTTCAATTCCTTTTAGGATTAATC ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAAT spacer
length: 38 repeater length: 25
16721 2136692 CTTTCAATTCCTTTTAGGATTAATC AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTAG spacer
length: 40 repeater length: 25
16722 2136757 CTTTCAATTCCTTTTAGGATTAATC GGCATTAGAATATGGGTAAAACTTATAGCGACGAAGA spacer
length: 38 repeater length: 25
16723 2136820 CTTTCAATTCCTTTTAGGATTAATC TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGAT spacer
length: 36 repeater length: 25
16724 2136881 CTTTCAATTCCTTTTAGGATTAATC TTTACCACCGCTCAGACTTCTTGAGATGTTTAAACC spacer
length: 37 repeater length: 25

16725 2136943 CTTTCAATTCCTTTTAGGATTAATC GAATTCTATCAAGTATTGCGGAAGTAAATACTTCATATTTATCA
spacer length: 44 repeater length: 25

16726 2137012 CTTTCAATTCCTTTTAGGATTAATC TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGTG spacer
length: 38 repeater length: 25

16727 2137075 CTTTCAATTCCTTTTAGGATTAATC CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGCT spacer
length: 36 repeater length: 25

16728 2137136 CTTTCAATTCCTTTTAGGATTAATC CACATTAGCAAGAATCGTGCTAGCTACAGTTGGATT spacer
length: 36 repeater length: 25

16729 2137197 CTTTCAATTCCTTTTAGGATTAATC AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTTC spacer
length: 39 repeater length: 25

16730 2137261 CTTTCAATTCCTTTTAGGATTAATC TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTCT spacer
length: 41 repeater length: 25

16731 2137327 CTTTCAATTCCTTTTAGGATTAATC GGTAATGGTCTGTATATTGTCTTTAAGTATTTAT spacer length:
34 repeater length: 25

16732 2137386 CTTTCAATTCCTTTTAGGATTAATC AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTAA spacer
length: 39 repeater length: 25

16733 2137450 CTTTCAATTCCTTTTAGGATTAATC CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAAG spacer
length: 40 repeater length: 25

16734 2137515 CTTTCAATTCCTTTTAGGATTAATC ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCATT spacer
length: 40 repeater length: 25

16735 2137580 CTTTCAATTCCTTTTAGGATTAATC ATTAGCTAAACCATTTCAAAGGCTAACATCTTCTATGT spacer
length: 38 repeater length: 25

16736 2137643 CTTTCAATTCCTTTTAGGATTAATC ATAAATCCACAAAGTGGCCGTTCAAAGCAAAGAGTTTATT spacer
length: 40 repeater length: 25

16737 2137708 CTTTCAATTCCTTTTAGGATTAATC TGATATTTATTTTCTCGTGAAAAGTGGAGGGCCTAGAAC spacer
length: 39 repeater length: 25

16738 2137772 CTTTCAATTCCTTTTAGGATTAATC ATTATATCATGGAGACCCAGGTGCTGTGACTATCAA spacer
length: 36 repeater length: 25

16739 2137833 CTTTCAATTCCTTTTAGGATTAATC AATTAGCCAGCGTGCCATCTGGGTAAACGTGTATTTTGGTTAA spacer
length: 43 repeater length: 25

16740 2137901 CTTTCAATTCCTTTTAGGATTAATC ATAATATATTTCTGTTCCAACCTACACCTAATGGATTCTGGG spacer
length: 39 repeater length: 25

16741 2137965 CTTTCAATTCCTTTTAGGATTAATC TAATTGTCTGCCCTTGAGTTCCACTGAGAGAAACGC spacer
length: 36 repeater length: 25

16742 2138026 CTTTCAATTCCTTTTAGGATTAATC AAAAGACGTACAAATATACATCGCACCGAACGGACACAT spacer
length: 39 repeater length: 25

16743 2138090 CTTTCAATTCCTTTTAGGATTAATC GGGTGCGTGCCCCACAGGTCGCGGGTCTACCCCTTGC spacer
length: 37 repeater length: 25

16744 2138152 CTTTCAATTCCTTTTAGGATTAATC TTATGTCGTTATCTTCTTCGTTTTTGTCTGCGTTGTTT spacer
length: 37 repeater length: 25

16745 2138214 CTTTCAATTCCTTTTAGGATTAATC GATAAAATATTAAATTCTCAAATTCCATTTAGAG spacer length:
34 repeater length: 25

16746 2138273 CTTTCAATTCCTTTTAGGATTAATC AAAATTTGAAACAATATCGCATCTTGAATAATTAT spacer length:
35 repeater length: 25

16747 2138333 CTTTCAATTCCTTTTAGGATTAATC GCTTCTTCCCAACGCTGTACGTACTCTTAGGTGTCACA spacer
length: 38 repeater length: 25

16748 2138396 CTTTCAATTCCTTTTAGGATTAATC AATTACAGGAAAAAGACGAATAAATGAGGAAGAAATG spacer
length: 38 repeater length: 25

16749 2138459 CTTTCAATTCCTTTTAGGATTAATC TACTCAATTTGTGCGCAGTTTTTCATTGAGGGAGACTT spacer
length: 38 repeater length: 25

16750 2138522 CTTTCAATTCCTTTTAGGATTAATC AAAAATCTGAGTGCAATGTATAATGAAAATATGGATAATA spacer
length: 41 repeater length: 25

16751 2138588 CTTTCAATTCCTTTTAGGATTAATC TGTTGTCCAAATAAATGCTGTACCGACTAACAATAATGTA spacer
length: 40 repeater length: 25

16752 2138653 CTTTCAATTCCTTTTAGGATTAATC CAGGAGTTGGAGGTATTATCGGAGCATTGTTAGCAT spacer
length: 36 repeater length: 25

16753 2138714 CTTTCAATTCCTTTTAGGATTAATC ATGATTTGAAAATAGATGAAGAGCTATCTAAACTCATTCC spacer
length: 40 repeater length: 25

16754 2138779 CTTTCAATTCCTTTTAGGATTAATC ACCACATTATGAAGGTACTCCAGAATTCTCTAAGAT spacer
length: 36 repeater length: 25

16755 2138840 CTTTCAATTCCTTTTAGGATTAATC TAGATCTATTTCGAGAGTTTGCATCAACACATAAGTAC spacer
length: 38 repeater length: 25

16756 2138903 CTTTCAATTCCTTTTAGGATTAATC ATAATATGGTGAAAATTGAAGGTGAATCATTAGCAAA spacer
length: 37 repeater length: 25

16757 2138965 CTTTCAATTCCTTTTAGGATTAATC AATTTTTTGTGTTTAAAGATGATTTCAGTGGAAGAATATTA spacer
length: 38 repeater length: 25

16758 2139028 CTTTCAATTCCTTTTAGGATTAATC CAATCCCAAAAAGTAAATCCCAATCTTCAAATAATATGG spacer
length: 40 repeater length: 25

16759 2139093 CTTTCAATTCCTTTTAGGATTAATC

16760

16761

16762 crispr 3

16763 2150492 GATAATCTCTTATAGAATTGAAAG TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGGC spacer
length: 38 repeater length: 24

16764 2150554 GATAATCTCTTATAGAATTGAAAG CAACGCCAACTCCGCCAATTTCCGCATTGATGTTTCGCTGG spacer
length: 40 repeater length: 24

16765 2150618 GATAATCTCTTATAGAATTGAAAG TCTTCAAACCTTCCCACGGCACAACGGAGGCATGCAAATTATT spacer
length: 42 repeater length: 24

16766 2150684 GATAATCTCTTATAGAATTGAAAG GTAGTAAGCTTTCCTTCTTTATCCTCTAGACCGCTGTAGT spacer
length: 40 repeater length: 24

16767 2150748 GATAATCTCTTATAGAATTGAAAG AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTCA spacer
length: 38 repeater length: 24

16768 2150810 GATAATCTCTTATAGAATTGAAAG GAACTGTCGTGGTGTTCATGAAATATGGGTATGCATATT spacer
length: 39 repeater length: 24

16769 2150873 GATAATCTCTTATAGAATTGAAAG GCAAAGAGTCCATTCAATAACACATATTTTGCACATAAG spacer
length: 39 repeater length: 24

16770 2150936 GATAATCTCTTATAGAATTGAAAG AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGCT spacer
length: 39 repeater length: 24

16771 2150999 GATAATCTCTTATAGAATTGAAAG ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTCT spacer
length: 39 repeater length: 24

16772 2151062 GATAATCTCTTATAGAATTGAAAG CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTAA spacer
length: 40 repeater length: 24

16773 2151126 GATAATCTCTTATAGAATTGAAAG CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGAG spacer
length: 39 repeater length: 24

16774 2151189 GATAATCTCTTATAGAATTGAAAG ACCACGAGCACGACCTCAAATATAACACCGCCAAAAATC spacer
length: 39 repeater length: 24

16775 2151252 GATAATCTCTTATAGAATTGAAAG TATCTTCCAGATGTCTCAGAAACGCCTTAAAATTATTGAT spacer
length: 40 repeater length: 24

16776 2151316 GATAATCTCTTATAGAATTGAAAG TACATTAGACCCTAGTTGGTTTATCGCTGGTAACGTCG spacer
length: 38 repeater length: 24

16777 2151378 GATAATCTCTTATAGAATTGAAAG ACACTTAGCGACATAAAAACCGCACTGACTTACAATTACC spacer
length: 40 repeater length: 24

16778 2151442 GATAATCTCTTATAGAATTGAAAG CGACATACATATATATGCATTTCCGTGGGAGTGTTACAAA spacer
length: 40 repeater length: 24

16779 2151506 GATAATCTCTTATAGAATTGAAAG ACATATGGTTGGTCTCCAACATTTGGTGAGTATATCT spacer
length: 37 repeater length: 24

16780 2151567 GATAATCTCTTATAGAATTGAAAG GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCTT spacer
length: 38 repeater length: 24

16781 2151629 GATAATCTCTTATAGAATTGAAAG ACTTAAGACATTAAACGTTGCCCTAGGTGAAGTAGGCAA spacer
length: 39 repeater length: 24

16782 2151692 GATAATCTCTTATAGAATTGAAAG AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGAA spacer
length: 38 repeater length: 24

16783 2151754 GATAATCTCTTATAGAATTGAAAG CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTAT spacer
length: 38 repeater length: 24

16784 2151816 GATAATCTCTTATAGAATTGAAAG TCTGATAGCACCAGACAAGTAAAAGCGTATATCCTAGTCAA spacer
length: 41 repeater length: 24

16785 2151881 GATAATCTCTTATAGAATTGAAAG AACATATTCTGGTACGGGTTGCCATCTGGTACACCATT spacer
length: 39 repeater length: 24

16786 2151944 GATAATCTCTTATAGAATTGAAAG TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAAA spacer
length: 39 repeater length: 24

16787 2152007 GATAATCTCTTATAGAATTGAAAG AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAGG spacer
length: 37 repeater length: 24

16788 2152068 GATAATCTCTTATAGAATTGAAAG CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGTC spacer
length: 38 repeater length: 24

16789 2152130 GATAATCTCTTATAGAATTGAAAG ACATCGCAAGCGATCTATTGTTCACTATTCTTGGCGGC spacer
length: 40 repeater length: 24

16790 2152194 GATAATCTCTTATAGAATTGAAAG AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA spacer
length: 38 repeater length: 24

16791 2152256 GATAATCTCTTATAGAATTGAAAG CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA spacer
length: 37 repeater length: 24

16792 2152317 GATAATCTCTTATAGAATTGAAAG AATTTGAACATAATTCCGCCTCGTCAGTTTTCCACAGATA spacer
length: 40 repeater length: 24

16793 2152381 GATAATCTCTTATAGAATTGAAAG TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT spacer
length: 39 repeater length: 24

16794 2152444 GATAATCTCTTATAGAATTGAAAG TTTACTGACAACGCCATCATACTTACTAGCCCAACTAA spacer
length: 38 repeater length: 24

16795 2152506 GATAATCTCTTATAGAATTGAAAG GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGGA spacer
length: 40 repeater length: 24

16796 2152570 GATAATCTCTTATAGAATTGAAAG TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT spacer
length: 41 repeater length: 24

16797 2152635 GATAATCTCTTATAGAATTGAAAG CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG spacer
length: 37 repeater length: 24

16798 2152696 GATAATCTCTTATAGAATTGAAAG ATCTGAATTCCTCAGCTTCCATTGCATAATTTATTCTA spacer
length: 39 repeater length: 24

16799 2152759 GATAATCTCTTATAGAATTGAAAG TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT spacer
length: 40 repeater length: 24

16800 2152823 GATAATCTCTTATAGAATTGAAAG ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTC spacer
length: 38 repeater length: 24

16801 2152885 GATAATCTCTTATAGAATTGAAAG TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAGC spacer
length: 38 repeater length: 24

16802 2152947 GATAATCTCTTATAGAATTGAAAG GTCAAAATTGCCCAACCGAACGTTAGCAAAATGCAGCAC spacer
length: 40 repeater length: 24

16803 2153011 GATAATCTCTTATAGAATTGAAAG TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA spacer
length: 41 repeater length: 24

16804 2153076 GATAATCTCTTATAGAATTGAAAG GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAACC spacer
length: 39 repeater length: 24

16805 2153139 GATAATCTCTTATAGAATTGAAAG GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGTT spacer
length: 39 repeater length: 24

16806 2153202 GATAATCTCTTATAGAATTGAAAG TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT spacer
length: 40 repeater length: 24

16807 2153266 GATAATCTCTTATAGAATTGAAAG GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT spacer length:
35 repeater length: 24

16808 2153325 GATAATCTCTTATAGAATTGAAAG GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC spacer
length: 39 repeater length: 24

16809 2153388 GATAATCTCTTATAGAATTGAAAG CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAAT spacer length:
36 repeater length: 24

16810 2153448 GATAATCTCTTATAGAATTGAAAG AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTTG spacer
length: 38 repeater length: 24

16811 2153510 GATAATCTCTTATAGAATTGAAAG ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATTA spacer
length: 38 repeater length: 24

16812 2153572 GATAATCTCTTATAGAATTGAAAG GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAAG spacer
length: 38 repeater length: 24

16813 2153634 GATAATCTCTTATAGAATTGAAAG AATCACGAAAGCGATACTAAGGGCAATACAATACAAACATG spacer
length: 41 repeater length: 24

16814 2153699 GATAATCTCTTATAGAATTGAAAG CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTGC spacer
length: 39 repeater length: 24

16815 2153762 GATAATCTCTTATAGAATTGAAAG AGATTGTTTTATTAATACCAAGTAGACAATTATATATTTT spacer
length: 40 repeater length: 24

16816 2153826 GATAATCTCTTATAGAATTGAAAG CCAAAACATGTCACATGTGCCGATATTGATATTTACAAA spacer
length: 39 repeater length: 24

16817 2153889 GATAATCTCTTATAGAATTGAAAG AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGAA spacer
length: 38 repeater length: 24

16818 2153951 GATAATCTCTTATAGAATTGAAAG GGGAGTTCCCATTTCGATTTTGGGAACCCTCAAGCACAGTCTGTG spacer
length: 44 repeater length: 24

16819 2154019 GATAATCTCTTATAGAATTGAAAG TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCAT spacer
length: 41 repeater length: 24

16820 2154084 GATAATCTCTTATAGAATTGAAAG CTAACCTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTGT spacer
length: 38 repeater length: 24

16821 2154146 GATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTCTGCAGTCTTTGTT spacer length:
36 repeater length: 24

16822 2154206 GATAATCTCTTATAGAATTGAAAG AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTAT spacer
length: 39 repeater length: 24

16823 2154269 GATAATCTCTTATAGAATTGAAAG ATCCGTTCTCCGTCCCGATCCGTACCGTTCTCTGTACT spacer
length: 38 repeater length: 24

16824 2154331 GATAATCTCTTATAGAATTGAAAG AGCATAACTTCATCTTCTTCTACAACCTTCGACAGCTT spacer
length: 37 repeater length: 24

16825 2154392 GATAATCTCTTATAGAATTGAAAG TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATTA spacer
length: 42 repeater length: 24

16826 2154458 GATAATCTCTTATAGAATTGAAAG ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCAT spacer
length: 39 repeater length: 24

16827 2154521 GATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGGT spacer
length: 40 repeater length: 24

16828 2154585 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATA spacer
length: 37 repeater length: 24

16829 2154646 GATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCCC spacer
length: 38 repeater length: 24

16830 2154708 GATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATACA spacer
length: 39 repeater length: 24

16831 2154771 GATAATCTCTTATAGAATTGAAAG ACGAACACACCCCTTAAACTCTTTTTCCAACATTCACCT spacer
length: 40 repeater length: 24

16832 2154835 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGAG spacer
length: 40 repeater length: 24

16833 2154899 GATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATTCCGACCAAAGCTAATA spacer

length: 39 repeater length: 24
16834 2154962 GATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGGT spacer
length: 40 repeater length: 24
16835 2155026 GATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTAG spacer
length: 43 repeater length: 24
16836 2155093 GATAATCTCTTATAGAATTGAAAG ATACAGATTTTCGTTATCCATATCCTACATGACTTTCC spacer
length: 37 repeater length: 24
16837 2155154 GATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAATTAGATATCCATTGACTGTTAT spacer
length: 39 repeater length: 24
16838 2155217 GATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTATT spacer
length: 40 repeater length: 24
16839 2155281 GATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAACG spacer
length: 40 repeater length: 24
16840 2155345 GATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTTGGCCTGAGTA spacer
length: 38 repeater length: 24
16841 2155407 GATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGAT spacer
length: 40 repeater length: 24
16842 2155471 GATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATATA spacer
length: 44 repeater length: 24
16843 2155539 GATAATCTCTTATAGAATTGAAAG CTAAGCAGTGACTCACAGTTTAGACATTACAAGTATC spacer
length: 38 repeater length: 24
16844 2155601 GATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAAGATCTATCTGACAACACGAACTATG spacer
length: 41 repeater length: 24
16845 2155666 GATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGAC spacer
length: 40 repeater length: 24
16846 2155730 GATAATCTCTTATAGAATTGAAAG CAATCCCATTCGTTTTACTCACTTCTAAGAACCTCGC spacer
length: 37 repeater length: 24
16847 2155791 GATAATCTCTTATAGAATTGAAAG AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTCT spacer
length: 40 repeater length: 24
16848 2155855 GATAATCTCTTATAGAATTGAAAG ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCTG spacer
length: 40 repeater length: 24
16849 2155919 GATAATCTCTTATAGAATTGAAAG GTCTTTATGGCCCTCTGGGTCTTTCCACCATTGAGAGGA spacer
length: 39 repeater length: 24
16850 2155982 GATAATCTCTTATAGAATTGAAAG TTATCCTCATTCTATCGGTGAGTGGAACAAATTGGGTAGC spacer
length: 40 repeater length: 24
16851 2156046 GATAATCTCTTATAGAATTGAAAG ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTTT spacer
length: 40 repeater length: 24
16852 2156110 GATAATCTCTTATAGAATTGAAAG AGTTAACAATACTTTATTGTCAAAGAAGCAAGGATATGCG spacer
length: 40 repeater length: 24
16853 2156174 GATAATCTCTTATAGAATTGAAAG TTCAAAC TAGATCTAGAAGATTTCTATCGGCATCTTTACAT spacer
length: 41 repeater length: 24
16854 2156239 GATAATCTCTTATAGAATTGAAAG ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTTC spacer
length: 40 repeater length: 24
16855 2156303 GATAATCTCTTATAGAATTGAAAG GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTATT spacer
length: 39 repeater length: 24
16856 2156366 GATAATCTCTTATAGAATTGAAAG TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT spacer
length: 37 repeater length: 24
16857 2156427 GATAATCTCTTATAGAATTGAAAG ATCTACTACATCATCCTCTACCACGGCAAGCCAACAAC TCGT spacer
length: 43 repeater length: 24
16858 2156494 GATAATCTCTTATAGAATTGAAAG ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT spacer
length: 38 repeater length: 24
16859 2156556 GATAATCTCTTATAGAATTGAAAG ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACTA spacer
length: 41 repeater length: 24
16860 2156621 GATAATCTCTTATAGAATTGAAAG ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTCT spacer
length: 39 repeater length: 24
16861 2156684 GATAATCTCTTATAGAATTGAAAG AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT spacer
length: 37 repeater length: 24
16862 2156745 GATAATCTCTTATAGAATTGAAAG ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT spacer
length: 39 repeater length: 24
16863 2156808 GATAATCTCTTATAGAATTGAAAG ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTGC spacer
length: 41 repeater length: 24
16864 2156873 GATAATCTCTTATAGAATTGAAAG AAGCCTACACAGGATAGGATACTCAAATTATATGAAAAT spacer
length: 39 repeater length: 24
16865 2156936 GATAATCTCTTATAGAATTGAAAG TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCAT spacer
length: 42 repeater length: 24
16866 2157002 GATAATCTCTTATAGAATTGAAAG CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA spacer
length: 37 repeater length: 24
16867 2157063 GATAATCTCTTATAGAATTGAAAG TGTTCTGTCGTTACTGTCTGTAAGCACGTCCTATTAT spacer
length: 37 repeater length: 24
16868 2157124 GATAATCTCTTATAGAATTGAAAG ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC spacer
length: 38 repeater length: 24

16869	2157186	GATAATCTCTTATAGAATTGAAAG	TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGAA	spacer
	length:	39	repeater length:	24
16870	2157249	GATAATCTCTTATAGAATTGAAAG	GCACAATTCGCCAACGATTCGTTTCGCTTTATACCTT	spacer
	length:	38	repeater length:	24
16871	2157311	GATAATCTCTTATAGAATTGAAAG	CAAATTTCCGGCGAAAATTGTACCGAATTCGGCATTGCTGG	spacer
	length:	41	repeater length:	24
16872	2157376	GATAATCTCTTATAGAATTGAAAG	AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG	spacer
	length:	40	repeater length:	24
16873	2157440	GATAATCTCTTATAGAATTGAAAG	ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGAT	spacer
	length:	42	repeater length:	24
16874	2157506	GATAATCTCTTATAGAATTGAAAG	TTCTGTTTCGAAGAAAACCCGCCTCAGATTCATTATGGG	spacer
	length:	39	repeater length:	24
16875	2157569	GATAATCTCTTATAGAATTGAAAG	AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAAA	spacer
	length:	39	repeater length:	24
16876	2157632	GATAATCTCTTATAGAATTGAAAG	CCTCATCGTAAACATGCAATCTTGCATATTCAGTGTA	spacer
	length:	37	repeater length:	24
16877	2157693	GATAATCTCTTATAGAATTGAAAG	GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCT	spacer
	length:	39	repeater length:	24
16878	2157756	GATAATCTCTTATAGAATTGAAAG	ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT	spacer
	length:	41	repeater length:	24
16879	2157821	GATAATCTCTTATAGAATTGAAAG	GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCGT	spacer
	length:	38	repeater length:	24
16880	2157883	GATAATCTCTTATAGAATTGAAAG	ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA	spacer
	length:	39	repeater length:	24
16881	2157946	GATAATCTCTTATAGAATTGAAAG	AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA	spacer
	length:	37	repeater length:	24
16882	2158007	GATAATCTCTTATAGAATTGAAAG	CGTTCTAGAGCTAAACGATGCATACGCGGTGGTACAATA	spacer
	length:	40	repeater length:	24
16883	2158071	GATAATCTCTTATAGAATTGAAAG	ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATTT	spacer
	length:	41	repeater length:	24
16884	2158136	GATAATCTCTTATAGAATTGAAAG	TCAAATAAGGAACAACCTCTGGGTAAGCCCACAATACGCAA	spacer
	length:	40	repeater length:	24
16885	2158200	GATAATCTCTTATAGAATTGAAAG	CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAAC	spacer
	length:	38	repeater length:	24
16886	2158262	GATAATCTCTTATAGAATTGAAAG	TAACTAGATCCTTATATTTACGTAAATGTAAAGGGG	spacer
	length:	38	repeater length:	24
16887	2158324	GATAATCTCTTATAGAATTGAAAG	TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAATA	spacer
	length:	38	repeater length:	24
16888	2158386	GATAATCTCTTATAGAATTGAAAG	GTTTCATCAGTTCTACCTTTTGGTCCAAAGGCTGATCCAA	spacer
	length:	39	repeater length:	24
16889	2158449	GATAATCTCTTATAGAATTGAAAG		
16890				
16891				
16892	crispr 4			
16893	2557813	GATAATCTACTATAGAATTGAAAG	ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGTG	spacer
	length:	39	repeater length:	24
16894	2557876	GATAATCTACTATAGAATTGAAAG	TTATCTAATTTTAATAATCAAGGAAATTCATTAAC TCAAATA	spacer
	length:	42	repeater length:	24
16895	2557942	GATAATCTACTATAGAATTGAAAG	CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAACATTA	spacer
	length:	39	repeater length:	24
16896	2558005	GATAATCTACTATAGAATTGAAAG	TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTGA	spacer
	length:	41	repeater length:	24
16897	2558070	GATAATCTACTATAGAATTGAAAG	ATTTTCTAATATATCTAATTCACTCTGCGTATCATTATGGATAA	spacer
	length:	44	repeater length:	24
16898	2558138	GATAATCTACTATAGAATTGAAAG	CCCGCCAGCCAGACTGTTTTAGCCCAAACCGGCTAATT	spacer
	length:	40	repeater length:	24
16899	2558202	GATAATCTACTATAGAATTGAAAG		
16900				
16901				
16902	GCA_000968435.2_ASM96843v2_genomic.fna (PilerCR) :			
16903	START	REPEAT		
	SPACER			
16904	crispr 1			
16905	2112738	GATTAATCCCAAAAGGAATTGAAAG	TCACATCCCTCACAATCCATAATGAAAATGTCGGCAT	spacer
	length:	37	repeater length:	25
16906	2112800	GATTAATCCCAAAAGGAATTGAAAG	ATTTTAGCAATGCAATAGATCAACAATTGAAAGAACT	spacer
	length:	38	repeater length:	25
16907	2112863	GATTAATCCCAAAAGGAATTGAAAG	ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTTC	spacer
	length:	39	repeater length:	25
16908	2112927	GATTAATCCCAAAAGGAATTGAAAG	TGTTTCACAAATTTCAAAC TTGCAAACGCAACAATTAAATA	spacer
	length:	41	repeater length:	25

16909 2112993 GATTAATCCCAAAAAGGAATTGAAAG GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTGG spacer
length: 40 repeater length: 25

16910 2113058 GATTAATCCCAAAAAGGAATTGAAAG TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACTC spacer
length: 38 repeater length: 25

16911 2113121 GATTAATCCCAAAAAGGAATTGAAAG GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAGT spacer
length: 39 repeater length: 25

16912 2113185 GATTAATCCCAAAAAGGAATTGAAAG CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTCT spacer
length: 41 repeater length: 25

16913 2113251 GATTAATCCCAAAAAGGAATTGAAAG CAAAATTCCAAACTTTGGGAATTTCTAGTTTCCAAATTTTC spacer
length: 40 repeater length: 25

16914 2113316 GATTAATCCCAAAAAGGAATTGAAAG TTTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGAC spacer
length: 39 repeater length: 25

16915 2113380 GATTAATCCCAAAAAGGAATTGAAAG CGCTTTCGACTGCGACAACGTGCTGTTGGCTCATTGTGTC spacer
length: 41 repeater length: 25

16916 2113446 GATTAATCCCAAAAAGGAATTGAAAG TTATTTCAAATACTATTATCTCCGCCATATGTTTACAT spacer
length: 38 repeater length: 25

16917 2113509 GATTAATCCCAAAAAGGAATTGAAAG ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATTT spacer
length: 38 repeater length: 25

16918 2113572 GATTAATCCCAAAAAGGAATTGAAAG TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTCA spacer
length: 40 repeater length: 25

16919 2113637 GATTAATCCCAAAAAGGAATTGAAAG CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAATA spacer
length: 39 repeater length: 25

16920 2113701 GATTAATCCCAAAAAGGAATTGAAAG AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTTC
spacer length: 44 repeater length: 25

16921 2113770 GATTAATCCCAAAAAGGAATTGAAAG GCTTTAACTTGGTACGCACTTTACGCCATGATAAACG spacer
length: 37 repeater length: 25

16922 2113832 GATTAATCCCAAAAAGGAATTGAAAG GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGTT spacer
length: 39 repeater length: 25

16923 2113896 GATTAATCCCAAAAAGGAATTGAAAG GTTGAATTTTTTGCAACTGGTATGTTGTATTTTTGCA spacer
length: 36 repeater length: 25

16924 2113957 GATTAATCCCAAAAAGGAATTGAAAG AATTTGTTACACGGCTAGGATTTTTTTTCTAGATGTACAAT spacer
length: 42 repeater length: 25

16925 2114024 GATTAATCCCAAAAAGGAATTGAAAG TTCTAATCTTTTGCCATTACTGCATCATATCTACTAG spacer
length: 38 repeater length: 25

16926 2114087 GATTAATCCCAAAAAGGAATTGAAAG ATCTTTACCTTTATATAAATCTTGTTTCGTAACAAATAA spacer
length: 38 repeater length: 25

16927 2114150 GATTAATCCCAAAAAGGAATTGAAAG ACAAACGAGGAGTTTATAGTAAATCAACTATGAAA spacer
length: 37 repeater length: 25

16928 2114212 GATTAATCCCAAAAAGGAATTGAAAG ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAAG spacer length:
35 repeater length: 25

16929 2114272 GATTAATCCCAAAAAGGAATTGAAAG AACTACAACGAGGTGAGAAACGATGACTAAACGTTT spacer
length: 36 repeater length: 25

16930 2114333 GATTAATCCCAAAAAGGAATTGAAAG TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATTG spacer
length: 38 repeater length: 25

16931 2114396 GATTAATCCCAAAAAGGAATTGAAAG TAGATATATGGCGATGAATTGCATTAGTCAGTGGTG spacer
length: 36 repeater length: 25

16932 2114457 GATTAATCCCAAAAAGGAATTGAAAG ATTTTAAACGCTATGACGCTAGCCCTCATGTTAGCTTTT spacer
length: 39 repeater length: 25

16933 2114521 GATTAATCCCAAAAAGGAATTGAAAG AAAGTTTGTCTTCTGTTTCGTTTTGTTGTTCTGACT spacer
length: 37 repeater length: 25

16934 2114583 GATTAATCCCAAAAAGGAATTGAAAG CCCCTTTTGCCGTCTTTTGTAGTTACCACAATGCACCAA spacer
length: 38 repeater length: 25

16935 2114646 GATTAATCCCAAAAAGGAATTGAAAG CCGTATCCAGAAATAATTAACCAATCGCTTGTGTTGTGAC spacer
length: 39 repeater length: 25

16936 2114710 GATTAATCCCAAAAAGGAATTGAAAG AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCAA spacer
length: 37 repeater length: 25

16937 2114772 GATTAATCCCAAAAAGGAATTGAAAG GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGTG spacer
length: 42 repeater length: 25

16938 2114839 GATTAATCCCAAAAAGGAATTGAAAG GCATCTGTGCGCAACCTCACTTATTCACGTGGGGGTGCG spacer
length: 39 repeater length: 25

16939 2114903 GATTAATCCCAAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTGA spacer
length: 37 repeater length: 25

16940 2114965 GATTAATCCCAAAAAGGAATTGAAAG TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTTG spacer
length: 39 repeater length: 25

16941 2115029 GATTAATCCCAAAAAGGAATTGAAAG TTGAACTTGTAGAAATTGTTTCATATGAAACAGCATAATTTTC spacer
length: 42 repeater length: 25

16942 2115096 GATTAATCCCAAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAACG spacer
length: 40 repeater length: 25

16943 2115161 GATTAATCCCAAAAAGGAATTGAAAG CTCATTATTTTCATCATAAAGATTATCCACTGCAATT spacer
length: 36 repeater length: 25

16944 2115222 GATTAATCCCAAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCTCTTTACGCATTTCT spacer

length: 39 repeater length: 25
16945 2115286 GATTAATCCCAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGCG spacer
length: 36 repeater length: 25
16946 2115347 GATTAATCCCAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACAT spacer
length: 39 repeater length: 25
16947 2115411 GATTAATCCCAAAAGGAATTGAAAG TAAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTATG spacer
length: 41 repeater length: 25
16948 2115477 GATTAATCCCAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTCT spacer
length: 41 repeater length: 25
16949 2115543 GATTAATCCCAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAAGACTTTCAGCCCTC spacer
length: 36 repeater length: 25
16950 2115604 GATTAATCCCAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAATC spacer
length: 36 repeater length: 25
16951 2115665 GATTAATCCCAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTGT spacer
length: 39 repeater length: 25
16952 2115729 GATTAATCCCAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTTCAT spacer length:
34 repeater length: 25
16953 2115788 GATTAATCCCAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCAT spacer
length: 38 repeater length: 25
16954 2115851 GATTAATCCCAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCATT spacer
length: 40 repeater length: 25
16955 2115916 GATTAATCCCAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCGG spacer
length: 40 repeater length: 25
16956 2115981 GATTAATCCCAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTCTG spacer
length: 40 repeater length: 25
16957 2116046 GATTAATCCCAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTGC spacer
length: 39 repeater length: 25
16958 2116110 GATTAATCCCAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCATT spacer
length: 40 repeater length: 25
16959 2116175 GATTAATCCCAAAAGGAATTGAAAG CCCCACTGGAATGCACCATTTCTTGCAAGTAATACATTT spacer
length: 39 repeater length: 25
16960 2116239 GATTAATCCCAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTGC spacer
length: 40 repeater length: 25
16961 2116304 GATTAATCCCAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATACT spacer
length: 38 repeater length: 25
16962 2116367 GATTAATCCCAAAAGGAATTGAAAG AATATTTTGAATATTTGTACCCCATATGAAAAACGCAG spacer
length: 39 repeater length: 25
16963 2116431 GATTAATCCCAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCTT spacer
length: 37 repeater length: 25
16964 2116493 GATTAATCCCAAAAGGAATTGAAAG TTTTTATTTAAGAACACTGATGGAAAGATCTATAG spacer length:
35 repeater length: 25
16965 2116553 GATTAATCCCAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCTA spacer
length: 37 repeater length: 25
16966 2116615 GATTAATCCCAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGAT spacer
length: 38 repeater length: 25
16967 2116678 GATTAATCCCAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACATT spacer
length: 39 repeater length: 25
16968 2116742 GATTAATCCCAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCTTTTGTAAGACATTCTCA spacer
length: 40 repeater length: 25
16969 2116807 GATTAATCCCAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCGG spacer
length: 40 repeater length: 25
16970 2116872 GATTAATCCCAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATTC spacer
length: 39 repeater length: 25
16971 2116936 GATTAATCCCAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTCGTC spacer
length: 42 repeater length: 25
16972 2117003 GATTAATCCCAAAAGGAATTGAAAG GTATTCAAAAGAGAACTGGGGGATTCAAGGTAATACCT spacer
length: 38 repeater length: 25
16973 2117066 GATTAATCCCAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATACAGTAAAGTAGCAGTTTT spacer
length: 36 repeater length: 25
16974 2117127 GATTAATCCCAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTGT spacer
length: 37 repeater length: 25
16975 2117189 GATTAATCCCAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAGT spacer
length: 36 repeater length: 25
16976 2117250 GATTAATCCCAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTGA spacer
length: 39 repeater length: 25
16977 2117314 GATTAATCCCAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTTCGTT spacer
length: 38 repeater length: 25
16978 2117377 GATTAATCCCAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTTT spacer
length: 38 repeater length: 25
16979 2117440 GATTAATCCCAAAAGGAATTGAAAG TCAAACCTCATGAAGCTACTGTAATCCATTTACATAAA spacer
length: 38 repeater length: 25

16980 2117503 GATTAATCCCAAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAATT spacer
length: 38 repeater length: 25

16981 2117566 GATTAATCCCAAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCCGAAAATGATTT spacer
length: 40 repeater length: 25

16982 2117631 GATTAATCCCAAAAAGGAATTGAAAG AAAAAGCTTTTACATTTCGACATTAAAAAATAAAATAATTTTG spacer
length: 42 repeater length: 25

16983 2117698 GATTAATCCCAAAAAGGAATTGAAAG AATTCGTATACCTTAGTAGTATTATCATCAATATTGTAT spacer
length: 39 repeater length: 25

16984 2117762 GATTAATCCCAAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTAG spacer
length: 39 repeater length: 25

16985 2117826 GATTAATCCCAAAAAGGAATTGAAAG TCTACGTTGTTAAATTCATATACAGCTTGGCTCATAT spacer
length: 37 repeater length: 25

16986 2117888 GATTAATCCCAAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTAT spacer
length: 38 repeater length: 25

16987 2117951 GATTAATCCCAAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTGATAGCTTTGCATCTT spacer
length: 41 repeater length: 25

16988 2118017 GATTAATCCCAAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTAC spacer
length: 40 repeater length: 25

16989 2118082 GATTAATCCCAAAAAGGAATTGAAAG CAGCAAGAAGTTCCTCTCTACATCTTATGATTTTCGG spacer
length: 37 repeater length: 25

16990 2118144 GATTAATCCCAAAAAGGAATTGAAAG CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCCT spacer
length: 36 repeater length: 25

16991 2118205 GATTAATCCCAAAAAGGAATTGAAAG ACCTTTATTTTAAGTCCTAGCCTCTTCCCTATCCAT spacer
length: 36 repeater length: 25

16992 2118266 GATTAATCCCAAAAAGGAATTGAAAG TTGTTTCACCTCCTTATTTAAAGCGACAGACGGTCGAC spacer
length: 38 repeater length: 25

16993 2118329 GATTAATCCCAAAAAGGAATTGAAAG TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTTT spacer
length: 37 repeater length: 25

16994 2118391 GATTAATCCCAAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGATG spacer
length: 40 repeater length: 25

16995 2118456 GATTAATCCCAAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAAATTATA spacer
length: 38 repeater length: 25

16996 2118519 GATTAATCCCAAAAAGGAATTGAAAG TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGCC spacer
length: 40 repeater length: 25

16997 2118584 GATTAATCCCAAAAAGGAATTGAAAG CAGCTCGACGATGACGAATACAAGATGCTGTATAATGCG spacer
length: 39 repeater length: 25

16998 2118648 GATTAATCCCAAAAAGGAATTGAAAG TTTCTCAACTGATCCACGGCTTCAGAGAAGATGTTTGGAT spacer
length: 40 repeater length: 25

16999 2118713 GATTAATCCCAAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGATG spacer
length: 39 repeater length: 25

17000 2118777 GATTAATCCCAAAAAGGAATTGAAAG CTCAGCAGATTTAACTAACGATATTAATTGTACACACTG spacer
length: 40 repeater length: 25

17001 2118842 GATTAATCCCAAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCAA spacer
length: 39 repeater length: 25

17002 2118906 GATTAATCCCAAAAAGGAATTGAAAG CAAGTGCAATAGCAAACACTACTACTAAATATAACATATAT spacer
length: 39 repeater length: 25

17003 2118970 GATTAATCCCAAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAACTAAAATCGTGGCTTTA spacer
length: 38 repeater length: 25

17004 2119033 GATTAATCCCAAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAGT spacer
length: 39 repeater length: 25

17005 2119097 GATTAATCCCAAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACTAAGAGAAAATTGTTTCAA spacer
length: 41 repeater length: 25

17006 2119163 GATTAATCCCAAAAAGGAATTGAAAG TCTAACAATGAATCTGTCTATAAAGTGCCCGCAACTCTT spacer
length: 38 repeater length: 25

17007 2119226 GATTAATCCCAAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTTT spacer
length: 36 repeater length: 25

17008 2119287 GATTAATCCCAAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATGT spacer
length: 39 repeater length: 25

17009 2119351 GATTAATCCCAAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTTT spacer
length: 39 repeater length: 25

17010 2119415 GATTAATCCCAAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTTGGAGTAGGC spacer
length: 36 repeater length: 25

17011 2119476 GATTAATCCCAAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCTC spacer
length: 39 repeater length: 25

17012 2119540 GATTAATCCCAAAAAGGAATTGAAAG TCGTAAACTTGAACTGACCCGTATATCCGAATTTAC spacer
length: 37 repeater length: 25

17013 2119602 GATTAATCCCAAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCTA spacer
length: 39 repeater length: 25

17014 2119666 GATTAATCCCAAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATATT spacer
length: 37 repeater length: 25

17015 2119728 GATTAATCCCAAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCTA spacer

length: 39 repeater length: 25
17016 2119792 GATTAATCCCAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAAG spacer
length: 36 repeater length: 25
17017 2119853 GATTAATCCCAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCCT spacer
length: 38 repeater length: 25
17018 2119916 GATTAATCCCAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACCTTTGCATACGACATAATTT spacer
length: 40 repeater length: 25
17019 2119981 GATTAATCCCAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACTT spacer
length: 39 repeater length: 25
17020 2120045 GATTAATCCCAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGCT spacer
length: 37 repeater length: 25
17021 2120107 GATTAATCCCAAAAGGAATTGAAAG
17022
17023
17024 crispr 2
17025 2134655 CTTTCAATTCCTTTTAGGATTAATC TTGAAGATAGAGTTAAATGAACTTTTGATGACACAAAA spacer
length: 38 repeater length: 25
17026 2134718 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCAA spacer
length: 41 repeater length: 25
17027 2134784 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTGA spacer
length: 39 repeater length: 25
17028 2134848 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATAT spacer
length: 37 repeater length: 25
17029 2134910 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAAT spacer
length: 38 repeater length: 25
17030 2134973 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAACTCATTGAGAGTCTCTTCCAACCCGTACA spacer
length: 40 repeater length: 25
17031 2135038 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGCG spacer length:
35 repeater length: 25
17032 2135098 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG spacer
length: 39 repeater length: 25
17033 2135162 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG spacer
length: 39 repeater length: 25
17034 2135226 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAATATTGGTGGAGTAGTTGATTTTCGATAATAT spacer
length: 41 repeater length: 25
17035 2135292 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTAA spacer
length: 39 repeater length: 25
17036 2135356 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGATA spacer
length: 39 repeater length: 25
17037 2135420 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGAA spacer
length: 37 repeater length: 25
17038 2135482 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGAT spacer
length: 37 repeater length: 25
17039 2135544 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTGA spacer
length: 40 repeater length: 25
17040 2135609 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTTGCAGGAGATTTCAGTATTACA spacer
length: 38 repeater length: 25
17041 2135672 CTTTCAATTCCTTTTAGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAAA spacer
length: 40 repeater length: 25
17042 2135737 CTTTCAATTCCTTTTAGGATTAATC GAGTGAGACCATGATCATTAACACTGATATTACGGTAAG spacer
length: 39 repeater length: 25
17043 2135801 CTTTCAATTCCTTTTAGGATTAATC AACAAAACCTTACCAGTGATGGAACATTTGAATGTAA spacer
length: 37 repeater length: 25
17044 2135863 CTTTCAATTCCTTTTAGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATACT spacer
length: 40 repeater length: 25
17045 2135928 CTTTCAATTCCTTTTAGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATAT spacer
length: 42 repeater length: 25
17046 2135995 CTTTCAATTCCTTTTAGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACGG spacer
length: 38 repeater length: 25
17047 2136058 CTTTCAATTCCTTTTAGGATTAATC CCGTGATCAGATACAGTAACAGTCATGTTTTTATCT spacer
length: 36 repeater length: 25
17048 2136119 CTTTCAATTCCTTTTAGGATTAATC CATGGAAACGGGAGGAGGGTGAGACAATGAAGGTAC spacer
length: 37 repeater length: 25
17049 2136181 CTTTCAATTCCTTTTAGGATTAATC CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAACT spacer
length: 38 repeater length: 25
17050 2136244 CTTTCAATTCCTTTTAGGATTAATC GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTAG spacer
length: 40 repeater length: 25
17051 2136309 CTTTCAATTCCTTTTAGGATTAATC AAATTCTGCAAAGGTAACACAATTGACGAGGTAAA spacer length:
35 repeater length: 25
17052 2136369 CTTTCAATTCCTTTTAGGATTAATC CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCAA spacer
length: 40 repeater length: 25

17053	2136434	CTTTCAATTCCTTTTAGGATTAATC	TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAACT	spacer
	length:	40	repeater length:	25
17054	2136499	CTTTCAATTCCTTTTAGGATTAATC	GGCATAACCGCTGCTTTCCGGCTGCTGCTGCTAATTGGTCTC	spacer
	length:	41	repeater length:	25
17055	2136565	CTTTCAATTCCTTTTAGGATTAATC	CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCTT	spacer
	length:	39	repeater length:	25
17056	2136629	CTTTCAATTCCTTTTAGGATTAATC	ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAAT	spacer
	length:	38	repeater length:	25
17057	2136692	CTTTCAATTCCTTTTAGGATTAATC	AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTAG	spacer
	length:	40	repeater length:	25
17058	2136757	CTTTCAATTCCTTTTAGGATTAATC	GGCATTAGAATATGGGTAAAACTTATAGCGACGAAGA	spacer
	length:	38	repeater length:	25
17059	2136820	CTTTCAATTCCTTTTAGGATTAATC	TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGAT	spacer
	length:	36	repeater length:	25
17060	2136881	CTTTCAATTCCTTTTAGGATTAATC	TTTACCACCGCTCAGACTTCTTGAGATGTTTAAACC	spacer
	length:	37	repeater length:	25
17061	2136943	CTTTCAATTCCTTTTAGGATTAATC	GAATTCTATCAAGTATTGCGGAAGTAAATACTTCATATTTATCA	spacer
	length:	44	repeater length:	25
17062	2137012	CTTTCAATTCCTTTTAGGATTAATC	TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGTG	spacer
	length:	38	repeater length:	25
17063	2137075	CTTTCAATTCCTTTTAGGATTAATC	CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGCT	spacer
	length:	36	repeater length:	25
17064	2137136	CTTTCAATTCCTTTTAGGATTAATC	CACATTAGCAAGAATCGTGCTAGCTACAGTTGGATT	spacer
	length:	36	repeater length:	25
17065	2137197	CTTTCAATTCCTTTTAGGATTAATC	AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTTC	spacer
	length:	39	repeater length:	25
17066	2137261	CTTTCAATTCCTTTTAGGATTAATC	TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTCT	spacer
	length:	41	repeater length:	25
17067	2137327	CTTTCAATTCCTTTTAGGATTAATC	GGTAATGGTCTGTATATTGTCTTTAAGTATTTAT	spacer length:
	length:	34	repeater length:	25
17068	2137386	CTTTCAATTCCTTTTAGGATTAATC	AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTAA	spacer
	length:	39	repeater length:	25
17069	2137450	CTTTCAATTCCTTTTAGGATTAATC	CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAAG	spacer
	length:	40	repeater length:	25
17070	2137515	CTTTCAATTCCTTTTAGGATTAATC	ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCATT	spacer
	length:	40	repeater length:	25
17071	2137580	CTTTCAATTCCTTTTAGGATTAATC	ATTAGCTAAACCATTTCAAAGGCTAACATCTTCTATGT	spacer
	length:	38	repeater length:	25
17072	2137643	CTTTCAATTCCTTTTAGGATTAATC	ATAAATCCACAAAGTGGCCGTTCAAAGCAAAGAGTTTATT	spacer
	length:	40	repeater length:	25
17073	2137708	CTTTCAATTCCTTTTAGGATTAATC	TGATATTTATTTTCTCGTGAAAAGTGGAGGGCCTAGAAC	spacer
	length:	39	repeater length:	25
17074	2137772	CTTTCAATTCCTTTTAGGATTAATC	ATTATATCATGGAGACCCAGGTGCTGTGACTATCAA	spacer
	length:	36	repeater length:	25
17075	2137833	CTTTCAATTCCTTTTAGGATTAATC	AATTAGCCAGCGTGCCATCTGGGTAAACGTGTATTTTGGTTAA	spacer
	length:	43	repeater length:	25
17076	2137901	CTTTCAATTCCTTTTAGGATTAATC	ATAATATATTTCTGTTCCAACCTACACCTAATGGATTCGGG	spacer
	length:	39	repeater length:	25
17077	2137965	CTTTCAATTCCTTTTAGGATTAATC	TAATTGTCTGCCCTTGAGTTCCACTGAGAGAAACGC	spacer
	length:	36	repeater length:	25
17078	2138026	CTTTCAATTCCTTTTAGGATTAATC	AAAAGACGTACAAATATACATCGCACCGAACGGACACAT	spacer
	length:	39	repeater length:	25
17079	2138090	CTTTCAATTCCTTTTAGGATTAATC	GGGTGCGTGCCCCACAGGTCGCGGGTCTACCCCTTGC	spacer
	length:	37	repeater length:	25
17080	2138152	CTTTCAATTCCTTTTAGGATTAATC	TTATGTCGTTATCTTCTTCGTTTTTGCTGCGTTGTTT	spacer
	length:	37	repeater length:	25
17081	2138214	CTTTCAATTCCTTTTAGGATTAATC		
17082				
17083				
17084	crispr 3			
17085	2138332	CTTTCAATTCCTTTTGGGATTAATC	GCTTCTTCCCAACGCTGTACGTACTCTTAGGTGTCACA	spacer
	length:	38	repeater length:	25
17086	2138395	CTTTCAATTCCTTTTGGGATTAATC	AATTACAGGAAAAAGACGAACTAAATGAGGAAGAAATG	spacer
	length:	38	repeater length:	25
17087	2138458	CTTTCAATTCCTTTTGGGATTAATC	TACTCAATTTGTGCGCAGTTTTTCATTGAGGGAGACTT	spacer
	length:	38	repeater length:	25
17088	2138521	CTTTCAATTCCTTTTGGGATTAATC	AAAAATTCTGAGTGCAATGTATAATGAAAATATGGATAATA	spacer
	length:	41	repeater length:	25
17089	2138587	CTTTCAATTCCTTTTGGGATTAATC	TGTTGTCCAAATAAATGCTGTACCGACTAACAAATATGTA	spacer
	length:	40	repeater length:	25
17090	2138652	CTTTCAATTCCTTTTGGGATTAATC	CAGGAGTTGGAGGTATTATCGGAGCATTGTTAGCAT	spacer

length: 36 repeater length: 25
17091 2138713 CTTTCAATTCCTTTTGGGATTAATC ATGATTTGAAAATAGATGAAGAGCTATCTAAACTCATTCC spacer
length: 40 repeater length: 25
17092 2138778 CTTTCAATTCCTTTTGGGATTAATC ACCACATTATGAAGGTACTCCAGAATTCTCTAAGAT spacer
length: 36 repeater length: 25
17093 2138839 CTTTCAATTCCTTTTGGGATTAATC TAGATCTATTTCGCAGAGTTTGCATCAACACATAAGTAC spacer
length: 38 repeater length: 25
17094 2138902 CTTTCAATTCCTTTTGGGATTAATC ATAATATGGTGAAAATTGAAGGTGAATCATTAGCAAA spacer
length: 37 repeater length: 25
17095 2138964 CTTTCAATTCCTTTTGGGATTAATC AATTTTTTGTTTAAAGATGATTCAAGTGAAGAATATTA spacer
length: 38 repeater length: 25
17096 2139027 CTTTCAATTCCTTTTGGGATTAATC CAATCCCCAAAAGTAAATCCCCAATCTTCAAATAATATGG spacer
length: 40 repeater length: 25
17097 2139092 CTTTCAATTCCTTTTGGGATTAATC
17098
17099
17100 crispr 4
17101 2150492 GATAATCTCTTATAGAATTGAAAG TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGGC spacer
length: 38 repeater length: 24
17102 2150554 GATAATCTCTTATAGAATTGAAAG CAACGCCAACTCCGCCAATTTCCGCATTGATGTTTCGCTGG spacer
length: 40 repeater length: 24
17103 2150618 GATAATCTCTTATAGAATTGAAAG TCTTCAAACCTCCCACGGCACAACGGAGGCATGCAAATTATT spacer
length: 42 repeater length: 24
17104 2150684 GATAATCTCTTATAGAATTGAAAG GTAGTAAGCTTTCCTTCTTTATCCTCTAGACCGCTGTAGT spacer
length: 40 repeater length: 24
17105 2150748 GATAATCTCTTATAGAATTGAAAG AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTCA spacer
length: 38 repeater length: 24
17106 2150810 GATAATCTCTTATAGAATTGAAAG GAACTGTCGTGGTGTTCATGAAATATGGGTATGCATATT spacer
length: 39 repeater length: 24
17107 2150873 GATAATCTCTTATAGAATTGAAAG GCAAAGAGTCCATTCAATAACACATATTTTGCACATAAG spacer
length: 39 repeater length: 24
17108 2150936 GATAATCTCTTATAGAATTGAAAG AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGCT spacer
length: 39 repeater length: 24
17109 2150999 GATAATCTCTTATAGAATTGAAAG ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTCT spacer
length: 39 repeater length: 24
17110 2151062 GATAATCTCTTATAGAATTGAAAG CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTAA spacer
length: 40 repeater length: 24
17111 2151126 GATAATCTCTTATAGAATTGAAAG CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGAG spacer
length: 39 repeater length: 24
17112 2151189 GATAATCTCTTATAGAATTGAAAG ACCACGAGCACGACCTCAAATATAACACCGCCAAAAATC spacer
length: 39 repeater length: 24
17113 2151252 GATAATCTCTTATAGAATTGAAAG TATCTTCCAGATGTCTCAGAAACGCCTTAAAATTATTGAT spacer
length: 40 repeater length: 24
17114 2151316 GATAATCTCTTATAGAATTGAAAG TACATTAGACCCTAGTTGGTTTATCGCTGGTAACGTCG spacer
length: 38 repeater length: 24
17115 2151378 GATAATCTCTTATAGAATTGAAAG ACACTTAGCGACATAAAAACCGCACTGACTTACAATTACC spacer
length: 40 repeater length: 24
17116 2151442 GATAATCTCTTATAGAATTGAAAG CGACATACATATATATGCATTTCCGTGGGAGTGTTACAAA spacer
length: 40 repeater length: 24
17117 2151506 GATAATCTCTTATAGAATTGAAAG ACATATGGTTGGTCTCCAACATTTGGTGAGTATATCT spacer
length: 37 repeater length: 24
17118 2151567 GATAATCTCTTATAGAATTGAAAG GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCTT spacer
length: 38 repeater length: 24
17119 2151629 GATAATCTCTTATAGAATTGAAAG ACTTAAGACATTAAACGTTGCCCTAGGTGAAGTAGGCAA spacer
length: 39 repeater length: 24
17120 2151692 GATAATCTCTTATAGAATTGAAAG AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGAA spacer
length: 38 repeater length: 24
17121 2151754 GATAATCTCTTATAGAATTGAAAG CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTAT spacer
length: 38 repeater length: 24
17122 2151816 GATAATCTCTTATAGAATTGAAAG TCTGATAGCACCAGACAAGTAAAAGCGTATATCCTAGTCAA spacer
length: 41 repeater length: 24
17123 2151881 GATAATCTCTTATAGAATTGAAAG AACATATTCTGGTACGGGTTCGCCATCTGGTACACCATT spacer
length: 39 repeater length: 24
17124 2151944 GATAATCTCTTATAGAATTGAAAG TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAAA spacer
length: 39 repeater length: 24
17125 2152007 GATAATCTCTTATAGAATTGAAAG AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAGG spacer
length: 37 repeater length: 24
17126 2152068 GATAATCTCTTATAGAATTGAAAG CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGTC spacer
length: 38 repeater length: 24
17127 2152130 GATAATCTCTTATAGAATTGAAAG ACATCGCAAGCGATCTATTGTTCACTATTCTGGCGGC spacer
length: 40 repeater length: 24

17128	2152194	GATAATCTCTTATAGAATTGAAAG	AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA	spacer
	length:	38	repeater length:	24
17129	2152256	GATAATCTCTTATAGAATTGAAAG	CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA	spacer
	length:	37	repeater length:	24
17130	2152317	GATAATCTCTTATAGAATTGAAAG	AATTTGAACATAATTCGGCCTCGTCAGTTTTCCACAGATA	spacer
	length:	40	repeater length:	24
17131	2152381	GATAATCTCTTATAGAATTGAAAG	TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT	spacer
	length:	39	repeater length:	24
17132	2152444	GATAATCTCTTATAGAATTGAAAG	TTTACTGACAACGCCATCATACTTACTAGCCCCAACTAA	spacer
	length:	38	repeater length:	24
17133	2152506	GATAATCTCTTATAGAATTGAAAG	GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGGA	spacer
	length:	40	repeater length:	24
17134	2152570	GATAATCTCTTATAGAATTGAAAG	TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT	spacer
	length:	41	repeater length:	24
17135	2152635	GATAATCTCTTATAGAATTGAAAG	CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG	spacer
	length:	37	repeater length:	24
17136	2152696	GATAATCTCTTATAGAATTGAAAG	ATCTGAATTTCCCTCAGCTTCCATTGCATAATTTATTCTA	spacer
	length:	39	repeater length:	24
17137	2152759	GATAATCTCTTATAGAATTGAAAG	TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT	spacer
	length:	40	repeater length:	24
17138	2152823	GATAATCTCTTATAGAATTGAAAG	ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTC	spacer
	length:	38	repeater length:	24
17139	2152885	GATAATCTCTTATAGAATTGAAAG	TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAGC	spacer
	length:	38	repeater length:	24
17140	2152947	GATAATCTCTTATAGAATTGAAAG	GTCAAAATTGCCCAACCGAACGTTAGCAAAATGCAGCAC	spacer
	length:	40	repeater length:	24
17141	2153011	GATAATCTCTTATAGAATTGAAAG	TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA	spacer
	length:	41	repeater length:	24
17142	2153076	GATAATCTCTTATAGAATTGAAAG	GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAACC	spacer
	length:	39	repeater length:	24
17143	2153139	GATAATCTCTTATAGAATTGAAAG	GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGTT	spacer
	length:	39	repeater length:	24
17144	2153202	GATAATCTCTTATAGAATTGAAAG	TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT	spacer
	length:	40	repeater length:	24
17145	2153266	GATAATCTCTTATAGAATTGAAAG	GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT	spacer length:
	length:	35	repeater length:	24
17146	2153325	GATAATCTCTTATAGAATTGAAAG	GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC	spacer
	length:	39	repeater length:	24
17147	2153388	GATAATCTCTTATAGAATTGAAAG	CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAAT	spacer length:
	length:	36	repeater length:	24
17148	2153448	GATAATCTCTTATAGAATTGAAAG	AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTTG	spacer
	length:	38	repeater length:	24
17149	2153510	GATAATCTCTTATAGAATTGAAAG	ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATTA	spacer
	length:	38	repeater length:	24
17150	2153572	GATAATCTCTTATAGAATTGAAAG	GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAAG	spacer
	length:	38	repeater length:	24
17151	2153634	GATAATCTCTTATAGAATTGAAAG	AATCACGAAAGCGATACTAAGGGCAATACAATACAAACATG	spacer
	length:	41	repeater length:	24
17152	2153699	GATAATCTCTTATAGAATTGAAAG	CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTGC	spacer
	length:	39	repeater length:	24
17153	2153762	GATAATCTCTTATAGAATTGAAAG	AGATTGTTTTATTAATACCAAGTAGACAATTATATATTTT	spacer
	length:	40	repeater length:	24
17154	2153826	GATAATCTCTTATAGAATTGAAAG	CCAAAACATGTCACATGTGCCGATATTGATATTTACAAA	spacer
	length:	39	repeater length:	24
17155	2153889	GATAATCTCTTATAGAATTGAAAG	AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGAA	spacer
	length:	38	repeater length:	24
17156	2153951	GATAATCTCTTATAGAATTGAAAG	GGGAGTTCCCATTTCGATTTTGGGAACCCTCAAGCACAGTCTGTG	spacer
	length:	44	repeater length:	24
17157	2154019	GATAATCTCTTATAGAATTGAAAG	TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCAT	spacer
	length:	41	repeater length:	24
17158	2154084	GATAATCTCTTATAGAATTGAAAG	CTAACTTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTGT	spacer
	length:	38	repeater length:	24
17159	2154146	GATAATCTCTTATAGAATTGAAAG	GTTCCAGCTAAGATGTTCTTTCCTGCAGTCTTTGTT	spacer length:
	length:	36	repeater length:	24
17160	2154206	GATAATCTCTTATAGAATTGAAAG	AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTAT	spacer
	length:	39	repeater length:	24
17161	2154269	GATAATCTCTTATAGAATTGAAAG	ATCCGTTCTCCGTCCCGATCCGTACCGTTCTCTGTACT	spacer
	length:	38	repeater length:	24
17162	2154331	GATAATCTCTTATAGAATTGAAAG	AGCATAACTTCATCTTCTTCTACAACCTTCGACAGCTT	spacer
	length:	37	repeater length:	24
17163	2154392	GATAATCTCTTATAGAATTGAAAG	TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATTA	spacer

length: 42 repeater length: 24
17164 2154458 GATAATCTCTTATAGAATTGAAAG ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCAT spacer
length: 39 repeater length: 24
17165 2154521 GATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGGT spacer
length: 40 repeater length: 24
17166 2154585 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATA spacer
length: 37 repeater length: 24
17167 2154646 GATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCCC spacer
length: 38 repeater length: 24
17168 2154708 GATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATACA spacer
length: 39 repeater length: 24
17169 2154771 GATAATCTCTTATAGAATTGAAAG ACGAACACACCCCTTAAACTCTTTTTCCAACATTCACCT spacer
length: 40 repeater length: 24
17170 2154835 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGAG spacer
length: 40 repeater length: 24
17171 2154899 GATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATTCCGACCAAAGCTAATA spacer
length: 39 repeater length: 24
17172 2154962 GATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGGT spacer
length: 40 repeater length: 24
17173 2155026 GATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTAG spacer
length: 43 repeater length: 24
17174 2155093 GATAATCTCTTATAGAATTGAAAG ATACAGATTTCTGTTATCCATATCCTACATGACTTTCC spacer
length: 37 repeater length: 24
17175 2155154 GATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAATTAGATATCCATTGACTGTTAT spacer
length: 39 repeater length: 24
17176 2155217 GATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTATT spacer
length: 40 repeater length: 24
17177 2155281 GATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAACG spacer
length: 40 repeater length: 24
17178 2155345 GATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTTGGCCTGAGTA spacer
length: 38 repeater length: 24
17179 2155407 GATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGAT spacer
length: 40 repeater length: 24
17180 2155471 GATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATATA spacer
length: 44 repeater length: 24
17181 2155539 GATAATCTCTTATAGAATTGAAAG CTAAGCAGTGACTCACAGTTTAGACATTACAAGTATC spacer
length: 38 repeater length: 24
17182 2155601 GATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAGATCTATCTGACAACACGAACTATG spacer
length: 41 repeater length: 24
17183 2155666 GATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGAC spacer
length: 40 repeater length: 24
17184 2155730 GATAATCTCTTATAGAATTGAAAG CAATCCCATTCGTTTTACTCACTTCTAAGAACCTCGC spacer
length: 37 repeater length: 24
17185 2155791 GATAATCTCTTATAGAATTGAAAG AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTCT spacer
length: 40 repeater length: 24
17186 2155855 GATAATCTCTTATAGAATTGAAAG ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCTG spacer
length: 40 repeater length: 24
17187 2155919 GATAATCTCTTATAGAATTGAAAG GTCTTTATGGCCCTCTGGGTCTTTCCACCATTGAGAGGA spacer
length: 39 repeater length: 24
17188 2155982 GATAATCTCTTATAGAATTGAAAG TTATCCTCATTCTATCGGTGAGTGGAACAAATTGGGTAGC spacer
length: 40 repeater length: 24
17189 2156046 GATAATCTCTTATAGAATTGAAAG ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTTT spacer
length: 40 repeater length: 24
17190 2156110 GATAATCTCTTATAGAATTGAAAG AGTTAACAATACTTTATTGTCAAAGAAGCAAGGATATGCG spacer
length: 40 repeater length: 24
17191 2156174 GATAATCTCTTATAGAATTGAAAG TTCAAAC TAGATCTAGAAGATTTCTATCGGCATCTTTACAT spacer
length: 41 repeater length: 24
17192 2156239 GATAATCTCTTATAGAATTGAAAG ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTTC spacer
length: 40 repeater length: 24
17193 2156303 GATAATCTCTTATAGAATTGAAAG GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTATT spacer
length: 39 repeater length: 24
17194 2156366 GATAATCTCTTATAGAATTGAAAG TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT spacer
length: 37 repeater length: 24
17195 2156427 GATAATCTCTTATAGAATTGAAAG ATCTACTACATCATCCTCTACCACGGCAAGCCAACAACTGCGT spacer
length: 43 repeater length: 24
17196 2156494 GATAATCTCTTATAGAATTGAAAG ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT spacer
length: 38 repeater length: 24
17197 2156556 GATAATCTCTTATAGAATTGAAAG ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACTA spacer
length: 41 repeater length: 24
17198 2156621 GATAATCTCTTATAGAATTGAAAG ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTCT spacer
length: 39 repeater length: 24

17199	2156684	GATAATCTCTTATAGAATTGAAAG	AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT	spacer
	length:	37	repeater length:	24
17200	2156745	GATAATCTCTTATAGAATTGAAAG	ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT	spacer
	length:	39	repeater length:	24
17201	2156808	GATAATCTCTTATAGAATTGAAAG	ATAGCTATATATGGAATGTTCCAGACGCGGAATATGTTGC	spacer
	length:	41	repeater length:	24
17202	2156873	GATAATCTCTTATAGAATTGAAAG	AAGCCTACACAGGATAGGATACTCAAATTATATGAAAT	spacer
	length:	39	repeater length:	24
17203	2156936	GATAATCTCTTATAGAATTGAAAG	TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCAT	spacer
	length:	42	repeater length:	24
17204	2157002	GATAATCTCTTATAGAATTGAAAG	CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA	spacer
	length:	37	repeater length:	24
17205	2157063	GATAATCTCTTATAGAATTGAAAG	TGTTCTGTCGTTACTGTCGTAAAGCACGTCCTATTAT	spacer
	length:	37	repeater length:	24
17206	2157124	GATAATCTCTTATAGAATTGAAAG	ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC	spacer
	length:	38	repeater length:	24
17207	2157186	GATAATCTCTTATAGAATTGAAAG	TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGAA	spacer
	length:	39	repeater length:	24
17208	2157249	GATAATCTCTTATAGAATTGAAAG	GCACAATTCGCCAACGATTTTCGGTTCGCTTTATACCTT	spacer
	length:	38	repeater length:	24
17209	2157311	GATAATCTCTTATAGAATTGAAAG	CAAATTTCCGGCGAAAATTGTACCGAATTTCCGCATTGCTGG	spacer
	length:	41	repeater length:	24
17210	2157376	GATAATCTCTTATAGAATTGAAAG	AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG	spacer
	length:	40	repeater length:	24
17211	2157440	GATAATCTCTTATAGAATTGAAAG	ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGAT	spacer
	length:	42	repeater length:	24
17212	2157506	GATAATCTCTTATAGAATTGAAAG	TTCTGTTTCGAAGAAAACCCGCCTCAGATTCATTATGGG	spacer
	length:	39	repeater length:	24
17213	2157569	GATAATCTCTTATAGAATTGAAAG	AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAAA	spacer
	length:	39	repeater length:	24
17214	2157632	GATAATCTCTTATAGAATTGAAAG	CCTCATCGTAAACATGCAATCTTGCATATTCAGTGTA	spacer
	length:	37	repeater length:	24
17215	2157693	GATAATCTCTTATAGAATTGAAAG	GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCT	spacer
	length:	39	repeater length:	24
17216	2157756	GATAATCTCTTATAGAATTGAAAG	ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT	spacer
	length:	41	repeater length:	24
17217	2157821	GATAATCTCTTATAGAATTGAAAG	GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCGT	spacer
	length:	38	repeater length:	24
17218	2157883	GATAATCTCTTATAGAATTGAAAG	ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA	spacer
	length:	39	repeater length:	24
17219	2157946	GATAATCTCTTATAGAATTGAAAG	AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA	spacer
	length:	37	repeater length:	24
17220	2158007	GATAATCTCTTATAGAATTGAAAG	CGTTCTAGAGCTAAACGATGCATACGCGGTGGTACAATA	spacer
	length:	40	repeater length:	24
17221	2158071	GATAATCTCTTATAGAATTGAAAG	ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATTT	spacer
	length:	41	repeater length:	24
17222	2158136	GATAATCTCTTATAGAATTGAAAG	TCAAATAAGGAACAACCTCTGGGTAAGCCCACAATACGCAA	spacer
	length:	40	repeater length:	24
17223	2158200	GATAATCTCTTATAGAATTGAAAG	CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAAC	spacer
	length:	38	repeater length:	24
17224	2158262	GATAATCTCTTATAGAATTGAAAG	TAACTAGATCCTTATATTTACGTAAATGTAAAGGGG	spacer
	length:	38	repeater length:	24
17225	2158324	GATAATCTCTTATAGAATTGAAAG	TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAATA	spacer
	length:	38	repeater length:	24
17226	2158386	GATAATCTCTTATAGAATTGAAAG	GTTTCATCAGTTCTACCTTTTGGTCCAAAGGCTGATCCAA	spacer
	length:	39	repeater length:	24
17227	2158449	GATAATCTCTTATAGAATTGAAAG		
17228				
17229				
17230	crispr	5		
17231	2557813	GATAATCTACTATAGAATTGAAAG	ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGTG	spacer
	length:	39	repeater length:	24
17232	2557876	GATAATCTACTATAGAATTGAAAG	TTATCTAATTTTAAATAATCAAGGAAATTCATTAAC TCAAATA	spacer
	length:	42	repeater length:	24
17233	2557942	GATAATCTACTATAGAATTGAAAG	CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAACATTA	spacer
	length:	39	repeater length:	24
17234	2558005	GATAATCTACTATAGAATTGAAAG	TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTGA	spacer
	length:	41	repeater length:	24
17235	2558070	GATAATCTACTATAGAATTGAAAG	ATTTTCTAATATATCTAATTCACTCTGCGTATCATTATGGATAA	spacer
	length:	44	repeater length:	24
17236	2558138	GATAATCTACTATAGAATTGAAAG	CCCGCCAGCCAGACTGTTTTTCAGCCCAAACGGCTAATT	spacer

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length: 40 repeater length: 24
17237 2558202 GATAATCTACTATAGAATTGAAAG
17238
17239
17240 GCA_000969885.1_ASM96988v1_genomic.fna (PilerCR) :
17241 START REPEAT
SPACER
17242 crispr 1
17243 1021522 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT AAGCGTACGGTTCACCGGTTGCTTTGGATGGAATATGTT
spacer length: 39 repeater length: 34
17244 1021595 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT TCGAAGACAACAGGAGCCGGGCAGGAGTCTTTAAACGGTT
spacer length: 40 repeater length: 34
17245 1021669 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT CCGCCTACCCATGCTAAACGGTTATCCCCACATCCAGTT
spacer length: 39 repeater length: 34
17246 1021742 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT GTTTCGCCACCCTGAAAGAGACCTGAGACGAAAGAGTT
spacer length: 38 repeater length: 34
17247 1021814 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT GTTTCGCCACCCTGAAAGAGACCTGAGACGAAAGAGTT
spacer length: 38 repeater length: 34
17248 1021886 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT ATGTAGATGGGATTGCCTAACCCTCACTTGTAAGTT
spacer length: 37 repeater length: 34
17249 1021957 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT TCGTAAATGCCGAGGATCACGAAACGTTTGTAGAATTGTT
spacer length: 40 repeater length: 34
17250 1022031 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT AGAATTCTTCAGTTCATCCCTGATAGGTCTTTCACCCGGTT
spacer length: 41 repeater length: 34
17251 1022106 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT GTTCTCACC GGACATGGTCGAGGATGGTATGACTAGTT
spacer length: 38 repeater length: 34
17252 1022178 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT CCATTTTGATTTTATTTTTTTTCGTTTGATCTAACGGTT
spacer length: 38 repeater length: 34
17253 1022250 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT CTTAATTTAATCAGGCTTATAACTGAACTCCCCGACTGTT
spacer length: 40 repeater length: 34
17254 1022324 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT TTCAGACAAAAAAGAACGCAACTGTGGAGAAGGTATAGTT
spacer length: 40 repeater length: 34
17255 1022398 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT GATATTGTACGCGGGTGCAGTCGATTGTCCTTGAAAGGTT
spacer length: 40 repeater length: 34
17256 1022472 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT AAGTATCCGGTACGAACGCTCAGCTGTACATAGGCGGTT
spacer length: 39 repeater length: 34
17257 1022545 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT AAGTATTGGATGAGTACGAAGAGATGAAAAAGGAAAGTT
spacer length: 39 repeater length: 34
17258 1022618 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT TGGTCTTCCCGCTGTGCCCTCTGCACTCCCAGGAGAGTT
spacer length: 39 repeater length: 34
17259 1022691 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT TTCTAACGAGAAACAGGTAAGTTCTTGTCCAAATTGGTT
spacer length: 39 repeater length: 34
17260 1022764 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT AAAAGGAACTGCTGGAAGGTTATCTATACGAGCCATGTT
spacer length: 39 repeater length: 34
17261 1022837 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT AATTATGCAAGCGGAGGAACGGTATAGGAACCGCAGCAGTT
spacer length: 41 repeater length: 34
17262 1022912 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT ATGGTTGAAATTACCTTCCCGCTTGGATTCTTCAGTGGTT
spacer length: 40 repeater length: 34
17263 1022986 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT GGGCTTGATGTCTTGCCAATGGATACAAAGAAGATATGTT
spacer length: 40 repeater length: 34
17264 1023060 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT AGCAGTCGAAAAGATTTTGAATGTCAGAGAAGAACGTT
spacer length: 38 repeater length: 34
17265 1023132 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT CAATCGACGACAAGATTACCTTTATTTACGGTACTGGTT
spacer length: 39 repeater length: 34
17266 1023205 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT GGATCGTCAGATGCTTTTGTGGAAAGAACTGTACGCGTT
spacer length: 39 repeater length: 34
17267 1023278 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT GAGCTGGATGTAATTCTCATCCTGGCTGCACTACGATGTT
spacer length: 40 repeater length: 34
17268 1023352 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT AGTTTTATATCAGTTTTGACGATTTCCGGAATATCAAGTT
spacer length: 40 repeater length: 34
17269 1023426 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT CAAGATTAAAGTTTTGTAGTAAAGCCCAAAGCCTAGTT
spacer length: 38 repeater length: 34
17270 1023498 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT ATATTAAAACAGTTGACTGCCTACGCAAAGAACACTGGTT
spacer length: 41 repeater length: 34
17271 1023573 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT GAGGTGGAAATGTGCAATGTGCAATTATGATACACAGTT
spacer length: 39 repeater length: 34
17272 1023646 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT CCGTCAATTTTTTCAGGATCGAATGACCCATTTATAGTT
spacer length: 38 repeater length: 34
17273 1023718 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT TCAACCGCTACCGAATTTTCGTTTTTGAATACTTGGTT
spacer length: 38 repeater length: 34
17274 1023790 TCAATCCTTGTTTTAGTGGATCTTGCATTTCGAAT TCCGGGGGTTGAAGGTTGGCGGCCTTCAATCTCTACTGTT

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spacer length: 40 repeater length: 34
 17275 1023864 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 spacer length: 39 repeater length: 34
 17276 1023937 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 CCAGTGTATGATAAAATGTACTGTCTGAAAGGGAAAAGCGGTT spacer length: 43 repeater length: 34
 17277 1024014 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 TTTTTTCCCCTTTTCATCGAGAGAATTCCTCATGGTT
 spacer length: 38 repeater length: 34
 17278 1024086 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 CATCAAAAAATACCTCTTGAGTAGTGCCATCTTTAGTT
 spacer length: 38 repeater length: 34
 17279 1024158 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 TGGGATAAATGACGAGGTTGAGATTGAGGCAGCTAGTT
 spacer length: 38 repeater length: 34
 17280 1024230 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 CTAATCAACAAAAAATTGAGGGAAACAATAATGAAGTT
 spacer length: 39 repeater length: 34
 17281 1024303 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 ATATTTTATCTAAGAAGGCGAGAAATATTTACCTGTT
 spacer length: 37 repeater length: 34
 17282 1024374 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 TTTATACCAGTTTGCAAAATCCCAGTTTCCAGCTCTGGTT
 spacer length: 40 repeater length: 34
 17283 1024448 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 TAGTCAATCCCCAGGACGTCCAGGACCTCGATGAATTGTT
 spacer length: 40 repeater length: 34
 17284 1024522 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 ATGGATATTCTTCTGTACGCTGTTCTGCTCGTTTTGGGTT
 spacer length: 40 repeater length: 34
 17285 1024596 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 GTGCTTAAGCTGTCTGGGAGGGTTGGGGCTGAAGATAGTT
 spacer length: 40 repeater length: 34
 17286 1024670 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 GTCGTTCAAGGTTTCATCGTGGGGTAGTTGACATAAGTT
 spacer length: 38 repeater length: 34
 17287 1024742 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 TCTTAATGCAGAGATGGAGAATGCTGGAGTTCTGAGTGAGTT spacer length: 42 repeater length: 34
 17288 1024818 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 GTTAATGGTTGCAGGTGGAGCTGCAGCAGGAGCAGGTT
 spacer length: 38 repeater length: 34
 17289 1024890 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 GTATAACGAGGTAATCAGGGAAAGGCTAAAACAAAGTT
 spacer length: 38 repeater length: 34
 17290 1024962 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 CTGTCCCATACACATCTGAAAATTTTCGTACCATTGCGTT
 spacer length: 40 repeater length: 34
 17291 1025036 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 CTGTCAATAGCTCGGCATACGGTCCTTTTCGGCAAAGTT
 spacer length: 38 repeater length: 34
 17292 1025108 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 AAATAGTACCCCAATCAATAGTCTTTTTATTGACCAGTT
 spacer length: 39 repeater length: 34
 17293 1025181 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 TGGTATGTCGTCATGTTCTGTCCTCAATGTCTATAGAGTT
 spacer length: 40 repeater length: 34
 17294 1025255 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 GATGGGGAAAGCTGCTCGGTGCTGGACTTGTGGAGCAGTT
 spacer length: 41 repeater length: 34
 17295 1025330 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 GGGATGAAGAAACCACGCTCTTCGTAGATTTTCCGGGTT
 spacer length: 39 repeater length: 34
 17296 1025403 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 AATTAACCTCGGATAATTTAGTTCTGAAGGGCAAAACGTT
 spacer length: 39 repeater length: 34
 17297 1025476 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 CTTTATTTGTACGGGGTGTACGGGGTATTTTTGAAAAAGTT
 spacer length: 41 repeater length: 34
 17298 1025551 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 GCCGAGAACCAGGAATAGACCTCTGTGTAATAAACATGTT
 spacer length: 41 repeater length: 34
 17299 1025626 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 TGATGATTTGGATTTATAACAGGATATTTTGAGGGAGTT
 spacer length: 39 repeater length: 34
 17300 1025699 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 AGGCGTTGTAGATGTTTAAACAGGGTCAATAAGTAGTT
 spacer length: 38 repeater length: 34
 17301 1025771 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 TGAGAGGCTACAGGAGTTATCCTTCGAGGGAGTAAAAAGTT
 spacer length: 41 repeater length: 34
 17302 1025846 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 AGACTAGGATGTCAGCTGAGATATTCATCCGAGCCGGTT
 spacer length: 39 repeater length: 34
 17303 1025919 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 TCTTAGGTTGTACAATATACTATAACAACCTATTACTATAGTT spacer length: 42 repeater length: 34
 17304 1025995 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 TTGAATCATGGTGAGTTTCAAACGGCTACCTTTGTT
 spacer length: 38 repeater length: 34
 17305 1026067 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 GTCACAGAGCGCATGATATGCCACATACGTAATCTAGTT
 spacer length: 39 repeater length: 34
 17306 1026140 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 CGGATATTATATGTGTGGATACAATCAGAAGGAATAGTT
 spacer length: 39 repeater length: 34
 17307 1026213 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 TAGGGATATCACACGTTTATTTCGCGTGAGGCCGTCGGTT
 spacer length: 40 repeater length: 34
 17308 1026287 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 TCCTCGCACTCATCCGACTCTGGAAAATATCCGCAAGTT
 spacer length: 39 repeater length: 34
 17309 1026360 TCAATCCTTGTTTTAGTGGATCTTGCATTCTCAATCTCAGTGT
 ATCACGGAAAAAGGCAGCACAGCCGAGCGTGAAGCCAGTT
 spacer length: 40 repeater length: 34

17310 1026434 TCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT ATGTTTGCAACGGCATAATCTCCCGAAGGCGAATATGGTT
spacer length: 40 repeater length: 34

17311 1026508 TCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TTAAAAATTTAGTAAGTGAACCTTCAATAGACTCCTCGTT
spacer length: 40 repeater length: 34

17312 1026582 TCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AAAAAGAACTAATTCGGAGGAAAAGAAAATGATATGTT
spacer length: 38 repeater length: 34

17313 1026654 TCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AGTATATCCTGTTTTTCAAAGTATGGTCATGCAGGGTT
spacer length: 38 repeater length: 34

17314 1026726 TCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TGTAAAAAATATAAACACCTATAATAATATAGGAAAGTT
spacer length: 40 repeater length: 34

17315 1026800 TCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCGGTTAGAATTTGCACTTAAACCGGGGTGAAGAGGTT
spacer length: 38 repeater length: 34

17316 1026872 TCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AAGGCGCCAA

17317

17318

17319 crispr 2

17320 2418132 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT ATCAAACCTGCCAGCACTCGTCTATTTATTTTTCATGCG
spacer length: 38 repeater length: 37

17321 2418207 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT ATATTCACGAGCGAGACCACCAAAGACGATTACAAGAA
spacer length: 38 repeater length: 37

17322 2418282 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CAGAAGGTGCTCTCGTTACAGCAATGACGTTTATTTTC
spacer length: 37 repeater length: 37

17323 2418356 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAACCTGGCCTTCTTACGGAGATTGGCGGCGGACATG
spacer length: 36 repeater length: 37

17324 2418429 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT AGAAATGTAAACCTGTACAACTCAATGTTTGACTATG
spacer length: 37 repeater length: 37

17325 2418503 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT AGCCAAAAAAGATGAGTTTTAAATCGGTCAAACAG
spacer length: 36 repeater length: 37

17326 2418576 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CGTATAATGATGCTACTGTTCTCGCTTCACAAATGA
spacer length: 36 repeater length: 37

17327 2418649 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT ACAGACTTCCACACCGAGATGGTTATTTATTCGGT
spacer length: 35 repeater length: 37

17328 2418721 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CCCTTGAGATCGTTATCAGTCTAATTTCTTAATAT
spacer length: 35 repeater length: 37

17329 2418793 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CTGAATGGGCGTGTGTACTCGGCTGGGGTCTGAGGAT
spacer length: 38 repeater length: 37

17330 2418868 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT GTATCGGTAGAAATTCAGGAACGGACACTTTCACACAG
spacer length: 37 repeater length: 37

17331 2418942 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT
CCTTAAACGGGTCTATATCTGCAACGACAACGAAGCAAA spacer length: 39 repeater length: 37

17332 2419018 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAATCCTTTTCGCTATCGGTAGAAAGTGAACCATGTG
spacer length: 37 repeater length: 37

17333 2419092 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CAGAAGATTTTAAGACACTTACCGCAGCCGATCTTAAC
spacer length: 38 repeater length: 37

17334 2419167 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT TCAGAGAACCTAACCGTTAATTAGGCATCCCTAATATT
spacer length: 38 repeater length: 37

17335 2419242 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT ACCATAATATAACATCTCTCAATTTACTTGCTGAATA
spacer length: 37 repeater length: 37

17336 2419316 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT TTATTCTTCTTTGTAGTATCATCTAGAAGCCGTTTA
spacer length: 36 repeater length: 37

17337 2419389 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT TTCTCAAACCTTTTGTGCGACTTCTTCAGGGAGCTC
spacer length: 35 repeater length: 37

17338 2419461 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT TGATATGAAGAATTCGGCGGATGAGACTTACCAGGCAG
spacer length: 38 repeater length: 37

17339 2419536 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CACCAGACAGCTTGGACGGATTAATCTTAAATTAGGA
spacer length: 38 repeater length: 37

17340 2419611 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT GGCAGGATAACGGTATCATTTTTCGGCGACTTGAGTA
spacer length: 36 repeater length: 37

17341 2419684 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT
CCTGCCCGCTTCGCGAGCTTCTCCAGGCAGAGATGATA spacer length: 39 repeater length: 37

17342 2419760 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAAACTGATAATTGTAGATACATTAAGTTGAAAGGTA
spacer length: 37 repeater length: 37

17343 2419834 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CAGTGAGAGGCATTTATTCAGCCTCCATAACAGCCT
spacer length: 36 repeater length: 37

17344 2419907 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CCTGTACTGCTGCCTGATGTGCATCATGGATGATCTG
spacer length: 37 repeater length: 37

17345 2419981 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT ATCAACGAAAGAGTACGAATATTCAGGAACTTTCA
spacer length: 35 repeater length: 37

17346 2420053 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CTTGCAAAACAAACGTGATGCTCTGGAATTAATGAC
spacer length: 36 repeater length: 37

17347 2420126 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT GTCAATCCAAACCGTGAAAAAAGAGCTTCGAGAACT

spacer length: 36 repeater length: 37
 17348 2420199 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CTTTTTTTACGGTTCACCTCCTGTGTAAAGTGTTA
 spacer length: 36 repeater length: 37
 17349 2420272 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT ACTAAACTGATTATATCACGGTAGCTGCAAAATCGG
 spacer length: 37 repeater length: 37
 17350 2420346 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT
 17351
 17352
 17353 crispr 3
 17354 3029860 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC
 TGGGGTTGCCACTTGCTGGACCTGCTCCCTGCGCGAGAA spacer length: 39 repeater length: 37
 17355 3029936 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCTGGTCCTCTTCCTGGCTCCCACCCACGCTTGTGTTT
 spacer length: 38 repeater length: 37
 17356 3030011 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC GATAGTGAGCTTGTAACGATCTCCACGAACCTTGAA
 spacer length: 36 repeater length: 37
 17357 3030084 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGGATTGAAAGCCCGGAAGCCGCTTGAGTATAAGTATT
 spacer length: 38 repeater length: 37
 17358 3030159 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CATCGTACCAGAGTTTGGCCGCCATCAATTCCCTTGC
 spacer length: 37 repeater length: 37
 17359 3030233 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC AATCTCTGCCGTCTGCTGTCATGCCTGGACGGTATG
 spacer length: 36 repeater length: 37
 17360 3030306 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTCAAACCTTACTAATCTAACACATGAAATCGTAACA
 spacer length: 37 repeater length: 37
 17361 3030380 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTGTTATAGCTGTCTGCATAGACTCAGGCATATTT
 spacer length: 35 repeater length: 37
 17362 3030452 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGATTCAAGTGTTTCACGGCTTTCTGTCTCCGAA
 spacer length: 35 repeater length: 37
 17363 3030524 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATCGCAGCAGCCGACGGGATGGTCTCAAAGGCAGCAT
 spacer length: 37 repeater length: 37
 17364 3030598 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTGTATCAGTAAGATGTGTACTAAGAGCAATGCAA
 spacer length: 36 repeater length: 37
 17365 3030671 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCCCCGTATATGCTTTCTCAAAAAGAGAGAGCGTAG
 spacer length: 36 repeater length: 37
 17366 3030744 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATATCGGCATTGCAGGCACGGATAAAGATCTTCT
 spacer length: 34 repeater length: 37
 17367 3030815 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAATAAGCAGTTTCAAAAATATACTAAATAAAAA
 spacer length: 34 repeater length: 37
 17368 3030886 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTGATCCAACGCTTGATATGAACCTTTGAACGAGT
 spacer length: 34 repeater length: 37
 17369 3030957 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTAGAGTACGAAGGTCTTGATCTTGAGACTATAA
 spacer length: 34 repeater length: 37
 17370 3031028 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTGTAAATGTTGCGCCTGT spacer length: 19
 repeater length: 37
 17371 3031084 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTAGGGGAGTTGTTACAGGGGATTAATGATATTCTCTG
 spacer length: 37 repeater length: 37
 17372 3031158 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTCGATTTCCGAAACTGATAAACTCATCTCAAAAG
 spacer length: 35 repeater length: 37
 17373 3031230 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCATAGGGACTCCCCATTCTGCAGCTTCCGGGCTAATG
 spacer length: 38 repeater length: 37
 17374 3031305 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC AACCTAGTGGGTTTGTATGTAAACAGATAAAAATC
 spacer length: 35 repeater length: 37
 17375 3031377 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTGTGATGTCTTTGTGTGTGTTATTTAGTATCTCAA
 spacer length: 37 repeater length: 37
 17376 3031451 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC AGAGTTGGTATAAAGCAAAGAGAGTCAGGCAGATTT
 spacer length: 36 repeater length: 37
 17377 3031524 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCCCATGTTTCTTTTGTAAATGTCTTCGACGTGATACGT
 spacer length: 38 repeater length: 37
 17378 3031599 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTCCAGGGTGGTTCTATTTCGTCGCTTGAGGGGCTC
 spacer length: 36 repeater length: 37
 17379 3031672 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCATCCAGTACCCATTAGCTTTGGTTCCTTTTTT
 spacer length: 35 repeater length: 37
 17380 3031744 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CGACAGCCTCACGCGAAATGAACGTGTGATATCCCTA
 spacer length: 37 repeater length: 37
 17381 3031818 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTTTCATGCTCAGTTCCTCCAAAAGGTATTAGGCGT
 spacer length: 37 repeater length: 37
 17382 3031892 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTGAAGATAATGCAGATGAAATAGAAGAACTAACC
 spacer length: 35 repeater length: 37
 17383 3031964 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC AGGGTATTCCAGGTTGTTGAGAATATCTTTGTTTT
 spacer length: 35 repeater length: 37
 17384 3032036 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATAGTGACACGGTGGATACCGTAAAGGGAAATGACAG
 spacer length: 37 repeater length: 37

17385 3032110 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTCTAAGGCTTTTTGAGCGCATTTCTCGACAAGT
spacer length: 34 repeater length: 37

17386 3032181 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACCCCTGAGAGCTGCACGGTCCTGAGCATAAACGAGG
spacer length: 37 repeater length: 37

17387 3032255 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAGTCGTAGGTGCGTTTGATTCTGTCAAATTAATA
spacer length: 36 repeater length: 37

17388 3032328 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACAGGTTCTCCATCGGCTCAGCCATCGTATTAATTACG
spacer length: 38 repeater length: 37

17389 3032403 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATGATTGCGGTCTTGCCACACCCCGGGCCGCCGA
spacer length: 34 repeater length: 37

17390 3032474 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTCTGGGATAAAATTAAACAGTGGTCACTGGTAAG
spacer length: 35 repeater length: 37

17391 3032546 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCTCAATTTCTTCGAAATTTGCAGCCCCGCATCGCTGG
spacer length: 37 repeater length: 37

17392 3032620 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGCTTAGTCATGCACTCATCTATAATGTCAATAAGAT
spacer length: 37 repeater length: 37

17393 3032694 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTGTGAAGTGTATGTTATGGATTTCGCCCTACTTGG
spacer length: 36 repeater length: 37

17394 3032767 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC GGCTGGATTACCCACCACTCACCGCCGCGGTATATAT
spacer length: 37 repeater length: 37

17395 3032841 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCAACCCGTCCGCAATCCATACCGGGAACTTTCCAG
spacer length: 36 repeater length: 37

17396 3032914 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTGTCATTCCGAAAGAGCAAACGATGCAGGGTCTAA
spacer length: 36 repeater length: 37

17397 3032987 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCGTTCATTACGCGCAACGCATACGGCAACTGACGG
spacer length: 37 repeater length: 37

17398 3033061 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC
CTCAGAAAAGAAGCATTCTAGCCGACCCCATGATAAGC spacer length: 39 repeater length: 37

17399 3033137 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTCCTGATTTCAGAATAACTGGAGATGTAAGTACGT
spacer length: 36 repeater length: 37

17400 3033210 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TACTGCTTGCCATCATATCCTCTTCGAGAAACTCAG
spacer length: 37 repeater length: 37

17401 3033284 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CACTTTCCTCCATACACTTTCCTCCATAACGAAAAA
spacer length: 36 repeater length: 37

17402 3033357 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAATTTTCGTTCTTGACCTTCAGAGCCTGGATAAGT
spacer length: 35 repeater length: 37

17403 3033429 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTCCGTTTGCTCAGAACTACCCGATATATCAGCCT
spacer length: 35 repeater length: 37

17404 3033501 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTTATTTCCACATATTCAAACCTTTTTTCAGTAGCATC
spacer length: 37 repeater length: 37

17405 3033575 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CGATTTTCATGTTTTAAATTGGTAAAAAATGCGTATT
spacer length: 36 repeater length: 37

17406 3033648 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC
TCGAACATATACCCCTCCGGGTATTCTGGTAAGTTTAACA spacer length: 39 repeater length: 37

17407 3033724 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTGTCCTGCGGTACTCATCATTGACATAAAACTCGA
spacer length: 36 repeater length: 37

17408 3033797 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTCCAGTCTCCTCTTACTATGGGAAAGGCAGCAGGTAC
spacer length: 38 repeater length: 37

17409 3033872 ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC

17410

17411

17412 GCA_000969925.1_ASM96992v1_genomic.fna (PilerCR):

17413 START REPEAT
SPACER

17414 crispr 1

17415 993303 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT AACCTTGAGCGCTGAAACTCCCCTTACTTCCGATGATA
spacer length: 38 repeater length: 37

17416 993378 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT TTGTTTGTTGGTTTTATTATTGTATTTTTTTCTGCAT
spacer length: 37 repeater length: 37

17417 993452 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT AACTTAGTATATAGTAATAGGTTTCAAAGTATATA
spacer length: 35 repeater length: 37

17418 993524 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT TTCACAATTGCATAGTATATCGCACTCTTCATCTGA
spacer length: 36 repeater length: 37

17419 993597 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT GTTACCTCGGTTACCTCTATTTTTAGGGTATCTTT
spacer length: 35 repeater length: 37

17420 993669 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT AAATCCCGGCACAGGACAAGGTAAAAACCCACGTCC
spacer length: 36 repeater length: 37

17421 993742 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT CTCTTTGCCTTTAACCGTTTTTCTAAGCTTTTAAT
spacer length: 35 repeater length: 37

17422 993814 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT AGCAAGTGAGTAATATATCTAATCTGCCTTGTTTTAGT
spacer length: 38 repeater length: 37

17423	993889	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ATTTATAGGGCTTCCCAGATGATGTTTATAACGCTTTTCA
	spacer length: 39	repeater length: 37	
17424	993965	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AATCTTATACATATCTTAGTAGAAGTTAATAAGAT
	spacer length: 35	repeater length: 37	
17425	994037	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AACAGAGCTTATACGATGAAGCAGGGATTAACACAAT
	spacer length: 37	repeater length: 37	
17426	994111	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TAGTTCTTCCATGGTTTTAATTTTCAGGGTTGTAATGAT
	spacer length: 38	repeater length: 37	
17427	994186	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTGACAGGTATATTTGTATTTATTTCTTTATATTAT
	spacer length: 36	repeater length: 37	
17428	994259	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GAGAAATTGTTAATTTTCGTTATCGGTTGAACCGGT
	spacer length: 36	repeater length: 37	
17429	994332	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AACACTTTCGAAAGCTGAGTTTAGACAGTTCGAT
	spacer length: 34	repeater length: 37	
17430	994403	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AATGTATGTCAACGGCGTTAACTTAGTATATATTAT
	spacer length: 36	repeater length: 37	
17431	994476	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTGCTTACCCGGGTTTTTTCGTTCCAGACAGCTTTTAA
	spacer length: 39	repeater length: 37	
17432	994552	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ATCTTAAGATTTTCGACTGATAACGAACTTGTAAT
	spacer length: 34	repeater length: 37	
17433	994623	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TCCGAAATGAAGTGGCAGCCGGAACAAGCAGTTTT
	spacer length: 36	repeater length: 37	
17434	994696	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TGATAAAGCTTCGTTTTCCGAATACGCTTCAAAT
	spacer length: 35	repeater length: 37	
17435	994768	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TATACTATACTAAGATAGAATATAGTATAGTATAG
	spacer length: 35	repeater length: 37	
17436	994840	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CCACCAAGAT
17437			
17438			
17439	crispr 2		
17440	994912	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TGTTAAACTTACCAGAATACCCGGAGGGGTATAGTTCGA
	spacer length: 39	repeater length: 37	
17441	994988	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AATACGCATTTTTTACCAATTTAAACATGAAATCG
	spacer length: 36	repeater length: 37	
17442	995061	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GATGCTACTGAAAAAGTTTTGAATATGTGGAAATAAG
	spacer length: 37	repeater length: 37	
17443	995135	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	ATGTGGAGTACTGGGAGTTTTCAACGTTTGGCAGCGTG
	spacer length: 38	repeater length: 37	
17444	995210	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TAATTCAGGAAAACCTGGATCTGGCACATTTCGAAA
	spacer length: 34	repeater length: 37	
17445	995281	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AATGCAGAGATGGAGAATGCTGGAGTTCTGAGTAA
	spacer length: 35	repeater length: 37	
17446	995353	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GACGCGGTGACCTATCGCACCTGCCCCGCCAGTAT
	spacer length: 35	repeater length: 37	
17447	995425	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AACTGAAATCCCTTTTCGGCGGGCATCTGAGATCGAT
	spacer length: 36	repeater length: 37	
17448	995498	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GATATGATTGGTGTCTCATCTGACACACCCGGAGTC
	spacer length: 36	repeater length: 37	
17449	995571	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CCCAAGAAGGACACACCAAAAAGAGAAATGGGAAAAAT
	spacer length: 37	repeater length: 37	
17450	995645	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GTGGGGCGAGCTACATCTGCTGTGATGTTGTCAATAAG
	spacer length: 38	repeater length: 37	
17451	995720	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CCTTTCCTGACCCGAGTGAACATAATAAGAGTAA
	spacer length: 35	repeater length: 37	
17452	995792	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TAAGAAACGAAGTTGCAGCCGGAACAAGCAGTTTA
	spacer length: 36	repeater length: 37	
17453	995865	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AATGGGGAATACTCGGAGGTTAAGCCGGATGAGAA
	spacer length: 35	repeater length: 37	
17454	995937	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TTGGTTCTTATTTTAGTTACATTCCCGAAAATCA
	spacer length: 34	repeater length: 37	
17455	996008	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CCGGAAGGGATCCAAGTTTTACCCCCAGTTTTTCAGA
	spacer length: 37	repeater length: 37	
17456	996082	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TATTTGTGATGCCGCCGGCGATAAACTCAAAATTCTG
	spacer length: 36	repeater length: 37	
17457	996155	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CCTAAAGCATAATTAGGTTTTACAGCATTCTTATTTT
	spacer length: 37	repeater length: 37	
17458	996229	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	ACATTGAAAACCTCTTTGACATATATATCCATGCAAT
	spacer length: 37	repeater length: 37	
17459	996303	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AATATCCACTATGGTTGTCTGAGCACCAACCCCTATA
	spacer length: 37	repeater length: 37	
17460	996377	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	ATTTAAGCGTTTTTCGACAGACCAGCACCCTAA

spacer length: 33 repeater length: 37
 17461 996447 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT GCTAATCAAGAATATTATCCGCCTTTTCGAAGTTG
 spacer length: 34 repeater length: 37
 17462 996518 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CCAAGAGTAGATCGCTCAAATGCATGGGTAGACGA
 spacer length: 35 repeater length: 37
 17463 996590 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TCATTTGGTTTTACTCCTTCCGGTAGGACTGTTGTA
 spacer length: 36 repeater length: 37
 17464 996663 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CAGGGAGAAGGTCCAGAAAGTGGCAACCCCATAACCAT
 spacer length: 38 repeater length: 37
 17465 996738 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CTTTATAGTAATTCCTAAAGATCAGACGATGCAGGCTC
 spacer length: 38 repeater length: 37
 17466 996813 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CCTGCTTCAGCAGAAATAAGGGTTCTGGATAAGGATGG
 spacer length: 38 repeater length: 37
 17467 996888 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT ACTGCACCGAGTGAACATAATAAGAGACTGTGTTATA
 spacer length: 37 repeater length: 37
 17468 996962 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TGCAGTATTATCAACCGGTGAAAAGTTCGATAATCC
 spacer length: 36 repeater length: 37
 17469 997035 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CTGCCGACTTAGTTTTTCGAGGCAGAGAGCAAGTTGA
 spacer length: 36 repeater length: 37
 17470 997108 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AAATGATATTTATGCCAGTGTTCAGACGGCACCTA
 spacer length: 36 repeater length: 37
 17471 997181 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CTTTTCTAAAGCATGTAGGCTTTCTGCCTTCTCACTG
 spacer length: 37 repeater length: 37
 17472 997255 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TGGACCCGCTTTATTTTTTGGTTCGCTGATAATCAA
 spacer length: 36 repeater length: 37
 17473 997328 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CTCCTTTTTTCATTTCAATTTGACTCTTCTCTAGTCAT
 spacer length: 36 repeater length: 37
 17474 997401 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AATTCTAGCTCCTCACCAGGGAAATCCCCCGACAA
 spacer length: 36 repeater length: 37
 17475 997474 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CACATATAGAAAGAGATATAAAGTTAGAACCTGAGT
 spacer length: 36 repeater length: 37
 17476 997547 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TTGAAAAATCTGTCCAAAGTGAGGTATATGGTTGCGG
 spacer length: 37 repeater length: 37
 17477 997621 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CGGCGGAAAGTACATCGAATCGTAAAAGACTCTTAT
 spacer length: 36 repeater length: 37
 17478 997694 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT GAATGAAAAATATCACCGGACCCCGAGCTTCAATG
 spacer length: 35 repeater length: 37
 17479 997766 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CCCACTGGAACCCTGCTCAGGCGAAGCATTTTCAT
 spacer length: 35 repeater length: 37
 17480 997838 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT GAATGTATGTCAATGATCTATGCGCAGTACTCGGCA
 spacer length: 36 repeater length: 37
 17481 997911 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AACTTCCCAGCACTCTTTTTAGTTAAACAGTTTCTT
 spacer length: 37 repeater length: 37
 17482 997985 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT GCCACGAAATATCTGCGATCCTCCTCAACATTTCA
 spacer length: 35 repeater length: 37
 17483 998057 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT GCGCTGTGCTTGTTGTTGTTTGGTCACAGACTAAATTAC
 spacer length: 39 repeater length: 37
 17484 998133 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT GTGGGTACAAACGAGTTTTACCTGATCTTCCTCTT
 spacer length: 35 repeater length: 37
 17485 998205 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT GGCACGGGACCCGTTTGGGTTATGACGTTGTTGGTAA
 spacer length: 37 repeater length: 37
 17486 998279 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AATATGGAAGTCACAGACGAGCCAGTATACCATGATA
 spacer length: 37 repeater length: 37
 17487 998353 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT ATAATTTAAAGGTTTCTATTTTGATTTTTAGACAGT
 spacer length: 36 repeater length: 37
 17488 998426 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CTGGAAGAACAACCGGAAAACGTTCAACGAAGCTTA
 spacer length: 36 repeater length: 37
 17489 998499 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AGCGTTATAATAGGGGATCTTGTGACCAGAGAGAAT
 spacer length: 36 repeater length: 37
 17490 998572 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AAATCTCCCCAAGCGGCGAAGGCGTTCACGTCATAG
 spacer length: 36 repeater length: 37
 17491 998645 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TCTTCTTTTGATAGCGTTTTAAATCCTTTTTTTGAG
 spacer length: 36 repeater length: 37
 17492 998718 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT GGCTACAAAGACCGCTGTAAGATTTCAAAGGATGTGG
 spacer length: 37 repeater length: 37
 17493 998792 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AGTTCCTCAGCATCCACGAATTTATTGTCATGAATG
 spacer length: 36 repeater length: 37
 17494 998865 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CGGCTTCTATGACCTCAGATGTTCTATCTTTGTTTAA
 spacer length: 37 repeater length: 37
 17495 998939 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TTTTAAGCTCTTCAAGTTGCATCTTAATCAAGAA
 spacer length: 34 repeater length: 37

17496	999010	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AACGAAGGAGATCTTCACAACCTTGAAAGATCTCCT
	spacer length: 36	repeater length: 37	
17497	999083	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TCGGAAAAAAGTTTCAGAGTATGGGAACTGCCCT
	spacer length: 34	repeater length: 37	
17498	999154	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CTCTTTATTGTACCTTGCTCGTTATCATCAACATAGT
	spacer length: 37	repeater length: 37	
17499	999228	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	ATTACGAATTTTTCTTTATAATTTGCGTTTAATGTT
	spacer length: 37	repeater length: 37	
17500	999302	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AAATAAAAAATAGGAAAGTATTGATTATCCCAATTGAT
	spacer length: 37	repeater length: 37	
17501	999376	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CCTTAATGATTATCGACTTTGTCTTCTATATTTTCG
	spacer length: 35	repeater length: 37	
17502	999448	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TTAGGTTTAATTAGGGGTTTGTATATCAGGTGCTTTC
	spacer length: 37	repeater length: 37	
17503	999522	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CAGGCAGATATGGGATGGGAGGGCTCAACCCTTACCA
	spacer length: 37	repeater length: 37	
17504	999596	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GATATCATCAGGCGAGGAACCTTCTGAGGATGATTA
	spacer length: 36	repeater length: 37	
17505	999669	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TTTCTTTTTCTGCTTTTGATGCCAATATTTACCTCA
	spacer length: 37	repeater length: 37	
17506	999743	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TTCAGGGTGGGGATGAGAGCGAAGCCTCGCACCGTAG
	spacer length: 37	repeater length: 37	
17507	999817	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TGTGGAGTACTGGGAAAAATCAACATTTTGCAGCGTG
	spacer length: 37	repeater length: 37	
17508	999891	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GATATTACATAAGAACAACGTCGGCAGACCCGACGAA
	spacer length: 37	repeater length: 37	
17509	999965	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	ACAGAAAAATCGTGGGTCATAATTGGGAGGCTATCAAC
	spacer length: 38	repeater length: 37	
17510	1000040	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	ACAGCATCAGAAAACGCATTTCGCAAATTTACAGTTTT
	spacer length: 37	repeater length: 37	
17511	1000114	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GTGGCAATCTTGATTTTGTATTTTCAGATTTACGA
	spacer length: 36	repeater length: 37	
17512	1000187	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TCTGAGGTGCAAAATAAGACTATAAAAAATCGTATCA
	spacer length: 36	repeater length: 37	
17513	1000260	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GAGGGAGAAC
17514			
17515			
17516	crispr 3		
17517	1620628	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	CAACAAATGCTTAGAAGAAATGAAAAGTTTAGTCCCG
	spacer length: 37	repeater length: 37	
17518	1620702	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	ACTGGCTCTACTATGAAGCTCGGGCTCCGGTAATAT
	spacer length: 36	repeater length: 37	
17519	1620775	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	CTCCAGCTTCACATGCAACAGGCTGTACTATTCC
	spacer length: 34	repeater length: 37	
17520	1620846	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	TCTTTTGACATGACCGAGGCGAGCGCATTCTCTTT
	spacer length: 35	repeater length: 37	
17521	1620918	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	CCCTGTTTCAAGCACTCTGGGCATAACTTTTCGAGGG
	spacer length: 36	repeater length: 37	
17522	1620991	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	AAACTTACACTGAGTTTTACCCTCTATAGAAGAAGG
	spacer length: 37	repeater length: 37	
17523	1621065	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	CTGCTATAGGTGACAATATAGATAATGGCGAAATTCTG
	spacer length: 38	repeater length: 37	
17524	1621140	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	TCGGGTAAACGTGCCTATGTGTTTTGTTGACAAGTC
	spacer length: 36	repeater length: 37	
17525	1621213	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	TCTGAACCTGGTTATCATTTCCAGCGACGGGAGAAAG
	spacer length: 37	repeater length: 37	
17526	1621287	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	CATATTGCGTTTGCCTGTTTGACCCTGAGAATTC
	spacer length: 34	repeater length: 37	
17527	1621358	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	CTATCTTGAGACCACAACATCGACCGAGTTTTTC
	spacer length: 33	repeater length: 37	
17528	1621428	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	ATTGAACTCGCGGCTGAACTCGTTGCGCTCTTGA
	spacer length: 34	repeater length: 37	
17529	1621499	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	ATGCTTCCTCTATCATTTGTACCGTCCGATAAGCTG
	spacer length: 36	repeater length: 37	
17530	1621572	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	ACTATAGTAATCCTTGATCTCGGGCGTTATCGTTT
	spacer length: 37	repeater length: 37	
17531	1621646	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	TCAATGGACATCCAGAACCGAGAATCCTTTTTTATG
	spacer length: 36	repeater length: 37	
17532	1621719	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	AGGGATAATGGAGTTTCCGAAGCAGAATTAAAGAGA
	spacer length: 36	repeater length: 37	
17533	1621792	ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	CATGTTAGCACTAGATGTAGTCAAGGCACTTAACGG

spacer length: 36 repeater length: 37
 17534 1621865 ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC TAACCACCACCATTCTTAATCACATTTTCCTGTGGT
 spacer length: 37 repeater length: 37
 17535 1621939 ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC CTGTGGATGTCATTTTTTTCAAGCTCCTAATTTTAT
 spacer length: 35 repeater length: 37
 17536 1622011 ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC AGACGGTGTA
 17537
 17538
 17539 crispr 4
 17540 3012183 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TACCGTTATCCCCTCTTATGCGTTCTCCGATCTCTAA
 spacer length: 37 repeater length: 37
 17541 3012257 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC AGATTCTTAAGTTTTGTAATTATCATGCGTCTACCT
 spacer length: 36 repeater length: 37
 17542 3012330 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC CCAAACATACAGATGTGCTTTGCTGGGAGCTTGTCAA
 spacer length: 37 repeater length: 37
 17543 3012404 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC ATTTTATATGGCTATGCTTATCTTAGTCTTTTTTT
 spacer length: 35 repeater length: 37
 17544 3012476 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC CATCTATCGTTTGCCCTGGCTGAATCCTGTTAAGTA
 spacer length: 36 repeater length: 37
 17545 3012549 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TTCAGAAATTAAAAATATTCTTCAGACTCGAAAAG
 spacer length: 35 repeater length: 37
 17546 3012621 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC AGTACTGCTCCTGCTGGAAGCCTCCCTTCCTTCAATCT
 spacer length: 38 repeater length: 37
 17547 3012696 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TTTTCTGTTGCAAAACCAACACAGGAATTTTGA
 spacer length: 33 repeater length: 37
 17548 3012766 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC
 TAAATGCATGCCATCAACGAAGCTAACTTTTCGTGTATTCT spacer length: 40 repeater length: 37
 17549 3012843 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC ATTTCTAGAAGTTCGGCCTTTTTGTACTCCTCAGAT
 spacer length: 36 repeater length: 37
 17550 3012916 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TATAGGGGTTGGTGCTCAGACAACCATAGTGGATATT
 spacer length: 37 repeater length: 37
 17551 3012990 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TTGTCAATGTCTGCTCTTTTCCATAGAGCTTCCGGGT
 spacer length: 37 repeater length: 37
 17552 3013064 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC CTAGGTTTATACTGTTATCCGCCGCGTGCATTTTC
 spacer length: 35 repeater length: 37
 17553 3013136 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC CTGCGACACATACGGCAACAGCAGGGAATTATAGATG
 spacer length: 37 repeater length: 37
 17554 3013210 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TAAGCTCCATAACTGTTCCCGCTGTAAGTAAAA
 spacer length: 34 repeater length: 37
 17555 3013281 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TTTAATTTTTTCATCAAACGCTTTATCAGCTGCTTT
 spacer length: 35 repeater length: 37
 17556 3013353 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TATCGAGGGCCAAGACTTCGACCAAGATAAATTAAA
 spacer length: 36 repeater length: 37
 17557 3013426 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC CTCCGGATCTGGTCAGAAGTTCGCCTTGGTCTTTCCA
 spacer length: 37 repeater length: 37
 17558 3013500 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TAGAGTGTGATATGTCTGAATGGGTCACTTATTACCCG
 spacer length: 38 repeater length: 37
 17559 3013575 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC CGCGCTGGATGAGTTTCGGACCGTCCTGATCTGTTAAT
 spacer length: 38 repeater length: 37
 17560 3013650 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TCACTCTATTTAGTTAACTATATATACTATTAAT
 spacer length: 34 repeater length: 37
 17561 3013721 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC CAGGCGGACTCAGGTAAGCCTGAAGAAGAACATAGA
 spacer length: 36 repeater length: 37
 17562 3013794 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC AAAGTTACGATACTTACAAAAGGCGGGCGCAGATCC
 spacer length: 36 repeater length: 37
 17563 3013867 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TTGTTATCTTACAGCATCACTCGGAAATTCAACCC
 spacer length: 35 repeater length: 37
 17564 3013939 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TTCTCGATTTTCTTACTTCTGTGTAACTGATTTAGG
 spacer length: 37 repeater length: 37
 17565 3014013 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC CTGTGCCGGGTTTGTCTACCCTAGTTACCTGATGT
 spacer length: 35 repeater length: 37
 17566 3014085 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC ATTCGGATTGGGGTTCCCGTAAATCGTTTTTTCTT
 spacer length: 35 repeater length: 37
 17567 3014157 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC AGAGTAAACCGACAACGAGAGACATAACATAATTA
 spacer length: 36 repeater length: 37
 17568 3014230 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TCTGTTGCCTCTGCCCTAACTTCCACGCTATTAACAA
 spacer length: 37 repeater length: 37
 17569 3014304 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TGTTTGGCTGAGATATTTTCTATGAGCTTTTCTTTT
 spacer length: 36 repeater length: 37
 17570 3014377 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC GTTGGTCACTCATATAGGAGAGCTGACCCAGATAA
 spacer length: 35 repeater length: 37

17571	3014449	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TATACTTCTGTACTATCTACTCTAATGTTCTTAGC
		spacer length: 35 repeater length: 37	
17572	3014521	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TCAATATAGACATAATTTCTCTATACCATACAGTTCT
		spacer length: 38 repeater length: 37	
17573	3014596	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	AACCATTGATTAGGAGCCCATACTCTTATTATTGCG
		spacer length: 36 repeater length: 37	
17574	3014669	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	
		ATTTATTTGATTGAAAAGGATAAGTACGCTTCTGAACTT	spacer length: 39 repeater length: 37
17575	3014745	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	ACCTAAGGCTCTCTGTAAACGCTCTGGTTAATCGT
		spacer length: 36 repeater length: 37	
17576	3014818	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TCAGCGTCACCCGTTTTAAATTCAATGTCGCTCACT
		spacer length: 36 repeater length: 37	
17577	3014891	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	ATCTTGAGTTTTTCTTCTGCACCAAGAGCCGTACA
		spacer length: 35 repeater length: 37	
17578	3014963	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	CTGAGAGGCGCACAGGGTAAAATAGCAGCAATCGG
		spacer length: 35 repeater length: 37	
17579	3015035	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	CCGGAAGCCCTGCGAAAGTCACTGATAAAAAGCTCAT
		spacer length: 37 repeater length: 37	
17580	3015109	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TGGATTGTACATTACTTTATCATCTCCTTGTATTAT
		spacer length: 36 repeater length: 37	
17581	3015182	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TACAGATAAAACTAATCAAGGGGTTTATAATGACAGA
		spacer length: 37 repeater length: 37	
17582	3015256	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	GCAGTTTTATCTCCATGAGCGCAAACGAGTTTAAC
		spacer length: 35 repeater length: 37	
17583	3015328	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TCTGGATTGTACATTCTTTCTCTCCTTGTATTATCT
		spacer length: 36 repeater length: 37	
17584	3015401	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	ACCTGATCTTCCTCTTCATTGAGGAAGAATTCAAAA
		spacer length: 36 repeater length: 37	
17585	3015474	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	CTTTTCACAGCTTTTGCAATGTCGCTAAACTTGCT
		spacer length: 35 repeater length: 37	
17586	3015546	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	
17587			
17588			
17589	GCA_000969965.1_ASM96996v1_genomic.fna (PilerCR):		
17590	START	REPEAT	
	SPACER		
17591	crispr 1		
17592	3179905	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTCGAGTATAAGGGTATAGTATGTAAACGAACTATAG
		spacer length: 38 repeater length: 37	
17593	3179980	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AATTTGACCGAATAGCGCGCCCCGCATTGCGGGCATG
		spacer length: 37 repeater length: 37	
17594	3180054	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ATATTTTCGTCATTTGCACTGAGTACACCATACATG
		spacer length: 36 repeater length: 37	
17595	3180127	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GCCTAGTTTCAACATTTCGTAATTATTGGTCTTGTGTA
		spacer length: 37 repeater length: 37	
17596	3180201	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AAGAACGTCTTTAAATGATCTCACAGAGAAATACTG
		spacer length: 36 repeater length: 37	
17597	3180274	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CGAAGAGCGCAGAGTTTTAGCATTAGAGTCGATCGC
		spacer length: 36 repeater length: 37	
17598	3180347	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AAGATGCGCTTAACAAGTACGACGGGGATATTTA
		spacer length: 34 repeater length: 37	
17599	3180418	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GATCAGAAGAATATCATTACTTACAACCTCTATAAT
		spacer length: 35 repeater length: 37	
17600	3180490	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AGATATTTTCCGGGCAACTTATGAGAAAGTGGAGGAT
		spacer length: 37 repeater length: 37	
17601	3180564	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CTGAAGACTGTGATATGATAGGTCATTATGCATTTAA
		spacer length: 37 repeater length: 37	
17602	3180638	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ACAGTTTCATGTGTTTCCTGGTCAACGTATTTAT
		spacer length: 34 repeater length: 37	
17603	3180709	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCCTCTTTTGTCTTCTTTGCAGATTCAATGAGTTC
		spacer length: 35 repeater length: 37	
17604	3180781	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AGACTTCTTCCGTCATCTCCTGCGAAGGAAGGACCGTT
		spacer length: 38 repeater length: 37	
17605	3180856	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TATTACGCCCTTTTTATGATGATTATTAATTATTTTAA
		spacer length: 37 repeater length: 37	
17606	3180930	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TGTTTTATAACAAAGCTGGGGATGTCCAGGGATTCA
		spacer length: 36 repeater length: 37	
17607	3181003	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CTTTATGTCTAGATTAGAGGGGCTGAGGTGCTTAC
		spacer length: 35 repeater length: 37	
17608	3181075	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TGGGCATTATATCGCCACTGATCGAGATGCGTGGG
		spacer length: 35 repeater length: 37	

17609 3181147 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGTTTCAGGACTGCCCCGTCTTCAAAAACCACCTTTG
spacer length: 37 repeater length: 37
17610 3181221 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATCAAATCTGCCGAGATAATTCTGTATGAAAAAA
spacer length: 35 repeater length: 37
17611 3181293 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TACAAAGAAAAAATCAGAAGGCGAATACAAATACA
spacer length: 35 repeater length: 37
17612 3181365 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGAACATAACCGGAATTATGGATGAAATTCAATGTA
spacer length: 35 repeater length: 37
17613 3181437 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGAAAGATGCAGATGAGGAACCTAAACAGGCAGTTGC
spacer length: 37 repeater length: 37
17614 3181511 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TACTTCACCAGAGTCATAACGCCGGGATCGATTAC
spacer length: 35 repeater length: 37
17615 3181583 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTCATGTACTCCGAATTAACGGTCGGATGCACATATG
spacer length: 37 repeater length: 37
17616 3181657 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTCATGTACTCCGAATTAACGGTCGGATGCACATATG
spacer length: 37 repeater length: 37
17617 3181731 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATAATTACGAAGCCACGGGGAGCACCGGAGAGAACA
spacer length: 36 repeater length: 37
17618 3181804 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACAAACGCATAGCAGCTTTTAGCCGATAGCGATTT
spacer length: 36 repeater length: 37
17619 3181877 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
ACATAGACCTCTCAAAAGGGTTTACAGTCATCGACCTGG spacer length: 39 repeater length: 37
17620 3181953 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCCGTTTTTAAAAGCCTTCCAAAATTCGGAGATAA
spacer length: 34 repeater length: 37
17621 3182024 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACAAACGCATAGCAGCTTTTAGCCGATAGCGATTT
spacer length: 36 repeater length: 37
17622 3182097 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
ACATAGACCTCTCAAAAGGGTTTACAGTCATCGACCTGG spacer length: 39 repeater length: 37
17623 3182173 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCCGTTTTTAAAAGCCTTCCAAAATTCGGAGATAA
spacer length: 34 repeater length: 37
17624 3182244 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTCATAATCTTCTAATACCCTATCAAGAGCATCAT
spacer length: 36 repeater length: 37
17625 3182317 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACCTTTGCTTCGTAGCGCACTGTTTCCACGGCAA
spacer length: 34 repeater length: 37
17626 3182388 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTTTGAGGTAGATCCGAATGGACATTATGTGTATA
spacer length: 35 repeater length: 37
17627 3182460 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
AACAAGATCTCAGCTAATTCATTATACTCCCCGGTTGGA spacer length: 39 repeater length: 37
17628 3182536 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTGACGAAGAACCGGTAAGTGAAGCTTAAACTGT
spacer length: 36 repeater length: 37
17629 3182609 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGCCTTTTATGCCTGTTGTGATCTCGATAGGTGGGT
spacer length: 36 repeater length: 37
17630 3182682 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGGAGGAAGTGGATGGGAGTGGCGGGGGCACTGTAA
spacer length: 36 repeater length: 37
17631 3182755 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CATATGCCCTGACTTCTTCTCGTGTCTGCCTGCCG
spacer length: 36 repeater length: 37
17632 3182828 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTCTAACAGTAGATCTGTCAAACATGGAGATTG
spacer length: 35 repeater length: 37
17633 3182900 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTAATTTTCATCCAAAAGCTTTTTGAGGCAACCGGA
spacer length: 36 repeater length: 37
17634 3182973 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
AGCAACCACTTTAGAGAAAAAGGGCGGCTCACTTTCATA spacer length: 39 repeater length: 37
17635 3183049 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATTAGAAGTTACAAAGAAAGAAAAAACAATAAA
spacer length: 35 repeater length: 37
17636 3183121 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTTCCCCCAAATTATGTAGAGGGGGAGGAAATTTA
spacer length: 35 repeater length: 37
17637 3183193 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCTTTGGACATCACAGTCACGGAGGGCATCATGGA
spacer length: 35 repeater length: 37
17638 3183265 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TAACCTACCTATGGATAATTAAACCTTATTTGAGGT
spacer length: 37 repeater length: 37
17639 3183339 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAGCCTTAACAAAATTAAACAGATTCCGGCAGAAAC
spacer length: 37 repeater length: 37
17640 3183413 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
17641
17642
17643 crispr 2
17644 3192211 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CAAGTTTCCCCAACGAGATTAGGGGGACGTGTTAC spacer
length: 36 repeater length: 30
17645 3192277 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AACTCGGATTGATGCTTGTAAGGTATGTATTTTGA spacer
length: 37 repeater length: 30
17646 3192344 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CCTTAACGAAGATACAAACATAGACTTCTCAAAGAC spacer

	length: 37	repeater length: 30	
17647	3192411	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	GAGGGGAAAGGAGTTTGAGGAATGGATCGAATCAATTATCT
	spacer length: 41	repeater length: 30	
17648	3192482	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TTGCTTTTGGAAATTTGCATACTTATATGCCAAAACT spacer
	length: 37	repeater length: 30	
17649	3192549	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TCCGTTAGCAAGTCAGACAACATAAAAAAGAACAGA spacer
	length: 35	repeater length: 30	
17650	3192614	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TTTCATCCAAAGCTGGACGCAAAAAAGGACGTGGACGT spacer
	length: 38	repeater length: 30	
17651	3192682	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	AAGAAAAATCACTAATGAATCCAAAAGTTTTTAGG spacer
	length: 35	repeater length: 30	
17652	3192747	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	CAGGAAATATTTGTATGCTTCAAACAGCCTAATTTA spacer
	length: 36	repeater length: 30	
17653	3192813	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	ATGAAACATCATTCGCGAGGTCAAGCTTCTCGAG spacer
	length: 34	repeater length: 30	
17654	3192877	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	CTGAAATTACAGACATCAATGCAACATATATAC spacer
	length: 33	repeater length: 30	
17655	3192940	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	GCCCGTATTTTTTCAAATATGTCCGTAGATGCTTTTGT spacer
	length: 37	repeater length: 30	
17656	3193007	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	ATTTGCATCACAGTATGCTTGAAGGACTTGTACTTT spacer
	length: 36	repeater length: 30	
17657	3193073	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	ACCATCAGCAGACAGAAGCCGATAATGAGCTACGGT spacer
	length: 36	repeater length: 30	
17658	3193139	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	CACTACCTCTTATACCATATTTCTGCATTATACTCTT spacer
	length: 37	repeater length: 30	
17659	3193206	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TGAAAAAGTGAGAATGGTTATTTTTGAAGGTGCGAAG spacer
	length: 37	repeater length: 30	
17660	3193273	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	GTGCATTAACAATTCTATGGTACTCAATCCAATGTG spacer
	length: 36	repeater length: 30	
17661	3193339	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	AATTCCATGAATCAGATTGTCCAGTTCCTCCATTAAAT spacer
	length: 38	repeater length: 30	
17662	3193407	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TGCAATGGTCATAGATGGGGTAGAAGATGTTGTAAA spacer
	length: 36	repeater length: 30	
17663	3193473	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	GCTCTGGGAAGTGACTGTATCTCAGGAGGTATACCTGT spacer
	length: 38	repeater length: 30	
17664	3193541	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TAGATTACTTCAAATTTAAATATGTTCCATGAGGTA spacer
	length: 36	repeater length: 30	
17665	3193607	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	CCTTCTACACTTTTTTTAGAGGGGCCAAGCTCCCAT spacer
	length: 36	repeater length: 30	
17666	3193673	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	AGGATATCAGCAGGGCGGCGATTTTCGCAAACGATCTCC spacer
	length: 38	repeater length: 30	
17667	3193741	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TAAAAAAGTGATAGAGTCTCTCAACCTTCTTTC spacer
	length: 33	repeater length: 30	
17668	3193804	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	AGTTACCACTTTAAAAACCAACTATCAACTACC spacer
	length: 34	repeater length: 30	
17669	3193868	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	ACAATCTGCACAACCTGCAAACAAGTACTCCCGT spacer
	length: 35	repeater length: 30	
17670	3193933	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	GTGGATTGCTGGCGGATTTTACCCCCCATTTCCATAA spacer
	length: 38	repeater length: 30	
17671	3194001	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TCTGATGAGATCGAGGCAATTGACAAAGGGAACGCAC spacer
	length: 37	repeater length: 30	
17672	3194068	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TTCACGAACCGAATAGCCTTTTTAAGGGACGGTACCCTT
	spacer length: 39	repeater length: 30	
17673	3194137	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	ATTGGCAATACCATTAAAATGAAGGGGTATATTCA spacer
	length: 35	repeater length: 30	
17674	3194202	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	CTGATCCCAGACAGCAAATCATTGTCCCCATGTCTA spacer
	length: 36	repeater length: 30	
17675	3194268	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TCTGTACGCAACACTCTTAATTCTCTTCTCATGAA spacer
	length: 35	repeater length: 30	
17676	3194333	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	AAGCCC GTTATCGTGT TTTCTGTATAGCTCATGTTA spacer
	length: 36	repeater length: 30	
17677	3194399	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TTACGTTAAGGCGGCGTCTGTCAACCGTGGGTTTCT spacer
	length: 36	repeater length: 30	
17678	3194465	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	CCTTGACGACGTCAAGTCCTTAATGTGCAATGATCAAA spacer
	length: 38	repeater length: 30	
17679	3194533	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	ATGTTTCAATTTCGTCACCTGCGTGGGTACCGCAATAATTAC
	spacer length: 40	repeater length: 30	
17680	3194603	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	AGCTATCTCTCCCTGTTTAAATTTTATTTTGTTAAT spacer
	length: 36	repeater length: 30	
17681	3194669	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TTTTAATGCACATGAGCCATGGTTCCGGAAAACACAAT spacer
	length: 38	repeater length: 30	

17682	3194737	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TTGACCGAGCAGTCGGGAACATATCTCTTACTGAGAT	spacer
	length:	37	repeater length:	30
17683	3194804	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TTGGGAGTATGAAACGCTTAGTCAAAAATTCTTCGTT	spacer
	length:	37	repeater length:	30
17684	3194871	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	ATAGGAATTTTCGAGAATCAAAACGGGATCGGAAC	spacer
	length:	35	repeater length:	30
17685	3194936	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	GTGTTGCAAACAGGTAACCCAATGATTATCACAAA	spacer
	length:	36	repeater length:	30
17686	3195002	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	CAACATGGCACTTTACAGAAAACCGCTTTAGTTGA	spacer
	length:	36	repeater length:	30
17687	3195068	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	CCCTCAACAACCCGGTTAGAGGCTATAAAGGAAATAG	spacer
	length:	37	repeater length:	30
17688	3195135	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	ACAGTTCACGTGACAACCTGTGTCACTGAAGACCAGC	spacer
	length:	36	repeater length:	30
17689	3195201	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	ATGCTTGCACTTGCTTTTATTATGAAAACATTGTA	spacer
	length:	35	repeater length:	30
17690	3195266	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	ATTGTATTACCGCCATACTCAAACCTATATAAGTCC	spacer
	length:	35	repeater length:	30
17691	3195331	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	ATCCTCAAGTGTTCTTGAACCTGAATATGACGACAT	spacer
	length:	36	repeater length:	30
17692	3195397	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	ATTAATACTATATTGACAGTATTATATAATTTAATATT	spacer
	length:	38	repeater length:	30
17693	3195465	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	ACAGCTCGATAGGATAGAACGCGTGAAAGGCATTAT	spacer
	length:	36	repeater length:	30
17694	3195531	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	CCAACACTTACGACGTGTTCGAACCTGGGACATACGA	spacer
	length:	37	repeater length:	30
17695	3195598	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TGTGTTTTTGCATATATCGTACCGATCCAATTAAAC	spacer
	length:	36	repeater length:	30
17696	3195664	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	ACAGAATGACGACCTTGTAACAGATCAATTAAACAA	spacer
	length:	37	repeater length:	30
17697	3195731	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TATAGGCGGACTTCTTATAGTACTCGGTCCTGTTGTAA	spacer
	length:	38	repeater length:	30
17698	3195799	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TCAGCTACATTTCCAGTTCTGACATTCTCTCTAAT	spacer
	length:	38	repeater length:	30
17699	3195867	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TTGTAATCAGTCTTACAAAATAATGGAGGGAAAGAAA	spacer
	length:	37	repeater length:	30
17700	3195934	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	GATTGGATTCTCACGGCTCAAACATAAACAGGGGAACGG	
	spacer length:	39	repeater length:	30
17701	3196003	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TATATATCGCGGTAGATAACGTTTTTGCAGTGTAGCT	spacer
	length:	37	repeater length:	30
17702	3196070	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	GCTGTAATCAGTCTTACAAAATAATGGAGGGAAAGAAA	spacer
	length:	38	repeater length:	30
17703	3196138	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	GAGTTTGTCTATCTTCTCTCAAGGTTGCCATGGACAT	spacer
	length:	36	repeater length:	30
17704	3196204	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	CTAATTGGTAATGGTACAGTTACAAGTGGAACCTAT	spacer
	length:	35	repeater length:	30
17705	3196269	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	ACGCATAAGCGTTGAGGTATGGTTTCGTATCCTTTT	spacer
	length:	36	repeater length:	30
17706	3196335	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TGCCTGCTTGGAAGAACATCGTGATGAGGTAGGAT	spacer
	length:	36	repeater length:	30
17707	3196401	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TGTCAATACCTTGATGAGATCTGTTTCGTTCGAGATGAAA	
	spacer length:	40	repeater length:	30
17708	3196471	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	AGGGGAAGCATCTAACCGTCCAACCTGCCCACACTG	spacer
	length:	36	repeater length:	30
17709	3196537	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TTATCTTACTGGTGAGTACGAGGAGATCAAGAATGCTAG	
	spacer length:	39	repeater length:	30
17710	3196606	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	TCGGCTACAATTATCCTAATCATTCGGTCGTCTGT	spacer
	length:	35	repeater length:	30
17711	3196671	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	GAGGAAGATATCCTCGAATATAAAACCCCGAATTCCAT	spacer
	length:	38	repeater length:	30
17712	3196739	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	GAGGGTATTACAGTTGAAAATTGTAGAATAAAAGTAG	spacer
	length:	37	repeater length:	30
17713	3196806	GTTTCAATCCCTCTAAGGTCTGATTTTAAC	AAACGTATCAGATGCACGCATACAGAACATCATAAG	spacer
	length:	36	repeater length:	30
17714	3196872	GTTTCAATCCCTCTAAGGTCTGATTTTAAC		
17715				
17716				
17717	crispr 3			
17718	3526474	GAGTTCCTCCACACGCGTGGGGATGAACCG	ATGGGATGAAAAAAAGGAGAATGGACGTTAA	spacer
	length:	32	repeater length:	29
17719	3526535	GAGTTCCTCCACACGCGTGGGGATGAACCG	CTGCCTGTGTAACCTGACTCACACTTATTTTTT	spacer

	length: 32	repeater length: 29	
17720	3526596	GAGTTCCCCACACGCGTGGGGATGAACCG	GTCTCCAGATCCTGGACCCTGGAAGTGTCTCG spacer
	length: 32	repeater length: 29	
17721	3526657	GAGTTCCCCACACGCGTGGGGATGAACCG	CCGGGTATTTCTGCCATGTCCTTAACCTTCTT spacer
	length: 32	repeater length: 29	
17722	3526718	GAGTTCCCCACACGCGTGGGGATGAACCG	TAAGAGATTGAATTCAATTACCCCGTCTTTGC spacer
	length: 32	repeater length: 29	
17723	3526779	GAGTTCCCCACACGCGTGGGGATGAACCG	ATTATTATAGATGTTATCCGGAGCTGTCAAAC spacer
	length: 32	repeater length: 29	
17724	3526840	GAGTTCCCCACACGCGTGGGGATGAACCG	TTCTTTTTGAATACAACGACTCGCAAACATGG spacer
	length: 32	repeater length: 29	
17725	3526901	GAGTTCCCCACACGCGTGGGGATGAACCG	TTGTGCTTATACCTTTGCCTGAACAATTCGTT spacer
	length: 32	repeater length: 29	
17726	3526962	GAGTTCCCCACACGCGTGGGGATGAACCG	CCGAAATTAAAACCCATACCTGTAATTCCCCC spacer
	length: 32	repeater length: 29	
17727	3527023	GAGTTCCCCACACGCGTGGGGATGAACCG	TCTCAAAAATCCAGATAATACTCTGGTAGTTA spacer
	length: 32	repeater length: 29	
17728	3527084	GAGTTCCCCACACGCGTGGGGATGAACCG	ACGTGCCCCCTATGTGAAACTCTCCGGTCATAA spacer
	length: 32	repeater length: 29	
17729	3527145	GAGTTCCCCACACGCGTGGGGATGAACCG	AACTATTATAGAGTTCCCCAGGGTTCCTACCC spacer
	length: 32	repeater length: 29	
17730	3527206	GAGTTCCCCACACGCGTGGGGATGAACCG	
17731			
17732			
17733	crispr 4		
17734	3527328	GAGTTCCCCACACGCGTGGGGATGAACCG	GTTTCACGCTTGCAAATAATGATTTACCCCCA spacer
	length: 32	repeater length: 29	
17735	3527389	GAGTTCCCCACACGCGTGGGGATGAACCG	AAGCCGCAGCAAAGAGGGTAGACTCATTTATT spacer
	length: 32	repeater length: 29	
17736	3527450	GAGTTCCCCACACGCGTGGGGATGAACCG	TCCCTGCGGCGACTCCTCCCAAATTACTTTAG spacer
	length: 32	repeater length: 29	
17737	3527511	GAGTTCCCCACACGCGTGGGGATGAACCG	ATTATTGAGGTGTGTTTAATGCCGTGTCCGTA spacer
	length: 32	repeater length: 29	
17738	3527572	GAGTTCCCCACACGCGTGGGGATGAACCG	CAATGGATGATACACAGATTGTAGTGCGAGAA spacer
	length: 32	repeater length: 29	
17739	3527633	GAGTTCCCCACACGCGTGGGGATGAACCG	TGCTAGCACATGGATACAAACGACAATGCAAA spacer
	length: 32	repeater length: 29	
17740	3527694	GAGTTCCCCACACGCGTGGGGATGAACCG	ACTTCTCAGATAGAGCCGTAGACGAGCTTATT spacer
	length: 32	repeater length: 29	
17741	3527755	GAGTTCCCCACACGCGTGGGGATGAACCG	ATTGGCCTGCTATTGTCAGGAAATATGAATTA spacer
	length: 32	repeater length: 29	
17742	3527816	GAGTTCCCCACACGCGTGGGGATGAACCG	GATTACAGGGCAAATTATGGGGGGTCTGGACT spacer
	length: 32	repeater length: 29	
17743	3527877	GAGTTCCCCACACGCGTGGGGATGAACCG	TCGGAATAATCCGCAATTCCGGTTATTGCTTC spacer
	length: 32	repeater length: 29	
17744	3527938	GAGTTCCCCACACGCGTGGGGATGAACCG	ATTATTTCCGCAAATGTCGAAATTACAGAAAC spacer
	length: 32	repeater length: 29	
17745	3527999	GAGTTCCCCACACGCGTGGGGATGAACCG	AAGGGTTATTAAAAGAAATGGATAATCGCGGT spacer
	length: 32	repeater length: 29	
17746	3528060	GAGTTCCCCACACGCGTGGGGATGAACCG	TTGTATATCTCACAGTGAAACCGGACGAGAAA spacer
	length: 32	repeater length: 29	
17747	3528121	GAGTTCCCCACACGCGTGGGGATGAACCG	GATATCGGGTTTCTGTATTTTCCCTTGTGG spacer
	length: 32	repeater length: 29	
17748	3528182	GAGTTCCCCACACGCGTGGGGATGAACCG	GAACGCACCTCATTGTTACGGGCTGGACTTCG spacer
	length: 32	repeater length: 29	
17749	3528243	GAGTTCCCCACACGCGTGGGGATGAACCG	ACACACAGGACCGCTACATTCGTTTTTAAGA spacer
	length: 32	repeater length: 29	
17750	3528304	GAGTTCCCCACACGCGTGGGGATGAACCG	TCAGGGTATATGTAAAAAACGTCTTTGAAGGA spacer
	length: 32	repeater length: 29	
17751	3528365	GAGTTCCCCACACGCGTGGGGATGAACCG	CAAGTAGGACGGCAAACTTTCTGAAGCCGCC spacer
	length: 32	repeater length: 29	
17752	3528426	GAGTTCCCCACACGCGTGGGGATGAACCG	GATTACGATTTCCGTTCTGATGAACTAAAAG spacer
	length: 32	repeater length: 29	
17753	3528487	GAGTTCCCCACACGCGTGGGGATGAACCG	GGCCAACGATAGCAGCTAATAGGATTTATGAT spacer
	length: 32	repeater length: 29	
17754	3528548	GAGTTCCCCACACGCGTGGGGATGAACCG	GACATCCGAGAAGGGGCAGTGACAGACTATGA spacer
	length: 32	repeater length: 29	
17755	3528609	GAGTTCCCCACACGCGTGGGGATGAACCG	GAGGGATTACAACGTTAGTACCTGACCATCTG spacer
	length: 32	repeater length: 29	
17756	3528670	GAGTTCCCCACACGCGTGGGGATGAACCG	TTGCTTATCAGAACCACGCTGTCGCCACCGTG spacer
	length: 32	repeater length: 29	

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17757 3528731 GAGTTCACACACGCGTGGGGATGAACCG GTCACATAGACCTTCATAATTGTCTTCCCCC spacer
length: 32 repeater length: 29
17758 3528792 GAGTTCACACACGCGTGGGGATGAACCG AATGACGTTGAAAAACAAATGACGTTGAAAA spacer
length: 32 repeater length: 29
17759 3528853 GAGTTCACACACGCGTGGGGATGAACCG AATTTTCACTTCGAGTACTGTAAATGATGGAA spacer
length: 32 repeater length: 29
17760 3528914 GAGTTCACACACGCGTGGGGATGAACCG GCTTAACAACCACTGAGAAAGCTGAAATCGCC spacer
length: 32 repeater length: 29
17761 3528975 GAGTTCACACACGCGTGGGGATGAACCG TTGAATTTTGGCTTTAATTGTCAAAGAGTGCC spacer
length: 32 repeater length: 29
17762 3529036 GAGTTCACACACGCGTGGGGATGAACCG GTTCTCAAATTTGTTTCATTGGATTTCGATGAG spacer
length: 32 repeater length: 29
17763 3529097 GAGTTCACACACGCGTGGGGATGAACCG CCGTGGTTTTTTTACAACGAAATGTAAGGGGA spacer
length: 32 repeater length: 29
17764 3529158 GAGTTCACACACGCGTGGGGATGAACCG ATCGAATAACCCATTTTTGAAATTAATATACC spacer
length: 32 repeater length: 29
17765 3529219 GAGTTCACACACGCGTGGGGATGAACCG GCAGCCCAGGAAGCAGCCGCTAAATTAGCCGC spacer
length: 32 repeater length: 29
17766 3529280 GAGTTCACACACGCGTGGGGATGAACCG CCGTTACTAAAACGCCACTCCTTGATCTGAT spacer
length: 32 repeater length: 29
17767 3529341 GAGTTCACACACGCGTGGGGATGAACCG CTTAACGTCTCTGTATCCAACGCTTTAGTGC spacer
length: 32 repeater length: 29
17768 3529402 GAGTTCACACACGCGTGGGGATGAACCG TAATTGGAGCATATTGAATATAGAAAGTGAGA spacer
length: 32 repeater length: 29
17769 3529463 GAGTTCACACACGCGTGGGGATGAACCG CAGAGGAAGATACTGCAACTGGAAAATCGAAC spacer
length: 32 repeater length: 29
17770 3529524 GAGTTCACACACGCGTGGGGATGAACCG GTCGAGGTTGACACAAAACAGCAGTTAGTAAT spacer
length: 32 repeater length: 29
17771 3529585 GAGTTCACACACGCGTGGGGATGAACCG ACTGGATGAGAGAAAAAGAGGATATCGCAATT spacer
length: 32 repeater length: 29
17772 3529646 GAGTTCACACACGCGTGGGGATGAACCG TATTTTCATCAACCGTATGCCACACACAAAAA spacer
length: 32 repeater length: 29
17773 3529707 GAGTTCACACACGCGTGGGGATGAACCG TGCCGTCTCTTCAGGTCTCCGCTGAAAAAACC spacer
length: 32 repeater length: 29
17774 3529768 GAGTTCACACACGCGTGGGGATGAACCG
17775
17776
17777 GCA_000969985.1_ASM96998v1_genomic.fna (PilerCR) :
17778 START REPEAT
SPACER
17779 crispr 1
17780 824265 GTTTCATCCTTATTTTAGTGGA TCTTGCTCGCGAATCTCTCAATTTTCATCTGTCTCAACCCTATCGA spacer
length: 46 repeater length: 23
17781 824334 GTTTCATCCTTATTTTAGTGGA TCTTGCTCGCGAATGGTTATTAGGAGGAAGAAATGAACAGATATTATCTTG
spacer length: 51 repeater length: 23
17782 824408 GTTTCATCCTTATTTTAGTGGA AGCTACCTCTCGACTCAGGAAAAATTTCTTCGAAAAGGAGGAAATGCAAA
spacer length: 50 repeater length: 23
17783 824481 GTTTCATCCTTATTTTAGTGGA CTGGGTCAGT
17784
17785
17786 crispr 2
17787 831229 GTTTCATCCCTCTAAGGCCTGATTTTAAC GCTTCATTATCCAGCCGCGTATTCTTAAATTTCTCTT spacer
length: 39 repeater length: 30
17788 831298 GTTTCATCCCTCTAAGGCCTGATTTTAAC CGGAACTTGTTTTAATCAGAAATGGGATGGTGAACAT spacer
length: 38 repeater length: 30
17789 831366 GTTTCATCCCTCTAAGGCCTGATTTTAAC CAGTTTTTAAATGCCCCGCTTTTGGTTTTTCATAGTTTTT spacer
length: 39 repeater length: 30
17790 831435 GTTTCATCCCTCTAAGGCCTGATTTTAAC GCAAGGATATATGACGAAAATTTGTAGAGATTATAT spacer
length: 36 repeater length: 30
17791 831501 GTTTCATCCCTCTAAGGCCTGATTTTAAC TGTGAGGATATCATGCCAGCAGCGCCATTTGAAGATT spacer
length: 37 repeater length: 30
17792 831568 GTTTCATCCCTCTAAGGCCTGATTTTAAC ACTAAGAAAATGAAAGAGATTTTCTTTGGTGAAAC spacer
length: 35 repeater length: 30
17793 831633 GTTTCATCCCTCTAAGGCCTGATTTTAAC GAAAAAATGAATATCCCTTCTGGATCAAACAGAGAAGC spacer
length: 38 repeater length: 30
17794 831701 GTTTCATCCCTCTAAGGCCTGATTTTAAC TTAAGCAGGTTGCCCCATACCCTACAGACTGAGATT spacer
length: 36 repeater length: 30
17795 831767 GTTTCATCCCTCTAAGGCCTGATTTTAAC GTCTTCTTCGATTATCCATGGACTTAATCTTACCC spacer
length: 35 repeater length: 30
17796 831832 GTTTCATCCCTCTAAGGCCTGATTTTAAC GCTAAAAAGCGGAAACATGATAATGATGCTCATAA spacer
length: 35 repeater length: 30

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17797	831897	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	TTTTTTCGATTTCCAAATGGAAACCTTGGAATTCG	spacer
		length: 36	repeater length: 30	
17798	831963	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	ATTTCCATACAGATTTTCTGAATACCGCCATTTGAT	spacer
		length: 36	repeater length: 30	
17799	832029	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	CCCAACTGCTGAAGCAAATACTTTAGCCGTAGTCGT	spacer
		length: 36	repeater length: 30	
17800	832095	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	GTTTCTACAAGATATCATGTCCTTGAAAGTTACGTG	spacer
		length: 36	repeater length: 30	
17801	832161	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	CAGAGCGGAATGAGTAACAGTACTTTGTATTATGC	spacer
		length: 35	repeater length: 30	
17802	832226	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	TTGATATCTATTTCGTTGAAGCGATGGAGAACTTGAGG	spacer
		length: 37	repeater length: 30	
17803	832293	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	TGTTTCACACCAAGGGAGTGTTTTCCATCCGAATAT	spacer
		length: 36	repeater length: 30	
17804	832359	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	TGCAATTTCCGTAAAAGATATTCTCGATATTGCAAT	spacer
		length: 36	repeater length: 30	
17805	832425	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	AGTGCTGCTACTGTGTCTATAAATGGTTTATAACTAA	spacer
		length: 37	repeater length: 30	
17806	832492	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	AACTTATAGATTTTAAAGGGCTTCAAAAAGAATATCT	spacer
		length: 37	repeater length: 30	
17807	832559	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	TATCTAACTATTATTGAGCTGTCAGAAACATACAC	spacer
		length: 35	repeater length: 30	
17808	832624	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	GTATAGCTTAGACAGACAATCGTTTTTGTATTTAT	spacer
		length: 35	repeater length: 30	
17809	832689	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	TATATAAAATTTCAAGTTGGGGTTAAAGAAGAGCAC	spacer
		length: 36	repeater length: 30	
17810	832755	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	CATATTTGACATTTTAGATATTAAATTCACAGATTC	spacer
		length: 36	repeater length: 30	
17811	832821	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	AACACAGGAACCAGTAGAACAGGATCACCTAAATT	spacer
		length: 35	repeater length: 30	
17812	832886	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	TTATAATTCATGAGTTTCTTATTTACTTTCTTTATATG	spacer
		length: 38	repeater length: 30	
17813	832954	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	CTGCATTGCTCGTCCCTCCGATATCCCATGAATCAA	spacer
		length: 36	repeater length: 30	
17814	833020	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	CGACTTAAGACCAAACACTCCACTAAAATCATCATT	spacer
		length: 36	repeater length: 30	
17815	833086	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	AAAGTTTAGTTTTATTGCCAATCATCCTAATCCTC	spacer
		length: 35	repeater length: 30	
17816	833151	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	ACTGCTATGGGTGTGACTGCTGGGAGCCAATTAAAC	spacer
		length: 36	repeater length: 30	
17817	833217	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	ATCCTAATCCTCCAGCATTCCTTGAATACTTAGTTAG	spacer
		length: 37	repeater length: 30	
17818	833284	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	TCGTAAAAGATGCTTATATAAAAAGTGGATTTGAT	spacer
		length: 35	repeater length: 30	
17819	833349	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	AGAGTAAAACCCCTTGAAATCCTTCGGTAGCTGA	spacer
		length: 35	repeater length: 30	
17820	833414	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	CAATTTTTTAAATCCGTACAATTGTTAGAATTATA	spacer
		length: 35	repeater length: 30	
17821	833479	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	ATTTTTCAATTGCTCCGCCGCTCACCGTTGAACTC	spacer
		length: 36	repeater length: 30	
17822	833545	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	ACGTGTTGTACTCGGGAAC TAAGAAGATTATTCCTAAA	spacer
		length: 38	repeater length: 30	
17823	833613	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	TTTCCACCCGTATTGTTTCACATCCGTCACATTC	spacer
		length: 35	repeater length: 30	
17824	833678	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	ATTTATACTTATAATTCTAGGAATTATTATATATTGAT	spacer
		length: 38	repeater length: 30	
17825	833746	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	CTCTTATCCATACTGCTTCGTGTCTATGTCCAGGATA	spacer
		length: 37	repeater length: 30	
17826	833813	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	ATATTTTTAAGGTTTCATATGTGTTGCTCCAAAAAG	spacer
		length: 36	repeater length: 30	
17827	833879	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	GATACTAACAGGTGTCTGTGCATCGAGTTTGTACAG	spacer
		length: 36	repeater length: 30	
17828	833945	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	CAGACCCGCAGGCAACCCCGACTAGCTGCTTCCAAT	spacer
		length: 36	repeater length: 30	
17829	834011	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	AAGGGGCTTCTTGATGAAAGATTAAGACTCCTAGATT	spacer
		length: 37	repeater length: 30	
17830	834078	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	AGTATTTTGGGAGTTCGGGATATCCAGACTCAGAATA	spacer
		length: 37	repeater length: 30	
17831	834145	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	TATCGTTTGCATTAAGAATATCAGTTATAGACACA	spacer
		length: 35	repeater length: 30	
17832	834210	GTTTCAATCCCTCTAAGGCCTGATTTTAAC	CTTTTGCCTGGATTCCGTCTGTTTCTCTCCATGCGG	spacer

length: 36 repeater length: 30
17833 834276 GTTTC AATCCCTCTAAGGCCTGATTTTAACT ACTAAATCAGGTCCGCCTGTATGATCATATCTTGCATT spacer
length: 38 repeater length: 30
17834 834344 GTTTC AATCCCTCTAAGGCCTGATTTTAACT GTTCGAGATCAAATGATAGATTATATTTTACTATTAC spacer
length: 37 repeater length: 30
17835 834411 GTTTC AATCCCTCTAAGGCCTGATTTTAACT AAGGACAATACTTGCTGGATATATTTTTGATTCAAC spacer
length: 36 repeater length: 30
17836 834477 GTTTC AATCCCTCTAAGGCCTGATTTTAACT TTTCTTTTGCTAGCCAGTCCTGAATTTCAAGTTCA spacer
length: 35 repeater length: 30
17837 834542 GTTTC AATCCCTCTAAGGCCTGATTTTAACT TACAGGGTTA
17838
17839
17840 GCA_000970005.1_ASM97000v1_genomic.fna (PilerCR):
17841 START REPEAT
SPACER
17842 crispr 1
17843 2069159 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTTGGAAAACAATTTGCCAGAAGACAAGAAGATTA
spacer length: 35 repeater length: 37
17844 2069231 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CTGAGGATAGGAATACCGGAAAGAGAAACCCTGCTTG
spacer length: 37 repeater length: 37
17845 2069305 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AAAAGAATAGGAAACATGATAACGGTTACAATAACT
spacer length: 36 repeater length: 37
17846 2069378 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ATAAATAAAAATATTAAATCGGCTTATGAGCTAAA
spacer length: 35 repeater length: 37
17847 2069450 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TCCCCAAACTCGAAGGGGGATTGAAGTATGTCCAACA
spacer length: 37 repeater length: 37
17848 2069524 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGCCCCAAATGTGGGGAACCCTCATTTTATGCAGGGTT
spacer length: 38 repeater length: 37
17849 2069599 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CTGAAATATATGGATCTGATATCGTCGCAGTTGT
spacer length: 34 repeater length: 37
17850 2069670 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
17851
17852
17853 crispr 2
17854 2075092 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTAAAAAACAGAAATGGATTGCAACATAAGAGGCC
spacer length: 38 repeater length: 37
17855 2075167 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CTTCTGTAAGAATAAGTTGCATTACCACCCTAAAAT
spacer length: 36 repeater length: 37
17856 2075240 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTCATTGATGATAAGGTGACGAGAGTTGTAGTAAA
spacer length: 36 repeater length: 37
17857 2075313 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AGAGAGGAGATGCATATGGGACACTTTGTCCTGTAA
spacer length: 36 repeater length: 37
17858 2075386 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TAGTCCAAGCATACGGTCTAGAATGGGGATCAG
spacer length: 33 repeater length: 37
17859 2075456 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC GGTCCACCCAGGACCATCGAACCGGGAGACATAATAAA
spacer length: 38 repeater length: 37
17860 2075531 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TATTTTCAATTGTGTTGTTCTCTACCAGGATTCTG
spacer length: 36 repeater length: 37
17861 2075604 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TATAGTGCCGTTTTTAAACGGAGGGCTATTAAGC
spacer length: 33 repeater length: 37
17862 2075674 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ATCAAACAAAGAAATTAAAGACCTTCGTGCCGAT
spacer length: 34 repeater length: 37
17863 2075745 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC GGACGAAGTAGCATACATAACCGGTGCTGCACC
spacer length: 35 repeater length: 37
17864 2075817 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTGGTATACAGTAGGTCAAGAAGTGATTCTCCCTGA
spacer length: 36 repeater length: 37
17865 2075890 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC GGTCGAACGACCCATCTTTATTGGTAGATATGTCCAG
spacer length: 37 repeater length: 37
17866 2075964 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC GGCATGTCGGATATTAATCGCGATTGCGTGTTAGA
spacer length: 35 repeater length: 37
17867 2076036 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC GTTTTGTAGAGTGTTGAGTATTGAGTATTGAGTATT
spacer length: 36 repeater length: 37
17868 2076109 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
TAGGTAAGATCGTTGAAAAATACGACCCCGCAATAAT spacer length: 40 repeater length: 37
17869 2076186 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGTAACGCAAGCTTTTTGAAAACCCGATAGGG
spacer length: 33 repeater length: 37
17870 2076256 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TATGGGATGTACAGGAGCTTCTTGAGAGCAAGAATGTC
spacer length: 38 repeater length: 37
17871 2076331 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TAGGTGTTTATCTTTGGACTGCAAAAAATGAACAGG
spacer length: 36 repeater length: 37
17872 2076404 GTTTC AATCCCTTGTTTTGCTGGAAGCTGTTTTTCAAC GACGATGGCTGCTCTAATGTTTGTATTTTTTCATCATG

spacer length: 37 repeater length: 37
 17873 2076478 GTTTC AATCCTTGT TTTTGCTGGAAGCTGTTTTTCAAC TTCCTTTGGAAAATCGCGAGAATCACCATAATACGGCA
 spacer length: 38 repeater length: 37
 17874 2076553 GTTTC AATCCTTGT TTTTGCTGGAAGCTGTTTTTCAAC
 17875
 17876
 17877 crispr 3
 17878 2969860 GTTAAAAATCAGACCTTAGAGGGATTGAAAC GTGAGATACTCGATAAGAATCTTATCATCTTCTCTGC spacer
 length: 37 repeater length: 30
 17879 2969927 GTTAAAAATCAGACCTTAGAGGGATTGAAAC ACTTTACAGCCCCCTTTTACTGGTGACCTATAATATT spacer
 length: 37 repeater length: 30
 17880 2969994 GTTAAAAATCAGACCTTAGAGGGATTGAAAC CTTCTGTGCTGCAACGGTATAGGCTGCAATGACAGT spacer
 length: 37 repeater length: 30
 17881 2970061 GTTAAAAATCAGACCTTAGAGGGATTGAAAC ATATTTACTTTGGTTTGACATATTATCACTCCTCG spacer
 length: 35 repeater length: 30
 17882 2970126 GTTAAAAATCAGACCTTAGAGGGATTGAAAC GCTTTCTGTTGAGATGCTGCGGTGTGTGAATATAAAA spacer
 length: 37 repeater length: 30
 17883 2970193 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TAATACACATCAGTACAGACATTATTTCCCATGTGATC spacer
 length: 38 repeater length: 30
 17884 2970261 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TTCAGGACAATAATCAGCCCGCCTGATGTCACACT spacer
 length: 35 repeater length: 30
 17885 2970326 GTTAAAAATCAGACCTTAGAGGGATTGAAAC AGCACCATACTCAACCATCTGTTCTGGTGTCAGCTCC spacer
 length: 37 repeater length: 30
 17886 2970393 GTTAAAAATCAGACCTTAGAGGGATTGAAAC GTTCTTACGTTTCCTTTTCCTGATAGGAATAACATA spacer
 length: 35 repeater length: 30
 17887 2970458 GTTAAAAATCAGACCTTAGAGGGATTGAAAC GAGTCATATCATTATCATGATTATAAAAAATACATT spacer
 length: 35 repeater length: 30
 17888 2970523 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TTCAAGAAATATGTAGAGGCTATGATGTTCTATAAGAA spacer
 length: 38 repeater length: 30
 17889 2970591 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TTCTTCTACTGCTTTAATGCCTCCAATAAGGAGAGCAT spacer
 length: 38 repeater length: 30
 17890 2970659 GTTAAAAATCAGACCTTAGAGGGATTGAAAC ATAGCGTTTTTAAGCGATATGGGCTGTACACGCTG spacer
 length: 34 repeater length: 30
 17891 2970723 GTTAAAAATCAGACCTTAGAGGGATTGAAAC GTGCCTGCAAGGCAGACACCATTACCCAGATAGCAGA spacer
 length: 37 repeater length: 30
 17892 2970790 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TATGATTTCTTCTTCTTAACAACCTACGTGAACCTCTA spacer
 length: 36 repeater length: 30
 17893 2970856 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TTTTCATCTTTTACGCTAGAACTCCTGAACTCAGAAT spacer
 length: 37 repeater length: 30
 17894 2970923 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TTAACAAGGTCTTCGACTGCATCGATAGCGAAGG spacer
 length: 34 repeater length: 30
 17895 2970987 GTTAAAAATCAGACCTTAGAGGGATTGAAAC ACAGATACCGAAATTGAAGAGGTAATAAAGAAAATT spacer
 length: 36 repeater length: 30
 17896 2971053 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TGTTACGCCATAGTCAAGGCTCCGATAGATATCGC spacer
 length: 35 repeater length: 30
 17897 2971118 GTTAAAAATCAGACCTTAGAGGGATTGAAAC ACAACCGGAGCAAACCTTAAACCGTTCTTGAAAT spacer
 length: 35 repeater length: 30
 17898 2971183 GTTAAAAATCAGACCTTAGAGGGATTGAAAC GTGCTAACGGAACCTGGTTTTGGGGTATGTAATGTATG spacer
 length: 37 repeater length: 30
 17899 2971250 GTTAAAAATCAGACCTTAGAGGGATTGAAAC CTAGCACAAGCTGAACAGGCTTCGGGAGTGCTGAAAACCC
 spacer length: 40 repeater length: 30
 17900 2971320 GTTAAAAATCAGACCTTAGAGGGATTGAAAC GTGTACCCTGATGGATTTATCTTAAGATCAGGATGCA spacer
 length: 37 repeater length: 30
 17901 2971387 GTTAAAAATCAGACCTTAGAGGGATTGAAAC GAATCATGTATCTCTATAACTCTCTAAATCATTATACTA
 spacer length: 39 repeater length: 30
 17902 2971456 GTTAAAAATCAGACCTTAGAGGGATTGAAAC
 GAAAAAGACATGACGGTAATGAATACTGATCGTATACGAATCAGTA spacer length: 46 repeater length: 30
 17903 2971532 GTTAAAAATCAGACCTTAGAGGGATTGAAAC GTAACACGTCCCCCTAATCTCGTTGGGGGAAACTTG spacer
 length: 36 repeater length: 30
 17904 2971598 GTTAAAAATCAGACCTTAGAGGGATTGAAAC
 17905
 17906
 17907 crispr 4
 17908 2980358 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCCGTTTTTCTCTTACTACAATACCCTATACGCGCC
 spacer length: 37 repeater length: 37
 17909 2980432 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CGGAAGTGAGCCGAATAAAGCCAGGGGTCCGCAGT
 spacer length: 35 repeater length: 37
 17910 2980504 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTGTCCTCTCACATGGTCACAATGCCCGAATATTT
 spacer length: 36 repeater length: 37
 17911 2980577 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTGCGCAAATTCTGCTATAGAGGATTGTGATTTTGAG
 spacer length: 37 repeater length: 37

17912 2980651 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTTGTTTGCATGCCTATACCATCTGCAATGAATCCA
spacer length: 36 repeater length: 37
17913 2980724 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TACGTGATATCGACGCTCGCGACTGTGCCATTTATT
spacer length: 36 repeater length: 37
17914 2980797 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
TTTCCTCTCTTCTTATTGAGGATAGCCTGAACTATTTTAATTTCTG spacer length: 46 repeater length: 37
17915 2980880 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TATATGATAAGTGCCTAGTAGTAGTGTAGTAAA
spacer length: 33 repeater length: 37
17916 2980950 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CACTTAACAAATTCTACAGCTTCACCCGACGGGCAA
spacer length: 36 repeater length: 37
17917 2981023 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TACCGTTTTTTTGACCAGTCCTCAGAAGGTGTTATA
spacer length: 35 repeater length: 37
17918 2981095 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATAAATCCGTTTTTTGTAGTCATGTCTATTGATTCCG
spacer length: 36 repeater length: 37
17919 2981168 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTCCTTGTATGGTTGGGTTTTGTTTCTTGTTTT
spacer length: 34 repeater length: 37
17920 2981239 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCGATGTGCGGTATCTTGCAACTCTACATGCAACC
spacer length: 35 repeater length: 37
17921 2981311 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GTCGTCAAGTGAAACCTCCGCGAATGAAGTCGGGGT
spacer length: 36 repeater length: 37
17922 2981384 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AATACAACGGCTTTTTTTCCATATCTTGACCAGGGG
spacer length: 36 repeater length: 37
17923 2981457 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
17924
17925
17926 crispr 5
17927 2981911 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CGAAGGAAACAAATTAATCCACGTTTCAACCGCCCTG
spacer length: 37 repeater length: 37
17928 2981985 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
TTTTTCCATAGGCTTCCACTGCCTGAATAATTGTCCCT spacer length: 39 repeater length: 37
17929 2982061 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAAATGAATCATATACTAGGACAAATCGAAACCGA
spacer length: 36 repeater length: 37
17930 2982134 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGATCCACACAGCCTTATAAAAGTCGAAGGGAAT
spacer length: 34 repeater length: 37
17931 2982205 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCGTCTCCGGGTTTGTGCGTCATAGTAGTATCCTCAA
spacer length: 37 repeater length: 37
17932 2982279 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTGTTTCAGGTGGTCCTGAAAGCCGTATCCAAGACT
spacer length: 36 repeater length: 37
17933 2982352 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TACTCTCCCATACTCTATTAATTCGTCTTCTGTGA
spacer length: 35 repeater length: 37
17934 2982424 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TATATGATAACTGCGTATAGGAGTATTGTAAGATCACA
spacer length: 38 repeater length: 37
17935 2982499 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TAATGGGGGCGTCTTCTCTTTTGCATCAAATATACAT
spacer length: 38 repeater length: 37
17936 2982574 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AAATATACTCAAACGCCATTTCAAGATTGCACCCTCT
spacer length: 37 repeater length: 37
17937 2982648 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTTACCTGGATCTTATGCTTATGTCTATGGAAGAA
spacer length: 35 repeater length: 37
17938 2982720 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGAAAGATGTGTACACACTTGTCTCTGAAAACGAGA
spacer length: 36 repeater length: 37
17939 2982793 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGTGTGCTCCGAGGCAGGATGTTCTTTCAAGGATG
spacer length: 35 repeater length: 37
17940 2982865 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
17941
17942
17943 GCA_000970045.1_ASM97004v1_genomic.fna (PilerCR) :
17944 START REPEAT
SPACER
17945 crispr 1
17946 2278122 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TCCCATGCTTACTCGTGCTGCAGGTCAGACTACTCAA
spacer length: 37 repeater length: 37
17947 2278196 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CTGACCAAAATATCAGGATTACCAATAGATTACCGTA
spacer length: 37 repeater length: 37
17948 2278270 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCAAGAAT ACTGCCTTATGGACAACCTGGTGACGGCATTGTGTTATT
spacer length: 37 repeater length: 37
17949 2278344 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCAAGAAT GAGCTGAACGAACCTGACAGGACAGACGCGAAGAT
spacer length: 35 repeater length: 37
17950 2278416 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TTCCTGGTATCCGTCTTTCTCTCCCTCGTAACCGAAA
spacer length: 37 repeater length: 37
17951 2278490 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TTCATACACTGTTTGTTCCTCCGTTTATCATC
spacer length: 32 repeater length: 37

17952 2278559 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT ACGCGTTACAAGGTCCCAAGCTTCAGGCAGTGTAA
spacer length: 36 repeater length: 37
17953 2278632 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT AAATTCACGGAGGGCGCTCAGGCTCTCGTCGGGTA
spacer length: 35 repeater length: 37
17954 2278704 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT ACCGCACTCACTGAGGTAGCCATGAGTCAGGACGT
spacer length: 35 repeater length: 37
17955 2278776 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT GGGTGTGAGTTGGAACCTTCTTTTGCATTGAAATGT
spacer length: 36 repeater length: 37
17956 2278849 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT AAATTAGAGTTGTATCGACAAGAGAAGAATTACATC
spacer length: 36 repeater length: 37
17957 2278922 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT GCCATTCTAGGTGTGGCGATTATTGGAAAGGAACTGA
spacer length: 37 repeater length: 37
17958 2278996 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT GCCATTCTAGGTGTGGCGATTATTGGAAAGGAACTGA
spacer length: 37 repeater length: 37
17959 2279070 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TTATTCCAATGTCAAAGGCCACTTTGATGGAGGATGA
spacer length: 37 repeater length: 37
17960 2279144 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CCGGGGATTTCTCGGGAGGAAAGGGAGAAGTTGGA
spacer length: 35 repeater length: 37
17961 2279216 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT ATAGGCGGTTGCATAGGCATTATAATCTTTGTACCTC
spacer length: 37 repeater length: 37
17962 2279290 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CGGTGTTAAACAGTTAGAGAGATGATGGGATACTCCA
spacer length: 37 repeater length: 37
17963 2279364 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TCATACGCGGTTGCGGGGATAGTGCGTATTTGCGGT
spacer length: 37 repeater length: 37
17964 2279438 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CTGAATCCGGCATAACCGTCTACAAAATGGACCGATG
spacer length: 36 repeater length: 37
17965 2279511 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CTGCCGTCTGGCATGGTTTCCACGTGCTCGAAATCTT
spacer length: 37 repeater length: 37
17966 2279585 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT
17967
17968
17969 crispr 2
17970 2279658 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT
TACAGCAGCACCTACGCGTGCGGCGATTACACCGGCAGGCCCAAATTTA spacer length: 49 repeater length:
37
17971 2279744 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CGGTCGGGAAGCCTGCCCCAACTTGATTTTTTTGG
spacer length: 35 repeater length: 37
17972 2279816 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CTCTCCGTTTCCCGTCCCGCTTAATAGCTGCTGGA
spacer length: 36 repeater length: 37
17973 2279889 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT GTTCTCAGTGCGTTTGTACGGGATAACCTGATTCT
spacer length: 36 repeater length: 37
17974 2279962 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TCTTACTGTATACTCTACTATGCAACCTAAACTA
spacer length: 34 repeater length: 37
17975 2280033 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT
TTATACATACATATACATATACATATACTTACTCTCTA spacer length: 43 repeater length: 37
17976 2280113 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT GATCTCCCTGCAGTCTTCCAAAATTCAGGATTTT
spacer length: 36 repeater length: 37
17977 2280186 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT ACGTGGACCTCGGGGCCACATATTCAAATCCAATA
spacer length: 36 repeater length: 37
17978 2280259 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TCAGCCCCCTACCCTGCAGTCGTGGAATGAGAGTGT
spacer length: 36 repeater length: 37
17979 2280332 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CTGAATAAAATCTGTGATACTTTTCACGATGAAT
spacer length: 34 repeater length: 37
17980 2280403 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TTAGCCCCCTTTTGTAGTACCCGAAGCCGCCGACTGC
spacer length: 35 repeater length: 37
17981 2280475 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CTCAGCCGACTACGCCACCACACCAGTACAATACAG
spacer length: 36 repeater length: 37
17982 2280548 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT AGGATATTTGACCAATAGTTCACCCTCCAATATTTT
spacer length: 36 repeater length: 37
17983 2280621 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CCGTTTTTCGAAGTTTTATATGAACCGTGGTATAAA
spacer length: 35 repeater length: 37
17984 2280693 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TCATTGATTTTTGGGTCCGTGTCCGTTGCCATGCT
spacer length: 36 repeater length: 37
17985 2280766 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CCGGGATCATTGACAGAATAGACTGTGGAGTATAT
spacer length: 35 repeater length: 37
17986 2280838 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TTTTATAATCCTGATATTTCCGGAAAATTGAAGGCT
spacer length: 36 repeater length: 37
17987 2280911 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT ACGCATCCGAATGGACCGACGTGGCCACCAAGTGGAA
spacer length: 36 repeater length: 37
17988 2280984 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CCTATTGAAATATGTCTCAGGCAGGGACACACAGAAC
spacer length: 37 repeater length: 37

17989	2281058	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT	ACCAACATCCGGAAGAATGGCATAACCCGGATTTCAA
		spacer length: 37 repeater length: 37	
17990	2281132	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT	ATCACAAATGGGTAAACTATGAATCTCTCAAAAGA
		spacer length: 36 repeater length: 37	
17991	2281205	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT	TGTATGAATTTATGAGAGAAAAAGGGGAATTTTGAC
		spacer length: 36 repeater length: 37	
17992	2281278	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT	ATTTCCGGGTCGATGGTCCTGAAAGTAGGCGGGACAA
		spacer length: 36 repeater length: 37	
17993	2281351	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT	
		AAATCGTTATTATTTCCCGTGGGAAAATAGACCCCTCTAT	spacer length: 39 repeater length: 37
17994	2281427	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT	GGCCAAAATCCCTAAATGCCTACTCCCGGAAGTGATC
		spacer length: 37 repeater length: 37	
17995	2281501	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT	ATAGATAGCTCGGGCAACGGAAACAACGGGACGA
		spacer length: 34 repeater length: 37	
17996	2281572	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT	GCCTTTGTCCCGTCCGATGTGTATATACCATTCCGG
		spacer length: 36 repeater length: 37	
17997	2281645	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT	AAAAGGCACTCATGCTGCAGGGGACCGGATCAAACGG
		spacer length: 37 repeater length: 37	
17998	2281719	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT	
17999			
18000			
18001	crispr 3		
18002	2794712	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TACATTATTTGTGGATATTTGTATCCAACTTTCACCA
		spacer length: 37 repeater length: 37	
18003	2794786	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	AATTCGACGATATTCATGTTGCTGCGTAAATAAAA
		spacer length: 36 repeater length: 37	
18004	2794859	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	AAAGTGTAAGATCAAAAAAAAAATATATGATTA
		spacer length: 34 repeater length: 37	
18005	2794930	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	CGAAATACGCGACCCTGACCACGGCCAAGTTGACCA
		spacer length: 36 repeater length: 37	
18006	2795003	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ATTTTGTGCTAGTGATGGTCGGGGCGGTGAAGGGGG
		spacer length: 36 repeater length: 37	
18007	2795076	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	GTGAACTCGCCATGCTCAACGCAATTGCTCAGGGTA
		spacer length: 36 repeater length: 37	
18008	2795149	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	CCGAAAACGCAAACTATAAATATTGAAATCTGT
		spacer length: 34 repeater length: 37	
18009	2795220	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TGATTCTTACTGGTTAAATGCTTCTTTACACCCTGA
		spacer length: 36 repeater length: 37	
18010	2795293	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TTACCGTGTACCCTGCCGCCGTAGCCTGGGATGTT
		spacer length: 35 repeater length: 37	
18011	2795365	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	AAATGGGTACGTTACTGACCGACATTAAGACACTG
		spacer length: 35 repeater length: 37	
18012	2795437	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	AGGAATGGATAGAAGAACTCAAAGCCGATTCTGAGG
		spacer length: 36 repeater length: 37	
18013	2795510	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ATATAAACCCAACTACCCTAGGGTATGTAATTTCAA
		spacer length: 36 repeater length: 37	
18014	2795583	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TGTCTGAGAATTAAATCCCCTGTCCCGACAGTGTA
		spacer length: 36 repeater length: 37	
18015	2795656	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TTGAAAATGACTGATTGACGCAATCAAACAGGTCCC
		spacer length: 37 repeater length: 37	
18016	2795730	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ATTTGCACTGCGCCCCCGTAGAGGGTTGCGTCGATG
		spacer length: 36 repeater length: 37	
18017	2795803	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TGTGTTATCCATGAGCTGACGGCCAATATTACAA
		spacer length: 35 repeater length: 37	
18018	2795875	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	AAAATCCTGCAGTTTCTGGGAAATTGCAGGCAGC
		spacer length: 34 repeater length: 37	
18019	2795946	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	CTCTTTCATTGTGGGCTGTGTAAATTTGAGCCCCG
		spacer length: 35 repeater length: 37	
18020	2796018	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ACAGTTACAACTTCTGTATTAGTTCTTTGTCCATC
		spacer length: 36 repeater length: 37	
18021	2796091	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ATGACGTTCCCAGTGATTGATATATTTTCCAATGTG
		spacer length: 36 repeater length: 37	
18022	2796164	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	CAGTACCAATTATTTCTAAAATATTACAATTGTTTT
		spacer length: 36 repeater length: 37	
18023	2796237	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	
		TATATAGCACTATCTTTTACATAGCCAAAGCTATACATT	spacer length: 39 repeater length: 37
18024	2796313	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ATAATTATCTAACAAATCTTAAAATAGCTTTGGCCGA
		spacer length: 37 repeater length: 37	
18025	2796387	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TACACCTCATCCACAGAAAAACCGGTCCATTCAACAAG
		spacer length: 38 repeater length: 37	
18026	2796462	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	CCATCAGAGATAAAGCTCTGATAGCTTTTTTTATA

spacer length: 34 repeater length: 37
 18027 2796533 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TTTAAGCGGATTCTCCAAAAAATCAAAGACGAATGG
 spacer length: 36 repeater length: 37
 18028 2796606 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC GAAAAATATTGGGACACCCTACGTAACCTGGGATATG
 spacer length: 37 repeater length: 37
 18029 2796680 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TACCCGCCCTCAAATGTTTCTGAGATGATCCCGGTGT
 spacer length: 37 repeater length: 37
 18030 2796754 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ATACTCCTTCTCCCTTCTCCGGCTTTGTGTTTCAGTC
 spacer length: 36 repeater length: 37
 18031 2796827 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TTGAATGGGTAGTTATAGGGCGTTCACCGTACATA
 spacer length: 36 repeater length: 37
 18032 2796900 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ACCATTGTTTCGCAACCTGCCCCGAGTGGTAAAACT
 spacer length: 36 repeater length: 37
 18033 2796973 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TTGTATTGTAGGTAAATGTACCTACGGAGGATCTAC
 spacer length: 36 repeater length: 37
 18034 2797046 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC AGTGTGCTATACATTTTGGGAATGTATTGATTT
 spacer length: 34 repeater length: 37
 18035 2797117 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC AAATCTGATGTTGGGGGAGATGTGACCTGTTCTGAG
 spacer length: 36 repeater length: 37
 18036 2797190 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ATTTTAAAGAGGTCCAAACCATGCCAAAAGTATCT
 spacer length: 35 repeater length: 37
 18037 2797262 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TGTTTACTATTTGTGTTCTTACTTTCCCTCCAAAATTC
 spacer length: 38 repeater length: 37
 18038 2797337 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ATAAGTCCACGATGAAAAAACGGGCTTGAAGGGATTT
 spacer length: 37 repeater length: 37
 18039 2797411 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC AAAAAGTATAAGGTATGATGTATCTACGAGATTGCA
 spacer length: 36 repeater length: 37
 18040 2797484 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ATCTATTATCCCGAATTAAAACTGTGCAGAAGC
 spacer length: 34 repeater length: 37
 18041 2797555 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TAAGTGCGGCCCTTTGTAGCCAGTAAAGCCCCTGCAAA
 spacer length: 37 repeater length: 37
 18042 2797629 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TCCCCGAGTGCCCCGCCAGAGGTTCCAGGAATTCAA
 spacer length: 37 repeater length: 37
 18043 2797703 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TTGAAGCCGGTATAGGATGGGCTGAAGAAAATAAC
 spacer length: 35 repeater length: 37
 18044 2797775 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC GTATTTGGAGACATAACAGCCCGTAATACAGGCAT
 spacer length: 35 repeater length: 37
 18045 2797847 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC CGTAAACGGTGCATCAGGCTACACTCTTGAATGCG
 spacer length: 35 repeater length: 37
 18046 2797919 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TTTTGTACCATCTGGTACTCGGTCATGAGCCCCAT
 spacer length: 35 repeater length: 37
 18047 2797991 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TATGGATACTCCTTTCTTGAACTTGCGGCGGGGA
 spacer length: 35 repeater length: 37
 18048 2798063 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ATCATATTCATGATTTTCTATTACACATCCTTAA
 spacer length: 36 repeater length: 37
 18049 2798136 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TTCATACAGTCACCCCAACCAACCAAGAATTTTTTA
 spacer length: 36 repeater length: 37
 18050 2798209 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TTGAGATAAAAGACTCTACTCAATTTGAAAACCGGCCA
 spacer length: 38 repeater length: 37
 18051 2798284 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ATGGGAGTTGAAGCTGTTGCCGATGCCATGACCGG
 spacer length: 35 repeater length: 37
 18052 2798356 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ACAATTTTGAAAAATTGCTTGTAATCCATATAAAAA
 spacer length: 36 repeater length: 37
 18053 2798429 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TCCGGATTGTTAAGTGTTTTTGTGATTTCTTGTTTT
 spacer length: 36 repeater length: 37
 18054 2798502 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TTCTGTTGTTCAATAGAATGGTAAGAAATTAAAT
 spacer length: 34 repeater length: 37
 18055 2798573 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TTCTGTTGTTCAATAGAATGGTAAGAAATTAAAT
 spacer length: 34 repeater length: 37
 18056 2798644 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC GTAACCGAGTTTGAATTGTTGGTCAGGAAATCATAA
 spacer length: 36 repeater length: 37
 18057 2798717 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TAATACCAACCGGTCGCACCTGGCATGTTAGGGAAGT
 spacer length: 37 repeater length: 37
 18058 2798791 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC CACAACAGCAATAATAAAATGAGTACCCGGAACAA
 spacer length: 36 repeater length: 37
 18059 2798864 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC CACAACACATTATACATCATGGCAATAGTCATACAC
 spacer length: 36 repeater length: 37
 18060 2798937 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC CACAACACATTATACATCATGGCAATAGTCATACAC
 spacer length: 36 repeater length: 37
 18061 2799010 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ACATTCTCGATGTCCAAGTGTTCGCCATTCTCCA
 spacer length: 35 repeater length: 37

18062	2799082	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ACC GTTGTGCTCCTAACGGCTCCACACAATCAACA
		spacer length: 36 repeater length: 37	
18063	2799155	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TGTCACTGTGTCGATCTGCAGGACTCCGTTTTTTCCT
		spacer length: 37 repeater length: 37	
18064	2799229	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	AATAGAGAATTTTTTGTATCTGGCGCAAAGTTCTGAA
		spacer length: 36 repeater length: 37	
18065	2799302	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TATAAAAGATATGAAAAATGCGGAGATGGCAGAAAG
		spacer length: 36 repeater length: 37	
18066	2799375	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ATTGGTCTTCGGTCAAGGCTTGCTTTTTGAGAGCAGG
		spacer length: 37 repeater length: 37	
18067	2799449	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TTCCCTGGGGATTATTATATCTGGATCTCGTGATCC
		spacer length: 36 repeater length: 37	
18068	2799522	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	GATACTGTATACATAGCATGTGAGGGAAC TTCTAATAA
		spacer length: 38 repeater length: 37	
18069	2799597	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TAATCCAGCAATCGCCCTCAAAAATATGATCAGTAT
		spacer length: 36 repeater length: 37	
18070	2799670	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TAAGTATCAGCGTAAAGATCTGATATAGATTCTA
		spacer length: 34 repeater length: 37	
18071	2799741	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	AATTTGCATATAAACAATATAATCATTATTTTCGTTT
		spacer length: 36 repeater length: 37	
18072	2799814	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	AAAAAGCGTCCATGTCATCCACCCCTTAAATTA
		spacer length: 34 repeater length: 37	
18073	2799885	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	CACTGAACTAAATCAGCTATCGGAAGATCAATTAAAG
		spacer length: 38 repeater length: 37	
18074	2799960	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TTGATAAGCTCCTCAATAAAGTCTCGGTAATCCTCA
		spacer length: 36 repeater length: 37	
18075	2800033	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TAAGATTAAATCTTCATCTTCAGGTGCTAAAAAAG
		spacer length: 35 repeater length: 37	
18076	2800105	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	
18077			
18078			
18079	crispr 4		
18080	2803923	CTGTCCGCGAGCAAAATCCACTAAAACAAGGATTGAAAC	CAAGACGTTGACCGATTCCCACGCAATGCAGTTT
		spacer length: 34 repeater length: 39	
18081	2803996	CTGTCCGCGAGCAAAATCCACTAAAACAAGGATTGAAAC	TTCAGGATCAACTGAAAACGCCTCAATATCTCTAAA
		spacer length: 36 repeater length: 39	
18082	2804071	CTGTCCGCGAGCAAAATCCACTAAAACAAGGATTGAAAC	
18083			
18084			
18085	crispr 5		
18086	3675721	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	AACGCTCGCCACATGTCCGCGCCCTACCTCGATATTTT
		spacer length: 38 repeater length: 37	
18087	3675796	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	GGTCATCATCTGCGGGAGTCTCGGTTTGACTAGATCGT
		spacer length: 38 repeater length: 37	
18088	3675871	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	GATACCGGGCAGGAGGCATTGCGAGGGTGCTTTAA
		spacer length: 35 repeater length: 37	
18089	3675943	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	GGCGCGGAGAATGGAATTTTCGATTATGTTTTTTCAG
		spacer length: 37 repeater length: 37	
18090	3676017	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	TGCTTTATTAGGGTTGAAACTGCAAATTTATCTG
		spacer length: 34 repeater length: 37	
18091	3676088	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	TGTAGGTGTAAATATTCCAAAACTGAAAGATTATA
		spacer length: 36 repeater length: 37	
18092	3676161	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	CCTCCACAGATACCCCGGCGTTTTTCATGGTCTCAT
		spacer length: 36 repeater length: 37	
18093	3676234	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	ATTTAGAGAAAACCGCATAAGCGGGTTTCGACTTTT
		spacer length: 36 repeater length: 37	
18094	3676307	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	GTATTGGAACTATATGTACACTACAGCCAAAAG
		spacer length: 34 repeater length: 37	
18095	3676378	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	TTTTACCATCCTGATTTTCATGACCTATCATGCAAATA
		spacer length: 37 repeater length: 37	
18096	3676452	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	GCAGCCACGGCGGCGGTTTTTGTTGGAATCAGGTATAC
		spacer length: 38 repeater length: 37	
18097	3676527	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	CCTTTCCAATATTGGAAAGTGCCGGAAGATGTATCG
		spacer length: 36 repeater length: 37	
18098	3676600	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	CTAGACGGCGGGAACGTTCCCATATCTACAGCATT
		spacer length: 35 repeater length: 37	
18099	3676672	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	CAGGTCCAGTTACGGCAGCCCATAGCCCAAACATA
		spacer length: 36 repeater length: 37	
18100	3676745	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	ACAAGCTCAGCGCCACCAGCCAGTGGAACAGTTCAG
		spacer length: 36 repeater length: 37	
18101	3676818	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	CCGAGTTTACCCCGCCCGCGTCAAAACACATATCAGA

spacer length: 37 repeater length: 37
 18102 3676892 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CTAATGAATCACTCTCACCCCCGACCGGTGATATAA
 spacer length: 37 repeater length: 37
 18103 3676966 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TTTAGAAACTGGGATAAAGAGCTACTTGAAGACTTT
 spacer length: 36 repeater length: 37
 18104 3677039 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TCAGCGAAATCTTTACACCAATGTAATTGAATTTCT
 spacer length: 36 repeater length: 37
 18105 3677112 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ACAAAAATGTAAGACACGAATAGAAGAGAACGTACAA
 spacer length: 37 repeater length: 37
 18106 3677186 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC GCTATATGTGTTGTGACAATTCGGGGCTCATTTGA
 spacer length: 35 repeater length: 37
 18107 3677258 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AAAGCCATGTGATACGACAGGGGAGAGAGAGAATAAG
 spacer length: 37 repeater length: 37
 18108 3677332 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ATAGCCCTTGGAGCATGTATGGCTATGGTCCTCAT
 spacer length: 35 repeater length: 37
 18109 3677404 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC GGCTGAGAGAAATACAAATAGCTGGAGCATTACGAT
 spacer length: 36 repeater length: 37
 18110 3677477 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ACCATGACCAGCGACTTCATCGATAACGGAAACGAG
 spacer length: 36 repeater length: 37
 18111 3677550 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC
 18112
 18113
 18114 crispr 6
 18115 3677798 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TTGTTTCTATTACCTCGATCAATCGACCAAGTTTTT
 spacer length: 36 repeater length: 37
 18116 3677871 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CCCTTCATCATCTATGAGCCTGCTTCCATCATCTT
 spacer length: 35 repeater length: 37
 18117 3677943 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CCCGGTAATTCGTGCCTACATCAGCTTTTGGCGTTGTG
 spacer length: 38 repeater length: 37
 18118 3678018 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TTTATCAAAGTGACTGGTCCACTTGAAGCAGGCCCTGA
 spacer length: 38 repeater length: 37
 18119 3678093 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC
 18120
 18121
 18122 crispr 7
 18123 3680370 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TGTTGTCTTCTGTCTGCTGAGAGCCCCGCCATGA
 spacer length: 35 repeater length: 37
 18124 3680442 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CGTTGCTGAATATTTTCGGTTTTTTTCGATGAGTTGAG
 spacer length: 36 repeater length: 37
 18125 3680515 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TTCTGAACAAAATCTGCGAGCGTTTCCACGATGAAT
 spacer length: 36 repeater length: 37
 18126 3680588 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CGGGATAACAGATATATTAAGCATGGAGTGGAAAAAG
 spacer length: 37 repeater length: 37
 18127 3680662 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC GAACTCCATCAGGTCATCAGATGCGCCGAAAACTA
 spacer length: 35 repeater length: 37
 18128 3680734 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TCCCCAAAGGTGTGACGCCCCGAAGCTTTGCAACAGA
 spacer length: 37 repeater length: 37
 18129 3680808 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CTGAAATACATCCAGCAGAAAATACAATAATTAATA
 spacer length: 36 repeater length: 37
 18130 3680881 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CAGGACAAAAGTTTCCAAATGCTGCAATTCTCTTTT
 spacer length: 36 repeater length: 37
 18131 3680954 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CACTTCCATATCTTTTAAAATGGTCACATAATAT
 spacer length: 34 repeater length: 37
 18132 3681025 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ATATCAGGAATCAATAACCGGCTTCGGTGACTACA
 spacer length: 35 repeater length: 37
 18133 3681097 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AATAAGGAAAATTGAACAGATCAAAGAGCACACAGAGT
 spacer length: 38 repeater length: 37
 18134 3681172 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ATACCCACATTGTCCCGAAAAAGACCGCAATCGA
 spacer length: 34 repeater length: 37
 18135 3681243 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CTTCCCACTCATAACAAACAGCAAACAAGACCAAA
 spacer length: 35 repeater length: 37
 18136 3681315 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ATTTACCCCCGTTATATTTTCGGTTGCCGTTTTAGGTA
 spacer length: 37 repeater length: 37
 18137 3681389 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AAGAAAGCCGGGCCGTAAGTAGAATACATTGAATCG
 spacer length: 36 repeater length: 37
 18138 3681462 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CCTGCTCATAGGTCTAACTCCCAATATAGCAGATT
 spacer length: 35 repeater length: 37
 18139 3681534 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CCCTGGGACCTGGTTCCGGACATCAGGGAGCGCCGGT
 spacer length: 37 repeater length: 37
 18140 3681608 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AATACATCCTAGAATCCCTTTCCCTACGATATTGCT
 spacer length: 37 repeater length: 37

18141 3681682 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AATACAAAACATTGAAATTGCAATGTCTCGGTATTT
spacer length: 36 repeater length: 37

18142 3681755 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CTTCCACAACAAATTCAACCCCGCCAACCTCCGAAAA
spacer length: 37 repeater length: 37

18143 3681829 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC GGCAGTTCACACGCTCAGAAAAACCAAAGCCACTAT
spacer length: 36 repeater length: 37

18144 3681902 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AAGCTCAATAAAGCCAAGTCTTTATATTACAATCA
spacer length: 36 repeater length: 37

18145 3681975 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ACCACCAACACAGACAGCAGCCAACGCCGCCGCAAAAC
spacer length: 38 repeater length: 37

18146 3682050 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AGCCACCTGGCAAACATACTGGACCCAGACTTCGATA
spacer length: 37 repeater length: 37

18147 3682124 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ACGAAAAACGAGAAAAAACACGTATATTATTAGG
spacer length: 35 repeater length: 37

18148 3682196 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TGCCTACACAGGCACAGCAGATGCCACATTAGGAGT
spacer length: 36 repeater length: 37

18149 3682269 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ACATACCATTTAAAAATTTATCAAACCTCTTCAACGGT
spacer length: 37 repeater length: 37

18150 3682343 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC GTCGCTGGATTTGTTGTATGCATTGTATGAATAG
spacer length: 34 repeater length: 37

18151 3682414 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ATCTAACGCCGGGTCAAATACCGGCATGACGATAA
spacer length: 35 repeater length: 37

18152 3682486 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ACTGGGGAAGTCTCAGAGTTCACATCCGAAGATTC
spacer length: 35 repeater length: 37

18153 3682558 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ACTTCGTGATCTGCCCGGACATCGTGCAGGGTGGAA
spacer length: 36 repeater length: 37

18154 3682631 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TTAATGTTTTGCATTTACCATAATTGCATAAGTA
spacer length: 35 repeater length: 37

18155 3682703 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC GCTTTGCTTCTGTGAATACCAGGACCCGGAGATAGG
spacer length: 36 repeater length: 37

18156 3682776 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC GTGCCATTAATGAGAGGGTTGCTTTTTGACTGCCTG
spacer length: 36 repeater length: 37

18157 3682849 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AGTTGCTAATTTGCCTGCTGAAAGGCGGACAAGTGC
spacer length: 36 repeater length: 37

18158 3682922 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TCCAGATCGAGAACGTAAACCTGTTTTTTCAGGGT
spacer length: 35 repeater length: 37

18159 3682994 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AATTCGACCAAATTAATCAGGATTCTGTCTTTGATCGT
spacer length: 38 repeater length: 37

18160 3683069 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ATAATCCTTCGATTTTAGTATACGACAGCAGGACATTT
spacer length: 38 repeater length: 37

18161 3683144 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ATACATATTTTTAGTCCGTCTCCGTAGTTGTTAATTT
spacer length: 38 repeater length: 37

18162 3683219 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TTATGTTTCAGCGACCAGGGCAGCCTGTAGCTTACA
spacer length: 35 repeater length: 37

18163 3683291 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AAGCCGTTTTGGGGTTGAGCGAATGTAATGCTGTGG
spacer length: 36 repeater length: 37

18164 3683364 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CCAGGACTCCGGAGCACATAGCCAGGACCCCGGCAA
spacer length: 36 repeater length: 37

18165 3683437 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AGGATGTCGAAACGTATACCGATTCAACTCTTGAT
spacer length: 35 repeater length: 37

18166 3683509 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC
CAGACGTCCCCGGCAGTTCCCCGGGATCGCTCAGGCTA spacer length: 39 repeater length: 37

18167 3683585 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TTGTATCTTCTCTCTACCGTTCTGTCTCTCTTC
spacer length: 34 repeater length: 37

18168 3683656 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC GAATCATTCACGGGCATAACAAAAACCGACAGGA
spacer length: 34 repeater length: 37

18169 3683727 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TGCAGGCATCCCGTGGGGAAAAGTAGCCGTGATAAA
spacer length: 36 repeater length: 37

18170 3683800 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC GTAACAAGACAAAACCTACGGAGTCGAAACATGGC
spacer length: 35 repeater length: 37

18171 3683872 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AACGTCGAAAACCTGAAATATCAAGACCACAAAAAA
spacer length: 36 repeater length: 37

18172 3683945 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TCTAACTCCGATTATTTTTATGCCTCTATCATCCCCG
spacer length: 36 repeater length: 37

18173 3684018 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CAGGATAGCTACGGCTCAACTCCCTGAGAACTATGG
spacer length: 36 repeater length: 37

18174 3684091 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC GATTTCATAATCAGTGTACTCTTTGAAATTAGCAAG
spacer length: 35 repeater length: 37

18175 3684163 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC
TGAAGCCGCAATCCTTGAAACCATGACGAAGTACACGAG spacer length: 39 repeater length: 37

18176 3684239 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ATAGAAGTCGAAGGCTCAGACGAAGTCCGAAGACAGG

spacer length: 37 repeater length: 37
 18177 3684313 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC GTAAGGGGCTTTTGTGGATTTGCCCCAGCCCATAA
 spacer length: 35 repeater length: 37
 18178 3684385 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC GATTATGAAGGGCTTCTCAGAAGTCCATGTCCACCA
 spacer length: 36 repeater length: 37
 18179 3684458 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC GAATCAAGATAGTTCCACCCATCCGGATTAATTTCA
 spacer length: 36 repeater length: 37
 18180 3684531 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CCGGTTTGCAAGTCCATACTACGGTCAGGCATTGCGG
 spacer length: 37 repeater length: 37
 18181 3684605 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AGATCAAGAGGGCTGCCAGGTGTTGAGCGTCGGAT
 spacer length: 35 repeater length: 37
 18182 3684677 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ACCTGCTCTCATTGCAGTGATGAACAGCAAAGGACATG
 spacer length: 38 repeater length: 37
 18183 3684752 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CGTTTGGGAGATCGGACGGATGGCATGGAGGCAGGT
 spacer length: 36 repeater length: 37
 18184 3684825 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ACGATACATTACCCATACGTCATTATGAGACATTCATA
 spacer length: 38 repeater length: 37
 18185 3684900 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AATGACCGTCACTGAAGTGTCTACGCCTTTGTGACAG
 spacer length: 38 repeater length: 37
 18186 3684975 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TGAAAAAGAGATATTGAAAAGTACATACAATAGAG
 spacer length: 35 repeater length: 37
 18187 3685047 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AGGACACCGACGGAATCACAAACCCGGTAGTCTATAT
 spacer length: 37 repeater length: 37
 18188 3685121 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AACAAATGAGTTTAGATACCAATGAAAACATAACAAA
 spacer length: 36 repeater length: 37
 18189 3685194 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ATATCGAAAAATAATGAAATTGAAAACAATCTCATG
 spacer length: 36 repeater length: 37
 18190 3685267 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC GGGCTTCTGCACAGTTTTTAATTAGGGATAATAGAT
 spacer length: 36 repeater length: 37
 18191 3685340 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TTCACATACAATTTAGGGTCAGTTTCCCAACTAAGA
 spacer length: 36 repeater length: 37
 18192 3685413 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AAACAAATTACAATTGAACCTGAACAAAACGAATGGA
 spacer length: 37 repeater length: 37
 18193 3685487 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC GGGACAGAATACGAAGTACCGCTGGAAGGCGTGAGAGA
 spacer length: 37 repeater length: 37
 18194 3685561 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ATTTTCCTCACCTTATATTTTATTGAGTATAGGGGA
 spacer length: 36 repeater length: 37
 18195 3685634 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AAGAATACGCGGCGACAGATGGAACCCGGCAAAGTG
 spacer length: 36 repeater length: 37
 18196 3685707 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TTGCTAGTACCGTGCCGACTTTTACATGAGGTGAGGT
 spacer length: 37 repeater length: 37
 18197 3685781 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AAAACCGATTGAAAGCAGTCGGTTTTGATGTTAAT
 spacer length: 35 repeater length: 37
 18198 3685853 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ACGAAAATTTGATGGTTTTTTGATCAAAGATGGGCATA
 spacer length: 38 repeater length: 37
 18199 3685928 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ACTGATGGGGATACGTATTCTGTCACGGTCATAA
 spacer length: 34 repeater length: 37
 18200 3685999 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TTCCTGATAATGTGCATGGTACATCGGTGGGGGTGG
 spacer length: 36 repeater length: 37
 18201 3686072 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TAAAACCTAAACATTACCAAGTGATAATAAAACCAAT
 spacer length: 37 repeater length: 37
 18202 3686146 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TAGAAGTCGAAAGCTCAGACGAACTCCGGAGACAGG
 spacer length: 36 repeater length: 37
 18203 3686219 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CGGCTGTAATGATTCTTAATGGGCTTTCTATCAAGAAA
 spacer length: 38 repeater length: 37
 18204 3686294 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TAGAAAAAACAAAGTTTCTAAGTTTCAGTGGACACGG
 spacer length: 36 repeater length: 37
 18205 3686367 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ACGAGCGGCTTATGAGTCCGGAACAATAAGGAAAAT
 spacer length: 37 repeater length: 37
 18206 3686441 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TCGAGAGCCCCTTTATCAACGCTGACAAAAACAGTAT
 spacer length: 37 repeater length: 37
 18207 3686515 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC ACATCCCCTTTGCAATCCTAATAACCTCTTCCCCCGTG
 spacer length: 38 repeater length: 37
 18208 3686590 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC AAAACAGGGGGTCAAAGTGGACCGGAACGCCCTGA
 spacer length: 36 repeater length: 37
 18209 3686663 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC
 GTATCTCATGCCATGGTCTTTATCCTGGAAACCCCCGAAA spacer length: 40 repeater length: 37
 18210 3686740 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC CGGTTGCGTAGTAATAGGCTAATATGTCCGAAGTCTG
 spacer length: 38 repeater length: 37
 18211 3686815 GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC TAATCGGAGGGATTGCAAAAACATCCATTGAATATT
 spacer length: 36 repeater length: 37

18212	3686888	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	TCAAATTATAAAGTATTAATTTACTTTTTTCTTTTTT
		spacer length: 37	repeater length: 37
18213	3686962	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	TAATTGCCCGGGGGTCAACTATCCCCGAGCACGTCTT
		spacer length: 36	repeater length: 37
18214	3687035	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	TCCATGGAGTCCACGTAATTACCAAGGACATAAT
		spacer length: 34	repeater length: 37
18215	3687106	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	CTGGATAGATTACAGCAGTTCCACAAACAACAGCTAT
		spacer length: 37	repeater length: 37
18216	3687180	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	AACCCCCATTTCATACCAGCAGCAAAAAGCGGGTTTG
		spacer length: 36	repeater length: 37
18217	3687253	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	GTGGTGCTTTTTTTTTGTTTTTTTTTCGTTTTTGAAA
		spacer length: 35	repeater length: 37
18218	3687325	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	AACATTGTTGCGTTCGGTGAACAGTTGACCAAGAC
		spacer length: 35	repeater length: 37
18219	3687397	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	TTGTTTAGTGGCGCGGTATTTACGTTATGTTACATCA
		spacer length: 38	repeater length: 37
18220	3687472	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	TGGAATCTGCTTTAATTTTATCCGTGGTTGGGTGGT
		spacer length: 36	repeater length: 37
18221	3687545	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	TAATTCTTCTTTGCTGACCATCTTTCCACACTCCT
		spacer length: 36	repeater length: 37
18222	3687618	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	TTTTCTTTGGGTTTAGTTACGTCAGACATTATTAAT
		spacer length: 36	repeater length: 37
18223	3687691	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	AGACACGGACGGCCGGACCGCCGAAAGCATCAAGCTCG
		spacer length: 38	repeater length: 37
18224	3687766	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	CGAAAGCATATCAGGAACAAAAGCCACCGGGACAC
		spacer length: 35	repeater length: 37
18225	3687838	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	CCGAGGAACAAATCGACCGACTATATTTTCAGTTTGATC
		spacer length: 38	repeater length: 37
18226	3687913	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	GTGTATTTTTTCGAGTAGTTCTATCGTCCTACCAATGA
		spacer length: 37	repeater length: 37
18227	3687987	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	ATACGACACAAAAATGGGCTCAGTTACAGGATCATA
		spacer length: 36	repeater length: 37
18228	3688060	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	GAAAAATGCGATACCGATTTCCAAGAAGAAGAAGAA
		spacer length: 36	repeater length: 37
18229	3688133	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	CCGGCAACACCTACACAATCACAACCGGCAGCGCAA
		spacer length: 36	repeater length: 37
18230	3688206	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	CAGATCATGAAACGTGGGGACCCGATTTCAGTATATTT
		spacer length: 37	repeater length: 37
18231	3688280	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	TGTTATCCGCCAGGCACAGGTAGTCGGAAGCGTAAA
		spacer length: 36	repeater length: 37
18232	3688353	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	AACTCAAAGAAGAGTGAATCCCGGCCCTTTAATTTTT
		spacer length: 37	repeater length: 37
18233	3688427	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	CGAATTTGTAAATAATCATCATCCTTTATGAGGTGT
		spacer length: 36	repeater length: 37
18234	3688500	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	CCTCGTCGTCAGGATCAAAAAATCAGGACAATCG
		spacer length: 35	repeater length: 37
18235	3688572	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	TGTCATGAGCCAGGTTCCCTATTACTTGGAGTGATTT
		spacer length: 37	repeater length: 37
18236	3688646	GTTTCAATCCTTGTTTTAGTGGATTTTGCTCACGGAC	
18237			
18238			
18239	crispr 8		
18240	3702263	GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC	
		TCGAAAAGTGGTAGATATGATGAACAAAAAATGGCATTTAGA	spacer length: 43
18241	3702343	GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC	TATATATACACCATTTCGAAGAATTTACGATAAAATT
		spacer length: 36	repeater length: 37
18242	3702416	GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC	TGCAAAACATGATGCCCCCTATGGGTTTTTTGAGT
		spacer length: 35	repeater length: 37
18243	3702488	GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC	ATCATAACCAAGACCGACTACTAATAGGAAAGGTAGC
		spacer length: 37	repeater length: 37
18244	3702562	GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC	TAAACGAATAAGAAAAACATGTATAAATGGTTTTAGAC
		spacer length: 38	repeater length: 37
18245	3702637	GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC	TTGGTAATAGTTGCCATACTTGCACTTCTGCTTATG
		spacer length: 36	repeater length: 37
18246	3702710	GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC	TGTGCAGTGAAGGGGTACTGCACAATAAAAAATAGTAA
		spacer length: 38	repeater length: 37
18247	3702785	GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC	CGGAATTTGTTCCGATGACTGATGATGGATATTTATT
		spacer length: 37	repeater length: 37
18248	3702859	GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC	CAGATGGTTGCAGGACAGTCCCAGGGTGGATGAGCA
		spacer length: 36	repeater length: 37
18249	3702932	GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC	GAGGAAAAGCATGAAATATTACCCTATACTTTTATTA

spacer length: 37 repeater length: 37
 18250 3703006 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC CCTTGAATGCGACAGAAAACCGCTCTGCCACCCTGG
 spacer length: 36 repeater length: 37
 18251 3703079 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TAGAAGGGCTGGAAATACAGCAGGAAGCTTTGTTA
 spacer length: 35 repeater length: 37
 18252 3703151 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AATGGACCTGATCCGCAACCTGTAACAATACAGGTA
 spacer length: 36 repeater length: 37
 18253 3703224 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AATGGACCTGATCCGCAACCTGTAACAATACAGGTA
 spacer length: 36 repeater length: 37
 18254 3703297 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TCATAAAGGAGTTAAGAAATGAACCCCCCAAATTA
 spacer length: 36 repeater length: 37
 18255 3703370 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC
 ATCATGATGATAGAAGTAGATTAAGGAAAGGTGAGAAGT spacer length: 39 repeater length: 37
 18256 3703446 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GACGAAAACCTCGCCACCAATTGTGTGGCTTAAGC
 spacer length: 35 repeater length: 37
 18257 3703518 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GATAAATAATTAATCTATCACAATTTTAAATTATTA
 spacer length: 36 repeater length: 37
 18258 3703591 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC
 TGAGGCAGAACTCGTCGTAAATGAAGAAGGTATATAGGC spacer length: 40 repeater length: 37
 18259 3703668 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GTCGTAGTTATGGGTGCTTTGTTCTTGGTATCCTCG
 spacer length: 36 repeater length: 37
 18260 3703741 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TTAAGGAAGCAATCTCTTGTGGCCTCTTGGTTATAAT
 spacer length: 37 repeater length: 37
 18261 3703815 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TTTGGTGGCGAGCGGAGTATGTATATCTGCAAGTGG
 spacer length: 36 repeater length: 37
 18262 3703888 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TATCCTCTTCGGCGTGTTTAATGTACTCAATTTCGT
 spacer length: 35 repeater length: 37
 18263 3703960 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC CTTTTCTTCTTTAATTACTGGCTATAGATTGCGTT
 spacer length: 36 repeater length: 37
 18264 3704033 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC CAAGGAAGATGCACAAGAGCTTCTTAAACAAGCGACA
 spacer length: 37 repeater length: 37
 18265 3704107 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GGGAGGATTGACAGATATTACTATTATGTAATAGTTGT
 spacer length: 38 repeater length: 37
 18266 3704182 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC CCACATACTTCAGCAAAGGATACGGGCATCACGG
 spacer length: 34 repeater length: 37
 18267 3704253 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC
 AAAATGTGACTGAATCCCAACAGTCACCTGAAGAGGTGAT spacer length: 40 repeater length: 37
 18268 3704330 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AGTTACTTTCTGGCATTGAAAACAAAAAACAAT
 spacer length: 36 repeater length: 37
 18269 3704403 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GGACCGAAAGACATCTTTAAAATCGCTCTTTACGT
 spacer length: 35 repeater length: 37
 18270 3704475 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TGGCGAGTCCGAAAAAGAAGCAGTCTCGGTTCTAAAA
 spacer length: 37 repeater length: 37
 18271 3704549 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TCGATTTGGCTTAGCCCAGGCAATACGAAAAGTAAA
 spacer length: 36 repeater length: 37
 18272 3704622 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC
 18273
 18274
 18275 crispr 9
 18276 3704694 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC
 AAGGCAATGGATATGGCAAAGGCAAGATGATTGTTTGTGTTTG spacer length: 42 repeater length: 37
 18277 3704773 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GATTGGTGCCAATTTTGTCTTTTCTGTTATATT
 spacer length: 34 repeater length: 37
 18278 3704844 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GACAGGGGCTTATCAAATAAAAAACAATTAATAATCTAA
 spacer length: 38 repeater length: 37
 18279 3704919 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GTCCTAAATGTGGGACGGAAGACAATGAATATGTCA
 spacer length: 36 repeater length: 37
 18280 3704992 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AGGGGGAAGCCTTGAGAGGATTACAGACCAATAAGTTAT
 spacer length: 38 repeater length: 37
 18281 3705067 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GGCCTAATGAGATTGCATGATCCAACAAAAATTT
 spacer length: 35 repeater length: 37
 18282 3705139 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC
 18283
 18284
 18285 crispr 10
 18286 3717700 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC
 TTGGCTATTACATGTTTACTCTGCCACTTTTAAAAAATA spacer length: 39 repeater length: 37
 18287 3717776 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AAGAGAGAGATGACTGGAACCGTTTGGTTCTAGAA
 spacer length: 35 repeater length: 37
 18288 3717848 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC CTTGTCCATATAGATGACATCTTGTTATACTTTACAT
 spacer length: 37 repeater length: 37

18289 3717922 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC
TGTCTATTTGGACGCTCTCTGATGAATCAAATACACCGAG spacer length: 40 repeater length: 37
18290 3717999 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TACTGTCTGCGGTTTTTGTGGTAGGGTATGAATATA
spacer length: 36 repeater length: 37
18291 3718072 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC
18292
18293
18294 crispr 11
18295 3718217 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AAATCACTAAACATGGAAGAAGGGACAGAAATTT
spacer length: 34 repeater length: 37
18296 3718288 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TGGAGGAATTTGCTTCTTCCCCGCGTTCGGAGGAG
spacer length: 35 repeater length: 37
18297 3718360 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC CAAATGGCTATCAGTAGCGGGCAACCTTATTTAGT
spacer length: 35 repeater length: 37
18298 3718432 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TTTGGGTTCACAAAATTCTTTTTTCAGATTAAAGA
spacer length: 36 repeater length: 37
18299 3718505 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC CCGGAATAGAAGTTTCCGTTGATGAGGAAATAAA
spacer length: 34 repeater length: 37
18300 3718576 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AAATATTTTGGGTCTGGTCTTGTACGAAGGGCATA
spacer length: 35 repeater length: 37
18301 3718648 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC
18302
18303
18304 crispr 12
18305 3721668 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC ATTGGCACCCAATGGGAAGGGTGCACAAGGAGCTAGAA
spacer length: 38 repeater length: 37
18306 3721743 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TAAAAAAGCAGAGGATTCTTTCCTTGTGAGAGTTT
spacer length: 35 repeater length: 37
18307 3721815 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TGGAGTGGAGTATGGCTCAGGATATTAGATTAAA
spacer length: 34 repeater length: 37
18308 3721886 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AGAACTTTGAAGTCTTACAGCGCAGGGGATCAGGC
spacer length: 35 repeater length: 37
18309 3721958 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC ATTAGAACCGGTAGAGATAGACGCTATCGGTTACATA
spacer length: 37 repeater length: 37
18310 3722032 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AACAAAAAAGAAAGAGAAAAAGAGGATGATAAATTG
spacer length: 36 repeater length: 37
18311 3722105 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AGAGAAAAAGATTTTTTGATGCTTCCAAAGTTTTACA
spacer length: 36 repeater length: 37
18312 3722178 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AGAAAAAGCATGGGGATATGCGGAGGTACAATATC
spacer length: 35 repeater length: 37
18313 3722250 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TTTGGACAACGATGTAATCACAATAATCACTAAA
spacer length: 34 repeater length: 37
18314 3722321 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TTTTTATTTCGTGCCTGGTGTAAAGAATGGGCAGAA
spacer length: 36 repeater length: 37
18315 3722394 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AGTGAATATGACTTCACGCCAAAAGCTCTAAAAAA
spacer length: 35 repeater length: 37
18316 3722466 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TGCAGGATAAAGTCGTCGATGCCATGAAAGACATCA
spacer length: 36 repeater length: 37
18317 3722539 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GACGAGAAAATTGTGCGGATGGATTGCCGAATATA
spacer length: 34 repeater length: 37
18318 3722610 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC CTCGATTATAATGGGAATGATTATAAAGACCTGTTTCA
spacer length: 38 repeater length: 37
18319 3722685 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC
18320
18321
18322 crispr 13
18323 3725625 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGAGAGAGTTGGAATTGAGTATGATAAGGAGGTGTTT
spacer length: 37 repeater length: 37
18324 3725699 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCGTAAGATTTTCAATTTATTGCCTCTTTCCTTGCTTCG
spacer length: 37 repeater length: 37
18325 3725773 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTGAGTAAGGCATTAATAATAGGGCAAATGTAGTAC
spacer length: 37 repeater length: 37
18326 3725847 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CACGGCAGAAGCGAAGGGAGATGGTCAGGGAAACTGA
spacer length: 37 repeater length: 37
18327 3725921 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGAGTTGACAGAACATGAAAACCGTAGCTGATCTAA
spacer length: 36 repeater length: 37
18328 3725994 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCTATGAACGTTCCGACGCTTGAGCAGTGGGGGGTAT
spacer length: 37 repeater length: 37
18329 3726068 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTACAAACGATATTACTAAGATCGAACAGGAAATTG
spacer length: 36 repeater length: 37
18330 3726141 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT

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18331
18332
18333 GCA_000970085.1_ASM97008v1_genomic.fna (PilerCR) :
18334 START          REPEAT
18335 SPACER
18335 crispr 1
18336 2324446 GTTTCAATCCTTGTTTTAGTGGCTGTTGC TGTTTTAGCTTGACATACTTTCTCTAGAGGAAAAGTTGAGAGTAT
18337 spacer length: 45 repeater length: 29
18337 2324520 GTTTCAATCCTTGTTTTAGTGGCTGTTGC TGTTTTAGTACTGTCCATACTTCCTTTTATTAAAGAAATAAATAA
18338 spacer length: 45 repeater length: 29
18338 2324594 GTTTCAATCCTTGTTTTAGTGGCTGTTGC TGTTTTAGTCCGGAACCGTAACATTGGTCGAAGACGACCAAAATA
18339 spacer length: 46 repeater length: 29
18339 2324669 GTTTCAATCCTTGTTTTAGTGGCTGTTGC
18340 TGTTTTAGTGTCTCGGAAGCCGTATCCAGGTTCCCTGGAAATGAAGCAG spacer length: 47 repeater length: 29
18340 2324745 GTTTCAATCCTTGTTTTAGTGGCTGTTGC TGTTTTAGTGGTAAGCCTCAGCTTGACACGGGAAGAATTTTGAA
18341 spacer length: 44 repeater length: 29
18341 2324818 GTTTCAATCCTTGTTTTAGTGGCTGTTGC TGTTTTAGCTGTCCAGCATGTAAGGGTTCAGGATCAATCAGGCAAT
18342 spacer length: 46 repeater length: 29
18342 2324893 GTTTCAATCCTTGTTTTAGTGGCTGTTGC CGTTTTTCCTGGAAGTAGGAATAGGATTGTATCGTAATACAAAGG
18343 spacer length: 45 repeater length: 29
18343 2324967 GTTTCAATCCTTGTTTTAGTGGCTGTTGC CGTTTTTCATGGAGATGAATTAATGAAAGATGCAGTCAATTTTAT
18344 spacer length: 45 repeater length: 29
18344 2325041 GTTTCAATCCTTGTTTTAGTGGCTGTTGC
18345 CGTTTTTCTCTGCTTATAGGTATAATGGATATTTTAGAACATAGTC spacer length: 47 repeater length: 29
18345 2325117 GTTTCAATCCTTGTTTTAGTGGCTGTTGC CGTTTTTCAAAAGGAGAGGAGAGGCAAAATGATTATAGATTATTG
18346 spacer length: 45 repeater length: 29
18346 2325191 GTTTCAATCCTTGTTTTAGTGGCTGTTGC
18347 CGTTTTTCAATATAAAAGGAGTGAAAGAATGTCAGGGGAAGAATTTGTG spacer length: 49 repeater length:
18347 29
18347 2325269 GTTTCAATCCTTGTTTTAGTGGCTGTTGC CGTTTTTCCAGAATGAAATTGTTGCTTGCCGTGTTTCTTATCA
18348 spacer length: 43 repeater length: 29
18348 2325341 GTTTCAATCCTTGTTTTAGTGGCTGTTGC CGTTTTTCAAAAATACATAGAGATCAGGTTAGAGAAAGAGAAT
18349 spacer length: 44 repeater length: 29
18349 2325414 GTTTCAATCCTTGTTTTAGTGGCTGTTGC TGTTTTAGAAGGATACAATAGAGGTAGCCTTGAGTTTTATAGAA
18350 spacer length: 44 repeater length: 29
18350 2325487 GTTTCAATCCTTGTTTTAGTGGCTGTTGC
18351 TGTTTTAGATAATGTTGGATAACATACAAACCTGCAAGATTGAAGAGA spacer length: 48 repeater length: 29
18351 2325564 GTTTCAATCCTTGTTTTAGTGGCTGTTGC TGTTTTAGCGGAACATTCCACATTCCCTGCCCCGTGTTTCAATGG
18352 spacer length: 44 repeater length: 29
18352 2325637 GTTTCAATCCTTGTTTTAGTGGCTGTTGC TGTTTTAGCGTGAATCCGAAATCGTATTTGAAGAACAAATGCGAAG
18353 spacer length: 46 repeater length: 29
18353 2325712 GTTTCAATCCTTGTTTTAGTGGCTGTTGC TGTTTTAGATGTCAAAGCTTATTTCTTCCCAAGAAGAAATGATC
18354 spacer length: 44 repeater length: 29
18354 2325785 GTTTCAATCCTTGTTTTAGTGGCTGTTGC
18355
18356
18357 crispr 2
18358 2339018 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TGAAGAGTGCATAAATTCTATAATTATTGTGAAA
18359 spacer length: 34 repeater length: 37
18359 2339089 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TTGAATGAACAGTTGAGGATAATAGCGATGTTTATAA
18360 spacer length: 37 repeater length: 37
18360 2339163 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG CATTGAAGTATCAAGTGTGTGCATATTTTCTA
18361 spacer length: 34 repeater length: 37
18361 2339234 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TTGAGGTTGAAGATCTGACTGTGAAGGAGGGCTATAT
18362 spacer length: 37 repeater length: 37
18362 2339308 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TCGGAAACAAAATGGATTTAATTGGCCAAGAAGA
18363 spacer length: 34 repeater length: 37
18363 2339379 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TTGTCATCAGAAAATCTTGATGAACAGCTTGATA
18364 spacer length: 34 repeater length: 37
18364 2339450 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG CTGTAATAAAGATTTCTGCGAGAGAGATAGATACTGA
18365 spacer length: 37 repeater length: 37
18365 2339524 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG ATCGGTGATGGAAAGGATTGCTAGAATTGATAATAAG
18366 spacer length: 37 repeater length: 37
18366 2339598 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG CTGGAAGATTGATCATCACCCAGAAGAATCGAGAGAT
18367 spacer length: 37 repeater length: 37
18367 2339672 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TAAGGGGCACACGGTTGTTCTGTCTGAAGCAGAAAAAC
18368 spacer length: 38 repeater length: 37
18368 2339747 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG GAATAATTACGCAAGAAATGGAAGATGGTTACAAGA
18369 spacer length: 36 repeater length: 37
18369 2339820 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG CGAGAGATTGAAACAAGCAGAGGAAGACAATAAATTT
18370 spacer length: 37 repeater length: 37

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18370	2339894	GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG	AAATTATCTTCGGTTTTTAAAGCTAAAAATAAATGAA
	spacer length: 36	repeater length: 37	
18371	2339967	GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG	CGTGTATATCTCAAGGAAGAAGGAATGGAAAACCCA
	spacer length: 36	repeater length: 37	
18372	2340040	GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG	TTTTGACCAAAGGACTAGCTCATGTAGTTATATTTA
	spacer length: 36	repeater length: 37	
18373	2340113	GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG	AATAAAAGTCTAACCCTGATTGATATCATTGATAAAG
	spacer length: 37	repeater length: 37	
18374	2340187	GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG	CAGAGACACTTGTGTCTAGGGGAATGAGAGTGTCAG
	spacer length: 36	repeater length: 37	
18375	2340260	GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG	GTAAAAACAAAAACGGAGTGCAAAAAATGGAAAA
	spacer length: 34	repeater length: 37	
18376	2340331	GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG	TGGCAGATATAGATCCCAAATTTTTTCGAGAAAACAA
	spacer length: 36	repeater length: 37	
18377	2340404	GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG	AATCAAGAGATAAGAGGAATAACCGGATCTATACTG
	spacer length: 36	repeater length: 37	
18378	2340477	GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG	GTGGAAAACACTGGTTTTTTAAAAAATACAAAAAGAG
	spacer length: 37	repeater length: 37	
18379	2340551	GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG	TCCCATATCTGGCACATGGAAAAGTTTTCCCAGAAGA
	spacer length: 37	repeater length: 37	
18380	2340625	GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG	
18381			
18382			
18383	crispr 3		
18384	2390576	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TGCGAGGTTCCGAGAGAGTAGAGGGAAGAAAATGA
	spacer length: 35	repeater length: 37	
18385	2390648	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TATAGGCCCGTTGTACGGAGTCGGGGTACCTGTTA
	spacer length: 35	repeater length: 37	
18386	2390720	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CGGGAAAACGTACCGTTGGGTTGTTGAAACTGCAC
	spacer length: 35	repeater length: 37	
18387	2390792	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AAATCAAACGGTGCCCATTTGTCCCCCGGGAAAACA
	spacer length: 36	repeater length: 37	
18388	2390865	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TGGAATATCTTTCTCAATTGGAAGCGAGTTCAA
	spacer length: 34	repeater length: 37	
18389	2390936	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AAATCATTATAATGGCCTGCCTGTAAAATCAAAGG
	spacer length: 35	repeater length: 37	
18390	2391008	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AGAGAAGACCTCGATGCCATAGACGAGATGCTATT
	spacer length: 35	repeater length: 37	
18391	2391080	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CCTTGGCAGGTTTCGAATTGAACTTGAGCAGATGG
	spacer length: 36	repeater length: 37	
18392	2391153	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GAAATCGAAGTGGGGGAAACCGTTGGCACCCCTTGT
	spacer length: 35	repeater length: 37	
18393	2391225	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ACAAGATGCCTACAATCAACGTCCACAAAGGCAAGTA
	spacer length: 37	repeater length: 37	
18394	2391299	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTTATCTGAACATTCGGAACATCTACATAGAATTTGT
	spacer length: 38	repeater length: 37	
18395	2391374	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTATACCGACCTCTCCCAGGCTGTAGCCGGATTA
	spacer length: 34	repeater length: 37	
18396	2391445	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	
	ACAGTGGTTTTGATATTACCAATTCACAGAACAAGAAGT	spacer length: 39	repeater length: 37
18397	2391521	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCTATTGAATTTTGATGAAGTCGTGTACGGAATTA
	spacer length: 36	repeater length: 37	
18398	2391594	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ATTGCTTCCTGGTCCCCGACTCGGTACCTGATGCTTG
	spacer length: 37	repeater length: 37	
18399	2391668	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GTCAATGCAGCGGCTGGGACAGATCCATGTATCTG
	spacer length: 35	repeater length: 37	
18400	2391740	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GAGGAACCATCAGATGATGAAATTGACAGCATTATTAA
	spacer length: 38	repeater length: 37	
18401	2391815	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TGTCAGGTTTCGATACTTCACCTACTGATGCTTATAT
	spacer length: 36	repeater length: 37	
18402	2391888	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ATAGTCCCAGAGCTCCCTTAGAAGATCATACAGCCG
	spacer length: 36	repeater length: 37	
18403	2391961	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCACTTGCTTTTGTATCAGACATCTTTTCCACCTTA
	spacer length: 36	repeater length: 37	
18404	2392034	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTTTGCAATTTTCACCGTATACCGTAGAAATCG
	spacer length: 35	repeater length: 37	
18405	2392106	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CACATATAAACCCCATTGACCCCCGTATACTCACTA
	spacer length: 36	repeater length: 37	
18406	2392179	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AGTTCCCTCAACTCTTTATATTGATTTTTTGAGAG
	spacer length: 35	repeater length: 37	
18407	2392251	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CAATTTGTACTGCCCGGACAAAACACATCTGTACTTTT

spacer length: 38 repeater length: 37
 18408 2392326 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTAGATTTTAAATGATTCTCTTCTTCGGAATCCA
 spacer length: 35 repeater length: 37
 18409 2392398 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTGTGATTGCTGAGTGTTTCATATTTCAGAATATTG
 spacer length: 35 repeater length: 37
 18410 2392470 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAAATCCAGGTAAAAGCGTGAATGCTATGAGAAGAC
 spacer length: 36 repeater length: 37
 18411 2392543 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCCCATAATAAGAATATGTCCTGATTGCAATGAAG
 spacer length: 36 repeater length: 37
 18412 2392616 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATATTCACCTACTGATAATCTGAACGAACACCCAGGGT
 spacer length: 38 repeater length: 37
 18413 2392691 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCCTACCGACCCGGTCATCATGAGAAAACGAGAGTACC
 spacer length: 38 repeater length: 37
 18414 2392766 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
 CCTTGCATATTTCATGGGCGTTATGGTTCTGGCAGCTCTTA spacer length: 41 repeater length: 37
 18415 2392844 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATCCCAACGCTTACCGAGTCACCTATGTTATACTTG
 spacer length: 36 repeater length: 37
 18416 2392917 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTTTAATTTTTCTTGGGGTTGTAATCCTTCAAATTA
 spacer length: 36 repeater length: 37
 18417 2392990 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTGATTGGGTTTGATGTATACATATACATAAACT
 spacer length: 36 repeater length: 37
 18418 2393063 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTAAGTGCAGGTTAACAGCTAACAAAGCGCAGACTTA
 spacer length: 37 repeater length: 37
 18419 2393137 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGTGAAATTATCTGAGTTCCCATGAGTTCAATATCAA
 spacer length: 37 repeater length: 37
 18420 2393211 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGGTCCGCAGATGATACTTACGCGGGGAACGGTC
 spacer length: 34 repeater length: 37
 18421 2393282 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCTACTATTCTGTAGATGATTTACAGGTTCTTGT
 spacer length: 35 repeater length: 37
 18422 2393354 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTGATTGAACAGAAGAAAAACATCCGCATATCAAAT
 spacer length: 37 repeater length: 37
 18423 2393428 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCGCCTGTATCATCGGCGGTAGAATTTCGCGACGTAG
 spacer length: 36 repeater length: 37
 18424 2393501 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAAGAAAACGAAGAATTGCAGTGAAAAACGGATACTG
 spacer length: 37 repeater length: 37
 18425 2393575 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AACACATGACTGAATACAATACAGAATTTGAAATAC
 spacer length: 36 repeater length: 37
 18426 2393648 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CGATATGCAAATACTTTATCTTGATGCAGTTCAAAAT
 spacer length: 37 repeater length: 37
 18427 2393722 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCCGAACATAACGGGGGAACCTCAAACCTACATCGAA
 spacer length: 36 repeater length: 37
 18428 2393795 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTAAGAAGATTTTGGAGGAAGATGAATGACTGAAGAA
 spacer length: 38 repeater length: 37
 18429 2393870 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GATGGAGTATCTTCTCAAGGATACAAATTTCAAATA
 spacer length: 36 repeater length: 37
 18430 2393943 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATGATTGATGTTGCCACGGAAACGCAGAAGGAGAGAA
 spacer length: 37 repeater length: 37
 18431 2394017 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCTTCTATTGTGTGAGTGTCTGCGAACTTCTTAATG
 spacer length: 37 repeater length: 37
 18432 2394091 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGAACTTATCAAAATGATAGATGAACAGCCCCGTTAT
 spacer length: 36 repeater length: 37
 18433 2394164 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGGGCTTCCTTTCTTCTTCTTCTATATCGTATTTTT
 spacer length: 37 repeater length: 37
 18434 2394238 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAGCTTTTGGGAGCACTTGGTGGCACTGAAGCAAG
 spacer length: 35 repeater length: 37
 18435 2394310 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTCTTGTATCTTCATGGTCAATTTTGGTCATTGTT
 spacer length: 36 repeater length: 37
 18436 2394383 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTTATTCTCTATATTCTAATACGCTAAACTCATATA
 spacer length: 37 repeater length: 37
 18437 2394457 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTGTGCAATCGTCTTTGATATATTAATGATTTTTTA
 spacer length: 36 repeater length: 37
 18438 2394530 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCTCTGAGGATGATGAGGACCTTACCGAAGACGA
 spacer length: 35 repeater length: 37
 18439 2394602 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TACATGAAAGTGGATAGGGGATTTAAAAAAGGAAAAT
 spacer length: 37 repeater length: 37
 18440 2394676 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACCTACACCGCTTCTGAGAGGTCTGTTCAATG
 spacer length: 32 repeater length: 37
 18441 2394745 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CGGGCATAGACACATTTTCGTATATCGAACGGC
 spacer length: 33 repeater length: 37
 18442 2394815 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTCCGAAATGTCCAGACTTGGGGCAATCAAATCAA
 spacer length: 36 repeater length: 37

18443	2394888	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTGTTTTTTCTGTCCCATAAACGAGCGTTAAGGA
	spacer length: 36	repeater length: 37	
18444	2394961	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GCAATATGATCATGATATTGACAGCCGCGAGGATA
	spacer length: 35	repeater length: 37	
18445	2395033	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTTTTTTTCGGCCATTCTGTTTCACCCATCATTTTTCAA
	spacer length: 37	repeater length: 37	
18446	2395107	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CGTTCGCCTGCAAAGATAACTAACACTTACTGATATA
	spacer length: 37	repeater length: 37	
18447	2395181	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CCCGGGACTAAAGAAAGGCGGGGGCACCGGGTCAAT
	spacer length: 36	repeater length: 37	
18448	2395254	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCCCCACTCGAGTACAGGACCGTAGACCCGCTGTAAT
	spacer length: 37	repeater length: 37	
18449	2395328	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TGATTGTAACCTTCTTCTGGGTTCCTATTTCTTCA
	spacer length: 35	repeater length: 37	
18450	2395400	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	
18451			
18452			
18453	crispr 4		
18454	3870713	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TTCCGTAACATAGTGTCTATAACCGGGGGTCTGAATAT
	spacer length: 37	repeater length: 37	
18455	3870787	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CAAAAAGGCTAAGTTTTGACGCAAGGCCTTCTATGT
	spacer length: 36	repeater length: 37	
18456	3870860	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CGAAGATTTGTTACTGTATTTGGAATATCAAATGATT
	spacer length: 37	repeater length: 37	
18457	3870934	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TGTTATAAACGTTGTCCGTATCAATGTACATCAGGATG
	spacer length: 38	repeater length: 37	
18458	3871009	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATAGACGACTTGAAAGAAAACATCGAGATATCGAA
	spacer length: 35	repeater length: 37	
18459	3871081	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATTGATAGCATCGGATGTATACATATACATAAACT
	spacer length: 36	repeater length: 37	
18460	3871154	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	
	TTTTGTTAGGCGCTCGGTCTCGATTAAATTCGGTGGATGTCCCAT	spacer length: 43	repeater length: 37
18461	3871234	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ACTATTTTTATAATTGTTTTTGTATACCGTCAATA
	spacer length: 36	repeater length: 37	
18462	3871307	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AGTCGCACATGTTGCCAATGCTCCGAAATATTATG
	spacer length: 35	repeater length: 37	
18463	3871379	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ACTCAATATATTACGATCTCTGGTGGAACGAAATAA
	spacer length: 36	repeater length: 37	
18464	3871452	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	GAATCGCAAGCAGCGCGGCTGACATAATCAATGGAA
	spacer length: 36	repeater length: 37	
18465	3871525	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CATATAACACAAGGGGAATTTTCATATTTTAATAA
	spacer length: 35	repeater length: 37	
18466	3871597	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TGTTCTTTGTGGAGAGGATGATTTTCATTTGTAG
	spacer length: 34	repeater length: 37	
18467	3871668	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AGATAGAGAGTATGATAGAGTTCCTGTACACAA
	spacer length: 33	repeater length: 37	
18468	3871738	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TTTCGTTGTTATCTTTTCCAAATAATCGCATACGG
	spacer length: 35	repeater length: 37	
18469	3871810	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	GTAAGAATCGTCATATCATTTGATATGACATAAAAATA
	spacer length: 38	repeater length: 37	
18470	3871885	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TTTTTGTTTCGGGGTAATCCCCCTGAACCATACCGAC
	spacer length: 38	repeater length: 37	
18471	3871960	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AGGATGAAAACATAACTTCCCTATCAAATCCAACCCC
	spacer length: 37	repeater length: 37	
18472	3872034	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CTATTAAAGAAGCAAAGAAGGAAAGAGCAACTTGA
	spacer length: 37	repeater length: 37	
18473	3872108	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ACAGCTACAATTTCCCGGATAGTGGAATCGTCAATAA
	spacer length: 37	repeater length: 37	
18474	3872182	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	GAGGAGGCTGAAGGAGTCTAAAATCCTTGAAGAAAA
	spacer length: 36	repeater length: 37	
18475	3872255	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AGGATGACAAACGCATTAGCAGCATTTTCAAAGAC
	spacer length: 36	repeater length: 37	
18476	3872328	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AACATATCCGCCATTTGCTTTAATGAGGATTGCAGAA
	spacer length: 37	repeater length: 37	
18477	3872402	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AACTCCCTTTTTCTTCTATCGCATCATCCCGATAAA
	spacer length: 36	repeater length: 37	
18478	3872475	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TGGAATTATCTGAGTTCCCATGAGTTGCATATCGA
	spacer length: 35	repeater length: 37	
18479	3872547	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CTACCTTGCTTGTTTTTGTGACAGGGATAAAAGAAT
	spacer length: 36	repeater length: 37	
18480	3872620	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATGAAAGAGTCTCAGGAAAAGTATTGTCCTGTAGA

spacer length: 35 repeater length: 37
 18481 3872692 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACGCCCGTTCAATTCGGGCAGACGGCAACATAGCAA
 spacer length: 36 repeater length: 37
 18482 3872765 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GAAAGTAGGAATGATATTCCAAGGGGGTAAATACA
 spacer length: 35 repeater length: 37
 18483 3872837 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATGGTGATAATTCGGGGGGTATACATGAGAATTATCA
 spacer length: 37 repeater length: 37
 18484 3872911 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CGACGGCAGACTATTTTGTAAATGTGTACATGGGCTA
 spacer length: 36 repeater length: 37
 18485 3872984 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AACTTCAGGAAAAAAGGTTTCATCAGAGAAGGTGAACT
 spacer length: 37 repeater length: 37
 18486 3873058 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACGATAACAGGAAAGACGTCATAGTATTCTGTGACA
 spacer length: 36 repeater length: 37
 18487 3873131 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT
 ATTGATATCTGAGAACGAGCTCAGACCCGAAACTCGGAAAATC spacer length: 44 repeater length: 37
 18488 3873212 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AACAAGCGTGAGCCCCTATGTAAGCGTCCCACTGAA
 spacer length: 36 repeater length: 37
 18489 3873285 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CAGATGAAAATGAACGGGATCATAAACACGATCAGG
 spacer length: 36 repeater length: 37
 18490 3873358 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CACACGAAAGCAGGCAGACGACACTATTAAAAAAGT
 spacer length: 36 repeater length: 37
 18491 3873431 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGTTTAGGGTTTTACAGTACTCGGATGACCAATA
 spacer length: 34 repeater length: 37
 18492 3873502 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTTTTCATAGATATTATCATTTATTTCTTGATCTG
 spacer length: 35 repeater length: 37
 18493 3873574 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GACGTGGTGTAAGTGAATTTGGGTGTTATGAGTT
 spacer length: 34 repeater length: 37
 18494 3873645 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TACTCATTTTTCCATTCTCCTGGGGTCGCTCTTACT
 spacer length: 36 repeater length: 37
 18495 3873718 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTAAAAAATGGTATCGAAGAAGGTTGTTGGGGGGTGAC
 spacer length: 38 repeater length: 37
 18496 3873793 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATATGGAGGTATACTATTTTGGCTGAAAATATAGATG
 spacer length: 37 repeater length: 37
 18497 3873867 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGTGTTGAATTATCTCAGAGTCAAGTTTTGAGAGTATG
 spacer length: 38 repeater length: 37
 18498 3873942 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AACCGTATATGAAAAGACAAGATCTACTTTTCGATAC
 spacer length: 36 repeater length: 37
 18499 3874015 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATTTTGTAGACTTCTTATGGTACAAGTTACATTCAAT
 spacer length: 36 repeater length: 37
 18500 3874088 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTGACAAATCAGATAATAATCCTATATGCCCTTGGGG
 spacer length: 37 repeater length: 37
 18501 3874162 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GGGATTAATTTTCGAGTAAAAGAATTAGAGTGTGAG
 spacer length: 36 repeater length: 37
 18502 3874235 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACTCTTAGGACCTAATACATATTATGTTAGCAATTCTA
 spacer length: 38 repeater length: 37
 18503 3874310 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACACATAAAAAAATAGAATAATGCAGAGAGTTAAAA
 spacer length: 37 repeater length: 37
 18504 3874384 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAAGAAGATGAACTAACGTATGAATATTTAGAACAGT
 spacer length: 37 repeater length: 37
 18505 3874458 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTGATGACGTAATAGCTCGTACTTCGACATCTGGGA
 spacer length: 36 repeater length: 37
 18506 3874531 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CCTGCGGAGGAATCTAACCGCCTACAATGTATTCCCAT
 spacer length: 38 repeater length: 37
 18507 3874606 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GAAAATAAGGGTGTGATTCTTGGAGAGAAGTATG
 spacer length: 34 repeater length: 37
 18508 3874677 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GTTTGCTTCTCTTTTCGCGGCTTCAATTAGTATTTT
 spacer length: 36 repeater length: 37
 18509 3874750 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACATGCCACGGGCGCGCGGTTTCATCGGCGGGACCAG
 spacer length: 37 repeater length: 37
 18510 3874824 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGGAATTGTTGGGATTTCTGTAGAAGAACAGAAGAAAT
 spacer length: 38 repeater length: 37
 18511 3874899 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT
 18512
 18513
 18514 crispr 5
 18515 3875041 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATATTCTGCTCAATCACCGACTGCATCCACTTCTCA
 spacer length: 36 repeater length: 37
 18516 3875114 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGTGCCTCTTGATACCCCTTTGAAGTGTGTATATAA
 spacer length: 36 repeater length: 37
 18517 3875187 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TCTATTTCTTGAAGTGAAGTCCGTGAAGTGCGAATCT
 spacer length: 38 repeater length: 37

18518	3875262	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AAATAATTTGGAATCATTATCATGCGCTGAAGAA
		spacer length: 34 repeater length: 37	
18519	3875333	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ACGTTCCGCGTCGATGGTCACAAGATCGCAATGCA
		spacer length: 35 repeater length: 37	
18520	3875405	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATCCAAAAAGGATAGCACCTGTCCGCGACGATTGGG
		spacer length: 36 repeater length: 37	
18521	3875478	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ACCGATACCAGCGAATGGCAAAAGATCAAACACCTCG
		spacer length: 37 repeater length: 37	
18522	3875552	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TTCCGGTTATGAAACATACTGCCGGAACAACATTA
		spacer length: 35 repeater length: 37	
18523	3875624	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AGGTGACGCTAGGCCGATATATCGAAGGCTTAGCA
		spacer length: 35 repeater length: 37	
18524	3875696	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATTTCTGGCTCCCTCGAAATTGATGAAATGTATG
		spacer length: 34 repeater length: 37	
18525	3875767	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TTATGAATACTACTATATATACTTTTTTAATTAT
		spacer length: 34 repeater length: 37	
18526	3875838	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	
18527			
18528			
18529	GCA_000970125.1_ASM97012v1_genomic.fna (PilerCR) :		
18530	START	REPEAT	
	SPACER		
18531	crispr 1		
18532	2243288	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	AGGTGATGTAAATGATTGAAACTAAAACAGAAATT
		spacer length: 36 repeater length: 37	
18533	2243361	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	GATGTGGATTTCTTCGCGGACGTTTATTTTGATGG
		spacer length: 35 repeater length: 37	
18534	2243433	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	TTGAAAAAGGAGGAAAGAATTCCAACGTGTTTATGAG
		spacer length: 36 repeater length: 37	
18535	2243506	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	TATAATCCCTGAGAGGTTTGTTGTTGGAGAAGAACAA
		spacer length: 37 repeater length: 37	
18536	2243580	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	GATGTGGATTTCTTCGCGGACGTTTATTTTGATGG
		spacer length: 35 repeater length: 37	
18537	2243652	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	TTGAAAAAGGAGGAAAGAATTCCAACGTGTTTATGAG
		spacer length: 36 repeater length: 37	
18538	2243725	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	TATAATCCCTGAGAGGTTTGTTGTTGGAGAAGAACAA
		spacer length: 37 repeater length: 37	
18539	2243799	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	CGGAAATCCTCTATGAAACTACGGACCATTTATGA
		spacer length: 36 repeater length: 37	
18540	2243872	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	TTCAATACCAAGGAGTAGTACGTCATGTATCAAGA
		spacer length: 35 repeater length: 37	
18541	2243944	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	GTAAGGAGGAGGGACTTGAAAAAGATTCTCTTGAG
		spacer length: 36 repeater length: 37	
18542	2244017	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	ATTATGTACAATCCCATACTTCATTGCAATCGTCGT
		spacer length: 36 repeater length: 37	
18543	2244090	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	TCATTCCGGGACTTTGCATGGGAATTATTGTTATGC
		spacer length: 36 repeater length: 37	
18544	2244163	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	TTGCAAAAAAATCTATGATCTGAGAGAAGTAACAG
		spacer length: 35 repeater length: 37	
18545	2244235	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	CGTTTGACATGAATACAGACACCAGAGGGGAGACTGTA
		spacer length: 38 repeater length: 37	
18546	2244310	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	GGTGAAGTTCCGGCTGGATACCAGGAAAGGGTTGA
		spacer length: 35 repeater length: 37	
18547	2244382	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	AGTTTAAATTTGCAGAGTAATAGCTCTTTCGTTAATG
		spacer length: 37 repeater length: 37	
18548	2244456	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	TGTGATAAGAATCTATCACCATCCTCTCCAAGAAA
		spacer length: 35 repeater length: 37	
18549	2244528	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	TGTGATAAGAATCTATCACCATCCTCTCCAAGAAA
		spacer length: 35 repeater length: 37	
18550	2244600	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	GAGCACAATAGACTCGTGAATGAGAGAAGAAACAAAG
		spacer length: 37 repeater length: 37	
18551	2244674	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	TGGCCATATGTACTGATAAAAGTCAGACTTAATGG
		spacer length: 35 repeater length: 37	
18552	2244746	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	TATAAAAAAGGAAGTTTTAGAAGCAACCATTAAAAAA
		spacer length: 37 repeater length: 37	
18553	2244820	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	AAGAAAGCGAAAGAACAGGAGTAGATACACTATTTG
		spacer length: 36 repeater length: 37	
18554	2244893	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	AAAAGAGAGGATTTACCCCCGAAGAGGAGATAAAAC
		spacer length: 36 repeater length: 37	
18555	2244966	GTTTCAATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC	AAAAAAAGATAAAAACTAATAAAAGAGGTTCAAAT
		spacer length: 35 repeater length: 37	

18556 2245038 GTTTC AATCCTTGTTTTAGTGGAAGCTACTTTTCGAC TTTCTAAAAAAGGTTGAGAGAAATAATCTTGCTATA
spacer length: 36 repeater length: 37
18557 2245111 GTTTC AATCCTTGTTTTAGTGGAAGCTACTTTTCGAC AGAAAATAACGACATTAAAATGTTTCCTAGAAAAGGAA
spacer length: 37 repeater length: 37
18558 2245185 GTTTC AATCCTTGTTTTAGTGGAAGCTACTTTTCGAC GAGACTGAAACAAAAATAGGAGTTACGAAAGAACA
spacer length: 35 repeater length: 37
18559 2245257 GTTTC AATCCTTGTTTTAGTGGAAGCTACTTTTCGAC
18560
18561
18562 crispr 2
18563 2261791 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC
CTGAGGAGCAGAAAAGGAGATTATATTGAACCAGATTTTG spacer length: 39 repeater length: 37
18564 2261867 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC GAGCAAAAAAGTCGAGCCGGATCCCGAAGGGGATGAGG
spacer length: 38 repeater length: 37
18565 2261942 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC AAGTGCAGGCGCTGCGGCTGTATGCCAGTTGTTTT
spacer length: 35 repeater length: 37
18566 2262014 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC GTTTTTCCCAAGGGGTCTTTGCATTTTAGATTCTCTA
spacer length: 37 repeater length: 37
18567 2262088 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC AAGACATGGACGAAGACAAAGAGATAGGATATGA
spacer length: 34 repeater length: 37
18568 2262159 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC CAGTTTTGCCGGAACATACCCTAAATTACCTCAC
spacer length: 36 repeater length: 37
18569 2262232 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC
18570
18571
18572 crispr 3
18573 2262374 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC ATCCCACAAGGTGAAGTTCCTGTAGTATTGGTTGAT
spacer length: 36 repeater length: 37
18574 2262447 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC AAGGGCAGTAAAAATGCTACGGCAAAATTAAAAACA
spacer length: 37 repeater length: 37
18575 2262521 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC CAATGGAACGTAAAATTTCCAATACAAAAGCTCAGAT
spacer length: 37 repeater length: 37
18576 2262595 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC
CCGATAAACAGGGAATTTACAGGCAGCATCGGGTAATG spacer length: 39 repeater length: 37
18577 2262671 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC
18578
18579
18580 crispr 4
18581 2262823 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC TAAGATGTGAGATCTGATAGAGGTAGTTTCACTAG
spacer length: 35 repeater length: 37
18582 2262895 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC TGTGTAGTATGGGAAGTAAACTAAGGATAATCAG
spacer length: 35 repeater length: 37
18583 2262967 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC GGCAGCATAAATGCCACAACGATGGCTGACTATCA
spacer length: 35 repeater length: 37
18584 2263039 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC GCCTTATACATGATAGCAACTGGAGGCTCCGGAGTT
spacer length: 36 repeater length: 37
18585 2263112 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC TTAGGGATATCATGAATGAGAAAGGGAAAGCATTAGA
spacer length: 37 repeater length: 37
18586 2263186 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC TCTCAGGCATGGGATGCGATTGCTCTTAAGATTATCT
spacer length: 37 repeater length: 37
18587 2263260 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC ATTTACAGCAGACAGCTGATAATGCAGAATAATCAAG
spacer length: 36 repeater length: 37
18588 2263333 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC GCATCCTGCTAAAGGAGCTAATGGAGAATCGGATCCTG
spacer length: 38 repeater length: 37
18589 2263408 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC TCGTAGACGACAACGGATATTGCGTTGCTGAGTATAT
spacer length: 37 repeater length: 37
18590 2263482 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC ATTTGTTCTTCCATTGCTTGACCTGCTGGAACAT
spacer length: 35 repeater length: 37
18591 2263554 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC AAATGTACTTTCAACGCCTTCGTAAAGCTGGAAAT
spacer length: 35 repeater length: 37
18592 2263626 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC CCTGCCAACAGGACGTCATTTACGTCATCGTAGCT
spacer length: 35 repeater length: 37
18593 2263698 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC ATGAAAGCAAGTGAACCTCATCGAGAATCTTAATGAC
spacer length: 36 repeater length: 37
18594 2263771 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC AAACGGAAAGGTTTGAGGTTGACCGAGCCTTCATAGCT
spacer length: 38 repeater length: 37
18595 2263846 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC ACGAGGTGGAGAAAAACATTACTCGGCTGAAGA
spacer length: 34 repeater length: 37
18596 2263917 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC
18597
18598

18599 crispr 5

18600 2312092 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGCGAGGTTCGGAGAGAGTAGAGGGAAGAAAATGA
spacer length: 35 repeater length: 37

18601 2312164 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTGGAATCATCAACGGAAAGCCATAAGTGCCTTTTT
spacer length: 36 repeater length: 37

18602 2312237 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCCACACGATTGAGGAAGAGAACAACCTTAACGG
spacer length: 34 repeater length: 37

18603 2312308 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTTTTAACCAGCGCAGAGGGATTGAGTGAAACGAAT
spacer length: 36 repeater length: 37

18604 2312381 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGCAAAAACCGCAAAGATAGTATCCTCTCCTATTGG
spacer length: 36 repeater length: 37

18605 2312454 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCCCCTAGCAGATTTACTTCAGTGTGTTACCTGAT
spacer length: 36 repeater length: 37

18606 2312527 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GATGCTTATGAAGCCCATCATCCTTATTCTACCTA
spacer length: 35 repeater length: 37

18607 2312599 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTTTTTTGGCTCTTATGCCTGCATTGATCCTTTCTT
spacer length: 36 repeater length: 37

18608 2312672 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCTTCTCCGGTAATCTGGTTCCGGACTAATAT
spacer length: 32 repeater length: 37

18609 2312741 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTCTACTAATTTATTATTTTCAACGATCTTTATA
spacer length: 35 repeater length: 37

18610 2312813 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
CTCGTTAGTTTTTCATCTATCGATCTTGCTCACAGACCGCGGA spacer length: 41 repeater length: 37

18611 2312891 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGTACAGATCAGGGCTGTTTCCATGCCTCCGATCAT
spacer length: 36 repeater length: 37

18612 2312964 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGTACAGATCAGGGCTGTTTCCATGCCTCCGATCAT
spacer length: 36 repeater length: 37

18613 2313037 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTGACAAATCCATAGATAAACGTGGAACCTGAAAA
spacer length: 34 repeater length: 37

18614 2313108 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCTGTTTTTCTCAGATTTTGACGGCTTCGGAACCTAT
spacer length: 36 repeater length: 37

18615 2313181 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CACACATTTTCGATTATCCGGAATTCCGGAATGGG
spacer length: 35 repeater length: 37

18616 2313253 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGTGGACGACGGAAGTATAGATTCAACATACAATG
spacer length: 35 repeater length: 37

18617 2313325 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGATATTCTGAACATAGTAGAAGCATGTAGATCAGG
spacer length: 36 repeater length: 37

18618 2313398 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TATTATTATGTACTGAGAATAAGCGAGGTTGATAA
spacer length: 35 repeater length: 37

18619 2313470 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAGAAAATAGTTTCAGTTAGACGTTAAGGAGTGTA
spacer length: 35 repeater length: 37

18620 2313542 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCAAAATTACAATAGGGATTCGAAAGCAAGATCCAC
spacer length: 37 repeater length: 37

18621 2313616 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAGACACAAACGCCACGCTTAATACAATGGGATCATT
spacer length: 37 repeater length: 37

18622 2313690 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCTTGCGAAATTTTGAGACAGATGTTACTTCCT
spacer length: 34 repeater length: 37

18623 2313761 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CGAAATTTGAATCTGGTGATGTATTACAGATTGTAG
spacer length: 36 repeater length: 37

18624 2313834 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTTTCTGAGAAGGTAGTGGTCTTAAATCCTCAATTT
spacer length: 36 repeater length: 37

18625 2313907 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAAAATGTACTAAATTCATCAAAGATATGGAAATT
spacer length: 35 repeater length: 37

18626 2313979 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGTTGGAATTTATGTTTCTGGGAACAACAAGTTTCT
spacer length: 36 repeater length: 37

18627 2314052 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGCTCAATCGTTACCGTTTTGCCCCGGGATAATAT
spacer length: 36 repeater length: 37

18628 2314125 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATAATGTAAGGTTAGCCGGTGCCTATTTGTGTTTA
spacer length: 35 repeater length: 37

18629 2314197 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGCAGCTCGATACACTATCAGGAAGTTTAGCACTAT
spacer length: 36 repeater length: 37

18630 2314270 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTATCAATAGACTTCGAAACGTCGCATGAAATTAAGT
spacer length: 37 repeater length: 37

18631 2314344 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAATTTATAATTGGAGAAGTGTATGGTTTAAGATGGAA
spacer length: 38 repeater length: 37

18632 2314419 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTCCCAGTTGAACCTATGCAAAAAATGT spacer
length: 31 repeater length: 37

18633 2314487 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATCATCATCTAATATCATCTTAATAAAAGCAATTAT
spacer length: 36 repeater length: 37

18634 2314560 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTCAGATGCAACAGTGCCACCTGAAGATCCTTTTCT
spacer length: 36 repeater length: 37

18635	2314633	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GATATTCTCGATGTTAATTGAGATTGTGTACCTGCG
		spacer length: 37 repeater length: 37	
18636	2314707	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CATATTACAAAACCATGATTGAAAAACATATACTG
		spacer length: 36 repeater length: 37	
18637	2314780	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AACGCAAACCTAACAGGTGGTGAATTATGATAAAGGT
		spacer length: 36 repeater length: 37	
18638	2314853	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTTTGCAGCAAACGCGGTTTCAGTTTCATCTGTAT
		spacer length: 37 repeater length: 37	
18639	2314927	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ACATTCAGCCGGACAAGTTCTTCCAGTTTCAGGT
		spacer length: 34 repeater length: 37	
18640	2314998	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TATGGTATCCGAAACCATGCTTCGAACCGATTTAC
		spacer length: 35 repeater length: 37	
18641	2315070	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AGAAAATATTGCACGGTTCCCAGTGACGCAAAAAGC
		spacer length: 36 repeater length: 37	
18642	2315143	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CAATTGCAAGAAAAGCGTTTTATTTCGCGAGGGTGAAT
		spacer length: 37 repeater length: 37	
18643	2315217	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCTTGGAGCTTTTCTTGCCTCTTTCATTCTGTAAA
		spacer length: 35 repeater length: 37	
18644	2315289	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CGATGGCATTATCGATGGTCCCTAAAAAGCGACCGGA
		spacer length: 37 repeater length: 37	
18645	2315363	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GTGGTGTTATTGAGCGTTTCACTATCAAGAGAGA
		spacer length: 34 repeater length: 37	
18646	2315434	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCAGGACGTGGCCTGCCTTCAGGGTGGTGTGCTGAA
		spacer length: 37 repeater length: 37	
18647	2315508	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AGTACCGGGTTTATTTCTTCGGTATGGTACCTGATG
		spacer length: 36 repeater length: 37	
18648	2315581	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	
		AGAAGCACCAGCGTGATTTTGTGGTCCCTGTTTTCCGG	spacer length: 42 repeater length: 37
18649	2315660	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ACACATTGTTTACGATCGTGGTGTTATTGAATCCG
		spacer length: 35 repeater length: 37	
18650	2315732	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GGACATCTCAGAACAAGCTCAAATCATTTCTCCCG
		spacer length: 35 repeater length: 37	
18651	2315804	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CGAGGCTGATACAATTATAGTAGCCCTCGCCTTCATA
		spacer length: 37 repeater length: 37	
18652	2315878	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GGTCCTACAGACGTTTAGGACGAAAAGGAAC TTGT
		spacer length: 35 repeater length: 37	
18653	2315950	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TAGCTGGTATTGTTCTGGTTCTTGGATTCTTAGGAA
		spacer length: 36 repeater length: 37	
18654	2316023	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TAATTGCATCAGGATCAACCGTACAACTGAATATG
		spacer length: 36 repeater length: 37	
18655	2316096	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	
18656			
18657			
18658	crispr 6		
18659	3823915	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CCTAGCATTGAAGAGAGTTCATCAATTAATCCACCGA
		spacer length: 37 repeater length: 37	
18660	3823989	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATCTTCCGAGTCTTCGAGGCCATCTGTCACTACTG
		spacer length: 35 repeater length: 37	
18661	3824061	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CTGATGGGTTTTACCGTCGATGGGATATTACAGAGTT
		spacer length: 37 repeater length: 37	
18662	3824135	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TACTCGATTGTGGCACCGTTTCCCCAATTCCAACAGC
		spacer length: 37 repeater length: 37	
18663	3824209	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TTCAAAACTCTCCTTGGTATACATGTCCTCACTG
		spacer length: 34 repeater length: 37	
18664	3824280	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AGGGCTTCAAGGGATTCTCATAAGCCTCCTGATCAA
		spacer length: 37 repeater length: 37	
18665	3824354	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATTATCCTACTGTTCTTAGTGCAACTACTCAAAAATCG
		spacer length: 38 repeater length: 37	
18666	3824429	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CACATCGGGTATGTGTGTTTTTGTGGGCGCGAAAC
		spacer length: 36 repeater length: 37	
18667	3824502	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATTCCTATATACTATATGTACCTTAATATAATATTCT
		spacer length: 37 repeater length: 37	
18668	3824576	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AAACGTGTTGAAACCGAAACATTCGAAAGTGTAG
		spacer length: 34 repeater length: 37	
18669	3824647	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TTGGCAGACCCGAAAGAGAACCTGACAGAAAAGAGTA
		spacer length: 37 repeater length: 37	
18670	3824721	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	GGTGGAGTTTGAAGGATGTGATTTAATGACTTC
		spacer length: 33 repeater length: 37	
18671	3824791	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATGTGAAGCGTGATACAAAATTTCCAAAACAAATG
		spacer length: 36 repeater length: 37	
18672	3824864	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATAATCCTATTATACTATAACTTTTCTTTTTTGAT

spacer length: 35 repeater length: 37
 18673 3824936 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT TGAGGCAAAGAAATTT CAGGATGTACCAACGAAAAA
 spacer length: 36 repeater length: 37
 18674 3825009 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT TGCTTTTTTGACGGCGTGAATAACCTCCGTAGATG
 spacer length: 34 repeater length: 37
 18675 3825080 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT CCGTGCCTTGT TTTGGTTGCTCGTTGAGAAGACTGAAT
 spacer length: 36 repeater length: 37
 18676 3825153 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT TTTGTATTTCGTGAGTGCCATTGTAGCTCAGTTGG
 spacer length: 34 repeater length: 37
 18677 3825224 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT GCAGGGAAGAGCTGGCTATCGGGACGATCCTAAATCAT
 spacer length: 38 repeater length: 37
 18678 3825299 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT GGGAGGAGCTGGCAATCGGAACAATCCTCAATCACA
 spacer length: 36 repeater length: 37
 18679 3825372 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT GAAGAATTTGAAGGGTGTAACTGTTAGGAGAATG
 spacer length: 36 repeater length: 37
 18680 3825445 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT GTTTCTATTTTTATCTATTGAGTCCTAATTTTGCT
 spacer length: 35 repeater length: 37
 18681 3825517 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT AATATTTATTATCAGACAAAGCCGGAAGCTGATACG
 spacer length: 36 repeater length: 37
 18682 3825590 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT ATGGATATTCTAATCCAAATTCCTGGAGTCTTTTCATA
 spacer length: 37 repeater length: 37
 18683 3825664 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT AGTTCCCATAAGAGTTAATCCGGCCGTAACACCAG
 spacer length: 35 repeater length: 37
 18684 3825736 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT TGTGTCCAGTCTCACGGAGGAATTTGCTTTCTGTA
 spacer length: 36 repeater length: 37
 18685 3825809 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT GAATTTACAGAATCTACTTTTATACCACCGGTTGT
 spacer length: 35 repeater length: 37
 18686 3825881 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT TCTTCAATTTCTCATTTGTATCAGAAATTTTATTCTG
 spacer length: 38 repeater length: 37
 18687 3825956 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT CTTATTTTATTTCATGGTTTTATCTTTCTCCAGGTAA
 spacer length: 36 repeater length: 37
 18688 3826029 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT TCTGCCTTTTCCCGGTCTTTCCCTTCTTAATAATCAC
 spacer length: 37 repeater length: 37
 18689 3826103 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT AGAAAGAGGGGGAAACGTTGGGGGATGCGGGATATA
 spacer length: 36 repeater length: 37
 18690 3826176 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT ACAGGCCCTGCATAACTCATAGCATCACCCAATTGGG
 spacer length: 37 repeater length: 37
 18691 3826250 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT TCAGACTATTGTAGAATGATGAATCATATAAGCC
 spacer length: 34 repeater length: 37
 18692 3826321 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT GATCTCAAATTACAAATACAATACAATCTCATTGG
 spacer length: 35 repeater length: 37
 18693 3826393 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT AATTGAACGCCAGGAAGTTATGCCAATGCTTCCAGA
 spacer length: 36 repeater length: 37
 18694 3826466 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT TATTTGATATTGTGTATGTGGCCGGTCCAGTCAGA
 spacer length: 35 repeater length: 37
 18695 3826538 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT CTATTTGTTTTATTCTTAATTGATATATAGGATCA
 spacer length: 36 repeater length: 37
 18696 3826611 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT TTTGCATATATAGCAACAGACAAATATAAAAGAA
 spacer length: 34 repeater length: 37
 18697 3826682 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT CATGTCCACTTCATATCGAGTGTATTCTATTCTATGT
 spacer length: 36 repeater length: 37
 18698 3826755 GTTTC AATCCTTGT TTTAGTGGATCTTGCTTTTCGAAT
 18699
 18700
 18701 crispr 7
 18702 4343843 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC AGATATAATTTGATAGGTGGTTTTTTGAAAATATGG
 spacer length: 35 repeater length: 37
 18703 4343915 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC
 TTTTAATTTTTTTAGTAGTATAATAATATTCTATCCCTG spacer length: 39 repeater length: 37
 18704 4343991 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC AACAAATATCTGACACTCTCAATAACGCATCATTA
 spacer length: 36 repeater length: 37
 18705 4344064 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCAGTCTTAGACTACAACGAGGAAACAATCATGTT
 spacer length: 36 repeater length: 37
 18706 4344137 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC GTGATTATTATTTCAAATATACCCAATATCTGAAA
 spacer length: 35 repeater length: 37
 18707 4344209 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TCAGAAAACCTGGATCGGATGGTGCGGTCGTGTTTTTC
 spacer length: 36 repeater length: 37
 18708 4344282 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAAATGTATTGTGATGGACATGGATATCTGAGGG
 spacer length: 35 repeater length: 37
 18709 4344354 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC ACTATCTCGTATGATGACTTTGACAGAAAAATTGAAA
 spacer length: 37 repeater length: 37

18710 4344428 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC GACAGTGAAAGAGAAAAACCCTCAGAATCATTAACA
spacer length: 36 repeater length: 37

18711 4344501 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC CTATCGGGGTACAAGGACCCGAACAACAATGAATA
spacer length: 34 repeater length: 37

18712 4344572 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC CGGCGATTATTGTGACCGCCGTGTACAAGTTTTTGTAT
spacer length: 37 repeater length: 37

18713 4344646 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC CCAGCTTTGCAACTACATCCAAAAATAAATTAACAA
spacer length: 36 repeater length: 37

18714 4344719 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC ATAGTCCTCAATCAAGCAATGAAAAACATTTTCTT
spacer length: 36 repeater length: 37

18715 4344792 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC TACATGCAGCCCCGACATCCCCCTTCCCCCACATCGA
spacer length: 37 repeater length: 37

18716 4344866 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTGTTTCGATTAAACTATTAATGGGGGGAGTAAAG
spacer length: 35 repeater length: 37

18717 4344938 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTGATTCCATACCCCCCAATCCCCTCTGCCGTCCAG
spacer length: 37 repeater length: 37

18718 4345012 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC CGGTAATGGGATTGCAGTATCTGAAAGTAACGCAT
spacer length: 35 repeater length: 37

18719 4345084 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTAAAAATAATCGAACAGTTAAACGAACATGAGAA
spacer length: 35 repeater length: 37

18720 4345156 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC ACATCAGCAGAGCCTTTAAACTGAGTCAGGAATTGT
spacer length: 36 repeater length: 37

18721 4345229 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC TCTCCGGAAAAATAAGCATAATGGTGCACGTATATGA
spacer length: 37 repeater length: 37

18722 4345303 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC
CATCTACATCGTATCTGAGCATCGCAAAGACTTCAAGGACTTT spacer length: 43 repeater length: 37

18723 4345383 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC
CAAAGAAGTGAGGTCTATAATATGGCTCGAAGATATAGA spacer length: 39 repeater length: 37

18724 4345459 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC TAAATTCTCCATCTATAAACAGTTCAACGATTGGG
spacer length: 35 repeater length: 37

18725 4345531 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTTACATGAGTGATATTATCCCCTCTGAAAAAAC
spacer length: 35 repeater length: 37

18726 4345603 ATTTCGAGAGCAAGATCCACTAAAAACAAGGATTGAAAC

18727

18728

18729 GCA_000970145.1_ASM97014v1_genomic.fna (PilerCR) :

18730 START REPEAT
SPACER

18731 crispr 1

18732 2768490 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TGGTAAGAGCATTATTGTTCTTGAAGAAGATGAAAAG
spacer length: 37 repeater length: 37

18733 2768564 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TCCGAAATACAGAGTCCGCCAATCGTACCAGGAAGTAA
spacer length: 38 repeater length: 37

18734 2768639 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG CTGCTTTTTTTTTTCTATTCTCTTTTATATTTTTT
spacer length: 34 repeater length: 37

18735 2768710 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG GACTACTGGTAAAGGAATATTAACCTGTTTCCCTTTTG
spacer length: 37 repeater length: 37

18736 2768784 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG AGGAGAACAAGAAATGAGAAACATCAACAAAAATTGGA
spacer length: 38 repeater length: 37

18737 2768859 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG AGGATTACGAAAGAGGGCCGCTCCTTGAATTACA
spacer length: 34 repeater length: 37

18738 2768930 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TATAAAAATGAATTTTCCCTGTAGCAGATCTATGTG
spacer length: 36 repeater length: 37

18739 2769003 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG GACTACAAGGATGAATATACTATGGTAGATGAAGAG
spacer length: 36 repeater length: 37

18740 2769076 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG ACATCATCCGTTTCCTACTACCTTGAACGAAGTTGTA
spacer length: 37 repeater length: 37

18741 2769150 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG AGAAAACGCCATATTTCTGCTAGAAAATACTATTTT
spacer length: 36 repeater length: 37

18742 2769223 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TTACCGTTGCTTTATCCGATTTTAGCCTCTTCATGGT
spacer length: 37 repeater length: 37

18743 2769297 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG GAATGTACGTTGAAAGAAGGAGAAATGAACATAGA
spacer length: 35 repeater length: 37

18744 2769369 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TTTCGGTGATGCTTGTATTGTTGGCAATCAGTTTAA
spacer length: 36 repeater length: 37

18745 2769442 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG AAAATAGCAGAGATAAACCAGGCCTGTTAACAGAA
spacer length: 35 repeater length: 37

18746 2769514 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG GGAGGAATGACAATGAATGTCGTGAAATCAATATTATT
spacer length: 38 repeater length: 37

18747 2769589 GTTTC AATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG ATATTGTACTTGGCAGTCTCCTGAATCTGATCAAA
spacer length: 35 repeater length: 37

18748 2769661 GTTTCAATCCTTGTGTTTAGTGGCTGTTGCTGTTTTAG ATAAAAGATTGTGTACTGCAAAGACGATATTGTAGA
spacer length: 36 repeater length: 37
18749 2769734 GTTTCAATCCTTGTGTTTAGTGGCTGTTGCTGTTTTAG ATGTGGAGCATATCCAGAGCTAAAAACAACATAAAAA
spacer length: 36 repeater length: 37
18750 2769807 GTTTCAATCCTTGTGTTTAGTGGCTGTTGCTGTTTTAG AAGAGGTTGAAATTCCTTATTCTTTAGAACAGATTGAA
spacer length: 38 repeater length: 37
18751 2769882 GTTTCAATCCTTGTGTTTAGTGGCTGTTGCTGTTTTAG TTTCTAATTGTTTCTTTTATGGTAGCGGTATTTT
spacer length: 34 repeater length: 37
18752 2769953 GTTTCAATCCTTGTGTTTAGTGGCTGTTGCTGTTTTAG
18753
18754
18755 crispr 2
18756 2819268 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT GTGGGAGTTTCAGTAATTATGGGCTGCCC GTTGTCTG
spacer length: 37 repeater length: 37
18757 2819342 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT CTACATCTTTTGGTGGTACACATTTGAGGAAACATC
spacer length: 36 repeater length: 37
18758 2819415 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT AATAAAATACCAATTATAACCACGGCAACGATGACAGA
spacer length: 38 repeater length: 37
18759 2819490 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT GATTTTTGGTGTAAGGTTGCAAAGACCTGTCAGGAGAA
spacer length: 38 repeater length: 37
18760 2819565 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT TGGAGGAATAAACAACGTATCAGCACAAAGGAGCGA
spacer length: 36 repeater length: 37
18761 2819638 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT CAAAACAAGCTGTTTTATGTGGAGCTACAGGATCAGG
spacer length: 37 repeater length: 37
18762 2819712 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT CTTCCACCCATGAACGCGGCTCACTGTCAGGACCTGG
spacer length: 37 repeater length: 37
18763 2819786 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT
TAATGTTCTAAGAGCAAGGTTTGAGGACTACGGATCGTT spacer length: 39 repeater length: 37
18764 2819862 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT CTATCAATACCCCTATAGAAAACGAAACAACGGA
spacer length: 34 repeater length: 37
18765 2819933 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT TTTACCATCGAGCCGTCACAGACATTATCATGAATAT
spacer length: 37 repeater length: 37
18766 2820007 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT ACTGACCTGCGGCGACCATCTCAGATACAGTATCA
spacer length: 35 repeater length: 37
18767 2820079 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT TTGTTATTGATTGGGAAGAGACAGCAGAAAATTA
spacer length: 34 repeater length: 37
18768 2820150 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT AAGTAAAATATTGGAAAATGTTATTTTAACTAAAGA
spacer length: 36 repeater length: 37
18769 2820223 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT
ACCATATAACCAAAAAACAAGAACTCGGTACAGTATTTGAT spacer length: 40 repeater length: 37
18770 2820300 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT ATTTTATGACTGCTGATGATTTTATTGAAGCATGGAA
spacer length: 37 repeater length: 37
18771 2820374 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT TTGGCCACAAATGCAAAAAATATCAATGTAAATA
spacer length: 35 repeater length: 37
18772 2820446 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT
TTTTTCAGATGGTTTTGAAAGTTTCAGGACTTGATCAAAA spacer length: 40 repeater length: 37
18773 2820523 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT AGTTTTTCTTACCTTTCTAGATCAAGAGTAGTAG
spacer length: 35 repeater length: 37
18774 2820595 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT CAACAGTCCATCACGGTTAGGGTGTGAGCCGTGTTA
spacer length: 36 repeater length: 37
18775 2820668 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT AAAACAAGACTTGAGCCATCACTAAAGAACATTGTG
spacer length: 37 repeater length: 37
18776 2820742 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT ATTTTTGAGACTGATGCGTTTTTACCGTACCATGTGAA
spacer length: 38 repeater length: 37
18777 2820817 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT TTCGATCTTGGGGAAGGCGGCACACAGAGTATAG
spacer length: 34 repeater length: 37
18778 2820888 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT GAGCATATCATTATAGAGCGTGGAGGACTATTGAAT
spacer length: 36 repeater length: 37
18779 2820961 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT CCTTATATTTGATCATAGACCAGATTTCAATTTCGTT
spacer length: 36 repeater length: 37
18780 2821034 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT ATGTCGTAAGAGAATTTACGGTGTAATCCTTTCTA
spacer length: 36 repeater length: 37
18781 2821107 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT TCTTTAGACTGTACGATGTACAGATGTACATGTACAT
spacer length: 37 repeater length: 37
18782 2821181 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT GTGGTGGAGCGGCTGTTACCCGCGAAATATATTA
spacer length: 34 repeater length: 37
18783 2821252 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT TCCGCCGCCGCTGATAAATGAACCGACGATCCGG
spacer length: 34 repeater length: 37
18784 2821323 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT AAATATTCGATTTTCGATTTGTGGAATCTGGGATATGT
spacer length: 37 repeater length: 37
18785 2821397 GTTTCAATCCTTGTGTTTAGTGGATCTTGCTCACGAAT GATTGTTGATAGGTATGCCGCCGCCATCGATCCGAGA

spacer length: 37 repeater length: 37
 18786 2821471 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AACCACGAACGAGTTAACATCTTCTTCCTTTTACCCA
 spacer length: 37 repeater length: 37
 18787 2821545 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCTACATTATTTCATTTCCACAAAAACGATATCAG
 spacer length: 36 repeater length: 37
 18788 2821618 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTAAATTCCTATCAGAGAAGGCCAGGAATTCTTTA
 spacer length: 37 repeater length: 37
 18789 2821692 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCTGTAATGTCCTTTCCATCTTTGCTGATAACTT
 spacer length: 35 repeater length: 37
 18790 2821764 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATGAGTTTGCTGATATTTCTTATGACAATCCGCCGAC
 spacer length: 37 repeater length: 37
 18791 2821838 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTATTTATGTTTCGGTTCGATTGACTGGACTTCGA
 spacer length: 35 repeater length: 37
 18792 2821910 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCAAATTTTCGATCGATCTGATTGATGACACCAGAC
 spacer length: 36 repeater length: 37
 18793 2821983 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTGAGTTCAAAAGCCTGTAGACCTGCACATTTG
 spacer length: 33 repeater length: 37
 18794 2822053 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATATACAACGTCTCCGTCAATTGATAATACTACGA
 spacer length: 35 repeater length: 37
 18795 2822125 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CACCGGAGCATATTACACCAGATAATCCTGATCTT
 spacer length: 36 repeater length: 37
 18796 2822198 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTCAAAGTCCACGTCACACCAGTCGGACTCGTCA
 spacer length: 34 repeater length: 37
 18797 2822269 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
 TCATGCATATCTTTGTTAGATTCATCAAACGTTCGTGTA spacer length: 40 repeater length: 37
 18798 2822346 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCGTACAGGTACTTGATGGATTGTGTGTATCCAGAAC
 spacer length: 38 repeater length: 37
 18799 2822421 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CATTAGAACTATCTGATCACAGTCTAATGCACTGGAT
 spacer length: 37 repeater length: 37
 18800 2822495 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGTTACGATAGCCAAGTGGTAACGGCGAAAGG
 spacer length: 32 repeater length: 37
 18801 2822564 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TATCAGCCCCACTTTTTATTATAATATCTATTTTTA
 spacer length: 36 repeater length: 37
 18802 2822637 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
 18803
 18804
 18805 crispr 3
 18806 4282905 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TCTTTTTCTGTTTCGTCTGTAAGATCTACCATATT
 spacer length: 34 repeater length: 37
 18807 4282976 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACGATATTACGACCGCCATAAGATTTGGTCAGAATG
 spacer length: 36 repeater length: 37
 18808 4283049 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTTTTGCTTTAATCCGCCGACCGGAGATAAGTCCGGT
 spacer length: 37 repeater length: 37
 18809 4283123 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGAATGAAAGGTGAATGTGCACTACGACGACAGGCCAA
 spacer length: 38 repeater length: 37
 18810 4283198 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TCATTCTCATCTGCCTTTTTTTTCTCTTTCTTAA
 spacer length: 35 repeater length: 37
 18811 4283270 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTGACGATGATTGGGACGACGAACAGGAAGTATGGGA
 spacer length: 37 repeater length: 37
 18812 4283344 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GAGGGGATCGCTGGAGGGAATGACAGCATGATTGATA
 spacer length: 37 repeater length: 37
 18813 4283418 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TAATGATTGGTAACCTTATCCAGGGAATGATGAAGAA
 spacer length: 37 repeater length: 37
 18814 4283492 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTAAGATCTTCAAGAGTCAGAACTTTTCTATTGAGGGG
 spacer length: 38 repeater length: 37
 18815 4283567 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTTTCATTATCGAAACATAGTTTGCCATCTTTTGTTAA
 spacer length: 38 repeater length: 37
 18816 4283642 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTTGATTCTGTATCATGTCCATGTGAAGAGGCTCC
 spacer length: 35 repeater length: 37
 18817 4283714 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GTACCGGAACTGTTATAAGCATTCCAATATGTACC
 spacer length: 35 repeater length: 37
 18818 4283786 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AACGACCAGATTGACTTCATTAAGGAATTGTTGAA
 spacer length: 35 repeater length: 37
 18819 4283858 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGGGAGTCAACCTTACCGTCTTAGTCATACTG
 spacer length: 32 repeater length: 37
 18820 4283927 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AATCCCGTTCAATATTGTATATATCGAGATAAAAAA
 spacer length: 36 repeater length: 37
 18821 4284000 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACGAGGGGAAGGTTTCATTAGAAACCCCCAAGAGAT
 spacer length: 36 repeater length: 37
 18822 4284073 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTGCAAAGTAGCCTGTACGGACGAATTAGCCTGACAA
 spacer length: 37 repeater length: 37

18823 4284147 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CCGGCTGCGTCTAATGTTGTACGTGTAGTACAGTTA
spacer length: 36 repeater length: 37

18824 4284220 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTGAGATTCCCCAATTGTCGAGTCTGTGCCTCCAAG
spacer length: 36 repeater length: 37

18825 4284293 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAGAGTTAACTGAGTTGCTATTTCGAAAGAGGCATAATG
spacer length: 38 repeater length: 37

18826 4284368 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TAGAAATGATAGCCTATCTTTAGGCTATCTTAA
spacer length: 33 repeater length: 37

18827 4284438 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT
CTCATTTTCATCGAAATCCTTTAGGACCTTCTGCTCACGCT spacer length: 41 repeater length: 37

18828 4284516 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATACCCTGAGCAAATCCCTTAATACTACCAATACCTC
spacer length: 37 repeater length: 37

18829 4284590 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GCCATCTAAACGCATAGCAGAAGAAGAAGTATCTTT
spacer length: 36 repeater length: 37

18830 4284663 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGCCGCGATTCTCATTCTGCGAAATCGTCCATCTTTT
spacer length: 38 repeater length: 37

18831 4284738 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGACAGACTTGCAAGGCCGTCAACGTTTAAAAGTC
spacer length: 35 repeater length: 37

18832 4284810 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CAAGATCCATTTTCAACGGGGACCAATAACGCATGGA
spacer length: 37 repeater length: 37

18833 4284884 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTGAATCGTATTTTAATTCTTCGTATTACGATTGGA
spacer length: 36 repeater length: 37

18834 4284957 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GCACAGAGAACTTCATACAATGATTTCAGTCCATCA
spacer length: 35 repeater length: 37

18835 4285029 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAATGCCAGTGTACCTCCGTAATCTATCCCCCTATAA
spacer length: 37 repeater length: 37

18836 4285103 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATGTCTATGGTATCCATACTCGCAGATGGCAGTCC
spacer length: 35 repeater length: 37

18837 4285175 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GTAGGCAGTACCTACAAACAGCAACGAAGGAAAT
spacer length: 34 repeater length: 37

18838 4285246 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTGTAGATAAGTATGCGGCAGCCATCGATCCCAGA
spacer length: 35 repeater length: 37

18839 4285318 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CAGATAATCTCAGGCCGATCAACAAAAGACAAGGAC
spacer length: 36 repeater length: 37

18840 4285391 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TAGTTGCTGCCTTCAGAATCTCAGTTTCATGATTG
spacer length: 35 repeater length: 37

18841 4285463 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CAGTATTGCGCGAAAAGAGCATCATGACCAAGCTT
spacer length: 35 repeater length: 37

18842 4285535 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTGCGCCTTCAGCTAGACACCATTACCAAGAATA
spacer length: 35 repeater length: 37

18843 4285607 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTATTCTTACCCCAATTTTGCAGAATCGTCTTAGCA
spacer length: 36 repeater length: 37

18844 4285680 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TCGATTCAATTTGGGCCCTGTGGATTTTCAACGATAA
spacer length: 36 repeater length: 37

18845 4285753 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGTGCAGTCACGGGGGAGCCTCCCAACTCATGA
spacer length: 34 repeater length: 37

18846 4285824 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAAGGGGCGAAGCCCCCTTCCCTTGACCAATATAGAT
spacer length: 36 repeater length: 37

18847 4285897 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGGTTTTTGTATATGACCGCTATCAGAAAAATCTATGC
spacer length: 37 repeater length: 37

18848 4285971 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TCCTCTTCAATGGCGGGTATGCTATTTCTGATGG
spacer length: 35 repeater length: 37

18849 4286043 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAAAAACAATGGTATGATGCAATACTGTTTGA
spacer length: 33 repeater length: 37

18850 4286113 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CCGATGAGTACATAGTCCACGCCGTCCCCGAATG
spacer length: 34 repeater length: 37

18851 4286184 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GGGATAGTTAAGCCGGATTGGCGAGTAGTGAAAG
spacer length: 34 repeater length: 37

18852 4286255 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAGTTAGAGCCTTTTCCGCTCAAACCTTTGTTTCTCAT
spacer length: 38 repeater length: 37

18853 4286330 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CGGTTATCGTGTGCGTTGAATATCCGCCCACGTTTA
spacer length: 36 repeater length: 37

18854 4286403 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CGCGGCGTTGGATGTTCAACCCCGTGATATATTCAA
spacer length: 36 repeater length: 37

18855 4286476 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAGACGCTGTTTTAAGCAAGTTGGTTTGAGGGATGTT
spacer length: 37 repeater length: 37

18856 4286550 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CGCTGTTGTTACTTCGTGGGGAAAAGCAAACGAATA
spacer length: 36 repeater length: 37

18857 4286623 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATGTCCTGGATGTGTAGCACGTTATTATCCTCCACAAT
spacer length: 38 repeater length: 37

18858 4286698 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CAAATTCTGAAATTGCTTTCTCGGCTGCCTGCTGT

spacer length: 35 repeater length: 37
 18859 4286770 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CATCGGATTGTTTTTACTCCAAATAATGTCTTGCGC
 spacer length: 36 repeater length: 37
 18860 4286843 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGAATTCGAAAGATGTGAAAAATGAAGGAGTTGGAA
 spacer length: 37 repeater length: 37
 18861 4286917 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATGATCATGACGACTGAAATCGATATGCTATATGCGA
 spacer length: 37 repeater length: 37
 18862 4286991 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGTGAGTAGTTGCTGTGACATGCACAGAATTAGAT
 spacer length: 36 repeater length: 37
 18863 4287064 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATCGGTGCGAGGTTTCGGATGGACAAGGGGGGAAAAA
 spacer length: 36 repeater length: 37
 18864 4287137 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGGAAATCAGTTTCACGGATCACGAACTTCGTGATA
 spacer length: 36 repeater length: 37
 18865 4287210 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GAAAAGATGAAAAGGTGAACAGAAAATGAGCTACTA
 spacer length: 36 repeater length: 37
 18866 4287283 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACTCTTGAAGAAGGTACTGGAATCTGTCTCTATT
 spacer length: 35 repeater length: 37
 18867 4287355 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT
 CTGGTTGAATGTCCATGTTGGGGAGTTAATGTCACCGCT spacer length: 40 repeater length: 37
 18868 4287432 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GGATATACAGACAAGCAACTCCGCAATGGAACCTTGC
 spacer length: 36 repeater length: 37
 18869 4287505 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GAGATGCAGGTGAAAACCCAGATGATTACAGACTTT
 spacer length: 36 repeater length: 37
 18870 4287578 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATGATATTCATTCATCGTCGTCATCCGGCAAAC
 spacer length: 34 repeater length: 37
 18871 4287649 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGAAAACTAGCTAACCCTCCGGTATCCTATACCTA
 spacer length: 36 repeater length: 37
 18872 4287722 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CATAACATTTTTGCCCTTCTCGCTTCCTTGTTATGTA
 spacer length: 37 repeater length: 37
 18873 4287796 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT
 18874
 18875
 18876 GCA_000970165.1_ASM97016v1_genomic.fna (PilerCR):
 18877 START REPEAT
 SPACER
 18878 crispr 1
 18879 900624 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AACGTGATAACATTATCAAAGATGATCTGTCAAGCCAGA
 spacer length: 39 repeater length: 37
 18880 900700 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGGGATGATTTACACAATACCCATATCATGAA
 spacer length: 34 repeater length: 37
 18881 900771 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATAGATGTGGCCAGTGCAGGCCAGATAATTTATTTAGA
 spacer length: 38 repeater length: 37
 18882 900846 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTGTAAATTCTGGGCATGTCATCCTATAGCGGAAA
 spacer length: 35 repeater length: 37
 18883 900918 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGAAGTTGGATTAAGACTCCATTACAAGCCTCTAA
 spacer length: 35 repeater length: 37
 18884 900990 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAGTATAAGCTGTTCTGTGGAGGAACCGAAAAAA
 spacer length: 35 repeater length: 37
 18885 901062 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTGTTTTATCAAGCTGCACCCAGGTCCTGCACT
 spacer length: 35 repeater length: 37
 18886 901134 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAAGTGGTCCTTTGTTTAAGATCGCTGCCTGTTCAAA
 spacer length: 37 repeater length: 37
 18887 901208 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAAGAGTGGTTAAAGGACGAATCCAAAAAATCA
 spacer length: 34 repeater length: 37
 18888 901279 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCGTCGACTCCGTAGTCTCTCAAGCCGTAATACG
 spacer length: 35 repeater length: 37
 18889 901351 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGTTTATATACTCAACAAGGTTAATATACTTAAAC
 spacer length: 35 repeater length: 37
 18890 901423 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CCCTGTGGGATGCCTAATTTATCTACCCAATCGC
 spacer length: 34 repeater length: 37
 18891 901494 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGAGTAGCAAGCCACGAACCAGACGTAATAAGAGC
 spacer length: 35 repeater length: 37
 18892 901566 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAATATTAAAAACCGTGTAGGGTGGATGCATGTA
 spacer length: 35 repeater length: 37
 18893 901638 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGAGGTAATACTCAATTTTTCCCAATGACTTTACA
 spacer length: 35 repeater length: 37
 18894 901710 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGGAATAACAATGTTTAACCTCAAAGACTTTAAG
 spacer length: 34 repeater length: 37
 18895 901781 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAATTGTATTCTTCTGGAATCTCAAGCCCGTATTTA
 spacer length: 36 repeater length: 37
 18896 901854 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGGTCCCCGCGTGCGAGCAGGCGACCCACATACTCC

spacer length: 36 repeater length: 37
 18897 901927 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAATGTCGTCGTCAAAAATCCTGTTCTCATTTTTCTG
 spacer length: 36 repeater length: 37
 18898 902000 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTAGGCTTTCTCATCAGTCTTTTGAACCTTGATGAG
 spacer length: 35 repeater length: 37
 18899 902072 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATGAAATGACTATGGATACCTCAGTCGATGGATACC
 spacer length: 36 repeater length: 37
 18900 902145 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATGGAACCAGAAGCAGCTATACTAAAATTTCAAGCT
 spacer length: 36 repeater length: 37
 18901 902218 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTAAGGTCGTAGGCATAAGCGACTGATGTATATAAG
 spacer length: 36 repeater length: 37
 18902 902291 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTGGATTGGCTTAATTCCCTTCTCTGCATGAAG
 spacer length: 34 repeater length: 37
 18903 902362 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAATAAAATTTGGGTATTGAAACCATTACATTACC
 spacer length: 35 repeater length: 37
 18904 902434 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTTCTAAAACGTCCCGATGAAAGTATAATCATCAA
 spacer length: 37 repeater length: 37
 18905 902508 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTCTTCGGACTIONACCGGTTAATTCGGAAACACA
 spacer length: 35 repeater length: 37
 18906 902580 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTGAGCAATAATAGGCGTCATTGAAGCCCACATGC
 spacer length: 36 repeater length: 37
 18907 902653 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAATGTGGTCAGATGAAACACATAGCAGGAGTTG
 spacer length: 35 repeater length: 37
 18908 902725 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CCCGTCTGGTAACTATGAAGAGTACGACGGTACTTT
 spacer length: 36 repeater length: 37
 18909 902798 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CACACTCTATTGAATTCTTCAGGGTTTTCCACATTTT
 spacer length: 38 repeater length: 37
 18910 902873 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TACACCCGCATCCATTGTTTGAGCACATTTTCAGTTAG
 spacer length: 37 repeater length: 37
 18911 902947 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CTGAAGGAGATTACATCCTGCAGTTTTATATTGA
 spacer length: 34 repeater length: 37
 18912 903018 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCTGTAGTCATTTTAGATATACCTCGCAAACATT
 spacer length: 35 repeater length: 37
 18913 903090 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC GTCGGTGAGG
 18914
 18915
 18916 crispr 2
 18917 1610346 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTGTGTTGGACGAGTCGGCGTTAGTCCTGAATATAT
 spacer length: 37 repeater length: 37
 18918 1610420 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TAGTCCCCTACCTGCTTATATGGCCATTTCTTCGG
 spacer length: 35 repeater length: 37
 18919 1610492 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCGTTCCCTAATTCATTTTCTGACTTATCTATAATTC
 spacer length: 37 repeater length: 37
 18920 1610566 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTAGATACGCCTCATTACAGGAACGGGTTAAGCTGG
 spacer length: 35 repeater length: 37
 18921 1610638 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GAACACCTTCTCGTTCTTTTTTGGCCTGATACTTT
 spacer length: 35 repeater length: 37
 18922 1610710 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATAAGGCTTTGTTACCTGTACCTGTGACCTTATTAG
 spacer length: 36 repeater length: 37
 18923 1610783 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GTTTTCTCCGCGATACGGTCAATTAGGTCCATCTG
 spacer length: 35 repeater length: 37
 18924 1610855 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTTCACGCTCCTATCACCTTGTCATTGTAGTAAAG
 spacer length: 35 repeater length: 37
 18925 1610927 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTACAAACTGTGTAACCGGAGGCTGTAAGATATTTG
 spacer length: 37 repeater length: 37
 18926 1611001 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AATGCGGTGATCGTGTAAGATTACAGAGGTCAGAA
 spacer length: 34 repeater length: 37
 18927 1611072 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AAGAAACAAAGATCCAGCTATCCAGAGCAACTTACGA
 spacer length: 37 repeater length: 37
 18928 1611146 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTACGCAATCAAGGGGATTGCATTAGGCTTGTATA
 spacer length: 37 repeater length: 37
 18929 1611220 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATGGGACAGGTTGGAGAAATTTTTGCACTTGCTG
 spacer length: 34 repeater length: 37
 18930 1611291 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTGTTCACTTCACTGACCTCTCCGAAAATGCTCTCTC
 spacer length: 37 repeater length: 37
 18931 1611365 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCTCGTCTGAAAGTTCATGAATCAACTCTAATT
 spacer length: 34 repeater length: 37
 18932 1611436 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCAAGCCTGATTATGAGGTAAACTGGCATCACCGG
 spacer length: 35 repeater length: 37
 18933 1611508 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTCTGGAAAAGTTCTTCACTTTGTACCAATCTTTTTT
 spacer length: 38 repeater length: 37

18934	1611583	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATCTCACAGATGTGAACGGGCAGAATAGTACAAA
	spacer length:	34	repeater length: 37
18935	1611654	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CAACCAAACGAGGGCGAAAAAAGAAGCTCGGTTCCCG
	spacer length:	37	repeater length: 37
18936	1611728	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTTAATAACCATTCCCTAGCCTGTTTTTTATACCCTCC
	spacer length:	38	repeater length: 37
18937	1611803	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CAAATACTCGTACACTACCACGACATAACTCGCATA
	spacer length:	36	repeater length: 37
18938	1611876	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AAAAGAGATACGGAAGCTATAGTTTATGCACATGT
	spacer length:	35	repeater length: 37
18939	1611948	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTAAGAGTCTTGGAAGGAAAATTTCGGTTTTTTATT
	spacer length:	35	repeater length: 37
18940	1612020	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CAAGAAATCTATGCTTGGAAGAAGATGGGAAAATAAAA
	spacer length:	37	repeater length: 37
18941	1612094	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ACCACAATGGGAAACGTGGATATGGGAGGTACTGT
	spacer length:	35	repeater length: 37
18942	1612166	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGAGATAAGCCTCATTTCAGGAACGGGTTAAGCTGG
	spacer length:	35	repeater length: 37
18943	1612238	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AACTCAGATAACTATATAAAATCAACCACACCATTATAAAA
	spacer length:	40	repeater length: 37
18944	1612315	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATGAGTGAAAATTACCCGGAACAAAAGTTTGTATGT
	spacer length:	38	repeater length: 37
18945	1612390	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CATTCTGGTCCCTATACCTACAGAATTTTCAGATAAGC
	spacer length:	38	repeater length: 37
18946	1612465	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AAAATATTGATAAATTCAATGATAATTATAGAATT
	spacer length:	35	repeater length: 37
18947	1612537	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AATGTTATTGTTATTCTGCTTTTTTGTCTTTGAGTT
	spacer length:	35	repeater length: 37
18948	1612609	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CAATCCCAGCCAACCAACTTCCGGCAAACGGAAAT
	spacer length:	35	repeater length: 37
18949	1612681	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATATTATTAAAGGCTTCTTCAAAATCGAAGTATTG
	spacer length:	35	repeater length: 37
18950	1612753	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CATCACAGTAGAACAAAAACGAGAGTTGAAAACCT
	spacer length:	35	repeater length: 37
18951	1612825	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CCAGGTCCAGGATGTCTACAGCTCACCCGAAAGTGA
	spacer length:	38	repeater length: 37
18952	1612900	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TATGCTCTGAACCTGTACTAATCATCATATGAAACGA
	spacer length:	37	repeater length: 37
18953	1612974	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCAAAACAGAAGTGCAATGAATAAGTGTAACAATA
	spacer length:	34	repeater length: 37
18954	1613045	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGAAGTTTCGGAATGATACTGATGAACTCCTTGAAA
	spacer length:	36	repeater length: 37
18955	1613118	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CCGAAGAATACGAACCGATCACACTGAAACCCGACAA
	spacer length:	37	repeater length: 37
18956	1613192	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GTCAATATGGCATCTTTGTCTGGAATATAGGGGAC
	spacer length:	35	repeater length: 37
18957	1613264	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TACAGTCGCTTGTTATGCCCGCTACATCGTTTTTA
	spacer length:	35	repeater length: 37
18958	1613336	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CTCGACCTCGTCGTCCTCGTCTACTTCCAGCGCGTT
	spacer length:	36	repeater length: 37
18959	1613409	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCGGTTAAGCCCGTCTATACGTTTGAGTTAAGCCATGT
	spacer length:	38	repeater length: 37
18960	1613484	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AGCCTCCTGCATTTCAAGTGCCGCTTTCTTCTCTT
	spacer length:	35	repeater length: 37
18961	1613556	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AGCTCTGCGGCTTTCAGATAGACTGACCATGTAGG
	spacer length:	35	repeater length: 37
18962	1613628	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CACCCTTCGAACTCGGGCAATAACCTTGAAGCTA
	spacer length:	34	repeater length: 37
18963	1613699	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TATCCCCTTAGATCCCTATAGACATACATGCCCGA
	spacer length:	35	repeater length: 37
18964	1613771	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AATAATAGAAATTACATAAGTAAGTATTAGTTAAG
	spacer length:	35	repeater length: 37
18965	1613843	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTTCCAGGGGAGCTCCGAGAAATACACCGTCTATTT
	spacer length:	36	repeater length: 37
18966	1613916	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CTCTTGAAACAGATGGAAGTTTTAGTTTTGCCAAC
	spacer length:	37	repeater length: 37
18967	1613990	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAAAGAGTGGACATGTGTGCAGATGGATACCAGAGA
	spacer length:	36	repeater length: 37
18968	1614063	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTAAAGCGTTTTGTGAAGGTGAGCTAATGATTGAAA
	spacer length:	35	repeater length: 37
18969	1614135	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CCCGGAAACGGTGAGAGCATGACCGAATTAGAA

spacer length: 33 repeater length: 37
 18970 1614205 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCGCTTTCGTTTTTTGTATCGAGTCCGTATCCGTCTT
 spacer length: 37 repeater length: 37
 18971 1614279 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTGTTTTGTGGATGCACTGTGTAGGGATAGTCCGG
 spacer length: 35 repeater length: 37
 18972 1614351 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGCTACGATTGACAGCCGGACGAGTCCACATTGCCGT
 spacer length: 37 repeater length: 37
 18973 1614425 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TATTGCGGTTCAAACCTCCGATGAATCTTTTTTGA
 spacer length: 34 repeater length: 37
 18974 1614496 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CAATAAGGTCGCTGCTTTCCGGGCTTGTGCTGCCTC
 spacer length: 36 repeater length: 37
 18975 1614569 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AATTATTGTGATAAACTTCTGCAGCTGTAGTAAAGAG
 spacer length: 37 repeater length: 37
 18976 1614643 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAACGATGTCGCCGGGATTACATCGGACTGTATGAG
 spacer length: 37 repeater length: 37
 18977 1614717 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ACATAACTTTTAGCTTCGGCTGCCGTGTCGAATTTCC
 spacer length: 37 repeater length: 37
 18978 1614791 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TAATCGTCGAGTTCGCCCCACAGTTCAAACATTT
 spacer length: 34 repeater length: 37
 18979 1614862 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTCAAGAACAGAGAAGAAGCAGAAAGCGCGACAAT
 spacer length: 36 repeater length: 37
 18980 1614935 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGCAGCCGACGAAAGCAAAAACATTTCTCTTGCAC
 spacer length: 35 repeater length: 37
 18981 1615007 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
 ATCCTCCCGCAACTCCTTATTTCTCATGCTAGCGTTCCTACT spacer length: 40 repeater length: 37
 18982 1615084 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GACATTGAAACTGACAACACAGAAGGCAATGGACT
 spacer length: 35 repeater length: 37
 18983 1615156 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTACTGATAGAATTAATTCGAATGGGACGTTCTAT
 spacer length: 35 repeater length: 37
 18984 1615228 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGATTTGTTTTACTCTTCTAAGAGTAGGTATTGACTC
 spacer length: 38 repeater length: 37
 18985 1615303 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TATGGCCTTGGCCTCGCGCAAAATTCGCCTATAGG
 spacer length: 35 repeater length: 37
 18986 1615375 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CATTAAGGTAACAGCCCCGAAGTATATCCAAAAA
 spacer length: 37 repeater length: 37
 18987 1615449 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCATAAAATATGCGTTTTCTTCCTCGTTTTCTCCATA
 spacer length: 36 repeater length: 37
 18988 1615522 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGACTTAAGGAATCTATTGTTTGGATGGATTA
 spacer length: 33 repeater length: 37
 18989 1615592 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGAGTGCGACTTTTAGAATACAACCTTGATAAAATACT
 spacer length: 37 repeater length: 37
 18990 1615666 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GTTTCAGGGAATTCATTTCTAAGAACTCTTGCAAGATT
 spacer length: 38 repeater length: 37
 18991 1615741 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ACTACAAGGCGTTCCTCAAAGTAATACAATAATAAAAA
 spacer length: 38 repeater length: 37
 18992 1615816 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ACGAATCCCATTAACTGTATTTCAGTCGCTTTCTTGT
 spacer length: 37 repeater length: 37
 18993 1615890 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTTGCAAATTAAGCTCATCCCTAATCCATGCCGGA
 spacer length: 36 repeater length: 37
 18994 1615963 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TAGATGTTGTGCGAGGGGACATCTACAGCAATGA
 spacer length: 34 repeater length: 37
 18995 1616034 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTCACACTCTCCAAATAAAAAAGGGAAATCTGAAT
 spacer length: 36 repeater length: 37
 18996 1616107 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TATACAACATAAAATAATTAACAGTGATAAAACAT
 spacer length: 36 repeater length: 37
 18997 1616180 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGGATCAGGACGACGGCAATAATACTGAAGAATCCT
 spacer length: 36 repeater length: 37
 18998 1616253 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AACTCATTCTTCTTGATGTCTGAAGCCAGCCTTCCC
 spacer length: 37 repeater length: 37
 18999 1616327 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGATCGAGATAAAGATAACTGATGAAATGCGAGAAA
 spacer length: 36 repeater length: 37
 19000 1616400 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGGACCTG

19001 GCA_000970185.1_ASM97018v1_genomic.fna (PilerCR):

19004 START REPEAT

SPACER

19005 crispr 1

19006 863235 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC AAAATGATTTCATACCTTTGTAATTCAGATTTAAGG
 spacer length: 35 repeater length: 37

19007 863307 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TTTGCGAGCTTAGGGCAAATGGTGCAGTGTGAGG

spacer length: 37 repeater length: 37
 19008 863381 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAAGCAGATGATGTAGTGCTTGATTATCAGGTGACAG
 spacer length: 38 repeater length: 37
 19009 863456 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TACTGATGATTTTAATGACATTGCTGACTCTGAAAA
 spacer length: 36 repeater length: 37
 19010 863529 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATGATTATGTTTTGTGTCTTGAGGATAAAAAGATAGCT
 spacer length: 38 repeater length: 37
 19011 863604 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTATAAAGTTAAAGTAGAACTAAATTTCAACCA
 spacer length: 35 repeater length: 37
 19012 863676 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATCTCATCTGGAACCCATATATTCATTCTCGGCATT
 spacer length: 36 repeater length: 37
 19013 863749 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAAAAAATTAAGAACGTTGTCATGCTCTCATGCCTC
 spacer length: 36 repeater length: 37
 19014 863822 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATAATGTTTTTGTATGGCTGTTCAAATGCGGGGATT
 spacer length: 35 repeater length: 37
 19015 863894 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTAAATGACGTCCCTCCGAATATTAAGGTAAGTTCT
 spacer length: 36 repeater length: 37
 19016 863967 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAGAGTCTTACTTTTCTTCCACCAATGATAATTTCTGT
 spacer length: 37 repeater length: 37
 19017 864041 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CAGACAAAGCAGGAAGGAAGATTGAAACTCGTTCA
 spacer length: 35 repeater length: 37
 19018 864113 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC GAGTGTTTGAGGTTCAAGTCTGCCGGACATGCGGA
 spacer length: 35 repeater length: 37
 19019 864185 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCCAGTTGCGTCTATCGAAATCACAAACGAGATAAC
 spacer length: 36 repeater length: 37
 19020 864258 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AACCCTCCCTCTTAAACATGTTTCCGTTTGAATT
 spacer length: 36 repeater length: 37
 19021 864331 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAAAAATAGAATCCACTCAAACCGAAGCCCTGAA
 spacer length: 34 repeater length: 37
 19022 864402 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AGATAGTCACGGTGTCTATCTTCCAGAATAACACAT
 spacer length: 36 repeater length: 37
 19023 864475 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAATATCAACTGCACATTCTTCCACAATATCATTC
 spacer length: 35 repeater length: 37
 19024 864547 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTTTGATTTTTCTTCCGGCATGAAATCCTTGAT
 spacer length: 34 repeater length: 37
 19025 864618 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATAATTATGTTGAGTTGAGAGTGAATTCAGGTTGC
 spacer length: 35 repeater length: 37
 19026 864690 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC GAAAACAGGATTGAACGGGCTAAAGCATTGAAAGCTT
 spacer length: 37 repeater length: 37
 19027 864764 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TACCGTTCATGGTATCGGACATATCAAAGCCAGCAAG
 spacer length: 37 repeater length: 37
 19028 864838 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CATTCCTTCCCCTGTTCTGAGCCTCCCTGTGA
 spacer length: 34 repeater length: 37
 19029 864909 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTATTGTGAACCCCCGCAGACCTAAGAGGATTTTCA
 spacer length: 36 repeater length: 37
 19030 864982 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTCCACAATCAACATACCCCGTAAGCCCATCAAAC
 spacer length: 37 repeater length: 37
 19031 865056 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTATTTTTTGCCATGCCTGCCGCGTCTAATCCTATCC
 spacer length: 36 repeater length: 37
 19032 865129 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTATCCCGTGGTCTCTTCGTCTACATTAATAGT
 spacer length: 34 repeater length: 37
 19033 865200 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CACAGCTACCCGGACAGGGAAGTATAAGGACCTGGCAG
 spacer length: 38 repeater length: 37
 19034 865275 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AATTTTGTGACATACCCCTGAAATTCATAGACTTC
 spacer length: 35 repeater length: 37
 19035 865347 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAGAATATAATACAAACAATCCTTATAACGAACTG
 spacer length: 35 repeater length: 37
 19036 865419 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TATGTATATTCATATATTCGAGCACGGCGAAGAACT
 spacer length: 36 repeater length: 37
 19037 865492 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGGATCGTGGAGGGAGAAGATTGAGTAATAAAAAA
 spacer length: 35 repeater length: 37
 19038 865564 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AACATAGATTTTGACGAGCAGGACATAAACCAGGG
 spacer length: 35 repeater length: 37
 19039 865636 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAAATGATTACATACCTTTGTAATTCAGATTTAAGG
 spacer length: 35 repeater length: 37
 19040 865708 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTGTCCGGATTTTGTGGATTCTTGATATTTCCCTGA
 spacer length: 36 repeater length: 37
 19041 865781 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC
 GGTTGCCCGTATGGTGTTCGATCATATCTTCGTCACCT spacer length: 41 repeater length: 37
 19042 865859 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACCAAACCAAGCAAGCCAGAAAGCCTGGCAGTATCG
 spacer length: 37 repeater length: 37

19043	865933	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATTCTGCGGGTGGGGCTGCCGTCACAATGGGCGGGA
		spacer length: 36 repeater length: 37	
19044	866006	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CAACGATGTAATGTTTTGGAATTGCTTTTCACCTT
		spacer length: 35 repeater length: 37	
19045	866078	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TAGACCCCGCAAGGCCGAGAAGTGCGGTCTTAACA
		spacer length: 35 repeater length: 37	
19046	866150	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTTCATAAATTTCGAGTCACATAAATATCCATGATTG
		spacer length: 36 repeater length: 37	
19047	866223	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TGCGGCTTTATCTATTTCAGGAATCTGAACTAAAAG
		spacer length: 35 repeater length: 37	
19048	866295	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATACTTTCATCAGTCAATATTTTCATTTTCGTATAGA
		spacer length: 36 repeater length: 37	
19049	866368	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AATGGATTGTGGAGACCGTTCTCTACTTGGACTTCT
		spacer length: 35 repeater length: 37	
19050	866440	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GAAGAACA
19051			
19052			
19053	GCA_000970205.1_ASM97020v1_genomic.fna (PilerCR):		
19054	START	REPEAT	
	SPACER		
19055	crispr	1	
19056	901786	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	CTAAATTTTCATACTCTTCTTGATTTTGGGAAAGTAA
		spacer length: 36 repeater length: 37	
19057	901859	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	ATACAAATAGAGATAGATTAGATAAGTATAATGAT
		spacer length: 35 repeater length: 37	
19058	901931	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	ATTTGCATACTTCTCCTACAGTACCGCTTCCGGCAAA
		spacer length: 37 repeater length: 37	
19059	902005	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	AAATTGAAACCGCGATAGGCTACGGGTGGATTGAAAA
		spacer length: 37 repeater length: 37	
19060	902079	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	GTTATTTTTCAGGAGTGGTTTTTCGCTGTCCATGTATC
		spacer length: 36 repeater length: 37	
19061	902152	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	TATTATATATTACTTTTCACGTAGGTAAAATTAGTTAT
		spacer length: 37 repeater length: 37	
19062	902226	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	AAAGGAAAAAATTAGTATTGTCTAGGAACTCAATTA
		spacer length: 36 repeater length: 37	
19063	902299	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	TTATCCTTCTGAGGATTAGGCTTGTCCCGTATCAC
		spacer length: 35 repeater length: 37	
19064	902371	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	ATAATGAAGAAGCACACACGAAAAGGTGTAAGCCAT
		spacer length: 36 repeater length: 37	
19065	902444	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	TTAACTTGCCAGACTGAACGCTTATTTCTAGTTCC
		spacer length: 35 repeater length: 37	
19066	902516	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	AAAATAGTGCCTACCGTACCGCCCATTGCAGA spacer
		length: 32 repeater length: 37	
19067	902585	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	TTAAGATGTGATGGGAACCTGTGATAATTTATTACT
		spacer length: 36 repeater length: 37	
19068	902658	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	CTTGATTTTGATCAGGTTGAAGAACCCCATACGGGT
		spacer length: 37 repeater length: 37	
19069	902732	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	TACCTGTCGTGGAATCTGGGAATTCCTGGATTATC
		spacer length: 35 repeater length: 37	
19070	902804	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	
		AATTCCTCGCATAGTGTAGAAAAGTGGATTTACTATTACTGT spacer length: 41 repeater length: 37	
19071	902882	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	TTTTATATATAACGATGTTTTGTCTGGATATTTCAGA
		spacer length: 36 repeater length: 37	
19072	902955	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	AATAGATACTGTCTTGCTGTGCCTCCTGTAGCTGT
		spacer length: 35 repeater length: 37	
19073	903027	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	ATAGATATCGCACGGTATTATGTTAATGGGGAAAA
		spacer length: 35 repeater length: 37	
19074	903099	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	ATGGCCGATGTTGGAATGGCAACCGCCGACATGACAG
		spacer length: 37 repeater length: 37	
19075	903173	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	GGAGATATTAGCCCAGGTTGGCGAAATGTACGCGTGG
		spacer length: 37 repeater length: 37	
19076	903247	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	CGTAATGATTCCGATCTTCAGGCTATTATTTTCGGCTGT
		spacer length: 38 repeater length: 37	
19077	903322	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	TATTGGAGGGATAAGTGGGGGCATGGTTATTATTCC
		spacer length: 36 repeater length: 37	
19078	903395	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	ACCCTCTCAACGCTAACTACTTCCAGGATCTTATCAAG
		spacer length: 38 repeater length: 37	
19079	903470	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	CAATCAGGTTATTATTCAGGAGTCGCAGGGAGAAGA
		spacer length: 36 repeater length: 37	
19080	903543	ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC	GAGAATTAACAGACTTTCATATCTATGAATCAGAAA
		spacer length: 36 repeater length: 37	

19081	903616	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	CCTGCTCTGCTGCTGCAT
	spacer length: 36	repeater length: 37		
19082	903689	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TATGGCAGTCTTGCCATCAAAC
	spacer length: 36	repeater length: 37		
19083	903762	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TTTCATCTGACCACATTTATA
	spacer length: 37	repeater length: 37		
19084	903836	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	ATTCAGTTGAGGATTCTACAGA
	spacer length: 37	repeater length: 37		
19085	903910	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	ACCCTCTCAACGCTAACTACTT
	spacer length: 38	repeater length: 37		
19086	903985	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	GTCAATCTCAATGTTGGCACAC
	spacer length: 35	repeater length: 37		
19087	904057	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	AATGAAACGTCCTTATCTATAG
	spacer length: 35	repeater length: 37		
19088	904129	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	AAATTGTGACCCCGGTAACAGG
	spacer length: 36	repeater length: 37		
19089	904202	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TCATTCTCGGGGAAGTCTTCAAG
	spacer length: 36	repeater length: 37		
19090	904275	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	ATATCATGATCAGGATTGTAAAC
	spacer length: 36	repeater length: 37		
19091	904348	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TAAAACATGGTATAATAAAGATC
	spacer length: 36	repeater length: 37		
19092	904421	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TTTTGTATTGTCCTCGTCTCGCG
	spacer length: 36	repeater length: 37		
19093	904494	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TTTTCCCTATGTTCTTAAAAAAG
	spacer length: 34	repeater length: 37		
19094	904565	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TTAATTTTGCCACGTCATTATAT
	spacer length: 33	repeater length: 37		
19095	904635	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	GAAACTGACAATAACTACGGAAAG
	spacer length: 34	repeater length: 37		
19096	904706	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	CTGTCCCTCCCTCGACTTGTCGAA
	spacer length: 36	repeater length: 37		
19097	904779	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TTTCGGATGTTGAACATAACAAA
	spacer length: 37	repeater length: 37		
19098	904853	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	GAACAATAAGTTATGACAGTTTC
	spacer length: 37	repeater length: 37		
19099	904927	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TCCGTAAAAATGGATAGAACTGA
	spacer length: 36	repeater length: 37		
19100	905000	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	ACATCTACGATTAACTCATCATCT
	spacer length: 36	repeater length: 37		
19101	905073	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TTTCTCCTGGCAGTCTTTTGAAC
	spacer length: 37	repeater length: 37		
19102	905147	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	CAATTTGAAACTACACAGTTCTT
	spacer length: 36	repeater length: 37		
19103	905220	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TCCATGGTTGAGGATGGGCAGATT
	spacer length: 36	repeater length: 37		
19104	905293	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TTCTCCGACAATTTCAAAGATATC
	spacer length: 36	repeater length: 37		
19105	905366	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	AGTAAAGGGGTGCTGTACGAGAG
	spacer length: 36	repeater length: 37		
19106	905439	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	CCTTGATACTCGGCCTCTTGATCC
	spacer length: 36	repeater length: 37		
19107	905512	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TATTTTATTGTAAGGGGTACGGAT
	spacer length: 37	repeater length: 37		
19108	905586	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	GAATAAACCAAACGTTGTAATCCC
	spacer length: 37	repeater length: 37		
19109	905660	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TTGCAATATCCGCGAGAAGAGAG
	spacer length: 35	repeater length: 37		
19110	905732	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	CTCTGGAGTCCTCATGGCCACTTAC
	spacer length: 36	repeater length: 37		
19111	905805	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TACAATTCCTTTCCCTAGCGCCGT
	spacer length: 36	repeater length: 37		
19112	905878	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	ACAGGAATTTCAAATAAGCCCTGC
	spacer length: 38	repeater length: 37		
19113	905953	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TATATGGTAATGTAGTTTTAGAAAC
	spacer length: 36	repeater length: 37		
19114	906026	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TTGAATTTACTGAAACTACGAACCG
	spacer length: 38	repeater length: 37		
19115	906101	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	CTCGCCACCG
19116				
19117				

19118 crispr 2
19119 1620228 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ATCTCCACTCCCTAGTTCCAATCTTCCCCCGTCGT
spacer length: 37 repeater length: 37
19120 1620302 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTTCTTTTGCAAGTGGTCCTTTGTTTAAGATCGCTG
spacer length: 36 repeater length: 37
19121 1620375 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TAGGGAATGTCTATGAAAATCCTGAACTTATTGAG
spacer length: 35 repeater length: 37
19122 1620447 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ATTACCATTTTTATTTAATTAGCTATAAGTACTA
spacer length: 34 repeater length: 37
19123 1620518 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TAATGGGCGTTTACTGGGTAATAGAGTCCATAAT
spacer length: 34 repeater length: 37
19124 1620589 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ACATAAACATAATCACCTAATTTTACTTGTGGGGT
spacer length: 35 repeater length: 37
19125 1620661 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TAGATGTTGTCTGGGGGAGACATCTATAGCAAT
spacer length: 32 repeater length: 37
19126 1620730 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ACTTGCAGTGCAACACAGTATCAGACAACACCAT
spacer length: 34 repeater length: 37
19127 1620801 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC AGGGTTTCATGCTGTTTTCCGTTCAATTCAACCTCTG
spacer length: 36 repeater length: 37
19128 1620874 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CGGACATTGACAGAATCATATCAAAGGGCAATTTTG
spacer length: 36 repeater length: 37
19129 1620947 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CGAGGTTTCCGGCGGCTGCGCTTGGGCGTTGTTGG
spacer length: 35 repeater length: 37
19130 1621019 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TACCAAATTAAAAACGTTGTCATTTTTGCGTTGTCT
spacer length: 36 repeater length: 37
19131 1621092 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CTGCTTGTAAGATGAGTTCGTTTACCATTGTTTT
spacer length: 34 repeater length: 37
19132 1621163 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC AAAATTCCTGCACTCGCGGGTTGACGGGCTGTATC
spacer length: 35 repeater length: 37
19133 1621235 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TGATACGTCTCTGAATACTCTCTCGCGAATTCGT
spacer length: 34 repeater length: 37
19134 1621306 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CCGAACAGCATTTCGCCTATTTTCCGGGCTTCTTCG
spacer length: 36 repeater length: 37
19135 1621379 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TGAATTCAGCAATGGCTTCATGGGTTTCCCGAAGGG
spacer length: 36 repeater length: 37
19136 1621452 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CGCAAACCGTAACCATGTGGTTACGCTGATGCTGTT
spacer length: 36 repeater length: 37
19137 1621525 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CTGATTTTCGGTTTTCAATTCTTTTTCCCTTCTT
spacer length: 34 repeater length: 37
19138 1621596 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TGAGATAAGCCTCATTACAGGAACGGGTAAAGCTGG
spacer length: 35 repeater length: 37
19139 1621668 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC AGGGCCTTTGCGATCTCGCTATACTGGCTTATATTAA
spacer length: 37 repeater length: 37
19140 1621742 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TCTCCTCTTGCAATTTCTGTCTCTATTTTTTGGCA
spacer length: 35 repeater length: 37
19141 1621814 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TGCAATGTCGGGGACCAATCCAGGTCAGCCTCGGT
spacer length: 35 repeater length: 37
19142 1621886 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC AGGTGTTTCGATGGCTCTGTGTTGATTGCTGACG
spacer length: 35 repeater length: 37
19143 1621958 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CAACAATAGAATCGTGCGCCCTGGCCACGAGGGGG
spacer length: 35 repeater length: 37
19144 1622030 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CATTATTCCAGGTGAATGTCATATTTCCATTTGTA
spacer length: 35 repeater length: 37
19145 1622102 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CTCATTGTTCCACGCTCCTGTTTTGGCGTTATAT
spacer length: 35 repeater length: 37
19146 1622174 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CATTCCATTTGTTTCCATCCATATCTGTTAATGT
spacer length: 34 repeater length: 37
19147 1622245 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC AAAACCTTAAAGACTTAGTAGAAAAGTCAAAAAT
spacer length: 34 repeater length: 37
19148 1622316 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTAGCTTGCCATATGCTCTGGCTATTTTTCTTTCTCTC
spacer length: 37 repeater length: 37
19149 1622390 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CTGCGTAAGGCTCTCTAAGATAACAAGCATATTCC
spacer length: 34 repeater length: 37
19150 1622461 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CCTGATGTTAGTCTTAAAGTTCGGAGCCACCAACA
spacer length: 35 repeater length: 37
19151 1622533 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TCTTGATCCTATTTTCAGTAGCAATTGCCTTATAG
spacer length: 35 repeater length: 37
19152 1622605 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC AGCTTAAGCTCAGGCGAAGAGCAATGGTAAGAATG
spacer length: 36 repeater length: 37
19153 1622678 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TGGAGATGGGAACCGGAAAGACAAGGACAGCAATCGA
spacer length: 37 repeater length: 37

19154	1622752	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTACGTGATAGATGGGAATCAAACAACCGAGATCA
	spacer length:	35	repeater length: 37
19155	1622824	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AGAGGATTCAACATTTGATTGATCGTGCTAAATTT
	spacer length:	35	repeater length: 37
19156	1622896	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CCCATGAATGTCTCTTAATTGACGTAGATTGCGACT
	spacer length:	36	repeater length: 37
19157	1622969	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAAATGTGGTCAGATGAAACACATAGCAGGAGTGG
	spacer length:	35	repeater length: 37
19158	1623041	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGATTAATTCCCTGCCCTATTCTAACACCTTCTTT
	spacer length:	35	repeater length: 37
19159	1623113	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTTCCAAGACGGAGATATCTGGAGAGTTGATAATG
	spacer length:	35	repeater length: 37
19160	1623185	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GTATTTATGGGCGTTGCTTGCTCCGGTTTTGTACG
	spacer length:	35	repeater length: 37
19161	1623257	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGGAGAGAAACGACATCATGACAATAGATCATGAA
	spacer length:	35	repeater length: 37
19162	1623329	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCAAACAGTGATTGTACTCTCAGAACCCTTTCAAG
	spacer length:	35	repeater length: 37
19163	1623401	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GTGATATTGTTTTTGGCATTGTTTTACCTTCACTT
	spacer length:	35	repeater length: 37
19164	1623473	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGGTTTTAATCCTATTTGCAACAATTGAAGAATCT
	spacer length:	35	repeater length: 37
19165	1623545	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATATCGGCTCGATCTTATAAAATTTATTTTCAA
	spacer length:	33	repeater length: 37
19166	1623615	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTAATTCGCTTGCCCCTTCAGAAATCTTAACTGA
	spacer length:	35	repeater length: 37
19167	1623687	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AAGGTTCTAATAACCGAAACAAAGCTAGGCAACGT
	spacer length:	35	repeater length: 37
19168	1623759	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CAGCTTCAATGCCTATGACTCATGAAGAAGCTGAGAA
	spacer length:	37	repeater length: 37
19169	1623833	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGTTAGGTTGTCTATTTCGACTCCGTACGCAGCCAA
	spacer length:	36	repeater length: 37
19170	1623906	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AAAGAGGGATCGAATGAAAATAGCCGGGGTAAAGT
	spacer length:	35	repeater length: 37
19171	1623978	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GATATACCTTATAGTGTATACGTTAAAGGTACACCGT
	spacer length:	37	repeater length: 37
19172	1624052	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAAAGCTTCGCTTAATTTTCCGGACAACCTTCGAAAA
	spacer length:	37	repeater length: 37
19173	1624126	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCCGGTTCGCTTGGTTCGAACGCGTCGAGCGTCTCT
	spacer length:	34	repeater length: 37
19174	1624197	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AGCGCTAGACCACGCACATATAGTATATCCTTAAAGT
	spacer length:	37	repeater length: 37
19175	1624271	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AGGATATACTATAAACGACGTACTTTAAGGATATACTA
	spacer length:	38	repeater length: 37
19176	1624346	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ACTGACTGTTTTTCGCGATTGAATACATATACTTACGAA
	spacer length:	38	repeater length: 37
19177	1624421	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ACTCTAAAAGAACTCGGTTTGATCACGCTGAATCTA
	spacer length:	36	repeater length: 37
19178	1624494	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GCATTGAAAGCACAAATGGGAATCTAAAGCACAAATCA
	spacer length:	37	repeater length: 37
19179	1624568	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CGATCCTTATATCTCCTGCGTCTGTTGCTGTCTATGT
	spacer length:	36	repeater length: 37
19180	1624641	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTATCCCTGGAAGATGTAAATCTATTTCAGGAGAGTAGA
	spacer length:	38	repeater length: 37
19181	1624716	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCGCCCCGGCTCCTCCTCCTGCCGCTGTAGTATAA
	spacer length:	34	repeater length: 37
19182	1624787	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GATACTGGCGTTATACAGTTTTGAAGTTCGAAAATACC
	spacer length:	38	repeater length: 37
19183	1624862	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCTGATATAATGAAAAATGCCTTCGAAGATGCAAATAT
	spacer length:	38	repeater length: 37
19184	1624937	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTCGCCTCCCTTACTCGACCAATGACACATAAAGC
	spacer length:	35	repeater length: 37
19185	1625009	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTGAGAATCCACTGTCAAGATCCTGGCTTTTAGACAA
	spacer length:	37	repeater length: 37
19186	1625083	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGAACATATTTTCTTGCCCTCTTCTGTTGAATATCC
	spacer length:	35	repeater length: 37
19187	1625155	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTGTACCTGTAATTAATGGAATTGGTACATAGCCTT
	spacer length:	36	repeater length: 37
19188	1625228	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAGACACGACAGCAGGAAATGTTTATATTTCTAAAGC
	spacer length:	37	repeater length: 37
19189	1625302	ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AACTCATTCCTTCTTGATGTCTGAAGCCAGCCTTCCC

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spacer length: 37 repeater length: 37
19190 1625376 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGATCGAGATAAAGATAACTGATGAAATGCGAGAAA
spacer length: 36 repeater length: 37
19191 1625449 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CATAACGT
19192
19193
19194 GCA_000970225.1_ASM97022v1_genomic.fna (PilerCR):
19195 START REPEAT
SPACER
19196 crispr 1
19197 799771 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TCAGTCTTATCTCAACAACCTCCCCCTTACACCCCT
spacer length: 36 repeater length: 37
19198 799844 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT AGTTTTTCCTTACATTGATCTAATGCCGGAACCTCAA
spacer length: 36 repeater length: 37
19199 799917 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT ATGCGTATTCTATTGTATATGGTTACTTATCCAGT
spacer length: 35 repeater length: 37
19200 799989 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT GACATCCTTTGCTTTTTCTTTGTTTCAGATACTCAA
spacer length: 35 repeater length: 37
19201 800061 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TTCCTTATTCTAATTTCTAATTCTACAATAAGGA
spacer length: 34 repeater length: 37
19202 800132 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CGGATGTTATACCACCGTTGCGGGTTGAGATGTT
spacer length: 34 repeater length: 37
19203 800203 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CCATTAATTTTAATCGTGTTACTTGAAGTTCCTG
spacer length: 34 repeater length: 37
19204 800274 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CTGAATTAGCTAAGTATGGTGTCACCCATATGTGA
spacer length: 35 repeater length: 37
19205 800346 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CATTATCCAAAATTCTAGTAATGGGTAAAGTAGAG
spacer length: 35 repeater length: 37
19206 800418 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TTATCCAATTGACCGTTTTTATACATTTTCATCAGAC
spacer length: 37 repeater length: 37
19207 800492 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TAAGAAAGTAGCTATCAATTACGCTAACAGAGTATT
spacer length: 36 repeater length: 37
19208 800565 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT GTTACTTAATTTTTTTTTTAAAGAAGTTGAGTAATAAT
spacer length: 37 repeater length: 37
19209 800639 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CAGATTCACCTGTCTCTAGATAATGGATCATATTCAT
spacer length: 37 repeater length: 37
19210 800713 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT AAGATATTGATAGAACTGTCTTCCGAACTGAACTGAA
spacer length: 37 repeater length: 37
19211 800787 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT ATTTTATAATCTCACTGATAGAATAGTTGAAGAAAC
spacer length: 36 repeater length: 37
19212 800860 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CCGCCAGAATACGATATGATGTACTTGTCGTATTTGG
spacer length: 37 repeater length: 37
19213 800934 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TATGGTAATCGGACCCGACGAGAACAGACATCAGGG
spacer length: 36 repeater length: 37
19214 801007 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT GCCTTATTGATTCTGCACATACTGACGTATTCTGA
spacer length: 34 repeater length: 37
19215 801078 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TTAGAAATATAGAAGCAAGCGACCACGTTTATATTA
spacer length: 36 repeater length: 37
19216 801151 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT ATGATATTTTCGAAATGTTGGGTTTCAGGAGAAGAT
spacer length: 37 repeater length: 37
19217 801225 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT ATTATTGTATTTGTAGTCTTTCTGTCATGTCTGT
spacer length: 34 repeater length: 37
19218 801296 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TGTCATGTTATGCTTTTTTAGAGAGTTCCTGAGCG
spacer length: 34 repeater length: 37
19219 801367 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CTCAAAATTCTGTAACTTTTGTTTCGAGATAGAGACA
spacer length: 36 repeater length: 37
19220 801440 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TTACAAACACTATGCGTATTTATGAACACAATTA
spacer length: 34 repeater length: 37
19221 801511 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT AGGTGTAGCAAAAGCTATTGCTAATTATTCAGCTTC
spacer length: 36 repeater length: 37
19222 801584 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT ACAATCAGGTAGAGATGGGAAGAAAACGTTTTTTGA
spacer length: 36 repeater length: 37
19223 801657 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TTCGCGAATATGCGACCTGATAACGTTGGACCTA
spacer length: 34 repeater length: 37
19224 801728 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TTGACGACAAGATGGAAGAAATCGAGGAGATGAA
spacer length: 34 repeater length: 37
19225 801799 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT AGGAGCAGAACCTCGCACAGTAGTTAATATATTTTT
spacer length: 36 repeater length: 37
19226 801872 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CGGTTTTTAAAGTATATAGGAGGCTTAAATATATATGTC
spacer length: 36 repeater length: 37
19227 801945 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TGCCTGCTTTGCTTCCTGAATTGTTGGCTTAGACT

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spacer length: 35 repeater length: 37
 19228 802017 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT GCAGGGAACGCCTTAGCGCTCTTCAGAACAGCATTTC
 spacer length: 37 repeater length: 37
 19229 802091 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT CCCTCCAAAACCGATTGCGGTTTGGATAGATGCGTATT
 spacer length: 38 repeater length: 37
 19230 802166 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT GATATAAAAATCGCAGCTATGAAAGCTGGAAGTAGTG
 spacer length: 37 repeater length: 37
 19231 802240 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TCAAAGACATTACCATGGAATATTTCAAGGAACTGTA
 spacer length: 37 repeater length: 37
 19232 802314 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT GTCAAACCTCTTTAGAATTTTTTCTAATGAAAAAAG
 spacer length: 36 repeater length: 37
 19233 802387 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAAT TCTCCGGGGT
 19234
 19235
 19236 crispr 2
 19237 1604386 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCTGAATGGTGCCTCCAAGTCGGGCGGATCCAT
 spacer length: 34 repeater length: 37
 19238 1604457 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCGGAAATGATGTCCCATCCGATACCGGACAGAAATAT
 spacer length: 38 repeater length: 37
 19239 1604532 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
 TCAGATCGGTTTGCCGGTCTGCGTTTCCATCGAAATGGAT spacer length: 40 repeater length: 37
 19240 1604609 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTGCTCAAGATGCTGCCAAAGCTATGACTCTGCTAGG
 spacer length: 37 repeater length: 37
 19241 1604683 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GAAACTTTAAATTCAATTTTCATATGATACCTTGAA
 spacer length: 35 repeater length: 37
 19242 1604755 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AATAATCCTCAATTCCACCGATTCCATATTTATCAG
 spacer length: 36 repeater length: 37
 19243 1604828 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TATTATGTGTCGTTAATGCCTTGAGTGTGTCAGAGAGA
 spacer length: 38 repeater length: 37
 19244 1604903 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTAACGCTTCTTGTTTTGTCTCTCCCAATTCTTCAAG
 spacer length: 38 repeater length: 37
 19245 1604978 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTTCTTACAGTCTGGCAAAGAAGGGCTTGACA
 spacer length: 33 repeater length: 37
 19246 1605048 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTGCAGTTTTTACTAAGCGGTTTCATGTTTCCTACA
 spacer length: 35 repeater length: 37
 19247 1605120 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGGATGTGTAGCCCACTCTTTCCAAGCTTCCATATC
 spacer length: 36 repeater length: 37
 19248 1605193 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GATGATATCAAATAACAGGCTGGAATTATACGGTA
 spacer length: 36 repeater length: 37
 19249 1605266 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TACTCCCTTAGTGTAGAGGTCAATCACGGAGGGCCT
 spacer length: 36 repeater length: 37
 19250 1605339 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATATCCGGCGTGCTGCAAAGCCTATAGACCACAGAAC
 spacer length: 37 repeater length: 37
 19251 1605413 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TATAGGTGTAAAGACTTATAGTAATTTGTAAGATAAT
 spacer length: 37 repeater length: 37
 19252 1605487 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGCTTATGAGCAGATGCAGGCTGAAACATGAAAGAGC
 spacer length: 37 repeater length: 37
 19253 1605561 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTACAGGCAACCCTCCAATTACTATCCCCGACTGC
 spacer length: 36 repeater length: 37
 19254 1605634 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATAAAACCATAGAGGACTATGGATATACGCCTAA
 spacer length: 34 repeater length: 37
 19255 1605705 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCAGTTCGATTCTACTGCTCCGGCATCGCTTCCGC
 spacer length: 35 repeater length: 37
 19256 1605777 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGAGAGAGTTGACTATCTTTGCAGTTTTCTTAATCTT
 spacer length: 37 repeater length: 37
 19257 1605851 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATACCTACACTTCAGCACAAAGCGGGGGCCTATGT
 spacer length: 34 repeater length: 37
 19258 1605922 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTACAGGGGGTGGTAAGAGTGCTTGGAAGATGTAAAA
 spacer length: 38 repeater length: 37
 19259 1605997 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGGAGATGCTACAGCAGAAATTAACTCGATGAT
 spacer length: 35 repeater length: 37
 19260 1606069 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGTAAATGCAATTAGTAAACCCAAGTGATAAAATC
 spacer length: 36 repeater length: 37
 19261 1606142 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATAAATTGCAGAATGGTGGTGTAATGATAAAAGTG
 spacer length: 36 repeater length: 37
 19262 1606215 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTGAACCCACCGGAACCCCTTTTCGTGATATACCTT
 spacer length: 36 repeater length: 37
 19263 1606288 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CAAAAAATAAAGAGGTTCTGGAAATAATGATA
 spacer length: 34 repeater length: 37
 19264 1606359 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AAGCGGAATAATTAGCAATTGCTTTTGCTACACCAG
 spacer length: 36 repeater length: 37

19265	1606432	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	AGAGCTTATTGCAGAATACAACCGTAACAGGCTAAAT
	spacer length:	37	repeater length: 37
19266	1606506	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TGAATGTATCTGCGAAGGCTCTCGTTCTTGGTGTAA
	spacer length:	36	repeater length: 37
19267	1606579	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TTGTCTGTTTTTGTCTTTGAGTTCTCCCGTAGGTGTT
	spacer length:	36	repeater length: 37
19268	1606652	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TGCGAGAGTGTTATGGCGACGATCAAAAGCGAAAG
	spacer length:	35	repeater length: 37
19269	1606724	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TAACTCATCCAGGTTGTAGGATCGAACTCTTCTACAT
	spacer length:	37	repeater length: 37
19270	1606798	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	GGCTGAATCTCCGAAACCAACCTTATATAATGATTAA
	spacer length:	37	repeater length: 37
19271	1606872	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TCATCTCCGG
19272			
19273			
19274	crispr 3		
19275	1606944	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	
	AGTGCTCCTACTTTGATACACCTTCTGAATTCACATGGAAC	spacer length:	42 repeater length: 37
19276	1607023	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TAAGCTTCAGCTTTTTCTCTTGCTTTTTTGCAAAA
	spacer length:	35	repeater length: 37
19277	1607095	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TCTCAGTCCTCGATATCCAAGGCGAACACCTTTAAAAA
	spacer length:	38	repeater length: 37
19278	1607170	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TAGAGTAATTGACCCAGACGTCTGGGTAAAGGTAG
	spacer length:	35	repeater length: 37
19279	1607242	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	GAGAATGGACTTGTCTTCATGTAACACTTCCCATGAT
	spacer length:	38	repeater length: 37
19280	1607317	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	ATAAAATATATCGGCATGCGTATCCAGAATTTCA
	spacer length:	34	repeater length: 37
19281	1607388	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TTGGAGCTACATACGGATTGGTGAGAACTATATA
	spacer length:	34	repeater length: 37
19282	1607459	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	GAACTCCTGCACAAGTCCCCGGACTCCGTAAGTGT
	spacer length:	35	repeater length: 37
19283	1607531	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TCAGGCCATTTTATAGCGGACGATGGGCGGTAAGAT
	spacer length:	36	repeater length: 37
19284	1607604	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	GAGGTTGAGTTTTCCGATTCCGGGCGAACGGGGCAAA
	spacer length:	37	repeater length: 37
19285	1607678	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TAGGAGTATGCAGCATTAGCGGGTTAAGTGTTGCGG
	spacer length:	36	repeater length: 37
19286	1607751	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TTTATAGTATCATAAAACGTGATGTCAACACAGCC
	spacer length:	35	repeater length: 37
19287	1607823	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	
	TCCAGCAAAAACATTATACCCATACCTACTGCAAGAAAAATC	spacer length:	41 repeater length: 37
19288	1607901	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	CAAGATAGCAAAATAGCTCTGAGCCAGCCCGACTA
	spacer length:	35	repeater length: 37
19289	1607973	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TGCAGCTGGTCAGGCTCCGGACCTGTCAGCAATGAC
	spacer length:	36	repeater length: 37
19290	1608046	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	AACATATAGATTAAAACATATGACAGAAGAAAACCA
	spacer length:	37	repeater length: 37
19291	1608120	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	ACAAAATTGCGGTTAGTAATGGTGTTTTAGATGTTGT
	spacer length:	37	repeater length: 37
19292	1608194	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	CAAGGACGCCATAACATTTGTTAATTATGCTAAAG
	spacer length:	35	repeater length: 37
19293	1608266	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	ACCTTCCCGTGGTCCTTGCCGGGGATACCCCCCTGGA
	spacer length:	37	repeater length: 37
19294	1608340	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	CTCTTTTTTTTTTGCTGTTAGAAAATATGTCCCGA
	spacer length:	36	repeater length: 37
19295	1608413	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	ATTACTGCTGTTTTACCGTCTGTTGTGGATCTCAGAG
	spacer length:	37	repeater length: 37
19296	1608487	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TGCAAAAGTATAGTAGATCAGTTTGGAGCTTGACCG
	spacer length:	36	repeater length: 37
19297	1608560	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TAGATGCAACAGGCGGGGTTAACGCTCTCACAACTT
	spacer length:	36	repeater length: 37
19298	1608633	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	ACGATATCCG
19299			
19300			
19301	crispr 4		
19302	1608791	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	ATGCCTTTCAGTTCTCTTTTTATGTTTTCTAGCTC
	spacer length:	35	repeater length: 37
19303	1608863	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TTACTACATGGACACTGTGACCCCCATCGGCTAA
	spacer length:	34	repeater length: 37
19304	1608934	ATTCTGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TGATTGTACCTCTCATAACACACTATGTTTTCTT

spacer length: 34 repeater length: 37
 19305 1609005 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC GCAGTCTGGCTGGCTTCCATGATACGAAGCTGTTC
 spacer length: 35 repeater length: 37
 19306 1609077 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CCAAGCCTCTTATCGAGACTGTCCAAGGCTTCTGT
 spacer length: 35 repeater length: 37
 19307 1609149 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TCCAGGGAGTCAAAAACGACGGGACAACTACGAC
 spacer length: 35 repeater length: 37
 19308 1609221 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTACCCTGAAATGAAACGGTCACAGGAAACCCAAGAG
 spacer length: 37 repeater length: 37
 19309 1609295 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CCACTTTCCAGTAATGGGAATAGTCGCCCTATAACGG
 spacer length: 38 repeater length: 37
 19310 1609370 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTAATTCCGTTTCCATATCTGCAATATAAAAAATTG
 spacer length: 36 repeater length: 37
 19311 1609443 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CTGCGTCGCCTACCTTGTCCAGGTTCCAGGCTCCAG
 spacer length: 36 repeater length: 37
 19312 1609516 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ACGCAGACGATAATTAAAAGGGATTTCGCTCAATG
 spacer length: 34 repeater length: 37
 19313 1609587 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TAAATGTAGATACAACCTCAGATTCTTTTATCTGT
 spacer length: 35 repeater length: 37
 19314 1609659 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TGAGATTGTATTTTTTATATATTACAATGTTGTCCCA
 spacer length: 37 repeater length: 37
 19315 1609733 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TCAATAGCGGACGACGGTAAAAGCGCAGTAGTACAA
 spacer length: 36 repeater length: 37
 19316 1609806 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC GAAAATACCTGTATGCCTCCAAACGCTTGATTTTCG
 spacer length: 36 repeater length: 37
 19317 1609879 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC
 TTTTCTGGTTCGATTTCTGGCATATCTGAGCCACCAGGTC spacer length: 40 repeater length: 37
 19318 1609956 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CACCTTTGAGAGTCCAAGAGCTTCCAACATTGCGG
 spacer length: 35 repeater length: 37
 19319 1610028 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ACAAAGAACCGGAGCCCACAAAATGACAGAAAACA
 spacer length: 35 repeater length: 37
 19320 1610100 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC AAATACCGCCCTGCCAGTCTATCCC GTTATATCCG
 spacer length: 35 repeater length: 37
 19321 1610172 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CTCTGGTCAATGTTTGCAGGAGGGACCAGGTAA
 spacer length: 34 repeater length: 37
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 spacer length: 35 repeater length: 37
 19323 1610315 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTAACCGCCTTTAAACTCGCTTCAATGTGGGCTAT
 spacer length: 35 repeater length: 37
 19324 1610387 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ATGTCTAAGTACCTGGAGGGGGTCTTAACGGCAGT
 spacer length: 36 repeater length: 37
 19325 1610460 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTATTCCTGGTATAGTTCATGCGGGAACAGTAG
 spacer length: 34 repeater length: 37
 19326 1610531 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CACATGTTCCAGCAAATCCGCCTTGTACTATTTCCGG
 spacer length: 37 repeater length: 37
 19327 1610605 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTTTATCAGGCGGGCTGGATTCAACCACTCTTTTAT
 spacer length: 36 repeater length: 37
 19328 1610678 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTCGTTTGCAGATATTCCAATATTCTGTCTCTGA
 spacer length: 34 repeater length: 37
 19329 1610749 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ACATATGTCATTTTTTTTAGCTCCTGTTTATTGAATC
 spacer length: 36 repeater length: 37
 19330 1610822 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ATACTCTTAATATCCTCCAGCATTTCCGGGGATAAAT
 spacer length: 37 repeater length: 37
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 spacer length: 35 repeater length: 37
 19332 1610968 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC GGATAGCGTTTACTATACTGTCTGAACCTGGACCGG
 spacer length: 35 repeater length: 37
 19333 1611040 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC AGCCTTAGTTTTGCGGTCTGGTCCCCTGTGAGGAT
 spacer length: 35 repeater length: 37
 19334 1611112 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ATCCTGGTTTCAATGGAGATAGTAAAGGGAGAGGG
 spacer length: 35 repeater length: 37
 19335 1611184 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC AACTCTATATAATGCATCTAGGTCATGGTCTAGAT
 spacer length: 36 repeater length: 37
 19336 1611257 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ATAATCATTTTTTCTTCACACTTCTTTAATCTCATCT
 spacer length: 36 repeater length: 37
 19337 1611330 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TCACAAAAGGGTTAATAATTGAGGCCTGCTGTTGTC
 spacer length: 36 repeater length: 37
 19338 1611403 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CTGCAGTATTCTTTCTGAATATTATCAGTAAAGA
 spacer length: 34 repeater length: 37
 19339 1611474 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CTTTTGAAGATATAAGCAAAGCTGTCCTTCGACG
 spacer length: 35 repeater length: 37

19340 1611546 ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GGAAACACAGGATTTAAATTAAGATCGCTTCGGACTC
 spacer length: 37 repeater length: 37
 19341 1611620 ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GCCTGTTCGAGTGCCTCATCTTTGAGGGCAGTAACA
 spacer length: 36 repeater length: 37
 19342 1611693 ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGCATTGTATATCTACAATGTAGCAAAGTATATAT
 spacer length: 35 repeater length: 37
 19343 1611765 ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTATAATATTGAATGTTTGAACATCTGTAAAACCGA
 spacer length: 36 repeater length: 37
 19344 1611838 ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGTGTTGTTTCGATGTTTTTCATCGAATTCCTGGAAG
 spacer length: 36 repeater length: 37
 19345 1611911 ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CAAGTAAGTGTGGCAGGAGTCCCAAAAGTAAC
 spacer length: 32 repeater length: 37
 19346 1611980 ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CACATTAAAATAATGAAATCTGTATTTGCTTTCAAC
 spacer length: 36 repeater length: 37
 19347 1612053 ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCGTATACAAAAGACTTATTCTCTGGCATATAATTTA
 spacer length: 37 repeater length: 37
 19348 1612127 ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGTCATCTACCCTGATTGATTGATGGGGGCGTGTTAC
 spacer length: 37 repeater length: 37
 19349 1612201 ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGATACCGTGCAGCATAAGAATACGGATGCCACA
 spacer length: 35 repeater length: 37
 19350 1612273 ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CAATTTGTTTTGACATTTTATATATCTCTATAGG
 spacer length: 35 repeater length: 37
 19351 1612345 ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TACTGTTGCGCGGTTCTTCGCATTGTTGCGTCAAT
 spacer length: 35 repeater length: 37
 19352 1612417 ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGAAATTCAATACCTCCGCACAAGATCAGATATTG
 spacer length: 35 repeater length: 37
 19353 1612489 ATTCTGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCTGAGGAC
 19354
 19355
 19356 crispr 5
 19357 1613678 TCCACTAAAACAAGGATTGAAAC TATTATCTAACATTTTCATCATCAATTGAAATATAATCAATTCGCGAGCAAGA
 spacer length: 52 repeater length: 23
 19358 1613753 TCCACTAAAACAAGGATTGAAAC TTCTACCATCAGAGAGTTTACCACACACCATACTGATTGCGGAGCAAGA
 spacer length: 49 repeater length: 23
 19359 1613825 TCCACTAAAACAAGGATTGAAAC TACGGACACCATTCGGGTTCACTCTCATCAAAGCAGATTGCGGAGCAAGA
 spacer length: 50 repeater length: 23
 19360 1613898 TCCACTAAAACAAGGATTGAAAC AAAATAGTGTAAATAACCGGCAGCAGTACCCTCGGTAATTCGCGAGCAAGA
 spacer length: 50 repeater length: 23
 19361 1613971 TCCACTAAAACAAGGATTGAAAC CTGTTACAGACTTGTAGTATTTGGCTTCCGAAGGTGTATTCGCGAGCAAGA
 spacer length: 52 repeater length: 23
 19362 1614046 TCCACTAAAACAAGGATTGAAAC TTCTATAGTAAATAATATCTCACCCCATGTATAAAAAGATTGCGGAGCAAGA
 spacer length: 52 repeater length: 23
 19363 1614121 TCCACTAAAACAAGGATTGAAAC TTATATTACGGAAATGGAAGCGTAACGTCTGCAAGTGATTCTGTGAGCAAGA
 spacer length: 51 repeater length: 23
 19364 1614195 TCCACTAAAACAAGGATTGAAAC CAGGGTAATTCGGACTATGCCAGGGGCGCCAAGATAGAATTCGTGAGCAAGA
 spacer length: 52 repeater length: 23
 19365 1614270 TCCACTAAAACAAGGATTGAAAC CTTTCCGGTCTTCAATGTTTATTGATGAAAGTTTAAAAATTCGTGAGCAAGA
 spacer length: 52 repeater length: 23
 19366 1614345 TCCACTAAAACAAGGATTGAAAC AACATTTCTCTGAAAGTTTGTGAAGTACTTCTTCGGATTGAGAGCAAGA
 spacer length: 51 repeater length: 23
 19367 1614419 TCCACTAAAACAAGGATTGAAAC AGTCCAATAATCCCATATCGGAAGCTGCAACCGCCCAATTCGAGAGCAAGA
 spacer length: 52 repeater length: 23
 19368 1614494 TCCACTAAAACAAGGATTGAAAC AGACCTATAATACAGAGATAGCGCATGGTCGGTATCGTCGAGAAGTAGCT
 spacer length: 50 repeater length: 23
 19369 1614567 TCCACTAAAACAAGGATTGAAAC TTTTTCCTCAATTTACTTCTCTCATTGAACATTTGGTCGAGAAGTAGCT
 spacer length: 50 repeater length: 23
 19370 1614640 TCCACTAAAACAAGGATTGAAAC
 GATTTTGCCTTTCTCTCCATAAAGCTGGAAGTATTTTGTGCGAGAAGTAGCT spacer length: 54 repeater
 length: 23
 19371 1614717 TCCACTAAAACAAGGATTGAAAC GGATTATTAGTTGAAGTATCCGTGAATTGGACTGTAACGTCGAGAAGTAGCT
 spacer length: 52 repeater length: 23
 19372 1614792 TCCACTAAAACAAGGATTGAAAC TTTTTTATGTTGTATCGAGCGAGTCCGTAAATACGTGTCGAGAAGTAGCT
 spacer length: 51 repeater length: 23
 19373 1614866 TCCACTAAAACAAGGATTGAAAC TATTTTGCTAAACAATACTGCGTTTCAGCTTATCAATGTCGAGAAGTAGCT
 spacer length: 50 repeater length: 23
 19374 1614939 TCCACTAAAACAAGGATTGAAAC GTCCCATGT
 19375
 19376
 19377 crispr 6
 19378 1628083 ATTCTGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC GAAGCAAGTAAGGACTAATCCCCGCCATTTCAATGGT
 spacer length: 37 repeater length: 37

19379	1628157 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 38 repeater length: 37	GTCTGGAATTGTTTCATATCGGATGCTTTCTTTTGCTCC
19380	1628232 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	GAGTGTCTAATTCTTCTCTTGTGAGATAGTCCACTG
19381	1628305 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	TTGTTAGCTTCGATTGTTGCATACCCGGATTCAAT
19382	1628379 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	AAAACATGTACATAAACTGTAGCTTCCGTATCTC
19383	1628450 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	TAGTCCCCTACCTGCTTATATGGCCATTTCTTCG
19384	1628521 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	ATTCGTCTTGGTCTTCGTTTGGAGCTTCAGAACTT
19385	1628594 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	AACTTCCAAAAGTGTGCGACTCTTCCAGTAAGGTC
19386	1628666 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	TCTCCCTGGTAATGAGTTTTACATGGGTCATACATCC
19387	1628740 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	ACAAATGTTGTCTCTGGATGAAATCAATATCTGGT
19388	1628812 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 33 repeater length: 37	CTCGAAAGGGTATCCTGGTCAAACCTGTAGATT
19389	1628882 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	CATGGTGGGTTTTGCCCGCAACCGATGCTACAT
19390	1628954 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	GGTCACTTCGTACGACCGCTGTGAAGCCGTTCTCTCA
19391	1629028 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TTGAGAAGAAAGACATGGGGTTCGATGAATATATAT
19392	1629101 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TATGCGCACAGATGGGGCATATGGATAATTTGGAAG
19393	1629174 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	ACTCATTACAGGCTTGAATCTCTGGATGACCTGGATG
19394	1629248 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	ATTATATTTTCTGTGCAATAATATTGTTTTTCAA
19395	1629319 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 38 repeater length: 37	AATTCTGACGCGCATGTTTCCAAGAAGCATTCCGAAGA
19396	1629394 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	CAGACAATATCAGCAGGTGAAAGAGGGGGATT
19397	1629465 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	GGAAACTTCTTAATAGTTTGCTTCCTGATTTCTTC
19398	1629537 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TGGGACCATCGCGGACACCGGAGCGACCACAGTAGC
19399	1629610 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	ATTTTTTCTTCGCGCATGAGTACAAACATTTATA
19400	1629682 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 38 repeater length: 37	TAATCAATATCAAGTTGGTCCCATATGGCAATATTATA
19401	1629757 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC ACCGTGATGTTGAACCATTTGTTTTCGATCTCAATAATTC	spacer length: 40 repeater length: 37
19402	1629834 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	CCTAAATTCGTAACTTTGGCCTTGATATATTTTCGAG
19403	1629907 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TGTTAACTGGGAACAGAAAACAGCTATTGTTGAAAC
19404	1629980 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	CTAATGGGTTTTTCATGGGCCCGCATCGTTTCAATG
19405	1630052 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	AATAGTTGAATGGATTAACTGGCATTATTGGCAC
19406	1630125 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 38 repeater length: 37	ATATACGACCTCATATGTCAATCACCTGACATCAATT
19407	1630200 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	CTTTCATTTCCCTCACACCCTAATTGGAATCAAAAA
19408	1630273 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 38 repeater length: 37	CATTGTTAATGAATATACGTTACAGTTAGGTCTGTGTA
19409	1630348 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	TCTTCTCAGTAAATGTGAAATGCTTCTCAAACCTTT
19410	1630422 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	TTGGGTGTATAATCCACCCTGCTTCTGTGTATAATTG
19411	1630496 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TTTTGTAAGTCTAATTCATCCCGTATCCATGCCGG
19412	1630568 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	AAATCGTGGGAATAATCACAGATCAGGGGCTTGAG
19413	1630640 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	AAGATATGGTAGATAAGCACCATATCATACTAAAA
19414	1630712 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	ATCCGCTGAACCGGTCACTCCCTACGAGAGACGCACC

spacer length: 37 repeater length: 37
 19415 1630786 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC CCTATGTAACCATCAACCAGATGGAAATCAAGAGT
 spacer length: 35 repeater length: 37
 19416 1630858 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC GCAGGCGGTG
 19417
 19418
 19419 GCA_000970245.1_ASM97024v1_genomic.fna(PilerCR):
 19420 START REPEAT
 SPACER
 19421 crispr 1
 19422 890109 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TTGTCAATTCCGTAAAAAACGTTAAACGAAAATG
 spacer length: 34 repeater length: 37
 19423 890180 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC AAAAGGAACTGAAGAAGGAAAAGCAGATTCCCTTACTT
 spacer length: 38 repeater length: 37
 19424 890255 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC ATATTATGCCCGTTGAATGTGATTGTTTCATTGT
 spacer length: 34 repeater length: 37
 19425 890326 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC ATTTTCACTAACCAACAGTGTAAAATCAAAGACGA
 spacer length: 35 repeater length: 37
 19426 890398 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC GCAGTTAGAGAATGGACTTGTCTTCATGTAACACTT
 spacer length: 37 repeater length: 37
 19427 890472 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC ATAACCGTAGAGTCCGAATATATATCGACTTTTCAG
 spacer length: 35 repeater length: 37
 19428 890544 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TCATAAATGGAATTAACATTACAGGTGCTGGAACCTGG
 spacer length: 38 repeater length: 37
 19429 890619 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC AGGTTAAGGGACTTTCGACAGCAGGAAGCTCTTTTGA
 spacer length: 37 repeater length: 37
 19430 890693 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC AACTCGCGAGCAGGGAATAACCATTACCGAGAT
 spacer length: 34 repeater length: 37
 19431 890764 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TGGTCAAACCTGTTGGAGATGCTGAAAGAGCGTAAAA
 spacer length: 36 repeater length: 37
 19432 890837 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC AAACCTAACGCTAAACCTAAATCTAATTAATATTGAAC
 spacer length: 37 repeater length: 37
 19433 890911 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TGGAAAAATTTTTGTCCTCGGTACTCTCGTCCTTTT
 spacer length: 36 repeater length: 37
 19434 890984 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC ACAATCTCTTTTTGTCATCATGCCCTGCAATATAG
 spacer length: 35 repeater length: 37
 19435 891056 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC GTCTTTCTCTTTCTGCTTCAGTCACATCTGTAATT
 spacer length: 35 repeater length: 37
 19436 891128 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC CCTGACCCAGACTTTCCTAACAGCAAAGCATTAGA
 spacer length: 35 repeater length: 37
 19437 891200 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC CCCATCCAAACATCCCCGCTTTTTTGGACTGTTATT
 spacer length: 36 repeater length: 37
 19438 891273 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC ACTTTGAATGTGTAAATAGTAAATAGTGAAAGATTA
 spacer length: 36 repeater length: 37
 19439 891346 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC CAATGCTTCTGGAAAGCATCGGGCTTTTAATTGGC
 spacer length: 35 repeater length: 37
 19440 891418 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TAAGTGTTAATGAGGGGGCAGTACAGGGAAACGA
 spacer length: 34 repeater length: 37
 19441 891489 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TATCAGAGCAATTCTTATTTTCGGGGCTGCACTT
 spacer length: 34 repeater length: 37
 19442 891560 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC ACAAACACGTATAACTATTTTATACTCTTCTTCAGA
 spacer length: 37 repeater length: 37
 19443 891634 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC GGAATCATTTTTTACCGTTATCGTGGTCTCTGCTCT
 spacer length: 37 repeater length: 37
 19444 891708 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TCGAGGTGAACACTGAAAACTGAAAGAATATTGT
 spacer length: 35 repeater length: 37
 19445 891780 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TGCTGTGCGGCATGAAGCAGAACTTAGAACAGATCTT
 spacer length: 37 repeater length: 37
 19446 891854 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC GTAACCTCTCGGTTTTTTTTCACATTCTCCCCGTAA
 spacer length: 35 repeater length: 37
 19447 891926 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC ATTACACTCTTCGATCTAATGAAGAATCAGAAAG
 spacer length: 34 repeater length: 37
 19448 891997 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TGAATCAGGATATTCATGTTAAAAATATTGAAAG
 spacer length: 34 repeater length: 37
 19449 892068 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TGAAAAAACTCGAAACTGAAATGGGGAAGGCGTTAT
 spacer length: 36 repeater length: 37
 19450 892141 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC ACATGGTTATGGAAAGCTTCGATGTCCCTGACGC
 spacer length: 34 repeater length: 37
 19451 892212 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC ACACGACATCGTTTTGGAGGGATCCATAGCACATAATT
 spacer length: 37 repeater length: 37
 19452 892286 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TTGCAAGGGCTTAAAGGTGATCTTGTATGGTAGG

spacer length: 34 repeater length: 37
 19453 892357 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTTCCCTCCAACGTTTTAAGGGGCTTACTGCCCCCT
 spacer length: 36 repeater length: 37
 19454 892430 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCATGTGGCTATATTCAACATCAAATTCCTTTTTTC
 spacer length: 35 repeater length: 37
 19455 892502 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AATCTCTAAAAATCCATATCTAACATGCAGCTATAT
 spacer length: 36 repeater length: 37
 19456 892575 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCCGCCTCACTCGCTTGGCCTTATGATGATTACA
 spacer length: 34 repeater length: 37
 19457 892646 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATGCGATCCGCCAAAAGAGAAAGCTGTTTCAGGA
 spacer length: 33 repeater length: 37
 19458 892716 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACTGTTGAATTAATTTTCGATGTCGTTTTCTGAAAAAA
 spacer length: 37 repeater length: 37
 19459 892790 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTCACACTCTCCAAATAAAAAAGGGAAATCTGA
 spacer length: 34 repeater length: 37
 19460 892861 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAAACAATATCATAACGAACACACAGAAAAGAAACA
 spacer length: 36 repeater length: 37
 19461 892934 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTGGTCAGTCCGATACTGAAATAGAAAATATTGAAA
 spacer length: 37 repeater length: 37
 19462 893008 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CGGCGACTCCGGTAAATTCATACAAAGTTGTAGAAG
 spacer length: 36 repeater length: 37
 19463 893081 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAGTAGTATGACAATATAGAGTATGTACTAGGGCGGT
 spacer length: 37 repeater length: 37
 19464 893155 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TATACATTGTTAGCGTTAATAGAATCTATGGCAGA
 spacer length: 35 repeater length: 37
 19465 893227 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTATTATGTCAGTACATCCCTTCCTTAGCACCATC
 spacer length: 35 repeater length: 37
 19466 893299 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGCACATGTTTTCAAAGACACCATGAATCCATTGAC
 spacer length: 36 repeater length: 37
 19467 893372 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAGTAGTATGACTAATACTATGTACTGATAAAAG
 spacer length: 34 repeater length: 37
 19468 893443 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC GATTTTTCTACCCCTAGCTGCCTCGACTCTCCAAT
 spacer length: 35 repeater length: 37
 19469 893515 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CGCCAAGCTGCACGGCATTGCATTAGAACCTCTTGTAG
 spacer length: 38 repeater length: 37
 19470 893590 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAGATCAGAACAGGAGAAATCTTAAATGGTAGGA
 spacer length: 34 repeater length: 37
 19471 893661 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTCTATCTGCTTCTTCAGTGTTTTCCATTCTTAAGCT
 spacer length: 37 repeater length: 37
 19472 893735 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCAATCATAAATATCACCTCATCCAAGAATCAAAC
 spacer length: 36 repeater length: 37
 19473 893808 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATACCCTCCTTCTCCTTACTGTATCGAATGAGTTA
 spacer length: 35 repeater length: 37
 19474 893880 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTTTCGCACCTGCCTTAGAAGTCACGTTTTTATAT
 spacer length: 35 repeater length: 37
 19475 893952 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTAAAGCGTTTGTGAAGGTGAGCTAATGATTGAAA
 spacer length: 35 repeater length: 37
 19476 894024 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATGTAATGAGGGATATCTATATCAGAGCAATTCTGA
 spacer length: 36 repeater length: 37
 19477 894097 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC GCTTCCTTTTCTCAGTCTCTTCTATTTCTGCTGT
 spacer length: 36 repeater length: 37
 19478 894170 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAAACCATGACCTGGGAAAACGAAAACACTTACA
 spacer length: 34 repeater length: 37
 19479 894241 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TG TAGATGGAGTACTTGAAGGAACCGCAACGTCTGCA
 spacer length: 37 repeater length: 37
 19480 894315 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CGATAGTGGCAGACGGAATAATGAGAGCGGTAAAT
 spacer length: 35 repeater length: 37
 19481 894387 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGGTCTGGATCGAAGATAAAATCATGTATGACGGGA
 spacer length: 36 repeater length: 37
 19482 894460 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC
 CAGAAACATAAGCAAACGTTTCCCCTAATTCTATTTGATT spacer length: 40 repeater length: 37
 19483 894537 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTACATTGCCGTTGATATCGATCCGCGTGAGAGTAGG
 spacer length: 37 repeater length: 37
 19484 894611 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AGCGCGGGCATCCTGATATGACCGCAGGAGAAG
 spacer length: 33 repeater length: 37
 19485 894681 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGCGAGAGTGTTATGGCGACGATCAAAAGCGAAAG
 spacer length: 35 repeater length: 37
 19486 894753 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTGCCTCAATAGCTACTATCCGCGACCATATGAAC
 spacer length: 35 repeater length: 37
 19487 894825 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTCCCCTCCGGCATGGATACGGGATGAGCTTAATTT
 spacer length: 38 repeater length: 37

19488 894900 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGAACTACGCGGCGGCGGTTCACGAAATCCCGATGA
 spacer length: 36 repeater length: 37
 19489 894973 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAATTATAAAGTTAACAGCGTTAACTTTATAATA
 spacer length: 34 repeater length: 37
 19490 895044 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGACAAGTCAGTTATCCAGGCAAGCAGAAAAC TCCGT
 spacer length: 37 repeater length: 37
 19491 895118 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCAGGGGCGGTGAAAGGAGCAACCGGGGCAAATCA
 spacer length: 35 repeater length: 37
 19492 895190 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTAGAAGCGAAATAGACAAGCTCAGGGACGGTTC
 spacer length: 34 repeater length: 37
 19493 895261 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTCAAGAAGTTGGAAAAGAAAATTTGAATATGGGT
 spacer length: 35 repeater length: 37
 19494 895333 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACTGAATCCCTGATACTTTTGAGCTCTTTTTTCATGGT
 spacer length: 38 repeater length: 37
 19495 895408 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATCTGTAGTCATTTTAGATATACCTCGCAAACATT
 spacer length: 35 repeater length: 37
 19496 895480 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTCTGACCT
 19497
 19498
 19499 crispr 2
 19500 3296836 TCCACTAAAAACAAGGATTGAAAC TTACAATTGATGTTTCAGGCCTTGAAGATGGCGTATTCGTGAGCAAGA
 spacer length: 48 repeater length: 23
 19501 3296907 TCCACTAAAAACAAGGATTGAAAC AAATGTGATACAAATAGAGATAGATTAGATAAGTATAAATTCGTGAGCAAGA
 spacer length: 52 repeater length: 23
 19502 3296982 TCCACTAAAAACAAGGATTGAAAC GATAATACCAAGCTGACAAGCTCTTAGAACTGCGAATTCGTGAGCAAGA
 spacer length: 49 repeater length: 23
 19503 3297054 TCCACTAAAAACAAGGATTGAAAC GTGGAAGCGGTAAATCGGTAGACCTGCTGAAAGATAAATTCGTGAGCAAGA
 spacer length: 51 repeater length: 23
 19504 3297128 TCCACTAAAAACAAGGATTGAAAC TTATTCCTTGTATAGCTCACGCGGGAACCGTAGAATTCGTGAGCAAGA
 spacer length: 49 repeater length: 23
 19505 3297200 TCCACTAAAAACAAGGATTGAAAC TAATGAGATTGTTACTATTATAAATTAATTACAATAATTCGTGAGCAAGA
 spacer length: 50 repeater length: 23
 19506 3297273 TCCACTAAAAACAAGGATTGAAAC GGAAATATCAGGAAGCAAATAGGAAGCTTGAAGAGAATTCGTGAGCAAGA
 spacer length: 50 repeater length: 23
 19507 3297346 TCCACTAAAAACAAGGATTGAAAC ACAAAGAAACCGGGAAGGACGAAACCCCAAATATCATTCGTGAGCAAGA
 spacer length: 50 repeater length: 23
 19508 3297419 TCCACTAAAAACAAGGATTGAAAC AACTCATGACCGCCATGCTCGGGGATGAAAACACATTCGTGAGCAAGA
 spacer length: 49 repeater length: 23
 19509 3297491 TCCACTAAAAACAAGGATTGAAAC CTATCCTTTTGATGGATATAATCAATATGCGCCTTAAATTCGTGAGCAAGA
 spacer length: 51 repeater length: 23
 19510 3297565 TCCACTAAAAACAAGGATTGAAAC AATGCAACTTATTATGGGGTATGGTGTGCTCCTGTCATTCGAGAGCAAGA
 spacer length: 50 repeater length: 23
 19511 3297638 TCCACTAAAAACAAGGATTGAAAC TCTGAGAGTTTCTCCGGCTTCCGGTACTCTTGTATATTCGAGAGCAAGA
 spacer length: 49 repeater length: 23
 19512 3297710 TCCACTAAAAACAAGGATTGAAAC AACGGTGATAGAAACGGGCGAACTGGCATCCTCAAATTCGAGAGCAAGA
 spacer length: 49 repeater length: 23
 19513 3297782 TCCACTAAAAACAAGGATTGAAAC CCATGTTAAATCCTCACGTTGATATCAGATATTGAATTCGAGAGCAAGA
 spacer length: 49 repeater length: 23
 19514 3297854 TCCACTAAAAACAAGGATTGAAAC AGTTTTCCCTCAAACATCTGATTACCTAGGGCAGATTCGAGAGCAAGA
 spacer length: 48 repeater length: 23
 19515 3297925 TCCACTAAAAACAAGGATTGAAAC TTGAAAAGGGTATTATTCGAAATATGGATTTTGGTATTCGAGAGCAAGA
 spacer length: 49 repeater length: 23
 19516 3297997 TCCACTAAAAACAAGGATTGAAAC TTCTCAGGATATTGAGAATCCAATCTAGCAGGTCATATTCGAGAGCAAGA
 spacer length: 51 repeater length: 23
 19517 3298071 TCCACTAAAAACAAGGATTGAAAC ACTTTAAGGCGGGAAGTCCCCTTCTCGCCATCAGGATTCGAGAGCAAGA
 spacer length: 50 repeater length: 23
 19518 3298144 TCCACTAAAAACAAGGATTGAAAC AATCTGAAGTGCCCTCAGCTTCGGTATGATGTTGAATTCGAGAGCAAGA
 spacer length: 48 repeater length: 23
 19519 3298215 TCCACTAAAAACAAGGATTGAAAC TGACTAAAATGCTTGACGGAATTATATCGGATTAATTCGAGAGCAAGA
 spacer length: 48 repeater length: 23
 19520 3298286 TCCACTAAAAACAAGGATTGAAAC ATGTCGTTCCCTGCCATTGACCCCTTGACACCTGAGATTCGAGAGCAAGA
 spacer length: 49 repeater length: 23
 19521 3298358 TCCACTAAAAACAAGGATTGAAAC TTTTGTGTCCTGATTCTGTCGTTAAAGTGTGCGCAATATTCGAGAGCAAGA
 spacer length: 51 repeater length: 23
 19522 3298432 TCCACTAAAAACAAGGATTGAAAC TTAATCCACTCAATAGAAACCACATCTGGAACATATTCGAGAGCAAGA
 spacer length: 49 repeater length: 23
 19523 3298504 TCCACTAAAAACAAGGATTGAAAC CAGAGCTTATCAAAGGATACGCAGAAGGGAAATAATTCGAGAGCAAGA
 spacer length: 48 repeater length: 23
 19524 3298575 TCCACTAAAAACAAGGATTGAAAC ATCCAGGGATGGGCTAATGATATAGGCGTACTCATGATTCGAGAGCAAGA
 spacer length: 50 repeater length: 23
 19525 3298648 TCCACTAAAAACAAGGATTGAAAC AAAAGTCAGTCCCGGCCAGCCTATGCGCTAAGACTTCAATTCGAGAGCAAGA

spacer length: 52 repeater length: 23
 19526 3298723 TCCACTAAAACAAGGATTGAAAC TCTTTTGAGACTCGCGGAAAATGCTTCAGCTGGGGACGATTTCGAGAGCAAGA
 spacer length: 52 repeater length: 23
 19527 3298798 TCCACTAAAACAAGGATTGAAAC TTTTACCGGGGATGTGACAGTCAGGGAATACGGCATATTTCGAGAGCAAGA
 spacer length: 50 repeater length: 23
 19528 3298871 TCCACTAAAACAAGGATTGAAAC TGTAATGGTACACTCTCTGAGGAAACGGTAACAAATTCGAGAGCAAGA
 spacer length: 49 repeater length: 23
 19529 3298943 TCCACTAAAACAAGGATTGAAAC TTTTGCACCTACGCTTGAAAATTTAATAGATTATGTAAATTCGAGAGCAAGA
 spacer length: 52 repeater length: 23
 19530 3299018 TCCACTAAAACAAGGATTGAAAC TTATAGAGAGCTTTTCTTCTGTATTTACAACTAAGATTTCGAGAGCAAGA
 spacer length: 50 repeater length: 23
 19531 3299091 TCCACTAAAACAAGGATTGAAAC
 ATTGTGCACGTTTTTCTTTGCGTATTCGGTTTTTGCTCGGTATTCGAGAGCAAGA spacer length: 55 repeater
 length: 23
 19532 3299169 TCCACTAAAACAAGGATTGAAAC TTAGAATTAAATATTCACCAAAGTTTAGTTTTTTATTCGAGAGCAAGA
 spacer length: 48 repeater length: 23
 19533 3299240 TCCACTAAAACAAGGATTGAAAC TGGCAACAACAAAACAGAAACAGTAAAAAGCAAAAATTCGAGAGCAAGA
 spacer length: 49 repeater length: 23
 19534 3299312 TCCACTAAAACAAGGATTGAAAC TACAAATCCTGGACATTTCCAGAATATGAATTCCTTCGAGAGCAAGA
 spacer length: 49 repeater length: 23
 19535 3299384 TCCACTAAAACAAGGATTGAAAC TACATTGGAACCCCTGCATATCATCCATTGGTTCAAGTATTCGAGAGCAAGA
 spacer length: 52 repeater length: 23
 19536 3299459 TCCACTAAAACAAGGATTGAAAC
 AATGTTAGCTGCCGATTCAAGAGCTGGTCCGAAAATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAGTCGAGAAGTAGCT
 spacer length: 83 repeater length: 23
 19537 3299565 TCCACTAAAACAAGGATTGAAAC CTGAGGTAGTAACGATTTCTCCTTTGTTGGTAATACTGTGAGAAGTAGCT
 spacer length: 51 repeater length: 23
 19538 3299639 TCCACTAAAACAAGGATTGAAAC AATCTTCAGGATGCTGCCTTCTAATTTAGCAAAATAGTCGAGAAGTAGCT
 spacer length: 50 repeater length: 23
 19539 3299712 TCCACTAAAACAAGGATTGAAAC TTTACAATTGAGTCCGGGAATTCGAAGTACTTCTGGTCGAGAAGTAGCT
 spacer length: 49 repeater length: 23
 19540 3299784 TCCACTAAAACAAGGATTGAAAC TTTATTCTTCCTTTTCCTTTTCTACTTGCGCTTTCTGTGAGAAGTAGCT
 spacer length: 51 repeater length: 23
 19541 3299858 TCCACTAAAACAAGGATTGAAAC
 19542
 19543
 19544 crispr 3
 19545 3314775 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC AGCTATAACTTTTTTCAGGGAAATCCTTTGGAAAAG
 spacer length: 35 repeater length: 37
 19546 3314847 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC TTATTTTACGGGTTCACATGAACATGGATAGTAC
 spacer length: 35 repeater length: 37
 19547 3314919 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC CCAAATTTGTAAACAGCGTTAACATAATATTCAA
 spacer length: 35 repeater length: 37
 19548 3314991 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC TTGCAAGGGCTTAAAGGTGATCTTGTATGGTAGG
 spacer length: 34 repeater length: 37
 19549 3315062 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC CCGCATATGGCTCTCTAAGATACAAGCATATTCTT
 spacer length: 35 repeater length: 37
 19550 3315134 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC CTATCATGCTGACACACCAAGAGCCCCGCAAACCGC
 spacer length: 36 repeater length: 37
 19551 3315207 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC AGCAGTGTTCGTTATTTCTGTACCTACATAAATGGA
 spacer length: 35 repeater length: 37
 19552 3315279 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC ACAGACCCATCTGGGCGAATAGAATCAACCTTGAATC
 spacer length: 37 repeater length: 37
 19553 3315353 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC TATTGATGGTGTGGCGTATATCCCAGGGGTAGACGCT
 spacer length: 37 repeater length: 37
 19554 3315427 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC TGCACACATTTTCAAAGACACCATGAATCAAGTGAC
 spacer length: 36 repeater length: 37
 19555 3315500 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC CAATAATGCCCTAAAAGTATATATACTTTTAAGG
 spacer length: 34 repeater length: 37
 19556 3315571 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC CAATGACCTTGATGATTTTGAACAGGCAGCGATCTT
 spacer length: 36 repeater length: 37
 19557 3315644 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC TAATCTCCTTACACTTCCAACCATCACCAGGGACGG
 spacer length: 36 repeater length: 37
 19558 3315717 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC GCTTTAGCTGTAACATGGATTCCAGGTGTTTCTGAATT
 spacer length: 38 repeater length: 37
 19559 3315792 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC GACAGGTCTTTGACTTCGTGTTTCATATTAGCATC
 spacer length: 35 repeater length: 37
 19560 3315864 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC ACAAGAGTATTCCACCGAGGATAACCCCAAGATCTG
 spacer length: 36 repeater length: 37
 19561 3315937 ATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC TCAGGTACGTAGTCCGTGAATTCCTTAGCTTCAT
 spacer length: 34 repeater length: 37

19562	3316008	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CAAGCTGCAGGTTATCCCCAGAGACTTCTATCAAG
		spacer length: 35 repeater length: 37	
19563	3316080	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTTATTTCTGAAGTTCTAAGCTGGAACCACTGGAA
		spacer length: 35 repeater length: 37	
19564	3316152	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCATCCCGTTTTTCAAACCTCCCTGCCGATTCTGAACC
		spacer length: 37 repeater length: 37	
19565	3316226	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACCTTAATCTTCCAGTTGATGATGATGTTCTTAT
		spacer length: 34 repeater length: 37	
19566	3316297	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACTATCTCAGAAACCACAGAATTCAGCACAAATTTTAC
		spacer length: 37 repeater length: 37	
19567	3316371	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATAGAACGCGCACAGGAGGCTGAAAAACGTGGAA
		spacer length: 34 repeater length: 37	
19568	3316442	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTAGTTTTACAGTGTGGCCGTTGAATGTGATTGTTT
		spacer length: 36 repeater length: 37	
19569	3316515	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCTGAGACTCATTATAAAACCCAAATGCGAATTTT
		spacer length: 35 repeater length: 37	
19570	3316587	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTCAAATCCATTATATTGTGATTTACGAGATAT
		spacer length: 33 repeater length: 37	
19571	3316657	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CAAATTCATCTTATTTTCTTCTTTGTGTAGTAAGTA
		spacer length: 37 repeater length: 37	
19572	3316731	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTCACCAGTTCTTCAACTACTCCGGAACCTTGATA
		spacer length: 35 repeater length: 37	
19573	3316803	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GTGCAACAACCTGATGCGTATGAAGAAGGTTATAAAGA
		spacer length: 37 repeater length: 37	
19574	3316877	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACATGAATATCCTGAGTCATAAATCCAATTTTTTC
		spacer length: 35 repeater length: 37	
19575	3316949	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CAACTCTAGCGTTTGCCTGGGTAGTTTCTGTTAG
		spacer length: 36 repeater length: 37	
19576	3317022	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATGCTAAAATTGATGACGACAGAACTTATACTCAAA
		spacer length: 36 repeater length: 37	
19577	3317095	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTTTTACACCGTTCAGCCAGTGGTCTTCTACAGGG
		spacer length: 35 repeater length: 37	
19578	3317167	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AGGTGTGGGGTATTGGTAAGTGCCTCCTAAAAAAA
		spacer length: 36 repeater length: 37	
19579	3317240	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AGTTCCATGGGCAATATTTCTAATCCGTTTTCTTCC
		spacer length: 36 repeater length: 37	
19580	3317313	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACTCATTCGCTTTCTGTTCAAAAACTCTTTCTTT
		spacer length: 35 repeater length: 37	
19581	3317385	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTGAGAAAGATTCTCGTTCATAGTCCAGAAGTG
		spacer length: 33 repeater length: 37	
19582	3317455	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CGCAGAGCATATAGACCGTTACGGCGTGAATTTGGA
		spacer length: 36 repeater length: 37	
19583	3317528	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTACAGGATCCTAAAATCGACTCTGCTGATACCGGTT
		spacer length: 37 repeater length: 37	
19584	3317602	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATTTTTCCAATTGGAGATTCTACGCTTTTCTTTTTT
		spacer length: 37 repeater length: 37	
19585	3317676	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTACCCAATGAAAAAATAGTCCATATCGGATTTAGAC
		spacer length: 37 repeater length: 37	
19586	3317750	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AGTACATCATCGACAATAGAACTATAAAGCCAGC
		spacer length: 35 repeater length: 37	
19587	3317822	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CCATGTTTCTAAGCCCGCATTTTTTCGCATAGAAC
		spacer length: 34 repeater length: 37	
19588	3317893	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TAAACAGGTGCAGCCGTTAAACGTGCTTTCAAAGAG
		spacer length: 37 repeater length: 37	
19589	3317967	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCAATGGGCAATAATCCGGCCAGCAAGGCTCAGATA
		spacer length: 36 repeater length: 37	
19590	3318040	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTTTCGGTTCAAAGTGCAACCCGGACGAAGAAGA
		spacer length: 34 repeater length: 37	
19591	3318111	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TATATCAATCTCAAAGTGACCTTTGTTTCTGTGGA
		spacer length: 36 repeater length: 37	
19592	3318184	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TATATGTTGACTGCGTATACTTACTTGCTAAGATG
		spacer length: 35 repeater length: 37	
19593	3318256	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTTGGATTGGCTTAATTCCCTTCTCTGCATGAAGAAG
		spacer length: 37 repeater length: 37	
19594	3318330	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTGTAAGAAGAGAGGCTTGAAAGAAGTTGAGTA
		spacer length: 33 repeater length: 37	
19595	3318400	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TAAACTGTCTGGTTAACAATGTCTATATAAGAATT
		spacer length: 35 repeater length: 37	
19596	3318472	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GTTGCCCTCTTGACTCAGAAGGAAGCAAAAGAACA
		spacer length: 35 repeater length: 37	
19597	3318544	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TATTAATAAATAGTATAAATAGTAAGTCGGTTGAAGT

spacer length: 37 repeater length: 37
 19598 3318618 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAAACTGTCTGGTTAACAATGTCTATATAAGAATT
 spacer length: 35 repeater length: 37
 19599 3318690 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTTGCCCTCTTGACTCAGAAGGAAGCAAAAGAACA
 spacer length: 35 repeater length: 37
 19600 3318762 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TATTAAAAAATAGTATAAATAGTAAGTCGGTTGAAGT
 spacer length: 37 repeater length: 37
 19601 3318836 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTAAAAAATTTCTTCTCCTTTGCAGCGTACCATTTC
 spacer length: 36 repeater length: 37
 19602 3318909 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACCTGTTTCATTTATAAGCCTCTCTGTCTTTTAATTT
 spacer length: 37 repeater length: 37
 19603 3318983 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGAAGGAAAACATCCGTGAGCCTGTACGGATACCCCTT
 spacer length: 37 repeater length: 37
 19604 3319057 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCCATTTCGTGGCCACCCCTCCAGGGTTTGAAGCT
 spacer length: 35 repeater length: 37
 19605 3319129 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAAAAAACTTGATGAGATTATTAACCCCAGCCCAGCA
 spacer length: 38 repeater length: 37
 19606 3319204 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTGTCCTTGTTTTGGATTGTGAAGCCTTGAAGTAA
 spacer length: 35 repeater length: 37
 19607 3319276 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATGAAAATCTAAACGATGAATCTAATACACTTCC
 spacer length: 34 repeater length: 37
 19608 3319347 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAAGAAAGTATGACGGCACAGCAGGTATAATTAAC
 spacer length: 35 repeater length: 37
 19609 3319419 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTTATCTCCTTTTAATTAGCGTTGTTATCATTCGTTTT
 spacer length: 38 repeater length: 37
 19610 3319494 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTTATATATTAATGGAATAAATGAGTCGAGTGGTAC
 spacer length: 37 repeater length: 37
 19611 3319568 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCGTTATCGATTATACTGACCGTGATAATTTACG
 spacer length: 34 repeater length: 37
 19612 3319639 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCCCTGCATTTCTGATCGTATTTTGTAAAAGAATAGA
 spacer length: 37 repeater length: 37
 19613 3319713 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTACACTTAGCATGTCCTCTAAACTCGCTTTTTCCGTT
 spacer length: 38 repeater length: 37
 19614 3319788 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC
 CACGGTAACGTTTTTTTATGTCAAAAAAATAATCCGGAT spacer length: 39 repeater length: 37
 19615 3319864 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTTGGTTACTTTGTGGACCTGGGCGAATCCACAG
 spacer length: 34 repeater length: 37
 19616 3319935 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AATCTGCTATATTATCCAGTATTACTCCATTAATTACT
 spacer length: 38 repeater length: 37
 19617 3320010 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAACTCTGAGCATAAGAAAGAATTTTCGTGATCTG
 spacer length: 34 repeater length: 37
 19618 3320081 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTACAACGTCTGCAAGCTCTTCTTTTCATGTGTTCGT
 spacer length: 36 repeater length: 37
 19619 3320154 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC
 19620
 19621
 19622 GCA_000970265.1_ASM97026v1_genomic.fna (PilerCR):
 19623 START REPEAT
 SPACER
 19624 crispr 1
 19625 2521335 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CCATAAAACCAATACACCTCTCAACACCTGATCCA
 spacer length: 36 repeater length: 37
 19626 2521408 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TGTTTCTCTATGTTTTATCAATTTTAGTATAATAA
 spacer length: 35 repeater length: 37
 19627 2521480 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CTTTTAACTACAGGATCAAGCTCAAGATAATCTTTTA
 spacer length: 37 repeater length: 37
 19628 2521554 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CAGAAATAGACATTTATGTAGACGGAATAAAATATG
 spacer length: 36 repeater length: 37
 19629 2521627 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TATGGACTCGGAGGGTGGCATAGATGCCAGAGGATAA
 spacer length: 38 repeater length: 37
 19630 2521702 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CGGAAACAATGGGATGGAAATATAGAAGGGATCTG
 spacer length: 35 repeater length: 37
 19631 2521774 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AAGAATTACCCATATCAGAAGAATGGAAACCTATTTTT
 spacer length: 37 repeater length: 37
 19632 2521849 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TCCGCGTGTTATCGGTACAGTCACACTGGAGGGCACGA
 spacer length: 38 repeater length: 37
 19633 2521924 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CCGGACTATATTACAGCTCAACTGTCTTTATCAGATA
 spacer length: 37 repeater length: 37
 19634 2521998 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CCGGGGAGGTAAGCGTTAACAGAGTGTATACGGTAG
 spacer length: 36 repeater length: 37
 19635 2522071 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AAAAGAGTGGGATTTCGCATGTACAAACCCAGAATG

spacer length: 35 repeater length: 37
 19636 2522143 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TTTGCCCACTGGGAACGCTGATGTACTCCCTCTTTA
 spacer length: 36 repeater length: 37
 19637 2522216 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TTAGCCAGATAAGCCCGGATAGTAGTAGGTTTTTTAT
 spacer length: 37 repeater length: 37
 19638 2522290 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TGTACTATTTTCAGTTTGGAAGGTGGATTATGAATAA
 spacer length: 36 repeater length: 37
 19639 2522363 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ATGAAAACGGTGATATCAAATATACTTCAGAAC
 spacer length: 33 repeater length: 37
 19640 2522433 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT
 TACTACCCTGCTACAATTATTACATACAACGTCATACTA spacer length: 39 repeater length: 37
 19641 2522509 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CCGAAATACGGAACGTTCTTTATGTCGGAATCGAA
 spacer length: 35 repeater length: 37
 19642 2522581 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ATGTATGCACAAGGGGCGATACAGGCATACAACT
 spacer length: 35 repeater length: 37
 19643 2522653 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT
 TTGGTTGTCAAAGGCTCTGAATATAGTTACTTTACCGTGG spacer length: 40 repeater length: 37
 19644 2522730 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ATGGAGATGAGAAAATGACTAAAACCGAAGATGTAA
 spacer length: 36 repeater length: 37
 19645 2522803 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TTGTATATATACGTTGTGTTATGTGTATACACT
 spacer length: 33 repeater length: 37
 19646 2522873 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT
 AAAACAATGAGTGATACGCTCCACTCAATCACTCAATGAAAT spacer length: 41 repeater length: 37
 19647 2522951 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GACGTTTTTTTTCAAATAACGATGATGTGAGGTT
 spacer length: 36 repeater length: 37
 19648 2523024 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ATATGAGAACGTAACCAGGAAATGGGTGAGATCGA
 spacer length: 35 repeater length: 37
 19649 2523096 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AGAACTTTTGGAGTTACGGGAGCAGGGAATAAAAAAGT
 spacer length: 38 repeater length: 37
 19650 2523171 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT
 19651
 19652
 19653 crispr 2
 19654 2705052 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AACAGATCTGTCTGAATTTAAATCTACTGAGCCGAAA
 spacer length: 38 repeater length: 37
 19655 2705127 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGGAAAAAGCCGAAGAAGCTGGTCGAGCTAGGACCAAA
 spacer length: 37 repeater length: 37
 19656 2705201 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 TGCTGCTACTATGCCGTTTGTATCATGGATGAAGGCTATAAA spacer length: 43 repeater length: 37
 19657 2705281 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGGATAACGAAAGACATTTTTGCAAAAACAAAAGT
 spacer length: 35 repeater length: 37
 19658 2705353 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ATATATATCAGCAAAGATAAGAGATGCTTCCCAATACA
 spacer length: 38 repeater length: 37
 19659 2705428 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGTGATGTGGTTGTCTATACCGCAAAAATTATAATCG
 spacer length: 37 repeater length: 37
 19660 2705502 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC GTTTTTTAGCGATTGCTCGAACTCAAATGGAGTAGCT
 spacer length: 37 repeater length: 37
 19661 2705576 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TCAGATATGTTTGGGGTATCGGGTCATCGTAAAAAA
 spacer length: 36 repeater length: 37
 19662 2705649 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CCGGAAATATCCAATAGTAAAATAGTATGGGCAGCACA
 spacer length: 38 repeater length: 37
 19663 2705724 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TAGAGGAAGGTGAGTAAAAATGATAATTGAAGAAAG
 spacer length: 36 repeater length: 37
 19664 2705797 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 TACAAGAGCTTGAATACGGTAACTATCCGTTATCCTTAA spacer length: 39 repeater length: 37
 19665 2705873 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGTGGATGTCCGCGATGGTCTGGTGGCGGGTTTGGTGA
 spacer length: 38 repeater length: 37
 19666 2705948 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTTTCCAGAAGAAAAAATAGGTTAAGCGAATAAA
 spacer length: 35 repeater length: 37
 19667 2706020 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AGGAATGTGCAGCTATCGAAAATATCATTGATAACAAC
 spacer length: 38 repeater length: 37
 19668 2706095 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTTTAAACAGACTCGACGCAGGAGAGACTTCTCTA
 spacer length: 36 repeater length: 37
 19669 2706168 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGTATAATGCAAGAGCTTATTCTGTCTACAAAACAA
 spacer length: 37 repeater length: 37
 19670 2706242 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CAGCGGAGGAAATACGACACAGATCACAGAGATTATC
 spacer length: 37 repeater length: 37
 19671 2706316 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTTATCCGAACACCTAAGCTGCAAACACTGATA
 spacer length: 33 repeater length: 37
 19672 2706386 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC GGTGGTACGATAGCTTGTCCGGTATGTGGTGGTAG
 spacer length: 35 repeater length: 37

19673 2706458 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AGGGAAAATAAAAGGGCGTCCTGATTATGGTGTGGT
spacer length: 36 repeater length: 37
19674 2706531 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ACTTTACAGGAAGACATGAGGCAATAAACGTTTTTGA
spacer length: 37 repeater length: 37
19675 2706605 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
TTTTAAAAAATACAAAAAAGAACGCGCGAAGAAGATCTG spacer length: 39 repeater length: 37
19676 2706681 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TAAGGAAGGGTTTAAAGGAAGTGGTGACTATCTCAG
spacer length: 36 repeater length: 37
19677 2706754 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
AGCTTTGGTCTCACAGTGAGGGATCCAGAGGATAAGTTGCA spacer length: 41 repeater length: 37
19678 2706832 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CTCCTATTCCGCTTCACATCATGGATGAAAAATAT
spacer length: 35 repeater length: 37
19679 2706904 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CTGATGACTGGGAAATATGGATGCAAAATCATCCAAAT
spacer length: 38 repeater length: 37
19680 2706979 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CATCTGAAGACGGAAATTGTATCTTAACAATAAAAGG
spacer length: 37 repeater length: 37
19681 2707053 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CGGAGATTCTAAAGCTGGAAAATCTATGGAAGATTTT
spacer length: 37 repeater length: 37
19682 2707127 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TATCGGATGGGGTTGGAAGGACTGTAAGATTGTAAG
spacer length: 36 repeater length: 37
19683 2707200 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CTTGCCATGGATGAAGAAGCCTTCTACCAAAAAATT
spacer length: 36 repeater length: 37
19684 2707273 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AAAGTGAAAGAGTGCGCATTCTGTGGAGCAGAGATG
spacer length: 36 repeater length: 37
19685 2707346 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CAGAGACGAAGCAATGACTTCCGCGTTTATTGCCCCG
spacer length: 36 repeater length: 37
19686 2707419 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CAGTGAGGGCTATGATCCTGAGATTGATCTATTGG
spacer length: 35 repeater length: 37
19687 2707491 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TATCGGGGCCATATCTTTGGATTTCGAGAAATAGA
spacer length: 34 repeater length: 37
19688 2707562 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TATTGAAAGGAATAACAGCATCACATTTCTGGGCTGAGA
spacer length: 38 repeater length: 37
19689 2707637 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AGATTTGCAAAGGCAACAGATCTTCCAGAAGTATT
spacer length: 36 repeater length: 37
19690 2707710 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
TATAAGGAGTTAGCTAATGACAAAGTTTCCAAACCAAAC spacer length: 39 repeater length: 37
19691 2707786 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC GCTGATTCTAGCTTTCCTAGAAAGATGCTTCAGGG
spacer length: 35 repeater length: 37
19692 2707858 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AATATCGGATAAGAGTTACTATCAATGCAAGCGGATTA
spacer length: 38 repeater length: 37
19693 2707933 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AGGATATACACACTGTAAAGGTGAAGGGGGTGACTTT
spacer length: 37 repeater length: 37
19694 2708007 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGTTCATACCTTAGGAACATATGATTTCTATGAAATA
spacer length: 37 repeater length: 37
19695 2708081 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
ATACTAATTGTGGTATTGCTCTATTATACTTGCCCAATTCT spacer length: 41 repeater length: 37
19696 2708159 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
CTAAAAAATCCCGAAATTAAAGGAAGAGATGGCAACAA spacer length: 39 repeater length: 37
19697 2708235 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTTGAAGATTTTGTCTTTCAAATGCGTAAACG
spacer length: 34 repeater length: 37
19698 2708306 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AATCTGATGGTATAGTAGTAATTTGCGGAGATTTT
spacer length: 35 repeater length: 37
19699 2708378 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGTTCAATGAGGATACTGAGAAAACTGGGGCTATATC
spacer length: 38 repeater length: 37
19700 2708453 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC GTGGGGCTCTTATTTCTCTTATCTCGTTTATGTT
spacer length: 34 repeater length: 37
19701 2708524 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TCTCGTCTAGAAAAGCATACGAAAATTTGTTGTGG
spacer length: 35 repeater length: 37
19702 2708596 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTCCTCTCTTCACAAAAACAATAGTATTCTATCACT
spacer length: 37 repeater length: 37
19703 2708670 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGCCTATGAGCCATTGCCGCATGCAGTGGGTAAATGA
spacer length: 37 repeater length: 37
19704 2708744 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AAAGAAATAATGCCCAGAGATTGGTCTGCGGCCTTTTA
spacer length: 38 repeater length: 37
19705 2708819 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGCCTATGAGCCATTGCCGCATGCAGTGGGTAAATGA
spacer length: 37 repeater length: 37
19706 2708893 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AAAGCAACTGAAAGTGCTTTCAAAGATATAAAACC
spacer length: 35 repeater length: 37
19707 2708965 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
AATAAAGAATTTGCGAACAAGGAGGATGTCGCCGATACTGA spacer length: 41 repeater length: 37
19708 2709043 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTTAAAGGCTATTAAAAACGGAACCTGGAAGAGGGG

spacer length: 37 repeater length: 37
 19709 2709117 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CCTGAACATATGTGAAAGTGCCGTTGTTATTCTTAAA
 spacer length: 36 repeater length: 37
 19710 2709190 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 AGATATGTAAAGTCGAGTGATTTAGAAAAGACGCTGAACGAAATG spacer length: 45 repeater length: 37
 19711 2709272 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CGTTAATCGGAATGCTTGAAGGGCTAAAAAGATT
 spacer length: 34 repeater length: 37
 19712 2709343 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ATTTCTAGTAGACGATGCTTCAAAGCATCTCCAAAAT
 spacer length: 36 repeater length: 37
 19713 2709416 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC GAGAGCCACCGTGTATCCCGCATAACATAAGATGAAGA
 spacer length: 38 repeater length: 37
 19714 2709491 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AGGGTAAAGCAACGATACATCTCGAACAGAACATA
 spacer length: 35 repeater length: 37
 19715 2709563 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CTAACCTACCTCGACAATCTTAGTTACTTCTTTTCGGTA
 spacer length: 37 repeater length: 37
 19716 2709637 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGGGGTTTGCCCGAGCTGGTATCGAAATTATCGAAGTA
 spacer length: 37 repeater length: 37
 19717 2709711 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TCGAATATGTCCGGTGGATAAAAGCTAAAGATTT
 spacer length: 34 repeater length: 37
 19718 2709782 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ACGGAGGACAAAAATGAAAGGAGCTAGAGGTTTTA
 spacer length: 35 repeater length: 37
 19719 2709854 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 ACTAATAGTGGAACTGAAGATCCGGTGGATCCAATCCTT spacer length: 40 repeater length: 37
 19720 2709931 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ATTGCAAGAACAGGAACAAGAATTAGAGGAATAAAA
 spacer length: 36 repeater length: 37
 19721 2710004 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 CTCCGGTGCAGAAAGAAGTCTACCGTGACTATACGATAT spacer length: 39 repeater length: 37
 19722 2710080 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 19723
 19724
 19725 crispr 3
 19726 2710157 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 CAAGCGAATCTCAAGTGGCGGAAATAATGCAAATGTTTCTGCCATTGC spacer length: 48 repeater length: 37
 19727 2710242 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ACCGATTAAACCCAAGGGAAGAGAGCGAAGATTTATT
 spacer length: 37 repeater length: 37
 19728 2710316 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 AAATAGGTTATTAGAAAAAGTTGACACATAAAGAGAGTG spacer length: 39 repeater length: 37
 19729 2710392 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 19730
 19731
 19732 crispr 4
 19733 2718919 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 TTCTTCTGTAAAGGAATATCGAATTATCTTGACCAGAGAG spacer length: 40 repeater length: 37
 19734 2718996 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CGCGAAAGACGAAACAAGTACAATCGGAGGGAGCCCA
 spacer length: 37 repeater length: 37
 19735 2719070 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ATAAAAGGAGTTTTGCAAATGCTTAAACGTGTAGGG
 spacer length: 36 repeater length: 37
 19736 2719143 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CTTATACGACATCTCAAGCACAAGTTGCTAGAGGCATT
 spacer length: 38 repeater length: 37
 19737 2719218 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AGGAATAAAATGAAGTTACCCCCACTAGCACTAGT
 spacer length: 35 repeater length: 37
 19738 2719290 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTGAAGGTGCTCGACAGGGATATGTCGTTATCGAAGA
 spacer length: 37 repeater length: 37
 19739 2719364 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TCTCTGAAAACAATGTTTATCCGAAACAGGAAGGCA
 spacer length: 36 repeater length: 37
 19740 2719437 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CAGCGTTAGCAAATTCGCGAAGCAGATCAGAAACGA
 spacer length: 36 repeater length: 37
 19741 2719510 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTGGGAATAATTTTAAATACTCTGAAGAAGGAGGTG
 spacer length: 36 repeater length: 37
 19742 2719583 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTTCAGTTTCTATTTTTGTTGTTTTTATCAGGCAGAA
 spacer length: 37 repeater length: 37
 19743 2719657 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AACAGATAGCAGTTTTGTTTTTATAGCCGTAAGAAGG
 spacer length: 37 repeater length: 37
 19744 2719731 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 TGTATCGCTTCCCTTACAGGCGATTATAGATAACAAAAAATATAATA spacer length: 46 repeater length: 37
 19745 2719814 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ACTCCAAAAAATCCAATAAAAAACGAACAATACT
 spacer length: 36 repeater length: 37
 19746 2719887 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 19747
 19748
 19749 crispr 5

19750	2720579	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	CCATCATGCCCACTCCTTTTTACAGTGTTTCCGGAA
	spacer length: 36	repeater length: 37	
19751	2720652	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	TCTCCAATTAGACGAGAGGCAGGCAGCAAATGTAAA
	spacer length: 36	repeater length: 37	
19752	2720725	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	AAATGGCAGGCTGAGTATGACAAAGCGTCTAAGGG
	spacer length: 35	repeater length: 37	
19753	2720797	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	TATCTTAAGGCAACTTTCAATCCTGTGGACAGGTCTA
	spacer length: 37	repeater length: 37	
19754	2720871	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	CCTATTACTATAGTAGGTGATAAAATGAAGTCAGAAC
	spacer length: 37	repeater length: 37	
19755	2720945	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	AAAAACAAGAGAAGAAGAAAGAAAAAACAGGACAAT
	spacer length: 36	repeater length: 37	
19756	2721018	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	AGTTCCCAATCAAGAATGGACGAAAAACGGCATGGTG
	spacer length: 37	repeater length: 37	
19757	2721092	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	TGGAAGATCACCGAACGGCGAGGCAATGACATATA
	spacer length: 35	repeater length: 37	
19758	2721164	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	CTGAAGTACCTCTTTTAAGATACGATGTTGAGCAGA
	spacer length: 36	repeater length: 37	
19759	2721237	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	CTGAAGTACCTCTTTTAAGATACGATGTTGAGCAGA
	spacer length: 36	repeater length: 37	
19760	2721310	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	GTTGCAAAGTACACAAAAGGAGTTGCAAAGGCAG
	spacer length: 35	repeater length: 37	
19761	2721382	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	CAAGCACACCACAAGTTAATAGAGCAATTCCTGTTAT
	spacer length: 37	repeater length: 37	
19762	2721456	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	CATATAATCTTCAAATACACAGAATTACCAACAACCTA
	spacer length: 38	repeater length: 37	
19763	2721531	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	AATTAAGAAGCATTCTCAATGAAAAATGCCATTTGA
	spacer length: 37	repeater length: 37	
19764	2721605	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	TCCGTGTTGTTAGTATTTATAGTTACAACAACTA
	spacer length: 35	repeater length: 37	
19765	2721677	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	TCCGTGTTGTTAGTATTTATAGTTACAACAACTA
	spacer length: 35	repeater length: 37	
19766	2721749	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	ATGTGGCGGTGTTGTTATGGAGTATATTATTGAGGA
	spacer length: 37	repeater length: 37	
19767	2721823	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	ACATAACGATAGATACCTGCAGCATCATCTCTTACA
	spacer length: 36	repeater length: 37	
19768	2721896	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	CAAATTCATCGGGGTACAGTGCAACAGTATCAAGAAAT
	spacer length: 38	repeater length: 37	
19769	2721971	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	CAATTTGATAAACC CGAAATCGAACCGAATGCTAT
	spacer length: 36	repeater length: 37	
19770	2722044	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	GTGGATACAGCAAAAGGGAAGATATACGGGGGGGT
	spacer length: 35	repeater length: 37	
19771	2722116	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	
19772			
19773			
19774	crispr 6		
19775	2722474	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	ACTAATTGCATCTCAAGAACCACAAGAAGGTGAAA
	spacer length: 35	repeater length: 37	
19776	2722546	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	TGGCAAATGCATATGAATCATTTTCAAAGATGTTGA
	spacer length: 37	repeater length: 37	
19777	2722620	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	GGTTTATGATATGGATAGTCATTTAAACACTTCCAACA
	spacer length: 38	repeater length: 37	
19778	2722695	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	ATCCGTTTCGGACTACGAGTGGGAGGTTCTTGTTTTG
	spacer length: 37	repeater length: 37	
19779	2722769	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	GGCCGGTATAATGACATAGACTATACAGTCCCGTATG
	spacer length: 37	repeater length: 37	
19780	2722843	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	TTGGATACCTATTATCCTGGAACGAATCACAGGT
	spacer length: 34	repeater length: 37	
19781	2722914	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	GTGGATTTGTATTTCGCAGAAACAGAAGCGAGATTTT
	spacer length: 36	repeater length: 37	
19782	2722987	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	TTATTTAAAAAATTTCTTATGTAAAGAAGTACTCTATC
	spacer length: 38	repeater length: 37	
19783	2723062	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	GGTGTGTATGGTGATTACCCTACGAGTTATAGCG
	spacer length: 34	repeater length: 37	
19784	2723133	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	TAGAAATGGAACTGACAAAGACCATATTCACCTGT
	spacer length: 36	repeater length: 37	
19785	2723206	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	GAAGCATGAACTGTGATAAATTAGTAGAACTAGCGTT
	spacer length: 37	repeater length: 37	
19786	2723280	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	TTTGAAGATTACATATTGTCCCAAGATGATGAGGA
	spacer length: 35	repeater length: 37	
19787	2723352	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT	ATTATACAAATGATTTGAACTTAAAAACAAATGA

spacer length: 35 repeater length: 37
 19788 2723424 GTTTC AATCCTTGT TTTAGTGGATCTTGCTCGCGAAT TACAATTCGGACACTGATATAAATATTTTCATTCCCA
 spacer length: 36 repeater length: 37
 19789 2723497 GTTTC AATCCTTGT TTTAGTGGATCTTGCTCGCGAAT TCATTAGTGTGGGGGAATTAGGCAGGAATTTTTTAT
 spacer length: 36 repeater length: 37
 19790 2723570 GTTTC AATCCTTGT TTTAGTGGATCTTGCTCGCGAAT AATAATGAATGTTGGAGAAGAGATTTCAAATTG
 spacer length: 33 repeater length: 37
 19791 2723640 GTTTC AATCCTTGT TTTAGTGGATCTTGCTCGCGAAT TTATTCCTCCGTATCTGTCTACTGTGATTCTTCG
 spacer length: 35 repeater length: 37
 19792 2723712 GTTTC AATCCTTGT TTTAGTGGATCTTGCTCGCGAAT TTCTTGATAATATCTTTCCTGTAATATTTTATCTAC
 spacer length: 36 repeater length: 37
 19793 2723785 GTTTC AATCCTTGT TTTAGTGGATCTTGCTCGCGAAT
 19794
 19795
 19796 crispr 7
 19797 2980926 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGCAGGAACAGCTCCACTAACTATACAATTAC
 spacer length: 34 repeater length: 37
 19798 2980997 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGGAAATAATCATCAGGGATAAATACTCAAAGAATTT
 spacer length: 37 repeater length: 37
 19799 2981071 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGATCTTGCCGGGAATAAAAGGTTAAGCTCTTCACT
 spacer length: 37 repeater length: 37
 19800 2981145 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC
 ATAGTATTCTTGCACTGCCTGGGATAGTAGACTCTATCGAAA spacer length: 42 repeater length: 37
 19801 2981224 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGTCGTTTTCTTTTTTCATCTTCGGTATAAGTTCCCT
 spacer length: 35 repeater length: 37
 19802 2981296 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC CCCACCCGGTAGTTGCATCGCACGCATCAATCACT
 spacer length: 35 repeater length: 37
 19803 2981368 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGTTACGGTAGAGTTAGGCGCGGATCTTTTAACGGC
 spacer length: 37 repeater length: 37
 19804 2981442 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC AATTCAATGATTGAAGATGGATGGGTGGACTGAATGG
 spacer length: 37 repeater length: 37
 19805 2981516 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC ACTCAGCAAGTCTCTATAGAGAGAGAGATTTTTTT
 spacer length: 37 repeater length: 37
 19806 2981590 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATATCGCATTGATCTTTGTACTCTCGTCAGGTGTTA
 spacer length: 36 repeater length: 37
 19807 2981663 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTCCCCCGTTTTCGTGAATATGAGCCCGTTTCGAT
 spacer length: 34 repeater length: 37
 19808 2981734 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC CATTTCCAGCACCAAGAGTAAATGGTCTGATAACT
 spacer length: 35 repeater length: 37
 19809 2981806 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTTGTCCTGATCAGTCTCAGCCTTCCGAGCAGT
 spacer length: 34 repeater length: 37
 19810 2981877 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC GGCCACTGTTAGATTCACTACTAATTAATCCAAGT
 spacer length: 35 repeater length: 37
 19811 2981949 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC GTCTGTGTAAAGACTCTTTTCGTTTTTGCAAGATATC
 spacer length: 36 repeater length: 37
 19812 2982022 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAGCAATGAGTACATAATAAGAGTACAAGCAGGGC
 spacer length: 36 repeater length: 37
 19813 2982095 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGAATAAGGATGTACTGTCTCCAGATTACATCCCAT
 spacer length: 37 repeater length: 37
 19814 2982169 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC GTTTCATATCCTGATACTTTGATCTGTCCGGTTTT
 spacer length: 35 repeater length: 37
 19815 2982241 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCTGGTTCCATTTTGAGTGATACCCGAATGTGAGG
 spacer length: 36 repeater length: 37
 19816 2982314 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGCAAACCTACAGCATGGCTCCGGAATCAAAGAAGA
 spacer length: 36 repeater length: 37
 19817 2982387 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGAATTCTCCGAGCGTCATTGATTTTGGATTTTTAAT
 spacer length: 37 repeater length: 37
 19818 2982461 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATGCGAATTTTCGGGTCTGAAATCAAGCGACTCGAA
 spacer length: 37 repeater length: 37
 19819 2982535 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTCCTCCAATTACCTATATTCTTCAGGAAGCCC
 spacer length: 33 repeater length: 37
 19820 2982605 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGAAAACATGCCAACAGCCGAAGATAACGCACACG
 spacer length: 35 repeater length: 37
 19821 2982677 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGACAACATCCCTGCCATTCAATACAGTATTTCTAAG
 spacer length: 37 repeater length: 37
 19822 2982751 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTA AAAACGAAC TTGCCGCGCTCATGATCTCATT
 spacer length: 36 repeater length: 37
 19823 2982824 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAACAAGATAAGTCGTCAATTTTCATGAACGGAAA
 spacer length: 35 repeater length: 37
 19824 2982896 ATTTC GCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGCAACCGGCCCCGGATCAGGATCTTAAGCCGGTTGAG
 spacer length: 37 repeater length: 37

19825 2982970 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAAC CAGGATCAAAAATGAGAGGGGAGTACATTATTTGCC
 spacer length: 36 repeater length: 37
 19826 2983043 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAAC ATCGGGATCGGTACATCAAACCTAACGGGATTTTTTC
 spacer length: 36 repeater length: 37
 19827 2983116 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAAC ATCGGGATCGGTACATCAAACCTAACGGGATTTTTTCA
 spacer length: 37 repeater length: 37
 19828 2983190 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAAC TCAATTTTCGTTTTTTCTAATGTCTGCCATTTTTTACAC
 spacer length: 37 repeater length: 37
 19829 2983264 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAAC TGGAAATGTTGGCAGGATGGATTGAATGTGTTTTTC
 spacer length: 35 repeater length: 37
 19830 2983336 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAAC TAATATTAGTTCTTATAATAATGTACATCAATGTTGC
 spacer length: 37 repeater length: 37
 19831 2983410 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAAC TCCTGATATTCCCCTGTGCGAATCTCCCACTTTCCC
 spacer length: 36 repeater length: 37
 19832 2983483 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTTACTGTATATGCTACTGCAGATACACGTATATAA
 spacer length: 36 repeater length: 37
 19833 2983556 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAAC ATAACAACGCGTGTGAGTGGTTCGTCTTCGATGTCG
 spacer length: 36 repeater length: 37
 19834 2983629 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAAC GTTGCAATGCCTGCAGCATTCACTATTGCTACAAAT
 spacer length: 36 repeater length: 37
 19835 2983702 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAAC
 19836
 19837
 19838 crispr 8
 19839 2984292 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAA CATTCTCTCAGGCAGTGTATGTTTGCATTAACTGCTGT
 spacer length: 39 repeater length: 36
 19840 2984367 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAA CTACCCACCCTGTTTCCATTCACTCTTCTTCGGTGGCT
 spacer length: 38 repeater length: 36
 19841 2984441 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAA CAGATATTTGATAAGTAACTCGTTTTTCGGTGAGGTAC
 spacer length: 37 repeater length: 36
 19842 2984514 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAA CTTCCGGAAACACTGTAAAAAGGAGTGGGCATGATGG
 spacer length: 37 repeater length: 36
 19843 2984587 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAA CCAACATATTAACAGGCTGCCCATCTTCCAGCAA
 spacer length: 34 repeater length: 36
 19844 2984657 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAA CTATAAATCAGAATGTTTTATGTATAAACTAGACTT
 spacer length: 36 repeater length: 36
 19845 2984729 ATTCGCGAGCAAGATCCACTAAAAACAAGGATTGAAA
 19846
 19847
 19848 crispr 9
 19849 2985367 AAAACAAGGATTGAAAC
 CTTATTATCTTTCTGCGAAAGATTCTATATAATTGTCCTCGTTGAAAAACAGCTTCCAGC spacer length: 61
 repeater length: 17
 19850 2985445 AAAACAAGGATTGAAAC
 TTTTGTGATTATTGGCACGATTAATCCTCCTGATTTCAAGTTGAAAAACAGCTTCCAGC spacer length: 61
 repeater length: 17
 19851 2985523 AAAACAAGGATTGAAAC TCATCGCCTGTGTTGTTCATCAACAACGTCGTCATCGTTGAAAAACAGCTTCCAGC
 spacer length: 55 repeater length: 17
 19852 2985595 AAAACAAGGATTGAAAC
 TTCATCTATTGTCAAAGGATATTCTCCCGTTTCTTTTGTGTTAGTTGAAAAACAGCTTCCAGC spacer length: 62
 repeater length: 17
 19853 2985674 AAAACAAGGATTGAAAC TCCAACCAAAGAGCAACTTCGTTACGTTCAACCTTAGTTGAAAAACAGCTTCCAGC
 spacer length: 56 repeater length: 17
 19854 2985747 AAAACAAGGATTGAAAC TCGAAAATCCACTCTTGGTGGGGTTCGTTTCTCTTAAGTTGAAAAACAGCTTCCAGC
 spacer length: 57 repeater length: 17
 19855 2985821 AAAACAAGGATTGAAAC TTTTTTTCGCAAAGCCAGAACCAACAAGCCTGACCGAGTTGAAAAACAGCTTCCAGC
 spacer length: 57 repeater length: 17
 19856 2985895 AAAACAAGGATTGAAAC TATCTGCGCCGTCTGTTAGCATTTTAGCGACTGTAGTTGAAAAACAGCTTCCAGC
 spacer length: 55 repeater length: 17
 19857 2985967 AAAACAAGGATTGAAAC ATTCTATACTTTCTTCGAAAAATCCATATATTAACAGTTGAAAAACAGCTTCCAGC
 spacer length: 56 repeater length: 17
 19858 2986040 AAAACAAGGATTGAAAC
 ACAGCTTCCAGCAAAAACAAGGATTGAAAAACAGGAACCCAGTCTTCTGGATTTTCTCTCTATAGTTGAAAAACAGCTTCCAGC
 spacer length: 85 repeater length: 17
 19859 2986142 AAAACAAGGATTGAAAC AAGAAGTCTGTGGATCTTTATCGAGTTGGGATTCGGCGTTGAAAAACAGCTTCCAGC
 spacer length: 58 repeater length: 17
 19860 2986217 AAAACAAGGATTGAAAC TTTCTCTTTTTGACAATTTCCCTAGCGTCTGTGAAAGTTGAAAAACAGCTTCCAGC
 spacer length: 58 repeater length: 17
 19861 2986292 AAAACAAGGATTGAAAC CTTGTCCAATCACCGCTTTAGCTTTCTCGATACCCGTTGAAAAACAGCTTCCAGC
 spacer length: 55 repeater length: 17
 19862 2986364 AAAACAAGGATTGAAAC ATTCTCCGTTGTATCGCTACAACGGTCAAGCTATAGTTGAAAAACAGCTTCCAGC

spacer length: 56 repeater length: 17
 19863 2986437 AAAACAAGGATTGAAAC TGCAGTCAACCCGAATGGTCATTGCTGTTCCAAATAGTTGAAAAACAGCTTCCAGC
 spacer length: 56 repeater length: 17
 19864 2986510 AAAACAAGGATTGAAAC ACCAGTTAACCGCCCCGAGACTTCTGAAGCAATGAAGGCATTTCGCGAGCAAGATCCACT
 spacer length: 57 repeater length: 17
 19865 2986584 AAAACAAGGATTGAAAC AATGCCGCATTTGATCGCACATGATCTCCCACACTAAATTTCGCGAGCAAGATCCACT
 spacer length: 57 repeater length: 17
 19866 2986658 AAAACAAGGATTGAAAC AAAACATAGCTTTTTTTTGCATTGTGACCAAAGAAGCATTTCGCGAGCAAGATCCACT
 spacer length: 56 repeater length: 17
 19867 2986731 AAAACAAGGATTGAAAC AAACAAATCGGTTGTATACTAGCATTGTGTATGATGTATTTCGCGAGCAAGATCCACT
 spacer length: 57 repeater length: 17
 19868 2986805 AAAACAAGGATTGAAAC ATTTTCGTCTTTCGCTTTTCTACGTTGAGACTAGCTTATTTCGCGAGCAAGATCCACT
 spacer length: 56 repeater length: 17
 19869 2986878 AAAACAAGGATTGAAAC AGCGTCCCTTACCTTGATACATTCTGCGCCTCTCTATTTCGCGAGCAAGATCCACT
 spacer length: 54 repeater length: 17
 19870 2986949 AAAACAAGGATTGAAAC TAGTAAGAGAAAGGGCTGATGGTCGTGGAGGACTCAGATTTCGCGAGCAAGATCCACT
 spacer length: 57 repeater length: 17
 19871 2987023 AAAACAAGGATTGAAAC AAAATATGGCTACACCGATAGGTTTTAACGAACACGGATTTCGCGAGCAAGATCCACT
 spacer length: 57 repeater length: 17
 19872 2987097 AAAACAAGGATTGAAAC TAAGATAGGAACGTTCCACAAAGCGGAGATATAATAATTTCGCGAGCAAGATCCACT
 spacer length: 56 repeater length: 17
 19873 2987170 AAAACAAGGATTGAAAC CTGTCTCCTGCGAGTCTTCGTCTTTTGGGTCTTAATTTCGCGAGCAAGATCCACT
 spacer length: 56 repeater length: 17
 19874 2987243 AAAACAAGGATTGAAAC CTTCTTGTCTCTATATTTTTTCAAAGTGTCTTGTAAATTTCGCGAGCAAGATCCACT
 spacer length: 56 repeater length: 17
 19875 2987316 AAAACAAGGATTGAAAC TAATCTCAATTAGTTGTTTCATCAGAAAGAGTATTAAATTTCGCGAGCAAGATCCACT
 spacer length: 56 repeater length: 17
 19876 2987389 AAAACAAGGATTGAAAC TACAGTGTCTTGCCATCGATTCTTATCTGTTTGGTTATTTCGCGAGCAAGATCCACT
 spacer length: 56 repeater length: 17
 19877 2987462 AAAACAAGGATTGAAAC ACTCACTGACTCCACATTAAACAATCAAAAAAGAGATTTCGCGAGCAAGATCCACT
 spacer length: 55 repeater length: 17
 19878 2987534 AAAACAAGGATTGAAAC TAGCTCCTGTAATCTTCTGTAGCCAGGTAGTTTCTGATTTCGCGAGCAAGATCCACT
 spacer length: 56 repeater length: 17
 19879 2987607 AAAACAAGGATTGAAAC AACAGTTAAGTGCGCGACCTCGTCTTTTCGCCGTACTGATTTCGCGAGCAAGATCCACT
 spacer length: 58 repeater length: 17
 19880 2987682 AAAACAAGGATTGAAAC CCACCGATAAACCCGCCAATAACTCCGCCTGCCGCGCATTTCGCGAGCAAGATCCACT
 spacer length: 57 repeater length: 17
 19881 2987756 AAAACAAGGATTGAAAC CACCTTCAGCCCTGAGGCCCTCTCTAACAAAAGATTAATTTCGCGAGCAAGATCCACT
 spacer length: 56 repeater length: 17
 19882 2987829 AAAACAAGGATTGAAAC AGAGGGAGGGGGTAAATTATGATAAACACCAACAACATTTCGCGAGCAAGATCCACT
 spacer length: 56 repeater length: 17
 19883 2987902 AAAACAAGGATTGAAAC CTCACTTTTTATCTTTGAAAAGATATACATCTATTATTTCGCGAGCAAGATCCACT
 spacer length: 55 repeater length: 17
 19884 2987974 AAAACAAGGATTGAAAC TTTCTAATTCCTTTCAAAAACAATTCATATTTCTTTATTTCGCGAGCAAGATCCACT
 spacer length: 56 repeater length: 17
 19885 2988047 AAAACAAGGATTGAAAC TAATATCCAATTGTTTGTTCAGGTCTGAAATTAGTATTTCGCGAGCAAGATCCACT
 spacer length: 56 repeater length: 17
 19886 2988120 AAAACAAGGATTGAAAC ATAATTCATTTCCGGAGGGGCAACCTTATTTGGATATTTCGCGAGCAAGATCCACT
 spacer length: 56 repeater length: 17
 19887 2988193 AAAACAAGGATTGAAAC GTTTTCTTCTCTATGTGGTCCTGGTGGCTCCTATTTATTTCGCGAGCAAGATCCACT
 spacer length: 56 repeater length: 17
 19888 2988266 AAAACAAGGATTGAAAC
 19889
 19890
 19891 crispr 10
 19892 3273502 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT AAATATGTGGTAGATAGTTTATACTGTTATTATGA
 spacer length: 35 repeater length: 37
 19893 3273574 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT CTTATAATACTGTATGTGAGAGTCCCGAGGTTCCG
 spacer length: 35 repeater length: 37
 19894 3273646 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT GATGTTATGGCGGACCCTGATATGGAGATCCGGATTAA
 spacer length: 38 repeater length: 37
 19895 3273721 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT ACGCTGTAGGTGCAATAGTAGGAAAATCATCAGGGTC
 spacer length: 37 repeater length: 37
 19896 3273795 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT AGGGCACCGAACCGTCGAAGTTCCCCGAGTACGAAT
 spacer length: 36 repeater length: 37
 19897 3273868 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT CTGTCCAAACAACTTTATACAGTTGAGCTTGAGAG
 spacer length: 36 repeater length: 37
 19898 3273941 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT CAGGCGCATGGAAAGGGCTGGTTGGAGCACTATGTT
 spacer length: 36 repeater length: 37
 19899 3274014 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT AGCCTCCACTGGTTTCAGTGAGCGCGCGATGGGTGT
 spacer length: 36 repeater length: 37

19900	3274087 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	TTTTAAAGACCGTGAAACCTGACATCTATTTTCGT
	spacer length: 34 repeater length: 37	
19901	3274158 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	CGAGGTATTCTTTAGCTGGAACCACTTCCAGCTTTGTG
	spacer length: 38 repeater length: 37	
19902	3274233 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	CTCCTTTTGAATTTCCGGAACCTCTAGATGCTACCG
	spacer length: 36 repeater length: 37	
19903	3274306 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	TTGCTACAATCACGGGTACATATTTTTTCAAATAATT
	spacer length: 36 repeater length: 37	
19904	3274379 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	ATTGCATTTCGATGGAATAATAGGATAATTGATAAAA
	spacer length: 36 repeater length: 37	
19905	3274452 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	CTCCTTTTGAATTTCCGGAACCTCTAGATGCTACCG
	spacer length: 36 repeater length: 37	
19906	3274525 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	AATATACCAATTGGGCTAAACGCGAAAACGGGGAAAA
	spacer length: 37 repeater length: 37	
19907	3274599 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	AATATTGCTAAGTTCCGAGACACACACAAGCAG
	spacer length: 35 repeater length: 37	
19908	3274671 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	GCTGTACAGGTTGTCAGGTTGCAGCCGAGTACAT
	spacer length: 34 repeater length: 37	
19909	3274742 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	CATAGGTGATATCTGCCGTAACCAACTGGTTCTAA
	spacer length: 37 repeater length: 37	
19910	3274816 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	TTTAATGAATACAACGAAGAAGACATTGAGACAA
	spacer length: 34 repeater length: 37	
19911	3274887 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	CTACATGGTATTTGCATACGGTCTTTGCATGGATGGGA
	spacer length: 38 repeater length: 37	
19912	3274962 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	TTTTCCTTCTTGCTTTTGTGTAGCAGGAGGGATAA
	spacer length: 36 repeater length: 37	
19913	3275035 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	ATATGACGATCATTACACATCACACAACACTCTTT
	spacer length: 35 repeater length: 37	
19914	3275107 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	GACGCACTCTTAAAAATGATTGCCATCTTTGGGAGTC
	spacer length: 37 repeater length: 37	
19915	3275181 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	AAAAACATTTAAAAGAACTATCAGAGGCTGAATTTT
	spacer length: 36 repeater length: 37	
19916	3275254 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	TCTTTTCTCTCAGTTCCTTCACGTGTGAATCTCG
	spacer length: 34 repeater length: 37	
19917	3275325 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	ATGGGCTGTACATAAAATCAATACTCTTGAGAAGATA
	spacer length: 38 repeater length: 37	
19918	3275400 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	CATCTCATTGGTGATCGAGGTTCTCTAGCTACTTTA
	spacer length: 37 repeater length: 37	
19919	3275474 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	CATACAAGGTACGGGTCATTTTCGTCCTGCTCATCAA
	spacer length: 37 repeater length: 37	
19920	3275548 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT	
19921		
19922		
19923	GCA_000970285.1_ASM97028v1_genomic.fna (PilerCR):	
19924	START	REPEAT
	SPACER	
19925	crispr 1	
19926	1011702 ATTCGAGAGCAAGATCCATTAAAACAAGGATTGAAAC	TCCGTTCTTATTTCTTTTCCACAATGCCACAGT
	spacer length: 34 repeater length: 37	
19927	1011773 ATTCGAGAGCAAGATCCATTAAAACAAGGATTGAAAC	TCTGGTCCTGGTCTGATCTTCCATCGCATCCAGTAA
	spacer length: 36 repeater length: 37	
19928	1011846 ATTCGAGAGCAAGATCCATTAAAACAAGGATTGAAAC	AACCTCGTACACTCCCAGGAATTCGACCTCTACCAA
	spacer length: 37 repeater length: 37	
19929	1011920 ATTCGAGAGCAAGATCCATTAAAACAAGGATTGAAAC	AGATCAAGCCAGAAGCAAGACAGCTTCTAGCCAG
	spacer length: 34 repeater length: 37	
19930	1011991 ATTCGAGAGCAAGATCCATTAAAACAAGGATTGAAAC	TTTCAAAAACAAAAAATCTTGGATGTACCATCGATGA
	spacer length: 37 repeater length: 37	
19931	1012065 ATTCGAGAGCAAGATCCATTAAAACAAGGATTGAAAC	
	CAGAGTGTCCTGAGAGAAAAACGCCCTTCTCATATGAAGG spacer length: 39 repeater length: 37	
19932	1012141 ATTCGAGAGCAAGATCCATTAAAACAAGGATTGAAAC	TCATGGATGTTAATATAAGCGCAAGCGTCCGCCAT
	spacer length: 35 repeater length: 37	
19933	1012213 ATTCGAGAGCAAGATCCATTAAAACAAGGATTGAAAC	TTGAACCATTCTGCCAGAACTCCGATGATTTCAA
	spacer length: 34 repeater length: 37	
19934	1012284 ATTCGAGAGCAAGATCCATTAAAACAAGGATTGAAAC	ACAACTCGATATCTGTATCCTGATAGCGGGACCAA
	spacer length: 35 repeater length: 37	
19935	1012356 ATTCGAGAGCAAGATCCATTAAAACAAGGATTGAAAC	GATCATCTTAACGTATTTACGAATGTTTCAAAAA
	spacer length: 35 repeater length: 37	
19936	1012428 ATTCGAGAGCAAGATCCATTAAAACAAGGATTGAAAC	AAACATCATTTAAGTGAAAACCGAAAAGAATGGAGA
	spacer length: 36 repeater length: 37	
19937	1012501 ATTCGAGAGCAAGATCCATTAAAACAAGGATTGAAAC	ATCCTCCAATGAAATAATTGCACTTGCAAATTCT
	spacer length: 34 repeater length: 37	

19938	1012572	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTGCATCGATATCGACGGTAACTGCTTCTTTTTTTTG
		spacer length: 36 repeater length: 37	
19939	1012645	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTTTCTTTTTTTCACAATAACAGCATGATATATATT
		spacer length: 35 repeater length: 37	
19940	1012717	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TGGATTTACCATAAGATTGCAGAAAAATTGTAGT
		spacer length: 34 repeater length: 37	
19941	1012788	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GCCAGCTTATGCCGAAAATAATAATATGATAGTGTA
		spacer length: 36 repeater length: 37	
19942	1012861	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GGCTTTTCGTCTGTACTTTACAACGAGTATAAGGTG
		spacer length: 36 repeater length: 37	
19943	1012934	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GTTTATAATGTGCTATCAGCCCGTTTTTTTGAATA
		spacer length: 35 repeater length: 37	
19944	1013006	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GTTCAACCACGCTTGACCACCTTCTTCAGATAGG
		spacer length: 34 repeater length: 37	
19945	1013077	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CCCAATGAAGGCATGTTTCATAAATTTGAAAAGA
		spacer length: 34 repeater length: 37	
19946	1013148	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCGTGAAGCCTGGTAAACTGCATCAATACACAAGA
		spacer length: 35 repeater length: 37	
19947	1013220	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CATGTTTTGTAATTACTATCGAAAATGTAGTATC
		spacer length: 34 repeater length: 37	
19948	1013291	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTGGAGCAGTGTAGTCTTTTAGGTCTGCCCTTACG
		spacer length: 35 repeater length: 37	
19949	1013363	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TGACAAAAACCGAAGACGTAATAAATTTAATAAA
		spacer length: 34 repeater length: 37	
19950	1013434	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CCTTGAGAATCCCTGAAATACTCTTAATCTGTTCGA
		spacer length: 36 repeater length: 37	
19951	1013507	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GTCCGATTCTTTTTTTCACCTGGCAAATAATCGCTGT
		spacer length: 36 repeater length: 37	
19952	1013580	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GCCAACTGATGCCTATCGCTCTGGTAATTGGTGGA
		spacer length: 35 repeater length: 37	
19953	1013652	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AACTGGAACAGAGATGTAAAAAATGTGCCTAATATCGG
		spacer length: 38 repeater length: 37	
19954	1013727	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AATGTTCTGCCGTGAGTATTGCCGAGAAGTCGCCAAAA
		spacer length: 38 repeater length: 37	
19955	1013802	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TGTCTCTTCTCATGTCTTCCTCATCTCCTCGTGTTT
		spacer length: 36 repeater length: 37	
19956	1013875	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CGAAGGAGGAACCTTGCTTTTGCGAAGGAGTATTATGA
		spacer length: 37 repeater length: 37	
19957	1013949	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TATAAATTGTTCTGGTAAATATCCTCACTCTTT
		spacer length: 33 repeater length: 37	
19958	1014019	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CATCTACGAATCTTCTGTGAAAAGTCTTCACCTGG
		spacer length: 35 repeater length: 37	
19959	1014091	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATCAAATCCAAGTCACAAACCTGACCCGCCGCATT
		spacer length: 35 repeater length: 37	
19960	1014163	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCTCTTGGAGGTTCTGAGATTGAGACTAGTAAGGG
		spacer length: 35 repeater length: 37	
19961	1014235	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATTGCATTGCTCCATTTGTAGAAGAAGGTTCTTATAT
		spacer length: 37 repeater length: 37	
19962	1014309	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTGTGGTACCGTCTAAACCTTTCATTGTTGAATCACA
		spacer length: 37 repeater length: 37	
19963	1014383	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTCCCCATTTCTCAGGAAGTCAGGAAGTCCATAGG
		spacer length: 35 repeater length: 37	
19964	1014455	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTTTTCTTTTGTGGCTTGCTGGTGTGCATTTCTAT
		spacer length: 35 repeater length: 37	
19965	1014527	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GAACAGTATTCAAGATCTCCACCAGGAGGTGAGACA
		spacer length: 36 repeater length: 37	
19966	1014600	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AAAATCACTTCGTTCTGTTCTGTAAGCTTTTCCTG
		spacer length: 35 repeater length: 37	
19967	1014672	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AATCATATCTATATCCACAACAACGAGGTAAATACT
		spacer length: 36 repeater length: 37	
19968	1014745	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTCATTTCTGCGTATTTCTTACGACATCTGCATACAAG
		spacer length: 38 repeater length: 37	
19969	1014820	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACATCGTAAAGTTTGCTATGATTCCAACATGTCACG
		spacer length: 36 repeater length: 37	
19970	1014893	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AAAAATAATACGCTAATGCTCCAATTGCGCCGATTCCA
		spacer length: 38 repeater length: 37	
19971	1014968	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCCCGCTATCAGTTTCGCCAGATAGTCCGAAGCCTC
		spacer length: 36 repeater length: 37	
19972	1015041	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTTTGTAATGGGCTAACATCGAACCTGGTATATTGTA
		spacer length: 37 repeater length: 37	
19973	1015115	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACAGCGAACTTAAAGCTGTAAGTGAATCAAAAAGG

spacer length: 36 repeater length: 37
 19974 1015188 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CACCGGCAGCAAAGAAGTCGGTTGCCCTGAGAA
 spacer length: 33 repeater length: 37
 19975 1015258 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CAGAAAGGGG
 19976
 19977
 19978 crispr 2
 19979 2392664 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC
 CAGGAAAAATCGAAGGAGGTGAAAGAATAGGATGCCACAG spacer length: 40 repeater length: 37
 19980 2392741 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC GCACTAAAAGAAGATTACCAAAAAGAAGCTGAAAAGGA
 spacer length: 38 repeater length: 37
 19981 2392816 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC GAGGAAGGTGATATCGTCTTTGTTGACGTATTGAAAAG
 spacer length: 38 repeater length: 37
 19982 2392891 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC GCATTATATTTGAATAACAACAATATTTCTTTAAAGAA
 spacer length: 38 repeater length: 37
 19983 2392966 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC CCATAGAGAAGAATTGCTTCGCTCGGGAGATTTTA
 spacer length: 35 repeater length: 37
 19984 2393038 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC CGTTTGAAGCAAGCGGTGCGAGCGTAAGAATGAGG
 spacer length: 35 repeater length: 37
 19985 2393110 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC TATTTTTGATAAAAACGGCATAAAAACAATCGAAGAA
 spacer length: 37 repeater length: 37
 19986 2393184 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC CAGGGAAAAATAATAGAAGAAGCTATTGATATCGGAA
 spacer length: 37 repeater length: 37
 19987 2393258 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC GAACTTCTGAAATGCGGAGAAGTCCTGGTTATTTCT
 spacer length: 36 repeater length: 37
 19988 2393331 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC CTGGAAAACCTTATTACTTTAAACCAGACAGACATG
 spacer length: 35 repeater length: 37
 19989 2393403 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC GAAAGAAGAATCCAGAGTACAGGCTTGCCCGTTTCAA
 spacer length: 37 repeater length: 37
 19990 2393477 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC
 CTATGGTCGTAGCTGTACAGAATGTGAACATCCACTGTAG spacer length: 40 repeater length: 37
 19991 2393554 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC TATGACAGAAGAAGCGGTGATAGCATCAGAGAAAATT
 spacer length: 38 repeater length: 37
 19992 2393629 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC CTAGTAGAACAGATAGCGAATAAAGCAAGAGCAAATA
 spacer length: 37 repeater length: 37
 19993 2393703 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC GAAAGAAATGAGAACCTTCCCGCTAAAAGCAGCGA
 spacer length: 35 repeater length: 37
 19994 2393775 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC
 TGGAATGCTTGATGATCAAGCGGATGCAGCTCTAAAGGAAGCAGTG spacer length: 46 repeater length: 37
 19995 2393858 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC TTAGAAGTAGAGGATGTTTATGAGCCTCTAGAAAA
 spacer length: 35 repeater length: 37
 19996 2393930 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC AGGAATACAGAACCAACGCCAGATCCATTTGAAAAG
 spacer length: 36 repeater length: 37
 19997 2394003 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC TCCGAGAGTCTGTGACATTACATCCAGAATTTGCGA
 spacer length: 36 repeater length: 37
 19998 2394076 GTTTC AATCCTTATTTT TAGTGGAAGCTACTTCTCGAC
 19999
 20000
 20001 crispr 3
 20002 2400558 GTTTC AATCCTTGTTTT TAGTGGAATCTTGCTCTCGAAT CTAAAATCAAAACCTACTAAGCTTAATTCATTTTCCA
 spacer length: 37 repeater length: 37
 20003 2400632 GTTTC AATCCTTGTTTT TAGTGGAATCTTGCTCTCGAAT CCTTTTTAGAGGAAGTGCTCGCCTTTAGATAATACT
 spacer length: 36 repeater length: 37
 20004 2400705 GTTTC AATCCTTGTTTT TAGTGGAATCTTGCTCTCGAAT TAGAACCATTTGGCTTCCCGGTGTTAAAAATGAAAAC
 spacer length: 37 repeater length: 37
 20005 2400779 GTTTC AATCCTTGTTTT TAGTGGAATCTTGCTCTCGAAT AATTGTCTCCGGTCTGGAGAGGACAGCACTTTGA
 spacer length: 35 repeater length: 37
 20006 2400851 GTTTC AATCCTTGTTTT TAGTGGAATCTTGCTCTCGAAT TGGAACCCATTCTACGAAATCAACTGGTTGATTTT
 spacer length: 35 repeater length: 37
 20007 2400923 GTTTC AATCCTTGTTTT TAGTGGAATCTTGCTCTCGAAT ATTCCTGCAATGCTTGAAAAATTCGATGTAGAAAA
 spacer length: 35 repeater length: 37
 20008 2400995 GTTTC AATCCTTGTTTT TAGTGGAATCTTGCTCTCGAAT TAGAGTCCTGCGAGGCATTATGGAGATCCCCCATCAA
 spacer length: 37 repeater length: 37
 20009 2401069 GTTTC AATCCTTGTTTT TAGTGGAATCTTGCTCTCGAAT TTTTCATACTCTCCCCCAACAGGGACCGAAACGAGG
 spacer length: 36 repeater length: 37
 20010 2401142 GTTTC AATCCTTGTTTT TAGTGGAATCTTGCTCTCGAAT
 20011
 20012
 20013 crispr 4
 20014 2401301 GTTTC AATCCTTGTTTT TAGTGGAATCTTGCTCTCGAAT TATTACTATTAATTGTAATAGTAAGTAAAAACG
 spacer length: 33 repeater length: 37

20015	2401371	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	TTTTTCTAATTCTACATTTTCTATTTTCCATTTGGG
		spacer length: 37 repeater length: 37	
20016	2401445	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	ACTGCATTCTTTTTCATATCCCTGAGCATTGCAT
		spacer length: 34 repeater length: 37	
20017	2401516	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	TTCATTGCTTTTCGGGTCCACCTTTGCCCTTTGTA
		spacer length: 36 repeater length: 37	
20018	2401589	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	CACTTCTGCTTGCTTTTGCTTTTGTGGAGTGGACCCGG
		spacer length: 38 repeater length: 37	
20019	2401664	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	AACGCATATCTTCAGAAAATGATTACTCTTAGAGATG
		spacer length: 37 repeater length: 37	
20020	2401738	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	AACTTGCAGTCATGGACAGGTTTTGGGTATGGGGCTA
		spacer length: 37 repeater length: 37	
20021	2401812	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	
		CTTTTCATTTTACTCAGTGGGGTGTTTTCATCTCACTT	spacer length: 39 repeater length: 37
20022	2401888	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	AGGTACTCATTAATTGCCCTTGACACTCTGGACT
		spacer length: 35 repeater length: 37	
20023	2401960	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	CTGGACCTGGGCGCGCCAATCTCCTAAGGATT
		spacer length: 32 repeater length: 37	
20024	2402029	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	TCATTTAGATTTTTCTTGAAAATTTGTGTATTTCTCGA
		spacer length: 38 repeater length: 37	
20025	2402104	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	ATGCCGAGATATACAACCCTTGCCGGACTTTGAGAAAC
		spacer length: 38 repeater length: 37	
20026	2402179	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	GAAGACCTATTTTTTCTATTTGGGACTTATGTA
		spacer length: 34 repeater length: 37	
20027	2402250	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	CATAATATATTTTCTAGCTTTTATGCGACACTTAT
		spacer length: 33 repeater length: 37	
20028	2402320	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	AATTCAATCTTTTCTATTAGTAGATGTGGATGCAGAAT
		spacer length: 38 repeater length: 37	
20029	2402395	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	TTGCCAAAAAAGACATATGGGGTGAACCTCTCCT
		spacer length: 35 repeater length: 37	
20030	2402467	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	CAATTGAAATGTGATTTCCAGATGTTGATGCATTTT
		spacer length: 36 repeater length: 37	
20031	2402540	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	CTCTTCCTGTAGTGTCAATCAAAATCTAATCCAAG
		spacer length: 34 repeater length: 37	
20032	2402611	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	TCGGAAAACAGACAGTCTGCACTCTCGCGAGTGAAA
		spacer length: 36 repeater length: 37	
20033	2402684	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	CTGAGGTCGAACATATCGGTCTACTCAAACTGTCTG
		spacer length: 36 repeater length: 37	
20034	2402757	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	TGCAAATGCCGCGGCCATTACTCCAGGCACTACAGG
		spacer length: 36 repeater length: 37	
20035	2402830	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	TCCGTTTCAGGTGCGACTTTAGAAAGAACAGATAAAA
		spacer length: 37 repeater length: 37	
20036	2402904	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	CGGTGTAGTAGTAGACTACTACACTGGATCACCTGT
		spacer length: 36 repeater length: 37	
20037	2402977	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	GTGGATTTTCGTATAGAATCCTACGATGTAGCAGAAT
		spacer length: 36 repeater length: 37	
20038	2403050	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	AATATTTAATCTTTATCTTTGGTTGCATATTCACA
		spacer length: 35 repeater length: 37	
20039	2403122	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	CAATCAGAGAACGCTTAAAATTCAAACATCGAGA
		spacer length: 35 repeater length: 37	
20040	2403194	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	CCTGACTCTCAGCAATTCGGCAACTGAATCAGGAG
		spacer length: 35 repeater length: 37	
20041	2403266	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	ACCAATGTTGACGGCATGAAAGCAATGATTGTCAA
		spacer length: 35 repeater length: 37	
20042	2403338	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	TCCACCGATTACTAGGGCGATTGGCATTAGTTGAC
		spacer length: 35 repeater length: 37	
20043	2403410	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	ATTGAATTTCTTTTGGGGTCAAATACTTCATTTT
		spacer length: 34 repeater length: 37	
20044	2403481	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	CCACGAGGCAGCCGTCTCATTCAAAATGATGGAAA
		spacer length: 35 repeater length: 37	
20045	2403553	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	ATCTTGTTACAGTTTACGATACTGTAATTGCAGGTA
		spacer length: 36 repeater length: 37	
20046	2403626	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	AACGTATGCAACTGAAGATATGAATATCATACTAA
		spacer length: 35 repeater length: 37	
20047	2403698	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	CGCGGGCAACTGTTTCAATGAAGTTTGTAAGAAAATA
		spacer length: 37 repeater length: 37	
20048	2403772	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT	
20049			
20050			
20051	GCA_000970305.1_ASM97030v1_genomic.fna (PilerCR) :		
20052	START	REPEAT	

	SPACER	
20053	crispr 1	
20054	200326 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AATTACATCCTTTTCGTGTACTCCCATATATGTAAT
	spacer length: 36 repeater length: 37	
20055	200399 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCTAGATTAAAGTCCTGAACAATTTGCAAATGAGAA
	spacer length: 35 repeater length: 37	
20056	200471 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ATGATGGAGGACTTTGTAACATCTCTGTTCCCAGATAT
	spacer length: 38 repeater length: 37	
20057	200546 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AATTATGTCGTATTTTACATTTAGGAGGATTGAA
	spacer length: 34 repeater length: 37	
20058	200617 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ATATGATATAATAGATTTGGTTGGAAAAATGGAAATGTA
	spacer length: 39 repeater length: 37	
20059	200693 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AGACATACGCGCAGCCAAGCAATGTTACTCAATGGA
	spacer length: 36 repeater length: 37	
20060	200766 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ACTGTCCCCTGCCCCGTTTCATATGATCCAGTCGG
	spacer length: 35 repeater length: 37	
20061	200838 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CAATGGTGGTCTATTGTGAGTGGTCTTACTTACAT
	spacer length: 35 repeater length: 37	
20062	200910 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AGTGTAATATGAAGAATATTGAAGAAGCCGCTTTTCAATCAGGT
	spacer length: 45 repeater length: 37	
20063	200992 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TGAGCAGCGCAGAAGCACGTAAACTAGACATTTTGT
	spacer length: 36 repeater length: 37	
20064	201065 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ATTGTGGTGGGAATCGGAAGAAGAATATGAGGAACG
	spacer length: 36 repeater length: 37	
20065	201138 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TGTGGAGAAGCATAGAGTTAGGAAAGTATCACCTAA
	spacer length: 36 repeater length: 37	
20066	201211 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CTTTTGGGCAACTGAAGGAAACCTGAACCTGACACA
	spacer length: 36 repeater length: 37	
20067	201284 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GATCTGCCTGGGTGGGTGGAATGCTGAGGTATATGA
	spacer length: 36 repeater length: 37	
20068	201357 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AAGGCAGGACCGGAAAGATTAGAAGCCGCATTAAAC
	spacer length: 37 repeater length: 37	
20069	201431 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ATCACCACCTAGATGCAGCAGCAGCAACACAGGCACT
	spacer length: 36 repeater length: 37	
20070	201504 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCAAAAAGAGCATCTGCATATGGAATTCATCCGA
	spacer length: 35 repeater length: 37	
20071	201576 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTGTTGACGGCGTTGGGGTTTTTGGGCAATTGGG
	spacer length: 35 repeater length: 37	
20072	201648 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ACTACTATGGAACCTCAAAGAACTCAATGAAAAATA
	spacer length: 35 repeater length: 37	
20073	201720 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTTTATAGTACGTTTGTTTAAACCATCGTTT
	spacer length: 32 repeater length: 37	
20074	201789 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ATCGTGGATCAGGGGGAAACAGCGCAGGAGAGAAAT
	spacer length: 36 repeater length: 37	
20075	201862 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCGAACAGGAAGCAGTACAAAAGCCTCTGGAGGTCT
	spacer length: 36 repeater length: 37	
20076	201935 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AGGGACAATCTGCAACAGGCCAAAGCTCAAAGTTGA
	spacer length: 36 repeater length: 37	
20077	202008 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCCCATGTTTTTGAATTGTGCTTATAGAAGGAATGAA
	spacer length: 37 repeater length: 37	
20078	202082 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTCAGTTTGGGGAGCATGGATAATAATATCCTGG
	spacer length: 35 repeater length: 37	
20079	202154 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCGAAGTCAATGAAGTCATATCGCTCTCATCAACTCCA
	spacer length: 38 repeater length: 37	
20080	202229 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AAAAGGAGAAGGCTGGAAGCGTACCGATGGATCAAT
	spacer length: 36 repeater length: 37	
20081	202302 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AATAATCCAATTTGTTAACGTCAACCGTGGGAT
	spacer length: 33 repeater length: 37	
20082	202372 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GGTTGCGGTACACGCGAGCCTATATGGAGTGTGAA
	spacer length: 35 repeater length: 37	
20083	202444 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TGTGATTTTTTGTGAGCAGTGGAGCCGAAACGTAATT
	spacer length: 35 repeater length: 37	
20084	202516 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTGTAATGGTCGAGTGCTACCATCTGAGTTCCAGT
	spacer length: 35 repeater length: 37	
20085	202588 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AAGTCAGGATGGTAGATTTTGACGAGTTGTTTAA
	spacer length: 34 repeater length: 37	
20086	202659 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TAAGTTTGCTCAGGAAGTTCAGGGGGTGGTCTGATGT
	spacer length: 37 repeater length: 37	
20087	202733 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TAGAAAAATTAACCTCCGGTATGGAACACGCTTAAAT
	spacer length: 37 repeater length: 37	
20088	202807 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCCCAAGGTGTTTTCTTCTTCTCTAGCTCTTTG

spacer length: 34 repeater length: 37
 20089 202878 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGGTTTCCAGGTACTCTATGAAAAACAAGTTGAAG
 spacer length: 35 repeater length: 37
 20090 202950 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATATAAAGTTTGTCCGTAGTATGTGGATAAAAAAA
 spacer length: 35 repeater length: 37
 20091 203022 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTGAGTCTATGTCTTTTCAAGCTTTACAGATAGT
 spacer length: 35 repeater length: 37
 20092 203094 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAGAAAAGACTTCCAAAAAGGAGAGGATTCTGA
 spacer length: 34 repeater length: 37
 20093 203165 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAGTGCATCATCGGATAGCGGAAACGGACTTACAA
 spacer length: 35 repeater length: 37
 20094 203237 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGTTAAGTAACGGTGGTTTGATTCCACCTAATCTTTTT
 spacer length: 38 repeater length: 37
 20095 203312 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT CGTATGTTTCTGTTTCAGAACTGTAATTTTCGTCAA
 spacer length: 36 repeater length: 37
 20096 203385 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT TATGTGTGGAAGAGTGTGGATACATGGAACCTATACCA
 spacer length: 37 repeater length: 37
 20097 203459 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGGTTTTCCATAGCAATCTTTCCTACTATTTTTTTCAAC
 spacer length: 36 repeater length: 37
 20098 203532 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAGTTTAGTAATTCGCATTCCAGCTTTAATTTTAA
 spacer length: 35 repeater length: 37
 20099 203604 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTACATGTATATAGATCCTAAAAAACACTGTAATAAT
 spacer length: 37 repeater length: 37
 20100 203678 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAGAAGCTTACCCCGATGAACCAAGCGATGAAGACA
 spacer length: 36 repeater length: 37
 20101 203751 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATTTAAAATCCACTTCCAAGTGATCGACGGTTCCGTAG
 spacer length: 39 repeater length: 37
 20102 203827 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAAGCTCTGGAACCTTCTGAGCTTGTTCAATCGCA
 spacer length: 35 repeater length: 37
 20103 203899 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT TATTAAAAACCAGAGATAAAGAACATCTATAGT
 spacer length: 34 repeater length: 37
 20104 203970 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGCAAAGGATCGAATGATAGATTATTCTTGTTCA
 spacer length: 34 repeater length: 37
 20105 204041 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTAGCCGGTTTTTCAGGAACTCTAAAAAACCATACT
 spacer length: 36 repeater length: 37
 20106 204114 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAAAAAATGAATGAATCATACAAACAAACAGGAATTA
 spacer length: 37 repeater length: 37
 20107 204188 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGTTGGATTAACCTCCACAAGCTTCCTAAAGCAACTA
 spacer length: 37 repeater length: 37
 20108 204262 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATCATTCGAGGAGATCAAACAAGAACTAGGTGAAAG
 spacer length: 36 repeater length: 37
 20109 204335 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT TAATTCGCAAAAAGTTATTACTTGATATCAGGAAAT
 spacer length: 36 repeater length: 37
 20110 204408 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAGAGTATGTCAAGGGTATAAGCTGTCCTGAAGAAAA
 spacer length: 37 repeater length: 37
 20111 204482 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGAGAATGTAGAAGAAACCATAGAGGAAGTCCAGCC
 spacer length: 36 repeater length: 37
 20112 204555 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT
 AAATATTGCGCCCATGTTAGTCCATTTTCATTGGTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATATATTTTGGTTTGTG
 TTTCATACTCCTCCTTTTTCTTGTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATAACTCCCTGGTTCTTTCCAACGACTAT
 ACATTCCACAAGTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATAAGGCTTCTTTTCAAGTGCAGGTAATGATAACGTTGGT
 TTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATATGTAATTGCTGTGACCTTGTTGTGAATATCATTGTTTCAATCCTTGTTTT
 AGTGGATCTTGCTCACGAATAAAATACGAAATGCGGTAATTACGCAATATATTCAAGTTTCAATCCTTGTTTTAGTGGATCTTGCT
 CACGAATTTCAAAAAGAGCATCCGAGTATGGAATACCAGGTGAGTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATAACCTA
 CTACACTCTAATATTTATTTATTTTGTGTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATATATATTATACTAAGTCCTTT
 TCGTTCCCTATCATGTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATATTTACAGGTCAATCACTTATTAATATATTTAAAT
 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATACGACACGAAGCTTTCATACACGTTTCTTAAATGGTTTCAATCCTTGTT
 TTAGTGGATCTTGCTCACGAATACGTCAGCAGGTGCAAACCTTTGGATGCATGATAA spacer length: 831
 repeater length: 37
 20113 205423 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCGCCACGAT
 20114
 20115
 20116 crispr 2
 20117 204626 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAATA TATTTTGGTTTGTGTTTCATACTCCTCTTTTTCTT
 spacer length: 36 repeater length: 38
 20118 204700 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAATA ACTCCCTGGTTCTTTCCAACGACTATACATTCCACAA
 spacer length: 37 repeater length: 38
 20119 204775 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAATA AGGCTTCTTTTCAAGTGCAGGTAATGATAACGTTG
 spacer length: 35 repeater length: 38
 20120 204848 GTTTCATCCTTGTTTTAGTGGATCTTGCTCACGAATA TGTAATTGCTGTGACCTTGTTGTGAATATCATT
 spacer length: 33 repeater length: 38

20121	204919	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATA	AATACGAAATGCGGTAATTCACGCAATATATTCAA
	spacer length: 35	repeater length: 38	
20122	204992	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATA	TCAAAAAGAGCATCCGAGTATGGAATACCAGGTGA
	spacer length: 35	repeater length: 38	
20123	205065	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATA	ACCTACTACACTCTAATATTATTTATTATTTTT
	spacer length: 33	repeater length: 38	
20124	205136	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATA	TATATTATACTAAGTCCTTTTCGTTCCCTATCAT
	spacer length: 35	repeater length: 38	
20125	205209	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATA	TTTACAGGTCAATCACTTATTAATATATTAAAT
	spacer length: 33	repeater length: 38	
20126	205280	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATA	CGACACGAAGCTTTCATACACGTTTCCTTAAATG
	spacer length: 34	repeater length: 38	
20127	205352	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATA	CGTCAGCAGGTGCAAACCTTTGGATGCATGATAA
	spacer length: 33	repeater length: 38	
20128	205423	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATA	CGCCACGATG
20129			
20130			
20131	crispr 3		
20132	3729888	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	TACAGCCTGTACAATCAGAACTAGAAGCACATTCTGA
	spacer length: 37	repeater length: 37	
20133	3729962	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	ATTTTAAGTTATCTGATGGAGCTAAAGAACTGATTA
	spacer length: 36	repeater length: 37	
20134	3730035	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	TAATTTAGTTCTAGAAGAAGCAATTAAAAGAGGCAG
	spacer length: 36	repeater length: 37	
20135	3730108	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	TTAAGGTATAGGTTTCTGTACCGATTGAGTGGTATT
	spacer length: 36	repeater length: 37	
20136	3730181	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	AGTTTTATCGTACCGTTGTCGTCTTTTAATCCGG
	spacer length: 34	repeater length: 37	
20137	3730252	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	TTACTTTTATTTAGTTATGTAGCGGCTGCTGCTACG
	spacer length: 36	repeater length: 37	
20138	3730325	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	TAATTGCAGCATCTTCAGTTGCAGTTGCCGAATAA
	spacer length: 35	repeater length: 37	
20139	3730397	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	TCACCTTCAATCAATTATTAAGTAGTCAATCACTT
	spacer length: 35	repeater length: 37	
20140	3730469	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	ATAACAGTTCCATATTTTGAGAATGTTGTGTGCCAG
	spacer length: 36	repeater length: 37	
20141	3730542	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	CCTCTTATAGAGTTAAACGGTGGAGAGCATAGGATT
	spacer length: 36	repeater length: 37	
20142	3730615	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	TTACTAACGGGCCCTATAGAAATTCCATCAGGAAA
	spacer length: 34	repeater length: 37	
20143	3730686	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	CTCCGTAGTTGGAGATATAGTCGTATACCGTCATCGTG
	spacer length: 38	repeater length: 37	
20144	3730761	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	ATTCTGGTGGTGATCCCCCTCTGCAAATGGTTAT
	spacer length: 34	repeater length: 37	
20145	3730832	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	CTATGTGTCTGACAGTAAGTAAATGTGAAAAAATT
	spacer length: 36	repeater length: 37	
20146	3730905	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	TCCCTTCAGAACGTGGTTCTCTCGCAGAGTTTTTGA
	spacer length: 36	repeater length: 37	
20147	3730978	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	CGGAGATGTGCATACTTCCCTCTAACGTTTTTAATT
	spacer length: 36	repeater length: 37	
20148	3731051	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	TAAAGTATGTGGCTGGCGACGGCACAGGTGATTATGA
	spacer length: 37	repeater length: 37	
20149	3731125	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	CCCATCATCTTTCGTACTCGTTCCCTTTCATCTTC
	spacer length: 35	repeater length: 37	
20150	3731197	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	AGCGCATTCTCTCCGGCAGTTTGCAGCATCGTAAT
	spacer length: 35	repeater length: 37	
20151	3731269	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	TAACAAAGCCATTATAACCGCAACAGTAATGCCAA
	spacer length: 35	repeater length: 37	
20152	3731341	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	AAGTACTGTTGAGCCACTACACTTTGAATATGAAAT
	spacer length: 36	repeater length: 37	
20153	3731414	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	CATACTTTCTCGGCAAAGTAGTCTATACCAGTCTTT
	spacer length: 36	repeater length: 37	
20154	3731487	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	CCAAATATCTTTTTCTTGAATGCAAAAACCGAAAT
	spacer length: 35	repeater length: 37	
20155	3731559	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	AAATATATACAAGTTAATTACGAAGTATCTACTAA
	spacer length: 35	repeater length: 37	
20156	3731631	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	ATTTTAGCTATCAAGTCTTTTGTTTCAGATTCTTAC
	spacer length: 37	repeater length: 37	
20157	3731705	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	AAATTTTTTACAGGTGTCAAAAAGACGTAACAA
	spacer length: 34	repeater length: 37	
20158	3731776	ATTCGTGAGCAAGATCCATTAAAACAAGGATTGAAAC	CACAGACTATATAAACCATAGTTATCTACCATCCAT

spacer length: 36 repeater length: 37
 20159 3731849 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATCATCCTCTACTTGCTCAGTCTTTCTGCTGGTTTT
 spacer length: 36 repeater length: 37
 20160 3731922 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTAAAATCGCAAAAGGTGCATCAAGAATCAAAGGC
 spacer length: 35 repeater length: 37
 20161 3731994 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTAGATTCAATTTTCATATCGAAAGTTAGAGAACG
 spacer length: 34 repeater length: 37
 20162 3732065 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGAATTATTCCCTGAAGAATTCGACTATCTAGAAGGAG
 spacer length: 38 repeater length: 37
 20163 3732140 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CACCAACCGCCTACAAGCTCTTCAGGGAGTACCAT
 spacer length: 35 repeater length: 37
 20164 3732212 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CACAAGCGAAGCAGGCAATTCAACAACCTGATTTC
 spacer length: 35 repeater length: 37
 20165 3732284 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTGATTGGGATACAACGTTAAAATTTCTTGAAAC
 spacer length: 34 repeater length: 37
 20166 3732355 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAAGAAAATGAAATCAGAATAAAAAGAGTTGAAGC
 spacer length: 34 repeater length: 37
 20167 3732426 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AATTTTGAGCGTTCTTTTCATCACTCAACCTCTGAACAT
 spacer length: 38 repeater length: 37
 20168 3732501 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TATAATCATCTGACATTTTGCCTACTCCTTAAAAGAA
 spacer length: 37 repeater length: 37
 20169 3732575 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCAGGATAGCAGACTTGCAAGCTGTGCAAAGAATCAT
 spacer length: 37 repeater length: 37
 20170 3732649 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATGAAAATCAGGAAGCCGGGGGTGTATATTCAGATGA
 spacer length: 37 repeater length: 37
 20171 3732723 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAAAAAAGCTAACGGTGCATCCAGAATAAAAGGGGT
 spacer length: 37 repeater length: 37
 20172 3732797 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCCAATTAATAGCCCTCCGGTAAAACGGTTTTTTGACC
 spacer length: 37 repeater length: 37
 20173 3732871 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTTCCGAGTGGTTCGGAGCCAGGGACTTACAGGAGT
 spacer length: 36 repeater length: 37
 20174 3732944 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTTGCAGGAAAACAAAAATAATTTCTCTTTTTTATT
 spacer length: 37 repeater length: 37
 20175 3733018 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTATTATCGTTGTATATATCATATGATTACGGACAC
 spacer length: 36 repeater length: 37
 20176 3733091 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGGAAGAGACGGGAGCTATACATCAACAATAGGTTA
 spacer length: 36 repeater length: 37
 20177 3733164 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCAAGTCTTTAGTTTGTGATTCCCTTACACTTAATGA
 spacer length: 36 repeater length: 37
 20178 3733237 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATCACCTTCATATTATACTTATCAATTGTAGATCCA
 spacer length: 36 repeater length: 37
 20179 3733310 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AGGTCTTGGAGATACTTATTTTCTGTTTCTGTAAAT
 spacer length: 36 repeater length: 37
 20180 3733383 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC GACAACCGTGGGCTTCTTTAATTATTGAAGGATTAA
 spacer length: 36 repeater length: 37
 20181 3733456 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATGCTTATTATGTATTGTAAAAGGGCGAGTGCCCAACG
 spacer length: 38 repeater length: 37
 20182 3733531 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCATATGGAACCCACTTGATATAAAAATGAAAGATCCT
 spacer length: 38 repeater length: 37
 20183 3733606 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAATGTTTTCTACTAATTCTTCCAAATTGACGTCAG
 spacer length: 35 repeater length: 37
 20184 3733678 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGCGCAGGAACCTCAAAAAATACTCGACGGAAACGTT
 spacer length: 36 repeater length: 37
 20185 3733751 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTGAATGGAAAAATAGACTGGAAAAACTTAGCGAAA
 spacer length: 36 repeater length: 37
 20186 3733824 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AACATATAGTGCTTGACAAGACCAGCAAAGGCAAAGG
 spacer length: 37 repeater length: 37
 20187 3733898 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGTCTTCAGTCATGATTTATCTTCCTCGTAAGCTTC
 spacer length: 36 repeater length: 37
 20188 3733971 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCGAGTAGGATCTCCTCTGGATAATGCTCAGATACTC
 spacer length: 37 repeater length: 37
 20189 3734045 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATCAAATAATAGCAGAATCAACAAAAGAAACACAA
 spacer length: 35 repeater length: 37
 20190 3734117 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CAGTCTATTTTTTCATGCTCGTGCGAGAAGTGCTGAC
 spacer length: 36 repeater length: 37
 20191 3734190 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACATTTTCAAGGAATATAATTTTCGGGTCTTTTTTCT
 spacer length: 36 repeater length: 37
 20192 3734263 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CAGCTTCCAATATCTCATCATCTGTTACAACCT
 spacer length: 33 repeater length: 37
 20193 3734333 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTCGAATTACGGTAACTGACGCCAGCATTTCAGGCT
 spacer length: 35 repeater length: 37

20194	3734405 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TAGTTTTCTATCAATGGCAATATAACAGTCAACTC
20195	3734477 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TCCATCGTTGTGACAACGAAATGATCAAGCTTTGTA
20196	3734550 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	GATAAAGAAGGAAACACGTGCATTTTAGCATATGCT
20197	3734623 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	ACTCGAATTCAACTGCACGTTCCGCATCGTAAAAAT
20198	3734696 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TTCAATCGAATTTGATTCTGATAAGCTCTTTCC
20199	3734769 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TCTGGATCTCTAAAGGTTGTAACGTCCATACCCCCG
20200	3734842 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TTTTTCATAATTCCTTTGAGAATCTGCCCCGTACACA
20201	3734915 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	TCAAATGTAGTCAATAATACAATTCTTTTCGTCTT
20202	3734986 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	AAAATAATAATATTACAAACGGTATGGGAATCAGG
20203	3735058 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	GTAGAATCAATTAACCTTTCAGTTCAGGGGCCTCT
20204	3735129 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	TAGTATAAATACATACCATATGCAGTATAAAATATAA
20205	3735203 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TGGCAAGCTCTACCAGCAACAAAAATAATTAAAAAA
20206	3735276 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	GCGACTTAAGAAGCTCTTGCCCAATCTGGAAATTAAG
20207	3735350 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	TTCCGGTGAATATCCCAATATTGGGATTAATGCTTATG
20208	3735424 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	TTCCGGTGAATATCCCAATATTGGGATTAATGCTTATG
20209	3735498 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCAGTAAAAATATATATCATGAATCTGCCCTGCCTGTAGT spacer length: 39 repeater length: 37	
20210	3735574 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	AAATAGTAACATAAGAGGTTTGAAAACAATGAGCAAA
20211	3735648 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 38 repeater length: 37	AGGAATCCACACCTTACAAACTTCCTCCTCGATACTGT
20212	3735723 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	CAGAGGAATTACTACAGAAATGGGGGTGGAACCAATG
20213	3735797 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	CGGCAGGATCTTCAGCTATCATCTTAATATCTGCC
20214	3735869 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TCTCCGTCTTCAACTAGATACAGGATATTTGCTTTA
20215	3735942 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	CAGGTTATGCCGTCGTCTATAGCGGTGCAATGATCT
20216	3736015 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	CATTTACTTTCTAATTTAGCCTTAAATTTTCCAAA
20217	3736087 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 33 repeater length: 37	TGAATCCTCTGAAAAATACAAAGTAACAGTCTT
20218	3736157 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	CTCCTTACTTCAATTGTTTTCAATCCTTCAACAATAA
20219	3736231 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 38 repeater length: 37	TGAAAATCATCCCAAGTTCTAAGGTATGACTTTCCATT
20220	3736306 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	ACATCCCTGCTGATCCTCTACGTACTTCAGCCAGTC
20221	3736379 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TTATAAAGAGTTATTATCTAAAGGGCAAATCAATG
20222	3736451 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	CTATGTATCAAACAAACCTACTAGACGGTGATGTA
20223	3736523 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	GTAATTCAGCTAGCATTTGTGCTAATCAACCTAACCG
20224	3736597 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	TCTTATAGTGCTGGCTCTAGGTGTCTTATGTCTG
20225	3736668 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TATGGTCAAATAATAGAGTAACCGGTTTTGTAGT
20226	3736740 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	GGGGTTTTTCGTGATAACTTGCCCGGAGAAAAGCATA
20227	3736813 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	AAATTAAAGCTGTTCCAGTCATTGTATACCACCAT
20228	3736885 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 38 repeater length: 37	TTCGATGCTGGGCTGATGTCAGCCAGGGTTAACCCCAT
20229	3736960 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTATTTTCTTTTCTTCTTCTATAGAAATTATGT

spacer length: 34 repeater length: 37
3737031 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC

GCA_000970325.1_ASM97032v1_genomic.fna (PilerCR):
START REPEAT
SPACER

GCA_000993805.1_ASM99380v1_genomic.fna (PilerCR):
START REPEAT
SPACER

crispr 1

551139 CTTTCAATTCATTCCCTTTCTGATAC ATAAGGGATATAGACTAGGAAACCATATTTTCTTTGTGAA spacer
length: 40 repeater length: 25

551204 CTTTCAATTCATTCCCTTTCTGATAC CCGTGTAGTCGCGATTGTTGAACTCGCTCTTATCCTCCT spacer
length: 39 repeater length: 25

551268 CTTTCAATTCATTCCCTTTCTGATAC GTTCAGTCTGGCAAAATTTTCTGTTTTACGACCTCGG spacer
length: 38 repeater length: 25

551331 CTTTCAATTCATTCCCTTTCTGATAC ACAACTGTGCAACTATATAGACGCCCGGAAAACCTATAT spacer
length: 39 repeater length: 25

551395 CTTTCAATTCATTCCCTTTCTGATAC GTGCTACATCAGGTGCTTCAATCCGCTACTACGTGGAAAC spacer
length: 40 repeater length: 25

551460 CTTTCAATTCATTCCCTTTCTGATAC ACGCTACCATTATTATGACGGCTACGCTTATAATGA spacer length:
36 repeater length: 25

551521 CTTTCAATTCATTCCCTTTCTGATAC CTCCGACAACGTGTTGTCGGGAACAGTGCCGGGCGGAC spacer
length: 38 repeater length: 25

551584 CTTTCAATTCATTCCCTTTCTGATAC TATACAAACGGCTCGACGCTGCAATCTATTTGTTTGATAC spacer
length: 40 repeater length: 25

551649 CTTTCAATTCATTCCCTTTCTGATAC GGGGGCCTTCGTGTTGTTGTTGATGCGTATCGGTTGAA spacer
length: 38 repeater length: 25

551712 CTTTCAATTCATTCCCTTTCTGATAC GGTTCTATGCTCCATTTCGCTACTCCGATCCCGAG spacer length:
34 repeater length: 25

551771 CTTTCAATTCATTCCCTTTCTGATAC TACTTCTCCCTCCACTCGATGTCAAGCCCCTTATTCTTCCT spacer
length: 41 repeater length: 25

551837 CTTTCAATTCATTCCCTTTCTGATAC AAGAGCAACCGAAAAGAGTACGAATTTTGGACAAAGGA spacer
length: 38 repeater length: 25

551900 CTTTCAATTCATTCCCTTTCTGATAC AAGCTCCTTACCGGATCCTCCCTAGGATACGAGAAAACG spacer
length: 39 repeater length: 25

551964 CTTTCAATTCATTCCCTTTCTGATAC CTAAAGCCTCAAGCCCGTTGACGACCTCTTCACCGCCGA spacer
length: 39 repeater length: 25

552028 CTTTCAATTCATTCCCTTTCTGATAC TAGACTTTTCATACAATTCTAACATGCACATGTCACCGC spacer
length: 39 repeater length: 25

552092 CTTTCAATTCATTCCCTTTCTGATAC ACTAAGAAACCCATCCGGGTCTTTAATGCCATGAACTCT spacer
length: 39 repeater length: 25

552156 CTTTCAATTCATTCCCTTTCTGATAC ACGCCACCTGTGGGGAGCTGTGGCTGCCGCGACCGTGGG spacer
length: 39 repeater length: 25

552220 CTTTCAATTCATTCCCTTTCTGATAC ACTTAACGCTTAAACTGTTGTTGAAAACCTCGATAGAATAA spacer
length: 40 repeater length: 25

552285 CTTTCAATTCATTCCCTTTCTGATAC CTTACCCTTAATCGTAGGTAAGTTTGGAAAACCCATATC spacer
length: 39 repeater length: 25

552349 CTTTCAATTCATTCCCTTTCTGATAC TTTAACGCTATATAGTCTTCTAGAGAACATACATAGCTCATG spacer
length: 42 repeater length: 25

552416 CTTTCAATTCATTCCCTTTCTGATAC GAGGTCGTAGCTCCACTGAATGTTCCCAATGTATCTTTT spacer
length: 40 repeater length: 25

552481 CTTTCAATTCATTCCCTTTCTGATAC ATGACAGATCTGTAGCCTCCACCCCCCACGTCTCA spacer length:
36 repeater length: 25

552542 CTTTCAATTCATTCCCTTTCTGATAC GATATATGCAAAAATGTATATAGTATACAAAAA spacer length:
34 repeater length: 25

552601 CTTTCAATTCATTCCCTTTCTGATAC TTTAACAGGGGCAAAGCCACTGCCCCGCGAACAAATAGA spacer
length: 39 repeater length: 25

552665 CTTTCAATTCATTCCCTTTCTGATAC AACGGCTATGAAATTGCAATAACGGTAAACCCAAAT spacer length:
36 repeater length: 25

552726 CTTTCAATTCATTCCCTTTCTGATAC ACGCATCATCAGTGCAATACGAAAATACGTGAATG spacer length:
35 repeater length: 25

552786 CTTTCAATTCATTCCCTTTCTGATAC AAACCCCCACTGTCTCTCTCCTGTTGAGCTACAACCTAT spacer
length: 38 repeater length: 25

552849 CTTTCAATTCATTCCCTTTCTGATAC AGCTACGGGTAGGGCTCGCGTGGGCTATTGCTATGCAC spacer
length: 38 repeater length: 25

552912 CTTTCAATTCATTCCCTTTCTGATAC AACGCTAACGCCTTCAACGTAAACTGTTTGCTGAC spacer length:
36 repeater length: 25

552973 CTTTCAATTCATTCCCTTTCTGATAC CAATCAGGGTATATCAATGTATACTGGTTGGGGTGAAGA spacer
length: 39 repeater length: 25

20268	553037 CTTTCAATTCATTCCCTTTCTGATAC	GGTTCACCTACAAATATATCAGTTAACGTTAA spacer length: 32 repeater length: 25
20269	553094 CTTTCAATTCATTCCCTTTCTGATAC	ATACCCAAACCGCACTGTATATGTAGCTATAGTTGACCC spacer length: 39 repeater length: 25
20270	553158 CTTTCAATTCATTCCCTTTCTGATAC	CTGCGACGTCCCAAAGTGGACTGGAGAAGCGTTATCCG spacer length: 38 repeater length: 25
20271	553221 CTTTCAATTCATTCCCTTTCTGATAC	GCATACAATAACCTGATAAAATGCAAGCGATAG spacer length: 34 repeater length: 25
20272	553280 CTTTCAATTCATTCCCTTTCTGATAC	CCAGTTACCCCGGCACTCCTACTCTTCTCCCCTTCAGCT spacer length: 40 repeater length: 25
20273	553345 CTTTCAATTCATTCCCTTTCTGATAC	CTGAGCGGCGAGGCTTCGCTTCAGCCACAGCCGTTCTATG spacer length: 40 repeater length: 25
20274	553410 CTTTCAATTCATTCCCTTTCTGATAC	CTCCGACAACGTGTTGTGCGGAACAGTGCCGGGCGGAC spacer length: 38 repeater length: 25
20275	553473 CTTTCAATTCATTCCCTTTCTGATAC	TATACAAACGGCTCGACGCTGCAATCTATTTGTTTGATAC spacer length: 40 repeater length: 25
20276	553538 CTTTCAATTCATTCCCTTTCTGATAC	GAGGTGACGTGGATGACCGAGCCGGGACGGGTGTCA spacer length: 37 repeater length: 25
20277	553600 CTTTCAATTCATTCCCTTTCTGATAC	AACCCCCACGCTAACAAAATTGCCAGACCGGAATCCCC spacer length: 38 repeater length: 25
20278	553663 CTTTCAATTCATTCCCTTTCTGATAC	GAGCAAGAACGTGCACGTGCTACTCTGCGTAGGCTAGCT spacer length: 39 repeater length: 25
20279	553727 CTTTCAATTCATTCCCTTTCTGATAC	TGGACGGTCTAGGACGCGTGTGGGGATTCAATAGACGT spacer length: 38 repeater length: 25
20280	553790 CTTTCAATTCATTCCCTTTCTGATAC	AGCAACTCG
20281		
20282		
20283	crispr 2	
20284	553933 CTTTCAATTCATTCCCTTTCTGATAC	TAATCGATTTGACAGGATGCAAGCCGTTATCGCGTG spacer length: 36 repeater length: 25
20285	553994 CTTTCAATTCATTCCCTTTCTGATAC	AAGGACAAGATTCCATTGGTGAAATGGGAGGAATAACAG spacer length: 39 repeater length: 25
20286	554058 CTTTCAATTCATTCCCTTTCTGATAC	CAAGTACGTATCGCAGCACAGAAGAAGCGAGACGTCTA spacer length: 39 repeater length: 25
20287	554122 CTTTCAATTCATTCCCTTTCTGATAC	TCGTAAATACTGCAAGTCAGCTTGCTGGGAAGCTCAG spacer length: 37 repeater length: 25
20288	554184 CTTTCAATTCATTCCCTTTCTGATAC	ATCCAGGCAAGCCTTGAGTTTGCACAGAGCGAGATTT spacer length: 38 repeater length: 25
20289	554247 CTTTCAATTCATTCCCTTTCTGATAC	TGGAAGCTCGTGGATTTTCGTAAGCCTAGACCACGGACT spacer length: 38 repeater length: 25
20290	554310 CTTTCAATTCATTCCCTTTCTGATAC	ACTTCTAGGGGCTTGACTGTCTCGTGTTCACAGCTG spacer length: 37 repeater length: 25
20291	554372 CTTTCAATTCATTCCCTTTCTGATAC	GCAAACGTGGCGGCAGATTGTGCCGCCAACACTCTCCTGTT spacer length: 41 repeater length: 25
20292	554438 CTTTCAATTCATTCCCTTTCTGATAC	CTTTATTTGTAGCTCTGTTTCTGTCATGTTTGTTC spacer length: 36 repeater length: 25
20293	554499 CTTTCAATTCATTCCCTTTCTGATAC	ATTTTCCAAGCTATTTTCTGTATGTTTTTTTGGTTCATCT spacer length: 40 repeater length: 25
20294	554564 CTTTCAATTCATTCCCTTTCTGATAC	GAATAGATGTGGCGATGAAGTATTCAGGAAAACGAG spacer length: 36 repeater length: 25
20295	554625 CTTTCAATTCATTCCCTTTCTGATAC	TTAGTAATCATGCCCTGTCCTTCATATTTGATTTTTTTTA spacer length: 39 repeater length: 25
20296	554689 CTTTCAATTCATTCCCTTTCTGATAC	TGCGACGTTGCCATACGTGCTTATGTCCAGGTTTTCCG spacer length: 38 repeater length: 25
20297	554752 CTTTCAATTCATTCCCTTTCTGATAC	GCGTCGTGATGTCCTTGATTCAAAAGTTCTTCTCTAATG spacer length: 39 repeater length: 25
20298	554816 CTTTCAATTCATTCCCTTTCTGATAC	TTATTAGTGACGTATAGCTATGAATGTGCCTCCGTATGA spacer length: 40 repeater length: 25
20299	554881 CTTTCAATTCATTCCCTTTCTGATAC	AAGGGGTTTTTCTCTAGCCCGGGTTTTTCTCTATCT spacer length: 37 repeater length: 25
20300	554943 CTTTCAATTCATTCCCTTTCTGATAC	TGAGAGTCGGGCAAGCGGGAAAAACCCTGCAGGTGGATT spacer length: 39 repeater length: 25
20301	555007 CTTTCAATTCATTCCCTTTCTGATAC	CAGCCGTCGACGCCCAGGCTTCCGTTGCCGGCCGAGCCTA spacer length: 40 repeater length: 25
20302	555072 CTTTCAATTCATTCCCTTTCTGATAC	CTGTTGCGGGGCTTCAAGCACCTGTTGCCTACAACC spacer length: 37 repeater length: 25
20303	555134 CTTTCAATTCATTCCCTTTCTGATAC	TTCTTGAAAATGGCGTATCCTCACCGCTTAAATTCCA spacer length: 37 repeater length: 25
20304	555196 CTTTCAATTCATTCCCTTTCTGATAC	ACAACCGGCACCTGTGAAGGGGTGATACTAGTCAT spacer length: 35 repeater length: 25
20305	555256 CTTTCAATTCATTCCCTTTCTGATAC	ATGTAGATGATGTAGAGTATTAGGCTTAGCGTGACGG spacer

length: 37 repeater length: 25
20306 555318 CTTTCAATTCATTCCCTTTCTGATAC AGCGTAAGCATTTCGTTTGAAAACACCATTGTCATAGAC spacer
length: 39 repeater length: 25
20307 555382 CTTTCAATTCATTCCCTTTCTGATAC AGGAGGGAGGGCGACTTCGCGTTTTACAAGTATAA spacer length:
35 repeater length: 25
20308 555442 CTTTCAATTCATTCCCTTTCTGATAC TACGTTTGAAGAAACGTCTCGAAAGGCCCGAAGACATCA spacer
length: 39 repeater length: 25
20309 555506 CTTTCAATTCATTCCCTTTCTGATAC AAAAAGGTCCCGCGGGACCTAGCGGGACCTAAAGCCAAG spacer
length: 39 repeater length: 25
20310 555570 CTTTCAATTCATTCCCTTTCTGATAC GTACTTACAATGGCTTAGGAAATTAAAGTATCT spacer length: 33
repeater length: 25
20311 555628 CTTTCAATTCATTCCCTTTCTGATAC CAACGCCTCCTGCTTGCTCTCTGCTGTGAGGGCCGATG spacer
length: 38 repeater length: 25
20312 555691 CTTTCAATTCATTCCCTTTCTGATAC CCCACGACCACACTGTTCAACACCTTCTCAACCG spacer length:
34 repeater length: 25
20313 555750 CTTTCAATTCATTCCCTTTCTGATAC TTATTTCGGTTTTTTTCTCCGGGCTTGACGTCCTGGTGTGAC spacer
length: 40 repeater length: 25
20314 555815 CTTTCAATTCATTCCCTTTCTGATAC TCGGGACTTCAACGAACTCAAAGCACTCCTCTCTCTCTCT spacer
length: 39 repeater length: 25
20315 555879 CTTTCAATTCATTCCCTTTCTGATAC AGACGTTCTCCGCATTCCCTGGAAAGGCTAAGTGTAAATTA spacer
length: 39 repeater length: 25
20316 555943 CTTTCAATTCATTCCCTTTCTGATAC ATGTCAAGTGGTTCAACGAGCCACGAGTCCCCAGCATGCC spacer
length: 40 repeater length: 25
20317 556008 CTTTCAATTCATTCCCTTTCTGATAC CCCACTGGCTAGCTGTGGTGAGGGGTTGCTCGAGTTGCT spacer
length: 39 repeater length: 25
20318 556072 CTTTCAATTCATTCCCTTTCTGATAC CCTGGGTAGGGGGTTTTTATGGCGCGTGTGATAGTTGTA spacer
length: 39 repeater length: 25
20319 556136 CTTTCAATTCATTCCCTTTCTGATAC ACTATAGGCTGTACGTGCACCAGATTACCTGAGCTGT spacer
length: 37 repeater length: 25
20320 556198 CTTTCAATTCATTCCCTTTCTGATAC AGGAGGGTGGGGAGGAGGGGGAGGAATCAAGTGATGAGCG spacer
length: 40 repeater length: 25
20321 556263 CTTTCAATTCATTCCCTTTCTGATAC AAGCTTCTTAGTTCTCACATCCACAACCTGGCTAGCCA spacer
length: 38 repeater length: 25
20322 556326 CTTTCAATTCATTCCCTTTCTGATAC CGGAGCTATGGGTGAAGATGGCTAGCAGGGATGACGCCCC spacer
length: 40 repeater length: 25
20323 556391 CTTTCAATTCATTCCCTTTCTGATAC AGCATTTTTTATTGCATTTTTTTATTTCTTTTTTTCATCT spacer
length: 37 repeater length: 25
20324 556453 CTTTCAATTCATTCCCTTTCTGATAC AATAAAAAACGCGGGCTGGCCTTTGGGCATGTA spacer length: 33
repeater length: 25
20325 556511 CTTTCAATTCATTCCCTTTCTGATAC ATATATAACCAGGTGGCTACGAGTGGGGTGAACG spacer length: 33
repeater length: 25
20326 556569 CTTTCAATTCATTCCCTTTCTGATAC AGAATCTGTTCAAGTTCCTGTGCTGATTTACAAATCTCAA spacer
length: 41 repeater length: 25
20327 556635 CTTTCAATTCATTCCCTTTCTGATAC TGAAGACCGAGAGGTGACCAGGAGTGGACTTCAG spacer length:
34 repeater length: 25
20328 556694 CTTTCAATTCATTCCCTTTCTGATAC GCATAGAGCGTGTGCCCCGAGAGTCCAGGAACGTGGC spacer
length: 38 repeater length: 25
20329 556757 CTTTCAATTCATTCCCTTTCTGATAC GTACACCACAGCTGTGATTACAACCTCTCTTTCAACTCGT spacer
length: 40 repeater length: 25
20330 556822 CTTTCAATTCATTCCCTTTCTGATAC CTTTTTTCAGTCACATACACCATTACAGTAATATTGCAGG spacer
length: 39 repeater length: 25
20331 556886 CTTTCAATTCATTCCCTTTCTGATAC CCCGCGTCATACCCGAGAAGACGGTTATGTTTGGCGAT spacer
length: 38 repeater length: 25
20332 556949 CTTTCAATTCATTCCCTTTCTGATAC CCATACTCGGCCGGCGGCATCCGTTACCTCGCGCTC spacer length:
36 repeater length: 25
20333 557010 CTTTCAATTCATTCCCTTTCTGATAC GTCCGTGACCAGGCTCCCAGGAAGCCACTCGTCCC spacer length:
35 repeater length: 25
20334 557070 CTTTCAATTCATTCCCTTTCTGATAC GTAAGAATGGTATGAACATTACTATTTTCGGCCCAGACAT spacer
length: 39 repeater length: 25
20335 557134 CTTTCAATTCATTCCCTTTCTGATAC ATATAGCTAAGGGAAAAAACTATATAGCTAGCAAAATCT spacer
length: 39 repeater length: 25
20336 557198 CTTTCAATTCATTCCCTTTCTGATAC ATAATCGAGGCTTTCGCAAACCAGGGTCTTGACAGA spacer length:
36 repeater length: 25
20337 557259 CTTTCAATTCATTCCCTTTCTGATAC ACCTACTATACCCTCGTATGACAGTTCTGTACACACAGTA spacer
length: 40 repeater length: 25
20338 557324 CTTTCAATTCATTCCCTTTCTGATAC TAGTATGCTACCTTCTTTTTCGACATCAGTAGGA spacer length:
34 repeater length: 25
20339 557383 CTTTCAATTCATTCCCTTTCTGATAC CGGAGTTTTTCCCGCTTGCCAGACTCCCACTCCCTCAT spacer
length: 38 repeater length: 25
20340 557446 CTTTCAATTCATTCCCTTTCTGATAC ACGGGCATTTAAATCAGGAGTCGGGGGGTCATCCATCC spacer
length: 39 repeater length: 25

20341	557510	CTTTC AATTCATTCC TTTCTGATAC	AAGCCCTAACCGCCGTAATAGCTTTATAATTGCTAACAC spacer
		length: 39 repeater length: 25	
20342	557574	CTTTC AATTCATTCC TTTCTGATAC	GTGGTGGTTGTGGTTGTGTGGTTGATACTTGTATATCATA spacer
		length: 40 repeater length: 25	
20343	557639	CTTTC AATTCATTCC TTTCTGATAC	TATAATCAGATGCTTTACGTATTATTACAACCTTTTCA spacer
		length: 38 repeater length: 25	
20344	557702	CTTTC AATTCATTCC TTTCTGATAC	CTCTCAATTCATCTGTGCTCTTGAATTCAATACCGCAAAAT spacer
		length: 41 repeater length: 25	
20345	557768	CTTTC AATTCATTCC TTTCTGATAC	GCCTTTTGTAGGAGCTTGGAAAAAGCAGTGAATGAT spacer
		length: 38 repeater length: 25	
20346	557831	CTTTC AATTCATTCC TTTCTGATAC	TCTCGTGTTTTTCGACGCGTGCCGGTGTGGGTTCGG spacer length:
		36 repeater length: 25	
20347	557892	CTTTC AATTCATTCC TTTCTGATAC	ATGTAAACAGGGACATTGATGCGACATGCTCAGAGCT spacer
		length: 37 repeater length: 25	
20348	557954	CTTTC AATTCATTCC TTTCTGATAC	CGCCGAAGAGCCTGACTGGGAGGATGTATTTAACCACACG spacer
		length: 40 repeater length: 25	
20349	558019	CTTTC AATTCATTCC TTTCTGATAC	CTGTGTTGTGAAACTCGTAAGGAAACCCGTGTCAGTATT spacer
		length: 39 repeater length: 25	
20350	558083	CTTTC AATTCATTCC TTTCTGATAC	ACAGGTGTGCCCCAAGGGGATTAGTACCTGTCTAGGGTGTAC spacer
		length: 42 repeater length: 25	
20351	558150	CTTTC AATTCATTCC TTTCTGATAC	TAGGGCTCCACGGGGCTACGTGTTCAAGAGCGGACAGG spacer
		length: 39 repeater length: 25	
20352	558214	CTTTC AATTCATTCC TTTCTGATAC	CGCATACTACTCGCTAGCTTCAACGCCTTCTCGGTAC spacer
		length: 38 repeater length: 25	
20353	558277	CTTTC AATTCATTCC TTTCTGATAC	CCGAGGAAGTTGTCTTCAAAGTCGTCTTCAAGGTAGACTT spacer
		length: 40 repeater length: 25	
20354	558342	CTTTC AATTCATTCC TTTCTGATAC	GGTCGAGTCGGGCCTGGCAGACCGGACACGGCTGATAATAAT spacer
		length: 42 repeater length: 25	
20355	558409	CTTTC AATTCATTCC TTTCTGATAC	TAATTTTATTTTTTGTCTTGTAGCGTTTCTCTCCTTTA spacer
		length: 39 repeater length: 25	
20356	558473	CTTTC AATTCATTCC TTTCTGATAC	AGGCAATACAGGTCGCGTCGCAAGTGCTGGGACTTGAC spacer
		length: 38 repeater length: 25	
20357	558536	CTTTC AATTCATTCC TTTCTGATAC	AAGGACGCCGTGAACGTCCTCCAGAGCCTTCTATCAGG spacer
		length: 38 repeater length: 25	
20358	558599	CTTTC AATTCATTCC TTTCTGATAC	AGTGTGAGCCGGGGGTGACAGAACTGTCACACTTGA spacer
		length: 38 repeater length: 25	
20359	558662	CTTTC AATTCATTCC TTTCTGATAC	AGGGAAGCATTTTACGGTCATCCCTCCGGGCTCGGTG spacer
		length: 39 repeater length: 25	
20360	558726	CTTTC AATTCATTCC TTTCTGATAC	TTATATTGTTGTTAGGGTCATATATATCAAGGTTATATGCATA spacer
		length: 43 repeater length: 25	
20361	558794	CTTTC AATTCATTCC TTTCTGATAC	ACCTTAACCTTGTTACTTGACAACCTCAAATCACCTTTT spacer
		length: 38 repeater length: 25	
20362	558857	CTTTC AATTCATTCC TTTCTGATAC	GGAGGGAAGGGCTGTCGAGACAATCTACACTTATGCTACTAG spacer
		length: 42 repeater length: 25	
20363	558924	CTTTC AATTCATTCC TTTCTGATAC	ATACGTATTTCCGCCTCGGCTTGGCGAAGTCTGCTTTCCGCAA spacer
		length: 43 repeater length: 25	
20364	558992	CTTTC AATTCATTCC TTTCTGATAC	CCTTGTA AAAATTATGATCAGCTGTGGAACACG spacer length:
		35 repeater length: 25	
20365	559052	CTTTC AATTCATTCC TTTCTGATAC	GTAATACCTCATAATGAGTTTATAATGAAACTTCATTAT spacer
		length: 39 repeater length: 25	
20366	559116	CTTTC AATTCATTCC TTTCTGATAC	GTGATGTTTGCAGGAGTCCCTGCACTCGTGGTGGCGG spacer
		length: 37 repeater length: 25	
20367	559178	CTTTC AATTCATTCC TTTCTGATAC	AATAAGAACGTGCACTTCATAGTGCCGTTCCGACGCGAGGG spacer
		length: 41 repeater length: 25	
20368	559244	CTTTC AATTCATTCC TTTCTGATAC	TAGCTAGATGTCAACATTTGAGTGGGATGCTGTCACATC spacer
		length: 39 repeater length: 25	
20369	559308	CTTTC AATTCATTCC TTTCTGATAC	CCAAATCGGCTTTCCGAGACCTTTGCCAGTCAGAATAGT spacer
		length: 39 repeater length: 25	
20370	559372	CTTTC AATTCATTCC TTTCTGATAC	AGAGACTAAGTGAAGCTGTAGGCAAAACATTCCAGTGA spacer
		length: 39 repeater length: 25	
20371	559436	CTTTC AATTCATTCC TTTCTGATAC	CCACACAGTGCTGTGTTTAAGATTCTAGCGTTACTGTAC spacer
		length: 40 repeater length: 25	
20372	559501	CTTTC AATTCATTCC TTTCTGATAC	CCAATCCAAAAGCCAATATGTTGAACCCCTAATCTCCTGT spacer
		length: 40 repeater length: 25	
20373	559566	CTTTC AATTCATTCC TTTCTGATAC	CTGGAGGGTGAAACACCGGAATCACGACAGACCCGT spacer
		length: 37 repeater length: 25	
20374	559628	CTTTC AATTCATTCC TTTCTGATAC	ACACGTGGTGGAGCACGTGGGGTATCATCCAGTTGATGCC spacer
		length: 40 repeater length: 25	
20375	559693	CTTTC AATTCATTCC TTTCTGATAC	GTAACCCTCCGTCGTACTCCTGAACATAGTCACGAACT spacer
		length: 38 repeater length: 25	
20376	559756	CTTTC AATTCATTCC TTTCTGATAC	CCGACGTCGACAGGATTTTCGTGATGAACGATGCTGAATG spacer

length: 40 repeater length: 25
559821 CTTTCAATTCATTCTTTCTGATAC CGAGGAGGCA

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569861 GTATCAGAAAAGAATGAATTGAAAG GAGGAATAACTCATGCAGTGCAACCTGCACCGGTGA spacer length:
36 repeater length: 25
569922 GTATCAGAAAAGAATGAATTGAAAG TCCGCGAGCGTTCCCGTTGAGTCGGGGGGTGACAGA spacer length:
36 repeater length: 25
569983 GTATCAGAAAAGAATGAATTGAAAG TTACACCGCGATAAGTAAGACAACAGACTTTAGCACGT spacer
length: 38 repeater length: 25
570046 GTATCAGAAAAGAATGAATTGAAAG TTGACTACGCTCGCTTTATCGTATTCAGTCCACATG spacer length:
36 repeater length: 25
570107 GTATCAGAAAAGAATGAATTGAAAG CATTACCCGCTCTATACGCCTTTGGTGCTAGGTATATGGCTT spacer
length: 42 repeater length: 25
570174 GTATCAGAAAAGAATGAATTGAAAG AAGCGATGAGAGGTTGCCCGCGCTACGGTAGCCCGCCT spacer
length: 38 repeater length: 25
570237 GTATCAGAAAAGAATGAATTGAAAG TCACTCTCGATGAGTTTGAGAGACGGCAAAGTACCAC spacer
length: 38 repeater length: 25
570300 GTATCAGAAAAGAATGAATTGAAAG TTCCGGTCTCCAATGTACTCGGGCCGTATGGTTCTTCAC spacer
length: 39 repeater length: 25
570364 GTATCAGAAAAGAATGAATTGAAAG TCCTATACATCATCTACATGGTATCGGGAAGACTAATCA spacer
length: 39 repeater length: 25
570428 GTATCAGAAAAGAATGAATTGAAAG AATATGAAAGA

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570550 GTATCAGAAAAGAATGAATTGAAAG ACGAGTAACAGTCTTGTACGACAGGACGCCCCGGGAGCCCG spacer
length: 40 repeater length: 25
570615 GTATCAGAAAAGAATGAATTGAAAG CTTCTTTTCGCCACGGGTACTCCCCCTTTTAATACGT spacer
length: 38 repeater length: 25
570678 GTATCAGAAAAGAATGAATTGAAAG CTCCCTGCTTGAGCCGGAAGTCTCGGGCAAGCCCTCGG spacer
length: 39 repeater length: 25
570742 GTATCAGAAAAGAATGAATTGAAAG TACTCTCCAAGGAGATACCTGAGGCATTAGAGCTGATAC spacer
length: 39 repeater length: 25
570806 GTATCAGAAAAGAATGAATTGAAAG CATATCAATTCAAATATCAATGACTGTAGGTCAAGTCT spacer
length: 38 repeater length: 25
570869 GTATCAGAAAAGAATGAATTGAAAG TCGAGCCTGATTGGTTGTTTTGGGTGTATATCACAGCTG spacer
length: 39 repeater length: 25
570933 GTATCAGAAAAGAATGAATTGAAAG TAATCCTCTTTTCTAATTCTCAATCCTTTATACTCGGGT spacer
length: 39 repeater length: 25
570997 GTATCAGAAAAGAATGAATTGAAAG TTATTTTTTTCCTATTGGAGAACACATATAGCTATAGCATAT spacer
length: 41 repeater length: 25
571063 GTATCAGAAAAGAATGAATTGAAAG TGTATAAGTTGTTCTTGCGTCTCATCTGTGGTTCTCAAT spacer
length: 39 repeater length: 25
571127 GTATCAGAAAAGAATGAATTGAAAG CTTTCCTTGAAAAACCTGACGAGTTCAGGAAGCGGGT spacer
length: 37 repeater length: 25
571189 GTATCAGAAAAGAATGAATTGAAAG TATCGTGTTGCAAGATGAGTAATATTCCGCTACTCGT spacer
length: 37 repeater length: 25
571251 GTATCAGAAAAGAATGAATTGAAAG TGGCGAAAAAGCCATGGCAAGAAAAAGCAAAAGGAAAA spacer
length: 39 repeater length: 25
571315 GTATCAGAAAAGAATGAATTGAAAG TTTTCACCAAACCTAAAACCGTCAAAGGGGCTTATAA spacer
length: 37 repeater length: 25
571377 GTATCAGAAAAGAATGAATTGAAAG AACGATGGTACGAACTGGGATTACACTGGTGCTAGTGCTA spacer
length: 40 repeater length: 25
571442 GTATCAGAAAAGAATGAATTGAAAG CTGCTATTTTCTCATGTTGTTCTTTTTCTAACATCTCTT spacer
length: 39 repeater length: 25
571506 GTATCAGAAAAGAATGAATTGAAAG AGAAAGATCACGGGGCGCACCGTTGCGCTCCGCTGCCAC spacer
length: 39 repeater length: 25
571570 GTATCAGAAAAGAATGAATTGAAAG AAAATTTTCCATCCATAGTATGTTGCGTCTCGCTTTTTT spacer
length: 39 repeater length: 25
571634 GTATCAGAAAAGAATGAATTGAAAG GGTATTGTAGCTTCGCTGCTATGGATTCAATCGCGACGC spacer
length: 39 repeater length: 25
571698 GTATCAGAAAAGAATGAATTGAAAG TTATTTTATCTAGAGCGGAAACTATACCTCTATACCCC spacer
length: 39 repeater length: 25
571762 GTATCAGAAAAGAATGAATTGAAAG ACACTGGGAGAACTACCTTGAGCGTGCCCTGAGT spacer length:
34 repeater length: 25
571821 GTATCAGAAAAGAATGAATTGAAAG TAAAGATAATTATGTAATTTTACCCTCATAATCAAAACT spacer
length: 40 repeater length: 25
571886 GTATCAGAAAAGAATGAATTGAAAG AGAGCAATGTGCGCCGCTCATGAGCGAGAACTCCGA spacer
length: 37 repeater length: 25

20416 571948 GTATCAGAAAAGAATGAATTGAAAG CGGAATTATAGACTTCAATTGCTACTATTGCAAATT spacer length: 36 repeater length: 25

20417 572009 GTATCAGAAAAGAATGAATTGAAAG CACTTTGTGACAGTCCTGTAGTCTTTTCACCCGTTATTAA spacer length: 40 repeater length: 25

20418 572074 GTATCAGAAAAGAATGAATTGAAAG CGGATATAGCATGGAGCCCCCTACATGACCCGCAGGCCCT spacer length: 40 repeater length: 25

20419 572139 GTATCAGAAAAGAATGAATTGAAAG ATAATTTGCCCTTTTTACTAGTTTTATTTCCGTCATGG spacer length: 38 repeater length: 25

20420 572202 GTATCAGAAAAGAATGAATTGAAAG ACGGGAACGCTTGACAGGTCCTCCTCCCTGGTCTCCA spacer length: 38 repeater length: 25

20421 572265 GTATCAGAAAAGAATGAATTGAAAG TTTGTTGTCATGCTTGTTTCATGATATTGTATGCAAAATGG spacer length: 40 repeater length: 25

20422 572330 GTATCAGAAAAGAATGAATTGAAAG AGGTCTCCGGCAAGTGCAGCTGGGAGGAAGGCCTTCACG spacer length: 39 repeater length: 25

20423 572394 GTATCAGAAAAGAATGAATTGAAAG TGATCCACGTGAGAGTATCGCACCCGACCCGTAGTT spacer length: 37 repeater length: 25

20424 572456 GTATCAGAAAAGAATGAATTGAAAG CAGCGTGAGAGGTAAACGTCATTGTACTCGTCGA spacer length: 34 repeater length: 25

20425 572515 GTATCAGAAAAGAATGAATTGAAAG TTAATGCCATGCACTTTAGCCAAATGCCTTGTTAGGACT spacer length: 39 repeater length: 25

20426 572579 GTATCAGAAAAGAATGAATTGAAAG AGGGGTCGCAGATACATTTTAAGTTACGGAGTTTTTTTAC spacer length: 39 repeater length: 25

20427 572643 GTATCAGAAAAGAATGAATTGAAAG TCGTACTTCGGCGTATACATGGCCCTGTTTCGCGGGTAT spacer length: 38 repeater length: 25

20428 572706 GTATCAGAAAAGAATGAATTGAAAG ACGCCCTTAAAAACCCGTTAAAAAATCTTCAACCCCCTAT spacer length: 40 repeater length: 25

20429 572771 GTATCAGAAAAGAATGAATTGAAAG AGAGCGACGGCACGGTACAACCCCTGGAGTCAATAC spacer length: 36 repeater length: 25

20430 572832 GTATCAGAAAAGAATGAATTGAAAG AGATTTTGCTAGCTATATAGTTTTTTCCCTTAGCTATAT spacer length: 39 repeater length: 25

20431 572896 GTATCAGAAAAGAATGAATTGAAAG CGAACAAGCCGGCCACGAGCAGGAAGACGTCTATGG spacer length: 36 repeater length: 25

20432 572957 GTATCAGAAAAGAATGAATTGAAAG CGTTGACGTGGATATTGACGCTGACTTGATTAAGTCAC spacer length: 38 repeater length: 25

20433 573020 GTATCAGAAAAGAATGAATTGAAAG TTCATCCGTTGTGTACGCTGTATATCTCCAGTATCCAA spacer length: 38 repeater length: 25

20434 573083 GTATCAGAAAAGAATGAATTGAAAG AGAAATCCCTTGAGAGGCCTACCCGCACGTCAAAATC spacer length: 38 repeater length: 25

20435 573146 GTATCAGAAAAGAATGAATTGAAAG ACATTTCGAATAACGTATTCATAGTCGAGGCTGGGACGG spacer length: 39 repeater length: 25

20436 573210 GTATCAGAAAAGAATGAATTGAAAG AATAGCCACCGAGTGCTGGGCTAGGCGTGGCAGGTTCAA spacer length: 39 repeater length: 25

20437 573274 GTATCAGAAAAGAATGAATTGAAAG CACAGAGGAGGCTTTGATAATACAAAACCGTAATACTTT spacer length: 39 repeater length: 25

20438 573338 GTATCAGAAAAGAATGAATTGAAAG CTAATGAGAAACATATGTTATTAGCTATAGCATATTAG spacer length: 38 repeater length: 25

20439 573401 GTATCAGAAAAGAATGAATTGAAAG ATAGTAATCTCTCATTCAC TTCATGACAAACACGTTTTTG spacer length: 40 repeater length: 25

20440 573466 GTATCAGAAAAGAATGAATTGAAAG GCACCTTCTCGTTTAAACAGTTCGACGATTGTCTTACGCGC spacer length: 40 repeater length: 25

20441 573531 GTATCAGAAAAGAATGAATTGAAAG TTCCTCCCAGTGGTGATGCCCACTGGCTAGCCGTCGTGAA spacer length: 40 repeater length: 25

20442 573596 GTATCAGAAAAGAATGAATTGAAAG TCCGGCTCCGTTCCGCCTCCGGAGCCAGGGAAAGGAGCT spacer length: 40 repeater length: 25

20443 573661 GTATCAGAAAAGAATGAATTGAAAG CGATAACGTATTCATATACTGCTTCTTCTACACTATCAG spacer length: 39 repeater length: 25

20444 573725 GTATCAGAAAAGAATGAATTGAAAG CGTTCCTCCAGCTGTAGGGTGGTTCCGGCTCCCATAATT spacer length: 40 repeater length: 25

20445 573790 GTATCAGAAAAGAATGAATTGAAAG CGAATAACTCGAAGGCATCCTTG TACTCGTACTTCTTGT spacer length: 39 repeater length: 25

20446 573854 GTATCAGAAAAGAATGAATTGAAAG ATGGTCCGAATTCTAGCTGTGGTATTCCATTTTCGTTTT spacer length: 39 repeater length: 25

20447 573918 GTATCAGAAAAGAATGAATTGAAAG ACGTGCGAGCACGCGTGCCACGTAGTCGGTTGACGGCG spacer length: 38 repeater length: 25

20448 573981 GTATCAGAAAAGAATGAATTGAAAG CAGTTCCTCCTCTTCTTCTCCCTCAATTTTGTTACGAAT spacer length: 39 repeater length: 25

20449 574045 GTATCAGAAAAGAATGAATTGAAAG AGGTAAAAATCGAGAAGAGGGAGGTGAAGAAGT spacer length: 33 repeater length: 25

20450 574103 GTATCAGAAAAGAATGAATTGAAAG TTCACTATGAAC TGGTGGGGCGGCCTCGGACGTTGTAGG spacer length: 39 repeater length: 25

20451 574167 GTATCAGAAAAGAATGAATTGAAAG GTAGCTCTCAGAAATTAAACAAAGATATCGCGTGGCAGGAAT spacer length: 39 repeater length: 25

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length: 43 repeater length: 25
20452 574235 GTATCAGAAAAGAATGAATTGAAAG AGGACTATGTGTTCTTGTTCAGACGTTTTTGCTTGCAT spacer
length: 38 repeater length: 25
20453 574298 GTATCAGAAAAGAATGAATTGAAAG GCTCGAGCTGTCTTCTAGCCCATAGGAGGAAGTAG spacer length:
35 repeater length: 25
20454 574358 GTATCAGAAAAGAATGAATTGAAAG GCTGTCGTCC
20455
20456
20457 GCA_001006045.1_ASM100604v1_genomic.fna(PilerCR):
20458 START REPEAT
SPACER
20459 crispr 1
20460 273633 GCTCCACCCTCTCCTTGTTTCTCCCTGAAC CTCCTCGATGAGCTGAAGCTTCTCAAACACCCTCGTCTT spacer
length: 39 repeater length: 30
20461 273702 GCTCCACCCTCTCCTTGTTTCTCCCTGAAC TTGGAGGGGGATCTATCGTAATAGAGGAGCAGAACAC spacer
length: 37 repeater length: 30
20462 273769 GCTCCACCCTCTCCTTGTTTCTCCCTGAAC CCGACAGGGATTAAGAGAAAGTTCACCGACATTGAC spacer
length: 36 repeater length: 30
20463 273835 GCTCCACCCTCTCCTTGTTTCTCCCTGAAC TCCCCCCTACGTCAAAGGCAGGCTCGGTAAGAATA spacer
length: 36 repeater length: 30
20464 273901 GCTCCACCCTCTCCTTGTTTCTCCCTGAAC GGGGACACGTTCCCCGTGAAGGATGTTGTGAAGAAGTA spacer
length: 38 repeater length: 30
20465 273969 GCTCCACCCTCTCCTTGTTTCTCCCTGAAC TCAGCAGCACGACAGAGCCGGTCTTCTCGTTCCCTCCG spacer
length: 38 repeater length: 30
20466 274037 GCTCCACCCTCTCCTTGTTTCTCCCTGAAC ACAC TTCATATAAGCGAGATACCAGTTCTCACTATTCA spacer
length: 38 repeater length: 30
20467 274105 GCTCCACCCTCTCCTTGTTTCTCCCTGAAC AATGCAAAAAAGAGATAATAAAAGTCAGAACAGCTTATT spacer
length: 39 repeater length: 30
20468 274174 GCTCCACCCTCTCCTTGTTTCTCCCTGAAC GATACGATGTCACGGTTTATGAGGAGCACGAGCAGAT spacer
length: 37 repeater length: 30
20469 274241 GCTCCACCCTCTCCTTGTTTCTCCCTGAAC CCAATGTTAATCTGATTGTCTCTCAGCGTCTCGAAC spacer
length: 36 repeater length: 30
20470 274307 GCTCCACCCTCTCCTTGTTTCTCCCTGAAC GCACGCGAGGTTGCACTCGTTGTACGGGAAGATGATGA spacer
length: 38 repeater length: 30
20471 274375 GCTCCACCCTCTCCTTGTTTCTCCCTGAAC CGAGACCTA
20472
20473
20474 crispr 2
20475 365876 CTTTCAATCCTATCTTAGTCTGATTTTAAC ATGTACTCGGCTGGGGAGGATCTGCTCAACGACTCGC spacer
length: 37 repeater length: 30
20476 365943 CTTTCAATCCTATCTTAGTCTGATTTTAAC ATAGCTGATGCGACATATTCGTCCCCAATCAGAGTGAT spacer
length: 38 repeater length: 30
20477 366011 CTTTCAATCCTATCTTAGTCTGATTTTAAC TACGTCTTCGTTCTGAAAACCTCCCTCGACAGGGAG spacer
length: 36 repeater length: 30
20478 366077 CTTTCAATCCTATCTTAGTCTGATTTTAAC GAACGTACCCGAGAACTTCAGCAGCCTTTAAAGAT spacer
length: 36 repeater length: 30
20479 366143 CTTTCAATCCTATCTTAGTCTGATTTTAAC GCTCGAGTGTGTCAACCCTTTTCATCGCAGAGTCAAGT spacer
length: 38 repeater length: 30
20480 366211 CTTTCAATCCTATCTTAGTCTGATTTTAAC ACTCCAGTTGGTGCGGTGGTCTCATCAGGAATCGTCG spacer
length: 37 repeater length: 30
20481 366278 CTTTCAATCCTATCTTAGTCTGATTTTAAC TCAGCTTGGTCACGAATTCGTCAAGGAACCTGAACTC spacer
length: 37 repeater length: 30
20482 366345 CTTTCAATCCTATCTTAGTCTGATTTTAAC TTTTCAGAGGCTAAAACTAAGCTTCAAGCCTGTATTG spacer
length: 37 repeater length: 30
20483 366412 CTTTCAATCCTATCTTAGTCTGATTTTAAC ATGTTACGCGTCTCGTGCTTCTCCAGTGGTGTGAACGG spacer
length: 38 repeater length: 30
20484 366480 CTTTCAATCCTATCTTAGTCTGATTTTAAC CGTTGACGAGGTAGCTCTGGTTCTCCTGCTTGTACTC spacer
length: 37 repeater length: 30
20485 366547 CTTTCAATCCTATCTTAGTCTGATTTTAAC CTCTATATCT
20486
20487
20488 crispr 3
20489 431003 CTTTCAATCCTATCTTAGTCTGATTTTAAC TGAACAAAGACCTGAGTCACCGTGAGAGGGAGCTCT spacer
length: 36 repeater length: 30
20490 431069 CTTTCAATCCTATCTTAGTCTGATTTTAAC TACCATCAGCATCCTGCTCAAGTGAATGCATCAATTCA spacer
length: 38 repeater length: 30
20491 431137 CTTTCAATCCTATCTTAGTCTGATTTTAAC ACGAAGCAGGGTCAGAAGCTATACCATGCGCTTTTCAC spacer
length: 38 repeater length: 30
20492 431205 CTTTCAATCCTATCTTAGTCTGATTTTAAC TAGTAGTCTCCTGACGAGTCTAAATTGAAAGCAACAGC spacer
length: 38 repeater length: 30
20493 431273 CTTTCAATCCTATCTTAGTCTGATTTTAAC AAATGAAATGAAGATTAGCAGAGATACATTGACATATAC spacer

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	length: 39	repeater length: 30	
20494	431342 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	TATGCTGTATGTGCGCTAGGCTATGAGGTACGCACCAA	spacer
	length: 38	repeater length: 30	
20495	431410 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	ACAAGCTTCCTCTTAATGCTTATCAGGTCCACCTCAT	spacer
	length: 37	repeater length: 30	
20496	431477 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	TCCATACCAGCATACTCCAGAAATCTCAAAATCCG	spacer
	length: 37	repeater length: 30	
20497	431544 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	CGCGGACTACATAGCGAACAGAAACGCCGCATTCCAGC	spacer
	length: 38	repeater length: 30	
20498	431612 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	TCTCTTTTGCCAACACTTCAGCGTCTGGGTCTTCGAA	spacer
	length: 37	repeater length: 30	
20499	431679 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	ACCCGTAAAGGAAGGTAAGTATCGGTCTATCTCCATCCAT	
	spacer length: 40	repeater length: 30	
20500	431749 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	TCCCCCTCCTCGAGGCAACCTCCGAGGTCTGGCCA	spacer
	length: 36	repeater length: 30	
20501	431815 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	AAGAGAGGCCGTGCTCAAGCTCACCGAGAAGATGCCGG	spacer
	length: 38	repeater length: 30	
20502	431883 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	TTATCTCCGTTGAGGAGATCGCCCCACCGAGCGAC	spacer
	length: 35	repeater length: 30	
20503	431948 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	TAATCTCTGACACATCCATCCTGAGCATCTCAGATAGC	spacer
	length: 38	repeater length: 30	
20504	432016 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	TTGCCCCAAACACTCCAGACAAGTTGGTTAAGTAGAAC	spacer
	length: 38	repeater length: 30	
20505	432084 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	CCCTGGCATA	
20506			
20507			
20508	crispr 4		
20509	586542 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	TCGATTTGCAGACAATCTATGACATTTATAATGAGAT	spacer
	length: 37	repeater length: 30	
20510	586609 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	TGGCGGGCAACGAGATAAAGCTCGTCAACTTCGGAGAG	spacer
	length: 38	repeater length: 30	
20511	586677 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	AACACGCTCAGGAAGATGAAGCCCAGCACCAGCAGGA	spacer
	length: 37	repeater length: 30	
20512	586744 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	GGCCACCGAGGTTGCCAAGAAGATTAAGGAAGGAGAGG	spacer
	length: 38	repeater length: 30	
20513	586812 CTTTCAATCCTATCTTAGTCTGATTTTAAAC	CCATCCCGAT	
20514			
20515			
20516	crispr 5		
20517	682246 GTTAAAAATCAGACTAAAAATAGGATTGAAAG	AAGGTCAGGGTGAAGTACTTCGGGATACCGGACGAGGGC	spacer
	length: 39	repeater length: 30	
20518	682315 GTTAAAAATCAGACTAAAAATAGGATTGAAAG	GAGTAATAGGACACGTAAAGGGGCACCCTCATATGAC	spacer
	length: 37	repeater length: 30	
20519	682382 GTTAAAAATCAGACTAAAAATAGGATTGAAAG	CGATTCTCCAGAGCAGAACTCACTCTCTGAATGT	spacer
	length: 36	repeater length: 30	
20520	682448 GTTAAAAATCAGACTAAAAATAGGATTGAAAG	GTACCAATCTGGAACCAGTAGTGCTAGTCTTCTGCTGAA	spacer
	length: 39	repeater length: 30	
20521	682517 GTTAAAAATCAGACTAAAAATAGGATTGAAAG	CTATTATTTAAACAGCATTTTTTAATAATTTTAGCAT	spacer
	length: 37	repeater length: 30	
20522	682584 GTTAAAAATCAGACTAAAAATAGGATTGAAAG	CGAGTTTTTCAATCTCCTCCATACTTGCCGTGGAGAA	spacer
	length: 37	repeater length: 30	
20523	682651 GTTAAAAATCAGACTAAAAATAGGATTGAAAG	CCTAACAGATAACCTACTAGTAGAAACATACGCTACA	spacer
	length: 37	repeater length: 30	
20524	682718 GTTAAAAATCAGACTAAAAATAGGATTGAAAG	ATAATTGATTTTGGTGGTGCGGCATATCAATTCATAC	spacer
	length: 37	repeater length: 30	
20525	682785 GTTAAAAATCAGACTAAAAATAGGATTGAAAG	ATATTCAGTATGGCAAACCTCGGAAGAATGCTTGAA	spacer
	length: 36	repeater length: 30	
20526	682851 GTTAAAAATCAGACTAAAAATAGGATTGAAAG	CTCATAGTAA	
20527			
20528			
20529	crispr 6		
20530	795282 GTTAAAAATCAGACTAAAAATAGGATTGAAAG	CCGTAATAGAGCTCGTCTGGGAGGCTGAGAGATTGGTA	spacer
	length: 39	repeater length: 30	
20531	795351 GTTAAAAATCAGACTAAAAATAGGATTGAAAG	CGGGGAGTACCTCTACAGCGGATGGAATCCGTACAA	spacer
	length: 36	repeater length: 30	
20532	795417 GTTAAAAATCAGACTAAAAATAGGATTGAAAG	ATATTATTGAGATTGCAGAAGAGTATTTGAAGTGGT	spacer
	length: 36	repeater length: 30	
20533	795483 GTTAAAAATCAGACTAAAAATAGGATTGAAAG	AGCCTCTATGACGTACGGTGTGATTGACTTGGAATATC	spacer
	length: 39	repeater length: 30	
20534	795552 GTTAAAAATCAGACTAAAAATAGGATTGAAAG	TTTGAGTCGTTGCTCTTGTTTCAGCGCTGCGTGACAAACGC	
	spacer length: 40	repeater length: 30	

20535 795622 GTTAAAAATCAGACTAAAAATAGGATTGAAAG ATGATAAGACGATGACGATTCTCGCAGAGAGCATGA spacer
 length: 36 repeater length: 30
 20536 795688 GTTAAAAATCAGACTAAAAATAGGATTGAAAG TGCCTCCGGATTGTACAGACCCTCTCTGACAGA spacer
 length: 36 repeater length: 30
 20537 795754 GTTAAAAATCAGACTAAAAATAGGATTGAAAG TGTGTGTTACTCTACGTCGGCGGTTAAACCATTGCCG spacer
 length: 38 repeater length: 30
 20538 795822 GTTAAAAATCAGACTAAAAATAGGATTGAAAG GTTTACTTCGACAGGTACTACTTGAACGTCGAGCCGG spacer
 length: 37 repeater length: 30
 20539 795889 GTTAAAAATCAGACTAAAAATAGGATTGAAAG TCTCCTCATTATCTCTTTTGCCAACACTTCAGCGTC spacer
 length: 36 repeater length: 30
 20540 795955 GTTAAAAATCAGACTAAAAATAGGATTGAAAG CGTCATGTCACAGGAGGCTGACAGCTTCATGGCAGCA spacer
 length: 37 repeater length: 30
 20541 796022 GTTAAAAATCAGACTAAAAATAGGATTGAAAG GATGAATGTCAGGGGCTTCCTGCTCAACGTCAAGGAC spacer
 length: 37 repeater length: 30
 20542 796089 GTTAAAAATCAGACTAAAAATAGGATTGAAAG AAGAGACGGTGATGACGTGCACTACGACTTGCTACTC spacer
 length: 37 repeater length: 30
 20543 796156 GTTAAAAATCAGACTAAAAATAGGATTGAAAG TGACGATGTCGAGGAGGGCGATTGCGAAGGCTATGCCG spacer
 length: 38 repeater length: 30
 20544 796224 GTTAAAAATCAGACTAAAAATAGGATTGAAAG CAGAAAGAGCTGAGGTATTCGGAGATGAGAGAAGAGTT spacer
 length: 38 repeater length: 30
 20545 796292 GTTAAAAATCAGACTAAAAATAGGATTGAAAG CAGCTTGTTTTTATCTCGTCAGGAGCGTAGAGGTCTGA spacer
 length: 38 repeater length: 30
 20546 796360 GTTAAAAATCAGACTAAAAATAGGATTGAAAG ATAGTAATGGAAATCTGGGACTTCATATCAATGAAGGA spacer
 length: 38 repeater length: 30
 20547 796428 GTTAAAAATCAGACTAAAAATAGGATTGAAAG TCCCCATCTTGGCTCGTCCCTGCTGTACTCAGCGTAGT spacer
 length: 38 repeater length: 30
 20548 796496 GTTAAAAATCAGACTAAAAATAGGATTGAAAG AGATAAACGGTGCTTCGGCTACGTTCAACGTCGAGAG spacer
 length: 37 repeater length: 30
 20549 796563 GTTAAAAATCAGACTAAAAATAGGATTGAAAG CCGGTATCATCGTTCATGGCAAGGTAAACGAAGACTGG spacer
 length: 38 repeater length: 30
 20550 796631 GTTAAAAATCAGACTAAAAATAGGATTGAAAG GCAAGTGGTGCTGCAATAACTGCTGATTACAAGTTT spacer
 length: 36 repeater length: 30
 20551 796697 GTTAAAAATCAGACTAAAAATAGGATTGAAAG TGGGGAGGAATAAGACGAACCCCATATCATAGGTCTG
 20552
 20553
 20554 crispr 7
 20555 1166412 GAATCTCATAGGGAGAACGGAAC CACGAGAGACCCGAATATATGCGTCGTTGGGATAT spacer length:
 35 repeater length: 24
 20556 1166471 GAATCTCATAGGGAGAACGGAAC ACATCCTCGTAAGCAGAAGTCCGTAGTATATCATGTGCTCC spacer
 length: 41 repeater length: 24
 20557 1166536 GAATCTCATAGGGAGAACGGAAC TTAACAACATCTGTCATCTCTTTCACCTCGCAA spacer length:
 34 repeater length: 24
 20558 1166594 GAATCTCATAGGGAGAACGGAAC AAAATCCACTCTGTCTGCACGCACTATCGTTTCCCTAA spacer
 length: 38 repeater length: 24
 20559 1166656 GAATCTCATAGGGAGAACGGAAC GTAATAGCACATGTGTATCTTTTTGTGTTCTCACCAA spacer
 length: 37 repeater length: 24
 20560 1166717 GAATCTCATAGGGAGAACGGAAC TTATTATGTCCGGGTCTTCAAGCATTTCAACTGGTTCAA spacer
 length: 39 repeater length: 24
 20561 1166780 GAATCTCATAGGGAGAACGGAAC GCTGATGGCCACGGACATTTACTCGTTAGTGAGAGCACG spacer
 length: 39 repeater length: 24
 20562 1166843 GAATCTCATAGGGAGAACGGAAC CCCACGTAGCTCCACTTATTGTTCCATTATTACCATTTCG spacer
 length: 41 repeater length: 24
 20563 1166908 GAATCTCATAGGGAGAACGGAAC CGTCGCAGATCACCATATCGGGACCCCTGTGCATTATGGACT
 20564
 20565
 20566 GCA_001027005.1_ASM102700v1_genomic.fna (PilerCR):
 20567 START REPEAT
 SPACER
 20568 crispr 1
 20569 502840 TATTTTCTGACGTGCCAGATAAGCAACAGGCATACAATGACTTAATTAGACT
 CCTCACTGATCAAGACGATGAAGTGAATCTTGGCCCGCTAAAGTTTAAATGGATG spacer length: 56 repeater
 length: 52
 20570 502948 TATTTTCTGACGTGCCAGATAAGCAACAGGCATACAATGACTTAATTAGACT
 TATCACTGATCAAAACCGCAAAGTAAGAACATATGCCTCTTACATTCTTAAACTA spacer length: 56 repeater
 length: 52
 20571 503056 TATTTTCTGACGTGCCAGATAAGCAACAGGCATACAATGACTTAATTAGACT
 CCTCACTGATCAAAACGACGAAGTGAAAGCATGGCCCGCTAAAGTTCTAATGGATG spacer length: 56 repeater
 length: 52
 20572 503164 TATTTTCTGACGTGCCAGATAAGCAACAGGCATACAATGACTTAATTAGACT
 TATCACTGATCAAGATCGTAATGTGAGAACGTACGCCGCTGAACTCTTACGACTA spacer length: 56 repeater
 length: 52

20573 503272 TATTTTCTGACGTGCCAGATAAGCAACAGGCATACAATGACTTAATTAGACT
 CCTCACTGATCAAGACGATGAAGTGAAAGTGTGGCCCGCTAAAGTTCTAATGGATG spacer length: 56 repeater
 length: 52
 20574 503380 TATTTTCTGACGTGCCAGATAAGCAACAGGCATACAATGACTTAATTAGACT TTGCCCATTCT
 20575
 20576
 20577 crispr 2
 20578 2208832 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATCTGATATTCATTATAAAACAGACTCCTCTAATTTT
 spacer length: 37 repeater length: 37
 20579 2208906 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTCAGAGGGTACAGCTTTCGGTTTGACTCCTTCAGG
 spacer length: 36 repeater length: 37
 20580 2208979 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGTATCTGCCTCAAACGGACAGAAAAAATTAGTATT
 spacer length: 36 repeater length: 37
 20581 2209052 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATAATAGACTCGTGCCCATACGTTCTTTATTATAA
 spacer length: 35 repeater length: 37
 20582 2209124 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCATAATCTAGAATTTTGC GTTGAATATAAAGATCTAT
 spacer length: 38 repeater length: 37
 20583 2209199 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTGCCTTGCCATAGGGCAGCCGTGACAGTGTGAC
 spacer length: 34 repeater length: 37
 20584 2209270 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TAGTGCTTCCTTTACTACATCAAGTGTATACTCTGGGA
 spacer length: 38 repeater length: 37
 20585 2209345 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCCTAGACGTAGAATCGACATCCCTTTAGAGAATAT
 spacer length: 36 repeater length: 37
 20586 2209418 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TAGGGCCGGTGTTGGGAAAGTCTGCATCCTGGTCTC
 spacer length: 36 repeater length: 37
 20587 2209491 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATCAGTTTCGTTTTTTTTGTTTTATTCTACTTAG
 spacer length: 35 repeater length: 37
 20588 2209563 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATATGTGATAATGCAATTGATTGATATTGATTT
 spacer length: 34 repeater length: 37
 20589 2209634 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAAAAGGTCGCTCGGGCTTACGATACGCATTATTT
 spacer length: 35 repeater length: 37
 20590 2209706 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAGTTAAACAATAGTTACATTTGCAGTCATGTAT
 spacer length: 34 repeater length: 37
 20591 2209777 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTGGAGATGAAAAAAGGCGCATTCTGGAACCTTGGT
 spacer length: 36 repeater length: 37
 20592 2209850 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAGTTAAACAATATCATTGATGTACTCACCGATG
 spacer length: 34 repeater length: 37
 20593 2209921 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTATAAAATTCTATCAAATTTTTAAGGGGAGGGTG
 spacer length: 38 repeater length: 37
 20594 2209996 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCAATCCCAGGAAATCCAAATGTATATCTAATCTT
 spacer length: 35 repeater length: 37
 20595 2210068 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTGCAAAAGAGCACTTCGTGAAACAATTAACACT
 spacer length: 36 repeater length: 37
 20596 2210141 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACCTTTTTATAGATATATCCACGCTCCGCTACCA
 spacer length: 34 repeater length: 37
 20597 2210212 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
 ACAGCGCCTTGTTGGGGCACTCCTGAAGACATTAGAAAT spacer length: 41 repeater length: 37
 20598 2210290 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CATAAGATGATCTAATTCAGATTCGAGAGACATTAT
 spacer length: 36 repeater length: 37
 20599 2210363 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTAATTTTTGGAGCTGAATTACATGGCTGAACCGTT
 spacer length: 38 repeater length: 37
 20600 2210438 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTGGTCCACCTGCGCTCCAATGTGATGTATCAAATGCA
 spacer length: 38 repeater length: 37
 20601 2210513 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCTTTATAGAAGAGATCTCAAAATCCGCTGTAATCAT
 spacer length: 37 repeater length: 37
 20602 2210587 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TAATGTATCATGCGTAATATATAATACACAATAAAA
 spacer length: 36 repeater length: 37
 20603 2210660 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTGCCTCCTGGAACATCAATTCAACAGAAAGCTAGGG
 spacer length: 37 repeater length: 37
 20604 2210734 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CATACTTGTTATTATAGAAGAGGTAATATAAAAAGT
 spacer length: 36 repeater length: 37
 20605 2210807 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTGTTGAAGTCGTAGATTCTGGAGTCATATTTTTG
 spacer length: 35 repeater length: 37
 20606 2210879 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATGTATATATTTATTATTTTCAGTGTGTTTTTATAAT
 spacer length: 37 repeater length: 37
 20607 2210953 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATTATCCTGTTGAGATTAGGCTAGATAGTGGAGATG
 spacer length: 37 repeater length: 37
 20608 2211027 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAATGACTGAACGAAATACAATTGAACGCAGAAAAC
 spacer length: 36 repeater length: 37
 20609 2211100 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAAATGAGTCGTGAAATGTGCCGGATCTCATTTTTTA
 spacer length: 36 repeater length: 37

20610 2211173 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAGATCCATTTCGGCTAATCATAGCATCATTTAAGT
spacer length: 35 repeater length: 37

20611 2211245 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CGGATGATATTAAGAATGTATCTCTTGGGGGTTTTAG
spacer length: 37 repeater length: 37

20612 2211319 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTTGTAATATGTTAATATATCGACAGGTATAG
spacer length: 34 repeater length: 37

20613 2211390 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCCTCGGGAATTCCATTATTTCTAAATGGTCCAC
spacer length: 34 repeater length: 37

20614 2211461 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AACGCAATCGGGCGCTGCTAGGTGCAATGTCTCGAAG
spacer length: 37 repeater length: 37

20615 2211535 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTTGCGGGCTTCAGTCTCTCCATAGAACAGCTTTG
spacer length: 35 repeater length: 37

20616 2211607 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTACAGATCCGGACATATCATAAGCGTTTATAAGG
spacer length: 35 repeater length: 37

20617 2211679 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
CGGATGTCTCGGAGATAATGACGCCCTGGAGGAGGACCGAA spacer length: 41 repeater length: 37

20618 2211757 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
ACTTTGAAAAGTTTTTACTATTTAGAAAGGATATTAGAAA spacer length: 39 repeater length: 37

20619 2211833 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGGTTAATGGAACCCAGGTCTACCGCCGTTTACGGAA
spacer length: 38 repeater length: 37

20620 2211908 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TATGAAAAATTCTTCTCTACAAAACAGATTTATGA
spacer length: 35 repeater length: 37

20621 2211980 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTATATTTATGTCTCAGAACTCGTACATAATATA
spacer length: 35 repeater length: 37

20622 2212052 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTCACAATAAGAAGCAACATAAAGCCTATTATTA
spacer length: 34 repeater length: 37

20623 2212123 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTGATACTTCCGTGAATAAAGTAATCCAATAAGGAT
spacer length: 36 repeater length: 37

20624 2212196 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTGAAATGTCTATATATTCCCCGGTATTCAGTTT
spacer length: 35 repeater length: 37

20625 2212268 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACGGTTAGATCCGATTCAATATATGGTAAATTTTG
spacer length: 35 repeater length: 37

20626 2212340 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCTGTAATGAATATTCCCCAAGAAAGCCCCAACAC
spacer length: 35 repeater length: 37

20627 2212412 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
TATTATAGAGATATTAGAGAAATCGTGTATTCTCTTTCA spacer length: 39 repeater length: 37

20628 2212488 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTAGAACCGATTATAATAGTATTGTCTACTTC
spacer length: 33 repeater length: 37

20629 2212558 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATGTCTAGATATGTATTTTTTCATCTCAGCTATTAG
spacer length: 36 repeater length: 37

20630 2212631 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCCAACCATTTCGATTTTTTTTGATTTAGGGGGATAGC
spacer length: 37 repeater length: 37

20631 2212705 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCTCGAAGACTGGGGACAACCTATTACTGGATTGAA
spacer length: 36 repeater length: 37

20632 2212778 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTATTAGAAAACTTGCAAAAGCAGGAGACCA
spacer length: 32 repeater length: 37

20633 2212847 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATACGTCATGATTGATTCTGATCTAAATACAGTG
spacer length: 37 repeater length: 37

20634 2212921 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATAGTTATAAATACTATAGAATCATATATTCTATAG
spacer length: 37 repeater length: 37

20635 2212995 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATTTGGAGCCCGCTTGACCGCCTTTTACTGCCCCG
spacer length: 37 repeater length: 37

20636 2213069 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAAATCAGCATACCCTTTCTTCCCCTCTTTTGCCACAG
spacer length: 38 repeater length: 37

20637 2213144 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAGATTAATAATACCGTGGAGAACTCCACTAATACTG
spacer length: 37 repeater length: 37

20638 2213218 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAATGTGAACACTACTAAACAATGATTTGAAAACATTC
spacer length: 38 repeater length: 37

20639 2213293 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATAGTTTAGGTTCTGAATTTTCTCAGTTTCCTGTA
spacer length: 36 repeater length: 37

20640 2213366 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATGTAGTATAATTTATATTATGTACTAAAATA
spacer length: 33 repeater length: 37

20641 2213436 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCAGTAATATGTATTTTTTGATTTATATATTTT
spacer length: 34 repeater length: 37

20642 2213507 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTGATTTCTTTGTATCATCTTTAATTTTATACA
spacer length: 35 repeater length: 37

20643 2213579 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTACTGTATTACATAATATGCGTAACACCGTATAAG
spacer length: 37 repeater length: 37

20644 2213653 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AACATCATATTCATCTGGGCTTGACGCGCATGAGAATC
spacer length: 38 repeater length: 37

20645 2213728 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAGCATCTAAAAACGAGAATTGAAATGGTATGA

spacer length: 34 repeater length: 37
 20646 2213799 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT TTGTCCCGCCTCTTCAAACGTCTTAATCGGGCG
 spacer length: 34 repeater length: 37
 20647 2213870 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT GTATTA ACTCGGTTGTTAATGAAACGCTCAGAATGTG
 spacer length: 37 repeater length: 37
 20648 2213944 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT TCACCATTTTTCTCCTTCAAATCAAATCAATTAT
 spacer length: 36 repeater length: 37
 20649 2214017 GTTTC AATCCTTGTTT TAGTGGATCTTGCTCACGAAT
 20650
 20651
 20652 crispr 3
 20653 2376807 GAGTTCCCCACAGGCGTGGGGATGAACCG ACGTTGCCCCGCTGGATTTAGGAGCATAACTG spacer
 length: 32 repeater length: 29
 20654 2376868 GAGTTCCCCACAGGCGTGGGGATGAACCG CTGTTGACAGCAAAGACACTGGAGTAATTGAT spacer
 length: 32 repeater length: 29
 20655 2376929 GAGTTCCCCACAGGCGTGGGGATGAACCG TATTTTTGAAATTTCTACAACCTTTATTAGACA spacer
 length: 32 repeater length: 29
 20656 2376990 GAGTTCCCCACAGGCGTGGGGATGAACCG TGATTCCGTTGAAATCTTCTTTGAGGTCATCA spacer
 length: 32 repeater length: 29
 20657 2377051 GAGTTCCCCACAGGCGTGGGGATGAACCG GCATATCTTTTATTTTGCCGTCCTAAATTGAT spacer
 length: 32 repeater length: 29
 20658 2377112 GAGTTCCCCACAGGCGTGGGGATGAACCG CTTTGAACAACCTGTTAATGGCAGAGCCTGAA spacer
 length: 32 repeater length: 29
 20659 2377173 GAGTTCCCCACAGGCGTGGGGATGAACCG ATTTTTACTGCAGTTTCTATTTCAAACGTTCC spacer
 length: 32 repeater length: 29
 20660 2377234 GAGTTCCCCACAGGCGTGGGGATGAACCG TTACCGGTGTTAAACTGTTGTTATCGAAGAT spacer
 length: 32 repeater length: 29
 20661 2377295 GAGTTCCCCACAGGCGTGGGGATGAACCG ATATTATTTTTTAACATTTATTCGCATACCACT spacer
 length: 32 repeater length: 29
 20662 2377356 GAGTTCCCCACAGGCGTGGGGATGAACCG GTGGAGAATTGTTTATAAAACGTGCATTAAAT spacer
 length: 32 repeater length: 29
 20663 2377417 GAGTTCCCCACAGGCGTGGGGATGAACCG TTAATTCTTGATGAGTAATAAAAGATAAATT spacer
 length: 32 repeater length: 29
 20664 2377478 GAGTTCCCCACAGGCGTGGGGATGAACCG TTGATGCATTGCTCAAAAGTTGGCCATCGAAG spacer
 length: 32 repeater length: 29
 20665 2377539 GAGTTCCCCACAGGCGTGGGGATGAACCG GTAGTGTAGACCATGACCAGGTTCTTAAGTAT spacer
 length: 32 repeater length: 29
 20666 2377600 GAGTTCCCCACAGGCGTGGGGATGAACCG GCGAAATCATGAAAATAATACTTCCTTCCAAT spacer
 length: 32 repeater length: 29
 20667 2377661 GAGTTCCCCACAGGCGTGGGGATGAACCG ATCGATGAGCTACGCCATCATAGAGTAAAATT spacer
 length: 32 repeater length: 29
 20668 2377722 GAGTTCCCCACAGGCGTGGGGATGAACCG ACTGCAACAGATAGGGGGACTTGCAGATCTAT spacer
 length: 32 repeater length: 29
 20669 2377783 GAGTTCCCCACAGGCGTGGGGATGAACCG TACATAGAATAAAGGAGGAGTCAAATGACAA spacer
 length: 32 repeater length: 29
 20670 2377844 GAGTTCCCCACAGGCGTGGGGATGAACCG TTGACTGCTGAACAGAGAGAGGTTTATGAAAC spacer
 length: 32 repeater length: 29
 20671 2377905 GAGTTCCCCACAGGCGTGGGGATGAACCG CTCTAGAAATTCGGATTTTGATATTAGTGCT spacer
 length: 32 repeater length: 29
 20672 2377966 GAGTTCCCCACAGGCGTGGGGATGAACCG CTATTTTGGAATGTGACTGAGGAAAATGAAA spacer
 length: 32 repeater length: 29
 20673 2378027 GAGTTCCCCACAGGCGTGGGGATGAACCG TTATTTATTATAATATTAGTGGATTGGATATT spacer
 length: 32 repeater length: 29
 20674 2378088 GAGTTCCCCACAGGCGTGGGGATGAACCG TTCCTCATTACAAGATATCTGCCCATTTCTCTA spacer
 length: 32 repeater length: 29
 20675 2378149 GAGTTCCCCACAGGCGTGGGGATGAACCG TTCCTCATTACAAGATATCTGCCCATTTCTCTA spacer
 length: 32 repeater length: 29
 20676 2378210 GAGTTCCCCACAGGCGTGGGGATGAACCG CAGTATAACCCATCTCCTCAGCAGCTGCTTTA spacer
 length: 32 repeater length: 29
 20677 2378271 GAGTTCCCCACAGGCGTGGGGATGAACCG GTACTTCACATAATGTTATACTGTTTTTTAAC spacer
 length: 32 repeater length: 29
 20678 2378332 GAGTTCCCCACAGGCGTGGGGATGAACCG TGATGAGGACACCGCGTTAGCATCTGAAAATA spacer
 length: 32 repeater length: 29
 20679 2378393 GAGTTCCCCACAGGCGTGGGGATGAACCG AACCCCGTGAACGTTCCATCGTACTCTGATAT spacer
 length: 32 repeater length: 29
 20680 2378454 GAGTTCCCCACAGGCGTGGGGATGAACCG CAGTATCAGGGATGAATAATACATCTCTAGGT spacer
 length: 32 repeater length: 29
 20681 2378515 GAGTTCCCCACAGGCGTGGGGATGAACCG GTTTCACCGTCTGCAAATATATCTGATTCACT spacer
 length: 32 repeater length: 29
 20682 2378576 GAGTTCCCCACAGGCGTGGGGATGAACCG CTTATGCAATGGCGCGTGGAAAAATAACACAA spacer
 length: 32 repeater length: 29

20683 2378637 GAGTTCACACAGGCGTGGGGATGAACCG CCTAGAATCTGAATTTCAAATTGTCTTACAA spacer
 length: 32 repeater length: 29
 20684 2378698 GAGTTCACACAGGCGTGGGGATGAACCG ATATCAGCCTCATGATTACCTGTTCTGATGAA spacer
 length: 32 repeater length: 29
 20685 2378759 GAGTTCACACAGGCGTGGGGATGAACCG
 20686
 20687
 20688 crispr 4
 20689 3096253 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCCAATGCAATGACTTGTGCAAACATTTCCATTAGA
 spacer length: 37 repeater length: 37
 20690 3096327 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGAAGACTACTCGTGTGGAAGCATCTGTCACTATT
 spacer length: 35 repeater length: 37
 20691 3096399 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTTTCAAATCTTGCCTCTTCGGGATATTGCCAT
 spacer length: 35 repeater length: 37
 20692 3096471 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTAAATGAAAAGCAATGGAATACATAGTGAATTACA
 spacer length: 37 repeater length: 37
 20693 3096545 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GATATGCGGGATTAGTTTCTTTCTTACTGATTTGTATT
 spacer length: 38 repeater length: 37
 20694 3096620 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AATAGATCAGATACGTTTCCGGCAGCGGTTTTTAAAT
 spacer length: 37 repeater length: 37
 20695 3096694 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTATACAAAAGTATTTATTTTTTAACTATATTTT
 spacer length: 35 repeater length: 37
 20696 3096766 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CGCGGGAGGTCCGTTTTACCTTTCTAATTCGAGTGT
 spacer length: 36 repeater length: 37
 20697 3096839 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTATATGATATGTCACCTATTGGAATACCCATTGTTTC
 spacer length: 38 repeater length: 37
 20698 3096914 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAGTGCCTGTGAGGTACTGACTCCATATGTATCT
 spacer length: 35 repeater length: 37
 20699 3096986 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CAACCTACAAAAAAGGGCAAATTTTTGAATGCACTGA
 spacer length: 37 repeater length: 37
 20700 3097060 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTAACCATTCTTCATCACTGAATTTTACTTTGCACT
 spacer length: 36 repeater length: 37
 20701 3097133 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AATAGTATACCCTCCTATATTTCTTTAAACGTTTC
 spacer length: 36 repeater length: 37
 20702 3097206 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCGACTCGACCATGATATACGATTATAACATAGAA
 spacer length: 36 repeater length: 37
 20703 3097279 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTCACCGAAGAACCGCAGGCCCGTTAGGAACCCA
 spacer length: 35 repeater length: 37
 20704 3097351 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCTTTCTTTGGGGCCTTGCTCTTTGGGTGCTCCT
 spacer length: 34 repeater length: 37
 20705 3097422 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
 TGCTGCCTTCCGTAGTCGTGCAGAAATGCGTTTTCCAGTGTG spacer length: 41 repeater length: 37
 20706 3097500 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ACCTGGGTGGTCAACCCTTCAATAATAATAATAGATT
 spacer length: 37 repeater length: 37
 20707 3097574 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGCAACCCCGAAAGGATTTGTGCCAACTGTTACAG
 spacer length: 36 repeater length: 37
 20708 3097647 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATACATATGCTGCAAGTCCGGACGCTGCAACAGGCTT
 spacer length: 37 repeater length: 37
 20709 3097721 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
 CAAGTGCCATTGACGGGATAGTAGGGCAGTTTGAAAGGCTT spacer length: 41 repeater length: 37
 20710 3097799 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AAATAAATGCGCCCTATGCTGGGGAGTTTCGCAAC
 spacer length: 35 repeater length: 37
 20711 3097871 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
 CCATAGCTTTAGAAGCAGAGTTTAAGGTTTTGAGATGTAA spacer length: 40 repeater length: 37
 20712 3097948 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTTTGAAGAGTTTCTGATCTTCATCACGGATTA
 spacer length: 36 repeater length: 37
 20713 3098021 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CATATTAATTGAGGTTGTACATTTCCGACACATGCC
 spacer length: 36 repeater length: 37
 20714 3098094 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ACCAAGCTTCACCATCATAAACAGCAATAACTG
 spacer length: 33 repeater length: 37
 20715 3098164 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATATGTTAGTAAGCGTGTGAAACAAGGCAACGAAA
 spacer length: 35 repeater length: 37
 20716 3098236 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTACATGCAATCACATGGTCTAGAGTCCATTCCCAA
 spacer length: 37 repeater length: 37
 20717 3098310 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTTGATGTATAAGATAAACCATTTTTTTCATAAGTTAG
 spacer length: 38 repeater length: 37
 20718 3098385 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTAGATCGGGACCTAGAAATACTATGTACGCATTG
 spacer length: 35 repeater length: 37
 20719 3098457 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCTATAATCTATATGATATTTTTCTCCAGGTTCTATG
 spacer length: 38 repeater length: 37
 20720 3098532 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TATAATAATTACCATATTGACCTTTCACAAGATTGT

spacer length: 36 repeater length: 37
 20721 3098605 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCAGATGAGTTTTTTGAAAATATAACCCCCGTGTTTGG
 spacer length: 38 repeater length: 37
 20722 3098680 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCGTAGACTTCAAGCTATCACATGGGATGTTGAAA
 spacer length: 36 repeater length: 37
 20723 3098753 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
 ATGGAATTAAACCGTTTCCTGTTTCATATGAATTAGAATC spacer length: 40 repeater length: 37
 20724 3098830 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ACATAATTCACAGCTTTGTCAATTTTCGGATCCTTTT
 spacer length: 36 repeater length: 37
 20725 3098903 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAACACCAACCACATTTTTATTACTGTATCTTTC
 spacer length: 35 repeater length: 37
 20726 3098975 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTTATAGCGTATTATATACAATAAATAATACATT
 spacer length: 35 repeater length: 37
 20727 3099047 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
 TTGATTTACATAGACCGTTGCCAACAATAAACTATAGAATCAA spacer length: 43 repeater length: 37
 20728 3099127 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTATTAATACAAATCTATTTGTTGTATTTCATCAATA
 spacer length: 36 repeater length: 37
 20729 3099200 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TACAAGCGCATTTACAGGTGCGCAAATCGATGAAGTT
 spacer length: 37 repeater length: 37
 20730 3099274 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTGTTTCAATGTCTAACATCGTGCCTGCCCTCCGTGT
 spacer length: 37 repeater length: 37
 20731 3099348 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GTGCTTGAGCCGCATAAAACCGGCTACCCTCAT
 spacer length: 33 repeater length: 37
 20732 3099418 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAATTTAAAAGCGGAGATGGAGATTTTATTTTCATC
 spacer length: 35 repeater length: 37
 20733 3099490 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TACATACTTTTATCAAGCATTTGTGATACGTTTTCAA
 spacer length: 36 repeater length: 37
 20734 3099563 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GTAGGAAGTGGCGTTAAAGCCGCCACGATGTTTAGA
 spacer length: 36 repeater length: 37
 20735 3099636 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGAATTTGAGCCTGACCTCTCCCTCCCTGGCTTCT
 spacer length: 35 repeater length: 37
 20736 3099708 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTCTAAGACTCTTCAGGTATATGGATATAGAAAAAT
 spacer length: 37 repeater length: 37
 20737 3099782 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AAGTTCTTATAGATCTTAATATTCGTGCTTGGCAA
 spacer length: 35 repeater length: 37
 20738 3099854 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCTAATGTTTTGCCACGGACATTCAAAATGGTTGGA
 spacer length: 36 repeater length: 37
 20739 3099927 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGTTTTGCCAGTACTGCAGTCTTGAGCTCGTTAAACCT
 spacer length: 38 repeater length: 37
 20740 3100002 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ACAGGGCGTCTCTTGGAAGCTCATGATAGGTCACGT
 spacer length: 38 repeater length: 37
 20741 3100077 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
 20742
 20743
 20744 crispr 5
 20745 3105265 GTCGAGAAGTAGACTCCACGAAAACAAGGATTGAAAC TTCTTTTTGTTTTATTTTCCTCCAATTCAGTTTGGTGG
 spacer length: 38 repeater length: 37
 20746 3105340 GTCGAGAAGTAGACTCCACGAAAACAAGGATTGAAAC TTGTTTGGCTCTTTGTTTTCTCTGGTGCACCTGAATAC
 spacer length: 37 repeater length: 37
 20747 3105414 GTCGAGAAGTAGACTCCACGAAAACAAGGATTGAAAC TCACTTTGACCTCTTTAAATATTTTTTATTTCTATT
 spacer length: 36 repeater length: 37
 20748 3105487 GTCGAGAAGTAGACTCCACGAAAACAAGGATTGAAAC TTGGTTTTATCCAGATTCCACGAGAGATATTCGCCTG
 spacer length: 37 repeater length: 37
 20749 3105561 GTCGAGAAGTAGACTCCACGAAAACAAGGATTGAAAC
 CTCGACAAGCGTGAAATATCGTTTTCAAAGCTTTTTTGTTT spacer length: 39 repeater length: 37
 20750 3105637 GTCGAGAAGTAGACTCCACGAAAACAAGGATTGAAAC CATATTCTAGTCTCCCTATATCTCTATAGTTCC
 spacer length: 34 repeater length: 37
 20751 3105708 GTCGAGAAGTAGACTCCACGAAAACAAGGATTGAAAC ATTATCCATCCTCCCAGCCGTCCATTGTAAAGG
 spacer length: 34 repeater length: 37
 20752 3105779 GTCGAGAAGTAGACTCCACGAAAACAAGGATTGAAAC TTCAGTTTCCGACAGAATTTCCATCTTGGCAAAACG
 spacer length: 36 repeater length: 37
 20753 3105852 GTCGAGAAGTAGACTCCACGAAAACAAGGATTGAAAC CTTCTATCTTTTTAATAAAATTCTCCGTTGCTCATTCC
 spacer length: 38 repeater length: 37
 20754 3105927 GTCGAGAAGTAGACTCCACGAAAACAAGGATTGAAAC TATTTACCTTTACTTATATAGACTAAAAGTATTATCA
 spacer length: 37 repeater length: 37
 20755 3106001 GTCGAGAAGTAGACTCCACGAAAACAAGGATTGAAAC
 20756
 20757
 20758 GCA_001189275.1_ASM118927v1_genomic.fna (PilerCR):
 20759 START REPEAT
 SPACER

20760	crispr 1	
20761	216869 GCATCTCAAATAGAGAATTGAAAG	TTCTTGAGATTCTAGAGTGGAACCTAGGCTTAGTCAGGCCCT spacer
	length: 42	repeater length: 24
20762	216935 GCATCTCAAATAGAGAATTGAAAG	TCTGCCCTTACGGCGTCAGCCGCCGCCGCCGGTGGCCACGG spacer
	length: 43	repeater length: 24
20763	217002 GCATCTCAAATAGAGAATTGAAAG	ACGCGTCAAGTAGAGCCCCAGGGCAAGCACGTAGAAACCCAGATC spacer
	length: 45	repeater length: 24
20764	217071 GCATCTCAAATAGAGAATTGAAAG	CTCGACCAGGTGGTAGGCTACATCAACGGCCTAGCTAGGCTTGG spacer
	length: 44	repeater length: 24
20765	217139 GCATCTCAAATAGAGAATTGAAAG	TTGCGGAATGCGTCGAGGAGGTCTCCGCGGATATGAACGC spacer
	length: 41	repeater length: 24
20766	217204 GCATCTCAAATAGAGAATTGAAAG	GATTAGACATATTTCAAGAACCATGCAACGCGTCGGTCGTGCTG spacer
	length: 44	repeater length: 24
20767	217272 GCATCTCAAATAGAGAATTGAAAG	GGTCTTCCTTGTCCACCACGTCTGCAGATGTGGAGAAGGT spacer
	length: 40	repeater length: 24
20768	217336 GCATCTCAAATAGAGAATTGAAAG	TACATGGCATTGGGCCAGATCCAGACTACATGGTATCCG spacer
	length: 40	repeater length: 24
20769	217400 GCATCTCAAATAGAGAATTGAAAG	CGTCTTTGCCCCAGGCCAGGCGGCCTAGGCGGCGGCACCGC spacer
	length: 43	repeater length: 24
20770	217467 GCATCTCAAATAGAGAATTGAAAG	CGCTGAACCCCGTCACGTTGAATTCTTTGTCTAGAGTTACC spacer
	length: 41	repeater length: 24
20771	217532 GCATCTCAAATAGAGAATTGAAAG	TGTAAAGAGGAGGTGAGGGTTTCCGTCGTGAGGGTGCGCC spacer
	length: 40	repeater length: 24
20772	217596 GCATCTCAAATAGAGAATTGAAAG	ATTACAGTCATCAACTTCACACGCATGCGAAATACCATGT spacer
	length: 40	repeater length: 24
20773	217660 GCATCTCAAATAGAGAATTGAAAG	CCTAGCTCTTTAACGGAGTCCAGGGGTCATGTGGCAAATGT spacer
	length: 41	repeater length: 24
20774	217725 GCATCTCAAATAGAGAATTGAAAG	TGCGGATGTTGCCGAGGAAGTGTGCGGCGCAAGAAGCTG spacer
	length: 41	repeater length: 24
20775	217790 GCATCTCAAATAGAGAATTGAAAG	CCCTCGTTTCCGATGACCCGCCCGACTCCGATGAGGGCGGTGAGGCAGTTCGT spacer length: 53
	length: 24	repeater length: 24
20776	217867 GCATCTCAAATAGAGAATTGAAAG	TTCATAGCGGCCACACAGGCGATCATAAACGAGGCCTTTGGCCCCCT
	spacer length: 47	repeater length: 24
20777	217938 GCATCTCAAATAGAGAATTGAAAG	GCATCTTTACGGCGTCTTTACGCGCCACGCGATCAGCCTGTGG spacer
	length: 43	repeater length: 24
20778	218005 GCATCTCAAATAGAGAATTGAAAG	GAGGCCCTTGACCACTACTGGTGGCGTGCCGTGCCTCTAATCA spacer
	length: 43	repeater length: 24
20779	218072 GCATCTCAAATAGAGAATTGAAAG	GACGTTAAGCGCGCTACACAGCGCAGAAGTGCGGATGCACCC spacer
	length: 42	repeater length: 24
20780	218138 GCATCTCAAATAGAGAATTGAAAG	GCATAATATTGTAGCTATGGTGCGCCGCAAAGAGTCCGAAAAGGC spacer
	length: 45	repeater length: 24
20781	218207 GCATCTCAAATAGAGAATTGAAAG	CCTCCGCATGCTGGAGCGGGAGGGGGCCGTGCGGAGGCGC spacer
	length: 40	repeater length: 24
20782	218271 GCATCTCAAATAGAGAATTGAAAG	GCTATAGGAAACGAGCCGAGGGCAGACGAGGGGGAGTTGC spacer
	length: 40	repeater length: 24
20783	218335 GCATCTCAAATAGAGAATTGAAAG	TGTAAAATTTAGGGGGTTCTCCCCCGCCCTGATTTTCGC spacer
	length: 39	repeater length: 24
20784	218398 GCATCTCAAATAGAGAATTGAAAG	TCATATGTCGATAATATGCGTTGCGTAACACCGGAGTATTTT spacer
	length: 42	repeater length: 24
20785	218464 GCATCTCAAATAGAGAATTGAAAG	AAGGGCCTCCTCCGCCGCCAGACGTATCTGTCTCGTCCAC spacer
	length: 42	repeater length: 24
20786	218530 GCATCTCAAATAGAGAATTGAAAG	CTCGGCGCTGTACAGGGCTGTGGGGCTTTGGCAGGAGGAGCC spacer
	length: 42	repeater length: 24
20787	218596 GCATCTCAAATAGAGAATTGAAAG	ACGAGTTGCGGCGTTGTGCCGTGTGTAAGATCGATACGTTT spacer
	length: 41	repeater length: 24
20788	218661 GCATCTCAAATAGAGAATTGAAAG	AACGACGTGATAGTCGTTGCGACGCTAAGGGCGCCACAG spacer
	length: 39	repeater length: 24
20789	218724 GCATCTCAAATAGAGAATTGAAAG	GATCTTATTT
20790		
20791		
20792	crispr 2	
20793	218864 GCATCTCAAATAGAGAATTGAAAG	CTCAGCCTGCCCCACCGTCCACCGCCCCCCCCACCGCCGCCTGT spacer
	length: 43	repeater length: 24
20794	218931 GCATCTCAAATAGAGAATTGAAAG	AGCGGTGCTGTTAGCCACACACGTCTGCCCTACAGGTATCTGCG spacer
	length: 44	repeater length: 24
20795	218999 GCATCTCAAATAGAGAATTGAAAG	CGCGTTCAGCACCTGCCTGAACCTCATGCCGTAGGGCCC spacer
	length: 39	repeater length: 24
20796	219062 GCATCTCAAATAGAGAATTGAAAG	CCTGCCGCCCCGTGTCTGTCCCGAAGTTGCAGTACAC spacer length: 36
	length: 36	repeater length: 24
20797	219122 GCATCTCAAATAGAGAATTGAAAG	AAAGTGTTCACTAGATACGGAGGGGCTGTGTGGCAGTACATG spacer

length: 42 repeater length: 24
20798 219188 GCATCTCAAATAGAGAATTGAAAG ATTGTTGTCGTTGCAGTGATGCCAGCAGAGGGGGTATGAGCGGT spacer
length: 44 repeater length: 24
20799 219256 GCATCTCAAATAGAGAATTGAAAG GCTCAGCGCCTTGAGACAGCAGGCGCTGGTGAGGGGGCAGAGGGGG
spacer length: 46 repeater length: 24
20800 219326 GCATCTCAAATAGAGAATTGAAAG CGCCAAAAACGCCGCAGTCGCCAGGGAGCGCCTCGACG spacer
length: 38 repeater length: 24
20801 219388 GCATCTCAAATAGAGAATTGAAAG TCCACCTCCGTCTCAGGTGGCTTGA ACTCCGGCTCTTTC spacer
length: 39 repeater length: 24
20802 219451 GCATCTCAAATAGAGAATTGAAAG AGGCCACTGCGTCGCCTCGTTGTAACTCTCCACACGGTAGATGCG
spacer length: 46 repeater length: 24
20803 219521 GCATCTCAAATAGAGAATTGAAAG AGTCATAAACACGACGCCCAGCCGCCGCGGCGGCAGGC spacer
length: 39 repeater length: 24
20804 219584 GCATCTCAAATAGAGAATTGAAAG CGTGCCGTGGTTTCCAGACCTGCTGAACTCCTTACGCGTCGG spacer
length: 42 repeater length: 24
20805 219650 GCATCTCAAATAGAGAATTGAAAG TAGCCACACCCCTCACGTAGACGTAGCCTTGCTGTATG spacer
length: 38 repeater length: 24
20806 219712 GCATCTCAAATAGAGAATTGAAAG ACTGCCATGTGGTTTCGCGTAGTAGAGCTCCGAGTTCGC spacer
length: 38 repeater length: 24
20807 219774 GCATCTCAAATAGAGAATTGAAAG GGATTCTGTCTATCGGGATCTTGGTGGGGAGGGAGTAGTACC spacer
length: 42 repeater length: 24
20808 219840 GCATCTCAAATAGAGAATTGAAAG CTCCACCTCCTCGCAGAGCTCCCTGTGTCTCCACTCCTCCGCC spacer
length: 43 repeater length: 24
20809 219907 GCATCTCAAATAGAGAATTGAAAG AATGATGAAGTCTTTGAAGAAGCCGCTCCCCCTCCTTATCTTT spacer
length: 43 repeater length: 24
20810 219974 GCATCTCAAATAGAGAATTGAAAG GCGCCTTTTCTGTAAAGCGCGGCCGCCATTCATCTGCGA spacer
length: 39 repeater length: 24
20811 220037 GCATCTCAAATAGAGAATTGAAAG CGCTAGCGCGTTTAAACACGGCTGAGTCGTTGTGCCGCAAGGCAC spacer
length: 45 repeater length: 24
20812 220106 GCATCTCAAATAGAGAATTGAAAG AAGTTCAGCTTGCGCAAGGCCACTACATGTGAAGGCGACGCGTG spacer
length: 44 repeater length: 24
20813 220174 GCATCTCAAATAGAGAATTGAAAG AAACCCCTCCGACGCGGACAGGCTGGCAAATGCTGAGTATTGA spacer
length: 43 repeater length: 24
20814 220241 GCATCTCAAATAGAGAATTGAAAG TGGCCCTCTCGCCTGGCGTCCGCCCCACGCCGCGCTGCGTCTCG spacer
length: 45 repeater length: 24
20815 220310 GCATCTCAAATAGAGAATTGAAAG AGCCATCGCCAGCACCTCGTCCACCTTCGTAACCGTGGTCTC spacer
length: 42 repeater length: 24
20816 220376 GCATCTCAAATAGAGAATTGAAAG AGTTGAAGCGGCTCACCGCCTGTAGCCAAATCTCCTGT spacer
length: 38 repeater length: 24
20817 220438 GCATCTCAAATAGAGAATTGAAAG CGTTATTACGTCTCCACAGTGCCGCCGTTTTGCCACACCTCA spacer
length: 43 repeater length: 24
20818 220505 GCATCTCAAATAGAGAATTGAAAG CAGTAGTCATCAATCGGCACGAACAGGTACGCATCCGCTGG spacer
length: 41 repeater length: 24
20819 220570 GCATCTCAAATAGAGAATTGAAAG CCTCTTAAACGCCGCGGCGGCTGTTTGCGCCAGCTCGGCCAG spacer
length: 42 repeater length: 24
20820 220636 GCATCTCAAATAGAGAATTGAAAG CTCCCCCTGCGCTCGCACCTGACGCGCTTACCATCCTGGCGATGCCG
spacer length: 49 repeater length: 24
20821 220709 GCATCTCAAATAGAGAATTGAAAG ACTGAGTCCATAGACCTGCCACTCCACGTCGCCAT spacer length:
35 repeater length: 24
20822 220768 GCATCTCAAATAGAGAATTGAAAG GTAGGCCTCTCCACGGCTAAGCGCGTCTGACTACAGCT spacer length:
37 repeater length: 24
20823 220829 GCATCTCAAATAGAGAATTGAAAG AGCTAGCTAAGACGGTGGTGA ACTACATATACTTGGCCGACGAA
spacer length: 47 repeater length: 24
20824 220900 GCATCTCAAATAGAGAATTGAAAG ATGACGTTGTGGCAGTACTGCCCGGCCAGTACGTGGTGCTG spacer
length: 41 repeater length: 24
20825 220965 GCATCTCAAATAGAGAATTGAAAG GCGAAGGCGATGGTGACGAAGGCCCTCACGTCGCTTTTCGGTCA spacer
length: 43 repeater length: 24
20826 221032 GCATCTCAAATAGAGAATTGAAAG CTCAGGACCGTGTAGGCCTTGCCCCATTGGGGTACTTCACTATG spacer
length: 45 repeater length: 24
20827 221101 GCATCTCAAATAGAGAATTGAAAG ATAATCATAGCTCCCTAACCGACAGTGGTACCGCGTCGGCCG spacer
length: 42 repeater length: 24
20828 221167 GCATCTCAAATAGAGAATTGAAAG GTATCCTTATGGCAATTTGCTTAGCAACCTCCGGGATTATTGC spacer
length: 43 repeater length: 24
20829 221234 GCATCTCAAATAGAGAATTGAAAG GCACGTTCCACGCCGCTTACCACCTCAGCGGCGGACGTGAGG spacer
length: 44 repeater length: 24
20830 221302 GCATCTCAAATAGAGAATTGAAAG TTTGCGCACACGTCTTGTCTAGCGTTGCATTTGACAAGTTTGACGT spacer
length: 45 repeater length: 24
20831 221371 GCATCTCAAATAGAGAATTGAAAG CATATATTCACCTTTATCTGCAGTCATGCCGTCTACGGAGAAGC spacer
length: 43 repeater length: 24
20832 221438 GCATCTCAAATAGAGAATTGAAAG TGTCGCTGG
20833

20834
20835 crispr 3
20836 228507 ATCTCAAATAGAGAAATTGAAAG ATGGGTCTGATTTGGAAATCATCTCAGAGCCCAAGGTCGCGGC spacer
length: 43 repeater length: 22
20837 228572 ATCTCAAATAGAGAAATTGAAAG GCCAGCTCCTGCAACGCCACCGGTATCACATCTAACTGTATGTGC spacer
length: 45 repeater length: 22
20838 228639 ATCTCAAATAGAGAAATTGAAAG AACGTATACGTTATGACTAGATACCGCTCTGGTCGCTGATACGCCGC spacer
length: 47 repeater length: 22
20839 228708 ATCTCAAATAGAGAAATTGAAAG GGCGCACTTACCCACGGCGCACCCAAAGTGCAGGTCTACGC spacer
length: 41 repeater length: 22
20840 228771 ATCTCAAATAGAGAAATTGAAAG
CTATGTGGAGGGCGGCTGTGGTCTTCCCACTGCCCGGATCGCCAGGAGAACAAGC spacer length: 56 repeater
length: 22
20841 228849 ATCTCAAATAGAGAAATTGAAAG GCCCTTCAGGGGCGGGTCAGGACTTGAGACACGGCGCATGTTGC spacer
length: 44 repeater length: 22
20842 228915 ATCTCAAATAGAGAAATTGAAAG TAGGGTAATAACGAAGGGAGAAAAAAGGTGGAGTTTTAGGCAAGC spacer
length: 46 repeater length: 22
20843 228983 ATCTCAAATAGAGAAATTGAAAG GTTGCGACAGACATATCGCCTGAGGAGGTGGCATGACCGGC spacer
length: 41 repeater length: 22
20844 229046 ATCTCAAATAGAGAAATTGAAAG CCTCCGAGGACGCCGCCAGGAACGCCGCCACCTTATATCCCGCGC spacer
length: 45 repeater length: 22
20845 229113 ATCTCAAATAGAGAAATTGAAAG ATCAGCGCATCCGTCAAGTACTGCACCTCAACTTCGACAACGTGC spacer
length: 45 repeater length: 22
20846 229180 ATCTCAAATAGAGAAATTGAAAG TTTCCGCCATCGCCGACAGCGTTCTGGAGCGCGTGCGCCATCTGC spacer
length: 45 repeater length: 22
20847 229247 ATCTCAAATAGAGAAATTGAAAG TGACATTGATGAGCTGAGGAAACAAGCACAGGGATGGGTCGAGAAGTTGC
spacer length: 50 repeater length: 22
20848 229319 ATCTCAAATAGAGAAATTGAAAG GCGAGACACCACACCGACATCTTCCCAATCACGTATTCTTCTGC spacer
length: 44 repeater length: 22
20849 229385 ATCTCAAATAGAGAAATTGAAAG CAACTTCTTGGCAAGCGCCGTGCCGCCGTCTACCGAAACCGTG spacer
length: 43 repeater length: 22
20850 229450 ATCTCAAATAGAGAAATTGAAAG CAACCGCCTTTGTGCGTACGTATTCCATTGTGAACGTGGTTTGGC spacer
length: 46 repeater length: 22
20851 229518 ATCTCAAATAGAGAAATTGAAAG CTCCTCCAGCCGCCAAGGCCAGGCTGTGGAGGTACGACGCAGGT spacer
length: 44 repeater length: 22
20852 229584 ATCTCAAATAGAGAAATTGAAAG TCACACCCT
20853
20854
20855 crispr 4
20856 506986 GCATCTCAAACAGAGAAATTGAAAC CAGATAAGCGACAGGTAGGACGCCGCCCTGGCCTCCGTAGACGT spacer
length: 44 repeater length: 24
20857 507054 GCATCTCAAACAGAGAAATTGAAAC GCGTAGTCGTACAGGTCTGCCAGCTCCTCAAGCGTCATCC spacer
length: 40 repeater length: 24
20858 507118 GCATCTCAAACAGAGAAATTGAAAC AAGTCGAAAAACAGCTTCACGGTGCCGTAGGCAGCCATCTCG spacer
length: 42 repeater length: 24
20859 507184 GCATCTCAAACAGAGAAATTGAAAC GCCACCGCGTTTAAACTGCGGCTCGCCAAACAGCTCCCTCAGAAG spacer
length: 45 repeater length: 24
20860 507253 GCATCTCAAACAGAGAAATTGAAAC AAAACGGCGTGTGCATGAAGCGAAGACGGCGTACAACTCTCCCC spacer
length: 44 repeater length: 24
20861 507321 GCATCTCAAACAGAGAAATTGAAAC TGTTGGGCTGATCATGTCTACCGTCGTAGGTCATCCCGACAAC spacer
length: 42 repeater length: 24
20862 507387 GCATCTCAAACAGAGAAATTGAAAC AATACCTCGGCTTGAAAGCGACTACGACGGTGAAGTTCTGGCCC spacer
length: 44 repeater length: 24
20863 507455 GCATCTCAAACAGAGAAATTGAAAC AGGGCGCTGGTCATGTGTTACGCATCAGCGTCAACGTGTTGGG spacer
length: 44 repeater length: 24
20864 507523 GCATCTCAAACAGAGAAATTGAAAC CCCGCCCTCGGTACACAGGGGCCCTTGAGTCGTCGGGGATCACCA spacer
length: 44 repeater length: 24
20865 507591 GCATCTCAAACAGAGAAATTGAAAC GTTCCGTTGCCGGGCCGGCCCCGAGGCCCGCCGGTTCCC spacer
length: 41 repeater length: 24
20866 507656 GCATCTCAAACAGAGAAATTGAAAC CACGTCGCTCTCCGACAAGTCGCGCCGCCACCCCTCGGCC spacer
length: 41 repeater length: 24
20867 507721 GCATCTCAAACAGAGAAATTGAAAC ACGTGACGGCGGCTAAAGCCGCCGCCGAGGAGGAGAAGAAG spacer
length: 41 repeater length: 24
20868 507786 GCATCTCAAACAGAGAAATTGAAAC ATTAATGGCATGTCAAGCTTCGACCACCGCCTACGCAACCAC spacer
length: 42 repeater length: 24
20869 507852 GCATCTCAAACAGAGAAATTGAAAC TACATACTCAACAAATTCATCGGTGGTAAACGTCTCTC spacer
length: 38 repeater length: 24
20870 507914 GCATCTCAAACAGAGAAATTGAAAC CTCAGCAACTCCCTAACCCGTGTCGCAACCTCCCTCGCAACAG spacer
length: 43 repeater length: 24
20871 507981 GCATCTCAAACAGAGAAATTGAAAC AGTACACCCTCATACCTGGCCAGATCGCCTCGCTGACCGAATC spacer
length: 43 repeater length: 24

20872 508048 GCATCTCAAACAGAGAATTGAAAC CATCTACACGACATACAGGAACAAATGCGTCACTACGGG spacer
 length: 39 repeater length: 24
 20873 508111 GCATCTCAAACAGAGAATTGAAAC TAACACTGTCGCTAAACTTTACGTCGTCGGGCAATTGCCCA spacer
 length: 42 repeater length: 24
 20874 508177 GCATCTCAAACAGAGAATTGAAAC TAGTCGTCATTGCTCTGCGAGCGCCGCTCTACTTTTGCCAGCGCC
 spacer length: 46 repeater length: 24
 20875 508247 GCATCTCAAACAGAGAATTGAAAC TTTGCCCCGTTGGGCGCAGGCCCCGGGGGCGATGTGTATCTG spacer
 length: 42 repeater length: 24
 20876 508313 GCATCTCAAACAGAGAATTGAAAC TGAGGGCGAAGTAGTATATCGATAGGTTGTGCCACTGCACT spacer
 length: 42 repeater length: 24
 20877 508379 GCATCTCAAACAGAGAATTGAAAC CCATCATCTT
 20878
 20879
 20880 crispr 5
 20881 513207 GTTTC AACCTTCTTGAGATTCTAG GGAGCTCGCCAAAGCGGCCGCAAGGCCGCTGGCGA spacer length:
 36 repeater length: 25
 20882 513268 GTTTC AACCTTCTTGAGATTCTAG TTTCTGAATCATATTTACAAGCGCCTTTTGGTCACTGAG spacer
 length: 39 repeater length: 25
 20883 513332 GTTTC AACCTTCTTGAGATTCTAG GGCATCAAGTACAGCAACGTTGATTTGATGCTAGGAGCCAC spacer
 length: 41 repeater length: 25
 20884 513398 GTTTC AACCTTCTTGAGATTCTAG CGCCATCTATGTGGCAAACGGCACGGTCTGGGATACGCTTGTCTAT
 spacer length: 45 repeater length: 25
 20885 513468 GTTTC AACCTTCTTGAGATTCTAG CCGCCCCCTGCGACCGCAGGGGCTTCGGCGGGGGGTATAAAAGA spacer
 length: 43 repeater length: 25
 20886 513536 GTTTC AACCTTCTTGAGATTCTAG AATGCTGTATGCCGTATTGCCAGTGGATAAGGCCATAGAGCT spacer
 length: 42 repeater length: 25
 20887 513603 GTTTC AACCTTCTTGAGATTCTAG ATGAAGAGGCTGTGAGGTTTGAGAGGATGGTGGGTATTAG spacer
 length: 40 repeater length: 25
 20888 513668 GTTTC AACCTTCTTGAGATTCTAG ATTAGAGTTGTTGGTGACAGGACTAGGCCGCTTGAGCTACAGCCGC
 spacer length: 46 repeater length: 25
 20889 513739 GTTTC AACCTTCTTGAGATTCTAG AACAAAATTAATCCACATACTCCCATCAGTGCTGTAGTAG spacer
 length: 40 repeater length: 25
 20890 513804 GTTTC AACCTTCTTGAGATTCTAG GGCCAAGGAG
 20891
 20892
 20893 crispr 6
 20894 517002 GTTTC AACCTTCTTGAGATTCTAG CCAAAAAGGCCGAACAGCTGGCGGCGCTGTACCAACA spacer length:
 36 repeater length: 25
 20895 517063 GTTTC AACCTTCTTGAGATTCTAG CCGAGGAGCGGGTGGAGGCGGAGGTGGGGAAGATCAAAGAG spacer
 length: 41 repeater length: 25
 20896 517129 GTTTC AACCTTCTTGAGATTCTAG GAGTTGTGGCGGCGCGGTGCCGCCGGGGACGTACCTAAT spacer
 length: 39 repeater length: 25
 20897 517193 GTTTC AACCTTCTTGAGATTCTAG TAGGCTCCAAGGTCATAGCCTTTGTTGCTGTTTGTCTCGTTGGTTAA
 spacer length: 47 repeater length: 25
 20898 517265 GTTTC AACCTTCTTGAGATTCTAG AGGGCACTACGGCAGGTTGCCTAAGATGAAACACAT spacer length:
 36 repeater length: 25
 20899 517326 GTTTC AACCTTCTTGAGATTCTAG CTGTGAGGGCATATGGGAGGTACTCGTCGCTGTTTAAC spacer
 length: 38 repeater length: 25
 20900 517389 GTTTC AACCTTCTTGAGATTCTAG CCTGGCAACAGAACCCCCGCTGTAGATTTTCAAAGCTTAGA spacer
 length: 42 repeater length: 25
 20901 517456 GTTTC AACCTTCTTGAGATTCTAG ACCCAGGAGACAGCTACGCAAGTCCGCAACGCCATAGAGTCTGT spacer
 length: 44 repeater length: 25
 20902 517525 GTTTC AACCTTCTTGAGATTCTAG GTGCAGAACGCGCCGAGAAGGCGCTTAGGTGGATGTG spacer
 length: 37 repeater length: 25
 20903 517587 GTTTC AACCTTCTTGAGATTCTAG AGATCCCAGCGTCATCGACAAGGCGAGGGCTGAGCTGGAGGAGAT
 spacer length: 45 repeater length: 25
 20904 517657 GTTTC AACCTTCTTGAGATTCTAG AATGAGGGGGATCCGAGAATTGAGGACAAGCTGTGGGCTCTGCA spacer
 length: 44 repeater length: 25
 20905 517726 GTTTC AACCTTCTTGAGATTCTAG AGACATTTGT
 20906
 20907
 20908 crispr 7
 20909 532849 GCATCTCCAATAGAGAATTGAAAC ATCTCTAAGATAAACATGTCAGCAACAGCCATCCGGCATATCAA spacer
 length: 44 repeater length: 24
 20910 532917 GCATCTCCAATAGAGAATTGAAAC AACAGCACGACAAGCACATCGTTTATGCTTTTCGTCCTCATCTAC spacer
 length: 44 repeater length: 24
 20911 532985 GCATCTCCAATAGAGAATTGAAAC AAGTTGCTAGCCGACATGCTCTCGCAGTACGGCTTCAGATT spacer
 length: 41 repeater length: 24
 20912 533050 GCATCTCCAATAGAGAATTGAAAC TAGCGCCAAGTAGAGACCTGTAATACCGTGAATATGAATATC spacer
 length: 43 repeater length: 24
 20913 533117 GCATCTCCAATAGAGAATTGAAAC TGATAATGACAGCGCCGTCGCGTGCGATTCTTACTTTCCAGTG spacer

length: 43 repeater length: 24
20914 533184 GCATCTCCAATAGAGAATTGAAAC GTTAGGTACGCCGCGCGGTGACTCCGGCCATGATGTACA spacer
length: 40 repeater length: 24
20915 533248 GCATCTCCAATAGAGAATTGAAAC GACTACGTTGGTCATCTTGGCGGTGAGAGAGGCAATGCTGGC spacer
length: 42 repeater length: 24
20916 533314 GCATCTCCAATAGAGAATTGAAAC GCGTCTCACG
20917
20918
20919 crispr 8
20920 923994 TAGAATCTCAAGAAGGGTTGAAAC GCTCTTGGCCGCGTGCAGGATTTTCAATGTTATCACTAAG spacer
length: 41 repeater length: 24
20921 924059 TAGAATCTCAAGAAGGGTTGAAAC TATTTTGAAGTGCCTATGAGCTTAACAACCTCCGTCTTGAG spacer
length: 41 repeater length: 24
20922 924124 TAGAATCTCAAGAAGGGTTGAAAC TTCCCTTTTGTAGCATCTTATTGTATCACAAATCTTATTCCTG spacer
length: 44 repeater length: 24
20923 924192 TAGAATCTCAAGAAGGGTTGAAAC AAAAAGTCGCCTTCACTCGTGCTAGTCATCTTCGCGAAAAGATCGTG
spacer length: 47 repeater length: 24
20924 924263 TAGAATCTCAAGAAGGGTTGAAAC TTATTAGTAGTGTTGGGCGGTTTACTGGCGGAAACAAGAGGAACG spacer
length: 45 repeater length: 24
20925 924332 TAGAATCTCAAGAAGGGTTGAAAC TCGCTAAGTGCACGTACTGCTCCAACACCTCCCTCAGCTCTTTG spacer
length: 45 repeater length: 24
20926 924401 TAGAATCTCAAGAAGGGTTGAAAC AGAAACCGTAATTACCCATGCCTCCAGGTCTTCAATG spacer length:
37 repeater length: 24
20927 924462 TAGAATCTCAAGAAGGGTTGAAAC CTGTTTCATAATCCTTGCGGACGGCATAGTGAGCAAAG spacer
length: 39 repeater length: 24
20928 924525 TAGAATCTCAAGAAGGGTTGAAAC GCTACCTGCGCGTAGCGCCTCAATGTTGGGCTCGCCTGTATAG spacer
length: 43 repeater length: 24
20929 924592 TAGAATCTCAAGAAGGGTTGAAAC ACCACGACACGCTGGCCACCACCCGACTCCACTGGCAGCTCGCGC spacer
length: 45 repeater length: 24
20930 924661 TAGAATCTCAAGAAGGGTTGAAAC CTTCCCTTCTTCGAGCCGCAACCATGGCCCTCACCTCTTCTTTC spacer
length: 43 repeater length: 24
20931 924728 TAGAATCTCAAGAAGGGTTGAAAC GAGAATTTGTCTAGCACGCCGCACAGCTCTCCGTGGCATTTCG spacer
length: 43 repeater length: 24
20932 924795 TAGAATCTCAAGAAGGGTTGAAAC CGGCGGCACG
20933
20934
20935 crispr 9
20936 925966 GTTTC AACCTTCTTGAGATTCTA GCCTCTACTCCAAAGAGGTGGCGGAGTATGTGCGTCAGGAAATAAA
spacer length: 46 repeater length: 24
20937 926036 GTTTC AACCTTCTTGAGATTCTA GTATTGCGCTAATAGCCGCTGGGTATGGTTTGTGCTGTTGATCCA
spacer length: 46 repeater length: 24
20938 926106 GTTTC AACCTTCTTGAGATTCTA GATCATCATGCGTTGTTTGATCTTCTCCACGCGGGCGAAGCCTGT spacer
length: 45 repeater length: 24
20939 926175 GTTTC AACCTTCTTGAGATTCTA CGCATATTTTCAGCCCGCAGGCGCCTGCGGGCCGAGGGCAGAGATCC
spacer length: 46 repeater length: 24
20940 926245 GTTTC AACCTTCTTGAGATTCTA CTTGCACTACGCTGTCCGTGAGGGAGATGTAGAACTTAT spacer
length: 39 repeater length: 24
20941 926308 GTTTC AACCTTCTTGAGATTCTA CACTGTCCTATTGAACGCGCTACCATTAAATGCACTTCCAAGACG spacer
length: 45 repeater length: 24
20942 926377 GTTTC AACCTTCTTGAGATTCTA CACAGCGCTTCGGCGCATCGATACCTCGTCGACATATATGGCT spacer
length: 43 repeater length: 24
20943 926444 GTTTC AACCTTCTTGAGATTCTA CCTGGGTATGCGTTGAGTGCAGTTCCGTTCATCAAACAGTCTACAT
spacer length: 46 repeater length: 24
20944 926514 GTTTC AACCTTCTTGAGATTCTA CGGCATCGACCGGCCGCTACTCAATGTTGCGAGAATAAAA spacer
length: 40 repeater length: 24
20945 926578 GTTTC AACCTTCTTGAGATTCTA CTATTGAGCTGGTGCAGAAGATGAACCTCGTGGAGTGCCT spacer
length: 40 repeater length: 24
20946 926642 GTTTC AACCTTCTTGAGATTCTA CCAAGAAGAGCCGCGACTACGACGACTGCTTCATGGAATGTTAC spacer
length: 44 repeater length: 24
20947 926710 GTTTC AACCTTCTTGAGATTCTA TCGGAACGGG
20948
20949
20950 GCA_001266655.1_ASM126665v1_genomic.fna (PilerCR) :
20951 START REPEAT
SPACER
20952 crispr 1
20953 1082319 CTTTCAACTCTATAGGAGATTAAC TGATTTTGACACGGCCTATCAAAATGTAATAAAAACGCATA spacer
length: 41 repeater length: 24
20954 1082384 CTTTCAACTCTATAGGAGATTAAC TAATAGGTATAATATTGGGCATTCTCGCCCTAGTTCAATT spacer
length: 40 repeater length: 24
20955 1082448 CTTTCAACTCTATAGGAGATTAAC AGACCCAAAACCTAAAACCTCAAAAAGTCTTTGAGCAATT spacer

length: 40 repeater length: 24

20956 1082512 CTTTCAACTCTATAGGAGATTAAC TTACTTCTAATGATTACAGGGATTTCTCAGAACCCTTCT spacer
length: 39 repeater length: 24

20957 1082575 CTTTCAACTCTATAGGAGATTAAC GCTGAAATTGGCAGAGGTAAGGAAGCTAATCGAGTCGAA spacer
length: 39 repeater length: 24

20958 1082638 CTTTCAACTCTATAGGAGATTAAC GTGAGGATTACACCGAATCCTGCCTTAGACGATACCGAGCAGAAG spacer
length: 44 repeater length: 24

20959 1082706 CTTTCAACTCTATAGGAGATTAAC AGAAGAAAAAGTATACTTGAAAAGAAGATTGAATTTTTAGA spacer
length: 41 repeater length: 24

20960 1082771 CTTTCAACTCTATAGGAGATTAAC ATCAAATGATGCCAAAAAGTGATCTACCTATTCTTTTCAT spacer
length: 40 repeater length: 24

20961 1082835 CTTTCAACTCTATAGGAGATTAAC AACATGATAAGGCTTTACTTAGAAAGTTAGAGAAAAAATT spacer
length: 40 repeater length: 24

20962 1082899 CTTTCAACTCTATAGGAGATTAAC CGTGATTCATTAAGGTTATCATAATGAATTGGAAAACAGTCT spacer
length: 42 repeater length: 24

20963 1082965 CTTTCAACTCTATAGGAGATTAAC TTCAAAAAATGGTCAAGGTGATAGAGAGTCAGTTATTAG spacer
length: 39 repeater length: 24

20964 1083028 CTTTCAACTCTATAGGAGATTAAC AGTTCTACGGAAAACATCAATCCAGATAGCAATAAAGA spacer
length: 39 repeater length: 24

20965 1083091 CTTTCAACTCTATAGGAGATTAAC ATGCGATTACCACCACGGCTCCGTTTTGCCCGTTTGCTCC spacer
length: 40 repeater length: 24

20966 1083155 CTTTCAACTCTATAGGAGATTAAC CATCGGTGTATTACTACTCACTGTGATTGGTGTATCAAG spacer
length: 39 repeater length: 24

20967 1083218 CTTTCAACTCTATAGGAGATTAAC TCCAGGTACATCGTCAGCGAATGGATCAGGAGGAGCAGG spacer
length: 39 repeater length: 24

20968 1083281 CTTTCAACTCTATAGGAGATTAAC TCCACTCGGTGCCGTGAAAGTTTTGACAAGACTCATGTTTGA spacer
length: 42 repeater length: 24

20969 1083347 CTTTCAACTCTATAGGAGATTAAC TCAATAATTGACGAGCAAGATTTAGTGATTCCAGACGAGG spacer
length: 40 repeater length: 24

20970 1083411 CTTTCAACTCTATAGGAGATTAAC ACAGTTCACAAACGGAATTGTTTGATAACTTCTTGAAT spacer
length: 39 repeater length: 24

20971 1083474 CTTTCAACTCTATAGGAGATTAAC CTTACTTTCCATGTTCCCTCCATTACAAAAGTAAAGTACT spacer
length: 39 repeater length: 24

20972 1083537 CTTTCAACTCTATAGGAGATTAAC CGGTCACTGAAGCCGATCCACCCTTAGTTGAGACCACGAG spacer
length: 40 repeater length: 24

20973 1083601 CTTTCAACTCTATAGGAGATTAAC TAATTGAAGTTACAGTAGAAATACAAAACCAAAAAATGA spacer
length: 39 repeater length: 24

20974 1083664 CTTTCAACTCTATAGGAGATTAAC ATCAAATTACTGGAGAAGAGTGGAACAAAATAATAAGGGAA spacer
length: 41 repeater length: 24

20975 1083729 CTTTCAACTCTATAGGAGATTAAC TTATACGGTTATTGGATGACGCGAGTATATCGTGAAAGTTA spacer
length: 41 repeater length: 24

20976 1083794 CTTTCAACTCTATAGGAGATTAAC AAAGCCTTCGTATCTGATGACGGCTCAGTTCCAATCGTTA spacer
length: 40 repeater length: 24

20977 1083858 CTTTCAACTCTATAGGAGATTAAC ATGAAGATGTGGAGTCAAAGACCGAAAGGCCCTGGGATTA spacer
length: 40 repeater length: 24

20978 1083922 CTTTCAACTCTATAGGAGATTAAC ATATTTTCGTCTTATGTAGTTTGTAATTGATCTTTTTTTCTTT spacer
length: 43 repeater length: 24

20979 1083989 CTTTCAACTCTATAGGAGATTAAC TTAGGACCGTTGGGTTCACGAGTTACAACGAGATGGTGAAA spacer
length: 41 repeater length: 24

20980 1084054 CTTTCAACTCTATAGGAGATTAAC TTCATGCAGACTACGAAGTCGCTCTAATTTATCTTAATCT spacer
length: 40 repeater length: 24

20981 1084118 CTTTCAACTCTATAGGAGATTAAC GTCATAAACCACTGATCACTAGTAGTATGTTTCGAACTAT spacer
length: 40 repeater length: 24

20982 1084182 CTTTCAACTCTATAGGAGATTAAC TGTTGTGTGAATCTGAACCCGAAGACGAGGACATGTACC spacer
length: 39 repeater length: 24

20983 1084245 CTTTCAACTCTATAGGAGATTAAC CAAGTGTGTTTGTGGGGATAACGAACTTGGGGAAGGAA spacer
length: 39 repeater length: 24

20984 1084308 CTTTCAACTCTATAGGAGATTAAC TATATGACAAGTTGAGAAGGAATATTCTTCAACGCGGGAA spacer
length: 40 repeater length: 24

20985 1084372 CTTTCAACTCTATAGGAGATTAAC AAGTTAGTGGGGGAAGCCCGTAGAGTTCAGATTAGGTAC spacer
length: 41 repeater length: 24

20986 1084437 CTTTCAACTCTATAGGAGATTAAC ATCATCCCCCTCATCAAACACTCATCAAGATACTCATCACTGTA
spacer length: 45 repeater length: 24

20987 1084506 CTTTCAACTCTATAGGAGATTAAC TCTCGACGCGGAGAGGATAGAGCGGTTGGTCGAGGACGA spacer
length: 39 repeater length: 24

20988 1084569 CTTTCAACTCTATAGGAGATTAAC CGAATTTTTCCCCCGTGAGCGGGGGGTTAGAAAGAGTTTGAC spacer
length: 42 repeater length: 24

20989 1084635 CTTTCAACTCTATAGGAGATTAAC CCCATAGTGGTCCCCTATGAGTTTGAGGATACAACCTTCATTAA spacer
length: 43 repeater length: 24

20990 1084702 CTTTCAACTCTATAGGAGATTAAC CGGGGTCCAAAGGTTCCCTGAATGTAAATATATTATTAC spacer
length: 39 repeater length: 24

20991	1084765	CTTTCAACTCTATAGGAGATTAAC	CATATGACGCTCTCAAGGTAGTCACTCAAGATATCTTAGC	spacer
		length: 40	repeater length: 24	
20992	1084829	CTTTCAACTCTATAGGAGATTAAC	TTACGATCAGCCTTTTCGTTGCAGGTCTAATTCTCAGA	spacer
		length: 38	repeater length: 24	
20993	1084891	CTTTCAACTCTATAGGAGATTAAC	CCAACGTGCCAGCCTGCCCTGCTGGACTAGGGTTTTCGAAC	spacer
		length: 41	repeater length: 24	
20994	1084956	CTTTCAACTCTATAGGAGATTAAC	CTCGTTAAGATATGCATTGATCACTTACGCTTCCAAAAA	spacer
		length: 39	repeater length: 24	
20995	1085019	CTTTCAACTCTATAGGAGATTAAC	TCTTTTTTTTGCGGTTATACAATTAAACGTTTCGTGAAT	spacer
		length: 38	repeater length: 24	
20996	1085081	CTTTCAACTCTATAGGAGATTAAC	ACGTCCTTCTCCGTGATGTAGAGCGTACTGCCTGAAGTCCCTGT	spacer
		length: 44	repeater length: 24	
20997	1085149	CTTTCAACTCTATAGGAGATTAAC	AAAGGACCATAATACATCACAACCTAGTCTGCTTGCAAAGTGA	spacer
		length: 43	repeater length: 24	
20998	1085216	CTTTCAACTCTATAGGAGATTAAC	ATAACCGGAACGAAACTAGAGGAATACTGTGAACCGGTAA	spacer
		length: 40	repeater length: 24	
20999	1085280	CTTTCAACTCTATAGGAGATTAAC	CAATGAGTGTTGGTCTCATCCTTGAGGGTCTGATGGAGT	spacer
		length: 40	repeater length: 24	
21000	1085344	CTTTCAACTCTATAGGAGATTAAC	CAATACGACTACGGGTTTGAATCTTGAAAAGTTCGGTG	spacer
		length: 38	repeater length: 24	
21001	1085406	CTTTCAACTCTATAGGAGATTAAC	ATGGTCAATTATGTCCTTAATATGATGGTAGAGATATTGA	spacer
		length: 40	repeater length: 24	
21002	1085470	CTTTCAACTCTATAGGAGATTAAC	TGGACATGTCTACATCAAAGAAGTCCAAGTACTTTGCCT	spacer
		length: 39	repeater length: 24	
21003	1085533	CTTTCAACTCTATAGGAGATTAAC	TACCTGAAGTTCTCCCACTCTAGCAGGGAGCTGCTGTCCTACT	spacer
		length: 43	repeater length: 24	
21004	1085600	CTTTCAACTCTATAGGAGATTAAC	GGCGTAAAAAATGCAATAGGAGGAGTAGGAAGCTTCTTTTC	spacer
		length: 41	repeater length: 24	
21005	1085665	CTTTCAACTCTATAGGAGATTAAC	TTACTATTTCTTAAGGAACGACGTAAGAGAAAGTAGTAAT	spacer
		length: 40	repeater length: 24	
21006	1085729	CTTTCAACTCTATAGGAGATTAAC	GGAATAAAGGACAAGGGATTCTTCATCAGTTTGGA	spacer length: 36
		repeater length: 24		
21007	1085789	CTTTCAACTCTATAGGAGATTAAC	ACAAGGAGTAGCTCTTACTGGTAATGAGGGTATAATAAGAAA	spacer
		length: 42	repeater length: 24	
21008	1085855	CTTTCAACTCTATAGGAGATTAAC	CGCTCTGGACCTCCTTCTTGACGTAGTCATTTCTCTTTAGTT	spacer
		length: 42	repeater length: 24	
21009	1085921	CTTTCAACTCTATAGGAGATTAAC	AGACAAGTCCAGAGGGTTAGGGAGGAGAGGAGGTCCAGTCTT	spacer
		length: 42	repeater length: 24	
21010	1085987	CTTTCAACTCTATAGGAGATTAAC	ACTTTAGCTTTCATGACTTACACAACCTTCATATCCACCT	spacer
		length: 39	repeater length: 24	
21011	1086050	CTTTCAACTCTATAGGAGATTAAC	TGAATAAACCAACTCTCCTTCATAGTTTAAATTAATTACAT	spacer
		length: 41	repeater length: 24	
21012	1086115	CTTTCAACTCTATAGGAGATTAAC	AAGAGAATAAGGGTAGTATATAACCCTGCAATCACCTTAA	spacer
		length: 40	repeater length: 24	
21013	1086179	CTTTCAACTCTATAGGAGATTAAC	CAGCTTGTTGGTATTCCTCCTAATATTACTGCATTGACCC	spacer
		length: 39	repeater length: 24	
21014	1086242	CTTTCAACTCTATAGGAGATTAAC	TTTAAGATAATTGGAAAAGAACAATTAATAAGAACATTA	spacer
		length: 40	repeater length: 24	
21015	1086306	CTTTCAACTCTATAGGAGATTAAC	ATGGGGGTTCAAAGGGGGTGAAATACCCCTTCCGTCAAGGA	spacer
		length: 41	repeater length: 24	
21016	1086371	CTTTCAACTCTATAGGAGATTAAC	TGCATACAGTCTTTTGCAACACTTATTATTCTGTATATT	spacer
		length: 40	repeater length: 24	
21017	1086435	CTTTCAACTCTATAGGAGATTAAC	CTTCGCTATATCTACCATGAATAAGTCTTGAATGTAAA	spacer
		length: 38	repeater length: 24	
21018	1086497	CTTTCAACTCTATAGGAGATTAAC	TTATATTTAGTTAGAATTTTTCTCAAAAAATCATCTCGATCT	spacer
		length: 42	repeater length: 24	
21019	1086563	CTTTCAACTCTATAGGAGATTAAC	CTAACCGTATTGAGTCCGTGGGTGCGACCGGCCACAGTA	spacer
		length: 40	repeater length: 24	
21020	1086627	CTTTCAACTCTATAGGAGATTAAC	AGTCTGCTGGCTTTAATCTTCATGTAGTTGCCAGTAGGTTC	spacer
		length: 41	repeater length: 24	
21021	1086692	CTTTCAACTCTATAGGAGATTAAC	TTTTGCTTTTCTTTCTCAAATTTTCTTCTCCATGATTCA	spacer
		length: 40	repeater length: 24	
21022	1086756	CTTTCAACTCTATAGGAGATTAAC	CGGTCTGAGTCTCTGGCTGAGACTCTAACTTCTTCTTGAGA	spacer
		length: 41	repeater length: 24	
21023	1086821	CTTTCAACTCTATAGGAGATTAAC	ATACCCTAGAGGAAGAAGTTGAGGAGGTCTGGCTCAACTTG	spacer
		length: 42	repeater length: 24	
21024	1086887	CTTTCAACTCTATAGGAGATTAAC	ATGAAAACGACCGTGACGTCATTGCAATCATGAATCTCAA	spacer
		length: 40	repeater length: 24	
21025	1086951	CTTTCAACTCTATAGGAGATTAAC	ACATGCTAGATTTTGATAAAAAATTGAATGCAGAAATTAACCA	spacer
		length: 42	repeater length: 24	
21026	1087017	CTTTCAACTCTATAGGAGATTAAC	AACTGTTGCAGAATCGTACTGGAAAGCGGTCCCTGCATT	spacer

length: 39 repeater length: 24

21027 1087080 CTTTCAACTCTATAGGAGATTAAC AGCTTTACGGCAAAGAGAAAGAGTTTGATGAGTTCA spacer length: 36 repeater length: 24

21028 1087140 CTTTCAACTCTATAGGAGATTAAC ACGGACACGACCCAGGGGTGATGGTCGTCCCGCTCATGT spacer length: 39 repeater length: 24

21029 1087203 CTTTCAACTCTATAGGAGATTAAC TCAGAAGAGCCATCGAGAAGATGGTTAAGGAAGAGA spacer length: 36 repeater length: 24

21030 1087263 CTTTCAACTCTATAGGAGATTAAC TCGATCTAATGAAATTGGCTAGGGAGTTCGGTCAGGGGTT spacer length: 40 repeater length: 24

21031 1087327 CTTTCAACTCTATAGGAGATTAAC GTAAATAGATGAAATCCATGTCCGCTCCACATTACTAGAA spacer length: 41 repeater length: 24

21032 1087392 CTTTCAACTCTATAGGAGATTAAC CCTCTCAACCTCATGAAAAAGGTGGATGGGAGGGTAG spacer length: 37 repeater length: 24

21033 1087453 CTTTCAACTCTATAGGAGATTAAC CTTCCCTGATGGTTACACCCCTTTGCACCTAGCGGTAGAACT spacer length: 42 repeater length: 24

21034 1087519 CTTTCAACTCTATAGGAGATTAAC ACGGACCAATCTTTTGCCTTGCCTCCTTGTACTGCTCATCTAG spacer length: 43 repeater length: 24

21035 1087586 CTTTCAACTCTATAGGAGATTAAC CCTCAGTGGGACGTTGGCTTTTGATTGGAGAGGTATTC spacer length: 38 repeater length: 24

21036 1087648 CTTTCAACTCTATAGGAGATTAAC ATTTAACATCTTAGGTGTTATCTTAAGATATTCTGGCTT spacer length: 39 repeater length: 24

21037 1087711 CTTTCAACTCTATAGGAGATTAAC TTCTAAGACGTGCTCCCTATGTGGGGAAATTCATGAGAG spacer length: 39 repeater length: 24

21038 1087774 CTTTCAACTCTATAGGAGATTAAC CACCTGAAAGGTTACGGCATTACAGGTAGGACGCAATCCTA spacer length: 40 repeater length: 24

21039 1087838 CTTTCAACTCTATAGGAGATTAAC TTATCATGGCGAATATCAGACGTATTAGGTCATCTCATCT spacer length: 39 repeater length: 24

21040 1087901 CTTTCAACTCTATAGGAGATTAAC CGCTCCATAATGATATAGTCATGATACAAGGATGGCGTTA spacer length: 40 repeater length: 24

21041 1087965 CTTTCAACTCTATAGGAGATTAAC AAGCAGGAAGTCTTTACAAAATCAAATGGCTAATACATA spacer length: 40 repeater length: 24

21042 1088029 CTTTCAACTCTATAGGAGATTAAC TTTTTCTCTTCTCTTTCTCATACGATAAAATACGTAAAGT spacer length: 40 repeater length: 24

21043 1088093 CTTTCAACTCTATAGGAGATTAAC TTGCTTCTGGAAAGCGGCGCAAGAGAAATTGAGGTTTTAA spacer length: 40 repeater length: 24

21044 1088157 CTTTCAACTCTATAGGAGATTAAC TACAGATAAGGAAATTCAAAACCTACAGCCAACAGAGAAAT spacer length: 41 repeater length: 24

21045 1088222 CTTTCAACTCTATAGGAGATTAAC TTGTCTTTTGATTTTCTACTCAACAATTTTGAGTAGAAAA spacer length: 40 repeater length: 24

21046 1088286 CTTTCAACTCTATAGGAGATTAAC CGTACGAGGCTATCACATGCCTGGGCAAAGGCGTGTGTTC spacer length: 40 repeater length: 24

21047 1088350 CTTTCAACTCTATAGGAGATTAAC CTTGACGTGGAAGACAAGGCATTATTCACGAAATGGAT spacer length: 38 repeater length: 24

21048 1088412 CTTTCAACTCTATAGGAGATTAAC GGAACAAAGTGCTACAGCCTTATTGCTAAGGCAAAACGAAGC spacer length: 42 repeater length: 24

21049 1088478 CTTTCAACTCTATAGGAGATTAAC CATCGGGCGCCGGAATGGTTCTAAGCCGTAACGCTTAAA spacer length: 40 repeater length: 24

21050 1088542 CTTTCAACTCTATAGGAGATTAAC ATTCCCAGGGCATTATCTACAGAAAATGGCAGAAATATAA spacer length: 40 repeater length: 24

21051 1088606 CTTTCAACTCTATAGGAGATTAAC CAAATCGCCCCCGTTTCGCCCCCGCTTCTCTTTCTTTTCACC spacer length: 44 repeater length: 24

21052 1088674 CTTTCAACTCTATAGGAGATTAAC ATTGATATTAACGTTAAACCCACGCCCCCAGTGAAGTT spacer length: 39 repeater length: 24

21053 1088737 CTTTCAACTCTATAGGAGATTAAC AACGCAGAAAGATGCGTGAGAGAAGCAATGGCGTATCTAGT spacer length: 41 repeater length: 24

21054 1088802 CTTTCAACTCTATAGGAGATTAAC CCCCCGCTTAGTTTCTGCCACGCATACCTCTGTTCTGCC spacer length: 39 repeater length: 24

21055 1088865 CTTTCAACTCTATAGGAGATTAAC TCTGGAACCTTAGTACTTCCATGTTAACCACCTGTGTAT spacer length: 39 repeater length: 24

21056 1088928 CTTTCAACTCTATAGGAGATTAAC TTCACTCTCCCAGTAGACGTTTACAGCGTTCAAGATCGTT spacer length: 39 repeater length: 24

21057 1088991 CTTTCAACTCTATAGGAGATTAAC ATATGGGATGTTCTATTTAATAAACAAGGAAAAAGAAGG spacer length: 41 repeater length: 24

21058 1089056 CTTTCAACTCTATAGGAGATTAAC TCTCACTTATGACTAAAGGTTCTTTGTTCTCAACTTCTTT spacer length: 40 repeater length: 24

21059 1089120 CTTTCAACTCTATAGGAGATTAAC AGCCACAACCGACGACGGAACTTACTATTTTGTGTA spacer length: 37 repeater length: 24

21060 1089181 CTTTCAACTCTATAGGAGATTAAC GCACCCACCAAGTCATGGTAGTGGTAGCTAACAGTAG spacer length: 40 repeater length: 24

21061 1089245 CTTTCAACTCTATAGGAGATTAAC AAGCTAGTTACATGAATCGTCACATTAAATGTGTTACTTGA spacer length: 41 repeater length: 24

21062	1089310	CTTTCAACTCTATAGGAGATTAAC	CAGTCCGTAATTACCCTATTGCTAACTAATTTTCATAGGAATAG spacer
	length:	43	repeater length: 24
21063	1089377	CTTTCAACTCTATAGGAGATTAAC	AGTTAGGTTTTCTACTATCATTATCATTATTGAATCAGCG spacer
	length:	40	repeater length: 24
21064	1089441	CTTTCAACTCTATAGGAGATTAAC	TAGTATGGTGCGCCAGCCTCCGTGCTGACGACATCATA spacer
	length:	39	repeater length: 24
21065	1089504	CTTTCAACTCTATAGGAGATTAAC	ACTGTCTCTATCGGTATCCAAAAATGTAAAAAATTCTCATT spacer
	length:	41	repeater length: 24
21066	1089569	CTTTCAACTCTATAGGAGATTAAC	ACCAATTGACGGCCACGGATGGAAGTCCGACAGTGA spacer length:
	36	repeater length:	24
21067	1089629	CTTTCAACTCTATAGGAGATTAAC	ATTGCCAGCATACGCTAGATCAAAGCTAAAAGATGAGTA spacer
	length:	39	repeater length: 24
21068	1089692	CTTTCAACTCTATAGGAGATTAAC	TGAATCCTAAAGCGTCAAGAATTACCTTCCATTTCGTCAT spacer
	length:	39	repeater length: 24
21069	1089755	CTTTCAACTCTATAGGAGATTAAC	ATCAAGCGATTGCATTTGTTCTCAAGCAGAGGTTACAGGA spacer
	length:	40	repeater length: 24
21070	1089819	CTTTCAACTCTATAGGAGATTAAC	ATGAGAAGTAAAGAAGAATTGAATGAAGCGTTGGAGCAAA spacer
	length:	40	repeater length: 24
21071	1089883	CTTTCAACTCTATAGGAGATTAAC	ATGGGAATACGTTTACCAATTACTGATGCTGATGGGAAGGCCAAC
	spacer length:	45	repeater length: 24
21072	1089952	CTTTCAACTCTATAGGAGATTAAC	AGATTGGGAAAGGTGGTTCAAAGGTACAGACAATAACAT spacer
	length:	39	repeater length: 24
21073	1090015	CTTTCAACTCTATAGGAGATTAAC	ATCATAACTGACGTTGACACCTGCCATAGTTGTTCTGATGG spacer
	length:	41	repeater length: 24
21074	1090080	CTTTCAACTCTATAGGAGATTAAC	GCAAATGCCTTCAAAAACACTTCAAGCGCTAATGTTAGGG spacer
	length:	41	repeater length: 24
21075	1090145	CTTTCAACTCTATAGGAGATTAAC	GAGAGAGAAAGATTTATATACTTGACATGACATATGTATAAA spacer
	length:	42	repeater length: 24
21076	1090211	CTTTCAACTCTATAGGAGATTAAC	CTATTAACATCATAAACAATTTCGCCACACTAACAGGA spacer
	length:	38	repeater length: 24
21077	1090273	CTTTCAACTCTATAGGAGATTAAC	ACGCAATGGATTATCTGGAAGAGATGCTGGGCAATAAG spacer
	length:	38	repeater length: 24
21078	1090335	CTTTCAACTCTATAGGAGATTAAC	CACGATAAATTATTGGATGAAAACATCTTTTAACTTGTCGC spacer
	length:	41	repeater length: 24
21079	1090400	CTTTCAACTCTATAGGAGATTAAC	TGAAAATATTTTACGCGTTATACTTTTGCTTAATGTACTCTTT spacer
	length:	42	repeater length: 24
21080	1090466	CTTTCAACTCTATAGGAGATTAAC	AGGCGGAAGCTAAGTATTTGTTAGAAATAGAGAAATATACA spacer
	length:	41	repeater length: 24
21081	1090531	CTTTCAACTCTATAGGAGATTAAC	TGTTGATCGGAGACATTATTTAGGTCTTTAATCCCAAATC spacer
	length:	40	repeater length: 24
21082	1090595	CTTTCAACTCTATAGGAGATTAAC	CGATTTACTGGGACTGTGATACCCAACAGCATAGACATCAGTT spacer
	length:	43	repeater length: 24
21083	1090662	CTTTCAACTCTATAGGAGATTAAC	TAGGATTTTTTTTCTTAGATGATAGATTAATTGGAAATTCCT spacer
	length:	42	repeater length: 24
21084	1090728	CTTTCAACTCTATAGGAGATTAAC	GAAGTGTTTCGCGCCTCTGCTAGAACAAATACGGAATGAAAGTGCC spacer
	length:	44	repeater length: 24
21085	1090796	CTTTCAACTCTATAGGAGATTAAC	ACACGTGGTGATTGATCCATTCCAATAAGGCAAATCATTC spacer
	length:	41	repeater length: 24
21086	1090861	CTTTCAACTCTATAGGAGATTAAC	AAGTTATTCGCGCCTTTGCGCCTTCTTTTTTTGCTTAAACA spacer
	length:	41	repeater length: 24
21087	1090926	CTTTCAACTCTATAGGAGATTAAC	AAATAATTAGTTAGTAGGAGGATAGTTTTGAAAACCTTTTGTAGAG
	spacer length:	45	repeater length: 24
21088	1090995	CTTTCAACTCTATAGGAGATTAAC	GTTTGTTTTTAGCGCAATATTTAGATCAACAGAAGAAGAAGA spacer
	length:	41	repeater length: 24
21089	1091060	CTTTCAACTCTATAGGAGATTAAC	ACCCAAAAACGTAGTGGGGAAAATATAATCTTCATTATTT spacer
	length:	40	repeater length: 24
21090	1091124	CTTTCAACTCTATAGGAGATTAAC	TAGCCCCAGTCGGTTTAGGCGGAAAATTCAACATTAAATT spacer
	length:	40	repeater length: 24
21091	1091188	CTTTCAACTCTATAGGAGATTAAC	TGACGGTTTGACAGAGGTCTATGTGTTACATACAGTAA spacer
	length:	39	repeater length: 24
21092	1091251	CTTTCAACTCTATAGGAGATTAAC	TGAGAAGAGAGAACTATATTTTAGTGAAAAAATGTCAGC spacer
	length:	40	repeater length: 24
21093	1091315	CTTTCAACTCTATAGGAGATTAAC	ACTATCCATCTTCCACAATTTATATTATCCATATTTTCATTA spacer
	length:	42	repeater length: 24
21094	1091381	CTTTCAACTCTATAGGAGATTAAC	AGAATTTATAAGCCAAATTCTTGATAGTTTCTAACAAACG spacer
	length:	40	repeater length: 24
21095	1091445	CTTTCAACTCTATAGGAGATTAAC	AATATTTGTAAATTTTCATCAAACATTTTCCTAACTTTATC spacer
	length:	40	repeater length: 24
21096	1091509	CTTTCAACTCTATAGGAGATTAAC	AAAGAAGAGAATACAAGCTGTATTTTGTGAGGTTTAGCA spacer
	length:	39	repeater length: 24
21097	1091572	CTTTCAACTCTATAGGAGATTAAC	ATTTGGCAAAATCCTAGCCAGAAGATAGGGGGCGACAAC spacer

length: 39 repeater length: 24
21098 1091635 CTTTCAACTCTATAGGAGATTAAC CAGTGAAAAAGAAATTACTTAATGTAGTCGAAAAGTG spacer
length: 37 repeater length: 24
21099 1091696 CTTTCAACTCTATAGGAGATTAAC ATATGATGGAGAACTCAAGTATATATTTTCACTTCAGATAA spacer
length: 42 repeater length: 24
21100 1091762 CTTTCAACTCTATAGGAGATTAAC AATCCAGAACACTACGCTTTACCAATACATGAAAAGTAT spacer
length: 39 repeater length: 24
21101 1091825 CTTTCAACTCTATAGGAGATTAAC TATAGAAAGCTGTTGGACGAAGCGGTCTCTCCTGAAGAG spacer
length: 39 repeater length: 24
21102 1091888 CTTTCAACTCTATAGGAGATTAAC AAAGAAGATC
21103
21104
21105 crispr 2
21106 1097328 CTTAATCTCCTATAGAGTTGAAAG AAGGCGAAATGCAGAAGATGTAGTAGCAAAGACAGCTGTGA spacer
length: 41 repeater length: 24
21107 1097393 CTTAATCTCCTATAGAGTTGAAAG CAACTCTCATGATTATAATCCCTCCATTTTAAAATGTATT spacer
length: 40 repeater length: 24
21108 1097457 CTTAATCTCCTATAGAGTTGAAAG AAGTTTACTTCAGTTAATGAGCAAGTCAGCGCAGTGCTAA spacer
length: 40 repeater length: 24
21109 1097521 CTTAATCTCCTATAGAGTTGAAAG TTATATTTACGGGTAAGACGGCGTTAACGAAGCGTTAGG spacer
length: 39 repeater length: 24
21110 1097584 CTTAATCTCCTATAGAGTTGAAAG AGTTTAAACGTTACAACCTCTCGTTTCCAAACACCTCGTTTGT spacer
length: 42 repeater length: 24
21111 1097650 CTTAATCTCCTATAGAGTTGAAAG AAAACGAGACCTTTGGCTAAATAAACCGCACCATAGATAT spacer
length: 40 repeater length: 24
21112 1097714 CTTAATCTCCTATAGAGTTGAAAG CTATGAAATTGTGCGATTTCGTATGCAAAATATTTCTGGATCT spacer
length: 42 repeater length: 24
21113 1097780 CTTAATCTCCTATAGAGTTGAAAG TACATATCCTTCAATTGTGATCTAGCGTATGCTGGTAGT spacer
length: 39 repeater length: 24
21114 1097843 CTTAATCTCCTATAGAGTTGAAAG ATTTGGATTTTGATAATTTTCTTTTCTTTGTCATAATAAT spacer
length: 40 repeater length: 24
21115 1097907 CTTAATCTCCTATAGAGTTGAAAG TATAGTTAAGTCATTTTTTCTTCTTGTGGTGGTATTACCTAT spacer
length: 42 repeater length: 24
21116 1097973 CTTAATCTCCTATAGAGTTGAAAG TACCAATTTCTGCTAATAACGTGAACGTACTCTCGCTGAG spacer
length: 40 repeater length: 24
21117 1098037 CTTAATCTCCTATAGAGTTGAAAG TAACTTATCCCCTACATGATTGCGAAAAACAACAAT spacer
length: 37 repeater length: 24
21118 1098098 CTTAATCTCCTATAGAGTTGAAAG TGTTTTTAAGGACCTGGAGGCAGTCCGCCATTTACCCAC spacer
length: 40 repeater length: 24
21119 1098162 CTTAATCTCCTATAGAGTTGAAAG TGAGAACAGCTGTCTTCACTGCTGACCATCGAGCGACCT spacer
length: 39 repeater length: 24
21120 1098225 CTTAATCTCCTATAGAGTTGAAAG TTTTCTTTCTCATACTACTCTTATTAGTTTACTAACA spacer
length: 40 repeater length: 24
21121 1098289 CTTAATCTCCTATAGAGTTGAAAG CTTCTTGTTCTTCTCTCTGCTTTACGCCTTCTTGTTCTTCC spacer
length: 41 repeater length: 24
21122 1098354 CTTAATCTCCTATAGAGTTGAAAG TCTGTACGTGGGTCAATAAATGTCACAATCGCGTACTTCTT spacer
length: 41 repeater length: 24
21123 1098419 CTTAATCTCCTATAGAGTTGAAAG ATAATAATCAACGAGGCAAACTCCATGTTCTACAAACCA spacer
length: 39 repeater length: 24
21124 1098482 CTTAATCTCCTATAGAGTTGAAAG ACTAGGCAAACGATACTGAGACACAGCGGACTGCAG spacer
length: 37 repeater length: 24
21125 1098543 CTTAATCTCCTATAGAGTTGAAAG TTGGAAACACTCCGTATCAATCCTTTAGACTGCAACTCCTCA spacer
length: 42 repeater length: 24
21126 1098609 CTTAATCTCCTATAGAGTTGAAAG AACATTAGTGTAAGCCTGCAGCGTTTGCTGGAAGCACGG spacer
length: 40 repeater length: 24
21127 1098673 CTTAATCTCCTATAGAGTTGAAAG TCTCGTCCTTAAATTTCAAACTTCCATGTAGCTCGCCCCCTCT spacer
length: 44 repeater length: 24
21128 1098741 CTTAATCTCCTATAGAGTTGAAAG CTTATGTACACACCACCTGAGCTAAGGAGTGTCTTAATCT spacer
length: 40 repeater length: 24
21129 1098805 CTTAATCTCCTATAGAGTTGAAAG AAATGGGACGATGAGGGTGTTCACAGATACAACACCACAG spacer
length: 41 repeater length: 24
21130 1098870 CTTAATCTCCTATAGAGTTGAAAG ATTATATATAATATATGAATAATAGCCCCGTGCTTCGCGCCTT spacer
length: 44 repeater length: 24
21131 1098938 CTTAATCTCCTATAGAGTTGAAAG TCTTTTGCACATATCCATTCCGACCACATCTCTCGGCTTCGATAC spacer
length: 44 repeater length: 24
21132 1099006 CTTAATCTCCTATAGAGTTGAAAG TTGACGACGTGCTTACTCTTCTTTCCAGTTCTTGTTACTT spacer
length: 40 repeater length: 24
21133 1099070 CTTAATCTCCTATAGAGTTGAAAG TTATCGATAAAATCGTAAACGATTTGTTGCCTTATTACGTGAA spacer
length: 43 repeater length: 24
21134 1099137 CTTAATCTCCTATAGAGTTGAAAG ACACCTCTACTAACTTTACCAAAGCCTATCATAGTCCCAACG spacer
length: 42 repeater length: 24

21135	1099203	CTTAATCTCCTATAGAGTTGAAAG	CCTTTATTCTTGCTATTAGATCGAATAAATCGCTCGCG spacer
		length: 38	repeater length: 24
21136	1099265	CTTAATCTCCTATAGAGTTGAAAG	TAAGTGGACACTATTGATCACCTCAGGGCTAGATATATGCCT spacer
		length: 42	repeater length: 24
21137	1099331	CTTAATCTCCTATAGAGTTGAAAG	TCATTGAAATACTCAGCAACTGTATCCCTTAACTCTTCCTTATTA spacer
		length: 45	repeater length: 24
21138	1099400	CTTAATCTCCTATAGAGTTGAAAG	AGTATACCTGGGAGTGCTGATGTAGATGCGTCACCGACCACGTT spacer
		length: 44	repeater length: 24
21139	1099468	CTTAATCTCCTATAGAGTTGAAAG	ACTACGGGTCTCAAGGTAGTCGGTGTTCTTCTAGTAGCTG spacer
		length: 40	repeater length: 24
21140	1099532	CTTAATCTCCTATAGAGTTGAAAG	ATCGTACTTTGCGCTGTACCTTATGAACAGTGGAATGTCCC spacer
		length: 41	repeater length: 24
21141	1099597	CTTAATCTCCTATAGAGTTGAAAG	GTAAAGGGGTTGTGTTTTACGTTTTGAGTGGTGTTCACGAC spacer
		length: 41	repeater length: 24
21142	1099662	CTTAATCTCCTATAGAGTTGAAAG	CTAAACATATATGAGTTCATTTTTTCCGACTTTCCTAGA spacer
		length: 39	repeater length: 24
21143	1099725	CTTAATCTCCTATAGAGTTGAAAG	TAAAGTGATAGAATAAAAGCTATTATTCCAACATTTTCT spacer
		length: 39	repeater length: 24
21144	1099788	CTTAATCTCCTATAGAGTTGAAAG	CCTTGGCAACTCGGACCCCTCAAGCGTACGGAAGAGATT spacer
		length: 40	repeater length: 24
21145	1099852	CTTAATCTCCTATAGAGTTGAAAG	AAACTCTCGATCAAGACATTTATTGTCTCTTCATCTATCT spacer
		length: 40	repeater length: 24
21146	1099916	CTTAATCTCCTATAGAGTTGAAAG	TCTAAGGAGGATAAAGAGGAAGATTGGGCATTTTGTCTGT spacer
		length: 41	repeater length: 24
21147	1099981	CTTAATCTCCTATAGAGTTGAAAG	TTAGTGTTTACGTATGCTCTTTGTTGAGCTAGTTGTTGAT spacer
		length: 40	repeater length: 24
21148	1100045	CTTAATCTCCTATAGAGTTGAAAG	TTCACGAGGATGATTATAAGCTCAGGGAGAAGATTGT spacer
		length: 37	repeater length: 24
21149	1100106	CTTAATCTCCTATAGAGTTGAAAG	ACGTAACCTGTAGATGTGTAACCAGGCTCAGACGAGAA spacer
		length: 38	repeater length: 24
21150	1100168	CTTAATCTCCTATAGAGTTGAAAG	GAACATCCGCCTTATCGTTATCTTTCTTCTTGAACAGGAAC spacer
		length: 41	repeater length: 24
21151	1100233	CTTAATCTCCTATAGAGTTGAAAG	TCAATTTATCATACCTACCTAGTCTTACTAAAGTACAGT spacer
		length: 39	repeater length: 24
21152	1100296	CTTAATCTCCTATAGAGTTGAAAG	GTTGGACTACCTGAAGTAATCGAGCTCAGTGGAGGCA spacer
		length: 37	repeater length: 24
21153	1100357	CTTAATCTCCTATAGAGTTGAAAG	GTTTTACGTGATACTTTATGATGTCGTTGCATCTATCGA spacer
		length: 40	repeater length: 24
21154	1100421	CTTAATCTCCTATAGAGTTGAAAG	AGGACATAAGGCCTTGGCCATGGTCTCAATATCCCATTCTT spacer
		length: 41	repeater length: 24
21155	1100486	CTTAATCTCCTATAGAGTTGAAAG	GCACTGACGTTTACTATCTGCAGCCCACTTGGTGACTG spacer
		length: 38	repeater length: 24
21156	1100548	CTTAATCTCCTATAGAGTTGAAAG	ACACTGCCTTGATGAGCGGGATGCTTCCAATTCTCCCTCT spacer
		length: 40	repeater length: 24
21157	1100612	CTTAATCTCCTATAGAGTTGAAAG	AGGATTCTTCTAAATGCTGTGACAAATGTTAGAATTAGATA spacer
		length: 41	repeater length: 24
21158	1100677	CTTAATCTCCTATAGAGTTGAAAG	CAACGAAGAAAGAGTCGAGAACTAAGCAGAGTCGAGCACT spacer
		length: 41	repeater length: 24
21159	1100742	CTTAATCTCCTATAGAGTTGAAAG	TATTCGTCGTACGATTCCACTTCAACAGAGTTCACAATAA spacer
		length: 40	repeater length: 24
21160	1100806	CTTAATCTCCTATAGAGTTGAAAG	AGTTGCTCTAGCAGGAGAAGATCCTGCTCTTCGATTTTGAAT spacer
		length: 42	repeater length: 24
21161	1100872	CTTAATCTCCTATAGAGTTGAAAG	AAATTCCTCA
21162			
21163			
21164	crispr 3		
21165	1104342	GTTAATCTTCTATAGAGTTGAAAG	TCTCAATCTGTAGGCCAAGCCACTATTATCATAACTCCAC spacer
		length: 40	repeater length: 24
21166	1104406	GTTAATCTTCTATAGAGTTGAAAG	TGAATGCAAGCCTGTCGTACATTACTATTCTACCTTGTTTG spacer
		length: 41	repeater length: 24
21167	1104471	GTTAATCTTCTATAGAGTTGAAAG	TTTGTCTGTTTCGATTGGAATAATTCAGCGTTACCATAAAC spacer
		length: 42	repeater length: 24
21168	1104537	GTTAATCTTCTATAGAGTTGAAAG	TACCTGTATGACAATTCGCTAAAAATTTAACTATCTAC spacer
		length: 39	repeater length: 24
21169	1104600	GTTAATCTTCTATAGAGTTGAAAG	TCATTTCCATTTCTTTCAATTTATCAACTATTAACCTAA spacer
		length: 39	repeater length: 24
21170	1104663	GTTAATCTTCTATAGAGTTGAAAG	GAGGAAAAGAAGGCTAACGCATTAAAGGCGTGGCATTTAGGG spacer
		length: 42	repeater length: 24
21171	1104729	GTTAATCTTCTATAGAGTTGAAAG	GACCCATATTTAGGAGTTATGTCAGCTATATCCAAGCAT spacer
		length: 39	repeater length: 24
21172	1104792	GTTAATCTTCTATAGAGTTGAAAG	TCTTGATTTCCATGTCTATCCCCTGCGCATATCTCATATCA spacer

length: 41 repeater length: 24

21173 1104857 GTTAATCTTCTATAGAGTTGAAAG CATGAGCTGTCCCTCCGATAAGATCATATTTGATGCAGA spacer
length: 39 repeater length: 24

21174 1104920 GTTAATCTTCTATAGAGTTGAAAG TGAAATAACCGCCGACATCCAACGCTGGAAATTTATATCT spacer
length: 40 repeater length: 24

21175 1104984 GTTAATCTTCTATAGAGTTGAAAG AATCTTAAACCGCAACCTTTTATAAAATCTTCAACTGTAA spacer
length: 40 repeater length: 24

21176 1105048 GTTAATCTTCTATAGAGTTGAAAG CCTATAACCTAATAGCATAATATTTACTATGTCCCTCCAT spacer
length: 40 repeater length: 24

21177 1105112 GTTAATCTTCTATAGAGTTGAAAG TGCTCACCTCTTTCAGTTTCTGCGCTTCTCCCTCACCG spacer
length: 39 repeater length: 24

21178 1105175 GTTAATCTTCTATAGAGTTGAAAG TTGATATTTGAGTGCCTGCGCAAATTCCTCAAACAAATCT spacer
length: 40 repeater length: 24

21179 1105239 GTTAATCTTCTATAGAGTTGAAAG TCTTTAGTCGCTATAATGTGCGGTAATGGTTGCTTACCAG spacer
length: 40 repeater length: 24

21180 1105303 GTTAATCTTCTATAGAGTTGAAAG TCTGATTCTGATACCTCCTCTTCGCTCCCTTCTTGTTACCTTCTT
spacer length: 46 repeater length: 24

21181 1105373 GTTAATCTTCTATAGAGTTGAAAG CTTTTTTGCAACCTAGAAAGCCTTGTTGCGAAATATGGC spacer
length: 39 repeater length: 24

21182 1105436 GTTAATCTTCTATAGAGTTGAAAG ATTGCTTCTACTTCTGCTGGCATTMTTTTTTCCACTAAAA spacer
length: 38 repeater length: 24

21183 1105498 GTTAATCTTCTATAGAGTTGAAAG GCAATATTGGATAGGATTCATATCATCCAAGTTGCAATAAA spacer
length: 41 repeater length: 24

21184 1105563 GTTAATCTTCTATAGAGTTGAAAG GCAATCATTGCGAAAATAACGGGGCATAAACGCCTGGAC spacer
length: 39 repeater length: 24

21185 1105626 GTTAATCTTCTATAGAGTTGAAAG TAGGTAGAAGGCAGAAGGAAGTTTGTAGCTTCGATATTGGAA spacer
length: 41 repeater length: 24

21186 1105691 GTTAATCTTCTATAGAGTTGAAAG CGTTTCTCTAATCTCGCCAACCTAGTTGCGAAATATGGCTG spacer
length: 41 repeater length: 24

21187 1105756 GTTAATCTTCTATAGAGTTGAAAG TATATTTTCGTCGCTATATCGCCCAGAAGACGTCTGATAT spacer
length: 39 repeater length: 24

21188 1105819 GTTAATCTTCTATAGAGTTGAAAG GTTCACGAGTAAACTGTATAAGAGTGAGGTAACAAATCT spacer
length: 40 repeater length: 24

21189 1105883 GTTAATCTTCTATAGAGTTGAAAG AAAGTGAAAGTGATGCTGGAGGTGAGGGACAGACTGGGAG spacer
length: 40 repeater length: 24

21190 1105947 GTTAATCTTCTATAGAGTTGAAAG ATTTGGATCTTGAGAATTTTCTTTTCTTTGTCATAATAA spacer
length: 39 repeater length: 24

21191 1106010 GTTAATCTTCTATAGAGTTGAAAG AAGGCGTATAACAAAACGGCGTATGTCATATGTTCTGCTTCTA spacer
length: 43 repeater length: 24

21192 1106077 GTTAATCTTCTATAGAGTTGAAAG AGAGAGGGCTTCACTTACAAGTAAATCAGCACACCTTAT spacer
length: 39 repeater length: 24

21193 1106140 GTTAATCTTCTATAGAGTTGAAAG GAGAAGTACCCGGGCGTATCCAGGCTAAGCCAGTTATCAA spacer
length: 40 repeater length: 24

21194 1106204 GTTAATCTTCTATAGAGTTGAAAG TTTGCCATGGAAGAAGCGAAATGTCAGTGTTGGTAGCTCC spacer
length: 40 repeater length: 24

21195 1106268 GTTAATCTTCTATAGAGTTGAAAG GAATAGTAAGTAAATCATCACCTGCAATTATCGTGTATTTTT spacer
length: 42 repeater length: 24

21196 1106334 GTTAATCTTCTATAGAGTTGAAAG ATATAACGAAAGAGCGTTCACAAAAGCGTTAGTAG spacer length:
35 repeater length: 24

21197 1106393 GTTAATCTTCTATAGAGTTGAAAG ATTGCTATAAACCACATCATGGCTCCTAGCATCAACG spacer
length: 37 repeater length: 24

21198 1106454 GTTAATCTTCTATAGAGTTGAAAG TACAATCTTATCAACTATGTCTTCCAAAAATGGTGGTAGA spacer
length: 40 repeater length: 24

21199 1106518 GTTAATCTTCTATAGAGTTGAAAG CCAAAAATCGAATTCAAGGACCAAAACGTAAAACCACCTGG spacer
length: 41 repeater length: 24

21200 1106583 GTTAATCTTCTATAGAGTTGAAAG TATGATGTTCTCATTGTATTTGTTGAGATCATGTTTAA spacer
length: 38 repeater length: 24

21201 1106645 GTTAATCTTCTATAGAGTTGAAAG GACACGGCTTTGTAAACAGAGAACCCAGGCAGAACAGATA spacer
length: 40 repeater length: 24

21202 1106709 GTTAATCTTCTATAGAGTTGAAAG ATACCGGTGTCCATACAGCCAATACCCCCAACACCGCCAC spacer
length: 40 repeater length: 24

21203 1106773 GTTAATCTTCTATAGAGTTGAAAG TAATTATATAAGCCGAATTGATGTAAATAAGACAAGATGACT spacer
length: 42 repeater length: 24

21204 1106839 GTTAATCTTCTATAGAGTTGAAAG CTTGTTTTTGTCTTTTTTCTTTGTAATCTTCTATTCTTA spacer
length: 39 repeater length: 24

21205 1106902 GTTAATCTTCTATAGAGTTGAAAG TCATGAATCAGTTTGAAAGAAGAGAAGATTGGTTAAATG spacer
length: 39 repeater length: 24

21206 1106965 GTTAATCTTCTATAGAGTTGAAAG GGTTTTGTCTCTTTTTTCTGGCTTTCCCGCCAGAATCTTT spacer
length: 39 repeater length: 24

21207 1107028 GTTAATCTTCTATAGAGTTGAAAG ATTTTCGAATTCAATTCGAATTGTTTCAATTCACCTTCAAAT spacer
length: 41 repeater length: 24

21208	1107093	GTTAATCTTCTATAGAGTTGAAAG	CTTTCTTCTTCTATTCCTTATCTTTTCCTTCTTTTCACTAT	spacer
		length: 41	repeater length: 24	
21209	1107158	GTTAATCTTCTATAGAGTTGAAAG	CTTATTTTCAGAGGATCTAATAGACGAAGGCGGAATCTTTCT	spacer
		length: 41	repeater length: 24	
21210	1107223	GTTAATCTTCTATAGAGTTGAAAG	CTGGCATTACCCAGGCTTGGCGACACACCAGAAGACAGACT	spacer
		length: 41	repeater length: 24	
21211	1107288	GTTAATCTTCTATAGAGTTGAAAG	GTTTTTGTGTGTTTCGAAGAGAATTGGCGGGGCGCTGTAATT	spacer
		length: 41	repeater length: 24	
21212	1107353	GTTAATCTTCTATAGAGTTGAAAG	GTGGGAACAGCGGTGCTATTCATGACCCCTCGCCCAGGT	spacer
		length: 39	repeater length: 24	
21213	1107416	GTTAATCTTCTATAGAGTTGAAAG	AGACTTTATTTCCAGATTTTTCTATATTTATCATTCCGTTTGAT	spacer
		length: 44	repeater length: 24	
21214	1107484	GTTAATCTTCTATAGAGTTGAAAG	GAGCACTCTGGGGGATACCCCCCGACCCCCTACTGCTAA	spacer
		length: 40	repeater length: 24	
21215	1107548	GTTAATCTTCTATAGAGTTGAAAG	TGAGACCGGGACACCGCCGAAATTAAATCCGGCAACGCCA	spacer
		length: 40	repeater length: 24	
21216	1107612	GTTAATCTTCTATAGAGTTGAAAG	TCTTCTTTGTCCATCTGTATATCCCAATCACGCCATCTGT	spacer
		length: 40	repeater length: 24	
21217	1107676	GTTAATCTTCTATAGAGTTGAAAG	ACTACATATGACGCCGTGGATTGCAGATCTGCTATATTCTT	spacer
		length: 41	repeater length: 24	
21218	1107741	GTTAATCTTCTATAGAGTTGAAAG	TCCTCTATCACGTCATCTATAGCCACACACTTTTGAGCGT	spacer
		length: 40	repeater length: 24	
21219	1107805	GTTAATCTTCTATAGAGTTGAAAG	ATGGATAAAGACGAATTGAAAGAAATTATTAAGAATTTA	spacer
		length: 39	repeater length: 24	
21220	1107868	GTTAATCTTCTATAGAGTTGAAAG	TACTTTTAATCCAGCTTGTCATGGATGCAGAATTAGAGAGGC	spacer
		length: 43	repeater length: 24	
21221	1107935	GTTAATCTTCTATAGAGTTGAAAG	CGTGGGGCTCGCTCTAACTTGTAACGACACATGTTCCCTA	spacer
		length: 39	repeater length: 24	
21222	1107998	GTTAATCTTCTATAGAGTTGAAAG	CCTGAGCTAAGGAGTGTCTTAATCTTATCGAAGTCGTCTGGCTT	spacer
		length: 44	repeater length: 24	
21223	1108066	GTTAATCTTCTATAGAGTTGAAAG	CTTCGCCGTATAACGATCCTACAACAATAATCACTGATTTTGA	spacer
		length: 43	repeater length: 24	
21224	1108133	GTTAATCTTCTATAGAGTTGAAAG	GTAATGAAAGTAATGTCTTTTCTCATACGAAAAGACCAA	spacer
		length: 39	repeater length: 24	
21225	1108196	GTTAATCTTCTATAGAGTTGAAAG	AGATGATGCACTGGCAGAGGCGACAAGAGAAAAACCAGGCT	spacer
		length: 41	repeater length: 24	
21226	1108261	GTTAATCTTCTATAGAGTTGAAAG	CAATGAATTCAGAAAACAGCTGTTTCATCCTGGTTCTCAG	spacer
		length: 39	repeater length: 24	
21227	1108324	GTTAATCTTCTATAGAGTTGAAAG	ACAAGGACGTTTTTCGTGATCCAGGTGAGCGAATACACA	spacer
		length: 38	repeater length: 24	
21228	1108386	GTTAATCTTCTATAGAGTTGAAAG	AGCAATAATTTAATTGCACTATTTTTAACTGTGCATGA	spacer
		length: 38	repeater length: 24	
21229	1108448	GTTAATCTTCTATAGAGTTGAAAG	TTCACTGTCTACACATAAGTATAAGGGGCTTCGCCCTT	spacer
		length: 39	repeater length: 24	
21230	1108511	GTTAATCTTCTATAGAGTTGAAAG	CATAATTCGTTTCTGTATTTGGCGTCAAATTTATTTTTAAT	spacer
		length: 41	repeater length: 24	
21231	1108576	GTTAATCTTCTATAGAGTTGAAAG	ATTTGAAATAAGACAAATCAGTGCAGAAGAGGCAAGGAACTAG	spacer
		length: 44	repeater length: 24	
21232	1108644	GTTAATCTTCTATAGAGTTGAAAG	AGATACCATTTTTTCTCTTGTTTAAACGTATCTACGAACCAG	spacer
		length: 42	repeater length: 24	
21233	1108710	GTTAATCTTCTATAGAGTTGAAAG	ACCCCGCCAATCAGTGC GTTGATGTTGCTGGCTTCATATC	spacer
		length: 41	repeater length: 24	
21234	1108775	GTTAATCTTCTATAGAGTTGAAAG	TATATATTATATTATGAATTATACCACACACTTCTTTTTTCGC	spacer
		length: 42	repeater length: 24	
21235	1108841	GTTAATCTTCTATAGAGTTGAAAG	AGAAACGAATTGTTAGTTTACTTATCACGCCTTCATTCCCA	spacer
		length: 41	repeater length: 24	
21236	1108906	GTTAATCTTCTATAGAGTTGAAAG	ATATCCACCCTTCTCACCAAAGAATAATACAAAAATTTAA	spacer
		length: 41	repeater length: 24	
21237	1108971	GTTAATCTTCTATAGAGTTGAAAG	AGGATCGCCG	
21238				
21239				
21240	crispr 4			
21241	1109113	GTTAATCTTCTATAGAGTTGAAAG	ATTATTACTACTATATCATCCGGATTCATTTTCTATCCCG	spacer
		length: 40	repeater length: 24	
21242	1109177	GTTAATCTTCTATAGAGTTGAAAG	CTTATTTCTTCGCGGTTTATAATGGACCCGGAACG	spacer length: 35
		repeater length: 24		
21243	1109236	GTTAATCTTCTATAGAGTTGAAAG	TATCTTCCTGACGTAGATGATGCAGTCCAAACAATAGATAG	spacer
		length: 41	repeater length: 24	
21244	1109301	GTTAATCTTCTATAGAGTTGAAAG	TGTACCAAGCCTGGATGGGTAGACCAGGACCGTGATCAAT	spacer
		length: 40	repeater length: 24	
21245	1109365	GTTAATCTTCTATAGAGTTGAAAG	TCTTTCATTGGGTTCGTATAAAAATCCTTGACCTAAGGA	spacer

length: 39 repeater length: 24

21246 1109428 GTTAATCTTCTATAGAGTTGAAAG CAGACAATACGATCGAGTAGGGGACTGTGTGTAAAAATGAGGG spacer
length: 43 repeater length: 24

21247 1109495 GTTAATCTTCTATAGAGTTGAAAG TGTACACTTCCTTCTTCTTAGGCAAGGTTATTTTAACCTT spacer
length: 40 repeater length: 24

21248 1109559 GTTAATCTTCTATAGAGTTGAAAG GGCGGGTGAAAGAACTACTCGAGAAAGAGAAAAGAAAAA spacer
length: 39 repeater length: 24

21249 1109622 GTTAATCTTCTATAGAGTTGAAAG AGTATCATTCACTGGAAGTTGTACGGTATGAGGAGTCATA spacer
length: 41 repeater length: 24

21250 1109687 GTTAATCTTCTATAGAGTTGAAAG ATTCCACGATTTTAACCTTTACAGATTCCCATATCCTG spacer
length: 39 repeater length: 24

21251 1109750 GTTAATCTTCTATAGAGTTGAAAG CCTAGATCACGGGGCCAATCCAAACGTGAAAGATCTAGAT spacer
length: 40 repeater length: 24

21252 1109814 GTTAATCTTCTATAGAGTTGAAAG TCAAAGGTTGCTGAGGACTGTTATAGGGATGCACTCTCAGT spacer
length: 41 repeater length: 24

21253 1109879 GTTAATCTTCTATAGAGTTGAAAG TTGATCGTTAAAAAGTAACGTAAGACGTTTCACAAGAGA spacer
length: 39 repeater length: 24

21254 1109942 GTTAATCTTCTATAGAGTTGAAAG ATATTGATTATGAAGACTTTAAGAAAGATACCAATTCTAT spacer
length: 40 repeater length: 24

21255 1110006 GTTAATCTTCTATAGAGTTGAAAG TAATTCCTCTTTGATCTCTCTGGATTCTTGTTTTGTTGAAT spacer
length: 41 repeater length: 24

21256 1110071 GTTAATCTTCTATAGAGTTGAAAG TTATTTTCGAGTTTCTCATATATCTCCACGTTATGTCAGA spacer
length: 40 repeater length: 24

21257 1110135 GTTAATCTTCTATAGAGTTGAAAG CTCTCGTTAAGGAACTTACTCAAAGCCCTCAAAGACGAT spacer
length: 39 repeater length: 24

21258 1110198 GTTAATCTTCTATAGAGTTGAAAG TTCAACTCCACGATTGATTTGATAATTATCAAGGCTTTT spacer
length: 39 repeater length: 24

21259 1110261 GTTAATCTTCTATAGAGTTGAAAG AATGAGAGAGTCAGGCCGAGGCCCTCATTACATCTATCATAT spacer
length: 43 repeater length: 24

21260 1110328 GTTAATCTTCTATAGAGTTGAAAG ATAAACCAGCGTTTCCCTACAAGTATGAGGCAAAGAACA spacer
length: 39 repeater length: 24

21261 1110391 GTTAATCTTCTATAGAGTTGAAAG AGGAATGAAGTGAGTTGTCCGGGTGGTACACCAGTCAAGTCAG spacer
length: 43 repeater length: 24

21262 1110458 GTTAATCTTCTATAGAGTTGAAAG GCTTGTTGCTCAGCCATTGCGTAACCTCACCCAC spacer length:
35 repeater length: 24

21263 1110517 GTTAATCTTCTATAGAGTTGAAAG TGGACACGTTGGGAAGGCCTTGCCACGCGGAACCTCAGA spacer
length: 38 repeater length: 24

21264 1110579 GTTAATCTTCTATAGAGTTGAAAG AGAGACTGGACCATAAAAGGAGTTCTTAAAGCGGGTAATAAA spacer
length: 42 repeater length: 24

21265 1110645 GTTAATCTTCTATAGAGTTGAAAG TAAAGATTGACCTTATTACTCTTGACAAATATATCCCG spacer
length: 38 repeater length: 24

21266 1110707 GTTAATCTTCTATAGAGTTGAAAG AACTTTGAAGTCAGAGTTTTCTGCTTCTTTTATTACTTTA spacer
length: 40 repeater length: 24

21267 1110771 GTTAATCTTCTATAGAGTTGAAAG TACATTACCTTGATTATCCATTGTTGCGTTTAGCTGAAG spacer
length: 39 repeater length: 24

21268 1110834 GTTAATCTTCTATAGAGTTGAAAG TATGATTTTCTCGCTATTCACCACCTCCTTGATATACTGTA spacer
length: 41 repeater length: 24

21269 1110899 GTTAATCTTCTATAGAGTTGAAAG TCCATATAGAGATTTCTAATAATCAATTGGGGATAGATAT spacer
length: 40 repeater length: 24

21270 1110963 GTTAATCTTCTATAGAGTTGAAAG ACGTTGAACCAACGTTACCCCCCGCCGTCAAAGACGC spacer
length: 37 repeater length: 24

21271 1111024 GTTAATCTTCTATAGAGTTGAAAG TCCACGGAGGGGTGGAGAATGAACTATTTCGAAGGGAC spacer
length: 38 repeater length: 24

21272 1111086 GTTAATCTTCTATAGAGTTGAAAG ATGAGATCTACCTCGAAAATACGAAGGCAGACGTTGAGG spacer
length: 39 repeater length: 24

21273 1111149 GTTAATCTTCTATAGAGTTGAAAG GAAAATCTCAAAGACTTGTTAATCCCATCAAAAAATGG spacer
length: 39 repeater length: 24

21274 1111212 GTTAATCTTCTATAGAGTTGAAAG ATATCGTTATCCGCGGTCATTCTCACGTGAGTGATTG spacer
length: 37 repeater length: 24

21275 1111273 GTTAATCTTCTATAGAGTTGAAAG ACGGTACGCCGTCGCCGACGCGGGGATACCCTGTATCAG spacer
length: 40 repeater length: 24

21276 1111337 GTTAATCTTCTATAGAGTTGAAAG AATAGTCTGCGTGGAAGTAAGTGACCTTCACGAACCTT spacer
length: 38 repeater length: 24

21277 1111399 GTTAATCTTCTATAGAGTTGAAAG CGTGACCCCGCTCGTGCGGTACGGCATGCTAGGAGGAGG spacer
length: 40 repeater length: 24

21278 1111463 GTTAATCTTCTATAGAGTTGAAAG AAATTTTGTAGAAGAAATATACGAATGTGTAGATAAAAA spacer
length: 38 repeater length: 24

21279 1111525 GTTAATCTTCTATAGAGTTGAAAG TTTCTTTGTTCACGATCACTAACTCTAAGATATAATCGGGG spacer
length: 41 repeater length: 24

21280 1111590 GTTAATCTTCTATAGAGTTGAAAG CAATAAAATCGTGATCAAAACGTTTTTGAATGAACTCATG spacer
length: 40 repeater length: 24

21281	1111654	GTTAATCTTCTATAGAGTTGAAAG	CTCATCAAGAGGCATTATTTTCTCATCAAAACCGCCAAGAT	spacer
	length:	41	repeater length:	24
21282	1111719	GTTAATCTTCTATAGAGTTGAAAG	AAAAATTATTCTTGTGGATCTGTTGCTGCTATATTGGGTGTA	spacer
	length:	43	repeater length:	24
21283	1111786	GTTAATCTTCTATAGAGTTGAAAG	TTAGTAAGTCCCCTAGGGCATGATCCCAGAAATAACCACCA	spacer
	length:	41	repeater length:	24
21284	1111851	GTTAATCTTCTATAGAGTTGAAAG	GTAGATTATCAATCTTACCCAACGGTCCAAAGGAAGTAAGTAT	spacer
	length:	43	repeater length:	24
21285	1111918	GTTAATCTTCTATAGAGTTGAAAG	TTTATCCTTAGGTATCTCATAGAGACTGGTTTAGCTTCGA	spacer
	length:	40	repeater length:	24
21286	1111982	GTTAATCTTCTATAGAGTTGAAAG	GCTATCAAAAGCTGGAGAGCAAGTAGCGACCTTTCTTTT	spacer
	length:	39	repeater length:	24
21287	1112045	GTTAATCTTCTATAGAGTTGAAAG	TAATCGGTTAAACCGCTTTTGAAAGGAAAATAGAATGAT	spacer
	length:	39	repeater length:	24
21288	1112108	GTTAATCTTCTATAGAGTTGAAAG	ATCCAAATCATTAGAATTAACGATAATTTTCGGTAAGGAT	spacer
	length:	39	repeater length:	24
21289	1112171	GTTAATCTTCTATAGAGTTGAAAG	TACTGGAATCCGTATATAATTGATTCAATTTAGTGGAACCA	spacer
	length:	40	repeater length:	24
21290	1112235	GTTAATCTTCTATAGAGTTGAAAG	AACTTCCTACTTAGACCGCAATTAGCGATCTAGGAATCGA	spacer
	length:	41	repeater length:	24
21291	1112300	GTTAATCTTCTATAGAGTTGAAAG	AGTCTAACCCCTTCTGTCCCTGATATTTTCTCTATA	spacer
	length:	38	repeater length:	24
21292	1112362	GTTAATCTTCTATAGAGTTGAAAG	TTCTCAATTAGTCCACCCCAAGGTATCGTGAGAACCATAGTCG	spacer
	length:	43	repeater length:	24
21293	1112429	GTTAATCTTCTATAGAGTTGAAAG	AAAATTCGACGAGAAAATACAGAGAATCGCGAAGGCA	spacer
	length:	37	repeater length:	24
21294	1112490	GTTAATCTTCTATAGAGTTGAAAG	CTCCGCGAATTCTCTAAGTTTCGGAATAGCGTTGCCCTGA	spacer
	length:	40	repeater length:	24
21295	1112554	GTTAATCTTCTATAGAGTTGAAAG	ACAAGCCAAATGATGAAGTTACTACTACTAATACTACTACTAA	spacer
	length:	43	repeater length:	24
21296	1112621	GTTAATCTTCTATAGAGTTGAAAG	TTGCCATCGCCTCAACTACTGCCAGACCAAATGTCTCAC	spacer
	length:	39	repeater length:	24
21297	1112684	GTTAATCTTCTATAGAGTTGAAAG	TTCAGCTTAAGGATGACACTCTTGATATGTTGAGTCTTTCC	spacer
	length:	41	repeater length:	24
21298	1112749	GTTAATCTTCTATAGAGTTGAAAG	GTAGGTGTGAAAATCACTATAGTCATCATACAGCCTCAT	spacer
	length:	39	repeater length:	24
21299	1112812	GTTAATCTTCTATAGAGTTGAAAG	TGCTTTGTACGTAAAATGACGTGCTTCTCCTTATACCAA	spacer
	length:	39	repeater length:	24
21300	1112875	GTTAATCTTCTATAGAGTTGAAAG	TGCACCAGTCCCTAGTGTA AACCTTCCAATATTGACGTCT	spacer
	length:	41	repeater length:	24
21301	1112940	GTTAATCTTCTATAGAGTTGAAAG	CTTCATATCTTCAGCTTCAGGGTACCAGAGACGAATCTCACC	spacer
	length:	42	repeater length:	24
21302	1113006	GTTAATCTTCTATAGAGTTGAAAG	AGTAAAATAGGTCCTGCATTTGTACTAGGCGTTACGAATAAT	spacer
	length:	42	repeater length:	24
21303	1113072	GTTAATCTTCTATAGAGTTGAAAG	AGTATCGCAGCGGGCGGGGATGTCGCCGAAAAATCTACG	spacer
	length:	39	repeater length:	24
21304	1113135	GTTAATCTTCTATAGAGTTGAAAG	GTAATATCGGTCAATCCCACGAATGTGGACGTATACA	spacer
	length:	37	repeater length:	24
21305	1113196	GTTAATCTTCTATAGAGTTGAAAG	CGATGAACTGAAGGCAACGCCAAAACAAGTTCAGGAAAAA	spacer
	length:	42	repeater length:	24
21306	1113262	GTTAATCTTCTATAGAGTTGAAAG	AGAGAGTCTAGGAGCAGGGATACAGAATGCTATAGGATCC	spacer
	length:	40	repeater length:	24
21307	1113326	GTTAATCTTCTATAGAGTTGAAAG	TATTGCGGACAAAGTTCAAAGTCATATATTTCTTTGCCCCC	spacer
	length:	41	repeater length:	24
21308	1113391	GTTAATCTTCTATAGAGTTGAAAG	ATTCACCCAGGGACGTTAATGCCGAATTCTATGAGGACAG	spacer
	length:	40	repeater length:	24
21309	1113455	GTTAATCTTCTATAGAGTTGAAAG	TTCTATAGTCAGGGGCATTTGGATTTACCTTAAGTTTGA	spacer
	length:	39	repeater length:	24
21310	1113518	GTTAATCTTCTATAGAGTTGAAAG	GAATATTGCAATTTCTGGATTATGAACACTGGAAAGTGATAG	spacer
	length:	42	repeater length:	24
21311	1113584	GTTAATCTTCTATAGAGTTGAAAG	TCGAAGTCCCTGTACCACCTCCACCCGTGCTAGTTCCT	spacer
	length:	38	repeater length:	24
21312	1113646	GTTAATCTTCTATAGAGTTGAAAG	CCCTGATCATCTTTAGCACTCATATGTTATCATGATA	spacer
	length:	37	repeater length:	24
21313	1113707	GTTAATCTTCTATAGAGTTGAAAG	ATCCAAGAACTCAATCAACTCCAGCGTATTTTCCCCAAA	spacer
	length:	39	repeater length:	24
21314	1113770	GTTAATCTTCTATAGAGTTGAAAG	ATCTTCCTCACCTTATGTCCCAATGCCCCGAATTAGACC	spacer
	length:	40	repeater length:	24
21315	1113834	GTTAATCTTCTATAGAGTTGAAAG	GTAGCGTTTGAGGAACTAACCAATGCGACGATACAAGTA	spacer
	length:	39	repeater length:	24
21316	1113897	GTTAATCTTCTATAGAGTTGAAAG	GCACAATTGTTGTGCGGTAAAGGAGAATGGAACAAACATAG	spacer

length: 40 repeater length: 24
21317 1113961 GTTAATCTTCTATAGAGTTGAAAG GCACCTCCGCCTCCCCACCTCCACCTGCTCCGATTGCT spacer
length: 39 repeater length: 24
21318 1114024 GTTAATCTTCTATAGAGTTGAAAG TAATTTTCTCGGTTACGGTACTGCCACTACTGGCAAT spacer
length: 37 repeater length: 24
21319 1114085 GTTAATCTTCTATAGAGTTGAAAG TAAGGATGAACCTAATTGCTCAAGGAGAATAAGATCCTGC spacer
length: 40 repeater length: 24
21320 1114149 GTTAATCTTCTATAGAGTTGAAAG GATAATGTAGCGTATATCCTCAAGCAGTTCTATAACAGAA spacer
length: 40 repeater length: 24
21321 1114213 GTTAATCTTCTATAGAGTTGAAAG ATTATACTACTGTTATGTACTGTACTGTATATATTCCTTA spacer
length: 40 repeater length: 24
21322 1114277 GTTAATCTTCTATAGAGTTGAAAG ATCTTTTCCACTGTATATTGACCATATCTTCTATCTAGA spacer
length: 39 repeater length: 24
21323 1114340 GTTAATCTTCTATAGAGTTGAAAG TAAAGGAATGAGCTCTTGAATGACAAAACCCTTCGTTATACG spacer
length: 42 repeater length: 24
21324 1114406 GTTAATCTTCTATAGAGTTGAAAG TCACTTTGCTCTTTATCGCATCTCCGACGTCGTTGAGAA spacer
length: 39 repeater length: 24
21325 1114469 GTTAATCTTCTATAGAGTTGAAAG CCTTATGTAACCTTGATCCATCTTCTGCACAACCTAGATCCT spacer
length: 41 repeater length: 24
21326 1114534 GTTAATCTTCTATAGAGTTGAAAG CTCATGGTTCCCTGTCTCTCCTAGATGCATTAGACCAGACCT spacer
length: 43 repeater length: 24
21327 1114601 GTTAATCTTCTATAGAGTTGAAAG TATCATAAGAACATAGTAGAGAAGGCTCAGGATTACGCA spacer
length: 39 repeater length: 24
21328 1114664 GTTAATCTTCTATAGAGTTGAAAG GGAGCTGTCTG
21329
21330
21331 crispr 5
21332 1136109 GTTTCAAACCCTCGAAGGATCTCTACAA
ACGACACGTCTACACCCCCCCCCCGTTCGTGAGTGTGGGAAGCGGGGATCCC spacer length: 52 repeater
length: 28
21333 1136189 GTTTCAAACCCTCGAAGGATCTCTACAA ACTGGGGTCCATTGTGATGAAGATTTCGGAGAAATTGAAGA
spacer length: 41 repeater length: 28
21334 1136258 GTTTCAAACCCTCGAAGGATCTCTACAA ACTCCCCTGTTACGACTGAACCAATACTTGATTGCACGT spacer
length: 39 repeater length: 28
21335 1136325 GTTTCAAACCCTCGAAGGATCTCTACAA ACCTCTACACACTAAGAGTAGCTGAGACCATAAAAACCAA spacer
length: 40 repeater length: 28
21336 1136393 GTTTCAAACCCTCGAAGGATCTCTACAA ACACATCATAGCCATGTCACCGAACGGAACCTCTGAGGTACTT
spacer length: 42 repeater length: 28
21337 1136463 GTTTCAAACCCTCGAAGGATCTCTACAA GCATTCAACTAGTGGCGTCTCCTGAAGGGCAACTATT spacer
length: 37 repeater length: 28
21338 1136528 GTTTCAAACCCTCGAAGGATCTCTACAA GAAGGGCTATTCTGCGTACGCTTCCCACCTCTGGAGGCA spacer
length: 39 repeater length: 28
21339 1136595 GTTTCAAACCCTCGAAGGATCTCTACAA GGCCTTGGGA
21340
21341
21342 crispr 6
21343 1137841 TTGTAGTGATCCTTTGAGGGTTTGAAAC AAATAGTACTGACTTGATACGGCTAGGTGATAATAGCGT spacer
length: 39 repeater length: 28
21344 1137908 TTGTAGTGATCCTTTGAGGGTTTGAAAC GCAAAGGCCTTTCCACACTCTCCAAGGGAGTATGAAGT spacer
length: 39 repeater length: 28
21345 1137975 TTGTAGTGATCCTTTGAGGGTTTGAAAC CTTACGTCTTGAAAGTACTCGATTATCAATTTAACAGGT spacer
length: 39 repeater length: 28
21346 1138042 TTGTAGTGATCCTTTGAGGGTTTGAAAC GCGTCAATTCTCTAAAAAGAAAAGGCTAGCGTGAAGGGGAC
spacer length: 41 repeater length: 28
21347 1138111 TTGTAGTGATCCTTTGAGGGTTTGAAAC TAAGTGAACCATGGGTATTCCCCCTCCGGGGGAACCTTCGAC
spacer length: 41 repeater length: 28
21348 1138180 TTGTAGTGATCCTTTGAGGGTTTGAAAC TCGGAAAGAACATATACATCCTCCCCGTGGTTCCCGGGT spacer
length: 39 repeater length: 28
21349 1138247 TTGTAGTGATCCTTTGAGGGTTTGAAAC GTGTTTGTCCCCATCTTTTGATGGGGCAGCTGCTCCTCT spacer
length: 39 repeater length: 28
21350 1138314 TTGTAGTGATCCTTTGAGGGTTTGAAAC TATACTTTGGAAAATCAGTATATCTCTTGTATCTTCTGT spacer
length: 39 repeater length: 28
21351 1138381 TTGTAGTGATCCTTTGAGGGTTTGAAAC TCGATAGCGAACCTGATAACTTCGCTTCTATTAGTCTGT spacer
length: 40 repeater length: 28
21352 1138449 TTGTAGTGATCCTTTGAGGGTTTGAAAC ATAGACGTATCGACCCGCCGTATAGCATCAAGAAGATAGT spacer
length: 40 repeater length: 28
21353 1138517 TTGTAGTGATCCTTTGAGGGTTTGAAAC TACACGACGCGATCACACTCACATGCCCGCGTGTGCGCGTTGT
spacer length: 43 repeater length: 28
21354 1138588 TTGTAGTGATCCTTTGAGGGTTTGAAAC ATAACCTCTATACGCTCTCACACGGCTGAGGTGAGGAGC spacer
length: 39 repeater length: 28
21355 1138655 TTGTAGTGATCCTTTGAGGGTTTGAAAC CCACCTTACCCTCGCCTTACGGCCCTTTTCCTTCCTCAGT

spacer length: 41 repeater length: 28

21356 1138724 TTGTAGTGATCCTTTGAGGGTTTGAAAC GTTCCTGCC

21357

21358

21359 GCA_001266675.1_ASM126667v1_genomic.fna (PilerCR):

21360 START REPEAT

SPACER

21361 crispr 1

21362 1082315 CTTTCAACTCTATAGGAGATTAAC TGATTTTGACACGGCCTATCAAAATGTAATAAAAACGCATA spacer
length: 41 repeater length: 24

21363 1082380 CTTTCAACTCTATAGGAGATTAAC TAATAGGTATAATATTGGGCATTCTCGCCCTAGTTCAATT spacer
length: 40 repeater length: 24

21364 1082444 CTTTCAACTCTATAGGAGATTAAC AGACCCAAAACCTAAAACCTCAAAAAGTCTTTGAGCAATT spacer
length: 40 repeater length: 24

21365 1082508 CTTTCAACTCTATAGGAGATTAAC TTACTTCTAATGATTACAGGGATTTCTCAGAACCCTTCT spacer
length: 39 repeater length: 24

21366 1082571 CTTTCAACTCTATAGGAGATTAAC GCTGAAATTGGCAGAGGTAAGGAAGCTAATCGAGTCGAA spacer
length: 39 repeater length: 24

21367 1082634 CTTTCAACTCTATAGGAGATTAAC GTGAGGATTCACCGAATCCTGCCTTAGACGATACCGAGCAGAAG spacer
length: 44 repeater length: 24

21368 1082702 CTTTCAACTCTATAGGAGATTAAC AGAAGAAAAAGTATACTTGAAAAGAAGATTGAATTTTTAGA spacer
length: 41 repeater length: 24

21369 1082767 CTTTCAACTCTATAGGAGATTAAC ATCAAATGATGCCAAAAAGTGATCTACCTATTCTTTTCAT spacer
length: 40 repeater length: 24

21370 1082831 CTTTCAACTCTATAGGAGATTAAC AACATGATAAGGCTTTACTTAGAAAAGTTAGAGAAAAAATT spacer
length: 40 repeater length: 24

21371 1082895 CTTTCAACTCTATAGGAGATTAAC CGTGATTCATTAAGGTTATCATAATGAATTGGAAAACAGTCT spacer
length: 42 repeater length: 24

21372 1082961 CTTTCAACTCTATAGGAGATTAAC TTCAAAAAATGGTCAAGGTGATAGAGAGTCAGTTATTAG spacer
length: 39 repeater length: 24

21373 1083024 CTTTCAACTCTATAGGAGATTAAC AGTTCTACGGAAAACATCAATCCAGATAGCAATAAAGA spacer
length: 39 repeater length: 24

21374 1083087 CTTTCAACTCTATAGGAGATTAAC ATGCGATTACCACCACGGCTCCGTTTTGCCCGTTTGCTCC spacer
length: 40 repeater length: 24

21375 1083151 CTTTCAACTCTATAGGAGATTAAC CATCGGTGTATTACTACTCACTGTGATTGGTGTATCAAG spacer
length: 39 repeater length: 24

21376 1083214 CTTTCAACTCTATAGGAGATTAAC TCCAGGTACATCGTCAGCGAATGGATCAGGAGGAGCAGG spacer
length: 39 repeater length: 24

21377 1083277 CTTTCAACTCTATAGGAGATTAAC TCCACTCGGTGCCGTGAAAGTTTTGACAAGACTCATGTTTGA spacer
length: 42 repeater length: 24

21378 1083343 CTTTCAACTCTATAGGAGATTAAC TCAATAATTGACGAGCAAGATTTAGTGATTCCAGACGAGG spacer
length: 40 repeater length: 24

21379 1083407 CTTTCAACTCTATAGGAGATTAAC ACAGTTCACAAACGGAATTGTTTGATAACTTCTTGGAAT spacer
length: 39 repeater length: 24

21380 1083470 CTTTCAACTCTATAGGAGATTAAC CTTACTTTCCATGTTTCCTCCATTACAAAGTAAAGTACT spacer
length: 39 repeater length: 24

21381 1083533 CTTTCAACTCTATAGGAGATTAAC CGGTCACTGAAGCCGATCCACCCTTAGTTGAGACCACGAG spacer
length: 40 repeater length: 24

21382 1083597 CTTTCAACTCTATAGGAGATTAAC TAATTGAAGTTACAGTAGAAATACAAAACCAAAAAATGA spacer
length: 39 repeater length: 24

21383 1083660 CTTTCAACTCTATAGGAGATTAAC ATCAAATTACTGGAGAAGAGTGGAAACAAATAATAAGGGAA spacer
length: 41 repeater length: 24

21384 1083725 CTTTCAACTCTATAGGAGATTAAC TTATACGGTTATTGGATGACGCGAGTATATCGTGAAAGTTA spacer
length: 41 repeater length: 24

21385 1083790 CTTTCAACTCTATAGGAGATTAAC AAAGCCTTCGTATCTGATGACGGCTCAGTTCCAATCGTTA spacer
length: 40 repeater length: 24

21386 1083854 CTTTCAACTCTATAGGAGATTAAC ATGAAGATGTGGAGTCAAAGACCGAAAGGCCCTGGGATTA spacer
length: 40 repeater length: 24

21387 1083918 CTTTCAACTCTATAGGAGATTAAC ATATTTTCGTCTTATGTAGTTTGTAAATTGATCTTTTTTTCTTT spacer
length: 43 repeater length: 24

21388 1083985 CTTTCAACTCTATAGGAGATTAAC TTAGGACC GTTGGGTT CACGAGTTACAACGAGATGGTGAAA spacer
length: 41 repeater length: 24

21389 1084050 CTTTCAACTCTATAGGAGATTAAC TTCATGCAGACTACGAAGTCGCTCTAATTTATCTTAATCT spacer
length: 40 repeater length: 24

21390 1084114 CTTTCAACTCTATAGGAGATTAAC GTCATAAACCACTGATCACTAGTAGTATGTTTGAAACTAT spacer
length: 40 repeater length: 24

21391 1084178 CTTTCAACTCTATAGGAGATTAAC TGTTGTGTGAATCTGAACCCGAAGACGAGGACATGTACC spacer
length: 39 repeater length: 24

21392 1084241 CTTTCAACTCTATAGGAGATTAAC CAAGTGTGTTTGTGGGGATAACGAACCTGGGGGAAGGAA spacer
length: 39 repeater length: 24

21393 1084304 CTTTCAACTCTATAGGAGATTAAC TATATGACAAGTTGAGAAGGAATATTCTTCAACGCGGGAA spacer

length: 40 repeater length: 24

21394 1084368 CTTTCAACTCTATAGGAGATTAAC AAGTTAGTGGGGGAAGCCCGTGTAGAGTTCAGATTAGGTAC spacer
length: 41 repeater length: 24

21395 1084433 CTTTCAACTCTATAGGAGATTAAC ATCATCCCCCTCATCAAAACACTCATCAAGATACTCATCACTGTA
spacer length: 45 repeater length: 24

21396 1084502 CTTTCAACTCTATAGGAGATTAAC TCTCGACGCGGAGAGGATAGAGCGGTTGGTCGAGGACGA spacer
length: 39 repeater length: 24

21397 1084565 CTTTCAACTCTATAGGAGATTAAC CGAATTTTTCCCCCGTGAGCGGGGGGTTAGAAAGAGTTTGAC spacer
length: 42 repeater length: 24

21398 1084631 CTTTCAACTCTATAGGAGATTAAC CCCATAGTGGTCCCCTATGAGTTTGAGGATACAACCTTCATTAA spacer
length: 43 repeater length: 24

21399 1084698 CTTTCAACTCTATAGGAGATTAAC CGGGGTCCAAAGGTTCCCTGAATGTAAATATATTATTAC spacer
length: 39 repeater length: 24

21400 1084761 CTTTCAACTCTATAGGAGATTAAC CATATGACGCTCTCAAGGTAGTCACTCAAGATATCTTAGC spacer
length: 40 repeater length: 24

21401 1084825 CTTTCAACTCTATAGGAGATTAAC TTACGATCAGCCTTTTCGTTGCAGGTCTAATTCTCAGA spacer
length: 38 repeater length: 24

21402 1084887 CTTTCAACTCTATAGGAGATTAAC CCAACTGTCCAGCCTGCCCTGCTGGACTAGGGTTTTTCGAAC spacer
length: 41 repeater length: 24

21403 1084952 CTTTCAACTCTATAGGAGATTAAC CTCGTTAAGATATGCATTGATCACTTACGCTTCCAAAAA spacer
length: 39 repeater length: 24

21404 1085015 CTTTCAACTCTATAGGAGATTAAC TCTTTTTTTTGCGGTTATACAATTAAACGTTTCGTGAAT spacer
length: 38 repeater length: 24

21405 1085077 CTTTCAACTCTATAGGAGATTAAC ACGTCCTTCTCCGTGATGTAGAGCGTACTGCCTGAAGTCCCTGT spacer
length: 44 repeater length: 24

21406 1085145 CTTTCAACTCTATAGGAGATTAAC AAAGGACCATAATACATCACAACCTAGTCTGCTTGCAAACCTGA spacer
length: 43 repeater length: 24

21407 1085212 CTTTCAACTCTATAGGAGATTAAC ATAACCGGAACGAACTAGAGGAATACTGTGAACCGGTAA spacer
length: 40 repeater length: 24

21408 1085276 CTTTCAACTCTATAGGAGATTAAC CAATGAGTGTGGTCTCATCCTTGAGGGTCCTGATGGAGT spacer
length: 40 repeater length: 24

21409 1085340 CTTTCAACTCTATAGGAGATTAAC CAATACGACTACGGGTTCGAATCTTGAAAAGTTCGGTG spacer
length: 38 repeater length: 24

21410 1085402 CTTTCAACTCTATAGGAGATTAAC ATGGTCAATTATGTCCTTAATATGATGGTAGAGATATTGA spacer
length: 40 repeater length: 24

21411 1085466 CTTTCAACTCTATAGGAGATTAAC TGGACATGTCTACATCAAAGAAGTCCAAGTACTTTGCCT spacer
length: 39 repeater length: 24

21412 1085529 CTTTCAACTCTATAGGAGATTAAC TACCTGAAGTTCTCCCACTCTAGCAGGGAGCTGCTGTCCTACT spacer
length: 43 repeater length: 24

21413 1085596 CTTTCAACTCTATAGGAGATTAAC GGCGTAAAAAATGCAATAGGAGGAGTAGGAAGCTTCTTTTC spacer
length: 41 repeater length: 24

21414 1085661 CTTTCAACTCTATAGGAGATTAAC TTACTATTTCTTAAGGAACGACGTAAGAGAAAGTAGTAAT spacer
length: 40 repeater length: 24

21415 1085725 CTTTCAACTCTATAGGAGATTAAC GGAATAAAGGACAAGGGATTCTTCATCAGTTTGGA spacer length:
36 repeater length: 24

21416 1085785 CTTTCAACTCTATAGGAGATTAAC ACAAGGAGTAGCTCTTACTGGTAATGAGGGTATAATAAGAAA spacer
length: 42 repeater length: 24

21417 1085851 CTTTCAACTCTATAGGAGATTAAC CGCTCTGGACCTCCTTCTTGACGTAGTCATTTCTCTTTAGTT spacer
length: 42 repeater length: 24

21418 1085917 CTTTCAACTCTATAGGAGATTAAC AGACAAGTCCAGAGGGTTAGGGAGGAGAGGAGGTCCAGTCTT spacer
length: 42 repeater length: 24

21419 1085983 CTTTCAACTCTATAGGAGATTAAC ACTTTAGCTTTCATGACTTACACAACCTTCATATCCACCT spacer
length: 39 repeater length: 24

21420 1086046 CTTTCAACTCTATAGGAGATTAAC TGAATAAACCAACTCTCCTTCATAGTTTAAATTAATTACAT spacer
length: 41 repeater length: 24

21421 1086111 CTTTCAACTCTATAGGAGATTAAC AAGAGAATAAGGGTAGTATATAACCCTGCAATCACCTTAA spacer
length: 40 repeater length: 24

21422 1086175 CTTTCAACTCTATAGGAGATTAAC CAGCTTGTGGTATTCCCTCCTAATATTACTGCATTGACCC spacer
length: 39 repeater length: 24

21423 1086238 CTTTCAACTCTATAGGAGATTAAC TTAAAGATAATTGGAAAAGAACAATTAATAAGAACATTA spacer
length: 40 repeater length: 24

21424 1086302 CTTTCAACTCTATAGGAGATTAAC ATGGGGGTTCAAAGGGGTGAAATACCCCTTCCGTCAAGGA spacer
length: 41 repeater length: 24

21425 1086367 CTTTCAACTCTATAGGAGATTAAC TGCATACAGTCTTTTGCAACACTTATTATTCTGTCATATT spacer
length: 40 repeater length: 24

21426 1086431 CTTTCAACTCTATAGGAGATTAAC CTTTCGTATATCTACCATGAATAAGTCTTGAATGTAAA spacer
length: 38 repeater length: 24

21427 1086493 CTTTCAACTCTATAGGAGATTAAC TTATATTTAGTTAGAATTTTTCTCAAAAAATCATCTCGATCT spacer
length: 42 repeater length: 24

21428 1086559 CTTTCAACTCTATAGGAGATTAAC CTAACCGTATTGAGTCCGTGGGTGCGACCGGCCACAGTA spacer
length: 40 repeater length: 24

21429	1086623	CTTTCAACTCTATAGGAGATTAAC	AGTCTGCTGGCTTTAATCTTCATGTAGTTGCCAGTAGGTTTC	spacer
	length:	41	repeater length:	24
21430	1086688	CTTTCAACTCTATAGGAGATTAAC	TTTTGCTTTTTCCTTTCTCAAATTTTCTTCTCCATGATTCA	spacer
	length:	40	repeater length:	24
21431	1086752	CTTTCAACTCTATAGGAGATTAAC	CGGTCTGAGTCTCTGGCTGAGACTCTAACTTCTTCTTGAGA	spacer
	length:	41	repeater length:	24
21432	1086817	CTTTCAACTCTATAGGAGATTAAC	ATACCCTAGAGGAAGAAGTTGAGGAGGTCTGGCTCAACTTG	spacer
	length:	42	repeater length:	24
21433	1086883	CTTTCAACTCTATAGGAGATTAAC	ATGAAAACGACCGTGACGTCATTGCAATCATGAATCTCAA	spacer
	length:	40	repeater length:	24
21434	1086947	CTTTCAACTCTATAGGAGATTAAC	ACATGCTAGATTTTGATAAAAATTGAATGCAGAATTTAACCA	spacer
	length:	42	repeater length:	24
21435	1087013	CTTTCAACTCTATAGGAGATTAAC	AACGTGTTGCAGAATCGTACTGGAAAGCGGTCCCTGCATT	spacer
	length:	39	repeater length:	24
21436	1087076	CTTTCAACTCTATAGGAGATTAAC	AGCTTTACGGCAAAGAGAAAGAGTTTGATGAGTTCA	spacer length:
	length:	36	repeater length:	24
21437	1087136	CTTTCAACTCTATAGGAGATTAAC	ACGGACACGACCCAGGGGTGATGGTCGTCCTCCGCTCATGT	spacer
	length:	39	repeater length:	24
21438	1087199	CTTTCAACTCTATAGGAGATTAAC	TCAGAAGAGCCATCGAGAAGATGGTTAAGGAAGAGA	spacer length:
	length:	36	repeater length:	24
21439	1087259	CTTTCAACTCTATAGGAGATTAAC	TCGATCTAATGAAATTGGCTAGGGAGTTCGGTCAGGGGTT	spacer
	length:	40	repeater length:	24
21440	1087323	CTTTCAACTCTATAGGAGATTAAC	GTAAAATAGATGAAATCCATGTCCGCTCCACATTACTAGAA	spacer
	length:	41	repeater length:	24
21441	1087388	CTTTCAACTCTATAGGAGATTAAC	CCTCTCAACCTCATGAAAAAGGTGGATGGGAGGGTAG	spacer
	length:	37	repeater length:	24
21442	1087449	CTTTCAACTCTATAGGAGATTAAC	CTTCCCTGATGGTTACACCCCTTTCACCTAGCGGTAGAACT	spacer
	length:	42	repeater length:	24
21443	1087515	CTTTCAACTCTATAGGAGATTAAC	ACGGACCAATCTTTTGCCTTGCCTCCTTGTACTGCTCATCTAG	spacer
	length:	43	repeater length:	24
21444	1087582	CTTTCAACTCTATAGGAGATTAAC	CCTCAGTGGGACGTTGGCTTTTGATTGGAGAGGTATTC	spacer
	length:	38	repeater length:	24
21445	1087644	CTTTCAACTCTATAGGAGATTAAC	ATTTAACATCTTAGGTGTTATCTTAAGATATTCTGGCTT	spacer
	length:	39	repeater length:	24
21446	1087707	CTTTCAACTCTATAGGAGATTAAC	TTCTAAGACGTGCTCCCTATGTGGGAAATTCATGAGAG	spacer
	length:	39	repeater length:	24
21447	1087770	CTTTCAACTCTATAGGAGATTAAC	CACCTGAAAGGTTACGGCATTACAGGTAGGACGCAATCCTA	spacer
	length:	40	repeater length:	24
21448	1087834	CTTTCAACTCTATAGGAGATTAAC	TTATCATGGCGAATATCAGACGTATTAGGTCACTCATCT	spacer
	length:	39	repeater length:	24
21449	1087897	CTTTCAACTCTATAGGAGATTAAC	CGCTCCATAATGATATAGTCATGATACAAGGATGGCGTTA	spacer
	length:	40	repeater length:	24
21450	1087961	CTTTCAACTCTATAGGAGATTAAC	AAGCAGGAACTGCTTTACAAAATCAAATGGCTAATACATA	spacer
	length:	40	repeater length:	24
21451	1088025	CTTTCAACTCTATAGGAGATTAAC	TTTTTCTCTTCTCTTTCTCATACGATAAAATACGTAAAGT	spacer
	length:	40	repeater length:	24
21452	1088089	CTTTCAACTCTATAGGAGATTAAC	TTGCTTCTGGAAAGCGGCGCAAGAGAAATTGAGGTTTTAA	spacer
	length:	40	repeater length:	24
21453	1088153	CTTTCAACTCTATAGGAGATTAAC	TACAGATAAGGAAATTCAAAACCTACAGCCAACAGAGAAAT	spacer
	length:	41	repeater length:	24
21454	1088218	CTTTCAACTCTATAGGAGATTAAC	TTGTCTTTTGATTTTCTACTCAACAATTTTGAGTAGAAAA	spacer
	length:	40	repeater length:	24
21455	1088282	CTTTCAACTCTATAGGAGATTAAC	CGTACGAGGCTATCACATGCCTGGGCAAAGGCGTGTGTTC	spacer
	length:	40	repeater length:	24
21456	1088346	CTTTCAACTCTATAGGAGATTAAC	CTTGACGTGGAAGACAAGGCATTATTACGAAATGGAT	spacer
	length:	38	repeater length:	24
21457	1088408	CTTTCAACTCTATAGGAGATTAAC	GGAACAAAGTGCTACAGCCTTATTGCTAAGGCAAACGAAGC	spacer
	length:	42	repeater length:	24
21458	1088474	CTTTCAACTCTATAGGAGATTAAC	CATCGGGCGCCGGAATGGTTCTAAGCCGTAACGCTTAAA	spacer
	length:	40	repeater length:	24
21459	1088538	CTTTCAACTCTATAGGAGATTAAC	ATTCCCAGGGCATTATCTACAGAAAATGGCAGAAATATAA	spacer
	length:	40	repeater length:	24
21460	1088602	CTTTCAACTCTATAGGAGATTAAC	CAAATCGCCCCCGTTTCGCCCCCGGTTCTCTTTCTTTTCACC	spacer
	length:	44	repeater length:	24
21461	1088670	CTTTCAACTCTATAGGAGATTAAC	ATTGATATTAACGTTAAACCCACGCCCCCAGTGAAC TT	spacer
	length:	39	repeater length:	24
21462	1088733	CTTTCAACTCTATAGGAGATTAAC	AACGCAGAAAGATGCGTGAGAGAAGCAATGGCGTATCTAGT	spacer
	length:	41	repeater length:	24
21463	1088798	CTTTCAACTCTATAGGAGATTAAC	CCCCCGCTTAGTTTCTGCCACGCATACCTCTGTTCTGCC	spacer
	length:	39	repeater length:	24
21464	1088861	CTTTCAACTCTATAGGAGATTAAC	TCTGGAACCTTAGTACTTCCATGTTAACCACCTGTGTAT	spacer

length: 39 repeater length: 24

21465 1088924 CTTTCAACTCTATAGGAGATTAAC TTCACTCTCCCAGTAGACGTTTCAGACGTTCAAGATCGTT spacer
length: 39 repeater length: 24

21466 1088987 CTTTCAACTCTATAGGAGATTAAC ATATGGGATGTTCTCTATTTAATAAACAAGGAAAAAGAAGG spacer
length: 41 repeater length: 24

21467 1089052 CTTTCAACTCTATAGGAGATTAAC TCTCACTTATGACTAAAGGTTCTTTGTTCTCAACTTCTTT spacer
length: 40 repeater length: 24

21468 1089116 CTTTCAACTCTATAGGAGATTAAC AGCCACAACCGACGACGGAACTTACTATTTTGTGTA spacer
length: 37 repeater length: 24

21469 1089177 CTTTCAACTCTATAGGAGATTAAC GCACCCACCAAGTCATGGTAGTGGTAGCTAACAGTAG spacer
length: 40 repeater length: 24

21470 1089241 CTTTCAACTCTATAGGAGATTAAC AAGCTAGTTACATGAATCGTCACATTAAATGTGTTACTTGA spacer
length: 41 repeater length: 24

21471 1089306 CTTTCAACTCTATAGGAGATTAAC CAGTCCGTAATTACCTATTGCTAACTAATTTTCATAGGAATAG spacer
length: 43 repeater length: 24

21472 1089373 CTTTCAACTCTATAGGAGATTAAC AGTTAGGTTTTCTACTATCATTATCATTATTGAATCAGCG spacer
length: 40 repeater length: 24

21473 1089437 CTTTCAACTCTATAGGAGATTAAC TAGTATGGTGCGCCAGCCTCCGTGCTGACGACATCATA spacer
length: 39 repeater length: 24

21474 1089500 CTTTCAACTCTATAGGAGATTAAC ACTGTCTCTATCGGTATCCAAAATGTAAAAATTCTCATT spacer
length: 41 repeater length: 24

21475 1089565 CTTTCAACTCTATAGGAGATTAAC ACCAATTGACGGCCACGGATGGAACCTCCGACAGTGA spacer length:
36 repeater length: 24

21476 1089625 CTTTCAACTCTATAGGAGATTAAC ATTGCCAGCATACGCTAGATCAAAGCTAAAAGATGAGTA spacer
length: 39 repeater length: 24

21477 1089688 CTTTCAACTCTATAGGAGATTAAC TGAATCCTAAAGCGTCAAGAATTACCTTCCATTCGTCAT spacer
length: 39 repeater length: 24

21478 1089751 CTTTCAACTCTATAGGAGATTAAC ATCAAGCGATTGCATTTGTTCTCAAGCAGAGGTTACAGGA spacer
length: 40 repeater length: 24

21479 1089815 CTTTCAACTCTATAGGAGATTAAC ATGAGAAGTAAAGAAGAATTGAATGAAGCGTTGGAGCAAA spacer
length: 40 repeater length: 24

21480 1089879 CTTTCAACTCTATAGGAGATTAAC ATGGGAATACGTTTACCAATTACTGATGCTGATGGGAAGGCCAAC
spacer length: 45 repeater length: 24

21481 1089948 CTTTCAACTCTATAGGAGATTAAC AGATTGGGAAAGGTGGTTCAAAGGTACAGACAATAACAT spacer
length: 39 repeater length: 24

21482 1090011 CTTTCAACTCTATAGGAGATTAAC ATCATAACTGACGTTGACACCTGCCATAGTTGTTCTGATGG spacer
length: 41 repeater length: 24

21483 1090076 CTTTCAACTCTATAGGAGATTAAC GCAAATGCCTTCAAAAACACTTCAAGCGCTAATGTTAGGG spacer
length: 41 repeater length: 24

21484 1090141 CTTTCAACTCTATAGGAGATTAAC GAGAGAGAAAGATTTATATACTTGACATGACATATGTATAAA spacer
length: 42 repeater length: 24

21485 1090207 CTTTCAACTCTATAGGAGATTAAC CTATTAACATCATAAACAATTCGCCACACTAACAGGA spacer
length: 38 repeater length: 24

21486 1090269 CTTTCAACTCTATAGGAGATTAAC ACGCAATGGATTATCTGGAAGAGATGCTGGGCAATAAG spacer
length: 38 repeater length: 24

21487 1090331 CTTTCAACTCTATAGGAGATTAAC CACGATAAATTATTGGATGAAAACATCTTTTAACTTGTCGC spacer
length: 41 repeater length: 24

21488 1090396 CTTTCAACTCTATAGGAGATTAAC TGAAAATATTTTCAGCGTTATACTTTTGCTTAATGTACTCTTT spacer
length: 42 repeater length: 24

21489 1090462 CTTTCAACTCTATAGGAGATTAAC AGGCGGAAGCTAAGTATTTGTTAGAAATAGAGAAATATACA spacer
length: 41 repeater length: 24

21490 1090527 CTTTCAACTCTATAGGAGATTAAC TGTTGATCGGAGACATTATTTAGGTCTTTAATCCCAAATC spacer
length: 40 repeater length: 24

21491 1090591 CTTTCAACTCTATAGGAGATTAAC CGATTTACTGGGACTGTGATACCCAACAGCATAGACATCAGTT spacer
length: 43 repeater length: 24

21492 1090658 CTTTCAACTCTATAGGAGATTAAC TAGGATTTTTTTTTCCTAGATGATAGATTAATTGGAAATTCCT spacer
length: 42 repeater length: 24

21493 1090724 CTTTCAACTCTATAGGAGATTAAC GAAGTGTTGCGCGCTCTGCTAGAACAAATACGGAATGAAAGTGCC spacer
length: 44 repeater length: 24

21494 1090792 CTTTCAACTCTATAGGAGATTAAC ACACGTGGTGATTGATCCATTCCAACCTAAGGCAAATCATTC spacer
length: 41 repeater length: 24

21495 1090857 CTTTCAACTCTATAGGAGATTAAC AAGTTATTCGGCGCTTTGCGCCTTCTTTTTTGTCTTAAACA spacer
length: 41 repeater length: 24

21496 1090922 CTTTCAACTCTATAGGAGATTAAC AAATAATTAGTTAGTAGGAGGATAGTTTTGAAAACTTTTTAGAAG
spacer length: 45 repeater length: 24

21497 1090991 CTTTCAACTCTATAGGAGATTAAC GTTTGTTTTAGCGCAATATTTAGATCAACAGAAGAAGAAGA spacer
length: 41 repeater length: 24

21498 1091056 CTTTCAACTCTATAGGAGATTAAC ACCCAAAAACGTAGTGGGGAAAATATAATCTTCATTATTT spacer
length: 40 repeater length: 24

21499 1091120 CTTTCAACTCTATAGGAGATTAAC TAGCCCCAGTCGGTTTAGGCGGAAAATTCAACATTAAATT spacer
length: 40 repeater length: 24

21500	1091184	CTTTCAACTCTATAGGAGATTAAC	TGACGGTTTGACAGAGGTCTATGTGTTACATACAGTAA	spacer
	length:	39	repeater length:	24
21501	1091247	CTTTCAACTCTATAGGAGATTAAC	TGAGAAGAGAGAACTATATTTTAGTGAAAAAATGTCAGC	spacer
	length:	40	repeater length:	24
21502	1091311	CTTTCAACTCTATAGGAGATTAAC	ACTATCCATCTTCCACAATTTATATTATCCATATTTTCATTA	spacer
	length:	42	repeater length:	24
21503	1091377	CTTTCAACTCTATAGGAGATTAAC	AGAATTTATAAGCCAAATTCTTGATAGTTTCTAACAAACG	spacer
	length:	40	repeater length:	24
21504	1091441	CTTTCAACTCTATAGGAGATTAAC	AATATTTGTAAATTTTCATCAAACATTTTCCTAACTTTATC	spacer
	length:	40	repeater length:	24
21505	1091505	CTTTCAACTCTATAGGAGATTAAC	AAAGAAGAGAATACAAGCTGTATTTTGTGAGGTTTAGCA	spacer
	length:	39	repeater length:	24
21506	1091568	CTTTCAACTCTATAGGAGATTAAC	ATTTGGCAAAATCCTAGCCAGAAGATAGGGGGCGACAAC	spacer
	length:	39	repeater length:	24
21507	1091631	CTTTCAACTCTATAGGAGATTAAC	CAGTGAAAAAGAAATTACTTAATGTAGTCGAAAAGTG	spacer
	length:	37	repeater length:	24
21508	1091692	CTTTCAACTCTATAGGAGATTAAC	ATATGATGGAGAACTCAAGTATATATTTTCACTTCAGATAA	spacer
	length:	42	repeater length:	24
21509	1091758	CTTTCAACTCTATAGGAGATTAAC	AATCCAGAACACTACGCTTTACCAATACATGAAAAGTAT	spacer
	length:	39	repeater length:	24
21510	1091821	CTTTCAACTCTATAGGAGATTAAC	TATAGAAAGCTGTTGGACGAAGCGGTCTCTCTGAAGAG	spacer
	length:	39	repeater length:	24
21511	1091884	CTTTCAACTCTATAGGAGATTAAC	GCGGAAAGAA	
21512				
21513				
21514	crispr 2			
21515	1097324	CTTAATCTCCTATAGAGTTGAAAG	AAGGCGAAATGCAGAAGATGTAGTAGCAAAGACAGCTGTGA	spacer
	length:	41	repeater length:	24
21516	1097389	CTTAATCTCCTATAGAGTTGAAAG	CAACTCTCATGATTATAATCCCTCCATTTTAAATGTATT	spacer
	length:	40	repeater length:	24
21517	1097453	CTTAATCTCCTATAGAGTTGAAAG	AAGTTTACTTCAGTTAATGAGCAAGTCAGCGCAGTGCTAA	spacer
	length:	40	repeater length:	24
21518	1097517	CTTAATCTCCTATAGAGTTGAAAG	TTATATTTACGGGTAAGACGGCGTTAACGAAGCGTTAGG	spacer
	length:	39	repeater length:	24
21519	1097580	CTTAATCTCCTATAGAGTTGAAAG	AGTTTAAACGTTACAACCTCTCGTTTCCAAACACCTCGTTTGT	spacer
	length:	42	repeater length:	24
21520	1097646	CTTAATCTCCTATAGAGTTGAAAG	AAAACGAGACCTTTGGCTAAATAAACCGCACCATAGATAT	spacer
	length:	40	repeater length:	24
21521	1097710	CTTAATCTCCTATAGAGTTGAAAG	CTATGAAATTGTCGCATTTCGTATGCAAATATTTCTGGATCT	spacer
	length:	42	repeater length:	24
21522	1097776	CTTAATCTCCTATAGAGTTGAAAG	TACATATCCTTCAATTGTGATCTAGCGTATGCTGGTAGT	spacer
	length:	39	repeater length:	24
21523	1097839	CTTAATCTCCTATAGAGTTGAAAG	ATTTGGATTTTGATAATTTTCTTTTCTTGTGCATAATAAT	spacer
	length:	40	repeater length:	24
21524	1097903	CTTAATCTCCTATAGAGTTGAAAG	TATAGTTAAGTCATTTTTTCTTCTTGTGGTGGTATTACCTAT	spacer
	length:	42	repeater length:	24
21525	1097969	CTTAATCTCCTATAGAGTTGAAAG	TACCAATTTCTGCTAATAACGTGAACGTACTCTCGCTGAG	spacer
	length:	40	repeater length:	24
21526	1098033	CTTAATCTCCTATAGAGTTGAAAG	TAAC TTATCCCCTACATGATTGCGAAAAACAACAAT	spacer
	length:	37	repeater length:	24
21527	1098094	CTTAATCTCCTATAGAGTTGAAAG	TGTTTTTAAGGACCTGGAGGCAGTCCGCCATTTACCCAC	spacer
	length:	40	repeater length:	24
21528	1098158	CTTAATCTCCTATAGAGTTGAAAG	TGAGAACAGCTGTCTTCACTGCTGACCATCGAGCGACCT	spacer
	length:	39	repeater length:	24
21529	1098221	CTTAATCTCCTATAGAGTTGAAAG	TTTTCTTTCTCATACTTACTCTTATTAGTTTACTAACAA	spacer
	length:	40	repeater length:	24
21530	1098285	CTTAATCTCCTATAGAGTTGAAAG	CTTCTTGTTCTTCTCTCTGCTTTACGCCTTCTTGTTCTTCC	spacer
	length:	41	repeater length:	24
21531	1098350	CTTAATCTCCTATAGAGTTGAAAG	TCTGTACGTGGGTCAATAAATGTCACAATCGCGTACTTCTT	spacer
	length:	41	repeater length:	24
21532	1098415	CTTAATCTCCTATAGAGTTGAAAG	ATAATAATCAACGAGGCAAACCTCCATGTTCTACAAACCA	spacer
	length:	39	repeater length:	24
21533	1098478	CTTAATCTCCTATAGAGTTGAAAG	ACTAGGCAAACGATACTGAGACACAGCGGGACTGCAG	spacer
	length:	37	repeater length:	24
21534	1098539	CTTAATCTCCTATAGAGTTGAAAG	TTGGAAACACTCCGTATCAATCCTTTAGACTGCAACTCCTCA	spacer
	length:	42	repeater length:	24
21535	1098605	CTTAATCTCCTATAGAGTTGAAAG	AACATTAGTGTAAGCCTGCAGCGTTTGCTGGAAGCACGG	spacer
	length:	40	repeater length:	24
21536	1098669	CTTAATCTCCTATAGAGTTGAAAG	TCTCGTCCTTAAATTTCAAACCTTCCATGTAGCTCGCCCCCTCT	spacer
	length:	44	repeater length:	24
21537	1098737	CTTAATCTCCTATAGAGTTGAAAG	CTTATGTACACACCACCTGAGCTAAGGAGTGTCTTAATCT	spacer

length: 40 repeater length: 24
21538 1098801 CTTAATCTCCTATAGAGTTGAAAG AAATGGGACGATGAGGGTGTTCACAGATACAACACCACAG spacer
length: 41 repeater length: 24
21539 1098866 CTTAATCTCCTATAGAGTTGAAAG ATTATATATAATATATGAATAATAGCCCCCGTGCTTCGCGCCTT spacer
length: 44 repeater length: 24
21540 1098934 CTTAATCTCCTATAGAGTTGAAAG TCTTTTGCACATATCCATTCCGACCACATCTCTCGGCTTCGATAC spacer
length: 44 repeater length: 24
21541 1099002 CTTAATCTCCTATAGAGTTGAAAG TTGACGACGTGCTTACTCTTCTTTCCAGTTCTTGTACTT spacer
length: 40 repeater length: 24
21542 1099066 CTTAATCTCCTATAGAGTTGAAAG TTATCGATAAAATCGTAAACGATTTGTTGCCTTATTACGTGAA spacer
length: 43 repeater length: 24
21543 1099133 CTTAATCTCCTATAGAGTTGAAAG ACACCTCTACTAACTTTACCAAAGCCTATCATAGTCCCAACG spacer
length: 42 repeater length: 24
21544 1099199 CTTAATCTCCTATAGAGTTGAAAG CCTTTATTCTTGCTATTAGATCGAATAAATCGCTCGCG spacer
length: 38 repeater length: 24
21545 1099261 CTTAATCTCCTATAGAGTTGAAAG TAAGTGGACACTATTGATCACCTCAGGGCTAGATATATGCCT spacer
length: 42 repeater length: 24
21546 1099327 CTTAATCTCCTATAGAGTTGAAAG TCATTGAAATACTCAGCAACTGTATCCCTTAACTCTTCCTTATTA
spacer length: 45 repeater length: 24
21547 1099396 CTTAATCTCCTATAGAGTTGAAAG AGTATACCTGGGAGTGCTGATGTAGATGCGTCACCGACCACGTT spacer
length: 44 repeater length: 24
21548 1099464 CTTAATCTCCTATAGAGTTGAAAG ACTACGGGTCTCAAGGTAGTCGGTGTCTTCTAGTAGCTG spacer
length: 40 repeater length: 24
21549 1099528 CTTAATCTCCTATAGAGTTGAAAG ATCGTACTTTGCGCTGTACCTTATGAACAGTGGAATGTCCC spacer
length: 41 repeater length: 24
21550 1099593 CTTAATCTCCTATAGAGTTGAAAG GTAAAGGGGTGTGTTTTACGTTTTGAGTGGTGTTCACGAC spacer
length: 41 repeater length: 24
21551 1099658 CTTAATCTCCTATAGAGTTGAAAG CTAAACATATATGAGTTCATTTTTTCCGACTTTCCTAGA spacer
length: 39 repeater length: 24
21552 1099721 CTTAATCTCCTATAGAGTTGAAAG TAAAGTGATAGAATAAAAGCTATTATTCCAACATTTTCT spacer
length: 39 repeater length: 24
21553 1099784 CTTAATCTCCTATAGAGTTGAAAG CCTTGGCAACTCGGACCCCTCAAGCGTACGGAAGAGATT spacer
length: 40 repeater length: 24
21554 1099848 CTTAATCTCCTATAGAGTTGAAAG AACTCTCGATCAAGACATTTATTGTCTCTTCATCTATCT spacer
length: 40 repeater length: 24
21555 1099912 CTTAATCTCCTATAGAGTTGAAAG TCTAAGGAGGATAAAGAGGAAGATTGGGCATTTTGTCTGT spacer
length: 41 repeater length: 24
21556 1099977 CTTAATCTCCTATAGAGTTGAAAG TTAGTGTTTACGTATGCTCTTTGTTGAGCTAGTTGTTGAT spacer
length: 40 repeater length: 24
21557 1100041 CTTAATCTCCTATAGAGTTGAAAG TTCACGAGGATGATTATAAGCTCAGGGAGAAGATTGT spacer
length: 37 repeater length: 24
21558 1100102 CTTAATCTCCTATAGAGTTGAAAG ACGTAACCTGTAGATGTGTAACCAGGCTCAGACGAGAA spacer
length: 38 repeater length: 24
21559 1100164 CTTAATCTCCTATAGAGTTGAAAG GAACATCCGCCTTATCGTTATCTTTCTTCTTGAACAGGAAC spacer
length: 41 repeater length: 24
21560 1100229 CTTAATCTCCTATAGAGTTGAAAG TCAATTTATCATACCTACCTAGTCTTACTAAAGTACAGT spacer
length: 39 repeater length: 24
21561 1100292 CTTAATCTCCTATAGAGTTGAAAG GTTGGACTACCTGAAGTAATCGAGCTCAGTGGAGGCA spacer
length: 37 repeater length: 24
21562 1100353 CTTAATCTCCTATAGAGTTGAAAG GTTTTTCACGTGATACTTTATGATGTCGTTGCATCTATCGA spacer
length: 40 repeater length: 24
21563 1100417 CTTAATCTCCTATAGAGTTGAAAG AGGACATAAGGCCTTGGCCATGGTCTCAATATCCCATTCTT spacer
length: 41 repeater length: 24
21564 1100482 CTTAATCTCCTATAGAGTTGAAAG GCACTGACGTTTACTATCTGCAGCCCACTTGGTGACTG spacer
length: 38 repeater length: 24
21565 1100544 CTTAATCTCCTATAGAGTTGAAAG AACTGCCTTGATGAGCGGGATGCTTCCAATTCTCCCTCT spacer
length: 40 repeater length: 24
21566 1100608 CTTAATCTCCTATAGAGTTGAAAG AGGATTCTTCTAAATGCTGTGACAAATGTTAGAATTAGATA spacer
length: 41 repeater length: 24
21567 1100673 CTTAATCTCCTATAGAGTTGAAAG CAACGAAGAAAGAGTCGAGAACTAAGCAGAGTCGAGCACT spacer
length: 41 repeater length: 24
21568 1100738 CTTAATCTCCTATAGAGTTGAAAG TATTCGTCGTACGATTCCACTTCAACAGAGTTCACAATAA spacer
length: 40 repeater length: 24
21569 1100802 CTTAATCTCCTATAGAGTTGAAAG AGTTGCTCTAGCAGGAGAAGATCCTGCTCTTCGATTTTGAAT spacer
length: 42 repeater length: 24
21570 1100868 CTTAATCTCCTATAGAGTTGAAAG CCTAAAATTC
21571
21572
21573 crispr 3
21574 1104338 GTTAATCTTCTATAGAGTTGAAAG TCTCAATCTGTAGGCCAAGCCACTATTATCATAACTCCAC spacer
length: 40 repeater length: 24

21575	1104402	GTTAATCTTCTATAGAGTTGAAAG	TGAATGCAAGCCTGTCGTACATTACTATTCTACCTTGTTTG	spacer
		length: 41	repeater length: 24	
21576	1104467	GTTAATCTTCTATAGAGTTGAAAG	TTTGTCTGTTTCGATTGGAATAATTTTCAGCGTTACCATAAAC	spacer
		length: 42	repeater length: 24	
21577	1104533	GTTAATCTTCTATAGAGTTGAAAG	TACCTGTATGACAATTCGCTAAAAATTTAACTATCTAC	spacer
		length: 39	repeater length: 24	
21578	1104596	GTTAATCTTCTATAGAGTTGAAAG	TCATTTCCATTTCTTTCAATTTATCAACTATTAACCTAA	spacer
		length: 39	repeater length: 24	
21579	1104659	GTTAATCTTCTATAGAGTTGAAAG	GAGGAAAAGAAGGCTAACGCATTAAAGGCGTGGCATTTAGGG	spacer
		length: 42	repeater length: 24	
21580	1104725	GTTAATCTTCTATAGAGTTGAAAG	GACCCATATTTAGGAGTTATGTCAGCTATATCCAAGCAT	spacer
		length: 39	repeater length: 24	
21581	1104788	GTTAATCTTCTATAGAGTTGAAAG	TCTTGATTTCCATGTCTATCCCCTGCGCATATCTCATATCA	spacer
		length: 41	repeater length: 24	
21582	1104853	GTTAATCTTCTATAGAGTTGAAAG	CATGAGCTGTCCCTCCGATAAGATCATATTTGATGCAGA	spacer
		length: 39	repeater length: 24	
21583	1104916	GTTAATCTTCTATAGAGTTGAAAG	TGAAATAACCGCCGACATCCAACGCTGGAAATTTATATCT	spacer
		length: 40	repeater length: 24	
21584	1104980	GTTAATCTTCTATAGAGTTGAAAG	AATCTTAAACCGCAACCTTTTATAAAATCTTCAACTGTAA	spacer
		length: 40	repeater length: 24	
21585	1105044	GTTAATCTTCTATAGAGTTGAAAG	CCTATAACCTAATAGCATAATATTTACTATGTCCCTCCAT	spacer
		length: 40	repeater length: 24	
21586	1105108	GTTAATCTTCTATAGAGTTGAAAG	TGCTCACCTCTTCAGTTTCTGCGCCTTCTCCCTCACCG	spacer
		length: 39	repeater length: 24	
21587	1105171	GTTAATCTTCTATAGAGTTGAAAG	TTGATATTTGAGTGCCTGCGCAAATTCCTCAAACAAATCT	spacer
		length: 40	repeater length: 24	
21588	1105235	GTTAATCTTCTATAGAGTTGAAAG	TCTTTAGTCGCTATAATGTCGGGTAATGGTTGCTTACCAG	spacer
		length: 40	repeater length: 24	
21589	1105299	GTTAATCTTCTATAGAGTTGAAAG	TCTGATTCTGATACCTCCTCTTCGCTCCCTTCTTGTTACCTTCTT	spacer length: 46
		length: 46	repeater length: 24	
21590	1105369	GTTAATCTTCTATAGAGTTGAAAG	CTTTTTTGCAACCTAGAAAGCCTTGTTGCGAAATATGGC	spacer
		length: 39	repeater length: 24	
21591	1105432	GTTAATCTTCTATAGAGTTGAAAG	ATTGCTTCTACTTCTGCTGGCATTTTTTTTCCACTAAAA	spacer
		length: 38	repeater length: 24	
21592	1105494	GTTAATCTTCTATAGAGTTGAAAG	GCAATATTGGATAGGATTCATATCATCCAAGTTGCAATAAA	spacer
		length: 41	repeater length: 24	
21593	1105559	GTTAATCTTCTATAGAGTTGAAAG	GCAATCATTCGCGAAAATAACGGGGCATAAACGCCTGGAC	spacer
		length: 39	repeater length: 24	
21594	1105622	GTTAATCTTCTATAGAGTTGAAAG	TAGGTAGAAGGCAGAAGGAAGTTTTAGCTTCGATATTGGAA	spacer
		length: 41	repeater length: 24	
21595	1105687	GTTAATCTTCTATAGAGTTGAAAG	CGTTTCTCTAATCTCGCCAACCTAGTTGCGAAATATGGCTG	spacer
		length: 41	repeater length: 24	
21596	1105752	GTTAATCTTCTATAGAGTTGAAAG	TATATTTGTCGCTATATCGCCCAGAAGACGTCTGATAT	spacer
		length: 39	repeater length: 24	
21597	1105815	GTTAATCTTCTATAGAGTTGAAAG	GTTACACGAGTAAACTGTATAAGAGTGAGGTAACAAATCT	spacer
		length: 40	repeater length: 24	
21598	1105879	GTTAATCTTCTATAGAGTTGAAAG	AAAGTGAAAGTGATGCTGGAGGTGAGGGACAGACTGGGAG	spacer
		length: 40	repeater length: 24	
21599	1105943	GTTAATCTTCTATAGAGTTGAAAG	ATTTGGATCTTGAGAATTTTCTTTTCTTGTGTCATAATAA	spacer
		length: 39	repeater length: 24	
21600	1106006	GTTAATCTTCTATAGAGTTGAAAG	AAGGCGTATAACAAAACGGCGTATGTCATATGTTCTGCTTCTA	spacer
		length: 43	repeater length: 24	
21601	1106073	GTTAATCTTCTATAGAGTTGAAAG	AGAGAGGGCTTCACTTACAAGTAAATCAGCACACCTTAT	spacer
		length: 39	repeater length: 24	
21602	1106136	GTTAATCTTCTATAGAGTTGAAAG	GAGAAGTACCCGGGCGTATCCAGGCTAAGCCAGTTATCAA	spacer
		length: 40	repeater length: 24	
21603	1106200	GTTAATCTTCTATAGAGTTGAAAG	TTTGCCATGGAAGAAGCGAAATGTCAGTGTTGGTAGCTCC	spacer
		length: 40	repeater length: 24	
21604	1106264	GTTAATCTTCTATAGAGTTGAAAG	GAATAGTAAGTAAATCATCACCTGCAATTATCGTGTATTTTT	spacer
		length: 42	repeater length: 24	
21605	1106330	GTTAATCTTCTATAGAGTTGAAAG	ATATAACGAAAGAGCGTTCACAAAAGCGTTAGTAG	spacer length: 35
		length: 35	repeater length: 24	
21606	1106389	GTTAATCTTCTATAGAGTTGAAAG	ATTGCTATAAACCACATCATGGCTCCTAGCATCAACG	spacer
		length: 37	repeater length: 24	
21607	1106450	GTTAATCTTCTATAGAGTTGAAAG	TACAATCTTATCAACTATGTCTTCCAAAAATGGTGGTAGA	spacer
		length: 40	repeater length: 24	
21608	1106514	GTTAATCTTCTATAGAGTTGAAAG	CCAAAAATCGAATTCAAGGACCAAAACGTAAAACCACCTGG	spacer
		length: 41	repeater length: 24	
21609	1106579	GTTAATCTTCTATAGAGTTGAAAG	TATGATGTTCTCATTGTATTTGTTGAGATCATGTTTAA	spacer
		length: 38	repeater length: 24	
21610	1106641	GTTAATCTTCTATAGAGTTGAAAG	GACACGGCTTTGTAAACAGAGAACCCAGGCAGAACAGATA	spacer

length: 40 repeater length: 24
21611 1106705 GTTAATCTTCTATAGAGTTGAAAG ATACCGGTGTCCATACAGCCAATACCCCCAACACCGCCAC spacer
length: 40 repeater length: 24
21612 1106769 GTTAATCTTCTATAGAGTTGAAAG TAATTATATAAGCCGAATTGATGTAAATAAGACAAGATGACT spacer
length: 42 repeater length: 24
21613 1106835 GTTAATCTTCTATAGAGTTGAAAG CTTGTTTTTGTCTTTTTTCTTTGTAATCTTCTATTCTTA spacer
length: 39 repeater length: 24
21614 1106898 GTTAATCTTCTATAGAGTTGAAAG TCATGAATCAGTTTGAAAGAAGAGAAGATTGGTTAAATG spacer
length: 39 repeater length: 24
21615 1106961 GTTAATCTTCTATAGAGTTGAAAG GGTTTTGTCTCTTTTTTCTGGCTTTCCCGCCAGAATCTTT spacer
length: 39 repeater length: 24
21616 1107024 GTTAATCTTCTATAGAGTTGAAAG ATTTTCGAATTCATTTTCAATTGTTTCAATTCATTCTCAAAT spacer
length: 41 repeater length: 24
21617 1107089 GTTAATCTTCTATAGAGTTGAAAG CTTTCTTCTTCTATTTCCTTATCTTTTCTTCTTTTCACTAT spacer
length: 41 repeater length: 24
21618 1107154 GTTAATCTTCTATAGAGTTGAAAG CTTATTTTCAGAGGATCTAATAGACGAAGCGGAATCTTTCT spacer
length: 41 repeater length: 24
21619 1107219 GTTAATCTTCTATAGAGTTGAAAG CTGGCATTACCCAGGCTTGGCGACACACCAGAAGACAGACT spacer
length: 41 repeater length: 24
21620 1107284 GTTAATCTTCTATAGAGTTGAAAG GTTTTTGTTGTTTCGAAGAGAATTGGCGGGGCGCTGTAATT spacer
length: 41 repeater length: 24
21621 1107349 GTTAATCTTCTATAGAGTTGAAAG GTGGGAACAGCGGTGCTATTCATGACCCCTCGCCCAGGT spacer
length: 39 repeater length: 24
21622 1107412 GTTAATCTTCTATAGAGTTGAAAG AGACTTTATTTCCAGATTTTTCTATATTTATCATTCCGTTTGAT spacer
length: 44 repeater length: 24
21623 1107480 GTTAATCTTCTATAGAGTTGAAAG GAGCACTCTGGGGGATACCCCCCGACCCCTACTGCTAA spacer
length: 40 repeater length: 24
21624 1107544 GTTAATCTTCTATAGAGTTGAAAG TGAGACCGGGACACCGCCGAAATTAAATCCGGCAACGCCA spacer
length: 40 repeater length: 24
21625 1107608 GTTAATCTTCTATAGAGTTGAAAG TCTTCTTTGTCCATCTGTATATCCCAATCACGCCATCTGT spacer
length: 40 repeater length: 24
21626 1107672 GTTAATCTTCTATAGAGTTGAAAG ACTACATATGACGCCGTGGATTGCAGATCTGCTATATTCTT spacer
length: 41 repeater length: 24
21627 1107737 GTTAATCTTCTATAGAGTTGAAAG TCCTCTATCACGTCATCTATAGCCACACACTTTTGAGCGT spacer
length: 40 repeater length: 24
21628 1107801 GTTAATCTTCTATAGAGTTGAAAG ATGGATAAAGACGAATTGAAAGAAATTATTAAGAATTTA spacer
length: 39 repeater length: 24
21629 1107864 GTTAATCTTCTATAGAGTTGAAAG TACTTTTAATCCAGCTTGTCATGGATGCAGAATTAGAGAGGC spacer
length: 43 repeater length: 24
21630 1107931 GTTAATCTTCTATAGAGTTGAAAG CGTGGGGCTCGCTCTAACTTGTAACGACACATGTTCTTA spacer
length: 39 repeater length: 24
21631 1107994 GTTAATCTTCTATAGAGTTGAAAG CCTGAGCTAAGGAGTGTCTTAATCTTATCGAAGTCGTCTGGCTT spacer
length: 44 repeater length: 24
21632 1108062 GTTAATCTTCTATAGAGTTGAAAG CTTCGCCGTATAACGATCCTACAACAATAATCACTGATTTTGA spacer
length: 43 repeater length: 24
21633 1108129 GTTAATCTTCTATAGAGTTGAAAG GTAATGAAAGTAATGTCTTTTCTCATACGAAAAGACCAA spacer
length: 39 repeater length: 24
21634 1108192 GTTAATCTTCTATAGAGTTGAAAG AGATGATGCACTGGCAGAGGCGACAAGAGAAAAACCAGGCT spacer
length: 41 repeater length: 24
21635 1108257 GTTAATCTTCTATAGAGTTGAAAG CAATGAATTCAGAAAACAGCTGTTTCATCCTGGTTCTCAG spacer
length: 39 repeater length: 24
21636 1108320 GTTAATCTTCTATAGAGTTGAAAG ACAAGGACGTTTTTCGTGATCCAGGTGAGCGAATACACA spacer
length: 38 repeater length: 24
21637 1108382 GTTAATCTTCTATAGAGTTGAAAG AGCAATAATTTAATTGCACTATTTTTAACTGTGCATGA spacer
length: 38 repeater length: 24
21638 1108444 GTTAATCTTCTATAGAGTTGAAAG TTCACTGTCTACACATAAGTATAAGGGGCTTCGCCCTT spacer
length: 39 repeater length: 24
21639 1108507 GTTAATCTTCTATAGAGTTGAAAG CATAATTCGTTTCTGTATTTGGCGTCAAATTTATTTTTAAT spacer
length: 41 repeater length: 24
21640 1108572 GTTAATCTTCTATAGAGTTGAAAG ATTTGAAATAAGACAAATCAGTGCAGAAGAGGCAAGGAACTAG spacer
length: 44 repeater length: 24
21641 1108640 GTTAATCTTCTATAGAGTTGAAAG AGATAACATTTTTTCTCTTGTTTAAACGTATCTACGAACCAG spacer
length: 42 repeater length: 24
21642 1108706 GTTAATCTTCTATAGAGTTGAAAG ACCCGCCAATCAGTGC GTTGTGTTTCGCTGGCTTCATATC spacer
length: 41 repeater length: 24
21643 1108771 GTTAATCTTCTATAGAGTTGAAAG TATATATTATATTATGAATTATACCACACACTTCTTTTTTCGC spacer
length: 42 repeater length: 24
21644 1108837 GTTAATCTTCTATAGAGTTGAAAG AGAAACGAATTGTTAGTTTACTTATCACGCCTTCATTCCCA spacer
length: 41 repeater length: 24
21645 1108902 GTTAATCTTCTATAGAGTTGAAAG ATATCCACCCTTCTCACCAAAAGAATAATACAAAAATTTAA spacer
length: 41 repeater length: 24

21646 1108967 GTTAATCTTCTATAGAGTTGAAAG GAAGAGGATC
 21647
 21648
 21649 crispr 4
 21650 1109034 GTTAATCTTCTATAGAGTTGAAAG ATTCTAGCTCGAATTCTGTATCTGAAATTTTACTTACTTTTTTGAACGACA
 spacer length: 51 repeater length: 24
 21651 1109109 GTTAATCTTCTATAGAGTTGAAAG ATTATTACTACTATATCATCCGGATTCATTTTCTATCCCG spacer
 length: 40 repeater length: 24
 21652 1109173 GTTAATCTTCTATAGAGTTGAAAG CTTATTTCTTCGCGGTTTATAATGGACCCGGAACG spacer length:
 35 repeater length: 24
 21653 1109232 GTTAATCTTCTATAGAGTTGAAAG TATCTTCCTGACGTAGATGATGCAGTCCAAACAATAGATAG spacer
 length: 41 repeater length: 24
 21654 1109297 GTTAATCTTCTATAGAGTTGAAAG TGTACCAAGCCTGGATGGGTAGACCAGGACCGTGATCAAT spacer
 length: 40 repeater length: 24
 21655 1109361 GTTAATCTTCTATAGAGTTGAAAG TCTTTCATTGGGTTCGTATAAAAATCCTTGACCTAAGGA spacer
 length: 39 repeater length: 24
 21656 1109424 GTTAATCTTCTATAGAGTTGAAAG CAGACAATACGATCGAGTAGGGGACTGTGTGTAAAAATGAGGG spacer
 length: 43 repeater length: 24
 21657 1109491 GTTAATCTTCTATAGAGTTGAAAG TGTACACTTCCTTCTTCTTAGGCAAGGTTATTTTAACTT spacer
 length: 40 repeater length: 24
 21658 1109555 GTTAATCTTCTATAGAGTTGAAAG GGCGGGTGAAAGAACTACTCGAGAAAGAGAAAAGAAAA spacer
 length: 39 repeater length: 24
 21659 1109618 GTTAATCTTCTATAGAGTTGAAAG AGTATCATTCACTGGAAGTTGTACGGTATGAGGAGTCATA spacer
 length: 41 repeater length: 24
 21660 1109683 GTTAATCTTCTATAGAGTTGAAAG ATTCCACGATTTTAACTTTACAGATTCCCCATATCCTG spacer
 length: 39 repeater length: 24
 21661 1109746 GTTAATCTTCTATAGAGTTGAAAG CCTAGATCACGGGGCCAATCCAAACGTGAAAGATCTAGAT spacer
 length: 40 repeater length: 24
 21662 1109810 GTTAATCTTCTATAGAGTTGAAAG TCAAAGGTTGCTGAGGACTGTTATAGGGATGCACTCTCAGT spacer
 length: 41 repeater length: 24
 21663 1109875 GTTAATCTTCTATAGAGTTGAAAG TTGATCGTTAAAAAGTAACGTAAGACGTTTCACAAGAGA spacer
 length: 39 repeater length: 24
 21664 1109938 GTTAATCTTCTATAGAGTTGAAAG ATATTGATTATGAAGACTTTAAGAAAGATACCAATTCTAT spacer
 length: 40 repeater length: 24
 21665 1110002 GTTAATCTTCTATAGAGTTGAAAG TAATTCCTCTTTGATCTCTCTGGATTCTTGTTTTGTTGAAT spacer
 length: 41 repeater length: 24
 21666 1110067 GTTAATCTTCTATAGAGTTGAAAG TTATTTTCGAGTTTCTCATATATCTCCACGTTATGTCAGA spacer
 length: 40 repeater length: 24
 21667 1110131 GTTAATCTTCTATAGAGTTGAAAG CTCTCGTTAAGGAACCTACTCAAAGCCCTCAAAGACGAT spacer
 length: 39 repeater length: 24
 21668 1110194 GTTAATCTTCTATAGAGTTGAAAG TTCAACTCCACGATTGATTTGATAATTATCAAGGCTTTT spacer
 length: 39 repeater length: 24
 21669 1110257 GTTAATCTTCTATAGAGTTGAAAG AATGAGAGAGTCAGGCCGAGGCCCTCATTACATCTATCATAT spacer
 length: 43 repeater length: 24
 21670 1110324 GTTAATCTTCTATAGAGTTGAAAG ATAAACCAGCGTTTCCCTACAAGTATGAGGCAAAGAACA spacer
 length: 39 repeater length: 24
 21671 1110387 GTTAATCTTCTATAGAGTTGAAAG AGGAATGAAGTGAGTTGTCCGGGTGGTACACCAGTCAAGTCAG spacer
 length: 43 repeater length: 24
 21672 1110454 GTTAATCTTCTATAGAGTTGAAAG GCTTGTTGCTCAGCCATTGCGTAACCTCACCCAC spacer length:
 35 repeater length: 24
 21673 1110513 GTTAATCTTCTATAGAGTTGAAAG TGGACACGTTGGGAAGGCCTTGCCACGCGGAACCTCAGA spacer
 length: 38 repeater length: 24
 21674 1110575 GTTAATCTTCTATAGAGTTGAAAG AGAGACTGGACCATAAAAGGAGTTCTTAAAGCGGGTAATAAA spacer
 length: 42 repeater length: 24
 21675 1110641 GTTAATCTTCTATAGAGTTGAAAG TAAAGATTGACCTTATTACTCTTGACAAATATATCCCG spacer
 length: 38 repeater length: 24
 21676 1110703 GTTAATCTTCTATAGAGTTGAAAG AACTTTGAAGTCAGAGTTTCTGCTTCTTTTATTACTTTA spacer
 length: 40 repeater length: 24
 21677 1110767 GTTAATCTTCTATAGAGTTGAAAG TACATTACCTTGATTATCCATTGTTGCGTTTAGCTGAAG spacer
 length: 39 repeater length: 24
 21678 1110830 GTTAATCTTCTATAGAGTTGAAAG TATGATTTTCTCGCTATTCACCACCTCCTTGATATACTGTA spacer
 length: 41 repeater length: 24
 21679 1110895 GTTAATCTTCTATAGAGTTGAAAG TCCATATAGAGATTTCTAATAATCAATTGGGGATAGATAT spacer
 length: 40 repeater length: 24
 21680 1110959 GTTAATCTTCTATAGAGTTGAAAG ACGTTGAACCAACGTTACCCCCCGCGTCAAAGACGC spacer
 length: 37 repeater length: 24
 21681 1111020 GTTAATCTTCTATAGAGTTGAAAG TCCACGGAGGGGTGGAGAATGAACTATTCTGAAGGGAC spacer
 length: 38 repeater length: 24
 21682 1111082 GTTAATCTTCTATAGAGTTGAAAG ATGAGATCTACCTCGAAAATACGAAGGCAGACGTTGAGG spacer
 length: 39 repeater length: 24
 21683 1111145 GTTAATCTTCTATAGAGTTGAAAG GAAAATCTCAAAGACTTGTTAATCCCATCAAAAAATGG spacer

length: 39 repeater length: 24
21684 1111208 GTTAATCTTCTATAGAGTTGAAAG ATATCGTTATCCGCGGTCATTCTCACGTGAGTGATTG spacer
length: 37 repeater length: 24
21685 1111269 GTTAATCTTCTATAGAGTTGAAAG ACGGTACGCCGTCGCCGACGCGGGGATACCCTGTATCAG spacer
length: 40 repeater length: 24
21686 1111333 GTTAATCTTCTATAGAGTTGAAAG AATAGTCTGCGTGGAAGTAAGTGACCTTCACGAACTTT spacer
length: 38 repeater length: 24
21687 1111395 GTTAATCTTCTATAGAGTTGAAAG CGTGACCCCGCTCGTGCGGTCACGGCATGCTAGGAGGAGG spacer
length: 40 repeater length: 24
21688 1111459 GTTAATCTTCTATAGAGTTGAAAG AAATTTTTAGAGAAATATACGAATGTGTAGATAAAAA spacer
length: 38 repeater length: 24
21689 1111521 GTTAATCTTCTATAGAGTTGAAAG TTTCTTTGTTACGATCACTAACTCTAAGATATAATCGGGG spacer
length: 41 repeater length: 24
21690 1111586 GTTAATCTTCTATAGAGTTGAAAG CAATAAAATCGTGATCAAAACGTTTTTGAATGAACTCATG spacer
length: 40 repeater length: 24
21691 1111650 GTTAATCTTCTATAGAGTTGAAAG CTCATCAAGAGGCATTATTTTCTCATCAAACCGCCAAGAT spacer
length: 41 repeater length: 24
21692 1111715 GTTAATCTTCTATAGAGTTGAAAG AAAAATTATTCTTGTGGATCTGTTGCTGCTATATTGGGTGTA spacer
length: 43 repeater length: 24
21693 1111782 GTTAATCTTCTATAGAGTTGAAAG TTAGTAAGTCCCCTAGGGCATGATCCCAGAAATAACCACTA spacer
length: 41 repeater length: 24
21694 1111847 GTTAATCTTCTATAGAGTTGAAAG GTAGATTATCAATCTTACCCAACGGTCCAAAGGAAGTAAGTAT spacer
length: 43 repeater length: 24
21695 1111914 GTTAATCTTCTATAGAGTTGAAAG TTTATCCTTAGGTATCTCATAGAGACTGGTTTAGCTTCGA spacer
length: 40 repeater length: 24
21696 1111978 GTTAATCTTCTATAGAGTTGAAAG GCTATCAAAAGCTGGAGAGCAAGTAGCGACCTTTCTTTT spacer
length: 39 repeater length: 24
21697 1112041 GTTAATCTTCTATAGAGTTGAAAG TAATCGGTTAAACCGCTTTTGAAAGGAAAATAGAATGAT spacer
length: 39 repeater length: 24
21698 1112104 GTTAATCTTCTATAGAGTTGAAAG ATCCAAATCATTAGAATTAACGATAATTTTCGGTAAGGAT spacer
length: 39 repeater length: 24
21699 1112167 GTTAATCTTCTATAGAGTTGAAAG TACTGGAATCCGTATATAATTGATTCAATTTAGTGGAACCA spacer
length: 40 repeater length: 24
21700 1112231 GTTAATCTTCTATAGAGTTGAAAG AACTTCCTACTTAGACCGCAATTAGCGATCTAGGAATCGA spacer
length: 41 repeater length: 24
21701 1112296 GTTAATCTTCTATAGAGTTGAAAG AGTCTAACCCCTTCTGTCCCTGATATTTTCTCTATA spacer
length: 38 repeater length: 24
21702 1112358 GTTAATCTTCTATAGAGTTGAAAG TTCTCAATTAGTCCACCCCAAGGTATCGTGAGAACCATAGTCG spacer
length: 43 repeater length: 24
21703 1112425 GTTAATCTTCTATAGAGTTGAAAG AAAATTGACGAGAGAAAATACAGAGAATCGCGAAGGCA spacer
length: 37 repeater length: 24
21704 1112486 GTTAATCTTCTATAGAGTTGAAAG CTCCGCGAATTCTCTAAGTTTCGGAATAGCGTTGCCCTGA spacer
length: 40 repeater length: 24
21705 1112550 GTTAATCTTCTATAGAGTTGAAAG ACAAGCCAAATGATGAAGTTACTACTACTAATACTACTACTAA spacer
length: 43 repeater length: 24
21706 1112617 GTTAATCTTCTATAGAGTTGAAAG TTGCCATCGCCTCAACTACTGCCAGACCAAATGTCTCAC spacer
length: 39 repeater length: 24
21707 1112680 GTTAATCTTCTATAGAGTTGAAAG TTCAGCTTAAGGATGACACTCTTGATATGTTGAGTCTTTCC spacer
length: 41 repeater length: 24
21708 1112745 GTTAATCTTCTATAGAGTTGAAAG GTAGGTGTGAAAATCACTATAGTCATCATACAGCCTCAT spacer
length: 39 repeater length: 24
21709 1112808 GTTAATCTTCTATAGAGTTGAAAG TGCTTTGTACGTAAAATGACGTGCTTCTCCTTATACCAA spacer
length: 39 repeater length: 24
21710 1112871 GTTAATCTTCTATAGAGTTGAAAG TGCACCAGTCCCTAGTGTAACCCTTCCAATATTGACGTCT spacer
length: 41 repeater length: 24
21711 1112936 GTTAATCTTCTATAGAGTTGAAAG CTTCATATCTTACGCTTACGGGTACCAGAGACGAATCTCACC spacer
length: 42 repeater length: 24
21712 1113002 GTTAATCTTCTATAGAGTTGAAAG AGTAAAATAGGTCCTGCATTTGTACTAGGCGTTACGAATAAT spacer
length: 42 repeater length: 24
21713 1113068 GTTAATCTTCTATAGAGTTGAAAG AGTATCGCAGCGGGCGGGGATGTCGCCGAAAAATCTACG spacer
length: 39 repeater length: 24
21714 1113131 GTTAATCTTCTATAGAGTTGAAAG GTAATATCGGTCAATCCCACGAATGTGGACGTATACA spacer
length: 37 repeater length: 24
21715 1113192 GTTAATCTTCTATAGAGTTGAAAG CGATGAACTGAAGGCAACGCCAAAACAAGTTCAGGAAAAA spacer
length: 42 repeater length: 24
21716 1113258 GTTAATCTTCTATAGAGTTGAAAG AGAGAGTCTAGGAGCAGGGATACAGAATGCTATAGGATCC spacer
length: 40 repeater length: 24
21717 1113322 GTTAATCTTCTATAGAGTTGAAAG TATTGCGGACAAAGTTCAAAGTCATATATTTCTTTGCCCCC spacer
length: 41 repeater length: 24
21718 1113387 GTTAATCTTCTATAGAGTTGAAAG ATTCACCCAGGGACGTTAATGCCGAATTCTATGAGGACAG spacer
length: 40 repeater length: 24

21719 1113451 GTTAATCTTCTATAGAGTTGAAAG TTCTATAGTCAGGGGCATTTGGATTTACCTTAAGTTTGA spacer
 length: 39 repeater length: 24
 21720 1113514 GTTAATCTTCTATAGAGTTGAAAG GAATATTGCAATTTCTGGATTATGAACACTGGAAAGTGATAG spacer
 length: 42 repeater length: 24
 21721 1113580 GTTAATCTTCTATAGAGTTGAAAG TCGAAGTCCCTGTACCACCTCCACCCGTGCTAGTTTCT spacer
 length: 38 repeater length: 24
 21722 1113642 GTTAATCTTCTATAGAGTTGAAAG CCCTGATCATCTTTAGCACTCATATGTTATCATGATA spacer
 length: 37 repeater length: 24
 21723 1113703 GTTAATCTTCTATAGAGTTGAAAG ATCCAAGAACTCAATCAACTCCAGCGTATTTTCCCCAAA spacer
 length: 39 repeater length: 24
 21724 1113766 GTTAATCTTCTATAGAGTTGAAAG ATCTTCCTCACCTTATGTCCCAATGCCCCGAATTAGACC spacer
 length: 40 repeater length: 24
 21725 1113830 GTTAATCTTCTATAGAGTTGAAAG GTAGCGTTTGAGGAACTAACCAATGCGACGATACAAGTA spacer
 length: 39 repeater length: 24
 21726 1113893 GTTAATCTTCTATAGAGTTGAAAG GCACAATTGTTGTGCGTAAAGGAGAATGGAACAAACATAG spacer
 length: 40 repeater length: 24
 21727 1113957 GTTAATCTTCTATAGAGTTGAAAG GCACCTCCGCCTCCCCCACCTCCACCTGCTCCGATTGCT spacer
 length: 39 repeater length: 24
 21728 1114020 GTTAATCTTCTATAGAGTTGAAAG TAATTTTCTCGGTTACGGTACTGCCACTACTGGCAAT spacer
 length: 37 repeater length: 24
 21729 1114081 GTTAATCTTCTATAGAGTTGAAAG TAAGGATGAACCTAATTGCTCAAGGAGAATAAGATCCTGC spacer
 length: 40 repeater length: 24
 21730 1114145 GTTAATCTTCTATAGAGTTGAAAG GATAATGTAGCGTATATCCTCAAGCAGTTCTATAACAGAA spacer
 length: 40 repeater length: 24
 21731 1114209 GTTAATCTTCTATAGAGTTGAAAG ATTATACTACTGTTATGTACTGTACTGTATATATTCCTTA spacer
 length: 40 repeater length: 24
 21732 1114273 GTTAATCTTCTATAGAGTTGAAAG ATCTTTTCCACTGTATATTGACCATATCTTCTATCTAGA spacer
 length: 39 repeater length: 24
 21733 1114336 GTTAATCTTCTATAGAGTTGAAAG TAAAGGAATGAGCTCTTGAATGACAAAACCCTTCGTTATACG spacer
 length: 42 repeater length: 24
 21734 1114402 GTTAATCTTCTATAGAGTTGAAAG TCACTTTGCTCTTTATCGCATCTCCGACGTCGTTGAGAA spacer
 length: 39 repeater length: 24
 21735 1114465 GTTAATCTTCTATAGAGTTGAAAG CCTTATGTAACCTTGATCCATCTTCTGCACAACCTAGATCCT spacer
 length: 41 repeater length: 24
 21736 1114530 GTTAATCTTCTATAGAGTTGAAAG CTCATGGTTCCCTGTCTCTCCTAGATGCATTAGACCAGACCCT spacer
 length: 43 repeater length: 24
 21737 1114597 GTTAATCTTCTATAGAGTTGAAAG TATCATAAGAACATAGTAGAGAAGGCTCAGGATTACGCA spacer
 length: 39 repeater length: 24
 21738 1114660 GTTAATCTTCTATAGAGTTGAAAG TCACGGAGCT
 21739
 21740
 21741 crispr 5
 21742 1136105 GTTTCAAACCCTCGAAGGATCTCTACAA
 ACGACACGTCTACACCCCCCCCCCGTTCGTGAGTGTGGGAAGCGGGGATCCC spacer length: 52 repeater
 length: 28
 21743 1136185 GTTTCAAACCCTCGAAGGATCTCTACAA ACTGGGGTCCATTGTGATGAAGATTTCTGGAGAAATTGAAGA
 spacer length: 41 repeater length: 28
 21744 1136254 GTTTCAAACCCTCGAAGGATCTCTACAA ACTCCCCTGTTACGACTGAACCAATACTTGATTGCACGT spacer
 length: 39 repeater length: 28
 21745 1136321 GTTTCAAACCCTCGAAGGATCTCTACAA ACCTCTACACACTAAGAGTAGCTGAGACCATAAAAACCAA spacer
 length: 40 repeater length: 28
 21746 1136389 GTTTCAAACCCTCGAAGGATCTCTACAA ACACATCATAGCCATGTCACCGAACGGAACCTCTGAGGTACTT
 spacer length: 42 repeater length: 28
 21747 1136459 GTTTCAAACCCTCGAAGGATCTCTACAA GCATTCAACTAGTGGCGTCTCCTGAAGGGCAACTATT spacer
 length: 37 repeater length: 28
 21748 1136524 GTTTCAAACCCTCGAAGGATCTCTACAA GAAGGGCTATTCTGCGTACGCTTCCCACCTCTGGAGGCA spacer
 length: 39 repeater length: 28
 21749 1136591 GTTTCAAACCCTCGAAGGATCTCTACAA TGGGGGCCTTG
 21750
 21751
 21752 crispr 6
 21753 1137837 TTGTAGTGATCCTTTGAGGGTTTGAAC AAATAGTACTGACTTGATACGGCTAGGTGATAATAGCGT spacer
 length: 39 repeater length: 28
 21754 1137904 TTGTAGTGATCCTTTGAGGGTTTGAAC GCAAAGGCCTTTCCACACTCTCCAAGGGAGTATGAAGT spacer
 length: 39 repeater length: 28
 21755 1137971 TTGTAGTGATCCTTTGAGGGTTTGAAC CTTACGTCTTGAAAGTACTCGATTATCAATTTAACAGGT spacer
 length: 39 repeater length: 28
 21756 1138038 TTGTAGTGATCCTTTGAGGGTTTGAAC GCGTCAATTCTCTAAAAAGAAAAGGCTAGCGTGAAGGGGAC
 spacer length: 41 repeater length: 28
 21757 1138107 TTGTAGTGATCCTTTGAGGGTTTGAAC TAAGTGAACCATGGGTATTCCCCCTCCGGGGGAACCTTCGAC
 spacer length: 41 repeater length: 28

21758 1138176 TTGTAGTGATCCTTTGAGGGTTTGAAC TCGGAAAGAACATATACATCCTCCCCGTGGTTCCCGGGT spacer
length: 39 repeater length: 28

21759 1138243 TTGTAGTGATCCTTTGAGGGTTTGAAC GTGTTTGTCCCCATCTTTTGATGGGGCAGCTGCTCCTCT spacer
length: 39 repeater length: 28

21760 1138310 TTGTAGTGATCCTTTGAGGGTTTGAAC TATACTTTGGAAAATCAGTATATCTCTTGTATCTTCTGT spacer
length: 39 repeater length: 28

21761 1138377 TTGTAGTGATCCTTTGAGGGTTTGAAC TCGATAGCGAACCTGATAACTTCGCTTCTATTTCAGTCTGT spacer
length: 40 repeater length: 28

21762 1138445 TTGTAGTGATCCTTTGAGGGTTTGAAC ATAGACGTATCGACCCGCCGTATAGCATCAAGAAGATAGT spacer
length: 40 repeater length: 28

21763 1138513 TTGTAGTGATCCTTTGAGGGTTTGAAC TACACGACGCGATCACACTCACATGCCCCGCGTGTGCGCGTTGT
spacer length: 43 repeater length: 28

21764 1138584 TTGTAGTGATCCTTTGAGGGTTTGAAC ATAACTCTATACGCTCTCACACGGCTGAGGTCGAGGAGC spacer
length: 39 repeater length: 28

21765 1138651 TTGTAGTGATCCTTTGAGGGTTTGAAC CCACCTTCACCCTCGCCTTACGGCCCTTTTCCTTCCTCAGT
spacer length: 41 repeater length: 28

21766 1138720 TTGTAGTGATCCTTTGAGGGTTTGAAC CGGAGTTCC

21767

21768

21769 GCA_001266695.1_ASM126669v1_genomic.fna (PilerCR):

21770 START REPEAT
SPACER

21771 crispr 1

21772 1082317 CTTTCAACTCTATAGGAGATTAAC TGATTTTGACACGGCCTATCAAATGTAATAAAAACGCATA spacer
length: 41 repeater length: 24

21773 1082382 CTTTCAACTCTATAGGAGATTAAC TAATAGGTATAATATTGGGCATTCTCGCCCTAGTTCAATT spacer
length: 40 repeater length: 24

21774 1082446 CTTTCAACTCTATAGGAGATTAAC AGACCCAAAACCTAAACTCCAAAAGTCTTTGAGCAATT spacer
length: 40 repeater length: 24

21775 1082510 CTTTCAACTCTATAGGAGATTAAC TTACTTCTAATGATTACAGGGATTTCTCAGAACCCTTCT spacer
length: 39 repeater length: 24

21776 1082573 CTTTCAACTCTATAGGAGATTAAC GCTGAAATTGGCAGAGGTAAGGAAGCTAATCGAGTCGAA spacer
length: 39 repeater length: 24

21777 1082636 CTTTCAACTCTATAGGAGATTAAC GTGAGGATTCACCGAATCCTGCCTTAGACGATACCGAGCAGAAG spacer
length: 44 repeater length: 24

21778 1082704 CTTTCAACTCTATAGGAGATTAAC AGAAGAAAAAGTATACTTGAAAAGAAGATTGAATTTTTAGA spacer
length: 41 repeater length: 24

21779 1082769 CTTTCAACTCTATAGGAGATTAAC ATCAAATGATGCCAAAAGTGATCTACCTATTCTTTTCAT spacer
length: 40 repeater length: 24

21780 1082833 CTTTCAACTCTATAGGAGATTAAC AACATGATAAGGCTTTACTTAGAAAGTTAGAGAAAAAATT spacer
length: 40 repeater length: 24

21781 1082897 CTTTCAACTCTATAGGAGATTAAC CGTGATTCATTAAGGTTATCATAATGAATTGGAAAACAGTCT spacer
length: 42 repeater length: 24

21782 1082963 CTTTCAACTCTATAGGAGATTAAC TTCAAAAAATGGTCAAGGTGATAGAGAGTCAGTTATTAG spacer
length: 39 repeater length: 24

21783 1083026 CTTTCAACTCTATAGGAGATTAAC AGTTCTACGGAAAACATCAATCCAGATAGCAATAAAGA spacer
length: 39 repeater length: 24

21784 1083089 CTTTCAACTCTATAGGAGATTAAC ATGCGATTACCACCACGGCTCCGTTTTGCCGTTTGCTCC spacer
length: 40 repeater length: 24

21785 1083153 CTTTCAACTCTATAGGAGATTAAC CATCGGTGTATTACTACTCACTGTGATTGGTGTATCAAG spacer
length: 39 repeater length: 24

21786 1083216 CTTTCAACTCTATAGGAGATTAAC TCCAGGTACATCGTCAGCGAATGGATCAGGAGGAGCAGG spacer
length: 39 repeater length: 24

21787 1083279 CTTTCAACTCTATAGGAGATTAAC TCCACTCGGTGCCGTGAAAGTTTTGACAAGACTCATGTTTGA spacer
length: 42 repeater length: 24

21788 1083345 CTTTCAACTCTATAGGAGATTAAC TCAATAATTGACGAGCAAGATTTAGTGATTCCAGACGAGG spacer
length: 40 repeater length: 24

21789 1083409 CTTTCAACTCTATAGGAGATTAAC ACAGTTCACAAACGGAATTGTTTGATAACTTCTTGGAAT spacer
length: 39 repeater length: 24

21790 1083472 CTTTCAACTCTATAGGAGATTAAC CTTACTTTCCATGTTTCCTCCATTACAAAGTAAAGTACT spacer
length: 39 repeater length: 24

21791 1083535 CTTTCAACTCTATAGGAGATTAAC CGGTCACTGAAGCCGATCCACCCTTAGTTGAGACCACGAG spacer
length: 40 repeater length: 24

21792 1083599 CTTTCAACTCTATAGGAGATTAAC TAATTGAAGTTACAGTAGAAATACAAAACCAAAAAATGA spacer
length: 39 repeater length: 24

21793 1083662 CTTTCAACTCTATAGGAGATTAAC ATCAAATTACTGGAGAAGAGTGGAACAAAATAATAAGGGAA spacer
length: 41 repeater length: 24

21794 1083727 CTTTCAACTCTATAGGAGATTAAC TTATACGGTTATTGGATGACGCGAGTATATCGTGAAAGTTA spacer
length: 41 repeater length: 24

21795 1083792 CTTTCAACTCTATAGGAGATTAAC AAAGCCTTCGTATCTGATGACGGCTCAGTTCCAATCGTTA spacer
length: 40 repeater length: 24

21796	1083856	CTTTCAACTCTATAGGAGATTAAC	ATGAAGATGTGGAGTCAAAGACCGAAAGGCCCTGGGATTA	spacer
		length: 40	repeater length: 24	
21797	1083920	CTTTCAACTCTATAGGAGATTAAC	ATATTTTCGTCTTATGTAGTTTGTAAATTGATCTTTTTTCTTT	spacer
		length: 43	repeater length: 24	
21798	1083987	CTTTCAACTCTATAGGAGATTAAC	TTAGGACCGTTGGGTTCACGAGTTACAACGAGATGGTGAAA	spacer
		length: 41	repeater length: 24	
21799	1084052	CTTTCAACTCTATAGGAGATTAAC	TTCATGCAGACTACGAAGTCGCTCTAATTTATCTTAATCT	spacer
		length: 40	repeater length: 24	
21800	1084116	CTTTCAACTCTATAGGAGATTAAC	GTCATAAACCACTGATCACTAGTAGTATGTTTCGAACTAT	spacer
		length: 40	repeater length: 24	
21801	1084180	CTTTCAACTCTATAGGAGATTAAC	TGTTGTGTGAATCTGAACCCGAAGACGAGGACATGTACC	spacer
		length: 39	repeater length: 24	
21802	1084243	CTTTCAACTCTATAGGAGATTAAC	CAAGTGTTGTTTGTGGGGATAACGAAGTTGGGGAAGGAA	spacer
		length: 39	repeater length: 24	
21803	1084306	CTTTCAACTCTATAGGAGATTAAC	TATATGACAAGTTGAGAAGGAATATTCTTCAACGCGGGAA	spacer
		length: 40	repeater length: 24	
21804	1084370	CTTTCAACTCTATAGGAGATTAAC	AAGTTAGTGGGGGAAGCCCGTAGAGTTCAGATTAGGTAC	spacer
		length: 41	repeater length: 24	
21805	1084435	CTTTCAACTCTATAGGAGATTAAC	ATCATCCCCCTCATCAAAACACTCATCAAGATACTCATCACTGTA	spacer
		length: 45	repeater length: 24	
21806	1084504	CTTTCAACTCTATAGGAGATTAAC	TCTCGACGCGGAGAGGATAGAGCGGTTGGTCGAGGACGA	spacer
		length: 39	repeater length: 24	
21807	1084567	CTTTCAACTCTATAGGAGATTAAC	CGAATTTTTCCCCCGTGAGCGGGGGGTTAGAAAGAGTTTGAC	spacer
		length: 42	repeater length: 24	
21808	1084633	CTTTCAACTCTATAGGAGATTAAC	CCCATAGTGGTCCCCTATGAGTTTGAGGATACAACCTTCATTAA	spacer
		length: 43	repeater length: 24	
21809	1084700	CTTTCAACTCTATAGGAGATTAAC	CGGGGTCCAAAGGTTCCCTGAATGTAAATATATTATTAC	spacer
		length: 39	repeater length: 24	
21810	1084763	CTTTCAACTCTATAGGAGATTAAC	CATATGACGCTCTCAAGGTAGTCACTCAAGATATCTTAGC	spacer
		length: 40	repeater length: 24	
21811	1084827	CTTTCAACTCTATAGGAGATTAAC	TTACGATCAGCCTTTTCGTTGCAGGTCTAATTCTCAGA	spacer
		length: 38	repeater length: 24	
21812	1084889	CTTTCAACTCTATAGGAGATTAAC	CCAAGTGTCCAGCCTGCCCTGCTGGACTAGGGTTTTCGAAC	spacer
		length: 41	repeater length: 24	
21813	1084954	CTTTCAACTCTATAGGAGATTAAC	CTCGTTAAGATATGCATTGATCACTTACGCTTCCAAAAA	spacer
		length: 39	repeater length: 24	
21814	1085017	CTTTCAACTCTATAGGAGATTAAC	TCTTTTTTTGCGGTTATACAATTAAACGTTTCGTGAAT	spacer
		length: 38	repeater length: 24	
21815	1085079	CTTTCAACTCTATAGGAGATTAAC	ACGTCCTTCTCCGTGATGTAGAGCGTACTGCCTGAAGTCCCTGT	spacer
		length: 44	repeater length: 24	
21816	1085147	CTTTCAACTCTATAGGAGATTAAC	AAAGGACCATAATACATCACAACCTAGTCTGCTTGCAAAGTGA	spacer
		length: 43	repeater length: 24	
21817	1085214	CTTTCAACTCTATAGGAGATTAAC	ATAACCGGAACGAACTAGAGGAATACTGTGAACCGGTAA	spacer
		length: 40	repeater length: 24	
21818	1085278	CTTTCAACTCTATAGGAGATTAAC	CAATGAGTGTTGGTCTCATCCTTGAGGGTCCTGATGGAGT	spacer
		length: 40	repeater length: 24	
21819	1085342	CTTTCAACTCTATAGGAGATTAAC	CAATACGACTACGGGTTCAATCTTGAAAAGTTCCGGTG	spacer
		length: 38	repeater length: 24	
21820	1085404	CTTTCAACTCTATAGGAGATTAAC	ATGGTCAATTATGTCCTTAATATGATGGTAGAGATATTGA	spacer
		length: 40	repeater length: 24	
21821	1085468	CTTTCAACTCTATAGGAGATTAAC	TGGACATGTCTACATCAAAGAAGTCCAAGTACTTTGCCT	spacer
		length: 39	repeater length: 24	
21822	1085531	CTTTCAACTCTATAGGAGATTAAC	TACCTGAAGTTCTCCCACTCTAGCAGGGAGCTGCTGTCCTACT	spacer
		length: 43	repeater length: 24	
21823	1085598	CTTTCAACTCTATAGGAGATTAAC	GGCGTAAAAAATGCAATAGGAGGAGTAGGAAGCTTCTTTTC	spacer
		length: 41	repeater length: 24	
21824	1085663	CTTTCAACTCTATAGGAGATTAAC	TTACTATTTCTTAAGGAACGACGTAAGAGAAAGTAGTAAT	spacer
		length: 40	repeater length: 24	
21825	1085727	CTTTCAACTCTATAGGAGATTAAC	GGAATAAAGGACAAGGGATTCTTCATCAGTTTGGA	spacer length: 36
		length: 36	repeater length: 24	
21826	1085787	CTTTCAACTCTATAGGAGATTAAC	ACAAGGAGTAGCTCTTACTGGTAATGAGGGTATAATAAGAAA	spacer
		length: 42	repeater length: 24	
21827	1085853	CTTTCAACTCTATAGGAGATTAAC	CGCTCTGGACCTCCTTCTTGACGTAGTCATTTCTCTTTAGTT	spacer
		length: 42	repeater length: 24	
21828	1085919	CTTTCAACTCTATAGGAGATTAAC	AGACAAGTCCAGAGGGTTAGGGAGGAGAGGAGGTCCAGTCTT	spacer
		length: 42	repeater length: 24	
21829	1085985	CTTTCAACTCTATAGGAGATTAAC	ACTTTAGCTTTCATGACTTACACAACCTTCATATCCACCT	spacer
		length: 39	repeater length: 24	
21830	1086048	CTTTCAACTCTATAGGAGATTAAC	TGAATAAACCAACTCTCCTTCATAGTTTAAATTAATTACAT	spacer
		length: 41	repeater length: 24	
21831	1086113	CTTTCAACTCTATAGGAGATTAAC	AAGAGAATAAGGGTAGTATATAACCCTGCAATCACCTTAA	spacer

length: 40 repeater length: 24

21832 1086177 CTTTCAACTCTATAGGAGATTAAC CAGCTTGTGGTATTCCCTCCTAATATTACTGCATTGACCC spacer
length: 39 repeater length: 24

21833 1086240 CTTTCAACTCTATAGGAGATTAAC TTAAAGATAATTGGAAAAGAACAATTAATAAGAACATTA spacer
length: 40 repeater length: 24

21834 1086304 CTTTCAACTCTATAGGAGATTAAC ATGGGGGTTCAAAGGGGGTGAAATACCCCTTCCGTCAAGGA spacer
length: 41 repeater length: 24

21835 1086369 CTTTCAACTCTATAGGAGATTAAC TGCATACAGTCTTTTGCAACACTTATTATTCTGTCATATT spacer
length: 40 repeater length: 24

21836 1086433 CTTTCAACTCTATAGGAGATTAAC CTTTCGCTATATCTACCATGAATAAGTCTTGAATGTAAA spacer
length: 38 repeater length: 24

21837 1086495 CTTTCAACTCTATAGGAGATTAAC TTATATTTAGTTAGAATTTTCTCAAAAAATCATCTCGATCT spacer
length: 42 repeater length: 24

21838 1086561 CTTTCAACTCTATAGGAGATTAAC CTAACCGTATTGAGTCCGTGGGTGCGACCGGCCACAGTA spacer
length: 40 repeater length: 24

21839 1086625 CTTTCAACTCTATAGGAGATTAAC AGTCTGCTGGCTTTAATCTTCATGTAGTTGCCAGTAGGTTT spacer
length: 41 repeater length: 24

21840 1086690 CTTTCAACTCTATAGGAGATTAAC TTTTGCTTTTCTCTTCTCAAATTTTCTTCTCCATGATTCA spacer
length: 40 repeater length: 24

21841 1086754 CTTTCAACTCTATAGGAGATTAAC CGGTCTGAGTCTCTGGCTGAGACTCTAACTTCTTCTTGAGA spacer
length: 41 repeater length: 24

21842 1086819 CTTTCAACTCTATAGGAGATTAAC ATACCCTAGAGGAAGAAGTTGAGGAGGTCTGGCTCAACTTG spacer
length: 42 repeater length: 24

21843 1086885 CTTTCAACTCTATAGGAGATTAAC ATGAAAACGACCGTGACGTCATTGCAATCATGAATCTCAA spacer
length: 40 repeater length: 24

21844 1086949 CTTTCAACTCTATAGGAGATTAAC ACATGCTAGATTTTGATAAAAAATTGAATGCAGAATTTAACCA spacer
length: 42 repeater length: 24

21845 1087015 CTTTCAACTCTATAGGAGATTAAC AACTGTTGCAGAATCGTACTGGAAAGCGGTCCCTGCATT spacer
length: 39 repeater length: 24

21846 1087078 CTTTCAACTCTATAGGAGATTAAC AGCTTTACGGCAAAGAGAAAGAGTTTGATGAGTTCA spacer length:
36 repeater length: 24

21847 1087138 CTTTCAACTCTATAGGAGATTAAC ACGGACACGACCCAGGGGTGATGGTTCGTCCTCCGCTCATGT spacer
length: 39 repeater length: 24

21848 1087201 CTTTCAACTCTATAGGAGATTAAC TCAGAAGAGCCATCGAGAAGATGGTTAAGGAAGAGA spacer length:
36 repeater length: 24

21849 1087261 CTTTCAACTCTATAGGAGATTAAC TCGATCTAATGAAATTGGCTAGGGAGTTCGGTCAGGGGTT spacer
length: 40 repeater length: 24

21850 1087325 CTTTCAACTCTATAGGAGATTAAC GTAAAATAGATGAAATCCATGTCCGCTCCACATTACTAGAA spacer
length: 41 repeater length: 24

21851 1087390 CTTTCAACTCTATAGGAGATTAAC CCTCTCAACCTCATGAAAAAGGTGGATGGGAGGGTAG spacer
length: 37 repeater length: 24

21852 1087451 CTTTCAACTCTATAGGAGATTAAC CTTCCCTGATGGTTACACCCCTTTGCACCTAGCGGTAGAACT spacer
length: 42 repeater length: 24

21853 1087517 CTTTCAACTCTATAGGAGATTAAC ACGGACCAATCTTTTGCCTTGCCTCCTTGTACTGCTCATCTAG spacer
length: 43 repeater length: 24

21854 1087584 CTTTCAACTCTATAGGAGATTAAC CCTCAGTGGGACGTTGGCTTTTGATTGGAGAGGTATTC spacer
length: 38 repeater length: 24

21855 1087646 CTTTCAACTCTATAGGAGATTAAC ATTTAACATCTTAGGTGTTATCTTAAGATATTCTGGCTT spacer
length: 39 repeater length: 24

21856 1087709 CTTTCAACTCTATAGGAGATTAAC TTCTAAGACGTGCTCCCTATGTGGGGAATTCATGAGAG spacer
length: 39 repeater length: 24

21857 1087772 CTTTCAACTCTATAGGAGATTAAC CACCTGAAAGGTTACGGCATTACAGGTAGGACGCAATCCTA spacer
length: 40 repeater length: 24

21858 1087836 CTTTCAACTCTATAGGAGATTAAC TTATCATGGCGAATATCAGACGTATTAGGTCACCTCATCT spacer
length: 39 repeater length: 24

21859 1087899 CTTTCAACTCTATAGGAGATTAAC CGCTCCATAATGATATAGTCATGATACAAGGATGGCGTTA spacer
length: 40 repeater length: 24

21860 1087963 CTTTCAACTCTATAGGAGATTAAC AAGCAGGAAGTCTTTACAAAATCAAATGGCTAATACATA spacer
length: 40 repeater length: 24

21861 1088027 CTTTCAACTCTATAGGAGATTAAC TTTTCTCTTCTCTTCTCTCATACGATAAAATACGTAAAGT spacer
length: 40 repeater length: 24

21862 1088091 CTTTCAACTCTATAGGAGATTAAC TTGCTTCTGGAAAGCGGCGCAAGAGAAATTGAGGTTTTAA spacer
length: 40 repeater length: 24

21863 1088155 CTTTCAACTCTATAGGAGATTAAC TACAGATAAGGAAATTCAAAACCTACAGCCAACAGAGAAAT spacer
length: 41 repeater length: 24

21864 1088220 CTTTCAACTCTATAGGAGATTAAC TTGTCTTTTGATTTTCTACTCAACAATTTTGAGTAGAAAA spacer
length: 40 repeater length: 24

21865 1088284 CTTTCAACTCTATAGGAGATTAAC CGTACGAGGCTATCACATGCCTGGGCAAAGGCGTGTGTTC spacer
length: 40 repeater length: 24

21866 1088348 CTTTCAACTCTATAGGAGATTAAC CTTGACGTGGAAGACAAGGCATTATTCACGAAATGGAT spacer
length: 38 repeater length: 24

21867	1088410	CTTTCAACTCTATAGGAGATTAAC	GGAACAAAGTGCTACAGCCTTATTGCTAAGGCAAAACGAAGC	spacer
	length:	42	repeater length:	24
21868	1088476	CTTTCAACTCTATAGGAGATTAAC	CATCGGGCGCCGGAATGGTTCTAAGCCGTAACGCTTAAA	spacer
	length:	40	repeater length:	24
21869	1088540	CTTTCAACTCTATAGGAGATTAAC	ATTCCCAGGGCATTATCTACAGAAAATGGCAGAAATATAA	spacer
	length:	40	repeater length:	24
21870	1088604	CTTTCAACTCTATAGGAGATTAAC	CAAATCGCCCCCGTTTCGCCCCGCCGTTCTCTTTCTTTTCACC	spacer
	length:	44	repeater length:	24
21871	1088672	CTTTCAACTCTATAGGAGATTAAC	ATTGATATTAACGTTAAACCCCACGCCCCCAGTGAAGTT	spacer
	length:	39	repeater length:	24
21872	1088735	CTTTCAACTCTATAGGAGATTAAC	AACGCAGAAAGATGCGTGAGAGAAGCAATGGCGTATCTAGT	spacer
	length:	41	repeater length:	24
21873	1088800	CTTTCAACTCTATAGGAGATTAAC	CCCCCGCTTAGTTTCTGCCACGCATACCTCTGTTCTGCC	spacer
	length:	39	repeater length:	24
21874	1088863	CTTTCAACTCTATAGGAGATTAAC	TCTGGAACCTTAGTACTTCCATGTTAACCACCTGTGTAT	spacer
	length:	39	repeater length:	24
21875	1088926	CTTTCAACTCTATAGGAGATTAAC	TTCACTCTCCCAGTAGACGTTTCCAGACGTTCAAGATCGTT	spacer
	length:	39	repeater length:	24
21876	1088989	CTTTCAACTCTATAGGAGATTAAC	ATATGGGATGTTCCATTTAATAAACAAGGAAAAAAGAAGG	spacer
	length:	41	repeater length:	24
21877	1089054	CTTTCAACTCTATAGGAGATTAAC	TCTCACTTATGACTAAAGGTTCTTTGTTCTCAACTTCTTT	spacer
	length:	40	repeater length:	24
21878	1089118	CTTTCAACTCTATAGGAGATTAAC	AGCCACAACCGACGACGGAACTTACTATTTTGTGTA	spacer
	length:	37	repeater length:	24
21879	1089179	CTTTCAACTCTATAGGAGATTAAC	GCACCCACCAAGTCATGGTAGTGGTAGCACTAACAGTAG	spacer
	length:	40	repeater length:	24
21880	1089243	CTTTCAACTCTATAGGAGATTAAC	AAGCTAGTTACATGAATCGTCACATTAAATGTGTTACTTGA	spacer
	length:	41	repeater length:	24
21881	1089308	CTTTCAACTCTATAGGAGATTAAC	CAGTCCGTAATTACCCTATTGCTAACTAATTTCATAGGAATAG	spacer
	length:	43	repeater length:	24
21882	1089375	CTTTCAACTCTATAGGAGATTAAC	AGTTAGGTTTTCTACTATCATTATCATTATTGAATCAGCG	spacer
	length:	40	repeater length:	24
21883	1089439	CTTTCAACTCTATAGGAGATTAAC	TAGTATGGTGCGCCAGCCTCCGTGCTGACGACATCATA	spacer
	length:	39	repeater length:	24
21884	1089502	CTTTCAACTCTATAGGAGATTAAC	ACTGTCTCTATCGGTATCCAAAAATGTAAAAAATTCTCATT	spacer
	length:	41	repeater length:	24
21885	1089567	CTTTCAACTCTATAGGAGATTAAC	ACCAATTGACGGCCACGGATGGAAGTCCGACAGTGA	spacer length:
	length:	36	repeater length:	24
21886	1089627	CTTTCAACTCTATAGGAGATTAAC	ATTGCCAGCATACGCTAGATCAAAGCTAAAAGATGAGTA	spacer
	length:	39	repeater length:	24
21887	1089690	CTTTCAACTCTATAGGAGATTAAC	TGAATCCTAAAGCGTCAAGAATTACCTTCCATTTCGTCAT	spacer
	length:	39	repeater length:	24
21888	1089753	CTTTCAACTCTATAGGAGATTAAC	ATCAAGCGATTGCATTTGTTCTCAAGCAGAGGTTACAGGA	spacer
	length:	40	repeater length:	24
21889	1089817	CTTTCAACTCTATAGGAGATTAAC	ATGAGAAGTAAAGAAGAATTGAATGAAGCGTTGGAGCAAA	spacer
	length:	40	repeater length:	24
21890	1089881	CTTTCAACTCTATAGGAGATTAAC	ATGGGAATACGTTTACCAATTACTGATGCTGATGGGAAGGCCAAC	spacer length:
	length:	45	repeater length:	24
21891	1089950	CTTTCAACTCTATAGGAGATTAAC	AGATTGGGAAAGGTGGTTCAAAGGTACAGACAATAACAT	spacer
	length:	39	repeater length:	24
21892	1090013	CTTTCAACTCTATAGGAGATTAAC	ATCATAACTGACGTTGACACCTGCCATAGTTGTTCTGATGG	spacer
	length:	41	repeater length:	24
21893	1090078	CTTTCAACTCTATAGGAGATTAAC	GCAAATGCCTTCAAAAACACTTCAAGCGCTAATGTTAGGG	spacer
	length:	41	repeater length:	24
21894	1090143	CTTTCAACTCTATAGGAGATTAAC	GAGAGAGAAAGATTTATATACTTGACATGACATATGTATAAA	spacer
	length:	42	repeater length:	24
21895	1090209	CTTTCAACTCTATAGGAGATTAAC	CTATTAACATCATAAACAATTTGCCACACTAACAGGA	spacer
	length:	38	repeater length:	24
21896	1090271	CTTTCAACTCTATAGGAGATTAAC	ACGCAATGGATTATCTGGAAGAGATGCTGGGCAATAAG	spacer
	length:	38	repeater length:	24
21897	1090333	CTTTCAACTCTATAGGAGATTAAC	CACGATAAATTATTGGATGAAAACATCTTTTAACTTGTCGC	spacer
	length:	41	repeater length:	24
21898	1090398	CTTTCAACTCTATAGGAGATTAAC	TGAAAATATTTTACGCGTTATACTTTTGCTTAATGTACTCTTT	spacer
	length:	42	repeater length:	24
21899	1090464	CTTTCAACTCTATAGGAGATTAAC	AGCGGGAAGCTAAGTATTTGTTAGAAATAGAGAAATATACA	spacer
	length:	41	repeater length:	24
21900	1090529	CTTTCAACTCTATAGGAGATTAAC	TGTTGATCGGAGACATTATTTAGGTCTTTAATCCCAAATC	spacer
	length:	40	repeater length:	24
21901	1090593	CTTTCAACTCTATAGGAGATTAAC	CGATTTACTGGGACTGTGATACCCAACAGCATAGACATCAGTT	spacer
	length:	43	repeater length:	24
21902	1090660	CTTTCAACTCTATAGGAGATTAAC	TAGGATTTTTTTTTCTAGATGATAGATTAATTGGAAATTCCT	spacer

	length: 42	repeater length: 24	
21903	1090726	CTTTCAACTCTATAGGAGATTAAC	GAAGTGTTCGCGCCTCTGCTAGAACAAATACGGAATGAAAGTGCC spacer
	length: 44	repeater length: 24	
21904	1090794	CTTTCAACTCTATAGGAGATTAAC	ACACGTGGTGATTGATCCATTCCAACAAAGGCAAATCATTC spacer
	length: 41	repeater length: 24	
21905	1090859	CTTTCAACTCTATAGGAGATTAAC	AAGTTATTCGCGCGCTTTGCGCCTTCTTTTTTTGCTTAAACA spacer
	length: 41	repeater length: 24	
21906	1090924	CTTTCAACTCTATAGGAGATTAAC	AAATAATTAGTTAGTAGGAGGATAGTTTTGAAAACCTTTTGTAGAAG spacer
	length: 45	repeater length: 24	
21907	1090993	CTTTCAACTCTATAGGAGATTAAC	GTTTGTTTTAGCGCAATATTTAGATCAACAGAAGAAGAAGA spacer
	length: 41	repeater length: 24	
21908	1091058	CTTTCAACTCTATAGGAGATTAAC	ACCCAAAAACGTAGTGGGGAAAATATAATCTTCATTATTT spacer
	length: 40	repeater length: 24	
21909	1091122	CTTTCAACTCTATAGGAGATTAAC	TAGCCCCAGTCGGTTTAGGCGGAAAATTCAACATTAAATT spacer
	length: 40	repeater length: 24	
21910	1091186	CTTTCAACTCTATAGGAGATTAAC	TGACGGTTTGACAGAGGTCTATGTGTTACATACAGTAA spacer
	length: 39	repeater length: 24	
21911	1091249	CTTTCAACTCTATAGGAGATTAAC	TGAGAAGAGAGAACTATATTTTAGTGAAAAAAATGTCAGC spacer
	length: 40	repeater length: 24	
21912	1091313	CTTTCAACTCTATAGGAGATTAAC	ACTATCCATCTTCCACAATTTATATTATCCATATTTTCATTA spacer
	length: 42	repeater length: 24	
21913	1091379	CTTTCAACTCTATAGGAGATTAAC	AGAATTTATAAGCCAAATTCTTGATAGTTTCTAACAAACG spacer
	length: 40	repeater length: 24	
21914	1091443	CTTTCAACTCTATAGGAGATTAAC	AATATTTGTAAATTTTCATCAAACATTTTCCTAACTTTATC spacer
	length: 40	repeater length: 24	
21915	1091507	CTTTCAACTCTATAGGAGATTAAC	AAAGAAGAGAATACAAGCTGTATTTTGTGAGGTTTAGCA spacer
	length: 39	repeater length: 24	
21916	1091570	CTTTCAACTCTATAGGAGATTAAC	ATTTGGCAAAATCCTAGCCAGAAGATAGGGGGCGACAAC spacer
	length: 39	repeater length: 24	
21917	1091633	CTTTCAACTCTATAGGAGATTAAC	CAGTGAAAAAGAAATTACTTAATGTAGTCGAAAAGTG spacer
	length: 37	repeater length: 24	
21918	1091694	CTTTCAACTCTATAGGAGATTAAC	ATATGATGGAGAACTCAAGTATATATTTTCACTTCAGATAA spacer
	length: 42	repeater length: 24	
21919	1091760	CTTTCAACTCTATAGGAGATTAAC	AATCCAGAACACTACGCTTTACCAATACATGAAAAGTAT spacer
	length: 39	repeater length: 24	
21920	1091823	CTTTCAACTCTATAGGAGATTAAC	TATAGAAAGCTGTTGGACGAAGCGGTCTCTCCTGAAGAG spacer
	length: 39	repeater length: 24	
21921	1091886	CTTTCAACTCTATAGGAGATTAAC	GGAAAGAAGA
21922			
21923			
21924	crispr 2		
21925	1097326	CTTAATCTCCTATAGAGTTGAAAG	AAGGCGAAATGCAGAAGATGTAGTAGCAAAGACAGCTGTGA spacer
	length: 41	repeater length: 24	
21926	1097391	CTTAATCTCCTATAGAGTTGAAAG	CAACTCTCATGATTATAATCCCTCCATTTTAAATGTATT spacer
	length: 40	repeater length: 24	
21927	1097455	CTTAATCTCCTATAGAGTTGAAAG	AAGTTTACTTTCAGTTAATGAGCAAGTCAGCGCAGTGCTAA spacer
	length: 40	repeater length: 24	
21928	1097519	CTTAATCTCCTATAGAGTTGAAAG	TTATATTTACGGGTAAGACGGCGTTAACGAAGCGTTAGG spacer
	length: 39	repeater length: 24	
21929	1097582	CTTAATCTCCTATAGAGTTGAAAG	AGTTTAAACGTTACAACCTCTCGTTTCCAAACACCTCGTTTGT spacer
	length: 42	repeater length: 24	
21930	1097648	CTTAATCTCCTATAGAGTTGAAAG	AAAACGAGACCTTTGGCTAAATAAACCGCACCATAGATAT spacer
	length: 40	repeater length: 24	
21931	1097712	CTTAATCTCCTATAGAGTTGAAAG	CTATGAAATTGTCGCATTTCGTATGCAAAATATTTCTGGATCT spacer
	length: 42	repeater length: 24	
21932	1097778	CTTAATCTCCTATAGAGTTGAAAG	TACATATCCTTCAATTGTGATCTAGCGTATGCTGGTAGT spacer
	length: 39	repeater length: 24	
21933	1097841	CTTAATCTCCTATAGAGTTGAAAG	ATTTGGATTTTGATAATTTTCTTTTCTTTGTCATAATAAT spacer
	length: 40	repeater length: 24	
21934	1097905	CTTAATCTCCTATAGAGTTGAAAG	TATAGTTAAGTCATTTTTTCTTCTTGTGGTGGTATTACCTAT spacer
	length: 42	repeater length: 24	
21935	1097971	CTTAATCTCCTATAGAGTTGAAAG	TACCAATTTCTGCTAATAACGTGAACGTACTCTCGCTGAG spacer
	length: 40	repeater length: 24	
21936	1098035	CTTAATCTCCTATAGAGTTGAAAG	TAACTTATCCCCTACATGATTGCGAAAAACAACAAT spacer
	length: 37	repeater length: 24	
21937	1098096	CTTAATCTCCTATAGAGTTGAAAG	TGTTTTTAAGGACCTGGAGGCAGTCCGCCATTTACCCAC spacer
	length: 40	repeater length: 24	
21938	1098160	CTTAATCTCCTATAGAGTTGAAAG	TGAGAACAGCTGTCTTCACTGCTGACCATCGAGCGACCT spacer
	length: 39	repeater length: 24	
21939	1098223	CTTAATCTCCTATAGAGTTGAAAG	TTTTCTTTCTCATACATTACTCTTATTAGTTTACTAACAA spacer
	length: 40	repeater length: 24	

21940	1098287	CTTAATCTCCTATAGAGTTGAAAG	CTTCTTGTTCTTCTCTCTGCTTTACGCCTTCTTGTTCTTCC	spacer
	length:	41	repeater length:	24
21941	1098352	CTTAATCTCCTATAGAGTTGAAAG	TCTGTACGTGGGTCAATAAATGTCACAATCGCGTACTTCTT	spacer
	length:	41	repeater length:	24
21942	1098417	CTTAATCTCCTATAGAGTTGAAAG	ATAATAATCAACGAGGCCAAACTCCATGTTCTACAAACCA	spacer
	length:	39	repeater length:	24
21943	1098480	CTTAATCTCCTATAGAGTTGAAAG	ACTAGGCAAACGATACTGAGACACAGCGGGACTGCAG	spacer
	length:	37	repeater length:	24
21944	1098541	CTTAATCTCCTATAGAGTTGAAAG	TTGGAAACACTCCGTATCAATCCTTTAGACTGCAACTCCTCA	spacer
	length:	42	repeater length:	24
21945	1098607	CTTAATCTCCTATAGAGTTGAAAG	AACATTAGTGTAAGCCTGCAGCGTTTGCTGGAAGCACGG	spacer
	length:	40	repeater length:	24
21946	1098671	CTTAATCTCCTATAGAGTTGAAAG	TCTCGTCCTTAAATTTCAAACCTTCCATGTAGCTCGCCCCCTCT	spacer
	length:	44	repeater length:	24
21947	1098739	CTTAATCTCCTATAGAGTTGAAAG	CTTATGTACACACCACCTGAGCTAAGGAGTGTCTTAATCT	spacer
	length:	40	repeater length:	24
21948	1098803	CTTAATCTCCTATAGAGTTGAAAG	AAATGGGACGATGAGGGTGTTCAACAGATACAACACCACAG	spacer
	length:	41	repeater length:	24
21949	1098868	CTTAATCTCCTATAGAGTTGAAAG	ATTATATATAATATATGAATAATAGCCCCCGTGCTTCGCGCCTT	spacer
	length:	44	repeater length:	24
21950	1098936	CTTAATCTCCTATAGAGTTGAAAG	TCTTTTGCACATATCCATTCGGACCACATCTCTCGGCTTCGATAC	spacer
	length:	44	repeater length:	24
21951	1099004	CTTAATCTCCTATAGAGTTGAAAG	TTGACGACGTGCTTACTCTTCTTTCCAGTTCTTGTTACTT	spacer
	length:	40	repeater length:	24
21952	1099068	CTTAATCTCCTATAGAGTTGAAAG	TTATCGATAAAATCGTAAACGATTTGTTGCCTTATTACGTGAA	spacer
	length:	43	repeater length:	24
21953	1099135	CTTAATCTCCTATAGAGTTGAAAG	ACACCTCTACTAACTTTACCAAAGCCTATCATAGTCCCAACG	spacer
	length:	42	repeater length:	24
21954	1099201	CTTAATCTCCTATAGAGTTGAAAG	CCTTTATTCTTGCTATTAGATCGAATAAATCGCTCGCG	spacer
	length:	38	repeater length:	24
21955	1099263	CTTAATCTCCTATAGAGTTGAAAG	TAAGTGGACACTATTGATCACCTCAGGGCTAGATATATGCCT	spacer
	length:	42	repeater length:	24
21956	1099329	CTTAATCTCCTATAGAGTTGAAAG	TCATTGAAATACTCAGCAACTGTATCCCTTAACTCTTCCTTATTA	spacer
	length:	45	repeater length:	24
21957	1099398	CTTAATCTCCTATAGAGTTGAAAG	AGTATACCTGGGAGTGCTGATGTAGATGCGTCACCGACCACGTT	spacer
	length:	44	repeater length:	24
21958	1099466	CTTAATCTCCTATAGAGTTGAAAG	ACTACGGGTCTCAAGGTAGTCGGTGTTCTTCTAGTAGCTG	spacer
	length:	40	repeater length:	24
21959	1099530	CTTAATCTCCTATAGAGTTGAAAG	ATCGTACTTTGCGCTGTACCTTATGAACAGTGGAATGTCCC	spacer
	length:	41	repeater length:	24
21960	1099595	CTTAATCTCCTATAGAGTTGAAAG	GTAAAGGGGTTGTGTTTTACGTTTTGAGTGGTGTTCACGAC	spacer
	length:	41	repeater length:	24
21961	1099660	CTTAATCTCCTATAGAGTTGAAAG	CTAAACATATATGAGTTCATTTTTTCCGACTTTCCTAGA	spacer
	length:	39	repeater length:	24
21962	1099723	CTTAATCTCCTATAGAGTTGAAAG	TAAAGTGATAGAATAAAAGCTATTATTCCAACATTTTCT	spacer
	length:	39	repeater length:	24
21963	1099786	CTTAATCTCCTATAGAGTTGAAAG	CCTTGGCAACTCGGACCCCTCAAGCGTACGGAAGAGATT	spacer
	length:	40	repeater length:	24
21964	1099850	CTTAATCTCCTATAGAGTTGAAAG	AAACTCTCGATCAAGACATTTATTGTCTCTTCATCTATCT	spacer
	length:	40	repeater length:	24
21965	1099914	CTTAATCTCCTATAGAGTTGAAAG	TCTAAGGAGGATAAAGAGGAAGATTGGGCATTTTGTTCTGT	spacer
	length:	41	repeater length:	24
21966	1099979	CTTAATCTCCTATAGAGTTGAAAG	TTAGTGTTTACGTATGCTCTTTGTTGAGCTAGTTGTTGAT	spacer
	length:	40	repeater length:	24
21967	1100043	CTTAATCTCCTATAGAGTTGAAAG	TTCACGAGGATGATTATAAGCTCAGGGAGAAGATTGT	spacer
	length:	37	repeater length:	24
21968	1100104	CTTAATCTCCTATAGAGTTGAAAG	ACGTAACCTGTAGATGTGTAACCAGGCTCAGACGAGAA	spacer
	length:	38	repeater length:	24
21969	1100166	CTTAATCTCCTATAGAGTTGAAAG	GAACATCCGCCTTATCGTTATCTTTCTTCTTGAACAGGAAC	spacer
	length:	41	repeater length:	24
21970	1100231	CTTAATCTCCTATAGAGTTGAAAG	TCAATTTATCATACCTACCTAGTCTTACTAAAGTACAGT	spacer
	length:	39	repeater length:	24
21971	1100294	CTTAATCTCCTATAGAGTTGAAAG	GTTGGACTACCTGAAGTAATCGAGCTCAGTGGAGGCA	spacer
	length:	37	repeater length:	24
21972	1100355	CTTAATCTCCTATAGAGTTGAAAG	GTTTTACGTGATACTTTATGATGTCGTTGCATCTATCGA	spacer
	length:	40	repeater length:	24
21973	1100419	CTTAATCTCCTATAGAGTTGAAAG	AGGACATAAGGCCTTGCCATGGTCTCAATATCCCATTCTT	spacer
	length:	41	repeater length:	24
21974	1100484	CTTAATCTCCTATAGAGTTGAAAG	GCACTGACGTTTACTATCTGCAGCCCACTTGGTGACTG	spacer
	length:	38	repeater length:	24
21975	1100546	CTTAATCTCCTATAGAGTTGAAAG	ACACTGCCTTGATGAGCGGGATGCTTCCAATTCTCCCTCT	spacer

length: 40 repeater length: 24
21976 1100610 CTTAATCTCCTATAGAGTTGAAAG AGGATTCTTCTAAATGCTGTGACAAATGTTAGAAATTAGATA spacer
length: 41 repeater length: 24
21977 1100675 CTTAATCTCCTATAGAGTTGAAAG CAACGAAGAAAGAGTCGAGAACTAAGCAGAGTCGAGCACT spacer
length: 41 repeater length: 24
21978 1100740 CTTAATCTCCTATAGAGTTGAAAG TATTCGTCGTACGATTCCACTTCAACAGAGTTCACAATAA spacer
length: 40 repeater length: 24
21979 1100804 CTTAATCTCCTATAGAGTTGAAAG AGTTGCTCTAGCAGGAGAAGATCCTGCTCTTCGATTTTGAAT spacer
length: 42 repeater length: 24
21980 1100870 CTTAATCTCCTATAGAGTTGAAAG TAAAATTCCT
21981
21982
21983 crispr 3
21984 1104340 GTTAATCTTCTATAGAGTTGAAAG TCTCAATCTGTAGGCCAAGCCACTATTATCATAACTCCAC spacer
length: 40 repeater length: 24
21985 1104404 GTTAATCTTCTATAGAGTTGAAAG TGAATGCAAGCCTGTCGTACATTACTATTCTACCTTGTTTG spacer
length: 41 repeater length: 24
21986 1104469 GTTAATCTTCTATAGAGTTGAAAG TTTGTCTGTTTCGATTGGAATAATTTTCAGCGTTACCATAAAC spacer
length: 42 repeater length: 24
21987 1104535 GTTAATCTTCTATAGAGTTGAAAG TACCTGTATGACAATTCGCTAAAAATTTAACTATCTAC spacer
length: 39 repeater length: 24
21988 1104598 GTTAATCTTCTATAGAGTTGAAAG TCATTTCCATTTCTTTCAATTTATCAACTATTAACCTAA spacer
length: 39 repeater length: 24
21989 1104661 GTTAATCTTCTATAGAGTTGAAAG GAGGAAAAGAAGGCTAACGCATTAAAGGCGTGGCATTTAGGG spacer
length: 42 repeater length: 24
21990 1104727 GTTAATCTTCTATAGAGTTGAAAG GACCCATATTTAGGAGTTATGTCAGCTATATCCAAGCAT spacer
length: 39 repeater length: 24
21991 1104790 GTTAATCTTCTATAGAGTTGAAAG TCTTGATTTCCATGTCTATCCCCTGCGCATATCTCATATCA spacer
length: 41 repeater length: 24
21992 1104855 GTTAATCTTCTATAGAGTTGAAAG CATGAGCTGTCCCTCCGATAAGATCATATTTGATGCAGA spacer
length: 39 repeater length: 24
21993 1104918 GTTAATCTTCTATAGAGTTGAAAG TGAAATAACCGCCGACATCCAACGCTGGAAATTTATATCT spacer
length: 40 repeater length: 24
21994 1104982 GTTAATCTTCTATAGAGTTGAAAG AATCTTAAACCGCAACCTTTTATAAAATCTTCAACTGTAA spacer
length: 40 repeater length: 24
21995 1105046 GTTAATCTTCTATAGAGTTGAAAG CCTATAACCTAATAGCATAATATTTACTATGTCCCTCCAT spacer
length: 40 repeater length: 24
21996 1105110 GTTAATCTTCTATAGAGTTGAAAG TGCTCACCTCTTCAGTTTCTGCGCTTCTCCCTCACCG spacer
length: 39 repeater length: 24
21997 1105173 GTTAATCTTCTATAGAGTTGAAAG TTGATATTTGAGTGCCTGCGCAAATTCCTCAAACAAATCT spacer
length: 40 repeater length: 24
21998 1105237 GTTAATCTTCTATAGAGTTGAAAG GCTGTCCAAG
21999
22000
22001 crispr 4
22002 1105371 GTTAATCTTCTATAGAGTTGAAAG CTTTTTTGCAACCTAGAAAGCCTTGTTGCGAAATATGGC spacer
length: 39 repeater length: 24
22003 1105434 GTTAATCTTCTATAGAGTTGAAAG ATTGCTTCTACTTCTGCTGGCATTMTTTTCCACTAAAA spacer
length: 38 repeater length: 24
22004 1105496 GTTAATCTTCTATAGAGTTGAAAG GCAATATTGGATAGGATTCATATCATCCAAGTTGCAATAAA spacer
length: 41 repeater length: 24
22005 1105561 GTTAATCTTCTATAGAGTTGAAAG GCAATCATTGCGAAAATAACGGGCATAAACGCCTGGAC spacer
length: 39 repeater length: 24
22006 1105624 GTTAATCTTCTATAGAGTTGAAAG TAGGTAGAAGGCAGAAGGAAGTTTTAGCTTCGATATTGGAA spacer
length: 41 repeater length: 24
22007 1105689 GTTAATCTTCTATAGAGTTGAAAG CGTTTCTCTAATCTCGCCAACCTAGTTGCGAAATATGGCTG spacer
length: 41 repeater length: 24
22008 1105754 GTTAATCTTCTATAGAGTTGAAAG TATATTTGTCGCTATATCGCCCAGAAGACGTCTGATAT spacer
length: 39 repeater length: 24
22009 1105817 GTTAATCTTCTATAGAGTTGAAAG GTTCACGAGTAAACTGTATAAGAGTGAGGTAACAAATCT spacer
length: 40 repeater length: 24
22010 1105881 GTTAATCTTCTATAGAGTTGAAAG AAAGTGAAAGTGATGCTGGAGGTGAGGGACAGACTGGGAG spacer
length: 40 repeater length: 24
22011 1105945 GTTAATCTTCTATAGAGTTGAAAG ATTTGGATCTTGAGAATTTTCTTTTCTTTGTCATAATAA spacer
length: 39 repeater length: 24
22012 1106008 GTTAATCTTCTATAGAGTTGAAAG AAGGCGTATAACAAAACGGCGTATGTCATATGTTCTGCTTCTA spacer
length: 43 repeater length: 24
22013 1106075 GTTAATCTTCTATAGAGTTGAAAG AGAGAGGGCTTCACTTACAAGTAAATCAGCACACCTTAT spacer
length: 39 repeater length: 24
22014 1106138 GTTAATCTTCTATAGAGTTGAAAG GAGAAGTACCCGGGCGTATCCAGGCTAAGCCAGTTATCAA spacer
length: 40 repeater length: 24

22015	1106202	GTTAATCTTCTATAGAGTTGAAAG	TTTGCCATGGAAGAAGCGAAATGTCAGTGTGGTAGCTCC	spacer
		length: 40	repeater length: 24	
22016	1106266	GTTAATCTTCTATAGAGTTGAAAG	GAATAGTAAGTAAATCATCACCTGCAATTATCGTGTATTTTT	spacer
		length: 42	repeater length: 24	
22017	1106332	GTTAATCTTCTATAGAGTTGAAAG	ATATAACGAAAGAGCGTTCACAAAAGCGTTAGTAG	spacer length: 35
		length: 35	repeater length: 24	
22018	1106391	GTTAATCTTCTATAGAGTTGAAAG	ATTGCTATAAACCACATCATGGCTCCTAGCATCAACG	spacer
		length: 37	repeater length: 24	
22019	1106452	GTTAATCTTCTATAGAGTTGAAAG	TACAATCTTATCAACTATGTCTTCCAAAAATGGTGGTAGA	spacer
		length: 40	repeater length: 24	
22020	1106516	GTTAATCTTCTATAGAGTTGAAAG	CCAAAAATCGAATTCAAGGACCAAAACGTAAAACCACCTGG	spacer
		length: 41	repeater length: 24	
22021	1106581	GTTAATCTTCTATAGAGTTGAAAG	TATGATGTTCTCATTGTATTTGTTGAGATCATGTTTAA	spacer
		length: 38	repeater length: 24	
22022	1106643	GTTAATCTTCTATAGAGTTGAAAG	GACACGGCTTTGTAAACAGAGAACCCAGGCAGAACAGATA	spacer
		length: 40	repeater length: 24	
22023	1106707	GTTAATCTTCTATAGAGTTGAAAG	ATACCGGTGTCCATACAGCCAATACCCCCAACACCGCCAC	spacer
		length: 40	repeater length: 24	
22024	1106771	GTTAATCTTCTATAGAGTTGAAAG	TAATTATATAAGCCGAATTGATGTAAATAAGACAAGATGACT	spacer
		length: 42	repeater length: 24	
22025	1106837	GTTAATCTTCTATAGAGTTGAAAG	CTTGTTTTTGTTCCTTTTTCTTTGTAATCTTCTATTCTTA	spacer
		length: 39	repeater length: 24	
22026	1106900	GTTAATCTTCTATAGAGTTGAAAG	TCATGAATCAGTTTGAAAGAAGAGAAGATTGGTTAAATG	spacer
		length: 39	repeater length: 24	
22027	1106963	GTTAATCTTCTATAGAGTTGAAAG	GGTTTTGTCTCTTTTTCTGGCTTTCCCGCCAGAATCTTT	spacer
		length: 39	repeater length: 24	
22028	1107026	GTTAATCTTCTATAGAGTTGAAAG	ATTTGCAATTCATTTGCAATTGTTTCAATTCACTTCAAAT	spacer
		length: 41	repeater length: 24	
22029	1107091	GTTAATCTTCTATAGAGTTGAAAG	CTTTCTTCTTCTATTCTTATCTTTTCTTCTTTTCACTAT	spacer
		length: 41	repeater length: 24	
22030	1107156	GTTAATCTTCTATAGAGTTGAAAG	CTTATTTTCAGAGGATCTAATAGACGAAGGCGGAATCTTTCT	spacer
		length: 41	repeater length: 24	
22031	1107221	GTTAATCTTCTATAGAGTTGAAAG	CTGGCATTACCCAGGCTTGGCGACACACCAGAAGACAGACT	spacer
		length: 41	repeater length: 24	
22032	1107286	GTTAATCTTCTATAGAGTTGAAAG	GTTTTTGTGTGTTTCGAAGAGAATTGGCGGGGCGCTGTAATT	spacer
		length: 41	repeater length: 24	
22033	1107351	GTTAATCTTCTATAGAGTTGAAAG	GTGGGAACAGCGGTGCTATTCATGACCCCTCGCCAGGT	spacer
		length: 39	repeater length: 24	
22034	1107414	GTTAATCTTCTATAGAGTTGAAAG	AGACTTTATTTCCAGATTTTTCTATATTTATCATTCCGTTTGAT	spacer
		length: 44	repeater length: 24	
22035	1107482	GTTAATCTTCTATAGAGTTGAAAG	GAGCACTCTGGGGGATACCCCCCGACCCCTACTGCTAA	spacer
		length: 40	repeater length: 24	
22036	1107546	GTTAATCTTCTATAGAGTTGAAAG	TGAGACCGGGACACCGCCGAAATTAAATCCGGCAACGCCA	spacer
		length: 40	repeater length: 24	
22037	1107610	GTTAATCTTCTATAGAGTTGAAAG	TCTTCTTTGTCCATCTGTATATCCCAATCACGCCATCTGT	spacer
		length: 40	repeater length: 24	
22038	1107674	GTTAATCTTCTATAGAGTTGAAAG	ACTACATATGACGCCGTGGATTGCAGATCTGCTATATTCTT	spacer
		length: 41	repeater length: 24	
22039	1107739	GTTAATCTTCTATAGAGTTGAAAG	TCCTCTATCACGTCATCTATAGCCACACACTTTTGAGCGT	spacer
		length: 40	repeater length: 24	
22040	1107803	GTTAATCTTCTATAGAGTTGAAAG	ATGGATAAAGACGAATTGAAAGAAATTATTAAGAATTTA	spacer
		length: 39	repeater length: 24	
22041	1107866	GTTAATCTTCTATAGAGTTGAAAG	TACTTTTAATCCAGCTTGTCATGGATGCAGAATTAGAGAGGC	spacer
		length: 43	repeater length: 24	
22042	1107933	GTTAATCTTCTATAGAGTTGAAAG	CGTGGGGCTCGCTCTAACTTGTAACGACACATGTTTCTTA	spacer
		length: 39	repeater length: 24	
22043	1107996	GTTAATCTTCTATAGAGTTGAAAG	CCTGAGCTAAGGAGTGTCTTAATCTTATCGAAGTCGTCTGGCTT	spacer
		length: 44	repeater length: 24	
22044	1108064	GTTAATCTTCTATAGAGTTGAAAG	CTTCGCCGTATAACGATCCTACAACAATAATCACTGATTTTGA	spacer
		length: 43	repeater length: 24	
22045	1108131	GTTAATCTTCTATAGAGTTGAAAG	GTAATGAAAGTAATGTCTTTTCTCATACGAAAAGACCAA	spacer
		length: 39	repeater length: 24	
22046	1108194	GTTAATCTTCTATAGAGTTGAAAG	AGATGATGCACTGGCAGAGGCGACAAGAGAAAAACCAGGCT	spacer
		length: 41	repeater length: 24	
22047	1108259	GTTAATCTTCTATAGAGTTGAAAG	CAATGAATTCAGAAAACAGCTGTTTCATCCTGGTTCTCAG	spacer
		length: 39	repeater length: 24	
22048	1108322	GTTAATCTTCTATAGAGTTGAAAG	ACAAGGACGTTTTTCGTGATCCAGGTGAGCGAATACACA	spacer
		length: 38	repeater length: 24	
22049	1108384	GTTAATCTTCTATAGAGTTGAAAG	AGCAATAATTTAATTGCACTATTTTTAACTGTGCATGA	spacer
		length: 38	repeater length: 24	
22050	1108446	GTTAATCTTCTATAGAGTTGAAAG	TTCAGTGTCTACACATAAGTATAAGGGGCTTCGCCCTT	spacer

length: 39 repeater length: 24

22051 1108509 GTTAATCTTCTATAGAGTTGAAAG CATAATTCGTTTCTGTATTTGGCGTCAAATTTATTTTAAAT spacer
length: 41 repeater length: 24

22052 1108574 GTTAATCTTCTATAGAGTTGAAAG ATTTGAAATAAGACAAATCAGTGCAGAAGAGGCAAGGAACTAG spacer
length: 44 repeater length: 24

22053 1108642 GTTAATCTTCTATAGAGTTGAAAG AGATAACCATTTTTTCTCTTGTTTAAACGTATCTACGAACCAG spacer
length: 42 repeater length: 24

22054 1108708 GTTAATCTTCTATAGAGTTGAAAG ACCCCGCCAATCAGTGC GTTGTATGTTGCTGGCTTCATATC spacer
length: 41 repeater length: 24

22055 1108773 GTTAATCTTCTATAGAGTTGAAAG TATATATTATATTATGAATTATACCACACACTTCTTTTTTCGC spacer
length: 42 repeater length: 24

22056 1108839 GTTAATCTTCTATAGAGTTGAAAG AGAAACGAATTGTTAGTTTACTTATCACGCCTTCATTCCCA spacer
length: 41 repeater length: 24

22057 1108904 GTTAATCTTCTATAGAGTTGAAAG ATATCCACCCTTCTCACCAAAGAATAATACAAAAATTTAA spacer
length: 41 repeater length: 24

22058 1108969 GTTAATCTTCTATAGAGTTGAAAG AGAGGATCGC

22059

22060

22061 crispr 5

22062 1109111 GTTAATCTTCTATAGAGTTGAAAG ATTATTACTACTATATCATCCGGATTCAATTTTCTATCCCG spacer
length: 40 repeater length: 24

22063 1109175 GTTAATCTTCTATAGAGTTGAAAG CTTATTTCTTCGCGGTTTATAATGGACCCGGAACG spacer length:
35 repeater length: 24

22064 1109234 GTTAATCTTCTATAGAGTTGAAAG TATCTTCCTGACGTAGATGATGCAGTCCAAACAATAGATAG spacer
length: 41 repeater length: 24

22065 1109299 GTTAATCTTCTATAGAGTTGAAAG TGTACCAAGCCTGGATGGGTAGACCAGGACCGTGATCAAT spacer
length: 40 repeater length: 24

22066 1109363 GTTAATCTTCTATAGAGTTGAAAG TCTTTCATTGGGTTCGTATAAAAATCCTTGACCTAAGGA spacer
length: 39 repeater length: 24

22067 1109426 GTTAATCTTCTATAGAGTTGAAAG CAGACAATACGATCGAGTAGGGGACTGTGTGTAAAAATGAGGG spacer
length: 43 repeater length: 24

22068 1109493 GTTAATCTTCTATAGAGTTGAAAG TGTACACTTCCTTCTTCTTAGGCAAGGTTATTTTAACCTT spacer
length: 40 repeater length: 24

22069 1109557 GTTAATCTTCTATAGAGTTGAAAG GGCGGGTGAAAGAACTACTCGAGAAAGAGAAAAGAAAAA spacer
length: 39 repeater length: 24

22070 1109620 GTTAATCTTCTATAGAGTTGAAAG AGTATCATTCAGTGGAAAGTTGTACGGTATGAGGAGTCATA spacer
length: 41 repeater length: 24

22071 1109685 GTTAATCTTCTATAGAGTTGAAAG ATTCCACGATTTTAACCTTTACAGATTCCCCATATCCTG spacer
length: 39 repeater length: 24

22072 1109748 GTTAATCTTCTATAGAGTTGAAAG CCTAGATCACGGGGCCAATCCAAACGTGAAAGATCTAGAT spacer
length: 40 repeater length: 24

22073 1109812 GTTAATCTTCTATAGAGTTGAAAG TCAAAGGTTGCTGAGGACTGTTATAGGGATGCACTCTCAGT spacer
length: 41 repeater length: 24

22074 1109877 GTTAATCTTCTATAGAGTTGAAAG TTGATCGTTAAAAAGTAACGTAAGACGTTTCACAAGAGA spacer
length: 39 repeater length: 24

22075 1109940 GTTAATCTTCTATAGAGTTGAAAG ATATTGATTATGAAGACTTTAAGAAAGATACCAATTCTAT spacer
length: 40 repeater length: 24

22076 1110004 GTTAATCTTCTATAGAGTTGAAAG TAATTCCTCTTTGATCTCTCTGGATTCTTGTGTTTGTGAAT spacer
length: 41 repeater length: 24

22077 1110069 GTTAATCTTCTATAGAGTTGAAAG TTATTTTCGAGTTTCTCATATATCTCCACGTTATGTCAGA spacer
length: 40 repeater length: 24

22078 1110133 GTTAATCTTCTATAGAGTTGAAAG CTCTCGTTAAGGAACCTTACTCAAAGCCCTCAAAGACGAT spacer
length: 39 repeater length: 24

22079 1110196 GTTAATCTTCTATAGAGTTGAAAG TTCAACTCCACGATTGATTTGATAATTATCAAGGCTTTT spacer
length: 39 repeater length: 24

22080 1110259 GTTAATCTTCTATAGAGTTGAAAG AATGAGAGAGTCAGGCCGAGGCCCTCATTACATCTATCATAT spacer
length: 43 repeater length: 24

22081 1110326 GTTAATCTTCTATAGAGTTGAAAG ATAAACCAGCGTTTCCCTACAAGTATGAGGCAAAGAACA spacer
length: 39 repeater length: 24

22082 1110389 GTTAATCTTCTATAGAGTTGAAAG AGGAATGAAGTGAGTTGTCCGGGTGGTACACCAGTCAAGTCAG spacer
length: 43 repeater length: 24

22083 1110456 GTTAATCTTCTATAGAGTTGAAAG GCTTGTGCTCAGCCATTGCGTAACCTCACCCAC spacer length:
35 repeater length: 24

22084 1110515 GTTAATCTTCTATAGAGTTGAAAG TGGACACGTTGGGAAGGCCTTGCCACGCGGAACCTCAGA spacer
length: 38 repeater length: 24

22085 1110577 GTTAATCTTCTATAGAGTTGAAAG AGAGACTGGACCATAAAAGGAGTTCCTAAAGCGGGTAATAAA spacer
length: 42 repeater length: 24

22086 1110643 GTTAATCTTCTATAGAGTTGAAAG TAAAGATTGACCTTATTACTCTTGACAAATATATCCCG spacer
length: 38 repeater length: 24

22087 1110705 GTTAATCTTCTATAGAGTTGAAAG AACTTTGAAGTCAGAGTTTCTGCTTCTTTTATTACTTTA spacer
length: 40 repeater length: 24

22088	1110769	GTTAATCTTCTATAGAGTTGAAAG	TACATTACCTTGATTATCCATTGTTGCGTTTAGCTGAAG	spacer
	length:	39	repeater length:	24
22089	1110832	GTTAATCTTCTATAGAGTTGAAAG	TATGATTTTCTCGCTATTACCACCTCCTTGATATACTGTA	spacer
	length:	41	repeater length:	24
22090	1110897	GTTAATCTTCTATAGAGTTGAAAG	TCCATATAGAGATTTCTAATAATCAATTGGGGATAGATAT	spacer
	length:	40	repeater length:	24
22091	1110961	GTTAATCTTCTATAGAGTTGAAAG	ACGTTGAACCAACGTTACCCCCGCCGTCAAAGACGC	spacer
	length:	37	repeater length:	24
22092	1111022	GTTAATCTTCTATAGAGTTGAAAG	TCCACGGAGGGGTGGAGAATGAACTATTCTGAAGGGAC	spacer
	length:	38	repeater length:	24
22093	1111084	GTTAATCTTCTATAGAGTTGAAAG	ATGAGATCTACCTCGAAAATACGAAGGCAGACGTTGAGG	spacer
	length:	39	repeater length:	24
22094	1111147	GTTAATCTTCTATAGAGTTGAAAG	GAAAATCTCAAAGACTTGTTAATCCCATCAAAAAAATGG	spacer
	length:	39	repeater length:	24
22095	1111210	GTTAATCTTCTATAGAGTTGAAAG	ATATCGTTATCCGCGGTCATTCTCACGTGAGTGATTG	spacer
	length:	37	repeater length:	24
22096	1111271	GTTAATCTTCTATAGAGTTGAAAG	ACGGTACGCCGTCGCCGACGCGGGGATACCCTGTATCAG	spacer
	length:	40	repeater length:	24
22097	1111335	GTTAATCTTCTATAGAGTTGAAAG	AATAGTCTGCGTGGAAGTAAGTGACCTTCACGAACCTT	spacer
	length:	38	repeater length:	24
22098	1111397	GTTAATCTTCTATAGAGTTGAAAG	CGTGACCCCGCTCGTGCGGTCACGGCATGCTAGGAGGAGG	spacer
	length:	40	repeater length:	24
22099	1111461	GTTAATCTTCTATAGAGTTGAAAG	AAATTTTTAGAAAGAAATATACGAATGTGTAGATAAAAA	spacer
	length:	38	repeater length:	24
22100	1111523	GTTAATCTTCTATAGAGTTGAAAG	TTTCTTTGTTTCACGATCACTAACTCTAAGATATAATCGGGG	spacer
	length:	41	repeater length:	24
22101	1111588	GTTAATCTTCTATAGAGTTGAAAG	CAATAAAATCGTGATCAAAACGTTTTTGAATGAACTCATG	spacer
	length:	40	repeater length:	24
22102	1111652	GTTAATCTTCTATAGAGTTGAAAG	CTCATCAAGAGGCATTATTTTCTCATCAAACCGCCAAGAT	spacer
	length:	41	repeater length:	24
22103	1111717	GTTAATCTTCTATAGAGTTGAAAG	AAAAATTATTCTTGTGGATCTGTTGCTGCTATATTGGGTGTA	spacer
	length:	43	repeater length:	24
22104	1111784	GTTAATCTTCTATAGAGTTGAAAG	TTAGTAAGTCCCCTAGGGCATGATCCCAGAAATAACCACCA	spacer
	length:	41	repeater length:	24
22105	1111849	GTTAATCTTCTATAGAGTTGAAAG	GTAGATTATCAATCTTACCCAACGGTCCAAAGGAAGTAAGTAT	spacer
	length:	43	repeater length:	24
22106	1111916	GTTAATCTTCTATAGAGTTGAAAG	TTTATCCTTAGGTATCTCATAGAGACTGGTTTAGCTTCGA	spacer
	length:	40	repeater length:	24
22107	1111980	GTTAATCTTCTATAGAGTTGAAAG	GCTATCAAAGCTGGAGAGCAAGTAGCGACCTTTCTTTT	spacer
	length:	39	repeater length:	24
22108	1112043	GTTAATCTTCTATAGAGTTGAAAG	TAATCGGTTAAACCGCTTTTGAAAGGAAAATAGAATGAT	spacer
	length:	39	repeater length:	24
22109	1112106	GTTAATCTTCTATAGAGTTGAAAG	ATCCAAATCATTAGAATTAACGATAATTTTCGGTAAGGAT	spacer
	length:	39	repeater length:	24
22110	1112169	GTTAATCTTCTATAGAGTTGAAAG	TACTGGAATCCGTATATAATTGATTCAATTTAGTGGAACCA	spacer
	length:	40	repeater length:	24
22111	1112233	GTTAATCTTCTATAGAGTTGAAAG	AACCTCCTACTTAGACCGCGAATTAGCGATCTAGGAATCGA	spacer
	length:	41	repeater length:	24
22112	1112298	GTTAATCTTCTATAGAGTTGAAAG	AGTCTAACCCCTTCTGTCCCTGATATTTTCTCTATA	spacer
	length:	38	repeater length:	24
22113	1112360	GTTAATCTTCTATAGAGTTGAAAG	TTCTCAATTAGTCCACCCCAAGGTATCGTGAGAACCATAGTCG	spacer
	length:	43	repeater length:	24
22114	1112427	GTTAATCTTCTATAGAGTTGAAAG	AAAATTCGACGAGAAAATACAGAGAATCGCGAAGGCA	spacer
	length:	37	repeater length:	24
22115	1112488	GTTAATCTTCTATAGAGTTGAAAG	CTCCGCGAATTCTCTAAGTTTCGGAATAGCGTTGCCCTGA	spacer
	length:	40	repeater length:	24
22116	1112552	GTTAATCTTCTATAGAGTTGAAAG	ACAAGCCAAATGATGAAGTTACTACTACTAATACTACTACTAA	spacer
	length:	43	repeater length:	24
22117	1112619	GTTAATCTTCTATAGAGTTGAAAG	TTGCCATCGCCTCAACTACTGCCAGACCAAATGTCTCAC	spacer
	length:	39	repeater length:	24
22118	1112682	GTTAATCTTCTATAGAGTTGAAAG	TTCAGCTTAAGGATGACACTCTTGATATGTTGAGTCTTTCC	spacer
	length:	41	repeater length:	24
22119	1112747	GTTAATCTTCTATAGAGTTGAAAG	GTAGGTGTGAAAATCACTATAGTCATCATACAGCCTCAT	spacer
	length:	39	repeater length:	24
22120	1112810	GTTAATCTTCTATAGAGTTGAAAG	TGCTTTGTACGTAAAATGACGTGCTTCTCCTTATACCAA	spacer
	length:	39	repeater length:	24
22121	1112873	GTTAATCTTCTATAGAGTTGAAAG	TGCACCAGTCCCTAGTGTAACCCCTTCCAATATTGACGTCT	spacer
	length:	41	repeater length:	24
22122	1112938	GTTAATCTTCTATAGAGTTGAAAG	CTTCATATCTTCAGCTTCAGGGTACCAGAGACGAATCTCACC	spacer
	length:	42	repeater length:	24
22123	1113004	GTTAATCTTCTATAGAGTTGAAAG	AGTAAAATAGGTCCTGCATTTGTACTAGGCGTTACGAATAAT	spacer

length: 42 repeater length: 24
22124 1113070 GTTAATCTTCTATAGAGTTGAAAG AGTATCGCAGCGGGCGGGGATGTCGCCGAAAAATCTACG spacer
length: 39 repeater length: 24
22125 1113133 GTTAATCTTCTATAGAGTTGAAAG GTAATATCGGTCAATCCCACGAATGTGGACGTATACA spacer
length: 37 repeater length: 24
22126 1113194 GTTAATCTTCTATAGAGTTGAAAG CGATGAACTGAAGGCAACGCCAAAACAACCTGTTTCAGGAAAAA spacer
length: 42 repeater length: 24
22127 1113260 GTTAATCTTCTATAGAGTTGAAAG AGAGAGTCTAGGAGCAGGGATACAGAATGCTATAGGATCC spacer
length: 40 repeater length: 24
22128 1113324 GTTAATCTTCTATAGAGTTGAAAG TATTGCGGACAAAGTTCAAAGTCATATATTTCTTTGCCCCC spacer
length: 41 repeater length: 24
22129 1113389 GTTAATCTTCTATAGAGTTGAAAG ATTCACCCAGGGACGTTAATGCCGAATTCTATGAGGACAG spacer
length: 40 repeater length: 24
22130 1113453 GTTAATCTTCTATAGAGTTGAAAG TTCTATAGTCAGGGGCATTTGGATTTACCTTAAGTTTGA spacer
length: 39 repeater length: 24
22131 1113516 GTTAATCTTCTATAGAGTTGAAAG GAATATTGCAATTTCTGGATTATGAACACTGGAAAGTGATAG spacer
length: 42 repeater length: 24
22132 1113582 GTTAATCTTCTATAGAGTTGAAAG TCGAAGTCCCTGTACCACCTCCACCCGTGCTAGTTCCT spacer
length: 38 repeater length: 24
22133 1113644 GTTAATCTTCTATAGAGTTGAAAG CCCTGATCATCTTTAGCACTCATATGTTATCATGATA spacer
length: 37 repeater length: 24
22134 1113705 GTTAATCTTCTATAGAGTTGAAAG ATCCAAGAACTCAATCAACTCCAGCGTATTTTCCCCAAA spacer
length: 39 repeater length: 24
22135 1113768 GTTAATCTTCTATAGAGTTGAAAG ATCTTCCTCACCTTATGTCCCAATGCCCCGAATTAGACC spacer
length: 40 repeater length: 24
22136 1113832 GTTAATCTTCTATAGAGTTGAAAG GTAGCGTTTGAGGAACTAACCAATGCGACGATACAAGTA spacer
length: 39 repeater length: 24
22137 1113895 GTTAATCTTCTATAGAGTTGAAAG GCACAATTGTTGTCTGGTAAAGGAGAATGGAACAAACATAG spacer
length: 40 repeater length: 24
22138 1113959 GTTAATCTTCTATAGAGTTGAAAG GCACCTCCGCCTCCCCCACCTCCACCTGCTCCGATTGCT spacer
length: 39 repeater length: 24
22139 1114022 GTTAATCTTCTATAGAGTTGAAAG TAATTTTCTCGGTTACGGTACTGCCACTACTGGCAAT spacer
length: 37 repeater length: 24
22140 1114083 GTTAATCTTCTATAGAGTTGAAAG TAAGGATGAACCTAATTGCTCAAGGAGAATAAGATCCTGC spacer
length: 40 repeater length: 24
22141 1114147 GTTAATCTTCTATAGAGTTGAAAG GATAATGTAGCGTATATCCTCAAGCAGTTCTATAACAGAA spacer
length: 40 repeater length: 24
22142 1114211 GTTAATCTTCTATAGAGTTGAAAG ATTATACTACTGTTATGTACTGTACTGTATATATTCCTTA spacer
length: 40 repeater length: 24
22143 1114275 GTTAATCTTCTATAGAGTTGAAAG ATCTTTTCCACTGTATATTGACCATATCTTCTATCTAGA spacer
length: 39 repeater length: 24
22144 1114338 GTTAATCTTCTATAGAGTTGAAAG TAAAGGAATGAGCTCTTGAATGACAAAACCCTTCGTTATACG spacer
length: 42 repeater length: 24
22145 1114404 GTTAATCTTCTATAGAGTTGAAAG TCACTTTGCTCTTTATCGCATCTCCGACGTCGTTGAGAA spacer
length: 39 repeater length: 24
22146 1114467 GTTAATCTTCTATAGAGTTGAAAG CCTTATGTAACCTTGATCCATCTTCTGCACAACCTAGATCCT spacer
length: 41 repeater length: 24
22147 1114532 GTTAATCTTCTATAGAGTTGAAAG CTCATGGTTCCCTGTCTCTCCTAGATGCATTAGACCAGACCCT spacer
length: 43 repeater length: 24
22148 1114599 GTTAATCTTCTATAGAGTTGAAAG TATCATAAGAACATAGTAGAGAAGGCTCAGGATTACGCA spacer
length: 39 repeater length: 24
22149 1114662 GTTAATCTTCTATAGAGTTGAAAG ACGGAGCTGT
22150
22151
22152 crispr 6
22153 1136107 GTTTCAAACCCTCGAAGGATCTCTACAA
ACGACACGTCTACACCCCCCCCCCGTCTGTGAGTGTGGGAAGCGGGGATCCC spacer length: 52 repeater
length: 28
22154 1136187 GTTTCAAACCCTCGAAGGATCTCTACAA ACTGGGGTCCATTGTGATGAAGATTTTCGAGAAATTGAAGA
spacer length: 41 repeater length: 28
22155 1136256 GTTTCAAACCCTCGAAGGATCTCTACAA ACTCCCCTGTTACGACTGAACCAATACTTGATTGCACGT spacer
length: 39 repeater length: 28
22156 1136323 GTTTCAAACCCTCGAAGGATCTCTACAA ACCTCTACACACTAAGAGTAGCTGAGACCATAAAAACCAA spacer
length: 40 repeater length: 28
22157 1136391 GTTTCAAACCCTCGAAGGATCTCTACAA ACACATCATAGCCATGTCACCGAACGGAACCTCTGAGGTACTT
spacer length: 42 repeater length: 28
22158 1136461 GTTTCAAACCCTCGAAGGATCTCTACAA GCATTCAACTAGTGGCGTCTCCTGAAGGGCAACTATT spacer
length: 37 repeater length: 28
22159 1136526 GTTTCAAACCCTCGAAGGATCTCTACAA GAAGGGCTATTCTGCGTACGCTTCCCACCTCTGGAGGCA spacer
length: 39 repeater length: 28
22160 1136593 GTTTCAAACCCTCGAAGGATCTCTACAA GGGGCCTTGGG

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22161
22162
22163 crispr 7
22164 1137839 TTGTAGTGATCCTTTGAGGGTTTGAAC AAATAGTACTGACTTGATACGGCTAGGTGATAATAGCGT spacer
length: 39 repeater length: 28
22165 1137906 TTGTAGTGATCCTTTGAGGGTTTGAAC GCAAAGGCCTTTCCACACTCTCCAAGGGAGTATGAAGT spacer
length: 39 repeater length: 28
22166 1137973 TTGTAGTGATCCTTTGAGGGTTTGAAC CTTACGTCTTGAAAGTACTCGATTATCAATTTAACAGGT spacer
length: 39 repeater length: 28
22167 1138040 TTGTAGTGATCCTTTGAGGGTTTGAAC GCGTCAATTCTCTAAAAAGAAAAGGCTAGCGTGAAGGGGAC
spacer length: 41 repeater length: 28
22168 1138109 TTGTAGTGATCCTTTGAGGGTTTGAAC TAAGTGAACCATGGGTATTCCCCCTCCGGGGGAACCTTCGAC
spacer length: 41 repeater length: 28
22169 1138178 TTGTAGTGATCCTTTGAGGGTTTGAAC TCGGAAAGAACATATACATCCTCCCCGTGGTTCCCGGGT spacer
length: 39 repeater length: 28
22170 1138245 TTGTAGTGATCCTTTGAGGGTTTGAAC GTGTTTGTCCCCATCTTTTGATGGGGCAGCTGCTCCTCT spacer
length: 39 repeater length: 28
22171 1138312 TTGTAGTGATCCTTTGAGGGTTTGAAC TATACTTTGGAAAATCAGTATATCTCTTGTATCTTCTGT spacer
length: 39 repeater length: 28
22172 1138379 TTGTAGTGATCCTTTGAGGGTTTGAAC TCGATAGCGAACCTGATAACTTCGCTTCTATTTCAGTCTGT spacer
length: 40 repeater length: 28
22173 1138447 TTGTAGTGATCCTTTGAGGGTTTGAAC ATAGACGTATCGACCCGCCGTATAGCATCAAGAAGATAGT spacer
length: 40 repeater length: 28
22174 1138515 TTGTAGTGATCCTTTGAGGGTTTGAAC TACACGACGCGATCACACTCACATGCCCGCGTGTGCGCCGTTGT
spacer length: 43 repeater length: 28
22175 1138586 TTGTAGTGATCCTTTGAGGGTTTGAAC ATAACTCTATACGCTCTCACACGGCTGAGGTCGAGGAGC spacer
length: 39 repeater length: 28
22176 1138653 TTGTAGTGATCCTTTGAGGGTTTGAAC CCACCTTCACCCTCGCCTTACGGCCCTTTTCCTTCCTCAGT
spacer length: 41 repeater length: 28
22177 1138722 TTGTAGTGATCCTTTGAGGGTTTGAAC GAGTTCCTG
22178
22179
22180 GCA_001266715.1_ASM126671v1_genomic.fna (PilerCR):
22181 START REPEAT
SPACER
22182 crispr 1
22183 1082319 CTTTCAACTCTATAGGAGATTAAC TGATTTTGACACGGCCTATCAAAATGTAATAAAAACGCATA spacer
length: 41 repeater length: 24
22184 1082384 CTTTCAACTCTATAGGAGATTAAC TAATAGGTATAATATTGGGCATTCTCGCCCTAGTTCAATT spacer
length: 40 repeater length: 24
22185 1082448 CTTTCAACTCTATAGGAGATTAAC AGACCCAAAACCTAAAACCTCAAAAAGTCTTTGAGCAATT spacer
length: 40 repeater length: 24
22186 1082512 CTTTCAACTCTATAGGAGATTAAC TTACTTCTAATGATTACAGGGATTCTCAGAACCCTTCT spacer
length: 39 repeater length: 24
22187 1082575 CTTTCAACTCTATAGGAGATTAAC GCTGAAATTGGCAGAGGTAAGGAAGCTAATCGAGTCGAA spacer
length: 39 repeater length: 24
22188 1082638 CTTTCAACTCTATAGGAGATTAAC GTGAGGATTACCGAATCCTGCCTTAGACGATACCGAGCAGAAG spacer
length: 44 repeater length: 24
22189 1082706 CTTTCAACTCTATAGGAGATTAAC AGAAGAAAAAGTATACTTGAAAAGAAGATTGAATTTTTAGA spacer
length: 41 repeater length: 24
22190 1082771 CTTTCAACTCTATAGGAGATTAAC ATCAAATGATGCCAAAAGTGATCTACCTATTCTTTTCAT spacer
length: 40 repeater length: 24
22191 1082835 CTTTCAACTCTATAGGAGATTAAC AACATGATAAGGCTTTACTTAGAAAGTTAGAGAAAAAATT spacer
length: 40 repeater length: 24
22192 1082899 CTTTCAACTCTATAGGAGATTAAC CGTGATTCAATTAAGGTTATCATAATGAATTGGAAAACAGTCT spacer
length: 42 repeater length: 24
22193 1082965 CTTTCAACTCTATAGGAGATTAAC TTCAAAAAATGGTCAAGGTGATAGAGAGTCAGTTATTAG spacer
length: 39 repeater length: 24
22194 1083028 CTTTCAACTCTATAGGAGATTAAC AGTTCTACGGAAAACCTATCAATCCAGATAGCAATAAAGA spacer
length: 39 repeater length: 24
22195 1083091 CTTTCAACTCTATAGGAGATTAAC ATGCGATTACCACCACGGCTCCGTTTTGCCCGTTTGCTCC spacer
length: 40 repeater length: 24
22196 1083155 CTTTCAACTCTATAGGAGATTAAC CATCGGTGTATTACTACTCACTGTGATTGGTGTATCAAG spacer
length: 39 repeater length: 24
22197 1083218 CTTTCAACTCTATAGGAGATTAAC TCCAGGTACATCGTCAGCGAATGGATCAGGAGGAGCAGG spacer
length: 39 repeater length: 24
22198 1083281 CTTTCAACTCTATAGGAGATTAAC TCCACTCGGTGCCGTGAAAGTTTTGACAAGACTCATGTTTGA spacer
length: 42 repeater length: 24
22199 1083347 CTTTCAACTCTATAGGAGATTAAC TCAATAATTGACGAGCAAGATTTAGTGATTCCAGACGAGG spacer
length: 40 repeater length: 24
22200 1083411 CTTTCAACTCTATAGGAGATTAAC ACAGTTCACAAACGGAATTGTTTGATAACTTCTTGAAT spacer

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length: 39 repeater length: 24

22201 1083474 CTTTCAACTCTATAGGAGATTAAC CTTACTTTCCATGTTCTCCATTACAAAAGTAAAGTACT spacer
length: 39 repeater length: 24

22202 1083537 CTTTCAACTCTATAGGAGATTAAC CGGTCACTGAAGCCGATCCACCCTTAGTTGAGACCACGAG spacer
length: 40 repeater length: 24

22203 1083601 CTTTCAACTCTATAGGAGATTAAC TAATTGAAGTTACAGTAGAAATACAAAACCAAAAAATGA spacer
length: 39 repeater length: 24

22204 1083664 CTTTCAACTCTATAGGAGATTAAC ATCAAATTACTGGAGAAGAGTGGAAACAAAATAATAAGGGAA spacer
length: 41 repeater length: 24

22205 1083729 CTTTCAACTCTATAGGAGATTAAC TTATACGGTTATTGGATGACGCGAGTATATCGTGAAAGTTA spacer
length: 41 repeater length: 24

22206 1083794 CTTTCAACTCTATAGGAGATTAAC AAAGCCTTCGTATCTGATGACGGCTCAGTTCCAATCGTTA spacer
length: 40 repeater length: 24

22207 1083858 CTTTCAACTCTATAGGAGATTAAC ATGAAGATGTGGAGTCAAAGACCGAAAGGCCCTGGGATTA spacer
length: 40 repeater length: 24

22208 1083922 CTTTCAACTCTATAGGAGATTAAC ATATTTTCGTCTTATGTAGTTTGTAAATTGATCTTTTTTCTTT spacer
length: 43 repeater length: 24

22209 1083989 CTTTCAACTCTATAGGAGATTAAC TTAGGACCCTTGGGTTCACGAGTTACAACGAGATGGTGAAA spacer
length: 41 repeater length: 24

22210 1084054 CTTTCAACTCTATAGGAGATTAAC TTCATGCAGACTACGAAGTCGCTCTAATTTATCTTAATCT spacer
length: 40 repeater length: 24

22211 1084118 CTTTCAACTCTATAGGAGATTAAC GTCATAAACCACTGATCACTAGTAGTATGTTCGAACTAT spacer
length: 40 repeater length: 24

22212 1084182 CTTTCAACTCTATAGGAGATTAAC TGTGTGTGAATCTGAACCCGAAGACGAGGACATGTACC spacer
length: 39 repeater length: 24

22213 1084245 CTTTCAACTCTATAGGAGATTAAC CAAGTGTGTTTGTGGGGATAACGAACTGGGGAAGGAA spacer
length: 39 repeater length: 24

22214 1084308 CTTTCAACTCTATAGGAGATTAAC TATATGACAAGTTGAGAAGGAATATTCTTCAACGCGGGAA spacer
length: 40 repeater length: 24

22215 1084372 CTTTCAACTCTATAGGAGATTAAC AAGTTAGTGGGGGAAGCCCGTAGAGTTCAGATTAGGTAC spacer
length: 41 repeater length: 24

22216 1084437 CTTTCAACTCTATAGGAGATTAAC ATCATCCCCCTCATCAAAACACTCATCAAGATACTCATCACTGTA
spacer length: 45 repeater length: 24

22217 1084506 CTTTCAACTCTATAGGAGATTAAC TCTCGACGCGGAGAGGATAGAGCGGTTGGTCGAGGACGA spacer
length: 39 repeater length: 24

22218 1084569 CTTTCAACTCTATAGGAGATTAAC CGAATTTTTTCCCCCGTGAGCGGGGGGTTAGAAAGAGTTTGAC spacer
length: 42 repeater length: 24

22219 1084635 CTTTCAACTCTATAGGAGATTAAC CCCATAGTGGTCCCCTATGAGTTTGAGGATACAACCTTCATTAA spacer
length: 43 repeater length: 24

22220 1084702 CTTTCAACTCTATAGGAGATTAAC CGGGGTCCAAAGGTTCCCTGAATGTAAATATATTATTAC spacer
length: 39 repeater length: 24

22221 1084765 CTTTCAACTCTATAGGAGATTAAC CATATGACGCTCTCAAGGTAGTCACTCAAGATATCTTAGC spacer
length: 40 repeater length: 24

22222 1084829 CTTTCAACTCTATAGGAGATTAAC TTACGATCAGCCTTTTCGTTGCAGGTCTAATTCTCAGA spacer
length: 38 repeater length: 24

22223 1084891 CTTTCAACTCTATAGGAGATTAAC CCAACTGTCCAGCCTGCCCTGCTGGACTAGGGTTTTCGAAC spacer
length: 41 repeater length: 24

22224 1084956 CTTTCAACTCTATAGGAGATTAAC CTCGTTAAGATATGCATTGATCACTTACGCTTCCAAAAA spacer
length: 39 repeater length: 24

22225 1085019 CTTTCAACTCTATAGGAGATTAAC TCTTTTTTTGCGGTTATACAATTAAACGTTTCGTGAAT spacer
length: 38 repeater length: 24

22226 1085081 CTTTCAACTCTATAGGAGATTAAC ACGTCCTTCTCCGTGATGTAGAGCGTACTGCCTGAAGTCCCTGT spacer
length: 44 repeater length: 24

22227 1085149 CTTTCAACTCTATAGGAGATTAAC AAAGGACCATAATACATCACAACTAGTCTGCTTGCAAAGTGA spacer
length: 43 repeater length: 24

22228 1085216 CTTTCAACTCTATAGGAGATTAAC ATAACCGGAACGAAACTAGAGGAATACTGTGAACCGGTAA spacer
length: 40 repeater length: 24

22229 1085280 CTTTCAACTCTATAGGAGATTAAC CAATGAGTGTTGGTCTCATCCTTGAGGGTCCTGATGGAGT spacer
length: 40 repeater length: 24

22230 1085344 CTTTCAACTCTATAGGAGATTAAC CAATACGACTACGGGTTCGAATCTTGAAAAGTTCCGGTG spacer
length: 38 repeater length: 24

22231 1085406 CTTTCAACTCTATAGGAGATTAAC ATGGTCAATTATGTCCTTAATATGATGGTAGAGATATTGA spacer
length: 40 repeater length: 24

22232 1085470 CTTTCAACTCTATAGGAGATTAAC TGGACATGTCTACATCAAAGAAGTCCAAGTACTTTGCCT spacer
length: 39 repeater length: 24

22233 1085533 CTTTCAACTCTATAGGAGATTAAC TACCTGAAGTTCTCCCACTCTAGCAGGGAGCTGCTGTCCTACT spacer
length: 43 repeater length: 24

22234 1085600 CTTTCAACTCTATAGGAGATTAAC GGCGTAAAAAATGCAATAGGAGGAGTAGGAAGCTTCTTTTC spacer
length: 41 repeater length: 24

22235 1085665 CTTTCAACTCTATAGGAGATTAAC TTACTATTTCTTAAGGAACGACGTAAGAGAAAGTAGTAAT spacer
length: 40 repeater length: 24

22236	1085729	CTTTCAACTCTATAGGAGATTAAC	GGAATAAAGGACAAGGGATTCTTCATCAGTTTGGGA	spacer length: 36 repeater length: 24
22237	1085789	CTTTCAACTCTATAGGAGATTAAC	ACAAGGAGTAGCTCTTACTGGTAATGAGGGTATAATAAGAAA	spacer length: 42 repeater length: 24
22238	1085855	CTTTCAACTCTATAGGAGATTAAC	CGCTCTGGACCTCCTTCTTGACGTAGTCATTTCTCTTTAGTT	spacer length: 42 repeater length: 24
22239	1085921	CTTTCAACTCTATAGGAGATTAAC	AGACAAGTCCAGAGGGTTAGGGAGGAGAGGAGGTCCAGTCTT	spacer length: 42 repeater length: 24
22240	1085987	CTTTCAACTCTATAGGAGATTAAC	ACTTTAGCTTTCATGACTTACACAACCTTCATATCCACCT	spacer length: 39 repeater length: 24
22241	1086050	CTTTCAACTCTATAGGAGATTAAC	TGAATAAACCAACTCTCCTTCATAGTTTAAATTAATTACAT	spacer length: 41 repeater length: 24
22242	1086115	CTTTCAACTCTATAGGAGATTAAC	AAGAGAATAAGGGTAGTATATAACCCTGCAATCACCTTAA	spacer length: 40 repeater length: 24
22243	1086179	CTTTCAACTCTATAGGAGATTAAC	CAGCTTGTGGTATTCCCTCCTAATATTACTGCATTGACCC	spacer length: 39 repeater length: 24
22244	1086242	CTTTCAACTCTATAGGAGATTAAC	TTTAAGATAATTGGAAGAAACAATTAATAAGAACATTA	spacer length: 40 repeater length: 24
22245	1086306	CTTTCAACTCTATAGGAGATTAAC	ATGGGGGTTCAAAGGGGTGAAATACCCCTTCCGTCAAGGA	spacer length: 41 repeater length: 24
22246	1086371	CTTTCAACTCTATAGGAGATTAAC	TGCATACAGTCTTTTGCAACACTTATTATTCTGTCATATT	spacer length: 40 repeater length: 24
22247	1086435	CTTTCAACTCTATAGGAGATTAAC	CTTCGCTATATCTACCATGAATAAGTCTTGAATGTAAA	spacer length: 38 repeater length: 24
22248	1086497	CTTTCAACTCTATAGGAGATTAAC	TTATATTTAGTTAGAATTTTTCTCAAAAAATCATCTCGATCT	spacer length: 42 repeater length: 24
22249	1086563	CTTTCAACTCTATAGGAGATTAAC	CTAACCGTATTGAGTCCGTGGGTGCGACCGGCCACAGTA	spacer length: 40 repeater length: 24
22250	1086627	CTTTCAACTCTATAGGAGATTAAC	AGTCTGCTGGCTTTAATCTTCATGTAGTTGCCAGTAGGTTC	spacer length: 41 repeater length: 24
22251	1086692	CTTTCAACTCTATAGGAGATTAAC	TTTTGCTTTTCTCTTCTCAAATTTTCTTCTCCATGATTCA	spacer length: 40 repeater length: 24
22252	1086756	CTTTCAACTCTATAGGAGATTAAC	CGGTCTGAGTCTCTGGCTGAGACTCTAACTTCTTCTTGAGA	spacer length: 41 repeater length: 24
22253	1086821	CTTTCAACTCTATAGGAGATTAAC	ATACCCTAGAGGAAGAAGTTGAGGAGGTCTGGCTCAACTTG	spacer length: 42 repeater length: 24
22254	1086887	CTTTCAACTCTATAGGAGATTAAC	ATGAAAACGACCGTGACGTCATTGCAATCATGAATCTCAA	spacer length: 40 repeater length: 24
22255	1086951	CTTTCAACTCTATAGGAGATTAAC	ACATGCTAGATTTTGATAAAAAATTGAATGCAGAATTTAACCA	spacer length: 42 repeater length: 24
22256	1087017	CTTTCAACTCTATAGGAGATTAAC	AACTGTTGCAGAATCGTACTGGAAAGCGGTCCCTGCATT	spacer length: 39 repeater length: 24
22257	1087080	CTTTCAACTCTATAGGAGATTAAC	AGCTTTACGGCAAAGAGAAAGAGTTTGATGAGTTCA	spacer length: 36 repeater length: 24
22258	1087140	CTTTCAACTCTATAGGAGATTAAC	ACGGACACGACCCAGGGGTGATGGTCGTCCCGCTCATGT	spacer length: 39 repeater length: 24
22259	1087203	CTTTCAACTCTATAGGAGATTAAC	TCAGAAGAGCCATCGAGAAGATGGTTAAGGAAGAGA	spacer length: 36 repeater length: 24
22260	1087263	CTTTCAACTCTATAGGAGATTAAC	TCGATCTAATGAAATTGGCTAGGGAGTTCGGTCAGGGGTT	spacer length: 40 repeater length: 24
22261	1087327	CTTTCAACTCTATAGGAGATTAAC	GTAAATAGATGAAATCCATGTCCGCTCCACATTACTAGAA	spacer length: 41 repeater length: 24
22262	1087392	CTTTCAACTCTATAGGAGATTAAC	CCTCTCAACCTCATGAAAAAGGTGGATGGGAGGGTAG	spacer length: 37 repeater length: 24
22263	1087453	CTTTCAACTCTATAGGAGATTAAC	CTTCCCTGATGGTTACACCCCTTTGCACCTAGCGGTAGAACT	spacer length: 42 repeater length: 24
22264	1087519	CTTTCAACTCTATAGGAGATTAAC	ACGGACCAATCTTTTGCCTTGCCTCCTTGTACTGCTCATCTAG	spacer length: 43 repeater length: 24
22265	1087586	CTTTCAACTCTATAGGAGATTAAC	CCTCAGTGGGACGTTGGCTTTTGATTGGAGAGGTATTC	spacer length: 38 repeater length: 24
22266	1087648	CTTTCAACTCTATAGGAGATTAAC	ATTTAACATCTTAGGTGTTATCTTAAGATATTCTGGCTT	spacer length: 39 repeater length: 24
22267	1087711	CTTTCAACTCTATAGGAGATTAAC	TTCTAAGACGTGCTCCCTATGTGGGGAAATTCATGAGAG	spacer length: 39 repeater length: 24
22268	1087774	CTTTCAACTCTATAGGAGATTAAC	CACCTGAAAGGTTACGGCATTACAGGTAGGACGCAATCCTA	spacer length: 40 repeater length: 24
22269	1087838	CTTTCAACTCTATAGGAGATTAAC	TTATCATGGCGAATATCAGACGTATTAGGTCACCTCATCT	spacer length: 39 repeater length: 24
22270	1087901	CTTTCAACTCTATAGGAGATTAAC	CGCTCCATAATGATATAGTCATGATACAAGGATGGCGTTA	spacer length: 40 repeater length: 24
22271	1087965	CTTTCAACTCTATAGGAGATTAAC	AAGCAGGAAGTCTTTACAAAATCAAATGGCTAATACATA	spacer length: 40 repeater length: 24

length: 40 repeater length: 24

22272 1088029 CTTTCAACTCTATAGGAGATTAAC TTTTCTCTTCTCTTTCTCATACGATAAAATACGTAAAGT spacer
length: 40 repeater length: 24

22273 1088093 CTTTCAACTCTATAGGAGATTAAC TTGCTTCTGGAAAGCGGCGCAAGAGAAATTGAGGTTTTAA spacer
length: 40 repeater length: 24

22274 1088157 CTTTCAACTCTATAGGAGATTAAC TACAGATAAGGAAATTCAAAACCTACAGCCAACAGAGAAAT spacer
length: 41 repeater length: 24

22275 1088222 CTTTCAACTCTATAGGAGATTAAC TTGTCTTTTGATTTTCTACTCAACAATTTTGAGTAGAAAA spacer
length: 40 repeater length: 24

22276 1088286 CTTTCAACTCTATAGGAGATTAAC CGTACGAGGCTATCACATGCCTGGGCAAAGGCGTGTGTTC spacer
length: 40 repeater length: 24

22277 1088350 CTTTCAACTCTATAGGAGATTAAC CTTGACGTGGAAGACAAGGCATTATTCACGAAATGGAT spacer
length: 38 repeater length: 24

22278 1088412 CTTTCAACTCTATAGGAGATTAAC GGAACAAAGTGCTACAGCCTTATTGCTAAGGCAAACGAAGC spacer
length: 42 repeater length: 24

22279 1088478 CTTTCAACTCTATAGGAGATTAAC CATCGGGCGCCGGAATGGTTCTAAGCCGTAACGCTTAAA spacer
length: 40 repeater length: 24

22280 1088542 CTTTCAACTCTATAGGAGATTAAC ATTCCCAGGGCATTATCTACAGAAAATGGCAGAAATATAA spacer
length: 40 repeater length: 24

22281 1088606 CTTTCAACTCTATAGGAGATTAAC CAAATCGCCCCCGTTTCGCCCCGCGTTCTCTTTCTTTTCACC spacer
length: 44 repeater length: 24

22282 1088674 CTTTCAACTCTATAGGAGATTAAC ATTGATATTAACGTTAAACCCACGCCCCCAGTGAAGTT spacer
length: 39 repeater length: 24

22283 1088737 CTTTCAACTCTATAGGAGATTAAC AACGCAGAAAGATGCGTGAGAGAAGCAATGGCGTATCTAGT spacer
length: 41 repeater length: 24

22284 1088802 CTTTCAACTCTATAGGAGATTAAC CCCCCGCTTAGTTTCTGCCACGCATACCTCTGTTCTGCC spacer
length: 39 repeater length: 24

22285 1088865 CTTTCAACTCTATAGGAGATTAAC TCTGGAACCTTAGTACTTCCATGTTAACCACTGTGTAT spacer
length: 39 repeater length: 24

22286 1088928 CTTTCAACTCTATAGGAGATTAAC TTCACTCTCCCAGTAGACGTTTCAAGATCGTT spacer
length: 39 repeater length: 24

22287 1088991 CTTTCAACTCTATAGGAGATTAAC ATATGGGATGTTCCATTTAATAAACAAGGAAAAAGAAGG spacer
length: 41 repeater length: 24

22288 1089056 CTTTCAACTCTATAGGAGATTAAC TCTCACTTATGACTAAAGGTTCTTTGTTCTCAACTTCTTT spacer
length: 40 repeater length: 24

22289 1089120 CTTTCAACTCTATAGGAGATTAAC AGCCACAACCGACGACGGAACTTACTATTTTGTGTA spacer
length: 37 repeater length: 24

22290 1089181 CTTTCAACTCTATAGGAGATTAAC GCACCCACCAAGTCATGGTAGTGGTAGCTAACAGTAG spacer
length: 40 repeater length: 24

22291 1089245 CTTTCAACTCTATAGGAGATTAAC AAGCTAGTTACATGAATCGTCACATTAAATGTGTTACTTGA spacer
length: 41 repeater length: 24

22292 1089310 CTTTCAACTCTATAGGAGATTAAC CAGTCCGTAATTACCCTATTGCTAACTAATTTTCATAGGAATAG spacer
length: 43 repeater length: 24

22293 1089377 CTTTCAACTCTATAGGAGATTAAC AGTTAGGTTTTCTACTATCATTATCATTATTGAATCAGCG spacer
length: 40 repeater length: 24

22294 1089441 CTTTCAACTCTATAGGAGATTAAC TAGTATGGTGCGCCAGCCTCCGTGCTGACGACATCATA spacer
length: 39 repeater length: 24

22295 1089504 CTTTCAACTCTATAGGAGATTAAC ACTGTCTCTATCGGTATCCAAAATGTAAAAATTCTCATT spacer
length: 41 repeater length: 24

22296 1089569 CTTTCAACTCTATAGGAGATTAAC ACCAATTGACGGCCACGGATGGAAGTCCGACAGTGA spacer length:
36 repeater length: 24

22297 1089629 CTTTCAACTCTATAGGAGATTAAC ATTGCCAGCATACGCTAGATCAAAGCTAAAAGATGAGTA spacer
length: 39 repeater length: 24

22298 1089692 CTTTCAACTCTATAGGAGATTAAC TGAATCCTAAAGCGTCAAGAATTACCTTCCATTTCGTCAT spacer
length: 39 repeater length: 24

22299 1089755 CTTTCAACTCTATAGGAGATTAAC ATCAAGCGATTGCATTTGTTCTCAAGCAGAGGTTACAGGA spacer
length: 40 repeater length: 24

22300 1089819 CTTTCAACTCTATAGGAGATTAAC ATGAGAAGTAAAGAAGAATTGAATGAAGCGTTGGAGCAAA spacer
length: 40 repeater length: 24

22301 1089883 CTTTCAACTCTATAGGAGATTAAC ATGGGAATACGTTTACCAATTACTGATGCTGATGGGAAGGCCAAC
spacer length: 45 repeater length: 24

22302 1089952 CTTTCAACTCTATAGGAGATTAAC AGATTGGGAAAGGTGGTTCAAAGGTACAGACAATAACAT spacer
length: 39 repeater length: 24

22303 1090015 CTTTCAACTCTATAGGAGATTAAC ATCATAACTGACGTTGACACCTGCCATAGTTGTTCTGATGG spacer
length: 41 repeater length: 24

22304 1090080 CTTTCAACTCTATAGGAGATTAAC GCAAATGCCTTCAAAAACCTACTTCAAGCGCTAATGTTAGGG spacer
length: 41 repeater length: 24

22305 1090145 CTTTCAACTCTATAGGAGATTAAC GAGAGAGAAAGATTTATATACTTGACATGACATATGTATAAA spacer
length: 42 repeater length: 24

22306 1090211 CTTTCAACTCTATAGGAGATTAAC CTATTAACATCATAAACAATTTGCCACACTAACAGGA spacer
length: 38 repeater length: 24

22307	1090273	CTTTCAACTCTATAGGAGATTAAC	ACGCAATGGATTATCTGGAAGAGATGCTGGGCAATAAG spacer
	length:	38	repeater length: 24
22308	1090335	CTTTCAACTCTATAGGAGATTAAC	CACGATAAATTATTGGATGAAAACATCTTTTAACTTGTCGC spacer
	length:	41	repeater length: 24
22309	1090400	CTTTCAACTCTATAGGAGATTAAC	TGAAAATATTTTCAGCGTTATACTTTTGCTTAATGTACTCTTT spacer
	length:	42	repeater length: 24
22310	1090466	CTTTCAACTCTATAGGAGATTAAC	AGGCGGAAGCTAAGTATTTGTTAGAAATAGAGAAATATACA spacer
	length:	41	repeater length: 24
22311	1090531	CTTTCAACTCTATAGGAGATTAAC	TGTTGATCGGAGACATTATTTAGGTCTTTAATCCCAAATC spacer
	length:	40	repeater length: 24
22312	1090595	CTTTCAACTCTATAGGAGATTAAC	CGATTTACTGGGACTGTGATACCCAACAGCATAGACATCAGTT spacer
	length:	43	repeater length: 24
22313	1090662	CTTTCAACTCTATAGGAGATTAAC	TAGGATTTTTTTTTTCTAGATGATAGATTAATTGGAAATTCCT spacer
	length:	42	repeater length: 24
22314	1090728	CTTTCAACTCTATAGGAGATTAAC	GAAGTGTTCGCGCCTCTGCTAGAACAAATACGGAATGAAAGTGCC spacer
	length:	44	repeater length: 24
22315	1090796	CTTTCAACTCTATAGGAGATTAAC	ACACGTGGTGATTGATCCATTCCAACAAAGGCAAATCATTC spacer
	length:	41	repeater length: 24
22316	1090861	CTTTCAACTCTATAGGAGATTAAC	AAGTTATTCGGCGCTTTGCGCCTTCTTTTTTTGCTTAAACA spacer
	length:	41	repeater length: 24
22317	1090926	CTTTCAACTCTATAGGAGATTAAC	AAATAATTAGTTAGTAGGAGGATAGTTTTGAAAACCTTTTGTAGAAG
	length:	45	repeater length: 24
22318	1090995	CTTTCAACTCTATAGGAGATTAAC	GTTTGTTTTAGCGCAATATTTAGATCAACAGAAGAAGAAGA spacer
	length:	41	repeater length: 24
22319	1091060	CTTTCAACTCTATAGGAGATTAAC	ACCCAAAAACGTAGTGGGGAAAATATAATCTTCATTATTT spacer
	length:	40	repeater length: 24
22320	1091124	CTTTCAACTCTATAGGAGATTAAC	TAGCCCCAGTCGGTTTAGGCGGAAAATTCAACATTAAATT spacer
	length:	40	repeater length: 24
22321	1091188	CTTTCAACTCTATAGGAGATTAAC	TGACGGTTTGACAGAGGTCTATGTGTTACATACAGTAA spacer
	length:	39	repeater length: 24
22322	1091251	CTTTCAACTCTATAGGAGATTAAC	TGAGAAGAGAGAACATATTTTAGTGAAAAAATGTCAGC spacer
	length:	40	repeater length: 24
22323	1091315	CTTTCAACTCTATAGGAGATTAAC	ACTATCCATCTTCCACAATTTATATTATCCATATTTTCATTA spacer
	length:	42	repeater length: 24
22324	1091381	CTTTCAACTCTATAGGAGATTAAC	AGAATTTATAAGCCAAATTCTTGATAGTTTCTAACAAACG spacer
	length:	40	repeater length: 24
22325	1091445	CTTTCAACTCTATAGGAGATTAAC	AATATTTGTAAATTTTCATCAAACATTTTCCTAACTTTATC spacer
	length:	40	repeater length: 24
22326	1091509	CTTTCAACTCTATAGGAGATTAAC	AAAGAAGAGAATACAAGCTGTATTTTGTGAGGTTTAGCA spacer
	length:	39	repeater length: 24
22327	1091572	CTTTCAACTCTATAGGAGATTAAC	ATTTGGCAAATCCTAGCCAGAAGATAGGGGGCGACAAC spacer
	length:	39	repeater length: 24
22328	1091635	CTTTCAACTCTATAGGAGATTAAC	CAGTGAAAAAGAAATTACTTAATGTAGTCGAAAAGTG spacer
	length:	37	repeater length: 24
22329	1091696	CTTTCAACTCTATAGGAGATTAAC	ATATGATGGAGAACTCAAGTATATATTTTCACTTCAGATAA spacer
	length:	42	repeater length: 24
22330	1091762	CTTTCAACTCTATAGGAGATTAAC	AATCCAGAACACTACGCTTTACCAATACATGAAAAGTAT spacer
	length:	39	repeater length: 24
22331	1091825	CTTTCAACTCTATAGGAGATTAAC	TATAGAAAGCTGTTGGACGAAGCGGTCTCTCCTGAAGAG spacer
	length:	39	repeater length: 24
22332	1091888	CTTTCAACTCTATAGGAGATTAAC	AAAGAAGATC
22333			
22334			
22335	crispr 2		
22336	1097328	CTTAATCTCCTATAGAGTTGAAAG	AAGGCGAAATGCAGAAGATGTAGTAGCAAAGACAGCTGTGA spacer
	length:	41	repeater length: 24
22337	1097393	CTTAATCTCCTATAGAGTTGAAAG	CAACTCTCATGATTATAATCCCTCCATTTTAAATGTATT spacer
	length:	40	repeater length: 24
22338	1097457	CTTAATCTCCTATAGAGTTGAAAG	AAGTTTACTTCAGTTAATGAGCAAGTCAGCGCAGTGCTAA spacer
	length:	40	repeater length: 24
22339	1097521	CTTAATCTCCTATAGAGTTGAAAG	TTATATTTACGGGTAAGACGGCGTTAACGAAGCGTTAGG spacer
	length:	39	repeater length: 24
22340	1097584	CTTAATCTCCTATAGAGTTGAAAG	AGTTTAAACGTTACAACCTCTCGTTTCCAAACACCTCGTTTGT spacer
	length:	42	repeater length: 24
22341	1097650	CTTAATCTCCTATAGAGTTGAAAG	AAAACGAGACCTTTGGCTAAATAAACCGCACCATAGATAT spacer
	length:	40	repeater length: 24
22342	1097714	CTTAATCTCCTATAGAGTTGAAAG	CTATGAAATTGTCGCATTTCGTATGCAAAATATTTCTGGATCT spacer
	length:	42	repeater length: 24
22343	1097780	CTTAATCTCCTATAGAGTTGAAAG	TACATATCCTTCAATTGTGATCTAGCGTATGCTGGTAGT spacer
	length:	39	repeater length: 24
22344	1097843	CTTAATCTCCTATAGAGTTGAAAG	ATTTGGATTTTGATAATTTTCTTTTCTTTGTCATAATAAT spacer

length: 40 repeater length: 24
22345 1097907 CTTAATCTCCTATAGAGTTGAAAG TATAGTTAAGTCATTTTTTCTTCTTGTGGTGGTATTACCTAT spacer
length: 42 repeater length: 24
22346 1097973 CTTAATCTCCTATAGAGTTGAAAG TACCAATTTCTGCTAATAACGTGAACGTACTCTCGCTGAG spacer
length: 40 repeater length: 24
22347 1098037 CTTAATCTCCTATAGAGTTGAAAG TAACTTATCCCCCTACATGATTGCGAAAAACAACAAT spacer
length: 37 repeater length: 24
22348 1098098 CTTAATCTCCTATAGAGTTGAAAG TGTTTTTAAAGGACCTGGAGGCAGTCCGCCATTTACCCAC spacer
length: 40 repeater length: 24
22349 1098162 CTTAATCTCCTATAGAGTTGAAAG TGAGAACAGCTGTCTTCACTGCTGACCATCGAGCGACCT spacer
length: 39 repeater length: 24
22350 1098225 CTTAATCTCCTATAGAGTTGAAAG TTTTCTTTCTCATACTTACTCTTATTAGTTTACTAACAA spacer
length: 40 repeater length: 24
22351 1098289 CTTAATCTCCTATAGAGTTGAAAG CTTCTTGTCTTCTCTCTGCTTTACGCCTTCTTGTCTTCC spacer
length: 41 repeater length: 24
22352 1098354 CTTAATCTCCTATAGAGTTGAAAG TCTGTACGTGGGTCAATAAATGTCACAATCGCGTACTTCTT spacer
length: 41 repeater length: 24
22353 1098419 CTTAATCTCCTATAGAGTTGAAAG ATAATAATCAACGAGGCAAACCTCCATGTTCTACAAACCA spacer
length: 39 repeater length: 24
22354 1098482 CTTAATCTCCTATAGAGTTGAAAG ACTAGGCAAACGATACTGAGACACAGCGGGACTGCAG spacer
length: 37 repeater length: 24
22355 1098543 CTTAATCTCCTATAGAGTTGAAAG TTGGAACACTCCGTATCAATCCTTTAGACTGCAACTCCTCA spacer
length: 42 repeater length: 24
22356 1098609 CTTAATCTCCTATAGAGTTGAAAG AACATTAGTGTAAGCCTGCAGCGTTTGCTGGAAGCACGG spacer
length: 40 repeater length: 24
22357 1098673 CTTAATCTCCTATAGAGTTGAAAG TCTCGTCCTTAAATTTCAAACCTTCCATGTAGCTCGCCCCCTCT spacer
length: 44 repeater length: 24
22358 1098741 CTTAATCTCCTATAGAGTTGAAAG CTTATGTACACACCACCTGAGCTAAGGAGTGTCTTAATCT spacer
length: 40 repeater length: 24
22359 1098805 CTTAATCTCCTATAGAGTTGAAAG AAATGGGACGATGAGGGTGTTCACAGATACAACACCACAG spacer
length: 41 repeater length: 24
22360 1098870 CTTAATCTCCTATAGAGTTGAAAG ATTATATATAATATATGAATAATAGCCCCGCTTCGCGCCTT spacer
length: 44 repeater length: 24
22361 1098938 CTTAATCTCCTATAGAGTTGAAAG TCTTTTGCCTATCCATTCGACCACATCTCTCGGCTTCGATAC spacer
length: 44 repeater length: 24
22362 1099006 CTTAATCTCCTATAGAGTTGAAAG TTGACGACGTGCTTACTCTTCTTTCCAGTTCTTGTTACTT spacer
length: 40 repeater length: 24
22363 1099070 CTTAATCTCCTATAGAGTTGAAAG TTATCGATAAAATCGTAAACGATTTGTTGCCTTATTACGTGAA spacer
length: 43 repeater length: 24
22364 1099137 CTTAATCTCCTATAGAGTTGAAAG ACACCTCTACTAACTTTACCAAAGCCTATCATAGTCCCAACG spacer
length: 42 repeater length: 24
22365 1099203 CTTAATCTCCTATAGAGTTGAAAG CCTTTATTCTTGCTATTAGATCGAATAAATCGCTCGCG spacer
length: 38 repeater length: 24
22366 1099265 CTTAATCTCCTATAGAGTTGAAAG TAAGTGGACACTATTGATCACCTCAGGGCTAGATATATGCCT spacer
length: 42 repeater length: 24
22367 1099331 CTTAATCTCCTATAGAGTTGAAAG TCATTGAAATACTCAGCAACTGTATCCCTTAACTCTTCCTTATTA
spacer length: 45 repeater length: 24
22368 1099400 CTTAATCTCCTATAGAGTTGAAAG AGTATACCTGGGAGTGCTGATGTAGATGCGTCACCGACCACGTT spacer
length: 44 repeater length: 24
22369 1099468 CTTAATCTCCTATAGAGTTGAAAG ACTACGGGTCTCAAGGTAGTCGGTGTTCTTCTAGTAGCTG spacer
length: 40 repeater length: 24
22370 1099532 CTTAATCTCCTATAGAGTTGAAAG ATCGTACTTTGCGCTGTACCTTATGAACAGTGGAATGTCCC spacer
length: 41 repeater length: 24
22371 1099597 CTTAATCTCCTATAGAGTTGAAAG GTAAAGGGGTGTGTTTTACGTTTTGAGTGGTGTTCACGAC spacer
length: 41 repeater length: 24
22372 1099662 CTTAATCTCCTATAGAGTTGAAAG CTAAACATATATGAGTTCATTTTTTCCGACTTTCCTAGA spacer
length: 39 repeater length: 24
22373 1099725 CTTAATCTCCTATAGAGTTGAAAG TAAAGTGATAGAATAAAAGCTATTATTCCAACCTATTTCT spacer
length: 39 repeater length: 24
22374 1099788 CTTAATCTCCTATAGAGTTGAAAG CCTTGGCAACTCGGACCCCTCAAGCGTACGGAAGAGATT spacer
length: 40 repeater length: 24
22375 1099852 CTTAATCTCCTATAGAGTTGAAAG AACTCTCGATCAAGACATTTATTGTCTCTTCATCTATCT spacer
length: 40 repeater length: 24
22376 1099916 CTTAATCTCCTATAGAGTTGAAAG TCTAAGGAGGATAAAGAGGAAGATTGGGCATTTTGTCTGT spacer
length: 41 repeater length: 24
22377 1099981 CTTAATCTCCTATAGAGTTGAAAG TTAGTGTTTACGTATGCTCTTTGTTGAGCTAGTTGTTGAT spacer
length: 40 repeater length: 24
22378 1100045 CTTAATCTCCTATAGAGTTGAAAG TTCACGAGGATGATTATAAGCTCAGGGAGAAGATTGT spacer
length: 37 repeater length: 24
22379 1100106 CTTAATCTCCTATAGAGTTGAAAG ACGTAACCTGTAGATGTGTAACCAGGCTCAGACGAGAA spacer
length: 38 repeater length: 24

22380	1100168	CTTAATCTCCTATAGAGTTGAAAG	GAACATCCGCCTTATCGTTATCTTTCTTCTTGAACAGGAAC	spacer
	length:	41	repeater length:	24
22381	1100233	CTTAATCTCCTATAGAGTTGAAAG	TCAATTTATCATACTACCTAGTCTTACTAAAGTACAGT	spacer
	length:	39	repeater length:	24
22382	1100296	CTTAATCTCCTATAGAGTTGAAAG	GTTGGACTACCTGAAGTAATCGAGCTCAGTGGAGGCA	spacer
	length:	37	repeater length:	24
22383	1100357	CTTAATCTCCTATAGAGTTGAAAG	GTTTTACGTGATACTTTATGATGTCGTTGCATCTATCGA	spacer
	length:	40	repeater length:	24
22384	1100421	CTTAATCTCCTATAGAGTTGAAAG	AGGACATAAGGCCTTGGCCATGGTCTCAATATCCCATTCTT	spacer
	length:	41	repeater length:	24
22385	1100486	CTTAATCTCCTATAGAGTTGAAAG	GCACTGACGTTTACTATCTGCAGCCCACTTGGTGACTG	spacer
	length:	38	repeater length:	24
22386	1100548	CTTAATCTCCTATAGAGTTGAAAG	ACACTGCCTTGATGAGCGGGATGCTTCCAATTCTCCCTCT	spacer
	length:	40	repeater length:	24
22387	1100612	CTTAATCTCCTATAGAGTTGAAAG	AGGATTCTTCTAAATGCTGTGACAAATGTTAGAATTAGATA	spacer
	length:	41	repeater length:	24
22388	1100677	CTTAATCTCCTATAGAGTTGAAAG	CAACGAAGAAAGAGTCGAGAACTAAGCAGAGTCGAGCACT	spacer
	length:	41	repeater length:	24
22389	1100742	CTTAATCTCCTATAGAGTTGAAAG	TATTCGTCGTACGATTCCACTTCAACAGAGTTCACAATAA	spacer
	length:	40	repeater length:	24
22390	1100806	CTTAATCTCCTATAGAGTTGAAAG	AGTTGCTCTAGCAGGAGAAGATCCTGCTCTTCGATTTTGAAT	spacer
	length:	42	repeater length:	24
22391	1100872	CTTAATCTCCTATAGAGTTGAAAG	AAATTCCTCA	
22392				
22393				
22394	crispr 3			
22395	1104342	GTTAATCTTCTATAGAGTTGAAAG	TCTCAATCTGTAGGCCAAGCCACTATTATCATAACTCCAC	spacer
	length:	40	repeater length:	24
22396	1104406	GTTAATCTTCTATAGAGTTGAAAG	TGAATGCAAGCCTGTCGTACATTACTATTCTACCTTGTTTG	spacer
	length:	41	repeater length:	24
22397	1104471	GTTAATCTTCTATAGAGTTGAAAG	TTTGTCTGTTTCGATTGGAATAATTTTCAGCGTTACCATAAAC	spacer
	length:	42	repeater length:	24
22398	1104537	GTTAATCTTCTATAGAGTTGAAAG	TACCTGTATGACAATTCGCTAAAAATTTAACTATCTAC	spacer
	length:	39	repeater length:	24
22399	1104600	GTTAATCTTCTATAGAGTTGAAAG	TCATTTCCATTTCTTTCAATTTATCAACTATTAACCTAA	spacer
	length:	39	repeater length:	24
22400	1104663	GTTAATCTTCTATAGAGTTGAAAG	GAGGAAAAGAAGGCTAACGCATTAAAGGCGTGGCATTTAGGG	spacer
	length:	42	repeater length:	24
22401	1104729	GTTAATCTTCTATAGAGTTGAAAG	GACCCATATTTAGGAGTTATGTCAGCTATATCCAAGCAT	spacer
	length:	39	repeater length:	24
22402	1104792	GTTAATCTTCTATAGAGTTGAAAG	TCTTGATTTCCATGTCTATCCCCTGCGCATATCTCATATCA	spacer
	length:	41	repeater length:	24
22403	1104857	GTTAATCTTCTATAGAGTTGAAAG	CATGAGCTGTCCCTCCGATAAGATCATATTTGATGCAGA	spacer
	length:	39	repeater length:	24
22404	1104920	GTTAATCTTCTATAGAGTTGAAAG	TGAAATAACCGCCGACATCCAACGCTGGAAATTTATATCT	spacer
	length:	40	repeater length:	24
22405	1104984	GTTAATCTTCTATAGAGTTGAAAG	AATCTTAAACCGCAACCTTTTATAAAATCTTCAACTGTAA	spacer
	length:	40	repeater length:	24
22406	1105048	GTTAATCTTCTATAGAGTTGAAAG	CCTATAACCTAATAGCATAATATTTACTATGTCCCTCCAT	spacer
	length:	40	repeater length:	24
22407	1105112	GTTAATCTTCTATAGAGTTGAAAG	TGCTCACCTCTTTCAGTTTCTGCGCCTTCTCCCTCACCG	spacer
	length:	39	repeater length:	24
22408	1105175	GTTAATCTTCTATAGAGTTGAAAG	TTGATATTTGAGTGCCTGCGCAAATTCCTCAAACAAATCT	spacer
	length:	40	repeater length:	24
22409	1105239	GTTAATCTTCTATAGAGTTGAAAG	TCTTTAGTCGCTATAATGTCGGGTAATGGTTGCTTACCAG	spacer
	length:	40	repeater length:	24
22410	1105303	GTTAATCTTCTATAGAGTTGAAAG	TCTGATTCTGATACCTCCTCTTCGCTCCCTTCTTGTTACCTTCTT	spacer
	length:	46	repeater length:	24
22411	1105373	GTTAATCTTCTATAGAGTTGAAAG	CTTTTTTGCAACCTAGAAAGCCTTGTTGCGAAATATGGC	spacer
	length:	39	repeater length:	24
22412	1105436	GTTAATCTTCTATAGAGTTGAAAG	ATTGCTTCTACTTCTGCTGGCATTTTTTTTCCACTAAAA	spacer
	length:	38	repeater length:	24
22413	1105498	GTTAATCTTCTATAGAGTTGAAAG	GCAATATTGGATAGGATTCATATCATCCAAGTTGCAATAAA	spacer
	length:	41	repeater length:	24
22414	1105563	GTTAATCTTCTATAGAGTTGAAAG	GCAATCATTGCGAAAATAACGGGGCATAAACGCCTGGAC	spacer
	length:	39	repeater length:	24
22415	1105626	GTTAATCTTCTATAGAGTTGAAAG	TAGGTAGAAGGCAGAAGGAAGTTTTAGCTTCGATATTGGAA	spacer
	length:	41	repeater length:	24
22416	1105691	GTTAATCTTCTATAGAGTTGAAAG	CGTTTCTCTAATCTCGCCAACCTAGTTGCGAAATATGGCTG	spacer
	length:	41	repeater length:	24
22417	1105756	GTTAATCTTCTATAGAGTTGAAAG	TATATTTGTCGCTATATCGCCAGAAGACGTCTGATAT	spacer

length: 39 repeater length: 24

22418 1105819 GTTAATCTTCTATAGAGTTGAAAG GTTCACGAGTAAACTGTATAAGAGTGAGGTAACAAATCT spacer
length: 40 repeater length: 24

22419 1105883 GTTAATCTTCTATAGAGTTGAAAG AAAGTGAAAGTGATGCTGGAGGTGAGGGACAGACTGGGAG spacer
length: 40 repeater length: 24

22420 1105947 GTTAATCTTCTATAGAGTTGAAAG ATTTGGATCTTGAGAATTTTCTTTTCTTTGTCATAATAA spacer
length: 39 repeater length: 24

22421 1106010 GTTAATCTTCTATAGAGTTGAAAG AAGGCGTATAACAAAACGGCGTATGTCATATGTTCTGCTTCTA spacer
length: 43 repeater length: 24

22422 1106077 GTTAATCTTCTATAGAGTTGAAAG AGAGAGGGCTTCACTTACAAGTAAATCAGCACACCTTAT spacer
length: 39 repeater length: 24

22423 1106140 GTTAATCTTCTATAGAGTTGAAAG GAGAAGTACCCGGGCGTATCCAGGCTAAGCCAGTTATCAA spacer
length: 40 repeater length: 24

22424 1106204 GTTAATCTTCTATAGAGTTGAAAG TTTGCCATGGAAGAAGCGAAATGTCAGTGTTGGTAGCTCC spacer
length: 40 repeater length: 24

22425 1106268 GTTAATCTTCTATAGAGTTGAAAG GAATAGTAAGTAAATCATCACCTGCAATTATCGTGTATTTTT spacer
length: 42 repeater length: 24

22426 1106334 GTTAATCTTCTATAGAGTTGAAAG ATATAACGAAAGAGCGTTCACAAAAGCGTTAGTAG spacer length: 35
repeater length: 24

22427 1106393 GTTAATCTTCTATAGAGTTGAAAG ATTGCTATAAACCACATCATGGCTCCTAGCATCAACG spacer
length: 37 repeater length: 24

22428 1106454 GTTAATCTTCTATAGAGTTGAAAG TACAATCTTATCAACTATGTCTTCCAAAATGGTGGTAGA spacer
length: 40 repeater length: 24

22429 1106518 GTTAATCTTCTATAGAGTTGAAAG CCAAAAATCGAATTCAAGGACCAAAACGTAAAACCACCTGG spacer
length: 41 repeater length: 24

22430 1106583 GTTAATCTTCTATAGAGTTGAAAG TATGATGTTCTCATTGTATTTGTTGAGATCATGTTTAA spacer
length: 38 repeater length: 24

22431 1106645 GTTAATCTTCTATAGAGTTGAAAG GACACGGCTTTGTAAACAGAGAACCCAGGCAGAACAGATA spacer
length: 40 repeater length: 24

22432 1106709 GTTAATCTTCTATAGAGTTGAAAG ATACCGGTGTCCATACAGCCAATACCCCCAACACCGCCAC spacer
length: 40 repeater length: 24

22433 1106773 GTTAATCTTCTATAGAGTTGAAAG TAATTATATAAGCCGAATTGATGTAAATAAGACAAGATGACT spacer
length: 42 repeater length: 24

22434 1106839 GTTAATCTTCTATAGAGTTGAAAG CTTGTTTTTGTCTTTTTTCTTTGTAATCTTCTATTCTTA spacer
length: 39 repeater length: 24

22435 1106902 GTTAATCTTCTATAGAGTTGAAAG TCATGAATCAGTTTGAAAGAAGAGAAGATTGGTTAAATG spacer
length: 39 repeater length: 24

22436 1106965 GTTAATCTTCTATAGAGTTGAAAG GGTTTTGTCTCTTTTTTCTGGCTTTCCCGCCAGAATCTTT spacer
length: 39 repeater length: 24

22437 1107028 GTTAATCTTCTATAGAGTTGAAAG ATTTGCAATTTCATTTGCAATTGTTTCAATTCACCTTCAAAT spacer
length: 41 repeater length: 24

22438 1107093 GTTAATCTTCTATAGAGTTGAAAG CTTTCTTCTTCTATTCTTCTTTCTTTCTTTTCTTTCTACTAT spacer
length: 41 repeater length: 24

22439 1107158 GTTAATCTTCTATAGAGTTGAAAG CTTATTTTCAGAGGATCTAATAGACGAAGGCGGAATCTTTCT spacer
length: 41 repeater length: 24

22440 1107223 GTTAATCTTCTATAGAGTTGAAAG CTGGCATTACCCAGGCTTGGCGACACACCAGAAGACAGACT spacer
length: 41 repeater length: 24

22441 1107288 GTTAATCTTCTATAGAGTTGAAAG GTTTTTGTGTTTTCGAAGAGAATTGGCGGGGCGCTGTAATT spacer
length: 41 repeater length: 24

22442 1107353 GTTAATCTTCTATAGAGTTGAAAG GTGGGAACAGCGGTGCTATTCATGACCCCTCGCCCAGGT spacer
length: 39 repeater length: 24

22443 1107416 GTTAATCTTCTATAGAGTTGAAAG AGACTTTATTTCCAGATTTTCTATATTTATCATTCGGTTTGAT spacer
length: 44 repeater length: 24

22444 1107484 GTTAATCTTCTATAGAGTTGAAAG GAGCACTCTGGGGGATACCCCCCGACCCCTACTGCTAA spacer
length: 40 repeater length: 24

22445 1107548 GTTAATCTTCTATAGAGTTGAAAG TGAGACCGGGACACCGCCGAAATTAAATCCGGCAACGCCA spacer
length: 40 repeater length: 24

22446 1107612 GTTAATCTTCTATAGAGTTGAAAG TCTTCTTTGTCCATCTGTATATCCCAATCACGCCATCTGT spacer
length: 40 repeater length: 24

22447 1107676 GTTAATCTTCTATAGAGTTGAAAG ACTACATATGACGCCGTGGATTGCAGATCTGCTATATTCTT spacer
length: 41 repeater length: 24

22448 1107741 GTTAATCTTCTATAGAGTTGAAAG TCCTCTATCACGTCATCTATAGCCACACACTTTTGAGCGT spacer
length: 40 repeater length: 24

22449 1107805 GTTAATCTTCTATAGAGTTGAAAG ATGGATAAAGACGAATTGAAAGAAATTATTAAGAATTTA spacer
length: 39 repeater length: 24

22450 1107868 GTTAATCTTCTATAGAGTTGAAAG TACTTTTAAATCCAGCTTGTCAATGGATGCAGAATTAGAGAGGC spacer
length: 43 repeater length: 24

22451 1107935 GTTAATCTTCTATAGAGTTGAAAG CGTGGGGCTCGCTCTAACTTGTAACGACACATGTTCTTA spacer
length: 39 repeater length: 24

22452 1107998 GTTAATCTTCTATAGAGTTGAAAG CCTGAGCTAAGGAGTGTCTTAATCTTATCGAAGTCGTCTGGCTT spacer
length: 44 repeater length: 24

22453	1108066	GTTAATCTTCTATAGAGTTGAAAG	CTTCGCCGTATAACGATCCTACAACAATAATCACTGATTTTGA	spacer
		length: 43	repeater length: 24	
22454	1108133	GTTAATCTTCTATAGAGTTGAAAG	GTAATGAAAGTAATGTCTTTTCTCATACGAAAAGACCAA	spacer
		length: 39	repeater length: 24	
22455	1108196	GTTAATCTTCTATAGAGTTGAAAG	AGATGATGCACCTGGCAGAGGCGACAAGAGAAAAACCAGGCT	spacer
		length: 41	repeater length: 24	
22456	1108261	GTTAATCTTCTATAGAGTTGAAAG	CAATGAATTCAGAAAACAGCTGTTTCATCCTGGTTCTCAG	spacer
		length: 39	repeater length: 24	
22457	1108324	GTTAATCTTCTATAGAGTTGAAAG	ACAAGGACGTTTTTCGTGATCCAGGTGAGCGAATACACA	spacer
		length: 38	repeater length: 24	
22458	1108386	GTTAATCTTCTATAGAGTTGAAAG	AGCAATAATTTAATTGCACTATTTTTAACTGTGCATGA	spacer
		length: 38	repeater length: 24	
22459	1108448	GTTAATCTTCTATAGAGTTGAAAG	TTCAGTGTCTACACATAAGTATAAGGGGCTTCGCCCTT	spacer
		length: 39	repeater length: 24	
22460	1108511	GTTAATCTTCTATAGAGTTGAAAG	CATAATTCGTTTCTGTATTTGGCGTCAAATTTATTTTAAAT	spacer
		length: 41	repeater length: 24	
22461	1108576	GTTAATCTTCTATAGAGTTGAAAG	ATTTGAAATAAGACAAATCAGTGCAGAAGAGGCAAGGAACTAG	spacer
		length: 44	repeater length: 24	
22462	1108644	GTTAATCTTCTATAGAGTTGAAAG	AGATAACATTTTTTCTCTTGTTTAAACGTATCTACGAACCAG	spacer
		length: 42	repeater length: 24	
22463	1108710	GTTAATCTTCTATAGAGTTGAAAG	ACCCCGCCAATCAGTGCCTGATGTTTCGCTGGCTTCATATC	spacer
		length: 41	repeater length: 24	
22464	1108775	GTTAATCTTCTATAGAGTTGAAAG	TATATATTATATTATGAATTATACCACACACTTCTTTTTTCGC	spacer
		length: 42	repeater length: 24	
22465	1108841	GTTAATCTTCTATAGAGTTGAAAG	AGAAACGAATTGTTAGTTTACTTATCACGCCTTCATTCCCA	spacer
		length: 41	repeater length: 24	
22466	1108906	GTTAATCTTCTATAGAGTTGAAAG	ATATCCACCCTTCTCACCAAAGAATAATACAAAAATTTAA	spacer
		length: 41	repeater length: 24	
22467	1108971	GTTAATCTTCTATAGAGTTGAAAG	AGGATCGCCG	
22468				
22469				
22470	crispr 4			
22471	1109113	GTTAATCTTCTATAGAGTTGAAAG	ATTATTACTACTATATCATCCGGATTCATTTTCTATCCCG	spacer
		length: 40	repeater length: 24	
22472	1109177	GTTAATCTTCTATAGAGTTGAAAG	CTTATTTCTTCGCGGTTTATAATGGACCCGGAACG	spacer length: 35
		length: 35	repeater length: 24	
22473	1109236	GTTAATCTTCTATAGAGTTGAAAG	TATCTTCCTGACGTAGATGATGCAGTCCAAACAATAGATAG	spacer
		length: 41	repeater length: 24	
22474	1109301	GTTAATCTTCTATAGAGTTGAAAG	TGTACCAAGCCTGGATGGGTAGACCAGGACCGTGATCAAT	spacer
		length: 40	repeater length: 24	
22475	1109365	GTTAATCTTCTATAGAGTTGAAAG	TCTTTCATTGGGTTCGTATAAAAATCCTTGACCTAAGGA	spacer
		length: 39	repeater length: 24	
22476	1109428	GTTAATCTTCTATAGAGTTGAAAG	CAGACAATACGATCGAGTAGGGGACTGTGTGTAAAAATGAGGG	spacer
		length: 43	repeater length: 24	
22477	1109495	GTTAATCTTCTATAGAGTTGAAAG	TGTACACTTCCTTCTTCTTAGGCAAGGTTATTTTAACTT	spacer
		length: 40	repeater length: 24	
22478	1109559	GTTAATCTTCTATAGAGTTGAAAG	GGCGGGTGAAAGAATACTCGAGAAAGAGAAAAGAAAAA	spacer
		length: 39	repeater length: 24	
22479	1109622	GTTAATCTTCTATAGAGTTGAAAG	AGTATCATTCACTGGAAAGTTGTACGGTATGAGGAGTCATA	spacer
		length: 41	repeater length: 24	
22480	1109687	GTTAATCTTCTATAGAGTTGAAAG	ATTCCACGATTTTAACTTTACAGATTCCCATATCCTG	spacer
		length: 39	repeater length: 24	
22481	1109750	GTTAATCTTCTATAGAGTTGAAAG	CCTAGATCACGGGGCCAATCCAAACGTGAAAGATCTAGAT	spacer
		length: 40	repeater length: 24	
22482	1109814	GTTAATCTTCTATAGAGTTGAAAG	TCAAAGGTTGCTGAGGACTGTTATAGGGATGCACTCTCAGT	spacer
		length: 41	repeater length: 24	
22483	1109879	GTTAATCTTCTATAGAGTTGAAAG	TTGATCGTTAAAAAGTAACGTAAGACGTTTCACAAGAGA	spacer
		length: 39	repeater length: 24	
22484	1109942	GTTAATCTTCTATAGAGTTGAAAG	ATATTGATTATGAAGACTTTAAGAAAGATACCAATTCTAT	spacer
		length: 40	repeater length: 24	
22485	1110006	GTTAATCTTCTATAGAGTTGAAAG	TAATTCCTCTTTGATCTCTCTGGATTCTTGTGTTTGTGAAT	spacer
		length: 41	repeater length: 24	
22486	1110071	GTTAATCTTCTATAGAGTTGAAAG	TTATTTTCGAGTTTCTCATATATCTCCACGTTATGTCAGA	spacer
		length: 40	repeater length: 24	
22487	1110135	GTTAATCTTCTATAGAGTTGAAAG	CTCTCGTTAAGGAACCTACTCAAAGCCCTCAAAGACGAT	spacer
		length: 39	repeater length: 24	
22488	1110198	GTTAATCTTCTATAGAGTTGAAAG	TTCAACTCCACGATTGATTTGATAATTATCAAGGCTTTT	spacer
		length: 39	repeater length: 24	
22489	1110261	GTTAATCTTCTATAGAGTTGAAAG	AATGAGAGAGTCAGGCCGAGGCCCTCATTACATCTATCATAT	spacer
		length: 43	repeater length: 24	
22490	1110328	GTTAATCTTCTATAGAGTTGAAAG	ATAAACCAGCGTTTCCCTACAAGTATGAGGCAAAGAACA	spacer

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length: 39 repeater length: 24
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22526	1112621	GTTAATCTTCTATAGAGTTGAAAG	TTGCCATCGCCTCAACTACTGCCAGACCAAATGTCTCAC	spacer
		length: 39	repeater length: 24	
22527	1112684	GTTAATCTTCTATAGAGTTGAAAG	TTCAGCTTAAGGATGACACTCTTGATATGTTGAGTCTTTCC	spacer
		length: 41	repeater length: 24	
22528	1112749	GTTAATCTTCTATAGAGTTGAAAG	GTAGGTGTGAAAATCACTATAGTCATCATACAGCCTCAT	spacer
		length: 39	repeater length: 24	
22529	1112812	GTTAATCTTCTATAGAGTTGAAAG	TGCTTTGTACGTAAAATGACGTGCTTCTCCTTATACCAA	spacer
		length: 39	repeater length: 24	
22530	1112875	GTTAATCTTCTATAGAGTTGAAAG	TGCACCAGTCCCTAGTGTAACCCTTCCAATATTGACGTCT	spacer
		length: 41	repeater length: 24	
22531	1112940	GTTAATCTTCTATAGAGTTGAAAG	CTTCATATCTTCAGCTTCAGGGTACCAGAGACGAATCTCACC	spacer
		length: 42	repeater length: 24	
22532	1113006	GTTAATCTTCTATAGAGTTGAAAG	AGTAAAATAGGTCCTGCATTTGTACTAGGCGTTACGAATAAT	spacer
		length: 42	repeater length: 24	
22533	1113072	GTTAATCTTCTATAGAGTTGAAAG	AGTATCGCAGCGGGCGGGGATGTCGCCGAAAAATCTACG	spacer
		length: 39	repeater length: 24	
22534	1113135	GTTAATCTTCTATAGAGTTGAAAG	GTAATATCGGTCAATCCCACGAATGTGGACGTATACA	spacer
		length: 37	repeater length: 24	
22535	1113196	GTTAATCTTCTATAGAGTTGAAAG	CGATGAACTGAAGGCAACGCCAAAACAACTGTTTCAGGAAAAA	spacer
		length: 42	repeater length: 24	
22536	1113262	GTTAATCTTCTATAGAGTTGAAAG	AGAGAGTCTAGGAGCAGGGATACAGAATGCTATAGGATCC	spacer
		length: 40	repeater length: 24	
22537	1113326	GTTAATCTTCTATAGAGTTGAAAG	TATTGCGGACAAAGTTCAAAGTCATATATTTCTTTGCCCCC	spacer
		length: 41	repeater length: 24	
22538	1113391	GTTAATCTTCTATAGAGTTGAAAG	ATTCACCCAGGGACGTTAATGCCGAATTCTATGAGGACAG	spacer
		length: 40	repeater length: 24	
22539	1113455	GTTAATCTTCTATAGAGTTGAAAG	TTCTATAGTCAGGGGCATTTGGATTTACCTTAAGTTTGA	spacer
		length: 39	repeater length: 24	
22540	1113518	GTTAATCTTCTATAGAGTTGAAAG	GAATATTGCAATTTCTGGATTATGAACACTGGAAAGTGATAG	spacer
		length: 42	repeater length: 24	
22541	1113584	GTTAATCTTCTATAGAGTTGAAAG	TCGAAGTCCCTGTACCACCTCCACCCGTGCTAGTTCCT	spacer
		length: 38	repeater length: 24	
22542	1113646	GTTAATCTTCTATAGAGTTGAAAG	CCCTGATCATCTTTAGCACTCATATGTTATCATGATA	spacer
		length: 37	repeater length: 24	
22543	1113707	GTTAATCTTCTATAGAGTTGAAAG	ATCCAAGAACTCAATCAACTCCAGCGTATTTTCCCCAAA	spacer
		length: 39	repeater length: 24	
22544	1113770	GTTAATCTTCTATAGAGTTGAAAG	ATCTTCCTCACCCCTTATGTCCCAATGCCCCGAATTAGACC	spacer
		length: 40	repeater length: 24	
22545	1113834	GTTAATCTTCTATAGAGTTGAAAG	GTAGCGTTTGAGGAAC TAACCAATGCGACGATACAAGTA	spacer
		length: 39	repeater length: 24	
22546	1113897	GTTAATCTTCTATAGAGTTGAAAG	GCACAATTGTTGTCGGTAAAGGAGAATGGAACAAACATAG	spacer
		length: 40	repeater length: 24	
22547	1113961	GTTAATCTTCTATAGAGTTGAAAG	GCACCTCCGCCTCCCCACCTCCACCTGCTCCGATTGCT	spacer
		length: 39	repeater length: 24	
22548	1114024	GTTAATCTTCTATAGAGTTGAAAG	TAATTTTCTCGGTTACGGTACTGCCACTACTGGCAAT	spacer
		length: 37	repeater length: 24	
22549	1114085	GTTAATCTTCTATAGAGTTGAAAG	TAAGGATGAACCTAATTGCTCAAGGAGAATAAGATCCTGC	spacer
		length: 40	repeater length: 24	
22550	1114149	GTTAATCTTCTATAGAGTTGAAAG	GATAATGTAGCGTATATCCTCAAGCAGTTCTATAACAGAA	spacer
		length: 40	repeater length: 24	
22551	1114213	GTTAATCTTCTATAGAGTTGAAAG	ATTATACTACTGTTATGTACTGTACTGTATATATTCCTTA	spacer
		length: 40	repeater length: 24	
22552	1114277	GTTAATCTTCTATAGAGTTGAAAG	ATCTTTTCCACTGTATATTGACCATATCTTCTATCTAGA	spacer
		length: 39	repeater length: 24	
22553	1114340	GTTAATCTTCTATAGAGTTGAAAG	TAAAGGAATGAGCTCTTGAATGACAAAACCCTTCGTTATACG	spacer
		length: 42	repeater length: 24	
22554	1114406	GTTAATCTTCTATAGAGTTGAAAG	TCACCTTGCTCTTTATCGCATCTCCGACGTCGTTGAGAA	spacer
		length: 39	repeater length: 24	
22555	1114469	GTTAATCTTCTATAGAGTTGAAAG	CCTTATGTAACCTTGATCCATCTTCTGCACAACCTAGATCCT	spacer
		length: 41	repeater length: 24	
22556	1114534	GTTAATCTTCTATAGAGTTGAAAG	CTCATGGTTCCCTGTCTCTCCTAGATGCATTAGACCAGACCCT	spacer
		length: 43	repeater length: 24	
22557	1114601	GTTAATCTTCTATAGAGTTGAAAG	TATCATAAGAACATAGTAGAGAAGGCTCAGGATTACGCA	spacer
		length: 39	repeater length: 24	
22558	1114664	GTTAATCTTCTATAGAGTTGAAAG	GGAGCTGTCTG	
22559				
22560				
22561	crispr 5			
22562	1136109	GTTTCAAACCCCTCGAAGGATCTCTACAA	ACGACACGTCTACACCCCCCCCCCGTCGTGAGTGTGGGAAGCGGGGATCCC	spacer length: 52 repeater length: 28

22563 1136189 GTTTCAAACCCCTCGAAGGATCTCTACAA ACTGGGGTCCATTGTGATGAAGATTTTCGGAGAAATTGAAGA
spacer length: 41 repeater length: 28
22564 1136258 GTTTCAAACCCCTCGAAGGATCTCTACAA ACTCCCCTGTTACGACTGAACCAATACTTGATTGCACGT spacer
length: 39 repeater length: 28
22565 1136325 GTTTCAAACCCCTCGAAGGATCTCTACAA ACCTCTACACACTAAGAGTAGCTGAGACCATAAAAACCAA spacer
length: 40 repeater length: 28
22566 1136393 GTTTCAAACCCCTCGAAGGATCTCTACAA ACACATCATAGCCATGTCACCGAACGGAACCTCTGAGGTACTT
spacer length: 42 repeater length: 28
22567 1136463 GTTTCAAACCCCTCGAAGGATCTCTACAA GCATTCAACTAGTGGCGTCTCCTGAAGGGCAACTATT spacer
length: 37 repeater length: 28
22568 1136528 GTTTCAAACCCCTCGAAGGATCTCTACAA GAAGGGCTATTCTGCGTACGCTTCCCACCTCTGGAGGCA spacer
length: 39 repeater length: 28
22569 1136595 GTTTCAAACCCCTCGAAGGATCTCTACAA GGCCTTGGGA
22570
22571
22572 crispr 6
22573 1137841 TTGTAGTGATCCTTTGAGGGTTTGAAAC AAATAGTACTGACTTGATACGGCTAGGTGATAATAGCGT spacer
length: 39 repeater length: 28
22574 1137908 TTGTAGTGATCCTTTGAGGGTTTGAAAC GCAAAGGCCTTTCCACACTCTCCAAGGGAGTATGAAGT spacer
length: 39 repeater length: 28
22575 1137975 TTGTAGTGATCCTTTGAGGGTTTGAAAC CTTACGTCTTGAAAGTACTCGATTATCAATTTAAGGT spacer
length: 39 repeater length: 28
22576 1138042 TTGTAGTGATCCTTTGAGGGTTTGAAAC GCGTCAATTCTCTAAAAAGAAAAGGCTAGCGTGAAGGGGAC
spacer length: 41 repeater length: 28
22577 1138111 TTGTAGTGATCCTTTGAGGGTTTGAAAC TAAGTGAACCATGGGTATTCCCCCTCCGGGGGAACTTCGAC
spacer length: 41 repeater length: 28
22578 1138180 TTGTAGTGATCCTTTGAGGGTTTGAAAC TCGGAAAGAACATATACATCCTCCCCGTGGTTCCCGGGT spacer
length: 39 repeater length: 28
22579 1138247 TTGTAGTGATCCTTTGAGGGTTTGAAAC GTGTTTGTCCCCATCTTTTGATGGGGCAGCTGCTCCTCT spacer
length: 39 repeater length: 28
22580 1138314 TTGTAGTGATCCTTTGAGGGTTTGAAAC TATACTTTGGAAAATCAGTATATCTCTTGTATCTTCTGT spacer
length: 39 repeater length: 28
22581 1138381 TTGTAGTGATCCTTTGAGGGTTTGAAAC TCGATAGCGAACCTGATAACTTCGCTTCTATTTCAGTCTGT spacer
length: 40 repeater length: 28
22582 1138449 TTGTAGTGATCCTTTGAGGGTTTGAAAC ATAGACGTATCGACCCGCCGTATAGCATCAAGAAGATAGT spacer
length: 40 repeater length: 28
22583 1138517 TTGTAGTGATCCTTTGAGGGTTTGAAAC TACACGACGCGATCACACTCACATGCCCGCGTGTGCGCGTTGT
spacer length: 43 repeater length: 28
22584 1138588 TTGTAGTGATCCTTTGAGGGTTTGAAAC ATAACTCTATACGCTCTCACACGGCTGAGGTCGAGGAGC spacer
length: 39 repeater length: 28
22585 1138655 TTGTAGTGATCCTTTGAGGGTTTGAAAC CCACCTTCACCCTCGCCTTACGGCCCTTTTCTTCCTCAGT
spacer length: 41 repeater length: 28
22586 1138724 TTGTAGTGATCCTTTGAGGGTTTGAAAC GTTCCTGCC
22587
22588
22589 GCA_001266735.1_ASM126673v1_genomic.fna (PilerCR):
22590 START REPEAT
SPACER
22591 crispr 1
22592 1082319 CTTTCAACTCTATAGGAGATTAAC TGATTTTGACACGGCCTATCAAATGTAATAAAAACGCATA spacer
length: 41 repeater length: 24
22593 1082384 CTTTCAACTCTATAGGAGATTAAC TAATAGGTATAATATTGGGCATTCTCGCCCTAGTTCAATT spacer
length: 40 repeater length: 24
22594 1082448 CTTTCAACTCTATAGGAGATTAAC AGACCCAAAACCTAAAACCTCAAAAAGTCTTTGAGCAATT spacer
length: 40 repeater length: 24
22595 1082512 CTTTCAACTCTATAGGAGATTAAC TTACTTCTAATGATTACAGGGATTTCTCAGAACCCTTCT spacer
length: 39 repeater length: 24
22596 1082575 CTTTCAACTCTATAGGAGATTAAC GCTGAAATTGGCAGAGGTAAGGAAGCTAATCGAGTCGAA spacer
length: 39 repeater length: 24
22597 1082638 CTTTCAACTCTATAGGAGATTAAC GTGAGGATTCACCGAATCCTGCCTTAGACGATACCGAGCAGAAG spacer
length: 44 repeater length: 24
22598 1082706 CTTTCAACTCTATAGGAGATTAAC AGAAGAAAAAGTATACTTGAAAAGAAGATTGAATTTTTAGA spacer
length: 41 repeater length: 24
22599 1082771 CTTTCAACTCTATAGGAGATTAAC ATCAAATGATGCCAAAAGTGATCTACCTATTCTTTTCAT spacer
length: 40 repeater length: 24
22600 1082835 CTTTCAACTCTATAGGAGATTAAC AACATGATAAGGCTTTACTTAGAAAGTTAGAGAAAAAATT spacer
length: 40 repeater length: 24
22601 1082899 CTTTCAACTCTATAGGAGATTAAC CGTGATTCATTAAGGTTATCATAATGAATTGGAACAGTCT spacer
length: 42 repeater length: 24
22602 1082965 CTTTCAACTCTATAGGAGATTAAC TTCAAAAAATGGTCAAGGTGATAGAGAGTCAGTTATTAG spacer
length: 39 repeater length: 24

22603	1083028	CTTTCAACTCTATAGGAGATTAAC	AGTTCTACGGAAACTATCAATCCAGATAGCAATAAAGA	spacer
		length: 39	repeater length: 24	
22604	1083091	CTTTCAACTCTATAGGAGATTAAC	ATGCGATTACCACCACGGCTCCGTTTTGCCCGTTTGCTCC	spacer
		length: 40	repeater length: 24	
22605	1083155	CTTTCAACTCTATAGGAGATTAAC	CATCGGTGTATTACTACTCACTGTGATTGGTGTATCAAG	spacer
		length: 39	repeater length: 24	
22606	1083218	CTTTCAACTCTATAGGAGATTAAC	TCCAGGTACATCGTCAGCGAATGGATCAGGAGGAGCAGG	spacer
		length: 39	repeater length: 24	
22607	1083281	CTTTCAACTCTATAGGAGATTAAC	TCCACTCGGTGCCGTGAAAGTTTTGACAAGACTCATGTTTGA	spacer
		length: 42	repeater length: 24	
22608	1083347	CTTTCAACTCTATAGGAGATTAAC	TCAATAATTGACGAGCAAGATTTAGTGATTCCAGACGAGG	spacer
		length: 40	repeater length: 24	
22609	1083411	CTTTCAACTCTATAGGAGATTAAC	ACAGTTCACAAACGGAATTGTTTGATAACTTCTTGAAT	spacer
		length: 39	repeater length: 24	
22610	1083474	CTTTCAACTCTATAGGAGATTAAC	CTTACTTTCCATGTTCCCTCCATTACAAAGTAAAGTACT	spacer
		length: 39	repeater length: 24	
22611	1083537	CTTTCAACTCTATAGGAGATTAAC	CGGTCACTGAAGCCGATCCACCCTTAGTTGAGACCACGAG	spacer
		length: 40	repeater length: 24	
22612	1083601	CTTTCAACTCTATAGGAGATTAAC	TAATTGAAGTTACAGTAGAAATACAAAACCAAAAAATGA	spacer
		length: 39	repeater length: 24	
22613	1083664	CTTTCAACTCTATAGGAGATTAAC	ATCAAATTACTGGAGAAGAGTGAACAAAATAATAAGGGAA	spacer
		length: 41	repeater length: 24	
22614	1083729	CTTTCAACTCTATAGGAGATTAAC	TTATACGGTTATTGGATGACGCGAGTATATCGTGAAAGTTA	spacer
		length: 41	repeater length: 24	
22615	1083794	CTTTCAACTCTATAGGAGATTAAC	AAAGCCTTCGTATCTGATGACGGCTCAGTTCCAATCGTTA	spacer
		length: 40	repeater length: 24	
22616	1083858	CTTTCAACTCTATAGGAGATTAAC	ATGAAGATGTGGAGTCAAAGACCGAAAGGCCCTGGGATTA	spacer
		length: 40	repeater length: 24	
22617	1083922	CTTTCAACTCTATAGGAGATTAAC	ATATTTTCGTCTTATGTAGTTTGTAATTGATCTTTTTTCTTT	spacer
		length: 43	repeater length: 24	
22618	1083989	CTTTCAACTCTATAGGAGATTAAC	TTAGGACCGTTGGGTTCACGAGTTACAACGAGATGGTGAAA	spacer
		length: 41	repeater length: 24	
22619	1084054	CTTTCAACTCTATAGGAGATTAAC	TTCATGCAGACTACGAAGTCGCTCTAATTTATCTTAATCT	spacer
		length: 40	repeater length: 24	
22620	1084118	CTTTCAACTCTATAGGAGATTAAC	GTCATAAACCACTGATCACTAGTAGTATGTTCGAACTAT	spacer
		length: 40	repeater length: 24	
22621	1084182	CTTTCAACTCTATAGGAGATTAAC	TGTTGTGTGAATCTGAACCCGAAGACGAGGACATGTACC	spacer
		length: 39	repeater length: 24	
22622	1084245	CTTTCAACTCTATAGGAGATTAAC	CAAGTGTGTTTGTGGGGATAACGAACTGGGGAAGGAA	spacer
		length: 39	repeater length: 24	
22623	1084308	CTTTCAACTCTATAGGAGATTAAC	TATATGACAAGTTGAGAAGGAATATTCTTCAACGCGGGAA	spacer
		length: 40	repeater length: 24	
22624	1084372	CTTTCAACTCTATAGGAGATTAAC	AAGTTAGTGGGGGAAGCCCGTAGAGTTCAGATTAGGTAC	spacer
		length: 41	repeater length: 24	
22625	1084437	CTTTCAACTCTATAGGAGATTAAC	ATCATCCCCCTCATCAAACACTCATCAAGATACTCATCACTGTA	spacer
		length: 45	repeater length: 24	
22626	1084506	CTTTCAACTCTATAGGAGATTAAC	TCTCGACGCGGAGAGGATAGAGCGGTTGGTCGAGGACGA	spacer
		length: 39	repeater length: 24	
22627	1084569	CTTTCAACTCTATAGGAGATTAAC	CGAATTTTTCCCCCGTGAGCGGGGGGTTAGAAAGAGTTTGAC	spacer
		length: 42	repeater length: 24	
22628	1084635	CTTTCAACTCTATAGGAGATTAAC	CCCATAGTGGTCCCCTATGAGTTTGAGGATACAACCTTCATTAA	spacer
		length: 43	repeater length: 24	
22629	1084702	CTTTCAACTCTATAGGAGATTAAC	CGGGGTCCAAAGGTTCCCTGAATGTAAATATATTATTAC	spacer
		length: 39	repeater length: 24	
22630	1084765	CTTTCAACTCTATAGGAGATTAAC	CATATGACGCTCTCAAGGTAGTCACTCAAGATATCTTAGC	spacer
		length: 40	repeater length: 24	
22631	1084829	CTTTCAACTCTATAGGAGATTAAC	TTACGATCAGCCTTTTCGTTGCAGGTCTAATTCTCAGA	spacer
		length: 38	repeater length: 24	
22632	1084891	CTTTCAACTCTATAGGAGATTAAC	CCAACTGTCCAGCCTGCCCTGCTGGACTAGGGTTTTCGAAC	spacer
		length: 41	repeater length: 24	
22633	1084956	CTTTCAACTCTATAGGAGATTAAC	CTCGTTAAGATATGCATTGATCACTTACGTTCCAAAAA	spacer
		length: 39	repeater length: 24	
22634	1085019	CTTTCAACTCTATAGGAGATTAAC	TCTTTTTTTGCGGTTATACAATTAAACGTTTCGTGAAT	spacer
		length: 38	repeater length: 24	
22635	1085081	CTTTCAACTCTATAGGAGATTAAC	ACGTCCTTCTCCGTGATGTAGAGCGTACTGCCTGAAGTCCCTGT	spacer
		length: 44	repeater length: 24	
22636	1085149	CTTTCAACTCTATAGGAGATTAAC	AAAGGACCATAATACATCACAACTAGTCTGCTTGCAAACCTGA	spacer
		length: 43	repeater length: 24	
22637	1085216	CTTTCAACTCTATAGGAGATTAAC	ATAACCGGAACGAACTAGAGGAATACTGTGAACCGGTAA	spacer
		length: 40	repeater length: 24	
22638	1085280	CTTTCAACTCTATAGGAGATTAAC	CAATGAGTGTTGGTCTCATCCTTGAGGGTCCTGATGGAGT	spacer

length: 40 repeater length: 24
22639 1085344 CTTTCAACTCTATAGGAGATTAAC CAATACGACTACGGGTTTCAATCTTGAAAAGTTTCGGTG spacer
length: 38 repeater length: 24
22640 1085406 CTTTCAACTCTATAGGAGATTAAC ATGGTCAATTATGTCCTTAATATGATGGTAGAGATATTGA spacer
length: 40 repeater length: 24
22641 1085470 CTTTCAACTCTATAGGAGATTAAC TGGACATGTCTACATCAAAGAAGTCCAAGTACTTTGCCT spacer
length: 39 repeater length: 24
22642 1085533 CTTTCAACTCTATAGGAGATTAAC TACCTGAAGTTCTCCCACTCTAGCAGGGAGCTGCTGTCCTACT spacer
length: 43 repeater length: 24
22643 1085600 CTTTCAACTCTATAGGAGATTAAC GGCCTAAAAAATGCAATAGGAGGAGTAGGAAGCTTCTTTTC spacer
length: 41 repeater length: 24
22644 1085665 CTTTCAACTCTATAGGAGATTAAC TTACTATTTCTTAAGGAACGACGTAAGAGAAAGTAGTAAT spacer
length: 40 repeater length: 24
22645 1085729 CTTTCAACTCTATAGGAGATTAAC GGAATAAAGGACAAGGGATTCTTCATCAGTTTGGGA spacer length:
36 repeater length: 24
22646 1085789 CTTTCAACTCTATAGGAGATTAAC ACAAGGAGTAGCTCTTACTGGTAATGAGGGTATAATAAGAAA spacer
length: 42 repeater length: 24
22647 1085855 CTTTCAACTCTATAGGAGATTAAC CGCTCTGGACCTCCTTCTTGACGTAGTCATTTCTCTTTAGTT spacer
length: 42 repeater length: 24
22648 1085921 CTTTCAACTCTATAGGAGATTAAC AGACAAGTCCAGAGGGTTAGGGAGGAGAGGAGGTCCAGTCTT spacer
length: 42 repeater length: 24
22649 1085987 CTTTCAACTCTATAGGAGATTAAC ACTTTAGCTTTCATGACTTACACAACCTTCATATCCACCT spacer
length: 39 repeater length: 24
22650 1086050 CTTTCAACTCTATAGGAGATTAAC TGAATAAACCAACTCTCCTTCATAGTTTAAATTAATTACAT spacer
length: 41 repeater length: 24
22651 1086115 CTTTCAACTCTATAGGAGATTAAC AAGAGAATAAGGGTAGTATATAACCCTGCAATCACCTTAA spacer
length: 40 repeater length: 24
22652 1086179 CTTTCAACTCTATAGGAGATTAAC CAGCTTGTTGGTATTCCTCCTAATATTACTGCATTGACCC spacer
length: 39 repeater length: 24
22653 1086242 CTTTCAACTCTATAGGAGATTAAC TTAAAGATAATTGGAAAAGAACAATTAACTAAGAACATTA spacer
length: 40 repeater length: 24
22654 1086306 CTTTCAACTCTATAGGAGATTAAC ATGGGGGTTCAAAGGGGGTGAAATACCCCTTCCGTCAAGGA spacer
length: 41 repeater length: 24
22655 1086371 CTTTCAACTCTATAGGAGATTAAC TGCATACAGTCTTTTGCAACACTTATTATTCTGTCTATATT spacer
length: 40 repeater length: 24
22656 1086435 CTTTCAACTCTATAGGAGATTAAC CTTTCGCTATATCTACCATGAATAAGTCTTGAATGTAAA spacer
length: 38 repeater length: 24
22657 1086497 CTTTCAACTCTATAGGAGATTAAC TTATATTTAGTTAGAATTTTTCTCAAAAAATCATCTCGATCT spacer
length: 42 repeater length: 24
22658 1086563 CTTTCAACTCTATAGGAGATTAAC CTAACCGTATTGAGTCCGTGGGTGCGACCGGCCACAGTA spacer
length: 40 repeater length: 24
22659 1086627 CTTTCAACTCTATAGGAGATTAAC AGTCTGCTGGCTTTAATCTTCATGTAGTTGCCAGTAGGTTC spacer
length: 41 repeater length: 24
22660 1086692 CTTTCAACTCTATAGGAGATTAAC TTTTGCTTTTCTTTCTCAAATTTTCTTCTCCATGATTCA spacer
length: 40 repeater length: 24
22661 1086756 CTTTCAACTCTATAGGAGATTAAC CGGTCTGAGTCTCTGGCTGAGACTCTAACTTCTTCTTGAGA spacer
length: 41 repeater length: 24
22662 1086821 CTTTCAACTCTATAGGAGATTAAC ATACCCTAGAGGAAGAAGTTGAGGAGGTCTGGCTCAACTTG spacer
length: 42 repeater length: 24
22663 1086887 CTTTCAACTCTATAGGAGATTAAC ATGAAAACGACCGTGACGTCATTGCAATCATGAATCTCAA spacer
length: 40 repeater length: 24
22664 1086951 CTTTCAACTCTATAGGAGATTAAC ACATGCTAGATTTTGATAAAAAATTGAATGCAGAATTTAACCA spacer
length: 42 repeater length: 24
22665 1087017 CTTTCAACTCTATAGGAGATTAAC AACTGTTGCAGAATCGTACTGGAAAGCGGTCCCTGCATT spacer
length: 39 repeater length: 24
22666 1087080 CTTTCAACTCTATAGGAGATTAAC AGCTTTACGGCAAAGAGAAAGAGTTTGATGAGTTCA spacer length:
36 repeater length: 24
22667 1087140 CTTTCAACTCTATAGGAGATTAAC ACGGACACGACCCAGGGGTGATGGTCGTCCCGCTCATGT spacer
length: 39 repeater length: 24
22668 1087203 CTTTCAACTCTATAGGAGATTAAC TCAGAAGAGCCATCGAGAAGATGGTTAAGGAAGAGA spacer length:
36 repeater length: 24
22669 1087263 CTTTCAACTCTATAGGAGATTAAC TCGATCTAATGAAATTGGCTAGGGAGTTCGGTCAGGGGTT spacer
length: 40 repeater length: 24
22670 1087327 CTTTCAACTCTATAGGAGATTAAC GTAAAATAGATGAAATCCATGTCCGCTCCACATTACTAGAA spacer
length: 41 repeater length: 24
22671 1087392 CTTTCAACTCTATAGGAGATTAAC CCTCTCAACCTCATGAAAAAGGTGGATGGGAGGGTAG spacer
length: 37 repeater length: 24
22672 1087453 CTTTCAACTCTATAGGAGATTAAC CTTCCCTGATGGTTACACCCCTTTGCACCTAGCGGTAGAACT spacer
length: 42 repeater length: 24
22673 1087519 CTTTCAACTCTATAGGAGATTAAC ACGGACCAATCTTTTGCCTTGCCTCCTTGTACTGCTCATCTAG spacer
length: 43 repeater length: 24

22674	1087586	CTTTCAACTCTATAGGAGATTAAC	CCTCAGTGGGACGTTGGCTTTTGATTGGAGAGGTATTC	spacer
		length: 38	repeater length: 24	
22675	1087648	CTTTCAACTCTATAGGAGATTAAC	ATTTAACATCTTAGGTGTTATCTTAAGATATTCTGGCTT	spacer
		length: 39	repeater length: 24	
22676	1087711	CTTTCAACTCTATAGGAGATTAAC	TTCTAAGACGTGCTCCCTATGTGGGGAAATTCATGAGAG	spacer
		length: 39	repeater length: 24	
22677	1087774	CTTTCAACTCTATAGGAGATTAAC	CACCTGAAAGGTTACGGCATTACAGGTAGGACGCAATCCTA	spacer
		length: 40	repeater length: 24	
22678	1087838	CTTTCAACTCTATAGGAGATTAAC	TTATCATGGCGAATATCAGACGTATTAGGTCACTCATCT	spacer
		length: 39	repeater length: 24	
22679	1087901	CTTTCAACTCTATAGGAGATTAAC	CGCTCCATAATGATATAGTCATGATACAAGGATGGCGTTA	spacer
		length: 40	repeater length: 24	
22680	1087965	CTTTCAACTCTATAGGAGATTAAC	AAGCAGGAAGTCTTTACAAAATCAAATGGCTAATACATA	spacer
		length: 40	repeater length: 24	
22681	1088029	CTTTCAACTCTATAGGAGATTAAC	TTTTTCTCTTCTCTTTCTCATACGATAAAATACGTAAAGT	spacer
		length: 40	repeater length: 24	
22682	1088093	CTTTCAACTCTATAGGAGATTAAC	TTGCTTCTGGAAAGCGGCGCAAGAGAAATTGAGGTTTTAA	spacer
		length: 40	repeater length: 24	
22683	1088157	CTTTCAACTCTATAGGAGATTAAC	TACAGATAAGGAAATTCAAAACCTACAGCCAACAGAGAAAT	spacer
		length: 41	repeater length: 24	
22684	1088222	CTTTCAACTCTATAGGAGATTAAC	TTGTCTTTTGATTTTCTACTCAACAATTTTGAGTAGAAAA	spacer
		length: 40	repeater length: 24	
22685	1088286	CTTTCAACTCTATAGGAGATTAAC	CGTACGAGGCTATCACATGCCTGGGCAAAGGCGTGTGTTC	spacer
		length: 40	repeater length: 24	
22686	1088350	CTTTCAACTCTATAGGAGATTAAC	CTTGACGTGGAAGACAAGGCATTATTCACGAAATGGAT	spacer
		length: 38	repeater length: 24	
22687	1088412	CTTTCAACTCTATAGGAGATTAAC	GGAACAAAGTGCTACAGCCTTATTGCTAAGGCAAAACGAAGC	spacer
		length: 42	repeater length: 24	
22688	1088478	CTTTCAACTCTATAGGAGATTAAC	CATCGGGCGCCGGGAATGGTTCTAAGCCGTAACGCTTAAA	spacer
		length: 40	repeater length: 24	
22689	1088542	CTTTCAACTCTATAGGAGATTAAC	ATTCCCAGGGCATTATCTACAGAAAATGGCAGAAATATAA	spacer
		length: 40	repeater length: 24	
22690	1088606	CTTTCAACTCTATAGGAGATTAAC	CAAATCGCCCCCGTTTCGCCCCGCCGTTCTCTTTCTTTTCACC	spacer
		length: 44	repeater length: 24	
22691	1088674	CTTTCAACTCTATAGGAGATTAAC	ATTGATATTAACGTTAAACCCACGCCCCAGTGAAGTT	spacer
		length: 39	repeater length: 24	
22692	1088737	CTTTCAACTCTATAGGAGATTAAC	AACGCAGAAAGATGCGTGAGAGAAGCAATGGCGTATCTAGT	spacer
		length: 41	repeater length: 24	
22693	1088802	CTTTCAACTCTATAGGAGATTAAC	CCCCCGCTTAGTTTCTGCCACGCATACCTCTGTTCTGCC	spacer
		length: 39	repeater length: 24	
22694	1088865	CTTTCAACTCTATAGGAGATTAAC	TCTGGAACCTTAGTACTTCCATGTTAACCACCTGTGTAT	spacer
		length: 39	repeater length: 24	
22695	1088928	CTTTCAACTCTATAGGAGATTAAC	TTCACTCTCCCAGTAGACGTTTACAGCGTTCAAGATCGTT	spacer
		length: 39	repeater length: 24	
22696	1088991	CTTTCAACTCTATAGGAGATTAAC	ATATGGGATGTTCCATTTAATAAACAAGGAAAAAGAAGG	spacer
		length: 41	repeater length: 24	
22697	1089056	CTTTCAACTCTATAGGAGATTAAC	TCTCACTTATGACTAAAGGTTCTTTGTTCTCAACTTCTTT	spacer
		length: 40	repeater length: 24	
22698	1089120	CTTTCAACTCTATAGGAGATTAAC	AGCCACAACCGACGACGGAACTTACTATTTTGTGTA	spacer
		length: 37	repeater length: 24	
22699	1089181	CTTTCAACTCTATAGGAGATTAAC	GCACCCACCAAGTCATGGTAGTGGTAGCTAACAGTAG	spacer
		length: 40	repeater length: 24	
22700	1089245	CTTTCAACTCTATAGGAGATTAAC	AAGCTAGTTACATGAATCGTCACATTAAATGTGTTACTTGA	spacer
		length: 41	repeater length: 24	
22701	1089310	CTTTCAACTCTATAGGAGATTAAC	CAGTCCGTAATTACCCTATTGCTAACTAATTTCATAGGAATAG	spacer
		length: 43	repeater length: 24	
22702	1089377	CTTTCAACTCTATAGGAGATTAAC	AGTTAGGTTTTCTACTATCATTATCATTATTGAATCAGCG	spacer
		length: 40	repeater length: 24	
22703	1089441	CTTTCAACTCTATAGGAGATTAAC	TAGTATGGTGCGCCAGCCTCCGTGCTGACGACATCATA	spacer
		length: 39	repeater length: 24	
22704	1089504	CTTTCAACTCTATAGGAGATTAAC	ACTGTCTCTATCGGTATCCAAAAATGTAAAAAATTCTCATT	spacer
		length: 41	repeater length: 24	
22705	1089569	CTTTCAACTCTATAGGAGATTAAC	ACCAATTGACGGCCACGGATGGAAGTCCGACAGTGA	spacer length: 36
		repeater length: 24		
22706	1089629	CTTTCAACTCTATAGGAGATTAAC	ATTGCCAGCATACGCTAGATCAAAGCTAAAAGATGAGTA	spacer
		length: 39	repeater length: 24	
22707	1089692	CTTTCAACTCTATAGGAGATTAAC	TGAATCCTAAAGCGTCAAGAATTACCTTCCATTTCGTCAT	spacer
		length: 39	repeater length: 24	
22708	1089755	CTTTCAACTCTATAGGAGATTAAC	ATCAAGCGATTGCATTTGTTCTCAAGCAGAGGTTACAGGA	spacer
		length: 40	repeater length: 24	
22709	1089819	CTTTCAACTCTATAGGAGATTAAC	ATGAGAAGTAAAGAAGAATTGAATGAAGCGTTGGAGCAAA	spacer

length: 40 repeater length: 24

22710 1089883 CTTTCAACTCTATAGGAGATTAAC ATGGGAATACGTTTACCAATTACTGATGCTGATGGGAAGGCCAAC
spacer length: 45 repeater length: 24

22711 1089952 CTTTCAACTCTATAGGAGATTAAC AGATTGGGAAAGGTGGTTCAAAGGTACAGACAATAACAT spacer
length: 39 repeater length: 24

22712 1090015 CTTTCAACTCTATAGGAGATTAAC ATCATAACTGACGTTGACACCTGCCATAGTTGTTCTGATGG spacer
length: 41 repeater length: 24

22713 1090080 CTTTCAACTCTATAGGAGATTAAC GCAAATGCCTTCAAAACTACTTCAAGCGCTAATGTTAGGG spacer
length: 41 repeater length: 24

22714 1090145 CTTTCAACTCTATAGGAGATTAAC GAGAGAGAAAGATTTATATACTTGACATGACATATGTATAAA spacer
length: 42 repeater length: 24

22715 1090211 CTTTCAACTCTATAGGAGATTAAC CTATTAACATCATAAACAATTTGCCCACTAACAGGA spacer
length: 38 repeater length: 24

22716 1090273 CTTTCAACTCTATAGGAGATTAAC ACGCAATGGATTATCTGGAAGAGATGCTGGGCAATAAG spacer
length: 38 repeater length: 24

22717 1090335 CTTTCAACTCTATAGGAGATTAAC CACGATAAATTATTGGATGAAAACATCTTTTAACTTGTCGC spacer
length: 41 repeater length: 24

22718 1090400 CTTTCAACTCTATAGGAGATTAAC TGAAAATATTTTACGCGTTATACTTTTGCTTAATGTACTCTTT spacer
length: 42 repeater length: 24

22719 1090466 CTTTCAACTCTATAGGAGATTAAC AGGCGGAAGCTAAGTATTTGTTAGAAATAGAGAAATATACA spacer
length: 41 repeater length: 24

22720 1090531 CTTTCAACTCTATAGGAGATTAAC TGTTGATCGGAGACATTATTTAGGTCTTTAATCCCAAATC spacer
length: 40 repeater length: 24

22721 1090595 CTTTCAACTCTATAGGAGATTAAC CGATTTACTGGGACTGTGATACCCAACAGCATAGACATCAGTT spacer
length: 43 repeater length: 24

22722 1090662 CTTTCAACTCTATAGGAGATTAAC TAGGATTTTTTTTCTTAGATGATAGATTAATTGGAAATTCCT spacer
length: 42 repeater length: 24

22723 1090728 CTTTCAACTCTATAGGAGATTAAC GAAGTGTTTCGCGCCTCTGCTAGAACAAATACGGAATGAAAGTGCC spacer
length: 44 repeater length: 24

22724 1090796 CTTTCAACTCTATAGGAGATTAAC ACACGTGGTGATTGATCCATTCCAATAAGGCAAATCATTC spacer
length: 41 repeater length: 24

22725 1090861 CTTTCAACTCTATAGGAGATTAAC AAGTTATTCGCGCCTTTGCGCCTTCTTTTTTTGCTTAAACA spacer
length: 41 repeater length: 24

22726 1090926 CTTTCAACTCTATAGGAGATTAAC AAATAATTAGTTAGTAGGAGGATAGTTTTGAAAACCTTTTTAGAAG
spacer length: 45 repeater length: 24

22727 1090995 CTTTCAACTCTATAGGAGATTAAC GTTTGTTTTTAGCGCAATATTTAGATCAACAGAAGAAGAAGA spacer
length: 41 repeater length: 24

22728 1091060 CTTTCAACTCTATAGGAGATTAAC ACCCAAAAACGTAGTGGGGAAAATATAATCTTCATTATTT spacer
length: 40 repeater length: 24

22729 1091124 CTTTCAACTCTATAGGAGATTAAC TAGCCCCAGTCGGTTTAGGCGGAAAATTCAACATTAAATT spacer
length: 40 repeater length: 24

22730 1091188 CTTTCAACTCTATAGGAGATTAAC TGACGGTTTGACAGAGGTCTATGTGTTTACATACAGTAA spacer
length: 39 repeater length: 24

22731 1091251 CTTTCAACTCTATAGGAGATTAAC TGAGAAGAGAGAACTATATTTTAGTGAAAAAATGTCAGC spacer
length: 40 repeater length: 24

22732 1091315 CTTTCAACTCTATAGGAGATTAAC ACTATCCATCTTCCACAATTTATATTATCCATATTTTCATTA spacer
length: 42 repeater length: 24

22733 1091381 CTTTCAACTCTATAGGAGATTAAC AGAATTTATAAGCCAAATTCTTGATAGTTTCTAACAAACG spacer
length: 40 repeater length: 24

22734 1091445 CTTTCAACTCTATAGGAGATTAAC AATATTTGTAAATTTTCATCAAACATTTTCCTAACTTTATC spacer
length: 40 repeater length: 24

22735 1091509 CTTTCAACTCTATAGGAGATTAAC AAAGAAGAGAATACAAGCTGTATTTTGTGAGGTTTAGCA spacer
length: 39 repeater length: 24

22736 1091572 CTTTCAACTCTATAGGAGATTAAC ATTTGGCAAATCCTAGCCAGAAGATAGGGGGCGACAAC spacer
length: 39 repeater length: 24

22737 1091635 CTTTCAACTCTATAGGAGATTAAC CAGTGAAAAAGAAATTACTTAATGTAGTCGAAAAGTG spacer
length: 37 repeater length: 24

22738 1091696 CTTTCAACTCTATAGGAGATTAAC ATATGATGGAGAACTCAAGTATATATTTTCACTTCAGATAA spacer
length: 42 repeater length: 24

22739 1091762 CTTTCAACTCTATAGGAGATTAAC AATCCAGAACACTACGCTTTACCAATACATGAAAAGTAT spacer
length: 39 repeater length: 24

22740 1091825 CTTTCAACTCTATAGGAGATTAAC TATAGAAAGCTGTTGGACGAAGCGGTCTCTCCTGAAGAG spacer
length: 39 repeater length: 24

22741 1091888 CTTTCAACTCTATAGGAGATTAAC AAAGAAGATC

22742

22743

22744 crispr 2

22745 1097328 CTTAATCTCCTATAGAGTTGAAAG AAGGCGAAATGCAGAAGATGTAGTAGCAAAGACAGCTGTGA spacer
length: 41 repeater length: 24

22746 1097393 CTTAATCTCCTATAGAGTTGAAAG CAACTCTCATGATTATAATCCCTCCATTTTAAATGTATT spacer
length: 40 repeater length: 24

22747	1097457	CTTAATCTCCTATAGAGTTGAAAG	AAGTTTACTTCAGTTAATGAGCAAGTCAGCGCAGTGCTAA	spacer
		length: 40	repeater length: 24	
22748	1097521	CTTAATCTCCTATAGAGTTGAAAG	TTATATTTACGGGTAAGACGGCGTTAACGAAGCGTTAGG	spacer
		length: 39	repeater length: 24	
22749	1097584	CTTAATCTCCTATAGAGTTGAAAG	AGTTTAAACGTTACAACCTCTCGTTTCCAAACACCTCGTTTGT	spacer
		length: 42	repeater length: 24	
22750	1097650	CTTAATCTCCTATAGAGTTGAAAG	AAAACGAGACCTTTGGCTAAATAAACCGCACCATAGATAT	spacer
		length: 40	repeater length: 24	
22751	1097714	CTTAATCTCCTATAGAGTTGAAAG	CTATGAAATTGTCGCATTTCGTATGCAAAATATTTCTGGATCT	spacer
		length: 42	repeater length: 24	
22752	1097780	CTTAATCTCCTATAGAGTTGAAAG	TACATATCCTTCAATTGTGATCTAGCGTATGCTGGTAGT	spacer
		length: 39	repeater length: 24	
22753	1097843	CTTAATCTCCTATAGAGTTGAAAG	ATTTGGATTTTGATAATTTTCTTTTCTTTGTCATAATAAT	spacer
		length: 40	repeater length: 24	
22754	1097907	CTTAATCTCCTATAGAGTTGAAAG	TATAGTTAAGTCATTTTTTCTTCTTGTGGTGGTATTACCTAT	spacer
		length: 42	repeater length: 24	
22755	1097973	CTTAATCTCCTATAGAGTTGAAAG	TACCAATTTCTGCTAATAACGTGAACGTACTCTCGCTGAG	spacer
		length: 40	repeater length: 24	
22756	1098037	CTTAATCTCCTATAGAGTTGAAAG	TAAC TTATCCCCTACATGATTGCGAAAAACAACAAT	spacer
		length: 37	repeater length: 24	
22757	1098098	CTTAATCTCCTATAGAGTTGAAAG	TGTTTTTAAGGACCTGGAGGCAGTCCGCCATTTACCCAC	spacer
		length: 40	repeater length: 24	
22758	1098162	CTTAATCTCCTATAGAGTTGAAAG	TGAGAACAGCTGTCTTCACTGCTGACCATCGAGCGACCT	spacer
		length: 39	repeater length: 24	
22759	1098225	CTTAATCTCCTATAGAGTTGAAAG	TTTTCTTTCTCATACTACTCTTATTAGTTTACTAACA	spacer
		length: 40	repeater length: 24	
22760	1098289	CTTAATCTCCTATAGAGTTGAAAG	CTTCTTGTTCTTCTCTCTGCTTTACGCCTTCTTGTTCTTCC	spacer
		length: 41	repeater length: 24	
22761	1098354	CTTAATCTCCTATAGAGTTGAAAG	TCTGTACGTGGGTCAATAAATGTCACAATCGCGTACTTCTT	spacer
		length: 41	repeater length: 24	
22762	1098419	CTTAATCTCCTATAGAGTTGAAAG	ATAATAATCAACGAGGCAAACCTCCATGTTCTACAAACCA	spacer
		length: 39	repeater length: 24	
22763	1098482	CTTAATCTCCTATAGAGTTGAAAG	ACTAGGCAAACGATACTGAGACACAGCGGACTGCAG	spacer
		length: 37	repeater length: 24	
22764	1098543	CTTAATCTCCTATAGAGTTGAAAG	TTGGAAACACTCCGTATCAATCCTTTAGACTGCAACTCCTCA	spacer
		length: 42	repeater length: 24	
22765	1098609	CTTAATCTCCTATAGAGTTGAAAG	AACATTAGTGTAAGCCTGCAGCGTTTGCTGGAAGCACGG	spacer
		length: 40	repeater length: 24	
22766	1098673	CTTAATCTCCTATAGAGTTGAAAG	TCTCGTCCTTAAATTTCAAACTTCCATGTAGCTCGCCCCCTCT	spacer
		length: 44	repeater length: 24	
22767	1098741	CTTAATCTCCTATAGAGTTGAAAG	CTTATGTACACACCACCTGAGCTAAGGAGTGTCTTAATCT	spacer
		length: 40	repeater length: 24	
22768	1098805	CTTAATCTCCTATAGAGTTGAAAG	AAATGGGACGATGAGGGTGTTCAACAGATACAACACCACAG	spacer
		length: 41	repeater length: 24	
22769	1098870	CTTAATCTCCTATAGAGTTGAAAG	ATTATATATAATATATGAATAATAGCCCCGTGCTTCGCGCCTT	spacer
		length: 44	repeater length: 24	
22770	1098938	CTTAATCTCCTATAGAGTTGAAAG	TCTTTTGCACATATCCATTCGACCACATCTCTCGGCTTCGATAC	spacer
		length: 44	repeater length: 24	
22771	1099006	CTTAATCTCCTATAGAGTTGAAAG	TTGACGACGTGCTTACTCTTCTTTCCAGTTCTTGTTACTT	spacer
		length: 40	repeater length: 24	
22772	1099070	CTTAATCTCCTATAGAGTTGAAAG	TTATCGATAAAATCGTAAACGATTTGTTGCCTTATTACGTGAA	spacer
		length: 43	repeater length: 24	
22773	1099137	CTTAATCTCCTATAGAGTTGAAAG	ACACCTCTACTAACTTTACCAAAGCCTATCATAGTCCCAACG	spacer
		length: 42	repeater length: 24	
22774	1099203	CTTAATCTCCTATAGAGTTGAAAG	CCTTTATTCTTGCTATTAGATCGAATAAATCGCTCGCG	spacer
		length: 38	repeater length: 24	
22775	1099265	CTTAATCTCCTATAGAGTTGAAAG	TAAGTGGACACTATTGATCACCTCAGGGCTAGATATATGCCT	spacer
		length: 42	repeater length: 24	
22776	1099331	CTTAATCTCCTATAGAGTTGAAAG	TCATTGAAATACTCAGCAACTGTATCCCTTAACTCTTCCTTATTA	spacer
		length: 45	repeater length: 24	
22777	1099400	CTTAATCTCCTATAGAGTTGAAAG	AGTATACCTGGGAGTGCTGATGTAGATGCGTCACCGACCACGTT	spacer
		length: 44	repeater length: 24	
22778	1099468	CTTAATCTCCTATAGAGTTGAAAG	ACTACGGGTCTCAAGGTAGTCGGTGTTCTTCTAGTAGCTG	spacer
		length: 40	repeater length: 24	
22779	1099532	CTTAATCTCCTATAGAGTTGAAAG	ATCGTACTTTGCGCTGTACCTTATGAACAGTGGAATGTCCC	spacer
		length: 41	repeater length: 24	
22780	1099597	CTTAATCTCCTATAGAGTTGAAAG	GTAAAGGGGTTGTGTTTTACGTTTTGAGTGGTGTTCACGAC	spacer
		length: 41	repeater length: 24	
22781	1099662	CTTAATCTCCTATAGAGTTGAAAG	CTAAACATATATGAGTTCATTTTTTCCGACTTTCCTAGA	spacer
		length: 39	repeater length: 24	
22782	1099725	CTTAATCTCCTATAGAGTTGAAAG	TAAAGTGATAGAATAAAAGCTATTATTCCAAC TATTTCT	spacer

length: 39 repeater length: 24
22783 1099788 CTTAATCTCCTATAGAGTTGAAAG CCTTGGCAACTCGGACCCCTCAAGCGTACGGAAGAGATT spacer
length: 40 repeater length: 24
22784 1099852 CTTAATCTCCTATAGAGTTGAAAG AAACCTCTCGATCAAGACATTTATTGTCTCTTCATCTATCT spacer
length: 40 repeater length: 24
22785 1099916 CTTAATCTCCTATAGAGTTGAAAG TCTAAGGAGGATAAAGAGGAAGATTGGGCATTTTGTCTGT spacer
length: 41 repeater length: 24
22786 1099981 CTTAATCTCCTATAGAGTTGAAAG TTAGTGTTTACGTATGCTCTTTGTTGAGCTAGTTGTTGAT spacer
length: 40 repeater length: 24
22787 1100045 CTTAATCTCCTATAGAGTTGAAAG TTCACGAGGATGATTATAAGCTCAGGGAGAAGATTGT spacer
length: 37 repeater length: 24
22788 1100106 CTTAATCTCCTATAGAGTTGAAAG ACGTAACCTGTAGATGTGTAACCAGGCTCAGACGAGAA spacer
length: 38 repeater length: 24
22789 1100168 CTTAATCTCCTATAGAGTTGAAAG GAACATCCGCCTTATCGTTATCTTTCTTCTTGAACAGGAAC spacer
length: 41 repeater length: 24
22790 1100233 CTTAATCTCCTATAGAGTTGAAAG TCAATTTATCATACCTACCTAGTCTTACTAAAGTACAGT spacer
length: 39 repeater length: 24
22791 1100296 CTTAATCTCCTATAGAGTTGAAAG GTTGGACTACCTGAAGTAATCGAGCTCAGTGGAGGCA spacer
length: 37 repeater length: 24
22792 1100357 CTTAATCTCCTATAGAGTTGAAAG GTTTTCACGTGATACTTTATGATGTCGTTGCATCTATCGA spacer
length: 40 repeater length: 24
22793 1100421 CTTAATCTCCTATAGAGTTGAAAG AGGACATAAGGCCTTGGCCATGGTCTCAATATCCCATTCTT spacer
length: 41 repeater length: 24
22794 1100486 CTTAATCTCCTATAGAGTTGAAAG GCACTGACGTTTACTATCTGCAGCCCACTTGGTGACTG spacer
length: 38 repeater length: 24
22795 1100548 CTTAATCTCCTATAGAGTTGAAAG ACACTGCCTTGATGAGCGGGATGCTTCCAATTCTCCCTCT spacer
length: 40 repeater length: 24
22796 1100612 CTTAATCTCCTATAGAGTTGAAAG AGGATTCTTCTAAATGCTGTGACAAATGTTAGAATTAGATA spacer
length: 41 repeater length: 24
22797 1100677 CTTAATCTCCTATAGAGTTGAAAG CAACGAAGAAAGAGTCGAGAACTAAGCAGAGTCGAGCACT spacer
length: 41 repeater length: 24
22798 1100742 CTTAATCTCCTATAGAGTTGAAAG TATTCGTCTGACGATTCCACTTCAACAGAGTTCACAATAA spacer
length: 40 repeater length: 24
22799 1100806 CTTAATCTCCTATAGAGTTGAAAG AGTTGCTCTAGCAGGAGAAGATCCTGCTCTTCGATTTTGAAT spacer
length: 42 repeater length: 24
22800 1100872 CTTAATCTCCTATAGAGTTGAAAG AAATTCCTCA
22801
22802
22803 crispr 3
22804 1104342 GTTAATCTTCTATAGAGTTGAAAG TCTCAATCTGTAGGCCAAGCCACTATTATCATAACTCCAC spacer
length: 40 repeater length: 24
22805 1104406 GTTAATCTTCTATAGAGTTGAAAG TGAATGCAAGCCTGTCGTACATTACTATTCTACCTTGTTTG spacer
length: 41 repeater length: 24
22806 1104471 GTTAATCTTCTATAGAGTTGAAAG TTTGTCTGTTTCGATTGGAATAATTTACGCGTTACCATAAAC spacer
length: 42 repeater length: 24
22807 1104537 GTTAATCTTCTATAGAGTTGAAAG TACCTGTATGACAATTCGCTAAAAATTTAACTATCTAC spacer
length: 39 repeater length: 24
22808 1104600 GTTAATCTTCTATAGAGTTGAAAG TCATTTCCATTTCTTTCAATTTATCAACTATTAACCTAA spacer
length: 39 repeater length: 24
22809 1104663 GTTAATCTTCTATAGAGTTGAAAG GAGGAAAAGAAGGCTAACGCATTAAAGGCGTGGCATTTAGGG spacer
length: 42 repeater length: 24
22810 1104729 GTTAATCTTCTATAGAGTTGAAAG GACCCATATTTAGGAGTTATGTCAGCTATATCCAAGCAT spacer
length: 39 repeater length: 24
22811 1104792 GTTAATCTTCTATAGAGTTGAAAG TCTTGATTTCCATGTCTATCCCCTGCGCATATCTCATATCA spacer
length: 41 repeater length: 24
22812 1104857 GTTAATCTTCTATAGAGTTGAAAG CATGAGCTGTCCCTCCGATAAGATCATATTTGATGCAGA spacer
length: 39 repeater length: 24
22813 1104920 GTTAATCTTCTATAGAGTTGAAAG TGAAATAACCGCCGACATCCAACGCTGGAAATTTATATCT spacer
length: 40 repeater length: 24
22814 1104984 GTTAATCTTCTATAGAGTTGAAAG AATCTTAAACCGCAACCTTTTATAAAATCTTCAACTGTAA spacer
length: 40 repeater length: 24
22815 1105048 GTTAATCTTCTATAGAGTTGAAAG CCTATAACCTAATAGCATAATATTTACTATGTCCCTCCAT spacer
length: 40 repeater length: 24
22816 1105112 GTTAATCTTCTATAGAGTTGAAAG TGCTCACCTCTTTCAGTTTCTGCGCCTTCTCCCTCACCG spacer
length: 39 repeater length: 24
22817 1105175 GTTAATCTTCTATAGAGTTGAAAG TTGATATTTGAGTGCCTGCGCAAATTCCTCAAACAAATCT spacer
length: 40 repeater length: 24
22818 1105239 GTTAATCTTCTATAGAGTTGAAAG TCTTTAGTCGCTATAATGTCGGGTAATGGTTGCTTACCAG spacer
length: 40 repeater length: 24
22819 1105303 GTTAATCTTCTATAGAGTTGAAAG TCTGATTCTGATACCTCCTCTTCGCTCCCTTCTTGTTACCTTCTT
spacer length: 46 repeater length: 24

22820 1105373 GTTAATCTTCTATAGAGTTGAAAG CTTTTTTTGCAACCTAGAAAGCCTTGTTGCGAAATATGGC spacer
length: 39 repeater length: 24

22821 1105436 GTTAATCTTCTATAGAGTTGAAAG ATTGCTTCTACTTCTGCTGGCATTMTTTTTTCCACTAAAA spacer
length: 38 repeater length: 24

22822 1105498 GTTAATCTTCTATAGAGTTGAAAG GCAATATTGGATAGGATTCATATCATCCAAGTTGCAATAAA spacer
length: 41 repeater length: 24

22823 1105563 GTTAATCTTCTATAGAGTTGAAAG GCAATCATTGCGAAAATAACGGGGCATAAACGCCTGGAC spacer
length: 39 repeater length: 24

22824 1105626 GTTAATCTTCTATAGAGTTGAAAG TAGGTAGAAGGCAGAAGGAAGTTTTAGCTTCGATATTGGAA spacer
length: 41 repeater length: 24

22825 1105691 GTTAATCTTCTATAGAGTTGAAAG CGTTTCTCTAATCTCGCCAACCTAGTTGCGAAATATGGCTG spacer
length: 41 repeater length: 24

22826 1105756 GTTAATCTTCTATAGAGTTGAAAG TATATTTTCGTCGCTATATCGCCCAGAAGACGTCTGATAT spacer
length: 39 repeater length: 24

22827 1105819 GTTAATCTTCTATAGAGTTGAAAG GTTCACGAGTAAACTGTATAAGAGTGAGGTAACAAATCT spacer
length: 40 repeater length: 24

22828 1105883 GTTAATCTTCTATAGAGTTGAAAG AAAGTGAAAGTGATGCTGGAGGTGAGGGACAGACTGGGAG spacer
length: 40 repeater length: 24

22829 1105947 GTTAATCTTCTATAGAGTTGAAAG ATTTGGATCTTGAGAATTTTCTTTTCTTTGTCATAATAA spacer
length: 39 repeater length: 24

22830 1106010 GTTAATCTTCTATAGAGTTGAAAG AAGGCGTATAACAAAACGGCGTATGTCATATGTTCTGCTTCTA spacer
length: 43 repeater length: 24

22831 1106077 GTTAATCTTCTATAGAGTTGAAAG AGAGAGGGCTTCACTTACAAGTAAATCAGCACACCTTAT spacer
length: 39 repeater length: 24

22832 1106140 GTTAATCTTCTATAGAGTTGAAAG GAGAAGTACCCGGGCGTATCCAGGCTAAGCCAGTTATCAA spacer
length: 40 repeater length: 24

22833 1106204 GTTAATCTTCTATAGAGTTGAAAG TTTGCCATGGAAGAAGCGAAATGTCAGTGTTGGTAGCTCC spacer
length: 40 repeater length: 24

22834 1106268 GTTAATCTTCTATAGAGTTGAAAG GAATAGTAAGTAAATCATCACCTGCAATTATCGTGTATTTTT spacer
length: 42 repeater length: 24

22835 1106334 GTTAATCTTCTATAGAGTTGAAAG ATATAACGAAAGAGCGTTCACAAAAGCGTTAGTAG spacer length:
35 repeater length: 24

22836 1106393 GTTAATCTTCTATAGAGTTGAAAG ATTGCTATAAACCACATCATGGCTCCTAGCATCAACG spacer
length: 37 repeater length: 24

22837 1106454 GTTAATCTTCTATAGAGTTGAAAG TACAATCTTATCAACTATGTCTTCCAAAAATGGTGGTAGA spacer
length: 40 repeater length: 24

22838 1106518 GTTAATCTTCTATAGAGTTGAAAG CCAAAAATCGAATTCAAGGACCAAAACGTAAAACCACCTGG spacer
length: 41 repeater length: 24

22839 1106583 GTTAATCTTCTATAGAGTTGAAAG TATGATGTTCTCATTGTATTTGTTGAGATCATGTTTAA spacer
length: 38 repeater length: 24

22840 1106645 GTTAATCTTCTATAGAGTTGAAAG GACACGGCTTTGTAAACAGAGAACCCAGGCAGAACAGATA spacer
length: 40 repeater length: 24

22841 1106709 GTTAATCTTCTATAGAGTTGAAAG ATACCGGTGTCCATACAGCCAATACCCCCAACACCGCCAC spacer
length: 40 repeater length: 24

22842 1106773 GTTAATCTTCTATAGAGTTGAAAG TAATTATATAAGCCGAATTGATGTAAATAAGACAAGATGACT spacer
length: 42 repeater length: 24

22843 1106839 GTTAATCTTCTATAGAGTTGAAAG CTTGTTTTTGTCTTTTTTCTTTGTAATCTTCTATTCTTA spacer
length: 39 repeater length: 24

22844 1106902 GTTAATCTTCTATAGAGTTGAAAG TCATGAATCAGTTTGAAAGAAGAGAAGATTGGTTAAATG spacer
length: 39 repeater length: 24

22845 1106965 GTTAATCTTCTATAGAGTTGAAAG GGTTTTGTCTCTTTTTTCTGGCTTTCCCGCCAGAATCTTT spacer
length: 39 repeater length: 24

22846 1107028 GTTAATCTTCTATAGAGTTGAAAG ATTTTCGAATTCATTTTCGAATTGTTTCAATTCACCTCAAAT spacer
length: 41 repeater length: 24

22847 1107093 GTTAATCTTCTATAGAGTTGAAAG CTTTCTTCTTCTATTCTTCTTTCTTTCTTTTCTTTTCTACTAT spacer
length: 41 repeater length: 24

22848 1107158 GTTAATCTTCTATAGAGTTGAAAG CTTATTTTCAGAGGATCTAATAGACGAAGGCGGAATCTTTCT spacer
length: 41 repeater length: 24

22849 1107223 GTTAATCTTCTATAGAGTTGAAAG CTGGCATTACCCAGGCTTGCGGACACACCAGAAGACAGACT spacer
length: 41 repeater length: 24

22850 1107288 GTTAATCTTCTATAGAGTTGAAAG GTTTTTGTGTGTTTTCGAAGAGAATTGGCGGGGCGCTGTAATT spacer
length: 41 repeater length: 24

22851 1107353 GTTAATCTTCTATAGAGTTGAAAG GTGGGAACAGCGGTGCTATTCATGACCCCTCGCCCAGGT spacer
length: 39 repeater length: 24

22852 1107416 GTTAATCTTCTATAGAGTTGAAAG AGACTTTATTTCCAGATTTTTCTATATTTATCATTCCGTTTGAT spacer
length: 44 repeater length: 24

22853 1107484 GTTAATCTTCTATAGAGTTGAAAG GAGCACTCTGGGGGATACCCCCCGACCCCTACTGCTAA spacer
length: 40 repeater length: 24

22854 1107548 GTTAATCTTCTATAGAGTTGAAAG TGAGACCGGGACACCGCCGAAATTAAATCCGGCAACGCCA spacer
length: 40 repeater length: 24

22855 1107612 GTTAATCTTCTATAGAGTTGAAAG TCTTCTTTGTCCATCTGTATATCCCAATCACGCCATCTGT spacer

length: 40 repeater length: 24
22856 1107676 GTTAATCTTCTATAGAGTTGAAAG ACTACATATGACGCCGTGGATTGCAGATCTGCTATATTCTT spacer
length: 41 repeater length: 24
22857 1107741 GTTAATCTTCTATAGAGTTGAAAG TCCTCTATCACGTCATCTATAGCCACACACTTTTGAGCGT spacer
length: 40 repeater length: 24
22858 1107805 GTTAATCTTCTATAGAGTTGAAAG ATGGATAAAGACGAATTGAAAGAAATTATTAAGAATTTA spacer
length: 39 repeater length: 24
22859 1107868 GTTAATCTTCTATAGAGTTGAAAG TACTTTTAATCCAGCTTGTCATGGATGCAGAATTAGAGAGGC spacer
length: 43 repeater length: 24
22860 1107935 GTTAATCTTCTATAGAGTTGAAAG CGTGGGGCTCGCTCTAACTTGTAACGACACATGTTCCCTA spacer
length: 39 repeater length: 24
22861 1107998 GTTAATCTTCTATAGAGTTGAAAG CCTGAGCTAAGGAGTGTCTTAATCTTATCGAAGTCGTCTGGCTT spacer
length: 44 repeater length: 24
22862 1108066 GTTAATCTTCTATAGAGTTGAAAG CTTCGCCGTATAACGATCCTACAACAATAATCACTGATTTTGA spacer
length: 43 repeater length: 24
22863 1108133 GTTAATCTTCTATAGAGTTGAAAG GTAATGAAAGTAATGTCTTTTCTCATACGAAAAGACCAA spacer
length: 39 repeater length: 24
22864 1108196 GTTAATCTTCTATAGAGTTGAAAG AGATGATGCACTGGCAGAGGCGACAAGAGAAAAACCAGGCT spacer
length: 41 repeater length: 24
22865 1108261 GTTAATCTTCTATAGAGTTGAAAG CAATGAATTCAGAAAACAGCTGTTTCATCCTGGTTCTCAG spacer
length: 39 repeater length: 24
22866 1108324 GTTAATCTTCTATAGAGTTGAAAG ACAAGGACGTTTTTCGTGATCCAGGTGAGCGAATACACA spacer
length: 38 repeater length: 24
22867 1108386 GTTAATCTTCTATAGAGTTGAAAG AGCAATAATTTAATTGCACTATTTTTAACTGTGCATGA spacer
length: 38 repeater length: 24
22868 1108448 GTTAATCTTCTATAGAGTTGAAAG TTCACTGTCTACACATAAGTATAAGGGGCTTCGCCCTT spacer
length: 39 repeater length: 24
22869 1108511 GTTAATCTTCTATAGAGTTGAAAG CATAATTCGTTTCTGTATTTGGCGTCAAATTTATTTTTAAT spacer
length: 41 repeater length: 24
22870 1108576 GTTAATCTTCTATAGAGTTGAAAG ATTTGAAATAAGACAAATCAGTGCAGAAGAGGCAAGGAACTAG spacer
length: 44 repeater length: 24
22871 1108644 GTTAATCTTCTATAGAGTTGAAAG AGATAACATTTTTTCTCTGTTTAAACGTATCTACGAACCAG spacer
length: 42 repeater length: 24
22872 1108710 GTTAATCTTCTATAGAGTTGAAAG ACCCCGCCAATCAGTGC GTTGATGTTGCTGGCTTCATATC spacer
length: 41 repeater length: 24
22873 1108775 GTTAATCTTCTATAGAGTTGAAAG TATATATTATATTATGAATTATACCACACACTTCTTTTTTCGC spacer
length: 42 repeater length: 24
22874 1108841 GTTAATCTTCTATAGAGTTGAAAG AGAAACGAATTGTTAGTTTACTTATCACGCCTTCATTCCCA spacer
length: 41 repeater length: 24
22875 1108906 GTTAATCTTCTATAGAGTTGAAAG ATATCCACCCTTCTCACCAAAGAATAATACAAAAATTTAA spacer
length: 41 repeater length: 24
22876 1108971 GTTAATCTTCTATAGAGTTGAAAG AGGATCGCCG
22877
22878
22879 crispr 4
22880 1109113 GTTAATCTTCTATAGAGTTGAAAG ATTATTACTACTATATCATCCGGATTCATTTTCTATCCCG spacer
length: 40 repeater length: 24
22881 1109177 GTTAATCTTCTATAGAGTTGAAAG CTTATTTCTTCGCGGTTTATAATGGACCCGGAACG spacer length:
35 repeater length: 24
22882 1109236 GTTAATCTTCTATAGAGTTGAAAG TATCTTCCTGACGTAGATGATGCAGTCCAAACAATAGATAG spacer
length: 41 repeater length: 24
22883 1109301 GTTAATCTTCTATAGAGTTGAAAG TGTACCAAGCCTGGATGGGTAGACCAGGACCGTGATCAAT spacer
length: 40 repeater length: 24
22884 1109365 GTTAATCTTCTATAGAGTTGAAAG TCTTTCATTGGGTTCGTATAAAAATCCTTGACCTAAGGA spacer
length: 39 repeater length: 24
22885 1109428 GTTAATCTTCTATAGAGTTGAAAG CAGACAATACGATCGAGTAGGGGACTGTGTGTAAAAATGAGGG spacer
length: 43 repeater length: 24
22886 1109495 GTTAATCTTCTATAGAGTTGAAAG TGTACACTTCCTTCTTCTTAGGCAAGGTTATTTTAACCTT spacer
length: 40 repeater length: 24
22887 1109559 GTTAATCTTCTATAGAGTTGAAAG GGCGGGTGAAAGAACTACTCGAGAAAGAGAAAAGAAAAA spacer
length: 39 repeater length: 24
22888 1109622 GTTAATCTTCTATAGAGTTGAAAG AGTATCATTCACTGGAAAGTTGTACGGTATGAGGAGTCATA spacer
length: 41 repeater length: 24
22889 1109687 GTTAATCTTCTATAGAGTTGAAAG ATTCCACGATTTTAACTTTACAGATTCCCCATATCCTG spacer
length: 39 repeater length: 24
22890 1109750 GTTAATCTTCTATAGAGTTGAAAG CCTAGATCACGGGGCCAATCCAAACGTGAAAGATCTAGAT spacer
length: 40 repeater length: 24
22891 1109814 GTTAATCTTCTATAGAGTTGAAAG TCAAAGGTTGCTGAGGACTGTTATAGGGATGCACTCTCAGT spacer
length: 41 repeater length: 24
22892 1109879 GTTAATCTTCTATAGAGTTGAAAG TTGATCGTTAAAAAGTAACGTAAGACGTTTCACAAGAGA spacer
length: 39 repeater length: 24

22893	1109942	GTTAATCTTCTATAGAGTTGAAAG	ATATTGATTATGAAGACTTTAAGAAAGATACCAATTCTAT	spacer
		length: 40	repeater length: 24	
22894	1110006	GTTAATCTTCTATAGAGTTGAAAG	TAATTCCTCTTTGATCTCTCTGGATTCTTGTTTTGTTGAAT	spacer
		length: 41	repeater length: 24	
22895	1110071	GTTAATCTTCTATAGAGTTGAAAG	TTATTTTCGAGTTTCTCATATATCTCCCACGTTATGTCAGA	spacer
		length: 40	repeater length: 24	
22896	1110135	GTTAATCTTCTATAGAGTTGAAAG	CTCTCGTTAAGGAACCTACTCAAAGCCCTCAAAGACGAT	spacer
		length: 39	repeater length: 24	
22897	1110198	GTTAATCTTCTATAGAGTTGAAAG	TTCAACTCCACGATTGATTTGATAATTATCAAGGCTTTT	spacer
		length: 39	repeater length: 24	
22898	1110261	GTTAATCTTCTATAGAGTTGAAAG	AATGAGAGAGTCAGGCCGAGGCCCTCATTACATCTATCATAT	spacer
		length: 43	repeater length: 24	
22899	1110328	GTTAATCTTCTATAGAGTTGAAAG	ATAAACCAGCGTTTCCCTACAAGTATGAGGCAAAGAACA	spacer
		length: 39	repeater length: 24	
22900	1110391	GTTAATCTTCTATAGAGTTGAAAG	AGGAATGAAGTGAGTTGTCCGGGTGGTACACCAGTCAAGTCAG	spacer
		length: 43	repeater length: 24	
22901	1110458	GTTAATCTTCTATAGAGTTGAAAG	GCTTGTTGCTCAGCCATTGCGTAACCTCACCCAC	spacer length: 35
		length: 35	repeater length: 24	
22902	1110517	GTTAATCTTCTATAGAGTTGAAAG	TGGACACGTTGGGAAGGCCTTGCCACGCGGAACCTCAGA	spacer
		length: 38	repeater length: 24	
22903	1110579	GTTAATCTTCTATAGAGTTGAAAG	AGAGACTGGACCATAAAAGGAGTTCCTAAAGCGGGTAATAAA	spacer
		length: 42	repeater length: 24	
22904	1110645	GTTAATCTTCTATAGAGTTGAAAG	TAAAGATTGACCTTATTACTCTTGACAAATATATCCCG	spacer
		length: 38	repeater length: 24	
22905	1110707	GTTAATCTTCTATAGAGTTGAAAG	AACTTTGAAGTCAGAGTTTTCTGCTTCTTTTATTACTTTA	spacer
		length: 40	repeater length: 24	
22906	1110771	GTTAATCTTCTATAGAGTTGAAAG	TACATTACCTTGATTATCCATTGTTGCGTTTAGCTGAAG	spacer
		length: 39	repeater length: 24	
22907	1110834	GTTAATCTTCTATAGAGTTGAAAG	TATGATTTTCTCGCTATTCACCACCTCCTTGATATACTGTA	spacer
		length: 41	repeater length: 24	
22908	1110899	GTTAATCTTCTATAGAGTTGAAAG	TCCATATAGAGATTTCTAATAATCAATTGGGGATAGATAT	spacer
		length: 40	repeater length: 24	
22909	1110963	GTTAATCTTCTATAGAGTTGAAAG	ACGTTGAACCAACGTTACCCCCCGCCGTCAAAGACGC	spacer
		length: 37	repeater length: 24	
22910	1111024	GTTAATCTTCTATAGAGTTGAAAG	TCCACGGAGGGGTGGAGAATGAACTATTCTGAAGGGAC	spacer
		length: 38	repeater length: 24	
22911	1111086	GTTAATCTTCTATAGAGTTGAAAG	ATGAGATCTACCTCGAAAATACGAAGGCAGACGTTGAGG	spacer
		length: 39	repeater length: 24	
22912	1111149	GTTAATCTTCTATAGAGTTGAAAG	GAAAATCTCAAAGACTTGTTAATCCCATCAAAAAAATGG	spacer
		length: 39	repeater length: 24	
22913	1111212	GTTAATCTTCTATAGAGTTGAAAG	ATATCGTTATCCGCGGTCATTCTCACGTGAGTGATTG	spacer
		length: 37	repeater length: 24	
22914	1111273	GTTAATCTTCTATAGAGTTGAAAG	ACGGTACGCCGTCGCCGACGCGGGGATACCCTGTATCAG	spacer
		length: 40	repeater length: 24	
22915	1111337	GTTAATCTTCTATAGAGTTGAAAG	AATAGTCTGCGTGGAAGTAAGTGACCTTCACGAACTTT	spacer
		length: 38	repeater length: 24	
22916	1111399	GTTAATCTTCTATAGAGTTGAAAG	CGTGACCCCGCTCGTGCGGTCACGGCATGCTAGGAGGAGG	spacer
		length: 40	repeater length: 24	
22917	1111463	GTTAATCTTCTATAGAGTTGAAAG	AAATTTTGTAGAAGAAATATACGAATGTGTAGATAAAAA	spacer
		length: 38	repeater length: 24	
22918	1111525	GTTAATCTTCTATAGAGTTGAAAG	TTTCTTTGTTACGATCACTAACTCTAAGATATAATCGGGG	spacer
		length: 41	repeater length: 24	
22919	1111590	GTTAATCTTCTATAGAGTTGAAAG	CAATAAAATCGTGATCAAAACGTTTTTGAATGAACATCATG	spacer
		length: 40	repeater length: 24	
22920	1111654	GTTAATCTTCTATAGAGTTGAAAG	CTCATCAAGAGGCATTATTTTCTCATCAAACCGCCAAGAT	spacer
		length: 41	repeater length: 24	
22921	1111719	GTTAATCTTCTATAGAGTTGAAAG	AAAAATTATTCTTGTGGATCTGTTGCTGCTATATTGGGTGTA	spacer
		length: 43	repeater length: 24	
22922	1111786	GTTAATCTTCTATAGAGTTGAAAG	TTAGTAAGTCCCCTAGGGCATGATCCCAGAAATAACCACCA	spacer
		length: 41	repeater length: 24	
22923	1111851	GTTAATCTTCTATAGAGTTGAAAG	GTAGATTATCAATCTTACCCAACGGTCCAAAGGAACCTAAGTAT	spacer
		length: 43	repeater length: 24	
22924	1111918	GTTAATCTTCTATAGAGTTGAAAG	TTTATCCTTAGGTATCTCATAGAGACTGGTTTAGCTTCGA	spacer
		length: 40	repeater length: 24	
22925	1111982	GTTAATCTTCTATAGAGTTGAAAG	GCTATCAAAGCTGGAGAGCAAGTAGCGACCTTTCTTTT	spacer
		length: 39	repeater length: 24	
22926	1112045	GTTAATCTTCTATAGAGTTGAAAG	TAATCGGTTAAACCGCTTTTGAAAGGAAATAGAATGAT	spacer
		length: 39	repeater length: 24	
22927	1112108	GTTAATCTTCTATAGAGTTGAAAG	ATCCAAATCATTAGAATTAACGATAATTTTCGGTAAGGAT	spacer
		length: 39	repeater length: 24	
22928	1112171	GTTAATCTTCTATAGAGTTGAAAG	TACTGGAATCCGTATATAATTGATTCAATTTAGTGGAACCA	spacer

length: 40 repeater length: 24
22929 1112235 GTTAATCTTCTATAGAGTTGAAAG AACTTCCTACTTAGACCGCAATTAGCGATCTAGGAATCGA spacer
length: 41 repeater length: 24
22930 1112300 GTTAATCTTCTATAGAGTTGAAAG AGTCTAACCCCTTCTGTCCCTGATATTTTCTCTATA spacer
length: 38 repeater length: 24
22931 1112362 GTTAATCTTCTATAGAGTTGAAAG TTCTCAATTAGTCCACCCCAAGGTATCGTGAGAACCATAGTCG spacer
length: 43 repeater length: 24
22932 1112429 GTTAATCTTCTATAGAGTTGAAAG AAAATTCGACGAGAAAATACAGAGAATCGCGAAGGCA spacer
length: 37 repeater length: 24
22933 1112490 GTTAATCTTCTATAGAGTTGAAAG CTCCGCGAATTCTCTAAGTTTCGGAATAGCGTTGCCCTGA spacer
length: 40 repeater length: 24
22934 1112554 GTTAATCTTCTATAGAGTTGAAAG ACAAGCCAAATGATGAAGTTACTACTACTAATACTACTACTAA spacer
length: 43 repeater length: 24
22935 1112621 GTTAATCTTCTATAGAGTTGAAAG TTGCCATCGCCTCAACTACTGCCAGACCAAATGTCTCAC spacer
length: 39 repeater length: 24
22936 1112684 GTTAATCTTCTATAGAGTTGAAAG TTCAGCTTAAGGATGACACTCTTGATATGTTGAGTCTTTCC spacer
length: 41 repeater length: 24
22937 1112749 GTTAATCTTCTATAGAGTTGAAAG GTAGGTGTGAAAATCACTATAGTCATCATACAGCCTCAT spacer
length: 39 repeater length: 24
22938 1112812 GTTAATCTTCTATAGAGTTGAAAG TGCTTTGTACGTAAAATGACGTGCTTCTCCTTATACCAA spacer
length: 39 repeater length: 24
22939 1112875 GTTAATCTTCTATAGAGTTGAAAG TGCACCAGTCCCTAGTGTA AACCTTCCAATATTGACGTCT spacer
length: 41 repeater length: 24
22940 1112940 GTTAATCTTCTATAGAGTTGAAAG CTTCATATCTTCAGCTTCAGGGTACCAGAGACGAATCTCACC spacer
length: 42 repeater length: 24
22941 1113006 GTTAATCTTCTATAGAGTTGAAAG AGTAAAATAGGTCCTGCATTTGTACTAGGCGTTACGAATAAT spacer
length: 42 repeater length: 24
22942 1113072 GTTAATCTTCTATAGAGTTGAAAG AGTATCGCAGCGGGCGGGATGTGCGCCGAAAAATCTACG spacer
length: 39 repeater length: 24
22943 1113135 GTTAATCTTCTATAGAGTTGAAAG GTAATATCGGTCAATCCCACGAATGTGGACGTATACA spacer
length: 37 repeater length: 24
22944 1113196 GTTAATCTTCTATAGAGTTGAAAG CGATGAACTGAAGGCAACGCCAAAACA ACTGTTTCAGGAAAAA spacer
length: 42 repeater length: 24
22945 1113262 GTTAATCTTCTATAGAGTTGAAAG AGAGAGTCTAGGAGCAGGGATACAGAATGCTATAGGATCC spacer
length: 40 repeater length: 24
22946 1113326 GTTAATCTTCTATAGAGTTGAAAG TATTGCGGACAAAGTTCAAAGTCATATATTTCTTTGCCCCC spacer
length: 41 repeater length: 24
22947 1113391 GTTAATCTTCTATAGAGTTGAAAG ATTCACCCAGGGACGTTAATGCCGAATTCTATGAGGACAG spacer
length: 40 repeater length: 24
22948 1113455 GTTAATCTTCTATAGAGTTGAAAG TTCTATAGTCAGGGGCATTTGGATTTACCTTAAGTTTGA spacer
length: 39 repeater length: 24
22949 1113518 GTTAATCTTCTATAGAGTTGAAAG GAATATTGCAATTTCTGGATTATGAACACTGGAAAGTGATAG spacer
length: 42 repeater length: 24
22950 1113584 GTTAATCTTCTATAGAGTTGAAAG TCGAAGTCCCTGTACCACCTCCACCCGTGCTAGTTCCT spacer
length: 38 repeater length: 24
22951 1113646 GTTAATCTTCTATAGAGTTGAAAG CCCTGATCATCTTTAGCACTCATATGTTATCATGATA spacer
length: 37 repeater length: 24
22952 1113707 GTTAATCTTCTATAGAGTTGAAAG ATCCAAGAACTCAATCAACTCCAGCGTATTTTCCCCAAA spacer
length: 39 repeater length: 24
22953 1113770 GTTAATCTTCTATAGAGTTGAAAG ATCTTCCTCACCTTATGTCCCAATGCCCCGAATTAGACC spacer
length: 40 repeater length: 24
22954 1113834 GTTAATCTTCTATAGAGTTGAAAG GTAGCGTTTGAGGAACTAACCAATGCGACGATACAAGTA spacer
length: 39 repeater length: 24
22955 1113897 GTTAATCTTCTATAGAGTTGAAAG GCACAATTGTTGTGCGGTAAAGGAGAATGGAACAAACATAG spacer
length: 40 repeater length: 24
22956 1113961 GTTAATCTTCTATAGAGTTGAAAG GCACCTCCGCCTCCCCACCTCCACCTGCTCCGATTGCT spacer
length: 39 repeater length: 24
22957 1114024 GTTAATCTTCTATAGAGTTGAAAG TAATTTTCTCGGTTACGGTACTGCCACTACTGGCAAT spacer
length: 37 repeater length: 24
22958 1114085 GTTAATCTTCTATAGAGTTGAAAG TAAGGATGAACCTAATTGCTCAAGGAGAATAAGATCCTGC spacer
length: 40 repeater length: 24
22959 1114149 GTTAATCTTCTATAGAGTTGAAAG GATAATGTAGCGTATATCCTCAAGCAGTTCTATAACAGAA spacer
length: 40 repeater length: 24
22960 1114213 GTTAATCTTCTATAGAGTTGAAAG ATTATACTACTGTTATGTACTGTACTGTATATATTCCTTA spacer
length: 40 repeater length: 24
22961 1114277 GTTAATCTTCTATAGAGTTGAAAG ATCTTTTCCACTGTATATTGACCATATCTTCTATCTAGA spacer
length: 39 repeater length: 24
22962 1114340 GTTAATCTTCTATAGAGTTGAAAG TAAAGGAATGAGCTCTTGAATGACAAAACCCTTCGTTATACG spacer
length: 42 repeater length: 24
22963 1114406 GTTAATCTTCTATAGAGTTGAAAG TCACTTTGCTCTTTATCGCATCTCCGACGTCGTTGAGAA spacer
length: 39 repeater length: 24

22964 1114469 GTTAATCTTCTATAGAGTTGAAAG CCTTATGTAACCTTGATCCATCTTCTGCACAACCTAGATCCT spacer
length: 41 repeater length: 24
22965 1114534 GTTAATCTTCTATAGAGTTGAAAG CTCATGGTTCCCTGTCTCTCCTAGATGCATTAGACCAGACCCT spacer
length: 43 repeater length: 24
22966 1114601 GTTAATCTTCTATAGAGTTGAAAG TATCATAAGAACATAGTAGAGAAGGCTCAGGATTACGCA spacer
length: 39 repeater length: 24
22967 1114664 GTTAATCTTCTATAGAGTTGAAAG GGAGCTGTCG
22968
22969
22970 crispr 5
22971 1136109 GTTTCAAACCCTCGAAGGATCTCTACAA
ACGACACGTCTACACCCCCCCCCCGGTCGTGAGTGTGGGAAGCGGGGATCCC spacer length: 52 repeater
length: 28
22972 1136189 GTTTCAAACCCTCGAAGGATCTCTACAA ACTGGGGTCCATTGTGATGAAGATTTCTGGAGAAATTGAAGA
spacer length: 41 repeater length: 28
22973 1136258 GTTTCAAACCCTCGAAGGATCTCTACAA ACTCCCCTGTTACGACTGAACCAATACTTGATTGCACGT spacer
length: 39 repeater length: 28
22974 1136325 GTTTCAAACCCTCGAAGGATCTCTACAA ACCTCTACACACTAAGAGTAGCTGAGACCATAAAAACCAA spacer
length: 40 repeater length: 28
22975 1136393 GTTTCAAACCCTCGAAGGATCTCTACAA ACACATCATAGCCATGTCACCGAACGGAACCTCTGAGGTACTT
spacer length: 42 repeater length: 28
22976 1136463 GTTTCAAACCCTCGAAGGATCTCTACAA GCATTCAACTAGTGGCGTCTCCTGAAGGGCAACTATT spacer
length: 37 repeater length: 28
22977 1136528 GTTTCAAACCCTCGAAGGATCTCTACAA GAAGGGCTATTCTGCGTACGCTTCCCACCTCTGGAGGCA spacer
length: 39 repeater length: 28
22978 1136595 GTTTCAAACCCTCGAAGGATCTCTACAA GGCCTTGGGAT
22979
22980
22981 crispr 6
22982 1137841 TTGTAGTGATCCTTTGAGGGTTTGAAAC AAATAGTACTGACTTGATACGGCTAGGTGATAATAGCGT spacer
length: 39 repeater length: 28
22983 1137908 TTGTAGTGATCCTTTGAGGGTTTGAAAC GCAAAGGCCTTTCCACACTCTCCAAGGGAGTATGAAGT spacer
length: 39 repeater length: 28
22984 1137975 TTGTAGTGATCCTTTGAGGGTTTGAAAC CTTACGTCTTGAAAGTACTCGATTATCAATTTAACAGGT spacer
length: 39 repeater length: 28
22985 1138042 TTGTAGTGATCCTTTGAGGGTTTGAAAC GCGTCAATTCTCTAAAAAGAAAAGGCTAGCGTGAAGGGGAC
spacer length: 41 repeater length: 28
22986 1138111 TTGTAGTGATCCTTTGAGGGTTTGAAAC TAAGTGAACCATGGGTATTCCCCCTCCGGGGGAACCTTCGAC
spacer length: 41 repeater length: 28
22987 1138180 TTGTAGTGATCCTTTGAGGGTTTGAAAC TCGGAAAGAACATATACATCCTCCCCGTGGTTCCCGGGT spacer
length: 39 repeater length: 28
22988 1138247 TTGTAGTGATCCTTTGAGGGTTTGAAAC GTGTTTGTCCCCATCTTTTGATGGGGCAGCTGCTCCTCT spacer
length: 39 repeater length: 28
22989 1138314 TTGTAGTGATCCTTTGAGGGTTTGAAAC TATACTTTGGAAAATCAGTATATCTCTTGTATCTTCTGT spacer
length: 39 repeater length: 28
22990 1138381 TTGTAGTGATCCTTTGAGGGTTTGAAAC TCGATAGCGAACCTGATAACTTCGCTTCTATTTCAGTCTGT spacer
length: 40 repeater length: 28
22991 1138449 TTGTAGTGATCCTTTGAGGGTTTGAAAC ATAGACGTATCGACCCGCCGTATAGCATCAAGAAGATAGT spacer
length: 40 repeater length: 28
22992 1138517 TTGTAGTGATCCTTTGAGGGTTTGAAAC TACACGACGCGATCACACTCACATGCCCGCGTGTGCGCGTTGT
spacer length: 43 repeater length: 28
22993 1138588 TTGTAGTGATCCTTTGAGGGTTTGAAAC ATAACTCTATACGCTCTCACACGGCTGAGGTCGAGGAGC spacer
length: 39 repeater length: 28
22994 1138655 TTGTAGTGATCCTTTGAGGGTTTGAAAC CCACCTTCACCCTCGCCTTACGGCCCTTTTCCTTCCTCAGT
spacer length: 41 repeater length: 28
22995 1138724 TTGTAGTGATCCTTTGAGGGTTTGAAAC GTTCCTGCC
22996
22997
22998 GCA_001282785.1_halo7_genomic.fna (PilerCR):
22999 START REPEAT
SPACER
23000 GCA_001304615.2_ASM130461v2_genomic.fna (PilerCR):
23001 START REPEAT
SPACER
23002 crispr 1
23003 675868 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CCTCTGGAAATCTCCGACCCACATATCACGGTCTA
spacer length: 35 repeater length: 37
23004 675940 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CTCATACACAAAATACTTCTTTCTTTGTATTCTGTA
spacer length: 37 repeater length: 37
23005 676014 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TATACTTTGCGTGCATAGTATGTATTGTACACGGGG
spacer length: 36 repeater length: 37

23006	676087	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CTATAGCCTAGTTATAGCAAAACAACATTTTATAA
	spacer	length: 35	repeater length: 37
23007	676159	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TGCAATGCTATCCTGCCTCATTGCAGGATAGCGAT
	spacer	length: 35	repeater length: 37
23008	676231	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TGCTGGGCTTGGGACAAATCTATAATGGGGATATTT
	spacer	length: 36	repeater length: 37
23009	676304	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TGCGAAAGGTGCGTCCGGTACGACTACCGTAATAC
	spacer	length: 35	repeater length: 37
23010	676376	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GATTGTAGAAGACATGAAAGAAAATGGGTGGTGTGG
	spacer	length: 36	repeater length: 37
23011	676449	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AAAATGCTACCAACATGTACCCCGGAAGATTGGTGA
	spacer	length: 36	repeater length: 37
23012	676522	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GAGAAAACGGTATTTCAGCTAGCCAATGAAAGTAA
	spacer	length: 34	repeater length: 37
23013	676593	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TATTTACTATATCCCCTTCGCCGATAGGGCCGGTAG
	spacer	length: 36	repeater length: 37
23014	676666	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AAGGGTGTACACGGAGTGC GCGCCCTTATCAAGTTTG
	spacer	length: 37	repeater length: 37
23015	676740	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TCATTTACATGATTCCCACAAGAACATTGAAGTCCTG
	spacer	length: 37	repeater length: 37
23016	676814	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GATCTTTTCTCATTGTACATTAGAAATGGTACAA
	spacer	length: 34	repeater length: 37
23017	676885	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	ACAGCCGTCACTTTTGTACCAAATCCTTATGAGAA
	spacer	length: 35	repeater length: 37
23018	676957	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GTCTGTAACGATTCTAGAGCATCTGAGAGCGATT
	spacer	length: 35	repeater length: 37
23019	677029	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AGGCTGTAGAGGAATAAATGAACTACTGGAACCACG
	spacer	length: 36	repeater length: 37
23020	677102	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TGGGTGGGGCATATGCAGAATGTTATGCCAGATTAAA
	spacer	length: 37	repeater length: 37
23021	677176	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GGAATCATGGCACTATTGTTGGTGGGGTCACTAAAT
	spacer	length: 36	repeater length: 37
23022	677249	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TTGTCATTGAGTACGCGCTCAACATACTCAATAG
	spacer	length: 34	repeater length: 37
23023	677320	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TGGTCGGCGTTCTCACCTTTCGATGCTATGATCTTCT
	spacer	length: 37	repeater length: 37
23024	677394	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CCGGACAGGTCCCTTTTAATTTGTGAGAGTGACATTA
	spacer	length: 37	repeater length: 37
23025	677468	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TCTGTAATGGTCCC GCGATAGGTATAATTGACGTAG
	spacer	length: 36	repeater length: 37
23026	677541	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CAGTTAATCAGCAGGGGAAACAGAGTCTCTCGTATA
	spacer	length: 37	repeater length: 37
23027	677615	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CTGAGCCGTATAACGAGTACCTGAGCCCAGGATACTA
	spacer	length: 37	repeater length: 37
23028	677689	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AAAAAGAACTTTATTGAATATATCGAAAAGCCATA
	spacer	length: 36	repeater length: 37
23029	677762	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CAGGAAATACGGGGTGATCACATGTCCGAAATAT
	spacer	length: 34	repeater length: 37
23030	677833	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CTGACAAAATATGACAAACGCACTTGCAACTTTCAG
	spacer	length: 36	repeater length: 37
23031	677906	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TCTTAACTAACTGCTGATAGCGAAAAATCTATTAT
	spacer	length: 36	repeater length: 37
23032	677979	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	ACGATACTTATGACATGTCAGATATAGAGGTTTACGG
	spacer	length: 37	repeater length: 37
23033	678053	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TTTTCCTTTTTAGTTTGTTATACGAAATATAACA
	spacer	length: 35	repeater length: 37
23034	678125	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AAGTCTGTAAAGTCTTTTTTCCCATCAGTTAATTCAG
	spacer	length: 37	repeater length: 37
23035	678199	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TTTTTACGACTTCCCCGCCGTCCCTAGTGGACTGAG
	spacer	length: 36	repeater length: 37
23036	678272	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TTGTAAGTTACAAGGGAGATATAATAGCATGAAAT
	spacer	length: 35	repeater length: 37
23037	678344	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AATTATGGATCATTTCTTGTTAAGCTTCGTGTTTCT
	spacer	length: 36	repeater length: 37
23038	678417	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CTAACAATTTCTTGATAGCTCCGAGGTCCGAGATG
	spacer	length: 36	repeater length: 37
23039	678490	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GTCGGTAACA
23040			
23041			
23042	crispr 2		
23043	2059430	GTTTCAATCCTTGTTTTAGTGGATCTTGCAATTCGAAT	GATGAAACAGGGGAACTTTAAATCCCGCTTCGAAA

spacer length: 35 repeater length: 37
 23044 2059502 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TAATGTATCTTGCATTCTACAAGTTCCTCCCATCCA
 spacer length: 36 repeater length: 37
 23045 2059575 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AAGTGCCGCCTGATACATACCATGACCGGCAATAAT
 spacer length: 36 repeater length: 37
 23046 2059648 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT ATTGAAATACTCTAGCATTATTTGAGCTTGTTTGTA
 spacer length: 36 repeater length: 37
 23047 2059721 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AAGATATATAGATGTACGAACTGTGGGAGGATTTTTTTA
 spacer length: 38 repeater length: 37
 23048 2059796 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCGATTAGGGAAGTTGGAACAAGCAAAATATAATCAA
 spacer length: 37 repeater length: 37
 23049 2059870 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GTGACGAAGCCGACCAGAGAGAAGCGACCCTACTTTT
 spacer length: 37 repeater length: 37
 23050 2059944 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TGTACATTATGGTTGCCTATCCACCGACCCACATG
 spacer length: 35 repeater length: 37
 23051 2060016 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TACATGGAGAAAATAAAGGGCAGCCGTATGTAGTGAG
 spacer length: 37 repeater length: 37
 23052 2060090 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TTCGCTACACAGTCCCGTTTCTTCGTCAATGCTTT
 spacer length: 35 repeater length: 37
 23053 2060162 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AGGACACTGTATTACCAGGTGACAAGTTCAAAACGT
 spacer length: 36 repeater length: 37
 23054 2060235 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GAGGCCATAAGGTCCCGATAATAACGATTACAACCG
 spacer length: 36 repeater length: 37
 23055 2060308 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AATGATTCTAAATCTCACACAACACATAGCAACCGA
 spacer length: 36 repeater length: 37
 23056 2060381 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TATTCATGCCTACGAACATGACAACCCTATACGCTG
 spacer length: 36 repeater length: 37
 23057 2060454 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CAAAGCTAAAAACTTAGTGAAGAAAAACGAAATGTA
 spacer length: 36 repeater length: 37
 23058 2060527 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCGTGGATTATTTTTTCTCGGGTTCAATCACTTA
 spacer length: 35 repeater length: 37
 23059 2060599 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AAAAATGACCGATGGGAAGAAGTCAAAAACATCGGCTG
 spacer length: 38 repeater length: 37
 23060 2060674 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TTTTGCGAATGATGATCACTCAAAACAGTATGAGCC
 spacer length: 36 repeater length: 37
 23061 2060747 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AGAGAACTATTCTAAATTTCTGAGAATCACGGGAA
 spacer length: 35 repeater length: 37
 23062 2060819 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT ACCGCCACTGAGCAAATAGGACATACCCTGATAGAAG
 spacer length: 37 repeater length: 37
 23063 2060893 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT ATCATGGGGTCGGCTAGGAATGCTTCTTTTCTGAG
 spacer length: 35 repeater length: 37
 23064 2060965 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CATGCTAACTTTCAGCTTGAACGGGCAGAACATTT
 spacer length: 35 repeater length: 37
 23065 2061037 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CTTATAATCCTCTATGGTCACAAGATCCCCTATTA
 spacer length: 35 repeater length: 37
 23066 2061109 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CATTCAATCACTGTTTTAATGCGTACAATACAATCGA
 spacer length: 37 repeater length: 37
 23067 2061183 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CTGGATAATATCGCGGAGTCTGTGAAAAAAGCAT
 spacer length: 34 repeater length: 37
 23068 2061254 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AATGAACATCGGGACCGATATACACTTTTTTGCAAGCG
 spacer length: 38 repeater length: 37
 23069 2061329 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCAATAAACTCGTACTGTTTAGAGTTGGATAAGAT
 spacer length: 35 repeater length: 37
 23070 2061401 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CATTCCATCCCCCGACGGCAATACCTGCATTATAAT
 spacer length: 36 repeater length: 37
 23071 2061474 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CCTCTTCGTATCCTACAAGTGAAGCATATTTATCA
 spacer length: 35 repeater length: 37
 23072 2061546 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TTATGCCTGGGAACCATTGAAATTAATTTATCCCG
 spacer length: 35 repeater length: 37
 23073 2061618 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CTTTCGGGGTGCTGCTCGGCTGCTGCAATACCATTGAT
 spacer length: 38 repeater length: 37
 23074 2061693 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GCAACACAGGTTAATGCAATTTTGAAAGCTTGTCTAG
 spacer length: 37 repeater length: 37
 23075 2061767 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CAATCAACGACTAGATTACCTTTATTTATGGTACTG
 spacer length: 36 repeater length: 37
 23076 2061840 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GGGTGCTATATGGCATGATGCCCCCTGCCGGAGGATG
 spacer length: 37 repeater length: 37
 23077 2061914 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GGATTGGTTGGAGAGGAAGATTAAGAAGGTGTTT
 spacer length: 34 repeater length: 37
 23078 2061985 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AGATCTTCCGCTTCAGGTTGTAGATACAGAAAAGGGAA
 spacer length: 38 repeater length: 37

23079	2062060	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GGCTCTTTGGGGAATGCGCCCTCCAAAGGGTCTACT
		spacer length: 36 repeater length: 37	
23080	2062133	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CCTTCTCAAAGATTACAAAATTATTACATCTGATAA
		spacer length: 36 repeater length: 37	
23081	2062206	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AAGCCGAGTATTATAATCATCGTTCTTATTAAGTGCA
		spacer length: 37 repeater length: 37	
23082	2062280	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CCCATTTCGTCCCGAGCTGGAAACGTGCACAGCATCT
		spacer length: 37 repeater length: 37	
23083	2062354	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GTAAAAATGGGTATTTCGTTTTTCAGTCTTCAATGTGA
		spacer length: 37 repeater length: 37	
23084	2062428	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CACGAAATATCTTCTTGAAGAAAAGGAACACATAAA
		spacer length: 36 repeater length: 37	
23085	2062501	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTGCATCCTTCTTTTTTGTCTGGGCTTGGACAGATTTA
		spacer length: 37 repeater length: 37	
23086	2062575	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CAGGCATACCAATCTGGGAAGGCTACGCAATGGGCT
		spacer length: 36 repeater length: 37	
23087	2062648	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ATGCCTTCGGGAGATTATGCCGTTGCAAACATCTGTG
		spacer length: 37 repeater length: 37	
23088	2062722	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GCAGCGAAAGCAAAATTATCCTGATTATTTTTTTTC
		spacer length: 36 repeater length: 37	
23089	2062795	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CCCTTGTTTTATGTGCCTTCTGACGGGCTTACAAAAG
		spacer length: 36 repeater length: 37	
23090	2062868	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ATTGCCTTCCGGCAATCCTAACATCCTCCCTCTAAA
		spacer length: 36 repeater length: 37	
23091	2062941	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CCCTGTATGCGGATTTTGAATCAGACGACTTTATGAG
		spacer length: 37 repeater length: 37	
23092	2063015	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GGGGTACTCGGCTGCACATCCTGAAATTGAGCAGTT
		spacer length: 36 repeater length: 37	
23093	2063088	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TCGGCTGCATACCTTTAAAAAATTTAGTCCCAACCGC
		spacer length: 37 repeater length: 37	
23094	2063162	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CCTATCAGGTCGTCTTCATGCCAGCGAGTCGCCG
		spacer length: 34 repeater length: 37	
23095	2063233	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AGCTGTAGGCACGATTGAGTATCAAACGTAGGCAA
		spacer length: 36 repeater length: 37	
23096	2063306	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AAAAGTTATATCTTGAAAATATCACGAGCGAGAGAGT
		spacer length: 37 repeater length: 37	
23097	2063380	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CCTGGATTGAGGCCTCATTCCTGGAGTTTCGCATA
		spacer length: 35 repeater length: 37	
23098	2063452	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ATTCAAATCGCTAACATTATTCAGGAAAATGATGA
		spacer length: 35 repeater length: 37	
23099	2063524	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TAGTGCGCTTATCCCGCCTGTAGCTGCGTCAACTGAA
		spacer length: 37 repeater length: 37	
23100	2063598	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GCGGATAGGCTCATCTGAGCGTATTTTTGCAATGCA
		spacer length: 36 repeater length: 37	
23101	2063671	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CACTCGACAGGGCGACTGAAATCGCAATAAACTAT
		spacer length: 36 repeater length: 37	
23102	2063744	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTGGATCAGGTACAACCTGCGAAGCTGCAAGACTGT
		spacer length: 36 repeater length: 37	
23103	2063817	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AGAACATCCAAGACTGTCCAGATTTAATAATGACA
		spacer length: 35 repeater length: 37	
23104	2063889	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AATGCAGATAGTTATGCAGATGCAGACCCTGCAACAA
		spacer length: 37 repeater length: 37	
23105	2063963	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTTTGAGCAGAAAAACGGATTTACCTTAATGTTTG
		spacer length: 35 repeater length: 37	
23106	2064035	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AAGGAAAGACACTTGCCTATCAGACTTGGATTTGTAG
		spacer length: 37 repeater length: 37	
23107	2064109	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTCCCAAATCTGCCGAGATGCTGTAGACTCTTATCT
		spacer length: 36 repeater length: 37	
23108	2064182	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CGGGGCTTCTCGTTTCAGGACTCTTTCACAATTTCAAT
		spacer length: 38 repeater length: 37	
23109	2064257	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTTCTTTTTGTTACCTTATCCGGTAAAATCGTTATG
		spacer length: 36 repeater length: 37	
23110	2064330	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CGGAATTGAATGTATTAAGTCTGAAGGGCGTTCGGA
		spacer length: 37 repeater length: 37	
23111	2064404	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TCGTATCTCAAATTAAGTCTGCGTTTCATTGAAAAA
		spacer length: 35 repeater length: 37	
23112	2064476	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AGCACCGTATAGACTTAGTTTCAGGTCTTGAAGTTAG
		spacer length: 36 repeater length: 37	
23113	2064549	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GCGAGAAAGAAGTAGTTTCGACAATCGAAAATAAAA
		spacer length: 36 repeater length: 37	
23114	2064622	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTAGAGAGTCGTATCAGGGAGTTATAGAGCGACTTAT

	spacer length: 37 repeater length: 37	
23115	2064696 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TCGCATTCCAATGCTGGCGTAAGGAGTGCTCTTAAC
	spacer length: 36 repeater length: 37	
23116	2064769 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTTCCAGAGTACCGGAATCTTTGAGTTTGTGACGGG
	spacer length: 35 repeater length: 37	
23117	2064841 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TACAAGGAATTGGTACAGTAGTACCGGAATGAGG
	spacer length: 34 repeater length: 37	
23118	2064912 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AGGAATCGCAAGAAAGCAAAATACCAGAACAAGGT
	spacer length: 35 repeater length: 37	
23119	2064984 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTCCTGTACTCCAAGCGGCTGTAGAAGTTGCAAAAG
	spacer length: 36 repeater length: 37	
23120	2065057 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TCAGAAGTGCCTCAGTTGCGACCTGAACAATGGTTG
	spacer length: 37 repeater length: 37	
23121	2065131 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTCCGCCGGTTGTGGTCGAGAGAAGCCGTTCTTAA
	spacer length: 35 repeater length: 37	
23122	2065203 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TCTAATCAGTCCTTAGAGGGTTGCCCTGATCCAC
	spacer length: 34 repeater length: 37	
23123	2065274 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTATTATAACAGGCGACTCCCTTAGAAAATCTAATA
	spacer length: 36 repeater length: 37	
23124	2065347 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GATTTTTTATAAAACACTACTGTATTAATTCCGG
	spacer length: 34 repeater length: 37	
23125	2065418 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTCGCCAACAAACACGGGGATGTTGTTGACTA
	spacer length: 32 repeater length: 37	
23126	2065487 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTGTGGGATTTCTCGCTTTCCCGTTTTGAGAAAGCA
	spacer length: 37 repeater length: 37	
23127	2065561 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTGTATATATACCTTCTACTTATCCTAAAAATTAAA
	spacer length: 37 repeater length: 37	
23128	2065635 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CATCAAGGATTAAGGGGGCAGGGAGGTCAAAGCCGT
	spacer length: 36 repeater length: 37	
23129	2065708 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CAGTGGATAGCAACACATCAGCCGTCAGACTTCTC
	spacer length: 35 repeater length: 37	
23130	2065780 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	
23131		
23132		
23133	crispr 3	
23134	2810495 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	ATAGATTTACATTCGGTATTATCTGTTATGTTTCAT
	spacer length: 35 repeater length: 37	
23135	2810567 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TACGTGGTTCAAATATTTTACAGAAATGACGATCTCGT
	spacer length: 36 repeater length: 37	
23136	2810640 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	CACTTTCCATAGCGATACCAACAACATATACCGCCTTC
	spacer length: 37 repeater length: 37	
23137	2810714 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	CTGTGATGGCTGCCGATGGAATCGGGGAAAATGG
	spacer length: 34 repeater length: 37	
23138	2810785 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TATACTGTATATCTGTATCCAACGTATATAAAGT
	spacer length: 34 repeater length: 37	
23139	2810856 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	CCGCCTAAATGACAGATAGCAGTACCTCGAATTTCCG
	spacer length: 37 repeater length: 37	
23140	2810930 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	AAAATTATAGCACCATCACCCACATTATTCGCAAAC
	spacer length: 36 repeater length: 37	
23141	2811003 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TTCAAAGAATATAAAGTTATTCTTAGAGTCTATATG
	spacer length: 36 repeater length: 37	
23142	2811076 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	GTTTTTGATCCTGTAAATCTCTTCGCCGCTCAATCTG
	spacer length: 37 repeater length: 37	
23143	2811150 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	AGTCTGGAAGTTATCCAGCTTCAAAAAACGATTTTAC
	spacer length: 37 repeater length: 37	
23144	2811224 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	ACATCTTTGATACTGGGCTCGACTTCTGGACTGCTG
	spacer length: 37 repeater length: 37	
23145	2811298 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TTCGATTGAATATACGGTGGGCACTTGGTTAGTAG
	spacer length: 35 repeater length: 37	
23146	2811370 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	ATCCGGGGATCCTCTACTTTCCGACCAGGGCATCTGG
	spacer length: 37 repeater length: 37	
23147	2811444 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	ATAAACCCAAAGTCTATCTCTCCAACGTCAATGCTC
	spacer length: 36 repeater length: 37	
23148	2811517 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TTCAGATGAAGAAATTGAAATTAATACTAAGTACCAG
	spacer length: 37 repeater length: 37	
23149	2811591 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	ATTCTGCAATGTATTTTGATACAGCCGGTCTTATG
	spacer length: 35 repeater length: 37	
23150	2811663 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TTGACATGCAGAAAGCATGCCCTCTGATTTTCGTAAA
	spacer length: 37 repeater length: 37	
23151	2811737 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	AATATGTAAAATATTAAATAGTCCAATGTGCTAAAT
	spacer length: 36 repeater length: 37	

23152 2811810 ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC CTAATCGCCCTACAAACCTGCAATGTATAGTTAAT
spacer length: 35 repeater length: 37

23153 2811882 ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TATCCCATCCGTTCCAGCCATCAGCCTATAGAGCT
spacer length: 36 repeater length: 37

23154 2811955 ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TTCCAATAAGGGCTTTTACAGTTCGGACAAACTCTC
spacer length: 36 repeater length: 37

23155 2812028 ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TCTTTTCCAAATGGGGCACACGACGACCAGACCGACGT
spacer length: 38 repeater length: 37

23156 2812103 ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TATACGATTAGTACGTATATACTGTAAAGGAGATGT
spacer length: 36 repeater length: 37

23157 2812176 ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC TAGAAGCTTGCGAACTGTGCGAAATCTGTATCTTCGG
spacer length: 37 repeater length: 37

23158 2812250 ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC

23159

23160

23161 GCA_001402855.1_ASM140285v1_genomic.fna (PilerCR):

23162 START REPEAT
SPACER

23163 crispr 1

23164 906030 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT GATGCTTCAGAACTTGACAATCAGCTTGATTATAT
spacer length: 35 repeater length: 37

23165 906102 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT ACCCCGGAAGCCGAACGCGAAAAAGGGATGAAATA
spacer length: 35 repeater length: 37

23166 906174 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AGTATCAAAATTAACCTACAGGCGGCTTTTAGATGG
spacer length: 36 repeater length: 37

23167 906247 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AACATCCTGCTTATTATTTTATCATGAGTAAGTT
spacer length: 34 repeater length: 37

23168 906318 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AACTTGGCTAAAAATAAGTTAACTAGTGGAGTAG
spacer length: 34 repeater length: 37

23169 906389 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT ATAATAAGGGTATCCTCCACCTCTTCGCAATGGTT
spacer length: 35 repeater length: 37

23170 906461 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TACTTTGATTCTCGCAAACCGTAATACCTGTCTGCG
spacer length: 37 repeater length: 37

23171 906535 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT
GGGGAATAATCCGAGTCATAGATAGCACACTGATGGTAAT spacer length: 40 repeater length: 37

23172 906612 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT GAAGAGAAAAACAATAACAGTAACCTAACTAATAAC
spacer length: 36 repeater length: 37

23173 906685 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAAGTGAAATATGTGCAACGTAACGAAGTAGAAAT
spacer length: 36 repeater length: 37

23174 906758 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT ATTAACACCTCCTCGCGCCCGTCCGGGTGAATTCT
spacer length: 35 repeater length: 37

23175 906830 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CTGTGCGTATTCATCAGCCTTTTTAACTTCTTTT
spacer length: 35 repeater length: 37

23176 906902 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AATGTCAGAGAAGAGCTTACCCTGGCATATAGGAGA
spacer length: 36 repeater length: 37

23177 906975 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT GCGTTATAATAGGGGATCTTGTGACCAGAGAGGAT
spacer length: 35 repeater length: 37

23178 907047 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CCCACGCGAAACATGGAGAAAGATCGCGAAATACTT
spacer length: 36 repeater length: 37

23179 907120 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CAAAAGAAGAAATCGAAGTCGAGAACGCTGTAATAGG
spacer length: 37 repeater length: 37

23180 907194 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAAATTACCAATAAGTAACCAAACTTGTAACCGT
spacer length: 34 repeater length: 37

23181 907265 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TATATCGAAAAGCCATATACTAAATGTTGTAAGTTC
spacer length: 37 repeater length: 37

23182 907339 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AGAAGAGGCTGCGCAGTTCCAATCAGGATACGAA
spacer length: 34 repeater length: 37

23183 907410 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAAAGAAATGATTCTAAACTTGACCCAACATGTAG
spacer length: 35 repeater length: 37

23184 907482 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT GAATGCTACAAAACCAAAGATTCTCCAATAGTGAGAAT
spacer length: 39 repeater length: 37

23185 907558 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TTTCTTCGGGCAGATCGGGGAGCCAGAAGAAGAGGC
spacer length: 36 repeater length: 37

23186 907631 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT ACCTGATACAGAAGGAGCTATAGACAGCGGCGATTTTC
spacer length: 38 repeater length: 37

23187 907706 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TGTATATTTACTATATCCCCTTCGCCGACTTTAGG
spacer length: 35 repeater length: 37

23188 907778 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TATAACCACGATCAAATTAAGAAAATGATTGTATC
spacer length: 35 repeater length: 37

23189 907850 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AACAAAAAGCTCAACTCGTCGTTGAGCCTAGAATGAC
spacer length: 37 repeater length: 37

23190 907924 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT CTTATATCGTGTACTGTGCGAATTCAGTCGAATCGG
 spacer length: 36 repeater length: 37
 23191 907997 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT GGCTATGAGATCGAGGTCTCAAGAAATATAGTTAC
 spacer length: 35 repeater length: 37
 23192 908069 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT CCTGACACTTGGAGGGATGACGGCGGCGGGTGT
 spacer length: 35 repeater length: 37
 23193 908141 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT ACGAAGTGACAACCTCCTCGTGATTGAAAATTGGGA
 spacer length: 36 repeater length: 37
 23194 908214 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TGCTCTAATAAACATAATTGGTAAACAGGTATGGG
 spacer length: 36 repeater length: 37
 23195 908287 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TATAGTATTGGCTACTATAGTATATTGCACTTAGC
 spacer length: 35 repeater length: 37
 23196 908359 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TTTGTGAGGTATGAGAATTGTAGAGAGTATAAAAAAT
 spacer length: 36 repeater length: 37
 23197 908432 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT CGCAGACTCT
 23198
 23199
 23200 crispr 2
 23201 1517072 GTTAAATCAGACCTTAGAGGGATTGAAAC ATTATGTATCGCCCAATATCTTTCTATTTTCTCTTTATCCG
 spacer length: 41 repeater length: 30
 23202 1517143 GTTAAATCAGACCTTAGAGGGATTGAAAC GTTTCAGGCTCGATTTCTAAAGCCTACGGCACTAT spacer
 length: 35 repeater length: 30
 23203 1517208 GTTAAATCAGACCTTAGAGGGATTGAAAC GAAAGTAAACAGTATCAGATTTGGATCTGCAAAAATAGA
 spacer length: 39 repeater length: 30
 23204 1517277 GTTAAATCAGACCTTAGAGGGATTGAAAC ACAAAGAAGAAATCGAATCAAGAGCGAAAGAGCTTG spacer
 length: 37 repeater length: 30
 23205 1517344 GTTAAATCAGACCTTAGAGGGATTGAAAC TGCACTCTTACGTTCAAGCCGTTCAACCAGATCAAGAG
 spacer length: 40 repeater length: 30
 23206 1517414 GTTAAATCAGACCTTAGAGGGATTGAAAC CCGTGCAGCTTATCCAGACAATTATGAACTGTGCGAAAA
 spacer length: 39 repeater length: 30
 23207 1517483 GTTAAATCAGACCTTAGAGGGATTGAAAC ATCAGGCACGATTTCCCTATATCCTGAATAAATCATAT spacer
 length: 38 repeater length: 30
 23208 1517551 GTTAAATCAGACCTTAGAGGGATTGAAAC TCCTTAACAAGCTGTCTTGCCCTGGTCTTTTGATCCTC spacer
 length: 38 repeater length: 30
 23209 1517619 GTTAAATCAGACCTTAGAGGGATTGAAAC AATTCTTTTAAACATTGGAAAAAGTAAACTCGGATC spacer
 length: 36 repeater length: 30
 23210 1517685 GTTAAATCAGACCTTAGAGGGATTGAAAC ATAGTTCCTTAAGGCACAGTCCCTCCGGGCTTAAG spacer
 length: 35 repeater length: 30
 23211 1517750 GTTAAATCAGACCTTAGAGGGATTGAAAC CTCGTTGAAAGGATCTGAGAAAAGAGAATATCCGCG spacer
 length: 36 repeater length: 30
 23212 1517816 GTTAAATCAGACCTTAGAGGGATTGAAAC GCCTTTGTCATAGCTCTTAAAGCTCGTATTGAGCT spacer
 length: 36 repeater length: 30
 23213 1517882 GTTAAATCAGACCTTAGAGGGATTGAAAC CTCGTTGAAAGGATCCGAAAAGGAGAATATCCGCGC spacer
 length: 37 repeater length: 30
 23214 1517949 GTTAAATCAGACCTTAGAGGGATTGAAAC ACAGTCCCGTACCCTGGAAGAGTGACGTAGAACTTT spacer
 length: 36 repeater length: 30
 23215 1518015 GTTAAATCAGACCTTAGAGGGATTGAAAC CAAACCCGAGATGCCGGAACACCTGTATTTTTTTTAC spacer
 length: 37 repeater length: 30
 23216 1518082 GTTAAATCAGACCTTAGAGGGATTGAAAC GTTGAGCGTTGCGAAGAATACTATCACATCGACTAC spacer
 length: 36 repeater length: 30
 23217 1518148 GTTAAATCAGACCTTAGAGGGATTGAAAC TGAGTACAAACAAGTTTTACCTGATCTTCTCTTTGAGG
 spacer length: 39 repeater length: 30
 23218 1518217 GTTAAATCAGACCTTAGAGGGATTGAAAC ATGCTAACATGTAAAAAATATTTCCCATCAATGCAA spacer
 length: 36 repeater length: 30
 23219 1518283 GTTAAATCAGACCTTAGAGGGATTGAAAC CCCTTAATCACATCTGAAGTTGCAACCCTGGCAATGC spacer
 length: 37 repeater length: 30
 23220 1518350 GTTAAATCAGACCTTAGAGGGATTGAAAC ATTGCAGAAGAAGTGAAGCACCAGGATAATGATG spacer
 length: 34 repeater length: 30
 23221 1518414 GTTAAATCAGACCTTAGAGGGATTGAAAC AAATTAACCTGGAAGATCGTTAGAAGCTGCCATTACCTG spacer
 length: 38 repeater length: 30
 23222 1518482 GTTAAATCAGACCTTAGAGGGATTGAAAC GAACACCTGGACCTTCCTGACGGATCCGTCAGGTT spacer
 length: 35 repeater length: 30
 23223 1518547 GTTAAATCAGACCTTAGAGGGATTGAAAC GTCTTCCGGCTTCGCATCGGTGTCAACTTTCAAACA spacer
 length: 37 repeater length: 30
 23224 1518614 GTTAAATCAGACCTTAGAGGGATTGAAAC ATCAAGACAAACATCAGCAGGACATTAATAACCTGTA spacer
 length: 37 repeater length: 30
 23225 1518681 GTTAAATCAGACCTTAGAGGGATTGAAAC AGATGTCTTTCAATGTTTTTTACGCGCTGGATGAGT spacer
 length: 36 repeater length: 30
 23226 1518747 GTTAAATCAGACCTTAGAGGGATTGAAAC TCCTAACACGACAAAAGAGCTCATAGAACAGGCAGG spacer
 length: 37 repeater length: 30
 23227 1518814 GTTAAATCAGACCTTAGAGGGATTGAAAC ATAATATGTATTTATCAAAAGGCAGATCCAGAATGGAA spacer

	length: 38	repeater length: 30	
23228	1518882	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TATTAATGTATGTAAAGCACTAGCCGGGCAGTTAAT spacer
	length: 36	repeater length: 30	
23229	1518948	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AATCGACCCTGAATGGTCCTGTATTTGAGTAGCAA spacer
	length: 35	repeater length: 30	
23230	1519013	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCCAGAGCGGCTTCTACTGCATTTTTTCAGGTTCTTGC spacer
	length: 37	repeater length: 30	
23231	1519080	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CTTGTATCTCTACGTTATCAGCCGTCCCATCACAAACA spacer
	length: 38	repeater length: 30	
23232	1519148	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTAAACATGCTCGTTTTTGGGTGTGCCATATCAGAA spacer
	length: 38	repeater length: 30	
23233	1519216	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCGTCATTCTAGGCTCAACTACGAGTTGAGCTTTTTGT spacer
	length: 38	repeater length: 30	
23234	1519284	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GCAAATATAAGGCAGATATTTTCTAGACTCGATTTT spacer
	length: 36	repeater length: 30	
23235	1519350	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGTAAAAGCTGCTCAGGAAATTGGATTATCCGAGG spacer
	length: 36	repeater length: 30	
23236	1519416	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTGCAGACTCGTTGCGTTGTACTCAGTCTGAGCGGT spacer
	length: 36	repeater length: 30	
23237	1519482	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGCATTACACGGGTGATCCAGACTTCGTTGTCTGTG spacer
	length: 36	repeater length: 30	
23238	1519548	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTTCTCTAAGTCTTGCGTACAAGACTTTATCGGTGATG spacer
	length: 38	repeater length: 30	
23239	1519616	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTAGAGCGAGCTTTTAAGAGGGATTCTGCGAAGCGTG spacer
	length: 37	repeater length: 30	
23240	1519683	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTTATTCTTGTGTGTTTCTTATGGGTTCGATTACTGC spacer
	length: 38	repeater length: 30	
23241	1519751	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATTTTCTTCATAATTACTCAACCTCTTATGATGTTGTA spacer
	length: 38	repeater length: 30	
23242	1519819	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TAGTTCTCAATGAAAATGGAATAGGCGTGAACCTTAC spacer
	length: 37	repeater length: 30	
23243	1519886	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGAAAAAGAAAATGTGATGCTGAATAACGCGCAC spacer
	length: 34	repeater length: 30	
23244	1519950	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATTAATACTGAAAAGTGGGATGTGCCTGGAGCTATT spacer
	length: 36	repeater length: 30	
23245	1520016	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATAAAGTACAGAAACGAAAATATTAAAGAAGCTTC spacer
	length: 36	repeater length: 30	
23246	1520082	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAAGAGCAAACGATGCAGGGTCTAAACAAGGCTCT spacer
	length: 35	repeater length: 30	
23247	1520147	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CTCACAGATTCTGAGAAGGACGAAATTATAAAAAATT spacer
	length: 36	repeater length: 30	
23248	1520213	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGCATACTTCGCGGCTGCATGAATCCCTTTAAGCCTG spacer
	length: 37	repeater length: 30	
23249	1520280	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTACAGGGCTTAACACTGTCGTTTTTTACAAGAAATC spacer
	length: 38	repeater length: 30	
23250	1520348	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CCTGGAAACGCGGGAATTTCTTTTGGGTCAATATAT spacer
	length: 36	repeater length: 30	
23251	1520414	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CATTGAGCTCCTGAATCAATGGAGTGCCTGCAACCAG spacer
	length: 37	repeater length: 30	
23252	1520481	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCAATTAGCCCGTTCTCGTTAATCAGCCCGTCCGCAA spacer
	length: 37	repeater length: 30	
23253	1520548	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CTGGTTTTAGACAAGATCTTAGACGTGATGATCTCAGA spacer
	length: 38	repeater length: 30	
23254	1520616	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTGTCCACGTTGTTCCGGCCCCAATCGTCCCAGTCATGTC spacer length: 40
	length: 40	repeater length: 30	
23255	1520686	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCATGTCCGTTGTTTCTTATGTGCCAGATCCATTTC spacer
	length: 35	repeater length: 30	
23256	1520751	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CAAATACACACAGTACGACGAAAAAATCAGAACTC spacer
	length: 36	repeater length: 30	
23257	1520817	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GATCAAGAGTGCAGCATCCTCTATTCTCTCAGCCTG spacer
	length: 36	repeater length: 30	
23258	1520883	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CATACTAGACCTACAATGAAAATGTAGAGGGGGCCG spacer
	length: 36	repeater length: 30	
23259	1520949	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TAAGGATAGGTGTATCAAGCTGGATTTGTTTCATCTATTG spacer length: 39
	length: 39	repeater length: 30	
23260	1521018	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGATGTAATTGATAGTATTCAGGCAGGAGAAAAG spacer
	length: 34	repeater length: 30	
23261	1521082	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGTTTTAATTCCTGCCATCGGATCACCTTTAAGCTGC spacer
	length: 37	repeater length: 30	
23262	1521149	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAATTCCAGCGTGAAAGATGAATACGGCAATACAGC spacer
	length: 36	repeater length: 30	

23263	1521215	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTGGTTCGTCCCTCCGAACGGGATCATTACAACATAA spacer
	length:	36	repeater length: 30
23264	1521281	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTTTCTGCGCTCCGTCCTGCGTACTGCAGGCAGATATT spacer
	length:	38	repeater length: 30
23265	1521349	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCAATGCAAATAGGCACATGGCAAGCCCCGCCTAGAA spacer
	length:	36	repeater length: 30
23266	1521415	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GACAGTTCTTGAAGACCCATCAATCGTTGCGGTAAC spacer
	length:	37	repeater length: 30
23267	1521482	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGAATGATAACCACTACAAGCACCAACAGTCCGAGG spacer
	length:	36	repeater length: 30
23268	1521548	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTTTTAATGAGATCTGCTCTAACAACTAAAATAATG spacer
	length:	37	repeater length: 30
23269	1521615	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CTTAAAGAGTGATCTTAAACCCCTTACAGATCATG spacer
	length:	35	repeater length: 30
23270	1521680	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GATGATAGAAGGGAAGATGAAATGCGGAATCGCCGT spacer
	length:	36	repeater length: 30
23271	1521746	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGGACTTCGAGGGAGGTATCTGCTGCGTTGACGAAGTT spacer
	length:	38	repeater length: 30
23272	1521814	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTATATGCTTTTTTCGAAAAGAGAGAGCGTAGACCAG spacer
	length:	36	repeater length: 30
23273	1521880	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTCCTATAATCTGCGTGGATGAGGAAACAGGAAGAC spacer
	length:	36	repeater length: 30
23274	1521946	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CTTTTTCCAGCTTCGATTACTTCAGGTTTAAGCGGA spacer
	length:	37	repeater length: 30
23275	1522013	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTTTTCATGGGAGCACTCGAGAAGGCAGTCCGAG spacer
	length:	34	repeater length: 30
23276	1522077	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATTAGTGATTGCTCCTTATCGCCTTCGCTTCTGCAAGT spacer
	length:	38	repeater length: 30
23277	1522145	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATGCCCCATAGATCACATCAGAAGCTTTGTAAGTCTGCTC
	spacer length:	40	repeater length: 30
23278	1522215	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ACTGTTATTAGTGACGGTACTACAATTGAAGGATG spacer
	length:	35	repeater length: 30
23279	1522280	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GAAGAATTGAACGCAATTCTTGAGAAAGCTAAGAAATT spacer
	length:	38	repeater length: 30
23280	1522348	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CATTTTCATGCATTTATACTTGTTTGAGCCTGTCAA spacer
	length:	36	repeater length: 30
23281	1522414	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CTATACACTTGAATTGTAGCGTCTGAATCGCCTGTTAAA
	spacer length:	40	repeater length: 30
23282	1522484	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCCGTAAAGCTCTCCATCGAGTGCATCTTCTTCGT spacer
	length:	35	repeater length: 30
23283	1522549	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GATAAAGAATAAGCCAGGCTCGCGGGGAAACATTAC spacer
	length:	38	repeater length: 30
23284	1522617	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTATCCATGTTAAGCTTTCCGAGTCCTTGGTATAATC spacer
	length:	37	repeater length: 30
23285	1522684	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GCTTTATTTTAGCCGTGGTTTTTGAAGGACTTATATT spacer
	length:	37	repeater length: 30
23286	1522751	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GAAAAAGCAGGAGGGCCGCAACCAATAACTCTTTTATGT
	spacer length:	39	repeater length: 30
23287	1522820	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CATTGTGTATTTTTTAGGGAGTAGTTTGATAAGTTCG spacer
	length:	37	repeater length: 30
23288	1522887	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCCATAGAAAGACCAGGACGAGAGGCAGGGGGAGAAG spacer
	length:	37	repeater length: 30
23289	1522954	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCGTGACCATTATTTCTAATGTGCCAGATCCATTTA spacer
	length:	36	repeater length: 30
23290	1523020	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGCTGTAGCAGGTGTTACATTGCCAGCCCCTAAAGTA spacer
	length:	37	repeater length: 30
23291	1523087	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CAATTACAGATTTTCGCTCAATTATTCCTTTACG spacer
	length:	35	repeater length: 30
23292	1523152	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GCAAGAAAAAATTAGAAATGATATAATTTAAAGGTT spacer
	length:	36	repeater length: 30
23293	1523218	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATTCTCTTGTGTATGCACTCATTGTTCTTCCTCAATATACTATA
	spacer length:	44	repeater length: 30
23294	1523292	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGTTTTAAACCGACAGCAGGGCCGGGCTTTACGCTG spacer
	length:	37	repeater length: 30
23295	1523359	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTGTAAGGGCCCCGGCTTCTATCGCCATTTCCCAT spacer
	length:	36	repeater length: 30
23296	1523425	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCACTATTTATCAGGTATTCAGCGGAAGCTGTATTACA spacer
	length:	38	repeater length: 30
23297	1523493	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ACGTAGAACGCACCGAAATAATTTTGAAAAATATA spacer
	length:	36	repeater length: 30
23298	1523559	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAGATTTCCCGAATCGAAACCTAATCCCCGTATACG spacer

length: 36 repeater length: 30
23299 1523625 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTGTTAAGGCTTTAACTACTTCTAACGGAGTAAAGAACTG
spacer length: 40 repeater length: 30
23300 1523695 GTTAAAATCAGACCTTAGAGGGATTGAAAC GCAATTTCTTGAATCGTCAACGGTAGATGGGATATAT spacer
length: 38 repeater length: 30
23301 1523763 GTTAAAATCAGACCTTAGAGGGATTGAAAC GTTACTCCGGAATTAATGTTAAGGAATTCAAGGGCG spacer
length: 36 repeater length: 30
23302 1523829 GTTAAAATCAGACCTTAGAGGGATTGAAAC GATGAAGTGGGTGCGTCACCTTCTGCAAAATTGATT spacer
length: 36 repeater length: 30
23303 1523895 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTATATATGTGTAATTCTAAGTCACCGGAAAGGCAC spacer
length: 36 repeater length: 30
23304 1523961 GTTAAAATCAGACCTTAGAGGGATTGAAAC GAACATAGCGTATTCGACGAGACCGTGTGGGTATAGTC
spacer length: 39 repeater length: 30
23305 1524030 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATTCCATTCTCTTTCAGGACTGCACCCACGATGTCAGCG
spacer length: 39 repeater length: 30
23306 1524099 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATCTTTTGCATTTGTCTCATCCTCTTTTCTTTGTTTATT
spacer length: 39 repeater length: 30
23307 1524168 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATATAAACTTTACGTTAGATCAAACGAAAAAATAA spacer
length: 36 repeater length: 30
23308 1524234 GTTAAAATCAGACCTTAGAGGGATTGAAAC ACCCGAGGGGAAAGCAAGCCTCACGCTAAAGCAGTG spacer
length: 36 repeater length: 30
23309 1524300 GTTAAAATCAGACCTTAGAGGGATTGAAAC GGAAGTCATTCAATAAGCGAGATAGAAGCAAAG spacer
length: 33 repeater length: 30
23310 1524363 GTTAAAATCAGACCTTAGAGGGATTGAAAC GGTATATCGTAGTTTGTCCCATCCCTTGTAACGCCG spacer
length: 36 repeater length: 30
23311 1524429 GTTAAAATCAGACCTTAGAGGGATTGAAAC GCTCCACCGGTGTTTACATTGTTTCTTCCCAATCG spacer
length: 36 repeater length: 30
23312 1524495 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTTTCTTTGCGGTGATGGTGATCGTCGTATTAAATGCT spacer
length: 38 repeater length: 30
23313 1524563 GTTAAAATCAGACCTTAGAGGGATTGAAAC ACACAACCATTCCCAACGAGCTTGACATCGAAATCA spacer
length: 36 repeater length: 30
23314 1524629 GTTAAAATCAGACCTTAGAGGGATTGAAAC ACAATTCTCGAGGCATCCGTCCCGGCTGGAAATTCAG spacer
length: 37 repeater length: 30
23315 1524696 GTTAAAATCAGACCTTAGAGGGATTGAAAC CGACATACGCTAAAGGATTTTCGTTATCCATCGACG spacer
length: 36 repeater length: 30
23316 1524762 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTCAAGAGGACCCTAAAGGTATTCGGGGTACTTCCAGCGA
spacer length: 40 repeater length: 30
23317 1524832 GTTAAAATCAGACCTTAGAGGGATTGAAAC AGTGGAAGAGGAACGGATGTAAAAAGGATATTCTT spacer
length: 35 repeater length: 30
23318 1524897 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATGCCTGTATATCCTGCACTCCGTTTAAATGGGAGCTG
spacer length: 39 repeater length: 30
23319 1524966 GTTAAAATCAGACCTTAGAGGGATTGAAAC CCATTTCTGCTCTACAATCACCCCGGATTGCTGGAAA spacer
length: 36 repeater length: 30
23320 1525032 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATTTCTTCGGGCATTATGATCAAAGATTGGAGGATG spacer
length: 36 repeater length: 30
23321 1525098 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTTTCAGTGTGAACGTGGGATTTGCCGTATCAGAAGC spacer
length: 37 repeater length: 30
23322 1525165 GTTAAAATCAGACCTTAGAGGGATTGAAAC GCACGAAGAGCTAATCGAAAACGACGGGGTTTATATT spacer
length: 37 repeater length: 30
23323 1525232 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATACATGAGCAGTTTGAGAACAAAGAAATTACTGAATT spacer
length: 38 repeater length: 30
23324 1525300 GTTAAAATCAGACCTTAGAGGGATTGAAAC GAGCTCAGGAACGACATTTCTCAGGCTGAAGCACAG spacer
length: 36 repeater length: 30
23325 1525366 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATAAACATCATCGTTTTTCCGTTTTGTCTCACATC spacer
length: 35 repeater length: 30
23326 1525431 GTTAAAATCAGACCTTAGAGGGATTGAAAC TAGATATTTTCTGGATTTATGGGGTGCTGGATTTTCTCGC
spacer length: 40 repeater length: 30
23327 1525501 GTTAAAATCAGACCTTAGAGGGATTGAAAC TATTATGGTATAACGTGACATAAAATGGTATAGGAGC spacer
length: 37 repeater length: 30
23328 1525568 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATCTTTTTTATTGTATTTTCTGATCTGTTCTTCTCCC spacer
length: 37 repeater length: 30
23329 1525635 GTTAAAATCAGACCTTAGAGGGATTGAAAC TCGAATATATTGTCAATCGACTTGACCGTATATTTATC spacer
length: 38 repeater length: 30
23330 1525703 GTTAAAATCAGACCTTAGAGGGATTGAAAC AATATATTATAAGTGCTGCCTGCTCTGTTTACGCCAT spacer
length: 37 repeater length: 30
23331 1525770 GTTAAAATCAGACCTTAGAGGGATTGAAAC AAACATGGCA
23332
23333
23334 crispr 3
23335 2202771 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC ACAACAAGAATCAGGTGATAGTGAATGGTGTATACGG
spacer length: 37 repeater length: 37

23336 2202845 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TCGAAGCTTTCAGAAAAGACAAACGCGGGAAACTTC
spacer length: 36 repeater length: 37

23337 2202918 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC ATATTAATGGCGACCGAAGCAATCAGAGAACTATC
spacer length: 35 repeater length: 37

23338 2202990 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TTTCTTGCATGTATCACCCGTCCCAGTGAAGATTA
spacer length: 36 repeater length: 37

23339 2203063 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC CACAATACATGATACTCCACAAAAATGGGGTAATGC
spacer length: 36 repeater length: 37

23340 2203136 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TGGTAGTGCTCAATTCCAGCCCTGAGCCATTCGTTG
spacer length: 36 repeater length: 37

23341 2203209 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TTCTTATATTTGTCGTCTTTATTTTTTACAGGGACAG
spacer length: 37 repeater length: 37

23342 2203283 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC ATATCTTCTTTGTATCCATTGGCAAGACATCAAGCCC
spacer length: 37 repeater length: 37

23343 2203357 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC CACTGAAGAATCCAAGCGGGAAGGTAATTTCAACCAT
spacer length: 37 repeater length: 37

23344 2203431 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TGCTGCGGTTTCTATACCGTTCCTCCGCTTGCCATAATT
spacer length: 38 repeater length: 37

23345 2203506 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC ATGGCTCGTATAGATAACCTTCCAGCAGTTTCTTTT
spacer length: 36 repeater length: 37

23346 2203579 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC CAATTTGGACAAGAAGTTACCTGTTTCTCGTTAGAA
spacer length: 36 repeater length: 37

23347 2203652 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TCTCCTGGGAGTGCAGAGGGCACAGCGGGAAGACCA
spacer length: 36 repeater length: 37

23348 2203725 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TTTCTTTTTTCATCTCTTCGTACTCATCCAATACTT
spacer length: 36 repeater length: 37

23349 2203798 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC CGCCTATGTACAGCTGAGCGTTCGTACCGGATACTT
spacer length: 36 repeater length: 37

23350 2203871 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC CTTTCAAGGACAATCGACTGCACCCGCGTACAATATC
spacer length: 37 repeater length: 37

23351 2203945 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TATACCTTCTCCACAGTTGCGTTCTTTTTTGTCTGAA
spacer length: 37 repeater length: 37

23352 2204019 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC AGTCGGGGAGTTTCAAGTTATAAGCCTGATTAAATTAAG
spacer length: 37 repeater length: 37

23353 2204093 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC CGTTAGATCAAACGAAAAAATAAAATCAAAATGG
spacer length: 34 repeater length: 37

23354 2204164 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TAGTCATACCATCCTCGACCATGTCCGGTGAGAAC
spacer length: 35 repeater length: 37

23355 2204236 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC CGGGTGAAAGACCTATCAGGGATGAACTGAAGAATTCT
spacer length: 38 repeater length: 37

23356 2204311 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC AATTCTACAAACGTTTCGTGATCCTCGGCATTTACGA
spacer length: 37 repeater length: 37

23357 2204385 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TTACAAGTGAGTGGTTAGGCAATCCCATCTACAT
spacer length: 34 repeater length: 37

23358 2204456 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC

23359

23360

23361 GCA_001412615.1_ASM141261v1_genomic.fna (PilerCR):

23362 START REPEAT

SPACER

23363 crispr 1

23364 286177 GCATAACTCAAAAAGAGAATTGTAAG TCTCTGCTACATGAAGCTCTACAAGGTAGTCAAGGTGCTCGACGACGCC
spacer length: 49 repeater length: 25

23365 286251 GCATAACTCAAAAAGAGAATTGTAAG GCGTCGGATGGTATGTCGAGGACGGCAGGGCCTATGGCCACGC spacer
length: 43 repeater length: 25

23366 286319 GCATAACTCAAAAAGAGAATTGTAAG GTGCTACTCCGGGCCACCCGACGCTCCTAGGGAAGAGCGTGA spacer
length: 42 repeater length: 25

23367 286386 GCATAACTCAAAAAGAGAATTGTAAG CATACCGGGCAAGTGGAAGGGCTACCTTCGCCCTCATGGCCGCT spacer
length: 44 repeater length: 25

23368 286455 GCATAACTCAAAAAGAGAATTGTAAG TGTATGACTCTTCGCCCAGTCGAGCGCCCCACCTCCTCGAG spacer
length: 42 repeater length: 25

23369 286522 GCATAACTCAAAAAGAGAATTGTAAG AGACCATGCCTGGACTGGGACGGCCGGCCTGCCAAGCCGGCGA spacer
length: 43 repeater length: 25

23370 286590 GCATAACTCAAAAAGAGAATTGTAAG ACCAGGGCCGCGGGTTTGTGACGGTATGGATACCCACGA spacer
length: 40 repeater length: 25

23371 286655 GCATAACTCAAAAAGAGAATTGTAAG TTCTCGAAGTGCCACTCTATCAGCGCATCCCTTACACGCTGTAT spacer
length: 44 repeater length: 25

23372 286724 GCATAACTCAAAAAGAGAATTGTAAG AAAGTATAGAAGCGTACCCCCGCTGCGCCCCCGCCTGGGCATAG spacer
length: 44 repeater length: 25

23373 286793 GCATAACTCAAAAAGAGAATTGTAAG ATAGCCACGGCGGGCTCGGGCTCGACGTACCATCTCACCTTATA
spacer length: 45 repeater length: 25

23374	286863	GCATAACTCAAAAAGAGAATTGTAAG	CAAAGAAGCTAGCGGAGATAGAGGAGCTTCTGGAGCGCTT	spacer
		length: 40	repeater length: 25	
23375	286928	GCATAACTCAAAAAGAGAATTGTAAG	TCCCGGTACTCCACACGTACTATGTAGCGCATTAGTCCTCCA	spacer
		length: 42	repeater length: 25	
23376	286995	GCATAACTCAAAAAGAGAATTGTAAG	CATGTGCGTGCGCCTTGGACCGGGCCCTCGGCGGGCCC	spacer
		length: 38	repeater length: 25	
23377	287058	GCATAACTCAAAAAGAGAATTGTAAG	CAC TTGTAGCCGAGCAACAAGGATCACTAGATTTATATACGT	spacer
		length: 42	repeater length: 25	
23378	287125	GCATAACTCAAAAAGAGAATTGTAAG	CTACTGCGGAGGAAGGAGAATCAAAGAGATACTCGAGGAATAC	spacer
		length: 43	repeater length: 25	
23379	287193	GCATAACTCAAAAAGAGAATTGTAAG	CTCACGGCGAAGCGGCCACTCAAACGCCGAAGATACCTAA	spacer
		length: 41	repeater length: 25	
23380	287259	GCATAACTCAAAAAGAGAATTGTAAG	TGGCATCCACGGCAAGCCACCGCCCGGTGATGGGAAGGA	spacer
		length: 39	repeater length: 25	
23381	287323	GCATAACTCAAAAAGAGAATTGTAAG	ATAGTTACTGTGACGGGTATACTTACTGTATCTATCTGCTC	spacer
		length: 41	repeater length: 25	
23382	287389	GCATAACTCAAAAAGAGAATTGTAAG	TAGCGAGTAGGATGAGGATAAGAGAGTTCAAGATCATGCT	spacer
		length: 40	repeater length: 25	
23383	287454	GCATAACTCAAAAAGAGAATTGTAAG	CGGTAGCATTGCCC GTGTCTCTCTCCACTCTCTATATACTC	spacer
		length: 43	repeater length: 25	
23384	287522	GCATAACTCAAAAAGAGAATTGTAAG	CTTCAATACATTACACTCAGCCTTGTCTCCAGTGTGTTTTAGA	spacer
		length: 43	repeater length: 25	
23385	287590	GCATAACTCAAAAAGAGAATTGTAAG	GGCGTCGAGCCCTCACGAATGCAACA ACTCTCTCGCGG	spacer
		length: 38	repeater length: 25	
23386	287653	GCATAACTCAAAAAGAGAATTGTAAG	GTTTTCCGGGCTGATGTATGGCTAGTTTTATCCTGCCTA	spacer
		length: 39	repeater length: 25	
23387	287717	GCATAACTCAAAAAGAGAATTGTAAG	AGACTATATCGTACGCGTTGTGGCCGTCTGT TCCCGC	spacer
		length: 38	repeater length: 25	
23388	287780	GCATAACTCAAAAAGAGAATTGTAAG	CTCATACTCGCTCCTTATCTCCACGCTCATGTCTCTCCCCGA	spacer
		length: 43	repeater length: 25	
23389	287848	GCATAACTCAAAAAGAGAATTGTAAG	TTGAAGGAGTTAATGGCTGATATATGGGCGTTCTTCGGTAAGTT	spacer
		length: 44	repeater length: 25	
23390	287917	GCATAACTCAAAAAGAGAATTGTAAG	GCAGGTGCTGGGATATCGTGGTGAACGGGCCGAGT GCGTCTAG	spacer
		length: 44	repeater length: 25	
23391	287986	GCATAACTCAAAAAGAGAATTGTAAG	AGCTGTTGATAGAGCTGCGGATATATTAAACAGTTTGAATAT	spacer
		length: 42	repeater length: 25	
23392	288053	GCATAACTCAAAAAGAGAATTGTAAG	TCATTAGCTCGCCGCGGCACTTATGCCAGCATACGTGGCCCA	spacer
		length: 42	repeater length: 25	
23393	288120	GCATAACTCAAAAAGAGAATTGTAAG	TACTCCCCAGGGAGGTTCTCGACGCGGAGCTCAAGGTCT	spacer
		length: 39	repeater length: 25	
23394	288184	GCATAACTCAAAAAGAGAATTGTAAG	AGTCAGTCTTAATCATACCAAATGAGGGCACTGTCAGCC	spacer
		length: 39	repeater length: 25	
23395	288248	GCATAACTCAAAAAGAGAATTGTAAG	GTCGTTTGGCATGATTAAGACTGACTGGGTGGAGGTGAGGCTG	spacer
		length: 43	repeater length: 25	
23396	288316	GCATAACTCAAAAAGAGAATTGTAAG	GGAAGGGGCCGGCTATCTGCTTGGTCTCCTTCACTACGTCGTCG	spacer
		length: 45	repeater length: 25	
23397	288386	GCATAACTCAAAAAGAGAATTGTAAG	ACTCCTCGTGACCATGAACGCGAAGACATCGGCCATGAGGGC	spacer
		length: 42	repeater length: 25	
23398	288453	GCATAACTCAAAAAGAGAATTGTAAG	CGCTTATCCAGCGCCGGCAGCATGACCTCGGCCCTTCCGTAGG	spacer
		length: 43	repeater length: 25	
23399	288521	GCATAACTCAAAAAGAGAATTGTAAG	CGAGGTATGCGAGGATGCGGATCTTGGTCGGGAGTAGGCGTT	spacer
		length: 42	repeater length: 25	
23400	288588	GCATAACTCAAAAAGAGAATTGTAAG	GGATCTGCATCGCGAGGGCAGTATAAGGCTTCTAGGAGTAGT	spacer
		length: 42	repeater length: 25	
23401	288655	GCATAACTCAAAAAGAGAATTGTAAG	TGAAGCTTATGGTGCCGCTAGTGTCTATCGTGA ACTCT	spacer
		length: 39	repeater length: 25	
23402	288719	GCATAACTCAAAAAGAGAATTGTAAG	AAGGCCAGTGCGGCGTGGCGCGGTGTGAGGCTGGGCAGCGGC	spacer
		length: 42	repeater length: 25	
23403	288786	GCATAACTCAAAAAGAGAATTGTAAG	AAGGAGTGTCCCGAAAGTGGAGCAAGTGCCTAAAGTCCTAGCC	spacer
		length: 44	repeater length: 25	
23404	288855	GCATAACTCAAAAAGAGAATTGTAAG	TGGCATCTCCAAGGCTGGACTTATCGCGCAGTCTTCAAGCCTG	spacer
		length: 43	repeater length: 25	
23405	288923	GCATAACTCAAAAAGAGAATTGTAAG	ATTCTAAATTTTTATGTGGGTTATGCTGGCCCAGCGCCAGC	spacer
		length: 41	repeater length: 25	
23406	288989	GCATAACTCAAAAAGAGAATTGTAAG	ACGCACCGCCTTATCGTGA ACTCTAGATCCTCCACAT	spacer
		length: 37	repeater length: 25	
23407	289051	GCATAACTCAAAAAGAGAATTGTAAG	TGTCGCGGCTGTTGCGGCAGCGATAGTCTTTGTAGCGTACCAG	spacer
		length: 43	repeater length: 25	
23408	289119	GCATAACTCAAAAAGAGAATTGTAAG	CTATGTGGTTGACTGCTATCCTGATGAAGTGTAGTA	spacer
		length: 36	repeater length: 25	
23409	289180	GCATAACTCAAAAAGAGAATTGTAAG	TAGAGGGGTGACAGCGTCCGTGACTGAGTATGTCTGTATAG	spacer

length: 41 repeater length: 25
23410 289246 GCATAACTCAAAAAGAGAATTGTAAG ATTTTAGTTTATGCGTTCAGTGGCAAGAGGGAGTAAGCTAATAA spacer
length: 44 repeater length: 25
23411 289315 GCATAACTCAAAAAGAGAATTGTAAG CTCTTCGGCAGTATTCTGCGCTCGAGCAGCCCCGCTCTGCCAG spacer
length: 44 repeater length: 25
23412 289384 GCATAACTCAAAAAGAGAATTGTAAG GATGGGACATGGTACACGCTGGCAAGCGAGGAAGTGCAGGTAGT spacer
length: 44 repeater length: 25
23413 289453 GCATAACTCAAAAAGAGAATTGTAAG TTGCTGAGGGTTATCGGAATCTGCGTCGTGCCGCTGATGCTCGTG
spacer length: 45 repeater length: 25
23414 289523 GCATAACTCAAAAAGAGAATTGTAAG ACCGCCAGGATGGCCACGTCCACGACCAGGCTGCTGGCCGCTCCCG
spacer length: 46 repeater length: 25
23415 289594 GCATAACTCAAAAAGAGAATTGTAAG GTACCGCTCTTGCTGCCCTGTATGGTGTAGCCCAGTGGCG spacer
length: 40 repeater length: 25
23416 289659 GCATAACTCAAAAAGAGAATTGTAAG GATTATCTGG
23417
23418
23419 crispr 2
23420 307913 CTTACAATTCTCTTTTGAGTTATGC TTGACGCGTATGTTGGTGAAGTCCACCTCGCGGCACGAGAACCACG
spacer length: 46 repeater length: 25
23421 307984 CTTACAATTCTCTTTTGAGTTATGC ATGCCGATGGTGCCTACGGCAGCTGAGCGCATGCTACGTGACAC
spacer length: 45 repeater length: 25
23422 308054 CTTACAATTCTCTTTTGAGTTATGC CGGTACTTTGCGAATATCCTGCCGGCTATTAGCGCGGCGCGT spacer
length: 42 repeater length: 25
23423 308121 CTTACAATTCTCTTTTGAGTTATGC TCCCGGGCCTGAAACCGTGGCCGGGCGCCCTGCCTGTGCTGAG spacer
length: 43 repeater length: 25
23424 308189 CTTACAATTCTCTTTTGAGTTATGC GTGCCCCTGTTCTAGCGTCTAGCCCACACATTTCTTCGG spacer
length: 39 repeater length: 25
23425 308253 CTTACAATTCTCTTTTGAGTTATGC ATACTTGGCTACGGCTGTTAGGTCTAGACTCTGTGCCCCTCTGTTA
spacer length: 47 repeater length: 25
23426 308325 CTTACAATTCTCTTTTGAGTTATGC ATACGTCGATGAGATAGAGATACCCGGCGGCACGTCAACATCGAC
spacer length: 45 repeater length: 25
23427 308395 CTTACAATTCTCTTTTGAGTTATGC ACCCGGGGGCATTGTTTGCAGCGAGAAATCCAGAACTCTATAGAG
spacer length: 47 repeater length: 25
23428 308467 CTTACAATTCTCTTTTGAGTTATGC CAACGAGCAGACTGGCACCCCTCAGCGCAGTGGCTTTCATAGTCTACAT
spacer length: 48 repeater length: 25
23429 308540 CTTACAATTCTCTTTTGAGTTATGC CTCCGCCAGCCGCCCCGAGGCAGCGAGGTATGTTAGCG spacer
length: 38 repeater length: 25
23430 308603 CTTACAATTCTCTTTTGAGTTATGC ACAGACCAAAGACAAGTACCAGTACAACGTAGACCCCATGAC spacer
length: 42 repeater length: 25
23431 308670 CTTACAATTCTCTTTTGAGTTATGC CGAAGTATATCCACTTCATAGACACGGAGACCGGAGAGAAATTCA
spacer length: 45 repeater length: 25
23432 308740 CTTACAATTCTCTTTTGAGTTATGC GTGAGCAGGGAGCTCAGCGTCACGGGAGCACACTATCTCGACACA
spacer length: 45 repeater length: 25
23433 308810 CTTACAATTCTCTTTTGAGTTATGC ACTGCATAGAGGCGTGCACAAAGGACTGTGCAGAAGAACACA spacer
length: 42 repeater length: 25
23434 308877 CTTACAATTCTCTTTTGAGTTATGC CCGCATAAGGAACGTGGCTCCCTATGCTGCGAAGGCTGCTAGG spacer
length: 43 repeater length: 25
23435 308945 CTTACAATTCTCTTTTGAGTTATGC CAGTATTTTACTTGGCTTAAAGAAGCATTAGAAGAGAGAAAGA spacer
length: 43 repeater length: 25
23436 309013 CTTACAATTCTCTTTTGAGTTATGC TTGTTATCTTTAGGTGTATGTTGTGGCCGGGCTCTAGGACCATGC
spacer length: 45 repeater length: 25
23437 309083 CTTACAATTCTCTTTTGAGTTATGC TGGTGCAGGCCGTGGCTGCTAGCTTGTGCTGGCTTGTCTTTAG
spacer length: 45 repeater length: 25
23438 309153 CTTACAATTCTCTTTTGAGTTATGC TAGAGAAGGCTGTATCAGACATAGCCGCTTCTGCGCCGCCAC spacer
length: 43 repeater length: 25
23439 309221 CTTACAATTCTCTTTTGAGTTATGC AGCATAGATCTTGGCGTCGTGTAGTGGCGCCGCGAGCTTCAA spacer
length: 42 repeater length: 25
23440 309288 CTTACAATTCTCTTTTGAGTTATGC ATATACATCATCGACACGGCTAAGCCCCGCTACAACGAGA spacer
length: 41 repeater length: 25
23441 309354 CTTACAATTCTCTTTTGAGTTATGC AAGAAGATGGTCTACTACCTCGGTAGGCGCTACGGGGTGTGTCACT
spacer length: 46 repeater length: 25
23442 309425 CTTACAATTCTCTTTTGAGTTATGC CATTTCTTAGAGACGCACAAGTTTGAATAGCGAAGTAAC spacer
length: 40 repeater length: 25
23443 309490 CTTACAATTCTCTTTTGAGTTATGC AGAAACAAGACAGTGTGCTGGAAGTACGTGGATTGCAATGGAGTCAT
spacer length: 47 repeater length: 25
23444 309562 CTTACAATTCTCTTTTGAGTTATGC ACCACACATTGCCTCCTCTGGCATTATTTCTAGCAGGGTGC spacer
length: 42 repeater length: 25
23445 309629 CTTACAATTCTCTTTTGAGTTATGC CGCTATCGTGATGCCGCCGTCCATGGCCTTCTGGCTATTATCCG
spacer length: 45 repeater length: 25
23446 309699 CTTACAATTCTCTTTTGAGTTATGC CTCGCGCGGCCATGGGCTTCGCGCTGGCCGGCGGCACGCTGCTAG
spacer length: 46 repeater length: 25

23447 309770 CTTACAATTCTCTTTTGAGTTATGC CAGCCGAGCAGGCCAGGTCATGCAGGCAGTCAGGCGGGCGCAGA
 spacer length: 45 repeater length: 25
 23448 309840 CTTACAATTCTCTTTTGAGTTATGC CCGCCCATGAAGCCCACGCCGGCCATCGGCGCCAGGCTGGGCGGGAA
 spacer length: 47 repeater length: 25
 23449 309912 CTTACAATTCTCTTTTGAGTTATGC CTCGCGGTAGGCTCGTATGCCCCAGCGGGCGATGAAGTAGCCGA spacer
 length: 44 repeater length: 25
 23450 309981 CTTACAATTCTCTTTTGAGTTATGC ACATGAGAGTACTGCCAAGCTTGTCTAGCGAGTTGTTAGGAATCG spacer
 length: 44 repeater length: 25
 23451 310050 CTTACAATTCTCTTTTGAGTTATGC AACCGAAATGCTTACAGTTGCATGGATAGTCCCGGCATCCGTTAT
 spacer length: 45 repeater length: 25
 23452 310120 CTTACAATTCTCTTTTGAGTTATGC TTGTGGCCCCCTTGCAGCATCCATACCAGCAGCTCCTCAA spacer
 length: 40 repeater length: 25
 23453 310185 CTTACAATTCTCTTTTGAGTTATGC ATATCCCTTTGGAGGATTAAGTCCGGCAGAAATAGGATAGGAAAAA
 spacer length: 46 repeater length: 25
 23454 310256 CTTACAATTCTCTTTTGAGTTATGC GGCTCCGGGATGTCTGGGCTAAGGCTGCTGAGCGGTTGG spacer
 length: 39 repeater length: 25
 23455 310320 CTTACAATTCTCTTTTGAGTTATGC ATGCTGAATTCGGATAGATTTCAGCACTCATGACTTGTGCAGAATCT
 spacer length: 46 repeater length: 25
 23456 310391 CTTACAATTCTCTTTTGAGTTATGC ATAGTCGGGGCAGCTAACCAAACCATTCCTCACCTTTTAAA spacer
 length: 43 repeater length: 25
 23457 310459 CTTACAATTCTCTTTTGAGTTATGC AGGTGTATGTCCCCGGTGGCACTAGCACATCGACCGGTAACACA spacer
 length: 44 repeater length: 25
 23458 310528 CTTACAATTCTCTTTTGAGTTATGC CGCATCGGTCTCCGCCGAATAGCGGCGGACGCGGTAATGCTAT spacer
 length: 44 repeater length: 25
 23459 310597 CTTACAATTCTCTTTTGAGTTATGC CGGTATCATGTGTCTCATCGAACCATACACGTACGGTGCCAC spacer
 length: 42 repeater length: 25
 23460 310664 CTTACAATTCTCTTTTGAGTTATGC AAGAACCCCAACCTGCTGGCCTTCATCCCGAGCGCTGCCCCGA spacer
 length: 43 repeater length: 25
 23461 310732 CTTACAATTCTCTTTTGAGTTATGC GGGCCTTCACCCAGGGGGTTCCCCGGCCCGGCTACTCCC spacer
 length: 39 repeater length: 25
 23462 310796 CTTACAATTCTCTTTTGAGTTATGC GCAGAGTCACTCATTGAGAGCGCTACTGCTGGCGAGGAGA spacer
 length: 40 repeater length: 25
 23463 310861 CTTACAATTCTCTTTTGAGTTATGC CGGTGGATGCTAGCCCGCTGGTCTGCTATCTCTCGGATGAAGAT spacer
 length: 44 repeater length: 25
 23464 310930 CTTACAATTCTCTTTTGAGTTATGC CATGGCTCCCACTCCCGCTGCGCCGTCTGAGCGTGTTTA spacer
 length: 39 repeater length: 25
 23465 310994 CTTACAATTCTCTTTTGAGTTATGC ACACCGATTAGATGCTTGCAGAAGAAGCACTTAGCCAG spacer
 length: 38 repeater length: 25
 23466 311057 CTTACAATTCTCTTTTGAGTTATGC CTTTATGCTGTGCGAGCTCTATCGCCTCATCCGCTACCGTGTTGCTG
 spacer length: 46 repeater length: 25
 23467 311128 CTTACAATTCTCTTTTGAGTTATGC AGGAATGCAGCCATGAGCACTCGGCCCCGGGGACCTTGCACTCC spacer
 length: 44 repeater length: 25
 23468 311197 CTTACAATTCTCTTTTGAGTTATGC CAAAACCACCACCTCCATAAACCTTGCATACGCTCTGGCGAGACGA
 spacer length: 46 repeater length: 25
 23469 311268 CTTACAATTCTCTTTTGAGTTATGC TTCTCTCGGTAGAGTCACCTGGTCTACTTCTGCTTCTAGGGTCTT
 spacer length: 45 repeater length: 25
 23470 311338 CTTACAATTCTCTTTTGAGTTATGC ATGAGGTCAC
 23471
 23472
 23473 crispr 3
 23474 1335354 CTTTCAGTTCTATTTGTTATGATTC CTAGTAACTGAAGTCGGGTACGAGGAGGCACAAATGATACGTGT
 spacer length: 44 repeater length: 25
 23475 1335423 CTTTCAGTTCTATTTGTTATGATTC ATGGTGATGTTGAGGAAGCTAAGGCACTCCTAGAAGCCATAGT spacer
 length: 43 repeater length: 25
 23476 1335491 CTTTCAGTTCTATTTGTTATGATTC CTTTCGGGAGTTGGCGCTCCTCACGCCCCGAGGAGCCCCCTCATTAC
 spacer length: 45 repeater length: 25
 23477 1335561 CTTTCAGTTCTATTTGTTATGATTC AGAATATGTAAGTACACCATTTGTCAGGACTACAGAGTCAT spacer
 length: 41 repeater length: 25
 23478 1335627 CTTTCAGTTCTATTTGTTATGATTC
 TTGAAGGCAGCTAGTGATTGGTGGCTATCCAACGTATTAACGAAAACGTTGA spacer length: 52 repeater
 length: 25
 23479 1335704 CTTTCAGTTCTATTTGTTATGATTC CACCGGCGGCTAAGAGGGAGCAGCCCAAGGAAGAGGCTAAAGC spacer
 length: 43 repeater length: 25
 23480 1335772 CTTTCAGTTCTATTTGTTATGATTC CCGTTTCCAT
 23481
 23482
 23483 crispr 4
 23484 1340091 GAATCATAACAAATAGAACTGAAAG ACCGCTCCCCGCCCCCTACGCAGATTTCTCGATTAGCTCGCCCACGC
 spacer length: 47 repeater length: 25
 23485 1340163 GAATCATAACAAATAGAACTGAAAG ACTTCACCGCTGTCTCTCACTTCAACCTCTGACAGTAGATG spacer
 length: 41 repeater length: 25

23486 1340229 GAATCATAACAAATAGAACTGAAAG CTCCACGTAGAGCTTCTTTACTAAGAACGACTTCCCGGCCCGTCT
 spacer length: 45 repeater length: 25
 23487 1340299 GAATCATAACAAATAGAACTGAAAG ACCTTAACGACGCGAAAACCATGCCTGAACACCTTATCGGATAC
 spacer length: 44 repeater length: 25
 23488 1340368 GAATCATAACAAATAGAACTGAAAG TATCTCCCTTCCTTGATGTACTCTAACATTTTTTCGCTAATGGT
 spacer length: 44 repeater length: 25
 23489 1340437 GAATCATAACAAATAGAACTGAAAG CTGTCAAACCTTCAGTGCCTCTGGTCTAGCAAAAAACGCTAGCCT
 spacer length: 44 repeater length: 25
 23490 1340506 GAATCATAACAAATAGAACTGAAAG TACTCGCCGTCCAAGTCCTTGATGAACGCCACTGAGTCCAGGT spacer
 length: 43 repeater length: 25
 23491 1340574 GAATCATAACAAATAGAACTGAAAG ATTAGGTAGCCCGGAGCCGGGAGAAACCAATGGCTGCTGTA spacer
 length: 41 repeater length: 25
 23492 1340640 GAATCATAACAAATAGAACTGAAAG AGAATTCATC
 23493
 23494
 23495 crispr 5
 23496 1358984 GAATCATAACAAATAGAACTGAAAG CCAAATCCGTGAGTCTTATCTCAACCTTCATCTTAGCCATGGCATCAC
 spacer length: 48 repeater length: 25
 23497 1359057 GAATCATAACAAATAGAACTGAAAG TCTCGTATGTAGTCATCATTTTTCTTCATTGGTATCGGATCAGA
 spacer length: 44 repeater length: 25
 23498 1359126 GAATCATAACAAATAGAACTGAAAG TACTATCACCCGCTCGGGTTAGCCCCGTGTATCAATATATATG spacer
 length: 43 repeater length: 25
 23499 1359194 GAATCATAACAAATAGAACTGAAAG TCTACGTAGCCCATCTCGACGGCAGAGGCTAGAGCCCTCGCTAT
 spacer length: 44 repeater length: 25
 23500 1359263 GAATCATAACAAATAGAACTGAAAG AGTCATACGACGACTACGCACGCTTCCGAGACGCCGTTGACGCTGCAA
 spacer length: 48 repeater length: 25
 23501 1359336 GAATCATAACAAATAGAACTGAAAG CACCGGGTCCTAGCTCCAGGCATCGCTGGTAGTTGAGCCA spacer
 length: 40 repeater length: 25
 23502 1359401 GAATCATAACAAATAGAACTGAAAG ACTCTGAAAGGCATGTTTTTACACCCCCTCCATGCGGAAGCCTAGA
 spacer length: 46 repeater length: 25
 23503 1359472 GAATCATAACAAATAGAACTGAAAG TTGGAATCCTTACAGCCATACATAAAATCACACCGCTA spacer
 length: 38 repeater length: 25
 23504 1359535 GAATCATAACAAATAGAACTGAAAG CTCACAGCCTTCCTCGCTGCCTCCGCCTCTCCACCGAGCTTCTC
 spacer length: 44 repeater length: 25
 23505 1359604 GAATCATAACAAATAGAACTGAAAG GTCTACAGCAAAGATACTCCAGCTAGACAACAACGGAGA spacer
 length: 39 repeater length: 25
 23506 1359668 GAATCATAACAAATAGAACTGAAAG GCGGTACTTGGGGGTGGCACCACGACCCGGTACCAGAGGCCCC
 spacer length: 44 repeater length: 25
 23507 1359737 GAATCATAACAAATAGAACTGAAAG ACTCCGTTGAAGCGCTTCCTCACCCACTCCCTAAGACTCGACGT
 spacer length: 44 repeater length: 25
 23508 1359806 GAATCATAACAAATAGAACTGAAAG TCTCCTCCC
 23509
 23510
 23511 GCA_001433455.1_ASM143345v1_genomic.fna (PilerCR):
 23512 START REPEAT
 SPACER
 23513 crispr 1
 23514 624037 TTTCAATTCTCTTGAGTCTTATTGGAA CTTGAACAATAGCTCATTGTCTTTTTCAATATCTTCAATGA spacer
 length: 41 repeater length: 28
 23515 624106 TTTCAATTCTCTTGAGTCTTATTGGAA CTTTCTAAAGATTGATCACATACCAGACCAAACAGTAAGC spacer
 length: 40 repeater length: 28
 23516 624174 TTTCAATTCTCTTGAGTCTTATTGGAA TCGCACAAGCGCATATGTAATTACTCGATTACACAC spacer
 length: 36 repeater length: 28
 23517 624238 TTTCAATTCTCTTGAGTCTTATTGGAA GCTTCCGTTTTGTTCAGCGGCTAATGTGCCTTCATGTGC spacer
 length: 39 repeater length: 28
 23518 624305 TTTCAATTCTCTTGAGTCTTATTGGAA CGAGCCCGCCAAGAGGAGAAAGATTAGGAAGAGGGAAGC spacer
 length: 39 repeater length: 28
 23519 624372 TTTCAATTCTCTTGAGTCTTATTGGAA AGGACAAAGCCGTAAACGTCTATGACATGCTCCAAGGC spacer
 length: 38 repeater length: 28
 23520 624438 TTTCAATTCTCTTGAGTCTTATTGGAA GCTGCTGAGGGACTGCAGGTATCAAAAAGCACTCATGTGC spacer
 length: 40 repeater length: 28
 23521 624506 TTTCAATTCTCTTGAGTCTTATTGGAA AATGCAATTCAGAACCCAGCAAATTCGACATATATGTGC spacer
 length: 39 repeater length: 28
 23522 624573 TTTCAATTCTCTTGAGTCTTATTGGAA GAATCCAGCAAGAATAAACAGTGCTATCGACGGCGCAGC spacer
 length: 39 repeater length: 28
 23523 624640 TTTCAATTCTCTTGAGTCTTATTGGAA TGGCCGAATA
 23524
 23525
 23526 crispr 2
 23527 682446 CTTTCAATTCTCTTGAGTCTTATTGGAA CAATGAGCCAAGAAGAAAGACAAAAAGCCACAGAAAAG spacer
 length: 38 repeater length: 29

23528 682513 CTTTCAATTCTCTTGGAGTCTTATTGGAA CTTGAGGACTATGCAGCGCTTATATTCGATAGGAAAGGT spacer
 length: 39 repeater length: 29
 23529 682581 CTTTCAATTCTCTTGGAGTCTTATTGGAA GCTTATCTTGCTGTGAAAAGTGGGTTGTGAACAAT spacer
 length: 36 repeater length: 29
 23530 682646 CTTTCAATTCTCTTGGAGTCTTATTGGAA AATCAGCTCGCTCTTTCTGACTTTCTGAGCGATTAA spacer
 length: 37 repeater length: 29
 23531 682712 CTTTCAATTCTCTTGGAGTCTTATTGGAA ATTAAGCTTGACGTTGAGGCGCTTCCGCCGAAAGAGT spacer
 length: 37 repeater length: 29
 23532 682778 CTTTCAATTCTCTTGGAGTCTTATTGGAA ATTCCCTTTTTTAATTTTGAATTTTACGTATATGCT spacer
 length: 37 repeater length: 29
 23533 682844 CTTTCAATTCTCTTGGAGTCTTATTGGAA TTCCAAAGCATGTTGGTAGGCTTATCAGTAAGATTAG spacer
 length: 37 repeater length: 29
 23534 682910 CTTTCAATTCTCTTGGAGTCTTATTGGAA CATGTTCCCTACCCAACAAAAGCCCTTTTTCATAGTG spacer
 length: 37 repeater length: 29
 23535 682976 CTTTCAATTCTCTTGGAGTCTTATTGGAA TCCCCAAAGCCGCAAGTATCCCATACAGAATTGATG spacer
 length: 36 repeater length: 29
 23536 683041 CTTTCAATTCTCTTGGAGTCTTATTGGAA TTCTCATAAACGGTTTTCTCCGTTAGGTTGAAGTCCAC spacer
 length: 38 repeater length: 29
 23537 683108 CTTTCAATTCTCTTGGAGTCTTATTGGAA GGTTCTGTTCCA
 23538
 23539
 23540 crispr 3
 23541 1301657 GTTCCAATAAGACTCTAAGAGAATTGAAAT AACAATTCAAACAGCAAAGAACGCTACGCAGGTGGTGA spacer
 length: 38 repeater length: 30
 23542 1301725 GTTCCAATAAGACTCTAAGAGAATTGAAAT TATAAATAAGTGAGGGTCCAGGCTTAGCAATCACATGAAAA
 spacer length: 41 repeater length: 30
 23543 1301796 GTTCCAATAAGACTCTAAGAGAATTGAAAT GTGAACGTTGTATCATCAATTGAGAAGCCTGAGCC spacer
 length: 35 repeater length: 30
 23544 1301861 GTTCCAATAAGACTCTAAGAGAATTGAAAT AGGGTATTGTCGGGAAGATGGGGGCGATGTTTCAGCC spacer
 length: 36 repeater length: 30
 23545 1301927 GTTCCAATAAGACTCTAAGAGAATTGAAAT ATTGGGTTGAATGAACCAGTTCTGTTCTGTTGGGACGTGG
 spacer length: 39 repeater length: 30
 23546 1301996 GTTCCAATAAGACTCTAAGAGAATTGAAAT AGCTCAAGAGGGGGTGTATCTGATGGGATTAACAAA spacer
 length: 37 repeater length: 30
 23547 1302063 GTTCCAATAAGACTCTAAGAGAATTGAAAT CAAGTTTTGTAGCTCCTGCTCCTGCTTAATGCCTAACTT
 spacer length: 39 repeater length: 30
 23548 1302132 GTTCCAATAAGACTCTAAGAGAATTGAAAT TAATACATCTTTATTGTAGTTTGTGAAGTTCCAGGAA spacer
 length: 37 repeater length: 30
 23549 1302199 GTTCCAATAAGACTCTAAGAGAATTGAAAT CTGGCTCCTTGTTCGAATAGAGCCAAGCCGCTCCTGCAA
 spacer length: 39 repeater length: 30
 23550 1302268 GTTCCAATAAGACTCTAAGAGAATTGAAAT GAGTTTTGCATTACACTCACTTCTACAGCGAGGAGT spacer
 length: 37 repeater length: 30
 23551 1302335 GTTCCAATAAGACTCTAAGAGAATTGAAAT GTGCTGTGTTGGTAAATCCAAGCTTTACTTCGCCCT spacer
 length: 36 repeater length: 30
 23552 1302401 GTTCCAATAAGACTCTAAGAGAATTGAAAT CAAAGACCTCCTCGGGTGTGCGAGTATCCCCGTTTAT spacer
 length: 37 repeater length: 30
 23553 1302468 GTTCCAATAAGACTCTAAGAGAATTGAAAT AGGCTTATGAGGTTCTACAAGGAATTAAGGGAGATTGA spacer
 length: 38 repeater length: 30
 23554 1302536 GTTCCAATAAGACTCTAAGAGAATTGAAAT CGAGGATCACTATCTAAAAGCTCGGTGCTCAGATTG spacer
 length: 36 repeater length: 30
 23555 1302602 GTTCCAATAAGACTCTAAGAGAATTGAAAT GAGATTAAGGAGATTTTGGAAAGAACACAAGACTGGGATCCAGA
 spacer length: 44 repeater length: 30
 23556 1302676 GTTCCAATAAGACTCTAAGAGAATTGAAAT ATTTCAAAGCTCTTTGCTTCCATTCTTCTTTCCCTC spacer
 length: 38 repeater length: 30
 23557 1302744 GTTCCAATAAGACTCTAAGAGAATTGAAAT
 GTCGTGTTTGTCTCACGAAAAAGAACCGCAGCCTCGTAGTAGGAGG spacer length: 47 repeater length: 30
 23558 1302821 GTTCCAATAAGACTCTAAGAGAATTGAAAT AAGAAAAGCCCAAAGAATTATTGCCCGTAGAACAGAG spacer
 length: 38 repeater length: 30
 23559 1302889 GTTCCAATAAGACTCTAAGAGAATTGAAAT GAGGAAGAAGAGAAAAGTAAAGAAGAAAAACCGCCAGAGACAG
 spacer length: 43 repeater length: 30
 23560 1302962 GTTCCAATAAGACTCTAAGAGAATTGAAAT AGCTTGCGGGCTTTTCTTGCAACATCAACAATACGCTT spacer
 length: 38 repeater length: 30
 23561 1303030 GTTCCAATAAGACTCTAAGAGAATTGAAAT ATGAAAATTGCTTTGTAAATCAGCCGTTGGAGGGAATA spacer
 length: 38 repeater length: 30
 23562 1303098 GTTCCAATAAGACTCTAAGAGAATTGAAAT CGATTACTATCACGAGCTGATGATGCAATACGAAGAC spacer
 length: 37 repeater length: 30
 23563 1303165 GTTCCAATAAGACTCTAAGAGAATTGAAAT TTTCAGTCATTATGAGGACTTCCTTGAGTGGGCGCTCG spacer
 length: 38 repeater length: 30
 23564 1303233 GTTCCAATAAGACTCTAAGAGAATTGAAAT AGAGTCTCAAAGAACATCTCAAATGCTGAATTATATGA spacer
 length: 38 repeater length: 30
 23565 1303301 GTTCCAATAAGACTCTAAGAGAATTGAAAT CTCTTATCACCGTTGTAGTGCTCCAAAATCTCTTCCCA

spacer length: 39 repeater length: 30
 23566 1303370 GTTCCAATAAGACTCTAAGAGAATTGAAAT CTTGAACAA
 23567
 23568
 23569 crispr 4
 23570 1545342 GTTCCAATAAGACTCTAAGAGAATTGAAAG GTTTAACATGCTGCTCTTTTCGCTCCGTACTTTTCAA spacer
 length: 36 repeater length: 30
 23571 1545408 GTTCCAATAAGACTCTAAGAGAATTGAAAG TTATACTCATCTCCAAAGACATTGTAATTTTCACCA spacer
 length: 37 repeater length: 30
 23572 1545475 GTTCCAATAAGACTCTAAGAGAATTGAAAG GTATGTCTCCTTTTCGCCGTTTCTACGTTTCCACCAC spacer
 length: 37 repeater length: 30
 23573 1545542 GTTCCAATAAGACTCTAAGAGAATTGAAAG ACGACAATCAGCTTTTACGATGAGAATAATACTTTGCT spacer
 length: 38 repeater length: 30
 23574 1545610 GTTCCAATAAGACTCTAAGAGAATTGAAAG AGGTAAGTATAATATAGTAGTATTGCAAATTATTAC spacer
 length: 36 repeater length: 30
 23575 1545676 GTTCCAATAAGACTCTAAGAGAATTGAAAG GATGTGTTACGCGTACTCCTCACCCGCGGGGCTGTCAAG
 spacer length: 39 repeater length: 30
 23576 1545745 GTTCCAATAAGACTCTAAGAGAATTGAAAG TCTGCAAGTTTTAAACCAGTATGCCAGCCTAAGCCTTCAA
 spacer length: 40 repeater length: 30
 23577 1545815 GTTCCAATAAGACTCTAAGAGAATTGAAAG TGAAGTGGGGGAGCTATTGAACAAATTGGATTTAG spacer
 length: 35 repeater length: 30
 23578 1545880 GTTCCAATAAGACTCTAAGAGAATTGAAAG GAGGAATCGTCGGAAGATGGGGGCGATGTTTCAGCCAC spacer
 length: 38 repeater length: 30
 23579 1545948 GTTCCAATAAGACTCTAAGAGAATTGAAAG GATCCGGACGAGGCTTTTTTCGATAGAAACAGATCACGA spacer
 length: 38 repeater length: 30
 23580 1546016 GTTCCAATAAGACTCTAAGAGAATTGAAAG AGCTTTTGCATGACTTTCAAGACAATCCTGTACCCCAA spacer
 length: 38 repeater length: 30
 23581 1546084 GTTCCAATAAGACTCTAAGAGAATTGAAAG CAAGGCTATGAATTGAGAGAGGCAAATGTCAGAGATCT spacer
 length: 38 repeater length: 30
 23582 1546152 GTTCCAATAAGACTCTAAGAGAATTGAAAG GCGGTGGCATTCTGTATAGGAGCAACGCAGGGGTGAG spacer
 length: 37 repeater length: 30
 23583 1546219 GTTCCAATAAGACTCTAAGAGAATTGAAAG CTTCCAAGAGAGTTCTTTGAGAGCTTGCGTGAGAA spacer
 length: 35 repeater length: 30
 23584 1546284 GTTCCAATAAGACTCTAAGAGAATTGAAAG AACGGTTATATGCGGAGTCAAACACTTCGAGAACTTT spacer
 length: 38 repeater length: 30
 23585 1546352 GTTCCAATAAGACTCTAAGAGAATTGAAAG GGATTTTATGAAACTCTCGTGAAAATCCACGAGAGCC spacer
 length: 37 repeater length: 30
 23586 1546419 GTTCCAATAAGACTCTAAGAGAATTGAAAG AGGCTCGAATCAATGGGGCTTGTTTCTACGCATGTAA spacer
 length: 37 repeater length: 30
 23587 1546486 GTTCCAATAAGACTCTAAGAGAATTGAAAG ACTTGAGCCAGAACGACACGGAACCTTGAGAGAGAGT spacer
 length: 37 repeater length: 30
 23588 1546553 GTTCCAATAAGACTCTAAGAGAATTGAAAG TGAGCTATTGGCTTAGTTGAATCATCGCCGTAAATCT spacer
 length: 37 repeater length: 30
 23589 1546620 GTTCCAATAAGACTCTAAGAGAATTGAAAG CGATTTTCGTA
 23590
 23591
 23592 crispr 5
 23593 1546688 GTTCCAATAAGACTCTAAGAGAATTGAAAG
 GTCGAATCCGTTGTTACCCCAACATCAACCGTAAAAATGTTCCAATAAGA spacer length: 49 repeater length:
 30
 23594 1546767 GTTCCAATAAGACTCTAAGAGAATTGAAAG AACATCACGGCCACCTCGGCTTGGGCTTTGCTGTTCTCG
 spacer length: 39 repeater length: 30
 23595 1546836 GTTCCAATAAGACTCTAAGAGAATTGAAAG CGTTATTTTGTGAAAATTCAGGGCGGGAGAGCTTAAAG spacer
 length: 38 repeater length: 30
 23596 1546904 GTTCCAATAAGACTCTAAGAGAATTGAAAG GAAGAACGTCGGCACTCTTTCGTATTCTTCCAGTCCC spacer
 length: 38 repeater length: 30
 23597 1546972 GTTCCAATAAGACTCTAAGAGAATTGAAAG CCTATCCAC
 23598
 23599
 23600 crispr 6
 23601 1751605 CTTTCAATTCTCTTAGAGTCTTATTGGAAC AATTACGAACGGAGTTCTTTATGTTGGTGGTGTTCCTCAA spacer
 length: 38 repeater length: 30
 23602 1751673 CTTTCAATTCTCTTAGAGTCTTATTGGAAC ATGACGGCGGCGGGCATTTCACCCACCTATGTTAAG spacer
 length: 37 repeater length: 30
 23603 1751740 CTTTCAATTCTCTTAGAGTCTTATTGGAAC CCAGTACAGCGTGGGACAGCTTCGGGTAATCCACTTG spacer
 length: 37 repeater length: 30
 23604 1751807 CTTTCAATTCTCTTAGAGTCTTATTGGAAC TTGAAAATAGAGTAAAGGAAATATTAGACGAACTGAAAAAGAG
 spacer length: 43 repeater length: 30
 23605 1751880 CTTTCAATTCTCTTAGAGTCTTATTGGAAC AAAAGTAACTGAGGATGAAGCATTGCGTTGTCTTCT spacer
 length: 36 repeater length: 30
 23606 1751946 CTTTCAATTCTCTTAGAGTCTTATTGGAAC TCTTATTGGTGTGACAGTCAAATGGCTTGTTCTCGAAA spacer

length: 38 repeater length: 30
23607 1752014 CTTTCAATTCTCTTAGAGTCTTATTGGAAC TTGGTGCTGACATATTAGCATTAACGCAAAAGTAGCA spacer
length: 38 repeater length: 30
23608 1752082 CTTTCAATTCTCTTAGAGTCTTATTGGAAC GCCAAAGCCCGCAGAAGTGAAGAAGAAGAGAAAGAAGA spacer
length: 38 repeater length: 30
23609 1752150 CTTTCAATTCTCTTAGAGTCTTATTGGAAC
23610
23611
23612 crispr 7
23613 2052073 GTTTCAGAAGCTCATAGTTGAATGGAAAC TAGTACATAGTTGAGGAACAGAATAGCGGAATAGTAATCATG
spacer length: 42 repeater length: 29
23614 2052144 GTTTCAGAAGCTCATAGTTGAATGGAAAC AGCAGCAATGCACTCTGGCATATCATTCTGAAGATGCCCT spacer
length: 39 repeater length: 29
23615 2052212 GTTTCAGAAGCTCATAGTTGAATGGAAAC TCCTAAATGTTTTAAACATTTATTAGCCGTGTCTTCTCT
spacer length: 40 repeater length: 29
23616 2052281 GTTTCAGAAGCTCATAGTTGAATGGAAAC TAGTGCTGCTGTTATTCCGTGGCCTGTTCCAACATCCCAAACA
spacer length: 43 repeater length: 29
23617 2052353 GTTTCAGAAGCTCATAGTTGAATGGAAAC TACTGTAAACTGTTTTTAGTGTTATAAAAAGTTCTTTTCC
spacer length: 40 repeater length: 29
23618 2052422 GTTTCAGAAGCTCATAGTTGAATGGAAAC
23619
23620
23621 crispr 8
23622 2063197 GTTTCAGAAGCTCATAGTTGAATGGAAAC AATGTTTCGAGCAGCTCTTTAACTGTTATTCTTTCAAATA
spacer length: 40 repeater length: 29
23623 2063266 GTTTCAGAAGCTCATAGTTGAATGGAAAC TAAATGATTCCAGCTCTTCCTTAGTGACTATTGCTATT spacer
length: 38 repeater length: 29
23624 2063333 GTTTCAGAAGCTCATAGTTGAATGGAAAC TTCTTTCAACCACTTGTTTATTTCTTCTAAACTAAC spacer
length: 36 repeater length: 29
23625 2063398 GTTTCAGAAGCTCATAGTTGAATGGAAAC
CGAAGTCAAAGAGTTTCATTGCATCCGAAACGTTTGGGGTTAAAGCAG spacer length: 47 repeater length: 29
23626 2063474 GTTTCAGAAGCTCATAGTTGAATGGAAAC GTCTCAATGTAGTTGTCAAAGTCGAATACTGCATTTAT spacer
length: 38 repeater length: 29
23627 2063541 GTTTCAGAAGCTCATAGTTGAATGGAAAC CCAAATCAACGTTACAGAATACAACAGCGAGGAAGTCGG spacer
length: 39 repeater length: 29
23628 2063609 GTTTCAGAAGCTCATAGTTGAATGGAAAC TTTCAAGTGCTTTATTCATTTTCTCATCACTACTGAACACAA
spacer length: 42 repeater length: 29
23629 2063680 GTTTCAGAAGCTCATAGTTGAATGGAAAC GTTAAATCCTCTGAGGTCGTCCAATTTTGGTTCTCCTCAG
spacer length: 40 repeater length: 29
23630 2063749 GTTTCAGAAGCTCATAGTTGAATGGAAAC
23631
23632
23633 GCA_001458655.1_Mb9_genomic.fna (PilerCR):
23634 START REPEAT
SPACER
23635 crispr 1
23636 465036 GTTTCATCCTAAAAATAGTCTGATTTTAGC AGGCCTTAGAGTCCGCTCAGAAAATCAGCAAAACAG spacer
length: 36 repeater length: 30
23637 465102 GTTTCATCCTAAAAATAGTCTGATTTTAGC TTGTATAAATCATCAGCTGTTACATACTGATGTGA spacer
length: 35 repeater length: 30
23638 465167 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCCATATTAAATAGGGCCTGTGTCATGTTCAATTTCA spacer
length: 36 repeater length: 30
23639 465233 GTTTCATCCTAAAAATAGTCTGATTTTAGC AGTTATTATTTACAGTCTGCTGATCCAACCTCCTTGGA spacer
length: 38 repeater length: 30
23640 465301 GTTTCATCCTAAAAATAGTCTGATTTTAGC GAAAGGTACCTCATGTTTGCAGACACCTCAATCACC spacer
length: 36 repeater length: 30
23641 465367 GTTTCATCCTAAAAATAGTCTGATTTTAGC TGGAGATAAAGCGTTACTTAAAGCCGCTAAAATCCA spacer
length: 36 repeater length: 30
23642 465433 GTTTCATCCTAAAAATAGTCTGATTTTAGC CATCCATCCATTTCGTTGAAGCCTTTCTGTTTATGTAA spacer
length: 37 repeater length: 30
23643 465500 GTTTCATCCTAAAAATAGTCTGATTTTAGC CATTCCGATTCAATGCTATTTACCAGGGCGAGCCAC spacer
length: 36 repeater length: 30
23644 465566 GTTTCATCCTAAAAATAGTCTGATTTTAGC TTTGTTTTTGCCTGTGTAAGTCAAGTAGATGAGTGC spacer
length: 36 repeater length: 30
23645 465632 GTTTCATCCTAAAAATAGTCTGATTTTAGC TTTGCACGTAATAAGATTTAATAGTGTATTTACTCC spacer
length: 36 repeater length: 30
23646 465698 GTTTCATCCTAAAAATAGTCTGATTTTAGC TGGTACTATCACCTCTTCAGCTGACCAGGCCAGTGT spacer
length: 36 repeater length: 30
23647 465764 GTTTCATCCTAAAAATAGTCTGATTTTAGC GTTAAATGAACCCAACTGTATAGTACTGATTCCTC spacer
length: 35 repeater length: 30
23648 465829 GTTTCATCCTAAAAATAGTCTGATTTTAGC GCCCGTAAAGGTATAAGAACTTACAGGGGCTGTAC spacer

length: 35 repeater length: 30
23649 465894 GTTTCATCCTAAAAATAGTCTGATTTTAGC GGGGCCGTACC
23650
23651
23652 crispr 2
23653 466030 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGAAACTTCGCAACAGAAATACAAAGAATCGAAAAA spacer
length: 36 repeater length: 30
23654 466096 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCTGTTGTGTAACACTGCCTTTAACAAACCAGTTTGC spacer
length: 37 repeater length: 30
23655 466163 GTTTCATCCTAAAAATAGTCTGATTTTAGC GAATATAATCTACTTTAGAGTTCAAGTCGTCAAATAA spacer
length: 37 repeater length: 30
23656 466230 GTTTCATCCTAAAAATAGTCTGATTTTAGC AAATTTAAAGTAACAGGCGATATACATCCCGAACTC spacer
length: 36 repeater length: 30
23657 466296 GTTTCATCCTAAAAATAGTCTGATTTTAGC GAGTTATTGAAATTTGCAGATGAACACTTACATGAC spacer
length: 36 repeater length: 30
23658 466362 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTTAGTTGAAGGGCCATTCTGGATTATCCATATCACC spacer
length: 37 repeater length: 30
23659 466429 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTTTTTTTAGGAGGTAAATATTATGGCATTACCTGAA spacer
length: 36 repeater length: 30
23660 466495 GTTTCATCCTAAAAATAGTCTGATTTTAGC TCCCCTTAACCTTATCAGCAGACATTCTAAGAAGGT spacer
length: 35 repeater length: 30
23661 466560 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTATGCCCTGGCAGAAACAGATCCATATTATTTAGA spacer
length: 36 repeater length: 30
23662 466626 GTTTCATCCTAAAAATAGTCTGATTTTAGC TATAATCAGTATACTCGATATAATTCAACAGATACA spacer
length: 36 repeater length: 30
23663 466692 GTTTCATCCTAAAAATAGTCTGATTTTAGC TCCACACCAGAGATAACATGACCCATCATAGTCTTAC spacer
length: 37 repeater length: 30
23664 466759 GTTTCATCCTAAAAATAGTCTGATTTTAGC TATCAAATTCAATAGATTTAAACCAATACAAATAAAA spacer
length: 37 repeater length: 30
23665 466826 GTTTCATCCTAAAAATAGTCTGATTTTAGC TTTAAAGCCTCCTTAGTTTCCGGGACCTGGGCATATT spacer
length: 37 repeater length: 30
23666 466893 GTTTCATCCTAAAAATAGTCTGATTTTAGC CACTGGCCATGTATTTAAACAAAGAAGGTTATCCT spacer
length: 36 repeater length: 30
23667 466959 GTTTCATCCTAAAAATAGTCTGATTTTAGC TGTTGAACCTCTGGGCTGTCAAATAAGCGTCTCTTTT spacer
length: 38 repeater length: 30
23668 467027 GTTTCATCCTAAAAATAGTCTGATTTTAGC ACTGACCTTCCTGTACATTGTCTGGGTTCTGTCTGGTTC spacer
length: 37 repeater length: 30
23669 467094 GTTTCATCCTAAAAATAGTCTGATTTTAGC TTAAGCTCTTGAATTATTAAGTCAATTAGGCCCCCCTTT spacer
length: 38 repeater length: 30
23670 467162 GTTTCATCCTAAAAATAGTCTGATTTTAGC TCAGTCATTTCCGTGCCACCTCTTCATGCCACATT spacer
length: 36 repeater length: 30
23671 467228 GTTTCATCCTAAAAATAGTCTGATTTTAGC ATTAACCCACGAAACCAAAGAGTGGCCCCAATGGG spacer
length: 35 repeater length: 30
23672 467293 GTTTCATCCTAAAAATAGTCTGATTTTAGC CATCCATTATGGTTTGGGGTTATCATCTGTTTCAA spacer
length: 36 repeater length: 30
23673 467359 GTTTCATCCTAAAAATAGTCTGATTTTAGC CACAGAACCCTCCTCCTTTATAATGTCATCTTTGCCC spacer
length: 37 repeater length: 30
23674 467426 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTTGGACGGAGTTTTATATCCTGAATTAAGAAATGAA spacer
length: 37 repeater length: 30
23675 467493 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCCAGATGAACCTTTCTATTTGTACCTAACTAACACC spacer
length: 37 repeater length: 30
23676 467560 GTTTCATCCTAAAAATAGTCTGATTTTAGC ATCTTCAGTT
23677
23678
23679 crispr 3
23680 467693 GTTTCATCCTAAAAATAGTCTGATTTTAGC CATCAAGAGGGGATGCCTATTGAAATTTCAAAGATTA spacer
length: 37 repeater length: 30
23681 467760 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCCAGCCCTCCACGAAAACATGGTTTTTCTTTCTAT spacer
length: 37 repeater length: 30
23682 467827 GTTTCATCCTAAAAATAGTCTGATTTTAGC CACAGATTTCAAGATACCCTTAGCTTCGCTTATCTTC spacer
length: 37 repeater length: 30
23683 467894 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCCGCAATCAAATCTATGAATAATTACTTTAATCTGATTGAT
spacer length: 42 repeater length: 30
23684 467966 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCTGTTAAACTGGTTGCAGGTATTTTGTTTGATTTTA spacer
length: 37 repeater length: 30
23685 468033 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTTTTCTTGCGTACGTAGAAGCGTTCCTGTAAATTTG spacer
length: 37 repeater length: 30
23686 468100 GTTTCATCCTAAAAATAGTCTGATTTTAGC CAAAAATCAACCTTTTTTAATTTTTTAACTAACAAT spacer
length: 37 repeater length: 30
23687 468167 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTGATAAAGATGTCTAAACTGTTTTTGACTCGGAAC spacer
length: 37 repeater length: 30

23688	468234	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CAGGAGTCATGAAGGGCCTAGATGAAACGGGTAAGTT	spacer
		length: 37	repeater length: 30	
23689	468301	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CGTTCTACCACCAGATGTAACCATCATATGCCATTTTC	spacer
		length: 37	repeater length: 30	
23690	468368	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	TTTAATGTGGGACTATTATAGTTTTTTTTTTATTTTGT	spacer
		length: 37	repeater length: 30	
23691	468435	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CAAAAAACATCTTGCATACTAATATCAGAACCAGCACT	spacer
		length: 38	repeater length: 30	
23692	468503	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CAAAAAAAGTGGGGAACATACCCAATTAAAAATAT	spacer
		length: 36	repeater length: 30	
23693	468569	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CCATGAACACCTCCCTTTCAATCTCCTTTAATTCTGC	spacer
		length: 37	repeater length: 30	
23694	468636	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTATTGGAACATCCTTGAAAAGGTCATCCAATACCG	spacer
		length: 37	repeater length: 30	
23695	468703	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CATAATAAAAAAAGAATAAAAGGGTAAAAATAGT	spacer
		length: 37	repeater length: 30	
23696	468770	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CGATTTTAAGATTTCTAATTTTGAGAATTTGAATTT	spacer
		length: 36	repeater length: 30	
23697	468836	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CTTCCTTAAAGGAGGTAATCTTCCCAAATTCACCCTTTT	spacer
		length: 39	repeater length: 30	
23698	468905	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	AAATTGGAACCGGCGATTACTTCCACTTCAAATCCAA	spacer
		length: 37	repeater length: 30	
23699	468972	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CGAAAATAGAAGAATCACCCCGCACGATCCCTTTAAA	spacer
		length: 37	repeater length: 30	
23700	469039	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CACCGTTTACCCGCTAAAATGTTAAGGGTGCATTAC	spacer
		length: 37	repeater length: 30	
23701	469106	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTATGGTCACTACAAATAAAATTATAAACATTGTTG	spacer
		length: 37	repeater length: 30	
23702	469173	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTGGAACAGCTTCATGGATTATGTTTTCAACATC	spacer
		length: 35	repeater length: 30	
23703	469238	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CTCTCTGCATTCTTCACCACAGTAGGTAGAACCAGTA	spacer
		length: 37	repeater length: 30	
23704	469305	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CTAATCAACTCGTTATCTGTTTTAAGGTCAAACCTA	spacer
		length: 37	repeater length: 30	
23705	469372	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CTGAACTAATTTGCACCAATCTTAACTGTGAACATAA	spacer
		length: 37	repeater length: 30	
23706	469439	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CATTAAGGGGTCCAAATTCACAAGTTTCACTTACATGA	spacer
		length: 38	repeater length: 30	
23707	469507	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CTATTCAAAGAAAAACGCAAATTAAAGAAACAACTCA	spacer
		length: 37	repeater length: 30	
23708	469574	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CAAGAATACCTTTCAATACCTCTTTAGAATTCTTCTC	spacer
		length: 37	repeater length: 30	
23709	469641	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CTGAACTAATATGCACTAATCATAACTGTGAAGGCAA	spacer
		length: 37	repeater length: 30	
23710	469708	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CTCTATATCCTGTTTGAGTGTTGCCATGCCTTTTTTA	spacer
		length: 37	repeater length: 30	
23711	469775	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CCCATCCTTAGTGATTAATCCATCATGTTGGATCTCA	spacer
		length: 37	repeater length: 30	
23712	469842	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTGAGAAGGCCAGTGATCCTAATGAGTTCTTGAATA	spacer
		length: 37	repeater length: 30	
23713	469909	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CTCTCACGAAACTAAAACTGTGCATGGATCCACTAG	spacer
		length: 37	repeater length: 30	
23714	469976	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTAATTTTCTCATAGCATTGTAGAGCTGATCATGAC	spacer
		length: 37	repeater length: 30	
23715	470043	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CACTGCATTAATGCCCAATATAAAGACACCTACCAAT	spacer
		length: 37	repeater length: 30	
23716	470110	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CTACTCTAACCGAACAAAGCATTTCAAGCCAAAATTA	spacer
		length: 37	repeater length: 30	
23717	470177	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CTTGTTTAGGGCCTCCTTATCTGATAATTTTTATCA	spacer
		length: 36	repeater length: 30	
23718	470243	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CATAGTCCCACATTAAACACCCATGACCTGGGAGAAGT	spacer
		length: 38	repeater length: 30	
23719	470311	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTGGTTCGAGTGCATAGCAGTTCGCATGTTGTGTTA	spacer
		length: 37	repeater length: 30	
23720	470378	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CCCCGCTGCAACTAAAATTAAACCTGTAGTTAGTCC	spacer
		length: 36	repeater length: 30	
23721	470444	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CTAACAATGTAAGTGATGTTGTAGAAGCAACATCAA	spacer
		length: 37	repeater length: 30	
23722	470511	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CCCGAAGGGAGGCGTACCTCTACGACTCTGAAGACAC	spacer
		length: 37	repeater length: 30	
23723	470578	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CCCGTTTAAACAAGTCTCTTTTACTGTTTATTCTGC	spacer

length: 36 repeater length: 30
23724 470644 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGTCAAAGAAATACGAAACTCACCAGTAGTCCTAAAC spacer
length: 37 repeater length: 30
23725 470711 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTGCTCTTCCGGACGTATGTGTCCTCGGAGATTTTC spacer
length: 36 repeater length: 30
23726 470777 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCTACTGCCAGAACAGTGTGGCCTTCGGACACACCA spacer
length: 36 repeater length: 30
23727 470843 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTGTGATTCTAAGTATTTCTTTTGGTTGCATTACTTC spacer
length: 37 repeater length: 30
23728 470910 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGCTTGTTTCATTTTCCATCATATCCCCCCTTAAGTT spacer
length: 37 repeater length: 30
23729 470977 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGCCCGGTACATGGTAACTTCAATGTTCAACTGTACC spacer
length: 37 repeater length: 30
23730 471044 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTCCACAGTCACATTTACGTCAACACATTCATCGTC spacer
length: 37 repeater length: 30
23731 471111 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGACGGTTACAAGTTAGACCGTGATACTTTACAATTCC spacer
length: 38 repeater length: 30
23732 471179 GTTTCATCCTAAAAATAGTCTGATTTTAGC CAACTTTATAGTTTCCCCATTGAAATTACTTTTAAGA spacer
length: 37 repeater length: 30
23733 471246 GTTTCATCCTAAAAATAGTCTGATTTTAGC AAGACCATAAATTTACCAGTTTCACATCTGATTAAT spacer
length: 36 repeater length: 30
23734 471312 GTTTCATCCTAAAAATAGTCTGATTTTAGC GACAAAGCAAAAAAGCCACAAAAGAATGACAACCCC spacer
length: 36 repeater length: 30
23735 471378 GTTTCATCCTAAAAATAGTCTGATTTTAGC CATAAGAAAAAGATATAAAACACTGAGACTAAAAAGG spacer
length: 37 repeater length: 30
23736 471445 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTCTACCTCGACAGCCACCCACCCCTAACCAATTCTG spacer
length: 37 repeater length: 30
23737 471512 GTTTCATCCTAAAAATAGTCTGATTTTAGC CAAACTAGCTGACTAATCACAGATTCTATCATTTCC spacer
length: 37 repeater length: 30
23738 471579 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTGTCCTCACTGCCATCACATAAATTGTCTAGAGGT spacer
length: 36 repeater length: 30
23739 471645 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCAGCTTCTAAAAGCATGAATCCTTTATTAGATTACT spacer
length: 37 repeater length: 30
23740 471712 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTAAGGTTAGGGTCCTTCCATTCCCTCCCTGGATGGTA spacer
length: 37 repeater length: 30
23741 471779 GTTTCATCCTAAAAATAGTCTGATTTTAGC CATCTCTGTCCGACCAAGACAAACCCCTTCAGCTCCA spacer
length: 37 repeater length: 30
23742 471846 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTATTACCCTGGATGAAATTCTTCAGAGCGTGGCTGG spacer
length: 37 repeater length: 30
23743 471913 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTCGTATCGATGCTGTTGAAGCAGGTACTGTTGCTGA spacer
length: 37 repeater length: 30
23744 471980 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCAAAGTAAGGGAAGCACACCCAAGACTGTGAATGT spacer
length: 36 repeater length: 30
23745 472046 GTTTCATCCTAAAAATAGTCTGATTTTAGC CAGACTATGAAACCACACCGGAAGCAATAGCAACAAT spacer
length: 37 repeater length: 30
23746 472113 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGAATTGGAAACCTTAGAAGGTTTATTGTCTTTTATG spacer
length: 37 repeater length: 30
23747 472180 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCTGGGGGTCTTTTAGTTGTTTTATATATTCTCCGT spacer
length: 36 repeater length: 30
23748 472246 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGTATAATGACTTTACATGAGAGAGTTGATGAAATTA spacer
length: 37 repeater length: 30
23749 472313 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGAAATATCTCACCATCTACAGTACGTATGTATAAGT spacer
length: 37 repeater length: 30
23750 472380 GTTTCATCCTAAAAATAGTCTGATTTTAGC ATATTACTGTAGAATACGATTATACTAAATATACAC spacer
length: 36 repeater length: 30
23751 472446 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTCTATATGTTCCGCCGGTCCGCCCATGATACTGTA spacer
length: 37 repeater length: 30
23752 472513 GTTTCATCCTAAAAATAGTCTGATTTTAGC CAAATATGAATTATCATATTCTTTTAATAATAAATCT spacer
length: 37 repeater length: 30
23753 472580 GTTTCATCCTAAAAATAGTCTGATTTTAGC CAGGAAAAAGGATATGATCTAGATTGTAATGAATT spacer
length: 35 repeater length: 30
23754 472645 GTTTCATCCTAAAAATAGTCTGATTTTAGC CAATAGAACCTGACTGGGCGTTTATTTCGCTTTTCGTAT spacer
length: 38 repeater length: 30
23755 472713 GTTTCATCCTAAAAATAGTCTGATTTTAGC CAGTCCGTCAAGCTCATTTTCGTAGCTGAAATTTACTA spacer
length: 37 repeater length: 30
23756 472780 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGCTAAGAAAGTATTAGATGCGTTAAATTCAAAAGAGG spacer
length: 38 repeater length: 30
23757 472848 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTTCAAAGAGAATACCCAGGGATTTCGTATACACCTA spacer
length: 36 repeater length: 30
23758 472914 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCTGCCTGTTCCACCAGATACTTTAATCTTTTCTTCAA spacer
length: 37 repeater length: 30

23759 472981 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTTACATGACCATTTGAATGATTGGCAAGAAGCAC spacer
length: 35 repeater length: 30

23760 473046 GTTTCATCCTAAAAATAGTCTGATTTTAGC CAAATATAAACCCAAAAGATGTATCATTTTATATCTGC spacer
length: 37 repeater length: 30

23761 473113 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCAGTCTGCGCCCTACGGAACATAGCTGCTTCAGTGA spacer
length: 37 repeater length: 30

23762 473180 GTTTCATCCTAAAAATAGTCTGATTTTAGC CACCTTCCATGACATAATCCGGAGAATTAAAGACTTC spacer
length: 37 repeater length: 30

23763 473247 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGGGATAGACCTGACTACCTCATAGACCCTAATATA spacer
length: 36 repeater length: 30

23764 473313 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGTTAATCCATTTATTCATTTTATCGCCTGCTAATAT spacer
length: 37 repeater length: 30

23765 473380 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTAAAACCCTTAAAGATGTGGCCGCATCACCATTTCAG spacer
length: 37 repeater length: 30

23766 473447 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCCATAGCGGTCTGCAAAGCGGTCTGCAATTTGTAA spacer
length: 36 repeater length: 30

23767 473513 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTTATTTTAAAAAATGGGTTTAGAAAAGAATCTCAT spacer
length: 37 repeater length: 30

23768 473580 GTTTCATCCTAAAAATAGTCTGATTTTAGC CATAGATAACAACAAATCATTAGAACAGAAAAAATTAT spacer
length: 37 repeater length: 30

23769 473647 GTTTCATCCTAAAAATAGTCTGATTTTAGC CATCTTGAGGGTGCAAACCTTAGAGGTGCAAATCTTG spacer
length: 37 repeater length: 30

23770 473714 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGAGGTATGGTAATATATCTGAAAGCAAATCAAAG spacer
length: 36 repeater length: 30

23771 473780 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTTCTTTTAGGGATGTGAGCATCTTTGGAGGGTATGG spacer
length: 37 repeater length: 30

23772 473847 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCTAAAAGGGCCCGTGAACATGTTAATGCACTGTTGC spacer
length: 37 repeater length: 30

23773 473914 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTAAACCTTAAATCTAAAGATGACAATGCACAGTTT spacer
length: 36 repeater length: 30

23774 473980 GTTTCATCCTAAAAATAGTCTGATTTTAGC AGGGCCCCCTCTCTCCCGGGAAAGTAATGTCTAAT spacer
length: 35 repeater length: 30

23775 474045 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGAGGAATACTGCGTATTGTTGCCATGACATATGTTT spacer
length: 37 repeater length: 30

23776 474112 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTCGGCACTGGTTTCCAGGATATTCTTCTTATTGAT spacer
length: 36 repeater length: 30

23777 474178 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGTGACTGTCCTTGATATCAACAGATAATTTCTCGA spacer
length: 36 repeater length: 30

23778 474244 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGTCCATCCATTTTTTTCGAATTTATTCAATTCTTCAA spacer
length: 37 repeater length: 30

23779 474311 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCAGAACTCCACGAACTAGCACACGTCAAAGCACCA spacer
length: 36 repeater length: 30

23780 474377 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTTAATGAAGTCTAAAACCTCATAAACATACTGAAGC spacer
length: 37 repeater length: 30

23781 474444 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGTAAACCGTAGCGTGTTGTAGTAATCCCCATCTTTTA spacer
length: 38 repeater length: 30

23782 474512 GTTTCATCCTAAAAATAGTCTGATTTTAGC CATGGAAGTCATCAAGACACCTAAAGGGAAAAGCTG spacer
length: 36 repeater length: 30

23783 474578 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTCATCTCAGTCATAAAATACCACCAACTAGTTAAA spacer
length: 36 repeater length: 30

23784 474644 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTGAGCATAGCAGGTTTACCAACGACTTCAGTGTAGG spacer
length: 37 repeater length: 30

23785 474711 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTTTCACTCCAATCCAACCGGTACCGGCTTTGTCTGG spacer
length: 36 repeater length: 30

23786 474777 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCTGTTAAACTCAAATCTGGAGAATTACAGTTACCTC spacer
length: 37 repeater length: 30

23787 474844 GTTTCATCCTAAAAATAGTCTGATTTTAGC CGCCCAGGTTTCCATTATAGAGGTACATGTAGCCATG spacer
length: 37 repeater length: 30

23788 474911 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTAGTATCTGCAACCCCATAAGGAGGTGATTTGGTA spacer
length: 36 repeater length: 30

23789 474977 GTTTCATCCTAAAAATAGTCTGATTTTAGC CATTACAGTATGACGTTTACACTTGGATTTTTGAAAA spacer
length: 37 repeater length: 30

23790 475044 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCTAAATCAAAGCAGCATCCTTACAATCTGAATTAAA spacer
length: 38 repeater length: 30

23791 475112 GTTTCATCCTAAAAATAGTCTGATTTTAGC CATATCTAAAAGAAAACCTCAATTAAATGCCACGGTG spacer
length: 37 repeater length: 30

23792 475179 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTAGAAACCAATATGTAGATAATTATCATAGTGTA spacer
length: 35 repeater length: 30

23793 475244 GTTTCATCCTAAAAATAGTCTGATTTTAGC CCTTGGCTCACCCGGTGGGAGCATGAAGGCCAGGTAA spacer
length: 37 repeater length: 30

23794 475311 GTTTCATCCTAAAAATAGTCTGATTTTAGC CTTTAACCACATTCATGGTGTGAGGTTGTTTTTCTTC spacer

length: 38 repeater length: 30
23795 475379 GTTTCATCCTAAAAAGTCTGATTTTAGC CCTATTTTCAGATGCCATTTTTTATTTTCCCCCTTTT spacer
length: 36 repeater length: 30
23796 475445 GTTTCATCCTAAAAAGTCTGATTTTAGC CTGAAGGATTTATGAAGGCAGAATCACCAATAAGTCA spacer
length: 37 repeater length: 30
23797 475512 GTTTCATCCTAAAAAGTCTGATTTTAGC CACGTCGAAGACTTGATCAATGAGAACATGGATGTTC spacer
length: 37 repeater length: 30
23798 475579 GTTTCATCCTAAAAAGTCTGATTTTAGC CAGCCTGGACCAGTTCGAGTCCTTGAACCCGAAACA spacer
length: 37 repeater length: 30
23799 475646 GTTTCATCCTAAAAAGTCTGATTTTAGC CATTTTTTACCGTAAAGATAAATTTCCGCTTTATCGA spacer
length: 37 repeater length: 30
23800 475713 GTTTCATCCTAAAAAGTCTGATTTTAGC CTTTTCTGCCAGACATCATCATCAGTGATTTTAACTG spacer
length: 37 repeater length: 30
23801 475780 GTTTCATCCTAAAAAGTCTGATTTTAGC CGACCACCAGTCTAAAAGGATATATCACCGGGAGTGT spacer
length: 37 repeater length: 30
23802 475847 GTTTCATCCTAAAAAGTCTGATTTTAGC CTCGTGTTTCCTCATCCGTCCATTTTCCCTTAAACGT spacer
length: 37 repeater length: 30
23803 475914 GTTTCATCCTAAAAAGTCTGATTTTAGC CTAAACCATAACGAACGAGTAACCTTTACAGTTACCCA spacer
length: 38 repeater length: 30
23804 475982 GTTTCATCCTAAAAAGTCTGATTTTAGC CTACTTAACCGAAATCTACGAAAACGAAGGAGATAA spacer
length: 36 repeater length: 30
23805 476048 GTTTCATCCTAAAAAGTCTGATTTTAGC CCATTCATAAGGATATATTACTTCTTCCCCACAGTA spacer
length: 36 repeater length: 30
23806 476114 GTTTCATCCTAAAAAGTCTGATTTTAGC CACATCCTTGAAGTCAGCATTAAAAAAGTGAAATACT spacer
length: 37 repeater length: 30
23807 476181 GTTTCATCCTAAAAAGTCTGATTTTAGC CTAGGCGATTTGGTACACACCTCTAAGGGGGGATTG spacer
length: 36 repeater length: 30
23808 476247 GTTTCATCCTAAAAAGTCTGATTTTAGC CCCGGCAGTGGCTACACCACCGGCACCGGTGAAGGA spacer
length: 36 repeater length: 30
23809 476313 GTTTCATCCTAAAAAGTCTGATTTTAGC CGATTAAGGCTTCAATGAATGTGCTGTTTATTGAAGAC spacer
length: 38 repeater length: 30
23810 476381 GTTTCATCCTAAAAAGTCTGATTTTAGC CACCTTTATCTGTTTCAAGATGTTGCGTGGTCTAAGTAT spacer
length: 38 repeater length: 30
23811 476449 GTTTCATCCTAAAAAGTCTGATTTTAGC TTAAAAGAAATGGAAGCGGAGTCGGGGGTGTGGTTTG spacer
length: 37 repeater length: 30
23812 476516 GTTTCATCCTAAAAAGTCTGATTTTAGC CGCTTCCGTCTTTGCGAAGTTTAGCAGTGAAAGTAAC spacer
length: 37 repeater length: 30
23813 476583 GTTTCATCCTAAAAAGTCTGATTTTAGC CCTGGACAATAACAATCAATTTGAAATTATATCAAACA spacer
length: 38 repeater length: 30
23814 476651 GTTTCATCCTAAAAAGTCTGATTTTAGC CCTTCCGTCTTTGCGAAGTTTAGCAGTGAAAGTAAC spacer
length: 36 repeater length: 30
23815 476717 GTTTCATCCTAAAAAGTCTGATTTTAGC CATTTATATTTTTGCTTACTGGGAGTCCCAATAATAA spacer
length: 37 repeater length: 30
23816 476784 GTTTCATCCTAAAAAGTCTGATTTTAGC CTGAAATGAAAAATTACTCCATAACTGGAGTTGTTGAA spacer
length: 38 repeater length: 30
23817 476852 GTTTCATCCTAAAAAGTCTGATTTTAGC CGCAGATCATTGACAAATGGGCTTACAAGATAGCACA spacer
length: 37 repeater length: 30
23818 476919 GTTTCATCCTAAAAAGTCTGATTTTAGC TTTTCAAGACCACCAAATAAGGCATTCCAGATGTAT spacer
length: 36 repeater length: 30
23819 476985 GTTTCATCCTAAAAAGTCTGATTTTAGC CATTATTATGGTGCAAAGAATAAGGGAGAATGAATTG spacer
length: 37 repeater length: 30
23820 477052 GTTTCATCCTAAAAAGTCTGATTTTAGC AAAACATCAGACACTTCTCATGTTTTCGTGTGATTGA spacer
length: 37 repeater length: 30
23821 477119 GTTTCATCCTAAAAAGTCTGATTTTAGC CTAGGTAAATGCGTCGAACCTTTTAGCATGGTTTTG spacer
length: 36 repeater length: 30
23822 477185 GTTTCATCCTAAAAAGTCTGATTTTAGC CGGTTTCATATTTCACTGTGATGATTTTGTGGTTTC spacer
length: 37 repeater length: 30
23823 477252 GTTTCATCCTAAAAAGTCTGATTTTAGC CCGGGTATAATGCATGGTAAGGATTTTATTCAAGTTC spacer
length: 37 repeater length: 30
23824 477319 GTTTCATCCTAAAAAGTCTGATTTTAGC CGTAGTAGCGTGGATTGTACTCTACCCAACTAGTATG spacer
length: 37 repeater length: 30
23825 477386 GTTTCATCCTAAAAAGTCTGATTTTAGC CTTACATACTCATTCCAAGAATACCCATTATTTTCTA spacer
length: 37 repeater length: 30
23826 477453 GTTTCATCCTAAAAAGTCTGATTTTAGC TCTTTTGATTTTGCTTTGTGGTGTTCCTACAT spacer
length: 35 repeater length: 30
23827 477518 GTTTCATCCTAAAAAGTCTGATTTTAGC TTCTATAAAAAATATTTTAATATTTTAATATAATTAA spacer
length: 36 repeater length: 30
23828 477584 GTTTCATCCTAAAAAGTCTGATTTTAGC CAAATCCAGACCAACACTCTTTAATATATGATTTATT spacer
length: 37 repeater length: 30
23829 477651 GTTTCATCCTAAAAAGTCTGATTTTAGC CTTGTTAGAATCACATATAAACTATTAAGTACTT spacer
length: 36 repeater length: 30

23830	477717	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CGGTGCTAGTGTGTAGTAATCCTCAATGTCAAAATCT	spacer
		length: 37	repeater length: 30	
23831	477784	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CACAGCATCATCAAGACTATTGATTTCTTTTGCCATC	spacer
		length: 37	repeater length: 30	
23832	477851	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CATTTCTTGAGTAATTACCAGGATCTTATATCTTG	spacer
		length: 35	repeater length: 30	
23833	477916	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	CCATTACCGTACCGGACCAATTACTACTTTTATGAG	spacer
		length: 37	repeater length: 30	
23834	477983	GTTTCAATCCTAAAAATAGTCTGATTTTAGC	GTCCCCGTGG	
23835				
23836				
23837		crispr 4		
23838	888738	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AAGAAGATAGACCATGCACGGCCAGGTAAGTGTGAA	spacer
		length: 36	repeater length: 30	
23839	888804	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TACAACATCTATCTCCGTGGAAGGGCCTTCATGTAA	spacer
		length: 36	repeater length: 30	
23840	888870	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GCCGTAGAAGGGGGATAATAATACATGTAAAAATCA	spacer
		length: 36	repeater length: 30	
23841	888936	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AAAGATCAGTAGCCGAAGTTATTGGAACATTTATCCTTG	spacer
		length: 39	repeater length: 30	
23842	889005	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TTCAGTAGGATACATGAAATTCACATCAACAGATTA	spacer
		length: 36	repeater length: 30	
23843	889071	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GTGGTTGCTATACGGGAGTAATTCATAGCCACTGGTT	spacer
		length: 37	repeater length: 30	
23844	889138	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GTATGAGTTTGGACACTGTGCAGGTGTATGATTATC	spacer
		length: 36	repeater length: 30	
23845	889204	GTTTCAATCCCAAAATGGTCTGATTTTAGT	ACCATTAAATTATTACAAAGCAATACCAATATGAAA	spacer
		length: 36	repeater length: 30	
23846	889270	GTTTCAATCCCAAAATGGTCTGATTTTAGT	ATCAACACTTGCATCACTAACATTTCATTTAGTTGA	spacer
		length: 36	repeater length: 30	
23847	889336	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TGACAGTCTCGAAGAGTTAAATGCACCTGGCACTGG	spacer
		length: 36	repeater length: 30	
23848	889402	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TAATCCTCCGGTGTTCCTTGACTACCGTCCAACCAT	spacer
		length: 36	repeater length: 30	
23849	889468	GTTTCAATCCCAAAATGGTCTGATTTTAGT	ATTGTGCCATGCCACTCGTTGCCATGAGGAGGATTA	spacer
		length: 36	repeater length: 30	
23850	889534	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GAAAAAGAGTTGTTTACCATTTCACATCCAAATAGGC	spacer
		length: 36	repeater length: 30	
23851	889600	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GGTAATGCAGTTATTTATGCAGTTATGGGGGATTT	spacer
		length: 35	repeater length: 30	
23852	889665	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TCATTCTCCATTCTTATTCCCCCATTTCTTCCAATG	spacer
		length: 36	repeater length: 30	
23853	889731	GTTTCAATCCCAAAATGGTCTGATTTTAGT	ATGTCTGAAAGTGCTATTTCCCCTATGAATAGTTCT	spacer
		length: 36	repeater length: 30	
23854	889797	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TTAGTGTTGCCATGCCTTTTTTTCATGAAACATGATG	spacer
		length: 36	repeater length: 30	
23855	889863	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GTAAACTGGCCTTTGGGGTTAGTGTAACATCTAAT	spacer
		length: 36	repeater length: 30	
23856	889929	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AACAAAACCATCACTCTGCAATTCTTTCAGAATATTTT	spacer
		length: 38	repeater length: 30	
23857	889997	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GATATTTATCATATACTTAGCAGAAGTAGTTCAATC	spacer
		length: 36	repeater length: 30	
23858	890063	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AACAAAACCATCACTCTGCAATTCTTTCAGAATATTTT	spacer
		length: 38	repeater length: 30	
23859	890131	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GATATTTATCATATACTTAGCAGAAGTAGTTCAATC	spacer
		length: 36	repeater length: 30	
23860	890197	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TTATGATGCTCAGCGTTTAAGTAAAAAAGATTTAGC	spacer
		length: 36	repeater length: 30	
23861	890263	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GGAAGTCCATCAGGGAAGTCATCAATTGCTTTTCTA	spacer
		length: 36	repeater length: 30	
23862	890329	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GGCCTTTCTTGGAGTTTTGTTTTACCAACTTCTCC	spacer
		length: 36	repeater length: 30	
23863	890395	GTTTCAATCCCAAAATGGTCTGATTTTAGT	CATGAATCTCCATAACAAAGTCCCAGTGGATTTAAG	spacer
		length: 36	repeater length: 30	
23864	890461	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TTAATAGATGGCTTGTAAGGCATAAAAAAAGTATA	spacer
		length: 36	repeater length: 30	
23865	890527	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TCTAACAGACGAAGAACTGAAAAATATCCCTTTG	spacer
		length: 36	repeater length: 30	
23866	890593	GTTTCAATCCCAAAATGGTCTGATTTTAGT	ATAAACTATGGAACCATTTGCTTTAGCCCTTGAGAG	spacer
		length: 37	repeater length: 30	
23867	890660	GTTTCAATCCCAAAATGGTCTGATTTTAGT	ATTTCAAGCCTACAGGCGGTGTGGTCAGGTTTGTA	spacer

length: 36 repeater length: 30
23868 890726 GTTTC AATCCCAAAATGGTCTGATTTTAGT GCTGGGATTGTACGTATTCATTTTTTACACATCAGT spacer
length: 36 repeater length: 30
23869 890792 GTTTC AATCCCAAAATGGTCTGATTTTAGT CTGCTATTTCTTTTAAAAATTCCTCTGTGAATTTAA spacer
length: 36 repeater length: 30
23870 890858 GTTTC AATCCCAAAATGGTCTGATTTTAGT TTTTATTTTCGTTGCAATCACTAGTCGCATTTATCGC spacer
length: 37 repeater length: 30
23871 890925 GTTTC AATCCCAAAATGGTCTGATTTTAGT TCTTCTGGCACGCCATTTAATGGTGTTCACATTC spacer
length: 35 repeater length: 30
23872 890990 GTTTC AATCCCAAAATGGTCTGATTTTAGT AAAAAATAGTCCTCTTGGTCTGAAGATAAGATCTTC spacer
length: 36 repeater length: 30
23873 891056 GTTTC AATCCCAAAATGGTCTGATTTTAGT TATGAAAACGTATGATCTGCCTTTTAGACTTCAGAA spacer
length: 36 repeater length: 30
23874 891122 GTTTC AATCCCAAAATGGTCTGATTTTAGT ACATTCATGCAGCTGGAACCTGCATGCCCTGAGGA spacer
length: 36 repeater length: 30
23875 891188 GTTTC AATCCCAAAATGGTCTGATTTTAGT AACTTCATGTACCGCTCAAACCATTCTCTAGGAATC spacer
length: 36 repeater length: 30
23876 891254 GTTTC AATCCCAAAATGGTCTGATTTTAGT CCTCAAATACAATGGAACCACCTTAAACAGTGTACAGG spacer
length: 38 repeater length: 30
23877 891322 GTTTC AATCCCAAAATGGTCTGATTTTAGT CCGCATCCCGAACAAGTCCTATGGCTTCGTCGGCTTT spacer
length: 37 repeater length: 30
23878 891389 GTTTC AATCCCAAAATGGTCTGATTTTAGT TAAAATTACCATTACCAAGCTTCTTACCCCCAAGCT spacer
length: 36 repeater length: 30
23879 891455 GTTTC AATCCCAAAATGGTCTGATTTTAGT TGTGTTTTAGTTGTTCTCGGAGTTGGTCTTCTTCGA spacer
length: 36 repeater length: 30
23880 891521 GTTTC AATCCCAAAATGGTCTGATTTTAGT GGTGGTGGCCACAGGGGAACCCTTACATGATTATCCG spacer
length: 37 repeater length: 30
23881 891588 GTTTC AATCCCAAAATGGTCTGATTTTAGT TGAAAGCACACCTATTGAGAAATTCCTAACTCAGAC spacer
length: 36 repeater length: 30
23882 891654 GTTTC AATCCCAAAATGGTCTGATTTTAGT GTATAAAGTAAAGGTTTCTTTTTTTGTCTAATCTAG spacer
length: 36 repeater length: 30
23883 891720 GTTTC AATCCCAAAATGGTCTGATTTTAGT GACAATATGATTGGTAAAGAAGATGAGGAGGATTGT spacer
length: 36 repeater length: 30
23884 891786 GTTTC AATCCCAAAATGGTCTGATTTTAGT TTTACAAATTAATGGTTTTTCCGCAAGTAATGGTAT spacer
length: 36 repeater length: 30
23885 891852 GTTTC AATCCCAAAATGGTCTGATTTTAGT AGTTTAACTTCCTCATGTATTTTGTCTCTTATCCAC spacer
length: 36 repeater length: 30
23886 891918 GTTTC AATCCCAAAATGGTCTGATTTTAGT TCATAAAATATGTATTTTTTCTTTATTTTTTGTGTT spacer
length: 36 repeater length: 30
23887 891984 GTTTC AATCCCAAAATGGTCTGATTTTAGT GAGTCTAAGACGAAACTGATAAGCACGTGTTGAAAA spacer
length: 36 repeater length: 30
23888 892050 GTTTC AATCCCAAAATGGTCTGATTTTAGT GGCGGAGCTAGTGTTGATCCTGTCCCAACTTTCACT spacer
length: 36 repeater length: 30
23889 892116 GTTTC AATCCCAAAATGGTCTGATTTTAGT CACTACCCTACCTTGCCCTTTTATCTGATGATTGCCG spacer
length: 36 repeater length: 30
23890 892182 GTTTC AATCCCAAAATGGTCTGATTTTAGT TGCCTAAAAATCTGTCTTCTAAATAAATATCTTTAT spacer
length: 36 repeater length: 30
23891 892248 GTTTC AATCCCAAAATGGTCTGATTTTAGT CGCCTGGCAACCCTCATAATAGACGAATACAAAGAA spacer
length: 36 repeater length: 30
23892 892314 GTTTC AATCCCAAAATGGTCTGATTTTAGT CTACTACGGATGGAACATCCCACAATGGTATAATCAA spacer
length: 37 repeater length: 30
23893 892381 GTTTC AATCCCAAAATGGTCTGATTTTAGT GCAGACCAATAATTATTAGTAGCGATTATTATATCT spacer
length: 36 repeater length: 30
23894 892447 GTTTC AATCCCAAAATGGTCTGATTTTAGT AATACAGAGCAGATGATTACACCCTTGGATTTGAAG spacer
length: 36 repeater length: 30
23895 892513 GTTTC AATCCCAAAATGGTCTGATTTTAGT TTCTTTGACTTTGTTGTGTACGTGGAAGATCCGCA spacer
length: 35 repeater length: 30
23896 892578 GTTTC AATCCCAAAATGGTCTGATTTTAGT CCTTCTGAGGATCTTAAACGTTACATTATAAAGGA spacer
length: 35 repeater length: 30
23897 892643 GTTTC AATCCCAAAATGGTCTGATTTTAGT GTATTCAGGCATAGTTTTAACATATTTTTTATGAAC spacer
length: 36 repeater length: 30
23898 892709 GTTTC AATCCCAAAATGGTCTGATTTTAGT CCCTCATAAGCGTCTGAGATGATCCGGAGGCTGTTT spacer
length: 36 repeater length: 30
23899 892775 GTTTC AATCCCAAAATGGTCTGATTTTAGT ATTTTCCTTACACTTTCTTACATATTCAGCAATCTC spacer
length: 36 repeater length: 30
23900 892841 GTTTC AATCCCAAAATGGTCTGATTTTAGT CTATTTTAGATATCTAGAGAGGTGAAACCTTTCAAT spacer
length: 36 repeater length: 30
23901 892907 GTTTC AATCCCAAAATGGTCTGATTTTAGT ACAACGCTGAAAGTGAACCATGCGGAGGGGATGATTT spacer
length: 37 repeater length: 30
23902 892974 GTTTC AATCCCAAAATGGTCTGATTTTAGT ATCAAAACCAAATTGAAATAGGCCCTCATGCAAAAGAT spacer
length: 38 repeater length: 30

23903	893042	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GTGCAGTCTTCGGGTCGTGTCATCGTAGCATAATCA	spacer
		length: 36	repeater length: 30	
23904	893108	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TCACTCATCTTATATCACCCTTCCTCTTCGGTTTC	spacer
		length: 36	repeater length: 30	
23905	893174	GTTTCAATCCCAAAATGGTCTGATTTTAGT	CCCAACCCTTAGGTATGGGTACTGTGGGTGTTTCTA	spacer
		length: 36	repeater length: 30	
23906	893240	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GAACAACAAGTAATATACAGGTTCCCCACACTCAT	spacer
		length: 35	repeater length: 30	
23907	893305	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TCATTCATCATTTTCTGGATATTGCTTTTCCCATCA	spacer
		length: 36	repeater length: 30	
23908	893371	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TTTTAGTAGTGGTTTTCTTGGTGGTTGTCTTTTATAG	spacer
		length: 36	repeater length: 30	
23909	893437	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TTTTCACACCCACGCAAAGTTGAGGAGCAAAGCGG	spacer
		length: 36	repeater length: 30	
23910	893503	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TTCTGTATTTCATCGGGTGTGGGTGTGCGACCTTC	spacer
		length: 36	repeater length: 30	
23911	893569	GTTTCAATCCCAAAATGGTCTGATTTTAGT	ATCTTTGCTGGAGATCCTGGAAGTCCAGTTTATTGA	spacer
		length: 36	repeater length: 30	
23912	893635	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TCAAAAAGCCCCGGGCAGTTTCCTTTGTAAGCATATTT	spacer
		length: 38	repeater length: 30	
23913	893703	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TCAGAACTGCCCTTCATGTTGTCAGCGTTACCTGAA	spacer
		length: 36	repeater length: 30	
23914	893769	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TTAACAAGTCAAGTAATGCTTTAATAGTTCCCATTG	spacer
		length: 36	repeater length: 30	
23915	893835	GTTTCAATCCCAAAATGGTCTGATTTTAGT	CTCACACTCAGGGAGGAATGATAAAAGATGAAATTCA	spacer
		length: 37	repeater length: 30	
23916	893902	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TGTGTGTATCCTGGAACAGTTGTGGTGGGTATTGA	spacer
		length: 36	repeater length: 30	
23917	893968	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TGATCGACCTATGCCCTTAATCGTTAAATACTAGA	spacer
		length: 36	repeater length: 30	
23918	894034	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GCCCTCTTTTAGTATTCTGAGGAGTAATAATGGGTTA	spacer
		length: 37	repeater length: 30	
23919	894101	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AGGTTGGTGACCAGGACTACTTCCAAGGCCACTCCC	spacer
		length: 36	repeater length: 30	
23920	894167	GTTTCAATCCCAAAATGGTCTGATTTTAGT	ACCCTACATCTTCACAGGCTTTACGTATTACTTCTAT	spacer
		length: 37	repeater length: 30	
23921	894234	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GACCATAAAACTAAAAAGATTTACCATGCCCGGTGT	spacer
		length: 36	repeater length: 30	
23922	894300	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TGTCATTAACACCCCTCCTATTCTTCTTCTTCTCTCT	spacer
		length: 38	repeater length: 30	
23923	894368	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TTGAAATTTGCAGATCAACACTTACACGACAGATTA	spacer
		length: 36	repeater length: 30	
23924	894434	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AATATATCGCTTTATCAGGGATAGGGGAAAATAAGA	spacer
		length: 36	repeater length: 30	
23925	894500	GTTTCAATCCCAAAATGGTCTGATTTTAGT	CTTTGGAACATCCACTGCGTCTTCCTGTTCAAGTT	spacer
		length: 36	repeater length: 30	
23926	894566	GTTTCAATCCCAAAATGGTCTGATTTTAGT	CTGTATACAGTTAATTGTCCTGGCTTAGCAGGAGGTG	spacer
		length: 37	repeater length: 30	
23927	894633	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TTAGTATTCTGAGAAATCGTCCTCTTTTAGTGTTCTG	spacer
		length: 37	repeater length: 30	
23928	894700	GTTTCAATCCCAAAATGGTCTGATTTTAGT	ATTCAAGTGTTCCTGCTTAATTGGAATATTTCTTC	spacer
		length: 36	repeater length: 30	
23929	894766	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GTACGGAGTCATCAATCAATAACAAGGTCAAGAACCT	spacer
		length: 37	repeater length: 30	
23930	894833	GTTTCAATCCCAAAATGGTCTGATTTTAGT	CTAGTTTCTTCCGTAGTGAGGGTTTGGCTGAGGGTA	spacer
		length: 36	repeater length: 30	
23931	894899	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TAATCACCATGATTACATGTACACGATTAAGATGTT	spacer
		length: 36	repeater length: 30	
23932	894965	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GGAGGCTCCGGCTTACCACTTTGCCTGGATCGATTT	spacer
		length: 36	repeater length: 30	
23933	895031	GTTTCAATCCCAAAATGGTCTGATTTTAGT	CACACATTAGGTAAAGTTTATAGTATAGTCTATTAAA	spacer
		length: 37	repeater length: 30	
23934	895098	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TCAAGATTAAAGCATAAGCGATCACTTATATAAATT	spacer
		length: 36	repeater length: 30	
23935	895164	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AGTAAAAAATATTTCAGATAAACTATACGTCATAATA	spacer
		length: 37	repeater length: 30	
23936	895231	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AACACCCCCAACTGGACGGGATTTATTATTAATCTT	spacer
		length: 36	repeater length: 30	
23937	895297	GTTTCAATCCCAAAATGGTCTGATTTTAGT	ATGTGTGAAGAGGTGTAAGAGGTGATACATAAAA	spacer
		length: 34	repeater length: 30	
23938	895361	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GGTTCTATGTTGAAGACAACAACGAATACGGCGTTA	spacer

length: 36 repeater length: 30
23939 895427 GTTTC AATCCCAAAATGGTCTGATTTTAGT AAAGTAATTAATGACTTCTTTTTCTTCCTTTGTCATG spacer
length: 37 repeater length: 30
23940 895494 GTTTC AATCCCAAAATGGTCTGATTTTAGT AAAATTTGGTCTGGATCCTGGATGCGGACAAAGCA spacer
length: 35 repeater length: 30
23941 895559 GTTTC AATCCCAAAATGGTCTGATTTTAGT TCACACAATCGCCATTGCTGCCCCGACTGGAGGGTTG spacer
length: 36 repeater length: 30
23942 895625 GTTTC AATCCCAAAATGGTCTGATTTTAGT AGGACCGGGCATAACCATCATCTGCTCCCCGCATAA spacer
length: 36 repeater length: 30
23943 895691 GTTTC AATCCCAAAATGGTCTGATTTTAGT GAAGGAAACCATTGACACTAGTAAGGATGAAGGGT spacer
length: 35 repeater length: 30
23944 895756 GTTTC AATCCCAAAATGGTCTGATTTTAGT AATTGGTCAGTTAGGGGAAATCACTGATAAAATAG spacer
length: 35 repeater length: 30
23945 895821 GTTTC AATCCCAAAATGGTCTGATTTTAGT CTTACCTCAATCTCGAAGTAAACTGAATCATCGCAC spacer
length: 37 repeater length: 30
23946 895888 GTTTC AATCCCAAAATGGTCTGATTTTAGT AACTGATAGGCTTAATTAATCTTTTGAACGTGATAT spacer
length: 36 repeater length: 30
23947 895954 GTTTC AATCCCAAAATGGTCTGATTTTAGT CGTTGCTATGCCACCGAGTGTGAAGTATTATTAACC spacer
length: 36 repeater length: 30
23948 896020 GTTTC AATCCCAAAATGGTCTGATTTTAGT GCGTCTTGTTTCAACATAATCTTATTTACCTCCAAA spacer
length: 36 repeater length: 30
23949 896086 GTTTC AATCCCAAAATGGTCTGATTTTAGT CCACGCCATTAACGATATTAACGGTGTCAATCTCTG spacer
length: 36 repeater length: 30
23950 896152 GTTTC AATCCCAAAATGGTCTGATTTTAGT TAAGATCAACAAGTTCTAAATCAAATTCTGCATAGAA spacer
length: 37 repeater length: 30
23951 896219 GTTTC AATCCCAAAATGGTCTGATTTTAGT GTCCACCAGTTCTCCATCTAATGTTAAATTTAGGTGA spacer
length: 37 repeater length: 30
23952 896286 GTTTC AATCCCAAAATGGTCTGATTTTAGT CTTTATTTGGTTCAAAAACGTGTATTGAACCTTAAA spacer
length: 36 repeater length: 30
23953 896352 GTTTC AATCCCAAAATGGTCTGATTTTAGT CTGCGGAGAGTATGCCCTCATTCTTAGCCAACTCCA spacer
length: 36 repeater length: 30
23954 896418 GTTTC AATCCCAAAATGGTCTGATTTTAGT GTGGAAGGGGAAGACTACGAACCTCAAGACGCGGGCGA spacer
length: 38 repeater length: 30
23955 896486 GTTTC AATCCCAAAATGGTCTGATTTTAGT TTATATGCTTGTGATTATATACACATATGTGTAAAG spacer
length: 36 repeater length: 30
23956 896552 GTTTC AATCCCAAAATGGTCTGATTTTAGT ATAAACCCAACTTAGTGAATGCCAACCCCCACCAGA spacer
length: 36 repeater length: 30
23957 896618 GTTTC AATCCCAAAATGGTCTGATTTTAGT TGGCTGATTAATTCTTCAACGTGGTGGATGGTTGCC spacer
length: 36 repeater length: 30
23958 896684 GTTTC AATCCCAAAATGGTCTGATTTTAGT CCAATTTAACCAGATATACGAATTACTCTATAAAAA spacer
length: 36 repeater length: 30
23959 896750 GTTTC AATCCCAAAATGGTCTGATTTTAGT TGGCTGAAAAAGTACTAAAAAGAGGGTGATGTTTTT spacer
length: 36 repeater length: 30
23960 896816 GTTTC AATCCCAAAATGGTCTGATTTTAGT TGAGCATGGTTTACCATACTTTGAAATATTTGAAAC spacer
length: 36 repeater length: 30
23961 896882 GTTTC AATCCCAAAATGGTCTGATTTTAGT TTGTATTCACATCCTAGAATCATGTGTTCTTTTAAA spacer
length: 36 repeater length: 30
23962 896948 GTTTC AATCCCAAAATGGTCTGATTTTAGT CAATGCTACTGATAAAAGTGCACCTAAACTGTTTA spacer
length: 36 repeater length: 30
23963 897014 GTTTC AATCCCAAAATGGTCTGATTTTAGT CACGTGTGGGAGTCATACCATTAGGGTATTGTGTGC spacer
length: 36 repeater length: 30
23964 897080 GTTTC AATCCCAAAATGGTCTGATTTTAGT AAGCCCAAATCCCATCCATATTTGTCCTTTAATTTG spacer
length: 36 repeater length: 30
23965 897146 GTTTC AATCCCAAAATGGTCTGATTTTAGT CCTGTCCTTTGCCCATGCCGTATCGAAACCAGATTT spacer
length: 36 repeater length: 30
23966 897212 GTTTC AATCCCAAAATGGTCTGATTTTAGT AAAGTATATTTAGTGTCAAATTAACTATGTAAACA spacer
length: 36 repeater length: 30
23967 897278 GTTTC AATCCCAAAATGGTCTGATTTTAGT TCATAAGACT
23968
23969
23970 GCA_001477655.1_ASM147765v1_genomic.fna (PilerCR):
23971 START REPEAT
SPACER
23972 crispr 1
23973 370518 GTGACAAATTGTAATTTTACT GATAACATTGCTTCAATTGGTGGTGCCATCACGATGTATTCTGGTACT spacer
length: 48 repeater length: 21
23974 370587 GTGACAAATTGTAATTTTACT GGCAACACTGCAACTGTAAATGGTGGTGAGTTTACTTCAACAGTACTGGTAAT
spacer length: 54 repeater length: 21
23975 370662 GTGACAAATTGTAATTTTACT GGCAACACTGCAACTGTAAATGGTAGTGCTGTTTTCTTCTACAGTACTGGTAAT
spacer length: 54 repeater length: 21
23976 370737 GTGACAAATTGTAATTTTACT AACAACTGCAAAATAGAGATGGTGGTGAGTTTACTTCAATAGCAATGGTGAA

spacer length: 54 repeater length: 21
 23977 370812 GTGACAAATTGTAATTTTACT GGCAACACTGCAAATAGAGATGGTGGTGCTGTTTACTTCAATAGCAATGGTGAA
 spacer length: 54 repeater length: 21
 23978 370887 GTGACAAATTGTAATTTTACT
 AACAAACAAAGCAACTGGAACCTGGCACTTATGATGGTGGTGGTGCAGTTCACCTCCAAGGTACTGGTACT spacer length:
 69 repeater length: 21
 23979 370977 GTGACAAATTGTAATTTTACT AACAAACACTGCAAATAGAGAGGGTGGTGCAGTTTACTTCTTTAATCAAGGTACT
 spacer length: 54 repeater length: 21
 23980 371052 GTGACAAATTGTAATTTTACT GAAGGCGATCC
 23981
 23982
 23983 crispr 2
 23984 371276 TGTGACAAATTGTAATTTTA
 CTAACAACAAAGCAACTGGTACTGACTCTCGGGGTGGTGCATCACGATGTCTTTTGGTAC spacer length: 61
 repeater length: 20
 23985 371357 TGTGACAAATTGTAATTTTA CTAACAACACCGCAACATCTAATGGTGGTGCATTATTAGTGGCACAGGTAC
 spacer length: 52 repeater length: 20
 23986 371429 TGTGACAAATTGTAATTTTA
 TTAATAACTCTGCAACTGGTGAAGGCAGTTGGGGTGGTGCCATCAGGATGTATTCTGGTAC spacer length: 61
 repeater length: 20
 23987 371510 TGTGACAAATTGTAATTTTA CTGGCAACACTGCTGGTGGTGGTGCAGTTTACTTCTTTAATACGGGTAG
 spacer length: 52 repeater length: 20
 23988 371582 TGTGACAAATTGTAATTTTA CTGACAACCTCTGCTTATCGTGGAGGTGCAGTTTACTTTAATGAGACTGGTAC
 spacer length: 52 repeater length: 20
 23989 371654 TGTGACAAATTGTAATTTTA CTGACAACCTCTGCTTATCGTGGAGGTGCAGTTTACTTCCAGAGTACTGGTAA
 spacer length: 52 repeater length: 20
 23990 371726 TGTGACAAATTGTAATTTTA CTAACAACACTGCAACTGGAGATGGTGGTGCAGTTTACTTTAATGAGACTGGTAC
 spacer length: 55 repeater length: 20
 23991 371801 TGTGACAAATTGTAATTTTA CTGGCAACACTGCAACCTATAAGGGTGGTGCAGTTTACTTCACTAGTACTGGTAA
 spacer length: 55 repeater length: 20
 23992 371876 TGTGACAAATTGTAATTTTA CTAACAACACTGCAAATGATGATGGTGGTGCAGTTTACTTTAATGATAATGGTGA
 spacer length: 55 repeater length: 20
 23993 371951 TGTGACAAATTGTAATTTTA
 CCCCAGAGAACGTGGGGACGGTAGGACGTATCGAGGAGATAGTCACCGGCGTCGTGAGA
 23994
 23995
 23996 crispr 3
 23997 386059 ACTGGTAATGTGTCAAATTGTAATTTT ACTGGCAACAATGCAAACCTTTGGTGGTGCCTGTCTGGATGTAT spacer
 length: 42 repeater length: 27
 23998 386128 ACTGGTAATGTGTCAAATTGTAATTTT ACTGGCAACAATGCATATTATGGAGGGGCAGTTTACTTCGATAGT
 spacer length: 45 repeater length: 27
 23999 386200 ACTGGTAATGTGTCAAATTGTAATTTT ACTGGCAACACTGCAACTGATTATGGTGGTGCAGTTTACTTCGCGGAT
 spacer length: 48 repeater length: 27
 24000 386275 ACTGGTAATGTGTCAAATTGTAATTTT ACTGGCAGCACTGTTTCTGTAGATGGTGGTGCAGTTTACTTCGAGAGT
 spacer length: 48 repeater length: 27
 24001 386350 ACTGGTAATGTGTCAAATTGTAATTTT GCTGGCAACAATGCTTCTATAGATGGTGGTACTGTTTTCTTCGAGAGT
 spacer length: 48 repeater length: 27
 24002 386425 ACTGGTAATGTGTCAAATTGTAATTTT ACTGGCAACACTGCATATTATGATGGTGGTGCAGTTTACTTCGAGAGT
 spacer length: 48 repeater length: 27
 24003 386500 ACTGGTAATGTGTCAAATTGTAATTTT GACGGCGACCGC
 24004
 24005
 24006 crispr 4
 24007 1304150 GTCACAATCCTTGTTTTAATAGAATAATCTTTGCAAT CAAAGGATTAGAACTGGAAATAAACAACATGAATGA
 spacer length: 36 repeater length: 37
 24008 1304223 GTCACAATCCTTGTTTTAATAGAATAATCTTTGCAAT ATGATGAATATATCGATTTAATCGATGAAGTTATAT
 spacer length: 36 repeater length: 37
 24009 1304296 GTCACAATCCTTGTTTTAATAGAATAATCTTTGCAAT AATGAAACTCCAATGGATGCAACACAATTGTATGA
 spacer length: 35 repeater length: 37
 24010 1304368 GTCACAATCCTTGTTTTAATAGAATAATCTTTGCAAT GAATTAAAGCTGCATGGAAAAGAAATCCAGATGGAG
 spacer length: 37 repeater length: 37
 24011 1304442 GTCACAATCCTTGTTTTAATAGAATAATCTTTGCAAT GGGACTTCGCATATTCAGCTGAGGAACCCGGAAAAGA
 spacer length: 37 repeater length: 37
 24012 1304516 GTCACAATCCTTGTTTTAATAGAATAATCTTTGCAAT TTGCATCAAA
 24013
 24014
 24015 crispr 5
 24016 1305834 CAATCCTTGTTTTAATAGAATACTCTTTGCAAT TAGATTTTCAGCATTAAGAAGAACTATCCAAATGCGTCA
 spacer length: 40 repeater length: 33
 24017 1305907 CAATCCTTGTTTTAATAGAATACTCTTTGCAAT GGGTAAATATGCACCACAAGACTTCGCATTCCAATGGTCA
 spacer length: 40 repeater length: 33

24018 1305980 CAATCCTTGTTTTAATAGAATACTCTTTGCAAT AGGAGTCTGTTCTTTTAAATTTTTTAGGAGAGATAATGTCA
spacer length: 41 repeater length: 33

24019 1306054 CAATCCTTGTTTTAATAGAATACTCTTTGCAAT AGGAGTCTGTTCTTTTAAATTTTTTAGGAGAGATAATGTCA
spacer length: 41 repeater length: 33

24020 1306128 CAATCCTTGTTTTAATAGAATACTCTTTGCAAT CTGCAGAAGAG

24021

24022

24023 crispr 6

24024 1306270 GTCACAATCCTTGTTTTAATAGAATAATCTTTGCAATA GTTCAAACCCCTCAAGAGTTAGAAAGGGCAAAAAT
spacer length: 35 repeater length: 38

24025 1306343 GTCACAATCCTTGTTTTAATAGAATAATCTTTGCAATA AATTAGCTCCAGTAAATTATTGCGAAATAAATGA
spacer length: 34 repeater length: 38

24026 1306415 GTCACAATCCTTGTTTTAATAGAATAATCTTTGCAATA TGAAAGAACTTAAAAGATATTTCCCTGAGCTAAA
spacer length: 34 repeater length: 38

24027 1306487 GTCACAATCCTTGTTTTAATAGAATAATCTTTGCAATA GAAGATGGCAAATTGGCTTTTAAATGATGTATATAC
spacer length: 35 repeater length: 38

24028 1306560 GTCACAATCCTTGTTTTAATAGAATAATCTTTGCAATA TCATACTCTCCAAATAGACGGGAAGATGAGTACCC
spacer length: 35 repeater length: 38

24029 1306633 GTCACAATCCTTGTTTTAATAGAATAATCTTTGCAATA TTTCTTCAATA

24030

24031

24032 crispr 7

24033 1357008 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT ATAAATTCCACAATTTTGGAGACCTTGAAGAAGTC
spacer length: 35 repeater length: 37

24034 1357080 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT ACCTAAAAAGAAAACCATCAAGGTTTTGAAAGAGGA
spacer length: 36 repeater length: 37

24035 1357153 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT ATCAACAACGAATTATGGTCATGTTAACTAAGGGA
spacer length: 36 repeater length: 37

24036 1357226 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT CAGAAGTTCAAAAAGCATTTAAGACAACAG spacer
length: 30 repeater length: 37

24037 1357293 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT AACAAGTATGCACATTCATTTAAACAGACAATATCT
spacer length: 36 repeater length: 37

24038 1357366 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT GATATTTGATATGATATTTAATGATAATGATAGATTG
spacer length: 37 repeater length: 37

24039 1357440 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT AAAGCATAACATCGCAGAATATCCTTTTATGATTGA
spacer length: 36 repeater length: 37

24040 1357513 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT TCATCAGCAGGAGTGTAAGCAAGACCACGCTTTAA
spacer length: 35 repeater length: 37

24041 1357585 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT CTATACAATTACAAAAAAGGAAAAGAAGATAATTG
spacer length: 36 repeater length: 37

24042 1357658 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT GACAATCTGCCATGATGTCACCATTGCGGAAAGT
spacer length: 34 repeater length: 37

24043 1357729 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT TTCAGCAAGAAATAGTATTCATCAAAGGAAAAGAAG
spacer length: 36 repeater length: 37

24044 1357802 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT GAATGTATTAAATATCGAAAACAAAGATGCAAAGCA
spacer length: 36 repeater length: 37

24045 1357875 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT ACAATGAGTCTATAATGTATTTTGAGTTGTCAAATAT
spacer length: 37 repeater length: 37

24046 1357949 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT GAAGCAACATTCTAGATTCTACAGTTTCCTAGATAT
spacer length: 35 repeater length: 37

24047 1358021 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT TTTAGAATACATATTTGAAGAAAACGGAAAACAA
spacer length: 35 repeater length: 37

24048 1358093 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT CTTATATACTGACAAATTAAGTGAGTCAGAAGAGTT
spacer length: 36 repeater length: 37

24049 1358166 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT AAAATTGGAATTAGAAATGATAATAGGCATAAAAG
spacer length: 35 repeater length: 37

24050 1358238 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT AAAAGAAATTATAAAAAATAATTAAGGAGGAAAATGA
spacer length: 36 repeater length: 37

24051 1358311 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT TGCCGGTCCA

24052

24053

24054 GCA_001481595.1_ASM148159v1_genomic.fna (PilerCR):

24055 START REPEAT
SPACER

24056 crispr 1

24057 1508336 GATGAATCCCAAAAGGGATTGAAAG CTCTGTTACAGAAATATTTGTCAAGCTCAATCTTAAAG spacer
length: 39 repeater length: 25

24058 1508400 GATGAATCCCAAAAGGGATTGAAAG AGTTTTGGGAACACTTCTCTTCCCTTTATCTGTTAGTTCATA spacer
length: 42 repeater length: 25

24059 1508467 GATGAATCCCAAAAGGGATTGAAAG CTCAAATCGTTTGCCTACTGTTTAAAGCTTTTTTAACTC spacer
length: 39 repeater length: 25

24060 1508531 GATGAATCCCAAAAGGGATTGAAAG AGCACCCTATTTTCAGGTGCTGGCTGACTAGAACTTT spacer
 length: 37 repeater length: 25
 24061 1508593 GATGAATCCCAAAAGGGATTGAAAG GGGTATAAATAAAGTATGCCAGCCTGTGCTAATGACAG spacer
 length: 38 repeater length: 25
 24062 1508656 GATGAATCCCAAAAGGGATTGAAAG AGTTTATTATGTCATTGGACAGCAAGTCATACGAGA spacer
 length: 36 repeater length: 25
 24063 1508717 GATGAATCCCAAAAGGGATTGAAAG TTTTCTCCTTTTTTCATAATACTTCTTTCCATATTTCCGCA spacer
 length: 41 repeater length: 25
 24064 1508783 GATGAATCCCAAAAGGGATTGAAAG GCTCTGCTAACATTAGCCTCTTCTCCTGCTAGAGCTA spacer
 length: 37 repeater length: 25
 24065 1508845 GATGAATCCCAAAAGGGATTGAAAG ATCTTGTCGCTTATGTGAACGTCTAGGGAGTCGATAAT spacer
 length: 38 repeater length: 25
 24066 1508908 GATGAATCCCAAAAGGGATTGAAAG CCAAACCAAGTTAGGTTTTATGTTGAAGGGGACTCT spacer
 length: 36 repeater length: 25
 24067 1508969 GATGAATCCCAAAAGGGATTGAAAG TGACGAGCTC
 24068
 24069
 24070 crispr 2
 24071 1548411 GAAGAATCCCATAAAGGGATTGAAAGT ATATCATCATCTCTCATCATCTGCCTGCAACGTATC spacer
 length: 36 repeater length: 26
 24072 1548473 GAAGAATCCCATAAAGGGATTGAAAGT CACATTCATCCCTATAGACATTTATTGAAAACGAG spacer
 length: 35 repeater length: 26
 24073 1548534 GAAGAATCCCATAAAGGGATTGAAAGT TTGCTTTAACATAGATCGGTGAAAGCATCTCAAAGGTAG spacer
 length: 40 repeater length: 26
 24074 1548600 GAAGAATCCCATAAAGGGATTGAAAGT AGACGAACGC
 24075
 24076
 24077 crispr 3
 24078 1660075 GTTTTAGTTTCTTGTCGTTATTAC TAAATTAGATATACGTACATGGGATTCACTAAGAAA spacer length:
 36 repeater length: 24
 24079 1660135 GTTTTAGTTTCTTGTCGTTATTAC CGATTGTTGTGATTGTTGTTCTTGCTTTTTAGCGTC spacer length:
 36 repeater length: 24
 24080 1660195 GTTTTAGTTTCTTGTCGTTATTAC CAACATAAGGACCTGGAGTGATCACGGGGAGCCCAGT spacer
 length: 37 repeater length: 24
 24081 1660256 GTTTTAGTTTCTTGTCGTTATTAC GGGAGGGAGTTACAGTAATAATATCTACGGAACGGT spacer length:
 36 repeater length: 24
 24082 1660316 GTTTTAGTTTCTTGTCGTTATTAC CATGCCCCGCG
 24083
 24084
 24085 crispr 4
 24086 1660460 GTTTTAGTTTCTTGTCGTTATTAC TAGTACTATCTTTATATTCCTATATTTTCCTCCTA spacer length:
 35 repeater length: 24
 24087 1660519 GTTTTAGTTTCTTGTCGTTATTAC AAGGCTTCCTCTTCTTGCTGGGTAAGCCTGGGGAGTA spacer
 length: 37 repeater length: 24
 24088 1660580 GTTTTAGTTTCTTGTCGTTATTAC TTTTAGGGCTACTATGGTGATAGCTACTGAAAATAAAAA spacer
 length: 39 repeater length: 24
 24089 1660643 GTTTTAGTTTCTTGTCGTTATTAC AAGGAATTAAAGAAGTTAGGACTTCAGGACAATGTAG spacer
 length: 37 repeater length: 24
 24090 1660704 GTTTTAGTTTCTTGTCGTTATTAC GCTTTAAGGTCGAAATCAGAGATAATGAGCATAAT spacer length:
 35 repeater length: 24
 24091 1660763 GTTTTAGTTTCTTGTCGTTATTAC AAAAATGTGCTCATCTATGTTTCACCCTGTTGCAC spacer length:
 35 repeater length: 24
 24092 1660822 GTTTTAGTTTCTTGTCGTTATTAC AGAGTTTGTTCCTTAATTGGCCAGCAGACTAATTTTA spacer length:
 36 repeater length: 24
 24093 1660882 GTTTTAGTTTCTTGTCGTTATTAC CTTCCAGTCTTCATTTCTGGCTCACCCCCAGTCAGC spacer length:
 36 repeater length: 24
 24094 1660942 GTTTTAGTTTCTTGTCGTTATTAC ATACTTAATCCCTGCAATCGCAGGTTCAATGGTTCAAG spacer
 length: 38 repeater length: 24
 24095 1661004 GTTTTAGTTTCTTGTCGTTATTAC AGCACGTAACGAAGCTCTATACTACTACGTAAAG spacer length:
 35 repeater length: 24
 24096 1661063 GTTTTAGTTTCTTGTCGTTATTAC GTTGACGAGGGCTGGCTCTTTGTGAACTACCCTAT spacer length:
 35 repeater length: 24
 24097 1661122 GTTTTAGTTTCTTGTCGTTATTAC TGAAAAACCTTATATTTACAGAGACAAATGAAGAG spacer length:
 35 repeater length: 24
 24098 1661181 GTTTTAGTTTCTTGTCGTTATTAC GAATTGTGCTGATGCCGAATTATCAGGATCCCAT spacer length:
 34 repeater length: 24
 24099 1661239 GTTTTAGTTTCTTGTCGTTATTAC AAGTCGCAATAGCTAATTCGACTAACTAATCGCT spacer length:
 35 repeater length: 24
 24100 1661298 GTTTTAGTTTCTTGTCGTTATTAC GCCATCGAGATTATAGCACCCATCAGAATAATTAC spacer length:
 35 repeater length: 24
 24101 1661357 GTTTTAGTTTCTTGTCGTTATTAC GAGAAACCCCTCTAACCTTTTTAAGAAGTCCTTTACA spacer

length: 37 repeater length: 24

24102 1661418 GTTTtagtttcttgTCGTTATTAC TCAATTCTTCGTAATGCTCGGGTTTTATGATTATTTT spacer
length: 37 repeater length: 24

24103 1661479 GTTTtagtttcttgTCGTTATTAC AGTAACTATATACTTCCTAACGGAACAAGTGTAA spacer length:
34 repeater length: 24

24104 1661537 GTTTtagtttcttgTCGTTATTAC ACCAGTCTTATCTACATATTTTCAAAAGTAATAGT spacer length:
35 repeater length: 24

24105 1661596 GTTTtagtttcttgTCGTTATTAC AGATGAGCATGGCGTAGTATCCATAAGTGCTGATGT spacer length:
36 repeater length: 24

24106 1661656 GTTTtagtttcttgTCGTTATTAC ACAACGAAAAAGAAAAAGCATTGAAAATAATTGAG spacer length:
35 repeater length: 24

24107 1661715 GTTTtagtttcttgTCGTTATTAC ATTTATATACATACTCCATTTTCCTTAAATTT spacer length:
34 repeater length: 24

24108 1661773 GTTTtagtttcttgTCGTTATTAC TGCTGTTTCATCAGGCTCAGTATAGTACCTGCAT spacer length: 33
repeater length: 24

24109 1661830 GTTTtagtttcttgTCGTTATTAC GTGTGTCTTACCACCTCATAAAGCTCTCCACATAC spacer length:
35 repeater length: 24

24110 1661889 GTTTtagtttcttgTCGTTATTAC ATTGATACGATTCTTGCTGAGGCGAGAAAGTATTCTCTT spacer
length: 39 repeater length: 24

24111 1661952 GTTTtagtttcttgTCGTTATTAC ATAATTTCAATCCTGAAAAACAGCTGTTCTACTTC spacer length:
35 repeater length: 24

24112 1662011 GTTTtagtttcttgTCGTTATTAC CTCTACTATTGCTGATACTGATTTGCCTTCATCCCTC spacer
length: 37 repeater length: 24

24113 1662072 GTTTtagtttcttgTCGTTATTAC ACTATCTTCTTCTGAGTAGTAGTGGTCGTAACGTT spacer length:
35 repeater length: 24

24114 1662131 GTTTtagtttcttgTCGTTATTAC TTTTTGACAGCATTCGATAGAGGTTAAAGGTTTTTT spacer length:
36 repeater length: 24

24115 1662191 GTTTtagtttcttgTCGTTATTAC TGGTTGTTTGGTGAAAACCTCTAGGGGGACACATTC spacer length:
36 repeater length: 24

24116 1662251 GTTTtagtttcttgTCGTTATTAC AAAAGCTTTAGCTTTTTTCAACTATCTAAGACATA spacer length:
34 repeater length: 24

24117 1662309 GTTTtagtttcttgTCGTTATTAC TTCAATTTGTTTTCTGAAAAAATTAGTTGTAAAG spacer length:
35 repeater length: 24

24118 1662368 GTTTtagtttcttgTCGTTATTAC ATCGTCACCACCCACGAGGGCTTTTACGAATACGAG spacer length:
36 repeater length: 24

24119 1662428 GTTTtagtttcttgTCGTTATTAC ACATACTAATAGTCTTACTCAGCATGAGGTTGATGAAC spacer
length: 38 repeater length: 24

24120 1662490 GTTTtagtttcttgTCGTTATTAC TTCTTGCTTGCTATAGCGTTAAGCAAGTAGAAGTGC spacer length:
36 repeater length: 24

24121 1662550 GTTTtagtttcttgTCGTTATTAC TTGGATATAGAATTGTCTCATAAAGACATTGAGACTG spacer
length: 37 repeater length: 24

24122 1662611 GTTTtagtttcttgTCGTTATTAC TCCATAAAAGGCTTTGGACAAAACTCTTTGGTG spacer length:
34 repeater length: 24

24123 1662669 GTTTtagtttcttgTCGTTATTAC GACTTCATATAAAGATTTGAGTTGCTGTTGCTCATAT spacer
length: 37 repeater length: 24

24124 1662730 GTTTtagtttcttgTCGTTATTAC TTTAAGCCAAATTTCTTCTCAATGTCCTTTGGAATTAAT spacer
length: 39 repeater length: 24

24125 1662793 GTTTtagtttcttgTCGTTATTAC AAGGAAATTGATGGAAGTTGCAGCAGAATTAGAGGCTGA spacer
length: 39 repeater length: 24

24126 1662856 GTTTtagtttcttgTCGTTATTAC TACTTACCGTTTCTTCTATCATCTCTCTATTAG spacer length:
34 repeater length: 24

24127 1662914 GTTTtagtttcttgTCGTTATTAC GATGAAGTTTATGATAAGCTCCAAACAATATATAGT spacer length:
36 repeater length: 24

24128 1662974 GTTTtagtttcttgTCGTTATTAC TTGTATTGCTGATTGCCAATATATGCAATGTATC spacer length:
34 repeater length: 24

24129 1663032 GTTTtagtttcttgTCGTTATTAC TCCAAAGCCTTCTAATAAAAGTGCAAAAGTCTGATGTT spacer
length: 38 repeater length: 24

24130 1663094 GTTTtagtttcttgTCGTTATTAC ATTGTAATGCCATTATTTACTGAAATTGAACCTG spacer length:
34 repeater length: 24

24131 1663152 GTTTtagtttcttgTCGTTATTAC ATCATTCATTTTTTCTGCCCAATATAATATACGAT spacer length:
36 repeater length: 24

24132 1663212 GTTTtagtttcttgTCGTTATTAC ATTGTTGACTTTTCCTATCCACTTTGTGTACTG spacer length: 33
repeater length: 24

24133 1663269 GTTTtagtttcttgTCGTTATTAC TATGTTACGCTCATACTATATTTCTAAAAGTAATGTA spacer
length: 37 repeater length: 24

24134 1663330 GTTTtagtttcttgTCGTTATTAC GTAGAAACCTCTCTGTGTCTCTTGGATTATATAGAAATT spacer
length: 39 repeater length: 24

24135 1663393 GTTTtagtttcttgTCGTTATTAC ACTTATTTTTTGTCTTTATCTCACTACTCATTTTCT spacer length:
36 repeater length: 24

24136 1663453 GTTTtagtttcttgTCGTTATTAC CGTGTGGAAGTTGATGGCTGATCTACAATTATTC spacer length:
34 repeater length: 24

24137	1663511	GTTTGTAGTTTCTTGTCGTTATTAC	TAAATGCTTCCTGCACAGCACCTAAATTGGCAAACCTTTT	spacer
		length: 39	repeater length: 24	
24138	1663574	GTTTGTAGTTTCTTGTCGTTATTAC	CCTAGGCTTTGCAGGTATTAATGCCTGTGAGCCA	spacer length:
		34	repeater length: 24	
24139	1663632	GTTTGTAGTTTCTTGTCGTTATTAC	TATCACAACAAATACATTTTTGTATACCGCTACT	spacer length:
		34	repeater length: 24	
24140	1663690	GTTTGTAGTTTCTTGTCGTTATTAC	TTTGGGTCAGAGACAAAGTTGTCAGTTTAATGACAA	spacer length:
		36	repeater length: 24	
24141	1663750	GTTTGTAGTTTCTTGTCGTTATTAC	GAATTTGTATCATTTACTGGAAATCTGAAATTATTGTA	spacer
		length: 38	repeater length: 24	
24142	1663812	GTTTGTAGTTTCTTGTCGTTATTAC	TACTAGCTTCTTTGCTATCTTCTCAGCCTTGTTG	spacer length:
		34	repeater length: 24	
24143	1663870	GTTTGTAGTTTCTTGTCGTTATTAC	TTGTAATCCCAGTGCTCTTTGCACTTAACCCAGAGA	spacer length:
		36	repeater length: 24	
24144	1663930	GTTTGTAGTTTCTTGTCGTTATTAC	TCACCTACGACATATGATGCTACTTCATGCACTGT	spacer length:
		35	repeater length: 24	
24145	1663989	GTTTGTAGTTTCTTGTCGTTATTAC	AATAGATCACACTGTTTGACATTAAAGAGCACAA	spacer length:
		34	repeater length: 24	
24146	1664047	GTTTGTAGTTTCTTGTCGTTATTAC	ACCTAAAAATGATAAAAAATCTAAGACTAACGTCGA	spacer length:
		35	repeater length: 24	
24147	1664106	GTTTGTAGTTTCTTGTCGTTATTAC	TTGTTACTTTTAAATGTAAAGAGTAAGGCTTAAATAT	spacer length:
		36	repeater length: 24	
24148	1664166	GTTTGTAGTTTCTTGTCGTTATTAC	AGGTAATAGATCTTGAGGTGACGTCAATCCAAATT	spacer length:
		35	repeater length: 24	
24149	1664225	GTTTGTAGTTTCTTGTCGTTATTAC	ATAATCAAGGAGGCATCTATGTTACTGGGCATTA	spacer length:
		34	repeater length: 24	
24150	1664283	GTTTGTAGTTTCTTGTCGTTATTAC	AGGCCTGCCTCTTCTAGTCCTTCTTGTCACCTAGAATT	spacer
		length: 39	repeater length: 24	
24151	1664346	GTTTGTAGTTTCTTGTCGTTATTAC	ATGTTTCCTTGAACAAAAGCGATATCATAAAATT	spacer length:
		34	repeater length: 24	
24152	1664404	GTTTGTAGTTTCTTGTCGTTATTAC	TGTTCTACGTTAGGGTACTTTTTTATGAACTTTTCA	spacer length:
		36	repeater length: 24	
24153	1664464	GTTTGTAGTTTCTTGTCGTTATTAC	AAAGAAGAGCAGAAAGTAGTAGAGGACAGAGAAGAT	spacer length:
		36	repeater length: 24	
24154	1664524	GTTTGTAGTTTCTTGTCGTTATTAC	AACGGTTTAGCAATCCTCCTCGGAATATTAATGCTGTT	spacer
		length: 38	repeater length: 24	
24155	1664586	GTTTGTAGTTTCTTGTCGTTATTAC	TTTAATGCGTTTAAATGCCTCATCGAATTTCTGCTTC	spacer length:
		36	repeater length: 24	
24156	1664646	GTTTGTAGTTTCTTGTCGTTATTAC	AATGTATCTTCAGTTCCATTATTCTATTTGAACTC	spacer length:
		35	repeater length: 24	
24157	1664705	GTTTGTAGTTTCTTGTCGTTATTAC	CAGCTTATTACTATGCCCTGGCAAAGATCCTCTTAGAG	spacer
		length: 38	repeater length: 24	
24158	1664767	GTTTGTAGTTTCTTGTCGTTATTAC	GGTCGTTTCAT	
24159				
24160				
24161	crispr 5			
24162	1677158	GTAATAACGACAAGAACTAAAAC	AGCTCTTTTCGCACTGTTATTTTACAATTTACACGT	spacer length:
		35	repeater length: 24	
24163	1677217	GTAATAACGACAAGAACTAAAAC	GCTTGTTGATTTGGGCCCATGCGAGGAGGATTAA	spacer length:
		34	repeater length: 24	
24164	1677275	GTAATAACGACAAGAACTAAAAC	TGATATTGTATCGTTGTAGTTAGTATTGTCCAGAAGAA	spacer
		length: 38	repeater length: 24	
24165	1677337	GTAATAACGACAAGAACTAAAAC	AAGAACTCCCGGGAGCCCTGGTGGTATGCCCCGAAATT	spacer
		length: 37	repeater length: 24	
24166	1677398	GTAATAACGACAAGAACTAAAAC	ATCGTAAGAGAAGTGGGCTAGCGCTACCCTCCTCCACT	spacer
		length: 38	repeater length: 24	
24167	1677460	GTAATAACGACAAGAACTAAAAC	AGAAAATATCTCAAGGAGGGCGAGGAAGTATGCGAAAG	spacer
		length: 38	repeater length: 24	
24168	1677522	GTAATAACGACAAGAACTAAAAC	TGGATGCTGAGTTAACTCCCCAGTTTACCGTA	spacer length: 32
		repeater length: 24		
24169	1677578	GTAATAACGACAAGAACTAAAAC	TTTTAGCCTGACCATTTCCCTCGTTAAAAAATAAGGAAA	spacer
		length: 39	repeater length: 24	
24170	1677641	GTAATAACGACAAGAACTAAAAC	TTTCACGCTCCATGACCTCAGTGAATATCTCATT	spacer length:
		34	repeater length: 24	
24171	1677699	GTAATAACGACAAGAACTAAAAC	TCATAGGGGCTATATTCAACAATACGTTGCTCCAGTT	spacer
		length: 37	repeater length: 24	
24172	1677760	GTAATAACGACAAGAACTAAAAC	GAGAAGAAGCAAAGCATACCGCTCTACAAGGTTTCCTTCAGTT	spacer
		length: 42	repeater length: 24	
24173	1677826	GTAATAACGACAAGAACTAAAAC	TATGTCGATCTGTCCGGTGTGCTGGTGGGCGAGCAT	spacer length:
		36	repeater length: 24	
24174	1677886	GTAATAACGACAAGAACTAAAAC	AAATAGTGGTTTCCAAGACTGTGCAAATGCTTTTTTTATA	spacer

length: 39 repeater length: 24

24175 1677949 GTAATAACGACAAGAACTAAAAC TTTTAGCTGTTTCTCCATTCCGTCCCACCAACTAT spacer length: 35 repeater length: 24

24176 1678008 GTAATAACGACAAGAACTAAAAC TAAAATATTTTAATGTTCCGGAGATAGATTATAACT spacer length: 36 repeater length: 24

24177 1678068 GTAATAACGACAAGAACTAAAAC TGATATTTGGAGTGGTCGTGATTTTAATGGGAGCT spacer length: 35 repeater length: 24

24178 1678127 GTAATAACGACAAGAACTAAAAC ATTAAC TACATCGCTAACAGCTTGGTACAGCCTGT spacer length: 35 repeater length: 24

24179 1678186 GTAATAACGACAAGAACTAAAAC AACAAAAAATGAAGTTTTGGGTATGACTTTCTAC spacer length: 36 repeater length: 24

24180 1678246 GTAATAACGACAAGAACTAAAAC TAGAGGCACAATTACAGAATTTAGTAATTGATCAAAG spacer length: 37 repeater length: 24

24181 1678307 GTAATAACGACAAGAACTAAAAC TGAATTCTGCCTTTTTATATAACGCATTACTGTGATC spacer length: 37 repeater length: 24

24182 1678368 GTAATAACGACAAGAACTAAAAC TTTGAGACGCTGAAAGACGTAGCGAAAGACTCTGC spacer length: 35 repeater length: 24

24183 1678427 GTAATAACGACAAGAACTAAAAC ATTAAAATGCTGTAGAAACACTTGACCAAATATA spacer length: 34 repeater length: 24

24184 1678485 GTAATAACGACAAGAACTAAAAC TAAAGGGATCCTGACCTAAGGACTATCGGGCTTACTTT spacer length: 38 repeater length: 24

24185 1678547 GTAATAACGACAAGAACTAAAAC ACTATCTCAGCTATCGTCACTATCGACATCTTCAC spacer length: 35 repeater length: 24

24186 1678606 GTAATAACGACAAGAACTAAAAC CATTTTATTTATATAGCCTCGTTGTATAGCTTCT spacer length: 34 repeater length: 24

24187 1678664 GTAATAACGACAAGAACTAAAAC ACTGCTAAAGAGCGCAGGTATTGCGCAAGACTACA spacer length: 35 repeater length: 24

24188 1678723 GTAATAACGACAAGAACTAAAAC ATAATATACGACGCTCTGGTTAGGTAAAGGTACTCT spacer length: 36 repeater length: 24

24189 1678783 GTAATAACGACAAGAACTAAAAC AAAATTTTATTCTAAAGAGATAACAGATTTGGGCT spacer length: 35 repeater length: 24

24190 1678842 GTAATAACGACAAGAACTAAAAC AGTGAATGCTTGTCTGAGCCTAGTCTGTTTAACG spacer length: 35 repeater length: 24

24191 1678901 GTAATAACGACAAGAACTAAAAC ACATTTGCTGGAGTTCAGAAAATATCAGTAACCAA spacer length: 35 repeater length: 24

24192 1678960 GTAATAACGACAAGAACTAAAAC AAAGTTGTTTCAGCCCCATCTTCAATAAGTGAAGGT spacer length: 36 repeater length: 24

24193 1679020 GTAATAACGACAAGAACTAAAAC AACATAAAAAACACTGCTAGTTTCTATCTGATTAAT spacer length: 36 repeater length: 24

24194 1679080 GTAATAACGACAAGAACTAAAAC ATAGATAAAATAAATAGTTAATGTTTCATAAAATCT spacer length: 36 repeater length: 24

24195 1679140 GTAATAACGACAAGAACTAAAAC AACACGTGATGATACTGACATTTGCGGGCTATTGT spacer length: 36 repeater length: 24

24196 1679200 GTAATAACGACAAGAACTAAAAC GCTGTT CATATAACTGTAATAAATTAAGAACTT spacer length: 34 repeater length: 24

24197 1679258 GTAATAACGACAAGAACTAAAAC AACTCTTGAATTGTTAAGTCTTTAATGAATGCAT spacer length: 34 repeater length: 24

24198 1679316 GTAATAACGACAAGAACTAAAAC AATGTACACCGTAGCCATTTTTTTGCACTTCTTT spacer length: 34 repeater length: 24

24199 1679374 GTAATAACGACAAGAACTAAAAC AAGAACAGCGATGTTTACAAGTCAGCACAGACGT spacer length: 35 repeater length: 24

24200 1679433 GTAATAACGACAAGAACTAAAAC CATTTTCTTGTTTTATCTATTTACCGTTTTTAAAC spacer length: 35 repeater length: 24

24201 1679492 GTAATAACGACAAGAACTAAAAC CTAGATTGTTAGCACCGTGCATTAGCAATAATGCGTT spacer length: 37 repeater length: 24

24202 1679553 GTAATAACGACAAGAACTAAAAC GATTGCTGATGACGATGGAATAGTTACCACAAGC spacer length: 34 repeater length: 24

24203 1679611 GTAATAACGACAAGAACTAAAAC TTTTATTTTCACCGACAAAACGAAAAAATTGAAT spacer length: 35 repeater length: 24

24204 1679670 GTAATAACGACAAGAACTAAAAC TTAAAGAGGCAACAAAGCGAAAAATTCTATATGCC spacer length: 35 repeater length: 24

24205 1679729 GTAATAACGACAAGAACTAAAAC TTGTTGTGCTAACTGGTTTATCGCATCCCCATTTC spacer length: 35 repeater length: 24

24206 1679788 GTAATAACGACAAGAACTAAAAC TTATGTTATTTGTACAAACTTCTTAGTTGCCAATT spacer length: 35 repeater length: 24

24207 1679847 GTAATAACGACAAGAACTAAAAC TTCTTGTAGTTTCGGGAAGACATTCTCACTGGTGTA spacer length: 36 repeater length: 24

24208 1679907 GTAATAACGACAAGAACTAAAAC TAGTAGTAGTTAATACTGCTGACTGAATTTTTCTTAGTT spacer length: 39 repeater length: 24

24209 1679970 GTAATAACGACAAGAACTAAAAC TTTATTTCAAAAAGTTACACTATAAAGATGAATTA spacer length: 35 repeater length: 24

24210	1680029	GTAATAACGACAAGAACTAAAAC	TTGGGTAAGATCTAGACCTTATGTTCTCTTTCT	spacer length: 34	repeater length: 24
24211	1680087	GTAATAACGACAAGAACTAAAAC	TTGGGATATATTGCACAGACAACTTTGTCTCC	spacer length: 33	repeater length: 24
24212	1680144	GTAATAACGACAAGAACTAAAAC	ATGTTAGGAATATTGTTAAAAATCCGCCTATAATTCCGAT	spacer length: 40	repeater length: 24
24213	1680208	GTAATAACGACAAGAACTAAAAC	ATTTTTTATGCCATACCAACCCATTTTAATCAAA	spacer length: 34	repeater length: 24
24214	1680266	GTAATAACGACAAGAACTAAAAC	CAGTATATGCGTGTTGATGATTTTCTGAAGACTT	spacer length: 34	repeater length: 24
24215	1680324	GTAATAACGACAAGAACTAAAAC	ATAGCAAAGTACGAATAATCTATATTCCTGACCT	spacer length: 34	repeater length: 24
24216	1680382	GTAATAACGACAAGAACTAAAAC	ATATCTCATGGTTATGTTTCTTCAGATCCAGGCT	spacer length: 34	repeater length: 24
24217	1680440	GTAATAACGACAAGAACTAAAAC	GCGGCAGCTACTGGGTCTAACGCCTTCCACTCGAT	spacer length: 35	repeater length: 24
24218	1680499	GTAATAACGACAAGAACTAAAAC	ACATAAGCCAGCTAAAGAAGACGTATCTGACTGAG	spacer length: 35	repeater length: 24
24219	1680558	GTAATAACGACAAGAACTAAAAC	ATTATAAGTAAGGGCTGACTTGTTGAGTAAGACTGGT	spacer length: 37	repeater length: 24
24220	1680619	GTAATAACGACAAGAACTAAAAC	ATGATTATGAAATTTGTACAGCAAATGTTGATGAGAA	spacer length: 37	repeater length: 24
24221	1680680	GTAATAACGACAAGAACTAAAAC	AATGTCTTTTTTTATATAAATTTTTTCGAGTCCTAAT	spacer length: 36	repeater length: 24
24222	1680740	GTAATAACGACAAGAACTAAAAC	AGGGAAAAGATCCTCTTCCTAGCTCCTTTCTCTTG	spacer length: 35	repeater length: 24
24223	1680799	GTAATAACGACAAGAACTAAAAC	CCTGTACAACGAAAACGGGACATTGTGGGCAATACA	spacer length: 36	repeater length: 24
24224	1680859	GTAATAACGACAAGAACTAAAAC	CTCGACCTCTTCTACTACTTCTGGTGGTGCACCCAT	spacer length: 36	repeater length: 24
24225	1680919	GTAATAACGACAAGAACTAAAAC	TTAATTAAAGCGGCAAGCTCTCTAGCCAGGCTAGATCCCTT	spacer length: 41	repeater length: 24
24226	1680984	GTAATAACGACAAGAACTAAAAC	AAAACAATGTTTTAGTTTTACAGACATTATAAAATT	spacer length: 36	repeater length: 24
24227	1681044	GTAATAACGACAAGAACTAAAAC	ACTTCAAGAATGGAATACATTTGTAAAAATTTGCT	spacer length: 36	repeater length: 24
24228	1681104	GTAATAACGACAAGAACTAAAAC	GCCCAAGCTCAGGCTGGAACAGTGGAAATCCGC	spacer length: 34	repeater length: 24
24229	1681162	GTAATAACGACAAGAACTAAAAC	ATATAACAAAGCGCATTGCTGATACGTTACACAGA	spacer length: 35	repeater length: 24
24230	1681221	GTAATAACGACAAGAACTAAAAC	TCCATGCCCTCGCCCCGCTTTTCTTTTTCTTT	spacer length: 34	repeater length: 24
24231	1681279	GTAATAACGACAAGAACTAAAAC	TTCCACATTGATGAGGTAAGCCTCTGAAAAGGTTT	spacer length: 35	repeater length: 24
24232	1681338	GTAATAACGACAAGAACTAAAAC	TGTGACCAAATTGAGGCAGAAGTATCCGCAGGGGAA	spacer length: 36	repeater length: 24
24233	1681398	GTAATAACGACAAGAACTAAAAC	ACCCCTGACTTTGTCTTAAAGATAATGAGTTCTTT	spacer length: 36	repeater length: 24
24234	1681458	GTAATAACGACAAGAACTAAAAC	AGAAAATGAGTAGTGAAGTTAAGACAAAAAATAAGTCA	spacer length: 38	repeater length: 24
24235	1681520	GTAATAACGACAAGAACTAAAAC	TTCACTGTCAAATTTGTCTAGCAGTTCTTTTGC GACTT	spacer length: 38	repeater length: 24
24236	1681582	GTAATAACGACAAGAACTAAAAC	ATTATACCACGCCAAAGAGATGGCGTGAGGCGATA	spacer length: 35	repeater length: 24
24237	1681641	GTAATAACGACAAGAACTAAAAC	TATTTGAAGGCTTCCCTTAGGGCGTTCTTTAGCG	spacer length: 34	repeater length: 24
24238	1681699	GTAATAACGACAAGAACTAAAAC	GTAAATTCGGCGCCCCAGTAGAAGTCTTTCTCGC	spacer length: 35	repeater length: 24
24239	1681758	GTAATAACGACAAGAACTAAAAC	CTATGTGTTGATGAGAGCACAGCTGGGCATGGAGCGTA	spacer length: 38	repeater length: 24
24240	1681820	GTAATAACGACAAGAACTAAAAC	AGATGTAGAGAAAACGATCGATTTAAGGCATGCGA	spacer length: 35	repeater length: 24
24241	1681879	GTAATAACGACAAGAACTAAAAC	AATAAATCAATCCTTTTTTTAAGGTCTTTCCAAGA	spacer length: 35	repeater length: 24
24242	1681938	GTAATAACGACAAGAACTAAAAC	TCAACACAAGGAAACACTTACAATTGGTATGAGTATGAAG	spacer length: 40	repeater length: 24
24243	1682002	GTAATAACGACAAGAACTAAAAC	CAC TAGACACTGCAGGGACAGATATCAAAAAC TT	spacer length: 34	repeater length: 24
24244	1682060	GTAATAACGACAAGAACTAAAAC	GTGCCCCCTGTCTCCTGCAGTTTTAACGCTAAATATCT	spacer length: 37	repeater length: 24
24245	1682121	GTAATAACGACAAGAACTAAAAC	ACCTATCACTTTCCTTGCGAATTCAACCAGTGTTAA	spacer length: 34	repeater length: 24

36 repeater length: 24

24246 1682181 GTAATAACGACAAGAACTAAAAAC CACCAGCTGTGATGACATAGTCTTTGTCCAGTAATGG spacer length: 37 repeater length: 24

24247 1682242 GTAATAACGACAAGAACTAAAAAC TTCTTCATAAGGATGTATCTGTACCAGTTCACCA spacer length: 34 repeater length: 24

24248 1682300 GTAATAACGACAAGAACTAAAAAC GTCTTTACAGAACTTGGGGCGAAGTAGTATCCCGCA spacer length: 36 repeater length: 24

24249 1682360 GTAATAACGACAAGAACTAAAAAC GATGAACTCGCCTGTGTTACTTGATGTGTATAAGGAA spacer length: 37 repeater length: 24

24250 1682421 GTAATAACGACAAGAACTAAAAAC AACTCTGAGACTGAGGTTCTTTTTGTCTCACTAGAT spacer length: 36 repeater length: 24

24251 1682481 GTAATAACGACAAGAACTAAAAAC ATAGGCTAGAAGCTGCAAAGAGGCTGGGCTGGAAA spacer length: 35 repeater length: 24

24252 1682540 GTAATAACGACAAGAACTAAAAAC TACTGCAAGATCTACATTATAGTTCAATGATTTT spacer length: 34 repeater length: 24

24253 1682598 GTAATAACGACAAGAACTAAAAAC ACGAGTCTCTTTATCAATATAGTGATGTTATCTACAT spacer length: 37 repeater length: 24

24254 1682659 GTAATAACGACAAGAACTAAAAAC TTTTTTGCTTTTAGCTTTTCGTATTCTATTAATGAT spacer length: 36 repeater length: 24

24255 1682719 GTAATAACGACAAGAACTAAAAAC AGTGGCTTAATGTACCTTTTGGTACTGACTATCCAAT spacer length: 37 repeater length: 24

24256 1682780 GTAATAACGACAAGAACTAAAAAC GCTGATAGATAAAGATAAAATAAAAATAGACTTT spacer length: 34 repeater length: 24

24257 1682838 GTAATAACGACAAGAACTAAAAAC GTCTACTTTAAGTGAACCTTTATTGTAATCGTATCAAA spacer length: 37 repeater length: 24

24258 1682899 GTAATAACGACAAGAACTAAAAAC TAAGCGTCTAAATAAGTTACCGACAATTGTTAT spacer length: 33 repeater length: 24

24259 1682956 GTAATAACGACAAGAACTAAAAAC ATTGTTGAGAGATGCTACTTATGAAGAAAATGGAA spacer length: 35 repeater length: 24

24260 1683015 GTAATAACGACAAGAACTAAAAAC CTTCATAACTCAACAAAACAAATAAGGTATGCCACTCT spacer length: 38 repeater length: 24

24261 1683077 GTAATAACGACAAGAACTAAAAAC CTTAGCGTAAGAGAGCGTATATTATGCAGCGTATATT spacer length: 37 repeater length: 24

24262 1683138 GTAATAACGACAAGAACTAAAAAC AATTTTCAGAGTCACCTTACTTGAAATTTTGTCTCTC spacer length: 37 repeater length: 24

24263 1683199 GTAATAACGACAAGAACTAAAAAC CAAAACTGCCGTTTAATGCGCCACTTCTAGAACAA spacer length: 36 repeater length: 24

24264 1683259 GTAATAACGACAAGAACTAAAAAC TTTTGAGAATAGAGTCTATGAAATCTCCTTTTATT spacer length: 35 repeater length: 24

24265 1683318 GTAATAACGACAAGAACTAAAAAC AGGTTCACTCACCTCGCCTCGCAAGATATTCCAAA spacer length: 36 repeater length: 24

24266 1683378 GTAATAACGACAAGAACTAAAAAC ACAATTCTTTCTTTTTTTTATAGCTGTTGTACACATTCCT spacer length: 39 repeater length: 24

24267 1683441 GTAATAACGACAAGAACTAAAAAC TAGTAATATCTAGCGACTTCCATAATTGCTGATGC spacer length: 35 repeater length: 24

24268 1683500 GTAATAACGACAAGAACTAAAAAC ATTATAAAATTGATGTATTATACATTTGCAGAAAT spacer length: 35 repeater length: 24

24269 1683559 GTAATAACGACAAGAACTAAAAAC CGCTATTCTCAAGTACTCTGCGATCTCGCCCTCTGAAAG spacer length: 39 repeater length: 24

24270 1683622 GTAATAACGACAAGAACTAAAAAC TTCATATCGCTCTTTTGAATACTTCATCAATTCTTGTT spacer length: 38 repeater length: 24

24271 1683684 GTAATAACGACAAGAACTAAAAAC TTTTATATTCTGTTGTTTATTTTATATCATTT spacer length: 34 repeater length: 24

24272 1683742 GTAATAACGACAAGAACTAAAAAC ATATTATTAGGAATGACAGCCGGAGCTACTACTGT spacer length: 35 repeater length: 24

24273 1683801 GTAATAACGACAAGAACTAAAAAC TTGTACAAAAAGCTGAATTTAAGCAAGTCGGAAT spacer length: 35 repeater length: 24

24274 1683860 GTAATAACGACAAGAACTAAAAAC ATTTAGTTTGAATATTATGAGTAATTGAGAGTTGGT spacer length: 36 repeater length: 24

24275 1683920 GTAATAACGACAAGAACTAAAAAC TTGCTACAGGAAATGGAGAAGGTGAATATCAGGGAGG spacer length: 37 repeater length: 24

24276 1683981 GTAATAACGACAAGAACTAAAAAC TTTTATCTTCAAAGAGTTGAAAAAGAGAGGGTTAGATA spacer length: 38 repeater length: 24

24277 1684043 GTAATAACGACAAGAACTAAAAAC CTTTCTTCTTCATCTTTATCGATCAAAATTAGCCTTA spacer length: 37 repeater length: 24

24278 1684104 GTAATAACGACAAGAACTAAAAAC TTTATTATCAAGAGCATTAAGTAATTTTGAAGACCG spacer length: 37 repeater length: 24

24279 1684165 GTAATAACGACAAGAACTAAAAAC TAATAACTCTCCTACCTTTTCTATTTTATAGCATTTGG spacer length: 37 repeater length: 24

24280 1684226 GTAATAACGACAAGAACTAAAAAC TATTTTCGTAATCTTCTATAAGTTTTGAGTTGAATGGC spacer length: 37 repeater length: 24

24281 1684287 GTAATAACGACAAGAAACTAAAAC GTATAGTACTGGTGTATTACTTCCAGATATCCCT spacer length:
34 repeater length: 24
24282 1684345 GTAATAACGACAAGAAACTAAAAC CACTCTCTTCAATCCGATTATATCAATTTACTACA spacer length:
35 repeater length: 24
24283 1684404 GTAATAACGACAAGAAACTAAAAC GATTACTGCAGTGATGATGAAATATCGTGCTAATGAT spacer
length: 37 repeater length: 24
24284 1684465 GTAATAACGACAAGAAACTAAAAC GTTGTAGTCATTCCAGTAATGACTAAGATATTGTGT spacer length:
36 repeater length: 24
24285 1684525 GTAATAACGACAAGAAACTAAAAC TGTAATACAATATTACGCTAGCAATACAACAAACATA spacer
length: 37 repeater length: 24
24286 1684586 GTAATAACGACAAGAAACTAAAAC ACACTCGCCGACTCTCTCTCATTTATTGCGAGATA spacer length:
35 repeater length: 24
24287 1684645 GTAATAACGACAAGAAACTAAAAC GTGTTGTTCGAGACTTCTACTGCCATTAATATTAG spacer length:
35 repeater length: 24
24288 1684704 GTAATAACGACAAGAAACTAAAAC GATTACTTTATGCTTTATTCAAATATAGAATAAAAA spacer length:
36 repeater length: 24
24289 1684764 GTAATAACGACAAGAAACTAAAAC GTTGGGTATTTAAGCTTACGCATTATATTTTTTGAG spacer length:
35 repeater length: 24
24290 1684823 GTAATAACGACAAGAAACTAAAAC GATTACTGCAGTGATGATGAAATATCGTGCTAATGAT spacer
length: 37 repeater length: 24
24291 1684884 GTAATAACGACAAGAAACTAAAAC TAATATAGCGACCACAGAACTCTTGCTATATTTTC spacer length:
34 repeater length: 24
24292 1684942 GTAATAACGACAAGAAACTAAAAC CTCTCAAGAAATTCCAAAAGTTTATCAAACCTCCTC spacer length:
35 repeater length: 24
24293 1685001 GTAATAACGACAAGAAACTAAAAC TTTCTACATTATGTACTACCGATAAAACATGTGATCA spacer
length: 37 repeater length: 24
24294 1685062 GTAATAACGACAAGAAACTAAAAC TTCTCTTGTTTCAAACCACTTAAATCTTCGTTATTT spacer
length: 37 repeater length: 24
24295 1685123 GTAATAACGACAAGAAACTAAAAC TTTTCATCAACATCTTGACTCCGGTATTCGACATCA spacer length:
36 repeater length: 24
24296 1685183 GTAATAACGACAAGAAACTAAAAC AGTGGTCAGGGCTAGATATCTGCCACTACCAACT spacer length:
35 repeater length: 24
24297 1685242 GTAATAACGACAAGAAACTAAAAC TATCAAGAAAAATAGGGCTAGCCCAATTCCAATGAT spacer length:
36 repeater length: 24
24298 1685302 GTAATAACGACAAGAAACTAAAAC
24299
24300
24301 GCA_001481635.1_ASM148163v1_genomic.fna (PilerCR):
24302 START REPEAT
SPACER
24303 crispr 1
24304 21239 GTTTGTAGTTTCTTGTCGTTATTAC TAAATTAGATATACGTACATGGGATTCACTAAGAAA spacer length:
36 repeater length: 24
24305 21299 GTTTGTAGTTTCTTGTCGTTATTAC CGATTGTTGTGATTGTTGTTCTTGCTTTTTAGCGTC spacer length:
36 repeater length: 24
24306 21359 GTTTGTAGTTTCTTGTCGTTATTAC CAACATAAGGACCTGGAGTGATCACGGGGAGCCCAGT spacer length:
37 repeater length: 24
24307 21420 GTTTGTAGTTTCTTGTCGTTATTAC GGGAGGGAGTTACAGTAATAATATCTACGGAACGGT spacer length:
36 repeater length: 24
24308 21480 GTTTGTAGTTTCTTGTCGTTATTAC CTTTCAATTGATGCTGGTGATGCTTGAGCTAAAATG spacer length:
36 repeater length: 24
24309 21540 GTTTGTAGTTTCTTGTCGTTATTAC TAGTACTATCTTTATATTCCTATATTTTCCTCCTA spacer length: 35
repeater length: 24
24310 21599 GTTTGTAGTTTCTTGTCGTTATTAC TAGTACTATCTTTATATTCCTATATTTTCCTCCTA spacer length: 35
repeater length: 24
24311 21658 GTTTGTAGTTTCTTGTCGTTATTAC AAGGCTTCCTCTTCTTGCTGGGTAAGCCTGGGGAGTA spacer length:
37 repeater length: 24
24312 21719 GTTTGTAGTTTCTTGTCGTTATTAC TTTTAGGGCTACTATGGTGATAGCTACTGAAAATAAAAA spacer
length: 39 repeater length: 24
24313 21782 GTTTGTAGTTTCTTGTCGTTATTAC AAGGAATTAAAGAAGTTAGGACTTCAGGACAATGTAG spacer length:
37 repeater length: 24
24314 21843 GTTTGTAGTTTCTTGTCGTTATTAC GCTTTAAGGTCGAAATCAGAGATAATGAGCATAAT spacer length: 35
repeater length: 24
24315 21902 GTTTGTAGTTTCTTGTCGTTATTAC AAAAATGTGCTCATCTATGTTTCACCCTGTTGCAC spacer length: 35
repeater length: 24
24316 21961 GTTTGTAGTTTCTTGTCGTTATTAC AGAGTTTGTTCTTAATTGGCCAGCAGACTAATTTTA spacer length:
36 repeater length: 24
24317 22021 GTTTGTAGTTTCTTGTCGTTATTAC CTTCCAGTCTTCATTTCTGGCTCACCCCGAGTCAGC spacer length:
36 repeater length: 24
24318 22081 GTTTGTAGTTTCTTGTCGTTATTAC ATACTTAATCCCTGCAATCGCAGGTTCAATGGTTCAAG spacer length:
38 repeater length: 24

24319	22143 GTTTGTAGTTTCTTGTCGTTATTAC	AGCACGTAACGAAGCTCTATACTACTACGTAAAG	spacer length: 35
	repeater length: 24		
24320	22202 GTTTGTAGTTTCTTGTCGTTATTAC	GTTGACGAGGGCTGGCTCTTTGTGAACTACCCTAT	spacer length: 35
	repeater length: 24		
24321	22261 GTTTGTAGTTTCTTGTCGTTATTAC	TGAAAAACCCCTATATTTACAGAGACAAATGAAGAG	spacer length: 35
	repeater length: 24		
24322	22320 GTTTGTAGTTTCTTGTCGTTATTAC	GAATTGTGCTGATGCCGAATTATCAGGATCCCAT	spacer length: 34
	repeater length: 24		
24323	22378 GTTTGTAGTTTCTTGTCGTTATTAC	AAGTCGCAATAGCTAATTCGACTAACTAATCGCT	spacer length: 35
	repeater length: 24		
24324	22437 GTTTGTAGTTTCTTGTCGTTATTAC	GCCATCGAGATTATAGCACCCATCAGAATAATTAC	spacer length: 35
	repeater length: 24		
24325	22496 GTTTGTAGTTTCTTGTCGTTATTAC	GAGAAACCCCTCTAACCTTTTTAAGAAGTCCTTTACA	spacer length: 37
	repeater length: 24		
24326	22557 GTTTGTAGTTTCTTGTCGTTATTAC	TCAATTCTTCGTAATGCTCGGGTTTTATGATTATTTT	spacer length: 37
	repeater length: 24		
24327	22618 GTTTGTAGTTTCTTGTCGTTATTAC	AGTAACTATATACTTCCTAACGGAACAACGTAA	spacer length: 34
	repeater length: 24		
24328	22676 GTTTGTAGTTTCTTGTCGTTATTAC	ACCAGTCTTATCTACATATTTTCAAAAGTAATAGT	spacer length: 35
	repeater length: 24		
24329	22735 GTTTGTAGTTTCTTGTCGTTATTAC	AGATGAGCATGGCGTAGTATCCATAAGTGCTGATGT	spacer length: 36
	repeater length: 24		
24330	22795 GTTTGTAGTTTCTTGTCGTTATTAC	ACAACGAAAAAGAAAAAGCATTGAAAATAATTGAG	spacer length: 35
	repeater length: 24		
24331	22854 GTTTGTAGTTTCTTGTCGTTATTAC	ATTTATATACATACACTCCATTTTCCTTAAATTT	spacer length: 34
	repeater length: 24		
24332	22912 GTTTGTAGTTTCTTGTCGTTATTAC	TGCTGTTTCATCAGGCTCAGTATAGTACCTGCAT	spacer length: 33
	repeater length: 24		
24333	22969 GTTTGTAGTTTCTTGTCGTTATTAC	GTGTGTCTTACCACTCATAAAGCTCTCCACATAC	spacer length: 35
	repeater length: 24		
24334	23028 GTTTGTAGTTTCTTGTCGTTATTAC	ATTGATACGATTCTTGCTGAGGCGAGAAAGTATTCTCTT	spacer length: 39
	repeater length: 24		
24335	23091 GTTTGTAGTTTCTTGTCGTTATTAC	ATAATTTCAATCCTGAAAAACAGCTGTTCTACTTC	spacer length: 35
	repeater length: 24		
24336	23150 GTTTGTAGTTTCTTGTCGTTATTAC	CTCTACTATTGCTGATACTGATTTGCCTTCATCCCTC	spacer length: 37
	repeater length: 24		
24337	23211 GTTTGTAGTTTCTTGTCGTTATTAC	ACTATCTTCTTCTGAGTAGTAGTGGTCGTAACGTT	spacer length: 35
	repeater length: 24		
24338	23270 GTTTGTAGTTTCTTGTCGTTATTAC	TTTTTGACAGCATTCGATAGAGGTAAAGGTTTTTT	spacer length: 36
	repeater length: 24		
24339	23330 GTTTGTAGTTTCTTGTCGTTATTAC	TGGTTGTTTGGTGAAAACCTCTAGGGGGACACATTC	spacer length: 36
	repeater length: 24		
24340	23390 GTTTGTAGTTTCTTGTCGTTATTAC	AAAAGCTTTAGCTTTTTCAACTATCTAAGACATA	spacer length: 34
	repeater length: 24		
24341	23448 GTTTGTAGTTTCTTGTCGTTATTAC	TTCAATTTGTTTTCTGAAAAAATTAGTTGTAAAG	spacer length: 35
	repeater length: 24		
24342	23507 GTTTGTAGTTTCTTGTCGTTATTAC	ATCGTCACCACCCACGAGGGCTTTTACGAATACGAG	spacer length: 36
	repeater length: 24		
24343	23567 GTTTGTAGTTTCTTGTCGTTATTAC	ACATACTAATAGTCTTACTCAGCATGAGGTTGATGAAC	spacer length: 38
	repeater length: 24		
24344	23629 GTTTGTAGTTTCTTGTCGTTATTAC	TTCTTGCTTGCTATAGCGTTAAGCAAGTAGAAGTGC	spacer length: 36
	repeater length: 24		
24345	23689 GTTTGTAGTTTCTTGTCGTTATTAC	TTGGATATAGAATTGTCTCATAAAGACATTGAGACTG	spacer length: 37
	repeater length: 24		
24346	23750 GTTTGTAGTTTCTTGTCGTTATTAC	TCCATAAAAGGCTTTGGACAAAACTCTTGGTG	spacer length: 34
	repeater length: 24		
24347	23808 GTTTGTAGTTTCTTGTCGTTATTAC	GACTTCATATAAAGATTTGAGTTGCTGTTGCTCATAT	spacer length: 37
	repeater length: 24		
24348	23869 GTTTGTAGTTTCTTGTCGTTATTAC	TTTAAGCCAAATTTCTTCTCAATGTCCTTTGGAATTAAT	spacer length: 39
	repeater length: 24		
24349	23932 GTTTGTAGTTTCTTGTCGTTATTAC	AAGGAAATTGATGGAAGTTGCAGCAGAATTAGAGGCTGA	spacer length: 39
	repeater length: 24		
24350	23995 GTTTGTAGTTTCTTGTCGTTATTAC	TACTTACCGTTTCTTCTATCATCTCTCTATTAG	spacer length: 34
	repeater length: 24		
24351	24053 GTTTGTAGTTTCTTGTCGTTATTAC	GATGAAGTTTATGATAAGCTCCAAACAATATATAGT	spacer length: 36
	repeater length: 24		
24352	24113 GTTTGTAGTTTCTTGTCGTTATTAC	TTGTATTGCTGATTGCCAATATATGCAATGTATC	spacer length: 34
	repeater length: 24		
24353	24171 GTTTGTAGTTTCTTGTCGTTATTAC	TCCAAAGCCTTCTAATAAAAGTGCAAAAGTCTGATGTT	spacer length: 38
	repeater length: 24		
24354	24233 GTTTGTAGTTTCTTGTCGTTATTAC	ATTGTAATGCCATTATTTACTGAAATTGAACCTG	spacer length: 34

	repeater length: 24	
24355	24291 GTTTtagtttcttgTCGTTATTAC	ATCATTTCATTTTTCTGCCCAATATAATATACGAT spacer length: 36
	repeater length: 24	
24356	24351 GTTTtagtttcttgTCGTTATTAC	ATTGTTGACTTTTCCTATCCACTTTGTGTACTG spacer length: 33
	repeater length: 24	
24357	24408 GTTTtagtttcttgTCGTTATTAC	TATGTTACGCTCATACTATATTTCTAAAAGTAATGTA spacer length: 37
	repeater length: 24	
24358	24469 GTTTtagtttcttgTCGTTATTAC	GTAGAAACCTCTCTGTGTCTCTTGGATTATATAGAAATT spacer length: 39
	repeater length: 24	
24359	24532 GTTTtagtttcttgTCGTTATTAC	ACTTATTTTTGTCTTTATCTCACTACTCATTTTCT spacer length: 36
	repeater length: 24	
24360	24592 GTTTtagtttcttgTCGTTATTAC	CGTGTGGAAGTTGATGGCTGATCTACAATTATTC spacer length: 34
	repeater length: 24	
24361	24650 GTTTtagtttcttgTCGTTATTAC	TAAATGCTTCCTGCACAGCACCTAAATTGGCAAACTTTT spacer length: 39
	repeater length: 24	
24362	24713 GTTTtagtttcttgTCGTTATTAC	CCTAGGCTTTGCAGGTATTAATGCCTGTGAGCCA spacer length: 34
	repeater length: 24	
24363	24771 GTTTtagtttcttgTCGTTATTAC	TATCACAACAAATACATTTTTGTATACCGCTACT spacer length: 34
	repeater length: 24	
24364	24829 GTTTtagtttcttgTCGTTATTAC	TTTGGGTCAGAGACAAAGTTGTCAGTTTAATGACAA spacer length: 36
	repeater length: 24	
24365	24889 GTTTtagtttcttgTCGTTATTAC	GAATTTGTATCATTTACTGGAAATCTGAAATTATTGTA spacer length: 38
	repeater length: 24	
24366	24951 GTTTtagtttcttgTCGTTATTAC	TACTAGCTTCTTTGCTATCTTCTCAGCCTTGTTG spacer length: 34
	repeater length: 24	
24367	25009 GTTTtagtttcttgTCGTTATTAC	TTGTAATCCCAGTGCTCTTTGCACTTAACCCAGAGA spacer length: 36
	repeater length: 24	
24368	25069 GTTTtagtttcttgTCGTTATTAC	TCACTTACGACATATGATGCTACTTCATGCACTGT spacer length: 35
	repeater length: 24	
24369	25128 GTTTtagtttcttgTCGTTATTAC	AATAGATCACACTGTTTGACATTAAAGAGCACAA spacer length: 34
	repeater length: 24	
24370	25186 GTTTtagtttcttgTCGTTATTAC	ACCTAAAAATGATAAAAAATCTAAGACTAACGTCGA spacer length: 35
	repeater length: 24	
24371	25245 GTTTtagtttcttgTCGTTATTAC	TTGTTACTTTTAATGTAAAGAGTAAGGCTTAAATAT spacer length: 36
	repeater length: 24	
24372	25305 GTTTtagtttcttgTCGTTATTAC	AGGTAATAGATCTTGAGGTGACGTCAATCCAAATT spacer length: 35
	repeater length: 24	
24373	25364 GTTTtagtttcttgTCGTTATTAC	ATAATCAAGGAGGCATCTATGTTACTGGGCATTA spacer length: 34
	repeater length: 24	
24374	25422 GTTTtagtttcttgTCGTTATTAC	AGGCCTGCCTCTTCTAGTCCTTCTTGTGCACTTAGAATT spacer length: 39
	repeater length: 24	
24375	25485 GTTTtagtttcttgTCGTTATTAC	ATGTTTCCTTGAACAAAAGCGATATCATAAAATT spacer length: 34
	repeater length: 24	
24376	25543 GTTTtagtttcttgTCGTTATTAC	TGTTCTACGTTAGGGTACTTTTTTATGAACTTTTCA spacer length: 36
	repeater length: 24	
24377	25603 GTTTtagtttcttgTCGTTATTAC	AAAGAAGAGCAGAAAGTAGTAGAGGACAGAGAAGAT spacer length: 36
	repeater length: 24	
24378	25663 GTTTtagtttcttgTCGTTATTAC	AACGGTTTAGCAATCCTCCTCGGAATATTAATGCTGTT spacer length: 38
	repeater length: 24	
24379	25725 GTTTtagtttcttgTCGTTATTAC	TTTAATGCGTTTAATGCCTCATCGAATTTCTGCTTC spacer length: 36
	repeater length: 24	
24380	25785 GTTTtagtttcttgTCGTTATTAC	AATGTATCTTCAGTTCCATTATTCTATTTGAACTC spacer length: 35
	repeater length: 24	
24381	25844 GTTTtagtttcttgTCGTTATTAC	CAGCTTATTACTATGCCCTGGCAAAGATCCTCTTAGAG spacer length: 38
	repeater length: 24	
24382	25906 GTTTtagtttcttgTCGTTATTAC	TCCTTTTCAA
24383		
24384		
24385	crispr 2	
24386	38297 GTAATAACGACAAGAACTAAAAAC	AGCTCTTTCGCACTGTTATTTTACAATTTACACGT spacer length: 35
	repeater length: 24	
24387	38356 GTAATAACGACAAGAACTAAAAAC	GCTTGTTGATTTGGGCCCATGCGAGGAGGATTAA spacer length: 34
	repeater length: 24	
24388	38414 GTAATAACGACAAGAACTAAAAAC	TGATATTGTATCGTTGTAGTTAGTATTGTCCAGAAGAA spacer length: 38
	repeater length: 24	
24389	38476 GTAATAACGACAAGAACTAAAAAC	AAGAACTCCCGGGAGCCCTGGTGGTATGCCCGAAATT spacer length: 37
	repeater length: 24	
24390	38537 GTAATAACGACAAGAACTAAAAAC	ATCGTAAGAGAAGTGGGCTAGCGCTACCCTCCTCCACT spacer length: 38
	repeater length: 24	
24391	38599 GTAATAACGACAAGAACTAAAAAC	AGAAAATATCTCAAGGAGGGCGAGGAAGTATGCGAAAG spacer length: 38
	repeater length: 24	

24392	38661 GTAATAACGACAAGAACTAAAAC	TGGATGCTGAGTTAACTCCCCAGTTTACCGTA	spacer length: 32
	repeater length: 24		
24393	38717 GTAATAACGACAAGAACTAAAAC	TTTGTAGCCTGACCATTTCCCTCGTTAAAAAATAAGGAAA	spacer
	length: 39 repeater length: 24		
24394	38780 GTAATAACGACAAGAACTAAAAC	TTTCACGCTCCATGACCTCAGTGAATATCTCATT	spacer length: 34
	repeater length: 24		
24395	38838 GTAATAACGACAAGAACTAAAAC	TCATAGGGGCTATATTCAACAATACGTTGCTCCAGTT	spacer length:
	37 repeater length: 24		
24396	38899 GTAATAACGACAAGAACTAAAAC	GAGAAGAAGCAAAGCATACCGCTCTACAAGGTTCTTCAGTT	spacer
	length: 42 repeater length: 24		
24397	38965 GTAATAACGACAAGAACTAAAAC	TATGTGATCTGTCCGGTGTGCTGGTGGGCGAGCAT	spacer length:
	36 repeater length: 24		
24398	39025 GTAATAACGACAAGAACTAAAAC	AAATAGTGGTTTCCAAGACTGTGCAAATGCTTTTTTTATA	spacer
	length: 39 repeater length: 24		
24399	39088 GTAATAACGACAAGAACTAAAAC	TTTGTAGCTGTTTCTCCATTCCGTCCCACCAACTAT	spacer length: 35
	repeater length: 24		
24400	39147 GTAATAACGACAAGAACTAAAAC	TAAAATATTTTAATGTTCCGGAGATAGATTATAACT	spacer length:
	36 repeater length: 24		
24401	39207 GTAATAACGACAAGAACTAAAAC	TGATATTTGGAGTGGTCGTGATTTTAATGGGAGCT	spacer length: 35
	repeater length: 24		
24402	39266 GTAATAACGACAAGAACTAAAAC	ATTAAC TACATCGCTAACAGCTTGGTACAGCCTGT	spacer length: 35
	repeater length: 24		
24403	39325 GTAATAACGACAAGAACTAAAAC	AACAAAAAATGAAGTTTTGGGTATGACTTTCTAC	spacer length:
	36 repeater length: 24		
24404	39385 GTAATAACGACAAGAACTAAAAC	TAGAGGCACAATTACAGAATTTAGTAATTGATCAAAG	spacer length:
	37 repeater length: 24		
24405	39446 GTAATAACGACAAGAACTAAAAC	TGAATTCTGCCTTTTTATATAACGCATTACTGTGATC	spacer length:
	37 repeater length: 24		
24406	39507 GTAATAACGACAAGAACTAAAAC	TTTGAGACGCTGAAAGACGTAGCGAAAGACTCTGC	spacer length: 35
	repeater length: 24		
24407	39566 GTAATAACGACAAGAACTAAAAC	ATTAAAATGCTGTAGAAACACTTGACCAAATATA	spacer length: 34
	repeater length: 24		
24408	39624 GTAATAACGACAAGAACTAAAAC	TAAAGGGATCCTGACCTAAGGACTATCGGGCTTACTTT	spacer length:
	38 repeater length: 24		
24409	39686 GTAATAACGACAAGAACTAAAAC	ACTATCTCAGCTATCGTCACTATCGACATCTTCAC	spacer length: 35
	repeater length: 24		
24410	39745 GTAATAACGACAAGAACTAAAAC	CATTTTATTTATATAGCCTCGTTGTATAGCTTCT	spacer length: 34
	repeater length: 24		
24411	39803 GTAATAACGACAAGAACTAAAAC	ACTGCTAAAGAGCGCAGGTATTGCGCAAGACTACA	spacer length: 35
	repeater length: 24		
24412	39862 GTAATAACGACAAGAACTAAAAC	ATAATATACGACGCTCTGGTTAGGTAAAGGTACTCT	spacer length:
	36 repeater length: 24		
24413	39922 GTAATAACGACAAGAACTAAAAC	AAAATTTTATTCTTAAAGAGATAACAGATTTGGGCT	spacer length: 35
	repeater length: 24		
24414	39981 GTAATAACGACAAGAACTAAAAC	AGTGAATGCTTGTCTGAGCCTAGTCTGTTTAACG	spacer length: 35
	repeater length: 24		
24415	40040 GTAATAACGACAAGAACTAAAAC	ACATTTGCTGGAGTTCAGAAAATATCAGTAACCAA	spacer length: 35
	repeater length: 24		
24416	40099 GTAATAACGACAAGAACTAAAAC	AAAGTTGTTTCAGCCCCATCTTCAATAAGTGAAGGT	spacer length:
	36 repeater length: 24		
24417	40159 GTAATAACGACAAGAACTAAAAC	AACATAAAAAACACTGCTAGTTTCTATCTGATTAAT	spacer length:
	36 repeater length: 24		
24418	40219 GTAATAACGACAAGAACTAAAAC	ATAGATAAAATAAATAGTTAATGTTTCATAAAATCT	spacer length:
	36 repeater length: 24		
24419	40279 GTAATAACGACAAGAACTAAAAC	AACAACGTGATGATACTGACATTTGCGGGCTATTGT	spacer length:
	36 repeater length: 24		
24420	40339 GTAATAACGACAAGAACTAAAAC	GCTGTT CATATAACTGTAATAAATTAAGAACTT	spacer length: 34
	repeater length: 24		
24421	40397 GTAATAACGACAAGAACTAAAAC	AACTCTTGAATTGTTAAGTCTTTAATGAATGCAT	spacer length: 34
	repeater length: 24		
24422	40455 GTAATAACGACAAGAACTAAAAC	AATGTACACCGTAGCCATTTTTTTGCACTTCTTT	spacer length: 34
	repeater length: 24		
24423	40513 GTAATAACGACAAGAACTAAAAC	AAGAACAGCGATGTTTACAAGTCAGCACAAGACGT	spacer length: 35
	repeater length: 24		
24424	40572 GTAATAACGACAAGAACTAAAAC	CATTTTCTTGGTTTTATCTATTTACCGTTTTTAAAC	spacer length: 35
	repeater length: 24		
24425	40631 GTAATAACGACAAGAACTAAAAC	CTAGATTGTTAGCACCGTGCATTAGCAATAATGCGTT	spacer length:
	37 repeater length: 24		
24426	40692 GTAATAACGACAAGAACTAAAAC	GATTGCTGATGACGATGGAATAGTTACCACAAGC	spacer length: 34
	repeater length: 24		
24427	40750 GTAATAACGACAAGAACTAAAAC	TTTTATTTTACCAGACAAAACGAAAAAATGAAT	spacer length: 35

	repeater length: 24	
24428	40809 GTAATAACGACAAGAACTAAAAAC	TTAAAGAGGCAACAAAGCGAAAAATTCTATATGCC spacer length: 35
	repeater length: 24	
24429	40868 GTAATAACGACAAGAACTAAAAAC	TTGTTGTGCTAACTGGTTTATCGCATCCCCCTATTC spacer length: 35
	repeater length: 24	
24430	40927 GTAATAACGACAAGAACTAAAAAC	TTATGTTATTTGTACAAACTTCTTAGTTGCCAATT spacer length: 35
	repeater length: 24	
24431	40986 GTAATAACGACAAGAACTAAAAAC	TTCTTGTAGTTTCGGGAAGACATTCTCACTGGTGTA spacer length:
	36 repeater length: 24	
24432	41046 GTAATAACGACAAGAACTAAAAAC	TAGTAGTAGTTAATACTGCTGACTGAATTTTTCTTAGTT spacer
	length: 39 repeater length: 24	
24433	41109 GTAATAACGACAAGAACTAAAAAC	TTTATTTCAAAAAGTTACACTATAAAGATGAATTA spacer length: 35
	repeater length: 24	
24434	41168 GTAATAACGACAAGAACTAAAAAC	TTGGGTAAGATCTAGACCTTATGTTCTCTTTCT spacer length: 34
	repeater length: 24	
24435	41226 GTAATAACGACAAGAACTAAAAAC	TTGGGATATATTGCACAGACAAACTTTGTCTCC spacer length: 33
	repeater length: 24	
24436	41283 GTAATAACGACAAGAACTAAAAAC	ATGTTAGGAATATTGTTAAAAATCCGCCTATAATTCCGAT spacer
	length: 40 repeater length: 24	
24437	41347 GTAATAACGACAAGAACTAAAAAC	ATTTTTTATGCCATACCAACCCATTTTAATCAAA spacer length: 34
	repeater length: 24	
24438	41405 GTAATAACGACAAGAACTAAAAAC	CAGTATATGCGTGTTGATGATTTTCTGAAGACTT spacer length: 34
	repeater length: 24	
24439	41463 GTAATAACGACAAGAACTAAAAAC	ATAGCAAAGTACGAATAATCTATATTCCTGACCT spacer length: 34
	repeater length: 24	
24440	41521 GTAATAACGACAAGAACTAAAAAC	ATATCTCATGGTTATGTTTCTTCAGATCCAGGCT spacer length: 34
	repeater length: 24	
24441	41579 GTAATAACGACAAGAACTAAAAAC	GCGGCAGCTACTGGGTCTAACGCCTTCCACTCGAT spacer length: 35
	repeater length: 24	
24442	41638 GTAATAACGACAAGAACTAAAAAC	ACATAAGCCAGCTAAAGAAGACGTATCTGACTGAG spacer length: 35
	repeater length: 24	
24443	41697 GTAATAACGACAAGAACTAAAAAC	ATTATAAGTAAGGGCTGACTTGTTGAGTAAGACTGGT spacer length:
	37 repeater length: 24	
24444	41758 GTAATAACGACAAGAACTAAAAAC	ATGATTATGAAATTTGTACAGCAAATGTTGATGAGAA spacer length:
	37 repeater length: 24	
24445	41819 GTAATAACGACAAGAACTAAAAAC	AATGTCTTTTTTTTATATAAATTTTTTCGAGTCCTAAT spacer length:
	36 repeater length: 24	
24446	41879 GTAATAACGACAAGAACTAAAAAC	AGGGAAAAGATCCTCTTCCTAGCTCCTTTCTCTTG spacer length: 35
	repeater length: 24	
24447	41938 GTAATAACGACAAGAACTAAAAAC	CCTGTACAACGAAAACGGGACATTGTGGGCAATACA spacer length:
	36 repeater length: 24	
24448	41998 GTAATAACGACAAGAACTAAAAAC	CTCGACCTCTTCTACTACTTCTGGTGGTGCACCCAT spacer length:
	36 repeater length: 24	
24449	42058 GTAATAACGACAAGAACTAAAAAC	TTAATTAAAGCGGCAAGCTCTCTAGCCAGGCTAGATCCCTT spacer
	length: 41 repeater length: 24	
24450	42123 GTAATAACGACAAGAACTAAAAAC	AAAACAATGTTTTAGTTTTACAGACATTATAAAATT spacer length:
	36 repeater length: 24	
24451	42183 GTAATAACGACAAGAACTAAAAAC	ACTTCAAGAATGGAATACATTTGTTAAAAATTTGCT spacer length:
	36 repeater length: 24	
24452	42243 GTAATAACGACAAGAACTAAAAAC	GCCCAAGCTCAGGCTGGAAACAGTGGAATCCGC spacer length: 34
	repeater length: 24	
24453	42301 GTAATAACGACAAGAACTAAAAAC	ATATAACAAAGCGCATTGCTGATACGTTACACAGA spacer length: 35
	repeater length: 24	
24454	42360 GTAATAACGACAAGAACTAAAAAC	TCCATGCCCTCGCCCCCGCCTTTTCTTTTCTTT spacer length: 34
	repeater length: 24	
24455	42418 GTAATAACGACAAGAACTAAAAAC	TTCCACATTGATGAGGTAAGCCTCTGAAAAGGTTT spacer length: 35
	repeater length: 24	
24456	42477 GTAATAACGACAAGAACTAAAAAC	TGTGACCAAATTGAGGCAGAAGTATCCGCAGGGGAA spacer length:
	36 repeater length: 24	
24457	42537 GTAATAACGACAAGAACTAAAAAC	ACCCCTGACTTTGTCCTTAAAGATAATGAGTTCTTT spacer length:
	36 repeater length: 24	
24458	42597 GTAATAACGACAAGAACTAAAAAC	AGAAAATGAGTAGTGAAGTTAAGACAAAAAATAAGTCA spacer length:
	38 repeater length: 24	
24459	42659 GTAATAACGACAAGAACTAAAAAC	TTCACTGTCAAATTTGTCTAGCAGTTCTTTTGC GACTT spacer length:
	38 repeater length: 24	
24460	42721 GTAATAACGACAAGAACTAAAAAC	ATTATACCACGCCAAAGAGATGGCGTGAGGCGATA spacer length: 35
	repeater length: 24	
24461	42780 GTAATAACGACAAGAACTAAAAAC	TATTTGAAGGCTTCCCTTAGGGCGTTCTTTAGCG spacer length: 34
	repeater length: 24	
24462	42838 GTAATAACGACAAGAACTAAAAAC	GTTAAATTCGGCGCCCCAGTAGAAGTCTTTCTCGC spacer length: 35
	repeater length: 24	

24463	42897 GTAATAACGACAAGAACTAAAAC	CTATGTGTTGATGAGAGCACAGCTGGGCATGGAGCGTA spacer length: 38 repeater length: 24
24464	42959 GTAATAACGACAAGAACTAAAAC	AGATGTAGAGAAAACGATCGATTTTAAGGCATGCGA spacer length: 35 repeater length: 24
24465	43018 GTAATAACGACAAGAACTAAAAC	AATAAATCAATCCTTTTTTTTAAGGTCTTTCCAAGA spacer length: 35 repeater length: 24
24466	43077 GTAATAACGACAAGAACTAAAAC	TCAACACAAGGAAACACTTACAATTGGTATGAGTATGAAG spacer length: 40 repeater length: 24
24467	43141 GTAATAACGACAAGAACTAAAAC	CACTAGACACTGCAGGGACAGATATCAAAAACCTT spacer length: 34 repeater length: 24
24468	43199 GTAATAACGACAAGAACTAAAAC	GTGCCCCTGTCTCCTGCAGTTTTAACGCTAAATATCT spacer length: 37 repeater length: 24
24469	43260 GTAATAACGACAAGAACTAAAAC	ACCTATCACTTTCCTTGCGAATTCAACCAGTGTTAA spacer length: 36 repeater length: 24
24470	43320 GTAATAACGACAAGAACTAAAAC	CACCAGCTGTGATGACATAGTCTTTGTCCAGTAATGG spacer length: 37 repeater length: 24
24471	43381 GTAATAACGACAAGAACTAAAAC	TTCTTCATAAGGATGTATCTGTACCAGTTCACCA spacer length: 34 repeater length: 24
24472	43439 GTAATAACGACAAGAACTAAAAC	GTCTTTACAGAACTTGGGGCGAAGTAGTATCCCGCA spacer length: 36 repeater length: 24
24473	43499 GTAATAACGACAAGAACTAAAAC	GATGAACTCGCCTGTGTTACTTGATGTGTATAAGGAA spacer length: 37 repeater length: 24
24474	43560 GTAATAACGACAAGAACTAAAAC	AACTCTGAGACTGAGGTTCTTTTTGTCTCACTAGAT spacer length: 36 repeater length: 24
24475	43620 GTAATAACGACAAGAACTAAAAC	ATAGGCTAGAAGCTGCAAAGAGGCTGGGCTGGAAA spacer length: 35 repeater length: 24
24476	43679 GTAATAACGACAAGAACTAAAAC	TACTGCAAGATCTACATTATAGTTCAATGATTTT spacer length: 34 repeater length: 24
24477	43737 GTAATAACGACAAGAACTAAAAC	ACGAGTCTCTTTATCAATATAGTGATGTTATCTACAT spacer length: 37 repeater length: 24
24478	43798 GTAATAACGACAAGAACTAAAAC	TTTTTTGCTTTTAGCTTTTCGTATTCTATTAATGAT spacer length: 36 repeater length: 24
24479	43858 GTAATAACGACAAGAACTAAAAC	AGTGGCTTAATGTACCTTTTGGTACTGACTATCCAAT spacer length: 37 repeater length: 24
24480	43919 GTAATAACGACAAGAACTAAAAC	GCTGATAGATAAAGATAAAAATAAAATAGACTTT spacer length: 34 repeater length: 24
24481	43977 GTAATAACGACAAGAACTAAAAC	GTCTACTTTAAGTGAACCTTTATTGTAATCGTATCAAA spacer length: 37 repeater length: 24
24482	44038 GTAATAACGACAAGAACTAAAAC	TAAGCGTCTAAATAAGTTACCGACAATTGTTAT spacer length: 33 repeater length: 24
24483	44095 GTAATAACGACAAGAACTAAAAC	ATTGTTGAGAGATGCTACTTATGAAGAAAATGGAA spacer length: 35 repeater length: 24
24484	44154 GTAATAACGACAAGAACTAAAAC	CTTCATAACTCAACAAAACAAATAAGGTATGCCACTCT spacer length: 38 repeater length: 24
24485	44216 GTAATAACGACAAGAACTAAAAC	CTTAGCGTAAGAGAGCGTATATTATGCAGCGTATATT spacer length: 37 repeater length: 24
24486	44277 GTAATAACGACAAGAACTAAAAC	AATTTTCAGAGTCACCTTACTTGGAATTTTGTCTCTC spacer length: 37 repeater length: 24
24487	44338 GTAATAACGACAAGAACTAAAAC	CAAAAAC TGCCGTTTAATGCGCCACTTCTAGAACAA spacer length: 36 repeater length: 24
24488	44398 GTAATAACGACAAGAACTAAAAC	TTTTGAGAATAGAGTCTATGAAATCTCCTTTTATT spacer length: 35 repeater length: 24
24489	44457 GTAATAACGACAAGAACTAAAAC	AGGTTCACTCACCTCGCCTCGCAAGATATTCCAAA spacer length: 36 repeater length: 24
24490	44517 GTAATAACGACAAGAACTAAAAC	ACAATTCTTTCTTTTTTTTATAGCTGTTGTACACATTCTCT spacer length: 39 repeater length: 24
24491	44580 GTAATAACGACAAGAACTAAAAC	TAGTAATATCTAGCGACTTCCATAATTGCTGATGC spacer length: 35 repeater length: 24
24492	44639 GTAATAACGACAAGAACTAAAAC	ATTATAAAATTGATGTATTATACATTTGCAGAAAT spacer length: 35 repeater length: 24
24493	44698 GTAATAACGACAAGAACTAAAAC	CGCTATTCTCAAGTACTCTGCGATCTCGCCCTCTGAAAG spacer length: 39 repeater length: 24
24494	44761 GTAATAACGACAAGAACTAAAAC	TTCATATCGCTCTTTTGAATACTTCATCAATTCTTGTT spacer length: 38 repeater length: 24
24495	44823 GTAATAACGACAAGAACTAAAAC	TTTTATATTCTGTTGTTTCAATTTTTTATATCATTT spacer length: 34 repeater length: 24
24496	44881 GTAATAACGACAAGAACTAAAAC	ATATTATTAGGAATGACAGCCGAGCTACTACTGT spacer length: 35 repeater length: 24
24497	44940 GTAATAACGACAAGAACTAAAAC	TTGTACAAAAAGCTGAATTTAAGCAAGTCGGAAT spacer length: 35 repeater length: 24
24498	44999 GTAATAACGACAAGAACTAAAAC	ATTTAGTTTGAATATTATGAGTAATTGAGAGTTGGT spacer length: 35

36 repeater length: 24
 24499 45059 GTAATAACGACAAGAACTAAAAAC TTGCTACAGGAAATGGAGAAGGTGAATATCAGGGAGG spacer length:
 37 repeater length: 24
 24500 45120 GTAATAACGACAAGAACTAAAAAC TTTTATCTTCAAAGAGTTGAAAAAGAGAGGGTTAGATA spacer length:
 38 repeater length: 24
 24501 45182 GTAATAACGACAAGAACTAAAAAC CTTTCTTCTTCATCTTTATCGATCAAAATTAGCCTTA spacer length:
 37 repeater length: 24
 24502 45243 GTAATAACGACAAGAACTAAAAAC TTTATTATCAAGAGCATTAAAGTAATTTTGAAGACCG spacer length:
 37 repeater length: 24
 24503 45304 GTAATAACGACAAGAACTAAAAAC TAATAACTCTCCTACCTTTTCTATTTTGTAGCATTTGG spacer length:
 37 repeater length: 24
 24504 45365 GTAATAACGACAAGAACTAAAAAC TATTTTCGTAATCTTCTATAAGTTTTGAGTTGAATGGC spacer length:
 37 repeater length: 24
 24505 45426 GTAATAACGACAAGAACTAAAAAC GTATAGTACTGGTGTATTACTTCCAGATATCCCT spacer length: 34
 repeater length: 24
 24506 45484 GTAATAACGACAAGAACTAAAAAC CACTCTCTTCAATCCGATTATATCAATTTACTACA spacer length: 35
 repeater length: 24
 24507 45543 GTAATAACGACAAGAACTAAAAAC GATTACTGCAGTGATGATGAAATATCGTGCTAATGAT spacer length:
 37 repeater length: 24
 24508 45604 GTAATAACGACAAGAACTAAAAAC GTTGTAGTCATTCCAGTAATGACTAAGATATTGTGT spacer length:
 36 repeater length: 24
 24509 45664 GTAATAACGACAAGAACTAAAAAC TGTAATACAATATTACGCTAGCAATACAACAAACATA spacer length:
 37 repeater length: 24
 24510 45725 GTAATAACGACAAGAACTAAAAAC ACACTCGCCGACTCTCTCTCATTTATTGCGAGATA spacer length: 35
 repeater length: 24
 24511 45784 GTAATAACGACAAGAACTAAAAAC GTGTTGTTTCGAGACTTCTACTGCCATTAATATTAG spacer length: 35
 repeater length: 24
 24512 45843 GTAATAACGACAAGAACTAAAAAC GATTACTTTATGCTTTATTCAAATATAGAATAAAAA spacer length:
 36 repeater length: 24
 24513 45903 GTAATAACGACAAGAACTAAAAAC GTTGGGTATTTAAGCTTACGCATTATATTTTGTAG spacer length: 35
 repeater length: 24
 24514 45962 GTAATAACGACAAGAACTAAAAAC GATTACTGCAGTGATGATGAAATATCGTGCTAATGAT spacer length:
 37 repeater length: 24
 24515 46023 GTAATAACGACAAGAACTAAAAAC TAATATAGCGACCACAGAACTCTTGCTATATTTTC spacer length: 34
 repeater length: 24
 24516 46081 GTAATAACGACAAGAACTAAAAAC CTCTCAAGAAATTCCAAAAGTTTATCAAACCTCCTC spacer length: 35
 repeater length: 24
 24517 46140 GTAATAACGACAAGAACTAAAAAC TTTCTACATTATGTACTACCGATAAAACATGTGATCA spacer length:
 37 repeater length: 24
 24518 46201 GTAATAACGACAAGAACTAAAAAC TTCTCTTGGTTCAAACCACTTAAATCTTCGTTATTT spacer length:
 37 repeater length: 24
 24519 46262 GTAATAACGACAAGAACTAAAAAC TTTTCATCAACATCTTGACTCCGGTATTCGACATCA spacer length:
 36 repeater length: 24
 24520 46322 GTAATAACGACAAGAACTAAAAAC AGTGGTCAGGGCTAGATATCTGCCCCACTACCAACT spacer length: 35
 repeater length: 24
 24521 46381 GTAATAACGACAAGAACTAAAAAC TATCAAGAAAAATAGGGCTAGCCCAATTCCAATGAT spacer length:
 36 repeater length: 24
 24522 46441 GTAATAACGACAAGAACTAAAAAC AGAGAAGGTG
 24523
 24524
 24525 crispr 3
 24526 2109937 GATGAATCCCAAAAGGGATTGAAAG CTCTGTTCACAGAAATATTTGTCAAGCTCAATCTTAAAG spacer
 length: 39 repeater length: 25
 24527 2110001 GATGAATCCCAAAAGGGATTGAAAG AGTTTTGGGAACACTTCTCTTCCCTTTATCTGTTAGTTTATA spacer
 length: 42 repeater length: 25
 24528 2110068 GATGAATCCCAAAAGGGATTGAAAG CTCAAATCGTTTGCCTACTGTTTAAAGCTTTTTAACTC spacer
 length: 39 repeater length: 25
 24529 2110132 GATGAATCCCAAAAGGGATTGAAAG AGCACCTATTTTCAGGTGCTGGCTGACTAGAACTTT spacer
 length: 37 repeater length: 25
 24530 2110194 GATGAATCCCAAAAGGGATTGAAAG GGGTATAAATAAAGTATGCCAGCCTGTGCTAATGACAG spacer
 length: 38 repeater length: 25
 24531 2110257 GATGAATCCCAAAAGGGATTGAAAG AGTTTATTATGTCATTGGACAGCAAGTCATACGAGA spacer
 length: 36 repeater length: 25
 24532 2110318 GATGAATCCCAAAAGGGATTGAAAG TTTTCTCCTTTTTTTCATAACTTCTTTCCATATTTCCGCA spacer
 length: 41 repeater length: 25
 24533 2110384 GATGAATCCCAAAAGGGATTGAAAG GCTCTGCTAACATTAGCCTCTTCTCCTGCTAGAGCTA spacer
 length: 37 repeater length: 25
 24534 2110446 GATGAATCCCAAAAGGGATTGAAAG ATCTTGTCGCTTATGTGAACGTCTAGGGAGTCGATAAT spacer
 length: 38 repeater length: 25
 24535 2110509 GATGAATCCCAAAAGGGATTGAAAG CCAAACCAAGTTAGGTTTTATGTTGAAGGGGACTCT spacer
 length: 36 repeater length: 25

24536 2110570 GATGAATCCCCAAAAGGGATTGAAAG
24537
24538
24539 crispr 4
24540 2149980 GAAGAATCCCATAAGGGATTGAAAGT ATATCATCATCTCTCATCATCTGCCTGCAACGTATC spacer
length: 36 repeater length: 26
24541 2150042 GAAGAATCCCATAAGGGATTGAAAGT CACATTCATCCCTATAGACATTTATTGAAAACGAG spacer
length: 35 repeater length: 26
24542 2150103 GAAGAATCCCATAAGGGATTGAAAGT TTGCTTTAACATAGATCGGTGAAAGCATCTCAAAGGTAG spacer
length: 40 repeater length: 26
24543 2150169 GAAGAATCCCATAAGGGATTGAAAGT
24544
24545
24546 GCA_001481685.1_ASM148168v1_genomic.fna(PilerCR):
24547 START REPEAT
SPACER
24548 crispr 1
24549 99639 GTAGAATCCCAATAGGGAATAGAAAG ATCGACATATTCAGCAATCGTCGATAGTTTTTCGTACGATAGG spacer
length: 43 repeater length: 26
24550 99708 GTAGAATCCCAATAGGGAATAGAAAG TTCTTTATCGTTGAGCGTTCGTTCCGAACTATCTGAG spacer
length: 38 repeater length: 26
24551 99772 GTAGAATCCCAATAGGGAATAGAAAG TTACATTTGTCGGTAAGTACGCTATTCCGTTTTTCGACCTTAG spacer
length: 42 repeater length: 26
24552 99840 GTAGAATCCCAATAGGGAATAGAAAG ACGAGGAAATCGAGTTTTCTTTCCATCATTTTCGCCTCCC spacer
length: 39 repeater length: 26
24553 99905 GTAGAATCCCAATAGGGAATAGAAAG ATAGTGAACGGTAAGTCTGCGATGACGAGTATTTTCGGTT spacer
length: 40 repeater length: 26
24554 99971 GTAGAATCCCAATAGGGAATAGAAAG AGCAGACGTGATAGTTGATGACGACAAGTTACTGATTGAGA spacer
length: 41 repeater length: 26
24555 100038 GTAGAATCCCAATAGGGAATAGAAAG ACACTCAACGAGTAACTCCTTCATCATTCCAATTATCATGT spacer
length: 41 repeater length: 26
24556 100105 GTAGAATCCCAATAGGGAATAGAAAG TGCAAATACTTTTCGACTTGAGCGATTGGTTGAGCGAAAGT spacer
length: 40 repeater length: 26
24557 100171 GTAGAATCCCAATAGGGAATAGAAAG CCTGTTTCGTTGATATTAATATATATTCTGGGGGCCAGAAA spacer
length: 41 repeater length: 26
24558 100238 GTAGAATCCCAATAGGGAATAGAAAG AATCTCCTTAAGAGAATTATAAAAAAAGAATGGAATAGAAA spacer
length: 41 repeater length: 26
24559 100305 GTAGAATCCCAATAGGGAATAGAAAG CCTATCCCCGAGTTCACGCACCCCCCTCCTGCAATCGCTCTAG spacer
length: 43 repeater length: 26
24560 100374 GTAGAATCCCAATAGGGAATAGAAAG TCAATAGTCTTTTCAGGTTCTGTTTCTGTTTTTTGGAAAG spacer
length: 40 repeater length: 26
24561 100440 GTAGAATCCCAATAGGGAATAGAAAG TCGGCGACAT
24562
24563
24564 crispr 2
24565 148819 GTAGAATCCCAATAGGGAGTGGAAG AATCTGTAGACCTGCACTTCGCCGGTCCCGTCCCAGCAAAGC spacer
length: 42 repeater length: 26
24566 148887 GTAGAATCCCAATAGGGAGTGGAAG CATGTTACTATTACTCACTCACGTTTTTAAACATTTTCGCTTT spacer
length: 42 repeater length: 26
24567 148955 GTAGAATCCCAATAGGGAGTGGAAG TAATGAAGAGACTTTTACGTTTCGATAGGTGCGTTCTGATGTTCAAT
spacer length: 46 repeater length: 26
24568 149027 GTAGAATCCCAATAGGGAGTGGAAG CTGTCTTGGTGGCTTCAGTAAACCGAGCTTCCTCATCCTTTCTCT
spacer length: 44 repeater length: 26
24569 149097 GTAGAATCCCAATAGGGAGTGGAAG AGGACGTCTTTTCAGGATTTTCCTAAGTCTTTCTTCACCTCT spacer
length: 41 repeater length: 26
24570 149164 GTAGAATCCCAATAGGGAGTGGAAG TTGAACTTTACCTCGATTACGTTCTCGAAATAGAGAGGCCT spacer
length: 41 repeater length: 26
24571 149231 GTAGAATCCCAATAGGGAGTGGAAG CGTAAATGGCTTCTGGCCTATCGACAGACCCGGAAGGG spacer
length: 38 repeater length: 26
24572 149295 GTAGAATCCCAATAGGGAGTGGAAG CTTTCAGTCTTCTGAAATCAAAGATACAGTCGTTCTCATTAT
spacer length: 44 repeater length: 26
24573 149365 GTAGAATCCCAATAGGGAGTGGAAG TCTGTTTTTCGATAGTGATGGCATAGATCGGTTTCGTACTCGT spacer
length: 41 repeater length: 26
24574 149432 GTAGAATCCCAATAGGGAGTGGAAG TTCAGAACGACTCTTTTCTTCGCTTCGCTTAATGTA spacer
length: 36 repeater length: 26
24575 149494 GTAGAATCCCAATAGGGAGTGGAAG
CTAATGGGTTATTCTTTATGTTTTTCAGGAACAGGAAGCTTCAAGGTTTCTAGT spacer length: 53 repeater
length: 26
24576 149573 GTAGAATCCCAATAGGGAGTGGAAG TTGGCCGTAA
24577
24578

24579 crispr 3
 24580 189536 CTTTCTATTCCCTATTGGGATTCTAC ACAACTTGGGGACGGCGATACCTTTATATTCTATTATGATATTT
 spacer length: 44 repeater length: 26
 24581 189606 CTTTCTATTCCCTATTGGGATTCTAC TCATTTTCGAAATGGAAAAAGTAGTTTGGTCGAAAAA spacer
 length: 36 repeater length: 26
 24582 189668 CTTTCTATTCCCTATTGGGATTCTAC CTATGTCATCCAGAGTGGGTTCGGCGGAGTACAAAGTACTGA spacer
 length: 42 repeater length: 26
 24583 189736 CTTTCTATTCCCTATTGGGATTCTAC CCTCGGCGACC
 24584
 24585
 24586 crispr 4
 24587 212159 GGTAGAGATCCAATAGGGAGTGGAAAGA GTGAGTAGTTTCGAGTTGAGCGAGTGGTCAAGTGAAAGTAA spacer
 length: 41 repeater length: 28
 24588 212228 GGTAGAGATCCAATAGGGAGTGGAAAGA ATCCTTCACCTTTTGC GCGCTCAACTGCCAGAGTTTT spacer
 length: 37 repeater length: 28
 24589 212293 GGTAGAGATCCAATAGGGAGTGGAAAGA GGGTAACACAGTTTGCTTTAGTATGCGTCTCTCTTCTTCCTCGC
 spacer length: 44 repeater length: 28
 24590 212365 GGTAGAGATCCAATAGGGAGTGGAAAGA AGAAGGGTCT
 24591
 24592
 24593 crispr 5
 24594 212433 GTAGAGTCCCAATAGGGAGTGGAAAG TTGTGTTGACGATGTCGGCCCCCGCTTCCTCGCAGACCTTC spacer
 length: 41 repeater length: 26
 24595 212500 GTAGAGTCCCAATAGGGAGTGGAAAG CGGCGAGTATTTTCAGTGCGTACGTCTCGAACGCCCT spacer
 length: 37 repeater length: 26
 24596 212563 GTAGAGTCCCAATAGGGAGTGGAAAG TATCGAAACCAAACCTGTTGCGAACTTTTCGTTCAATTT spacer
 length: 39 repeater length: 26
 24597 212628 GTAGAGTCCCAATAGGGAGTGGAAAG TCACAAATATGGATGTGAGGAAGTTCGTCGCAAGGAACCTA spacer
 length: 41 repeater length: 26
 24598 212695 GTAGAGTCCCAATAGGGAGTGGAAAG CCGAGATGTCC
 24599
 24600
 24601 crispr 6
 24602 241348 GTAGAGTCCCAATAGGGAGTGGAAAG ACCCTGTAAATTCAAGGCTAACGAAAAAGTATATGCAGTC spacer
 length: 40 repeater length: 26
 24603 241414 GTAGAGTCCCAATAGGGAGTGGAAAG GAGGTTGAGTTTTAACTTGGGTGGAGTATTAAAGCGA spacer
 length: 38 repeater length: 26
 24604 241478 GTAGAGTCCCAATAGGGAGTGGAAAG CTTGTTTACGCTTTACTCTACCATTGATAACGAGCCAAGCAA spacer
 length: 41 repeater length: 26
 24605 241545 GTAGAGTCCCAATAGGGAGTGGAAAG TACATTTGTTTCGGCTTGGGGCTGTAATCCTATATAATTTT spacer
 length: 40 repeater length: 26
 24606 241611 GTAGAGTCCCAATAGGGAGTGGAAAG TCGGCCTCGAGCCCCCTCGGGGCTTTAAGAGTCCCGTTTTCTT
 spacer length: 44 repeater length: 26
 24607 241681 GTAGAGTCCCAATAGGGAGTGGAAAG CCTCATCAACCAAAGCTGATAAAATTGCAGTGTATACTAAC spacer
 length: 41 repeater length: 26
 24608 241748 GTAGAGTCCCAATAGGGAGTGGAAAG AAGGAAATTGTAAAGCCACCTTAATTCGTCAAGCGTAAGTTTCGG
 spacer length: 45 repeater length: 26
 24609 241819 GTAGAGTCCCAATAGGGAGTGGAAAG TAGATGGAAGG
 24610
 24611
 24612 crispr 7
 24613 252222 GTAGAATCCCAATAGGGAATAGAAAAG TCTCTTCCATCTCATTACCTCATACTATACTACTCATGTGCA spacer
 length: 43 repeater length: 26
 24614 252291 GTAGAATCCCAATAGGGAATAGAAAAG CTAAGGAGGTCGGCGATATCGTCGAACCCCTCTCTT spacer
 length: 37 repeater length: 26
 24615 252354 GTAGAATCCCAATAGGGAATAGAAAAG TTTCGTCATTGTGATGATCGAAGATGACCACTCTTATTCTT spacer
 length: 41 repeater length: 26
 24616 252421 GTAGAATCCCAATAGGGAATAGAAAAG AAACGATAGAGCACGTTCACTTCAGTACTTTTCGTTTTTCGA spacer
 length: 40 repeater length: 26
 24617 252487 GTAGAATCCCAATAGGGAATAGAAAAG TAACGCAATACTCGGTTTTCTCTCGAGTTTCACGCCCCGATCCGAGT
 spacer length: 46 repeater length: 26
 24618 252559 GTAGAATCCCAATAGGGAATAGAAAAG ACCCCCGATTCTGTCCACAATCTCCCGTAAGATTTAAACAT spacer
 length: 41 repeater length: 26
 24619 252626 GTAGAATCCCAATAGGGAATAGAAAAG CAACTTTACCGTTATAGTATCCGAGCGCTATCCTGTCCCTC spacer
 length: 41 repeater length: 26
 24620 252693 GTAGAATCCCAATAGGGAATAGAAAAG AGACTCCGTATGATTCTTTAAACGGTATAGGCTTCCATT spacer
 length: 40 repeater length: 26
 24621 252759 GTAGAATCCCAATAGGGAATAGAAAAG CTCGTTGAAATCGAACTATCAAAGCACCATGCAATCATATCTA spacer
 length: 43 repeater length: 26
 24622 252828 GTAGAATCCCAATAGGGAATAGAAAAG CTCGGTGATG
 24623

24624

24625 crispr 8

24626 324281 GTAGAATCCCAATAGGGAATAGAAA GTTTACAGAACTTCAACTTCAAAGTGTGGTGTACAATT spacer
length: 39 repeater length: 25

24627 324345 GTAGAATCCCAATAGGGAATAGAAA GCGAGTTCACGCACCCCTCCTGTACTCGATTTCATTTATCAAA spacer
length: 44 repeater length: 25

24628 324414 GTAGAATCCCAATAGGGAATAGAAA TATTCTAGATAGTGAATTCGAAGAAGAAAATGAGGGAAAGAGG spacer
length: 43 repeater length: 25

24629 324482 GTAGAATCCCAATAGGGAATAGAAA CCGACGATCC

24630

24631

24632 crispr 9

24633 466450 GTAGAGATCCAATAGGGAATAGAAAAG CGTTATACTACTCATGTACACTTTTATGCTTAACTGT spacer
length: 37 repeater length: 26

24634 466513 GTAGAGATCCAATAGGGAATAGAAAAG GCCAAGGCTCTGGCGGTACACGATATATCTCGATTTTGTT spacer
length: 41 repeater length: 26

24635 466580 GTAGAGATCCAATAGGGAATAGAAAAG ATCATTAGCAACCAGTTTGGTAATGACGACCAACTTAAG spacer
length: 39 repeater length: 26

24636 466645 GTAGAGATCCAATAGGGAATAGAAAAG ACTCCGCTTTGAAGCGTCATACGGAGTCTGGAGCATCGC spacer
length: 39 repeater length: 26

24637 466710 GTAGAGATCCAATAGGGAATAGAAAAG GCTTCCCCATTAATGTTCAACCACTACATTAGTGAAATAGTGG spacer
length: 43 repeater length: 26

24638 466779 GTAGAGATCCAATAGGGAATAGAAAAG ACATTATTAGCTTTAGCTTCTCCGGAAGTTCTCCGAGAACA spacer
length: 41 repeater length: 26

24639 466846 GTAGAGATCCAATAGGGAATAGAAAAG GAGGCCTCCCTCCATTGCGGTGATACGTTTCTTTAGTCCT spacer
length: 41 repeater length: 26

24640 466913 GTAGAGATCCAATAGGGAATAGAAAAG TCGACTATCCTGATGCCGACCCTAACTTGAAGTTTGACCCGA spacer
length: 42 repeater length: 26

24641 466981 GTAGAGATCCAATAGGGAATAGAAAAG TTTTCGCTGAGTTTGGTAATATCTCGACGTCAATGGGGTC spacer
length: 41 repeater length: 26

24642 467048 GTAGAGATCCAATAGGGAATAGAAAAG TCCAGTTTGTCAACAGTTTCTTTACCATCAACGATT spacer
length: 36 repeater length: 26

24643 467110 GTAGAGATCCAATAGGGAATAGAAAAG TACTTGGCGAGCTCCACAGAAGCTCAACGAAGT spacer length:
34 repeater length: 26

24644 467170 GTAGAGATCCAATAGGGAATAGAAAAG CCTTTAAGCCAATTTAGGAGCTTTGTTATCTCCTTTTT spacer
length: 39 repeater length: 26

24645 467235 GTAGAGATCCAATAGGGAATAGAAAAG TTTTCTTCCCTCCCCGCCCCCTAGACAGAGAAATAGC spacer
length: 38 repeater length: 26

24646 467299 GTAGAGATCCAATAGGGAATAGAAAAG CATGTTAAACCAACTACACAACATATTTAAACAAGTGAAGGAA spacer
length: 43 repeater length: 26

24647 467368 GTAGAGATCCAATAGGGAATAGAAAAG GATCATGACC

24648

24649

24650 crispr 10

24651 809257 GTAGAGATCCAATAGGGAATAGAAA GAGTATTTTTATTAGTTTCCTAGCTTTGGCTGTCCTTATTAGC spacer
length: 43 repeater length: 25

24652 809325 GTAGAGATCCAATAGGGAATAGAAA GATTCTCTTCCCTAGGTGCTTGGTCTCTTGGTGGTCGTTTCGA spacer
length: 44 repeater length: 25

24653 809394 GTAGAGATCCAATAGGGAATAGAAA GTAGAAAAGAGACCGAAAGAGATCATCCGGCCTCCAGATTTTT spacer
length: 43 repeater length: 25

24654 809462 GTAGAGATCCAATAGGGAATAGAAA GCAACGATTTCAAAGACTGTGAACTCGATATCGATAAGAG spacer
length: 40 repeater length: 25

24655 809527 GTAGAGATCCAATAGGGAATAGAAA GTGAACTTTCCACAAATAAGAGAGCGTTAAGCTTAAAA spacer
length: 38 repeater length: 25

24656 809590 GTAGAGATCCAATAGGGAATAGAAA GTCCCCATTGGGGGAGGAGTACTCGGCGTAGATCGTGATCCC spacer
length: 42 repeater length: 25

24657 809657 GTAGAGATCCAATAGGGAATAGAAA GACAAATGTCCCAGTCTATTAAAAAATCTTTCTCCTCCCCATT spacer
length: 43 repeater length: 25

24658 809725 GTAGAGATCCAATAGGGAATAGAAA GAGAACTATATTGAGAGCTAGGGGGATTGAAAATGGTAGGCA spacer
length: 42 repeater length: 25

24659 809792 GTAGAGATCCAATAGGGAATAGAAA GCTTACCGAGCAGATCTTGTACTATGCTGTATACTCC spacer
length: 37 repeater length: 25

24660 809854 GTAGAGATCCAATAGGGAATAGAAA GTTGCACTCAATTGTGCAAAGGTTTTGATACTGTTTCGTCAG spacer
length: 41 repeater length: 25

24661 809920 GTAGAGATCCAATAGGGAATAGAAA GTCTTCACCGTCGAAGTCTCCCCGAGGTACTCGAGTACCT spacer
length: 41 repeater length: 25

24662 809986 GTAGAGATCCAATAGGGAATAGAAA TCCCATACG

24663

24664

24665 crispr 11

24666 871509 GTAGAGATCCAAGAGGGAGTGGAAG CTAATCTTATTAGAGACGCGATTTCTTCGAATTCCCC spacer

length: 37 repeater length: 26
24667 871572 GTAGAGATCCAAGAGGGAGTGGAAAG AAGATTTATGCGAATTCATAGCCTAATTCTTTTAAGAA spacer
length: 38 repeater length: 26
24668 871636 GTAGAGATCCAAGAGGGAGTGGAAAG CAACCTCGATTTATTTTTTACGTTTTCTACGTTCTTTTAT spacer
length: 40 repeater length: 26
24669 871702 GTAGAGATCCAAGAGGGAGTGGAAAG TTCTCTTTCTTCTTTTCCTTTAGCTCTTCAATTAGCA spacer
length: 37 repeater length: 26
24670 871765 GTAGAGATCCAAGAGGGAGTGGAAAG CTTCTTCATTTCTTCCTCCTTTTCTTTCAAGCCACGTAGCA spacer
length: 41 repeater length: 26
24671 871832 GTAGAGATCCAAGAGGGAGTGGAAAG CAAACTCTCCCCGAATTCTTGCGCTTCGGTTGGGGTTCCCAT spacer
length: 42 repeater length: 26
24672 871900 GTAGAGATCCAAGAGGGAGTGGAAAG ATATGATAGCATATTACTCCATCTTCTTAGCTTCAAGAAGATAA
spacer length: 44 repeater length: 26
24673 871970 GTAGAGATCCAAGAGGGAGTGGAAAG TCCGAGGAAATAGGCTCGAGCCTTTTTATGTTTTGTCT spacer
length: 38 repeater length: 26
24674 872034 GTAGAGATCCAAGAGGGAGTGGAAAG TGTATAAAACTCATTAGACCTCTCTATTTTCGAGGATGTAAT spacer
length: 42 repeater length: 26
24675 872102 GTAGAGATCCAAGAGGGAGTGGAAAG CCCTCTCTAGGTCCCTCCTCCCTCTGAAGGGATCGATTATCCT spacer
length: 43 repeater length: 26
24676 872171 GTAGAGATCCAAGAGGGAGTGGAAAG CCGGTGTCAAGACGCGTGACGACTATGTTCATAACGT spacer
length: 37 repeater length: 26
24677 872234 GTAGAGATCCAAGAGGGAGTGGAAAG TCTTCTTTCTCGTTCCGTGCGAACCCCTCTAAGTACA spacer
length: 36 repeater length: 26
24678 872296 GTAGAGATCCAAGAGGGAGTGGAAAG TGAGAATCGC
24679
24680
24681 crispr 12
24682 898971 CTTTCTATTCCCTATTGGGACTCTAC CATTAATGGGAAGAAAGACCGCTTGCTCGATTGAGGAATGGA spacer
length: 42 repeater length: 26
24683 899039 CTTTCTATTCCCTATTGGGACTCTAC TTGTAAGGTACCACTATTGTTCCCTGTTGCCAAGACCCACT spacer
length: 40 repeater length: 26
24684 899105 CTTTCTATTCCCTATTGGGACTCTAC AGAGAAAGAAAATGGGGGAGAGTAAATGGACTAAAGTAGC spacer
length: 40 repeater length: 26
24685 899171 CTTTCTATTCCCTATTGGGACTCTAC TGGTCACGGCAACGGTATAGCCCTCGTAAGCGGAGGCGAG spacer
length: 40 repeater length: 26
24686 899237 CTTTCTATTCCCTATTGGGACTCTAC AAATGGATCGAGAATGATCCAGAAAGGTTGAGAACTTCTACT spacer
length: 43 repeater length: 26
24687 899306 CTTTCTATTCCCTATTGGGACTCTAC GGGCGTCATAGTCACCACTCCTTCCAGCAATGGGTGAAA spacer
length: 39 repeater length: 26
24688 899371 CTTTCTATTCCCTATTGGGACTCTAC CGGGTTCGAATCCCGCCCCCGGCGCCACTCAGGTGATTATAA spacer
length: 42 repeater length: 26
24689 899439 CTTTCTATTCCCTATTGGGACTCTAC GCGGGATGGAGTTAAGAGAAAAAATCAAATGGTTTGCATC spacer
length: 40 repeater length: 26
24690 899505 CTTTCTATTCCCTATTGGGACTCTAC TTTGATGCACTTGTTGAAAGGTTTGCAGAACGAGATCTTCAA spacer
length: 42 repeater length: 26
24691 899573 CTTTCTATTCCCTATTGGGACTCTAC TAAGCTAAACGCACCGGTACGTTTATGAACGCTCTCTTCAAG spacer
length: 42 repeater length: 26
24692 899641 CTTTCTATTCCCTATTGGGACTCTAC GGAAGATAGGAAGTCCAAACCGAGCTTCGTTGATTCTT spacer
length: 39 repeater length: 26
24693 899706 CTTTCTATTCCCTATTGGGACTCTAC TCGATGCTGAGCATTTAGTCAATTTTCGTTGAAAAT spacer length:
35 repeater length: 26
24694 899767 CTTTCTATTCCCTATTGGGACTCTAC TTGATTGATCGAGAATTAATGTAAGAGCGGATATTGGGG spacer
length: 40 repeater length: 26
24695 899833 CTTTCTATTCCCTATTGGGACTCTAC TTGGTGCCGGC
24696
24697
24698 crispr 13
24699 939613 GTAGAGATCCAATAGGGAATAGAAAAG CACTACCACTACTACAACCACAACCACTATACAACTACACACA spacer
length: 43 repeater length: 26
24700 939682 GTAGAGATCCAATAGGGAATAGAAAAG TCCGTCCGATAGGATCACTCCTTATCACCTCCTTTTTTAA spacer
length: 39 repeater length: 26
24701 939747 GTAGAGATCCAATAGGGAATAGAAAAG ATTTGCTCTCCTCATGTCCTATTACTCATGTACACTTTTAAGT
spacer length: 44 repeater length: 26
24702 939817 GTAGAGATCCAATAGGGAATAGAAAAG CTATTTTATTCTGGAGGAGGCGGTAGCGGTGGCAGTAA spacer
length: 38 repeater length: 26
24703 939881 GTAGAGATCCAATAGGGAATAGAAAAG GAACAACCTTCAACGTAAACGTACCGAGTTTCGTTAACTTT spacer
length: 40 repeater length: 26
24704 939947 GTAGAGATCCAATAGGGAATAGAAAAG CCCGCAACCGCTCCTTCCGCTATATCCTCGAGCGTGATTAT spacer
length: 41 repeater length: 26
24705 940014 GTAGAGATCCAATAGGGAATAGAAAAG TTCTAGTTCTTCGAGTATCTCAATGAAGTTCTTTAGGC spacer
length: 38 repeater length: 26

24706 940078 GTAGAGATCCAATAGGGAATAGAAAG GAAGGACAAGATACGAAAGTTCCTAAAGGAGAATGAATATTTT spacer
 length: 43 repeater length: 26
 24707 940147 GTAGAGATCCAATAGGGAATAGAAAG CTCGCTCTGATCCGGAAGCTCGTAATACAATAGCACTA spacer
 length: 38 repeater length: 26
 24708 940211 GTAGAGATCCAATAGGGAATAGAAAG CCACCTCCGCAACAAGGAGGAGGGGCAAGTCGAACGT spacer
 length: 37 repeater length: 26
 24709 940274 GTAGAGATCCAATAGGGAATAGAAAG TCCGCATTGTCTCCATAACCTCGCACAGATCGAATGTGGTCT spacer
 length: 42 repeater length: 26
 24710 940342 GTAGAGATCCAATAGGGAATAGAAAG AAGCTCTAGCGAGAATTCTCTTAGACAAGAAAGAATGGGC spacer
 length: 40 repeater length: 26
 24711 940408 GTAGAGATCCAATAGGGAATAGAAAG TCTAGACAATAAATATGCTAAGCTCTTCTTATCGAAGAA spacer
 length: 39 repeater length: 26
 24712 940473 GTAGAGATCCAATAGGGAATAGAAAG TGCCATCCCGGTCACCGAATATTAGTAGTGTGCACTTG spacer
 length: 38 repeater length: 26
 24713 940537 GTAGAGATCCAATAGGGAATAGAAAG ATCAAATTCAGCGAGGCTTCTTTAAGCGCATCGATTAGCTC spacer
 length: 41 repeater length: 26
 24714 940604 GTAGAGATCCAATAGGGAATAGAAAG CTATCGATGAGGTAAACGAAAAGAAGCGCCTCGGTAATGTT spacer
 length: 41 repeater length: 26
 24715 940671 GTAGAGATCCAATAGGGAATAGAAAG CGATAAAGGT
 24716
 24717
 24718 crispr 14
 24719 1029819 CTTTCTATTCCCTATTGGGACTCTAC TGGTCTATCTAGTTGAGAAGGATTTTCATAAACGATATTCAGA spacer
 length: 42 repeater length: 26
 24720 1029887 CTTTCTATTCCCTATTGGGACTCTAC TCATCACGTCAAATGGTTTCGGAAAGCGTAGTGCTA spacer
 length: 36 repeater length: 26
 24721 1029949 CTTTCTATTCCCTATTGGGACTCTAC ATTACAACAAGTAGCGGGGTCTTCAGTTCTGGATGT spacer
 length: 37 repeater length: 26
 24722 1030012 CTTTCTATTCCCTATTGGGACTCTAC CGAACTTGACGTGGTCTCGAAGGCCGTAGAAGAAGTGA spacer
 length: 38 repeater length: 26
 24723 1030076 CTTTCTATTCCCTATTGGGACTCTAC GGATCGAAGCGAAGGTCGTGCGTCATCCGAGCTTTGCGAT spacer
 length: 40 repeater length: 26
 24724 1030142 CTTTCTATTCCCTATTGGGACTCTAC AGAATCTAGTGTTGATCGAAGTGAAGAGATCGGGAAGGGGA spacer
 length: 41 repeater length: 26
 24725 1030209 CTTTCTATTCCCTATTGGGACTCTAC ATTGACAGGTACGTTAGGTGCGGGAGGTATCGATGTTTGAAT spacer
 length: 42 repeater length: 26
 24726 1030277 CTTTCTATTCCCTATTGGGACTCTAC CCTGAGGCGCCCCCTCCCGTCAGGGAGGGGGATATAAAAA spacer
 length: 40 repeater length: 26
 24727 1030343 CTTTCTATTCCCTATTGGGACTCTAC ATAAAAGCACTAGAGAAGCGAGTGAGTTAGAGCTA spacer
 length: 36 repeater length: 26
 24728 1030405 CTTTCTATTCCCTATTGGGACTCTAC TGTTTCCCAG
 24729
 24730
 24731 crispr 15
 24732 1060514 CCAATAGGGAATAGAAAG AACGCGCTTTTCGAATAACTTTACGTCGACATTCTCTATCTCGGGTAGAGAT
 spacer length: 51 repeater length: 18
 24733 1060583 CCAATAGGGAATAGAAAG AAGCACAACAAGAAAGGCTTATTTCGATCTATCAATAGTAGAGAT spacer
 length: 44 repeater length: 18
 24734 1060645 CCAATAGGGAATAGAAAG ATGAACCCCTATCTCGCTCTGATGTATTATCAATACGAAGCAAGTAGAGAT spacer
 length: 50 repeater length: 18
 24735 1060713 CCAATAGGGAATAGAAAG TTAATACCAGGCTCGGGAACGAGTGCGACAGCAGAGATTTTGTAGAGAT spacer
 length: 49 repeater length: 18
 24736 1060780 CCAATAGGGAATAGAAAG CATTTTCGTACGTATGAGAAAGCGTTATGACTGACGTAAACAGTAGAGAT spacer
 length: 49 repeater length: 18
 24737 1060847 CCAATAGGGAATAGAAAG ATCCCAATATACTCTCATCGGTTTCGTCTTTGTTGTTCTGTAGAGAT spacer
 length: 47 repeater length: 18
 24738 1060912 CCAATAGGGAATAGAAAG TTGATTTGTTCAAGGCTCTTGCTGACGACGTCATACATTTCTAGTAGAGAT
 spacer length: 51 repeater length: 18
 24739 1060981 CCAATAGGGAATAGAAAG CTTTCTCATGTAAACTCTTTTCCTCATCTCGAAATGTTTTTCAGTAGAGTC spacer
 length: 50 repeater length: 18
 24740 1061049 CCAATAGGGAATAGAAAG TTGTAATACTCACTAAGGTTTTTCGATGTTGACAGGTCTCCAAGTGTAGAGTC
 spacer length: 52 repeater length: 18
 24741 1061119 CCAATAGGGAATAGAAAG AATTGGACAGGAAGAAGGTTCTCTTCAGGAAGTACAAAGTAGAATC spacer
 length: 46 repeater length: 18
 24742 1061183 CCAATAGGGAATAGAAAG TTAATATCCTGTCCACATTGCAATCCTCCACTGCCAACTGTAGAATC spacer
 length: 48 repeater length: 18
 24743 1061249 CCAATAGGGAATAGAAAG AAGGTCTTCGTTAATCCTCCCATTCGCCACCGGACATACTGTAGAATC spacer
 length: 49 repeater length: 18
 24744 1061316 CCAATAGGGAATAGAAAG CAACTGAAATTGAGAATCATAAGCGACAGAGGAAGGACGGGTAGAGAT spacer
 length: 50 repeater length: 18
 24745 1061384 CCAATAGGGAATAGAAAG CAAATATATATGTAAATTCCTTCAAGGAAGAGAAATAGGAAGTGTAGAGTC

spacer length: 51 repeater length: 18

1061453 CCAATAGGGAATAGAAAG TGAGATATC

crispr 16

1124290 CTTTCTATTCCCTCTTGGATCTCTAC ACTTTTGAACGAACACACAGTTGCAGAAATCCGACTCGACAGA

spacer length: 43 repeater length: 26

1124359 CTTTCTATTCCCTCTTGGATCTCTAC ACGAAAAGAACAAGAGAATTCTCTCTGAACTCTCGTCGAT spacer
length: 40 repeater length: 26

1124425 CTTTCTATTCCCTCTTGGATCTCTAC AAAGAGAGTCAATCAACGGAATTGGATGGAATGTTCTTAGATG
spacer length: 43 repeater length: 26

1124494 CTTTCTATTCCCTCTTGGATCTCTAC AATTAATAGGAATGGGCCGGATCTGTAATTTGCCATGAAA spacer
length: 40 repeater length: 26

1124560 CTTTCTATTCCCTCTTGGATCTCTAC AGGGGATTGGAAAGAAGAAGAGAAGAAGAAAAGGAAATTT spacer
length: 40 repeater length: 26

1124626 CTTTCTATTCCCTCTTGGATCTCTAC GCGGTCAAGTAACCGCAACGAAGTTAGCTGAACTAAGTGA spacer
length: 40 repeater length: 26

1124692 CTTTCTATTCCCTCTTGGATCTCTAC CGAACTAGCGATAAGTGTGAGAGCGTACAGCAGGAGCAAG spacer
length: 40 repeater length: 26

1124758 CTTTCTATTCCCTCTTGGATCTCTAC CTTACGATAGAATTCATTGAGATCGTCGACGACATAGA spacer
length: 38 repeater length: 26

1124822 CTTTCTATTCCCTCTTGGATCTCTAC CGAGTAGTATAACGTGAGGTGGGTCGGATGGAAGAGGAGAA spacer
length: 41 repeater length: 26

1124889 CTTTCTATTCCCTCTTGGATCTCTAC GCTGGTGGGGG

crispr 17

1256305 CTCTTTCCACTCCCTCTTGGATCTCTAC AAGGAAGAAGAAAATTGTTTAGGCGAATTCGTAACCCAGTTC

spacer length: 42 repeater length: 28

1256375 CTCTTTCCACTCCCTCTTGGATCTCTAC GAAGTTCTCTTTTTTCAAAAAGCGAGGGACAGGGCGG spacer
length: 36 repeater length: 28

1256439 CTCTTTCCACTCCCTCTTGGATCTCTAC TAAGCGCGGA

GCA_001484685.1_ASM148468v1_genomic.fna (PilerCR):

START REPEAT
SPACER

crispr 1

354098 CTTTCAATTCTTTTGAAGTCTTATTGGAAC TTTTCTATGTTGATGTTTTCTAACTGTATTATGCCCCAAGTAC
spacer length: 45 repeater length: 30

354173 CTTTCAATTCTTTTGAAGTCTTATTGGAAC CGAGAAGACGGAAGTCAAGGTCATCAAGAGAGAGACA spacer
length: 37 repeater length: 30

354240 CTTTCAATTCTTTTGAAGTCTTATTGGAAC AGGGAATCCGGTGGCTTCTCGAAGGAAATCCTGCTCGA spacer
length: 38 repeater length: 30

354308 CTTTCAATTCTTTTGAAGTCTTATTGGAAC TCTGGACACGCTGAAATCAAAGTCCTCTACAACAAGAG spacer
length: 38 repeater length: 30

354376 CTTTCAATTCTTTTGAAGTCTTATTGGAAC TACAAGGAGGTCGATGGAGTGCGGTATTACTATGCAGACAT
spacer length: 41 repeater length: 30

354447 CTTTCAATTCTTTTGAAGTCTTATTGGAAC GGACAATATAGAAGAGCTCCTCAGTAGACTCGAAGAGGAAG
spacer length: 41 repeater length: 30

354518 CTTTCAATTCTTTTGAAGTCTTATTGGAAC CTTGCTTTAATCTTGTCTCTGTGCGAAAATCCCCCA spacer
length: 35 repeater length: 30

354583 CTTTCAATTCTTTTGAAGTCTTATTGGAAC AATTATTGCCAGAACACCTTCCTTCTTCCGACCGAC spacer
length: 36 repeater length: 30

354649 CTTTCAATTCTTTTGAAGTCTTATTGGAAC GACCTACGATGACGTCATAAGGCGATTGATATACGCATACAAAA
spacer length: 44 repeater length: 30

354723 CTTTCAATTCTTTTGAAGTCTTATTGGAAC GTCTATGTGG

crispr 2

575277 CTTTCAATTCTTTTGAAGTCTTATTGGAAC TTTATAAAAGAATGGGTGATGGGGGAGAAAGGGGAGTGAC

spacer length: 40 repeater length: 30

575347 CTTTCAATTCTTTTGAAGTCTTATTGGAAC AACGGGCTTTCCGGCGGGAACAAACAAAAAAGGAGGC spacer
length: 38 repeater length: 30

575415 CTTTCAATTCTTTTGAAGTCTTATTGGAAC GAGGTCGTAACGATTGGAACCTTGAACGTGCCGCTCCA spacer
length: 38 repeater length: 30

575483 CTTTCAATTCTTTTGAAGTCTTATTGGAAC CTCAAGCCTATCTTAAACCGTGCTTTCTGTTCTCCTGTGC
spacer length: 41 repeater length: 30

575554 CTTTCAATTCTTTTGAAGTCTTATTGGAAC TCTCCTGAA

24791 crispr 3
 24792 1128999 GTTCCAATAAGACTTCAAAAGAATTGAAAG AATGTAATGCCCATCCCTCAAAATGTAACTCTTGCC spacer
 length: 37 repeater length: 30
 24793 1129066 GTTCCAATAAGACTTCAAAAGAATTGAAAG GGCACAAAGGGAACAGCAGCAGCGCTTTAAGATAGG spacer
 length: 36 repeater length: 30
 24794 1129132 GTTCCAATAAGACTTCAAAAGAATTGAAAG GACCCGGCATGGGAGACCTGGAAGCAGTGGCTGGTCTACGG
 spacer length: 41 repeater length: 30
 24795 1129203 GTTCCAATAAGACTTCAAAAGAATTGAAAG GAAGCCTTAACGCCTTCGTACTGGACTGGTTTCTCAATG
 spacer length: 40 repeater length: 30
 24796 1129273 GTTCCAATAAGACTTCAAAAGAATTGAAAG TTGGGGCCGAAACCAAAGTTGTTTGCACCAACTCCAAAC
 spacer length: 39 repeater length: 30
 24797 1129342 GTTCCAATAAGACTTCAAAAGAATTGAAAG CCTGCTCCCC
 24798
 24799
 24800 crispr 4
 24801 1129489 GTTCCAATAAGACTTCAAAAGAATTGAAAG ATAAGAGCTTTGACAAGCATGCCGTTGTCAGCGAGTGT spacer
 length: 38 repeater length: 30
 24802 1129557 GTTCCAATAAGACTTCAAAAGAATTGAAAG CTCAGAGGGAGCGGTGAGCTTCTGGCTCAAATGGGATGG
 spacer length: 39 repeater length: 30
 24803 1129626 GTTCCAATAAGACTTCAAAAGAATTGAAAG CATATTGCCGATATCCAATAGTCAACAATAGGCCTACA spacer
 length: 38 repeater length: 30
 24804 1129694 GTTCCAATAAGACTTCAAAAGAATTGAAAG TTAAATACGTTTACACTCGGTGATATCTGAGACCTCTGA
 spacer length: 39 repeater length: 30
 24805 1129763 GTTCCAATAAGACTTCAAAAGAATTGAAAG CAATAGCCGACTTACCTATAGCCAATATCCAATATCTG spacer
 length: 38 repeater length: 30
 24806 1129831 GTTCCAATAAGACTTCAAAAGAATTGAAAG ATGTACTTTCTTGCCTTTCCGATCGGCCCCGTAATTC spacer
 length: 36 repeater length: 30
 24807 1129897 GTTCCAATAAGACTTCAAAAGAATTGAAAG TTGCGTTCTTCACTCCGTCCTTGCTCGTTACCAAAT spacer
 length: 36 repeater length: 30
 24808 1129963 GTTCCAATAAGACTTCAAAAGAATTGAAAG CTTGCGGGCCTTGAATTCTCACCCTACCCCATCCTAT spacer
 length: 38 repeater length: 30
 24809 1130031 GTTCCAATAAGACTTCAAAAGAATTGAAAG GGGGTGTGTGGATAGAGAACATGGCCAGCACTGACATCAA
 spacer length: 40 repeater length: 30
 24810 1130101 GTTCCAATAAGACTTCAAAAGAATTGAAAG GCCTTTGCATCCCCGCCATACCTGTCAATATAAACGA spacer
 length: 37 repeater length: 30
 24811 1130168 GTTCCAATAAGACTTCAAAAGAATTGAAAG TAATCTTCTGAAACATTGTAGTCCACATCGTTCCCAAT spacer
 length: 38 repeater length: 30
 24812 1130236 GTTCCAATAAGACTTCAAAAGAATTGAAAG GTGGGAGCACTATCAGGGCTCCCATGACAATTCCAG spacer
 length: 36 repeater length: 30
 24813 1130302 GTTCCAATAAGACTTCAAAAGAATTGAAAG CCGGCTTCTTTTACCGCATTCTCCCGAACGAGATCTTCAT
 spacer length: 40 repeater length: 30
 24814 1130372 GTTCCAATAAGACTTCAAAAGAATTGAAAG TTCGCTAATGCCATTGCTGTCCTGTCATCATATTCTAA spacer
 length: 38 repeater length: 30
 24815 1130440 GTTCCAATAAGACTTCAAAAGAATTGAAAG ACGCGGGCAT
 24816
 24817
 24818 crispr 5
 24819 1525411 CTTTCCACACGACTACGTTCTACGGAAAC TTGATGTTCCCAATGTGCAAGGGAGGATAGTTTGGGT spacer
 length: 37 repeater length: 29
 24820 1525477 CTTTCCACACGACTACGTTCTACGGAAAC CTGAAAAGAAGAGCTCAAAAGTACCTCGTAGTCATAGACGAAAA
 spacer length: 44 repeater length: 29
 24821 1525550 CTTTCCACACGACTACGTTCTACGGAAAC TGTAACAAACATCGTAATACAAGACCATGGATGGCATTACGTTGT
 spacer length: 44 repeater length: 29
 24822 1525623 CTTTCCACACGACTACGTTCTACGGAAAC TCAATAGAAATAATGGACGACAAGTCCAGATATGTGTACAA
 spacer length: 41 repeater length: 29
 24823 1525693 CTTTCCACACGACTACGTTCTACGGAAAC ATAGCACATGGTATCCTTCACAAACACAGAGAGAT spacer
 length: 35 repeater length: 29
 24824 1525757 CTTTCCACACGACTACGTTCTACGGAAAC GAACGTCTAGTTTCCCAATCCCCACATCGGACAGCATGC spacer
 length: 39 repeater length: 29
 24825 1525825 CTTTCCACACGACTACGTTCTACGGAAAC ATTACAATATCTCATAGGAGTTGCAGAAGAATATTACGG spacer
 length: 39 repeater length: 29
 24826 1525893 CTTTCCACACGACTACGTTCTACGGAAAC GCGGAAACAGATACCGGGTCGCTTAATATCAGAGATGAATCGTT
 spacer length: 44 repeater length: 29
 24827 1525966 CTTTCCACACGACTACGTTCTACGGAAAC CCGGTCTTCACTATTCAAGAAGAATTAGCCAAGAGGTGC
 spacer length: 40 repeater length: 29
 24828 1526035 CTTTCCACACGACTACGTTCTACGGAAAC TTTTCACTTTTCTTCGAGGATTTCACTAAGTTGTTTCATCTG
 spacer length: 42 repeater length: 29
 24829 1526106 CTTTCCACACGACTACGTTCTACGGAAAC CTGAATATCACCGGAAGAGTTCTCTTTCTCTTCTTGCTTACCT
 spacer length: 43 repeater length: 29
 24830 1526178 CTTTCCACACGACTACGTTCTACGGAAAC TTAAACAACCTTTGAACTTATAAGTTTTGTAAACAACACTACATG
 spacer length: 44 repeater length: 29

24831	1526251	CTTTCCACACGACTACGTTCTACGGAAAC	CGGGCATGCACAACAACCTGAAGAGTGCCAAAAAGGTAGAATACGT
		spacer length: 45	repeater length: 29
24832	1526325	CTTTCCACACGACTACGTTCTACGGAAAC	AAGTACATAGAAGAATATAGACAAGAATACTGGTGGAC
		length: 38	repeater length: 29
24833	1526392	CTTTCCACACGACTACGTTCTACGGAAAC	AGAATTAGCAGAAACGCTAGGGTACACCGTGTGTTCGA
		length: 39	repeater length: 29
24834	1526460	CTTTCCACACGACTACGTTCTACGGAAAC	ACGGAAAAAACGATCACTCCCACCGAGTTGACGATATACT
		spacer length: 40	repeater length: 29
24835	1526529	CTTTCCACACGACTACGTTCTACGGAAAC	GTCACCGCAACGCCAGGTGCGCTTGACGACACAGTCG
		length: 37	repeater length: 29
24836	1526595	CTTTCCACACGACTACGTTCTACGGAAAC	GATGTTCCGGGTGGGGAAGAGTGCTGGGAAGCGGGGAT
		length: 38	repeater length: 29
24837	1526662	CTTTCCACACGACTACGTTCTACGGAAAC	TTTGAGAACATAAGTAGTCCTATGGATGACGTAAGGCTATA
		spacer length: 41	repeater length: 29
24838	1526732	CTTTCCACACGACTACGTTCTACGGAAAC	GAGTTTCCCGAAAGCTCAAGCAGTGAGCTAATAGAACTCTT
		spacer length: 41	repeater length: 29
24839	1526802	CTTTCCACACGACTACGTTCTACGGAAAC	CCGCTCTTATCACTCCAAGCGCAACGGTGAGCGGGAGCACGA
		spacer length: 42	repeater length: 29
24840	1526873	CTTTCCACACGACTACGTTCTACGGAAAC	ACAGCCTCGTTTGGGAAATGTCGGGCCAGCTGAAGC
		length: 36	repeater length: 29
24841	1526938	CTTTCCACACGACTACGTTCTACGGAAAC	TCAAATTCGAAATCCACGAACTAACAGGGTTTTTCAT
		length: 37	repeater length: 29
24842	1527004	CTTTCCACACGACTACGTTCTACGGAAAC	AGTCGCATTTCATTGTGTTTCCATAGCCCTTCTCCACCTG
		length: 39	repeater length: 29
24843	1527072	CTTTCCACACGACTACGTTCTACGGAAAC	TTGGCCGATAACACCGAGGAAAAAATTAAAGAACGCTTAA
		spacer length: 40	repeater length: 29
24844	1527141	CTTTCCACACGACTACGTTCTACGGAAAC	CCACGTTTATGTCCAGATCCGAGTTGAACCAATCCT
		length: 36	repeater length: 29
24845	1527206	CTTTCCACACGACTACGTTCTACGGAAAC	CCCTATGGTTTTTTTCAATTATATTATAGAATTCAACCTTTA
		spacer length: 41	repeater length: 29
24846	1527276	CTTTCCACACGACTACGTTCTACGGAAAC	AAGCACGAAGGATGGTACTTCGATTAGCTTTAAGGTGTTCTC
		spacer length: 42	repeater length: 29
24847	1527347	CTTTCCACACGACTACGTTCTACGGAAAC	TGGTGATATGGTGGGAGATTGCCGAGCGACGGTTAGAGACAT
		spacer length: 43	repeater length: 29
24848	1527419	CTTTCCACACGACTACGTTCTACGGAAAC	ACTCGGTTTCCTTGCGGTGCAGTCCATGGCGCTTGAAGAAGT
		spacer length: 42	repeater length: 29
24849	1527490	CTTTCCACACGACTACGTTCTACGGAAAC	GGGGGGAAAACCTGGCTTACATTAGATATCGATGTCTACAAAA
		spacer length: 42	repeater length: 29
24850	1527561	CTTTCCACACGACTACGTTCTACGGAAAC	ATGGTGGTGATGCCTGCAAGGTGGTGTCCATGGTGCCTG
		length: 39	repeater length: 29
24851	1527629	CTTTCCACACGACTACGTTCTACGGAAAC	TCGTAGGCAGAGTCCCCATGTAACCTGTTTCATCAGCTTTGC
		spacer length: 40	repeater length: 29
24852	1527698	CTTTCCACACGACTACGTTCTACGGAAAC	CGGGGAAGAGCAGTCGTATATTGAACAAATAGGTGGTGTATACAG
		spacer length: 45	repeater length: 29
24853	1527772	CTTTCCACACGACTACGTTCTACGGAAAC	TTGTAAAACAGTTAGTTAAAGAGTATGAGGAAGAGGTTAA
		spacer length: 40	repeater length: 29
24854	1527841	CTTTCCACACGACTACGTTCTACGGAAAC	ATGAAAGCCTCGAGGCACGTTGTGAGGGCCTTCTACTCCT
		spacer length: 40	repeater length: 29
24855	1527910	CTTTCCACACGACTACGTTCTACGGAAAC	TGATCTCTTAGAACCACGTCAAATTGAACAAATAAGCGA
		length: 39	repeater length: 29
24856	1527978	CTTTCCACACGACTACGTTCTACGGAAAC	ATGGTCTTTGAATCATCCACTGGGCGAAAAAGTGTCTTA
		length: 39	repeater length: 29
24857	1528046	CTTTCCACACGACTACGTTCTACGGAAAC	ATTAAGTTCGAGGTTACGAAACCAACCGAGCCTTCAGG
		length: 39	repeater length: 29
24858	1528114	CTTTCCACACGACTACGTTCTACGGAAAC	AGGTAAGTGTGGGTATAGGTAGTGTGTGTGCGTAAGG
		length: 37	repeater length: 29
24859	1528180	CTTTCCACACGACTACGTTCTACGGAAAC	TTCCCGCACCGGATATGCCACTGTAAACGGCTTTTGGTATTT
		spacer length: 42	repeater length: 29
24860	1528251	CTTTCCACACGACTACGTTCTACGGAAAC	GTTTAGTGCCTTCTTCTCAAGCTGTTTTATGTACGCTTCTT
		spacer length: 41	repeater length: 29
24861	1528321	CTTTCCACACGACTACGTTCTACGGAAAC	TGGTTCCAAGATCAACGCAAACAGGCTTGCTGAGTACG
		length: 38	repeater length: 29
24862	1528388	CTTTCCACACGACTACGTTCTACGGAAAC	ATGCTTTGAGTATCTGCACGATCCTGTACGTTGCATAGACGA
		spacer length: 42	repeater length: 29
24863	1528459	CTTTCCACACGACTACGTTCTACGGAAAC	AACGAGATCCAGGCTCGTTATTTACAACGGAAGGAGGG
		length: 38	repeater length: 29
24864	1528526	CTTTCCACACGACTACGTTCTACGGAAAC	TTGACTCCCC
24865			
24866			
24867	crispr 6		
24868	1539525	CTTTCCACACGACTACGTTCTACGGAAAC	TGGGGCATGCAGAGTTACTTTAAGGCAAGGGTTATAGCGAC

spacer length: 41 repeater length: 29
 24869 1539595 CTTTCCACACGACTACGTTCTACGGAAAC TTGGATATTGGGACGACAAAATCGTTGAAGTAAACGTT spacer
 length: 38 repeater length: 29
 24870 1539662 CTTTCCACACGACTACGTTCTACGGAAAC AGGGACGGAATCAGCTTCGAGGAGGTCATTAGAGAAGCAG
 spacer length: 40 repeater length: 29
 24871 1539731 CTTTCCACACGACTACGTTCTACGGAAAC ACAGCTTCGATTACTTCTTCTGGTGTGACAAGAAATGGTT
 spacer length: 40 repeater length: 29
 24872 1539800 CTTTCCACACGACTACGTTCTACGGAAAC TTGGACGACAGCATCATTGTTGAAGTAGAGCTTGCGGATTTCTA
 spacer length: 44 repeater length: 29
 24873 1539873 CTTTCCACACGACTACGTTCTACGGAAAC ATGGTTTCCTATTGAGAGTGTATGAGGAGACCGAGGAAATGCT
 spacer length: 43 repeater length: 29
 24874 1539945 CTTTCCACACGACTACGTTCTACGGAAAC GTAGGTGGAGCTCTTGGTGGATTTTTGAGGGTTTGATAGAG
 spacer length: 41 repeater length: 29
 24875 1540015 CTTTCCACACGACTACGTTCTACGGAAAC GCTGGTCAGGGTGGGGCAGAATGGTCGTAGCAATTCAAAATAT
 spacer length: 43 repeater length: 29
 24876 1540087 CTTTCCACACGACTACGTTCTACGGAAAC GCCGGGTCGTAGGCTAAAACGAACATGTGTGGGAAAGCG spacer
 length: 39 repeater length: 29
 24877 1540155 CTTTCCACACGACTACGTTCTACGGAAAC TAATGGAGTGATTAGGGGAGTTGTGCAGAAGACGGTTTTAGT
 spacer length: 42 repeater length: 29
 24878 1540226 CTTTCCACACGACTACGTTCTACGGAAAC CGATGAACTAAAGAATGCTACAAAAGAGATAGCGGCAAAGGC
 spacer length: 42 repeater length: 29
 24879 1540297 CTTTCCACACGACTACGTTCTACGGAAAC TTAGAGCCGAAAGGTTAGAATACATGATAAGCATAGC spacer
 length: 37 repeater length: 29
 24880 1540363 CTTTCCACACGACTACGTTCTACGGAAAC TAGCCACACTACCTATATCCCACACACACTTACCGCACACACT
 spacer length: 43 repeater length: 29
 24881 1540435 CTTTCCACACGACTACGTTCTACGGAAAC TTTCGAGATGAGCGCCGAGATAACCGAGATTTTTTCAA spacer
 length: 38 repeater length: 29
 24882 1540502 CTTTCCACACGACTACGTTCTACGGAAAC ATCAGTAGCAAACCTACGACCCAAGAGTTGCAATAGAAA spacer
 length: 38 repeater length: 29
 24883 1540569 CTTTCCACACGACTACGTTCTACGGAAAC TTCCTCGATGAACCGCTGGGTAGCTTCTCTTAGTGCCTCCG
 spacer length: 41 repeater length: 29
 24884 1540639 CTTTCCACACGACTACGTTCTACGGAAAC TCTCTGAAGATATAGTCAACGTATACGCTTTTGTATTGCT
 spacer length: 40 repeater length: 29
 24885 1540708 CTTTCCACACGACTACGTTCTACGGAAAC GGAGGGATAACTAGAGAAGGAAAAGGCAGGTATAGAA spacer
 length: 37 repeater length: 29
 24886 1540774 CTTTCCACACGACTACGTTCTACGGAAAC ATGTCCGGGT
 24887
 24888
 24889 crispr 7
 24890 1670943 GTTCCAATAAGACTTCAAAAGAATTGAAAG TCTCTCACATATAATGTAACCTTCTGACAATGCATTTTCAA
 spacer length: 40 repeater length: 30
 24891 1671013 GTTCCAATAAGACTTCAAAAGAATTGAAAG ACGGAGCAGTGCATGTAAAGAACGTGGCCGGGACTG spacer
 length: 36 repeater length: 30
 24892 1671079 GTTCCAATAAGACTTCAAAAGAATTGAAAG CTTTTGCTCCGGCAAAAGCTTGTGGGCAGTCAAGTTG spacer
 length: 37 repeater length: 30
 24893 1671146 GTTCCAATAAGACTTCAAAAGAATTGAAAG AGGACTGCTACTGTCTGTGGGACTTTTAGGTTAAGGGT spacer
 length: 38 repeater length: 30
 24894 1671214 GTTCCAATAAGACTTCAAAAGAATTGAAAG TAGGGCATGTGCAATGTGCTCCCTTACTGCGTAATCTA spacer
 length: 38 repeater length: 30
 24895 1671282 GTTCCAATAAGACTTCAAAAGAATTGAAAG ACTGTCACGACTACGGGTATCAACTTTGTTGACATAAC spacer
 length: 38 repeater length: 30
 24896 1671350 GTTCCAATAAGACTTCAAAAGAATTGAAAG GACGGCTTTAGCCTCCCCGCCAGCACACATATGAGCTCTA
 spacer length: 41 repeater length: 30
 24897 1671421 GTTCCAATAAGACTTCAAAAGAATTGAAAG GGCAATGGGTATACTGTCTCAGTTGCGTATATTTCTG spacer
 length: 37 repeater length: 30
 24898 1671488 GTTCCAATAAGACTTCAAAAGAATTGAAAG TCCCCGGCTTGCGGATGACAATTCTGTCCGGGTAGACCTCC
 spacer length: 41 repeater length: 30
 24899 1671559 GTTCCAATAAGACTTCAAAAGAATTGAAAG CCCTGTAGCCTTCCTGTTACACTATCCCAACTCTCAAT
 spacer length: 39 repeater length: 30
 24900 1671628 GTTCCAATAAGACTTCAAAAGAATTGAAAG
 24901
 24902
 24903 crispr 8
 24904 1896368 GTTCCAATAAGACTTCAAAAGAATTGAAAG TCAACGTACACACTCACGCCGTTCAAAGTATTCCCGAG spacer
 length: 38 repeater length: 30
 24905 1896436 GTTCCAATAAGACTTCAAAAGAATTGAAAG GCGGTGGCGGAGGGAGAGCTGTTCAAGTATATCCGCAGA
 spacer length: 39 repeater length: 30
 24906 1896505 GTTCCAATAAGACTTCAAAAGAATTGAAAG GCAATGGTGATGGTGAAATTGAAGGAGGGAGATTGCCA spacer
 length: 38 repeater length: 30
 24907 1896573 GTTCCAATAAGACTTCAAAAGAATTGAAAG ATCAAGTAGTTCACGACGTTACCCCTTCTCCTCTTTCCAAA
 spacer length: 41 repeater length: 30

24908 1896644 GTTCCAATAAGACTTCAAAAGAATTGAAAG TGGTGTCAAGGTCGATCATAAGAATGTTGCCCTTTTCCAT
 spacer length: 40 repeater length: 30
 24909 1896714 GTTCCAATAAGACTTCAAAAGAATTGAAAG
 24910
 24911
 24912 GCA_001488575.1_Halobacterium_hubeiense_JI20-1_genomic.fna(PilerCR):
 24913 START REPEAT
 SPACER
 24914 GCA_001542905.1_ASM154290v1_genomic.fna(PilerCR):
 24915 START REPEAT
 SPACER
 24916 GCA_001548675.1_ASM154867v1_genomic.fna(PilerCR):
 24917 START REPEAT
 SPACER
 24918 GCA_001552015.1_ASM155201v1_genomic.fna(PilerCR):
 24919 START REPEAT
 SPACER
 24920 GCA_001560115.1_GG12_C01_11_genomic.fna(PilerCR):
 24921 START REPEAT
 SPACER
 24922 GCA_001560135.1_GG12_C01_13_genomic.fna(PilerCR):
 24923 START REPEAT
 SPACER
 24924 crispr 1
 24925 21193 GTTTTAGTTTCTTGTCGTTATTAC TAAATTAGATATACGTACATGGGATTCACCTAAGAAA spacer length:
 36 repeater length: 24
 24926 21253 GTTTTAGTTTCTTGTCGTTATTAC CGATTGTTGTGATTGTTGTTCTTGCTTTTTAGCGTC spacer length:
 36 repeater length: 24
 24927 21313 GTTTTAGTTTCTTGTCGTTATTAC CAACATAAGGACCTGGAGTGATCACGGGGAGCCCAGT spacer length:
 37 repeater length: 24
 24928 21374 GTTTTAGTTTCTTGTCGTTATTAC GGGAGGGAGTTACAGTAATAATATCTACGGAACGGT spacer length:
 36 repeater length: 24
 24929 21434 GTTTTAGTTTCTTGTCGTTATTAC CTTTCAATTGATGCTGGTGATGCTTGAGCTAAAATG spacer length:
 36 repeater length: 24
 24930 21494 GTTTTAGTTTCTTGTCGTTATTAC TAGTACTATCTTTATATTCCTATATTTTCCTCCTA spacer length: 35
 repeater length: 24
 24931 21553 GTTTTAGTTTCTTGTCGTTATTAC TAGTACTATCTTTATATTCCTATATTTTCCTCCTA spacer length: 35
 repeater length: 24
 24932 21612 GTTTTAGTTTCTTGTCGTTATTAC AAGGCTTCCTCTTCTTGCTGGGTAAGCCTGGGGAGTA spacer length:
 37 repeater length: 24
 24933 21673 GTTTTAGTTTCTTGTCGTTATTAC TTTTAGGGCTACTATGGTGATAGCTACTGAAAATAAAAA spacer
 length: 39 repeater length: 24
 24934 21736 GTTTTAGTTTCTTGTCGTTATTAC AAGGAATTAAAGAAGTTAGGACTTCAGGACAATGTAG spacer length:
 37 repeater length: 24
 24935 21797 GTTTTAGTTTCTTGTCGTTATTAC GCTTTAAGGTCGAAATCAGAGATAATGAGCATAAT spacer length: 35
 repeater length: 24
 24936 21856 GTTTTAGTTTCTTGTCGTTATTAC AAAAATGTGCTCATCTATGTTTCACCCTGTTGCAC spacer length: 35
 repeater length: 24
 24937 21915 GTTTTAGTTTCTTGTCGTTATTAC AGAGTTTGTTCTTAATTGGCCAGCAGACTAATTTTA spacer length:
 36 repeater length: 24
 24938 21975 GTTTTAGTTTCTTGTCGTTATTAC CTTCCAGTCTTCATTTCTGGCTCACCCCCAGTCAGC spacer length:
 36 repeater length: 24
 24939 22035 GTTTTAGTTTCTTGTCGTTATTAC ATACTTAATCCCTGCAATCGCAGGTTCAATGGTTCAAG spacer length:
 38 repeater length: 24
 24940 22097 GTTTTAGTTTCTTGTCGTTATTAC AGCACGTAACGAAGCTCTATACTACTACGTAAAG spacer length: 35
 repeater length: 24
 24941 22156 GTTTTAGTTTCTTGTCGTTATTAC GTTGACGAGGGCTGGCTCTTTGTGAACTACCCTAT spacer length: 35
 repeater length: 24
 24942 22215 GTTTTAGTTTCTTGTCGTTATTAC TGAAAAACCCTATATTTACAGAGACAAATGAAGAG spacer length: 35
 repeater length: 24
 24943 22274 GTTTTAGTTTCTTGTCGTTATTAC GAATTGTGCTGATGCCGAATTATCAGGATCCCAT spacer length: 34
 repeater length: 24
 24944 22332 GTTTTAGTTTCTTGTCGTTATTAC AAGTCGCAATAGCTAATTCGACTAACTAATCGCT spacer length: 35
 repeater length: 24
 24945 22391 GTTTTAGTTTCTTGTCGTTATTAC GCCATCGAGATTATAGCACCCATCAGAATAATTAC spacer length: 35
 repeater length: 24
 24946 22450 GTTTTAGTTTCTTGTCGTTATTAC GAGAAACCCCTCTAACCTTTTTAAGAAGTCCTTTACA spacer length:
 37 repeater length: 24
 24947 22511 GTTTTAGTTTCTTGTCGTTATTAC TCAATTCCTCGTAATGCTCGGGTTTTATGATTATTTT spacer length:
 37 repeater length: 24
 24948 22572 GTTTTAGTTTCTTGTCGTTATTAC AGTAACTATATACTTCCTAACGGAACAACGTGTA spacer length: 34

24949 repeater length: 24
 22630 GTTTtagtttcttgTCGTTATTAC ACCAGTCTTATCTACATATTTTCAAAAGTAATAGT spacer length: 35
 24950 repeater length: 24
 22689 GTTTtagtttcttgTCGTTATTAC AGATGAGCATGGCGTAGTATCCATAAGTGCTGATGT spacer length: 36
 24951 repeater length: 24
 22749 GTTTtagtttcttgTCGTTATTAC ACAACGAAAAAGAAAAAGCATTGAAAATAATTGAG spacer length: 35
 24952 repeater length: 24
 22808 GTTTtagtttcttgTCGTTATTAC ATTTATATACATACTCCATTTTCCTTAAATTT spacer length: 34
 24953 repeater length: 24
 22866 GTTTtagtttcttgTCGTTATTAC TGCTGTTTCATCAGGCTCAGTATAGTACCTGCAT spacer length: 33
 24954 repeater length: 24
 22923 GTTTtagtttcttgTCGTTATTAC GTGTGTCTTACCACTCATAAAGCTCTCCACATAC spacer length: 35
 24955 repeater length: 24
 22982 GTTTtagtttcttgTCGTTATTAC ATTGATACGATTCTTGCTGAGGCGAGAAAGTATTCTCTT spacer length: 39
 24956 repeater length: 24
 23045 GTTTtagtttcttgTCGTTATTAC ATAATTTCAATCCTGAAAAACAGCTGTTCTACTTC spacer length: 35
 24957 repeater length: 24
 23104 GTTTtagtttcttgTCGTTATTAC CTCTACTATTGCTGATACTGATTTGCCTTCATCCCTC spacer length: 37
 24958 repeater length: 24
 23165 GTTTtagtttcttgTCGTTATTAC ACTATCTTCTTCTGAGTAGTAGTGGTCGTAACGTT spacer length: 35
 24959 repeater length: 24
 23224 GTTTtagtttcttgTCGTTATTAC TTTTGTGACAGCATTCGATAGAGGTTAAAGGTTTTTT spacer length: 36
 24960 repeater length: 24
 23284 GTTTtagtttcttgTCGTTATTAC TGGTTGTTTGGTGAAAACCTCTAGGGGGACACATTC spacer length: 36
 24961 repeater length: 24
 23344 GTTTtagtttcttgTCGTTATTAC AAAAGCTTTAGCTTTTTCAACTATCTAAGACATA spacer length: 34
 24962 repeater length: 24
 23402 GTTTtagtttcttgTCGTTATTAC TTCAATTTGTTTTCTGAAAAAATTAGTTGTAAAG spacer length: 35
 24963 repeater length: 24
 23461 GTTTtagtttcttgTCGTTATTAC ATCGTCACCACCCACGAGGGCTTTTACGAATACGAG spacer length: 36
 24964 repeater length: 24
 23521 GTTTtagtttcttgTCGTTATTAC ACATACTAATAGTCTTACTCAGCATGAGGTTGATGAAC spacer length: 38
 24965 repeater length: 24
 23583 GTTTtagtttcttgTCGTTATTAC TTCTTGCTTGCTATAGCGTTAAGCAAGTAGAAGTGC spacer length: 36
 24966 repeater length: 24
 23643 GTTTtagtttcttgTCGTTATTAC TTGGATATAGAATTGTCTCATAAAGACATTGAGACTG spacer length: 37
 24967 repeater length: 24
 23704 GTTTtagtttcttgTCGTTATTAC TCCATAAAAGGCTTTGGACAAAACTCTTTGGTG spacer length: 34
 24968 repeater length: 24
 23762 GTTTtagtttcttgTCGTTATTAC GACTTCATATAAAGATTTGAGTTGCTGTTGCTCATAT spacer length: 37
 24969 repeater length: 24
 23823 GTTTtagtttcttgTCGTTATTAC TTTAAGCCAAATTTCTTCTCAATGTCCTTTGGAATTAAT spacer length: 39
 24970 repeater length: 24
 23886 GTTTtagtttcttgTCGTTATTAC AAGGAAATTGATGGAAGTTGCAGCAGAATTAGAGGCTGA spacer length: 39
 24971 repeater length: 24
 23949 GTTTtagtttcttgTCGTTATTAC TACTTACCGTTTCTTCTATCATCTCTCTATTAG spacer length: 34
 24972 repeater length: 24
 24007 GTTTtagtttcttgTCGTTATTAC GATGAAGTTTATGATAAGCTCCAAACAATATATAGT spacer length: 36
 24973 repeater length: 24
 24067 GTTTtagtttcttgTCGTTATTAC TTGTATTGCTGATTGCCAATATATGCAATGTATC spacer length: 34
 24974 repeater length: 24
 24125 GTTTtagtttcttgTCGTTATTAC TCCAAAGCCTTCTAATAAAAGTGCAAAAGTCTGATGTT spacer length: 38
 24975 repeater length: 24
 24187 GTTTtagtttcttgTCGTTATTAC ATTGTAATGCCATTATTTACTGAAATTGAACCTG spacer length: 34
 24976 repeater length: 24
 24245 GTTTtagtttcttgTCGTTATTAC ATCATTCATTTTTTCTGCCCAATATAATATACGAT spacer length: 36
 24977 repeater length: 24
 24305 GTTTtagtttcttgTCGTTATTAC ATTGTTGACTTTTCCTATCCACTTTGTGTACTG spacer length: 33
 24978 repeater length: 24
 24362 GTTTtagtttcttgTCGTTATTAC TATGTTACGCTCATACTATATTTCTAAAAGTAATGTA spacer length: 37
 24979 repeater length: 24
 24423 GTTTtagtttcttgTCGTTATTAC GTAGAAACCTCTCTGTGTCTCTTGGATTATATAGAAATT spacer length: 39
 24980 repeater length: 24
 24486 GTTTtagtttcttgTCGTTATTAC ACTTATTTTTTGTCTTTATCTCACTACTCATTTTCT spacer length: 36
 24981 repeater length: 24
 24546 GTTTtagtttcttgTCGTTATTAC CGTGTGGAAGTTGATGGCTGATCTACAATTATTC spacer length: 34
 24982 repeater length: 24
 24604 GTTTtagtttcttgTCGTTATTAC TAAATGCTTCCTGCACAGCACCTAAATTGGCAAACCTTTT spacer length: 39
 24983 repeater length: 24
 24667 GTTTtagtttcttgTCGTTATTAC CCTAGGCTTTGCAGGTATTAATGCCTGTGAGCCA spacer length: 34

24984	24725 GTTTGTAGTTTCTTGTCGTTATTAC	TATCACAACAAATACATTTTTGTATACCGCTACT	spacer length: 34
	repeater length: 24		
24985	24783 GTTTGTAGTTTCTTGTCGTTATTAC	TTTGGGTCAGAGACAAAGTTGTCAGTTTAATGACAA	spacer length: 36
	repeater length: 24		
24986	24843 GTTTGTAGTTTCTTGTCGTTATTAC	GAATTTGTATCATTTACTGGAATCTGAAATTATTGTA	spacer length: 38
	repeater length: 24		
24987	24905 GTTTGTAGTTTCTTGTCGTTATTAC	TACTAGCTTCTTTGCTATCTTCTCAGCCTTGTTG	spacer length: 34
	repeater length: 24		
24988	24963 GTTTGTAGTTTCTTGTCGTTATTAC	TTGTAATCCCAGTGCTCTTTGCACTTAACCCAGAGA	spacer length: 36
	repeater length: 24		
24989	25023 GTTTGTAGTTTCTTGTCGTTATTAC	TCACCTACGACATATGATGCTACTTCATGCACTGT	spacer length: 35
	repeater length: 24		
24990	25082 GTTTGTAGTTTCTTGTCGTTATTAC	AATAGATCACACTGTTTGACATTAAAGAGCACAA	spacer length: 34
	repeater length: 24		
24991	25140 GTTTGTAGTTTCTTGTCGTTATTAC	ACCTAAAAATGATAAAAAATCTAAGACTAACGTCGA	spacer length: 35
	repeater length: 24		
24992	25199 GTTTGTAGTTTCTTGTCGTTATTAC	TTGTTACTTTTAAATGTAAAGAGTAAGGCTTAAATAT	spacer length: 36
	repeater length: 24		
24993	25259 GTTTGTAGTTTCTTGTCGTTATTAC	AGGTAATAGATCTTGAGGTGACGTCAATCCAAATT	spacer length: 35
	repeater length: 24		
24994	25318 GTTTGTAGTTTCTTGTCGTTATTAC	ATAATCAAGGAGGCATCTATGTTACTGGGCATTA	spacer length: 34
	repeater length: 24		
24995	25376 GTTTGTAGTTTCTTGTCGTTATTAC	AGGCCTGCCTCTTCTAGTCCTTCTTGTGCACTTAGAATT	spacer length: 39
	repeater length: 24		
24996	25439 GTTTGTAGTTTCTTGTCGTTATTAC	ATGTTTCCTTGAACAAAAGCGATATCATAAAATT	spacer length: 34
	repeater length: 24		
24997	25497 GTTTGTAGTTTCTTGTCGTTATTAC	TGTTCTACGTTAGGGTACTTTTTTATGAACCTTTTCA	spacer length: 36
	repeater length: 24		
24998	25557 GTTTGTAGTTTCTTGTCGTTATTAC	AAAGAAGAGCAGAAAGTAGTAGAGGACAGAGAAGAT	spacer length: 36
	repeater length: 24		
24999	25617 GTTTGTAGTTTCTTGTCGTTATTAC	AACGGTTTAGCAATCCTCCTCGGAATATTAATGCTGTT	spacer length: 38
	repeater length: 24		
25000	25679 GTTTGTAGTTTCTTGTCGTTATTAC	TTTAATGCGTTTAAATGCCTCATCGAATTTCTGCTTC	spacer length: 36
	repeater length: 24		
25001	25739 GTTTGTAGTTTCTTGTCGTTATTAC	AATGTATCTTCAGTTCCATTATTCTATTTGAACTC	spacer length: 35
	repeater length: 24		
25002	25798 GTTTGTAGTTTCTTGTCGTTATTAC	CAGCTTATTACTATGCCCTGGCAAAGATCCTCTTAGAG	spacer length: 38
	repeater length: 24		
25003	25860 GTTTGTAGTTTCTTGTCGTTATTAC	ACGGCGGTCT	
25004			
25005			
25006	crispr 2		
25007	38251 GTAATAACGACAAGAACTAAAAAC	AGCTCTTTCGCACTGTTATTTTACAATTTACACGT	spacer length: 35
	repeater length: 24		
25008	38310 GTAATAACGACAAGAACTAAAAAC	GCTTGTTGATTTGGGCCCATGCGAGGAGGATTAA	spacer length: 34
	repeater length: 24		
25009	38368 GTAATAACGACAAGAACTAAAAAC	TGATATTGTATCGTTGTAGTTAGTATTGTCCAGAAGAA	spacer length: 38
	repeater length: 24		
25010	38430 GTAATAACGACAAGAACTAAAAAC	AAGAACTCCCGGGAGCCCTGGTGGTATGCCCCGAAATT	spacer length: 37
	repeater length: 24		
25011	38491 GTAATAACGACAAGAACTAAAAAC	ATCGTAAGAGAAGTGGGCTAGCGCTACCCTCCTCCACT	spacer length: 38
	repeater length: 24		
25012	38553 GTAATAACGACAAGAACTAAAAAC	AGAAAATATCTCAAGGAGGGCGAGGAAGTATGCGAAAG	spacer length: 38
	repeater length: 24		
25013	38615 GTAATAACGACAAGAACTAAAAAC	TGGATGCTGAGTTAACTCCCCAGTTTACCGTA	spacer length: 32
	repeater length: 24		
25014	38671 GTAATAACGACAAGAACTAAAAAC	TTTTAGCCTGACCATTTCCCTCGTTAAAAAATAAGGAAA	spacer length: 39
	repeater length: 24		
25015	38734 GTAATAACGACAAGAACTAAAAAC	TTTCACGCTCCATGACCTCAGTGAATATCTCATT	spacer length: 34
	repeater length: 24		
25016	38792 GTAATAACGACAAGAACTAAAAAC	TCATAGGGGCTATATTCAACAATACGTTGCTCCAGTT	spacer length: 37
	repeater length: 24		
25017	38853 GTAATAACGACAAGAACTAAAAAC	GAGAAGAAGCAAAGCATACCGCTCTACAAGGTTCTTCAGTT	spacer length: 42
	repeater length: 24		
25018	38919 GTAATAACGACAAGAACTAAAAAC	TATGTCGATCTGTCCGGTGTGCTGGTGGGCGAGCAT	spacer length: 36
	repeater length: 24		
25019	38979 GTAATAACGACAAGAACTAAAAAC	AAATAGTGGTTTCCAAGACTGTGCAAATGCTTTTTTATA	spacer length: 39
	repeater length: 24		
25020	39042 GTAATAACGACAAGAACTAAAAAC	TTTTAGCTGTTTCTCCATTCCGTCCCACCAACTAT	spacer length: 35
	repeater length: 24		
25021	39101 GTAATAACGACAAGAACTAAAAAC	TAAAATATTTTAAATGTTCCGGAGATAGATTATAACT	spacer length: 39

	36 repeater length: 24	
25022	39161 GTAATAACGACAAGAACTAAAAAC	TGATATTTGGAGTGGTCGTGATTTTAATGGGAGCT spacer length: 35
	repeater length: 24	
25023	39220 GTAATAACGACAAGAACTAAAAAC	ATTAACCTACATCGCTAACAGCTTGGTACAGCCTGT spacer length: 35
	repeater length: 24	
25024	39279 GTAATAACGACAAGAACTAAAAAC	AACAAAAAATGAAGTTTTGGGTATGACTTTCTAC spacer length:
	36 repeater length: 24	
25025	39339 GTAATAACGACAAGAACTAAAAAC	TAGAGGCACAATTACAGAATTTAGTAATTGATCAAAG spacer length:
	37 repeater length: 24	
25026	39400 GTAATAACGACAAGAACTAAAAAC	TGAATTCTGCCTTTTTATATAACGCATTACTGTGATC spacer length:
	37 repeater length: 24	
25027	39461 GTAATAACGACAAGAACTAAAAAC	TTTGAGACGCTGAAAGACGTAGCGAAAGACTCTGC spacer length: 35
	repeater length: 24	
25028	39520 GTAATAACGACAAGAACTAAAAAC	ATTAAAATGCTGTAGAAACACTTGACCAAATATA spacer length: 34
	repeater length: 24	
25029	39578 GTAATAACGACAAGAACTAAAAAC	TAAAGGGATCCTGACCTAAGGACTATCGGGCTTACTTT spacer length:
	38 repeater length: 24	
25030	39640 GTAATAACGACAAGAACTAAAAAC	ACTATCTCAGCTATCGTCACTATCGACATCTTCAC spacer length: 35
	repeater length: 24	
25031	39699 GTAATAACGACAAGAACTAAAAAC	CATTTTATTTATATAGCCTCGTTGTATAGCTTCT spacer length: 34
	repeater length: 24	
25032	39757 GTAATAACGACAAGAACTAAAAAC	ACTGCTAAAGAGCGCAGGTATTGCGCAAGACTACA spacer length: 35
	repeater length: 24	
25033	39816 GTAATAACGACAAGAACTAAAAAC	ATAATATACGACGCTCTGGTTAGGTAAAGGTACTCT spacer length:
	36 repeater length: 24	
25034	39876 GTAATAACGACAAGAACTAAAAAC	AAAATTTTATTCTTAAAGAGATAACAGATTTGGGCT spacer length: 35
	repeater length: 24	
25035	39935 GTAATAACGACAAGAACTAAAAAC	AGTGAATGCTTGTCTGAGCCTAGTCTGTTTAACG spacer length: 35
	repeater length: 24	
25036	39994 GTAATAACGACAAGAACTAAAAAC	ACATTTGCTGGAGTTCAGAAAATATCAGTAACCAA spacer length: 35
	repeater length: 24	
25037	40053 GTAATAACGACAAGAACTAAAAAC	AAAGTTGTTTCAGCCCCATCTTCAATAAGTGAAGGT spacer length:
	36 repeater length: 24	
25038	40113 GTAATAACGACAAGAACTAAAAAC	AACATAAAAAACACTGCTAGTTTCTATCTGATTAAT spacer length:
	36 repeater length: 24	
25039	40173 GTAATAACGACAAGAACTAAAAAC	ATAGATAAAATAAATAGTTAATGTTTCATAAAATCT spacer length:
	36 repeater length: 24	
25040	40233 GTAATAACGACAAGAACTAAAAAC	AACAACGTGATGATACTGACATTTGCGGGCTATTGT spacer length:
	36 repeater length: 24	
25041	40293 GTAATAACGACAAGAACTAAAAAC	GCTGTTTCATATAACTGTAATAAATTAAGAACTT spacer length: 34
	repeater length: 24	
25042	40351 GTAATAACGACAAGAACTAAAAAC	AACTCTTGAATTGTTAAGTCTTTAATGAATGCAT spacer length: 34
	repeater length: 24	
25043	40409 GTAATAACGACAAGAACTAAAAAC	AATGTACACCGTAGCCATTTTTTTGCACTTCTTT spacer length: 34
	repeater length: 24	
25044	40467 GTAATAACGACAAGAACTAAAAAC	AAGAACAGCGATGTTTACAAGTCAGCACAAGACGT spacer length: 35
	repeater length: 24	
25045	40526 GTAATAACGACAAGAACTAAAAAC	CATTTTCTTGTTTTATCTATTTACCGTTTTTAAAC spacer length: 35
	repeater length: 24	
25046	40585 GTAATAACGACAAGAACTAAAAAC	CTAGATTGTTAGCACCGTGCATTAGCAATAATGCGTT spacer length:
	37 repeater length: 24	
25047	40646 GTAATAACGACAAGAACTAAAAAC	GATTGCTGATGACGATGGAATAGTTACCACAAGC spacer length: 34
	repeater length: 24	
25048	40704 GTAATAACGACAAGAACTAAAAAC	TTTTATTTTCACCGACAAAACGAAAAAATTGAAT spacer length: 35
	repeater length: 24	
25049	40763 GTAATAACGACAAGAACTAAAAAC	TTAAAGAGGCAACAAAGCGAAAAATTCTATATGCC spacer length: 35
	repeater length: 24	
25050	40822 GTAATAACGACAAGAACTAAAAAC	TTGTTGTGCTAACTGGTTTATCGCATCCCCTATTC spacer length: 35
	repeater length: 24	
25051	40881 GTAATAACGACAAGAACTAAAAAC	TTATGTTATTTGTACAACTTCTTAGTTGCCAATT spacer length: 35
	repeater length: 24	
25052	40940 GTAATAACGACAAGAACTAAAAAC	TTCTTGTAAGTTTCGGGAAGACATTCTCACTGGTGTA spacer length:
	36 repeater length: 24	
25053	41000 GTAATAACGACAAGAACTAAAAAC	TAGTAGTAGTTAATACTGCTGACTGAATTTTTCTTAGTT spacer
	length: 39 repeater length: 24	
25054	41063 GTAATAACGACAAGAACTAAAAAC	TTTATTTCAAAAAGTTACACTATAAAGATGAATTA spacer length: 35
	repeater length: 24	
25055	41122 GTAATAACGACAAGAACTAAAAAC	TTGGGTAAGATCTAGACCTTATGTTTCCTCTTTCT spacer length: 34
	repeater length: 24	
25056	41180 GTAATAACGACAAGAACTAAAAAC	TTGGGATATATTGCACAGACAACTTTGTCTCC spacer length: 33
	repeater length: 24	

25057	41237 GTAATAACGACAAGAACTAAAAC length: 40 repeater length: 24	ATGTTAGGAATATTGTTAAAAATCCGCCTATAATTCCGAT spacer
25058	41301 GTAATAACGACAAGAACTAAAAC repeater length: 24	ATTTTTTATGCCATACCAACCCATTTTAATCAAA spacer length: 34
25059	41359 GTAATAACGACAAGAACTAAAAC repeater length: 24	CAGTATATGCGTGTTGATGATTTTCTGAAGACTT spacer length: 34
25060	41417 GTAATAACGACAAGAACTAAAAC repeater length: 24	ATAGCAAAGTACGAATAATCTATATTCCTGACCT spacer length: 34
25061	41475 GTAATAACGACAAGAACTAAAAC repeater length: 24	ATATCTCATGGTTATGTTTCTTCAGATCCAGGCT spacer length: 34
25062	41533 GTAATAACGACAAGAACTAAAAC repeater length: 24	GCGGCAGCTACTGGGTCTAACGCCTTCCACTCGAT spacer length: 35
25063	41592 GTAATAACGACAAGAACTAAAAC repeater length: 24	ACATAAGCCAGCTAAAGAAGACGTATCTGACTGAG spacer length: 35
25064	41651 GTAATAACGACAAGAACTAAAAC 37 repeater length: 24	ATTATAAGTAAGGGCTGACTTGTTGAGTAAGACTGGT spacer length:
25065	41712 GTAATAACGACAAGAACTAAAAC 37 repeater length: 24	ATGATTATGAAATTTGTACAGCAAATGTTGATGAGAA spacer length:
25066	41773 GTAATAACGACAAGAACTAAAAC 36 repeater length: 24	AATGTCTTTTTTTATATAAATTTTTCGAGTCCTAAT spacer length:
25067	41833 GTAATAACGACAAGAACTAAAAC repeater length: 24	AGGGAAAAGATCCTCTTCCTAGCTCCTTTCTCTTG spacer length: 35
25068	41892 GTAATAACGACAAGAACTAAAAC 36 repeater length: 24	CCTGTACAACGAAAACGGGACATTGTGGGCAATACA spacer length:
25069	41952 GTAATAACGACAAGAACTAAAAC 36 repeater length: 24	CTCGACCTCTTCTACTACTTCTGGTGGTGCACCCAT spacer length:
25070	42012 GTAATAACGACAAGAACTAAAAC length: 41 repeater length: 24	TTAATTAAAGCGGCAAGCTCTCTAGCCAGGCTAGATCCCTT spacer
25071	42077 GTAATAACGACAAGAACTAAAAC 36 repeater length: 24	AAAACAATGTTTTAGTTTTACAGACATTATAAAATT spacer length:
25072	42137 GTAATAACGACAAGAACTAAAAC 36 repeater length: 24	ACTTCAAGAATGGAATACATTTGTAAAAATTTGCT spacer length:
25073	42197 GTAATAACGACAAGAACTAAAAC repeater length: 24	GCCCAAGCTCAGGCTGGAAACAGTGGAATCCGC spacer length: 34
25074	42255 GTAATAACGACAAGAACTAAAAC repeater length: 24	ATATAACAAAGCGCATTGCTGATACGTTACACAGA spacer length: 35
25075	42314 GTAATAACGACAAGAACTAAAAC repeater length: 24	TCCATGCCCTCGCCCCGCCTTTTCTTTTCTTT spacer length: 34
25076	42372 GTAATAACGACAAGAACTAAAAC repeater length: 24	TTCCACATTGATGAGGTAAGCCTCTGAAAAGGTTT spacer length: 35
25077	42431 GTAATAACGACAAGAACTAAAAC 36 repeater length: 24	TGTGACCAAATTGAGGCAGAAGTATCCGCAGGGGAA spacer length:
25078	42491 GTAATAACGACAAGAACTAAAAC 36 repeater length: 24	ACCCCTGACTTTGTCTTAAAGATAATGAGTTCTTT spacer length:
25079	42551 GTAATAACGACAAGAACTAAAAC 38 repeater length: 24	AGAAAATGAGTAGTGAAGTTAAGACAAAAAATAAGTCA spacer length:
25080	42613 GTAATAACGACAAGAACTAAAAC 38 repeater length: 24	TTCACTGTCAAATTTGTCTAGCAGTTCTTTTGC GACTT spacer length:
25081	42675 GTAATAACGACAAGAACTAAAAC repeater length: 24	ATTATACCACGCCAAAGAGATGGCGTGAGGCGATA spacer length: 35
25082	42734 GTAATAACGACAAGAACTAAAAC repeater length: 24	TATTTGAAGGCTTCCCTTAGGGCGTTCTTTAGCG spacer length: 34
25083	42792 GTAATAACGACAAGAACTAAAAC repeater length: 24	GTAAATTCGGCGCCCCAGTAGAAGTCTTTCTCGC spacer length: 35
25084	42851 GTAATAACGACAAGAACTAAAAC 38 repeater length: 24	CTATGTGTTGATGAGAGCACAGCTGGGCATGGAGCGTA spacer length:
25085	42913 GTAATAACGACAAGAACTAAAAC repeater length: 24	AGATGTAGAGAAAACGATCGATTTAAGGCATGCGA spacer length: 35
25086	42972 GTAATAACGACAAGAACTAAAAC repeater length: 24	AATAAATCAATCCTTTTTTTAAGGTCTTTCCAAGA spacer length: 35
25087	43031 GTAATAACGACAAGAACTAAAAC length: 40 repeater length: 24	TCAACACAAGGAAACACTTACAATTGGTATGAGTATGAAG spacer
25088	43095 GTAATAACGACAAGAACTAAAAC repeater length: 24	CACTAGACACTGCAGGGACAGATATCAAAAATT spacer length: 34
25089	43153 GTAATAACGACAAGAACTAAAAC 37 repeater length: 24	GTGCCCCTGTCTCCTGCAGTTTTAACGCTAAATATCT spacer length:
25090	43214 GTAATAACGACAAGAACTAAAAC 36 repeater length: 24	ACCTATCACTTTCCTTGCGAATTCAACCAGTGTTAA spacer length:
25091	43274 GTAATAACGACAAGAACTAAAAC 37 repeater length: 24	CACCAGCTGTGATGACATAGTCTTTGTCCAGTAATGG spacer length:
25092	43335 GTAATAACGACAAGAACTAAAAC	TTCTTCATAAGGATGTATCTGTACCAGTTCACCA spacer length: 34

repeater length: 24

25093 43393 GTAATAACGACAAGAACTAAAAAC GTCTTTACAGAACTTGGGGCGAAGTAGTATCCCGCA spacer length: 36 repeater length: 24

25094 43453 GTAATAACGACAAGAACTAAAAAC GATGAACCTCGCCTGTGTTACTTGATGTGTATAAGGAA spacer length: 37 repeater length: 24

25095 43514 GTAATAACGACAAGAACTAAAAAC AACTCTGAGACTGAGGTTCTTTTTGTCTCACTAGAT spacer length: 36 repeater length: 24

25096 43574 GTAATAACGACAAGAACTAAAAAC ATAGGCTAGAAGCTGCAAAGAGGCTGGGCTGGAAA spacer length: 35 repeater length: 24

25097 43633 GTAATAACGACAAGAACTAAAAAC TACTGCAAGATCTACATTATAGTTCAATGATTTT spacer length: 34 repeater length: 24

25098 43691 GTAATAACGACAAGAACTAAAAAC ACGAGTCTCTTTATCAATATAGTGATGTTATCTACAT spacer length: 37 repeater length: 24

25099 43752 GTAATAACGACAAGAACTAAAAAC TTTTTTGCCTTTTAGCTTTTCGTATTCTATTAATGAT spacer length: 36 repeater length: 24

25100 43812 GTAATAACGACAAGAACTAAAAAC AGTGGCTTAATGTACCTTTTGGTACTGACTATCCAAT spacer length: 37 repeater length: 24

25101 43873 GTAATAACGACAAGAACTAAAAAC GCTGATAGATAAAGATAAAAATAAAATAGACTTT spacer length: 34 repeater length: 24

25102 43931 GTAATAACGACAAGAACTAAAAAC GTCTACTTTAAGTGAACCTTTATTGTAATCGTATCAAA spacer length: 37 repeater length: 24

25103 43992 GTAATAACGACAAGAACTAAAAAC TAAGCGTCTAAATAAGTTACCGACAATTGTTAT spacer length: 33 repeater length: 24

25104 44049 GTAATAACGACAAGAACTAAAAAC ATTGTTGAGAGATGCTACTTATGAAGAAAATGGAA spacer length: 35 repeater length: 24

25105 44108 GTAATAACGACAAGAACTAAAAAC CTTCATAACTCAACAAAACAAATAAGGTATGCCACTCT spacer length: 38 repeater length: 24

25106 44170 GTAATAACGACAAGAACTAAAAAC CTTAGCGTAAGAGAGCGTATATTATGCAGCGTATATT spacer length: 37 repeater length: 24

25107 44231 GTAATAACGACAAGAACTAAAAAC AATTTTCAGAGTCACCTTACTTGGAAATTTTGTCTCTC spacer length: 37 repeater length: 24

25108 44292 GTAATAACGACAAGAACTAAAAAC CAAAACTGCCGTTTAATGCGCCACTTCTAGAACAA spacer length: 36 repeater length: 24

25109 44352 GTAATAACGACAAGAACTAAAAAC TTTTGAGAATAGAGTCTATGAAATCTCCTTTTATT spacer length: 35 repeater length: 24

25110 44411 GTAATAACGACAAGAACTAAAAAC AGGTTCACTCACCTCGCCTCGCAAGATATTCCAAA spacer length: 36 repeater length: 24

25111 44471 GTAATAACGACAAGAACTAAAAAC ACAATTCTTTCTTTTTTTTATAGCTGTTGTACACATTCT spacer length: 39 repeater length: 24

25112 44534 GTAATAACGACAAGAACTAAAAAC TAGTAATATCTAGCGACTTCCATAATTGCTGATGC spacer length: 35 repeater length: 24

25113 44593 GTAATAACGACAAGAACTAAAAAC ATTATAAAATTGATGTATTATACATTTGCAGAAAT spacer length: 35 repeater length: 24

25114 44652 GTAATAACGACAAGAACTAAAAAC CGCTATTCTCAAGTACTCTGCGATCTCGCCCTCTGAAAG spacer length: 39 repeater length: 24

25115 44715 GTAATAACGACAAGAACTAAAAAC TTCATATCGCTCTTTTGAATACTTCATCAATTCTTGTT spacer length: 38 repeater length: 24

25116 44777 GTAATAACGACAAGAACTAAAAAC TTTTATATTCTGTTGTTTCAATTTTTTATATCATTT spacer length: 34 repeater length: 24

25117 44835 GTAATAACGACAAGAACTAAAAAC ATATTATTAGGAATGACAGCCGAGCTACTACTGT spacer length: 35 repeater length: 24

25118 44894 GTAATAACGACAAGAACTAAAAAC TTGTACAAAAAGCTGAATTTAAGCAAGTCGGAAT spacer length: 35 repeater length: 24

25119 44953 GTAATAACGACAAGAACTAAAAAC ATTTAGTTTGAATATTATGAGTAATTGAGAGTTGGT spacer length: 36 repeater length: 24

25120 45013 GTAATAACGACAAGAACTAAAAAC TTGCTACAGGAAATGGAGAAGGTGAATATCAGGGAGG spacer length: 37 repeater length: 24

25121 45074 GTAATAACGACAAGAACTAAAAAC TTTTATCTTCAAAGAGTTGAAAAAGAGAGGGTTAGATA spacer length: 38 repeater length: 24

25122 45136 GTAATAACGACAAGAACTAAAAAC CTTTCTTCTTCATCTTTATCGATCAAAATTAGCCTTA spacer length: 37 repeater length: 24

25123 45197 GTAATAACGACAAGAACTAAAAAC TTTATTATCAAGAGCATTAAGTAATTTTGAAGACCG spacer length: 37 repeater length: 24

25124 45258 GTAATAACGACAAGAACTAAAAAC TAATAACTCTCTACCTTTTCTATTTTATAGCATTTGG spacer length: 37 repeater length: 24

25125 45319 GTAATAACGACAAGAACTAAAAAC TATTTTCGTAATCTTCTATAAGTTTTGAGTTGAATGGC spacer length: 37 repeater length: 24

25126 45380 GTAATAACGACAAGAACTAAAAAC GTATAGTACTGGTGTATTACTTCCAGATATCCCT spacer length: 34 repeater length: 24

25127 45438 GTAATAACGACAAGAACTAAAAAC CACTCTCTTCAATCCGATTATATCAATTTACTACA spacer length: 35 repeater length: 24

25128 45497 GTAATAACGACAAGAACTAAAAC GATTACTGCAGTGATGATGAAATATCGTGCTAATGAT spacer length:
37 repeater length: 24

25129 45558 GTAATAACGACAAGAACTAAAAC GTTGTAGTCATTCCAGTAATGACTAAGATATTGTGT spacer length:
36 repeater length: 24

25130 45618 GTAATAACGACAAGAACTAAAAC TGTAATACAATATTACGCTAGCAATACAACAAACATA spacer length:
37 repeater length: 24

25131 45679 GTAATAACGACAAGAACTAAAAC ACACTCGCCGACTCTCTCTCATTTATTGCGAGATA spacer length: 35
repeater length: 24

25132 45738 GTAATAACGACAAGAACTAAAAC GTGTTGTTTCGAGACTTCTACTGCCATTAATATTAG spacer length: 35
repeater length: 24

25133 45797 GTAATAACGACAAGAACTAAAAC GATTACTTTTATGCTTTATTCAAATATAGAATAAAAA spacer length:
36 repeater length: 24

25134 45857 GTAATAACGACAAGAACTAAAAC GTTGGGTATTTAAGCTTACGCATTATATTTTTGAG spacer length: 35
repeater length: 24

25135 45916 GTAATAACGACAAGAACTAAAAC GATTACTGCAGTGATGATGAAATATCGTGCTAATGAT spacer length:
37 repeater length: 24

25136 45977 GTAATAACGACAAGAACTAAAAC TAATATAGCGACCACAGAAGCTTGCTATATTTTC spacer length: 34
repeater length: 24

25137 46035 GTAATAACGACAAGAACTAAAAC CTCTCAAGAAATTCCAAAAGTTTATCAAACCTCCTC spacer length: 35
repeater length: 24

25138 46094 GTAATAACGACAAGAACTAAAAC TTTCTACATTATGTACTACCGATAAAACATGTGATCA spacer length:
37 repeater length: 24

25139 46155 GTAATAACGACAAGAACTAAAAC TTCTCTTGGTTCAAAACCACTTAAATCTTCGTTATTT spacer length:
37 repeater length: 24

25140 46216 GTAATAACGACAAGAACTAAAAC TTTTCATCAACATCTTGACTCCGGTATTCGACATCA spacer length:
36 repeater length: 24

25141 46276 GTAATAACGACAAGAACTAAAAC AGTGGTCAGGGCTAGATATCTGCCCACTACCAACT spacer length: 35
repeater length: 24

25142 46335 GTAATAACGACAAGAACTAAAAC TATCAAGAAAAATAGGGCTAGCCCAATTCCAATGAT spacer length:
36 repeater length: 24

25143 46395 GTAATAACGACAAGAACTAAAAC TCGAGGAGTC

25144

25145

25146 GCA_001563245.1_ASM156324v1_genomic.fna (PilerCR):

25147 START REPEAT
SPACER

25148 crispr 1

25149 463458 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAATCCTGAAACTATTAATAATCTTGTTGTTTCTTA spacer
length: 36 repeater length: 30

25150 463524 ATTTCAATCCCAAAATGGTCTTATTTTAAT CAGAAAACAAAGTTTATGAAGTAGAAATGAATGCTTA spacer
length: 37 repeater length: 30

25151 463591 ATTTCAATCCCAAAATGGTCTTATTTTAAT CACCACACCCAACAAAAAGGTTGTGGAGGAA spacer
length: 32 repeater length: 30

25152 463653 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTAATCTTTGTTTTGGAAAACAATTCAAAAAATA spacer
length: 35 repeater length: 30

25153 463718 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTAAGCTTTAGTCAACCTAATTATGATAGTAGTGA spacer
length: 36 repeater length: 30

25154 463784 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTGGCAGAATTTCTTATTTGATAAAGCTATTGATGT spacer
length: 36 repeater length: 30

25155 463850 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTCAATTTAATTTTTCCATATACTTTTCTTTGAATGT spacer
length: 37 repeater length: 30

25156 463917 ATTTCAATCCCAAAATGGTCTTATTTTAAT TACCAAGAATGATAGGATTGAAGACTAGATGTAA spacer
length: 35 repeater length: 30

25157 463982 ATTTCAATCCCAAAATGGTCTTATTTTAAT CCTTAAGTCCAATATTGGTATTAAGTGTGACATT spacer
length: 36 repeater length: 30

25158 464048 ATTTCAATCCCAAAATGGTCTTATTTTAAT CACTAGAATGATCCACCAAGAAAATTTTGCAATCT spacer
length: 36 repeater length: 30

25159 464114 ATTTCAATCCCAAAATGGTCTTATTTTAAT ATGCCTACAGCTAATTGGATACATATTCCTCTAGTAA spacer
length: 38 repeater length: 30

25160 464182 ATTTCAATCCCAAAATGGTCTTATTTTAAT CAGAACTTTCCTTGATAGTGAACTCGTGATGCACT spacer
length: 36 repeater length: 30

25161 464248 ATTTCAATCCCAAAATGGTCTTATTTTAAT ATTTATCCTCTGAAGAGTCTAGATTATTATCTAGCTC spacer
length: 37 repeater length: 30

25162 464315 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAGAAATGACAAACAGGTACTGGGAATAGTTAGTAC spacer
length: 37 repeater length: 30

25163 464382 ATTTCAATCCCAAAATGGTCTTATTTTAAT GCAGCTGCACATAGACACAAAGGTGGATATGAACAA spacer
length: 36 repeater length: 30

25164 464448 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAGCCATTACCATAAACAAGCTAATAAATATAGTAG spacer
length: 36 repeater length: 30

25165 464514 ATTTCAATCCCAAAATGGTCTTATTTTAAT ATAACCTACCACTAAAACTTTTAATAGTATCAATGAT spacer
length: 36 repeater length: 30

25166	464580	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	ATTCTTGAATAAATTATATGATAAATATAAGA A CTT	spacer
		length: 36	repeater length: 30	
25167	464646	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	CATATCCCCATTAAAAGAAGTGTTATCGTAGCTCA	spacer
		length: 35	repeater length: 30	
25168	464711	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TGAGTATTGCTAGCTCTTATTATTCCATTTTTTCTA	spacer
		length: 36	repeater length: 30	
25169	464777	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	AGAGGAAATAGCTATTATATTTGAAAAATATAATCC	spacer
		length: 36	repeater length: 30	
25170	464843	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	GATACTTAAGTCCTCTATACTACCAGCATTCTGTTG	spacer
		length: 36	repeater length: 30	
25171	464909	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TAAATATTTTAAATGACAATATTCTCAATACTGTTGA	spacer
		length: 36	repeater length: 30	
25172	464975	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	GCTTCAGCTGTCGCCGATAAGGGTATAATTGCTAAA	spacer
		length: 36	repeater length: 30	
25173	465041	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	CTCGTTTATATGTTATTAATAACTCAAATAGTAGTGG	spacer
		length: 37	repeater length: 30	
25174	465108	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	AAGTTCACAGAACACAATCAATAACTAGTCCTGGTTA	spacer
		length: 37	repeater length: 30	
25175	465175	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TAGACAATGAGGGTGATCCTATGGGTGTTTCATCGTTA	spacer
		length: 37	repeater length: 30	
25176	465242	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TTAATCCATGTATCCGCTATTGTTATTAGGTCTATT	spacer
		length: 36	repeater length: 30	
25177	465308	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	CTGAGGAAGGTAATATGTTAGCAAAGCTAATGACAAT	spacer
		length: 37	repeater length: 30	
25178	465375	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TTTGCAGTGGGTGTGCTCATTGTCAAGTAAAAGT	spacer
		length: 35	repeater length: 30	
25179	465440	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	ATGACGCAGATTATGTTATAATTGACGACCCATATTC	spacer
		length: 37	repeater length: 30	
25180	465507	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	CATTCCCTGG	
25181				
25182				
25183	crispr 2			
25184	465704	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TTTATTAATCCTCCAAATATACTGCTAATTCATAAAC	spacer
		length: 37	repeater length: 30	
25185	465771	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	ATGTGGTATGAATTCCCAAAACCCCATCATGTCCTC	spacer
		length: 36	repeater length: 30	
25186	465837	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	CAGCAACCTTAGTAGCACTATTAGCCTTAACAGTAAC	spacer
		length: 37	repeater length: 30	
25187	465904	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	ACGGACATAATCATCAGCTACAATCTTAGTAAAATA	spacer
		length: 36	repeater length: 30	
25188	465970	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TTTAGCAAGTAACCTTTCTAATTCTTTTTCTCTTC	spacer
		length: 36	repeater length: 30	
25189	466036	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	AATTAGAGATTAGTAATGCTGAGGAACTTTGACTA	spacer
		length: 36	repeater length: 30	
25190	466102	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TAATTTGAAGCATGGGGGTGCTTTATTAACAGATAC	spacer
		length: 36	repeater length: 30	
25191	466168	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TCTCACAAGTAATTTCTCCTTCTTTAACACTCTT	spacer
		length: 34	repeater length: 30	
25192	466232	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	CCTGTTTAGCTATAGATTTAACATAGTTTTTAATAAC	spacer
		length: 37	repeater length: 30	
25193	466299	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TTTGCATTAGTTGTTATTGTTGAAGTGTTCTTATC	spacer
		length: 35	repeater length: 30	
25194	466364	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	AATATACTCATCATTCAACATTATACCCGTATCAAC	spacer
		length: 36	repeater length: 30	
25195	466430	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	GAGGAAC TTGAATTTGAGAAGTTGAAAGAAGAAACC	spacer
		length: 36	repeater length: 30	
25196	466496	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TTTTATGGTTGATTCTTTTATGTTTATATTTTTTCTT	spacer
		length: 37	repeater length: 30	
25197	466563	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TCAAATACGTACTAAATATTAGTTATATACATTACC	spacer
		length: 36	repeater length: 30	
25198	466629	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	CTCCCCCATG	
25199				
25200				
25201	crispr 3			
25202	466895	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	ATTTATCCAGTATGGTCAAACACTATAAAATAATTTT	spacer
		length: 37	repeater length: 30	
25203	466962	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TGAATATATTGCCTTATGGCCTTTACTTGCAATTAT	spacer
		length: 36	repeater length: 30	
25204	467028	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	GTAGTAATCCTCATATTCCTCAAGTCTCTCTTCAA	spacer
		length: 36	repeater length: 30	
25205	467094	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	GTCCTCCTCTTCAATTACCCTATCAGCAACAATTAC	spacer

length: 36 repeater length: 30
25206 467160 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAGACAGGTTAAGGTGCTGAAGAGACACTTTAAAT spacer
length: 36 repeater length: 30
25207 467226 ATTTCAATCCCAAAATGGTCTTATTTTAAT CTGGTCCTTC
25208
25209
25210 crispr 4
25211 467424 ATTTCAATCCCAAAATGGTCTTATTTTAAT GAAGGCTAAACCATCATGTTATTCCTGTTATAAGAAT spacer
length: 37 repeater length: 30
25212 467491 ATTTCAATCCCAAAATGGTCTTATTTTAAT ATATGATGAGAAATTCAGGAGTTTATTATGAAAAAT spacer
length: 36 repeater length: 30
25213 467557 ATTTCAATCCCAAAATGGTCTTATTTTAAT TACAGCTCTTTTTATAACTTCTACTATGCCATGTTC spacer
length: 36 repeater length: 30
25214 467623 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTGTCTGTAATTGTTAAGATTATTAACCTTCATTAACA spacer
length: 37 repeater length: 30
25215 467690 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAATGAAACCTTTTCAAACCACTCCAATGTACCCGC spacer
length: 36 repeater length: 30
25216 467756 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTTTTTATCTTGTATCTATAACCCAATCTTCACAAC spacer
length: 37 repeater length: 30
25217 467823 ATTTCAATCCCAAAATGGTCTTATTTTAAT AATTTGAAGATAACTCAAATAGCTTCAACAGCCT spacer
length: 35 repeater length: 30
25218 467888 ATTTCAATCCCAAAATGGTCTTATTTTAAT AGAATACAAATAGTACTCCTTTAAAAAGAGTTGCTA spacer
length: 36 repeater length: 30
25219 467954 ATTTCAATCCCAAAATGGTCTTATTTTAAT ATGGCTAATCATGTTAAGAAACAGAACCTTATTAG spacer
length: 35 repeater length: 30
25220 468019 ATTTCAATCCCAAAATGGTCTTATTTTAAT CAATTACAATTTTACTCAATAAATAAGCAACACTATA spacer
length: 37 repeater length: 30
25221 468086 ATTTCAATCCCAAAATGGTCTTATTTTAAT CTGATAAGTACCGTGAGCTTGTTGAAACAATCAATAT spacer
length: 37 repeater length: 30
25222 468153 ATTTCAATCCCAAAATGGTCTTATTTTAAT ATTCAAATTTAGCATTGAAAAATTATCAATACTATT spacer
length: 37 repeater length: 30
25223 468220 ATTTCAATCCCAAAATGGTCTTATTTTAAT TCCCTAATAGTACGTTTATAAGAGTCAACGAATAAT spacer
length: 36 repeater length: 30
25224 468286 ATTTCAATCCCAAAATGGTCTTATTTTAAT CATTTGCATTAGTTGTTATTGTTGAAGTGTCTTATC spacer
length: 37 repeater length: 30
25225 468353 ATTTCAATCCCAAAATGGTCTTATTTTAAT GTATGTGCCGTGATAAAGAAAGAGTAGTGCAGAAGAT spacer
length: 37 repeater length: 30
25226 468420 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAGCTTTCTTTAAGAGGTAAACTTCTTTTTTAATA spacer
length: 35 repeater length: 30
25227 468485 ATTTCAATCCCAAAATGGTCTTATTTTAAT AAGTAATTCTTTATTACTAATATCATCATCAGCTAC spacer
length: 36 repeater length: 30
25228 468551 ATTTCAATCCCAAAATGGTCTTATTTTAAT GAAGGCTAAACCATCATGTCATTCTGTTATAAGAAT spacer
length: 37 repeater length: 30
25229 468618 ATTTCAATCCCAAAATGGTCTTATTTTAAT GGCACCAGCATGGTTACGGTATTTTTTAATTAAGGTT spacer
length: 37 repeater length: 30
25230 468685 ATTTCAATCCCAAAATGGTCTTATTTTAAT GGCACCAGCATGGTTATGGTATTTTTTAATTAAGGTT spacer
length: 37 repeater length: 30
25231 468752 ATTTCAATCCCAAAATGGTCTTATTTTAAT GAGTTTATTAATGAATTCTATAAATTAGGTTCTCAATT spacer
length: 38 repeater length: 30
25232 468820 ATTTCAATCCCAAAATGGTCTTATTTTAAT AGGGTCAATATCAATATCATACTTTAATATACCTGT spacer
length: 36 repeater length: 30
25233 468886 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAAGTCATCTGTCATTTACACCCATACAATCGTTC spacer
length: 36 repeater length: 30
25234 468952 ATTTCAATCCCAAAATGGTCTTATTTTAAT CAACAGCTAGTAATTTGCCTATTGAGCTTGTTACTGC spacer
length: 37 repeater length: 30
25235 469019 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTGGTATGGTAGGAATTAATGATAGGTCTTTACGT spacer
length: 35 repeater length: 30
25236 469084 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTGGTTTGTCTAGTTCTTCACGCGTACTTTTTTC spacer
length: 36 repeater length: 30
25237 469150 ATTTCAATCCCAAAATGGTCTTATTTTAAT TACTACTCCTCTTACATATATTGCTTCTTGTTTTTC spacer
length: 36 repeater length: 30
25238 469216 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAGAGCATTATATCCTCCAGCTAGAGCTGACAAAATTCC spacer
length: 39 repeater length: 30
25239 469285 ATTTCAATCCCAAAATGGTCTTATTTTAAT AATAGTAATAATATTTTTGTTGCTTGTTAAGTTATG spacer
length: 37 repeater length: 30
25240 469352 ATTTCAATCCCAAAATGGTCTTATTTTAAT AAATTAAATTTCTCTTCAACACTTGCTAAAAATG spacer
length: 35 repeater length: 30
25241 469417 ATTTCAATCCCAAAATGGTCTTATTTTAAT AGTCTCTTTCAAACATTATTAAAAAAGTAGACAA spacer
length: 36 repeater length: 30
25242 469483 ATTTCAATCCCAAAATGGTCTTATTTTAAT ACGGTGGACTTCGTGAAACAGAGGAGGGCACCTTA spacer
length: 35 repeater length: 30

25243	469548	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	AATTATCCACTAATTATTAGTGAATAAGCATATGC	spacer
		length: 36	repeater length: 30	
25244	469614	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	TTAAAAGAAATAATTTAAATGAACCTTATCACATATCC	spacer
		length: 37	repeater length: 30	
25245	469681	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	TTTTAATGCACTAAACATATCGTTAGTCATTATGTT	spacer
		length: 36	repeater length: 30	
25246	469747	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	AATTAGGTGTACAATAACCTAAAGCATTGTAGGA	spacer
		length: 35	repeater length: 30	
25247	469812	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	TCCTCTTGTAAGTATATTTTCTTTCTTGGTTTTCTGT	spacer
		length: 37	repeater length: 30	
25248	469879	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	ATGATTCCTGCTTTAAACGGTATTAAAGCAGCAAC	spacer
		length: 35	repeater length: 30	
25249	469944	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	TCCTATAAGGTCTTCTAAACCTTTAAATTCATCTTCA	spacer
		length: 37	repeater length: 30	
25250	470011	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	GTTAATAGAAGCTTTTTTATGAAGGTAGATGCTCCT	spacer
		length: 36	repeater length: 30	
25251	470077	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	ACCAAAAAATTCTGTTTGTAACTGTACTGAAAGTG	spacer
		length: 36	repeater length: 30	
25252	470143	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	TACATTACCAAGCAGCTATAGTATTCATCGCACACAC	spacer
		length: 37	repeater length: 30	
25253	470210	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	ATTAAAAACACGCTCAATCTTCATATCATAACCCAT	spacer
		length: 36	repeater length: 30	
25254	470276	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	AATATTATCACCAGAATCATCCTTAAACAAGTATTCC	spacer
		length: 37	repeater length: 30	
25255	470343	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	CAAAGAAGAACAATACCCTTACATAGATGAAAAGGA	spacer
		length: 37	repeater length: 30	
25256	470410	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	GAAAGTATTTTTAATATTATAATCTACACCATAGGG	spacer
		length: 36	repeater length: 30	
25257	470476	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	ATTCACAATATAACCACAAGGATACCTCATAGTACT	spacer
		length: 36	repeater length: 30	
25258	470542	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	TAATTGAGTAGTACATTTTATTGTACTATTTGATTA	spacer
		length: 36	repeater length: 30	
25259	470608	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	ACTGCTTGTGAATATGTTATTTTTCTCCTTGTTGAA	spacer
		length: 36	repeater length: 30	
25260	470674	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	TATAATGAGGATAATCTTATTGAATCTACTACCAC	spacer
		length: 35	repeater length: 30	
25261	470739	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	AAAGATAAACAATTATTCGGTACTGGAAACAAGATC	spacer
		length: 36	repeater length: 30	
25262	470805	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	CCACAATGTTAATGTTTTAACAATAAATGCTATTAA	spacer
		length: 36	repeater length: 30	
25263	470871	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	AATACTCATAAGGAATGATAATATTTATATTTTCATT	spacer
		length: 37	repeater length: 30	
25264	470938	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	AAGAATCTGATTTAGTAGATATAGACTTTTTTAAGAGT	spacer
		length: 37	repeater length: 30	
25265	471005	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	AATATACCAATATCTTGAGCTGTATTGGTAGTTTGT	spacer
		length: 36	repeater length: 30	
25266	471071	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	CCATGCACATAATATAAATTTTCTGACATAGTTTGA	spacer
		length: 36	repeater length: 30	
25267	471137	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	TTGAAGAAGATAACTTCAATGGGATAATACAGA	spacer
		length: 33	repeater length: 30	
25268	471200	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	ATCTACTTCCTCCTAGGACCAATACTCATAAAATA	spacer
		length: 35	repeater length: 30	
25269	471265	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	TTTAAAAGAGAAATATGATAATATATAAAAAAATTG	spacer
		length: 36	repeater length: 30	
25270	471331	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	AATTATCATCATAGAATGATGATTTATTAAATGGT	spacer
		length: 35	repeater length: 30	
25271	471396	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	TTGAAGAAGATAACTTCAATGGGATAATACAGA	spacer
		length: 33	repeater length: 30	
25272	471459	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	ATCTACTTCCTCCTAGGACCAATACTCATAAAATA	spacer
		length: 35	repeater length: 30	
25273	471524	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	TTTAAAAGAGAAATATGATAATATATAAAAAAATTG	spacer
		length: 36	repeater length: 30	
25274	471590	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	AATTATCATCATAGAATGATGATTTATTAAATGGT	spacer
		length: 35	repeater length: 30	
25275	471655	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	ATTTGAACAAC TAATTTTTTTTATAGATCCATACACC	spacer
		length: 37	repeater length: 30	
25276	471722	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	AAAATGGGATTATTAAATTTTTTAAATAAAATTCCTTA	spacer
		length: 37	repeater length: 30	
25277	471789	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	ATAGATATTCTTAAAAAATATGTTTCCTATTGAATAT	spacer
		length: 36	repeater length: 30	
25278	471855	ATTTC AATCCCAAAAATGGTCTTATTTTAAAT	TAGGAGATAGTGGTATTATGATTAGTAAAGTAAATAT	spacer

length: 37 repeater length: 30
25279 471922 ATTTCAATCCCAAAATGGTCTTATTTTAAT TGAAAGATTTTCAATCATTTTCATTATTTTTTAACTG spacer
length: 36 repeater length: 30
25280 471988 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTACTTAAAAAGTGAAATAACAGGAGAAATACTAAA spacer
length: 37 repeater length: 30
25281 472055 ATTTCAATCCCAAAATGGTCTTATTTTAAT CCAGTGACTTCAAGACCTGTTATAATTCTTTTATA spacer
length: 35 repeater length: 30
25282 472120 ATTTCAATCCCAAAATGGTCTTATTTTAAT TGTGCTAAATAAGTTATGAGATGGGGGATTAGATAA spacer
length: 36 repeater length: 30
25283 472186 ATTTCAATCCCAAAATGGTCTTATTTTAAT AAAGATAAACTATTAAATTCGTCCATCACTTTGTGA spacer
length: 36 repeater length: 30
25284 472252 ATTTCAATCCCAAAATGGTCTTATTTTAAT AAATAAGCAGCATAAAACAATGGAATCAATAGCAT spacer
length: 35 repeater length: 30
25285 472317 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAAATCAGTTGTAGTATAAGGAAATAGAATACTCAA spacer
length: 36 repeater length: 30
25286 472383 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTGAATGCTAAATGTGAAATTGTGAACATTAATAT spacer
length: 35 repeater length: 30
25287 472448 ATTTCAATCCCAAAATGGTCTTATTTTAAT ATGAAAAAGGACGGATACATGAATATGATCCGAACCTT spacer
length: 37 repeater length: 30
25288 472515 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTTATGAAATGGGTAAAATTTGAGGTTGAAAAGAA spacer
length: 36 repeater length: 30
25289 472581 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTTGCAGTGATACTATTAATTCCTGTATTTATTGA spacer
length: 36 repeater length: 30
25290 472647 ATTTCAATCCCAAAATGGTCTTATTTTAAT AAGTTAATTGATGATATTGTTATTGAGATTTGTAC spacer
length: 35 repeater length: 30
25291 472712 ATTTCAATCCCAAAATGGTCTTATTTTAAT TATGGTAGTAAAAAGAAGGTATGTATTTTATATATT spacer
length: 37 repeater length: 30
25292 472779 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTATTTATAATTTTATTTTCCTCCTCTATAAATTTT spacer
length: 37 repeater length: 30
25293 472846 ATTTCAATCCCAAAATGGTCTTATTTTAAT ACTTAGTAATGTTTAAGAGAAAATAAAATGTTTAAAGA spacer
length: 38 repeater length: 30
25294 472914 ATTTCAATCCCAAAATGGTCTTATTTTAAT GCAATACCATTAAGTATTATCAACCTGTCAAATCC spacer
length: 35 repeater length: 30
25295 472979 ATTTCAATCCCAAAATGGTCTTATTTTAAT TCAAGTGCCTTAGTATTTCTACTGATATTTACAAAA spacer
length: 36 repeater length: 30
25296 473045 ATTTCAATCCCAAAATGGTCTTATTTTAAT ATGGGTAAAGTATTGAATAATTGTATTAATGATAAGG spacer
length: 37 repeater length: 30
25297 473112 ATTTCAATCCCAAAATGGTCTTATTTTAAT ACACTCTACCACTGTCATGGGAACCTCTGTTGATGA spacer
length: 36 repeater length: 30
25298 473178 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTGGGACTTTTGAGGAACTATCCTATGTCCAGAACA spacer
length: 37 repeater length: 30
25299 473245 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTGACGAGATCTATCATTGATTTGAATAAGATAGTGA spacer
length: 37 repeater length: 30
25300 473312 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTCAAGGGTTTTCCAATCAATAGTTTTACTAT spacer
length: 33 repeater length: 30
25301 473375 ATTTCAATCCCAAAATGGTCTTATTTTAAT GTGCAAACCTGAAAAAGTTGATGAATTCCAAGCAGA spacer
length: 36 repeater length: 30
25302 473441 ATTTCAATCCCAAAATGGTCTTATTTTAAT TGTTCACTAGTTTGGATGAAGCACAAAAAGCAGTACT spacer
length: 37 repeater length: 30
25303 473508 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTCAAGACAAGACATACTACAAAAAGCACTAGACAC spacer
length: 36 repeater length: 30
25304 473574 ATTTCAATCCCAAAATGGTCTTATTTTAAT TCGTAGGGCATAACGCTTGTAATGAGGTGTAAATTA spacer
length: 36 repeater length: 30
25305 473640 ATTTCAATCCCAAAATGGTCTTATTTTAAT AATATCATACATTTCTAATAAACTTTACGATATTC spacer
length: 36 repeater length: 30
25306 473706 ATTTCAATCCCAAAATGGTCTTATTTTAAT CTGGTTCACATAAAAGGGAGAATTATAGAAATTAAAAA spacer
length: 37 repeater length: 30
25307 473773 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAATACAGATGCTATGATTTCTAATGAGTTTTATCC spacer
length: 36 repeater length: 30
25308 473839 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTGTAACACTGCCTATAGTATCATCAAGACAATATAT spacer
length: 37 repeater length: 30
25309 473906 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTATATAGATAATGGAACCTTTAAATTTAGAATTCT spacer
length: 36 repeater length: 30
25310 473972 ATTTCAATCCCAAAATGGTCTTATTTTAAT CTCGTAATGTTACAAGGAACAGTCCGCACATTAGG spacer
length: 35 repeater length: 30
25311 474037 ATTTCAATCCCAAAATGGTCTTATTTTAAT CACAATCATGTAATGTATTATTAGAAGCTGAAGATGT spacer
length: 37 repeater length: 30
25312 474104 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTCAGTATTTACCCTATCTAATTCTAACATTAACT spacer
length: 36 repeater length: 30
25313 474170 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAAAGAAAAAATTTAATATTTTAATGAAAATGTTAAATTA
spacer length: 41 repeater length: 30

25314 474241 ATTTCAATCCCAAAATGGTCTTATTTTAAT TCAACATACAGAATCGAACCATAGAGTTTAGATTG spacer
length: 35 repeater length: 30
25315 474306 ATTTCAATCCCAAAATGGTCTTATTTTAAT ACGGGTCTACTTACTGTGGCTGCTGTATAGAAGAAG spacer
length: 36 repeater length: 30
25316 474372 ATTTCAATCCCAAAATGGTCTTATTTTAAT AAAGTTGGAGCAGGAATTAAGACGCTGCAGTAGC spacer
length: 35 repeater length: 30
25317 474437 ATTTCAATCCCAAAATGGTCTTATTTTAAT AATAAATGCCTTTTTGTGTGTTAATATATCCCAACACT spacer
length: 37 repeater length: 30
25318 474504 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTGAAGTATCACATATAGCATAAAGTTGTGCAGGGTA spacer
length: 37 repeater length: 30
25319 474571 ATTTCAATCCCAAAATGGTCTTATTTTAAT ATGATGTTATCTTGAATTCTGCTCAAATTGTTTGGGA spacer
length: 37 repeater length: 30
25320 474638 ATTTCAATCCCAAAATGGTCTTATTTTAAT TATCACATGATACATCTACATGTCCATTATTCTTTA spacer
length: 36 repeater length: 30
25321 474704 ATTTCAATCCCAAAATGGTCTTATTTTAAT ATTAATCCCATCAATTGTTTATAATTATCTTTAACAGG spacer
length: 38 repeater length: 30
25322 474772 ATTTCAATCCCAAAATGGTCTTATTTTAAT GACAATATGAATCTAGTAAATGAATCAAACGAAGTA spacer
length: 36 repeater length: 30
25323 474838 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTTTTAGATAAAAAAAGCATTGTGTGGTACAAGCA spacer
length: 36 repeater length: 30
25324 474904 ATTTCAATCCCAAAATGGTCTTATTTTAAT AGGCTTTGTTTATCGGGGACTACAACCCTGATGACT spacer
length: 36 repeater length: 30
25325 474970 ATTTCAATCCCAAAATGGTCTTATTTTAAT CCTAAAAATAAGTTAATAAAGTTAAGTATTAGCTTTT spacer
length: 37 repeater length: 30
25326 475037 ATTTCAATCCCAAAATGGTCTTATTTTAAT CGGAGAGGTTATTGAAACCTCCTCTTGCGACGTTGGG spacer
length: 37 repeater length: 30
25327 475104 ATTTCAATCCCAAAATGGTCTTATTTTAAT CTAAAAACCTCCTTTCAACACAATAAATAATTTT spacer
length: 35 repeater length: 30
25328 475169 ATTTCAATCCCAAAATGGTCTTATTTTAAT TATTTTCTCTGCATCTTCAAGCATTTCTTTTATAAC spacer
length: 36 repeater length: 30
25329 475235 ATTTCAATCCCAAAATGGTCTTATTTTAAT GGTATCCTTGTGGTTATATTGTGAATGGTAAAAGGT spacer
length: 36 repeater length: 30
25330 475301 ATTTCAATCCCAAAATGGTCTTATTTTAAT AGGAGTATATATTGATGATAGAATGCAATCTACTAC spacer
length: 36 repeater length: 30
25331 475367 ATTTCAATCCCAAAATGGTCTTATTTTAAT CAAGTCCCTACTATTTTCTACAATTTTCTAACTTC spacer
length: 36 repeater length: 30
25332 475433 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTCAAAATTAGGTTCTGCTATATCAACTGTAGGTAA spacer
length: 36 repeater length: 30
25333 475499 ATTTCAATCCCAAAATGGTCTTATTTTAAT
TCATCGTTATCTTGACTTTTAAACAACCTAATCATGATTTCAATCCCAAAATGGTCTTATTTTAATAATTCTACCTCTTTTTATTT
TCCATCTTGAAATGGCATTTCATCCCAAAATGGTCTTATTTTAATTTTTTTAGATAGTTTCATTGACTATCTAAAAAGTAAATTT
CAATCCCAAAATGGTCTTATTTTAATAAAGTAGCAACGGGGTTGCTACTTGTTCAAGCACATTTCAATCCCAAAATGGTCTTATT
TTAATTATCATTATCGTTATTTTAAACATTAATAATATAAACATTTCAATCCCAAAATGGTCTTATTTTAATGCCACCTATGCGAC
AACGACTTGTTTGTGCGATGTGGATTTCAATCCCAAAATGGTCTTATTTTAATAGTAGTATTAGTATTATTTTCTTCTACAGGTGTA
TTATTTCAATCCCAAAATGGTCTTATTTTAATAAAAGTAGTAGCGGAGGTTGCTACTTGCTCAGGCGCATTTCAATCCCAAAATGG
TCTTATTTTAATCTATTTCATGAAATCTATGAAAGGATACATAAAAGTAAATTTCAATCCCAAAATGGTCTTATTTTAATATTAGGCCCA
GTGACTGTGCGATATACACAGTATCACCATTCAATCCCAAAATGGTCTTATTTTAATGCGTGGTACTTATACTAAAACATGATGG
TTCACTACATTTCAATCCCAAAATGGTCTTATTTTAATCATTTGTACACCAATACCTAAAAAATAGAGGACTAAGGATTTCAATCC
CAAAATGGTCTTATTTTAATTTGTTGAGGATCAAGATGAAATTTATAACCTGTTTATATTTCAATCCCAAAATGGTCTTATTTTA
TATTAATAAAGACTAGTGTTATTCATAGTAATGTTAAAATTTCAATCCCAAAATGGTCTTATTTTAATCCAGTTTCTTATCATCCT
TCACATGTTCAAAGTTAATTTCAATCCCAAAATGGTCTTATTTTAATACTAATCAAACCTTTTACAAAATGGAGCATTAACACTATT
TCAATCCCAAAATGGTCTTATTTTAATATATTGATAATAAAATAAGGATTATATTAATGATAATTTCAATCCCAAAATGGTCTTA
TTTTAATAATGTGCTGTATGTATTAGGTACATAATCATAATAATTTCAATCCCAAAATGGTCTTATTTTAATTCTATCAATAATT
CTATGCTAGTTTCTGAATTATTATATTTCAATCCCAAAATGGTCTTATTTTAATATCTAGTTCTACTTCTAACTCAAACCCCTGT
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GGTCTTATTTTAATGAGGAAGTTATCACAACCTCCTCTTGCGACATTGCCATTTCAATCCCAAAATGGTCTTATTTTAATTTTTAG
TTTTAAACAATACGAATTAACTTAGATTCATTTCAATCCCAAAATGGTCTTATTTTAATCTTGCCCAACAACGACGATTTACTC
GTCGATGTAGATTTCAATCCCAAAATGGTCTTATTTTAATTTGATATCCATAGTCCCTTTCCATAATCTAACTCTAATTTCAATC
CAAAATGGTCTTATTTTAATATAAGCATTAGTTGTTGTATCACTTGATCTACTAAATTTCAATCCCAAAATGGTCTTATTTTA
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TGTTAGGTGTTAGTGCTATTTCAATCCCAAAATGGTCTTATTTTAATTTGAAACAAGATTATACTGCCTATAATTATTGAGATATT
TCAATCCCAAAATGGTCTTATTTTAATGTTGCACTGCTACAAGGAGGTTTGTGTTATTATAAGATTTCAATCCCAAAATGGTCTTA
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GAAATAGAAGTAAATGTAACAATTTCAATCCCAAAATGGTCTTATTTTAATTTCAAACCAAAATAAACCACTCTTTTTTTTTA
GAAATTTCAATCCCAAAATGGTCTTATTTTAATAGGAAAAGTGACTATATGATAGAAATGACAGAATAATTTCAATCCCAAAATG
GTCTTATTTTAATCTTGTTCTTCTTTTCATGATAAGGGTGTTTTGTGTAATTTCAATCCCAAAATGGTCTTATTTTAATAAAGTT
AATTGTACATCCTCTTTTATAGATTTACCAA spacer length: 2353 repeater length: 30
25334 477882 ATTTCAATCCCAAAATGGTCTTATTTTAAT TCGAGAGGAT
25335
25336
25337 crispr 5

25338	475565	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	AATTCTACCTCTTTTTTATTTTCCATCTTGAAATGGC	spacer
		length: 36	repeater length: 30	
25339	475631	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TTTTTTAGATAGTTTCATTGACTATCTAAAAAGTAA	spacer
		length: 36	repeater length: 30	
25340	475697	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	AAAGTAGCAACGGGGGTTGCTACTTGTTCAAGCAC	spacer
		length: 35	repeater length: 30	
25341	475762	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TATCATTATCGTTATTTTTTAACATTAATAATATAAAC	spacer
		length: 37	repeater length: 30	
25342	475829	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	GCCACCTATGCGACAACGACTTGTTTGTGCGATGTGG	spacer
		length: 36	repeater length: 30	
25343	475895	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	AGTAGTATTAGTATTATTTTCTTCTACAGGTGTATT	spacer
		length: 36	repeater length: 30	
25344	475961	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	AAAAGTAGTAGCGGAGGTTGCTACTTGCTCAGGCGC	spacer
		length: 36	repeater length: 30	
25345	476027	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	CTATTCATGAAATCTATGAAAGGATACTAAAAGTAA	spacer
		length: 36	repeater length: 30	
25346	476093	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TAGGCCAGTGTACTGTGCGATATACACAGTATCACC	spacer
		length: 37	repeater length: 30	
25347	476160	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	GCGTGGTACTTATACTAAAAGTATGGTTCAACTAC	spacer
		length: 36	repeater length: 30	
25348	476226	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	CATTGTACACCAATACCTAAAAAATAGAGGACTAAGG	spacer
		length: 37	repeater length: 30	
25349	476293	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TTGTTGAGGATCAAGATGAAATTTATAACCTGTTTAT	spacer
		length: 37	repeater length: 30	
25350	476360	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	ATTAAAAAGACTAGTGTATTTCATAGTAATGTTAAA	spacer
		length: 36	repeater length: 30	
25351	476426	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	CCAGTTTTCTTATCATCCTTCACATGTTCAAAGTTA	spacer
		length: 36	repeater length: 30	
25352	476492	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	ACTAATCAAACCTTTTACAAAATGGAGCATTAACT	spacer
		length: 36	repeater length: 30	
25353	476558	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	ATATTGATAATAAAAATAAGGATTATATTAAATGATA	spacer
		length: 36	repeater length: 30	
25354	476624	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	AATGTGTCTGTATGTATTAGGTACATAATCATAATA	spacer
		length: 36	repeater length: 30	
25355	476690	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TCTATCAATAATTCTATGCTAGTTTCTGAATTATTAT	spacer
		length: 37	repeater length: 30	
25356	476757	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	ATCTAGTTCTACTTCTAACTCAAACCCCTGTATAG	spacer
		length: 36	repeater length: 30	
25357	476823	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	GAAAATGAAACAGATATTATCCGTTTTATAGAAAAA	spacer
		length: 36	repeater length: 30	
25358	476889	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	GAGGAAGTTATCACAACTTCCTCTTGCGACATTGCC	spacer
		length: 36	repeater length: 30	
25359	476955	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TTTTAGTTTTTAAACAATACGAATTAACTTAGATTC	spacer
		length: 36	repeater length: 30	
25360	477021	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	CTTGCCCAAACAACGACGATTTACTCGTCGATGTAG	spacer
		length: 36	repeater length: 30	
25361	477087	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TTGATATCCATAGTCCCTTTCCATAATCTAACTCTA	spacer
		length: 37	repeater length: 30	
25362	477154	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	ATAAGCATTAGTTGTTGTATCACTTGTATCTACTAA	spacer
		length: 36	repeater length: 30	
25363	477220	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TAGCAGCCCCCGCTACTACTTTTTCTGCTACATAT	spacer
		length: 36	repeater length: 30	
25364	477286	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	CCTAAAGAAATTGTTAAAGTGTTAGGTGTTAGTGCT	spacer
		length: 36	repeater length: 30	
25365	477352	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TTGAAACAAGATTATACTGCCTATAATTATTGAGAT	spacer
		length: 36	repeater length: 30	
25366	477418	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	GTTGCACTGCTACAAGGAGGTTTGTGTTATTATAAG	spacer
		length: 36	repeater length: 30	
25367	477484	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	AAGTGAGTGATATTGATTTATATAATGGTGATTGCT	spacer
		length: 36	repeater length: 30	
25368	477550	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	ACCAGACAAGGAAGAAATAGAAGTAAATGTAAAACA	spacer
		length: 36	repeater length: 30	
25369	477616	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TTCAAACCAAAAATAAACCACTCCTTTTTTTTAGAA	spacer
		length: 36	repeater length: 30	
25370	477682	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	AGGAAAAGTGACTTATATGATAGAAATGACAGAATA	spacer
		length: 36	repeater length: 30	
25371	477748	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	CTTGTTCTTCTTTTCATGATAAGGGTGTTTTTGTGTA	spacer
		length: 37	repeater length: 30	
25372	477815	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	AAAGTTAATTGTACATCCTCTTTTATAGATTTACCAA	spacer
		length: 37	repeater length: 30	
25373	477882	ATTTC AATCCCAAAAATGGTCTTATTTTAAT	TCGAGAGGAT	

25374
25375
25376 crispr 6
25377 818609 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TCACCTTTATCATAGATTTTAAAAAACTATTTTTT
spacer length: 36 repeater length: 37
25378 818682 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC ATTCTTAATATTTAAAGTATAAACATTAGAATAACT
spacer length: 36 repeater length: 37
25379 818755 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC CTTACTACCCTTATAATTCCACATATGACCTGTAG
spacer length: 35 repeater length: 37
25380 818827 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC AACATTGTTAAGACTTTTAACTAAACATCTTTTTTTC
spacer length: 36 repeater length: 37
25381 818900 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC AGGCTAACCTAAAAATAGCTTTCAAACGTACATCT
spacer length: 36 repeater length: 37
25382 818973 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC GTAAGAACCTTACCAATTTTGTTAAACCTTATAA
spacer length: 35 repeater length: 37
25383 819045 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TCCACCCAACACTAACTAAAAAATTAACCTTCTAT
spacer length: 35 repeater length: 37
25384 819117 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TTTAGATAATGATTCTGAAAATCTTGGTGTGAAGAT
spacer length: 36 repeater length: 37
25385 819190 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TTGTGTTTGGTTTTGTTTATTACTTTTTCTTTTTTCT
spacer length: 38 repeater length: 37
25386 819265 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TTAAAATTGGCTCCGCGTATTCAAATTATGCCTCC
spacer length: 36 repeater length: 37
25387 819338 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TGATATGAATCTAAAAATTATTTTCTTCTTCTACCT
spacer length: 37 repeater length: 37
25388 819412 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC ACAGTAATCCTGATTCTCTAAATTACTGAATTCTCT
spacer length: 36 repeater length: 37
25389 819485 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TCATAATAGGTCCTATCAAATGAATATGTAACCT
spacer length: 36 repeater length: 37
25390 819558 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC ACTTGTTATACATAATATCACTTAAAATTTTAAAT
spacer length: 35 repeater length: 37
25391 819630 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TCTGGTCTCCAGCCGATTTTCGTAAATGTATTAGT
spacer length: 35 repeater length: 37
25392 819702 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC GTTCTGAAACTTCTGTAAATTCATAAGCTAAAATCT
spacer length: 37 repeater length: 37
25393 819776 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TCTTCATTTTTATTATTAATTCCTCTAAATTCTTCT
spacer length: 36 repeater length: 37
25394 819849 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC CGTCCATTTTCATTAATAATAAAATACTGGTAAATAT
spacer length: 36 repeater length: 37
25395 819922 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC CAGTCCCAGTATAGTTTCTCAGAAGCATTATCTAC
spacer length: 35 repeater length: 37
25396 819994 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TTTTCTTGCCTTTAAAATGCATTGTTAAGACCTGT
spacer length: 35 repeater length: 37
25397 820066 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC CATAGAGCAC

25398
25399
25400 GCA_001571385.1_ASM157138v1_genomic.fna (PilerCR):
25401 START REPEAT
SPACER
25402 crispr 1
25403 1249949 CGGTTTCATCCCCACGCGTGTGGGGAACAC CTGTTTCTGCTGCAGAGAGGCGGCGAGGGGGG spacer
length: 32 repeater length: 29
25404 1250010 CGGTTTCATCCCCACGCGTGTGGGGAACAC TGATCGCGAGTTGATGATCCGAGGCAAACGCA spacer
length: 32 repeater length: 29
25405 1250071 CGGTTTCATCCCCACGCGTGTGGGGAACAC GCCAGTAAAAGGGTTGTCGGGGGTGCTCTCAC spacer
length: 32 repeater length: 29
25406 1250132 CGGTTTCATCCCCACGCGTGTGGGGAACAC AGCCTGGTAACCTCTTGCCCCGGCGTCAGGAGA spacer
length: 32 repeater length: 29
25407 1250193 CGGTTTCATCCCCACGCGTGTGGGGAACAC AGAAATTCGACAGTGCCGGGGAGTTCCACGAT spacer
length: 32 repeater length: 29
25408 1250254 CGGTTTCATCCCCACGCGTGTGGGGAACAC CGATGGGGTCGGCCTACTCGACTGTTTCGATCA spacer
length: 32 repeater length: 29
25409 1250315 CGGTTTCATCCCCACGCGTGTGGGGAACAC CGAATCGATGCGTTTTCTGCACCGATATTCTC spacer
length: 32 repeater length: 29
25410 1250376 CGGTTTCATCCCCACGCGTGTGGGGAACAC CGAATCGATGCGTTTTCTGCACCGATATTCTC spacer
length: 32 repeater length: 29
25411 1250437 CGGTTTCATCCCCACGCGTGTGGGGAACAC AAGAAGCTGCGGCCGACCCGCGTCGGCGGCCT spacer
length: 32 repeater length: 29
25412 1250498 CGGTTTCATCCCCACGCGTGTGGGGAACAC TAAGTATCAGAATCTCTTACTTTAATCATATA spacer
length: 32 repeater length: 29
25413 1250559 CGGTTTCATCCCCACGCGTGTGGGGAACAC TTTGCAGAAAACAATTATCGCGTGTCTGCT spacer

	length: 32	repeater length: 29	
25414	1250620	CGGTTTCATCCCCACGCGTGTGGGGAACAC	CTCTCGTTCGTGACTCCCCGGAAAACTGCTA spacer
	length: 32	repeater length: 29	
25415	1250681	CGGTTTCATCCCCACGCGTGTGGGGAACAC	GGGCTACGGGGTTGTTTCGATTTCTGATCCGCC spacer
	length: 32	repeater length: 29	
25416	1250742	CGGTTTCATCCCCACGCGTGTGGGGAACAC	CGGAGCGAGGGCGACTTTTTGCCGACCCTCGC spacer
	length: 32	repeater length: 29	
25417	1250803	CGGTTTCATCCCCACGCGTGTGGGGAACAC	CGCCGCCGACGCCCCCGCATACGACGAGATTG spacer
	length: 32	repeater length: 29	
25418	1250864	CGGTTTCATCCCCACGCGTGTGGGGAACAC	TGTAGTCGTAACCCCGCCGACCGTTGGCGATC spacer
	length: 32	repeater length: 29	
25419	1250925	CGGTTTCATCCCCACGCGTGTGGGGAACAC	ATTCGCTTCCAGGATGGTATATCGATCGTTGA spacer
	length: 32	repeater length: 29	
25420	1250986	CGGTTTCATCCCCACGCGTGTGGGGAACAC	GAGATAGGATCTTGTTTTTCGGGTTTGTTTGA spacer
	length: 32	repeater length: 29	
25421	1251047	CGGTTTCATCCCCACGCGTGTGGGGAACAC	ATGAATAGCGAGTCTGTAAGGCAGGTACCCCA spacer
	length: 32	repeater length: 29	
25422	1251108	CGGTTTCATCCCCACGCGTGTGGGGAACAC	GCAACAAACAATATCGGACTCGGGTTTATCGG spacer
	length: 32	repeater length: 29	
25423	1251169	CGGTTTCATCCCCACGCGTGTGGGGAACAC	ACGGGCCATCCTGGAGCAGACCCCTGAATCC spacer
	length: 32	repeater length: 29	
25424	1251230	CGGTTTCATCCCCACGCGTGTGGGGAACAC	ACTAAAAAACCCGATAGACAATGGCTGGCGAC spacer
	length: 32	repeater length: 29	
25425	1251291	CGGTTTCATCCCCACGCGTGTGGGGAACAC	TTTCTGGTTCCGTCGCGGTGCGCCTGTTCTGA spacer
	length: 33	repeater length: 29	
25426	1251353	CGGTTTCATCCCCACGCGTGTGGGGAACAC	CCATCGCCGCATGCCACGCCCGGGTGCGGCCT spacer
	length: 32	repeater length: 29	
25427	1251414	CGGTTTCATCCCCACGCGTGTGGGGAACAC	ACCGTCCGGGCGCTCGGCCATGCGATCAGCGC spacer
	length: 32	repeater length: 29	
25428	1251475	CGGTTTCATCCCCACGCGTGTGGGGAACAC	TACCGGCACCACGGCCGCGAGACCGCGTACAC spacer
	length: 32	repeater length: 29	
25429	1251536	CGGTTTCATCCCCACGCGTGTGGGGAACAC	TCCTCCGGGGGGATGCTCTCGGTCTCCTGGTT spacer
	length: 32	repeater length: 29	
25430	1251597	CGGTTTCATCCCCACGCGTGTGGGGAACAC	GCGCGTCCACCTGGAACGGCTCGATGGAGGAT spacer
	length: 32	repeater length: 29	
25431	1251658	CGGTTTCATCCCCACGCGTGTGGGGAACAC	CGGGGCGGAGAATCTGAGGGTTGCGATTGCAT spacer
	length: 32	repeater length: 29	
25432	1251719	CGGTTTCATCCCCACGCGTGTGGGGAACAC	CGCGAGAAAATTGAGACTCTAAACTCGGTAAT spacer
	length: 32	repeater length: 29	
25433	1251780	CGGTTTCATCCCCACGCGTGTGGGGAACAC	TATTACTACCGGCGCAGTGGCCGCGCTTGTGT spacer
	length: 32	repeater length: 29	
25434	1251841	CGGTTTCATCCCCACGCGTGTGGGGAACAC	GAAAACCACCGAGGTAACAGTTGGAGGAGAAT spacer
	length: 32	repeater length: 29	
25435	1251902	CGGTTTCATCCCCACGCGTGTGGGGAACAC	GCAGACAAAGGAATTCGCTACAACCTACGGGG spacer
	length: 32	repeater length: 29	
25436	1251963	CGGTTTCATCCCCACGCGTGTGGGGAACAC	CAAAGGCGATGAAATCCTCGAAGGAGATGGAC spacer
	length: 32	repeater length: 29	
25437	1252024	CGGTTTCATCCCCACGCGTGTGGGGAACAC	TCGATAATGAGAACGGATGTTGAATTATATGG spacer
	length: 32	repeater length: 29	
25438	1252085	CGGTTTCATCCCCACGCGTGTGGGGAACAC	ATTTGTAGTATTATCGATTTTCTCGATTGCCT spacer
	length: 32	repeater length: 29	
25439	1252146	CGGTTTCATCCCCACGCGTGTGGGGAACAC	GATCCCACTGGTATGGTCCGAATTTGCAAAGT spacer
	length: 32	repeater length: 29	
25440	1252207	CGGTTTCATCCCCACGCGTGTGGGGAACAC	CACGCGAGGCATTGATGCTATTTAAACAATTG spacer
	length: 32	repeater length: 29	
25441	1252268	CGGTTTCATCCCCACGCGTGTGGGGAACAC	GTCGCTTAGAGTAATCAAGTCCTTATAGGTCA spacer
	length: 32	repeater length: 29	
25442	1252329	CGGTTTCATCCCCACGCGTGTGGGGAACAC	ACCACCGAAACGAATACCAGATAGCACGCGCG spacer
	length: 32	repeater length: 29	
25443	1252390	CGGTTTCATCCCCACGCGTGTGGGGAACAC	CCGAATAAACCTAAGAACGTCGTCAGAAATGC spacer
	length: 32	repeater length: 29	
25444	1252451	CGGTTTCATCCCCACGCGTGTGGGGAACAC	CCGGAAATAGCAGACCCTGCAGCGCAGCTCAT spacer
	length: 32	repeater length: 29	
25445	1252512	CGGTTTCATCCCCACGCGTGTGGGGAACAC	CGTAGTCGAAAGCGGAAGGAACTACCGACCG spacer
	length: 32	repeater length: 29	
25446	1252573	CGGTTTCATCCCCACGCGTGTGGGGAACAC	TTGTTCTCGAACGCGGTGCGCGACTCGGCTTC spacer
	length: 32	repeater length: 29	
25447	1252634	CGGTTTCATCCCCACGCGTGTGGGGAACAC	ATGCCGATTTGGCCGACGATTTTCTGATATAT spacer
	length: 32	repeater length: 29	
25448	1252695	CGGTTTCATCCCCACGCGTGTGGGGAACAC	CTACGGGTGTTGTGAAAATCTGGTGGGAAAAT spacer
	length: 32	repeater length: 29	

25449 1252756 CGGTTTCATCCCCACGCGTGTGGGGAACAC
 CTCGAAATTGTTGAACACGGCGTCCACGCGCTCGGTTTCATCCCCACGCGTGTGGGGAACACCACACCCACCAACATTTCAGGACACG
 TCTGCCGCGGTTTCATCCCCACGCGTGTGGGGAACACCCCATCAGAGAGCAGCGAATCCATCAGGAAATCGGTTTCATCCCCACGCGT
 GTGGGGAACACGAAACGGCGGACCAATCAGACTTATGAAAGCGGGTTTCATCCCCACGCGTGTGGGGAACACCTCGGGCAAGACAG
 ACGATCCCAAATATTTACCGGTTTCATCCCCACGCGTGTGGGGAACACGCGGTAGAGGTTCAGAAATGGTGTAGGCGATCTCGGTTCA
 TCCCCACGCGTGTGGGGAACACCATAGCGCCAACGCTCATGCGTGCGCTGTATTTCGGTTTCATCCCCACGCGTGTGGGGAACACGTA
 ACCTCGGCGCCGGTGATCTGGTTCGGACACGGTTTCATCCCCACGCGTGTGGGGAACACAACACCGTGGCAGTGGGCGGGACACGAAT
 GACCGGTTTCATCCCCACGCGTGTGGGGAACACTTCGGCGCCACCTCCGCCACCATGGGCATGATCGGTTTCATCCCCACGCGTGTGG
 GGAACACGACCGCGGGCCTCGATGTCTACTCCGGCAAGGCGGTTTCATCCCCACGCGTGTGGGGAACACTCCGTCGATGCGCTCGAC
 GTAGCCGTCGACTCGGTTTCATCCCCACGCGTGTGGGGAACACGATACGCTCGGATACCTGCAAACCTCTATAGTCGGTTTCATCCC
 CACGCGTGTGGGGAACACGTGATCGGGTGACTCATGTCCTTCCGGTACAC spacer length: 824 repeater
 length: 29
 25450 1253609 CGGTTTCATCCCCACGCGTGTGGGGAACAC GGATCGGTCT
 25451
 25452
 25453 crispr 2
 25454 1252817 CGGTTTCATCCCCACGCGTGTGGGGAACAC CACACCCACCAACATTTCAGGACACGTCTGCCG spacer
 length: 32 repeater length: 29
 25455 1252878 CGGTTTCATCCCCACGCGTGTGGGGAACAC CCCATCAGAGAGCAGCGAATCCATCAGGAAAT spacer
 length: 32 repeater length: 29
 25456 1252939 CGGTTTCATCCCCACGCGTGTGGGGAACAC GAAACGGCGGACCAATCAGACTTATGAAAGCG spacer
 length: 32 repeater length: 29
 25457 1253000 CGGTTTCATCCCCACGCGTGTGGGGAACAC CTCGGGCAAGACAGACGATCCCAAATATTTAC spacer
 length: 32 repeater length: 29
 25458 1253061 CGGTTTCATCCCCACGCGTGTGGGGAACAC GCGGTAGAGGTCAGAAATGGTGTAGGCGATCT spacer
 length: 32 repeater length: 29
 25459 1253122 CGGTTTCATCCCCACGCGTGTGGGGAACAC CATAGCGCCAACGCTCATGCGTGCGCTGTATT spacer
 length: 32 repeater length: 29
 25460 1253183 CGGTTTCATCCCCACGCGTGTGGGGAACAC GTAACCTCGGCGCCGGTGATCTGGTCGGACA spacer length:
 31 repeater length: 29
 25461 1253243 CGGTTTCATCCCCACGCGTGTGGGGAACAC AACACCGTGGCAGTGGGCGGGACACGAATGAC spacer
 length: 32 repeater length: 29
 25462 1253304 CGGTTTCATCCCCACGCGTGTGGGGAACAC TTCGGCGCCACCTCCGCCACCATGGGCATGAT spacer
 length: 32 repeater length: 29
 25463 1253365 CGGTTTCATCCCCACGCGTGTGGGGAACAC GACCGCGGGCCTCGATGTCTACTCCGGCAAGG spacer
 length: 32 repeater length: 29
 25464 1253426 CGGTTTCATCCCCACGCGTGTGGGGAACAC TCCGTCGATGCGCTCGACGTAGCCGTCAGACT spacer
 length: 32 repeater length: 29
 25465 1253487 CGGTTTCATCCCCACGCGTGTGGGGAACAC GATACGCTCGGATACCTGCAAACCTCTATAGT spacer
 length: 32 repeater length: 29
 25466 1253548 CGGTTTCATCCCCACGCGTGTGGGGAACAC GTGATCGGGTGACTCATGTCCTTCCGGTACAC spacer
 length: 32 repeater length: 29
 25467 1253609 CGGTTTCATCCCCACGCGTGTGGGGAACAC GGATCGGTCT
 25468
 25469
 25470 crispr 3
 25471 1418756 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC CAGGCGGTCTCAAGTCGCTCCGTGTCAAGGCGGGG
 spacer length: 36 repeater length: 37
 25472 1418829 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC AAGTACGGGCAGAACCCCGCACAGATCTTCTGTGG
 spacer length: 35 repeater length: 37
 25473 1418901 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC ACCTCCTCGTCGGAGGTGTGGGGCGCAGGCCGTC
 spacer length: 35 repeater length: 37
 25474 1418973 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC GACGCTATACGGGGGGGTTATGGTTCGCGCTCA
 spacer length: 33 repeater length: 37
 25475 1419043 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC GGTGCGAGCGTGACCGGACGACCGGAGCGATCACA
 spacer length: 35 repeater length: 37
 25476 1419115 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC CAGATCACAGTATCGGGGCCGATCACGAACCCAG
 spacer length: 34 repeater length: 37
 25477 1419186 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC CAGGATCTTGGCCGTGGTCACTGCATTGCTCGCGAG
 spacer length: 36 repeater length: 37
 25478 1419259 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC AGATTCTCAGCCCCGCGACGGGAAAGCCCACCGGG
 spacer length: 36 repeater length: 37
 25479 1419332 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC ATCTCGTAGGTGCGCCAGGTGCCCGCCTGCGCGATTG
 spacer length: 37 repeater length: 37
 25480 1419406 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC TAGGTACCAATACATTGCATGGTTCTCAGTCCTGG
 spacer length: 35 repeater length: 37
 25481 1419478 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC TATATTCCGCGCTCATGCACGCAGATGTAAG
 spacer length: 32 repeater length: 37
 25482 1419547 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC CCGGCAGAGTTCCCCTGCTCGGTGATAGAAGTCTA
 spacer length: 35 repeater length: 37
 25483 1419619 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC AGGCCGAGACCCCGCGGGTGTCTGTGCGAAGGCGG

spacer length: 36 repeater length: 37
 25484 1419692 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC TGCCGAAGAACGGATGTACATCCATATCAGTATT
 spacer length: 34 repeater length: 37
 25485 1419763 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC TTCCCGGCCCTCGTCGGTCTCGTAGACGACGCGGTTGG
 spacer length: 37 repeater length: 37
 25486 1419837 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC GCATGCGCGCAGGTTCTACAGTTGACCTCTGGCAACC
 spacer length: 37 repeater length: 37
 25487 1419911 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC TGATCCCCGGTCGGGCCCTTACCCTCCCGCTCAGTA
 spacer length: 35 repeater length: 37
 25488 1419983 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC GACATGGTGGACGCCGCCCGATATGGGAAAAAGGT
 spacer length: 36 repeater length: 37
 25489 1420056 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC AGTATTGCGTAGACTCGCCCCCTCGATTGCGAAGGTGA
 spacer length: 37 repeater length: 37
 25490 1420130 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC GTCGGCATGACGGTCCGGATCGACCCCGCGGTCCGG
 spacer length: 36 repeater length: 37
 25491 1420203 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC CACCCCGCGGTCAGGGTGTACTGGTCAGAGGTGA
 spacer length: 35 repeater length: 37
 25492 1420275 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC ACAGTCTGGGAAGGGTTCGTGATCATGGTGGTGTG
 spacer length: 35 repeater length: 37
 25493 1420347 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC GCGAGCCTCGCCGAGGTAGACGTTACGCTTGCACTT
 spacer length: 36 repeater length: 37
 25494 1420420 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC TTTGTTCTCAGATACTTTGCAAATTCGGACCATAACCAG
 spacer length: 38 repeater length: 37
 25495 1420495 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC GGAGTTCGCTGACCCCATCGAGAAGAGGGAGCCGAG
 spacer length: 36 repeater length: 37
 25496 1420568 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC ACGAGGGTCTCCTCGGCAACGCTCTCCGGGGTCGC
 spacer length: 35 repeater length: 37
 25497 1420640 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC TGTGCGGCATGCACGCCCGGAGCGAGTAGATCTGC
 spacer length: 37 repeater length: 37
 25498 1420714 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC TTTCGTCCAATCGTATGGTACTGGGACGTGGACCTT
 spacer length: 36 repeater length: 37
 25499 1420787 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC TCGTTAGGTGTATGGCAACGATTCTTGAAAGAA
 spacer length: 34 repeater length: 37
 25500 1420858 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC GTATGGTGGGGGATACAACGCGCCGTTGTGACTC
 spacer length: 35 repeater length: 37
 25501 1420930 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC ATTGAGAGTGATGTTGGCGATCCGCTCATGCTCCAGA
 spacer length: 37 repeater length: 37
 25502 1421004 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC ACGAGTCGGCCCGTAGCAGGGCAATACGCAATAGCCGC
 spacer length: 38 repeater length: 37
 25503 1421079 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC CTCCGATCCAACCTCTGGACGTCGTGAAACGCATT
 spacer length: 34 repeater length: 37
 25504 1421150 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC GGCTACAAGGGGAATTGATCATGCAGATTGTTAGCG
 spacer length: 36 repeater length: 37
 25505 1421223 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC TATCACCTCGCCGAGGCCCTGACCAGTTTCATCT
 spacer length: 34 repeater length: 37
 25506 1421294 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC CCGCAGGAGGAAAGGAACCGGCAGATGTAGTAGCCGG
 spacer length: 37 repeater length: 37
 25507 1421368 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC CTCAAGAGTG
 25508
 25509
 25510 crispr 4
 25511 1439576 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC CATGATGCACACCAAATCCCTGATGGGACTACT spacer
 length: 33 repeater length: 32
 25512 1439641 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC TCACCGCCCCCTTTCGCAACGGCGGCGGATGCGGT spacer
 length: 34 repeater length: 32
 25513 1439707 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC GGCGGCGGCCGACGTGCTTCTCCCCTTGACGCGGT spacer
 length: 36 repeater length: 32
 25514 1439775 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC GTCTCGACAGACCCGACCTACACCGCAGCCTCGCTC spacer
 length: 36 repeater length: 32
 25515 1439843 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC ACAA AACTACGATCGCCATCCCTGTAGAGGGGTG spacer
 length: 34 repeater length: 32
 25516 1439909 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC CGGGGAACCGGGGCGGGGCTGGTGCCCCGAGGA spacer
 length: 34 repeater length: 32
 25517 1439975 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC TGTCTTCATCTCCGCTCCCTCCACCCAACGCCCT spacer
 length: 34 repeater length: 32
 25518 1440041 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC GTATCTGGGAATTTGAGTGCGGTTAAATTTACAG spacer
 length: 34 repeater length: 32
 25519 1440107 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC GGTCTCGGCCGTGTTTGTTACTGGGTCGATGATTA spacer
 length: 35 repeater length: 32
 25520 1440174 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC CGTGCCCCAGACGAGATTAAGGCTCGCGTCTTCTAA spacer
 length: 36 repeater length: 32

25521	1440242	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	CCTGCGCTTCGTGTTTTGGGGCCTGCGGAAACTC	spacer
		length: 34	repeater length: 32	
25522	1440308	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	CATTTGGTCCTTCTGAACGCGGAGGTTAGCCATTA	spacer
		length: 35	repeater length: 32	
25523	1440375	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	TTTACCAGTCTATGCTCCTCTAGGTTTCCTGTCA	spacer
		length: 34	repeater length: 32	
25524	1440441	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	ACCCTAAGATTTTGGGTCTGTCTGGCAAGCGAGTT	spacer
		length: 35	repeater length: 32	
25525	1440508	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	GAGGTATGATCATGAGGTCGCGCGCGCTCACCGA	spacer
		length: 36	repeater length: 32	
25526	1440576	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	TTGTACAGGTGCAGAGTATACGAGTCGAATCCAG	spacer
		length: 34	repeater length: 32	
25527	1440642	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	ATGAGTAACGCAGAAGCCGCGGCGTGGATTAAAGC	spacer
		length: 35	repeater length: 32	
25528	1440709	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	TTCGTTCTGAATATCTCTACCCCAGGATACTGCGA	spacer
		length: 36	repeater length: 32	
25529	1440777	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	GAGGATATCTACTATCGCCCCGTGCTTAAACTG	spacer
		length: 33	repeater length: 32	
25530	1440842	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	GGTGTGTTTTAACCCATTCTTTGTTCTTTTTGTG	spacer
		length: 34	repeater length: 32	
25531	1440908	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	GATCTGAGAGAATCATCCTGAAAAGCATTCCGAT	spacer
		length: 34	repeater length: 32	
25532	1440974	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	TCGCCGTTTGGGTTCGGTAACGCTGTGCCTGAA	spacer
		length: 33	repeater length: 32	
25533	1441039	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	TAAATGAGCACACCACCCGCGAGCCGAGATTACTC	spacer
		length: 35	repeater length: 32	
25534	1441106	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	GGTCTCAGCGGTATTTGTAAGTGGGTCGATAATAA	spacer
		length: 35	repeater length: 32	
25535	1441173	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	GTCGTGTATGCCTGGTGTGACCGCTGGCTCGACA	spacer
		length: 34	repeater length: 32	
25536	1441239	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	GCCCCAGACGAGATTAAGGCTCGCGTCTTCTAA	spacer
		length: 33	repeater length: 32	
25537	1441304	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	CACAGGGACGGGAGGTTCTGTTTCTCGACCGACAG	spacer
		length: 35	repeater length: 32	
25538	1441371	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	ATAATCTGAGATTAATTAGCGAGGCAGAATAAAT	spacer
		length: 34	repeater length: 32	
25539	1441437	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	CGGCTGTATAACCGTGCAATCGGAGATCCCTCTCT	spacer
		length: 35	repeater length: 32	
25540	1441504	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	CGCATGACCGTTGGCGCTATGATCGACATTGAA	spacer
		length: 33	repeater length: 32	
25541	1441569	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	GGCCCCGCCGCCAATGTGGCATGGTACTCTGCTCG	spacer
		length: 36	repeater length: 32	
25542	1441637	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	TTGCCTGGCGCACCATTAACATGGATCTCGTTT	spacer
		length: 33	repeater length: 32	
25543	1441702	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	CTGCAGTAACGTCTCTGCCAGTAGGATGTTTAAGT	spacer
		length: 35	repeater length: 32	
25544	1441769	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	AAAGTCCCACCTTTTTCGGCAGTCTTCTTCATTTG	spacer
		length: 35	repeater length: 32	
25545	1441836	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	ATCGATTTTATCTTTTCTGGCATGTCCGCTCCTCT	spacer
		length: 35	repeater length: 32	
25546	1441903	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	TCAGTGCCAGGGCGCGCGCACGGTTCCCGTTTCG	spacer
		length: 33	repeater length: 32	
25547	1441968	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	TCCTGCACCGCTGCGAGGCTCTCGGCACCACCGAG	spacer
		length: 35	repeater length: 32	
25548	1442035	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	CTCGTATCCACCGAGGGGTACTACACCAACCTGAA	spacer
		length: 35	repeater length: 32	
25549	1442102	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	CCTGAAGGGGGTCTTCAACGCAGATTACGCCCTT	spacer
		length: 34	repeater length: 32	
25550	1442168	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	ATCCAGAATGCGAGCAAGCCGAGGAAGCAGAGAG	spacer
		length: 34	repeater length: 32	
25551	1442234	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	ATAGGGGGAAAGTGTACCGAGTGTACCGGGCTCAT	spacer
		length: 35	repeater length: 32	
25552	1442301	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	GATCCGGTCCCTCACATCATCCCGCTGTGAGCGAGT	spacer
		length: 36	repeater length: 32	
25553	1442369	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	CCGGGCGAAGGTGACGAATCTGGAGGCCATGCAG	spacer
		length: 34	repeater length: 32	
25554	1442435	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	GAGGCCGCCCGAGCGGTGAACCTTATCTCGATCCC	spacer
		length: 35	repeater length: 32	
25555	1442502	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	TCTTCGAGGACCGTGATCTGCAGATCCATGCCCCA	spacer
		length: 35	repeater length: 32	
25556	1442569	GTTTCAATCCACGCACCCGTGAAGGGTGCGAC	ACATCGTCGTCGTGTCGATCATTGACTGCGAGAA	spacer

length: 34 repeater length: 32
25557 1442635 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC GGTAGACAGGCAACGTCGAGCCGCGCTTGAATT spacer
length: 33 repeater length: 32
25558 1442700 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC TACGGATCAACAGGGCCGACAAGGCCCTCTTGAC spacer
length: 35 repeater length: 32
25559 1442767 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC CGGGGGGTGACATGTGACCGCTGCGAGAGGGGCAA spacer
length: 35 repeater length: 32
25560 1442834 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC ACTGTGCGTAGAGAGGGCGTTGATCTGAAGGTTACG spacer
length: 36 repeater length: 32
25561 1442902 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC GGCCAGAGTACGCGGCCCGCACCCGGCGCGCGGTA spacer
length: 35 repeater length: 32
25562 1442969 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC GGGCGGATGACCGACGAAACAGTTGATCCTCTCCCGGG
spacer length: 38 repeater length: 32
25563 1443039 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC CTGGCATTCCTCGCGGCATTTACGAGGATTTTCAT spacer
length: 34 repeater length: 32
25564 1443105 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC GATATAGTCCCACACTGCAGAGTCGGGCCAGTCTA spacer
length: 35 repeater length: 32
25565 1443172 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC CTTCCAGGGGTGTCATCGGCGTGCTGTGGACACG spacer
length: 34 repeater length: 32
25566 1443238 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC ACCAAAAATCCGAATGCCTCTTCTGCCGCCACGCCC spacer
length: 36 repeater length: 32
25567 1443306 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC CCTGCGGATTTTCGAGCATGTTCTCGATTTTCCGCAT spacer
length: 36 repeater length: 32
25568 1443374 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC CCCC GCGATGCAAGCCG CAGAGACTATAGTCTCA spacer
length: 34 repeater length: 32
25569 1443440 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC ATGTTAAATACCTTGCCTTCGAGCGCCCCCTGTA spacer
length: 35 repeater length: 32
25570 1443507 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC GAGGAGGTCGCCTAAAAAATGACGGATACAGACG spacer
length: 34 repeater length: 32
25571 1443573 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC CCGAGATCCCGGTGCGTTCTGCTGTCATCAGTCC spacer
length: 34 repeater length: 32
25572 1443639 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC GGTCCAGAAAGACGATTGGGAATGGGGCATGTGA spacer
length: 34 repeater length: 32
25573 1443705 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC GCGGGGTGGCGCTGATGGCAGTCTCAAAGATCTG spacer
length: 34 repeater length: 32
25574 1443771 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC AGGGCTCGCTCCCCGATGCGGGCCG CAGAGCACTG spacer
length: 35 repeater length: 32
25575 1443838 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC TCTGGATGCTGCGGATTCGATTTCCATCTCGTCA spacer
length: 34 repeater length: 32
25576 1443904 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC CGTTCAGCATCGGGGCGAAAAGCCCGTCTCCGTCA spacer
length: 35 repeater length: 32
25577 1443971 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC GATCCAGTTCAGAACCGGACCGTTGTATCGACGA spacer
length: 35 repeater length: 32
25578 1444038 GTTTC AATCCACGCACCCGTGAAGGGT GCGAC TCCGGTCATC
25579
25580
25581 crispr 5
25582 1452361 GTCGCACCCTTACG GGTGCGTGGATTGAAAC TAAGATCGGCCCCCTCCGGTCTGGACGATGATCT spacer
length: 34 repeater length: 32
25583 1452427 GTCGCACCCTTACG GGTGCGTGGATTGAAAC GTGAAGGGCGATTGGCAGATCACCGCAAGACC spacer
length: 33 repeater length: 32
25584 1452492 GTCGCACCCTTACG GGTGCGTGGATTGAAAC ATCTGCGAAAACAGGTCTCAACGCCCTGGCTGA spacer
length: 34 repeater length: 32
25585 1452558 GTCGCACCCTTACG GGTGCGTGGATTGAAAC CGGCGCCATG
25586
25587
25588 crispr 6
25589 2292529 GGTTCA TCCCCACGCGAGTGGGGAACAC ATTGGCGCTATCACCGCCCACTCCATAGACGCC spacer
length: 33 repeater length: 28
25590 2292590 GGTTCA TCCCCACGCGAGTGGGGAACAC TCACCAAGTAATCTCAGAATGCGTCTATGGTGC spacer
length: 33 repeater length: 28
25591 2292651 GGTTCA TCCCCACGCGAGTGGGGAACAC TCGCGGTGATGCGCCCCCGCAAGCTGATCCATC spacer
length: 33 repeater length: 28
25592 2292712 GGTTCA TCCCCACGCGAGTGGGGAACAC GCCGTCCGTCCATGGCTGTTCTCCCGGTGCATC spacer
length: 33 repeater length: 28
25593 2292773 GGTTCA TCCCCACGCGAGTGGGGAACAC GCAGCGCGGCAACTCCTGATCCGTGCGCTCAGC spacer
length: 33 repeater length: 28
25594 2292834 GGTTCA TCCCCACGCGAGTGGGGAACAC CTCGGCATTTGCGGGCGCTGGCGAAGCGGCTGC spacer
length: 33 repeater length: 28
25595 2292895 GGTTCA TCCCCACGCGAGTGGGGAACAC AGCGCGAAGGCGATGCACGGAGAGAAATGCAAC spacer
length: 33 repeater length: 28

25596	2292956	GGTTCATCCCCACGCGAGTGGGGAACAC	CTCCCGGTCTCTCCCCCTCCTGGTGATCCTGGCC	spacer
	length:	33	repeater length:	28
25597	2293017	GGTTCATCCCCACGCGAGTGGGGAACAC	ACGTTCTGCGTGAAGAAGGACGATGAACTGCTC	spacer
	length:	33	repeater length:	28
25598	2293078	GGTTCATCCCCACGCGAGTGGGGAACAC	CCCCGATCCCCGGGGACTCCCCCGAGGCGTCATC	spacer
	length:	34	repeater length:	28
25599	2293140	GGTTCATCCCCACGCGAGTGGGGAACAC	GTGCCGACCGTCAGCCCCATAGGGAGGATACCC	spacer
	length:	33	repeater length:	28
25600	2293201	GGTTCATCCCCACGCGAGTGGGGAACAC	GACCGCTTCGTCATTGAGAAGAATGTCGTTCTG	spacer
	length:	33	repeater length:	28
25601	2293262	GGTTCATCCCCACGCGAGTGGGGAACAC	GACCGCTTCGTCATTGAGAAGAATGTCGTTCTG	spacer
	length:	33	repeater length:	28
25602	2293323	GGTTCATCCCCACGCGAGTGGGGAACAC	CCAGGAATTTCTTTCTGAGAATCATGGACAAC	spacer
	length:	33	repeater length:	28
25603	2293384	GGTTCATCCCCACGCGAGTGGGGAACAC	GAATAGCTGGGTGGCGCATCTAGGTGCTACAAC	spacer
	length:	33	repeater length:	28
25604	2293445	GGTTCATCCCCACGCGAGTGGGGAACAC	TTAATGCGGTGGTCTGGAAAAATCACTATCGTC	spacer
	length:	33	repeater length:	28
25605	2293506	GGTTCATCCCCACGCGAGTGGGGAACAC	CATCGACCTCCAGATATTTCCACCACACCCCTC	spacer
	length:	33	repeater length:	28
25606	2293567	GGTTCATCCCCACGCGAGTGGGGAACAC	CACACCCAGCACAAAGGGAATGGGGGGGTATAC	spacer
	length:	33	repeater length:	28
25607	2293628	GGTTCATCCCCACGCGAGTGGGGAACAC	CTCAAGGTCCGCAACCTGACCGCGCTCCGGGGC	spacer
	length:	33	repeater length:	28
25608	2293689	GGTTCATCCCCACGCGAGTGGGGAACAC	CTGGACGGGGGCGAGTTCACCGTCAAGGGGAAC	spacer
	length:	33	repeater length:	28
25609	2293750	GGTTCATCCCCACGCGAGTGGGGAACAC	ACCTCGACCAGATCGCGGACCCGGCATAACGATC	spacer
	length:	33	repeater length:	28
25610	2293811	GGTTCATCCCCACGCGAGTGGGGAACAC	TAAGGTGGGAGCCTTAGCGAGCCAGTTCTTCTC	spacer
	length:	33	repeater length:	28
25611	2293872	GGTTCATCCCCACGCGAGTGGGGAACAC	TCACTGAGGAGGAGTTCGCGGGCGTTGACGACC	spacer
	length:	33	repeater length:	28
25612	2293933	GGTTCATCCCCACGCGAGTGGGGAACAC	TCTGCCGCTGGAGCGACGCGTACGTCCGGGACC	spacer
	length:	33	repeater length:	28
25613	2293994	GGTTCATCCCCACGCGAGTGGGGAACAC	TGTGTGCGGGTGTGGGCGATGATCGCCGCTTCC	spacer
	length:	33	repeater length:	28
25614	2294055	GGTTCATCCCCACGCGAGTGGGGAACAC	TTCGGCGGCGATCAGGTCCGGGTGCAGGTCCTC	spacer
	length:	33	repeater length:	28
25615	2294116	GGTTCATCCCCACGCGAGTGGGGAACAC	TTCTCCATGATGAACCGATAGAGGGGGTCGCTG	spacer
	length:	33	repeater length:	28
25616	2294177	GGTTCATCCCCACGCGAGTGGGGAACAC		
25617				
25618				
25619	crispr 7			
25620	2294299	CGGTTTCATCCCCACGCGAGTGGGGAACAC	CTCCAGCCACTCCCGCAGGGTCCGGCCGGTCT	spacer
	length:	32	repeater length:	29
25621	2294360	CGGTTTCATCCCCACGCGAGTGGGGAACAC	GAATGCGCCGACGTGGTGCACCTCCCCCTTCT	spacer
	length:	32	repeater length:	29
25622	2294421	CGGTTTCATCCCCACGCGAGTGGGGAACAC	GCAGGTCGTCGACGAACCTAACCTCTAACTAT	spacer
	length:	32	repeater length:	29
25623	2294482	CGGTTTCATCCCCACGCGAGTGGGGAACAC	CCCTTCAGGGACCACTCGACATTCCAGCGGGC	spacer
	length:	32	repeater length:	29
25624	2294543	CGGTTTCATCCCCACGCGAGTGGGGAACAC	TTCGTGAAGGAGCCCGGGGAGGTCTGGAAAAAA	spacer
	length:	33	repeater length:	29
25625	2294605	CGGTTTCATCCCCACGCGAGTGGGGAACAC	TCAGTGGCAGTGGCGCACACCTGATCCCCTCT	spacer
	length:	32	repeater length:	29
25626	2294666	CGGTTTCATCCCCACGCGAGTGGGGAACAC	GGTGGCTTCGGCGGTCTTGGTGTCCCGGGCGA	spacer
	length:	32	repeater length:	29
25627	2294727	CGGTTTCATCCCCACGCGAGTGGGGAACAC	TCAGGTCCCTCGATCCGGTAGCCGTTGGCATA	spacer
	length:	32	repeater length:	29
25628	2294788	CGGTTTCATCCCCACGCGAGTGGGGAACAC	CGGCCACCGACCCGAGAAGGCACAGGCGAGG	spacer
	length:	32	repeater length:	29
25629	2294849	CGGTTTCATCCCCACGCGAGTGGGGAACAC	GGCTTGTCGCCCTCTCCCTCTGTTTTTCGGTAC	spacer
	length:	32	repeater length:	29
25630	2294910	CGGTTTCATCCCCACGCGAGTGGGGAACAC	GCTCCGGGGGCCCGGCCCGGAAGAGCCGGAC	spacer
	length:	32	repeater length:	29
25631	2294971	CGGTTTCATCCCCACGCGAGTGGGGAACAC	CAGACCGCCGTGTGCAGGGTCGAGTACTGATC	spacer
	length:	32	repeater length:	29
25632	2295032	CGGTTTCATCCCCACGCGAGTGGGGAACAC	TCGATATCGATCTGCTCGAACCGGTGCTCGAC	spacer
	length:	32	repeater length:	29
25633	2295093	CGGTTTCATCCCCACGCGAGTGGGGAACAC	CACGGCTGCAGGATCAGAAGAGGGGATGATCA	spacer

	length: 32	repeater length: 29	
25634	2295154	CGGTTTCATCCCCACGCGAGTGGGGAACAC	ATGCCCCGAAGACATCGATGACCAGAGCCGGGC spacer
	length: 32	repeater length: 29	
25635	2295215	CGGTTTCATCCCCACGCGAGTGGGGAACAC	TCCTCGAAAACAGCCGGGCAGATATCGAGGAC spacer
	length: 32	repeater length: 29	
25636	2295276	CGGTTTCATCCCCACGCGAGTGGGGAACAC	GGCGGGTCGGTGAACCTCGGGAACCTACGAGAG spacer
	length: 32	repeater length: 29	
25637	2295337	CGGTTTCATCCCCACGCGAGTGGGGAACAC	AGGATCCGCACACGCGTGCGCAGGGGGAGGGG spacer
	length: 32	repeater length: 29	
25638	2295398	CGGTTTCATCCCCACGCGAGTGGGGAACAC	GCAGGTATGCAAGCGCCTTCAAGACCCCGGTG spacer
	length: 32	repeater length: 29	
25639	2295459	CGGTTTCATCCCCACGCGAGTGGGGAACAC	TCTCTTGGTGCGGGTAAAAAAGAGAATTAAAT spacer
	length: 32	repeater length: 29	
25640	2295520	CGGTTTCATCCCCACGCGAGTGGGGAACAC	GTTTTTCATTGCTGTAAATGGCCGTCTCAATT spacer
	length: 32	repeater length: 29	
25641	2295581	CGGTTTCATCCCCACGCGAGTGGGGAACAC	ATCTGCAAGCGCTGTTGAAAATGCCTCTGTTC spacer
	length: 32	repeater length: 29	
25642	2295642	CGGTTTCATCCCCACGCGAGTGGGGAACAC	ATTATCCCAATCGTATTTATTTCCGGCGTAAT spacer
	length: 32	repeater length: 29	
25643	2295703	CGGTTTCATCCCCACGCGAGTGGGGAACAC	ATGAGTTACTCGACATCGTCGCTCACCTCTCT spacer
	length: 32	repeater length: 29	
25644	2295764	CGGTTTCATCCCCACGCGAGTGGGGAACAC	GAATTGAGGAAAAAGAAGAAGAAGAACGTGTC spacer
	length: 32	repeater length: 29	
25645	2295825	CGGTTTCATCCCCACGCGAGTGGGGAACAC	CATCGACCTGTGACCATGTGTCGCGCCGAAT spacer
	length: 32	repeater length: 29	
25646	2295886	CGGTTTCATCCCCACGCGAGTGGGGAACAC	ATGAAAGGAATGGAATGACGGTGCGTGTATC spacer
	length: 32	repeater length: 29	
25647	2295947	CGGTTTCATCCCCACGCGAGTGGGGAACAC	CCGGAATAACAGACCCGGCAGCGGAGGTCAT spacer
	length: 32	repeater length: 29	
25648	2296008	CGGTTTCATCCCCACGCGAGTGGGGAACAC	GGTGCGCTCCCGGCCCGGTCGCCCTGGAGGAC spacer
	length: 32	repeater length: 29	
25649	2296069	CGGTTTCATCCCCACGCGAGTGGGGAACAC	ACCCGACAACACTTGCAATTCAGGCACCCCGG spacer
	length: 32	repeater length: 29	
25650	2296130	CGGTTTCATCCCCACGCGAGTGGGGAACAC	TTGCCCCGCGCCCTCCCTCGGCCCGTCTACC spacer
	length: 32	repeater length: 29	
25651	2296191	CGGTTTCATCCCCACGCGAGTGGGGAACAC	TCTTCTTCTTCTTTTTCTCAATTCCAAACGC spacer
	length: 32	repeater length: 29	
25652	2296252	CGGTTTCATCCCCACGCGAGTGGGGAACAC	ATTGACCTCGAAAAACAGAAACGGGATGATTG spacer
	length: 32	repeater length: 29	
25653	2296313	CGGTTTCATCCCCACGCGAGTGGGGAACAC	CAGTGGAGTAAGTCCTTCCGTTCTTGCGTTCT spacer
	length: 32	repeater length: 29	
25654	2296374	CGGTTTCATCCCCACGCGAGTGGGGAACAC	GACACCGCGCGCAGTCTTACGTATGTCTCCGC spacer
	length: 32	repeater length: 29	
25655	2296435	CGGTTTCATCCCCACGCGAGTGGGGAACAC	GACACCGAGAAAATCGATGTGGTGGCGCACGC spacer
	length: 32	repeater length: 29	
25656	2296496	CGGTTTCATCCCCACGCGAGTGGGGAACAC	TAGAAGAGATGCTGCAAGAGGCAGAGATTGCC spacer
	length: 32	repeater length: 29	
25657	2296557	CGGTTTCATCCCCACGCGAGTGGGGAACAC	CTCAGGGTAGAGACGACGGGCGCCGTGAAGTC spacer
	length: 32	repeater length: 29	
25658	2296618	CGGTTTCATCCCCACGCGAGTGGGGAACAC	TCCTGTAATTTACGCTAAATCCAACGGTAAAT spacer
	length: 32	repeater length: 29	
25659	2296679	CGGTTTCATCCCCACGCGAGTGGGGAACAC	TTGCTCTGACGTATAAAGGGCTGTTTCCGGTT spacer
	length: 32	repeater length: 29	
25660	2296740	CGGTTTCATCCCCACGCGAGTGGGGAACAC	AAATCTGTTTTACCGAGTTTGCAGCCGAAAA spacer
	length: 32	repeater length: 29	
25661	2296801	CGGTTTCATCCCCACGCGAGTGGGGAACAC	CGGCTCCACAACGCGTGACGGATAAGGAGACT spacer
	length: 32	repeater length: 29	
25662	2296862	CGGTTTCATCCCCACGCGAGTGGGGAACAC	GTTACGCCGCCCGACTCGCCCACACCCACCAA spacer
	length: 32	repeater length: 29	
25663	2296923	CGGTTTCATCCCCACGCGAGTGGGGAACAC	CCTACCGTTAGCGTCTGGTCGCCTATCTGCAC spacer
	length: 32	repeater length: 29	
25664	2296984	CGGTTTCATCCCCACGCGAGTGGGGAACAC	AAGACCGCAGCGTTCTACCCTCAGGCTCAGGA spacer
	length: 32	repeater length: 29	
25665	2297045	CGGTTTCATCCCCACGCGAGTGGGGAACAC	TGTGGGATCGTCGATGGAAAACGAGGCGATTA spacer
	length: 32	repeater length: 29	
25666	2297106	CGGTTTCATCCCCACGCGAGTGGGGAACAC	CCACCCAACGCCCTGAACACAATCTCGTCGTT spacer
	length: 32	repeater length: 29	
25667	2297167	CGGTTTCATCCCCACGCGAGTGGGGAACAC	TCCCTGGATCTCGTCGATCAGATCGTCCATGT spacer
	length: 32	repeater length: 29	
25668	2297228	CGGTTTCATCCCCACGCGAGTGGGGAACAC	GCAGGGTTTTCCGGGCCTCTCGGCTCCTGGTCG spacer
	length: 32	repeater length: 29	

25669	2297289	CGGTTCATCCCCACGCGAGTGGGGAACAC	TTGCAATCTCGACGCCGAAATATCGCAACG	spacer
	length:	32	repeater length:	29
25670	2297350	CGGTTCATCCCCACGCGAGTGGGGAACAC	TTATCGTATATCGTCTCTGGCGTGGACGCGCC	spacer
	length:	32	repeater length:	29
25671	2297411	CGGTTCATCCCCACGCGAGTGGGGAACAC	CGACCCCTGAGGGGCACGATGCGTGCCTCGGA	spacer
	length:	32	repeater length:	29
25672	2297472	CGGTTCATCCCCACGCGAGTGGGGAACAC	TTTCTATCTCAGAGGTTAAAGCGGATTTGTACT	spacer
	length:	33	repeater length:	29
25673	2297534	CGGTTCATCCCCACGCGAGTGGGGAACAC	CCCTACCAACGGACACGATGGTTTTTTTGACAC	spacer
	length:	32	repeater length:	29
25674	2297595	CGGTTCATCCCCACGCGAGTGGGGAACAC	CACCTTCCAGTGCCCCATGGCGTGCGCCACCA	spacer
	length:	32	repeater length:	29
25675	2297656	CGGTTCATCCCCACGCGAGTGGGGAACAC		
25676				
25677				
25678	crispr 8			
25679	2298021	CGGTTCATCCCCACGCGAGTGGGGAACAC	GAGCCGGAGGCTATCTAAAAAACCAGAACTGT	spacer
	length:	32	repeater length:	29
25680	2298082	CGGTTCATCCCCACGCGAGTGGGGAACAC	CCGATGCCCATTGCCCAATGCCGGACTCGGC	spacer
	length:	32	repeater length:	29
25681	2298143	CGGTTCATCCCCACGCGAGTGGGGAACAC	TGCTAAACGGCGTTCTCCAGATATCGTATCTC	spacer
	length:	32	repeater length:	29
25682	2298204	CGGTTCATCCCCACGCGAGTGGGGAACAC	TATCTGCGTCACAGTGTCCCCCATCAATGTC	spacer
	length:	32	repeater length:	29
25683	2298265	CGGTTCATCCCCACGCGAGTGGGGAACAC	GACCGAGTTCTGGGCCTCAGATGGTGCGGTCG	spacer
	length:	32	repeater length:	29
25684	2298326	CGGTTCATCCCCACGCGAGTGGGGAACAC	AATCGGTGAACATCAAGGACGTTGGCGGGGTA	spacer
	length:	32	repeater length:	29
25685	2298387	CGGTTCATCCCCACGCGAGTGGGGAACAC	TGCCCCCACAAGTTCGTTGTAACAGTCGAATA	spacer
	length:	32	repeater length:	29
25686	2298448	CGGTTCATCCCCACGCGAGTGGGGAACAC	ATACCACCGTGAAAAGAATTGGGACATGCTAA	spacer
	length:	32	repeater length:	29
25687	2298509	CGGTTCATCCCCACGCGAGTGGGGAACAC	TTGCCGTGCAGTCTGATTTTTTGACTTGGCAGT	spacer
	length:	32	repeater length:	29
25688	2298570	CGGTTCATCCCCACGCGAGTGGGGAACAC	TTTTCTGAAACTGCCTAAACGTTTTAACCGC	spacer
	length:	32	repeater length:	29
25689	2298631	CGGTTCATCCCCACGCGAGTGGGGAACAC	CTCAGAGAGGTTAAATGAGGAAACAATAGCGT	spacer
	length:	32	repeater length:	29
25690	2298692	CGGTTCATCCCCACGCGAGTGGGGAACAC	ACCTCGATCGCCCTGCAGGGACACTACTCTGA	spacer
	length:	32	repeater length:	29
25691	2298753	CGGTTCATCCCCACGCGAGTGGGGAACAC	TTCAGATATCGGTTCTGAAGTTTCGATTCAAC	spacer
	length:	32	repeater length:	29
25692	2298814	CGGTTCATCCCCACGCGAGTGGGGAACAC	ACAGGGTTTTTCAGGCACCGGTGGATGCATCT	spacer
	length:	32	repeater length:	29
25693	2298875	CGGTTCATCCCCACGCGAGTGGGGAACAC	TCGGAAGAGTCGGCCGATGCAATCATGAACGC	spacer
	length:	32	repeater length:	29
25694	2298936	CGGTTCATCCCCACGCGAGTGGGGAACAC	TTTGAACACACCTTCACTCCGTCGGTTGAATT	spacer
	length:	32	repeater length:	29
25695	2298997	CGGTTCATCCCCACGCGAGTGGGGAACAC	GTTGTATTTCGTTCCGGTAGCCTGTTTTCTCTA	spacer
	length:	32	repeater length:	29
25696	2299058	CGGTTCATCCCCACGCGAGTGGGGAACAC	CTCTGCAGGGTCGATGGCGAGACCGGTATGC	spacer
	length:	32	repeater length:	29
25697	2299119	CGGTTCATCCCCACGCGAGTGGGGAACAC	GCCTCCTTCAAGATGAACAGGCCGTCTTTTCGC	spacer
	length:	32	repeater length:	29
25698	2299180	CGGTTCATCCCCACGCGAGTGGGGAACAC	CTCCCGTCTTGTCTCTTACCATGGGTCTTTT	spacer
	length:	32	repeater length:	29
25699	2299241	CGGTTCATCCCCACGCGAGTGGGGAACAC	CCTCTCGATTGCCTGTGCACGCTGCGGATAGT	spacer
	length:	32	repeater length:	29
25700	2299302	CGGTTCATCCCCACGCGAGTGGGGAACAC	GCCCTCCGGAAGAAGCAGGCTCTGCCTCGTCA	spacer
	length:	32	repeater length:	29
25701	2299363	CGGTTCATCCCCACGCGAGTGGGGAACAC	GTCTGCTGCGAGGGGGGTAAACCGCTATCGTG	spacer
	length:	32	repeater length:	29
25702	2299424	CGGTTCATCCCCACGCGAGTGGGGAACAC	CACAACCCCTCGGCGTCGAAGCCCTCGTGAT	spacer
	length:	32	repeater length:	29
25703	2299485	CGGTTCATCCCCACGCGAGTGGGGAACAC	CGATGCTGGTTCTCTCTGGTGTGTTTCGGATG	spacer
	length:	32	repeater length:	29
25704	2299546	CGGTTCATCCCCACGCGAGTGGGGAACAC	TAGAATGGATGCAAAAGGAGTTTCTCGGACCG	spacer
	length:	32	repeater length:	29
25705	2299607	CGGTTCATCCCCACGCGAGTGGGGAACAC	GGCAACATGTTCCGGCCCCAGACTCAGACTCA	spacer
	length:	32	repeater length:	29
25706	2299668	CGGTTCATCCCCACGCGAGTGGGGAACAC	TTATACAGCGCTGCAACCTGGACAGCACTAAC	spacer

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length: 32 repeater length: 29
25707 2299729 CGGTTTCATCCCCACGCGAGTGGGGAACAC TCGGACGCCACGGCCCTTTGCCCCGTGGATCT spacer
length: 32 repeater length: 29
25708 2299790 CGGTTTCATCCCCACGCGAGTGGGGAACAC GTTCGGACGGGCGCGCAGGGTGCACGCACGC spacer
length: 32 repeater length: 29
25709 2299851 CGGTTTCATCCCCACGCGAGTGGGGAACAC TTCTGGCGGGTCTCGTTGCGGGACTGACGGAT spacer
length: 32 repeater length: 29
25710 2299912 CGGTTTCATCCCCACGCGAGTGGGGAACAC GGCTGCGACTACCCCGGCGCGGGGTAACGCGT spacer
length: 32 repeater length: 29
25711 2299973 CGGTTTCATCCCCACGCGAGTGGGGAACAC GGGGTTGGAATGTGTCCCGATCCAGACTCTGG spacer
length: 32 repeater length: 29
25712 2300034 CGGTTTCATCCCCACGCGAGTGGGGAACAC TCCTGAGCGACGGCCTTCTGGTACGCCACTCC spacer
length: 32 repeater length: 29
25713 2300095 CGGTTTCATCCCCACGCGAGTGGGGAACAC AGTGCGTTCCACGCGGTAACCTCCGTCGCCGAT spacer
length: 32 repeater length: 29
25714 2300156 CGGTTTCATCCCCACGCGAGTGGGGAACAC TTGAGGGCTGGAACGGCTCAGCCTGGGCAGCG spacer
length: 32 repeater length: 29
25715 2300217 CGGTTTCATCCCCACGCGAGTGGGGAACAC CGCTCTACAACCTGTTAAGGGACGATGATGAT spacer
length: 32 repeater length: 29
25716 2300278 CGGTTTCATCCCCACGCGAGTGGGGAACAC TCGCCCGGGCGGATCGCAAGACCTCCCCAGGT spacer
length: 32 repeater length: 29
25717 2300339 CGGTTTCATCCCCACGCGAGTGGGGAACAC GGACCAGGTTATGTGTATTGAGCATTTCCAGG spacer
length: 32 repeater length: 29
25718 2300400 CGGTTTCATCCCCACGCGAGTGGGGAACAC CTTTCTCGAGCTGGGTGATGGCACGGTCCCGC spacer
length: 32 repeater length: 29
25719 2300461 CGGTTTCATCCCCACGCGAGTGGGGAACAC
25720
25721
25722 GCA_001577775.1_ASM157777v1_genomic.fna (PilerCR):
25723 START REPEAT
SPACER
25724 crispr 1
25725 498125 GTTCCAATAAGACTAGAAAGAGAATTGAAAA AGGTGATCCACATCCAATTATATACGTTGATGAACAT spacer
length: 38 repeater length: 30
25726 498193 GTTCCAATAAGACTAGAAAGAGAATTGAAAA CAAGCCACTTCAGATCCCTGTAGAGCTCACATCTGAG spacer
length: 37 repeater length: 30
25727 498260 GTTCCAATAAGACTAGAAAGAGAATTGAAAA GTCCTCTATCGCGTCGGGGTCGAGGTAGCCGTTCTC spacer
length: 36 repeater length: 30
25728 498326 GTTCCAATAAGACTAGAAAGAGAATTGAAAA TGGGCGGTGTTGTAGAGCTGGAGGACTATGTGCGAACT spacer
length: 37 repeater length: 30
25729 498393 GTTCCAATAAGACTAGAAAGAGAATTGAAAA TACTCAATA
25730
25731
25732 crispr 2
25733 714045 TTTCAATTCTCTTTTAGTCTTATTGGAAC CACAGCGTCCAGGCAACTAAAAACGTGAACAACATCAATGTC
spacer length: 42 repeater length: 29
25734 714116 TTTCAATTCTCTTTTAGTCTTATTGGAAC TATAAACGCGCCTAACATCCCTGTGCGACTTGTCGCTGTAG
spacer length: 41 repeater length: 29
25735 714186 TTTCAATTCTCTTTTAGTCTTATTGGAAC TCCCTTGAGGTACTAATCTCAAAAGCCTCGTCAGGGCTG spacer
length: 39 repeater length: 29
25736 714254 TTTCAATTCTCTTTTAGTCTTATTGGAAC TGTTCTGTTTAGAATTGCTCGTTCAACGACGTATAATG spacer
length: 38 repeater length: 29
25737 714321 TTTCAATTCTCTTTTAGTCTTATTGGAAC GCCTTGCTTAAGTCCCTCGCCTCCTTCCCGAGCCTGAG spacer
length: 38 repeater length: 29
25738 714388 TTTCAATTCTCTTTTAGTCTTATTGGAAC AGGCGTTTCGACTTTGACTACCGCTTCTACATCCGCGG spacer
length: 37 repeater length: 29
25739 714454 TTTCAATTCTCTTTTAGTCTTATTGGAAC CAGTTCAAATGATTATTGAATATGAAGCCTTTGCATCG spacer
length: 38 repeater length: 29
25740 714521 TTTCAATTCTCTTTTAGTCTTATTGGAAC GTACGGGTGC
25741
25742
25743 crispr 3
25744 1224351 CTTTCCACACTATTTAGTTCTACGGAAAC AAAAAGAGAACTACAACAGCAAGCTGGTCAAGGGATTGAG
spacer length: 40 repeater length: 29
25745 1224420 CTTTCCACACTATTTAGTTCTACGGAAAC TGTGGAAAGACGCCATCGTCTCGTAACCGCACTCGTGTCTAGTCA
spacer length: 45 repeater length: 29
25746 1224494 CTTTCCACACTATTTAGTTCTACGGAAAC GTCATGGCGATCACCCCTGCCCTATCATGCCTACAACCT spacer
length: 39 repeater length: 29
25747 1224562 CTTTCCACACTATTTAGTTCTACGGAAAC GCGAGAACGACGTGGTTCGAGTTCCTAAGGAAGATTTC spacer
length: 36 repeater length: 29
25748 1224627 CTTTCCACACTATTTAGTTCTACGGAAAC

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GGGATGAGAGAGCAGGCAGAGAAGGAAAAGCTCGCACAACTCCAGCAGGTGCT spacer length: 53 repeater length: 29

1224709 CTTTCCACACTATTTAGTTCTACGGAAAC TTATTGCAAGGAATGCTGAAGAGGCAGCCAGAATTGCTA spacer length: 39 repeater length: 29

1224777 CTTTCCACACTATTTAGTTCTACGGAAAC TTGAAATCGACGAAACAGCAAACCCCTTGTGCATGCT spacer length: 37 repeater length: 29

1224843 CTTTCCACACTATTTAGTTCTACGGAAAC CTACAGGATACACATTATTCTCTCCTCCCCAGTCGG spacer length: 36 repeater length: 29

1224908 CTTTCCACACTATTTAGTTCTACGGAAAC TGACAAGAAGGCGATGAAAATCCTCAAGAAGCTCTGCAGGTTCTA spacer length: 45 repeater length: 29

1224982 CTTTCCACACTATTTAGTTCTACGGAAAC TTAGATACCTAGACAAGTGGTGGGCCGTCGTGAAAAT spacer length: 37 repeater length: 29

1225048 CTTTCCACACTATTTAGTTCTACGGAAAC CACTTGTTATTGTCTCTCCCGATAGAACCGTCGTTCTCTA spacer length: 39 repeater length: 29

1225116 CTTTCCACACTATTTAGTTCTACGGAAAC GTGGATCCTCTCAAGAGGCCTGGGTTCTCGGCTATGCT spacer length: 38 repeater length: 29

1225183 CTTTCCACACTATTTAGTTCTACGGAAAC TGGCAAAAACGATTGAAATAACACCCACAAAAGCAA spacer length: 36 repeater length: 29

1225248 CTTTCCACACTATTTAGTTCTACGGAAAC TTATCAAAATGGACGGCGAAGGGAAGATTAAGCACGT spacer length: 37 repeater length: 29

1225314 CTTTCCACACTATTTAGTTCTACGGAAAC ATATAGATGCTGTTGCGAGAACGGTCTTCACAGTGGA spacer length: 37 repeater length: 29

1225380 CTTTCCACACTATTTAGTTCTACGGAAAC GTGAGCAACGACAGCATACAGGTGCTCACGCCAAGCA spacer length: 37 repeater length: 29

1225446 CTTTCCACACTATTTAGTTCTACGGAAAC AGAAGTTTCTAGAAGAAATAGAAGAGCATGTGAATG spacer length: 36 repeater length: 29

1225511 CTTTCCACACTATTTAGTTCTACGGAAAC TCAACTCAAT

crispr 4

1225667 CTTTCCACACTATTTAGTTCTACGGAAACA TATTCAAGTTAAGGTAGTGCCCCAGGATCTCAT spacer length: 32 repeater length: 30

1225729 CTTTCCACACTATTTAGTTCTACGGAAACA ACGTGAGATATCAAGCAGGTGGCAATACGTCAATTGCGATATACA spacer length: 45 repeater length: 30

1225804 CTTTCCACACTATTTAGTTCTACGGAAACA CCGATAGTTAGGAATTGAAAAGGCATCAGTGTGCG

crispr 5

1251395 GTTCCAATAAGACTAAAAGAGAATTGAAAG ACAAGAACATAGAAGCTGTAGCGCGGTTTGGCCAAG spacer length: 36 repeater length: 30

1251461 GTTCCAATAAGACTAAAAGAGAATTGAAAG CCCGTGCTCAGGGCCCTGGGCGTGGAGGACGTGAAG spacer length: 36 repeater length: 30

1251527 GTTCCAATAAGACTAAAAGAGAATTGAAAG CATCGACGATTCTGAGGACTAACGCTATCGTTACCGC spacer length: 37 repeater length: 30

1251594 GTTCCAATAAGACTAAAAGAGAATTGAAAG ATCATGGCTAAAGTTGCCTTTTAGCTCGGGGATTAGT spacer length: 37 repeater length: 30

1251661 GTTCCAATAAGACTAAAAGAGAATTGAAAG AGGGCATTATTGGTACCGCACCGACAAGATCCAGTTCA spacer length: 38 repeater length: 30

1251729 GTTCCAATAAGACTAAAAGAGAATTGAAAG GTGTTGGTTCTGACAAGTCCAGTTGAGTCAAAACGC spacer length: 36 repeater length: 30

1251795 GTTCCAATAAGACTAAAAGAGAATTGAAAG GTGGGTTCTTGACCACATCCTCTGGGTCAAAACCCCA spacer length: 37 repeater length: 30

1251862 GTTCCAATAAGACTAAAAGAGAATTGAAAG TTAGTCGTGTCCACCGAGTCGGGAGCGTAGAAGAGGA spacer length: 37 repeater length: 30

1251929 GTTCCAATAAGACTAAAAGAGAATTGAAAG ACGCTCAACGTGTTCTGCTTCACCCTGATACTTTGCAA spacer length: 38 repeater length: 30

1251997 GTTCCAATAAGACTAAAAGAGAATTGAAAG ACACCTTCTTCATCTCGGCATCGCTCATTCTCCTCGCGA spacer length: 39 repeater length: 30

1252066 GTTCCAATAAGACTAAAAGAGAATTGAAAG AGACTCTTTCCAGCCAGTTGTGAATCCCTTCTCGAAG spacer length: 37 repeater length: 30

1252133 GTTCCAATAAGACTAAAAGAGAATTGAAAG GGATTTCCCCGACCCGGGGTCCCCTGTCAGGGTAATT spacer length: 37 repeater length: 30

1252200 GTTCCAATAAGACTAAAAGAGAATTGAAAG TCTTCAGCTCCAACGGAGTTATAGGCTCTGAATCGTAG spacer length: 38 repeater length: 30

1252268 GTTCCAATAAGACTAAAAGAGAATTGAAAG ATGGATAGATTGCCCAATGGGTGTAATAGTGTGTAAGAACGA spacer length: 44 repeater length: 30

1252342 GTTCCAATAAGACTAAAAGAGAATTGAAAG GGTGCAGCACTACTTCAAGAAGATGTTTCCCGCTCCTG spacer length: 38 repeater length: 30

1252410 GTTCCAATAAGACTAAAAGAGAATTGAAAG TTATCATGCATCTCAAAGCAAATCCAGAAATGTGGAGA spacer length: 38 repeater length: 30

1252478 GTTCCAATAAGACTAAAAGAGAATTGAAAG TCTTGTTCTAGCTCTCTTAGCACTTCATAGAGCTTC spacer

length: 36 repeater length: 30
25788 1252544 GTTCCAATAAGACTAAAAGAGAATTGAAAG GTGGTTTTACTGGCAAATAGTGGTTCCTTGGCCACT spacer
length: 36 repeater length: 30
25789 1252610 GTTCCAATAAGACTAAAAGAGAATTGAAAG ACCAGACTGCGGGATTTAGGACGGCAACAATACCAG spacer
length: 36 repeater length: 30
25790 1252676 GTTCCAATAAGACTAAAAGAGAATTGAAAG TCATATAAGGGTTGGGTGTTGAGGATGTCAAGGATGT spacer
length: 37 repeater length: 30
25791 1252743 GTTCCAATAAGACTAAAAGAGAATTGAAAG CGTCGCGGGGTCAGAAAGGGCTTTTAGCGAGGGCTTGCG
spacer length: 39 repeater length: 30
25792 1252812 GTTCCAATAAGACTAAAAGAGAATTGAAAG ACCTATCAAGAACACGCCTCATCTCCTCCGCTCCCC spacer
length: 37 repeater length: 30
25793 1252879 GTTCCAATAAGACTAAAAGAGAATTGAAAG TCACGAGCTTTCTATCTCCTGCGTCGTAATGTCTCGT spacer
length: 38 repeater length: 30
25794 1252947 GTTCCAATAAGACTAAAAGAGAATTGAAAG AGAGGCTCTTCTGCAAGTGGTCCTTCCCTCAGTAT spacer
length: 36 repeater length: 30
25795 1253013 GTTCCAATAAGACTAAAAGAGAATTGAAAG ACGTATCCCCACACCTCGCCGGCAATCGCTTCTATAG spacer
length: 37 repeater length: 30
25796 1253080 GTTCCAATAAGACTAAAAGAGAATTGAAAG TGTCAAAAATCACCTGGCCCTCCGTCACGGCTTCCTC spacer
length: 37 repeater length: 30
25797 1253147 GTTCCAATAAGACTAAAAGAGAATTGAAAG CTCGGCACGG
25798
25799
25800 crispr 6
25801 1253213 GTTCCAATAAGACTAAAAGAGAATTGAAAG TATATGGACAAAACGGTCTTAACAGAAAACAATATAAGG
spacer length: 39 repeater length: 30
25802 1253282 GTTCCAATAAGACTAAAAGAGAATTGAAAG GAGGGCAAGGAGTACACCATAGAGTCCCAGAACCTCAC spacer
length: 38 repeater length: 30
25803 1253350 GTTCCAATAAGACTAAAAGAGAATTGAAAG CTCTTGTCATACCAGATGCCGTTTGCTGGGTCAATTG spacer
length: 37 repeater length: 30
25804 1253417 GTTCCAATAAGACTAAAAGAGAATTGAAAG AGAATCTTCTTCGCCTGCATTTCTCCAGGACTTTGTTGGTGGC
spacer length: 44 repeater length: 30
25805 1253491 GTTCCAATAAGACTAAAAGAGAATTGAAAG CAAGAAAACTACGATACCATAACGGACGATGAGTT spacer
length: 36 repeater length: 30
25806 1253557 GTTCCAATAAGACTAAAAGAGAATTGAAAG TAAGGTCGAAGAGGGCTTCCGCATCCTCGTCCTTCAC
25807
25808
25809 crispr 7
25810 1570549 GTTTCGGTAGAACTGAATAGTGTGGAAA GGAGAACGGGAGAGGTTCTTAAGCCCTTGAGAAAGTATCCTGC
spacer length: 43 repeater length: 28
25811 1570620 GTTTCGGTAGAACTGAATAGTGTGGAAA GAACACAGCAGTAGCACTAACCCCAGGAACAAACACCAA spacer
length: 39 repeater length: 28
25812 1570687 GTTTCGGTAGAACTGAATAGTGTGGAAA GTGAGTATTATCTTGCTGGAAAGAACATTGAGGGCTATCAGG
spacer length: 42 repeater length: 28
25813 1570757 GTTTCGGTAGAACTGAATAGTGTGGAAA GATTGGGATGGTAGTGATGTTGCTCTTGATCCTTTG spacer
length: 37 repeater length: 28
25814 1570822 GTTTCGGTAGAACTGAATAGTGTGGAAA GATTATCAACACTTTGCCACTAGCTCTTAGCACAAAGCCT spacer
length: 40 repeater length: 28
25815 1570890 GTTTCGGTAGAACTGAATAGTGTGGAAA GGGTTTCAATTGTCTCCATAACCTCCTCCTCAGCTCTC spacer
length: 38 repeater length: 28
25816 1570956 GTTTCGGTAGAACTGAATAGTGTGGAAA GTAATATTGAACACGCTTGTTCTCAAGCCATAAGT spacer
length: 35 repeater length: 28
25817 1571019 GTTTCGGTAGAACTGAATAGTGTGGAAA GAAAAAGACCGATATACCAGAAAATACCAATAAGAATTC spacer
length: 39 repeater length: 28
25818 1571086 GTTTCGGTAGAACTGAATAGTGTGGAAA GTGGAAACAATTCTACCCACATTCAATTCTTCCGCCTAACT
spacer length: 42 repeater length: 28
25819 1571156 GTTTCGGTAGAACTGAATAGTGTGGAAA
GTAGTCATAGACGAAGGCGGACAATACTGTTCTCAAGACAGTGGAGAT spacer length: 49 repeater length:
28
25820 1571233 GTTTCGGTAGAACTGAATAGTGTGGAAA GTGTATGCTATTTTGATCTCCTCGTTGTCAATGGCCC spacer
length: 37 repeater length: 28
25821 1571298 GTTTCGGTAGAACTGAATAGTGTGGAAA GAGTCGAGCCCGAGAGTGTGGAAGAGGCAAAGCTCTTTAGCA
spacer length: 42 repeater length: 28
25822 1571368 GTTTCGGTAGAACTGAATAGTGTGGAAA GCGTTATTATCCTCCTTAGTCCGCTTGAGAATTCTGTA spacer
length: 38 repeater length: 28
25823 1571434 GTTTCGGTAGAACTGAATAGTGTGGAAA GATTGTTGGCGGTTTTTGGTGGACACTATTTTGGCGT spacer
length: 37 repeater length: 28
25824 1571499 GTTTCGGTAGAACTGAATAGTGTGGAAA GTACGCTTTCGGCTCAAGTATCAACCTTTCTACTTTCTCTC
spacer length: 41 repeater length: 28
25825 1571568 GTTTCGGTAGAACTGAATAGTGTGGAAA GGAAATCGCTTGACGCTTTTGTGCAACTCTCCATAGT spacer
length: 38 repeater length: 28
25826 1571634 GTTTCGGTAGAACTGAATAGTGTGGAAA GCTTTCGGGAATTCGCCTACCATTTTTTCTTCCAGTGCCTCC

spacer length: 44 repeater length: 28
 25827 1571706 GTTTCCTAGAACTGAATAGTGTGGAAA GACGGAAACAAGTGGGTAAAGCCGAATAACTATGAGGGTGTAAAGGGA
 spacer length: 47 repeater length: 28
 25828 1571781 GTTTCCTAGAACTGAATAGTGTGGAAA GTTTTCACTAATCCTCCATGAGCTTCTCAAAAAGCAACTTTCCG
 spacer length: 44 repeater length: 28
 25829 1571853 GTTTCCTAGAACTGAATAGTGTGGAAA GGTAAACAGCATGCCAATTACGTCCCCTTCTCCAAATCGTTCCTG
 spacer length: 46 repeater length: 28
 25830 1571927 GTTTCCTAGAACTGAATAGTGTGGAAA CCCGAAAGCTCTTCGGCTAAACTCCTAAGAACCTCATCATCT
 spacer length: 42 repeater length: 28
 25831 1571997 GTTTCCTAGAACTGAATAGTGTGGAAA CCTCCAAAGCTCAAAACCCATTTCTTCTAACTTTCTTA spacer
 length: 38 repeater length: 28
 25832 1572063 GTTTCCTAGAACTGAATAGTGTGGAAA CGAGAAGATGCCAAGTACCTCGACCTGAAGGACGTGAAGCTGTCT
 spacer length: 45 repeater length: 28
 25833 1572136 GTTTCCTAGAACTGAATAGTGTGGAAA CTGAGACCTCACCACCTGGATGTAGGGGTTAAAAAAGGTTTCCG
 spacer length: 43 repeater length: 28
 25834 1572207 GTTTCCTAGAACTGAATAGTGTGGAAA CCCCTTCTACCCTTTATTGCTAGAAGGACCTTCATCT spacer
 length: 38 repeater length: 28
 25835 1572273 GTTTCCTAGAACTGAATAGTGTGGAAA GTTAATCCCATACTCTTAATATAATTTTCCCATGGCTGAGGAGCAT
 25836
 25837
 25838 crispr 8
 25839 1673264 CTTTCAATTCTATTTTAGTCTTATTGGAAC CAAAATACTTGCAGTCACTACACGTGTACTTTTTTCT spacer
 length: 36 repeater length: 30
 25840 1673330 CTTTCAATTCTATTTTAGTCTTATTGGAAC GCATGTTATGGTCAATGGGAATAGCGGCGGTGGCGGGCCT
 spacer length: 40 repeater length: 30
 25841 1673400 CTTTCAATTCTATTTTAGTCTTATTGGAAC TAGTTCCTTCCTTCTTTATGATGTAGAACTTGTTCCG spacer
 length: 37 repeater length: 30
 25842 1673467 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCCTACTTGTAGAGCCGTCGCTCTAAGATGATCTCCG spacer
 length: 37 repeater length: 30
 25843 1673534 CTTTCAATTCTATTTTAGTCTTATTGGAAC GGCCTAGAGAAAGTAGACTTCGTGGAGATGATGTAC spacer
 length: 36 repeater length: 30
 25844 1673600 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTCGTTTGCGAGCCTAACGAGCCTTGCGACCTCCCCT spacer
 length: 37 repeater length: 30
 25845 1673667 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCGACGAAGCCAGAAGAGGCTGTTGTGCGCTTCTTTTTT spacer
 length: 37 repeater length: 30
 25846 1673734 CTTTCAATTCTATTTTAGTCTTATTGGAAC GGGCACCGGTGGGGGACAATAGCGCCCAACCCACCGG spacer
 length: 38 repeater length: 30
 25847 1673802 CTTTCAATTCTATTTTAGTCTTATTGGAAC CCGGTGAAGCTTGACGTCTACGTGACGGCAGGCTCGT spacer
 length: 38 repeater length: 30
 25848 1673870 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGTAGTTGAAGATGAAGATGTTGATCGCGTCTATCTTG spacer
 length: 38 repeater length: 30
 25849 1673938 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTCGCTCCCGACTCGGTGGACACGGTGAACGACATC spacer
 length: 36 repeater length: 30
 25850 1674004 CTTTCAATTCTATTTTAGTCTTATTGGAAC CGATGCCGGCCCCGCTGGTCGAGGTTACAGATGAGGGCAT
 spacer length: 40 repeater length: 30
 25851 1674074 CTTTCAATTCTATTTTAGTCTTATTGGAAC AAAGCAAATATATCCGGAAGCATCACTGAGTTCAAG spacer
 length: 36 repeater length: 30
 25852 1674140 CTTTCAATTCTATTTTAGTCTTATTGGAAC CCATCCGCCTCTGGGATCTTGACGGACTGAAGAACGT spacer
 length: 37 repeater length: 30
 25853 1674207 CTTTCAATTCTATTTTAGTCTTATTGGAAC TATGCTCTGGACCTACTTGGCGAGGTTCAAGGGTTTC spacer
 length: 37 repeater length: 30
 25854 1674274 CTTTCAATTCTATTTTAGTCTTATTGGAAC CATCTCACGTTCAAGTGTGAGCGGGACGGCCCTTATTACCT
 spacer length: 41 repeater length: 30
 25855 1674345 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTGCTTGGGTACTCCTCTGGCCTCATCCTGAGCTTTG spacer
 length: 37 repeater length: 30
 25856 1674412 CTTTCAATTCTATTTTAGTCTTATTGGAAC CGCAGAAAAGCGCTATGGTACCAATAGAGAGATTCC spacer
 length: 36 repeater length: 30
 25857 1674478 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGATGAGGGCCACCTTCTCCGCGATCTTCTCCGCCG spacer
 length: 36 repeater length: 30
 25858 1674544 CTTTCAATTCTATTTTAGTCTTATTGGAAC TGGGAATGGGTGAGAGTGAATTGATCAATAAGATTT spacer
 length: 36 repeater length: 30
 25859 1674610 CTTTCAATTCTATTTTAGTCTTATTGGAAC GATGCAGGGATATGACGAGAAGTGGGCGAGAGCGTAT spacer
 length: 37 repeater length: 30
 25860 1674677 CTTTCAATTCTATTTTAGTCTTATTGGAAC CGCTAAGGCACATACTAACTGAATTGCCCCGCGAGA spacer
 length: 36 repeater length: 30
 25861 1674743 CTTTCAATTCTATTTTAGTCTTATTGGAAC CAAACTTCACGACAGCCCTCTCTAGCTTCAAGAGCCT spacer
 length: 37 repeater length: 30
 25862 1674810 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTTCTCTGCCATTCTGCGGGTTATTGGGTACTCATAG spacer
 length: 37 repeater length: 30
 25863 1674877 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTAATTGACCTACGTGGAGGATAGCGGCGGATTGGGTA spacer
 length: 38 repeater length: 30

25864 1674945 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTGGAGGGCGTGGTAGAGGACGCTGTCGTACTCCTCA spacer
length: 37 repeater length: 30
25865 1675012 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGCGAACCCGCAGAAATACTTCGTCTTCGTAGACCTC spacer
length: 37 repeater length: 30
25866 1675079 CTTTCAATTCTATTTTAGTCTTATTGGAAC GTGTTTCGTCGCCGTTGACTCCAGGACTAAGGAGCCCC spacer
length: 37 repeater length: 30
25867 1675146 CTTTCAATTCTATTTTAGTCTTATTGGAAC GCTGTAGCTAGACCAGTCGCCGATGTCGCCGTCGCTT spacer
length: 37 repeater length: 30
25868 1675213 CTTTCAATTCTATTTTAGTCTTATTGGAAC CCAGTATAACCGCGTTATATGCTAGGGACTATGTTGT spacer
length: 37 repeater length: 30
25869 1675280 CTTTCAATTCTATTTTAGTCTTATTGGAAC GAGGATCCTAGTTAGGGCATAACATTGAGAGCGAAAGT spacer
length: 37 repeater length: 30
25870 1675347 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATCACTGAACAACCTCCACCCGTGAAGTAGCGCTGAT spacer
length: 36 repeater length: 30
25871 1675413 CTTTCAATTCTATTTTAGTCTTATTGGAAC ACAACGTTCAAGTACAGGGCAAGATCCTCAGCCGTG spacer
length: 36 repeater length: 30
25872 1675479 CTTTCAATTCTATTTTAGTCTTATTGGAAC GTGAGCAGGAGAAAGATGAACGTGACTATGAAGACTGC spacer
length: 38 repeater length: 30
25873 1675547 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCCTGGAGTAGGCGACTTGCTTGAGACTCCTATAAA spacer
length: 36 repeater length: 30
25874 1675613 CTTTCAATTCTATTTTAGTCTTATTGGAAC
25875
25876
25877 crispr 9
25878 1706464 GTTTCCGTAGAACTAAATAGTGTGGAAAG TACAGATGTGAAGGAGAGACAGTATGAGTTGAATACTCTCC
spacer length: 41 repeater length: 29
25879 1706534 GTTTCCGTAGAACTAAATAGTGTGGAAAG TCGATGAGGTCTTCACCAAGCTCGGAAGGCCCATCAACAT
spacer length: 40 repeater length: 29
25880 1706603 GTTTCCGTAGAACTAAATAGTGTGGAAAG CTAGAAGTCACGTTGTTGCCAGTAGGGGGAAGTCGCCCTTCTCGG
spacer length: 46 repeater length: 29
25881 1706678 GTTTCCGTAGAACTAAATAGTGTGGAAAG
AAGATCCCCGGCGTCCAGAAAGATATCTCTGAGGCGATCAGGTTTCC spacer length: 47 repeater length: 29
25882 1706754 GTTTCCGTAGAACTAAATAGTGTGGAAAG ATTACATCATTGGCGATGTACTTCTTGAAGTCTCTCGC spacer
length: 37 repeater length: 29
25883 1706820 GTTTCCGTAGAACTAAATAGTGTGGAAAG TAGATCCGCAAGACAGGCAGAACAGTGGGCCATCACTC spacer
length: 38 repeater length: 29
25884 1706887 GTTTCCGTAGAACTAAATAGTGTGGAAAG
CTGACCTGTTTCTGAATAGAGCCTGTAAACACCTAGCTTTTCGTGGTAT spacer length: 50 repeater
length: 29
25885 1706966 GTTTCCGTAGAACTAAATAGTGTGGAAAG
AGGAAGCTGTCAAAGTCCCTCGAAGTACTCAACAACCTTCTCGGCCAG spacer length: 47 repeater length: 29
25886 1707042 GTTTCCGTAGAACTAAATAGTGTGGAAAG GGTGTGATGAGCCTGAGACGGTAGTATCCATCGCCAGGCTGGG
spacer length: 44 repeater length: 29
25887 1707115 GTTTCCGTAGAACTAAATAGTGTGGAAAG GCGATGAGCCCAGGTTTTATGTCCTTATCGTCAAATGCCG
spacer length: 40 repeater length: 29
25888 1707184 GTTTCCGTAGAACTAAATAGTGTGGAAAG
ATAAGGCGTGGTTCAACGATGTATTTCGCTCAGTCTGGCCCTCGCCTCGTTCTCGT spacer length: 55 repeater
length: 29
25889 1707268 GTTTCCGTAGAACTAAATAGTGTGGAAAG CTTCTTCACGTAGTAGTCTGAGTACACTGTGTTTCGTATGCT
spacer length: 41 repeater length: 29
25890 1707338 GTTTCCGTAGAACTAAATAGTGTGGAAAG ATGCCCTAGCGTATTCGGAAGCCGTTTCTTCCGATAA spacer
length: 37 repeater length: 29
25891 1707404 GTTTCCGTAGAACTAAATAGTGTGGAAAG TTTTTCATTACCTTGATCAGGAATGCTTCTTTCC spacer
length: 37 repeater length: 29
25892 1707470 GTTTCCGTAGAACTAAATAGTGTGGAAAG ACGAACTCATCAAAGACCCTATCTTCATCGCCATAGTACT
spacer length: 40 repeater length: 29
25893 1707539 GTTTCCGTAGAACTAAATAGTGTGGAAAG AAGTCTTGTAAGTATCAGAAGGTCAAAGTACGAATTTTCATTAA
spacer length: 45 repeater length: 29
25894 1707613 GTTTCCGTAGAACTAAATAGTGTGGAAAG
25895
25896
25897 GCA_001647085.1_ASM164708v1_genomic.fna (PilerCR):
25898 START REPEAT
SPACER
25899 crispr 1
25900 20 AGTTTCAGTAGGACAGAATTGTGTGGAAACAC CATTCTCTGTGCAAGAAAATTAAGAATGGCCTC spacer
length: 34 repeater length: 32
25901 86 AGTTTCAGTAGGACAGAATTGTGTGGAAACAC ATCATCAAGCCAAAAACCTTCCACTCCTCATCCTTCAA spacer
length: 39 repeater length: 32
25902 157 AGTTTCAGTAGGACAGAATTGTGTGGAAACAC ATTTCCACTG
25903

25904
25905 crispr 2
25906 147811 GTTGCAATAAGACTCTAGGAGAATTGAAAG AGGGTGGGCCAAATTGGGCCATAGTGGGCCGTTTAAGC spacer
length: 38 repeater length: 30
25907 147879 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTTTGAGCTTTTAGTGTTCAGGAATAAGACTAACC spacer
length: 37 repeater length: 30
25908 147946 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAATATCTAAGCTTAATACAGCTCCCGGTTGAGTGG spacer
length: 36 repeater length: 30
25909 148012 GTTGCAATAAGACTCTAGGAGAATTGAAAG TCGCTGTCTTGGTCATCATCTATATAATGAAAGTAGT spacer
length: 37 repeater length: 30
25910 148079 GTTGCAATAAGACTCTAGGAGAATTGAAAG ATGCAGTATTTGATGCTATCGAGCCGACAATCGCAA spacer
length: 36 repeater length: 30
25911 148145 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTTGAGAGCCGTCCACATACACATGAACGCTCTTATA spacer
length: 37 repeater length: 30
25912 148212 GTTGCAATAAGACTCTAGGAGAATTGAAAG GTTGATGGGTACGTCAAAGAAATTGAAAATTTAACTCCT spacer
length: 39 repeater length: 30
25913 148281 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTCAAGGACGAATATATCTTCAAGTTCACCAGCTATAC spacer
length: 38 repeater length: 30
25914 148349 GTTGCAATAAGACTCTAGGAGAATTGAAAG ATATCCACCCGTATCACCTCCGTTCTTTTTTCTTCC spacer
length: 37 repeater length: 30
25915 148416 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAGGATGACCCAATATCAAATTTTAAGTTTGCTGAAA spacer
length: 37 repeater length: 30
25916 148483 GTTGCAATAAGACTCTAGGAGAATTGAAAG AGTGGTCGAAGGTCATGTTAGGTATAAGAACGTTCC spacer
length: 36 repeater length: 30
25917 148549 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAGTCTGGAAGAATTCCTGCCAAGCCTCCTTTATACT spacer
length: 37 repeater length: 30
25918 148616 GTTGCAATAAGACTCTAGGAGAATTGAAAG CCCGAAGCGCTTTCAGGGAATACCCAGGTCGCAGACG spacer
length: 37 repeater length: 30
25919 148683 GTTGCAATAAGACTCTAGGAGAATTGAAAG ACTGGTAAATGAATGTACACTTCTACTTTGTTCTCTCC spacer
length: 37 repeater length: 30
25920 148750 GTTGCAATAAGACTCTAGGAGAATTGAAAG TAGTCCATTTGTTTGTATATTGTCCTCATTCTTCTCGT spacer
length: 37 repeater length: 30
25921 148817 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTCTGAAGGACAGCCAAGGCAATGAAGTCTGGAGCGAT spacer
length: 38 repeater length: 30
25922 148885 GTTGCAATAAGACTCTAGGAGAATTGAAAG GCAGTAATATAAAGTATCCGCTACCCTTACCAATTTGCG spacer
length: 39 repeater length: 30
25923 148954 GTTGCAATAAGACTCTAGGAGAATTGAAAG ACGAGGATGT
25924
25925
25926 crispr 3
25927 1383230 GTTTC AATTCTCCTAGAGTCTTATTGCAA TGGACGAGTTTGC GCTTAATAAGTCGAAATTCATTAAT spacer
length: 38 repeater length: 29
25928 1383297 GTTTC AATTCTCCTAGAGTCTTATTGCAA CTTAAGCCAGAGGGTTTTCCGGTTAAGCGGTTTCGTCTTT spacer
length: 39 repeater length: 29
25929 1383365 GTTTC AATTCTCCTAGAGTCTTATTGCAA CCAGGGGTA ACTATTTCATGACGTAGAGACCGCTGTGAATTGGACG
spacer length: 45 repeater length: 29
25930 1383439 GTTTC AATTCTCCTAGAGTCTTATTGCAA CTTGGTATTGGCGGGCTCATTGGGAGCTCCCATCACCAA spacer
length: 39 repeater length: 29
25931 1383507 GTTTC AATTCTCCTAGAGTCTTATTGCAA CTACGCTTTATATATTTGCTCATAACTTCGACTTCGAT spacer
length: 38 repeater length: 29
25932 1383574 GTTTC AATTCTCCTAGAGTCTTATTGCAA CATTGTAAGTTTCGCAACAGGAGTGGGTATTGCACTCT spacer
length: 38 repeater length: 29
25933 1383641 GTTTC AATTCTCCTAGAGTCTTATTGCAA CGTATAAAGG
25934
25935
25936 crispr 4
25937 1383934 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CTCCTACAGTATTTTGTTAGGGACATTCGAACGGCGGA spacer
length: 38 repeater length: 30
25938 1384002 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GTCGACCACGCAATATAAGGCGCTGTAAAAGAA spacer
length: 33 repeater length: 30
25939 1384065 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GATACAAACCCGAGCGCGACTTATATTAGTATAG spacer
length: 34 repeater length: 30
25940 1384129 GTTTC AATTCTCCTAGAGTCTTATTGCAAC ACTGGCAGTCTCGACGCGAGCTATCTCACAAGCAGACT spacer
length: 38 repeater length: 30
25941 1384197 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CATTTCGTCGTTGTTATTGTATAGTTACTAATGTGCGAT spacer
length: 37 repeater length: 30
25942 1384264 GTTTC AATTCTCCTAGAGTCTTATTGCAAC TGCTGTTGTACTATGCAGCAGAAAACAGCGTAACAAT spacer
length: 37 repeater length: 30
25943 1384331 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CTAATGTGTCGATTATCTGGTTTGCGATTTTGTCAT spacer
length: 36 repeater length: 30
25944 1384397 GTTTC AATTCTCCTAGAGTCTTATTGCAAC ACGGCAACGCGGTTTTGACTTTTTTCGATGATTTTGA spacer

length: 36 repeater length: 30
25945 1384463 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CCGTCAAAGTTCGGCGACCTCATCTACTACAAGGTCA spacer
length: 37 repeater length: 30
25946 1384530 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CCAGTTCCAAAGCCTAGCCAGAAGCCATCCTTACAT spacer
length: 36 repeater length: 30
25947 1384596 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GCCATGAATCCCATTGCTCCCATAAAGCTCGCAACTG spacer
length: 37 repeater length: 30
25948 1384663 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CCTCCGAAGG
25949
25950
25951 crispr 5
25952 1845173 GTTGCAATAAGACTCTAGGAGAATTGAAA ATATCGTTGGTATATTGCTCGTATTGCGGGGTCAGTGG spacer
length: 38 repeater length: 29
25953 1845240 GTTGCAATAAGACTCTAGGAGAATTGAAA ACCACCACCACGTTGCATAAGCCAGCGCCTCCTTTTCA spacer
length: 38 repeater length: 29
25954 1845307 GTTGCAATAAGACTCTAGGAGAATTGAAA ATATCAGTTGACGCTACAAGCGACCAGGTGTTCCCACC spacer
length: 38 repeater length: 29
25955 1845374 GTTGCAATAAGACTCTAGGAGAATTGAAA AGTGGCGAGATTAGTGATGGACCACATGAGCTTAGCGA spacer
length: 38 repeater length: 29
25956 1845441 GTTGCAATAAGACTCTAGGAGAATTGAAA ACTCCTACTGCAATTTTCACATCAAGCGCGTAACCGT spacer
length: 37 repeater length: 29
25957 1845507 GTTGCAATAAGACTCTAGGAGAATTGAAA ATTACTGCCCTATCAAGTCCGTAACCTAGAGGATGCCC spacer
length: 38 repeater length: 29
25958 1845574 GTTGCAATAAGACTCTAGGAGAATTGAAA ATGCATCTTCGACCTCCTCAATGACTTCGCTCACGCTC spacer
length: 38 repeater length: 29
25959 1845641 GTTGCAATAAGACTCTAGGAGAATTGAAA AACGGAAGAAGAGAGAAGATACTTCAAAGGGCTTGCAG spacer
length: 38 repeater length: 29
25960 1845708 GTTGCAATAAGACTCTAGGAGAATTGAAA ATAAGAGCCCTCACAAGCATTCTTTTATCTGCAAGT spacer
length: 36 repeater length: 29
25961 1845773 GTTGCAATAAGACTCTAGGAGAATTGAAA GAAAACCCGCCGTCACCGCCGCCGTCATTGGGACATCAA spacer
length: 39 repeater length: 29
25962 1845841 GTTGCAATAAGACTCTAGGAGAATTGAAA
25963
25964
25965 crispr 6
25966 1926392 GTTTCAGTAGGACAGAATTGTGTGGAAAC GTAGATACTCGTTGTCCTGTTGCTCTAAGAATTGTGCTTT
spacer length: 40 repeater length: 29
25967 1926461 GTTTCAGTAGGACAGAATTGTGTGGAAAC GTAGCGAAGTTCACAACAATAGGTTCTTCTTGGAGTG spacer
length: 37 repeater length: 29
25968 1926527 GTTTCAGTAGGACAGAATTGTGTGGAAAC TCTTTCTTAGTAGTGCCTCGAGCTCGTTGATGTCTCTG spacer
length: 38 repeater length: 29
25969 1926594 GTTTCAGTAGGACAGAATTGTGTGGAAAC CGCAGTAACAATACCACTAAAACCTACCCGCTGGAAAAT spacer
length: 38 repeater length: 29
25970 1926661 GTTTCAGTAGGACAGAATTGTGTGGAAAC CGTATTCCTTGGCGATATACTTGATGGTGAGGAGAT spacer
length: 36 repeater length: 29
25971 1926726 GTTTCAGTAGGACAGAATTGTGTGGAAAC TAAGGGGATGGCTGAGCTTCATATGGCAATGGTCCA spacer
length: 36 repeater length: 29
25972 1926791 GTTTCAGTAGGACAGAATTGTGTGGAAAC CGCCTGTGGTGAGTGGTATAGATACTGGACTGAAGAAG spacer
length: 38 repeater length: 29
25973 1926858 GTTTCAGTAGGACAGAATTGTGTGGAAAC CTGAACATTCTCATTCTGGTCCTGCGGTCGTACACTG spacer
length: 37 repeater length: 29
25974 1926924 GTTTCAGTAGGACAGAATTGTGTGGAAAC CTTGAACCTCTCTTCCACCCGCGAGGGTTGATGCCATAT
spacer length: 40 repeater length: 29
25975 1926993 GTTTCAGTAGGACAGAATTGTGTGGAAAC AAGCGACACGCATGGATAAAAACCTCCAGCTGTTTGT spacer
length: 37 repeater length: 29
25976 1927059 GTTTCAGTAGGACAGAATTGTGTGGAAAC GTCAGATTGATATGGCATGGAACGCTTCTGTACAAGT spacer
length: 37 repeater length: 29
25977 1927125 GTTTCAGTAGGACAGAATTGTGTGGAAAC TAGCTTTGGTTCTTAAGTAGTCGGTAATGAACTGCTGA spacer
length: 38 repeater length: 29
25978 1927192 GTTTCAGTAGGACAGAATTGTGTGGAAAC CGAAACGTATATGAGAGATACAGGATACAGATTTATGA spacer
length: 38 repeater length: 29
25979 1927259 GTTTCAGTAGGACAGAATTGTGTGGAAAC TTGTAGTTCACCTCCTGCACGCTCGCCCGCCAATGAA spacer
length: 37 repeater length: 29
25980 1927325 GTTTCAGTAGGACAGAATTGTGTGGAAAC TCTTTTACGGAGCTCGTGTATTACTTGTTTCGAGTTCA spacer
length: 38 repeater length: 29
25981 1927392 GTTTCAGTAGGACAGAATTGTGTGGAAAC CAGTATTATCTTGTCTGTGTATATCTCCATTTCAACTT spacer
length: 38 repeater length: 29
25982 1927459 GTTTCAGTAGGACAGAATTGTGTGGAAAC GACGGTATTTTATCAACAACAACCTACGACGTCCGCTTCGG
spacer length: 40 repeater length: 29
25983 1927528 GTTTCAGTAGGACAGAATTGTGTGGAAAC GACGTATCTCGTCGATTTTGCATCGCTTTAATCATTTTG
spacer length: 41 repeater length: 29

25984 1927598 GTTTCAGTAGGACAGAATTGTGTGGAAAC TTTATTCCGCACATATTTACCACACCTCCCCATACTTT spacer
length: 38 repeater length: 29
25985 1927665 GTTTCAGTAGGACAGAATTGTGTGGAAAC TGAACTCTACCGTGCCCTCGTAGAAAGTTACTGAGAAA spacer
length: 38 repeater length: 29
25986 1927732 GTTTCAGTAGGACAGAATTGTGTGGAAAC TGTACTGTCAAGTTTACAAATACTTTCTCTCATGCATCGC
spacer length: 41 repeater length: 29
25987 1927802 GTTTCAGTAGGACAGAATTGTGTGGAAAC TGTATCGAGGATCTTCTCGATTTTGTCTTCGGTGAATTCTTCTAA
spacer length: 46 repeater length: 29
25988 1927877 GTTTCAGTAGGACAGAATTGTGTGGAAAC TTGGGGCCTGATAGTGTTATTTTGATTCTTGTCCTT spacer
length: 37 repeater length: 29
25989 1927943 GTTTCAGTAGGACAGAATTGTGTGGAAAC TTTTCACTGTTTCGTTGTCTTCGTGCCACACTTCAAA spacer
length: 37 repeater length: 29
25990 1928009 GTTTCAGTAGGACAGAATTGTGTGGAAAC TTCTCGAAGAACGAACCCCTCCACACCTTGACCCTAA spacer
length: 37 repeater length: 29
25991 1928075 GTTTCAGTAGGACAGAATTGTGTGGAAAC AGCTCATCTGCATAAATATAGCTTTTCGTGGGCTCTT spacer
length: 37 repeater length: 29
25992 1928141 GTTTCAGTAGGACAGAATTGTGTGGAAAC
25993
25994
25995 crispr 7
25996 1928203 GTTTCAGTAGGACAGAATTGTGTGGAAAC
TATGCCAGGTCTTCGTAGTAGTCGCTGAATGATTCCTCTCCGAATACCT spacer length: 49 repeater length:
29
25997 1928281 GTTTCAGTAGGACAGAATTGTGTGGAAAC AGGTTTAGGTCCTCAATTAAGGTTTCAGGAAATTTGCCA spacer
length: 39 repeater length: 29
25998 1928349 GTTTCAGTAGGACAGAATTGTGTGGAAAC TCGCCACGTTGTCCTTATTCCTTCTTAGCTTCGCATGT spacer
length: 38 repeater length: 29
25999 1928416 GTTTCAGTAGGACAGAATTGTGTGGAAAC AAATACAGGGGTTTCATCATAAAGCAGTCGTGAGAACC spacer
length: 38 repeater length: 29
26000 1928483 GTTTCAGTAGGACAGAATTGTGTGGAAAC ATTCTAATAATCATCGCCCATCACATCCAATACTTCGT spacer
length: 38 repeater length: 29
26001 1928550 GTTTCAGTAGGACAGAATTGTGTGGAAAC CTCTCATATGCTGTAACCTAAGCTCGTTCAC spacer
length: 38 repeater length: 29
26002 1928617 GTTTCAGTAGGACAGAATTGTGTGGAAAC
26003
26004
26005 GCA_001719125.1_ASM171912v1_genomic.fna (PilerCR):
26006 START REPEAT
SPACER
26007 crispr 1
26008 66 GTACTAACGACAAGAACTAAAAC TTAGGAGCCACTGTTCCAGAACCACCTGAGCCAGAGG spacer length: 37
repeater length: 24
26009 127 GTACTAACGACAAGAACTAAAAC TCACAATAAAACACATTTTCCTTACCAGCTACAGT spacer length: 35
repeater length: 24
26010 186 GTACTAACGACAAGAACTAAAAC GTTATAATAGTTGTTACATCCAAAAAATGAATAAA spacer length: 35
repeater length: 24
26011 245 GTACTAACGACAAGAACTAAAAC GGAGGAAGTGCTAAGCTGTTGAAGTTCTGGGTCTTCAT spacer length:
38 repeater length: 24
26012 307 GTACTAACGACAAGAACTAAAAC TTAGTAAAAAATTCTACATTTGATGTAAACATTTTA spacer length: 36
repeater length: 24
26013 367 GTACTAACGACAAGAACTAAAAC ACAGATAAGTA
26014
26015
26016 crispr 2
26017 480 GTACTAACGACAAGAACTAAAAC TGCAGACGTCTGTAGTTTTACAGTATAATAATATAGAA spacer length:
38 repeater length: 24
26018 542 GTACTAACGACAAGAACTAAAAC TTGAACAGTAAGCCTTATCAAACGGCATATCCAGAT spacer length: 36
repeater length: 24
26019 602 GTACTAACGACAAGAACTAAAAC CTGTAGTTGTTTCCCGTATTGGTAAATAGGAGAAAG spacer length: 36
repeater length: 24
26020 662 GTACTAACGACAAGAACTAAAAC TCAAACCTCTCGGTGAAGAGGACATGGAATGCAGG spacer length: 35
repeater length: 24
26021 721 GTACTAACGACAAGAACTAAAAC GTGCCGGTAGTGCCGGTGCCGGTGGTAGTGGTGG spacer length: 34
repeater length: 24
26022 779 GTACTAACGACAAGAACTAAAAC TTTCCACCATTAAGCGTATATGATGTCCGTAAAGCGTTA spacer length:
40 repeater length: 24
26023 843 GTACTAACGACAAGAACTAAAAC CCGAAGTGTAGACAGTCTGAGTAAGATTTCCAC spacer length: 33
repeater length: 24
26024 900 GTACTAACGACAAGAACTAAAAC CCCTGAGTTCAGTTTGAGTCTGGTTTGGTAAGGTAG spacer length: 36
repeater length: 24
26025 960 GTACTAACGACAAGAACTAAAAC ATATGGCTATTTTTAGAGCTACAATTTCACTGTTT spacer length: 36

26026 1020 GTACTAACGACAAGAAACTAAAAAC ATTTTCGAAATGCCTTAAGCCCTAACTCGATTTTC spacer length: 34
 repeater length: 24
 26027 1078 GTACTAACGACAAGAAACTAAAAAC AGAAATTTTAAATGTGGGGGGGTGTATTTACCGCGAG spacer length: 36
 repeater length: 24
 26028 1138 GTACTAACGACAAGAAACTAAAAAC GAAATCCCGAGAATTTTGATCCGCTTTTAGACTTT spacer length: 36
 repeater length: 24
 26029 1198 GTACTAACGACAAGAAACTAAAAAC TACAGGCTAGCATGCCCAATCATCTACCTTCAGG spacer length: 34
 repeater length: 24
 26030 1256 GTACTAACGACAAGAAACTAAAAAC TAGCTCCAATTTGGTAATTCTACAGACCAGTTGAA spacer length: 35
 repeater length: 24
 26031 1315 GTACTAACGACAAGAAACTAAAAAC AGAGATCGACAAAGACATTAGGGAACCTAATGAA spacer length: 34
 repeater length: 24
 26032 1373 GTACTAACGACAAGAAACTAAAAAC ATAAAAATTTCCACAAGAGAAAGCTGAAAAAGA spacer length: 34
 repeater length: 24
 26033 1431 GTACTAACGACAAGAAACTAAAAAC AATAACTCTGGTACTGGTATCAGTAATTCTAATCCATAT spacer length: 39
 repeater length: 24
 26034 1494 GTACTAACGACAAGAAACTAAAAAC TTACATGGTATTGGGTAGGTACAGTTTGGGACAGAG spacer length: 36
 repeater length: 24
 26035 1554 GTACTAACGACAAGAAACTAAAAAC AATCTTGTTCATTAAACGCGAGAGCTTCCTCTTTT spacer length: 36
 repeater length: 24
 26036 1614 GTACTAACGACAAGAAACTAAAAAC TGTACATAGAGAGATGGGGCGATTTTGTTAGAAGC spacer length: 35
 repeater length: 24
 26037 1673 GTACTAACGACAAGAAACTAAAAAC CTAGTAACCTTCTGGTATTCATATAATAATGGAATATC spacer length: 38
 repeater length: 24
 26038 1735 GTACTAACGACAAGAAACTAAAAAC TATCTACAAATCGTGTTGTTTAAACGATCTCAAAAG spacer length: 35
 repeater length: 24
 26039 1794 GTACTAACGACAAGAAACTAAAAAC AATCCAAATGATATTATTCAGATGAAATTAATTGT spacer length: 35
 repeater length: 24
 26040 1853 GTACTAACGACAAGAAACTAAAAAC ATAAACGTAATTGAATGGGACGGCGTATCGGACAT spacer length: 35
 repeater length: 24
 26041 1912 GTACTAACGACAAGAAACTAAAAAC GCATCAGAAAGGACTTCTGGTTTAGTGGGATATTATGT spacer length: 38
 repeater length: 24
 26042 1974 GTACTAACGACAAGAAACTAAAAAC CCGACACTGTATCGCTCTCCGTGGACTGACCCACA spacer length: 35
 repeater length: 24
 26043 2033 GTACTAACGACAAGAAACTAAAAAC GTTAACCCGTTAGATACTAGTGGAAACATTAAGGT spacer length: 35
 repeater length: 24
 26044 2092 GTACTAACGACAAGAAACTAAAAAC TGGTCGCTACCCGCATAGACCTTCCAGGCAGCC spacer length: 33
 repeater length: 24
 26045 2149 GTACTAACGACAAGAAACTAAAAAC ATGAAAGATGTTACCATGTGGGATAATCATACCT spacer length: 34
 repeater length: 24
 26046 2207 GTACTAACGACAAGAAACTAAAAAC ATCTCTAGTTTCCAAAGTAATAAAGGGGTATCAGA spacer length: 36
 repeater length: 24
 26047 2267 GTACTAACGACAAGAAACTAAAAAC ATGAGAGATGGAAGATTGATGATAATTCCAATAAAA spacer length: 36
 repeater length: 24
 26048 2327 GTACTAACGACAAGAAACTAAAAAC AATACTCATATGATTAAGATAACCGGGGTGGTATATA spacer length: 37
 repeater length: 24
 26049 2388 GTACTAACGACAAGAAACTAAAAAC TCCATCCCCTAAATTCTGCGTTTTGTTTCTTTACTT spacer length: 36
 repeater length: 24
 26050 2448 GTACTAACGACAAGAAACTAAAAAC AAAATGAATCTATCAATAATATATGGTTTTCTCCAAT spacer length: 37
 repeater length: 24
 26051 2509 GTACTAACGACAAGAAACTAAAAAC TCGCCAAGCATCGATGGTTACGTCGTATTTTACAAG spacer length: 36
 repeater length: 24
 26052 2569 GTACTAACGACAAGAAACTAAAAAC AATTAGTGCGGTAGATTTAAGGGTTAACGTATTGCA spacer length: 36
 repeater length: 24
 26053 2629 GTACTAACGACAAGAAACTAAAAAC AACACAACCACATTGAAC TATACTATAACAAAAC spacer length: 34
 repeater length: 24
 26054 2687 GTACTAACGACAAGAAACTAAAAAC TCTTTTTTCATTATTTTTTGCTCTGGTATAGACGTCTT spacer length: 36
 repeater length: 24
 26055 2747 GTACTAACGACAAGAAACTAAAAAC TAAGACTTATCACGCCAGTAACAAATATCCGCTTAT spacer length: 36
 repeater length: 24
 26056 2807 GTACTAACGACAAGAAACTAAAAAC CCTTATTTACCCAGTAAACATAGAGTCCACTAA spacer length: 33
 repeater length: 24
 26057 2864 GTACTAACGACAAGAAACTAAAAAC GAGTATCTAAGGGGGTCAAGATAGGATATATTAA spacer length: 35
 repeater length: 24
 26058 2923 GTACTAACGACAAGAAACTAAAAAC TCACGATGAGAACCGAGGGAAAAAAGGCATATT spacer length: 33
 repeater length: 24
 26059 2980 GTACTAACGACAAGAAACTAAAAAC TATTTCTGAAATCACTGGCAACTACATCAGCGAA spacer length: 34
 repeater length: 24
 26060 3038 GTACTAACGACAAGAAACTAAAAAC TTTATGTTTTTTGAACCTCCGGATCATCAAAATCGATAATCTT spacer length: 42
 repeater length: 24

26061 3104 GTACTAACGACAAGAACTAAAAAC GCCATTGAGTCAAGTTAGAGACATAGTTGCTACAA spacer length: 35
 repeater length: 24
 26062 3163 GTACTAACGACAAGAACTAAAAAC ATGTGAAAAAAGGGAGACAGCGAAAAAGATAATAG spacer length: 35
 repeater length: 24
 26063 3222 GTACTAACGACAAGAACTAAAAAC TGGCTTAGGGACTTAATATATCCATGTGGTTCCGTTCCAAAT spacer
 length: 42 repeater length: 24
 26064 3288 GTACTAACGACAAGAACTAAAAAC CTCTCATCTCAGCAAATAATGCCACTTTCAACAGGGT spacer length:
 37 repeater length: 24
 26065 3349 GTACTAACGACAAGAACTAAAAAC CTAACACCCCCACCACCAAAAAACCCCGGTAAGG spacer length: 34
 repeater length: 24
 26066 3407 GTACTAACGACAAGAACTAAAAAC ATCGAGAGGAATAAGCGGATATTTGTTACTGGCGTGATAT spacer
 length: 40 repeater length: 24
 26067 3471 GTACTAACGACAAGAACTAAAAAC TCCATGGGTTGTCCTAGCATTTTCGTAATCCTCA spacer length: 33
 repeater length: 24
 26068 3528 GTACTAACGACAAGAACTAAAAAC ACACTACACAATAGATATCGCTGATCGTGAAATGCT spacer length: 36
 repeater length: 24
 26069 3588 GTACTAACGACAAGAACTAAAAAC TAGTTGCTGCTCTAATTTCTTAAGCCTTAGTTT spacer length: 33
 repeater length: 24
 26070 3645 GTACTAACGACAAGAACTAAAAAC TTCTGGATCGCTTGGACTGCTGTGGTAGTAGTCTGT spacer length: 36
 repeater length: 24
 26071 3705 GTACTAACGACAAGAACTAAAAAC ATTGCTTGCCAGATCGTTGAGCAAAGGTGATGATGT spacer length: 36
 repeater length: 24
 26072 3765 GTACTAACGACAAGAACTAAAAAC TAGCGCATATTCCAGTTGCTTGTAGATTCCTAAATC spacer length: 36
 repeater length: 24
 26073 3825 GTACTAACGACAAGAACTAAAAAC GCCAATTCTCTGTTGGTAGCATCTCCTAGTGTAAGTT spacer length:
 38 repeater length: 24
 26074 3887 GTACTAACGACAAGAACTAAAAAC AGTGGAATCCAGGCTACAACCAATATATTAGTGTA spacer length: 35
 repeater length: 24
 26075 3946 GTACTAACGACAAGAACTAAAAAC ACTTGGACTGATGCAGTACCCCCAGTAATCGCCTCATA spacer length:
 38 repeater length: 24
 26076 4008 GTACTAACGACAAGAACTAAAAAC CTAAATCCAAACATCTCTGAAAGCTTATCGGTAAA spacer length: 35
 repeater length: 24
 26077 4067 GTACTAACGACAAGAACTAAAAAC TAAAAACGACACGATGGTAGTGCAAACGGTTGAGA spacer length: 35
 repeater length: 24
 26078 4126 GTACTAACGACAAGAACTAAAAAC ATAATGAGGGCTGGCGCTGCGCGGTTTGAAGTGAAGG spacer length:
 37 repeater length: 24
 26079 4187 GTACTAACGACAAGAACTAAAAAC GCTCCTAGGGACTATTGGAGGGGCATTTATCTTAAGC spacer length:
 37 repeater length: 24
 26080 4248 GTACTAACGACAAGAACTAAAAAC GAGGAGGGTAGGTTTGTGGGATGGCGATATCTTA spacer length: 34
 repeater length: 24
 26081 4306 GTACTAACGACAAGAACTAAAAAC TTGTTCTCCCCATCTGACACTGTACCTTTCAGAA spacer length: 34
 repeater length: 24
 26082 4364 GTACTAACGACAAGAACTAAAAAC CAAAATCCTAATTCTTTTCAAATTCCAGCTGGTA spacer length: 34
 repeater length: 24
 26083 4422 GTACTAACGACAAGAACTAAAAAC ACCTTAATATTATTAGTTTGGTAAATGATCTCTT spacer length: 34
 repeater length: 24
 26084 4480 GTACTAACGACAAGAACTAAAAAC TGGCTTTTCCAATACCCCCACAACAACATATCATC spacer length: 36
 repeater length: 24
 26085 4540 GTACTAACGACAAGAACTAAAAAC ACGAGTATGTCTGCATAAAAAACAAAACAAAGGTATTTT spacer length:
 38 repeater length: 24
 26086 4602 GTACTAACGACAAGAACTAAAAAC ATTACTCACAATTGGTGTAGTTATAATTATCCTATT spacer length: 36
 repeater length: 24
 26087 4662 GTACTAACGACAAGAACTAAAAAC TGTTTTAATTTAGGATTTATTGGTGAATATGCAATT spacer length: 36
 repeater length: 24
 26088 4722 GTACTAACGACAAGAACTAAAAAC TTTCAACGTATTTGTATCCAAAATCTTGTGACGA spacer length: 35
 repeater length: 24
 26089 4781 GTACTAACGACAAGAACTAAAAAC ATGAAAATGAGATACGCCGTCTTAGATCAAAACAAT spacer length: 36
 repeater length: 24
 26090 4841 GTACTAACGACAAGAACTAAAAAC ATTAGCCGTAAAGCATTTACAAGGACAAACACAAT spacer length: 35
 repeater length: 24
 26091 4900 GTACTAACGACAAGAACTAAAAAC AGGAATGATC
 26092
 26093
 26094 crispr 3
 26095 4961 GTACTAACGACAAGAACTAAAAAC GCAAGCTGCCGGAGTACCAGGTTGTCTCCAGGCTAGGCTTGTA spacer
 length: 43 repeater length: 24
 26096 5028 GTACTAACGACAAGAACTAAAAAC GTGGTTACAGCAGCTTTCCAGTGTTATCTTGTACCAATATATT spacer
 length: 44 repeater length: 24
 26097 5096 GTACTAACGACAAGAACTAAAAAC ATTTCAAGGTTCTCTCCTAGCTCGATCCACGCTTT spacer length: 35
 repeater length: 24
 26098 5155 GTACTAACGACAAGAACTAAAAAC ATAGCAGAAGGTGGTATGTTAAACATAGTAGCAGC spacer length: 35

26099 repeater length: 24
 5214 GTACTAACGACAAGAACTAAAAC TACTTGCCGTTAAGCCTGAAAACACTGCCATTGATT spacer length: 36
 26100 repeater length: 24
 5274 GTACTAACGACAAGAACTAAAAC TTTGACGCTCCTGCAGGACTTCGATTTCGAGATAGT spacer length: 35
 26101 repeater length: 24
 5333 GTACTAACGACAAGAACTAAAAC ACATAAATCTGGGGGGCTACTGATTTTCATGGCTT spacer length: 35
 26102 repeater length: 24
 5392 GTACTAACGACAAGAACTAAAAC AAGTACGCATA
 26103
 26104
 26105 crispr 4
 26106 14010 CTTTCAATCCCGTTAAGGATGCATC TCTTCTACTTGAGTCCACATTCGGACTTGACCTCTTCGG spacer
 length: 39 repeater length: 25
 26107 14074 CTTTCAATCCCGTTAAGGATGCATC TTTACGCAATAACAGCATATGTTCAACTGCCTACTGG spacer length:
 37 repeater length: 25
 26108 14136 CTTTCAATCCCGTTAAGGATGCATC TTTAATTCTCCAACCTCCTTCAACATAGTAAGCTAC spacer length:
 35 repeater length: 25
 26109 14196 CTTTCAATCCCGTTAAGGATGCATC GAAAAAGTACTGCGGAAATAGGGAATAAAATTATAAATCTAA spacer
 length: 42 repeater length: 25
 26110 14263 CTTTCAATCCCGTTAAGGATGCATC AGAGTTTTTTTTTGGTAAAAGAAGGTAAAAGTATAAAATTTGA spacer
 length: 41 repeater length: 25
 26111 14329 CTTTCAATCCCGTTAAGGATGCATC AAATGTGTGAAGCACAAATCGATCCCCAAATCCAGGAATT spacer
 length: 40 repeater length: 25
 26112 14394 CTTTCAATCCCGTTAAGGATGCATC TCGTGTTCTTAGCCAATTTGTACAACAAATAACAAAGTGA spacer
 length: 40 repeater length: 25
 26113 14459 CTTTCAATCCCGTTAAGGATGCATC TTGAGCAGACACAGGAATAGCATGGGTTGGAACAATTTAG spacer
 length: 40 repeater length: 25
 26114 14524 CTTTCAATCCCGTTAAGGATGCATC GAGGAAGATAAGGACACTGATCCTCGTAACTGATGGCAT spacer
 length: 39 repeater length: 25
 26115 14588 CTTTCAATCCCGTTAAGGATGCATC GGAACCGTATAAGGAATACATACATAGGGCATGGGGGAC spacer
 length: 39 repeater length: 25
 26116 14652 CTTTCAATCCCGTTAAGGATGCATC AGGTGGTGAGACATTCTTTTACCTAAATCAAACCTATAA spacer
 length: 38 repeater length: 25
 26117 14715 CTTTCAATCCCGTTAAGGATGCATC AGATCCACCTAGCGTTACTAAGTTTACGGAAGAGAGA spacer
 length: 38 repeater length: 25
 26118 14778 CTTTCAATCCCGTTAAGGATGCATC GGGATCTTTGATGTAATTTACGGTCTATCGTTCCTAGG spacer
 length: 38 repeater length: 25
 26119 14841 CTTTCAATCCCGTTAAGGATGCATC GTGAACTGGGATTACTAAAGTGGGAAAATGAGGATAAGCA spacer
 length: 40 repeater length: 25
 26120 14906 CTTTCAATCCCGTTAAGGATGCATC AAGCCACAATATTATGCTTTAGCAAAAATACAAGTACATA spacer
 length: 40 repeater length: 25
 26121 14971 CTTTCAATCCCGTTAAGGATGCATC GTCTATTATATGTCCTGATTACCAATGTTAAAATTGA spacer
 length: 38 repeater length: 25
 26122 15034 CTTTCAATCCCGTTAAGGATGCATC TCATATAAGCTGTATGATTGCCATACAATTTTGTAAC spacer
 length: 38 repeater length: 25
 26123 15097 CTTTCAATCCCGTTAAGGATGCATC AGTAAACAAACATTTGCTCTAGTTCAGCAGAGCACACAGTT spacer
 length: 41 repeater length: 25
 26124 15163 CTTTCAATCCCGTTAAGGATGCATC CATACCGAATGGGGCACAGAGTCACAATGTTGCTTATGT spacer
 length: 39 repeater length: 25
 26125 15227 CTTTCAATCCCGTTAAGGATGCATC AAAAAATCAATTTCTATAGTATAAAGATTTTAGAAGAAAT spacer
 length: 40 repeater length: 25
 26126 15292 CTTTCAATCCCGTTAAGGATGCATC AAAAAATATGATATAAACTTTTTATACAAAAGATTTCTATT spacer
 length: 42 repeater length: 25
 26127 15359 CTTTCAATCCCGTTAAGGATGCATC CAGTCTCAAACCACACAAACCCAAATTAAACAAAAATCCT spacer
 length: 40 repeater length: 25
 26128 15424 CTTTCAATCCCGTTAAGGATGCATC TTGATGAGAGCAGACCCAGTAACAGCTATGAATTCTTTTTTA spacer
 length: 41 repeater length: 25
 26129 15490 CTTTCAATCCCGTTAAGGATGCATC TTTTTTTATACGCAGATGTTAATAAACTGAAAATAGTTTA spacer
 length: 40 repeater length: 25
 26130 15555 CTTTCAATCCCGTTAAGGATGCATC GTTTGGATGCTGGGTCTGCACCGTAGTCAAGAACGATA spacer
 length: 38 repeater length: 25
 26131 15618 CTTTCAATCCCGTTAAGGATGCATC AGTAAACAAACATTTGCTCTAGTTCAGCAGAGCACACAGTT spacer
 length: 41 repeater length: 25
 26132 15684 CTTTCAATCCCGTTAAGGATGCATC CATACCGAATGGGGCACAGAGTCACAATGTTGCTTATGT spacer
 length: 39 repeater length: 25
 26133 15748 CTTTCAATCCCGTTAAGGATGCATC AAAAAATCAATTTCTATAGTATAAAGATTTTAGAAGAAAT spacer
 length: 40 repeater length: 25
 26134 15813 CTTTCAATCCCGTTAAGGATGCATC AAAAAATATGATATAAACTTTTTATACAAAAGATTTCTATT spacer
 length: 42 repeater length: 25
 26135 15880 CTTTCAATCCCGTTAAGGATGCATC CAGTCTCAAACCACACAAACCCAAATTAAACAAAAATCCT spacer
 length: 41 repeater length: 25

26136	15946 CTTTCAATCCCGTTAAGGATGCATC	TTGATGAGAGCAGACCCAGTAACAGCTATGAATTCTTTTTTA spacer
	length: 41 repeater length: 25	
26137	16012 CTTTCAATCCCGTTAAGGATGCATC	TTTTTTTTATACGCAGATGTTAATAAACTGAAAATAGTTTA spacer
	length: 40 repeater length: 25	
26138	16077 CTTTCAATCCCGTTAAGGATGCATC	GTTTGGATGCTGGGTCTGCACCGTAGTCAAGAACGATA spacer
	length: 38 repeater length: 25	
26139	16140 CTTTCAATCCCGTTAAGGATGCATC	TATAAAAGGTTTATTAATATACGTTTTTCATAATTTCTTT spacer
	length: 39 repeater length: 25	
26140	16204 CTTTCAATCCCGTTAAGGATGCATC	AGGGTGGCTAATGAGAGATGGTGAACTGTTGAGATA spacer length:
	37 repeater length: 25	
26141	16266 CTTTCAATCCCGTTAAGGATGCATC	CGGACATACTAATAGCGCTTAGCCAAGAACCTTTAACAA spacer
	length: 39 repeater length: 25	
26142	16330 CTTTCAATCCCGTTAAGGATGCATC	TTGCAGAGTTCACAGGTCACAAGTAACTAAAAGAC spacer length:
	36 repeater length: 25	
26143	16391 CTTTCAATCCCGTTAAGGATGCATC	AGTAAACAAAATGTGTTGGTCTACAACTTAATGTCAGAGAT spacer
	length: 42 repeater length: 25	
26144	16458 CTTTCAATCCCGTTAAGGATGCATC	AAATCACTATTTTTTTAGACCTATGTTTTTACAAAATTATAC spacer
	length: 41 repeater length: 25	
26145	16524 CTTTCAATCCCGTTAAGGATGCATC	ACAAAGAGAGCTATGAGCTTGGCTGTGACTGTCATGA spacer length:
	37 repeater length: 25	
26146	16586 CTTTCAATCCCGTTAAGGATGCATC	ATATTCTCTTCTAACACTTCATAGTCTTCTAATGTGTTG spacer
	length: 39 repeater length: 25	
26147	16650 CTTTCAATCCCGTTAAGGATGCATC	CATCCCTATTAACATTAAGGATCCCAGAGGATGGGC spacer length:
	36 repeater length: 25	
26148	16711 CTTTCAATCCCGTTAAGGATGCATC	AAAAGGCTAGTAGTTAAAGATGAGCTCAACGTTTACGT spacer
	length: 38 repeater length: 25	
26149	16774 CTTTCAATCCCGTTAAGGATGCATC	TGTGATGAATATTATTCGTTATGAGCCCCTAGATTTTAG spacer
	length: 39 repeater length: 25	
26150	16838 CTTTCAATCCCGTTAAGGATGCATC	ACTATTTTTCTCTTGATGTGCCCCCTAAATTTTGTGAACC spacer
	length: 40 repeater length: 25	
26151	16903 CTTTCAATCCCGTTAAGGATGCATC	AATATCTCACTGATCTTATACTTTATCATTCCAATCTC spacer
	length: 38 repeater length: 25	
26152	16966 CTTTCAATCCCGTTAAGGATGCATC	TGCGAGATAAGGAAAGGAGTCCAGCAATCGAATCAAT spacer length:
	37 repeater length: 25	
26153	17028 CTTTCAATCCCGTTAAGGATGCATC	TAAAGATTATTACCTTATTATAAGGGTGAAACAAATGA spacer
	length: 38 repeater length: 25	
26154	17091 CTTTCAATCCCGTTAAGGATGCATC	TTAAAGTCAGTGATTGGTAATAGGAAAATTATTGGACATTT spacer
	length: 41 repeater length: 25	
26155	17157 CTTTCAATCCCGTTAAGGATGCATC	AAGAGGATAGCTGAGAAGTTTAAAGAGAAATATGGAGT spacer
	length: 38 repeater length: 25	
26156	17220 CTTTCAATCCCGTTAAGGATGCATC	GTTGAGAGTAAGACCTAGGGAAGGGTTTGATATATTTGCTCT spacer
	length: 42 repeater length: 25	
26157	17287 CTTTCAATCCCGTTAAGGATGCATC	TAAAAGGTGCGGATAAGGGTAAAAAGTACGTATTAGA spacer length:
	37 repeater length: 25	
26158	17349 CTTTCAATCCCGTTAAGGATGCATC	CTAGCGTTGAAACGTAACATCACTAGGAGCGAGCTTATA spacer
	length: 39 repeater length: 25	
26159	17413 CTTTCAATCCCGTTAAGGATGCATC	AAAAAATAATTTTTTCGATTTTTTCAAAAAGGCTTAA spacer length:
	37 repeater length: 25	
26160	17475 CTTTCAATCCCGTTAAGGATGCATC	GTTACTCACGACATGGTCTTTTCGGCAATAAAGAGATTAA spacer
	length: 40 repeater length: 25	
26161	17540 CTTTCAATCCCGTTAAGGATGCATC	AAACCTATGGAAAATTAACCCCTTAACTTCAAGATGT spacer
	length: 38 repeater length: 25	
26162	17603 CTTTCAATCCCGTTAAGGATGCATC	CCAGATACATCGCCAGAAGGTACACCGAACTGTTATAC spacer
	length: 39 repeater length: 25	
26163	17667 CTTTCAATCCCGTTAAGGATGCATC	TGATTTCTTGTGATCTTATGCGAAATCTTGCGAAATCT spacer
	length: 38 repeater length: 25	
26164	17730 CTTTCAATCCCGTTAAGGATGCATC	AAAGAACCTGCAGGAACCTCTGGCACGGGATAAAAAATAG spacer
	length: 39 repeater length: 25	
26165	17794 CTTTCAATCCCGTTAAGGATGCATC	ATCAAGGTAAACCCTCAGACTATATAGTGACTCCTTCCCT spacer
	length: 40 repeater length: 25	
26166	17859 CTTTCAATCCCGTTAAGGATGCATC	TTGTTTACTCCCCAGTGTACACTTAATAAAAAAAGGA spacer length:
	37 repeater length: 25	
26167	17921 CTTTCAATCCCGTTAAGGATGCATC	CTAATATAATCTAGATCTTTGCCCTCCATTTTATAATAA spacer
	length: 39 repeater length: 25	
26168	17985 CTTTCAATCCCGTTAAGGATGCATC	GCTGGGCCAACGACAGAAGCTACATCTTTCATTGCATTAT spacer
	length: 40 repeater length: 25	
26169	18050 CTTTCAATCCCGTTAAGGATGCATC	ATATTCAAAGTGCGTATACTTATAAACTCTCTGACATTTT spacer
	length: 40 repeater length: 25	
26170	18115 CTTTCAATCCCGTTAAGGATGCATC	CTTCTATAAACTGTTGAATTTCTCTTTTGTCCCAATAA spacer
	length: 39 repeater length: 25	
26171	18179 CTTTCAATCCCGTTAAGGATGCATC	ATATCATTCAGCGGATCAAATGGGAAATCATATCCACGTAA spacer

length: 42 repeater length: 25
26172 18246 CTTTCAATCCCGTTAAGGATGCATC GGCCTACGAC
26173
26174
26175 crispr 5
26176 2634605 GAAGCATCCCATAAGGGATTGAAAG TAGCCACGCGAAAAATATCATATCGATAAAATCTCCCAA spacer
length: 40 repeater length: 25
26177 2634670 GAAGCATCCCATAAGGGATTGAAAG AAATAATAGTTTTTCAAAATTCTGTGGCGTCCACAAGTCCACA spacer
length: 42 repeater length: 25
26178 2634737 GAAGCATCCCATAAGGGATTGAAAG ATTTCTTTCATGTATGAAATACACTGTGGGTCATTGATT spacer
length: 39 repeater length: 25
26179 2634801 GAAGCATCCCATAAGGGATTGAAAG AAATTTACATTATTTTGTAACTATTACAGACACAAAAAT spacer
length: 40 repeater length: 25
26180 2634866 GAAGCATCCCATAAGGGATTGAAAG ACCCATTAAGCCAATACGGATATAATAGTAACATAGGGTTGT spacer
length: 42 repeater length: 25
26181 2634933 GAAGCATCCCATAAGGGATTGAAAG GAAGTTTTTTATTTGATTATATATATCTTTCCAGCTCGTCATG spacer
length: 42 repeater length: 25
26182 2635000 GAAGCATCCCATAAGGGATTGAAAG AAATTTCCCGATAAACTCATCATACCTAAATAGTAAAAAC spacer
length: 40 repeater length: 25
26183 2635065 GAAGCATCCCATAAGGGATTGAAAG CTCACTATATAAAAAATAATTTTAGCAAAAGATTTTCTGA spacer
length: 39 repeater length: 25
26184 2635129 GAAGCATCCCATAAGGGATTGAAAG
26185
26186
26187 crispr 6
26188 2635252 GAAGCATCCCATAAGGGATTGAAAG GGTTCACAGTCTACCCAGTTTGAATCTTTAGCCTACACAAC spacer
length: 42 repeater length: 25
26189 2635319 GAAGCATCCCATAAGGGATTGAAAG TTGATGAAATTGTATATTAGTAAATACAACTCTGTCCCA spacer
length: 40 repeater length: 25
26190 2635384 GAAGCATCCCATAAGGGATTGAAAG TACGCTTTTTTCGATCTCGTTCTTTATTTTCGTCCAACTT spacer
length: 39 repeater length: 25
26191 2635448 GAAGCATCCCATAAGGGATTGAAAG TTTGGATATGATTTGCGCGAAACCCATAACTTGTTTAACT spacer
length: 40 repeater length: 25
26192 2635513 GAAGCATCCCATAAGGGATTGAAAG CTCACCTTGTAATACATACACTTCTTGAAGTCAGTAAAA spacer
length: 39 repeater length: 25
26193 2635577 GAAGCATCCCATAAGGGATTGAAAG TTATCGATTTGTAAATCGGCTTAATGGTCGCAGGTCTCGTA spacer
length: 41 repeater length: 25
26194 2635643 GAAGCATCCCATAAGGGATTGAAAG TGTTTGTTGAAAATCTTTACAGCAATTTCAAAGTAAGACTC spacer
length: 41 repeater length: 25
26195 2635709 GAAGCATCCCATAAGGGATTGAAAG CTTTTCACTAAAATTTTTTAGTTTATAAATGTCTTTACG spacer
length: 39 repeater length: 25
26196 2635773 GAAGCATCCCATAAGGGATTGAAAG TCTTTCACGATAAAAGTCTACAATAGAATTGCTGGAAAT spacer
length: 39 repeater length: 25
26197 2635837 GAAGCATCCCATAAGGGATTGAAAG AACCACCTATTACTATAGGGGTTTTATCTGGTTTACTC spacer
length: 39 repeater length: 25
26198 2635901 GAAGCATCCCATAAGGGATTGAAAG AAATAATAACAGTATTATTCCCATAACCATGCCTGCTCCGA spacer
length: 41 repeater length: 25
26199 2635967 GAAGCATCCCATAAGGGATTGAAAG AAATCAGCTACAATCCAGAAATGTATTCCAATTTTTTACG spacer
length: 40 repeater length: 25
26200 2636032 GAAGCATCCCATAAGGGATTGAAAG TCGGGTACCCAGATCTCACGGTTTTTTTATCTTGAGGCAT spacer
length: 39 repeater length: 25
26201 2636096 GAAGCATCCCATAAGGGATTGAAAG ATAAAGATATTTAGAAAAAGGGAAATAGAAGAAATAGAAA spacer
length: 40 repeater length: 25
26202 2636161 GAAGCATCCCATAAGGGATTGAAAG CTATTAAATTTGTAAACCTTTACTGGATTACTGTGCGAAG spacer
length: 40 repeater length: 25
26203 2636226 GAAGCATCCCATAAGGGATTGAAAG CAGTTCATAGTTTCTAAGATTTTCTTTTTGTAACTCTCTTA spacer
length: 40 repeater length: 25
26204 2636291 GAAGCATCCCATAAGGGATTGAAAG GCTGGTATTAGCCTTAAGTCACTATTAATTACATTCAA spacer
length: 38 repeater length: 25
26205 2636354 GAAGCATCCCATAAGGGATTGAAAG ATATGTAGCCTTTCCAATAGCTCGTCTATGTCGCCCTCAG spacer
length: 40 repeater length: 25
26206 2636419 GAAGCATCCCATAAGGGATTGAAAG ATATCAAAAACCTTAAGTCTGTTTCACTATCCTTTATAAC spacer
length: 41 repeater length: 25
26207 2636485 GAAGCATCCCATAAGGGATTGAAAG ACCGTTTCCAGTATTTCTGAGATAATATCGCCCTTCATT spacer
length: 39 repeater length: 25
26208 2636549 GAAGCATCCCATAAGGGATTGAAAG TAAATTCACCGAGTTATTGCATCTTTCGCGTCTGGGCTTT spacer
length: 40 repeater length: 25
26209 2636614 GAAGCATCCCATAAGGGATTGAAAG TCTTCAGCCTTTGCAATAATAAGCATATTTTGGTCTTCGT spacer
length: 40 repeater length: 25
26210 2636679 GAAGCATCCCATAAGGGATTGAAAG TTACCGTTCCTCAAGTGCCACAAGTAGTACACTGCATCA spacer
length: 39 repeater length: 25

26211	2636743	GAAGCATCCCATAAGGGATTGAAAG	GTCCTACTTTGGTTATATTGTTTTTATGCATATACCTAT	spacer
	length:	39	repeater length:	25
26212	2636807	GAAGCATCCCATAAGGGATTGAAAG	ATAAGAAATACAAAGACTACACGCCGGACTTCTACGA	spacer
	length:	37	repeater length:	25
26213	2636869	GAAGCATCCCATAAGGGATTGAAAG	ATTGGAAATTTTTCTCTTATCGGTTTTGGTATCGTCATT	spacer
	length:	39	repeater length:	25
26214	2636933	GAAGCATCCCATAAGGGATTGAAAG	TAATCTCCTGCTATCGCCCTATTCATTGTAACGGTATCGC	spacer
	length:	40	repeater length:	25
26215	2636998	GAAGCATCCCATAAGGGATTGAAAG	GGTAAATAGTCGTAGCGAGTCGTTTTCTCGTAAGTAAAT	spacer
	length:	39	repeater length:	25
26216	2637062	GAAGCATCCCATAAGGGATTGAAAG	AATTACTTCAGCTATATCTTCAGCTACGTTAAAAATACTA	spacer
	length:	40	repeater length:	25
26217	2637127	GAAGCATCCCATAAGGGATTGAAAG	TCAATTTTCCAACTTTGAATTTTGCAAACCGCAAAGTCTT	spacer
	length:	41	repeater length:	25
26218	2637193	GAAGCATCCCATAAGGGATTGAAAG	TAAGTGTTCAATAAGGGAGTACTGAAATTAGAACTGGAGT	spacer
	length:	40	repeater length:	25
26219	2637258	GAAGCATCCCATAAGGGATTGAAAG	ATTTTGTCACTTTGCACATTTAGATTAAAGTTGTCTGAACA	spacer
	length:	40	repeater length:	25
26220	2637323	GAAGCATCCCATAAGGGATTGAAAG	TAACGGTTAGCGAGATACAGTAGATTATTAATCTCATTCTCG	spacer
	length:	42	repeater length:	25
26221	2637390	GAAGCATCCCATAAGGGATTGAAAG	ACGTAACTTTTCCCCGTTTTTCTCATGAAGTTTACGAGAACTC	spacer
	length:	44	repeater length:	25
26222	2637459	GAAGCATCCCATAAGGGATTGAAAG	GTTTTAAATTTTTGTTTTGAAAAATTATGTCCCATATCT	spacer
	length:	40	repeater length:	25
26223	2637524	GAAGCATCCCATAAGGGATTGAAAG	GTTAAGAAATTTACTAAATAATCGCCACACATGTTTTCGT	spacer
	length:	41	repeater length:	25
26224	2637590	GAAGCATCCCATAAGGGATTGAAAG	GTATTTTATTCGCTACATGTACTTAAAAATTGTATTTTT	spacer
	length:	39	repeater length:	25
26225	2637654	GAAGCATCCCATAAGGGATTGAAAG	AACTTATAGACCTTCACTAGATTACTATGTAATTCACGCCC	spacer
	length:	41	repeater length:	25
26226	2637720	GAAGCATCCCATAAGGGATTGAAAG	TTATCTCCCTCTTTTTTACCCTCAAATTTATCGAACTTT	spacer
	length:	39	repeater length:	25
26227	2637784	GAAGCATCCCATAAGGGATTGAAAG	ATGATTTGTTGAACTATGTCCATAATTTTGTCTGTTTAA	spacer
	length:	38	repeater length:	25
26228	2637847	GAAGCATCCCATAAGGGATTGAAAG	ATTTCCAAAAGTTCTGATTTCTCAACATGATAATTTGAGATAA	spacer
	length:	43	repeater length:	25
26229	2637915	GAAGCATCCCATAAGGGATTGAAAG	ATTTTGATTAATGTTAATTCGCCAGGTGATGGATTATAAA	spacer
	length:	41	repeater length:	25
26230	2637981	GAAGCATCCCATAAGGGATTGAAAG	ATTAATATAAGTATACATATAGTCACCCTGAGCAGAATT	spacer
	length:	39	repeater length:	25
26231	2638045	GAAGCATCCCATAAGGGATTGAAAG	TGAAGATTGAGAAGACCCTGAGGAGCCAGAACTTTG	spacer
	length:	36	repeater length:	25
26232	2638106	GAAGCATCCCATAAGGGATTGAAAG	CGCTAAACGGCAAAACACAAACAGTATTTACAATAACCAA	spacer
	length:	40	repeater length:	25
26233	2638171	GAAGCATCCCATAAGGGATTGAAAG	GATATTCTTCATGAAACCCTTCTAACTCTGCAACACCTA	spacer
	length:	39	repeater length:	25
26234	2638235	GAAGCATCCCATAAGGGATTGAAAG	TATTCGCCGTTTTTGTGATAATAATGTATTGCGAATC	spacer
	length:	37	repeater length:	25
26235	2638297	GAAGCATCCCATAAGGGATTGAAAG	TTATTCCTTCGTTTTTCATATCTAACCACAAAGTAATATTGA	spacer
	length:	41	repeater length:	25
26236	2638363	GAAGCATCCCATAAGGGATTGAAAG	ATAATAGCCCTTGACGCGTTACCGTAATGTCTCCACCAA	spacer
	length:	39	repeater length:	25
26237	2638427	GAAGCATCCCATAAGGGATTGAAAG	CTCATTTTACTGGGGAGTAAATTGAATTTAAAGGCAAGAA	spacer
	length:	40	repeater length:	25
26238	2638492	GAAGCATCCCATAAGGGATTGAAAG	TCTCTCTCAAATTGAATGATATGTGTAGCCCCTCTTAG	spacer
	length:	38	repeater length:	25
26239	2638555	GAAGCATCCCATAAGGGATTGAAAG	GTATCATATGTTATCCATAACGTTATTAGTGGTATATAAA	spacer
	length:	40	repeater length:	25
26240	2638620	GAAGCATCCCATAAGGGATTGAAAG	GATACCATTCCTTTTATTTCAATGTCCCTCCCTATTTCTTTC	spacer
	length:	41	repeater length:	25
26241	2638686	GAAGCATCCCATAAGGGATTGAAAG	GTATAATTTATTGGTTTTATGTAGGCTGTAGACGCTATACT	spacer
	length:	41	repeater length:	25
26242	2638752	GAAGCATCCCATAAGGGATTGAAAG	GTGAAACAACCGTCTGGAATTTCTAATGAGACGATTTA	spacer
	length:	38	repeater length:	25
26243	2638815	GAAGCATCCCATAAGGGATTGAAAG	ATACAGCACAGCACAGAAAACACAAACCCCTGGTCCACCTTT	spacer
	length:	43	repeater length:	25
26244	2638883	GAAGCATCCCATAAGGGATTGAAAG	TCAAGACCGCAATAAACTCAGATTTGGAATCAATTGATT	spacer
	length:	39	repeater length:	25
26245	2638947	GAAGCATCCCATAAGGGATTGAAAG	TGAAGATGTTGAAGAGCTAATAGATTTTGTCAAAAAAT	spacer
	length:	38	repeater length:	25
26246	2639010	GAAGCATCCCATAAGGGATTGAAAG	GAATTAATATACATATGCAATATTTTATACTTCATAA	spacer

length: 37 repeater length: 25
26247 2639072 GAAGCATCCCATAAGGGATTGAAAG AATCCATTAGCCCGTAGTACGGGTGAATATTGGTCATTAT spacer
length: 40 repeater length: 25
26248 2639137 GAAGCATCCCATAAGGGATTGAAAG TAAAGTGAAATATTAGAAACACTAATTGGAATTAATAGATTTTT
spacer length: 44 repeater length: 25
26249 2639206 GAAGCATCCCATAAGGGATTGAAAG GTTTTGTTGTAAAAGCTTATCTTTATTGAAAATTATG spacer
length: 37 repeater length: 25
26250 2639268 GAAGCATCCCATAAGGGATTGAAAG ACTGTATATAGTACGTTACCCGTAGCTTGTGTTTGAGATAC spacer
length: 41 repeater length: 25
26251 2639334 GAAGCATCCCATAAGGGATTGAAAG ATGTTTTGTAGTTTAAGAAATGGAACCTAGGTACTCTCGG spacer
length: 40 repeater length: 25
26252 2639399 GAAGCATCCCATAAGGGATTGAAAG GTTTCGTATGAATATACTTTGTTATCGATAGGATTTATTA spacer
length: 40 repeater length: 25
26253 2639464 GAAGCATCCCATAAGGGATTGAAAG
26254
26255
26256 crispr 7
26257 2650009 AATCTTTCAATCCCGTTTGGGATGCATCC TGTTGAAGAAAGCCTTACTAAATGACGAATTTATTAT spacer
length: 37 repeater length: 29
26258 2650075 AATCTTTCAATCCCGTTTGGGATGCATCC ACAACATATCACTGTGGAAACAACAACCATGGACA spacer
length: 35 repeater length: 29
26259 2650139 AATCTTTCAATCCCGTTTGGGATGCATCC
26260
26261
26262 crispr 8
26263 2650205 CTTTCAATCCCTATTGGGATGCATC GCCACGGCTTACTAGTTTATGTGACAGATAGTGATATTGT spacer
length: 40 repeater length: 25
26264 2650270 CTTTCAATCCCTATTGGGATGCATC TACGATGAGCCATTAAATTGACCTACAAGAACTGCAAA spacer
length: 38 repeater length: 25
26265 2650333 CTTTCAATCCCTATTGGGATGCATC AGGATGGAAGTGTAGCTTAAGTCCACCAGGGTATATTTGGTTTG
spacer length: 44 repeater length: 25
26266 2650402 CTTTCAATCCCTATTGGGATGCATC TAGAAAACATTAAATTTATACCACATACTACTTATAT spacer
length: 37 repeater length: 25
26267 2650464 CTTTCAATCCCTATTGGGATGCATC TGGTTGAAATAATATCTAGTGGGTAACCTCACACAAAAGAA spacer
length: 40 repeater length: 25
26268 2650529 CTTTCAATCCCTATTGGGATGCATC TTTTATTTTCTTAGTTATTTCTCTAACTGCATAACCTTTT spacer
length: 40 repeater length: 25
26269 2650594 CTTTCAATCCCTATTGGGATGCATC GTGTAATGTTAATGGCTAAGTTTTCGTTAGTTGAAGGATA spacer
length: 40 repeater length: 25
26270 2650659 CTTTCAATCCCTATTGGGATGCATC ATGTTGATTGTGTACCAGAAGAGCTGTTCTGGTTCAATCCT spacer
length: 41 repeater length: 25
26271 2650725 CTTTCAATCCCTATTGGGATGCATC CAAGAATCTCTATATCTAAATCTAGATACTGAAACTATT spacer
length: 40 repeater length: 25
26272 2650790 CTTTCAATCCCTATTGGGATGCATC AGACTTGACGCGATACGAATACAGCTAGGACTTACGAA spacer
length: 38 repeater length: 25
26273 2650853 CTTTCAATCCCTATTGGGATGCATC CCGATGTAGTCTATGGCGCTATTATTGGTGCGTTTTCGAG spacer
length: 40 repeater length: 25
26274 2650918 CTTTCAATCCCTATTGGGATGCATC GCAGCAAATAACAGAGGGAATGTATGTGCTGAACTACATA spacer
length: 40 repeater length: 25
26275 2650983 CTTTCAATCCCTATTGGGATGCATC ACTGATATACCTCTGTCTAAAGATGATGTATATTGGATTA spacer
length: 40 repeater length: 25
26276 2651048 CTTTCAATCCCTATTGGGATGCATC TTCTCTCTCGTTTTTTCCTCCCTGTGCCGTTAATGGAT spacer
length: 38 repeater length: 25
26277 2651111 CTTTCAATCCCTATTGGGATGCATC AATTGTGTAAAATCAAAAGTTAGATTTGAAGGGGGTGTAGT spacer
length: 41 repeater length: 25
26278 2651177 CTTTCAATCCCTATTGGGATGCATC CATGGCGATAAATATGAGACCAATCCCCCTTACCATTTTGA spacer
length: 41 repeater length: 25
26279 2651243 CTTTCAATCCCTATTGGGATGCATC ATTCGCAAATAGATATCTCGGTAACAACGAATCAG spacer length:
35 repeater length: 25
26280 2651303 CTTTCAATCCCTATTGGGATGCATC TATGGGATATCCCATTGTTTATGCGAATAAGCGAGAAATG spacer
length: 40 repeater length: 25
26281 2651368 CTTTCAATCCCTATTGGGATGCATC TTGAAGATTGTAAGAGATTAACAAACGGCTGGAAATATATT spacer
length: 41 repeater length: 25
26282 2651434 CTTTCAATCCCTATTGGGATGCATC CTTAGGCGTACCTAATGGAGCACAAAGTAGCCATATTCTTT spacer
length: 41 repeater length: 25
26283 2651500 CTTTCAATCCCTATTGGGATGCATC GAAATATATTGTAAGTATATTTTACGATAAAGAAATTTGCAA spacer
length: 41 repeater length: 25
26284 2651566 CTTTCAATCCCTATTGGGATGCATC TTTTACTGGGGAGTAAAATACAAAAATACGAGGAGTGTGCT spacer
length: 42 repeater length: 25
26285 2651633 CTTTCAATCCCTATTGGGATGCATC AAAAAACATCATCGACTATATCTCTTACAATTTGATTT spacer
length: 38 repeater length: 25

26286	2651696	CTTTCAATCCCTATTGGGATGCATC	ACTATTGAAGCTACTGTTGGTAGAGTTGCAGAAATCCT	spacer
		length: 38	repeater length: 25	
26287	2651759	CTTTCAATCCCTATTGGGATGCATC	ATTAAGAAGTTTTGAGAATATTATCGATAGGCTTATTGA	spacer
		length: 39	repeater length: 25	
26288	2651823	CTTTCAATCCCTATTGGGATGCATC	TTGAACCAAAAATTAAATTTTCTCTCTCTCATCTCT	spacer
		length: 36	repeater length: 25	
26289	2651884	CTTTCAATCCCTATTGGGATGCATC	TACTAGAGTGTGTTAGTTTTTACTTAGAGGTGGAAAAA	spacer
		length: 39	repeater length: 25	
26290	2651948	CTTTCAATCCCTATTGGGATGCATC	AAGAAACAACCTGAGGTAATCAGTGTAGCTGAGGTTCTGCTAT	spacer
		length: 44	repeater length: 25	
26291	2652017	CTTTCAATCCCTATTGGGATGCATC	AGACGAGATAGTGAAGTTAAAGCCAATAAAGGTATACTACA	spacer
		length: 41	repeater length: 25	
26292	2652083	CTTTCAATCCCTATTGGGATGCATC	AATAATCGTCACCGACATCCACCCCTACTACGGGCTAAT	spacer
		length: 39	repeater length: 25	
26293	2652147	CTTTCAATCCCTATTGGGATGCATC	TTGAACCAAAAACGGGCGAGATACTGAGAGAGAT	spacer length: 34
		length: 34	repeater length: 25	
26294	2652206	CTTTCAATCCCTATTGGGATGCATC	ACCACCTAATTATTGCGTCTTTCGCGTCTGGGCTCTTCA	spacer
		length: 39	repeater length: 25	
26295	2652270	CTTTCAATCCCTATTGGGATGCATC	CACTCATTTCTCTACGCCTCGGCTAATATATCGTTCTATTTTT	spacer
		length: 43	repeater length: 25	
26296	2652338	CTTTCAATCCCTATTGGGATGCATC	AATGTTGGCAGCAAGACCAATAAGTTTTGAGGAATTG	spacer
		length: 37	repeater length: 25	
26297	2652400	CTTTCAATCCCTATTGGGATGCATC	TTGATAGAGACGTATTTCAAAAAATACCCAGGGCAAGT	spacer
		length: 38	repeater length: 25	
26298	2652463	CTTTCAATCCCTATTGGGATGCATC	GCATATTTTACAAAATCTGGTAAAGAAATGAAATATTGTAAT	spacer
		length: 42	repeater length: 25	
26299	2652530	CTTTCAATCCCTATTGGGATGCATC	ATAAGGCAAGTAGGGAAGAAGTACCAAGCATATCTTTC	spacer
		length: 38	repeater length: 25	
26300	2652593	CTTTCAATCCCTATTGGGATGCATC	CAGATAGAGCCTTTCAACCCAGATGTCTCATCTCTTTTCCCTG	spacer
		length: 43	repeater length: 25	
26301	2652661	CTTTCAATCCCTATTGGGATGCATC		
26302				
26303				
26304	crispr 9			
26305	2658194	GATGCATCCCATACGGGATTGAAAG	ATATTCGGGATGAAAAGGCATATGAAAAGTTAAAGGCGAA	spacer
		length: 40	repeater length: 25	
26306	2658259	GATGCATCCCATACGGGATTGAAAG	AATCATAAAAAGCATTGTGATTTTGGCGCGTTAGCGCTTT	spacer
		length: 39	repeater length: 25	
26307	2658323	GATGCATCCCATACGGGATTGAAAG	AACTCAAAATCGCTGTATATCCCTCGCCGGCTCTATGAGG	spacer
		length: 40	repeater length: 25	
26308	2658388	GATGCATCCCATACGGGATTGAAAG	CATTACTAGTTTCCCTCCATGTTAACGTCCACCACATCT	spacer
		length: 38	repeater length: 25	
26309	2658451	GATGCATCCCATACGGGATTGAAAG	TTTTATACAATATTGTTAAGAAACATCACCAATACTTC	spacer
		length: 38	repeater length: 25	
26310	2658514	GATGCATCCCATACGGGATTGAAAG	TATTAAACCAACGACTCCTTACGAATAGAGAGATAGA	spacer
		length: 37	repeater length: 25	
26311	2658576	GATGCATCCCATACGGGATTGAAAG	TGTGCTGTGATATTTGTATCAGTAAGCAATTTATCTAACAACG	spacer
		length: 43	repeater length: 25	
26312	2658644	GATGCATCCCATACGGGATTGAAAG	GTCAATAGCTCACCCCATATAACAGCTCATAATAT	spacer length: 35
		length: 35	repeater length: 25	
26313	2658704	GATGCATCCCATACGGGATTGAAAG	GCTTTTGGATATTGCTTTTGGACTTCCTGTAACAGTGAAATC	spacer
		length: 42	repeater length: 25	
26314	2658771	GATGCATCCCATACGGGATTGAAAG	AAAATCTTCACCCCTTCCATGAGATGGATATAGAGCAATT	spacer
		length: 40	repeater length: 25	
26315	2658836	GATGCATCCCATACGGGATTGAAAG	GGTACAACCTGGGTTTCATTTCCCCAGTGTCTTCTGGCTC	spacer
		length: 38	repeater length: 25	
26316	2658899	GATGCATCCCATACGGGATTGAAAG	AATCTACAGTTTTTATCGCTGTGTGTACAATTATTTCTAAG	spacer
		length: 41	repeater length: 25	
26317	2658965	GATGCATCCCATACGGGATTGAAAG	TGAAAAAATTTCACTTTGGAAACCGTCTTGATATATTATT	spacer
		length: 40	repeater length: 25	
26318	2659030	GATGCATCCCATACGGGATTGAAAG	TTACTTAATTCTGAATGTTCCATAATTCACAAAGACTTTAG	spacer
		length: 40	repeater length: 25	
26319	2659095	GATGCATCCCATACGGGATTGAAAG	AAATAAGCATGACCTTTTATCGTGCCAAACATATAATCAT	spacer
		length: 40	repeater length: 25	
26320	2659160	GATGCATCCCATACGGGATTGAAAG	AGAATCACTAGGAGAAGGAGTAACTAAAGGAGTAGTAAAAGG	spacer
		length: 42	repeater length: 25	
26321	2659227	GATGCATCCCATACGGGATTGAAAG	GACCAACAATCAATGCCAACTTTGGCATATCATAGCCAT	spacer
		length: 39	repeater length: 25	
26322	2659291	GATGCATCCCATACGGGATTGAAAG	ACTGTGGCATATGTTAACCTAGCCACAATGACTAAAAC	spacer
		length: 38	repeater length: 25	
26323	2659354	GATGCATCCCATACGGGATTGAAAG	AATGACCCTGATAATGGTATATGGAGTTTAGGTTTTTACAT	spacer

length: 41 repeater length: 25
26324 2659420 GATGCATCCCATACGGGATTGAAAG TTACTTAATTTCGAATGTTCCATAATTACAAAGACTTTAG spacer
length: 40 repeater length: 25
26325 2659485 GATGCATCCCATACGGGATTGAAAG AAATAAGCATGACCTTTTATCGTGCCAAACATATAATCAT spacer
length: 40 repeater length: 25
26326 2659550 GATGCATCCCATACGGGATTGAAAG AAAAGTAAACTAATTGGGGGCTAATAATAGGCGTAGTAG spacer
length: 40 repeater length: 25
26327 2659615 GATGCATCCCATACGGGATTGAAAG CTGTTATCGAGATATAATGATATTCTCCCATTCTGTAT spacer
length: 38 repeater length: 25
26328 2659678 GATGCATCCCATACGGGATTGAAAG ATAATGTCTTTATTTGAACTACAGAGGAATGGATGTCTT spacer
length: 39 repeater length: 25
26329 2659742 GATGCATCCCATACGGGATTGAAAG TACAATTTCCAGCACGTCAGACATACCCACTATGTCTAG spacer
length: 39 repeater length: 25
26330 2659806 GATGCATCCCATACGGGATTGAAAG TAATTTTTTATAATTTTCATCAGCAGTAACACGATAAAA spacer
length: 37 repeater length: 25
26331 2659868 GATGCATCCCATACGGGATTGAAAG ATGTCTCATCGTCGGCAGACAGTGCTCTATTCATCTCAA spacer
length: 39 repeater length: 25
26332 2659932 GATGCATCCCATACGGGATTGAAAG ATCAGTGGCTTCAGTCTTCTCTTATAATTCTCATACCT spacer
length: 38 repeater length: 25
26333 2659995 GATGCATCCCATACGGGATTGAAAG TATGTAAAATTTAGGGAAAATACCTAGAGGTCCAGTAAGAG spacer
length: 41 repeater length: 25
26334 2660061 GATGCATCCCATACGGGATTGAAAG AGTATATGTTCAACAGCTGAGAGACATTAACATTTTGCT spacer
length: 39 repeater length: 25
26335 2660125 GATGCATCCCATACGGGATTGAAAG AATTAATATATCTTCTGCGAGAGTTAGAGCCATTTTTT spacer
length: 38 repeater length: 25
26336 2660188 GATGCATCCCATACGGGATTGAAAG TCCCCATCCCCTTTGCTATCTCTTTTACCTGTGTGCGCG spacer
length: 39 repeater length: 25
26337 2660252 GATGCATCCCATACGGGATTGAAAG TGATTTCGTTAAATCGGGGAATTTAACGCGTTCAAACATTT spacer
length: 40 repeater length: 25
26338 2660317 GATGCATCCCATACGGGATTGAAAG TTTTCTTCTTCATTAGCAAAGCGTACGCAGCTATACCAA spacer
length: 39 repeater length: 25
26339 2660381 GATGCATCCCATACGGGATTGAAAG TTTATATCATCATCTTTCCGCATAGTCTCGGCGACCC spacer
length: 37 repeater length: 25
26340 2660443 GATGCATCCCATACGGGATTGAAAG ATATTAGCCAAAAGCCCCTTAAAGACTGACTTTCTC spacer
length: 36 repeater length: 25
26341 2660504 GATGCATCCCATACGGGATTGAAAG GCGTTTCCACTGGCATAAGAACCACCTAGCTCTATTGGC spacer
length: 39 repeater length: 25
26342 2660568 GATGCATCCCATACGGGATTGAAAG GATATATATGTACGACCATCACGAAACAAACCTAAAGTT spacer
length: 39 repeater length: 25
26343 2660632 GATGCATCCCATACGGGATTGAAAG CACGTTACCAGTGCAATAGCGAGTGACTACAAACGAATACT spacer
length: 41 repeater length: 25
26344 2660698 GATGCATCCCATACGGGATTGAAAG CGGTTTGACAATTATGAACGTATCGGTTTGCTTAAGCAAT spacer
length: 40 repeater length: 25
26345 2660763 GATGCATCCCATACGGGATTGAAAG ATAGATGAATATTATAATCCTATAATTCCCCATTAATCTTTC spacer
length: 43 repeater length: 25
26346 2660831 GATGCATCCCATACGGGATTGAAAG CATCATGGCAGGGTCTTGACGCTGAGATAACAGCAATAAA spacer
length: 40 repeater length: 25
26347 2660896 GATGCATCCCATACGGGATTGAAAG AAGATTTCTACTAACTTTTGCATTAACATCTCTCGCTTTT spacer
length: 40 repeater length: 25
26348 2660961 GATGCATCCCATACGGGATTGAAAG TTGTCAACCTCGAAGTAGTACGGTATGCTTGCTAAACCT spacer
length: 40 repeater length: 25
26349 2661026 GATGCATCCCATACGGGATTGAAAG ATTCTCGAAAATTGCAGTTGTGTTAGATGCAAAAATTACG spacer
length: 40 repeater length: 25
26350 2661091 GATGCATCCCATACGGGATTGAAAG TTACAAAATCTGTAAAGTAGTTTTTCTGTAAAGCTAAACTGT spacer
length: 42 repeater length: 25
26351 2661158 GATGCATCCCATACGGGATTGAAAG AGTTCTGTCTTGAACGCTGTTCTATTTCTCCATGTCTCTAG spacer
length: 41 repeater length: 25
26352 2661224 GATGCATCCCATACGGGATTGAAAG ATCGTCAACTACAACATATAACAATTTACAGATTACATTT spacer
length: 40 repeater length: 25
26353 2661289 GATGCATCCCATACGGGATTGAAAG CTATATCTTGTGTTGTGCTCTTTAAACATGGCTTTGAAAAA spacer
length: 41 repeater length: 25
26354 2661355 GATGCATCCCATACGGGATTGAAAG TTATGAATGTGGTAGATGCCATCTGGTATTGGCATTAGAACAA spacer
length: 43 repeater length: 25
26355 2661423 GATGCATCCCATACGGGATTGAAAG TCTTTTAAACGCGTTCAAAAATATTTGCCATACCCCTATTTG spacer
length: 41 repeater length: 25
26356 2661489 GATGCATCCCATACGGGATTGAAAG AAGAAACAAAATTATACATAAGTAATGCCAGCTTACTTTGTGT spacer
length: 43 repeater length: 25
26357 2661557 GATGCATCCCATACGGGATTGAAAG TAACTAACATAGTAACCATTTCTGTGCCCATGGCTCCCACT spacer
length: 40 repeater length: 25
26358 2661622 GATGCATCCCATACGGGATTGAAAG CCAACCCAGCTGTTAGGGGGGAAGAGCCAGCAATCG spacer
length: 37 repeater length: 25

26359 2661684 GATGCATCCCATACGGGATTGAAAG GAATAACACTGTTTATATGATTGATCACCATGAATCAAA spacer
length: 39 repeater length: 25
26360 2661748 GATGCATCCCATACGGGATTGAAAG ATTGGGATTAGCTAGAACTTGTGCACTTTGAGGGATAACAT spacer
length: 41 repeater length: 25
26361 2661814 GATGCATCCCATACGGGATTGAAAG ATTCCTTTCTGCATTTTTACGTAATCTGGTTTATCGTAA spacer
length: 39 repeater length: 25
26362 2661878 GATGCATCCCATACGGGATTGAAAG ACCGTATAAGGCTGATTTTGTGGTTGTGCAGAGATTATT spacer
length: 39 repeater length: 25
26363 2661942 GATGCATCCCATACGGGATTGAAAG
26364
26365
26366 crispr 10
26367 2662074 GATGCATCCCCAACGGGATTGAAAG CTGTGATGTTTCTCATGTTATATATGTCCAGCTTCCATTCT spacer
length: 41 repeater length: 25
26368 2662140 GATGCATCCCCAACGGGATTGAAAG TTATTTTCCTAAAATTTGGATGTGCCTACTGGTATGA spacer
length: 36 repeater length: 25
26369 2662201 GATGCATCCCCAACGGGATTGAAAG AGACATCCCCCTTTCTTTCCCTAACCCTCTGGCTTAAAG spacer
length: 40 repeater length: 25
26370 2662266 GATGCATCCCCAACGGGATTGAAAG ATTGCTAACCACTACTCATCTGTTTCTTTTCTTTTCCCGC spacer
length: 41 repeater length: 25
26371 2662332 GATGCATCCCCAACGGGATTGAAAG
26372
26373
26374 crispr 11
26375 2666937 GTTTGTAGTTTCTTGTCGTTAGTAC TGAGGCCACGTTAGGTTTCTCAGAGCAAAGCTTA spacer length:
34 repeater length: 24
26376 2666995 GTTTGTAGTTTCTTGTCGTTAGTAC ACTTATAACTACACTTCACCTATGTATGTAACAGT spacer length:
35 repeater length: 24
26377 2667054 GTTTGTAGTTTCTTGTCGTTAGTAC CTGAACAGCCCTGAAGAGAGTATCGCGGAACAGGTA spacer length:
36 repeater length: 24
26378 2667114 GTTTGTAGTTTCTTGTCGTTAGTAC ATGCCTCGTGATCTTTCAAACCCATTACGATGCGAG spacer length:
36 repeater length: 24
26379 2667174 GTTTGTAGTTTCTTGTCGTTAGTAC CTTCCGGTAATTATGATTAGACCCAACTTATTTT spacer length:
34 repeater length: 24
26380 2667232 GTTTGTAGTTTCTTGTCGTTAGTAC GATAAATCCTATTAATATAATTAAGAATTTACAAA spacer length:
36 repeater length: 24
26381 2667292 GTTTGTAGTTTCTTGTCGTTAGTAC GCTTAACATTTAAATTATTGAGTGCAGAAAAAGAA spacer length:
35 repeater length: 24
26382 2667351 GTTTGTAGTTTCTTGTCGTTAGTAC TGTATCTTTTTGATTCCTGAACAGCCATTTATAC spacer length:
34 repeater length: 24
26383 2667409 GTTTGTAGTTTCTTGTCGTTAGTAC ACCTCTGTAATCCTTTTCAGTATTTCTCGGAAAT spacer length:
34 repeater length: 24
26384 2667467 GTTTGTAGTTTCTTGTCGTTAGTAC AAAGAGCTAGCCAGGACAGATAAGAAGCTACTTATAAC spacer
length: 38 repeater length: 24
26385 2667529 GTTTGTAGTTTCTTGTCGTTAGTAC ATTTTCTCAGGGGATATTCTACGTTATTTGTTAAT spacer length:
35 repeater length: 24
26386 2667588 GTTTGTAGTTTCTTGTCGTTAGTAC GATATTTACGTTATGCAATACACAATTTTGAGAAA spacer length:
36 repeater length: 24
26387 2667648 GTTTGTAGTTTCTTGTCGTTAGTAC AAGGGGTAAACAGCTTAATGGAGTTCTATTATGA spacer length:
34 repeater length: 24
26388 2667706 GTTTGTAGTTTCTTGTCGTTAGTAC TAGGGTTTTACATAGGAAGGCTTCCAAAAGGCTAT spacer length:
35 repeater length: 24
26389 2667765 GTTTGTAGTTTCTTGTCGTTAGTAC ACTAAAAGCAATAATTTACCAGTTTTTGTAATAATTTGA spacer
length: 40 repeater length: 24
26390 2667829 GTTTGTAGTTTCTTGTCGTTAGTAC ATTGTTGTATTTATTTGTCACTGGCAACCCAAAT spacer length:
34 repeater length: 24
26391 2667887 GTTTGTAGTTTCTTGTCGTTAGTAC CTTTTGATGTAAATGTTCTCAACAGCATCATAAAAGT spacer
length: 37 repeater length: 24
26392 2667948 GTTTGTAGTTTCTTGTCGTTAGTAC ACTGATTGCACACCAGATAGGGTGACTTTTAGCA spacer length:
34 repeater length: 24
26393 2668006 GTTTGTAGTTTCTTGTCGTTAGTAC TATTATCTCTTCAAGTTTATTCACGATCTGCCAT spacer length:
34 repeater length: 24
26394 2668064 GTTTGTAGTTTCTTGTCGTTAGTAC ACTTCTGCACTGTCTGACATTACCTGCACAGCTTTATTAA spacer
length: 40 repeater length: 24
26395 2668128 GTTTGTAGTTTCTTGTCGTTAGTAC GTTTTGGTTTAAATGGGAAAGGCTGTAATGTAGTGTT spacer length:
36 repeater length: 24
26396 2668188 GTTTGTAGTTTCTTGTCGTTAGTAC AACAAATCTACAATACGTAGCGCAGGGATACAAT spacer length:
35 repeater length: 24
26397 2668247 GTTTGTAGTTTCTTGTCGTTAGTAC TTATACATTACAGTAACGCTGTACAACAGATGGCGCAAAC spacer
length: 39 repeater length: 24
26398 2668310 GTTTGTAGTTTCTTGTCGTTAGTAC CCTGCTGTAAGTTATTAATGTTCTCTGCAACGTTTG spacer

length: 37 repeater length: 24

26399 2668371 GTTT TAGTTT CTTGTCGTTAGTAC GATTTTCGCTGTATATACCAGGTAATTGTTGTAAA spacer length: 34 repeater length: 24

26400 2668429 GTTT TAGTTT CTTGTCGTTAGTAC TTATAGGATATCTCTATACCATTAGCCTTCATCT spacer length: 34 repeater length: 24

26401 2668487 GTTT TAGTTT CTTGTCGTTAGTAC AGGGCTCGCCAGGGTCTTCGTAGCGTACAATTACTC spacer length: 36 repeater length: 24

26402 2668547 GTTT TAGTTT CTTGTCGTTAGTAC TATAGATGCGTACAACGAGGCGATAGATCAGCTT spacer length: 34 repeater length: 24

26403 2668605 GTTT TAGTTT CTTGTCGTTAGTAC TCGTATGACGAGGACACAGCGAGATACAGGATAACC spacer length: 36 repeater length: 24

26404 2668665 GTTT TAGTTT CTTGTCGTTAGTAC TTACCATATGCGGACAGAGTACTGAAAATCCGATA spacer length: 35 repeater length: 24

26405 2668724 GTTT TAGTTT CTTGTCGTTAGTAC ATGCGCTAGGTAGTGTCTCTTTTCAGTGTTGATATT spacer length: 35 repeater length: 24

26406 2668783 GTTT TAGTTT CTTGTCGTTAGTAC ATATGTGAAACTTACCGAAAAAGCTTTCCAGACTATG spacer length: 37 repeater length: 24

26407 2668844 GTTT TAGTTT CTTGTCGTTAGTAC AAACCTACCTAATGAAGTGGCTAGCTCAGAAGATAAGT spacer length: 38 repeater length: 24

26408 2668906 GTTT TAGTTT CTTGTCGTTAGTAC ATATT CAGAAGCAGTTATAATCGAGATCGAATCACCT spacer length: 37 repeater length: 24

26409 2668967 GTTT TAGTTT CTTGTCGTTAGTAC GACTGTAGGCATTTGAGGAAGATAAGCCCTAGCTCT spacer length: 36 repeater length: 24

26410 2669027 GTTT TAGTTT CTTGTCGTTAGTAC GATTTATCAATTGTCCCGATAAACAACGTAATAAT spacer length: 35 repeater length: 24

26411 2669086 GTTT TAGTTT CTTGTCGTTAGTAC GGGGTACAGTATAATTTTTGAAATCTTTGTGTGATAT spacer length: 37 repeater length: 24

26412 2669147 GTTT TAGTTT CTTGTCGTTAGTAC AGATATCGTAATAAAGACTGGGGGTAAAGGACATTTA spacer length: 37 repeater length: 24

26413 2669208 GTTT TAGTTT CTTGTCGTTAGTAC TACAGCAAAATGCAAACAATAACAATCAGAAAACAGAT spacer length: 38 repeater length: 24

26414 2669270 GTTT TAGTTT CTTGTCGTTAGTAC AATAAATCTAGGTTGAACGGAGGTTCAAGATAACTCT spacer length: 37 repeater length: 24

26415 2669331 GTTT TAGTTT CTTGTCGTTAGTAC GCATTGTTTTCCCCCAGCTAACGCTTGCACTTTACA spacer length: 38 repeater length: 24

26416 2669393 GTTT TAGTTT CTTGTCGTTAGTAC TAGGGGCATTTACATTAAGGATTTGATGCTTTAG spacer length: 36 repeater length: 24

26417 2669453 GTTT TAGTTT CTTGTCGTTAGTAC ATCTTACTAGGCTAGATAGATACTTTACGGCATTTGG spacer length: 37 repeater length: 24

26418 2669514 GTTT TAGTTT CTTGTCGTTAGTAC CCTAAAGAATAAGAACCATATCAACAATAGGATAATTATAAT spacer length: 42 repeater length: 24

26419 2669580 GTTT TAGTTT CTTGTCGTTAGTAC GGAGAACTTCCGCCACTACCACCCGCCCTCCAC spacer length: 34 repeater length: 24

26420 2669638 GTTT TAGTTT CTTGTCGTTAGTAC CTTGTTTCAATATCGACTTATATCGCACTTTACAC spacer length: 35 repeater length: 24

26421 2669697 GTTT TAGTTT CTTGTCGTTAGTAC ATACACAACATCTCTACGACTTTATAGCGATTTGAA spacer length: 36 repeater length: 24

26422 2669757 GTTT TAGTTT CTTGTCGTTAGTAC CTCTTGTGGGTGTTAATGTGGCTACAGACTTTACCA spacer length: 36 repeater length: 24

26423 2669817 GTTT TAGTTT CTTGTCGTTAGTAC CATGTATAGTAATCAGCTGGGAGTTCCTCAAGCCT spacer length: 35 repeater length: 24

26424 2669876 GTTT TAGTTT CTTGTCGTTAGTAC AAATAAGTTTGATTTTGCAAAGAATGAGATTCT spacer length: 34 repeater length: 24

26425 2669934 GTTT TAGTTT CTTGTCGTTAGTAC GATATATTATGTCACAACATTCCACTTGAGATAAA spacer length: 35 repeater length: 24

26426 2669993 GTTT TAGTTT CTTGTCGTTAGTAC TCTTCCTTCTTTAAGGTATCTGTAAGTCCAGGGTTGT spacer length: 37 repeater length: 24

26427 2670054 GTTT TAGTTT CTTGTCGTTAGTAC ACTATTCTCACCCGCTTTCAAACCTCTGAAAACACTTGAT spacer length: 39 repeater length: 24

26428 2670117 GTTT TAGTTT CTTGTCGTTAGTAC TTTGATAGTAGAAAGTGTCTCTATTTACCAGTAA spacer length: 34 repeater length: 24

26429 2670175 GTTT TAGTTT CTTGTCGTTAGTAC GATGATATTGTAAATGATATAGAAATTGGCAAAAA spacer length: 35 repeater length: 24

26430 2670234 GTTT TAGTTT CTTGTCGTTAGTAC AGGGAAGAACTTGAGGCTAGGTATTTCAATCCAAT spacer length: 35 repeater length: 24

26431 2670293 GTTT TAGTTT CTTGTCGTTAGTAC AACTACGCTCTTAATGCTATAAATAACTTTATCGA spacer length: 35 repeater length: 24

26432 2670352 GTTT TAGTTT CTTGTCGTTAGTAC TTTGAAATCGCATTATCATATTGAAGAGATATCAAAA spacer length: 37 repeater length: 24

26433 2670413 GTTT TAGTTT CTTGTCGTTAGTAC AACTCTGAACCTCTATGGAGCCTCTTTAGCAC spacer length: 33 repeater length: 24

26434	2670470 GTTTGTAGTTTCTTGTCTGTTAGTAC	GAATTTGCATAAAATGCATTTGGAGAATTGAAGTGA spacer length: 36 repeater length: 24
26435	2670530 GTTTGTAGTTTCTTGTCTGTTAGTAC	GATGGTATTGTTGTTGTGGCGGTATCGGAAAAGCCAA spacer length: 37 repeater length: 24
26436	2670591 GTTTGTAGTTTCTTGTCTGTTAGTAC	CAGTGGGTAAATCCCAATAGTAGGACAGGCACCAG spacer length: 35 repeater length: 24
26437	2670650 GTTTGTAGTTTCTTGTCTGTTAGTAC	ACGTAACCAGTTGGAGATCCTGTAATTATATTTGT spacer length: 35 repeater length: 24
26438	2670709 GTTTGTAGTTTCTTGTCTGTTAGTAC	AGGTTCAATCAACCTTGAGCAGTTTGTGGTCACA spacer length: 34 repeater length: 24
26439	2670767 GTTTGTAGTTTCTTGTCTGTTAGTAC	GAAGTTTGGGTACAGGCTTCCGATTAAGCCGTTGTGG spacer length: 37 repeater length: 24
26440	2670828 GTTTGTAGTTTCTTGTCTGTTAGTAC	ATAGGGTAGATGGGCTTAATTCAGAGGGATTATGG spacer length: 35 repeater length: 24
26441	2670887 GTTTGTAGTTTCTTGTCTGTTAGTAC	ATATATTATATAGGTATATCAGATACCCCTTTTTTCT spacer length: 36 repeater length: 24
26442	2670947 GTTTGTAGTTTCTTGTCTGTTAGTAC	GTACCTCCTCCTCCCCCTCCTCCGAGTTGAT spacer length: 32 repeater length: 24
26443	2671003 GTTTGTAGTTTCTTGTCTGTTAGTAC	ATCTCAGAAGTGCAAAGCGAGATTGACACTCTTCAA spacer length: 36 repeater length: 24
26444	2671063 GTTTGTAGTTTCTTGTCTGTTAGTAC	GGACTGCAGTCTGTAGTTGTTGTGCTGTGCTTACCAGC spacer length: 38 repeater length: 24
26445	2671125 GTTTGTAGTTTCTTGTCTGTTAGTAC	ATTTGCTCATCACGGCTTGCATCTTAGGTTGTGCAG spacer length: 36 repeater length: 24
26446	2671185 GTTTGTAGTTTCTTGTCTGTTAGTAC	TATTTTCGACATAGAAACGTATAGACCTAAGACAGAAGA spacer length: 38 repeater length: 24
26447	2671247 GTTTGTAGTTTCTTGTCTGTTAGTAC	TCTCTCTCATATATACACACACAGAAACCCAGAG spacer length: 34 repeater length: 24
26448	2671305 GTTTGTAGTTTCTTGTCTGTTAGTAC	CTAAATCATTCTTCAGAAGATCTATCCTTATCGTT spacer length: 35 repeater length: 24
26449	2671364 GTTTGTAGTTTCTTGTCTGTTAGTAC	CGACATGGACAGTAAGCTATAGTAATCCGTTAAT spacer length: 34 repeater length: 24
26450	2671422 GTTTGTAGTTTCTTGTCTGTTAGTAC	TAAGTAATTTCCCCGCGACACAAAACGTAAGTAT spacer length: 34 repeater length: 24
26451	2671480 GTTTGTAGTTTCTTGTCTGTTAGTAC	AATTTAGCCCGTTGAGAATAGTGTTCGGATGTTGG spacer length: 36 repeater length: 24
26452	2671540 GTTTGTAGTTTCTTGTCTGTTAGTAC	AACATTACTAGGTTTGGAAACATGTATTTCTATCT spacer length: 35 repeater length: 24
26453	2671599 GTTTGTAGTTTCTTGTCTGTTAGTAC	TAGGTTACCAAAGCGTTACCTCCTCCAGTCTGGAT spacer length: 36 repeater length: 24
26454	2671659 GTTTGTAGTTTCTTGTCTGTTAGTAC	GAATGCCCCGTACCCGTCGCGGTTGGAATTATAAAT spacer length: 35 repeater length: 24
26455	2671718 GTTTGTAGTTTCTTGTCTGTTAGTAC	TAGGAGTAAGAGCGGATTCTTATATCATAAGAAAT spacer length: 35 repeater length: 24
26456	2671777 GTTTGTAGTTTCTTGTCTGTTAGTAC	GGGAATCCACACTCATCTTGA CTGGCGCTAGCCCA spacer length: 35 repeater length: 24
26457	2671836 GTTTGTAGTTTCTTGTCTGTTAGTAC	TACCGGTATTTGCTGTGCCAGCTCCCGGCGCTGTACCAG spacer length: 39 repeater length: 24
26458	2671899 GTTTGTAGTTTCTTGTCTGTTAGTAC	GTGATGTACTGATGATTTCACTAGACCCACAATA spacer length: 35 repeater length: 24
26459	2671958 GTTTGTAGTTTCTTGTCTGTTAGTAC	TATTTAATTTCTCTGACACGGTCTCGAGTAAGAGAT spacer length: 36 repeater length: 24
26460	2672018 GTTTGTAGTTTCTTGTCTGTTAGTAC	ATCTCTCAGCAGTTACAGGAGGTAGTGAATCCTTCT spacer length: 37 repeater length: 24
26461	2672079 GTTTGTAGTTTCTTGTCTGTTAGTAC	TCTTGTGGATTTTCAAATGAGATTATTTGGTAAAT spacer length: 35 repeater length: 24
26462	2672138 GTTTGTAGTTTCTTGTCTGTTAGTAC	TGGAGAATTGAAATGAGAACCAGATGGAGCTGTGGTTA spacer length: 38 repeater length: 24
26463	2672200 GTTTGTAGTTTCTTGTCTGTTAGTAC	CCTTCCTCTTGGGCGGGATGTCCCATCATTTCTTGT spacer length: 37 repeater length: 24
26464	2672261 GTTTGTAGTTTCTTGTCTGTTAGTAC	GTTTAAGGTTAGATATAATAGGGGTAAAATCTTTG spacer length: 35 repeater length: 24
26465	2672320 GTTTGTAGTTTCTTGTCTGTTAGTAC	CTTAAC TTTGTGATGCGTCTAAAATAAGCGATTT spacer length: 35 repeater length: 24
26466	2672379 GTTTGTAGTTTCTTGTCTGTTAGTAC	GCCGTTATTTTCTCGCAATAGTCCAATTCTGAAGGTT spacer length: 37 repeater length: 24
26467	2672440 GTTTGTAGTTTCTTGTCTGTTAGTAC	ATGCTTGCACCTCCTGCCTGCCTTAGCTTTTTGGCAAT spacer length: 37 repeater length: 24
26468	2672501 GTTTGTAGTTTCTTGTCTGTTAGTAC	AGGTGGTGGTGGCGCTGCAGTGATAGCCCTAATAT spacer length: 35 repeater length: 24
26469	2672560 GTTTGTAGTTTCTTGTCTGTTAGTAC	TTTTCCACATT CATATAGATATTTCCCATCTTTGGTT spacer length: 35 repeater length: 24

length: 37 repeater length: 24

26470 2672621 GTTTtagtttcttgTCGTTAGTAC ATTCCTCTCGCTTCTAACGTGTTCTCTAACTGA spacer length: 33
repeater length: 24

26471 2672678 GTTTtagtttcttgTCGTTAGTAC ATTATGAGAAAGAGCGAAACGGAAAGAAGTGTGAAAT spacer
length: 37 repeater length: 24

26472 2672739 GTTTtagtttcttgTCGTTAGTAC TCTTTCTCCTTTGTATTTCTCTGTTAAGACCTTTCT spacer length:
36 repeater length: 24

26473 2672799 GTTTtagtttcttgTCGTTAGTAC AATTCTTCAAATCCTTCTCTCTCATCATTTGTTTT spacer length:
36 repeater length: 24

26474 2672859 GTTTtagtttcttgTCGTTAGTAC ATAGAACTTATACTCCCGTGCCCATCAAAGCCCCC spacer length:
36 repeater length: 24

26475 2672919 GTTTtagtttcttgTCGTTAGTAC TTAAGTATCCGTCTGAAAAAATGGCGTGATATT spacer length:
34 repeater length: 24

26476 2672977 GTTTtagtttcttgTCGTTAGTAC TTTTATGATAGCGTTGTCCCTCGGGACAACCCTATTA spacer
length: 37 repeater length: 24

26477 2673038 GTTTtagtttcttgTCGTTAGTAC ATTATGAATCACCACCTCACGAACAAGACCCTTAT spacer length:
34 repeater length: 24

26478 2673096 GTTTtagtttcttgTCGTTAGTAC CTTGCGTAGAGCAAGTATATATAATAAGGATATTT spacer length:
35 repeater length: 24

26479 2673155 GTTTtagtttcttgTCGTTAGTAC GAGGTATTGGTGGTGTTCAGGGGCTAAGATTTTTTA spacer length:
36 repeater length: 24

26480 2673215 GTTTtagtttcttgTCGTTAGTAC ATCTCAAGTATGAGGATTACGAATTACTAGGTCAGT spacer length:
36 repeater length: 24

26481 2673275 GTTTtagtttcttgTCGTTAGTAC TTCTCATCTCCTTTAGTATTTCTTCCATATCTTTTA spacer length:
36 repeater length: 24

26482 2673335 GTTTtagtttcttgTCGTTAGTAC ATATGCGACTGAGATATTCCAGCTTGCGAATAATC spacer length:
35 repeater length: 24

26483 2673394 GTTTtagtttcttgTCGTTAGTAC ATATTTAGGATTAATCTGTCTAATCATCGGAAATC spacer length:
35 repeater length: 24

26484 2673453 GTTTtagtttcttgTCGTTAGTAC CAAAACGTGATTGAGGTCGAGTTCACGACAAATAGGG spacer
length: 37 repeater length: 24

26485 2673514 GTTTtagtttcttgTCGTTAGTAC TATCTTCTAGAGATTTATGCTAGCAAAAATAATCTT spacer length:
36 repeater length: 24

26486 2673574 GTTTtagtttcttgTCGTTAGTAC CATATAATCGGAAAATCAGTGTCCAATTTGAATTTGC spacer
length: 37 repeater length: 24

26487 2673635 GTTTtagtttcttgTCGTTAGTAC TTGAGGTATCTAAAGGCTTCTTTAAGACAAAACAG spacer length:
35 repeater length: 24

26488 2673694 GTTTtagtttcttgTCGTTAGTAC CAATTCCCCACTTTAACACGTCAAAAACCTATAATAT spacer length:
36 repeater length: 24

26489 2673754 GTTTtagtttcttgTCGTTAGTAC ACCTTAGCCAATTAGTTACATTACTCAAATTCCACTT spacer
length: 37 repeater length: 24

26490 2673815 GTTTtagtttcttgTCGTTAGTAC TGTAGAAACAATTTGTGTACCCATAGCGTTCATGTA spacer length:
36 repeater length: 24

26491 2673875 GTTTtagtttcttgTCGTTAGTAC AACCTACCAGACAGTGATAAAGTGGATGTGTGGC spacer length:
34 repeater length: 24

26492 2673933 GTTTtagtttcttgTCGTTAGTAC ACAGTGTCCAGCGATTCTGACGCTGGGTTCTCAAGA spacer length:
36 repeater length: 24

26493 2673993 GTTTtagtttcttgTCGTTAGTAC

26494

26495

26496 GCA_001742785.1_ASM174278v1_genomic.fna(PilerCR):

26497 START REPEAT
SPACER

26498 GCA_001761425.1_ASM176142v1_genomic.fna(PilerCR):

26499 START REPEAT
SPACER

26500 crispr 1

26501 798758 GTTCTAATACTTCTAAAAGTTCAATTGAAAG TGTTTTAGAACCTTTAGACAATGCTACATGGATATC spacer
length: 36 repeater length: 30

26502 798824 GTTCTAATACTTCTAAAAGTTCAATTGAAAG TAGGCAAGAAATGGGTGGAACGGTCGTAATTTACC spacer
length: 36 repeater length: 30

26503 798890 GTTCTAATACTTCTAAAAGTTCAATTGAAAG TTATCATCGTGACAAGCATTCTGGAGATTTCGCGTG spacer
length: 36 repeater length: 30

26504 798956 GTTCTAATACTTCTAAAAGTTCAATTGAAAG TGATGTCAAGGTAAGGGAAAGTAGCCATGGAGACAT spacer
length: 36 repeater length: 30

26505 799022 GTTCTAATACTTCTAAAAGTTCAATTGAAAG GCCTGAATCATTCCGCAACGGCCTCCTTAACACGTCT spacer
length: 37 repeater length: 30

26506 799089 GTTCTAATACTTCTAAAAGTTCAATTGAAAG CTAGTCGGATCTCCCTCTTCTCCAAAGTCAGGCCTG spacer
length: 36 repeater length: 30

26507 799155 GTTCTAATACTTCTAAAAGTTCAATTGAAAG CATGAGCTGGGAAGGCGGACGCAGCCGTATTCGGCA spacer
length: 36 repeater length: 30

26508 799221 GTTCTAATACTTCTAAAGTTCAATTGAAAG AGCAGTATCAGCAGCTAAAAAACTGAACGAACAGCT spacer
 length: 37 repeater length: 30
 26509 799288 GTTCTAATACTTCTAAAGTTCAATTGAAAG AGGCCTTAGCTCAGATGGCAGCTCATCCTGACCTCG spacer
 length: 36 repeater length: 30
 26510 799354 GTTCTAATACTTCTAAAGTTCAATTGAAAG ACCTGATCCGTTGTATTCCAGAGCGTTGTAGAATTC spacer
 length: 36 repeater length: 30
 26511 799420 GTTCTAATACTTCTAAAGTTCAATTGAAAG ATTTTCAGGTTTTTCAGGGTTCTCAGCTCTTGTACCTG spacer
 length: 36 repeater length: 30
 26512 799486 GTTCTAATACTTCTAAAGTTCAATTGAAAG CGGTTAGCGGTCGAGGAAGTGAAGAGCCCAGTGTGT spacer
 length: 37 repeater length: 30
 26513 799553 GTTCTAATACTTCTAAAGTTCAATTGAAAG TTATCTTCTTCGATGAGGCGAAGACGATTTTCTCAG spacer
 length: 36 repeater length: 30
 26514 799619 GTTCTAATACTTCTAAAGTTCAATTGAAAG TTGATAGCGATGAGGATGATGGAAGGTTTCAACCAG spacer
 length: 36 repeater length: 30
 26515 799685 GTTCTAATACTTCTAAAGTTCAATTGAAAG AGTCACGGGCCTCAGCCATCGCATGCTTCCCATAGTC spacer
 length: 37 repeater length: 30
 26516 799752 GTTCTAATACTTCTAAAGTTCAATTGAAAG TAATTTTATCAGTACCTGCTTCAGCAATAGCAGCAT spacer
 length: 36 repeater length: 30
 26517 799818 GTTCTAATACTTCTAAAGTTCAATTGAAAG CCACCTGAGAACTCATACCGTGAAGTGTGAGAGTCCC spacer
 length: 37 repeater length: 30
 26518 799885 GTTCTAATACTTCTAAAGTTCAATTGAAAG GCCCCGATCGGCATAGTGATCTGGAGCTACCTGCTCTA spacer
 length: 38 repeater length: 30
 26519 799953 GTTCTAATACTTCTAAAGTTCAATTGAAAG GACTGGATCAGCCAGTAGTCCGAGGATGCTGTATGA spacer
 length: 36 repeater length: 30
 26520 800019 GTTCTAATACTTCTAAAGTTCAATTGAAAG TCAAGCTCCGGCCATTTCCCTTATCCTTCTGTGCAA spacer
 length: 36 repeater length: 30
 26521 800085 GTTCTAATACTTCTAAAGTTCAATTGAAAG TCGTTGAAAAAGATTGAAGAAGGCGAATTCTTTCCCA spacer
 length: 37 repeater length: 30
 26522 800152 GTTCTAATACTTCTAAAGTTCAATTGAAAG CTCGTTTCAGG
 26523
 26524
 26525 GCA_001767315.1_ASM176731v1_genomic.fna(PilerCR):
 26526 START REPEAT
 SPACER
 26527 GCA_001870125.1_ASM187012v1_genomic.fna(PilerCR):
 26528 START REPEAT
 SPACER
 26529 crispr 1
 26530 1744809 TTTAATCGAACTAATATAGGATTGAAAT CAGACAAAGTATATCTGTCCGTCAGGAAATCCTTGT spacer
 length: 36 repeater length: 28
 26531 1744873 TTTAATCGAACTAATATAGGATTGAAAT CAGAAAATCGTCAACTATACCAATAATGACCAATCAGAGT spacer
 length: 40 repeater length: 28
 26532 1744941 TTTAATCGAACTAATATAGGATTGAAAT AGTGTGGAGTCAAGTGGAGAGCCAAGTGTGGGACCAAGT spacer
 length: 39 repeater length: 28
 26533 1745008 TTTAATCGAACTAATATAGGATTGAAAT
 GAGGATGCAGGTTACAAGATAGAGATGATGCAACCAACACAAACAACCCTT spacer length: 51 repeater
 length: 28
 26534 1745087 TTTAATCGAACTAATATAGGATTGAAAT CAGGATCAACCACTTGTTACAGCAACAACATAATATGGT spacer
 length: 39 repeater length: 28
 26535 1745154 TTTAATCGAACTAATATAGGATTGAAAT GTTGCGAGCATTGGGAACTCCATTTGCACTAGAGCCCCT spacer
 length: 38 repeater length: 28
 26536 1745220 TTTAATCGAACTAATATAGGATTGAAAT
 26537
 26538
 26539 GCA_001886955.1_ASM188695v1_genomic.fna(PilerCR):
 26540 START REPEAT
 SPACER
 26541 crispr 1
 26542 1201310 GTTTCAGACGAACCTGTGAGGGATTGAAGC GAACGCCTCGACATGGAGATGGCTGACCACATTGA spacer
 length: 35 repeater length: 30
 26543 1201375 GTTTCAGACGAACCTGTGAGGGATTGAAGC GCGTTCCTCGATGCGGACGCACGCGGAGCGAGGAC spacer
 length: 36 repeater length: 30
 26544 1201441 GTTTCAGACGAACCTGTGAGGGATTGAAGC AGGCCCAACTGACCGAGGAGTTCCAACAGGAATTGCA spacer
 length: 37 repeater length: 30
 26545 1201508 GTTTCAGACGAACCTGTGAGGGATTGAAGC GTCGCCTGTGAGCGGTTCTGGCGGCGCTGCGCG spacer
 length: 34 repeater length: 30
 26546 1201572 GTTTCAGACGAACCTGTGAGGGATTGAAGC TATTGTCGGACTGTCGGACAGCGCAGTATTGCCGG spacer
 length: 35 repeater length: 30
 26547 1201637 GTTTCAGACGAACCTGTGAGGGATTGAAGC ACGGTGGGGGACCGCGCGTAGTGTACGACCCC spacer
 length: 33 repeater length: 30
 26548 1201700 GTTTCAGACGAACCTGTGAGGGATTGAAGC GCCAGGTTCGGTTGCCGCGCCGTCGATGGTCAACTG spacer

length: 35 repeater length: 30
26549 1201765 GTTTCAGACGAACCTGTGAGGGATTGAAGC GAGGGATGCAAAGTCTGGGACATTGGTGGCTGTGC spacer
length: 35 repeater length: 30
26550 1201830 GTTTCAGACGAACCTGTGAGGGATTGAAGC TGGCATGGGCCCAGATAAGAGAGGTTATCTCGATA spacer
length: 35 repeater length: 30
26551 1201895 GTTTCAGACGAACCTGTGAGGGATTGAAGC ACGCCGGCGAGGGCTGCAAGCGTGCCGGTCGATGCCG spacer
length: 37 repeater length: 30
26552 1201962 GTTTCAGACGAACCTGTGAGGGATTGAAGC TCGCTCACCTCGATCATGATTAGACCTCGCCCTCGT spacer
length: 36 repeater length: 30
26553 1202028 GTTTCAGACGAACCTGTGAGGGATTGAAGC AAACCCAGCGACTTGCAGGACTGGCGGTTAGACCAGT spacer
length: 37 repeater length: 30
26554 1202095 GTTTCAGACGAACCTGTGAGGGATTGAAGC TCGCAGGTGATCAAGCACATCGAGGGAGCTTCGGTCCGC
spacer length: 39 repeater length: 30
26555 1202164 GTTTCAGACGAACCTGTGAGGGATTGAAGC GGATCGAGAAATTACCATTACCTGGACGAACAACGA spacer
length: 36 repeater length: 30
26556 1202230 GTTTCAGACGAACCTGTGAGGGATTGAAGC AGCAAGAAGCCAAGTTTGACGACATCACAACCGAAA spacer
length: 36 repeater length: 30
26557 1202296 GTTTCAGACGAACCTGTGAGGGATTGAAGC GCACGGGAAAACGTGAATCCGGTTATTACCTATGAGC spacer
length: 37 repeater length: 30
26558 1202363 GTTTCAGACGAACCTGTGAGGGATTGAAGC CTTTCGACGCCCCGGGCTGAAAGGTCTTGCGTAGCACAT spacer
length: 37 repeater length: 30
26559 1202430 GTTTCAGACGAACCTGTGAGGGATTGAAGC AAAGGCGACCGCGAGAACCCTCCAGAAGCCGTTGC spacer
length: 35 repeater length: 30
26560 1202495 GTTTCAGACGAACCTGTGAGGGATTGAAGC ACCCGAGGACCTGCTTCGCGGAGACGCGATGAAGGCCA spacer
length: 38 repeater length: 30
26561 1202563 GTTTCAGACGAACCTGTGAGGGATTGAAGC ACTTCCTCTGCATAGCACTCATAACAGAGTGGAGGA spacer
length: 36 repeater length: 30
26562 1202629 GTTTCAGACGAACCTGTGAGGGATTGAAGC TTTCCGCGCTCGAAGACGGGCCGAAGAATCCAG spacer
length: 33 repeater length: 30
26563 1202692 GTTTCAGACGAACCTGTGAGGGATTGAAGC AATCTCGAAATCACGGTTGCCAACCCCGAGTTCCCCGA spacer
length: 38 repeater length: 30
26564 1202760 GTTTCAGACGAACCTGTGAGGGATTGAAGC GAGCAAAACGGCATCGTGACCTTCGAGCTTGATCGG spacer
length: 36 repeater length: 30
26565 1202826 GTTTCAGACGAACCTGTGAGGGATTGAAGC GAGCAAAACGGCATCGTGACCTTCGAGCTTGATCGG spacer
length: 36 repeater length: 30
26566 1202892 GTTTCAGACGAACCTGTGAGGGATTGAAGC AAGATGCACCCCTGGCTCCCGGGGATCTCCGCCGA spacer
length: 35 repeater length: 30
26567 1202957 GTTTCAGACGAACCTGTGAGGGATTGAAGC GCTCGGACGGATGAACGATTACCTCTCGGTGATCG spacer
length: 35 repeater length: 30
26568 1203022 GTTTCAGACGAACCTGTGAGGGATTGAAGC AGACTCATGCAAGCGGTGCGGTGCAGTCATGAAATAGA spacer
length: 37 repeater length: 30
26569 1203089 GTTTCAGACGAACCTGTGAGGGATTGAAGC AGCCCGGGGAGGTAAATCGAGCGGACGAAATACCCA spacer
length: 36 repeater length: 30
26570 1203155 GTTTCAGACGAACCTGTGAGGGATTGAAGC ACATTGCGGCCACAACATGCCTTGATCGTCTCGCTC spacer
length: 36 repeater length: 30
26571 1203221 GTTTCAGACGAACCTGTGAGGGATTGAAGC GCCATCTTCGTTGATCGAGTCCAATGATGCCTGT spacer
length: 34 repeater length: 30
26572 1203285 GTTTCAGACGAACCTGTGAGGGATTGAAGC ATCACCGAAGAAGAGTGGCAGGCGATGGAAGACCGA spacer
length: 36 repeater length: 30
26573 1203351 GTTTCAGACGAACCTGTGAGGGATTGAAGC CTCCACGGGAGCAGGTTGTGATGATCGGAATG spacer
length: 33 repeater length: 30
26574 1203414 GTTTCAGACGAACCTGTGAGGGATTGAAGC CTCCAGAAAGCGTAAATGCATCTGTTAATGGATCTA spacer
length: 36 repeater length: 30
26575 1203480 GTTTCAGACGAACCTGTGAGGGATTGAAGC ACTCGGTAAAGCCCTCGCGTTTCGACAGCGGCCCGTG spacer
length: 36 repeater length: 30
26576 1203546 GTTTCAGACGAACCTGTGAGGGATTGAAGC AGCTGCTCCG
26577
26578
26579 GCA_001889405.1_ASM188940v1_genomic.fna(PilerCR):
26580 START REPEAT
SPACER
26581 GCA_002078355.1_ASM207835v1_genomic.fna(PilerCR):
26582 START REPEAT
SPACER
26583 crispr 1
26584 915393 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTTTAGCGGTGTTAGTTTTCTTTATATCTAATATT spacer
length: 36 repeater length: 30
26585 915459 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ATTGCTACCCCCAACTTTATCATCCCTGCATAAAA spacer
length: 36 repeater length: 30
26586 915525 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ATTCTTGGCATGCCCCAATTTTGAGAGCATTGTCAT spacer
length: 36 repeater length: 30

26587	915591	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GAGTATCCTTACTATACCTGCCACTGTGCCACTACATT	spacer
		length: 38 repeater length: 30		
26588	915659	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CAGGGTAGCACAAACCGCCTTAAGGCAGCTTGAATGGG	spacer
		length: 37 repeater length: 30		
26589	915726	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GCATTAGGGGGAGCAGCTGCCTTAGTAATTGGTAGCA	spacer
		length: 37 repeater length: 30		
26590	915793	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	AAAATTACACAAAGTTTATATAAGTCTCAAAAATTA	spacer
		length: 35 repeater length: 30		
26591	915858	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GCTGCTACTGCTATAATGCCTAAGGCAAAAGCAACTTA	spacer
		length: 38 repeater length: 30		
26592	915926	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CAATTATTTTCCAAGCCCTCAAGATCCCTTTGACCG	spacer
		length: 36 repeater length: 30		
26593	915992	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TTTTTTACCACCACCTTTTTTATTTTTTTTGTTTTAT	spacer
		length: 35 repeater length: 30		
26594	916057	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GTATTACCTTGAAATTGCATAAGCTATTCCGATTAT	spacer
		length: 36 repeater length: 30		
26595	916123	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CACTGGACAGCGAGGAGGAGGACCTGCGATGGGATGA	spacer
		length: 37 repeater length: 30		
26596	916190	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CATACCCTCTTAGAAATAACAGGGTAGTACAGAAGG	spacer
		length: 36 repeater length: 30		
26597	916256	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TACGAAGGGGAAGAATGTTCTGGGGTGTGCATGTTAT	spacer
		length: 37 repeater length: 30		
26598	916323	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TATATCAGGTAAAATACCGTCCATTATTTTCTCAAAT	spacer
		length: 37 repeater length: 30		
26599	916390	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TTGATAAAAAAATATTGCATTAAAGATGCGGATTTAA	spacer
		length: 37 repeater length: 30		
26600	916457	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TGGAAAAAATCAGAAAGAATGCCAGGGTCTTTAAA	spacer
		length: 35 repeater length: 30		
26601	916522	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TCGGTGATAAAAAATGAAGTCTGAATTTGAAATAAGG	spacer
		length: 37 repeater length: 30		
26602	916589	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GATGTATCTGATGACTGTTATGATGCGCAGAGCGAT	spacer
		length: 36 repeater length: 30		
26603	916655	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TTTTTATCATGAGGAGACAATGCAGTAATAAAGAAT	spacer
		length: 36 repeater length: 30		
26604	916721	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	AAAAAGTGTTGACAATCCACGACCTTTAGGAATGA	spacer
		length: 35 repeater length: 30		
26605	916786	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CATTTTCAACACGTGTTGTTACATCATGACCAAAAC	spacer
		length: 36 repeater length: 30		
26606	916852	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TCATATCGATAACTCAATCATTAAGTACCTATGAT	spacer
		length: 35 repeater length: 30		
26607	916917	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TCCACTGTGAAGTAATGGTTTACCCATCCTAATGT	spacer
		length: 35 repeater length: 30		
26608	916982	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TAATGAGATAAACACAGTAATTGCAACATTCAGCTAT	spacer
		length: 37 repeater length: 30		
26609	917049	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TTCTGTTCATTGACTGCCAATATTCGTCTTTAAG	spacer
		length: 36 repeater length: 30		
26610	917115	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TTCCAGTCATACGTAAATGCAGAAGAATCAGGATCTGA	spacer
		length: 38 repeater length: 30		
26611	917183	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TAGATACTGCTTTTGTCCAGGATATGATGATACTA	spacer
		length: 35 repeater length: 30		
26612	917248	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GAAGAATTGGAATATATAAGCGAACATATTAAGCAGC	spacer
		length: 37 repeater length: 30		
26613	917315	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GAGAATATGGATAATACTGAATTTATAAATTGTGTA	spacer
		length: 36 repeater length: 30		
26614	917381	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	ATTTAGTGCTGTGTTAACCTGAAGTTGCTTAAAGCCA	spacer
		length: 37 repeater length: 30		
26615	917448	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GCTATTTTTCCTATCTGTTCCCTTTATGTCTGCAGT	spacer
		length: 35 repeater length: 30		
26616	917513	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TCGATTGCAACGGTACAATTATCATATCATCATTTCCC	spacer
		length: 37 repeater length: 30		
26617	917580	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GACAAATAATATCGCCAATGCGACAAGTCCGGCTAT	spacer
		length: 36 repeater length: 30		
26618	917646	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CTTCATTATCAATAATTCCTTTAGATTTTTCAGTGTA	spacer
		length: 36 repeater length: 30		
26619	917712	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	AATTAAAAAAGTTAAAAGTGAGCCTAACATAGCACT	spacer
		length: 36 repeater length: 30		
26620	917778	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TATATCCGTCACTACCTGATTATGTTCTACCGGTTT	spacer
		length: 36 repeater length: 30		
26621	917844	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TAAATATTCTTTTCTATCTGACATTTTGGCACCTTA	spacer
		length: 37 repeater length: 30		
26622	917911	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	ATATTATTTGTCGTGAAAAGAGTAAGTTTCTTATCA	spacer

length: 36 repeater length: 30
26623 917977 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTTAATGAAGAATACAGACCATGCATTGTTTAAGGT spacer
length: 36 repeater length: 30
26624 918043 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CCAATGGAGGTGAGAAATTGAAATTTTGCTATATAA spacer
length: 36 repeater length: 30
26625 918109 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TCGCCAACGGAACCGCAACATTCTCATCAATATCAA spacer
length: 36 repeater length: 30
26626 918175 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TATTCTCAGAATCCATTTCTCCTCACCTTATTCTTA spacer
length: 36 repeater length: 30
26627 918241 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ATTTGTATGTAAAATCTATATGATGCCATTATAAT spacer
length: 36 repeater length: 30
26628 918307 CTTTCAATCCTATTAAGGTTTCGATTTTAAT AGTTTTTGCACATTTCACTATCGCTTCTTAATTCCA spacer
length: 36 repeater length: 30
26629 918373 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTATATTCTGATGAGCTGGATTTCATACTAATTTAGA spacer
length: 38 repeater length: 30
26630 918441 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTGCCATCCCCTTCATTTCTGCGAATTTATCTATCT spacer
length: 37 repeater length: 30
26631 918508 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTCTTCATCCGGTTCATACACTGTTGATTTGACGG spacer
length: 35 repeater length: 30
26632 918573 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GCAGATGTTACTTCCGGCTGGCTGCTCTGGATAA spacer
length: 35 repeater length: 30
26633 918638 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GTAATAGCTGCAGCAAATCCTATAAATTCAATATTT spacer
length: 36 repeater length: 30
26634 918704 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTTATTAGGATTTCGATTTCTTTTCAAATTTAAAAA spacer
length: 36 repeater length: 30
26635 918770 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CATTCTATATCCCCCGTAAAATTATAGTTTATATATGT spacer
length: 38 repeater length: 30
26636 918838 CTTTCAATCCTATTAAGGTTTCGATTTTAAT AAAGACACAGCTTAGAAAAATACACATCCATGGCTT spacer
length: 36 repeater length: 30
26637 918904 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ATTGCATGGTTGCCTAGTATTGCCAGATAACATCA spacer
length: 36 repeater length: 30
26638 918970 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TGGGTCGCCATCTTCATATATATCGTATAATATTT spacer
length: 35 repeater length: 30
26639 919035 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ATGTATATGCGGGCAAGAAGGGCAAAAGAGAAAGCTC spacer
length: 37 repeater length: 30
26640 919102 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GTACAGAGGATACTCGATCGGCTTATATTCATAAGA spacer
length: 36 repeater length: 30
26641 919168 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CCTGCATCTGTAGGATTGTGGCTTGCACTTATTGT spacer
length: 35 repeater length: 30
26642 919233 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GAAAATGCAGGCCTTATAACATAATCTCCGAAATCA spacer
length: 36 repeater length: 30
26643 919299 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GAAACTATGATTGTAATATAGATAGATCCGGAACAGC spacer
length: 37 repeater length: 30
26644 919366 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TATAGACTGCCCCGAACCCGCTGAATGACATTGATAT spacer
length: 36 repeater length: 30
26645 919432 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GAAATACATAGCTTCCATCTTCGGATTTATAGATGA spacer
length: 36 repeater length: 30
26646 919498 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GAGTTTGATAATGAAGTAATGGCCCTAATTATATCC spacer
length: 36 repeater length: 30
26647 919564 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTCGTCTTTCCTTTCCTTCCTGGACTTTCTACAAT spacer
length: 35 repeater length: 30
26648 919629 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TATATTCAATTTAACATATTGCATAAAGTTTATATGC spacer
length: 37 repeater length: 30
26649 919696 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ACTGTAAACCCTAAACGTAAACCCGTTAACCTTATACA spacer
length: 38 repeater length: 30
26650 919764 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GAGGATGTAGCACCTGATACTGCACTCCCGTTTAGG spacer
length: 36 repeater length: 30
26651 919830 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTGTCAGCAAACGGTGCAACCGGATCTGCAAACAT spacer
length: 35 repeater length: 30
26652 919895 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ACATCAACGATTATGTAATACCATATGTCAACAAATAC spacer
length: 38 repeater length: 30
26653 919963 CTTTCAATCCTATTAAGGTTTCGATTTTAAT AAGATGTAGAACCTGATGCCAATTGCGAATTAGAAG spacer
length: 36 repeater length: 30
26654 920029 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TGGATATGTTGAAACATAACCCTTAAAGCGTGTATC spacer
length: 35 repeater length: 30
26655 920094 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CATACCCTACTGGGTAGACATAGCCTGGGCGCATTAT spacer
length: 37 repeater length: 30
26656 920161 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GGTCCTGTTCTCCTTGTGGTTGTATCGGAGTATCATT spacer
length: 38 repeater length: 30
26657 920229 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CTATAAATAATCCTAATAAAGAAGCTACCGTTTTTAA spacer
length: 36 repeater length: 30

26658	920295	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GTGCAGTCGCAACAATGTTCCAGAGCTTCGGATTCTC	spacer
		length: 37 repeater length: 30		
26659	920362	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GACTTGCTCTTTGTCTGATTCTCGGCTTTCTGAATA	spacer
		length: 36 repeater length: 30		
26660	920428	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TCAATAATTCCACAACAGATAATCGTGGACAGGATAAT	spacer
		length: 38 repeater length: 30		
26661	920496	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GGGTTATGGACTGCTGATATTGTAAGGGTATATCCTG	spacer
		length: 37 repeater length: 30		
26662	920563	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TATAGTCACTGCCACCCAGCACTGATGAAGAAAATTG	spacer
		length: 37 repeater length: 30		
26663	920630	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TGCAGTCGCAACAATGTTCCAGAGCTTCGGATTCTC	spacer
		length: 36 repeater length: 30		
26664	920696	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TATTGAATAATTTGTTGAAGCAGAAAATGATGTTGTA	spacer
		length: 37 repeater length: 30		
26665	920763	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TAGTTAAAGATAAATTGATACAGGAAAATTAATATTA	spacer
		length: 37 repeater length: 30		
26666	920830	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CTACTATTGCAAAAAATATTACATCCGGTGTAAAA	spacer
		length: 36 repeater length: 30		
26667	920896	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	ATCCAATGATTATTATAGATACTACTAATCAATTTA	spacer
		length: 36 repeater length: 30		
26668	920962	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	AAGAGATCAAGAGGAAATATAAAGAGTCAAGGAAAA	spacer
		length: 36 repeater length: 30		
26669	921028	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	ATGTTTCATCTTATGATATCACACATAGCCATACT	spacer
		length: 35 repeater length: 30		
26670	921093	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CTGTTATTTTCTCTCTCATTTTATCATCTTATTTTTG	spacer
		length: 37 repeater length: 30		
26671	921160	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TCTCTCTCATCTCTGTTGTTTGTGTTTTGTTTTTCCA	spacer
		length: 37 repeater length: 30		
26672	921227	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CTGGATTTTCATGAGTATAGACAGCTATATATTCAATAT	spacer
		length: 38 repeater length: 30		
26673	921295	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CAGAGATTATCGCCCTTGTGCTATGGATTATTGAGA	spacer
		length: 36 repeater length: 30		
26674	921361	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CCAATTTAGACCATACAACAAGAGATGTTGAATTTA	spacer
		length: 36 repeater length: 30		
26675	921427	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	AAACTTCAGGAATCTCTGTTGCCAGGAAAGAGGCAGAA	spacer
		length: 38 repeater length: 30		
26676	921495	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	ATTATATCCAAAAGCAAATATAAAGGTGTATTATG	spacer
		length: 35 repeater length: 30		
26677	921560	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GAATATTATTTCGCTTGAGCTATTGAGAGCATATGGA	spacer
		length: 36 repeater length: 30		
26678	921626	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CTTCTTTTAAATCATCTTTTTCTTTTTTAAATCATA	spacer
		length: 37 repeater length: 30		
26679	921693	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	ATTTATCATCCAAGTTTGGATGGCTTCTCCGTGTATG	spacer
		length: 37 repeater length: 30		
26680	921760	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CCAAGAAAATAGCATACATAAACCCATACGATGTAATA	spacer
		length: 38 repeater length: 30		
26681	921828	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GATACGCCACCTGATATGTATTTTCCGACATTTCCAAA	spacer
		length: 38 repeater length: 30		
26682	921896	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	ATTTCTTAATTTTCGTCATTAGGTAATACCAATTGACT	spacer
		length: 37 repeater length: 30		
26683	921963	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TATTTAAAAATGTCCTGAAACTTGAAGATGCCATAGAA	spacer
		length: 38 repeater length: 30		
26684	922031	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CATATATAACCTGTCCTATGCATATTTGCATATCTAA	spacer
		length: 37 repeater length: 30		
26685	922098	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CCACGGTAAGGTTGTAATTTGAAATAGATGTGGCAAG	spacer
		length: 37 repeater length: 30		
26686	922165	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CAGTGTCTGTCATTATTCTCCGGCATTCTTGGATCCAT	spacer
		length: 37 repeater length: 30		
26687	922232	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CAGGAAGTCCAGAAGGATATTTTAACAGCTTATGAAC	spacer
		length: 37 repeater length: 30		
26688	922299	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CTGTATATTCCCATGCGTACCCGCAATGAGTACACCG	spacer
		length: 37 repeater length: 30		
26689	922366	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TACAAGACCTTATAAGTATGTCCTGGAAAGGTACAA	spacer
		length: 36 repeater length: 30		
26690	922432	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CCATTGCCTGTCCTAAATCTGTAAAGGCTGTTATAAA	spacer
		length: 37 repeater length: 30		
26691	922499	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	AGTAGTGAACCCCGAAAGCCCTAATTCCGTTATAATT	spacer
		length: 37 repeater length: 30		
26692	922566	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CCCTATACGGAAGTTTCCCACCTTTCCCAACTACAACA	spacer
		length: 38 repeater length: 30		
26693	922634	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TTTAATAACAGTAAGGTCTCCGGTGCTTCAAATTT	spacer

length: 36 repeater length: 30
26694 922700 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TGTATAGTGGACAAAATGCAACTCATACAGTTACAAT spacer
length: 37 repeater length: 30
26695 922767 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TATTCTTTCAGTGAAGTTTTTGAGCATTTAATTGAAG spacer
length: 37 repeater length: 30
26696 922834 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TAACGTGGAACCACCAAATTTAGTAGAAATAACTA spacer
length: 35 repeater length: 30
26697 922899 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TGGATAAATACCAACTACGATGAGCCAGACCTGGAC spacer
length: 36 repeater length: 30
26698 922965 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TCAGGTGCGAGTACTGCAGTGTGTGCGGATGTTGA spacer
length: 35 repeater length: 30
26699 923030 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CCATATAATGGCATATCGGGCAATTCGTGTAAAACT spacer
length: 36 repeater length: 30
26700 923096 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TATAATTTATCATGGTCTTTTTTGATAAATTTCTT spacer
length: 35 repeater length: 30
26701 923161 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CGCAATAAGCCGACCGGAAAGCCGCATTTACGAAG spacer
length: 36 repeater length: 30
26702 923227 CTTTCAATCCTATTAAGGTTTCGATTTTAAT AAGTAATAATATTAATATTGTCTTAAAGTCTTAAAAA spacer
length: 37 repeater length: 30
26703 923294 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GAGTAATTACTCTACTCTGTGGGTACATTTGCAATCTG spacer
length: 38 repeater length: 30
26704 923362 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TAATAATTCTTTTTTAAAAAGGACTATAACGGAAAAATG spacer
length: 38 repeater length: 30
26705 923430 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GATATAATGAAACCGACAACAGCCGAAAGCGTAGAGG spacer
length: 37 repeater length: 30
26706 923497 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TCATCACAGACCCTTGTAATCTCTGAGATAAACTC spacer
length: 35 repeater length: 30
26707 923562 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TGATGATTGCAGGGGCGACAACCCCCTGGGTAATAAC spacer
length: 37 repeater length: 30
26708 923629 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTTGAAGTCCTCGGATACAGTCGGTGTTCATACCAGTA spacer
length: 39 repeater length: 30
26709 923698 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ACAGCAGAAATATCAGGCGGTACAGGCCCATATAA spacer
length: 35 repeater length: 30
26710 923763 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CAGATGTCTTCAATGCAACAATTTTCAGGAGGAAC spacer
length: 34 repeater length: 30
26711 923827 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CAGATAACCAGTGGTTCAGCATCGGCAATTGATTGTT spacer
length: 37 repeater length: 30
26712 923894 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TAGAAGTACAGAAGCGGCATGTAAATCAGCAATGA spacer
length: 35 repeater length: 30
26713 923959 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CAAATGGCCAGAACATCCAGGGAATGGATATAAAA spacer
length: 35 repeater length: 30
26714 924024 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GATAATTTACCTCAAAGGTGGTTGGCCCTGAAGTAGAA spacer
length: 39 repeater length: 30
26715 924093 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GCAATATAAAAATCTGCTATGATATCAGTTTTCTCCCTA spacer
length: 39 repeater length: 30
26716 924162 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GTCCAACTCC
26717
26718
26719 crispr 2
26720 939162 GTATCAATTCCCTTTAAGGATATATTTCTAAC GATACCCTAATGGGTGTATTGGACGGTTCGCAGAT spacer
length: 35 repeater length: 31
26721 939228 GTATCAATTCCCTTTAAGGATATATTTCTAAC TTTTGTAATCATACAAATATACCGGATATAACAAC spacer
length: 36 repeater length: 31
26722 939295 GTATCAATTCCCTTTAAGGATATATTTCTAAC AAAATATAAGAAGAACTTCAACCCTACTAATAAA spacer
length: 35 repeater length: 31
26723 939361 GTATCAATTCCCTTTAAGGATATATTTCTAAC GGTCCCCATA
26724
26725
26726 crispr 3
26727 939522 GTATCAATTCCCTTTAAGGATATATTTCTAAC TAACGCAGGAGTTTACGGGCTTACTGTGGATGTATT spacer
length: 36 repeater length: 31
26728 939589 GTATCAATTCCCTTTAAGGATATATTTCTAAC CAGGTTCAATATCGCAAGCAAGCAATCCCGATATAGC spacer
length: 37 repeater length: 31
26729 939657 GTATCAATTCCCTTTAAGGATATATTTCTAAC ACATAAAGAGTTAATAAAAAGAATATTGTATAAAAGA spacer
length: 36 repeater length: 31
26730 939724 GTATCAATTCCCTTTAAGGATATATTTCTAAC TATGTCGGCACTTCTGTTCTTAGTATCAATATTAAT spacer
length: 36 repeater length: 31
26731 939791 GTATCAATTCCCTTTAAGGATATATTTCTAAC CTATATTTTCGCATGTATTCCCGTTTTTTCATTTTA spacer
length: 36 repeater length: 31
26732 939858 GTATCAATTCCCTTTAAGGATATATTTCTAAC TGAAGCAAGAAAATGAAAATCTGTTTGGGAAATCAA spacer
length: 36 repeater length: 31

26733 939925 GTATCAATTCCCTTTAAGGATATATTTCTAAC AACATGATTTAATCATGCCTTAAACTCAAAATAAG spacer
 length: 35 repeater length: 31
 26734 939991 GTATCAATTCCCTTTAAGGATATATTTCTAAC AATATGGCTTTCTCCCTTGGTCCTTGCCTGGAAGC spacer
 length: 35 repeater length: 31
 26735 940057 GTATCAATTCCCTTTAAGGATATATTTCTAAC AATTATACAGAACGGGACAACAAACGGGGGTACTTC spacer
 length: 36 repeater length: 31
 26736 940124 GTATCAATTCCCTTTAAGGATATATTTCTAAC CGTTTAGCGGATTGGCGGAAAATCGCTAAGTGGTGG spacer
 length: 36 repeater length: 31
 26737 940191 GTATCAATTCCCTTTAAGGATATATTTCTAAC CTTTTCACTTTCTTAATTGGGGGATTTTCCGGGTAT spacer
 length: 36 repeater length: 31
 26738 940258 GTATCAATTCCCTTTAAGGATATATTTCTAAC CCATTGCGAGGCTTAGAATAGGGTTATTAGGCATTGT spacer
 length: 37 repeater length: 31
 26739 940326 GTATCAATTCCCTTTAAGGATATATTTCTAAC AACC GGAGGTGCGATCGATTTGCCAATATCCATAA spacer
 length: 36 repeater length: 31
 26740 940393 GTATCAATTCCCTTTAAGGATATATTTCTAAC TCCCTGTTCCACCACCGGGAAGGGTAGGATTAATTGT spacer
 length: 37 repeater length: 31
 26741 940461 GTATCAATTCCCTTTAAGGATATATTTCTAAC TTGATAGAATTCCCCGTGAGAACTCATAAGCTCCTA spacer
 length: 37 repeater length: 31
 26742 940529 GTATCAATTCCCTTTAAGGATATATTTCTAAC AAAGCTGAAGGAGGGATTGCCTCTTCGGTGTACGG spacer
 length: 35 repeater length: 31
 26743 940595 GTATCAATTCCCTTTAAGGATATATTTCTAAC TATAAGCGCTAAATCATCATCGCATAAATGGTATTTT spacer
 length: 37 repeater length: 31
 26744 940663 GTATCAATTCCCTTTAAGGATATATTTCTAAC CATACCTTTAACTTGCATTGCGTCTAAAACACTTTT spacer
 length: 36 repeater length: 31
 26745 940730 GTATCAATTCCCTTTAAGGATATATTTCTAAC CTACCAGTGCCACCGGTAAGAGATGATTTGAATGTAA spacer
 length: 37 repeater length: 31
 26746 940798 GTATCAATTCCCTTTAAGGATATATTTCTAAC AAAATGATGAGAAGTAATATATCAAATGGAAATGTAA spacer
 length: 37 repeater length: 31
 26747 940866 GTATCAATTCCCTTTAAGGATATATTTCTAAC AATACGATCGCAAATTACCAGGGCGATATAATCCC spacer
 length: 35 repeater length: 31
 26748 940932 GTATCAATTCCCTTTAAGGATATATTTCTAAC CTGGTTGAAAGATAATGGTGCATCCTTTTTCTACATAG spacer
 length: 38 repeater length: 31
 26749 941001 GTATCAATTCCCTTTAAGGATATATTTCTAAC TGAGTTATTGCCTGGGATGCATCCTCCCGAATCATTC spacer
 length: 37 repeater length: 31
 26750 941069 GTATCAATTCCCTTTAAGGATATATTTCTAAC TCGATTGGCACATAAACAACCCTTTCTTTCTGGCCTT spacer
 length: 37 repeater length: 31
 26751 941137 GTATCAATTCCCTTTAAGGATATATTTCTAAC ACGGGGGATC
 26752
 26753
 26754 GCA_002116695.1_ASM211669v1_genomic.fna (PilerCR):
 26755 START REPEAT
 SPACER
 26756 crispr 1
 26757 9981 CTTTCAATTCCCTACAGGATTAATC CTCATCATAGTCCCTGCAGTCATCGCGTATAAGATGTATAG spacer
 length: 41 repeater length: 25
 26758 10047 CTTTCAATTCCCTACAGGATTAATC ACTTAGCCCGTTGATAAAACCAACCCGAGGACACCCAAG spacer
 length: 39 repeater length: 25
 26759 10111 CTTTCAATTCCCTACAGGATTAATC AATGGGAGTTAGGGCTAATTGCCTCTAGCCCGTATGTCCACGCA spacer
 length: 44 repeater length: 25
 26760 10180 CTTTCAATTCCCTACAGGATTAATC TTATTATGAAATTTTAGAAGGTAAATCATATTGGGTAG spacer
 length: 39 repeater length: 25
 26761 10244 CTTTCAATTCCCTACAGGATTAATC CGGGAAAATATCAAATTAATGTGCTATCTTATACTACTT spacer
 length: 39 repeater length: 25
 26762 10308 CTTTCAATTCCCTACAGGATTAATC AAGAAGAACTAAGGTGGCAGAATGATCCAGTAAATAATTG spacer
 length: 40 repeater length: 25
 26763 10373 CTTTCAATTCCCTACAGGATTAATC ATCATTTTGTATTTGCATTAAAAAGTCTATGTTAGAACATT spacer
 length: 41 repeater length: 25
 26764 10439 CTTTCAATTCCCTACAGGATTAATC AAGAAATATGATTTTTACATTCCCTAAGTTTAAAGATGTATAT spacer
 length: 41 repeater length: 25
 26765 10505 CTTTCAATTCCCTACAGGATTAATC TTATAGCGTACTGCAGTCCGTTGAATGATATCTACTACAG spacer
 length: 40 repeater length: 25
 26766 10570 CTTTCAATTCCCTACAGGATTAATC TGGGATACACAAATTC AATTTTCTGGGAGTCAACAATT spacer
 length: 38 repeater length: 25
 26767 10633 CTTTCAATTCCCTACAGGATTAATC CTTTAGCGTACGCTTTTTTAGCATCGTAGCATTTGATGAAG spacer
 length: 40 repeater length: 25
 26768 10698 CTTTCAATTCCCTACAGGATTAATC ATGTCGGATCAAGATCTAGATGATCTCGTTAATTCAGTAAA spacer
 length: 41 repeater length: 25
 26769 10764 CTTTCAATTCCCTACAGGATTAATC AGAGTGAATCAACCGTTTGTGTGGAAGCTTATCGATTATCT spacer
 length: 41 repeater length: 25
 26770 10830 CTTTCAATTCCCTACAGGATTAATC ATCACAAGTTCTAAATGGTGAAGAATCAATAGAAAAGAC spacer
 length: 39 repeater length: 25

26771	10894 CTTTCAATTCCCTACAGGATTAATC	TGGATTTGACTCTGTTTTCCGACTCTGATTATCTATCTTT spacer
	length: 40 repeater length: 25	
26772	10959 CTTTCAATTCCCTACAGGATTAATC	AATACTAATAACTAAGAAATTACCATCAGACTACCTAAAATA spacer
	length: 42 repeater length: 25	
26773	11026 CTTTCAATTCCCTACAGGATTAATC	CTTTTTTCATGAAAAAGCAAATGATAAGTAATGATAATGTTA spacer
	length: 41 repeater length: 25	
26774	11092 CTTTCAATTCCCTACAGGATTAATC	TTCCGGTCTG
26775		
26776		
26777	crispr 2	
26778	11157 CTTTCAATTCCATAGTGGATTAATC	AAAATATCAAGTTGTTGTTTTGATTCTAATGCTAAATA spacer
	length: 39 repeater length: 25	
26779	11221 CTTTCAATTCCATAGTGGATTAATC	AAATTTTGGATGGCTACACACAATAAGCGCATTTGA spacer length:
	36 repeater length: 25	
26780	11282 CTTTCAATTCCATAGTGGATTAATC	CTTAATCTGCCAGACTATGTCATCGCAGTAATTAATGCTC spacer
	length: 40 repeater length: 25	
26781	11347 CTTTCAATTCCATAGTGGATTAATC	AATAGAAGAAAGAGAATAGCAATCTCCATAAGATATATAAA spacer
	length: 41 repeater length: 25	
26782	11413 CTTTCAATTCCATAGTGGATTAATC	TCAGTACGACGCTATCATCGCATCGTTACCAGTAAATTTGTATCA spacer
	length: 45 repeater length: 25	
26783	11483 CTTTCAATTCCATAGTGGATTAATC	ATTATCCCCGAAAAAAGAGCAATTGCCTTTAGAAT spacer length:
	36 repeater length: 25	
26784	11544 CTTTCAATTCCATAGTGGATTAATC	TGGGTACAATTTTTCAATATAGTCTTTGAAAATATAGTC spacer
	length: 39 repeater length: 25	
26785	11608 CTTTCAATTCCATAGTGGATTAATC	TCACTTTATGATTTCTATCCTTCCATACTATGATATGT spacer
	length: 38 repeater length: 25	
26786	11671 CTTTCAATTCCATAGTGGATTAATC	ACCATAAGAGACAACCTAAGAAAAAACAATAATTTCTGCCATT spacer
	length: 43 repeater length: 25	
26787	11739 CTTTCAATTCCATAGTGGATTAATC	CTTCTTTTAACTCTTCCTTATATACTATACTTACCA spacer
	length: 38 repeater length: 25	
26788	11802 CTTTCAATTCCATAGTGGATTAATC	ACATGGAAGGGATATAGATGTCTGAGAATTCTATAGAAAA spacer
	length: 40 repeater length: 25	
26789	11867 CTTTCAATTCCATAGTGGATTAATC	AAGAACATATTCAGAAATTCAATTAAGTGTAGAAAATCT spacer
	length: 39 repeater length: 25	
26790	11931 CTTTCAATTCCATAGTGGATTAATC	ATAAACTTGTAATCTAAGGATAAGGATTTAAGCTGTTCT spacer
	length: 40 repeater length: 25	
26791	11996 CTTTCAATTCCATAGTGGATTAATC	CAAAACAAACAATAGAACATAGAATTCATATTCTATATAC spacer
	length: 40 repeater length: 25	
26792	12061 CTTTCAATTCCATAGTGGATTAATC	GTAACCATGATCCAAGTAGCTTCCTTAGAATATAAAGTT spacer
	length: 39 repeater length: 25	
26793	12125 CTTTCAATTCCATAGTGGATTAATC	GATCCCTGACTAGTTGAACTACCAGTTGTTGGATTGATAGT spacer
	length: 41 repeater length: 25	
26794	12191 CTTTCAATTCCATAGTGGATTAATC	TTTTCTTGTTTTTTGTAATTTTCATTTTATTTATTTCAAA spacer
	length: 39 repeater length: 25	
26795	12255 CTTTCAATTCCATAGTGGATTAATC	GCTTTGTGTTTTTTTTCTGTGCCCCGCTTTGTTTTCGATT spacer
	length: 39 repeater length: 25	
26796	12319 CTTTCAATTCCATAGTGGATTAATC	CTTGAAGACTTCAGGATTACCTTCAAACCAATAACTA spacer length:
	37 repeater length: 25	
26797	12381 CTTTCAATTCCATAGTGGATTAATC	CGCCATACTTGGGCTCGATGAAACGGAGCCAGTAGGCATTA spacer
	length: 41 repeater length: 25	
26798	12447 CTTTCAATTCCATAGTGGATTAATC	GAGTTCAAAACAGTTAGTGTCTGGCAATATGACTATTAGT spacer
	length: 39 repeater length: 25	
26799	12511 CTTTCAATTCCATAGTGGATTAATC	ATCATTTTTTTTAATAGTTATATTTGTGGGAATTTGGTATTA spacer
	length: 41 repeater length: 25	
26800	12577 CTTTCAATTCCATAGTGGATTAATC	GCTTTGTGTTTTTTTTCTGTGCCCCGCTTTGTTTTCGATT spacer
	length: 39 repeater length: 25	
26801	12641 CTTTCAATTCCATAGTGGATTAATC	CTTGAAGACTTCAGGATTACCTTCAAACCAATAACTA spacer length:
	37 repeater length: 25	
26802	12703 CTTTCAATTCCATAGTGGATTAATC	CGCCATACTTGGGCTCGATGAAACGGAGCCAGTAGGCATTA spacer
	length: 41 repeater length: 25	
26803	12769 CTTTCAATTCCATAGTGGATTAATC	GAGTTCAAAACAGTTAGTGTCTGGCAATATGACTATTAGT spacer
	length: 39 repeater length: 25	
26804	12833 CTTTCAATTCCATAGTGGATTAATC	ATCATTTTTTTTAATAGTTATATTTGTGGGAATTTGGTATTA spacer
	length: 41 repeater length: 25	
26805	12899 CTTTCAATTCCATAGTGGATTAATC	TAGAAGTCATGCAAAGAAGAATGGTATAGGTGGTGTAGCT spacer
	length: 40 repeater length: 25	
26806	12964 CTTTCAATTCCATAGTGGATTAATC	AAAGTACACAACATGGGGATATAGTGGACTAGACCATAGA spacer
	length: 40 repeater length: 25	
26807	13029 CTTTCAATTCCATAGTGGATTAATC	CCTTCTTGTAAGAATTTAAGGATTTTCATTCATACTA spacer length:
	36 repeater length: 25	
26808	13090 CTTTCAATTCCATAGTGGATTAATC	AAAATCTAAAACCATATAAAGATTGCAAGATTGTTATATTT spacer

length: 41 repeater length: 25
26809 13156 CTTTCAATTCCATAGTGGATTAATC AAATAAGATCATTATTAAATCAACTAGAAAAAGAAAATGA spacer
length: 40 repeater length: 25
26810 13221 CTTTCAATTCCATAGTGGATTAATC CAACAATAATTGTCGAAATATATAGAAACCTATTAAAAAT spacer
length: 40 repeater length: 25
26811 13286 CTTTCAATTCCATAGTGGATTAATC GCATTTTCAGGGTCTCGTAGTAGGAGGAACGAAGGCATACG spacer
length: 40 repeater length: 25
26812 13351 CTTTCAATTCCATAGTGGATTAATC CGCCAGGAATGTTTCCTAGCGGGAGTTATTTATACCTAAC spacer
length: 40 repeater length: 25
26813 13416 CTTTCAATTCCATAGTGGATTAATC CTTTAACAAGCCCTTCATACCTTTGTACATAATTCCAACATA spacer
length: 42 repeater length: 25
26814 13483 CTTTCAATTCCATAGTGGATTAATC ATTCCTTCGATAGAGAAAGTATAAACACTATGTTCAAGCGG spacer
length: 41 repeater length: 25
26815 13549 CTTTCAATTCCATAGTGGATTAATC TTGAACCTTCTTGTAGAGATTATTATCGCTTTCTTAGAATAA spacer
length: 42 repeater length: 25
26816 13616 CTTTCAATTCCATAGTGGATTAATC ATTCCAAATCCGTCAATAAAATTCACTCAGGATGAAATTC spacer
length: 40 repeater length: 25
26817 13681 CTTTCAATTCCATAGTGGATTAATC AGGCACTGGTCAGCCTGCAGTAGAAGGACAACCTGTAAACC spacer
length: 41 repeater length: 25
26818 13747 CTTTCAATTCCATAGTGGATTAATC AGTCTCATCGCAATCTGTAAGAAATTATCTCAATTCATT spacer
length: 39 repeater length: 25
26819 13811 CTTTCAATTCCATAGTGGATTAATC ATACAATCTCAACAGCTGTACTGTCAACATTTCCAGTCATAC spacer
length: 42 repeater length: 25
26820 13878 CTTTCAATTCCATAGTGGATTAATC ACGACATTAAAAACGTAATAACACTATTAGCAGACAGCGT spacer
length: 40 repeater length: 25
26821 13943 CTTTCAATTCCATAGTGGATTAATC GAAACATGACATTGAAACTGCTGAATACGGTCTTGATGAAT spacer
length: 41 repeater length: 25
26822 14009 CTTTCAATTCCATAGTGGATTAATC TCAGGAAGTCTATGTACACATTACGCTGACATACG spacer length:
35 repeater length: 25
26823 14069 CTTTCAATTCCATAGTGGATTAATC AGAAGAAGGTTGTAAAGAAGAAGTAGTATGTTGTAAATAA spacer
length: 40 repeater length: 25
26824 14134 CTTTCAATTCCATAGTGGATTAATC AAGTTTTTCGGTTAATTATAGATAACGCTACGTAAGTTTA spacer
length: 40 repeater length: 25
26825 14199 CTTTCAATTCCATAGTGGATTAATC TGCAATGAAGAATGTGTTTAGTTCGTCCATCAACCAGTCCAT spacer
length: 42 repeater length: 25
26826 14266 CTTTCAATTCCATAGTGGATTAATC ATTTTATTAATCTCTTCTACAAAATACAGACAAACAC spacer length:
37 repeater length: 25
26827 14328 CTTTCAATTCCATAGTGGATTAATC ACAAGTAGAGTGGATATTCCTCAATTTTTATCAGG spacer length:
37 repeater length: 25
26828 14390 CTTTCAATTCCATAGTGGATTAATC AATGAACAATATAAATTTCTCTCATACGAATTAACTAA spacer
length: 39 repeater length: 25
26829 14454 CTTTCAATTCCATAGTGGATTAATC TCTTGGTCTTTTGATGAAAATTGAAGTTTTAGAAAGAA spacer
length: 38 repeater length: 25
26830 14517 CTTTCAATTCCATAGTGGATTAATC AGATTGGTTTTTTTCCAGGACTAAGAGACATAATACATATA spacer
length: 40 repeater length: 25
26831 14582 CTTTCAATTCCATAGTGGATTAATC GAATTTACAACCTGCAAAAATTCCGTATCAACTTCTTCAGTT spacer
length: 42 repeater length: 25
26832 14649 CTTTCAATTCCATAGTGGATTAATC AGTTTTGTAGTTTTCTAATTATATCTAATGCATTCTGATA spacer
length: 40 repeater length: 25
26833 14714 CTTTCAATTCCATAGTGGATTAATC ACGCAAAAAACGAAACAAATTCAAAGTCCTTATTAATTGA spacer
length: 40 repeater length: 25
26834 14779 CTTTCAATTCCATAGTGGATTAATC CTGGAAAATTGTAATTCGCGGCTGAAATTTCATTTAGATG spacer
length: 41 repeater length: 25
26835 14845 CTTTCAATTCCATAGTGGATTAATC AAAGCAATACATTACCCTTCATTTCTGGAATATCATTTATT spacer
length: 41 repeater length: 25
26836 14911 CTTTCAATTCCATAGTGGATTAATC ATGATGATTGCGACAGCTGTACCGTTTTTCATATATTAAA spacer
length: 40 repeater length: 25
26837 14976 CTTTCAATTCCATAGTGGATTAATC CTTAATTCCTTAACTCTTTTTTCTCTTGGGTGGAAAAA spacer
length: 39 repeater length: 25
26838 15040 CTTTCAATTCCATAGTGGATTAATC TCCGCCTCCCTTTTAACCTCATGCCCCAGTAAAAGCATA spacer
length: 39 repeater length: 25
26839 15104 CTTTCAATTCCATAGTGGATTAATC CCACAAATCC
26840
26841
26842 crispr 3
26843 20142 CTTTCAATTCCTTAAAGGATTAATC ATCCCTATGAAACAAAGAATCCCGCGGACTACTTG spacer length:
35 repeater length: 25
26844 20202 CTTTCAATTCCTTAAAGGATTAATC ATAATCAATTTGAGACACATATCAGATATTATCATGA spacer length:
37 repeater length: 25
26845 20264 CTTTCAATTCCTTAAAGGATTAATC AGGTTGGGTGTGACTGTACTCTGACAGGGGTGGGCATAC spacer
length: 39 repeater length: 25

26846 20328 CTTTCAATTCCCTAAAGGATTAATC AGGTTGATACATTTGGCTATATTGTAAATTCAGTTTTATC spacer
length: 40 repeater length: 25

26847 20393 CTTTCAATTCCCTAAAGGATTAATC AGCAGGATCC

26848

26849

26850 crispr 4

26851 20457 CTTTCAATTCCATAATGGATTAATC AGATTATTCAAAAGTATGAGTCGCTTTGCCCTGGAGTAA spacer
length: 39 repeater length: 25

26852 20521 CTTTCAATTCCATAATGGATTAATC ATAATATAGTATAATTTTATGGGACATAGGATAAATGGAAT spacer
length: 41 repeater length: 25

26853 20587 CTTTCAATTCCATAATGGATTAATC TTAGAAAATGCGTTAAAGTCGTTTCTCGAACAGTATAAAAT spacer
length: 41 repeater length: 25

26854 20653 CTTTCAATTCCATAATGGATTAATC ATAGCAATAAAAAATTAGATATAGATTTTTGCTAAAAATA spacer
length: 39 repeater length: 25

26855 20717 CTTTCAATTCCATAATGGATTAATC ACTTTGATGGTACACATTTCCCAGTAGAGCTGAGCT spacer length:
36 repeater length: 25

26856 20778 CTTTCAATTCCATAATGGATTAATC AGTCCTTCCCTCTGTCTGCCTTCTTCAAGTGATTTAAAT spacer
length: 39 repeater length: 25

26857 20842 CTTTCAATTCCATAATGGATTAATC TTGATTATTTTGCTAAGAAGAGAATTTAATCATCAATTTCTG spacer
length: 43 repeater length: 25

26858 20910 CTTTCAATTCCATAATGGATTAATC TAACGGATATGCAACAGTCGATATTAACGGTACTATTTT spacer
length: 39 repeater length: 25

26859 20974 CTTTCAATTCCATAATGGATTAATC GCAAACCTACACGAATTAATATCCAATTTTCAAACCTGAA spacer
length: 38 repeater length: 25

26860 21037 CTTTCAATTCCATAATGGATTAATC TATGAAGGGTGCCGTTTACCTGAGTAAAGGCTTAATCTT spacer
length: 39 repeater length: 25

26861 21101 CTTTCAATTCCATAATGGATTAATC AGTATCAGTTTGATATCCACAGACAGGGCAAACGTAACCAGTT spacer
length: 43 repeater length: 25

26862 21169 CTTTCAATTCCATAATGGATTAATC TTGCAGATACTGATGATGAATTACTAGATTTTATACA spacer length:
37 repeater length: 25

26863 21231 CTTTCAATTCCATAATGGATTAATC AGAGCAAAAATTCCATGGCGTAGGATACAAGAAGAAAGGAA spacer
length: 41 repeater length: 25

26864 21297 CTTTCAATTCCATAATGGATTAATC AATGAAATAAGATTTATACAACGTCATTACGAGTACGTTA spacer
length: 40 repeater length: 25

26865 21362 CTTTCAATTCCATAATGGATTAATC ATTTTAGCGTACATTTTAGTGGCATGGGAAGGGTTCGAAGA spacer
length: 41 repeater length: 25

26866 21428 CTTTCAATTCCATAATGGATTAATC AAGAATTAGAGAAATAGCCCAAGAAGAAATAGAAAAACA spacer
length: 39 repeater length: 25

26867 21492 CTTTCAATTCCATAATGGATTAATC TGTGAGAACAAATTGGACTTTGATGGAATTTACTCAAATGAT spacer
length: 41 repeater length: 25

26868 21558 CTTTCAATTCCATAATGGATTAATC AGGCGGTGTACCCCATAGTACACCCTTTTACTTACCCCTTA spacer
length: 41 repeater length: 25

26869 21624 CTTTCAATTCCATAATGGATTAATC AGAACCCTGAAATACCTGGTTTATAATTTATTGTATAAT spacer
length: 39 repeater length: 25

26870 21688 CTTTCAATTCCATAATGGATTAATC CAGAAACAATTCAAGTTCAACCACCAGGTACAATTAC spacer length:
37 repeater length: 25

26871 21750 CTTTCAATTCCATAATGGATTAATC ATGATTATAAAGAAGTATTTGATCAAATTAACAGTGTTAA spacer
length: 40 repeater length: 25

26872 21815 CTTTCAATTCCATAATGGATTAATC TGAACAAATATGAACTTAAATGTTAGAACAGATGAAAGA spacer
length: 40 repeater length: 25

26873 21880 CTTTCAATTCCATAATGGATTAATC TTTTTTGTTTTGTATTTTCGTTCTTTATTTGTTATTTT spacer
length: 38 repeater length: 25

26874 21943 CTTTCAATTCCATAATGGATTAATC GTTTGCAGGGAGATATTATAAAGATCGGCACTTTATCAAA spacer
length: 40 repeater length: 25

26875 22008 CTTTCAATTCCATAATGGATTAATC ATCGTGTTTCTTACATTTAATCAATTCAGAGATTTAAA spacer
length: 38 repeater length: 25

26876 22071 CTTTCAATTCCATAATGGATTAATC CTGGAGCATCTAGATTTGATGAATGTAGGAGAGTAAT spacer length:
37 repeater length: 25

26877 22133 CTTTCAATTCCATAATGGATTAATC TAGCATTTTGAGAACTGTAAATAAGTACTGAAAATGGT spacer
length: 38 repeater length: 25

26878 22196 CTTTCAATTCCATAATGGATTAATC TTATAAAGCCTCACCTTCCCACAGATAATTATTGATTTG spacer
length: 39 repeater length: 25

26879 22260 CTTTCAATTCCATAATGGATTAATC AGAAAGGGAATATTAGGAATGAAAATAGAGGTTGATTAA spacer
length: 39 repeater length: 25

26880 22324 CTTTCAATTCCATAATGGATTAATC ATATATCGTGATAATGCTGACCTAATATCAATTTATTATTT spacer
length: 41 repeater length: 25

26881 22390 CTTTCAATTCCATAATGGATTAATC AAAGTTCCCATCAAATGGTGTTCCTTACATTGAAGTTAAT spacer
length: 40 repeater length: 25

26882 22455 CTTTCAATTCCATAATGGATTAATC ACATTATCTTGACATGGTCATGAAAGGGGAATTAATAT spacer
length: 40 repeater length: 25

26883 22520 CTTTCAATTCCATAATGGATTAATC GAAAACCTGAAAATTATTCATAAAAAATGAGAAAAAAGA spacer

length: 38 repeater length: 25
26884 22583 CTTTCAATTCCATAATGGATTAATC AAATTTGGGAAACAGATGATAAACACAGACCTTATAGTTTAA spacer
length: 42 repeater length: 25
26885 22650 CTTTCAATTCCATAATGGATTAATC CTATCTTTTTTATTCTTGATCTAAGGATGTCTTTCTTA spacer length:
37 repeater length: 25
26886 22712 CTTTCAATTCCATAATGGATTAATC TTCGAAAATTGGTTATCTCAGTATGGATTTAAATGGTTTGC spacer
length: 41 repeater length: 25
26887 22778 CTTTCAATTCCATAATGGATTAATC ATCAGTGGACGGTATCGTTCGCTAATTCTTCATCATCAA spacer
length: 39 repeater length: 25
26888 22842 CTTTCAATTCCATAATGGATTAATC GGCTTGCTTTGCTAAAAACGTCATTTGCCAGGAGATCTTGT spacer
length: 41 repeater length: 25
26889 22908 CTTTCAATTCCATAATGGATTAATC AAGTTTTTAAATGCGGAAGTTATAATTTTTTGTGTTTTATAT spacer
length: 41 repeater length: 25
26890 22974 CTTTCAATTCCATAATGGATTAATC TACTTTTCGGTTTCGCGTTAAGTAGACCGAACTGTTAACGTT spacer
length: 42 repeater length: 25
26891 23041 CTTTCAATTCCATAATGGATTAATC ATGACAAAGATGATATTAGTGCCAAATGATGTTTATCAA spacer
length: 39 repeater length: 25
26892 23105 CTTTCAATTCCATAATGGATTAATC ATTACGATAGCATTCTTAATGGGAATATTTTGCGATTTA spacer
length: 39 repeater length: 25
26893 23169 CTTTCAATTCCATAATGGATTAATC ATCCTTTATTTCATATAAAATTCAACACCTAAGTCATGTA spacer
length: 39 repeater length: 25
26894 23233 CTTTCAATTCCATAATGGATTAATC GTTTTAGATTATTTTATCGCAACAAATTACAGAGGAATA spacer
length: 39 repeater length: 25
26895 23297 CTTTCAATTCCATAATGGATTAATC TCAGCTAAACAGTTCATAAGTTTTATTAATTCAAAAGAGG spacer
length: 40 repeater length: 25
26896 23362 CTTTCAATTCCATAATGGATTAATC GACAGATTAGCTAAAGTGATAGTTGAAACTCAAAATGAAC spacer
length: 40 repeater length: 25
26897 23427 CTTTCAATTCCATAATGGATTAATC AGAGAAGCTTCGAAATAGGTAAGGGAGAATGGTTTA spacer length:
36 repeater length: 25
26898 23488 CTTTCAATTCCATAATGGATTAATC ATGATCATGATTTGATGAAAGCCAAATATATTTTTTAAATA spacer
length: 41 repeater length: 25
26899 23554 CTTTCAATTCCATAATGGATTAATC AGATATTCAAACATCATCTCTACAATTAAAGGAATACAT spacer
length: 39 repeater length: 25
26900 23618 CTTTCAATTCCATAATGGATTAATC TTTGTAAGATTGTAGTTTTGTATTGTATGATTAAGAAATT spacer
length: 40 repeater length: 25
26901 23683 CTTTCAATTCCATAATGGATTAATC TGTTCTCTTCATCGATTTTCGTATCTATCCTGTCTGACTA spacer
length: 39 repeater length: 25
26902 23747 CTTTCAATTCCATAATGGATTAATC CTGCTTTCAACTGTTCATTATCTTCAAGCACCTGATCTAT spacer
length: 40 repeater length: 25
26903 23812 CTTTCAATTCCATAATGGATTAATC TGCAAATTCTGTAAGAGCGATACTTAAGTTTGCTGATTCT spacer
length: 40 repeater length: 25
26904 23877 CTTTCAATTCCATAATGGATTAATC AATTGTGTTACACGCCGAATACCACTGCAGAGGAATACCGT spacer
length: 41 repeater length: 25
26905 23943 CTTTCAATTCCATAATGGATTAATC TAAATGAAGCGAAAAAACTCCCCAGTTTCCAATATTACGT spacer
length: 40 repeater length: 25
26906 24008 CTTTCAATTCCATAATGGATTAATC GGAAGACGAATACTACGCTTATAAATACTTTGAAGCGAA spacer
length: 39 repeater length: 25
26907 24072 CTTTCAATTCCATAATGGATTAATC AATTTGTTTCATTTTTTGC GTGTAATACGATAAAAAAT spacer length:
37 repeater length: 25
26908 24134 CTTTCAATTCCATAATGGATTAATC CCTTAACCCTATGCGGGCGTAAAACCCGTTTCATTAAAA spacer
length: 39 repeater length: 25
26909 24198 CTTTCAATTCCATAATGGATTAATC CGTTGATGAGTCGTTAACAGGATCGCAGGAATACAG spacer length:
36 repeater length: 25
26910 24259 CTTTCAATTCCATAATGGATTAATC ATGAGACCTC
26911
26912
26913 crispr 5
26914 32574 CTTTCAATTCCATAATGGATTAATC AAGAATATGAAGTCTTGTTTAAACAGATTTTACCTGATCAC spacer
length: 40 repeater length: 25
26915 32639 CTTTCAATTCCATAATGGATTAATC ATTTGATAACTTAGATTCTTACAGACGTCAAGTACTCAG spacer
length: 39 repeater length: 25
26916 32703 CTTTCAATTCCATAATGGATTAATC ATA ACTATGATAGATAGCTCATTATATGAAATGAGTTTTAT spacer
length: 41 repeater length: 25
26917 32769 CTTTCAATTCCATAATGGATTAATC CCAAGCCCTCCAACGAACCATGCTTGGTTAGGTGATGGT spacer
length: 39 repeater length: 25
26918 32833 CTTTCAATTCCATAATGGATTAATC GATCTTGATGAAGTAAGAGAGCTCATTGACATGAAAGAAGT spacer
length: 41 repeater length: 25
26919 32899 CTTTCAATTCCATAATGGATTAATC ATGGTAAAAAAGCATTTACTGAAGATGGAAAGATAAAAAAT spacer
length: 40 repeater length: 25
26920 32964 CTTTCAATTCCATAATGGATTAATC TTGCCCCATGCATTTGAAAGAAAGTTACCTATTACACC spacer
length: 38 repeater length: 25

26921 33027 CTTTCAATTCCATAATGGATTAATC AAACGGATTAGATGAACCAGAAGATGTTCTCCTCCAGATCCTGATTGCGTG
spacer length: 49 repeater length: 25

26922 33101 CTTTCAATTCCATAATGGATTAATC ATTAGTGCATGTAAATACTGGCATTGGCTTACCAGAAAC spacer
length: 39 repeater length: 25

26923 33165 CTTTCAATTCCATAATGGATTAATC AGGAAGAAGAAATAGAATTAAATGGAATTGGCGTTCTATCTAA spacer
length: 43 repeater length: 25

26924 33233 CTTTCAATTCCATAATGGATTAATC CTAACATTACGTGGAATCTGACAGTCGGCTCAATAAACTG spacer
length: 40 repeater length: 25

26925 33298 CTTTCAATTCCATAATGGATTAATC AAATCCAAAATCAGCCTGGCTCTAGTTCCTCTTTTTTCAA spacer
length: 40 repeater length: 25

26926 33363 CTTTCAATTCCATAATGGATTAATC GAAATATATGCTTCTGGTCAAGTTTATATTCAATTAGTT spacer
length: 39 repeater length: 25

26927 33427 CTTTCAATTCCATAATGGATTAATC GGTAAATATCAAATCAATGTAATATCATACACAAATCTAAA spacer
length: 41 repeater length: 25

26928 33493 CTTTCAATTCCATAATGGATTAATC AAGAAAACAAGAAGGATATAACTATATCCCAAATAA spacer length:
36 repeater length: 25

26929 33554 CTTTCAATTCCATAATGGATTAATC GGAAATTATCATTATCGGCGTGGAGAGATAGATAGTGTA spacer
length: 39 repeater length: 25

26930 33618 CTTTCAATTCCATAATGGATTAATC TCACCAATTGGATTTTGGACGATTGGGTTTGATAGAAAT spacer
length: 39 repeater length: 25

26931 33682 CTTTCAATTCCATAATGGATTAATC ACTTAAATGCCGAAAAAGAAGAAAGAAGACCAATCAAAT spacer
length: 39 repeater length: 25

26932 33746 CTTTCAATTCCATAATGGATTAATC GGTAGAGGCACAGAGGCCAAAAGACATTACAGCGATTAAG spacer
length: 39 repeater length: 25

26933 33810 CTTTCAATTCCATAATGGATTAATC AGTTTTTCCGAAGCATTAAGAAGCAATTAATATACAAT spacer
length: 38 repeater length: 25

26934 33873 CTTTCAATTCCATAATGGATTAATC AAACTTTAAATATCACTTCTGAGTACACATTATTAGAGGT spacer
length: 40 repeater length: 25

26935 33938 CTTTCAATTCCATAATGGATTAATC CTTATTGCAGAAAGCTGCAGAAAGTTAAGCAAAAAGA spacer length:
37 repeater length: 25

26936 34000 CTTTCAATTCCATAATGGATTAATC CATTTGTAGTCTTCTTCGAATCTTACAGTATAGTTAGG spacer
length: 38 repeater length: 25

26937 34063 CTTTCAATTCCATAATGGATTAATC AGTATCACCATGGTCTAGAAAAATGATAATAGATAATTTA spacer
length: 40 repeater length: 25

26938 34128 CTTTCAATTCCATAATGGATTAATC ATACCTAATGCTGCAACAATACCAGTCCTTTTCATCC spacer length:
36 repeater length: 25

26939 34189 CTTTCAATTCCATAATGGATTAATC CTAGTTTACCAGTAACTTATATCAGATATTATTATCTCAA spacer
length: 41 repeater length: 25

26940 34255 CTTTCAATTCCATAATGGATTAATC AAAGATTTGAATTATTCTAATCAGACCGAATTTTTTGC spacer
length: 38 repeater length: 25

26941 34318 CTTTCAATTCCATAATGGATTAATC ACAGAGATATACGAAGCGAATCTTTCAATTCCATAGAG spacer
length: 38 repeater length: 25

26942 34381 CTTTCAATTCCATAATGGATTAATC AGAAATATGTTCAACTGATAAAGAGTGGGGCGAGTATATAG spacer
length: 41 repeater length: 25

26943 34447 CTTTCAATTCCATAATGGATTAATC ATGATCATACCACCACCCAATTAATACTAAGATTATGC spacer
length: 38 repeater length: 25

26944 34510 CTTTCAATTCCATAATGGATTAATC ATATTATTGTAACGCTAAAAATGTCATTAATACAA spacer length:
37 repeater length: 25

26945 34572 CTTTCAATTCCATAATGGATTAATC AAACGGTCTGACTAGTCTATTGAATTCTTCTGATTTAGT spacer
length: 39 repeater length: 25

26946 34636 CTTTCAATTCCATAATGGATTAATC AAATTCTAGCCAGATTTTTAGTAAATTTTCTGTATCTTCCC spacer
length: 41 repeater length: 25

26947 34702 CTTTCAATTCCATAATGGATTAATC AAAATGTTTGAGTTTTGCTCTATGTAATCGGCGTAGTAT spacer
length: 39 repeater length: 25

26948 34766 CTTTCAATTCCATAATGGATTAATC AGAGAAGGAAGAAGAGAGGGAAGAAAAGGAGGATCAG spacer
length: 38 repeater length: 25

26949 34829 CTTTCAATTCCATAATGGATTAATC TGAAGGGCATGGAGGAGCTGTTAGGTCTCCTCCCCCTTCA spacer
length: 40 repeater length: 25

26950 34894 CTTTCAATTCCATAATGGATTAATC CTTATTATTTGTATGATATCGTTCAAAGTTAGCGTTTTTTGTAT spacer
length: 44 repeater length: 25

26951 34963 CTTTCAATTCCATAATGGATTAATC GTAATTTTTTCGGGGTTAGTTATGGTAGGTAAAATGACAAA spacer
length: 41 repeater length: 25

26952 35029 CTTTCAATTCCATAATGGATTAATC GGCAAGTAAATGACAGCTAACGATCTTAAAGAGAAGTATA spacer
length: 40 repeater length: 25

26953 35094 CTTTCAATTCCATAATGGATTAATC AAAGTATAAATTTTGGTAAAAATAATCTATCCACATA spacer length:
37 repeater length: 25

26954 35156 CTTTCAATTCCATAATGGATTAATC GAAAGACCCTGATCATAATTGGGCTGAGAAAGTTGATCT spacer
length: 39 repeater length: 25

26955 35220 CTTTCAATTCCATAATGGATTAATC AGGCGTTCCTTATAGTTTTGTATGATAATATGCAAAAAAT spacer
length: 39 repeater length: 25

26956 35284 CTTTCAATTCCATAATGGATTAATC AACAAAGCATAAAATCCGCAATTAAAGAGATAGTAAACGA spacer

length: 40 repeater length: 25
26957 35349 CTTTCAATTCCATAATGGATTAATC AAAACTTGTGTATCAACATTCAAAAACAAAAGTG spacer
length: 40 repeater length: 25
26958 35414 CTTTCAATTCCATAATGGATTAATC TTGTTGAAGAGAATGATCAGACCGTAACTCAATTTATTAC spacer
length: 40 repeater length: 25
26959 35479 CTTTCAATTCCATAATGGATTAATC ACAAATGTTTCATTTTGTTCAAAATTTGGCTATAATCCT spacer
length: 40 repeater length: 25
26960 35544 CTTTCAATTCCATAATGGATTAATC AGCTTTACAATATCTTAATCAGTTAGGTTTTAAATCAATA spacer
length: 40 repeater length: 25
26961 35609 CTTTCAATTCCATAATGGATTAATC ACGATTCGACTACGCTACTCGTAAGGATTGGCTGAGAGAT spacer
length: 40 repeater length: 25
26962 35674 CTTTCAATTCCATAATGGATTAATC CTGTCCAAGATTGCTGGAGTAAATACTTCGTAGTTAT spacer length:
37 repeater length: 25
26963 35736 CTTTCAATTCCATAATGGATTAATC AAGAAATCGGGCAACAATTACCTTACTTACCTGACCCATA spacer
length: 40 repeater length: 25
26964 35801 CTTTCAATTCCATAATGGATTAATC GTGGGATTGTTTTACGTGAATCTTCAGACCGTAAATTGTC spacer
length: 40 repeater length: 25
26965 35866 CTTTCAATTCCATAATGGATTAATC CAGTCCGAATTCCTGCCTGTATGCCAACGCAATCAGTGA spacer
length: 39 repeater length: 25
26966 35930 CTTTCAATTCCATAATGGATTAATC ATTCCAAAGCAGAAAGCTACTTACTCTGAAGTAGAGCC spacer
length: 38 repeater length: 25
26967 35993 CTTTCAATTCCATAATGGATTAATC ATTACAAGAGTTTATAGTAACTTGGGGTTAGTGAATTC spacer
length: 40 repeater length: 25
26968 36058 CTTTCAATTCCATAATGGATTAATC ATGGTATCAGCATTAATAACGACGTGGAAAAATATT spacer length:
36 repeater length: 25
26969 36119 CTTTCAATTCCATAATGGATTAATC AAATTAATTGTGATTATTAGAAACGATAGGTACACTGTGGA spacer
length: 41 repeater length: 25
26970 36185 CTTTCAATTCCATAATGGATTAATC AGCTATCGCATGAGGTATCGCAGAGGTTGAAGATAATAA spacer
length: 39 repeater length: 25
26971 36249 CTTTCAATTCCATAATGGATTAATC AAAACTTAAATACCCCTAGTATAAGTTAGCCTGGAGGT spacer
length: 39 repeater length: 25
26972 36313 CTTTCAATTCCATAATGGATTAATC AAGATTATGGTTTTCAGTCTTTCGTTGTCTTTAAGTACA spacer
length: 39 repeater length: 25
26973 36377 CTTTCAATTCCATAATGGATTAATC TCGTTGTGACGACACAAAATTGCGAAATTGTAAGATTTGA spacer
length: 40 repeater length: 25
26974 36442 CTTTCAATTCCATAATGGATTAATC CTAACATCTCGTTAGGTCCATGGATATGGAAAACCTTACGA spacer
length: 40 repeater length: 25
26975 36507 CTTTCAATTCCATAATGGATTAATC ATTGCCATGATGTAAATTCGTGCAATGGCGGAATCAATTGG spacer
length: 41 repeater length: 25
26976 36573 CTTTCAATTCCATAATGGATTAATC CTACTTGCTGATTGACGGAAGTGAATTTGGTAACGTTAGTT spacer
length: 41 repeater length: 25
26977 36639 CTTTCAATTCCATAATGGATTAATC AAACCAGGACCATTGATGAGGTACGGCCTCCCGTGTGT spacer
length: 39 repeater length: 25
26978 36703 CTTTCAATTCCATAATGGATTAATC TAGTTTTAAACATTTTTTTCATCCCATCAAGGAAGAGAA spacer
length: 39 repeater length: 25
26979 36767 CTTTCAATTCCATAATGGATTAATC GAAATAAATGACAGACAAATGTGATATGTGGTATTACTTC spacer
length: 40 repeater length: 25
26980 36832 CTTTCAATTCCATAATGGATTAATC ATGCTGAGGAGAACCTCAGGAGAAGTATCACTATTGATTT spacer
length: 40 repeater length: 25
26981 36897 CTTTCAATTCCATAATGGATTAATC ATTATCAGTGATTATATGACCAAGCACACTAAGGACATAG spacer
length: 40 repeater length: 25
26982 36962 CTTTCAATTCCATAATGGATTAATC AAATTGTAGTTATGATTAATAATTTTATTTCTCTAATTTTAT spacer
length: 41 repeater length: 25
26983 37028 CTTTCAATTCCATAATGGATTAATC ATGATGGATATTCAATTAAGTTACAGAATGAGAAGATATATTCATA
spacer length: 46 repeater length: 25
26984 37099 CTTTCAATTCCATAATGGATTAATC CTATACAACAATTATTTTCGATACAACAAATAAA spacer length: 34
repeater length: 25
26985 37158 CTTTCAATTCCATAATGGATTAATC ACAAGAAGAATTGGAAGGAATGATAGAAGAGATAGAAAG spacer
length: 39 repeater length: 25
26986 37222 CTTTCAATTCCATAATGGATTAATC ATAACCTCCACCGTGCCAGTACCGAAGTACTGGTAGAGGGC spacer
length: 40 repeater length: 25
26987 37287 CTTTCAATTCCATAATGGATTAATC ACTGCATCTTTTATTTGTTGTATTGAAAATTGTTGTAT spacer
length: 38 repeater length: 25
26988 37350 CTTTCAATTCCATAATGGATTAATC TATAACCAATTGTCGTAATGCAAAAATTAGTTCATGATG spacer
length: 39 repeater length: 25
26989 37414 CTTTCAATTCCATAATGGATTAATC AAAGCAATAAGCATAATGCTAGATGTTGTAAACCTTCTAA spacer
length: 40 repeater length: 25
26990 37479 CTTTCAATTCCATAATGGATTAATC AAATAAACAAAGAGCTTTTCAAGTTAATAACAGCCAAGC spacer
length: 39 repeater length: 25
26991 37543 CTTTCAATTCCATAATGGATTAATC AAGAAAGAGGAAACAAAGCTGAAAGAGAAATAGAGAAGA spacer
length: 39 repeater length: 25

26992 37607 CTTTCAATTCCATAATGGATTAATC ACGGTGTTAGTTGTGGCAAAGAATAGGGGTACGTACAATATCG spacer
length: 43 repeater length: 25
26993 37675 CTTTCAATTCCATAATGGATTAATC TCTAATATATTCGGCTGGTTAGCTTGTGAAGTAGAGACA spacer
length: 39 repeater length: 25
26994 37739 CTTTCAATTCCATAATGGATTAATC AGGTATTTCTTATCGTAGCAGATCCGTCAATCCAACCAGTA spacer
length: 41 repeater length: 25
26995 37805 CTTTCAATTCCATAATGGATTAATC ACCATGAAATATCTTCACTATTATTGAAAGGACAAATGA spacer
length: 39 repeater length: 25
26996 37869 CTTTCAATTCCATAATGGATTAATC CAATTATGATTGGACCTATCATTTTTTCCACCAATATATATATATA
spacer length: 46 repeater length: 25
26997 37940 CTTTCAATTCCATAATGGATTAATC ATTTGAAGTGTGGACATATTATTTCCATCCATGATATGTA spacer
length: 40 repeater length: 25
26998 38005 CTTTCAATTCCATAATGGATTAATC GACATCAAAATCTCCGGAGGCATTCTCTTCTGATTTAC spacer
length: 39 repeater length: 25
26999 38069 CTTTCAATTCCATAATGGATTAATC GAGGGACCTGAAAAAATCACTATCTTGAAAGAAATTGTTAA spacer
length: 41 repeater length: 25
27000 38135 CTTTCAATTCCATAATGGATTAATC ATAAGTGCAAAAGAAATAGCTCAAAAGATTAAGAATTTTGT spacer
length: 41 repeater length: 25
27001 38201 CTTTCAATTCCATAATGGATTAATC TTGCTTTAAGCAGTCTACTAAATCCCAAACTCATCTTC spacer
length: 39 repeater length: 25
27002 38265 CTTTCAATTCCATAATGGATTAATC GAGGAATTAGAAAAATTATTAGAGGCACATATTACGTT spacer
length: 38 repeater length: 25
27003 38328 CTTTCAATTCCATAATGGATTAATC AGCGTCATGATATATTGGTAGGACATCTGGAAGATGGTA spacer
length: 39 repeater length: 25
27004 38392 CTTTCAATTCCATAATGGATTAATC TGCTTGTTGTATTGCAACATCTCCGTTCCAGATTCTGT spacer
length: 39 repeater length: 25
27005 38456 CTTTCAATTCCATAATGGATTAATC ATCCTCACCG
27006
27007
27008 crispr 6
27009 43401 TACTATACTGGATTAATT TTCATCATCGTCCATTTTATCTTCTACTTCCTCAAGTTTCGTTAACA spacer
length: 47 repeater length: 18
27010 43466 TACTATACTGGATTAATT TATTTGTCCATTCTCAATCGTGTACTCTACAATTTGTTAACAT spacer length:
43 repeater length: 18
27011 43527 TACTATACTGGATTAATT GTATTTTCGTACCCTGTTTCCCCTCCGACCAGTCGGACCTCATCAGGAGGCTG
27012
27013
27014 crispr 7
27015 53294 GATTAATCCTGTAGGGAATTGAAAG TTATAATTTCTTGAACATCGGACTTGCATACTCTCGTTC spacer
length: 40 repeater length: 25
27016 53359 GATTAATCCTGTAGGGAATTGAAAG CATAAACTTCCGATGCTCCACCAAGACTTTTGATAGT spacer length:
37 repeater length: 25
27017 53421 GATTAATCCTGTAGGGAATTGAAAG TTCATAAAAACGCATGGAGGATTGGGTTCTACGTACCTTATT spacer
length: 42 repeater length: 25
27018 53488 GATTAATCCTGTAGGGAATTGAAAG CAGACTTCGATTGGCATCCAAATCTAGAAAACGGCTTGTAC spacer
length: 41 repeater length: 25
27019 53554 GATTAATCCTGTAGGGAATTGAAAG TCTTTTTTTAGTCTACGTTTATATTTTTCCCTCTTTGTCTTT spacer
length: 41 repeater length: 25
27020 53620 GATTAATCCTGTAGGGAATTGAAAG ATCAAAATAAGATTGAACCTAGCGGAGAGCTGTGCTACGGT spacer
length: 41 repeater length: 25
27021 53686 GATTAATCCTGTAGGGAATTGAAAG AGCACAAAGTATTTAAATCTTTCTTTCTAGTTTACACTTTG spacer
length: 41 repeater length: 25
27022 53752 GATTAATCCTGTAGGGAATTGAAAG GCTAAATTACCGAATACAACTCTGGAAGTATAACTTGATA spacer
length: 41 repeater length: 25
27023 53818 GATTAATCCTGTAGGGAATTGAAAG CAGAGTATTCTCATTCGTAACCTTTTGCATACTTCAAAAT spacer
length: 39 repeater length: 25
27024 53882 GATTAATCCTGTAGGGAATTGAAAG GCCATTTTCCCACCCGATTAGTTTTGAGTGAAAGGATTT spacer
length: 40 repeater length: 25
27025 53947 GATTAATCCTGTAGGGAATTGAAAG GATTCGTAAGATACAATAATTCAACAATTTATTTTTTA spacer length:
37 repeater length: 25
27026 54009 GATTAATCCTGTAGGGAATTGAAAG TTGTAGTTATCGATACTGTAAAAACCACTTTTACGGTTGTA spacer
length: 42 repeater length: 25
27027 54076 GATTAATCCTGTAGGGAATTGAAAG TAGTCTCTTTAATAAAGAGGCTGGAAGAGGGAAAGGTTCT spacer
length: 40 repeater length: 25
27028 54141 GATTAATCCTGTAGGGAATTGAAAG GACTTCTTCCCAACGGTTATCAACACAGAAAGTTAT spacer length:
36 repeater length: 25
27029 54202 GATTAATCCTGTAGGGAATTGAAAG TGTGCCTTAAGCTCGATGGAATTGATCAGTTTACGATATGA spacer
length: 41 repeater length: 25
27030 54268 GATTAATCCTGTAGGGAATTGAAAG CTGCTTGAGATAAAAGTGTGACAGTTCCTTCATCTTCAT spacer
length: 40 repeater length: 25
27031 54333 GATTAATCCTGTAGGGAATTGAAAG TACTTATGTCCTCAGCTTCCTCACTGTTCTCTTCATCTT spacer

length: 39 repeater length: 25
27032 54397 GATTAATCCTGTAGGGAATTGAAAG TGGACAGACTGCCTTCCCCCGCATCCCAAATATTTTCACAG spacer
length: 41 repeater length: 25
27033 54463 GATTAATCCTGTAGGGAATTGAAAG AAAGCAGAAAGTAAAGAAGGAGAATCGAAAGAAAATAAATCT spacer
length: 42 repeater length: 25
27034 54530 GATTAATCCTGTAGGGAATTGAAAG ATTAGGCATTCTCATTTTTTCTTAGCCATTTTTCTGCCA spacer
length: 38 repeater length: 25
27035 54593 GATTAATCCTGTAGGGAATTGAAAG ATTTATTATAACTTCTTGGAGAGATATATTTGGGG spacer length:
35 repeater length: 25
27036 54653 GATTAATCCTGTAGGGAATTGAAAG GGTAATATAATTCCAGCTTCAGGTAGTATGTCAATTTCT spacer
length: 39 repeater length: 25
27037 54717 GATTAATCCTGTAGGGAATTGAAAG AATACTGCAACAACCTCAAGCAGCAATCAATTCAATTATTAA spacer
length: 41 repeater length: 25
27038 54783 GATTAATCCTGTAGGGAATTGAAAG ACAACAGTATTTATATCATCACGGGTAAACCAATTA spacer length:
36 repeater length: 25
27039 54844 GATTAATCCTGTAGGGAATTGAAAG TTTTATGTTCTCTAGTTGGAGATCAGGCTCCTCAATCCC spacer
length: 39 repeater length: 25
27040 54908 GATTAATCCTGTAGGGAATTGAAAG CTTTTTATATGTTCTTTAAAAATCTTCAAATAAGCTTTT spacer
length: 39 repeater length: 25
27041 54972 GATTAATCCTGTAGGGAATTGAAAG GAATACACCAACGGAAGTACCTGTTAATGTTTTTTGAT spacer
length: 38 repeater length: 25
27042 55035 GATTAATCCTGTAGGGAATTGAAAG TCCTCCCAAACCTTTCTTGTAAATAGATATCCTCACACTCAA spacer
length: 40 repeater length: 25
27043 55100 GATTAATCCTGTAGGGAATTGAAAG TGATAGTGCTACATTATTTAAATTCATTATATGCTTC spacer
length: 39 repeater length: 25
27044 55164 GATTAATCCTGTAGGGAATTGAAAG ATTAGAAACAATTATGAGTCAGTACGGCGTAACAAATACAT spacer
length: 41 repeater length: 25
27045 55230 GATTAATCCTGTAGGGAATTGAAAG TTAACCTTCTACTATAAAAAGAACATACATCTCTCCATGGTT spacer
length: 41 repeater length: 25
27046 55296 GATTAATCCTGTAGGGAATTGAAAG TTTGACATCACATCATCGAAGAAGACTGCTTTGAT spacer
length: 38 repeater length: 25
27047 55359 GATTAATCCTGTAGGGAATTGAAAG ATTAAATCAATTAAATCATCAGAATAAACTAAGTTCTT spacer
length: 38 repeater length: 25
27048 55422 GATTAATCCTGTAGGGAATTGAAAG TCATAAAGAGGAGCACTAACGCGAGCAGTAACAATCATCTTT spacer
length: 42 repeater length: 25
27049 55489 GATTAATCCTGTAGGGAATTGAAAG CCAACTTTATTGGGATACAGTTAGAGCAGGTCTAAGAAAACCTG spacer
length: 44 repeater length: 25
27050 55558 GATTAATCCTGTAGGGAATTGAAAG TTAACCTCAATTTCTGTAACGACTTGACAGCTTTTTTATAT spacer
length: 40 repeater length: 25
27051 55623 GATTAATCCTGTAGGGAATTGAAAG AGTAGCTTCGGCAGTAGACAGAGACTTTAAAGCTATATTAT spacer
length: 41 repeater length: 25
27052 55689 GATTAATCCTGTAGGGAATTGAAAG TTTTCTAAGTTAGAACATATAATTATGTACTCTCCCCAGT spacer
length: 40 repeater length: 25
27053 55754 GATTAATCCTGTAGGGAATTGAAAG GTTTTACTTGCCATGTCTTATCATCCTTTAAAAATGAA spacer
length: 38 repeater length: 25
27054 55817 GATTAATCCTGTAGGGAATTGAAAG TAGTAAACCATTTTTGTAGTGGATAAGATAATTTTCTG spacer
length: 38 repeater length: 25
27055 55880 GATTAATCCTGTAGGGAATTGAAAG TATTCAGTTTGATTGTACTGTGGCGAATGGTGAGGAATA spacer
length: 39 repeater length: 25
27056 55944 GATTAATCCTGTAGGGAATTGAAAG TACAGTATATCAGCTATCAATGAACCTATCTGCTTGATCAT spacer
length: 40 repeater length: 25
27057 56009 GATTAATCCTGTAGGGAATTGAAAG ATGAATATATTAACAAACAAAGTAAATTTGTTTATCT spacer
length: 40 repeater length: 25
27058 56074 GATTAATCCTGTAGGGAATTGAAAG AATTACATTGACTGCGATTTGTTAGAATCTAGAAGA spacer length:
36 repeater length: 25
27059 56135 GATTAATCCTGTAGGGAATTGAAAG TAACGAAAAAATGTTATTACTTGCGAAAAACGGGAATTTT spacer
length: 40 repeater length: 25
27060 56200 GATTAATCCTGTAGGGAATTGAAAG CCCTTTCTGTTTTCTTCATTTCTTTTACCAACTCTTGAT spacer
length: 40 repeater length: 25
27061 56265 GATTAATCCTGTAGGGAATTGAAAG ATAAAGACATTTATGAGTTTTATGCTAATCGAATTAAA spacer
length: 38 repeater length: 25
27062 56328 GATTAATCCTGTAGGGAATTGAAAG TGAGATAAAATTCATACTTTTTGAGAGAAGTGTCCAATTCAT spacer
length: 42 repeater length: 25
27063 56395 GATTAATCCTGTAGGGAATTGAAAG CTAAACTACTTATAATCTTAGGTAACTCTTAGTGG spacer length:
36 repeater length: 25
27064 56456 GATTAATCCTGTAGGGAATTGAAAG GCAATACCCTGGCGATAGACTAATTTACGAATTGCAAGAAG spacer
length: 41 repeater length: 25
27065 56522 GATTAATCCTGTAGGGAATTGAAAG TTTTCTGCCTTTTTTATTTGTCTCAAATTCAACCATTTTCC spacer
length: 40 repeater length: 25
27066 56587 GATTAATCCTGTAGGGAATTGAAAG TTAGTAATGTTTACACTTTGTATACCACTTAAAGTAACTT spacer
length: 40 repeater length: 25

27067 56652 GATTAATCCTGTAGGGAATTGAAAG ATTCCATATTTTGATTACATTACATATATCAGCATCCTTGC spacer
 length: 40 repeater length: 25
 27068 56717 GATTAATCCTGTAGGGAATTGAAAG ATCTTGTTCAACTGTATTCCATTAATATTTTCGAGAAAA spacer
 length: 39 repeater length: 25
 27069 56781 GATTAATCCTGTAGGGAATTGAAAG TTTCTGTTTCATATAGGAATTCTTCTATCTGACCTTTTAA spacer
 length: 40 repeater length: 25
 27070 56846 GATTAATCCTGTAGGGAATTGAAAG ATAGAATACCCACATTTTTTTTAAACATTTTCTAGACTTT spacer
 length: 40 repeater length: 25
 27071 56911 GATTAATCCTGTAGGGAATTGAAAG ATATATTTTCGACTTGATTAATCAGAATATTTAAATGTA spacer
 length: 39 repeater length: 25
 27072 56975 GATTAATCCTGTAGGGAATTGAAAG CGGAGGATGTAAGAAACGTCCTATGCCACCTATAAGAGATGA spacer
 length: 42 repeater length: 25
 27073 57042 GATTAATCCTGTAGGGAATTGAAAG TATACCAGTCAATAGTACTTTAACATTAAGTAATTTCAA spacer
 length: 39 repeater length: 25
 27074 57106 GATTAATCCTGTAGGGAATTGAAAG ACAATCAACTTCAATTTTGGATTCTCATCATGATATTTG spacer
 length: 39 repeater length: 25
 27075 57170 GATTAATCCTGTAGGGAATTGAAAG ACCTTTTATGATTTTCTCAAAGCTAAGTACAAATTAATGAC spacer
 length: 40 repeater length: 25
 27076 57235 GATTAATCCTGTAGGGAATTGAAAG TAGATAACATACTTAAAAATAGATATTTTTATGACCCGAAAAT spacer
 length: 43 repeater length: 25
 27077 57303 GATTAATCCTGTAGGGAATTGAAAG TGTGTCTTTGCCATTGTTTGAAGTTAGTTTCACCCCTT spacer
 length: 38 repeater length: 25
 27078 57366 GATTAATCCTGTAGGGAATTGAAAG TGTCTCCGCTACTTGTATTTGCAATATATTGATTTGGT spacer
 length: 39 repeater length: 25
 27079 57430 GATTAATCCTGTAGGGAATTGAAAG GATTTATTCTTCTCTTTTTTGTGCTGACCAAAGTTACCATAGC spacer
 length: 43 repeater length: 25
 27080 57498 GATTAATCCTGTAGGGAATTGAAAG CATACAGTTA
 27081
 27082
 27083 crispr 8
 27084 57728 GATTAATCCTGTAGGGAATTGAAAG TCTTTATCAACTCTCATCTTATTGTCAGTCAGTCAGAGAAA spacer
 length: 41 repeater length: 25
 27085 57794 GATTAATCCTGTAGGGAATTGAAAG CTTACTACTAGTATAGGTTTTCTTCTTTCTTATTTATTT spacer
 length: 40 repeater length: 25
 27086 57859 GATTAATCCTGTAGGGAATTGAAAG ATATAATTTATGTCTATAGTATCACTGCCGTTCCCCCAA spacer
 length: 39 repeater length: 25
 27087 57923 GATTAATCCTGTAGGGAATTGAAAG TTTTTTTGTGTTTTTCAATTTCTTTTCACCCCTATTT spacer length:
 37 repeater length: 25
 27088 57985 GATTAATCCTGTAGGGAATTGAAAG AGTCCATTCAAGTTCGAAGGATCCGCCACGGCTAGACAAATAG spacer
 length: 42 repeater length: 25
 27089 58052 GATTAATCCTGTAGGGAATTGAAAG TTGCTAGTAATAATGTACTATACATATTTATAGGTAAA spacer
 length: 38 repeater length: 25
 27090 58115 GATTAATCCTGTAGGGAATTGAAAG GAAACCCGTGCGTGATCATTGGGTTGGGGGCTATCAACCC spacer
 length: 41 repeater length: 25
 27091 58181 GATTAATCCTGTAGGGAATTGAAAG CTTGAAGCTACATCAGGAAACCATCCATTAGCCCAAATCCTG spacer
 length: 43 repeater length: 25
 27092 58249 GATTAATCCTGTAGGGAATTGAAAG AAGAGATCCTAAAGTCTTTTATAAAACAAAGTTAGTTT spacer
 length: 38 repeater length: 25
 27093 58312 GATTAATCCTGTAGGGAATTGAAAG TTGGTCAATGTTAATTCATATTGTTAAGGTAATAAGCAGA spacer
 length: 40 repeater length: 25
 27094 58377 GATTAATCCTGTAGGGAATTGAAAG TATAGGACTATTCTCACCAGCTTTGCTTATTATTAATAAT spacer
 length: 40 repeater length: 25
 27095 58442 GATTAATCCTGTAGGGAATTGAAAG ATTTGAACGCCATCTAATATTTCCGTTCTATAAGTATCA spacer
 length: 39 repeater length: 25
 27096 58506 GATTAATCCTGTAGGGAATTGAAAG CTTCAACGTCCTGATTAAAATACGTGTTAATGAAA spacer length:
 35 repeater length: 25
 27097 58566 GATTAATCCTGTAGGGAATTGAAAG TCACCCTCTTTTGCTTTTATTTCTACTCTGTTTCATCT spacer length:
 37 repeater length: 25
 27098 58628 GATTAATCCTGTAGGGAATTGAAAG TTTTGCTATATTTAGATTCTGATTTTAGTATCTCTAAAGC spacer
 length: 40 repeater length: 25
 27099 58693 GATTAATCCTGTAGGGAATTGAAAG TCTATTTTTTAATAATCCTTCATATATCATATTGTCACC spacer
 length: 38 repeater length: 25
 27100 58756 GATTAATCCTGTAGGGAATTGAAAG TTAATTATGATTGAAATATATTTAAAGCTTTAGTTCAA spacer
 length: 39 repeater length: 25
 27101 58820 GATTAATCCTGTAGGGAATTGAAAG GACAGAACGTAACCTCCTAACGGGAACAAATTAAGAGCTT spacer
 length: 41 repeater length: 25
 27102 58886 GATTAATCCTGTAGGGAATTGAAAG CACTTAGATGGCGTTAGTTGGAAATAGATGGTGAGAGAAAT spacer
 length: 41 repeater length: 25
 27103 58952 GATTAATCCTGTAGGGAATTGAAAG TACAATAATACTGATTAAAAATATACTCAAAATCAAAAA spacer
 length: 39 repeater length: 25
 27104 59016 GATTAATCCTGTAGGGAATTGAAAG TACAAAATGAAAATATGAATTTGATAAGTATTCCAATTT spacer

length: 39 repeater length: 25
27105 59080 GATTAATCCTGTAGGGAATTGAAAG CAGGCTTACCACCTTATAAAATAAGCTCTCATTTAGTGA spacer
length: 39 repeater length: 25
27106 59144 GATTAATCCTGTAGGGAATTGAAAG CCATATCATCATTGAACTTCACTCTTCTACCGTAATAG spacer
length: 38 repeater length: 25
27107 59207 GATTAATCCTGTAGGGAATTGAAAG TTATAGTTCACATTAGCCCTAAGTGTATACGCAAAAACAA spacer
length: 40 repeater length: 25
27108 59272 GATTAATCCTGTAGGGAATTGAAAG TTTTGTTATCCACTTTAATGCAACTGACAGTAAAAGAATT spacer
length: 40 repeater length: 25
27109 59337 GATTAATCCTGTAGGGAATTGAAAG CTACATTATATTTTTCCAGTAATTTATAAATTGTAATACCC spacer
length: 41 repeater length: 25
27110 59403 GATTAATCCTGTAGGGAATTGAAAG ATTTTATGAAAATGATATTTGTCTAACAATAATTGTTGT spacer
length: 39 repeater length: 25
27111 59467 GATTAATCCTGTAGGGAATTGAAAG CCTTCAAGAGTCTCATAATTCTTAAATAAGATCAATCTT spacer
length: 39 repeater length: 25
27112 59531 GATTAATCCTGTAGGGAATTGAAAG TAAGATATGCAAAGGAATATCATGAAATAGAGTATTCTAT spacer
length: 40 repeater length: 25
27113 59596 GATTAATCCTGTAGGGAATTGAAAG TATATAATTCGTTTATTGATAAAGCAATTAAATATATGGA spacer
length: 40 repeater length: 25
27114 59661 GATTAATCCTGTAGGGAATTGAAAG TTTGAATGCAATTTGTAAAAAATTGAATTATCTTTAAT spacer
length: 39 repeater length: 25
27115 59725 GATTAATCCTGTAGGGAATTGAAAG AGAGGAATTTG
27116
27117
27118 GCA_002156705.1_ASM215670v1_genomic.fna (PilerCR):
27119 START REPEAT
SPACER
27120 GCA_002156965.1_ASM215696v1_genomic.fna (PilerCR):
27121 START REPEAT
SPACER
27122 GCA_002197185.1_ASM219718v1_genomic.fna (PilerCR):
27123 START REPEAT
SPACER
27124 crispr 1
27125 389954 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CTCCGGAACGTCCTCCATGGCTTTGAGTGCCAGCCACG spacer
length: 38 repeater length: 30
27126 390022 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CTGCATTTTAGACATCCGTTTATTTGTCCCGG spacer
length: 33 repeater length: 30
27127 390085 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CTCCTCCCAGTCTTGCTTCGTGAGCTCGCTTCCGAAG spacer
length: 37 repeater length: 30
27128 390152 CTTTCAATTCTCCTAAAGTCTTATTGCAAC GGCTAGGTGGTCTGCTGCTGGGCCTGTTTGCTTTCC spacer
length: 36 repeater length: 30
27129 390218 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TAGTCCCTTGGGAGCAGGTGGAGCTCGTGAACCCCT spacer
length: 36 repeater length: 30
27130 390284 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TTCAGCTCGAAGGTGGGGAATGGGCGCTCTCGTTCCTG spacer
length: 38 repeater length: 30
27131 390352 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CGGTAAATATCTATTATATCTATGTCCACTTTACG spacer
length: 36 repeater length: 30
27132 390418 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CCGAACAAAAGGAGGAGGTGAAGTGATTGGAAGATT spacer
length: 36 repeater length: 30
27133 390484 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CCCTGGTCTCGAGAAGGCCAAAACCTTTGAGCACC spacer
length: 36 repeater length: 30
27134 390550 CTTTCAATTCTCCTAAAGTCTTATTGCAAC AGCTATAGCTTTGGGCCTTATGAGGGGCACAGCTTTA spacer
length: 37 repeater length: 30
27135 390617 CTTTCAATTCTCCTAAAGTCTTATTGCAAC GAGAATTCTGATACCCTCAGTTTAGAGAATGTGTTT spacer
length: 36 repeater length: 30
27136 390683 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CTCGAGCGGGCTGCGGAGGATCATGCGCCACCCCT spacer
length: 37 repeater length: 30
27137 390750 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TTACAAGCCGTCGGATTTAACCGCACTTGCGATTTTG spacer
length: 37 repeater length: 30
27138 390817 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TGTTAAATAGGCCCTCCCCAGGCCACGCCGAGACGT spacer
length: 36 repeater length: 30
27139 390883 CTTTCAATTCTCCTAAAGTCTTATTGCAAC GTGAGTGTTAAAGCCGTACGTCCTCTTGCAATATC spacer
length: 35 repeater length: 30
27140 390948 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TTTGATTTTCGGCTTTTTCACGGGGGAGGGGTCGTCTGA spacer
length: 38 repeater length: 30
27141 391016 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CCGAAGATTGAGGTGCTCCACTATCACATCAAATGGG spacer
length: 37 repeater length: 30
27142 391083 CTTTCAATTCTCCTAAAGTCTTATTGCAAC GGCCTGGTGGCGAATGAGAACGGCCTCTGGTTTGTG spacer
length: 36 repeater length: 30
27143 391149 CTTTCAATTCTCCTAAAGTCTTATTGCAAC GTGAGAGATTCAATCAAAGAAAAGCTTAGGCGTATAG spacer

length: 37 repeater length: 30
27144 391216 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CTTTTGGCGACGTTGAGCGTTTCAGTAGTTCCGGTTA spacer
length: 37 repeater length: 30
27145 391283 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TAGGAAGGGAGCGGACTTAAGGTTTTACGACGATGA spacer
length: 36 repeater length: 30
27146 391349 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TATTCGCTTTTCGCAAACATGATGATTGTGTAATCTGAG spacer
length: 38 repeater length: 30
27147 391417 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TTTACGTGGTTCAGGTCATGGGCGTTGGTTCTGAGG spacer
length: 37 repeater length: 30
27148 391484 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TGAATAAGTGATAATTCGGTGATTCTAATGAGAAG spacer
length: 36 repeater length: 30
27149 391550 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TAGCCGTTTCAGAGCATTAACCGGAACGTTGAACTCCA spacer
length: 37 repeater length: 30
27150 391617 CTTTCAATTCTCCTAAAGTCTTATTGCAAC ACCCGACGTCTCGAACGTCCTATTCTCGTCCCCTCA spacer
length: 38 repeater length: 30
27151 391685 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CGGTCTCGCC
27152
27153
27154 crispr 2
27155 1097908 CTTTCAATTCTCCTAAAGTCTTATTGCAAC AACCCCTAGCGTCTTCATCGTAAATAACTTTTTCTCCC spacer
length: 37 repeater length: 30
27156 1097975 CTTTCAATTCTCCTAAAGTCTTATTGCAAC GGGTAAGCAGGGAAACGCGGTTTATCAAAAATTCTA spacer
length: 36 repeater length: 30
27157 1098041 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CAGCCAGTAAACCCTGCCGTCTCGTCTTTTATGTAAA spacer
length: 38 repeater length: 30
27158 1098109 CTTTCAATTCTCCTAAAGTCTTATTGCAAC GATATGGGGGGCCTTCCCCCACAGAAAGACGACCAGGG spacer
length: 38 repeater length: 30
27159 1098177 CTTTCAATTCTCCTAAAGTCTTATTGCAAC ACCCCGTTTATCACCTGAGGTGGGAGCATGGCACTAA spacer
length: 37 repeater length: 30
27160 1098244 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TAAAGATCCAAAAGTGGAGGGCCGACCTTCCGAG spacer
length: 34 repeater length: 30
27161 1098308 CTTTCAATTCTCCTAAAGTCTTATTGCAAC GTGGACGCCGAACCCATATGCTACGACGAGGGAAGCC spacer
length: 37 repeater length: 30
27162 1098375 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CGTCTACGTGAGCGGTGTTGCTCCTGAGGCGAACATTC spacer
length: 38 repeater length: 30
27163 1098443 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CGGGGCGATGCTCGCGACGATTTTCTCGACGATTTTC spacer
length: 36 repeater length: 30
27164 1098509 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CTCTCCGAGGGCTGAGGTTATCAAAGCCTTAAGTCTCA spacer
length: 38 repeater length: 30
27165 1098577 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TACGTCAAAAGCGTTTGTAGATATCGTTTCGATATGCG spacer
length: 36 repeater length: 30
27166 1098643 CTTTCAATTCTCCTAAAGTCTTATTGCAAC ATGAATGTCACGAGAATCTTCGAAAGTGGCTCGG spacer
length: 35 repeater length: 30
27167 1098708 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TCAGCTTTGGACTCACGACGCCAGATTTATTACA spacer
length: 35 repeater length: 30
27168 1098773 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CTGAGATAGGCATTATAAGCAGCCTCGGTTTTAAT spacer
length: 35 repeater length: 30
27169 1098838 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TTCAGCCCCTAAGCCCACAGATTACTGACGATTTTC spacer
length: 36 repeater length: 30
27170 1098904 CTTTCAATTCTCCTAAAGTCTTATTGCAAC GCCCTCAGCCCTGATGAAGGTCCTTAAGAACATGA spacer
length: 35 repeater length: 30
27171 1098969 CTTTCAATTCTCCTAAAGTCTTATTGCAAC ATAAAGAGGGACCTCGCCGAGGTGCGACTAAAAAGA spacer
length: 37 repeater length: 30
27172 1099036 CTTTCAATTCTCCTAAAGTCTTATTGCAAC GAAGGTTGTGCGGTCTTTGTCTAGTATAGCTTTTCTAT spacer
length: 37 repeater length: 30
27173 1099103 CTTTCAATTCTCCTAAAGTCTTATTGCAAC GGACTTGGGCGTGGGTTGGCTTGTGTCATACTACACG spacer
length: 38 repeater length: 30
27174 1099171 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CACCCAAACCGGGTGAGGCGCTACCTGAGGAAAAATA spacer
length: 37 repeater length: 30
27175 1099238 CTTTCAATTCTCCTAAAGTCTTATTGCAAC AGACCCTCCTCACCTTGCCCTCTTCTATCAGAGCATTA spacer
length: 38 repeater length: 30
27176 1099306 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CGCGGCCCTCCCCGTCTCGGGCGGGTCCGGTTACGACG spacer
length: 38 repeater length: 30
27177 1099374 CTTTCAATTCTCCTAAAGTCTTATTGCAAC GTGGGATAGCAACACCAGCACCTGCTATGTGTTTGTTCAGAATA
spacer length: 44 repeater length: 30
27178 1099448 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TGAGGTAAGGTCGTTTAGACGTTGACTTATGGTTATT spacer
length: 37 repeater length: 30
27179 1099515 CTTTCAATTCTCCTAAAGTCTTATTGCAAC GCCGAAACTATTTATAGCAAAACTCACATTAGTA spacer
length: 36 repeater length: 30
27180 1099581 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CCTTCATTTCTCAAACACCCCCAATAGCAGGCAGTA spacer
length: 36 repeater length: 30

27181 1099647 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TCTGGAGAACGCTTATCACCATACCCATCACCTCCG spacer
length: 37 repeater length: 30
27182 1099714 CTTTCAATTCTCCTAAAGTCTTATTGCAAC ATTCAATTGACCGTTAGCATTCTCCCAGATCTCAGCA spacer
length: 37 repeater length: 30
27183 1099781 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TACTACTTTCTCATGGAAGCACTATTCGGCGGGTTCTT spacer
length: 38 repeater length: 30
27184 1099849 CTTTCAATTCTCCTAAAGTCTTATTGCAAC AAGGGAGGCCGTAAGAGTAAAGACCCGCTTATGCGTTA spacer
length: 38 repeater length: 30
27185 1099917 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TTTGATTTTTTGGCCTCCTTGATGACCTCAGGGTTCT spacer
length: 37 repeater length: 30
27186 1099984 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CTGTGCTCTATGTGACTGATACGGATTATGTTAGCTC spacer
length: 37 repeater length: 30
27187 1100051 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TCGCCACAGCCGCTATTCGGCAGTAACAGAGTGGCATA spacer
length: 38 repeater length: 30
27188 1100119 CTTTCAATTCTCCTAAAGTCTTATTGCAAC CTTCCAAACTTGAACGTTGTTGCAACTGCATCATCA spacer
length: 37 repeater length: 30
27189 1100186 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TTCCAGGATCAGGCCACATCAGGATAACCCAGAGCC spacer
length: 37 repeater length: 30
27190 1100253 CTTTCAATTCTCCTAAAGTCTTATTGCAAC AGGCACTCAGGAAGAGGCAGGAAGAGAAGCTAGCGA spacer
length: 36 repeater length: 30
27191 1100319 CTTTCAATTCTCCTAAAGTCTTATTGCAAC ATGAATGTCACGAGAATCTTCGGAAAGTGGCTCGG spacer
length: 35 repeater length: 30
27192 1100384 CTTTCAATTCTCCTAAAGTCTTATTGCAAC TCAGCTTTGGACTCACGACGCCAGATTTATTACA spacer
length: 35 repeater length: 30
27193 1100449 CTTTCAATTCTCCTAAAGTCTTATTGCAAC GTAAATTC AAGTCCTACGTTTCCCGCTCTAAATACA spacer
length: 37 repeater length: 30
27194 1100516 CTTTCAATTCTCCTAAAGTCTTATTGCAAC AAACCGGCAC
27195
27196
27197 GCA_002201895.1_ASM220189v1_genomic.fna (PilerCR):
27198 START REPEAT
SPACER
27199 GCA_002214165.1_ASM221416v1_genomic.fna (PilerCR):
27200 START REPEAT
SPACER
27201 GCA_002214365.1_ASM221436v1_genomic.fna (PilerCR):
27202 START REPEAT
SPACER
27203 crispr 1
27204 529497 GTTTCCGTAGAACGGTATCGTGTGGAAAG GTTTTCAAAGTTTATAAACTTTTCGATCTTTGGCAAGAA spacer
length: 39 repeater length: 29
27205 529565 GTTTCCGTAGAACGGTATCGTGTGGAAAG TAGTCCCCTATCGAGATTATGTCCGCCCTCTTGACGAGA spacer
length: 39 repeater length: 29
27206 529633 GTTTCCGTAGAACGGTATCGTGTGGAAAG
GTGGAAATACCGCAGTGGTCGATAGATTTAGTTTTTGGCTTTCCACACG spacer length: 49 repeater length:
29
27207 529711 GTTTCCGTAGAACGGTATCGTGTGGAAAG CTCATCACCTCAATACTCAACAACTTCACCATCAACCTGT spacer
length: 40 repeater length: 29
27208 529780 GTTTCCGTAGAACGGTATCGTGTGGAAAG CCGCTTTTCCCGTTGATCCGTTCCATTACGTGAAAA spacer
length: 37 repeater length: 29
27209 529846 GTTTCCGTAGAACGGTATCGTGTGGAAAG ATGAGCTCATCTATCCGCTCTTCATATATCAGATCTAA spacer
length: 38 repeater length: 29
27210 529913 GTTTCCGTAGAACGGTATCGTGTGGAAAG GAATAGTCAACAAATTACCACCGTTATAGGAGAAAAAG spacer
length: 37 repeater length: 29
27211 529979 GTTTCCGTAGAACGGTATCGTGTGGAAAG CGAGATAAAAACCTCCAAACACATGCTTGAATGTCACA spacer
length: 38 repeater length: 29
27212 530046 GTTTCCGTAGAACGGTATCGTGTGGAAAG GGGTCCCGGGTAATCATATATATATGGCCCCGGGTAA spacer
length: 36 repeater length: 29
27213 530111 GTTTCCGTAGAACGGTATCGTGTGGAAAG ACCACGACCCCCCAGCGAGGCGGGGGTCGTACGTGGCCA spacer
length: 40 repeater length: 29
27214 530180 GTTTCCGTAGAACGGTATCGTGTGGAAAG TTAATTCTTCCCGTTCCCTGCATTTGCGAGTACCGCCGGAAT
spacer length: 41 repeater length: 29
27215 530250 GTTTCCGTAGAACGGTATCGTGTGGAAAG TGCGATACCGATATACCCTTTCAATCAACTGTAG spacer
length: 34 repeater length: 29
27216 530313 GTTTCCGTAGAACGGTATCGTGTGGAAAG ACTTCGTGCTGGGACGGGAGTAATCCCGTTCCCAT spacer
length: 35 repeater length: 29
27217 530377 GTTTCCGTAGAACGGTATCGTGTGGAAAG TCTCCTCCCCCAATCGCAGCAGTTTACGAGATCCCAG spacer
length: 38 repeater length: 29
27218 530444 GTTTCCGTAGAACGGTATCGTGTGGAAAG TCACCAAGGG
27219
27220

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27221 crispr 2
27222 1567624 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CCGTCCAGAGGGCCGTTAATTACTGGCTAAACTCACAC spacer
length: 38 repeater length: 30
27223 1567692 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TCGAGGCTAAAGGACTACCTCGAGGAGCACAAGGACGT spacer
length: 38 repeater length: 30
27224 1567760 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GCGGCATCAGGGGGCTACGTGCTGATTGAGCTGAACA spacer
length: 37 repeater length: 30
27225 1567827 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TCACCTCAGAATAATTTTATCTCAGAATAATTTTATCCCT
spacer length: 40 repeater length: 30
27226 1567897 CTTTCAATTCTCCTCGAGTCTTATTGCAAC AGTTCCGATTTTCGGCGTTCATGAGGTTAAGACCGCCAT spacer
length: 38 repeater length: 30
27227 1567965 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TACTCGGCGG
27228
27229
27230 GCA_002214385.1_ASM221438v1_genomic.fna(PilerCR):
27231 START REPEAT
SPACER
27232 crispr 1
27233 157193 GTTTC AATTCTCCTAAAGTCTTATTGCAAC AAGCGATGATGGCCTTGATCGCGGCGGCGATCCTCAT spacer
length: 37 repeater length: 30
27234 157260 GTTTC AATTCTCCTAAAGTCTTATTGCAAC CTTTCTCATCTACAACCAAACGAACAACATCACCGTC spacer
length: 37 repeater length: 30
27235 157327 GTTTC AATTCTCCTAAAGTCTTATTGCAAC TTGCCGTCACGAAGACTTTGGCATTGACTGTTAGG spacer
length: 36 repeater length: 30
27236 157393 GTTTC AATTCTCCTAAAGTCTTATTGCAAC TACTTCAACAGCACGACGGGCTACCCGAGGCTCACTAG spacer
length: 38 repeater length: 30
27237 157461 GTTTC AATTCTCCTAAAGTCTTATTGCAAC CGTTACCGTCCACAAGCACCTTTGCGTTCACAGTCAAG spacer
length: 38 repeater length: 30
27238 157529 GTTTC AATTCTCCTAAAGTCTTATTGCAAC CCTGAATGCG
27239
27240
27241 GCA_002214465.1_ASM221446v1_genomic.fna(PilerCR):
27242 START REPEAT
SPACER
27243 crispr 1
27244 407180 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCCTTCTTGATGCTCCCTACGATGAGTCAACCCGCC spacer
length: 36 repeater length: 30
27245 407246 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCGGCCAAGGTTTTGGTCGCGTTGTCGGAGAACGTCG spacer
length: 37 repeater length: 30
27246 407313 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AAAGACGATTTGGATAACGCAACCGTCACTAAAATTT spacer
length: 37 repeater length: 30
27247 407380 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GCTGAGAAGTACATACTTGATAAGATACTTGATGTT spacer
length: 36 repeater length: 30
27248 407446 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTGGATTGTACTTCACTGTAACCTTTCTTTCCCGCTTC spacer
length: 37 repeater length: 30
27249 407513 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCTACATCGTCGTTCCGCCCAACAAGGCGCTTTATTTCTGA
spacer length: 40 repeater length: 30
27250 407583 CTTTCAATTCTCCTAGAGTCTTATTGCAAC ACGCCCGCGACAAGAAAGGTCTGACTAACATTTAC spacer
length: 35 repeater length: 30
27251 407648 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GCTCGCCTGGATCGAGCCAGTCACCCAATTCCAGAAC spacer
length: 37 repeater length: 30
27252 407715 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCTGAATCAAAGTTCAAGTATTACTCCGATGAAGTTT spacer
length: 37 repeater length: 30
27253 407782 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GTGGCTGAACATTGCGCCCATCTTCCCGACCATCAACC spacer
length: 38 repeater length: 30
27254 407850 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AAACCTTATTAGATGAACATCTGATAAGCAACTGATAA spacer
length: 38 repeater length: 30
27255 407918 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCGTTACAGGGGGTAGTTTATTTTTACTAGGAAAAC spacer
length: 36 repeater length: 30
27256 407984 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTACCTCGCTTTCTACATAGAGGCCGAGGACTTTAG spacer
length: 36 repeater length: 30
27257 408050 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CAGGACAATGACTTCAAGAACCTCGTCAGCGTCATCG spacer
length: 37 repeater length: 30
27258 408117 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCCGCATCGTCGAAAAGCAGATAACCGACCCTAAGAC spacer
length: 37 repeater length: 30
27259 408184 CTTTCAATTCTCCTAGAGTCTTATTGCAAC ATCCAGACCATTACATCCAGAATTTAAGAGTGCGCAT spacer
length: 37 repeater length: 30
27260 408251 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GTCAAAGTGTACAGGGAGCGCGTTAACGTTGCCATAA spacer
length: 37 repeater length: 30
27261 408318 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCATCGAGAGACCCGGGTATCGTTTGAAGTAGCGT spacer
length: 35 repeater length: 30

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27262 408383 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GGCGGCGCTCATAGGGCACCACCCAGGGTCTTATATTCTG spacer
 length: 39 repeater length: 30
 27263 408452 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCCATTTTCTCACCCCGTCGCGAAGTAGTCCACGACC spacer
 length: 37 repeater length: 30
 27264 408519 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GGTGTACTGT
 27265
 27266
 27267 crispr 2
 27268 859420 GTTGCAATAAGACTCCAG-GAGAATTGAAA ATTCGTCGTCGACATCTCTGAAGACCTGCTCGATGAT spacer
 length: 37 repeater length: 30
 27269 859487 GTTGCAATAAGACTCCAG-GAGAATTGAAA AGCGGTCCTGGTTCGCGGTTCGCGACTTGGCAACTGATAGG spacer
 length: 39 repeater length: 30
 27270 859556 GTTGCAATAAGACTCCAG-GAGAATTGAAA AGGCTTTAGGTTTCATCGTGACAGTCTTGCTTTTCATT spacer
 length: 37 repeater length: 30
 27271 859623 GTTGCAATAAGACTCCAG-GAGAATTGAAA ACACGAAGTACTCGATCATCATGACAGGAACGTGGAAAG spacer
 length: 39 repeater length: 30
 27272 859692 GTTGCAATAAGACTCCAG-GAGAATTGAAA GCGTACTCTCACTAATGTCCCTGATAGGCTGGCTCAG spacer
 length: 37 repeater length: 30
 27273 859759 GTTGCAATAAGACTCCAG-GAGAATTGAAA GGGATTACG
 27274
 27275
 27276 crispr 3
 27277 1133546 CTTTCAATTCTCCCAGAGTCTTATTGCAAC GAAACTAGAAAGAGCTGGAGCTTGTTTCAGTCGAAAAA spacer
 length: 37 repeater length: 30
 27278 1133613 CTTTCAATTCTCCCAGAGTCTTATTGCAAC CTACGTATCAAACAGCACGACAGTTGACAACACTACTA spacer
 length: 36 repeater length: 30
 27279 1133679 CTTTCAATTCTCCCAGAGTCTTATTGCAAC ACCTCGTAAGCCACGTCCTCACGATTTACTTCAACAC spacer
 length: 37 repeater length: 30
 27280 1133746 CTTTCAATTCTCCCAGAGTCTTATTGCAAC ATCCGTGATGAC
 27281
 27282
 27283 GCA_002214485.1_ASM221448v1_genomic.fna(PilerCR):
 27284 START REPEAT
 SPACER
 27285 crispr 1
 27286 1564365 CTTTCAATTCTCTTAGAGTCTTATTGCAAC CGTGACTGCACCAATCAAGAGGTACCAGGCCCTCC spacer
 length: 36 repeater length: 30
 27287 1564431 CTTTCAATTCTCTTAGAGTCTTATTGCAAC AGCCACACGCCCGCTGCCTGACCATTCCATCGAACAT spacer
 length: 37 repeater length: 30
 27288 1564498 CTTTCAATTCTCTTAGAGTCTTATTGCAAC GAAAGCGTAAAGCTCAGGGTGGGATTGAGTATCTCT spacer
 length: 36 repeater length: 30
 27289 1564564 CTTTCAATTCTCTTAGAGTCTTATTGCAAC CCTTCTATAT
 27290
 27291
 27292 GCA_002214505.1_ASM221450v1_genomic.fna(PilerCR):
 27293 START REPEAT
 SPACER
 27294 crispr 1
 27295 1129450 GTTTCAATTCTCCTAGAGTCTTATTGCAAC CGAACCCCCGTGGTGGTGGACGACTGACAGGGA spacer
 length: 33 repeater length: 30
 27296 1129513 GTTTCAATTCTCCTAGAGTCTTATTGCAAC GCCATCCAAGGGCGGGTCGTTCCGGTTCTCATAAATC spacer
 length: 37 repeater length: 30
 27297 1129580 GTTTCAATTCTCCTAGAGTCTTATTGCAAC CTGTTTTTCGGCTTCGGCATAGCATTGGCGTTCTTCG spacer
 length: 36 repeater length: 30
 27298 1129646 GTTTCAATTCTCCTAGAGTCTTATTGCAAC GCGTGCCGAAGTTTTGTCGCCAGGATCCCCCTGCCTG spacer
 length: 37 repeater length: 30
 27299 1129713 GTTTCAATTCTCCTAGAGTCTTATTGCAAC TTTCACCTCCTCACAGCAATGCAATCCTCCCAACGTC spacer
 length: 37 repeater length: 30
 27300 1129780 GTTTCAATTCTCCTAGAGTCTTATTGCAAC CCTGATGTAGTTGGCTGCGACGCTCTCCATTCTCTCTGGGT
 spacer length: 42 repeater length: 30
 27301 1129852 GTTTCAATTCTCCTAGAGTCTTATTGCAAC GAGCAGCGCAAGAGGAGAAGGACCATCATGAAGCCCC spacer
 length: 37 repeater length: 30
 27302 1129919 GTTTCAATTCTCCTAGAGTCTTATTGCAAC AGGTTTCCCTGGACTGCCCCAGCCAGGACGAGAA spacer
 length: 34 repeater length: 30
 27303 1129983 GTTTCAATTCTCCTAGAGTCTTATTGCAAC GTGGTGAGGTTGGCGTTTACTCTTAGCGACCTGTT spacer
 length: 35 repeater length: 30
 27304 1130048 GTTTCAATTCTCCTAGAGTCTTATTGCAAC AAGGTGCCCCGATCCATATGCATATCAAGTCAAACAGA spacer
 length: 37 repeater length: 30
 27305 1130115 GTTTCAATTCTCCTAGAGTCTTATTGCAAC TTTTATTACATTTTTTACCACAAAAGATAAATTCCAAA spacer
 length: 38 repeater length: 30
 27306 1130183 GTTTCAATTCTCCTAGAGTCTTATTGCAAC CGACCGCCCCGACGGGAAGACAGCTTAAGAAGATCTTA spacer

length: 38 repeater length: 30
27307 1130251 GTTTCAATTCTCCTAGAGTCTTATTGCAAC CTAAACTCAATACGAGCAGAGTTCAAGGCAAAGCTCC spacer
length: 37 repeater length: 30
27308 1130318 GTTTCAATTCTCCTAGAGTCTTATTGCAAC AGAAGATACCACCGCAACCCCAACGCTCCCAAATACTC spacer
length: 38 repeater length: 30
27309 1130386 GTTTCAATTCTCCTAGAGTCTTATTGCAAC TATCAACATAAACTGGGATAAGGCCATGAAGACCCT spacer
length: 36 repeater length: 30
27310 1130452 GTTTCAATTCTCCTAGAGTCTTATTGCAAC TTACTACATCCTCACCCACGAGTGCAGGGGAAATTT spacer
length: 37 repeater length: 30
27311 1130519 GTTTCAATTCTCCTAGAGTCTTATTGCAAC ATTTACGTCAATCGCAAACCGGCACCGTCAAAATGA spacer
length: 37 repeater length: 30
27312 1130586 GTTTCAATTCTCCTAGAGTCTTATTGCAAC ATTTTAGTCCTTATAATGTTTGTCTGGGGGTGATTG spacer
length: 37 repeater length: 30
27313 1130653 GTTTCAATTCTCCTAGAGTCTTATTGCAAC GCATCATTTTCAGTGTCTTTGTCTATAACTTCATATC spacer
length: 36 repeater length: 30
27314 1130719 GTTTCAATTCTCCTAGAGTCTTATTGCAAC AAAGAACAGTACTCTCGTGTGGCGGTAAAGTCTTAG spacer
length: 37 repeater length: 30
27315 1130786 GTTTCAATTCTCCTAGAGTCTTATTGCAAC AACCTCAACCTGTCCGGAATCTCCTCCGAGTTATCGG spacer
length: 38 repeater length: 30
27316 1130854 GTTTCAATTCTCCTAGAGTCTTATTGCAAC CGAATATAGTTCCGGCAAAGAACACTTTTTGTTCCTC spacer
length: 37 repeater length: 30
27317 1130921 GTTTCAATTCTCCTAGAGTCTTATTGCAAC TTGAAGTATATTGTGTTTCCAGCAACACTATACTG spacer
length: 35 repeater length: 30
27318 1130986 GTTTCAATTCTCCTAGAGTCTTATTGCAAC GGGCGTCCAAGTGTCTTCATTAGTATCGTCGTCAGTCT spacer
length: 38 repeater length: 30
27319 1131054 GTTTCAATTCTCCTAGAGTCTTATTGCAAC CGACATGGCTGGACTGGCGCAACTGGTACGACGTGAA spacer
length: 37 repeater length: 30
27320 1131121 GTTTCAATTCTCCTAGAGTCTTATTGCAAC GAACTCCGATGGCATTTTTAGTCAAAGAGATGAATAGT spacer
length: 37 repeater length: 30
27321 1131188 GTTTCAATTCTCCTAGAGTCTTATTGCAAC ATACCAAAAGCCGGAAGCGATACCTCCATCAGTCCAAC spacer
length: 38 repeater length: 30
27322 1131256 GTTTCAATTCTCCTAGAGTCTTATTGCAAC GTTGAAGAATCCGGAGGTGGGGGTATGTTCTGGGAGT spacer
length: 37 repeater length: 30
27323 1131323 GTTTCAATTCTCCTAGAGTCTTATTGCAAC AGAAGAACTGGAGGAGATTCTTTCCCGTCTGGACGGGC spacer
length: 38 repeater length: 30
27324 1131391 GTTTCAATTCTCCTAGAGTCTTATTGCAAC CCTTGTCGAGGGTCAGCTGGACAGTAACGCTCTTGC spacer
length: 36 repeater length: 30
27325 1131457 GTTTCAATTCTCCTAGAGTCTTATTGCAAC AAGAAGCTGAGCGTTATTGACGCCTCGGTAAAGCAAC spacer
length: 37 repeater length: 30
27326 1131524 GTTTCAATTCTCCTAGAGTCTTATTGCAAC CACCGCGAAGGGGACCGGGGATCGGAGAGGTTTCACCGG
spacer length: 39 repeater length: 30
27327 1131593 GTTTCAATTCTCCTAGAGTCTTATTGCAAC GAGACTATGATCACGTAATCATCCGATACATCTGAA spacer
length: 37 repeater length: 30
27328 1131660 GTTTCAATTCTCCTAGAGTCTTATTGCAAC GTACAGATAGCCCGAGATAGTGTACGCACCTTCTT spacer
length: 36 repeater length: 30
27329 1131726 GTTTCAATTCTCCTAGAGTCTTATTGCAAC TCTGGAGAACATAAGGCATAGACCCACTAAAGTCAT spacer
length: 36 repeater length: 30
27330 1131792 GTTTCAATTCTCCTAGAGTCTTATTGCAAC CGGACGCATACGGCCTACTCGACATGGCCGAGCGAC spacer
length: 36 repeater length: 30
27331 1131858 GTTTCAATTCTCCTAGAGTCTTATTGCAAC TCCACCCTTTGGCCTTTGCCCCGTGAGTGAGGAGATAC spacer
length: 38 repeater length: 30
27332 1131926 GTTTCAATTCTCCTAGAGTCTTATTGCAAC GGTGGCTTCGGCATCAGTTACCACCCGAGAATAAAA spacer
length: 37 repeater length: 30
27333 1131993 GTTTCAATTCTCCTAGAGTCTTATTGCAAC TTATACGCGATAGCGGGGACGATTAGCCTTAACCT spacer
length: 35 repeater length: 30
27334 1132058 GTTTCAATTCTCCTAGAGTCTTATTGCAAC GAACATGGATCGGGCCATAAACAAGCTTTTGGCCCT spacer
length: 36 repeater length: 30
27335 1132124 GTTTCAATTCTCCTAGAGTCTTATTGCAAC TTTTGATTCTTTCGGGAGCTATTCTTTTCATAAGCTAA spacer
length: 38 repeater length: 30
27336 1132192 GTTTCAATTCTCCTAGAGTCTTATTGCAAC GAAGAAAAGAAAATACACAAAATGACCCATAAGAAAAGAA
spacer length: 41 repeater length: 30
27337 1132263 GTTTCAATTCTCCTAGAGTCTTATTGCAAC TGGAGGGAAGGGACAAGGGTCTGGATCCAGTCGATAC spacer
length: 38 repeater length: 30
27338 1132331 GTTTCAATTCTCCTAGAGTCTTATTGCAAC AGACCGTACA
27339
27340
27341 crispr 2
27342 1500604 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AACTCCTTCTCGAACTCCTCGGGAGTGTAGAAGTAC spacer
length: 36 repeater length: 30
27343 1500670 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AGGCAGCTGAACCTGGATCTCGTTGGGGAGTACTCGAA spacer
length: 38 repeater length: 30

27344	1500738	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	ACGGCAGAGCATCGAGGCCCTCAACCAGAAAATAG	spacer
		length: 35	repeater length: 30	
27345	1500803	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	TCGTCGGTGCCGGCCTTGTCATAAGGAGCCTTGGCATCA	
		spacer length: 39	repeater length: 30	
27346	1500872	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	TTTGAGTCGCTGACTATCTGAGTTTGCCCTCAATCCA	spacer
		length: 38	repeater length: 30	
27347	1500940	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	TGCTGACGTCATCAGTATCCAACCTCTGCATTCTCCCCCT	
		spacer length: 39	repeater length: 30	
27348	1501009	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	TTCATTTTATTGACCTCCATTTCGTGCCGACCTCCCC	spacer
		length: 36	repeater length: 30	
27349	1501075	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CGCCTTATCCACGCCACCATGCCTGTATAAATCCTTC	spacer
		length: 37	repeater length: 30	
27350	1501142	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GAGCTTAGACAGAATGAGAACGGGGAGTGGGAAATAAT	spacer
		length: 38	repeater length: 30	
27351	1501210	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CCGCTTTGAGCACGCCGTCAACGTAGAGCTTCACCTT	spacer
		length: 37	repeater length: 30	
27352	1501277	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GGCCTCTACAACCAGCTGCTCCAAGAGCACTACGAGG	spacer
		length: 37	repeater length: 30	
27353	1501344	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GGGGCACTACGCTATGTGGGACAAAGTGCTAGAGAGAGTC	
		spacer length: 40	repeater length: 30	
27354	1501414	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	ATTTTTGCCCTCGACATCGGAAAAACGCTCTCTCTT	spacer
		length: 36	repeater length: 30	
27355	1501480	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CATTAAATGGCATTAAATATAACGGATGAGTATCGGC	spacer
		length: 36	repeater length: 30	
27356	1501546	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	ACGGCCTCGGGTGGACTGGAGACGGCCTATAAGCTCAC	spacer
		length: 38	repeater length: 30	
27357	1501614	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	TATCCAGGGCCGGCTCGACCTGGAAGGAGGGAGGCAG	spacer
		length: 37	repeater length: 30	
27358	1501681	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	ACTTGTACTATATCGTCCAAGACTGAATACACTTCCT	spacer
		length: 37	repeater length: 30	
27359	1501748	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CAACGACTAAAGGCCAATTGAGGGTCATTGTTGAGAGAA	
		spacer length: 39	repeater length: 30	
27360	1501817	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GTCCAGAGGAGCTTGGAGAGGTCGTCCACAGTCTTGGA	spacer
		length: 38	repeater length: 30	
27361	1501885	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GGCAGTACATTTTCTGAAACCAATCCCCTTCTCGGA	spacer
		length: 37	repeater length: 30	
27362	1501952	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	TGGCATGTCCCGCGTGTATAGATAAGCCAATAATCCG	spacer
		length: 38	repeater length: 30	
27363	1502020	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CTTCCGCATACTTGCTCTTGAACGCTTCGTATATCGAA	spacer
		length: 38	repeater length: 30	
27364	1502088	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GTTCTGTCCCGCCGTAGACCATGCTCGCCCCGAAGT	spacer
		length: 36	repeater length: 30	
27365	1502154	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	AAAACCCCAAGCTCTTTAGCCTTCTCCTCGACCTTT	spacer
		length: 36	repeater length: 30	
27366	1502220	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CGGTAGCCTATGAGGCCCTTAAAGCGCCTACGGGG	spacer
		length: 36	repeater length: 30	
27367	1502286	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GTTGGTTTTGGCCTTATTGGTGCTCGGCTCGCTTTTGG	spacer
		length: 38	repeater length: 30	
27368	1502354	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	ATCCCTGGGCCTTCCAAGCGTATCGACCACAATCGC	spacer
		length: 36	repeater length: 30	
27369	1502420	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GAAAGGTAGTTTTCTCCCGAGTCGGGCAAGTACTACCT	spacer
		length: 37	repeater length: 30	
27370	1502487	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CAGTGAGCATTTCCGAGGGTTCAGGATTCACGCTCTT	spacer
		length: 37	repeater length: 30	
27371	1502554	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CGCAACGTCACCGAGGGCGACTATTACGCCTTCTGGTT	spacer
		length: 38	repeater length: 30	
27372	1502622	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	ATCCCTCAAA	
27373				
27374				
27375	crispr 3			
27376	1573979	GTTTCCAAAGCTTATGCTGGTTCTGAAAC		
		ATATGAGGGAACACGGTCTCCTTACTCCCCTCGTAGGGCTGGGTTCG	spacer length: 47	repeater length: 29
27377	1574055	GTTTCCAAAGCTTATGCTGGTTCTGAAAC		
		ATAAATGAGAAGGTGGTCGAGTTCACGGTTAGCGTTGATGTCGGAGC	spacer length: 47	repeater length: 29
27378	1574131	GTTTCCAAAGCTTATGCTGGTTCTGAAAC		
		CCATTAGGCGGCAAAGAAGCGAAGGCCCTATCAGTACTGGCTGACATC	spacer length: 48	repeater length: 29
27379	1574208	GTTTCCAAAGCTTATGCTGGTTCTGAAAC	TTTTGATAATCTTGAAGGTGAATCCAATAGCACACACCCTACAG	
		spacer length: 45	repeater length: 29	
27380	1574282	GTTTCCAAAGCTTATGCTGGTTCTGAAAC	CTTACCGTTATGCTCCACGTAAATCTTGTAATCGTGAACCTTAGGG	
		spacer length: 46	repeater length: 29	
27381	1574357	GTTTCCAAAGCTTATGCTGGTTCTGAAAC		

ACCGCTGCGAACTACAACATAAGAGCCAAAAACAAAGACATCAGGGCAGCGTTGAG spacer length: 56 repeater length: 29

27382 1574442 GTTTCCAAAGCTTATGCTGGTTCTGAAAC CTGGTAGTTCGCTAGATTTTCAGTACATTAAAGATGTTGTGGA spacer length: 44 repeater length: 29

27383 1574515 GTTTCCAAAGCTTATGCTGGTTCTGAAAC GAAGCCGTTTGTGGAGATAGAGGTCGTTGGCCTTGAGACCAA spacer length: 42 repeater length: 29

27384 1574586 GTTTCCAAAGCTTATGCTGGTTCTGAAAC CAGAATCAAGCACCTGCCAGTCAAGAAGTTCAGGAAAGTTCTCAC spacer length: 45 repeater length: 29

27385 1574660 GTTTCCAAAGCTTATGCTGGTTCTGAAAC GGAAACACCATAATAGCTAGAAACAAGGACATCCGAGCGTTCCTTAGGCACATAAGCTA spacer length: 59 repeater length: 29

27386 1574748 GTTTCCAAAGCTTATGCTGGTTCTGAAAC TTTGGAGGTGATATGAGATGTCTGAAGTACATGCTGATTGGAAAACAAGTT spacer length: 50 repeater length: 29

27387 1574827 GTTTCCAAAGCTTATGCTGGTTCTGAAAC GATTGAGATGGAGGCAGGAACAGGGTACCCTTGTATGAGCAT spacer length: 42 repeater length: 29

27388 1574898 GTTTCCAAAGCTTATGCTGGTTCTGAAAC CTTTGATCGGAGGTGAAGGATATGGAAGAGGTGTATGTTGGAG spacer length: 43 repeater length: 29

27389 1574970 GTTTCCAAAGCTTATGCTGGTTCTGAAAC GAGCGCTTGG

27390

27391

27392 crispr 4

27393 1584845 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC TTGGGAGCAGTTGTGAAAGGAGTAGTAAAGGCTAAGGGAGACGAGCCCAAGCAGCCCAA spacer length: 59 repeater length: 29

27394 1584933 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC GTAAATATGGTGATGCTTTGTGGAAGGGAAAAGGTTAAGGTGA spacer length: 44 repeater length: 29

27395 1585006 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC TTCCCTATTGACTTCTCTAACTTCCCGGATTTCTCCGTAA spacer length: 41 repeater length: 29

27396 1585076 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC TACGGCCTCAATTTTGGCAGGAGTAGGTTATGCCCTCTCCTTTGGAGCTAACGCCA spacer length: 56 repeater length: 29

27397 1585161 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC TGAGTAGTGAATAATTCTTCGCCAGGGGGTGTGTGACGGGGAG spacer length: 44 repeater length: 29

27398 1585234 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC GGTGAAAACATACGAAAACCTGGTTTCATGCTCGAACTCACG spacer length: 40 repeater length: 29

27399 1585303 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC GACCAGGACCTCGCGGCAGGAGCAACCATATACGTCTACGTTTACGACTCCGG spacer length: 53 repeater length: 29

27400 1585385 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC CCAATAACGATAAATTCAGATGGTGATGTTGTGGTAAATG spacer length: 40 repeater length: 29

27401 1585454 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC CTCGGGAAGGG

27402

27403

27404 crispr 5

27405 1585532 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC CAAAGAAGTACTTGCTGAAATACTCTCGTCGATTATGGAAGAAACATGTCCAGAATTCAGCA spacer length: 62 repeater length: 29

27406 1585623 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC GATTGTATACAAAAATTCACGAAATTTTGGTCCGGGGGCGGGGAT spacer length: 45 repeater length: 29

27407 1585697 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC TCTTTGTTGTGGCGGACATCACAGTATTGTTTTTCATCAACTGCGA spacer length: 45 repeater length: 29

27408 1585771 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC AATCGAGAGCG

27409

27410

27411 crispr 6

27412 1651710 GTTGCAATAAGACTCTGGGAGAATTGAAAG CTCAGAGACCTCATTATCTTAATTGACGAAGCCGTTG spacer length: 37 repeater length: 30

27413 1651777 GTTGCAATAAGACTCTGGGAGAATTGAAAG AGCAACGCAAAGATGTTCCAAGCCGTGTGGACGCCCAT spacer length: 38 repeater length: 30

27414 1651845 GTTGCAATAAGACTCTGGGAGAATTGAAAG CTTCTACCCTGAGCTGGTTAATCTGCTGCCGTACTCTC spacer length: 38 repeater length: 30

27415 1651913 GTTGCAATAAGACTCTGGGAGAATTGAAAG TAGAACGATGAGAAAATCGATGCCACGACGACACTT spacer length: 37 repeater length: 30

27416 1651980 GTTGCAATAAGACTCTGGGAGAATTGAAAG CCGGCCACGGGATACCCTGCGCTACCACCTTGCAGGG spacer length: 37 repeater length: 30

27417 1652047 GTTGCAATAAGACTCTGGGAGAATTGAAAG ACGCTGATGGAGCGCCTGCGCGAGCTGGGCTACGAGAA spacer length: 38 repeater length: 30

27418 1652115 GTTGCAATAAGACTCTGGGAGAATTGAAAG TACATTAAAGATTTAGTTAGCGTTACGGTATCCTCTA spacer length: 37 repeater length: 30

27419 1652182 GTTGCAATAAGACTCTGGGAGAATTGAAAG TCTGTTGCATGATGTTTCATCATCATGGGCATCATCATG spacer length: 37 repeater length: 30

length: 38 repeater length: 30
27420 1652250 GTTGCAATAAGACTCTGGGAGAATTGAAAG TTCTTATAAACTTCAACCGGCTTAGCCGGTGCATCAA spacer
length: 37 repeater length: 30
27421 1652317 GTTGCAATAAGACTCTGGGAGAATTGAAAG CAACATGGCCGACATCATCAGAGAGGCCCTCTGTGG spacer
length: 37 repeater length: 30
27422 1652384 GTTGCAATAAGACTCTGGGAGAATTGAAAG TTGGATGGGAGTGATCGATGGAGAGAGTGATGAGGAG spacer
length: 37 repeater length: 30
27423 1652451 GTTGCAATAAGACTCTGGGAGAATTGAAAG GATTTCAGAAACGACTTTGTGTTTCCGCTGGACAAA spacer
length: 36 repeater length: 30
27424 1652517 GTTGCAATAAGACTCTGGGAGAATTGAAAG GGTACTGGTTAGCAGGCACTGCAACAGTGTAGGTATA spacer
length: 37 repeater length: 30
27425 1652584 GTTGCAATAAGACTCTGGGAGAATTGAAAG TAGGGAATTCTCAGAAATCTATGAGTACTATGAGCAGC spacer
length: 38 repeater length: 30
27426 1652652 GTTGCAATAAGACTCTGGGAGAATTGAAAG GCATAGGGGTTGTCTGGCTGTGCGGTTTCTGTTCAG spacer
length: 37 repeater length: 30
27427 1652719 GTTGCAATAAGACTCTGGGAGAATTGAAAG GAGCTCAGATAGGGGGACAGGCGGGGGTACGGATAC spacer
length: 36 repeater length: 30
27428 1652785 GTTGCAATAAGACTCTGGGAGAATTGAAAG CCTCATAGCTATAACCGGCTTATCCGGCGCCTCCTT spacer
length: 36 repeater length: 30
27429 1652851 GTTGCAATAAGACTCTGGGAGAATTGAAAG TCGGTGGACAGACGAACAGCGGAAAAAGCTATTTTGT spacer
length: 37 repeater length: 30
27430 1652918 GTTGCAATAAGACTCTGGGAGAATTGAAAG AAAGGTGATATTCGGAGAAACGGAATGGAAACGTGAGT spacer
length: 38 repeater length: 30
27431 1652986 GTTGCAATAAGACTCTGGGAGAATTGAAAG TAAGTTCTGGGAGCTGAGTTAGGGTCTTCTTGCCGTC spacer
length: 37 repeater length: 30
27432 1653053 GTTGCAATAAGACTCTGGGAGAATTGAAAG GGAGGGGGAGCGATGAGGAGGTTAGGCATTTTAGTCCT spacer
length: 38 repeater length: 30
27433 1653121 GTTGCAATAAGACTCTGGGAGAATTGAAAG GTGTTGAGGAACTTGACTGGCAGGGAAGCGTAGAAT spacer
length: 36 repeater length: 30
27434 1653187 GTTGCAATAAGACTCTGGGAGAATTGAAAG AGCGGTAGTTACTTAAGTTACATTGAGAGCTGG spacer
length: 33 repeater length: 30
27435 1653250 GTTGCAATAAGACTCTGGGAGAATTGAAAG ACGAGCAGATGCAGCAACTCGTCCAGTTCCTGACGACGA
spacer length: 40 repeater length: 30
27436 1653320 GTTGCAATAAGACTCTGGGAGAATTGAAAG AAGCTGCTAGGTATCTCAGCACTGTAGGTAGTGCTGTT spacer
length: 38 repeater length: 30
27437 1653388 GTTGCAATAAGACTCTGGGAGAATTGAAAG TCAAGCTGCTCCGCTACCTCGCCAGGATGATCATCATCCG
spacer length: 40 repeater length: 30
27438 1653458 GTTGCAATAAGACTCTGGGAGAATTGAAAG TTTGTTCTTGGCTCTGATAAAGCGCTTTAATTTCCG spacer
length: 36 repeater length: 30
27439 1653524 GTTGCAATAAGACTCTGGGAGAATTGAAAG CCTCGGGGACAGGGTAAGCATAATATAGACGGGCAA spacer
length: 36 repeater length: 30
27440 1653590 GTTGCAATAAGACTCTGGGAGAATTGAAAG TTGTAGTACTCATCATAGCCGGCGTAGGGGTTGTTGAAGT
spacer length: 40 repeater length: 30
27441 1653660 GTTGCAATAAGACTCTGGGAGAATTGAAAG ACCTTATACGAGTGGACAGTCGCGATAAACACTTTCA spacer
length: 37 repeater length: 30
27442 1653727 GTTGCAATAAGACTCTGGGAGAATTGAAAG ACCTTTAGGGTCTTCGTGAATGTGTCGTCTTGAGACC spacer
length: 38 repeater length: 30
27443 1653795 GTTGCAATAAGACTCTGGGAGAATTGAAAG AGGGCGTTATTTACCTCATCTATCCCGTGCCCGTTTAT spacer
length: 38 repeater length: 30
27444 1653863 GTTGCAATAAGACTCTGGGAGAATTGAAAG AAAACCGCAGTAGCGAGGTAAGTACGGGAAGGTGAG spacer
length: 36 repeater length: 30
27445 1653929 GTTGCAATAAGACTCTGGGAGAATTGAAAG CTCTCGGAATCCCACGCAAGTCGAGAACCTGATTAAT spacer
length: 37 repeater length: 30
27446 1653996 GTTGCAATAAGACTCTGGGAGAATTGAAAG GCTGATTTAAACGGGAAAATATTTGCGTTTTTGCTAT spacer
length: 37 repeater length: 30
27447 1654063 GTTGCAATAAGACTCTGGGAGAATTGAAAG ATGAGTGAAGCAGTATCTAACGACCTGGGGGCTGTG spacer
length: 36 repeater length: 30
27448 1654129 GTTGCAATAAGACTCTGGGAGAATTGAAAG AGGCCTGAGGGCTGTCAGTGAGGGCGTAGGCGATGAA spacer
length: 37 repeater length: 30
27449 1654196 GTTGCAATAAGACTCTGGGAGAATTGAAAG GAAATACAGGGCAAACGCCATTTTGTCTCTGTGAGC spacer
length: 37 repeater length: 30
27450 1654263 GTTGCAATAAGACTCTGGGAGAATTGAAAG GTGAATGTTGGGGTCGAGCCTGACTGAGTATCATAC spacer
length: 36 repeater length: 30
27451 1654329 GTTGCAATAAGACTCTGGGAGAATTGAAAG ATTATCTTTAAGGTCTGGGGGCAGCCCTGGGCTGATAA spacer
length: 38 repeater length: 30
27452 1654397 GTTGCAATAAGACTCTGGGAGAATTGAAAG CATGTTCTCC
27453
27454
27455 crispr 7
27456 1726661 GTTTCCTAGGACATAGTTGTGTGGAAAG GCACAATCCTGTTGTAGAGCTTCCTTCCAAGTTCAAG spacer
length: 37 repeater length: 29

27457	1726727	GTTTCCGTAGGACATAGTTGTGTGGAAAG	TGCTTATCACAAAAACAACGCCGGGAGGTGGTGAGGT	spacer
	length:	37	repeater length:	29
27458	1726793	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AGCGTTAGCGTCGCGGTGGGCGGCTCGGAGGTCTTTA	spacer
	length:	37	repeater length:	29
27459	1726859	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CGTGGGACGTGTGCCGTTTTTAGGTACAGTTACCAA	spacer
	length:	36	repeater length:	29
27460	1726924	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CGTGGAAGACTACCCCATCACAGCCGAGCAAGCGTACGAG	spacer
	length:	40	repeater length:	29
27461	1726993	GTTTCCGTAGGACATAGTTGTGTGGAAAG	GAGCAAAAAAATTATTGCTACCCCTGCAAATAGGCG	spacer
	length:	36	repeater length:	29
27462	1727058	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AGGCCCTTCAGCTTGAACCTCGGCCTCGTAGAGGTTCCA	spacer
	length:	38	repeater length:	29
27463	1727125	GTTTCCGTAGGACATAGTTGTGTGGAAAG	TCTAATTTCCATGGTCAACTGAACACAACCAATGAA	spacer
	length:	36	repeater length:	29
27464	1727190	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AGACTGACCAGGAAACCGAGGACCCTGGCCCTGTCCA	spacer
	length:	37	repeater length:	29
27465	1727256	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CGAACTCGGATATCCAGAGAGTGCTACATCTTCACC	spacer
	length:	37	repeater length:	29
27466	1727322	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CCGGAATGAAGGTTGAAGAACTGGGATTGAAGTTTGT	spacer
	length:	37	repeater length:	29
27467	1727388	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CCCTGCTTCCGACCGGAGGCGCTTTCGAGCGGGTTTCATT	spacer
	length:	41	repeater length:	29
27468	1727458	GTTTCCGTAGGACATAGTTGTGTGGAAAG	TTGAGCAACCCCCCAACACATCAACAGCCTTATCCGGGTGA	spacer
	length:	42	repeater length:	29
27469	1727529	GTTTCCGTAGGACATAGTTGTGTGGAAAG	ATGCTGGAGAGAAGAGACAAAAGAATCGGAGAATTCG	spacer
	length:	37	repeater length:	29
27470	1727595	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CGACCTCCCTTATGTGGACTCTCCAGGCCGTGGATG	spacer
	length:	36	repeater length:	29
27471	1727660	GTTTCCGTAGGACATAGTTGTGTGGAAAG	GCGGAGTACTTATCTGCGGCCCTGTACGAAAAAATCCCCT	spacer
	length:	41	repeater length:	29
27472	1727730	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AGGATTGGGGCTGGCAGAACTACGCGGAGCTCATCGAGT	spacer
	length:	39	repeater length:	29
27473	1727798	GTTTCCGTAGGACATAGTTGTGTGGAAAG	ACAGGGTACGCAACGAAAGCAAGCAGGTGCCTGTTG	spacer
	length:	36	repeater length:	29
27474	1727863	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AACAACCGTTCATTTTGTCCCGGTGGACTGAACGC	spacer
	length:	35	repeater length:	29
27475	1727927	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CACCCCTCACCTTCCGCAGCTGGATTTTTAGGGGTTCTT	spacer
	length:	39	repeater length:	29
27476	1727995	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AAGAAGATGCAGGTGGTAGCCAATGAGGTTCCAAGAGA	spacer
	length:	39	repeater length:	29
27477	1728063	GTTTCCGTAGGACATAGTTGTGTGGAAAG	TCGTGCCTAGCGTGTCTGGCTGGTCAGGGTCAGGG	spacer
	length:	36	repeater length:	29
27478	1728128	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CAGCGTCAGGATCAGCAGTATATTTAGCTGAAAGCT	spacer
	length:	36	repeater length:	29
27479	1728193	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AAGTAACTGTCAGACACTAGGCACACAATAGGCACACAA	spacer
	length:	39	repeater length:	29
27480	1728261	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CCCCCAGTTTCCACAATAATGGCCAAAAGGGCCCAC	spacer
	length:	36	repeater length:	29
27481	1728326	GTTTCCGTAGGACATAGTTGTGTGGAAAG	GTGCCCTGGCAGTAGGGGCGGGCACGGGTCGGGCTACAGATG	spacer
	length:	42	repeater length:	29
27482	1728397	GTTTCCGTAGGACATAGTTGTGTGGAAAG	ATAGGCCGAGACGACTTCCGAATTCTGGACACGCGA	spacer
	length:	36	repeater length:	29
27483	1728462	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CCAGCATCAGTACAATGTACATCGCCAGGACAAAGCC	spacer
	length:	37	repeater length:	29
27484	1728528	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AGGCGCTTGACGACGCCTTAACGCCCCGATGAGGAGAAGATAAAG	spacer
	length:	44	repeater length:	29
27485	1728601	GTTTCCGTAGGACATAGTTGTGTGGAAAG	TTTAACACGCTTTTGCCGGGGATTGTCAACACCGGGGG	spacer
	length:	39	repeater length:	29
27486	1728669	GTTTCCGTAGGACATAGTTGTGTGGAAAG	TCAGCTCGTCCACCAAAACGTTGAGATTGTCCTGCA	spacer
	length:	36	repeater length:	29
27487	1728734	GTTTCCGTAGGACATAGTTGTGTGGAAAG		
27488				
27489				
27490	crispr 8			
27491	1733088	GTTTCCGTAGAACATGGTTGTGTGGAAAG	TACTTTTTTTGCCACTTATCATTTTGGATTTAGTGGCGACAT	spacer
	length:	42	repeater length:	29
27492	1733159	GTTTCCGTAGAACATGGTTGTGTGGAAAG	ACAGAGAATGCAATCTTCATTTCGCTGCTGGATAAG	spacer
	length:	36	repeater length:	29
27493	1733224	GTTTCCGTAGAACATGGTTGTGTGGAAAG	AAATGCCCTCCAGCCCCAGTGCAGGATTGAATACTC	spacer
	length:	37	repeater length:	29
27494	1733290	GTTTCCGTAGAACATGGTTGTGTGGAAAG	GACCGAACGGCTGGCTGGGGGGAAGTTTTCTGAACTAT	spacer

length: 38 repeater length: 29
27495 1733357 GTTTCCGTAGAACATGGTTGTGTGGAAAG GCATTTCCAGCACTGCCTCTCCGTCTTGGCTCCTAAAC spacer
length: 38 repeater length: 29
27496 1733424 GTTTCCGTAGAACATGGTTGTGTGGAAAG TATATGTTGTTGTCGTTGTTCTTTTCTGGGGTGGTAT spacer
length: 37 repeater length: 29
27497 1733490 GTTTCCGTAGAACATGGTTGTGTGGAAAG CTCAATACAATACAATACAATACAATAATGATAATG spacer
length: 36 repeater length: 29
27498 1733555 GTTTCCGTAGAACATGGTTGTGTGGAAAG TCAGCACTACCACTATCCGCCGCAAGCCAAGTCGTGC spacer
length: 37 repeater length: 29
27499 1733621 GTTTCCGTAGAACATGGTTGTGTGGAAAG ACAAATATTCGGGAATGGCGGGGCACATTATACCGGG spacer
length: 38 repeater length: 29
27500 1733688 GTTTCCGTAGAACATGGTTGTGTGGAAAG AGAGCCTGCAAAATCATAGCTTCCGTATAGTCTGAAC spacer
length: 38 repeater length: 29
27501 1733755 GTTTCCGTAGAACATGGTTGTGTGGAAAG AGAGTCATTGGCATCACCCCTCGCAGGAATCTTCTAA spacer
length: 36 repeater length: 29
27502 1733820 GTTTCCGTAGAACATGGTTGTGTGGAAAG GCGTGAAACTTCGCCAGTGGCTCGATCACTCGCGCCTC spacer
length: 38 repeater length: 29
27503 1733887 GTTTCCGTAGAACATGGTTGTGTGGAAAG AACTCATCGAGGAGCGCATCTTCCACCGCCTCCTTTAT spacer
length: 38 repeater length: 29
27504 1733954 GTTTCCGTAGAACATGGTTGTGTGGAAAG ATTCTCAATGGTTCTGAGCTGATTCTCCCTGACG spacer
length: 34 repeater length: 29
27505 1734017 GTTTCCGTAGAACATGGTTGTGTGGAAAG GGGCTCTCCCTTGGTGAAATCATAGAAGTTGCACTAG spacer
length: 37 repeater length: 29
27506 1734083 GTTTCCGTAGAACATGGTTGTGTGGAAAG TTTTCAGAAACATCGGCTTCAAAAAAACATTATATAC spacer
length: 38 repeater length: 29
27507 1734150 GTTTCCGTAGAACATGGTTGTGTGGAAAG GACATGCTTGACCCTTACATGCCTCAAATGTAAG spacer
length: 34 repeater length: 29
27508 1734213 GTTTCCGTAGAACATGGTTGTGTGGAAAG TGAGAGCACTACTTGGATAGCGGCCGACAACGGGGAC spacer
length: 37 repeater length: 29
27509 1734279 GTTTCCGTAGAACATGGTTGTGTGGAAAG GCTCATTCTGCCAGACCTCGCGGTAGGCATCAACTT spacer
length: 36 repeater length: 29
27510 1734344 GTTTCCGTAGAACATGGTTGTGTGGAAAG CACAGACCGACGCGGTTCAAGAGTACCTCAACTGGC spacer
length: 36 repeater length: 29
27511 1734409 GTTTCCGTAGAACATGGTTGTGTGGAAAG TAGCACTCATGCCAAAAGAGTTCGCCAACTACCTTT spacer
length: 36 repeater length: 29
27512 1734474 GTTTCCGTAGAACATGGTTGTGTGGAAAG ACGACCTTAGACCCTGGAGGATCTCATCCCAGGATGAT spacer
length: 38 repeater length: 29
27513 1734541 GTTTCCGTAGAACATGGTTGTGTGGAAAG CTGGATAATGGTTTCTGATTTCTAATCTTTTTTTCG spacer
length: 35 repeater length: 29
27514 1734605 GTTTCCGTAGAACATGGTTGTGTGGAAAG
27515
27516
27517 crispr 9
27518 1734803 GTTTCCGTAGAACATGGTTGTGTGGAAAG AACTGCACAAAAACCGGTATTCTGGGACGTGTTCTTTTG spacer
length: 39 repeater length: 29
27519 1734871 GTTTCCGTAGAACATGGTTGTGTGGAAAG TGGTCATACACTATCACTGGTATGCCAGTTCACTG spacer
length: 36 repeater length: 29
27520 1734936 GTTTCCGTAGAACATGGTTGTGTGGAAAG CTGCTCACTCCTCCTCGGAGCGAGCATTATAATGGGT spacer
length: 37 repeater length: 29
27521 1735002 GTTTCCGTAGAACATGGTTGTGTGGAAAG ACGTCCTGAACAAGTGTGAGCATTGATGTATAATTGTGC spacer
length: 39 repeater length: 29
27522 1735070 GTTTCCGTAGAACATGGTTGTGTGGAAAG TGTCTAAGGTCCTTCGTCATAATATGACGCCAGGAC spacer
length: 36 repeater length: 29
27523 1735135 GTTTCCGTAGAACATGGTTGTGTGGAAAG CAGGTGATCTGGCTGTTTTTTGGGGCTGCCTTTGCTATTTTCG
spacer length: 43 repeater length: 29
27524 1735207 GTTTCCGTAGAACATGGTTGTGTGGAAAG AAGAATAGCCTCCCGAATGCTCGTCCGCAACCAGCGTCCA
spacer length: 40 repeater length: 29
27525 1735276 GTTTCCGTAGAACATGGTTGTGTGGAAAG AAGATAGCCTTTGCATCACGTAATGCCTTTCTGAACTC spacer
length: 38 repeater length: 29
27526 1735343 GTTTCCGTAGAACATGGTTGTGTGGAAAG CTCAGAGAGTCCTTTGGAAATCCTGCTGCCCCGAGGA spacer
length: 36 repeater length: 29
27527 1735408 GTTTCCGTAGAACATGGTTGTGTGGAAAG ACTAGACCGTCGACGGTGGAACTTTCAAAAAGCGCT spacer
length: 37 repeater length: 29
27528 1735474 GTTTCCGTAGAACATGGTTGTGTGGAAAG AAGAAGGTTGAGTTTTACGATGAGCAGGGACAGCTTTTGG
spacer length: 40 repeater length: 29
27529 1735543 GTTTCCGTAGAACATGGTTGTGTGGAAAG TTGATGTCCTCACCGATCGAAGTTGCGGGGATCCTAGGA
spacer length: 40 repeater length: 29
27530 1735612 GTTTCCGTAGAACATGGTTGTGTGGAAAG AAGTCGCCGTCCCCGAAAACCTGGGCGGTCTTCAAAGGAAA
spacer length: 40 repeater length: 29
27531 1735681 GTTTCCGTAGAACATGGTTGTGTGGAAAG TTGCCCTGTATGCTGTCCTCCCAAGCCCCTACACACTGT
spacer length: 40 repeater length: 29

27532 1735750 GTTTCCGTAGAACATGGTTGTGTGGAAAG TACCTGCTTTCTGCCCTTTTACCCAGCCAGACTACCA spacer
 length: 37 repeater length: 29
 27533 1735816 GTTTCCGTAGAACATGGTTGTGTGGAAAG GCATAAGCTAGATAGCCCATAGAGGAGTATTCCAACG spacer
 length: 37 repeater length: 29
 27534 1735882 GTTTCCGTAGAACATGGTTGTGTGGAAAG GCTGTGATAACTACCGTGTCCCCCGTCACGTTGTAAC spacer
 length: 37 repeater length: 29
 27535 1735948 GTTTCCGTAGAACATGGTTGTGTGGAAAG
 27536
 27537
 27538 GCA_002214525.1_ASM221452v1_genomic.fna (PilerCR):
 27539 START REPEAT
 SPACER
 crispr 1
 27540 593470 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TCATTGAGCTTCTTATTTCTTTGTAGGCTTTAAGGGC spacer
 length: 37 repeater length: 30
 27542 593537 CTTTCAATTCTCCTGGAGTCTTATTGGAAC ATGGAGGAAATGGCGTTATTTCGGGGACGGAACCTTTA spacer
 length: 37 repeater length: 30
 27543 593604 CTTTCAATTCTCCTGGAGTCTTATTGGAAC ACATACTGACGCCGCCGTAACCTGTCCATCTGTCTCTCGA spacer
 length: 39 repeater length: 30
 27544 593673 CTTTCAATTCTCCTGGAGTCTTATTGGAAC AAGATGGAGAAAAGGGTTGAGGTTGTGTTGAAGAAAG spacer
 length: 37 repeater length: 30
 27545 593740 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CCCACTACTATTTCTCTCCCCCTCTCTTTTGAAAG spacer
 length: 36 repeater length: 30
 27546 593806 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TTCCTTGATAAGACCGGCCGGTCTCTATGTTTCAT spacer
 length: 36 repeater length: 30
 27547 593872 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CGTGGCTACTAATGTAATCACGGCGATGGCGGTCCGT spacer
 length: 37 repeater length: 30
 27548 593939 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CTATTATGCTTTTGTAAGTCTTTAATTTTCTTTTGTC spacer
 length: 37 repeater length: 30
 27549 594006 CTTTCAATTCTCCTGGAGTCTTATTGGAAC ATGAGCCACGCGACCATCATTATGAGCACGGCCGTCAG spacer
 length: 38 repeater length: 30
 27550 594074 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TTTCAGCACGCTATATGTGATAATCAGCACACACTTTA spacer
 length: 38 repeater length: 30
 27551 594142 CTTTCAATTCTCCTGGAGTCTTATTGGAAC GGTGGGGACGATGAAGATTAACGTCACCTGGAAAGCTCG spacer
 length: 39 repeater length: 30
 27552 594211 CTTTCAATTCTCCTGGAGTCTTATTGGAAC ACTTTCGGGGGAGGCTAATATAAGCAAACTTAGATAT spacer
 length: 38 repeater length: 30
 27553 594279 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TTTTATCAACCGGGTCGGGTCGAGGCAAAAATTCCCA spacer
 length: 37 repeater length: 30
 27554 594346 CTTTCAATTCTCCTGGAGTCTTATTGGAAC GTGATGGCAAACTCCTTAAAGACGGCGCCTCCCCG spacer
 length: 36 repeater length: 30
 27555 594412 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TTAACCACTCCTGAATGTCTCAGGTATGTATTGAAG spacer
 length: 36 repeater length: 30
 27556 594478 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TAGACTTAGAGAAGATTAGAAATATCCATCCACGGTT spacer
 length: 37 repeater length: 30
 27557 594545 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CTTAGCCCTCTTTGTTGGGGCATATCCTAACTCCTTTTGC
 spacer length: 40 repeater length: 30
 27558 594615 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CCGAGCTAATGGAGGTGATGAGGTTGTGAAGAGGAAG spacer
 length: 37 repeater length: 30
 27559 594682 CTTTCAATTCTCCTGGAGTCTTATTGGAAC GGGGGCATTAATCCCCCGTGTACCCTCTCCCCCGGA spacer
 length: 36 repeater length: 30
 27560 594748 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TGTTAATCCTCCGTTTCCCCAACCGAAAGGTTACGAG spacer
 length: 37 repeater length: 30
 27561 594815 CTTTCAATTCTCCTGGAGTCTTATTGGAAC GGGCTTTCGTCCAGGACTACTCACCCCCGCACGGGCTTC spacer
 length: 39 repeater length: 30
 27562 594884 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CACGTTTCAGTGCAGAAAGCGGAGGAGAACAAGCCAA spacer
 length: 37 repeater length: 30
 27563 594951 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CTGAGATAGAACGTGAGCAGGGCCACGCCCCCACA spacer
 length: 36 repeater length: 30
 27564 595017 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TTATACCCGGACAGGCCGCCCTTCTCGATGTATATTTT spacer
 length: 38 repeater length: 30
 27565 595085 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CCACCATGGCCAGCAGGGGAATGACTACGGCGAACAG spacer
 length: 37 repeater length: 30
 27566 595152 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CATATTCTTCTCCGAAAACCTTCAGCCCCCAATCATCC spacer
 length: 37 repeater length: 30
 27567 595219 CTTTCAATTCTCCTGGAGTCTTATTGGAAC GTTGCGTTAGTTGGCTGAAGATAATGGACCCTATCATA spacer
 length: 38 repeater length: 30
 27568 595287 CTTTCAATTCTCCTGGAGTCTTATTGGAAC GTGTTCGGAT
 27569
 27570
 27571 crispr 2

27572 649107 GTTCCAATAAGACTCTAAGAGAATTGAAA GAAAACCGAAAAATCAAAGGCGCCCTCGTCGATTATTATC spacer
length: 40 repeater length: 29
27573 649176 GTTCCAATAAGACTCTAAGAGAATTGAAA GGTAAC TATTTCAATTTCAAGAATTTTTTCGAGACCTA spacer
length: 38 repeater length: 29
27574 649243 GTTCCAATAAGACTCTAAGAGAATTGAAA CTGGCTAAGGTTTCAAATATTGGTAATCCCCACGCTTCG spacer
length: 39 repeater length: 29
27575 649311 GTTCCAATAAGACTCTAAGAGAATTGAAA GGACGTAAATGTTTTTTGTATCCAACCTGCCGAGTCTAT spacer
length: 39 repeater length: 29
27576 649379 GTTCCAATAAGACTCTAAGAGAATTGAAA GCTGTTTTTAAATCTATCCGTTACGGCGCATTTTT spacer
length: 36 repeater length: 29
27577 649444 GTTCCAATAAGACTCTAAGAGAATTGAAA GGGCTGTTCATTGGTGTTCGGGATTGTTCATTATTGTA spacer
length: 38 repeater length: 29
27578 649511 GTTCCAATAAGACTCTAAGAGAATTGAAA GGAAGATAGGGGGTGGAAAGAGATGAGGGATTGGGAT spacer
length: 37 repeater length: 29
27579 649577 GTTCCAATAAGACTCTAAGAGAATTGAAA GATCACTATGGGGCCCACGAGGGTGTGAGGCCAGCGC spacer
length: 38 repeater length: 29
27580 649644 GTTCCAATAAGACTCTAAGAGAATTGAAA GTCTGGAAGGATTGGAGAGCGGGGCTGGTCGATTAAG spacer
length: 37 repeater length: 29
27581 649710 GTTCCAATAAGACTCTAAGAGAATTGAAA GTTAGAAGCTTCTTATCAAGCTTAAACGCCGGTTCAGT spacer
length: 38 repeater length: 29
27582 649777 GTTCCAATAAGACTCTAAGAGAATTGAAA GAACGAGAAGTATTCTAAATAAACTGTAATTCCCTTGT spacer
length: 38 repeater length: 29
27583 649844 GTTCCAATAAGACTCTAAGAGAATTGAAA GAAGCAATTCG
27584
27585
27586 crispr 3
27587 668386 GTTCCAATAAGACTCCAAGAGAATTGAAAG AAAAGCCACCCCTGAAGCACCAGGGGTTTGGGGG spacer
length: 35 repeater length: 30
27588 668451 GTTCCAATAAGACTCCAAGAGAATTGAAAG TGAGCCGGGCGTGGATGTGCCCTGAATTCTCCGCCGA spacer
length: 39 repeater length: 30
27589 668520 GTTCCAATAAGACTCCAAGAGAATTGAAAG ATCATTAAGGTCTACGATGCCTCGACGTATGAGGATA spacer
length: 37 repeater length: 30
27590 668587 GTTCCAATAAGACTCCAAGAGAATTGAAAG GTCGATGTAAACGATAGCGTTAAGGTCAACTCCTGAG spacer
length: 37 repeater length: 30
27591 668654 GTTCCAATAAGACTCCAAGAGAATTGAAAG CCTGCTCGGGAGGGTCAAGCATGTAACAGTTCACCT spacer
length: 36 repeater length: 30
27592 668720 GTTCCAATAAGACTCCAAGAGAATTGAAAG TAACTTCTTCTTCAATTTCTGGGGCTTAATTGAACCCC spacer
length: 37 repeater length: 30
27593 668787 GTTCCAATAAGACTCCAAGAGAATTGAAAG TCGTTTACATAGACCGCGGTATGGTAGTGTTACCA spacer
length: 36 repeater length: 30
27594 668853 GTTCCAATAAGACTCCAAGAGAATTGAAAG AAAGAGCGTAAAACTTTAATAACAGTGCTTTACAGT spacer
length: 37 repeater length: 30
27595 668920 GTTCCAATAAGACTCCAAGAGAATTGAAAG TTCTTAATATCGATTGTGATGTTATAGAGCAGGGTGT spacer
length: 37 repeater length: 30
27596 668987 GTTCCAATAAGACTCCAAGAGAATTGAAAG TGCTATCACCACCTGAACTATTGAGACTATAATAAGGG spacer
length: 38 repeater length: 30
27597 669055 GTTCCAATAAGACTCCAAGAGAATTGAAAG TTTTATCTCCTCTTCTACACGACAACTATATAAACAG spacer
length: 39 repeater length: 30
27598 669124 GTTCCAATAAGACTCCAAGAGAATTGAAAG ATCGCAACACCGTTTAACATGTTGTGGTGAAAGTGCG spacer
length: 37 repeater length: 30
27599 669191 GTTCCAATAAGACTCCAAGAGAATTGAAAG TTGACACGTCAAAGACGTATAACACTTACTTGAGC spacer
length: 35 repeater length: 30
27600 669256 GTTCCAATAAGACTCCAAGAGAATTGAAAG GCATTTTTCTCTGAATTCTGGGAAGACAAACCTCCAGG
27601
27602
27603 GCA_002214545.1_ASM221454v1_genomic.fna (PilerCR) :
27604 START REPEAT
SPACER
27605 crispr 1
27606 684574 CTTTCAATTCTCCTAGAGTCTTATTGGAAC GAACAGCCTTTTTCTCAACCACGCGCCGACGATAGT spacer
length: 37 repeater length: 30
27607 684641 CTTTCAATTCTCCTAGAGTCTTATTGGAAC CGCCGCATGTCTCGGGAGTTGTGCGCTGATTCTAC spacer
length: 36 repeater length: 30
27608 684707 CTTTCAATTCTCCTAGAGTCTTATTGGAAC CTGAATTTGGGGTTTTTGAAGTTTGTACGAGAACCTAAAATA
spacer length: 42 repeater length: 30
27609 684779 CTTTCAATTCTCCTAGAGTCTTATTGGAAC AGCAATCACCGCTAAAGTGCATAAACCGGCGTGGTTAT spacer
length: 38 repeater length: 30
27610 684847 CTTTCAATTCTCCTAGAGTCTTATTGGAAC GGGAGCGCATGATTGAAAAGAAACCGCTAATAGCACCTG spacer
length: 39 repeater length: 30
27611 684916 CTTTCAATTCTCCTAGAGTCTTATTGGAAC GCGGTGGCTAGGCTCATGCACTTGGGTCTAGTGAAAA spacer
length: 37 repeater length: 30

27612 684983 CTTTCAATTCTCCTAGAGTCTTATTGGAAC GGAACATGAACCTTGAAGAATGCCGAGAGTGGTTGA spacer
 length: 36 repeater length: 30
 27613 685049 CTTTCAATTCTCCTAGAGTCTTATTGGAAC TTCACGTTTCGAGGTTACTGTGACGATTGTGGGGTTC spacer
 length: 36 repeater length: 30
 27614 685115 CTTTCAATTCTCCTAGAGTCTTATTGGAAC GCTTTTCTGCTCATCGGTGGTCTAACGAGAATTCTA spacer
 length: 36 repeater length: 30
 27615 685181 CTTTCAATTCTCCTAGAGTCTTATTGGAAC AGTTATCATTTCAATGGTATACCATACAAAGACTTGA spacer
 length: 37 repeater length: 30
 27616 685248 CTTTCAATTCTCCTAGAGTCTTATTGGAAC TTGGTGTATC
 27617
 27618
 27619 crispr 2
 27620 1555585 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AACTATCCTGCTGAGGACTATACAGACCACCCAAAGC spacer
 length: 37 repeater length: 30
 27621 1555652 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GCGACGATTAGACGGCTCATGATTTCAACATTCGCCG spacer
 length: 37 repeater length: 30
 27622 1555719 CTTTCAATTCTCCTAGAGTCTTATTGCAAC ATGGAAAAGAATACACAAAGCTTGTGTTTGGTGAAGG spacer
 length: 37 repeater length: 30
 27623 1555786 CTTTCAATTCTCCTAGAGTCTTATTGCAAC ATGGCTGGCGGAGAAAGTGTGAGCTTGTTAGTGTTC spacer
 length: 37 repeater length: 30
 27624 1555853 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CACTTTTACAGCGAAGAGCTTTTCGCCAGCCGATCTAA spacer
 length: 37 repeater length: 30
 27625 1555920 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCGAAGGGCAGGGATGCTCTTCTTATCGCCAAGGTCT spacer
 length: 37 repeater length: 30
 27626 1555987 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AAGCTTGAGAAAATCGAAGAAGCGATAGAAGAGCTACA spacer
 length: 38 repeater length: 30
 27627 1556055 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCTTCTCCTAACCTTAGTCTTCTCCTCCTGACCAT spacer
 length: 37 repeater length: 30
 27628 1556122 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TTTTCTCTGCCATTATCTGGAGTTGTTTTTTAACCT spacer
 length: 36 repeater length: 30
 27629 1556188 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTGTCGAGGAAGTAGGCGATTTTAACCTCGTTCGGAA spacer
 length: 37 repeater length: 30
 27630 1556255 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCGAGCAACACGTCATACCTGCCGTTAAGTATCTCCTTAT
 spacer length: 40 repeater length: 30
 27631 1556325 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CAGCCGCTGTTTCCTCGTTCATTCTCTCCAGCCGA spacer
 length: 35 repeater length: 30
 27632 1556390 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AGTTCAGTCACTGAACAGGGGCTAAATCCAGTAGAA spacer
 length: 36 repeater length: 30
 27633 1556456 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CAGAGACACGGAGAAGGACTTTAATGGCGCTCATCA spacer
 length: 36 repeater length: 30
 27634 1556522 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AAATTTGCTATGGGTGTTTTATTGAAGCTGAAAGTTAA spacer
 length: 38 repeater length: 30
 27635 1556590 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GTAAACTACCTTATATAGCCTTCCCAGAACCGCCACCAG
 spacer length: 39 repeater length: 30
 27636 1556659 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCGAGGAGCTGAACGGCAAATAGACGTGACGCTGT spacer
 length: 36 repeater length: 30
 27637 1556725 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCACATCAAGGAGGGAACCGCACCGGGGACACCTAAA spacer
 length: 37 repeater length: 30
 27638 1556792 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TGTGGAGGGCTTCTATAACGTCGCCCTTGATTTTGT spacer
 length: 36 repeater length: 30
 27639 1556858 CTTTCAATTCTCCTAGAGTCTTATTGCAAC ACTGAAAAGGTAGATGGAAGGCTTTTTGTAAATTAC spacer
 length: 38 repeater length: 30
 27640 1556926 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCTCCGTTAGCGCACTTCTCCTTAAAAAGTTTTTCGG spacer
 length: 36 repeater length: 30
 27641 1556992 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AGTGTTAGCATCAGCACCGAGGACGTGGGGAGGTTC spacer
 length: 36 repeater length: 30
 27642 1557058 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GAGCGAGGTTTGCCTCTGGTTTCCAGTGTGTGTCTT spacer
 length: 37 repeater length: 30
 27643 1557125 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTCAACACCGCTACAGCTCCAGTGACGTGGGACATAA spacer
 length: 37 repeater length: 30
 27644 1557192 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCGTCCGGGA
 27645
 27646
 27647 GCA_002214565.1_ASM221456v1_genomic.fna (PilerCR):
 27648 START REPEAT
 SPACER
 27649 crispr 1
 27650 270784 GTTTCACACAACATATGTTCTACTGAAAC ATTCTTAGGGCTGTGATTGAGGAGAACGGGCTGGACATCGA
 spacer length: 41 repeater length: 29
 27651 270854 GTTTCACACAACATATGTTCTACTGAAAC
 GTGACGATATGATAAACATTGACAAGGTATTGTTTCATAGAGTACAGGCC spacer length: 49 repeater length:

29

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27652 270932 GTTTCACACAACATATGTTCTACTGAAAC CCGCAGGAGC
27653
27654
27655 crispr 2
27656 272879 GTTTCACACAATACTGTTCTACGGAAAC AAGCGGAGGACGAGGATCCAGGTTCCCTCACATGCAGGCGGTA
spacer length: 44 repeater length: 29
27657 272952 GTTTCACACAATACTGTTCTACGGAAAC TCAAGGAAATGTATGAACATTTAGCAGAGAAGATTTGGCAGGATA
spacer length: 45 repeater length: 29
27658 273026 GTTTCACACAATACTGTTCTACGGAAAC CGTGTTCCAAGTCGAAAATTACCCGCTCGCAAGCCTAGAAAA
spacer length: 42 repeater length: 29
27659 273097 GTTTCACACAATACTGTTCTACGGAAAC ATTAGTGAAGACCTACCGGAAAGTAACCGGTAGGCGTGAA spacer
length: 40 repeater length: 29
27660 273166 GTTTCACACAATACTGTTCTACGGAAAC TTCATTCCCGCCGGCAAATACCGGTACCCGAGGAATCTCCTCAA
spacer length: 44 repeater length: 29
27661 273239 GTTTCACACAATACTGTTCTACGGAAAC CATCTCCAAACCTCCTTTTTCGTTTTATAAAAGGAAAGAAACAA
spacer length: 43 repeater length: 29
27662 273311 GTTTCACACAATACTGTTCTACGGAAAC CACGCCCCGATACCGAGCCGGAATACCGAGGAGAACCCGGA
spacer length: 41 repeater length: 29
27663 273381 GTTTCACACAATACTGTTCTACGGAAAC TTAAGGGTTTGGTCAGAATGGATAATTTGGCCGAAGTTGTTATTCAA
spacer length: 47 repeater length: 29
27664 273457 GTTTCACACAATACTGTTCTACGGAAAC AGGGCTCTGAGGAGGCTGGTTTCTTGTGGCGTGCGGTGTTT
spacer length: 41 repeater length: 29
27665 273527 GTTTCACACAATACTGTTCTACGGAAAC TTTGGGAGGAGATACAAGAAAGGAGGTACATGTGATGAGGAG
spacer length: 42 repeater length: 29
27666 273598 GTTTCACACAATACTGTTCTACGGAAAC CGGAAAGTCT
27667
27668
27669 crispr 3
27670 465076 GTTGCAATAAGACTCTAGGAGAATTGAAAG CAGGCTCCGAAGCCTGACCGAGGCGCCAGGTCACCAC spacer
length: 37 repeater length: 30
27671 465143 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAGAAGATCAACGTGGTCTACGATCCGTCGTTCTACA spacer
length: 37 repeater length: 30
27672 465210 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTATCGTATCGTGTCTAACAGGGGCGTATTTCGTGCGC spacer
length: 37 repeater length: 30
27673 465277 GTTGCAATAAGACTCTAGGAGAATTGAAAG CCGAACTTTGCCCTCCTCGGGAGCCTCACACGGCC spacer
length: 36 repeater length: 30
27674 465343 GTTGCAATAAGACTCTAGGAGAATTGAAAG CGGTTAAATGGGCGAAAGCGGATAAAAGGGACGTTGGT spacer
length: 38 repeater length: 30
27675 465411 GTTGCAATAAGACTCTAGGAGAATTGAAAG TCGTCGTTTACCCGGCGATAAAGTGAGAGGTGGGTAA spacer
length: 38 repeater length: 30
27676 465479 GTTGCAATAAGACTCTAGGAGAATTGAAAG TACGTGCCAAAGCTCGAAAAGCCCAAGTGGCCAAGG spacer
length: 36 repeater length: 30
27677 465545 GTTGCAATAAGACTCTAGGAGAATTGAAAG ATATTTCCATGCCTTTATTTGGGCGTCCATACTC spacer
length: 34 repeater length: 30
27678 465609 GTTGCAATAAGACTCTAGGAGAATTGAAAG GGACAGGAGGTGCTCAGGGAAACGGCGTTCGAAATC spacer
length: 36 repeater length: 30
27679 465675 GTTGCAATAAGACTCTAGGAGAATTGAAAG AGATCGAACCGGAGGAGATTCTGAATCTCATCGAGGA spacer
length: 37 repeater length: 30
27680 465742 GTTGCAATAAGACTCTAGGAGAATTGAAAG CGAAGAACATCCCCTCGTCAAAGTCTCCCTGCTGTCC spacer
length: 37 repeater length: 30
27681 465809 GTTGCAATAAGACTCTAGGAGAATTGAAAG CATAGTCGAGT
27682
27683
27684 GCA_002214605.1_ASM221460v1_genomic.fna (PilerCR):
27685 START REPEAT
SPACER
27686 crispr 1
27687 150644 CTTTCAATTCTCTTCTAGTCTTATTGGAAC GTTTAATGCGAGGTATGCTAAATTATCGAGATATCAA spacer
length: 37 repeater length: 30
27688 150711 CTTTCAATTCTCTTCTAGTCTTATTGGAAC AAGCAGTAGGGGCGAGGATACTTACCCCAAGCCGTCATTT
spacer length: 40 repeater length: 30
27689 150781 CTTTCAATTCTCTTCTAGTCTTATTGGAAC TTCAAACCTCCGATCGACGTTAAAGCATTCGTTGAGAA spacer
length: 38 repeater length: 30
27690 150849 CTTTCAATTCTCTTCTAGTCTTATTGGAAC ATGGTGAACGACGACAGGGCGTTCAAGGCAGGCTACCGT spacer
length: 39 repeater length: 30
27691 150918 CTTTCAATTCTCTTCTAGTCTTATTGGAAC CAAACTTTGTTAATACCCTGAAGAACAACCTTCTTAGG spacer
length: 37 repeater length: 30
27692 150985 CTTTCAATTCTCTTCTAGTCTTATTGGAAC TTGGGGACTGCAGCAGGAGCTGGATGTTTTGCCA spacer
length: 34 repeater length: 30
27693 151049 CTTTCAATTCTCTTCTAGTCTTATTGGAAC TGAGATGGGAAATGTTGACGTGTCGATTATAGAAGT spacer
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length: 36 repeater length: 30
27694 151115 CTTTCAATTCTCTTCTAGTCTTATTGGAAC GTGCTCGCCGCAATAATAGCCGTCGCCGAGTCTCGT spacer
length: 37 repeater length: 30
27695 151182 CTTTCAATTCTCTTCTAGTCTTATTGGAAC AGCGTAAGGGTGGAGGTCTGGCTGAACAACACGAAACT spacer
length: 38 repeater length: 30
27696 151250 CTTTCAATTCTCTTCTAGTCTTATTGGAAC TGGCGCCCGGCCGAGCTGGGCCCCGTCCGAATGAAGCT spacer
length: 38 repeater length: 30
27697 151318 CTTTCAATTCTCTTCTAGTCTTATTGGAAC AAAGATAACTTTTGCCCTAACCTTCTCGGGGTCAA spacer
length: 36 repeater length: 30
27698 151384 CTTTCAATTCTCTTCTAGTCTTATTGGAAC CAGCGTTTCT
27699
27700
27701 crispr 2
27702 172990 GTTTCGGTAGAACTCAATAGTGTGGAAAC ATCGCCTTCTTGGCACCTCCTTGATCCATCCTGGGA spacer
length: 37 repeater length: 29
27703 173056 GTTTCGGTAGAACTCAATAGTGTGGAAAC TCAATAAGCCAGCCTATGGCTCCTCCAACGAGTTTTCC spacer
length: 38 repeater length: 29
27704 173123 GTTTCGGTAGAACTCAATAGTGTGGAAAC ATGGCCTTGACAACGATATCCCCCAATGCGGGGAAAGC spacer
length: 38 repeater length: 29
27705 173190 GTTTCGGTAGAACTCAATAGTGTGGAAAC ACTACAAACTTGCTCAATCCATGACTCCTTGCAAATTC spacer
length: 38 repeater length: 29
27706 173257 GTTTCGGTAGAACTCAATAGTGTGGAAAC AGAGGATCTC
27707
27708
27709 crispr 3
27710 173416 GTTTCGGTAGAACTCAATAGTGTGGAAAG CTAAGTCGTCCGTATGAATTGTACCTGCCGCACTTG spacer
length: 36 repeater length: 29
27711 173481 GTTTCGGTAGAACTCAATAGTGTGGAAAG GGGCCTGTTTACCGGGGCTAAGAAATACGGCTGGCTGG spacer
length: 38 repeater length: 29
27712 173548 GTTTCGGTAGAACTCAATAGTGTGGAAAG ATCTCAAGAACCCTAAGCCTGCTACCCTAGCAGTTGT spacer
length: 37 repeater length: 29
27713 173614 GTTTCGGTAGAACTCAATAGTGTGGAAAG TTTTCTGGGTGGGTCTAACGTAGGTGGTTACTTGGGGTAGTAT
spacer length: 45 repeater length: 29
27714 173688 GTTTCGGTAGAACTCAATAGTGTGGAAAG TGGATCCTCCTAAAGCGCCATTTCGGCCATCCTGCTGGCCCTTCTGAA
spacer length: 47 repeater length: 29
27715 173764 GTTTCGGTAGAACTCAATAGTGTGGAAAG
AAGGCTTCTGGAGTGATGGCCCGCTGTTCTGCCTGTCCTTTGTTGT spacer length: 48 repeater length: 29
27716 173841 GTTTCGGTAGAACTCAATAGTGTGGAAAG AACTAACTTCCTGCTCCTCAAATCCCAATTTTATAA spacer
length: 37 repeater length: 29
27717 173907 GTTTCGGTAGAACTCAATAGTGTGGAAAG
GTCAAGTTGCGGACGATCTTGGCGTGGGCCCTGTCGAGGGCCTCGAAG spacer length: 48 repeater length: 29
27718 173984 GTTTCGGTAGAACTCAATAGTGTGGAAAG AGGGATTCTTGATCCATCAAATGTGTACCAAAATCA spacer
length: 37 repeater length: 29
27719 174050 GTTTCGGTAGAACTCAATAGTGTGGAAAG ATTATCTTCTGTACCAACTGCTCTGCGTTTTCAACAC spacer
length: 37 repeater length: 29
27720 174116 GTTTCGGTAGAACTCAATAGTGTGGAAAG CCGATGCTCTTTATTCCGCTCTCCTTGATTCCCCCTATG spacer
length: 39 repeater length: 29
27721 174184 GTTTCGGTAGAACTCAATAGTGTGGAAAG TCCATATTTGATCTTGGCGATCCTACTCCTGATATTCGGAGCCATA
spacer length: 46 repeater length: 29
27722 174259 GTTTCGGTAGAACTCAATAGTGTGGAAAG GGACCCGGAG
27723
27724
27725 crispr 4
27726 769272 GTTTCGGTAGAACTAAATAGTGTGGAAAG ACGCTAATATGTACGGTGGCTTCTCCGGGCACATGTAGCTCCCG
spacer length: 44 repeater length: 29
27727 769345 GTTTCGGTAGAACTAAATAGTGTGGAAAG TCGTCTCTTGGCAAGCTTGTAGTCAAGAACTACGCC spacer
length: 36 repeater length: 29
27728 769410 GTTTCGGTAGAACTAAATAGTGTGGAAAG AGAATAACACCATCCTTGTCATTTCTTCTGCGACAACA spacer
length: 39 repeater length: 29
27729 769478 GTTTCGGTAGAACTAAATAGTGTGGAAAG TTGCTGGAAGCCTGTCAATGTGGAGTTCTGGTCCCCTCGTGCCCCA
spacer length: 46 repeater length: 29
27730 769553 GTTTCGGTAGAACTAAATAGTGTGGAAAG CACCTACCCATCCCGACAGCCCGCACCACCCTTCCCGC spacer
length: 39 repeater length: 29
27731 769621 GTTTCGGTAGAACTAAATAGTGTGGAAAG CACTCACAATCGAAAAGCCCAACGAAATCGTGATAAGTTTCCGTAGA
spacer length: 47 repeater length: 29
27732 769697 GTTTCGGTAGAACTAAATAGTGTGGAAAG ATGTCTAGCCCGGGGTTTTCGCCACCCGGGCCGAACC spacer
length: 38 repeater length: 29
27733 769764 GTTTCGGTAGAACTAAATAGTGTGGAAAG CTTTTCTTTGGGGGTGCAGCCATGAGGAGGGTGTA spacer
length: 35 repeater length: 29
27734 769828 GTTTCGGTAGAACTAAATAGTGTGGAAAG TTCCACCCCACTTCTCAGCCCCGGGGCCTGAGCCGGGCTACCCAG
spacer length: 47 repeater length: 29

27735 769904 GTTTCGGTAGAACTAAATAGTGTGGAAAG
GTGTAGTCCACTGATGCGTAGCTTACTTTTTGCTTTGGTATTATGAAGT spacer length: 49 repeater length: 29

27736 769982 GTTTCGGTAGAACTAAATAGTGTGGAAAG GAGAGGGAATGAGTTTCAACAAAATCATTAGTACAT spacer length: 36 repeater length: 29

27737 770047 GTTTCGGTAGAACTAAATAGTGTGGAAAG CCGAACTCCCTGATCTGCTGCCTCCTCTTGAAGTAAATGTCCCTAG spacer length: 46 repeater length: 29

27738 770122 GTTTCGGTAGAACTAAATAGTGTGGAAAG TTATCGGATT

27739

27740

27741 crispr 5

27742 872339 CTTTCAATTCTCTTCTAGTCTTATTGGAAC ACTACCATCCTTCAGTGTGAAGACTGAACCAAACGT spacer length: 36 repeater length: 30

27743 872405 CTTTCAATTCTCTTCTAGTCTTATTGGAAC AACTGGTATGGCCATCTGTTCTACTATCTCACCCGTC spacer length: 37 repeater length: 30

27744 872472 CTTTCAATTCTCTTCTAGTCTTATTGGAAC GTGACCGAGATCTACCAGCGCTACACCGGGGTGTGCT spacer length: 37 repeater length: 30

27745 872539 CTTTCAATTCTCTTCTAGTCTTATTGGAAC CTCCACCATAGTGACACCCCCAAAGAAAAGAGAAATC spacer length: 37 repeater length: 30

27746 872606 CTTTCAATTCTCTTCTAGTCTTATTGGAAC GCGATCAGCTCCTCGACTCTTTCCGCGTCCTCAACGGATGC spacer length: 41 repeater length: 30

27747 872677 CTTTCAATTCTCTTCTAGTCTTATTGGAAC ACAATCAGTATAGTTCTCCAATCGAAAATCTAACTG spacer length: 37 repeater length: 30

27748 872744 CTTTCAATTCTCTTCTAGTCTTATTGGAAC AGCCTTCCAATCAGCAGAATCAATCGTTGAACCCTG spacer length: 36 repeater length: 30

27749 872810 CTTTCAATTCTCTTCTAGTCTTATTGGAAC GAGAGTGGCAAGGTACTGAGGTTCAAGGGCATCTTC spacer length: 36 repeater length: 30

27750 872876 CTTTCAATTCTCTTCTAGTCTTATTGGAAC AACCCCGGCCCCAACCCCAACAACAACCACAAGCTC spacer length: 36 repeater length: 30

27751 872942 CTTTCAATTCTCTTCTAGTCTTATTGGAAC ATTAAGTGTTAGACCTGTAGTTGAGACTTTCACATA spacer length: 36 repeater length: 30

27752 873008 CTTTCAATTCTCTTCTAGTCTTATTGGAAC CCGCAATTATTGCCAAGACCGCTATCAACCCAAAC spacer length: 35 repeater length: 30

27753 873073 CTTTCAATTCTCTTCTAGTCTTATTGGAAC ACCAACAGGCCAACGTGGAGTACGGGGCATTGATAAA spacer length: 37 repeater length: 30

27754 873140 CTTTCAATTCTCTTCTAGTCTTATTGGAAC AATAAAGTGAATTAGCTCCACGTCAACACGTCAGC spacer length: 35 repeater length: 30

27755 873205 CTTTCAATTCTCTTCTAGTCTTATTGGAAC AGTTTTAGAC

27756

27757

27758 crispr 6

27759 986300 CTTTCAATTCTCTTCTAGTCTTATTGTAAC CGACAGTCAAGAGAGACAGTTTGGGCTGTACATCTTGG spacer length: 38 repeater length: 30

27760 986368 CTTTCAATTCTCTTCTAGTCTTATTGTAAC GCCCACTATCTAATCCAATGTCCCTCAAGCTCCGTGT spacer length: 37 repeater length: 30

27761 986435 CTTTCAATTCTCTTCTAGTCTTATTGTAAC GCAGGCTCTACTGGGCCGAGCCATCGATTTACATCG spacer length: 36 repeater length: 30

27762 986501 CTTTCAATTCTCTTCTAGTCTTATTGTAAC GATAAGAACCTAATTATCGTCGGTGGTTGGGTCAGCAACA spacer length: 40 repeater length: 30

27763 986571 CTTTCAATTCTCTTCTAGTCTTATTGTAAC GAGTATGTATTGAGAATCGGTATGTTCAAACCTCCCA spacer length: 36 repeater length: 30

27764 986637 CTTTCAATTCTCTTCTAGTCTTATTGTAAC AGAAGCCCGGTGGGAACGGTCTTATTGTTCTCCCAA spacer length: 36 repeater length: 30

27765 986703 CTTTCAATTCTCTTCTAGTCTTATTGTAAC ATCTCCATCG

27766

27767

27768 crispr 7

27769 1598298 GTTCCAATAAGACTAAAAGAGAATTGAAAT TCGTTCTGAAGAAGTCTTGGAGGCTGCCAAACAAC spacer length: 35 repeater length: 30

27770 1598363 GTTCCAATAAGACTAAAAGAGAATTGAAAT TGTGATCTCATAATCAACTTTGATCTCAATCCTTGG spacer length: 37 repeater length: 30

27771 1598430 GTTCCAATAAGACTAAAAGAGAATTGAAAT TTATGATCTCAAGGGCTGTTGCTTGTGGATTTGATG spacer length: 36 repeater length: 30

27772 1598496 GTTCCAATAAGACTAAAAGAGAATTGAAAT GGGGACCACCTGACTTATTGGCGTGGTAACTAATATATCA spacer length: 39 repeater length: 30

27773 1598565 GTTCCAATAAGACTAAAAGAGAATTGAAAT ACTATTATCAGGAATTCTTCAAGCATGTGTCTTAGGA spacer length: 37 repeater length: 30

27774 1598632 GTTCCAATAAGACTAAAAGAGAATTGAAAT TACAATGTATCCATTATCCTTTCCAAAACCTTGGC spacer length: 36 repeater length: 30

27775 1598698 GTTCCAATAAGACTAAAAGAGAATTGAAAT GCAGTCTTTCTGCACCACCTCGTCAATGTGCTGAAG spacer length: 36 repeater length: 30

27776 1598764 GTTCCAATAAGACTAAAAGAGAATTGAAAT GAAATACAAGCGCTACACAGTAACATTCTACGCATACG spacer
 length: 38 repeater length: 30
 27777 1598832 GTTCCAATAAGACTAAAAGAGAATTGAAAT TGGCTTCCTCTTTAAAGCGAGAAGTTAGGACACCGTCAA
 spacer length: 39 repeater length: 30
 27778 1598901 GTTCCAATAAGACTAAAAGAGAATTGAAAT TCCGCAGAT
 27779
 27780
 27781 crispr 8
 27782 1633920 CTTTCAATTCTATTTTAGTCTTATTGGAAC
 TTATTGGAACCTGAAGTTCTTCCAGCTTCATCTTCTCGACTTCGAG spacer length: 46 repeater length: 30
 27783 1633996 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTCACCTCCTCAGAATTGCTATTATTCTCCACAATG spacer
 length: 38 repeater length: 30
 27784 1634064 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCACAGGCGTCCAGAAGACTACTGCGACCTTCTCCT spacer
 length: 36 repeater length: 30
 27785 1634130 CTTTCAATTCTATTTTAGTCTTATTGGAAC GCCTCTTCGC
 27786
 27787
 27788 crispr 9
 27789 1830018 CTTTCCACACTATTTAGTTCTACGGAAAC
 GAGGGGCGACGGTAAGCCTGAAGCCGGGCAGGAGCGCAGTCAAGATACCGG spacer length: 51 repeater
 length: 29
 27790 1830098 CTTTCCACACTATTTAGTTCTACGGAAAC
 GGAAACGAGGTGGCACGAAGGGGACGAAACAGCAATAGACGAGTTCCT spacer length: 48 repeater length: 29
 27791 1830175 CTTTCCACACTATTTAGTTCTACGGAAAC
 GGAAACAAACAGTTGATCGCGGAGGCGCTGAGGAGCGGTTGGAAGGT spacer length: 47 repeater length: 29
 27792 1830251 CTTTCCACACTATTTAGTTCTACGGAAAC CGGCTTATGCCTACTCTCCCCAAGTCCCCTTTGCC spacer
 length: 36 repeater length: 29
 27793 1830316 CTTTCCACACTATTTAGTTCTACGGAAAC GGCCATCGAGGCGAAGATAAAGGCCAAGCAGGAGGC spacer
 length: 36 repeater length: 29
 27794 1830381 CTTTCCACACTATTTAGTTCTACGGAAAC
 GAGAACGAGATATGGAATTGCGGTGTTATGGGCGCAATCCCGACAAAAGA spacer length: 51 repeater
 length: 29
 27795 1830461 CTTTCCACACTATTTAGTTCTACGGAAAC AGGTAGTTCTCGACAGTCTTCTCTGCACCCACGAGCT spacer
 length: 37 repeater length: 29
 27796 1830527 CTTTCCACACTATTTAGTTCTACGGAAAC CAGGGTGTGCAATACTCCCGAGGGTCGTTGTTCCAGTGTG
 spacer length: 41 repeater length: 29
 27797 1830597 CTTTCCACACTATTTAGTTCTACGGAAAC ACACGCCAACATTTGCTAGGATACTGCAGGAGGGGTTCTTGGT
 spacer length: 43 repeater length: 29
 27798 1830669 CTTTCCACACTATTTAGTTCTACGGAAAC CTGAGACTGTGGGGTCTGCATACGCTTCCACGTCCA spacer
 length: 36 repeater length: 29
 27799 1830734 CTTTCCACACTATTTAGTTCTACGGAAAC CCTTTAATTCGCCACCTCATCTTTACTTGCAAACCTG spacer
 length: 38 repeater length: 29
 27800 1830801 CTTTCCACACTATTTAGTTCTACGGAAAC GAAACTGGCAAACCTATTCGGATTACTTATTACTACGATT
 spacer length: 40 repeater length: 29
 27801 1830870 CTTTCCACACTATTTAGTTCTACGGAAAC ATAATCTTCAAAGACGGCGACTACGTGATTGCAAAGAACGGC
 spacer length: 42 repeater length: 29
 27802 1830941 CTTTCCACACTATTTAGTTCTACGGAAAC GTGAACAAGGAGTGGTACTAGAGTTCTGGACAAACAT spacer
 length: 37 repeater length: 29
 27803 1831007 CTTTCCACACTATTTAGTTCTACGGAAAC GAGGTTTCGCAAATGGGTCAACAGACGTAACATTCG spacer
 length: 35 repeater length: 29
 27804 1831071 CTTTCCACACTATTTAGTTCTACGGAAAC TAGTCACCAAATCACATACAAGATATATGAGGACGGGGTAGAA
 spacer length: 43 repeater length: 29
 27805 1831143 CTTTCCACACTATTTAGTTCTACGGAAAC
 27806
 27807
 27808 crispr 10
 27809 1831293 CTTTCCACACTATTTAGTTCTACGGAAAC TTGCTCTCGCTCTTGTATGTCTCTGGGTCGATGTTGA spacer
 length: 37 repeater length: 29
 27810 1831359 CTTTCCACACTATTTAGTTCTACGGAAAC AGTTTACGGCCGCAAGTGTTGAGGCGAGGAGGGAAG spacer
 length: 36 repeater length: 29
 27811 1831424 CTTTCCACACTATTTAGTTCTACGGAAAC AAAGTGGCAAAAACAACAATGAGATCAAGAGGCTAAT spacer
 length: 37 repeater length: 29
 27812 1831490 CTTTCCACACTATTTAGTTCTACGGAAAC ACGATAGGAGCTTAGGCTTAGCAACCTACCTTTACGGCCTAAGAT
 spacer length: 45 repeater length: 29
 27813 1831564 CTTTCCACACTATTTAGTTCTACGGAAAC GTGAGCGATTTAGAGGCTGAGCTACACAAGTACGAACTG spacer
 length: 39 repeater length: 29
 27814 1831632 CTTTCCACACTATTTAGTTCTACGGAAAC ACAGTTAGCTGAGTCCCAACATCTGCAATTTTTCCAAACCCT
 spacer length: 42 repeater length: 29
 27815 1831703 CTTTCCACACTATTTAGTTCTACGGAAAC
 ATGGGTGTGGAGGACGTGCTTAGTTATTTGGAGAAGAGAAAGGAAGA spacer length: 47 repeater length: 29
 27816 1831779 CTTTCCACACTATTTAGTTCTACGGAAAC ATGGTGGAACGTGAGCGCTAAAATCCTATCTCGCCAG spacer

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length: 38 repeater length: 29
27817 1831846 CTTTCCACACTATTTAGTTCTACGGAAAC AAACGGCGCACCCCCAAAGAAAAGGGAAAGGGCTAAAAAGG
spacer length: 41 repeater length: 29
27818 1831916 CTTTCCACACTATTTAGTTCTACGGAAAC GTCGCTCTCAGATACTCAATTGACCTTACTAGGGACTCACT
spacer length: 41 repeater length: 29
27819 1831986 CTTTCCACACTATTTAGTTCTACGGAAAC
27820
27821
27822 GCA_002215405.1_ASM221540v1_genomic.fna(PilerCR):
27823 START REPEAT
SPACER
27824 crispr 1
27825 1715387 CTTTCAATCCCTTATGGGATTCTTC CTACCTTTTGGAGATGCTTTCACCGATCTATGTTAAAGCAAA spacer
length: 41 repeater length: 25
27826 1715453 CTTTCAATCCCTTATGGGATTCTTC CTCGTTTTCAATAAATGTCTATAGGGATGAATGTGA spacer
length: 36 repeater length: 25
27827 1715514 CTTTCAATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATATG spacer
length: 37 repeater length: 25
27828 1715576 CTTTCAATCCCTTATGGGATTCTTC
27829
27830
27831 crispr 2
27832 1754986 CTTTCAATCCCTTTTGGGATTCATC AGAGTCCCCTTCAACATAAAACCTAACTTGGTTTGG spacer
length: 36 repeater length: 25
27833 1755047 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGAT spacer
length: 38 repeater length: 25
27834 1755110 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAGC spacer
length: 37 repeater length: 25
27835 1755172 CTTTCAATCCCTTTTGGGATTCATC TGCGGAAATATGGAAAGAAGTATTATGAAAAAGGAGAAAA spacer
length: 41 repeater length: 25
27836 1755238 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAACT spacer
length: 36 repeater length: 25
27837 1755299 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTATACCC spacer
length: 38 repeater length: 25
27838 1755362 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGCT spacer
length: 37 repeater length: 25
27839 1755424 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTTGAG spacer
length: 39 repeater length: 25
27840 1755488 CTTTCAATCCCTTTTGGGATTCATC TATGAAC TAACAGATAAAGGGAAGAGAAGTGTTC CCAAACT spacer
length: 42 repeater length: 25
27841 1755555 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGAG spacer
length: 39 repeater length: 25
27842 1755619 CTTTCAATCCCTTTTGGGATTCATC
27843
27844
27845 GCA_002215445.1_ASM221544v1_genomic.fna(PilerCR):
27846 START REPEAT
SPACER
27847 crispr 1
27848 1676206 GTTTTAGTTTCTTGTCGTTATTAC ATCATTTGGAATTGGGCTAGCCCTATTTTTCTTGATA spacer length:
36 repeater length: 24
27849 1676266 GTTTTAGTTTCTTGTCGTTATTAC AGTTGGTAGTGGGCAGATATCTAGCCCTGACCACT spacer length:
35 repeater length: 24
27850 1676325 GTTTTAGTTTCTTGTCGTTATTAC TGATGTCGAATACCGGAGTCAAGATGTTGATGAAAA spacer length:
36 repeater length: 24
27851 1676385 GTTTTAGTTTCTTGTCGTTATTAC AAATAACGAAGATTTAAGTGGTTTTGAACCAAGAGAA spacer
length: 37 repeater length: 24
27852 1676446 GTTTTAGTTTCTTGTCGTTATTAC TGATCACATGTTTTATCGGTAGTACATAATGTAGAAA spacer
length: 37 repeater length: 24
27853 1676507 GTTTTAGTTTCTTGTCGTTATTAC GAGGAGTTTGATAAACTTTTGAATTTCTTGAGAG spacer length:
35 repeater length: 24
27854 1676566 GTTTTAGTTTCTTGTCGTTATTAC GAAATATAGCAAGAGTTCTGTGGTCGCTATATTA spacer length:
34 repeater length: 24
27855 1676624 GTTTTAGTTTCTTGTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAATC spacer
length: 37 repeater length: 24
27856 1676685 GTTTTAGTTTCTTGTCGTTATTAC CTCAAAAATATAATGCGTAAGCTTAAATACCCAAC spacer length:
35 repeater length: 24
27857 1676744 GTTTTAGTTTCTTGTCGTTATTAC TTTTTATTCTATATTTGAATAAAGCATAAAGTAATC spacer length:
36 repeater length: 24
27858 1676804 GTTTTAGTTTCTTGTCGTTATTAC CTAATATTAATGGCAGTAGAAGTCTCGAACAACAC spacer length:
35 repeater length: 24

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27859 1676863 GTTTGTAGTTTCTTGTCTGTTATTAC TATCTCGCAATAAATGAGAGAGAGTTCGGCGAGTGT spacer length: 35 repeater length: 24

27860 1676922 GTTTGTAGTTTCTTGTCTGTTATTAC TATGTTTGTGTATTGCTAGCGTAATATTGTATTACA spacer length: 37 repeater length: 24

27861 1676983 GTTTGTAGTTTCTTGTCTGTTATTAC ACACAATATCTTAGTCATTACTGGAATGACTACAAC spacer length: 36 repeater length: 24

27862 1677043 GTTTGTAGTTTCTTGTCTGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAATC spacer length: 37 repeater length: 24

27863 1677104 GTTTGTAGTTTCTTGTCTGTTATTAC TGTAGTAAATTGATATAATCGGATTGAAGAGAGTG spacer length: 35 repeater length: 24

27864 1677163 GTTTGTAGTTTCTTGTCTGTTATTAC AGGGATATCTGGAAGTAATACACCAGTACTATAC spacer length: 34 repeater length: 24

27865 1677221 GTTTGTAGTTTCTTGTCTGTTATTAC GCCATTCAACTCAAAACTTATAGAAGATTACGAAATA spacer length: 37 repeater length: 24

27866 1677282 GTTTGTAGTTTCTTGTCTGTTATTAC CCAAATGCTAAAAATAGAAAAGGTAGGAGAGTTATTA spacer length: 37 repeater length: 24

27867 1677343 GTTTGTAGTTTCTTGTCTGTTATTAC CGGTCTTCCAAAATTACTTAATGCTCTTGATAATAAA spacer length: 37 repeater length: 24

27868 1677404 GTTTGTAGTTTCTTGTCTGTTATTAC TAAGGCTAATTTTGATCGATAAAGATGAAGAAGAAAG spacer length: 37 repeater length: 24

27869 1677465 GTTTGTAGTTTCTTGTCTGTTATTAC TATCTAACCCTCTCTTTTTCAACTCTTTGAAGATAAAA spacer length: 38 repeater length: 24

27870 1677527 GTTTGTAGTTTCTTGTCTGTTATTAC CCTCCCTGATATTCACCTTCTCCATTTCTGTAGCAA spacer length: 37 repeater length: 24

27871 1677588 GTTTGTAGTTTCTTGTCTGTTATTAC ACCAACTCTCAATTACTCATAATATTCAAATAAAT spacer length: 36 repeater length: 24

27872 1677648 GTTTGTAGTTTCTTGTCTGTTATTAC ATTCCGACTTGCTTAAATTCAGCTTTTTTGTACAA spacer length: 35 repeater length: 24

27873 1677707 GTTTGTAGTTTCTTGTCTGTTATTAC ACAGTAGTAGCTCCGGCTGTCATTCCCTAATAATAT spacer length: 35 repeater length: 24

27874 1677766 GTTTGTAGTTTCTTGTCTGTTATTAC AAATGATATAAAAAATGAACAACAGAATATAAAA spacer length: 34 repeater length: 24

27875 1677824 GTTTGTAGTTTCTTGTCTGTTATTAC AACAAGAATTGATGAAGTATTCAAAGAGCGATATGAA spacer length: 38 repeater length: 24

27876 1677886 GTTTGTAGTTTCTTGTCTGTTATTAC CTTTCAGAGGGCGAGATCGCAGAGTACTTGAGAATAGCG spacer length: 39 repeater length: 24

27877 1677949 GTTTGTAGTTTCTTGTCTGTTATTAC ATTTCTGCAAATGTATAATACATCAATTTTATAAT spacer length: 35 repeater length: 24

27878 1678008 GTTTGTAGTTTCTTGTCTGTTATTAC GCATCAGCAATTATGGAAGTCGCTAGATATTACTA spacer length: 35 repeater length: 24

27879 1678067 GTTTGTAGTTTCTTGTCTGTTATTAC AGGAATGTGTACAACAGCTATAAAAAAGAAAGAATTGT spacer length: 39 repeater length: 24

27880 1678130 GTTTGTAGTTTCTTGTCTGTTATTAC TTTGGAATATCTTGCGAGGCGAGGGTGAGTGAACCT spacer length: 36 repeater length: 24

27881 1678190 GTTTGTAGTTTCTTGTCTGTTATTAC AATAAAAGGAGATTTTCATAGACTCTATTCTCAAAA spacer length: 35 repeater length: 24

27882 1678249 GTTTGTAGTTTCTTGTCTGTTATTAC TTGTTCTAGAAGTGGCGCATTAACGGCAGTTTTTG spacer length: 36 repeater length: 24

27883 1678309 GTTTGTAGTTTCTTGTCTGTTATTAC GAGAGACAAAATTTCCAAGTAAGTGAAGTCTGAAAATT spacer length: 37 repeater length: 24

27884 1678370 GTTTGTAGTTTCTTGTCTGTTATTAC AATATACGCTGCATAATATACGCTCTCTTACGCTAAG spacer length: 37 repeater length: 24

27885 1678431 GTTTGTAGTTTCTTGTCTGTTATTAC AGAGTGGCATACTTATTTGTTTTGTTGAGTTATGAAG spacer length: 38 repeater length: 24

27886 1678493 GTTTGTAGTTTCTTGTCTGTTATTAC TTCCATTTTCTTCATAAGTAGCATCTCTCAACAAT spacer length: 35 repeater length: 24

27887 1678552 GTTTGTAGTTTCTTGTCTGTTATTAC ATAACAATTGTCTGGTAACTTATTTAGACGCTTA spacer length: 33 repeater length: 24

27888 1678609 GTTTGTAGTTTCTTGTCTGTTATTAC TTTGATACGATTACAATAAAGTTCACTTAAAGTAGAC spacer length: 37 repeater length: 24

27889 1678670 GTTTGTAGTTTCTTGTCTGTTATTAC AAAGTCTATTTTTATTTTATCTTTATCTATCAGC spacer length: 34 repeater length: 24

27890 1678728 GTTTGTAGTTTCTTGTCTGTTATTAC ATTGGATAGTCAGTACCAAAAGGTACATTAAGCCACT spacer length: 37 repeater length: 24

27891 1678789 GTTTGTAGTTTCTTGTCTGTTATTAC ATCATTAATAGAATACGAAAAGCTAAAAGCAAAAA spacer length: 36 repeater length: 24

27892 1678849 GTTTGTAGTTTCTTGTCTGTTATTAC ATGTAGATAACATCACTATATTGATAAAGAGACTCGT spacer length: 37 repeater length: 24

27893 1678910 GTTTGTAGTTTCTTGTCTGTTATTAC AAAATCATTGAACTATAATGTAGATCTTGACAGTA spacer length: 34 repeater length: 24

27894 1678968 GTTTGTAGTTTCTTGTCTGTTATTAC TTTCCAGCCCAGCCTCTTTGCAGCTTCTAGCCTAT spacer length: 35 repeater length: 24

35 repeater length: 24

27895 1679027 GTTT TAGTTT CTTGTCGTTATTAC ATCTAGTGAGACAAAAGAACCTCAGTCTCAGAGTT spacer length: 36 repeater length: 24

27896 1679087 GTTT TAGTTT CTTGTCGTTATTAC TTCCTTATACACATCAAGTAACACAGGCGAGTTTCATC spacer length: 37 repeater length: 24

27897 1679148 GTTT TAGTTT CTTGTCGTTATTAC TGCGGGATACTACTTCGCCCAAGTTCTGTAAAGAC spacer length: 36 repeater length: 24

27898 1679208 GTTT TAGTTT CTTGTCGTTATTAC TGGTGAAGTGGTACAGATACATCCTTATGAAGAA spacer length: 34 repeater length: 24

27899 1679266 GTTT TAGTTT CTTGTCGTTATTAC CCATTACTGGACAAAGACTATGTCATCACAGCTGGTG spacer length: 37 repeater length: 24

27900 1679327 GTTT TAGTTT CTTGTCGTTATTAC TTAACACTGGTTGAATTCGCAAGGAAAGTGATAGGT spacer length: 36 repeater length: 24

27901 1679387 GTTT TAGTTT CTTGTCGTTATTAC AGATATTTAGCGTTAAACTGCAGGAGACAGGGGCAC spacer length: 37 repeater length: 24

27902 1679448 GTTT TAGTTT CTTGTCGTTATTAC AAGTTTTTGATATCTGTCCCTGCAGTGTCTAGTG spacer length: 34 repeater length: 24

27903 1679506 GTTT TAGTTT CTTGTCGTTATTAC CTTCATACTCATACCAATTGTAAGTGTTCCTTGTGTTGA spacer length: 40 repeater length: 24

27904 1679570 GTTT TAGTTT CTTGTCGTTATTAC TCTTGGAAGACCTTAAAAAAGGATTGATTTATT spacer length: 35 repeater length: 24

27905 1679629 GTTT TAGTTT CTTGTCGTTATTAC TCGCATGCCTTAAATCGATCGTTTTCTCTACATCT spacer length: 35 repeater length: 24

27906 1679688 GTTT TAGTTT CTTGTCGTTATTAC TACGCTCCATGCCCAGCTGTGCTCTCATCAACACATAG spacer length: 38 repeater length: 24

27907 1679750 GTTT TAGTTT CTTGTCGTTATTAC GCGAGAAAGACTTCTACTGGGGCGCCGAATTTAAC spacer length: 35 repeater length: 24

27908 1679809 GTTT TAGTTT CTTGTCGTTATTAC CGCTAAAGAACGCCCTAAGGGAAGCCTTCAAATA spacer length: 34 repeater length: 24

27909 1679867 GTTT TAGTTT CTTGTCGTTATTAC TATCGCCTCACGCCATCTCTTTGGCGTGGTATAAT spacer length: 35 repeater length: 24

27910 1679926 GTTT TAGTTT CTTGTCGTTATTAC AAGTCGCAAAAGAACTGCTAGACAAATTTGACAGTGAA spacer length: 38 repeater length: 24

27911 1679988 GTTT TAGTTT CTTGTCGTTATTAC TGACTTATTTTTTGTCTTAAGTTCCTACTCATTTTCT spacer length: 38 repeater length: 24

27912 1680050 GTTT TAGTTT CTTGTCGTTATTAC AAAGAACTCATTATCTTTAAGGACAAAGTCAGGGGT spacer length: 36 repeater length: 24

27913 1680110 GTTT TAGTTT CTTGTCGTTATTAC TTCCCTGCGGATACTTCTGCCTCAATTTGGTCACA spacer length: 36 repeater length: 24

27914 1680170 GTTT TAGTTT CTTGTCGTTATTAC AAACCTTTTCAGAGGCTTACCTCATCAATGTGGAA spacer length: 35 repeater length: 24

27915 1680229 GTTT TAGTTT CTTGTCGTTATTAC AAAGAAAAAGAAAAGGCGGGGCGAGGGCATGGA spacer length: 34 repeater length: 24

27916 1680287 GTTT TAGTTT CTTGTCGTTATTAC TCTGTGTAACGTATCAGCAATGCGCTTTGTTATAT spacer length: 35 repeater length: 24

27917 1680346 GTTT TAGTTT CTTGTCGTTATTAC GCGGATTTCCACTGTTTCCAGCCTGAGCTTGGGC spacer length: 34 repeater length: 24

27918 1680404 GTTT TAGTTT CTTGTCGTTATTAC AGCAAATTTTAAACAAATGTATTCCATTCTTGAAGT spacer length: 36 repeater length: 24

27919 1680464 GTTT TAGTTT CTTGTCGTTATTAC AATTTTATAATGTCTGTAAACTAAAACATTGTTTT spacer length: 36 repeater length: 24

27920 1680524 GTTT TAGTTT CTTGTCGTTATTAC AAGGGATCTAGCCTGGCTAGAGAGCTTGCCGCTTTAATTAA spacer length: 41 repeater length: 24

27921 1680589 GTTT TAGTTT CTTGTCGTTATTAC ATGGGTGCACCACCAGAAGTAGTAGAAGAGGTCGAG spacer length: 36 repeater length: 24

27922 1680649 GTTT TAGTTT CTTGTCGTTATTAC TGTATTGCCACAAATGTCCCGTTTTCGTTGTACAGG spacer length: 36 repeater length: 24

27923 1680709 GTTT TAGTTT CTTGTCGTTATTAC CAAGAGAAAGGAGCTAGGAAGAGGATCTTTTCCCT spacer length: 35 repeater length: 24

27924 1680768 GTTT TAGTTT CTTGTCGTTATTAC ATTAGGACTCGAAAAATTTATATAAAAAAAGACATT spacer length: 36 repeater length: 24

27925 1680828 GTTT TAGTTT CTTGTCGTTATTAC TTCTCATCAACATTTGCTGTACAAATTCATAATCAT spacer length: 37 repeater length: 24

27926 1680889 GTTT TAGTTT CTTGTCGTTATTAC ACCAGTCTTACTCAACAAGTCAGCCCTTACTTATAAT spacer length: 37 repeater length: 24

27927 1680950 GTTT TAGTTT CTTGTCGTTATTAC CTCAGTCAGATACGTCTTCTTTAGCTGGCTTATGT spacer length: 35 repeater length: 24

27928 1681009 GTTT TAGTTT CTTGTCGTTATTAC ATCGAGTGGAAGGCGTTAGACCCAGTAGCTGCCGC spacer length: 35 repeater length: 24

27929 1681068 GTTT TAGTTT CTTGTCGTTATTAC AGCCTGGATCTGAAGAAACATAACCATGAGATAT spacer length: 34 repeater length: 24

27930 1681126 GTTTGTAGTTTCTTGTCTGTTATTAC AGGTCAGGAATATAGATTATTCGTACTTTGCTAT spacer length: 34 repeater length: 24

27931 1681184 GTTTGTAGTTTCTTGTCTGTTATTAC AAGTCTTCAGAAAATCATCAACACGCATATACTG spacer length: 34 repeater length: 24

27932 1681242 GTTTGTAGTTTCTTGTCTGTTATTAC TTTGATTAAATGGGTTGGTATGGCATAAAAAAT spacer length: 34 repeater length: 24

27933 1681300 GTTTGTAGTTTCTTGTCTGTTATTAC ATCGGAATTATAGGCGGATTTTAAACAATATTCCTAACAT spacer length: 40 repeater length: 24

27934 1681364 GTTTGTAGTTTCTTGTCTGTTATTAC GGAGACAAAGTTTGTCTGTGCAATATATCCCAA spacer length: 33 repeater length: 24

27935 1681421 GTTTGTAGTTTCTTGTCTGTTATTAC AGAAAGAGGAACATAAGGTCTAGATCTTACCCAA spacer length: 34 repeater length: 24

27936 1681479 GTTTGTAGTTTCTTGTCTGTTATTAC TAATTCATCTTTATAGTGTAACTTTTGAAATAAA spacer length: 35 repeater length: 24

27937 1681538 GTTTGTAGTTTCTTGTCTGTTATTAC AACTAAGAAAAATTCAGTCAGCAGTATTAATACTACTACTA spacer length: 39 repeater length: 24

27938 1681601 GTTTGTAGTTTCTTGTCTGTTATTAC TACACCAGTGAGAATGTCTTCCCGAACTACAAGAA spacer length: 36 repeater length: 24

27939 1681661 GTTTGTAGTTTCTTGTCTGTTATTAC AATTGGCAACTAAGAAGTTTGTACAAATAACATAA spacer length: 35 repeater length: 24

27940 1681720 GTTTGTAGTTTCTTGTCTGTTATTAC GAATAGGGGATGCGATAAACAGTTAGCACAAACA spacer length: 35 repeater length: 24

27941 1681779 GTTTGTAGTTTCTTGTCTGTTATTAC GGCATATAGAATTTTTCGCTTTGTTGCCTCTTTAA spacer length: 35 repeater length: 24

27942 1681838 GTTTGTAGTTTCTTGTCTGTTATTAC ATTCAATTTTTTTCGTTTTGTGCGTGAAAATAAAA spacer length: 35 repeater length: 24

27943 1681897 GTTTGTAGTTTCTTGTCTGTTATTAC GCTTGTGGTAACTATTCCATCGTCATCAGCAATC spacer length: 34 repeater length: 24

27944 1681955 GTTTGTAGTTTCTTGTCTGTTATTAC AACGCATTATTGCTAATGCACGGTGCTAACAATCTAG spacer length: 37 repeater length: 24

27945 1682016 GTTTGTAGTTTCTTGTCTGTTATTAC GTTTAAACCGGTAAATAGATAAAACCAAGAAAATG spacer length: 35 repeater length: 24

27946 1682075 GTTTGTAGTTTCTTGTCTGTTATTAC ACGTCTTGTGCTGACTTGTAACATCGCTGTTCTT spacer length: 35 repeater length: 24

27947 1682134 GTTTGTAGTTTCTTGTCTGTTATTAC AAAGAAGTGCAAAAAAATGGCTACGGTGACATT spacer length: 34 repeater length: 24

27948 1682192 GTTTGTAGTTTCTTGTCTGTTATTAC ATGCATTCAATTAAAGACTTAACAATTCAAGAGTT spacer length: 34 repeater length: 24

27949 1682250 GTTTGTAGTTTCTTGTCTGTTATTAC AAGTTTCTTAATTTATTACAGTTATATGAACAGC spacer length: 34 repeater length: 24

27950 1682308 GTTTGTAGTTTCTTGTCTGTTATTAC ACAATAGCCCGCAAATGTCAGTATCATCACGTTGTT spacer length: 36 repeater length: 24

27951 1682368 GTTTGTAGTTTCTTGTCTGTTATTAC AGATTTTATGAAACATTAATACTATTTATTTTATCTAT spacer length: 36 repeater length: 24

27952 1682428 GTTTGTAGTTTCTTGTCTGTTATTAC ATTAATCAGATAGAACTAGCAGTGTATTTTATGTT spacer length: 36 repeater length: 24

27953 1682488 GTTTGTAGTTTCTTGTCTGTTATTAC ACCTTCACTTATTGAAGATGGGGCTGAAACAACCTT spacer length: 36 repeater length: 24

27954 1682548 GTTTGTAGTTTCTTGTCTGTTATTAC TTGGTTACTGATATTTTCTGAACTCCAGCAAATGT spacer length: 35 repeater length: 24

27955 1682607 GTTTGTAGTTTCTTGTCTGTTATTAC CGTTAAACAGACTAGGCTCAGGACAAGCATTCACT spacer length: 35 repeater length: 24

27956 1682666 GTTTGTAGTTTCTTGTCTGTTATTAC AGCCCAAATCTGTTATCTCTTTAGAAATGAAATTTT spacer length: 35 repeater length: 24

27957 1682725 GTTTGTAGTTTCTTGTCTGTTATTAC AGAGTACCTTTACCTAACAGAGCGTCGTATATTAT spacer length: 36 repeater length: 24

27958 1682785 GTTTGTAGTTTCTTGTCTGTTATTAC TGTAGTCTTGCAGCAATACCTGCGCTCTTTAGCAGT spacer length: 35 repeater length: 24

27959 1682844 GTTTGTAGTTTCTTGTCTGTTATTAC AGAAGCTATACAACGAGGCTATATAAATAAAATG spacer length: 34 repeater length: 24

27960 1682902 GTTTGTAGTTTCTTGTCTGTTATTAC GTGAAGATGTCGATAGTGACGATAGCTGAGATAGT spacer length: 35 repeater length: 24

27961 1682961 GTTTGTAGTTTCTTGTCTGTTATTAC AAAGTAAGCCCGATAGTCCTTAGGTCAGGATCCCTTTA spacer length: 38 repeater length: 24

27962 1683023 GTTTGTAGTTTCTTGTCTGTTATTAC TATATTTGGTCAAGTGTCTTACAGCATTTTAAT spacer length: 34 repeater length: 24

27963 1683081 GTTTGTAGTTTCTTGTCTGTTATTAC GCAGAGTCTTTCGCTACGTCTTTCAGCGTCTCAAA spacer length: 35 repeater length: 24

27964 1683140 GTTTGTAGTTTCTTGTCTGTTATTAC GATCACAGTAATGCGTTATATAAAAAGGCAGAATTCA spacer length: 37 repeater length: 24

27965 1683201 GTTTGTAGTTTCTTGTCTGTTATTAC CTTTGATCAATTACTAAATTCTGTAATTGTGCCTCTA spacer length: 34 repeater length: 24

length: 37 repeater length: 24

27966 1683262 GTTT TAGTTT CTTGTCGTTATTAC GTAGAAAGTCATAACCCAAAACCTTCATTTTTTTTGTT spacer length: 36 repeater length: 24

27967 1683322 GTTT TAGTTT CTTGTCGTTATTAC ACAGGCTGTACCAAGCTGTTAGCGATGTAGTTAAT spacer length: 35 repeater length: 24

27968 1683381 GTTT TAGTTT CTTGTCGTTATTAC AGCTCCCATTTAAATCACGACCACTCCAAATATCA spacer length: 35 repeater length: 24

27969 1683440 GTTT TAGTTT CTTGTCGTTATTAC AGTTATAATCTATCTCCGGAACATTTAAATATTTTA spacer length: 36 repeater length: 24

27970 1683500 GTTT TAGTTT CTTGTCGTTATTAC ATAGTTGGTGGGACGGAATGGAGAAACAGCTAAAA spacer length: 35 repeater length: 24

27971 1683559 GTTT TAGTTT CTTGTCGTTATTAC TATAAAAAAGCATTTGCACAGTCTTGAAACCACTATTT spacer length: 39 repeater length: 24

27972 1683622 GTTT TAGTTT CTTGTCGTTATTAC ATGCTCGCCCACCAGCACACCGGACAGATCGACATA spacer length: 36 repeater length: 24

27973 1683682 GTTT TAGTTT CTTGTCGTTATTAC AACTGAAGGAACCTTGTAGAGCGGTATGCTTTGCTTCTTCTC spacer length: 42 repeater length: 24

27974 1683748 GTTT TAGTTT CTTGTCGTTATTAC AACTGGAGCAACGTATTGTTGAATATAGCCCCTATGA spacer length: 37 repeater length: 24

27975 1683809 GTTT TAGTTT CTTGTCGTTATTAC AATGAGATATTCAGTGAGGTCATGGAGCGTGAAA spacer length: 34 repeater length: 24

27976 1683867 GTTT TAGTTT CTTGTCGTTATTAC TTTCCTTATTTTTTAAGGAGGGAAATGGTCAGGCTAAAA spacer length: 39 repeater length: 24

27977 1683930 GTTT TAGTTT CTTGTCGTTATTAC TACGGTAAACTGGGGAGTTAACTCAGCATCCA spacer length: 32 repeater length: 24

27978 1683986 GTTT TAGTTT CTTGTCGTTATTAC CTTTCGCATACTTCCTCGCCCTCCTTGAGATATTTTCT spacer length: 38 repeater length: 24

27979 1684048 GTTT TAGTTT CTTGTCGTTATTAC AACTTGTTATCAATAAAAAGCTTCTCGATATTTTGTC spacer length: 37 repeater length: 24

27980 1684109 GTTT TAGTTT CTTGTCGTTATTAC ACTTACTTTTTTTCAGCACTCTCTTGACTCAT spacer length: 31 repeater length: 24

27981 1684164 GTTT TAGTTT CTTGTCGTTATTAC GAGGAAGGGCCTAACGTTGCAAGGCATAGGGCTAATA spacer length: 37 repeater length: 24

27982 1684225 GTTT TAGTTT CTTGTCGTTATTAC TCTTTTTGATAGATTAGGCTCAGCAGGGTCGTTATGAT spacer length: 38 repeater length: 24

27983 1684287 GTTT TAGTTT CTTGTCGTTATTAC ACTTCATTCCTCTTAAGTTGTAGTTTCTCAAAT spacer length: 34 repeater length: 24

27984 1684345 GTTT TAGTTT CTTGTCGTTATTAC GGAGCCGGGACCCCATGGGTAGCGCTTATACTGCT spacer length: 35 repeater length: 24

27985 1684404 GTTT TAGTTT CTTGTCGTTATTAC TCTATCAGTATGAAGTCATATTTTTCTCTGAAGTTCTCT spacer length: 39 repeater length: 24

27986 1684467 GTTT TAGTTT CTTGTCGTTATTAC ACTATATGGCGTAACTAGTTCTAGATAGTTTATCCCCAA spacer length: 39 repeater length: 24

27987 1684530 GTTT TAGTTT CTTGTCGTTATTAC GGGAGTTTATTCAATTTTTCTAACGAGAGTAGAA spacer length: 34 repeater length: 24

27988 1684588 GTTT TAGTTT CTTGTCGTTATTAC TGGAGAATGCTTACTATATTCCTTATCCGCTTTTT spacer length: 36 repeater length: 24

27989 1684648 GTTT TAGTTT CTTGTCGTTATTAC GGTAACGACTTGTGTATTTCCGTTAACTGGGGAGT spacer length: 36 repeater length: 24

27990 1684708 GTTT TAGTTT CTTGTCGTTATTAC TG TAGTGGACTTAGGGACAATAATTGCGTTGGCAACAA spacer length: 38 repeater length: 24

27991 1684770 GTTT TAGTTT CTTGTCGTTATTAC AATTCAAAACGTGCATTCGTTATTTTTCACGGATG spacer length: 36 repeater length: 24

27992 1684830 GTTT TAGTTT CTTGTCGTTATTAC TTTGACAAGCTCTTCTTAGTTAGCGAGAACTCC spacer length: 34 repeater length: 24

27993 1684888 GTTT TAGTTT CTTGTCGTTATTAC AAGGTAGGCAGTATCGCCGCCTATCGTTATGTGAA spacer length: 35 repeater length: 24

27994 1684947 GTTT TAGTTT CTTGTCGTTATTAC TTTCAAACCGTTAACTCCCCAGTTTAATCATGATA spacer length: 36 repeater length: 24

27995 1685007 GTTT TAGTTT CTTGTCGTTATTAC TTTCCCGTCCCCGTCGGTGAGTTGATTATCACTCCTT spacer length: 37 repeater length: 24

27996 1685068 GTTT TAGTTT CTTGTCGTTATTAC ACGGGAGGGAAATAGTCAGGAGGACTCCCCTCACTCA spacer length: 37 repeater length: 24

27997 1685129 GTTT TAGTTT CTTGTCGTTATTAC AAAAACCCCATCTCTGAATGAAATGAAAGCGAGAA spacer length: 35 repeater length: 24

27998 1685188 GTTT TAGTTT CTTGTCGTTATTAC TTAAAGTATAGTAAAGTATAAGGCGGGGTCAGCTCGC spacer length: 37 repeater length: 24

27999 1685249 GTTT TAGTTT CTTGTCGTTATTAC TAGTCATGAAGTCGTAAAGTATTGTTAAGTATTCCTT spacer length: 37 repeater length: 24

28000 1685310 GTTT TAGTTT CTTGTCGTTATTAC TTTCCAGAGGTGGTGAAAAAGGGGCTTAGTCTCAAC spacer length: 36 repeater length: 24

28001	1685370 GTTTGTAGTTTCTTGTCGTTATTAC	GATGCCAGTCCTCGAGTTCCTCAGCTTCGTTTGTCC spacer length: 36 repeater length: 24
28002	1685430 GTTTGTAGTTTCTTGTCGTTATTAC	TCGCTTTCGGCTCAAAGCGAAACCCTATGGGGTTTTTA spacer length: 38 repeater length: 24
28003	1685492 GTTTGTAGTTTCTTGTCGTTATTAC	AGTGTAAACCGTGACTACGGGTTCGGCTACCGGAAA spacer length: 35 repeater length: 24
28004	1685551 GTTTGTAGTTTCTTGTCGTTATTAC	GGTTTTCGATTGGCCTTACTGGCGGTTCTATATG spacer length: 34 repeater length: 24
28005	1685609 GTTTGTAGTTTCTTGTCGTTATTAC	ATAAAGTCCTTTTTTCGTCGTAAAATACGTCCTTA spacer length: 34 repeater length: 24
28006	1685667 GTTTGTAGTTTCTTGTCGTTATTAC	TTCCCCGACACCGCCCAATCCCTCGGTAGTATAAT spacer length: 35 repeater length: 24
28007	1685726 GTTTGTAGTTTCTTGTCGTTATTAC	GAGTAAAGTCCATAAATAAACCCCGTAACCTTACCT spacer length: 35 repeater length: 24
28008	1685785 GTTTGTAGTTTCTTGTCGTTATTAC	
28009		
28010		
28011	crispr 2	
28012	1698176 GTAATAACGACAAGAACTAAAAAC	AAAGGAGATTGACACCCCGTAATGTTCTACTATGTGAAA spacer length: 40 repeater length: 24
28013	1698240 GTAATAACGACAAGAACTAAAAAC	GAAGTCTTTCTTCAATGTCGAGGACTGTGCACGTAA spacer length: 36 repeater length: 24
28014	1698300 GTAATAACGACAAGAACTAAAAAC	AAAGTGACTGACTACAAGGCAATTGTTGAAGTACTT spacer length: 36 repeater length: 24
28015	1698360 GTAATAACGACAAGAACTAAAAAC	TTAGTGACCGAAAAAGATAGAGAGATTTTTGACAT spacer length: 35 repeater length: 24
28016	1698419 GTAATAACGACAAGAACTAAAAAC	CATATTCATCAAACTTCAAGACTACCTATACG spacer length: 33 repeater length: 24
28017	1698476 GTAATAACGACAAGAACTAAAAAC	ATCTGTTATATCAACAATCTCTCTATCTTTTTTCAGT spacer length: 36 repeater length: 24
28018	1698536 GTAATAACGACAAGAACTAAAAAC	GTAAAATCATATTGAGTATTTTGTGTTATGCGATTTATGTT spacer length: 40 repeater length: 24
28019	1698600 GTAATAACGACAAGAACTAAAAAC	GTTGAAAAGAAGAGAGTTCTACTTATTCTACTTAT spacer length: 35 repeater length: 24
28020	1698659 GTAATAACGACAAGAACTAAAAAC	ATGCGTCCTGGTTAGGTAGATTATAGTCCCTCCTA spacer length: 35 repeater length: 24
28021	1698718 GTAATAACGACAAGAACTAAAAAC	TAATTAGATTTTAAAGCGTTATATGCTACGCTCCC spacer length: 35 repeater length: 24
28022	1698777 GTAATAACGACAAGAACTAAAAAC	TGTCCAATTCTTGTGAAGAATTCTTTCTGACTTTGGGT spacer length: 37 repeater length: 24
28023	1698838 GTAATAACGACAAGAACTAAAAAC	ATTGATGAGGCAAGGGATCAAGGTGAGCTAAACGTT spacer length: 36 repeater length: 24
28024	1698898 GTAATAACGACAAGAACTAAAAAC	AGAAGGTAATTGAAATAGGAGGAGGTAACGGGTATTT spacer length: 37 repeater length: 24
28025	1698959 GTAATAACGACAAGAACTAAAAAC	TTCAACAACCCTGCCAGTATAAGACCTATCAAAACGTC spacer length: 38 repeater length: 24
28026	1699021 GTAATAACGACAAGAACTAAAAAC	CTATAAAATTTTGCAAAAGGTTGGTGAGGAGAAGT spacer length: 35 repeater length: 24
28027	1699080 GTAATAACGACAAGAACTAAAAAC	TTGCTACAAAGTTCCCCATGTGTTTGTAGGGGTAAT spacer length: 36 repeater length: 24
28028	1699140 GTAATAACGACAAGAACTAAAAAC	CCTTACTGTATTGTATGGTATATCAGCTTCTTCACT spacer length: 36 repeater length: 24
28029	1699200 GTAATAACGACAAGAACTAAAAAC	TGTCCCATTTACTACATCAAATTGGAAAATGTTATA spacer length: 36 repeater length: 24
28030	1699260 GTAATAACGACAAGAACTAAAAAC	ATTAATATAGCACCCACCTCCTAAAAGAGTAATTGAAAT spacer length: 38 repeater length: 24
28031	1699322 GTAATAACGACAAGAACTAAAAAC	ACTTATGTTTATGAGTATTACGCGATGAAAGTTTGGGG spacer length: 38 repeater length: 24
28032	1699384 GTAATAACGACAAGAACTAAAAAC	ATCTTCTCTGTCCTCTACTACTTTCTGCTCTTCTTT spacer length: 36 repeater length: 24
28033	1699444 GTAATAACGACAAGAACTAAAAAC	TGAAAAGTTCATAAAAAAGTACCCTAACGTAGAACA spacer length: 36 repeater length: 24
28034	1699504 GTAATAACGACAAGAACTAAAAAC	AATTTTATGATATCGCTTTTGTTCAGGAAACAT spacer length: 34 repeater length: 24
28035	1699562 GTAATAACGACAAGAACTAAAAAC	AATTCTAAGTGCACAAGAAGGACTAGAAGAGGCAGGCCT spacer length: 39 repeater length: 24
28036	1699625 GTAATAACGACAAGAACTAAAAAC	TAATGCCAGTAACATAGATGCCTCCTTGATTAT spacer length: 34 repeater length: 24
28037	1699683 GTAATAACGACAAGAACTAAAAAC	AATTTGGATTGACGTCACCTCAAGATCTATTACCT spacer length: 35 repeater length: 24
28038	1699742 GTAATAACGACAAGAACTAAAAAC	ATATTTAAGCCTTACTCTTTACATTAAAAGTAACAA spacer length: 35 repeater length: 24

36 repeater length: 24

28039 1699802 GTAATAACGACAAGAACTAAAAC TCGACGTTAGTCTTAGATTTTTATCATTTTTAGGT spacer length: 35 repeater length: 24

28040 1699861 GTAATAACGACAAGAACTAAAAC TTGTGCTCTTTAATGTCAAACAGTGTGATCTATT spacer length: 34 repeater length: 24

28041 1699919 GTAATAACGACAAGAACTAAAAC ACAGTGCATGAAGTAGCATCATATGTCGTAAGTGA spacer length: 35 repeater length: 24

28042 1699978 GTAATAACGACAAGAACTAAAAC TCTCTGGGTAAAGTGCAAAGAGCACTGGGATTACAA spacer length: 36 repeater length: 24

28043 1700038 GTAATAACGACAAGAACTAAAAC CAACAAGGCTGAGAAGATAGCAAAGAAGCTAGTA spacer length: 34 repeater length: 24

28044 1700096 GTAATAACGACAAGAACTAAAAC TACAATAATTTTCAGATTTCCAGTAAATGATACAAATTC spacer length: 38 repeater length: 24

28045 1700158 GTAATAACGACAAGAACTAAAAC TTGTCATTAAACTGACAACCTTTGTCTCTGACCCAAA spacer length: 36 repeater length: 24

28046 1700218 GTAATAACGACAAGAACTAAAAC AGTAGCGGTATACAAAAATGTATTTGTTGTGATA spacer length: 34 repeater length: 24

28047 1700276 GTAATAACGACAAGAACTAAAAC TGGCTCACAGGCATTAATACCTGCAAAGCCTAGG spacer length: 34 repeater length: 24

28048 1700334 GTAATAACGACAAGAACTAAAAC AAAAGTTTGCCAATTTAGGTGCTGTGCAGGAAGCATTTA spacer length: 39 repeater length: 24

28049 1700397 GTAATAACGACAAGAACTAAAAC GAATAATTGTAGATCAGCCATCAACTTCCACACG spacer length: 34 repeater length: 24

28050 1700455 GTAATAACGACAAGAACTAAAAC AGAAAATGAGTAGTGAGATAAAGACAAAAAATAAGT spacer length: 36 repeater length: 24

28051 1700515 GTAATAACGACAAGAACTAAAAC AATTTCTATATAATCCAAGAGACACAGAGAGGTTTCTAC spacer length: 39 repeater length: 24

28052 1700578 GTAATAACGACAAGAACTAAAAC TACATTACTTTTAGAAATATAGTATGAGCGTAACATA spacer length: 37 repeater length: 24

28053 1700639 GTAATAACGACAAGAACTAAAAC CAGTACACAAAGTGGATAGGAAAAGTCAACAAT spacer length: 33 repeater length: 24

28054 1700696 GTAATAACGACAAGAACTAAAAC ATCGTATATTATATTGGGGCAGAAAAATGAATGAT spacer length: 36 repeater length: 24

28055 1700756 GTAATAACGACAAGAACTAAAAC CAGGTTCAATTTTCAGTAAATAATGGCATTACAAT spacer length: 34 repeater length: 24

28056 1700814 GTAATAACGACAAGAACTAAAAC AACATCAGACTTTTGCCTTTTATTAGAAGGCTTTGGA spacer length: 38 repeater length: 24

28057 1700876 GTAATAACGACAAGAACTAAAAC GATACATTGCATATATTGGCAATCAGCAATACAA spacer length: 34 repeater length: 24

28058 1700934 GTAATAACGACAAGAACTAAAAC ACTATATATTGTTTGGAGCTTATCATAAACTTCATC spacer length: 36 repeater length: 24

28059 1700994 GTAATAACGACAAGAACTAAAAC CTGAATAGAGAGATGATAGAAGAAACGGTAAGTA spacer length: 34 repeater length: 24

28060 1701052 GTAATAACGACAAGAACTAAAAC TCAGCCTCTAATTCTGCTGCAACTTCCATCAATTTCTTT spacer length: 39 repeater length: 24

28061 1701115 GTAATAACGACAAGAACTAAAAC ATTAATTCCAAAGGACATTGAGAAGAAATTTGGCTTAAA spacer length: 39 repeater length: 24

28062 1701178 GTAATAACGACAAGAACTAAAAC ATATGAGCAACAGCAACTCAAATCTTTATATGAAGTC spacer length: 37 repeater length: 24

28063 1701239 GTAATAACGACAAGAACTAAAAC CACCAAAGAGTTTTTGTCCAAAGCCTTTTATGGA spacer length: 34 repeater length: 24

28064 1701297 GTAATAACGACAAGAACTAAAAC CAGTCTCAATGTCTTTATGAGACAATTCTATATCCAA spacer length: 37 repeater length: 24

28065 1701358 GTAATAACGACAAGAACTAAAAC GCACTTCTACTTGCTTAACGCTATAGCAAGCAAGAA spacer length: 36 repeater length: 24

28066 1701418 GTAATAACGACAAGAACTAAAAC GTTCATCAACCTCATGCTGAGTAAGACTATTAGTATGT spacer length: 38 repeater length: 24

28067 1701480 GTAATAACGACAAGAACTAAAAC CTCGTATTTCGTAAAAGCCCTCGTGGGTGGTGACGAT spacer length: 36 repeater length: 24

28068 1701540 GTAATAACGACAAGAACTAAAAC CTTTACAATAATTTTTTCAGGAAAACAAATTGAA spacer length: 35 repeater length: 24

28069 1701599 GTAATAACGACAAGAACTAAAAC TATGTCTTAGATAGTTGAAAAAGCTAAAGCTTTT spacer length: 34 repeater length: 24

28070 1701657 GTAATAACGACAAGAACTAAAAC GAATGTGTCCCCCTAGAGTTTTTACCAAACAACCA spacer length: 36 repeater length: 24

28071 1701717 GTAATAACGACAAGAACTAAAAC AAAAAACCTTTAACCTCTATCGAATGCTGTCAAAAA spacer length: 36 repeater length: 24

28072 1701777 GTAATAACGACAAGAACTAAAAC AACGTTACGACCCTACTACTCAGAAGAAGATAGT spacer length: 35 repeater length: 24

28073 1701836 GTAATAACGACAAGAACTAAAAC GAGGGATGAAGGCAAATCAGTATCAGCAATAGTAGAG spacer length: 37 repeater length: 24

28074 1701897 GTAATAACGACAAGAACTAAAAC GAAGTAGAACAGCTGTTTTTCAGGATTGAAATTAT spacer length:
35 repeater length: 24
28075 1701956 GTAATAACGACAAGAACTAAAAC AAGAGAATACTTTCTCGCCTCAGCAAGAATCGTATCAAT spacer
length: 39 repeater length: 24
28076 1702019 GTAATAACGACAAGAACTAAAAC GTATGTGGGAGAGCTTTATGAGTGGTAAGACACAC spacer length:
35 repeater length: 24
28077 1702078 GTAATAACGACAAGAACTAAAAC ATGCAGGTACTATACTGAGCCTGATGAACAGCA spacer length: 33
repeater length: 24
28078 1702135 GTAATAACGACAAGAACTAAAAC AAATTTAAGGAAAATGGAGTGTATGTATATAAAT spacer length:
34 repeater length: 24
28079 1702193 GTAATAACGACAAGAACTAAAAC CTCAATTATTTTCAATGCTTTTTCTTTTTCGTTGT spacer length:
35 repeater length: 24
28080 1702252 GTAATAACGACAAGAACTAAAAC ACATCAGCACTTATGGATACTACGCCATGCTCATCT spacer length:
36 repeater length: 24
28081 1702312 GTAATAACGACAAGAACTAAAAC ACTATTACTTTTGAAAATATGTAGATAAGACTGGT spacer length:
35 repeater length: 24
28082 1702371 GTAATAACGACAAGAACTAAAAC TTACAGTTGTTCCGTTAGGAAGTATATAGTTACT spacer length:
34 repeater length: 24
28083 1702429 GTAATAACGACAAGAACTAAAAC AAAATAATCATAAAACCCGAGCATTACGAAGAATTGA spacer
length: 37 repeater length: 24
28084 1702490 GTAATAACGACAAGAACTAAAAC TGTAAGGACTTCTTAAAAAGGTTAGAGGGGTTTCTC spacer
length: 37 repeater length: 24
28085 1702551 GTAATAACGACAAGAACTAAAAC GTAATTATTCTGATGGGTGCTATAATCTCGATGGC spacer length:
35 repeater length: 24
28086 1702610 GTAATAACGACAAGAACTAAAAC AGCGATTAGTTTAGTCGAATTAGCTATTGCGACTT spacer length:
35 repeater length: 24
28087 1702669 GTAATAACGACAAGAACTAAAAC ATGGGATCCTGATAATTCGGCATCAGCACAAATTC spacer length:
34 repeater length: 24
28088 1702727 GTAATAACGACAAGAACTAAAAC CTCTTCATTTGTCTCGTGAAATATAGGGTTTTTCA spacer length:
35 repeater length: 24
28089 1702786 GTAATAACGACAAGAACTAAAAC ATAGGGTAGTTCACAAAGAGCCAGCCCTCGTCAAC spacer length:
35 repeater length: 24
28090 1702845 GTAATAACGACAAGAACTAAAAC CTTTACGTAGTAGTTATAGAGCTTCGTTACGTGCT spacer length:
35 repeater length: 24
28091 1702904 GTAATAACGACAAGAACTAAAAC CTTGAACCATTGAACCTGCGATTGCAGGGATTAAGTAT spacer
length: 38 repeater length: 24
28092 1702966 GTAATAACGACAAGAACTAAAAC GCTGACTGGGGTGAGCCAGAAATGAAGACTGGAAG spacer length:
36 repeater length: 24
28093 1703026 GTAATAACGACAAGAACTAAAAC TAAAATTAGTCTGCTGGCCAATTAAGAACAACTCT spacer length:
36 repeater length: 24
28094 1703086 GTAATAACGACAAGAACTAAAAC GTGCAACAGGGTGAAACATAGATGAGCACATTTTT spacer length:
35 repeater length: 24
28095 1703145 GTAATAACGACAAGAACTAAAAC ATTATGCTCATTATCTCTGATTTTCGACCTTAAAGC spacer length:
35 repeater length: 24
28096 1703204 GTAATAACGACAAGAACTAAAAC CTACATTGTCCTGAAGTCCTAATTCTTTAATTCCTT spacer
length: 37 repeater length: 24
28097 1703265 GTAATAACGACAAGAACTAAAAC TTTTATTTTCAGTAGCTATCACCATAGTAGCCCTAAAA spacer
length: 39 repeater length: 24
28098 1703328 GTAATAACGACAAGAACTAAAAC TACTCCCCAGGCTTACCCAGCAAGAAGAGGAAGCCTT spacer
length: 37 repeater length: 24
28099 1703389 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
35 repeater length: 24
28100 1703448 GTAATAACGACAAGAACTAAAAC CATTTTAGCTCAAGCATCACCAGCATCAATTGAAAG spacer length:
36 repeater length: 24
28101 1703508 GTAATAACGACAAGAACTAAAAC ACCGTTCCGTAGATATTATTACTGTAACCTCCCTCCC spacer length:
36 repeater length: 24
28102 1703568 GTAATAACGACAAGAACTAAAAC ACTGGGCTCCCCGTGATCACTCCAGGTCCTTATGTTG spacer
length: 37 repeater length: 24
28103 1703629 GTAATAACGACAAGAACTAAAAC GACGCTAAAAAGCAAGAACAACAATCACAACAATCG spacer length:
36 repeater length: 24
28104 1703689 GTAATAACGACAAGAACTAAAAC TTTCTTAGTGAATCCCATGTACGTATATCTAATTTA spacer length:
36 repeater length: 24
28105 1703749 GTAATAACGACAAGAACTAAAAC
28106
28107
28108 crispr 3
28109 1814130 ACTTTCAATCCCTTATGGGATTCTTC CTACCTTTTGAGATGCTTTCACCGATCTATGTTAAAGCAA spacer
length: 40 repeater length: 26
28110 1814196 ACTTTCAATCCCTTATGGGATTCTTC CTCGTTTTCAATAAATGTCTATAGGGATGAATGTG spacer
length: 35 repeater length: 26
28111 1814257 ACTTTCAATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATAT spacer

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length: 36 repeater length: 26
28112 1814319 ACTTTCAATCCCTTATGGGATTCTTC
28113
28114
28115 crispr 4
28116 1853732 CTTTCAATCCCTTTTGGGATTCATC AGAGTCCCCTTCAACATAAAACCTAACTTGGTTTGG spacer
length: 36 repeater length: 25
28117 1853793 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGAT spacer
length: 38 repeater length: 25
28118 1853856 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAGC spacer
length: 37 repeater length: 25
28119 1853918 CTTTCAATCCCTTTTGGGATTCATC TGCGGAAATATGGAAAGAAGTATTATGAAAAAAGGAGAAAA spacer
length: 41 repeater length: 25
28120 1853984 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAACT spacer
length: 36 repeater length: 25
28121 1854045 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTATACCC spacer
length: 38 repeater length: 25
28122 1854108 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGCT spacer
length: 37 repeater length: 25
28123 1854170 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTTGAG spacer
length: 39 repeater length: 25
28124 1854234 CTTTCAATCCCTTTTGGGATTCATC TATGAAC TAACAGATAAAGGGAAGAGAAGTGTTCCCAAACT spacer
length: 42 repeater length: 25
28125 1854301 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGAG spacer
length: 39 repeater length: 25
28126 1854365 CTTTCAATCCCTTTTGGGATTCATC
28127
28128
28129 GCA_002215485.1_ASM221548v1_genomic.fna (PilerCR):
28130 START REPEAT
SPACER
28131 crispr 1
28132 1692321 GTTTTAGTTTCTTGTCGTTATTAC ATCATTGGAATTGGGCTAGCCCTATTTTTCTTGATA spacer length:
36 repeater length: 24
28133 1692381 GTTTTAGTTTCTTGTCGTTATTAC AGTTGGTAGTGGGCAGATATCTAGCCCTGACCACT spacer length:
35 repeater length: 24
28134 1692440 GTTTTAGTTTCTTGTCGTTATTAC TGATGTCGAATACCGGAGTCAAGATGTTGATGAAAA spacer length:
36 repeater length: 24
28135 1692500 GTTTTAGTTTCTTGTCGTTATTAC AAATAACGAAGATTTAAGTGGTTTTGAACCAAGAGAA spacer
length: 37 repeater length: 24
28136 1692561 GTTTTAGTTTCTTGTCGTTATTAC TGATCACATGTTTTATCGGTAGTACATAATGTAGAAA spacer
length: 37 repeater length: 24
28137 1692622 GTTTTAGTTTCTTGTCGTTATTAC GAGGAGTTTGATAAACTTTTGAATTTCTTGAGAG spacer length:
35 repeater length: 24
28138 1692681 GTTTTAGTTTCTTGTCGTTATTAC GAAATATAGCAAGAGTTCTGTGGTCGCTATATTA spacer length:
34 repeater length: 24
28139 1692739 GTTTTAGTTTCTTGTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAATC spacer
length: 37 repeater length: 24
28140 1692800 GTTTTAGTTTCTTGTCGTTATTAC CTCAAAAATATAATGCGTAAGCTTAAATACCCAAC spacer length:
35 repeater length: 24
28141 1692859 GTTTTAGTTTCTTGTCGTTATTAC TTTTTATTCTATATTTGAATAAAGCATAAAGTAATC spacer length:
36 repeater length: 24
28142 1692919 GTTTTAGTTTCTTGTCGTTATTAC CTAATATTAATGGCAGTAGAAGTCTCGAACAACAC spacer length:
35 repeater length: 24
28143 1692978 GTTTTAGTTTCTTGTCGTTATTAC TATCTCGCAATAAATGAGAGAGAGTCGGCGAGTGT spacer length:
35 repeater length: 24
28144 1693037 GTTTTAGTTTCTTGTCGTTATTAC TATGTTTGTTGTATTGCTAGCGTAATATTGTATTACA spacer
length: 37 repeater length: 24
28145 1693098 GTTTTAGTTTCTTGTCGTTATTAC ACACAATATCTTAGTCATTACTGGAATGACTACAAC spacer length:
36 repeater length: 24
28146 1693158 GTTTTAGTTTCTTGTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAATC spacer
length: 37 repeater length: 24
28147 1693219 GTTTTAGTTTCTTGTCGTTATTAC TGTAGTAAATTGATATAATCGGATTGAAGAGAGTG spacer length:
35 repeater length: 24
28148 1693278 GTTTTAGTTTCTTGTCGTTATTAC AGGGATATCTGGAAGTAATACACCAGTACTATAC spacer length:
34 repeater length: 24
28149 1693336 GTTTTAGTTTCTTGTCGTTATTAC GCCATTCAACTCAAACTTATAGAAGATTACGAAATA spacer
length: 37 repeater length: 24
28150 1693397 GTTTTAGTTTCTTGTCGTTATTAC CCAAATGCTAAAAATAGAAAAGGTAGGAGAGTTATTA spacer
length: 37 repeater length: 24
28151 1693458 GTTTTAGTTTCTTGTCGTTATTAC CGGTCTTCCAAAATTACTTAATGCTCTTGATAATAAA spacer

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length: 37 repeater length: 24

28152 1693519 GTTT TAGTTT CTTGTCGTTATTAC TAAGGCTAATTTTGATCGATAAAGATGAAGAAGAAAG spacer
length: 37 repeater length: 24

28153 1693580 GTTT TAGTTT CTTGTCGTTATTAC TATCTAACCCCTCTCTTTTTCAACTCTTTGAAGATAAAA spacer
length: 38 repeater length: 24

28154 1693642 GTTT TAGTTT CTTGTCGTTATTAC CCTCCCTGATATTCACCTTCTCCATTTCTGTAGCAA spacer
length: 37 repeater length: 24

28155 1693703 GTTT TAGTTT CTTGTCGTTATTAC ACCAACTCTCAATTACTCATAATATTCAAATAAAT spacer length:
36 repeater length: 24

28156 1693763 GTTT TAGTTT CTTGTCGTTATTAC ATTCCGACTTGCTTAAATTCAGCTTTTTTGTACAA spacer length:
35 repeater length: 24

28157 1693822 GTTT TAGTTT CTTGTCGTTATTAC ACAGTAGTAGCTCCGGCTGTCATTCTTAATAATAT spacer length:
35 repeater length: 24

28158 1693881 GTTT TAGTTT CTTGTCGTTATTAC AAATGATATAAAAAATGAACAACAGAATATAAAA spacer length:
34 repeater length: 24

28159 1693939 GTTT TAGTTT CTTGTCGTTATTAC AACAAGAATTGATGAAGTATTCAAAAGAGCGATATGAA spacer
length: 38 repeater length: 24

28160 1694001 GTTT TAGTTT CTTGTCGTTATTAC CTTTCAGAGGGCGAGATCGCAGAGTACTTGAGAATAGCG spacer
length: 39 repeater length: 24

28161 1694064 GTTT TAGTTT CTTGTCGTTATTAC ATTTCTGCAAATGTATAATACATCAATTTTATAAT spacer length:
35 repeater length: 24

28162 1694123 GTTT TAGTTT CTTGTCGTTATTAC GCATCAGCAATTATGGAAGTCGCTAGATATTACTA spacer length:
35 repeater length: 24

28163 1694182 GTTT TAGTTT CTTGTCGTTATTAC AGGAATGTGTACAACAGCTATAAAAAAGAAAGAATTGT spacer
length: 39 repeater length: 24

28164 1694245 GTTT TAGTTT CTTGTCGTTATTAC TTTGGAATATCTTGCGAGGCGAGGGTGAGTGAACCT spacer length:
36 repeater length: 24

28165 1694305 GTTT TAGTTT CTTGTCGTTATTAC AATAAAAGGAGATTCATAGACTCTATTCTCAAAA spacer length:
35 repeater length: 24

28166 1694364 GTTT TAGTTT CTTGTCGTTATTAC TTGTTCTAGAAGTGGCGCATTAAACGGCAGTTTTTG spacer length:
36 repeater length: 24

28167 1694424 GTTT TAGTTT CTTGTCGTTATTAC GAGAGACAAAATTTCCAAGTAAGTACTCTGAAAATT spacer
length: 37 repeater length: 24

28168 1694485 GTTT TAGTTT CTTGTCGTTATTAC AATATACGCTGCATAATATACGCTCTCTTACGCTAAG spacer
length: 37 repeater length: 24

28169 1694546 GTTT TAGTTT CTTGTCGTTATTAC AGAGTGGCATACTTATTTGTTTTGTTGAGTTATGAAG spacer
length: 38 repeater length: 24

28170 1694608 GTTT TAGTTT CTTGTCGTTATTAC TTCCATTTTCTTCATAAGTAGCATCTCTCAACAAT spacer length:
35 repeater length: 24

28171 1694667 GTTT TAGTTT CTTGTCGTTATTAC ATAACAATTGTCGGTAACTTATTTAGACGCTTA spacer length: 33
repeater length: 24

28172 1694724 GTTT TAGTTT CTTGTCGTTATTAC TTTGATACGATTACAATAAAGTTCACTTAAAGTAGAC spacer
length: 37 repeater length: 24

28173 1694785 GTTT TAGTTT CTTGTCGTTATTAC AAAGTCTATTTTTATTTTATCTTTATCTATCAGC spacer length:
34 repeater length: 24

28174 1694843 GTTT TAGTTT CTTGTCGTTATTAC ATTGGATAGTCAGTACCAAAAGGTACATTAAGCCACT spacer
length: 37 repeater length: 24

28175 1694904 GTTT TAGTTT CTTGTCGTTATTAC ATCATTAATAGAATACGAAAAGCTAAAAGCAAAAAA spacer length:
36 repeater length: 24

28176 1694964 GTTT TAGTTT CTTGTCGTTATTAC ATGTAGATAACATCACTATATTGATAAAGAGACTCGT spacer
length: 37 repeater length: 24

28177 1695025 GTTT TAGTTT CTTGTCGTTATTAC AAAATCATTGAACTATAATGTAGATCTTGACAGTA spacer length:
34 repeater length: 24

28178 1695083 GTTT TAGTTT CTTGTCGTTATTAC TTTCCAGCCCAGCCTCTTTGCAGCTTCTAGCCTAT spacer length:
35 repeater length: 24

28179 1695142 GTTT TAGTTT CTTGTCGTTATTAC ATCTAGTGAGACAAAAGAACCTCAGTCTCAGAGTT spacer length:
36 repeater length: 24

28180 1695202 GTTT TAGTTT CTTGTCGTTATTAC TTCCTTATACACATCAAGTAACACAGGCGAGTTCATC spacer
length: 37 repeater length: 24

28181 1695263 GTTT TAGTTT CTTGTCGTTATTAC TGCGGGATACTACTTCGCCCCAAGTTCTGTAAAGAC spacer length:
36 repeater length: 24

28182 1695323 GTTT TAGTTT CTTGTCGTTATTAC TGGTGAAGTGGTACAGATACATCCTTATGAAGAA spacer length:
34 repeater length: 24

28183 1695381 GTTT TAGTTT CTTGTCGTTATTAC CCATTACTGGACAAAGACTATGTCATCACAGCTGGTG spacer
length: 37 repeater length: 24

28184 1695442 GTTT TAGTTT CTTGTCGTTATTAC TTAACACTGGTTGAATTTCGCAAGGAAAGTGATAGGT spacer length:
36 repeater length: 24

28185 1695502 GTTT TAGTTT CTTGTCGTTATTAC AGATATTTAGCGTTAAACTGCAGGAGACAGGGGCAC spacer
length: 37 repeater length: 24

28186 1695563 GTTT TAGTTT CTTGTCGTTATTAC AAGTTTTTGATATCTGTCCCTGCAGTGTCTAGTG spacer length:
34 repeater length: 24

28187	1695621 GTTTGTAGTTTCTTGTGCGTTATTAC	CTTCATACTCATACCAATTGTAAGTGTTCCTTGTGTTGA spacer
	length: 40 repeater length: 24	
28188	1695685 GTTTGTAGTTTCTTGTGCGTTATTAC	TCTTGGAAAGACCTTAAAAAAGGATTGATTTATT spacer length:
	35 repeater length: 24	
28189	1695744 GTTTGTAGTTTCTTGTGCGTTATTAC	TCGCATGCCTTAAATCGATCGTTTTCTCTACATCT spacer length:
	35 repeater length: 24	
28190	1695803 GTTTGTAGTTTCTTGTGCGTTATTAC	TACGCTCCATGCCAGCTGTGCTCTCATCAACACATAG spacer
	length: 38 repeater length: 24	
28191	1695865 GTTTGTAGTTTCTTGTGCGTTATTAC	GCGAGAAAGACTTCTACTGGGGCGCCGAATTTAAC spacer length:
	35 repeater length: 24	
28192	1695924 GTTTGTAGTTTCTTGTGCGTTATTAC	CGCTAAAGAACGCCCTAAGGGAAGCCTTCAAATA spacer length:
	34 repeater length: 24	
28193	1695982 GTTTGTAGTTTCTTGTGCGTTATTAC	TATCGCCTCACGCCATCTCTTTGGCGTGGTATAAT spacer length:
	35 repeater length: 24	
28194	1696041 GTTTGTAGTTTCTTGTGCGTTATTAC	AAGTCGCAAAAGAACTGCTAGACAAATTTGACAGTGAA spacer
	length: 38 repeater length: 24	
28195	1696103 GTTTGTAGTTTCTTGTGCGTTATTAC	TGACTTATTTTTTGTCTTAACCTTCACTACTCATTTTCT spacer
	length: 38 repeater length: 24	
28196	1696165 GTTTGTAGTTTCTTGTGCGTTATTAC	AAAGAACTCATTATCTTTAAGGACAAAGTCAGGGGT spacer length:
	36 repeater length: 24	
28197	1696225 GTTTGTAGTTTCTTGTGCGTTATTAC	TTCCCTGCGGATACTTCTGCCTCAATTTGGTCACA spacer length:
	36 repeater length: 24	
28198	1696285 GTTTGTAGTTTCTTGTGCGTTATTAC	AAACCTTTTCAGAGGCTTACCTCATCAATGTGGAA spacer length:
	35 repeater length: 24	
28199	1696344 GTTTGTAGTTTCTTGTGCGTTATTAC	AAAGAAAAAGAAAAGGCGGGGCGAGGGCATGGA spacer length:
	34 repeater length: 24	
28200	1696402 GTTTGTAGTTTCTTGTGCGTTATTAC	TCTGTGTAACGTATCAGCAATGCGCTTTGTTATAT spacer length:
	35 repeater length: 24	
28201	1696461 GTTTGTAGTTTCTTGTGCGTTATTAC	GCGGATTTCCACTGTTTCCAGCCTGAGCTTGGGC spacer length:
	34 repeater length: 24	
28202	1696519 GTTTGTAGTTTCTTGTGCGTTATTAC	AGCAAATTTTAAACAAATGTATTCCATTCTTGAAGT spacer length:
	36 repeater length: 24	
28203	1696579 GTTTGTAGTTTCTTGTGCGTTATTAC	AATTTTATAATGTCTGTAAACTAAAACATTGTTTT spacer length:
	36 repeater length: 24	
28204	1696639 GTTTGTAGTTTCTTGTGCGTTATTAC	AAGGGATCTAGCCTGGCTAGAGAGCTTGCCGCTTTAATTAA spacer
	length: 41 repeater length: 24	
28205	1696704 GTTTGTAGTTTCTTGTGCGTTATTAC	ATGGGTGCACCACCAGAAGTAGTAGAAGAGGTCGAG spacer length:
	36 repeater length: 24	
28206	1696764 GTTTGTAGTTTCTTGTGCGTTATTAC	TGTATTGCCACAAATGTCCCGTTTTCGTTGTACAGG spacer length:
	36 repeater length: 24	
28207	1696824 GTTTGTAGTTTCTTGTGCGTTATTAC	CAAGAGAAAGGAGCTAGGAAGAGGATCTTTCCCT spacer length:
	35 repeater length: 24	
28208	1696883 GTTTGTAGTTTCTTGTGCGTTATTAC	ATTAGGACTCGAAAAATTTATATAAAAAAGACATT spacer length:
	36 repeater length: 24	
28209	1696943 GTTTGTAGTTTCTTGTGCGTTATTAC	TTCTCATCAACATTTGCTGTACAAATTCATAATCAT spacer
	length: 37 repeater length: 24	
28210	1697004 GTTTGTAGTTTCTTGTGCGTTATTAC	ACCAGTCTTACTCAACAAGTCAGCCCTTACTTATAAT spacer
	length: 37 repeater length: 24	
28211	1697065 GTTTGTAGTTTCTTGTGCGTTATTAC	CTCAGTCAGATACGTCTTCTTTAGCTGGCTTATGT spacer length:
	35 repeater length: 24	
28212	1697124 GTTTGTAGTTTCTTGTGCGTTATTAC	ATCGAGTGGAAGGCGTTAGACCCAGTAGCTGCCGC spacer length:
	35 repeater length: 24	
28213	1697183 GTTTGTAGTTTCTTGTGCGTTATTAC	AGCCTGGATCTGAAGAAACATAACCATGAGATAT spacer length:
	34 repeater length: 24	
28214	1697241 GTTTGTAGTTTCTTGTGCGTTATTAC	AGGTCAGGAATATAGATTATTCGTACTTTGCTAT spacer length:
	34 repeater length: 24	
28215	1697299 GTTTGTAGTTTCTTGTGCGTTATTAC	AAGTCTTCAGAAAATCATCAACACGCATATACTG spacer length:
	34 repeater length: 24	
28216	1697357 GTTTGTAGTTTCTTGTGCGTTATTAC	TTTGATTAAAATGGGTGGTATGGCATAAAAAAT spacer length:
	34 repeater length: 24	
28217	1697415 GTTTGTAGTTTCTTGTGCGTTATTAC	ATCGGAATTATAGGCGGATTTTAAACAATATTCCTAACAT spacer
	length: 40 repeater length: 24	
28218	1697479 GTTTGTAGTTTCTTGTGCGTTATTAC	GGAGACAAAGTTTGTCTGTGCAATATATCCCAA spacer length: 33
	repeater length: 24	
28219	1697536 GTTTGTAGTTTCTTGTGCGTTATTAC	AGAAAGAGGAACATAAGGTCTAGATCTTACCCAA spacer length:
	34 repeater length: 24	
28220	1697594 GTTTGTAGTTTCTTGTGCGTTATTAC	TAATTCATCTTTATAGTGTAACTTTTTGAAATAAA spacer length:
	35 repeater length: 24	
28221	1697653 GTTTGTAGTTTCTTGTGCGTTATTAC	AACTAAGAAAAATTCAGTCAGCAGTATTAATACTACTACTA spacer
	length: 39 repeater length: 24	
28222	1697716 GTTTGTAGTTTCTTGTGCGTTATTAC	TACACCAGTGAGAATGTCTTCCCGAAACTACAAGAA spacer length:

36 repeater length: 24

28223 1697776 GTTT TAGTTT CTTGTCGTTATTAC AATTGGCAACTAAGAAGTTTGTACAAATAACATAA spacer length: 35 repeater length: 24

28224 1697835 GTTT TAGTTT CTTGTCGTTATTAC GAATAGGGGATGCGATAAACAGTTAGCACAAACA spacer length: 35 repeater length: 24

28225 1697894 GTTT TAGTTT CTTGTCGTTATTAC GGCATATAGAATTTTTTCGCTTTGTTGCCTCTTTAA spacer length: 35 repeater length: 24

28226 1697953 GTTT TAGTTT CTTGTCGTTATTAC ATTCAATTTTTTTTCGTTTTGTCGGTGAAAATAAAA spacer length: 35 repeater length: 24

28227 1698012 GTTT TAGTTT CTTGTCGTTATTAC GCTTGTGGTAACTATTCCATCGTCATCAGCAATC spacer length: 34 repeater length: 24

28228 1698070 GTTT TAGTTT CTTGTCGTTATTAC AACGCATTATTGCTAATGCACGGTGCTAACAATCTAG spacer length: 37 repeater length: 24

28229 1698131 GTTT TAGTTT CTTGTCGTTATTAC GTTTAAAACGGTAAATAGATAAAACCAAGAAAATG spacer length: 35 repeater length: 24

28230 1698190 GTTT TAGTTT CTTGTCGTTATTAC ACGTCTTGTGCTGACTTGTAACATCGCTGTTCTT spacer length: 35 repeater length: 24

28231 1698249 GTTT TAGTTT CTTGTCGTTATTAC AAAGAAGTGCAAAAAAATGGCTACGGTGACATT spacer length: 34 repeater length: 24

28232 1698307 GTTT TAGTTT CTTGTCGTTATTAC ATGCATTCAATTAAAGACTTAACAATTCAAGAGTT spacer length: 34 repeater length: 24

28233 1698365 GTTT TAGTTT CTTGTCGTTATTAC AAGTTTCTTAATTTATTACAGTTATATGAACAGC spacer length: 34 repeater length: 24

28234 1698423 GTTT TAGTTT CTTGTCGTTATTAC ACAATAGCCCGCAAATGTCAGTATCATCACGTTGTT spacer length: 36 repeater length: 24

28235 1698483 GTTT TAGTTT CTTGTCGTTATTAC AGATTTTATGAAACATTAAGTATTTATTTTATCTAT spacer length: 36 repeater length: 24

28236 1698543 GTTT TAGTTT CTTGTCGTTATTAC ATTAATCAGATAGAACTAGCAGTGTATTTTATGTT spacer length: 36 repeater length: 24

28237 1698603 GTTT TAGTTT CTTGTCGTTATTAC ACCTTCACTTATTGAAGATGGGGCTGAAACAACCTT spacer length: 36 repeater length: 24

28238 1698663 GTTT TAGTTT CTTGTCGTTATTAC TTGGTTACTGATATTTTCTGAACTCCAGCAAATGT spacer length: 35 repeater length: 24

28239 1698722 GTTT TAGTTT CTTGTCGTTATTAC CGTTAAACAGACTAGGCTCAGGACAAGCATTCACT spacer length: 35 repeater length: 24

28240 1698781 GTTT TAGTTT CTTGTCGTTATTAC AGCCCAAATCTGTTATCTCTTTAGAAATGAAATTTT spacer length: 35 repeater length: 24

28241 1698840 GTTT TAGTTT CTTGTCGTTATTAC AGAGTACCTTTACCTAACCAGAGCGTCGTATATTAT spacer length: 36 repeater length: 24

28242 1698900 GTTT TAGTTT CTTGTCGTTATTAC TGTAGTCTTGCGCAATACCTGCGCTCTTTAGCAGT spacer length: 35 repeater length: 24

28243 1698959 GTTT TAGTTT CTTGTCGTTATTAC AGAAGCTATACAACGAGGCTATATAAATAAAATG spacer length: 34 repeater length: 24

28244 1699017 GTTT TAGTTT CTTGTCGTTATTAC GTGAAGATGTCGATAGTGACGATAGCTGAGATAGT spacer length: 35 repeater length: 24

28245 1699076 GTTT TAGTTT CTTGTCGTTATTAC AAAGTAAGCCCGATAGTCCTTAGGTCAGGATCCCTTTA spacer length: 38 repeater length: 24

28246 1699138 GTTT TAGTTT CTTGTCGTTATTAC TATATTTGGTCAAGTGTCTTACAGCATTTTAAT spacer length: 34 repeater length: 24

28247 1699196 GTTT TAGTTT CTTGTCGTTATTAC GCAGAGTCTTTCGCTACGTCTTTCAGCGTCTCAAA spacer length: 35 repeater length: 24

28248 1699255 GTTT TAGTTT CTTGTCGTTATTAC GATCACAGTAATGCGTTATATAAAAAGGCAGAATTCA spacer length: 37 repeater length: 24

28249 1699316 GTTT TAGTTT CTTGTCGTTATTAC CTTTGATCAATTACTAAATTCTGTAATTGTGCCTCTA spacer length: 37 repeater length: 24

28250 1699377 GTTT TAGTTT CTTGTCGTTATTAC GTAGAAAGTCATAACCCAAAACCTTCATTTTTTTGTT spacer length: 36 repeater length: 24

28251 1699437 GTTT TAGTTT CTTGTCGTTATTAC ACAGGCTGTACCAAGCTGTTAGCGATGTAGTTAAT spacer length: 35 repeater length: 24

28252 1699496 GTTT TAGTTT CTTGTCGTTATTAC AGCTCCCATTTAAATCACGACCACTCCAAATATCA spacer length: 35 repeater length: 24

28253 1699555 GTTT TAGTTT CTTGTCGTTATTAC AGTTATAATCTATCTCCGGAACATTTAAATATTTTA spacer length: 36 repeater length: 24

28254 1699615 GTTT TAGTTT CTTGTCGTTATTAC ATAGTTGGTGGGACGGAATGGAGAAACAGCTAAAA spacer length: 35 repeater length: 24

28255 1699674 GTTT TAGTTT CTTGTCGTTATTAC TATAAAAAAGCATTTGCACAGTCTTGAAACCACTATTT spacer length: 39 repeater length: 24

28256 1699737 GTTT TAGTTT CTTGTCGTTATTAC ATGCTCGCCCAACAGCACACCGGACAGATCGACATA spacer length: 36 repeater length: 24

28257 1699797 GTTT TAGTTT CTTGTCGTTATTAC AACTGAAGGAACCTTGTAGAGCGGTATGCTTTGCTTCTTCTC spacer length: 42 repeater length: 24

28258	1699863	GTTTGTAGTTTCTTGTCTGTTATTAC	AACTGGAGCAACGTATTGTTGAATATAGCCCCTATGA	spacer
		length: 37	repeater length: 24	
28259	1699924	GTTTGTAGTTTCTTGTCTGTTATTAC	AATGAGATATTCACTGAGGTCATGGAGCGTGAAA	spacer length: 34
		length: 34	repeater length: 24	
28260	1699982	GTTTGTAGTTTCTTGTCTGTTATTAC	TTTCCTTATTTTTTAAACGAGGGAAATGGTCAGGCTAAAA	spacer
		length: 39	repeater length: 24	
28261	1700045	GTTTGTAGTTTCTTGTCTGTTATTAC	TACGGTAAACTGGGGAGTTAACTCAGCATCCA	spacer length: 32
		length: 24	repeater length: 24	
28262	1700101	GTTTGTAGTTTCTTGTCTGTTATTAC	CTTTCGCATACTTCCTCGCCCTCCTTGAGATATTTTCT	spacer
		length: 38	repeater length: 24	
28263	1700163	GTTTGTAGTTTCTTGTCTGTTATTAC	AACTTGTTATCAATAAAAAGCTTCTCGATATTTTGTC	spacer
		length: 37	repeater length: 24	
28264	1700224	GTTTGTAGTTTCTTGTCTGTTATTAC	ACTTACTTTTTTTCAGCACTCTCTTGACTCAT	spacer length: 31
		length: 24	repeater length: 24	
28265	1700279	GTTTGTAGTTTCTTGTCTGTTATTAC	GAGGAAGGGCCTAACGTTGCAAGGCATAGGGCTAATA	spacer
		length: 37	repeater length: 24	
28266	1700340	GTTTGTAGTTTCTTGTCTGTTATTAC	TCTTTTTGATAGATTAGGCTCAGCAGGGTCGTTATGAT	spacer
		length: 38	repeater length: 24	
28267	1700402	GTTTGTAGTTTCTTGTCTGTTATTAC	ACTTCATTCCTCTTAAGTTGTAGTTTCTCAAAT	spacer length: 34
		length: 34	repeater length: 24	
28268	1700460	GTTTGTAGTTTCTTGTCTGTTATTAC	GGAGCCGGGACCCCATGGGTAGCGCTTATACTGCT	spacer length: 35
		length: 35	repeater length: 24	
28269	1700519	GTTTGTAGTTTCTTGTCTGTTATTAC	TCTATCAGTATGAAGTCATATTTTTCTCTGAAGTTCTCT	spacer
		length: 39	repeater length: 24	
28270	1700582	GTTTGTAGTTTCTTGTCTGTTATTAC	ACTATATGGCGTAACTAGTTCTAGATAGTTTATCCCCAA	spacer
		length: 39	repeater length: 24	
28271	1700645	GTTTGTAGTTTCTTGTCTGTTATTAC	GGGAGTTTATTCAATTTTTCTAACGAGAGTAGAA	spacer length: 34
		length: 34	repeater length: 24	
28272	1700703	GTTTGTAGTTTCTTGTCTGTTATTAC	TGGAGAATGCTTACTATATTCCTTATCCGCTTTTT	spacer length: 36
		length: 36	repeater length: 24	
28273	1700763	GTTTGTAGTTTCTTGTCTGTTATTAC	GGTAACGACTTGTGTATTTCCGTTAACTGGGGAGT	spacer length: 36
		length: 36	repeater length: 24	
28274	1700823	GTTTGTAGTTTCTTGTCTGTTATTAC	TGTAGTGGACTTAGGGACAATAATTGCGTTGGCAACAA	spacer
		length: 38	repeater length: 24	
28275	1700885	GTTTGTAGTTTCTTGTCTGTTATTAC	AATTCAAAAGTGTGCATTCGTTATTTTTCACGGATG	spacer length: 36
		length: 36	repeater length: 24	
28276	1700945	GTTTGTAGTTTCTTGTCTGTTATTAC	TTTGACAAGCTCTTCTTAGTTAGCGAGAACTCC	spacer length: 34
		length: 34	repeater length: 24	
28277	1701003	GTTTGTAGTTTCTTGTCTGTTATTAC	AAGGTAGGCAGTATCGCCGCCTATCGTTATGTGAA	spacer length: 35
		length: 35	repeater length: 24	
28278	1701062	GTTTGTAGTTTCTTGTCTGTTATTAC	TTTCAAACCGTTAACTCCCCAGTTTAATCATGATA	spacer length: 36
		length: 36	repeater length: 24	
28279	1701122	GTTTGTAGTTTCTTGTCTGTTATTAC	TTTCCCGTCCCCGTCGGTGAGTTGATTATCACTCCTT	spacer
		length: 37	repeater length: 24	
28280	1701183	GTTTGTAGTTTCTTGTCTGTTATTAC	ACGGGAGGGAAATAGTCAGGAGGACTCCCCTCACTCA	spacer
		length: 37	repeater length: 24	
28281	1701244	GTTTGTAGTTTCTTGTCTGTTATTAC	AAAAACCCCATCTTGAATGAAATGAAAGCGAGAA	spacer length: 35
		length: 35	repeater length: 24	
28282	1701303	GTTTGTAGTTTCTTGTCTGTTATTAC	TTAAAGTATAGTAAAGTATAAGGCGGGGTCAGCTCGC	spacer
		length: 37	repeater length: 24	
28283	1701364	GTTTGTAGTTTCTTGTCTGTTATTAC	TAGTCATGAAGTCGTAAAGTATTGTTAAGTATTCCTT	spacer
		length: 37	repeater length: 24	
28284	1701425	GTTTGTAGTTTCTTGTCTGTTATTAC	TTTCCAGAGGTGGTGAAAAAGGGGCTTAGTCTCAAC	spacer length: 36
		length: 36	repeater length: 24	
28285	1701485	GTTTGTAGTTTCTTGTCTGTTATTAC	GATGCCAGTCCTCGAGTTCCTCAGCTTCGTTTGTCC	spacer length: 36
		length: 36	repeater length: 24	
28286	1701545	GTTTGTAGTTTCTTGTCTGTTATTAC	TCGCTTTCGGCTCAAAGCGAAACCTATGGGGTTTTTA	spacer
		length: 38	repeater length: 24	
28287	1701607	GTTTGTAGTTTCTTGTCTGTTATTAC	AGTGTAACCGTGACTACGGGTTTCGGCTACCGGAAA	spacer length: 35
		length: 35	repeater length: 24	
28288	1701666	GTTTGTAGTTTCTTGTCTGTTATTAC	GGTTTTTCGATTGGCCTTACTGGCGGTTCTATATG	spacer length: 34
		length: 34	repeater length: 24	
28289	1701724	GTTTGTAGTTTCTTGTCTGTTATTAC	ATAAAGTCCTTTTTTCGTCTGTAATAACGTCCTTA	spacer length: 34
		length: 34	repeater length: 24	
28290	1701782	GTTTGTAGTTTCTTGTCTGTTATTAC	TTCCCCGACACCGCCCAATCCCTCGGTAGTATAAT	spacer length: 35
		length: 35	repeater length: 24	
28291	1701841	GTTTGTAGTTTCTTGTCTGTTATTAC	GAGTAAAGTCCATAAATAAACCCCGTAACTTACCT	spacer length: 35
		length: 35	repeater length: 24	
28292	1701900	GTTTGTAGTTTCTTGTCTGTTATTAC		
28293				
28294				

28295 crispr 2

28296 1714291 GTAATAACGACAAGAAACTAAAAC AAAGGAGATTGACACCCCGTAATGTTCTACTATGTGAAA spacer
length: 40 repeater length: 24

28297 1714355 GTAATAACGACAAGAAACTAAAAC GAAGTCTTTCTTCAATGTCGAGGACTGTGCACGTAA spacer length:
36 repeater length: 24

28298 1714415 GTAATAACGACAAGAAACTAAAAC AAAGTGACTGACTACAAGGCAATTGTTGAAGTACTT spacer length:
36 repeater length: 24

28299 1714475 GTAATAACGACAAGAAACTAAAAC TTAGTGACCGAAAAAGATAGAGAGATTTTTGACAT spacer length:
35 repeater length: 24

28300 1714534 GTAATAACGACAAGAAACTAAAAC CATATTCATCAAACTTCAAGACTACCTATACG spacer length: 33
repeater length: 24

28301 1714591 GTAATAACGACAAGAAACTAAAAC ATCTGTTATATCAACAATCTCTCTATCTTTTTTCAGT spacer length:
36 repeater length: 24

28302 1714651 GTAATAACGACAAGAAACTAAAAC GTAAAATCATATTGAGTATTTTGTGTTATGCGATTTATGTT spacer
length: 40 repeater length: 24

28303 1714715 GTAATAACGACAAGAAACTAAAAC GTTGAAAAGAAGAGAGTTCTACTTATTCTACTTAT spacer length:
35 repeater length: 24

28304 1714774 GTAATAACGACAAGAAACTAAAAC ATGCGTCCTGGTTAGGTAGATTATAGTCCCTCCTA spacer length:
35 repeater length: 24

28305 1714833 GTAATAACGACAAGAAACTAAAAC TAATTAGATTTTAAAGCGTTATATGCTACGCTCCC spacer length:
35 repeater length: 24

28306 1714892 GTAATAACGACAAGAAACTAAAAC TGTCCAATTCTTGTAAGAATTCTTTCTGACTTTGGGT spacer
length: 37 repeater length: 24

28307 1714953 GTAATAACGACAAGAAACTAAAAC ATTGATGAGGCAAGGGATCAAGGTGAGCTAAACGTT spacer length:
36 repeater length: 24

28308 1715013 GTAATAACGACAAGAAACTAAAAC AGAAGGTAATTGAAATAGGAGGAGGTAACGGGTATTT spacer
length: 37 repeater length: 24

28309 1715074 GTAATAACGACAAGAAACTAAAAC TTCAACAACCCTGCCAGTATAAGACCTATCAAAACGTC spacer
length: 38 repeater length: 24

28310 1715136 GTAATAACGACAAGAAACTAAAAC CTATAAAATTTTGCAAAGGTTGGTGAGGAGAAGT spacer length:
35 repeater length: 24

28311 1715195 GTAATAACGACAAGAAACTAAAAC TTGCTACAAAGTTCCCCATGTGTTGTAGGGGTAAT spacer length:
36 repeater length: 24

28312 1715255 GTAATAACGACAAGAAACTAAAAC CCTTACTGTATTGTATGGTATATCAGCTTCTTCACT spacer length:
36 repeater length: 24

28313 1715315 GTAATAACGACAAGAAACTAAAAC TGTCCCATTTACTACATCAAATTGGAAAATGTTATA spacer length:
36 repeater length: 24

28314 1715375 GTAATAACGACAAGAAACTAAAAC ATTAATATAGCACCCACCTCTAAAAGAGTAATTGAAAT spacer
length: 38 repeater length: 24

28315 1715437 GTAATAACGACAAGAAACTAAAAC ACTTATGTTTATGAGTATTACGCGATGAAAGTTTGGGG spacer
length: 38 repeater length: 24

28316 1715499 GTAATAACGACAAGAAACTAAAAC ATCTTCTCTGTCCTCTACTACTTTCTGCTCTTCTTT spacer length:
36 repeater length: 24

28317 1715559 GTAATAACGACAAGAAACTAAAAC TGAAAAGTTCATAAAAAAGTACCCTAACGTAGAACAA spacer length:
36 repeater length: 24

28318 1715619 GTAATAACGACAAGAAACTAAAAC AATTTTATGATATCGCTTTTGTTCAGGAAACAT spacer length:
34 repeater length: 24

28319 1715677 GTAATAACGACAAGAAACTAAAAC AATTCTAAGTGACACAAGAAGGACTAGAAGAGGCAGGCCT spacer
length: 39 repeater length: 24

28320 1715740 GTAATAACGACAAGAAACTAAAAC TAATGCCAGTAACATAGATGCCTCCTTGATTAT spacer length:
34 repeater length: 24

28321 1715798 GTAATAACGACAAGAAACTAAAAC AATTTGGATTGACGTCACCTCAAGATCTATTACCT spacer length:
35 repeater length: 24

28322 1715857 GTAATAACGACAAGAAACTAAAAC ATATTTAAGCCTTACTCTTTACATTAAAAGTAACAA spacer length:
36 repeater length: 24

28323 1715917 GTAATAACGACAAGAAACTAAAAC TCGACGTTAGTCTTAGATTTTTATCATTTTTAGGT spacer length:
35 repeater length: 24

28324 1715976 GTAATAACGACAAGAAACTAAAAC TTGTGCTCTTTAATGTCAAACAGTGTGATCTATT spacer length:
34 repeater length: 24

28325 1716034 GTAATAACGACAAGAAACTAAAAC ACAGTGCATGAAGTAGCATCATATGTCGTAAGTGA spacer length:
35 repeater length: 24

28326 1716093 GTAATAACGACAAGAAACTAAAAC TCTCTGGGTAAAGTGCAAAGAGCACTGGGATTACAA spacer length:
36 repeater length: 24

28327 1716153 GTAATAACGACAAGAAACTAAAAC CAACAAGGCTGAGAAGATAGCAAAGAAGCTAGTA spacer length:
34 repeater length: 24

28328 1716211 GTAATAACGACAAGAAACTAAAAC TACAATAATTTTCAAGATTTCCAGTAAATGATACAAATTC spacer
length: 38 repeater length: 24

28329 1716273 GTAATAACGACAAGAAACTAAAAC TTGTCATTAACTGACAACCTTGTCTCTGACCCAAA spacer length:
36 repeater length: 24

28330 1716333 GTAATAACGACAAGAAACTAAAAC AGTAGCGGTATACAAAAATGTATTTGTTGTGATA spacer length:
34 repeater length: 24

28331	1716391	GTAATAACGACAAGAACTAAAAC	TGGCTCACAGGCATTAATACCTGCAAAGCCTAGG	spacer length: 34	repeater length: 24
28332	1716449	GTAATAACGACAAGAACTAAAAC	AAAAGTTTGCCAATTTAGGTGCTGTGCAGGAAGCATTTA	spacer length: 39	repeater length: 24
28333	1716512	GTAATAACGACAAGAACTAAAAC	GAATAATTGTAGATCAGCCATCAACTTCCACACG	spacer length: 34	repeater length: 24
28334	1716570	GTAATAACGACAAGAACTAAAAC	AGAAAATGAGTAGTGAGATAAAGACAAAAAATAAGT	spacer length: 36	repeater length: 24
28335	1716630	GTAATAACGACAAGAACTAAAAC	AATTTCTATATAATCCAAGAGACACAGAGAGGTTTCTAC	spacer length: 39	repeater length: 24
28336	1716693	GTAATAACGACAAGAACTAAAAC	TACATTACTTTTAGAAATATAGTATGAGCGTAACATA	spacer length: 37	repeater length: 24
28337	1716754	GTAATAACGACAAGAACTAAAAC	CAGTACACAAAGTGGATAGGAAAAGTCAACAAT	spacer length: 33	repeater length: 24
28338	1716811	GTAATAACGACAAGAACTAAAAC	ATCGTATATTATATTGGGGCAGAAAAATGAATGAT	spacer length: 36	repeater length: 24
28339	1716871	GTAATAACGACAAGAACTAAAAC	CAGGTTCAATTTTCAGTAAATAATGGCATTACAAT	spacer length: 34	repeater length: 24
28340	1716929	GTAATAACGACAAGAACTAAAAC	AACATCAGACTTTTGCCTTTTATTAGAAGGCTTTGGA	spacer length: 38	repeater length: 24
28341	1716991	GTAATAACGACAAGAACTAAAAC	GATACATTGCATATATTGGCAATCAGCAATACAA	spacer length: 34	repeater length: 24
28342	1717049	GTAATAACGACAAGAACTAAAAC	ACTATATATTGTTTGGAGCTTATCATAAACTTCATC	spacer length: 36	repeater length: 24
28343	1717109	GTAATAACGACAAGAACTAAAAC	CTGAATAGAGAGATGATAGAAGAAACGGTAAGTA	spacer length: 34	repeater length: 24
28344	1717167	GTAATAACGACAAGAACTAAAAC	TCAGCCTCTAATTCTGCTGCAACTTCCATCAATTTCTT	spacer length: 39	repeater length: 24
28345	1717230	GTAATAACGACAAGAACTAAAAC	ATTAATTCCAAAGGACATTGAGAAGAAATTTGGCTTAAA	spacer length: 39	repeater length: 24
28346	1717293	GTAATAACGACAAGAACTAAAAC	ATATGAGCAACAGCAACTCAAATCTTTATATGAAGTC	spacer length: 37	repeater length: 24
28347	1717354	GTAATAACGACAAGAACTAAAAC	CACCAAAGAGTTTTTGTCCAAAGCCTTTTATGGA	spacer length: 34	repeater length: 24
28348	1717412	GTAATAACGACAAGAACTAAAAC	CAGTCTCAATGTCTTTATGAGACAATTCTATATCCAA	spacer length: 37	repeater length: 24
28349	1717473	GTAATAACGACAAGAACTAAAAC	GCACTTCTACTTGCTTAACGCTATAGCAAGCAAGAA	spacer length: 36	repeater length: 24
28350	1717533	GTAATAACGACAAGAACTAAAAC	GTTTCATCAACCTCATGCTGAGTAAGACTATTAGTATGT	spacer length: 38	repeater length: 24
28351	1717595	GTAATAACGACAAGAACTAAAAC	CTCGTATTCGTAAAAGCCCTCGTGGGTGGTGACGAT	spacer length: 36	repeater length: 24
28352	1717655	GTAATAACGACAAGAACTAAAAC	CTTTACAATAATTTTTTCAGGAAAACAAATTGAA	spacer length: 35	repeater length: 24
28353	1717714	GTAATAACGACAAGAACTAAAAC	TATGTCTTAGATAGTTGAAAAAGCTAAAGCTTTT	spacer length: 34	repeater length: 24
28354	1717772	GTAATAACGACAAGAACTAAAAC	GAATGTGTCCCCCTAGAGTTTTACCAAACAACCA	spacer length: 36	repeater length: 24
28355	1717832	GTAATAACGACAAGAACTAAAAC	AAAAAACCTTTAACCTCTATCGAATGCTGTCAAAAA	spacer length: 36	repeater length: 24
28356	1717892	GTAATAACGACAAGAACTAAAAC	AACGTTACGACCACTACTACTCAGAAGAAGATAGT	spacer length: 35	repeater length: 24
28357	1717951	GTAATAACGACAAGAACTAAAAC	GAGGGATGAAGGCAAATCAGTATCAGCAATAGTAGAG	spacer length: 37	repeater length: 24
28358	1718012	GTAATAACGACAAGAACTAAAAC	GAAGTAGAACAGCTGTTTTTCAGGATTGAAATTAT	spacer length: 35	repeater length: 24
28359	1718071	GTAATAACGACAAGAACTAAAAC	AAGAGAATACTTTCTCGCCTCAGCAAGAATCGTATCAAT	spacer length: 39	repeater length: 24
28360	1718134	GTAATAACGACAAGAACTAAAAC	GTATGTGGGAGAGCTTTATGAGTGGTAAGACACAC	spacer length: 35	repeater length: 24
28361	1718193	GTAATAACGACAAGAACTAAAAC	ATGCAGGTACTATACTGAGCCTGATGAACAGCA	spacer length: 33	repeater length: 24
28362	1718250	GTAATAACGACAAGAACTAAAAC	AAATTTAAGGAAAATGGAGTGTATGTATATAAAT	spacer length: 34	repeater length: 24
28363	1718308	GTAATAACGACAAGAACTAAAAC	CTCAATTATTTTCAATGCTTTTTCTTTTTCGTTGT	spacer length: 35	repeater length: 24
28364	1718367	GTAATAACGACAAGAACTAAAAC	ACATCAGCACTTATGGATACTACGCCATGCTCATCT	spacer length: 36	repeater length: 24
28365	1718427	GTAATAACGACAAGAACTAAAAC	ACTATTACTTTTGAAAATATGTAGATAAGACTGGT	spacer length: 35	repeater length: 24
28366	1718486	GTAATAACGACAAGAACTAAAAC	TTACAGTTGTTCCGTTAGGAAGTATATAGTTACT	spacer length: 35	repeater length: 24

34 repeater length: 24
28367 1718544 GTAATAACGACAAGAACTAAAAAC AAAATAATCATAAAACCCGAGCATTACGAAGAATTGA spacer
length: 37 repeater length: 24
28368 1718605 GTAATAACGACAAGAACTAAAAAC TGTAAGGACTTCTTAAAAAGGTTAGAGGGGTTTCTC spacer
length: 37 repeater length: 24
28369 1718666 GTAATAACGACAAGAACTAAAAAC GTAATTATTCTGATGGGTGCTATAATCTCGATGGC spacer length:
35 repeater length: 24
28370 1718725 GTAATAACGACAAGAACTAAAAAC AGCGATTAGTTTAGTCGAATTAGCTATTGCGACTT spacer length:
35 repeater length: 24
28371 1718784 GTAATAACGACAAGAACTAAAAAC ATGGGATCCTGATAATTCGGCATCAGCACAAATTC spacer length:
34 repeater length: 24
28372 1718842 GTAATAACGACAAGAACTAAAAAC CTCTTCATTTGTCTCGTGAAATATAGGGTTTTTCA spacer length:
35 repeater length: 24
28373 1718901 GTAATAACGACAAGAACTAAAAAC ATAGGGTAGTTCACAAAGAGCCAGCCCTCGTCAAC spacer length:
35 repeater length: 24
28374 1718960 GTAATAACGACAAGAACTAAAAAC CTTTACGTAGTAGTTATAGAGCTTCGTTACGTGCT spacer length:
35 repeater length: 24
28375 1719019 GTAATAACGACAAGAACTAAAAAC CTTGAACCATTGAACCTGCGATTGCAGGGATTAAGTAT spacer
length: 38 repeater length: 24
28376 1719081 GTAATAACGACAAGAACTAAAAAC GCTGACTGGGGGTGAGCCAGAAATGAAGACTGGAAG spacer length:
36 repeater length: 24
28377 1719141 GTAATAACGACAAGAACTAAAAAC TAAATTAGTCTGCTGGCCAATTAAGAACAACTCT spacer length:
36 repeater length: 24
28378 1719201 GTAATAACGACAAGAACTAAAAAC GTGCAACAGGGTGAAACATAGATGAGCACATTTTT spacer length:
35 repeater length: 24
28379 1719260 GTAATAACGACAAGAACTAAAAAC ATTATGCTCATTATCTCTGATTTTCGACCTTAAAGC spacer length:
35 repeater length: 24
28380 1719319 GTAATAACGACAAGAACTAAAAAC CTACATTGTCCTGAAGTCCTAACTTCTTTAATTCCTT spacer
length: 37 repeater length: 24
28381 1719380 GTAATAACGACAAGAACTAAAAAC TTTTATTTTTCAGTAGCTATCACCATAGTAGCCCTAAAA spacer
length: 39 repeater length: 24
28382 1719443 GTAATAACGACAAGAACTAAAAAC TACTCCCCAGGCTTACCCAGCAAGAAGAGGAAGCCTT spacer
length: 37 repeater length: 24
28383 1719504 GTAATAACGACAAGAACTAAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
35 repeater length: 24
28384 1719563 GTAATAACGACAAGAACTAAAAAC CATTTTAGCTCAAGCATCACCAGCATCAATTGAAAG spacer length:
36 repeater length: 24
28385 1719623 GTAATAACGACAAGAACTAAAAAC ACCGTTCCGTAGATATTATTACTGTAACTCCCTCCC spacer length:
36 repeater length: 24
28386 1719683 GTAATAACGACAAGAACTAAAAAC ACTGGGCTCCCCGTGATCACTCCAGGTCCTTATGTTG spacer
length: 37 repeater length: 24
28387 1719744 GTAATAACGACAAGAACTAAAAAC GACGCTAAAAAGCAAGAACAACAATCACAACAATCG spacer length:
36 repeater length: 24
28388 1719804 GTAATAACGACAAGAACTAAAAAC TTTCTTAGTGAATCCCATGTACGTATATCTAATTTA spacer length:
36 repeater length: 24
28389 1719864 GTAATAACGACAAGAACTAAAAAC
28390
28391
28392 crispr 3
28393 1830503 ACTTTCAATCCCTTATGGGATTCTTC CTACCTTTTGAGATGCTTTCACCGATCTATGTTAAAGCAA spacer
length: 40 repeater length: 26
28394 1830569 ACTTTCAATCCCTTATGGGATTCTTC CTCGTTTTCAATAAATGTCTATAGGGATGAATGTG spacer
length: 35 repeater length: 26
28395 1830630 ACTTTCAATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATAT spacer
length: 36 repeater length: 26
28396 1830692 ACTTTCAATCCCTTATGGGATTCTTC
28397
28398
28399 crispr 4
28400 1870103 CTTTCAATCCCTTTTGGGATTCATC AGAGTCCCCTTCAACATAAAACCTAACTTGGTTTGG spacer
length: 36 repeater length: 25
28401 1870164 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGAT spacer
length: 38 repeater length: 25
28402 1870227 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAGC spacer
length: 37 repeater length: 25
28403 1870289 CTTTCAATCCCTTTTGGGATTCATC TGCGGAAATATGGAAAGAAGTATTATGAAAAAGGAGAAAA spacer
length: 41 repeater length: 25
28404 1870355 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAACT spacer
length: 36 repeater length: 25
28405 1870416 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTTATACCC spacer
length: 38 repeater length: 25

28406 1870479 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGCT spacer
 length: 37 repeater length: 25
 28407 1870541 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTTGAG spacer
 length: 39 repeater length: 25
 28408 1870605 CTTTCAATCCCTTTTGGGATTCATC TATGAAC TAACAGATAAAGGGAAGAGAAGTGTTC CCAAACT spacer
 length: 42 repeater length: 25
 28409 1870672 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGAG spacer
 length: 39 repeater length: 25
 28410 1870736 CTTTCAATCCCTTTTGGGATTCATC
 28411
 28412
 28413 GCA_002215525.1_ASM221552v1_genomic.fna (PilerCR):
 28414 START REPEAT
 SPACER
 28415 crispr 1
 28416 1644945 GTTT TAGTTTCTTGTCGTTATT ACATCATTGGAATTGGGCTAGCCCTATTTTTCTTGATA spacer length:
 38 repeater length: 22
 28417 1645005 GTTT TAGTTTCTTGTCGTTATT ACAGTTGGTAGTGGGCAGATATCTAGCCCTGACCACT spacer length:
 37 repeater length: 22
 28418 1645064 GTTT TAGTTTCTTGTCGTTATT ACTGATGTCGAATACCGGAGTCAAGATGTTGATGAAAA spacer length:
 38 repeater length: 22
 28419 1645124 GTTT TAGTTTCTTGTCGTTATT ACAAATAACGAAGATTTAAGTGGTTTTGAACCAAGAGAA spacer
 length: 39 repeater length: 22
 28420 1645185 GTTT TAGTTTCTTGTCGTTATT ACTGATCACATGTTTTATCGGTAGTACATAATGTAGAAA spacer
 length: 39 repeater length: 22
 28421 1645246 GTTT TAGTTTCTTGTCGTTATT ACGAGGAGTTTGATAAACTTTTGAATTTCTTGAGAG spacer length:
 37 repeater length: 22
 28422 1645305 GTTT TAGTTTCTTGTCGTTATT ACGAAATATAGCAAGAGTTCTGTGGTCGCTATATTA spacer length:
 36 repeater length: 22
 28423 1645363 GTTT TAGTTTCTTGTCGTTATT ACATCATTAGCACGATATTTTCATCATCACTGCAGTAATC spacer
 length: 39 repeater length: 22
 28424 1645424 GTTT TAGTTTCTTGTCGTTATT ACCTCAAAAATATAATGCGTAAGCTTAAATACCCAAC spacer length:
 37 repeater length: 22
 28425 1645483 GTTT TAGTTTCTTGTCGTTATT ACTTTTTATTCTATATTTGAATAAAGCATAAAGTAATC spacer length:
 38 repeater length: 22
 28426 1645543 GTTT TAGTTTCTTGTCGTTATT ACCTAATATTAATGGCAGTAGAAGTCTCGAACAACAC spacer length:
 37 repeater length: 22
 28427 1645602 GTTT TAGTTTCTTGTCGTTATT ACTATCTCGCAATAAATGAGAGAGAGTCGGCGAGTGT spacer length:
 37 repeater length: 22
 28428 1645661 GTTT TAGTTTCTTGTCGTTATT ACTATGTTTGTTGTATTGCTAGCGTAATATTGTATTACA spacer
 length: 39 repeater length: 22
 28429 1645722 GTTT TAGTTTCTTGTCGTTATT ACACACAATATCTTAGTCATTACTGGAATGACTACAAC spacer length:
 38 repeater length: 22
 28430 1645782 GTTT TAGTTTCTTGTCGTTATT ACATCATTAGCACGATATTTTCATCATCACTGCAGTAATC spacer
 length: 39 repeater length: 22
 28431 1645843 GTTT TAGTTTCTTGTCGTTATT ACTGTAGTAAATTGATATAATCGGATTGAAGAGAGTG spacer length:
 37 repeater length: 22
 28432 1645902 GTTT TAGTTTCTTGTCGTTATT ACAGGGATATCTGGAAGTAATACACCAGTACTATAC spacer length:
 36 repeater length: 22
 28433 1645960 GTTT TAGTTTCTTGTCGTTATT ACGCCATTCAACTCAAACTTATAGAAGATTACGAAATA spacer
 length: 39 repeater length: 22
 28434 1646021 GTTT TAGTTTCTTGTCGTTATT ACCCAAATGCTAAAAATAGAAAAGGTAGGAGAGTTATTA spacer
 length: 39 repeater length: 22
 28435 1646082 GTTT TAGTTTCTTGTCGTTATT ACCGGTCTTCCAAAATTACTTAATGCTCTTGATAATAAA spacer
 length: 39 repeater length: 22
 28436 1646143 GTTT TAGTTTCTTGTCGTTATT GCTAAGGCTAATTTTGATCGATAAAGATGAAGAAGAAAG spacer
 length: 39 repeater length: 22
 28437 1646204 GTTT TAGTTTCTTGTCGTTATT ACTATCTAACCCTCTCTTTTTCAACTCTTTGAAGATAAAA spacer
 length: 40 repeater length: 22
 28438 1646266 GTTT TAGTTTCTTGTCGTTATT ACCCTCCCTGATATTCACCTTCTCCATTTCTGTAGCAA spacer
 length: 39 repeater length: 22
 28439 1646327 GTTT TAGTTTCTTGTCGTTATT ACACCAACTCTCAATTACTCATAATATTCAAATAAAT spacer length:
 38 repeater length: 22
 28440 1646387 GTTT TAGTTTCTTGTCGTTATT ACATTCCGACTTGCTTAAATTGAGCTTTTTTTGTACAA spacer length:
 37 repeater length: 22
 28441 1646446 GTTT TAGTTTCTTGTCGTTATT GGGTCGTCAT
 28442
 28443
 28444 crispr 2
 28445 1646563 GTTT TAGTTTCTTGTCGTTATTAC AACAGAATTGATGAAGTATTCAAAAGAGCGATATGAA spacer
 length: 38 repeater length: 24

28446	1646625	GTTTGTAGTTTCTTGTGCGTTATTAC	CTTTCAGAGGGCGAGATCGCAGAGTACTTGAGAATAGCG	spacer
		length: 39	repeater length: 24	
28447	1646688	GTTTGTAGTTTCTTGTGCGTTATTAC	ATTTCTGCAAATGTATAATACATCAATTTTATAAT	spacer length: 35
		repeater length: 24		
28448	1646747	GTTTGTAGTTTCTTGTGCGTTATTAC	GCATCAGCAATTATGGAAGTCGCTAGATATTACTA	spacer length: 35
		repeater length: 24		
28449	1646806	GTTTGTAGTTTCTTGTGCGTTATTAC	AGGAATGTGTACAACAGCTATAAAAAAGAAAGAATTGT	spacer
		length: 39	repeater length: 24	
28450	1646869	GTTTGTAGTTTCTTGTGCGTTATTAC	TTTGGAATATCTTGCGAGGCGAGGGTGAGTGAACCT	spacer length: 36
		repeater length: 24		
28451	1646929	GTTTGTAGTTTCTTGTGCGTTATTAC	AATAAAAGGAGATTTTCATAGACTCTATTCTCAAAA	spacer length: 35
		repeater length: 24		
28452	1646988	GTTTGTAGTTTCTTGTGCGTTATTAC	TTGTTCTAGAAGTGGCGCATTAACGGCAGTTTTTTG	spacer length: 36
		repeater length: 24		
28453	1647048	GTTTGTAGTTTCTTGTGCGTTATTAC	GAGAGACAAAATTTCCAAGTAAGTGAAGTCTGAAAATT	spacer
		length: 37	repeater length: 24	
28454	1647109	GTTTGTAGTTTCTTGTGCGTTATTAC	AATATACGCTGCATAATATACGCTCTCTTACGCTAAG	spacer
		length: 37	repeater length: 24	
28455	1647170	GTTTGTAGTTTCTTGTGCGTTATTAC	AGAGTGGCATAACCTTATTTGTTTTGTTGAGTTATGAAG	spacer
		length: 38	repeater length: 24	
28456	1647232	GTTTGTAGTTTCTTGTGCGTTATTAC	TTCCATTTTCTTCATAAGTAGCATCTCTCAACAAT	spacer length: 35
		repeater length: 24		
28457	1647291	GTTTGTAGTTTCTTGTGCGTTATTAC	ATAACAATTGTCCGTAAGTATTTAGACGCTTA	spacer length: 33
		repeater length: 24		
28458	1647348	GTTTGTAGTTTCTTGTGCGTTATTAC	TTTGATACGATTACAATAAAGTTCAGTTAAAGTAGAC	spacer
		length: 37	repeater length: 24	
28459	1647409	GTTTGTAGTTTCTTGTGCGTTATTAC	AAAGTCTATTTTTATTTTATCTTTATCTATCAGC	spacer length: 34
		repeater length: 24		
28460	1647467	GTTTGTAGTTTCTTGTGCGTTATTAC	ATTGGATAGTCAGTACCAAAAGGTACATTAAGCCACT	spacer
		length: 37	repeater length: 24	
28461	1647528	GTTTGTAGTTTCTTGTGCGTTATTAC	ATCATTAATAGAATACGAAAAGCTAAAAGCAAAAAA	spacer length: 36
		repeater length: 24		
28462	1647588	GTTTGTAGTTTCTTGTGCGTTATTAC	ATGTAGATAACATCACTATATTGATAAAGAGACTCGT	spacer
		length: 37	repeater length: 24	
28463	1647649	GTTTGTAGTTTCTTGTGCGTTATTAC	AAAATCATTGAACTATAATGTAGATCTTGACAGTA	spacer length: 34
		repeater length: 24		
28464	1647707	GTTTGTAGTTTCTTGTGCGTTATTAC	TTTCCAGCCCAGCCTCTTTGACAGTCTTAGCCTAT	spacer length: 35
		repeater length: 24		
28465	1647766	GTTTGTAGTTTCTTGTGCGTTATTAC	ATCTAGTGAGACAAAAGAAGCTCAGTCTCAGAGTT	spacer length: 36
		repeater length: 24		
28466	1647826	GTTTGTAGTTTCTTGTGCGTTATTAC	TTCCTTATACACATCAAGTAACACAGGCGAGTTCATC	spacer
		length: 37	repeater length: 24	
28467	1647887	GTTTGTAGTTTCTTGTGCGTTATTAC	TGCGGGATACTACTTCGCCCCAAGTTCTGTAAAGAC	spacer length: 36
		repeater length: 24		
28468	1647947	GTTTGTAGTTTCTTGTGCGTTATTAC	TGGTGAAGTGGTACAGATACATCCTTATGAAGAA	spacer length: 34
		repeater length: 24		
28469	1648005	GTTTGTAGTTTCTTGTGCGTTATTAC	CCATTACTGGACAAAGACTATGTCATCACAGCTGGTG	spacer
		length: 37	repeater length: 24	
28470	1648066	GTTTGTAGTTTCTTGTGCGTTATTAC	TTAACACTGGTTGAATTCGCAAGGAAAGTGATAGGT	spacer length: 36
		repeater length: 24		
28471	1648126	GTTTGTAGTTTCTTGTGCGTTATTAC	AGATATTTAGCGTTAAAGTGCAGGAGACAGGGGCAC	spacer
		length: 37	repeater length: 24	
28472	1648187	GTTTGTAGTTTCTTGTGCGTTATTAC	AAGTTTTTGATATCTGTCCCTGCAGTGTCTAGTG	spacer length: 34
		repeater length: 24		
28473	1648245	GTTTGTAGTTTCTTGTGCGTTATTAC	CTTCATACTCATACCAATTGTAAGTGTTCCTTGTGTTGA	spacer
		length: 40	repeater length: 24	
28474	1648309	GTTTGTAGTTTCTTGTGCGTTATTAC	TCTTGGAAGACCTTAAAAAAGGATTGATTTATT	spacer length: 35
		repeater length: 24		
28475	1648368	GTTTGTAGTTTCTTGTGCGTTATTAC	TCGCATGCCTTAAATCGATCGTTTTCTCTACATCT	spacer length: 35
		repeater length: 24		
28476	1648427	GTTTGTAGTTTCTTGTGCGTTATTAC	TACGCTCCATGCCCAGCTGTGCTCTCATCAACACATAG	spacer
		length: 38	repeater length: 24	
28477	1648489	GTTTGTAGTTTCTTGTGCGTTATTAC	GCGAGAAAGACTTCTACTGGGGCGCCGAATTTAAC	spacer length: 35
		repeater length: 24		
28478	1648548	GTTTGTAGTTTCTTGTGCGTTATTAC	CGCTAAAGAACGCCCTAAGGGAAGCCTTCAAATA	spacer length: 34
		repeater length: 24		
28479	1648606	GTTTGTAGTTTCTTGTGCGTTATTAC	TATCGCCTCACGCCATCTCTTTGGCGTGGTATAAT	spacer length: 35
		repeater length: 24		
28480	1648665	GTTTGTAGTTTCTTGTGCGTTATTAC	AAGTCGCAAAAGAACTGCTAGACAAATTTGACAGTGAA	spacer
		length: 38	repeater length: 24	
28481	1648727	GTTTGTAGTTTCTTGTGCGTTATTAC	TGACTTATTTTTGTCTTAAGTTCAGTACTCATTTTCT	spacer

length: 38 repeater length: 24

28482 1648789 GTTT TAGTTT CTTGTCGTTATTAC AAAGAACTCATTATCTTTAAGGACAAAGTCAGGGGT spacer length:
36 repeater length: 24

28483 1648849 GTTT TAGTTT CTTGTCGTTATTAC TTCCCCTGCGGATACTTCTGCCTCAATTTGGTCACA spacer length:
36 repeater length: 24

28484 1648909 GTTT TAGTTT CTTGTCGTTATTAC AAACCTTTTTCAGAGGCTTACCTCATCAATGTGGAA spacer length:
35 repeater length: 24

28485 1648968 GTTT TAGTTT CTTGTCGTTATTAC AAAGAAAAAGAAAAGGCGGGGGCGAGGGCATGGA spacer length:
34 repeater length: 24

28486 1649026 GTTT TAGTTT CTTGTCGTTATTAC TCTGTGTAACGTATCAGCAATGCGCTTTGTTATAT spacer length:
35 repeater length: 24

28487 1649085 GTTT TAGTTT CTTGTCGTTATTAC GCGGATTTCCACTGTTTCCAGCCTGAGCTTGGGC spacer length:
34 repeater length: 24

28488 1649143 GTTT TAGTTT CTTGTCGTTATTAC AGCAAATTTTTAACAAATGTATTCCATTCTTGAAGT spacer length:
36 repeater length: 24

28489 1649203 GTTT TAGTTT CTTGTCGTTATTAC AATTTTATAATGTCTGTAAACTAAAACATTGTTTT spacer length:
36 repeater length: 24

28490 1649263 GTTT TAGTTT CTTGTCGTTATTAC AAGGGATCTAGCCTGGCTAGAGAGCTTGCCGCTTTAATTAA spacer
length: 41 repeater length: 24

28491 1649328 GTTT TAGTTT CTTGTCGTTATTAC ATGGGTGCACCACCAGAAGTAGTAGAAGAGGTCGAG spacer length:
36 repeater length: 24

28492 1649388 GTTT TAGTTT CTTGTCGTTATTAC TGTATTGCCACAAATGTCCCGTTTTCGTTGTACAGG spacer length:
36 repeater length: 24

28493 1649448 GTTT TAGTTT CTTGTCGTTATTAC CAAGAGAAAGGAGCTAGGAAGAGGATCTTTTCCCT spacer length:
35 repeater length: 24

28494 1649507 GTTT TAGTTT CTTGTCGTTATTAC ATTAGGACTCGAAAAATTTATATAAAAAAGACATT spacer length:
36 repeater length: 24

28495 1649567 GTTT TAGTTT CTTGTCGTTATTAC TTCTCATCAACATTTGCTGTACAAATTCATAATCAT spacer
length: 37 repeater length: 24

28496 1649628 GTTT TAGTTT CTTGTCGTTATTAC ACCAGTCTTACTCAACAAGTCAGCCCTTACTTATAAT spacer
length: 37 repeater length: 24

28497 1649689 GTTT TAGTTT CTTGTCGTTATTAC CTCAGTCAGATACGTCTTCTTTAGCTGGCTTATGT spacer length:
35 repeater length: 24

28498 1649748 GTTT TAGTTT CTTGTCGTTATTAC ATCGAGTGGAAGGCGTTAGACCCAGTAGCTGCCGC spacer length:
35 repeater length: 24

28499 1649807 GTTT TAGTTT CTTGTCGTTATTAC AGCCTGGATCTGAAGAAACATAACCATGAGATAT spacer length:
34 repeater length: 24

28500 1649865 GTTT TAGTTT CTTGTCGTTATTAC AGGTCAGGAATATAGATTATTCGTACTTTGCTAT spacer length:
34 repeater length: 24

28501 1649923 GTTT TAGTTT CTTGTCGTTATTAC AAGTCTTCAGAAAATCATCAACACGCATATACTG spacer length:
34 repeater length: 24

28502 1649981 GTTT TAGTTT CTTGTCGTTATTAC TTTGATTAAAATGGGTTGGTATGGCATAAAAAAT spacer length:
34 repeater length: 24

28503 1650039 GTTT TAGTTT CTTGTCGTTATTAC ATCGGAATTATAGGCGGATTTTTAACAATATTCCTAACAT spacer
length: 40 repeater length: 24

28504 1650103 GTTT TAGTTT CTTGTCGTTATTAC GGAGACAAAGTTTGTCTGTGCAATATATCCCAA spacer length: 33
repeater length: 24

28505 1650160 GTTT TAGTTT CTTGTCGTTATTAC AGAAAGAGGAACATAAGGTCTAGATCTTACCCAA spacer length:
34 repeater length: 24

28506 1650218 GTTT TAGTTT CTTGTCGTTATTAC TAATTCATCTTTATAGTGTAACTTTTTGAAATAAA spacer length:
35 repeater length: 24

28507 1650277 GTTT TAGTTT CTTGTCGTTATTAC AACTAAGAAAAATTCAGTCAGCAGTATTAATACTACTACTA spacer
length: 39 repeater length: 24

28508 1650340 GTTT TAGTTT CTTGTCGTTATTAC TACACCAGTGAGAATGTCTTCCCGAAACTACAAGAA spacer length:
36 repeater length: 24

28509 1650400 GTTT TAGTTT CTTGTCGTTATTAC AATTGGCAACTAAGAAGTTTGTACAAATAACATAA spacer length:
35 repeater length: 24

28510 1650459 GTTT TAGTTT CTTGTCGTTATTAC GAATAGGGGATGCGATAAACAGTTAGCACAAACAA spacer length:
35 repeater length: 24

28511 1650518 GTTT TAGTTT CTTGTCGTTATTAC GGCATATAGAATTTTTCGCTTTGTTGCCTCTTTAA spacer length:
35 repeater length: 24

28512 1650577 GTTT TAGTTT CTTGTCGTTATTAC ATTCAATTTTTTTCGTTTTGTGCGTGAAAATAAAA spacer length:
35 repeater length: 24

28513 1650636 GTTT TAGTTT CTTGTCGTTATTAC GCTTGTGGTAACTATTCCATCGTCATCAGCAATC spacer length:
34 repeater length: 24

28514 1650694 GTTT TAGTTT CTTGTCGTTATTAC AACGCATTATTGCTAATGCACGGTGCTAACAATCTAG spacer
length: 37 repeater length: 24

28515 1650755 GTTT TAGTTT CTTGTCGTTATTAC GTTTAAACGGTAAATAGATAAAACCAAGAAAATG spacer length:
35 repeater length: 24

28516 1650814 GTTT TAGTTT CTTGTCGTTATTAC ACGTCTTGTGCTGACTTGTAACATCGCTGTTCTT spacer length:
35 repeater length: 24

28517 1650873 GTTTGTAGTTTCTTGTCGTTATTAC AAAGAAGTGCAAAAAAATGGCTACGGTGTACATT spacer length:
34 repeater length: 24

28518 1650931 GTTTGTAGTTTCTTGTCGTTATTAC ATGCATTTCATTAAAGACTTAACAATTCAAGAGTT spacer length:
34 repeater length: 24

28519 1650989 GTTTGTAGTTTCTTGTCGTTATTAC AAGTTTCTTAATTTATTACAGTTATATGAACAGC spacer length:
34 repeater length: 24

28520 1651047 GTTTGTAGTTTCTTGTCGTTATTAC ACAATAGCCCCGCAAATGTCAGTATCATCACGTTGTT spacer length:
36 repeater length: 24

28521 1651107 GTTTGTAGTTTCTTGTCGTTATTAC AGATTTTATGAAACATTAACATTTTATTTTATCTAT spacer length:
36 repeater length: 24

28522 1651167 GTTTGTAGTTTCTTGTCGTTATTAC ATTAATCAGATAGAACTAGCAGTGTGTTTTTATGTT spacer length:
36 repeater length: 24

28523 1651227 GTTTGTAGTTTCTTGTCGTTATTAC ACCTTCACTTATTGAAGATGGGGCTGAAACAACCTT spacer length:
36 repeater length: 24

28524 1651287 GTTTGTAGTTTCTTGTCGTTATTAC TTGGTTACTGATATTTTCTGAACTCCAGCAAATGT spacer length:
35 repeater length: 24

28525 1651346 GTTTGTAGTTTCTTGTCGTTATTAC CGTTAAACAGACTAGGCTCAGGACAAGCATTCACT spacer length:
35 repeater length: 24

28526 1651405 GTTTGTAGTTTCTTGTCGTTATTAC AGCCCAAATCTGTTATCTCTTTAGAAATGAAATTTT spacer length:
35 repeater length: 24

28527 1651464 GTTTGTAGTTTCTTGTCGTTATTAC AGAGTACCTTTACCTAACAGAGCGTCGTATATTAT spacer length:
36 repeater length: 24

28528 1651524 GTTTGTAGTTTCTTGTCGTTATTAC TGTAGTCTTGCGCAATACCTGCGCTCTTTAGCAGT spacer length:
35 repeater length: 24

28529 1651583 GTTTGTAGTTTCTTGTCGTTATTAC AGAAGCTATACAACGAGGCTATATAAATAAAATG spacer length:
34 repeater length: 24

28530 1651641 GTTTGTAGTTTCTTGTCGTTATTAC GTGAAGATGTCGATAGTGACGATAGCTGAGATAGT spacer length:
35 repeater length: 24

28531 1651700 GTTTGTAGTTTCTTGTCGTTATTAC AAAGTAAGCCCGATAGTCCTTAGGTCAGGATCCCTTTA spacer
length: 38 repeater length: 24

28532 1651762 GTTTGTAGTTTCTTGTCGTTATTAC TATATTTGGTCAAGTGTGTTCTACAGCATTTTAAT spacer length:
34 repeater length: 24

28533 1651820 GTTTGTAGTTTCTTGTCGTTATTAC GCAGAGTCTTTCGCTACGTCTTTCAGCGTCTCAAA spacer length:
35 repeater length: 24

28534 1651879 GTTTGTAGTTTCTTGTCGTTATTAC GATCACAGTAATGCGTTATATAAAAAGGCAGAATTCA spacer
length: 37 repeater length: 24

28535 1651940 GTTTGTAGTTTCTTGTCGTTATTAC CTTTGATCAATTACTAAATTCTGTAATTGTGCCTCTA spacer
length: 37 repeater length: 24

28536 1652001 GTTTGTAGTTTCTTGTCGTTATTAC GTAGAAAGTCATAACCCAAAACCTTCATTTTTTTGTT spacer length:
36 repeater length: 24

28537 1652061 GTTTGTAGTTTCTTGTCGTTATTAC ACAGGCTGTACCAAGCTGTTAGCGATGTAGTTAAT spacer length:
35 repeater length: 24

28538 1652120 GTTTGTAGTTTCTTGTCGTTATTAC AGCTCCCATTAATAATCACGACCACTCCAAATATCA spacer length:
35 repeater length: 24

28539 1652179 GTTTGTAGTTTCTTGTCGTTATTAC AGTTATAATCTATCTCCGGAACATTAATAATTTTTA spacer length:
36 repeater length: 24

28540 1652239 GTTTGTAGTTTCTTGTCGTTATTAC ATAGTTGGTGGGACGGAATGGAGAAACAGCTAAAA spacer length:
35 repeater length: 24

28541 1652298 GTTTGTAGTTTCTTGTCGTTATTAC TATAAAAAAGCATTTGCACAGTCTTGAAACCACTATTT spacer
length: 39 repeater length: 24

28542 1652361 GTTTGTAGTTTCTTGTCGTTATTAC ATGCTCGCCCACCAGCACACCGGACAGATCGACATA spacer length:
36 repeater length: 24

28543 1652421 GTTTGTAGTTTCTTGTCGTTATTAC AACTGAAGGAACCTTGTAAGCGGTATGCTTTGCTTCTTCTC spacer
length: 42 repeater length: 24

28544 1652487 GTTTGTAGTTTCTTGTCGTTATTAC AACTGGAGCAACGTATTGTTGAATATAGCCCCTATGA spacer
length: 37 repeater length: 24

28545 1652548 GTTTGTAGTTTCTTGTCGTTATTAC AATGAGATATTCAGTGGGTCATGGAGCGTGAAA spacer length:
34 repeater length: 24

28546 1652606 GTTTGTAGTTTCTTGTCGTTATTAC TTTCTTTATTTTTTAAGGAGGGAAATGGTCAGGCTAAAA spacer
length: 39 repeater length: 24

28547 1652669 GTTTGTAGTTTCTTGTCGTTATTAC TACGGTAACCTGGGGAGTTAACTCAGCATCCA spacer length: 32
repeater length: 24

28548 1652725 GTTTGTAGTTTCTTGTCGTTATTAC CTTTCGCATACTTCCTCGCCCTCCTTGAGATATTTTCT spacer
length: 38 repeater length: 24

28549 1652787 GTTTGTAGTTTCTTGTCGTTATTAC TAGTCATGAAGTCGTAAAGTATTGTTAAGTATTCCTT spacer
length: 37 repeater length: 24

28550 1652848 GTTTGTAGTTTCTTGTCGTTATTAC TTTCCAGAGGTGGTGAAAAAGGGGCTTAGTCTCAAC spacer length:
36 repeater length: 24

28551 1652908 GTTTGTAGTTTCTTGTCGTTATTAC GATGCCAGTCCTCGAGTTCCTCAGCTTCGTTTGTCC spacer length:
36 repeater length: 24

28552 1652968 GTTTGTAGTTTCTTGTCGTTATTAC TCGCTTTCGGCTCAAAGCGAAACCCTATGGGGTTTTTA spacer

length: 38 repeater length: 24

28553 1653030 GTTT TAGTTT CTTGTCGTTATTAC AGTGTAACCGTGACTACGGGTTCGGCTACCGGAAA spacer length:
35 repeater length: 24

28554 1653089 GTTT TAGTTT CTTGTCGTTATTAC GGTTTTCGATTGGCCTTACTGGCGGTTCTATATG spacer length:
34 repeater length: 24

28555 1653147 GTTT TAGTTT CTTGTCGTTATTAC ATAAAGTCCTTTTTTCGTCGTAAAATACGTCCTTA spacer length:
34 repeater length: 24

28556 1653205 GTTT TAGTTT CTTGTCGTTATTAC TTCCCCGACACCGCCCAATCCCTCGGTAGTATAAT spacer length:
35 repeater length: 24

28557 1653264 GTTT TAGTTT CTTGTCGTTATTAC GAGTAAAGTCCATAAATAAACCCCGTAACCTTACCT spacer length:
35 repeater length: 24

28558 1653323 GTTT TAGTTT CTTGTCGTTATTAC TGTTCATATATTAACATAAGCTATGAAAATATATA spacer length:
36 repeater length: 24

28559 1653383 GTTT TAGTTT CTTGTCGTTATTAC CTGGAGCTTCAATTTGTTACCAACCTTTTCCATGTT spacer length:
36 repeater length: 24

28560 1653443 GTTT TAGTTT CTTGTCGTTATTAC TTCACTTCGCTTTTGACGTAATTAAATTTTGTGAGTT spacer
length: 37 repeater length: 24

28561 1653504 GTTT TAGTTT CTTGTCGTTATTAC TCATTGTCCC

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28564 crispr 3

28565 1665895 GTAATAACGACAAGAACTAAAAC CACTGCCGTTTCGACGAGGCCAGCAACTTCTCTAGGAT spacer
length: 39 repeater length: 24

28566 1665958 GTAATAACGACAAGAACTAAAAC AAAGGAGATTGACACCCCGTAATGTTCTACTATGTGAAA spacer
length: 40 repeater length: 24

28567 1666022 GTAATAACGACAAGAACTAAAAC GAAGTCTTTCTTCAATGTCGAGGACTGTGCACGTAA spacer length:
36 repeater length: 24

28568 1666082 GTAATAACGACAAGAACTAAAAC AAAGTGACTGACTACAAGGCAATTGTTGAAGTACTT spacer length:
36 repeater length: 24

28569 1666142 GTAATAACGACAAGAACTAAAAC TTAGTGACCGAAAAAGATAGAGAGATTTTGTGACAT spacer length:
35 repeater length: 24

28570 1666201 GTAATAACGACAAGAACTAAAAC CATATTCATCAAACTTCAAGACTACCTATACG spacer length: 33
repeater length: 24

28571 1666258 GTAATAACGACAAGAACTAAAAC ATCTGTTATATCAACAATCTCTCTATCTTTTTCAGT spacer length:
36 repeater length: 24

28572 1666318 GTAATAACGACAAGAACTAAAAC GTAAAATCATATTGAGTATTTTGTGTTATGCGATTTATGTT spacer
length: 40 repeater length: 24

28573 1666382 GTAATAACGACAAGAACTAAAAC GTTGAAAAGAAGAGAGTTCTACTTATTCTACTTAT spacer length:
35 repeater length: 24

28574 1666441 GTAATAACGACAAGAACTAAAAC ATGCGTCCTGGTTAGGTAGATTATAGTCCCTCCTA spacer length:
35 repeater length: 24

28575 1666500 GTAATAACGACAAGAACTAAAAC TAATTAGATTTTAAAGCGTTATATGCTACGCTCCC spacer length:
35 repeater length: 24

28576 1666559 GTAATAACGACAAGAACTAAAAC TGTCCAATTCTTGTAAGAATTCTTTCTGACTTTGGGT spacer
length: 37 repeater length: 24

28577 1666620 GTAATAACGACAAGAACTAAAAC ATTGATGAGGCAAGGGATCAAGGTGAGCTAAACGTT spacer length:
36 repeater length: 24

28578 1666680 GTAATAACGACAAGAACTAAAAC AGAAGGTAATTGAAATAGGAGGAGTAACGGGTATTT spacer
length: 37 repeater length: 24

28579 1666741 GTAATAACGACAAGAACTAAAAC TTCAACAACCCTGCCAGTATAAGACCTATCAAAACGTC spacer
length: 38 repeater length: 24

28580 1666803 GTAATAACGACAAGAACTAAAAC CTATAAAATTTTGCAAAAGGTTGGTGAGGAGAAGT spacer length:
35 repeater length: 24

28581 1666862 GTAATAACGACAAGAACTAAAAC TTGCTACAAAGTTCCCCATGTGTTTGTAGGGGTAAT spacer length:
36 repeater length: 24

28582 1666922 GTAATAACGACAAGAACTAAAAC CCTTACTGTATTGTATGGTATATCAGCTTCTTCACT spacer length:
36 repeater length: 24

28583 1666982 GTAATAACGACAAGAACTAAAAC TGTCCCATTTACTACATCAAATTGGAAAATGTTATA spacer length:
36 repeater length: 24

28584 1667042 GTAATAACGACAAGAACTAAAAC ATTAATATAGCACCCACCTCTAAAAGAGTAATTGAAAT spacer
length: 38 repeater length: 24

28585 1667104 GTAATAACGACAAGAACTAAAAC ACTTATGTTTATGAGTATTACGCGATGAAAGTTTGGGG spacer
length: 38 repeater length: 24

28586 1667166 GTAATAACGACAAGAACTAAAAC ATCTTCTCTGTCCTCTACTACTTTCTGCTCTTCTTT spacer length:
36 repeater length: 24

28587 1667226 GTAATAACGACAAGAACTAAAAC TGAAAAGTTCATAAAAAAGTACCCTAACGTAGAACA spacer length:
36 repeater length: 24

28588 1667286 GTAATAACGACAAGAACTAAAAC AATTTTATGATATCGCTTTTGTTCAGGAAACAT spacer length:
34 repeater length: 24

28589 1667344 GTAATAACGACAAGAACTAAAAC AATTCTAAGTGCACAAGAAGGACTAGAAGAGGCAGGCCT spacer
length: 39 repeater length: 24

28590	1667407 GTAATAACGACAAGAACTAAAAC	TAATGCCCAGTAACATAGATGCCTCCTTGATTAT spacer length: 34 repeater length: 24
28591	1667465 GTAATAACGACAAGAACTAAAAC	AATTTGGATTGACGTCACCTCAAGATCTATTACCT spacer length: 35 repeater length: 24
28592	1667524 GTAATAACGACAAGAACTAAAAC	ATATTTAAGCCTTACTCTTTACATTAAAAGTAACAA spacer length: 36 repeater length: 24
28593	1667584 GTAATAACGACAAGAACTAAAAC	TCGACGTTAGTCTTAGATTTTTATCATTTTTAGGT spacer length: 35 repeater length: 24
28594	1667643 GTAATAACGACAAGAACTAAAAC	TTGTGCTCTTTAATGTCAAACAGTGTGATCTATT spacer length: 34 repeater length: 24
28595	1667701 GTAATAACGACAAGAACTAAAAC	ACAGTGCATGAAGTAGCATCATATGTCGTAAGTGA spacer length: 35 repeater length: 24
28596	1667760 GTAATAACGACAAGAACTAAAAC	TCTCTGGGTAAAGTGCAAAGAGCACTGGGATTACAA spacer length: 36 repeater length: 24
28597	1667820 GTAATAACGACAAGAACTAAAAC	CAACAAGGCTGAGAAGATAGCAAAGAAGCTAGTA spacer length: 34 repeater length: 24
28598	1667878 GTAATAACGACAAGAACTAAAAC	TACAATAATTTTCAGATTTCCAGTAAATGATACAAATTC spacer length: 38 repeater length: 24
28599	1667940 GTAATAACGACAAGAACTAAAAC	TTGTCATTAAACTGACAACCTTGTCTCTGACCCAAA spacer length: 36 repeater length: 24
28600	1668000 GTAATAACGACAAGAACTAAAAC	AGTAGCGGTATACAAAAATGTATTTGTTGTGATA spacer length: 34 repeater length: 24
28601	1668058 GTAATAACGACAAGAACTAAAAC	TGGCTCACAGGCATTAATACCTGCAAAGCCTAGG spacer length: 34 repeater length: 24
28602	1668116 GTAATAACGACAAGAACTAAAAC	AAAAGTTTGCCAATTTAGGTGCTGTGCAGGAAGCATTTA spacer length: 39 repeater length: 24
28603	1668179 GTAATAACGACAAGAACTAAAAC	GAATAATTGTAGATCAGCCATCAACTTCCACACG spacer length: 34 repeater length: 24
28604	1668237 GTAATAACGACAAGAACTAAAAC	AGAAAATGAGTAGTGAGATAAAGACAAAAAATAAGT spacer length: 36 repeater length: 24
28605	1668297 GTAATAACGACAAGAACTAAAAC	AATTTCTATATAATCCAAGAGACACAGAGAGGTTTCTAC spacer length: 39 repeater length: 24
28606	1668360 GTAATAACGACAAGAACTAAAAC	TACATTACTTTTAGAAATATAGTATGAGCGTAACATA spacer length: 37 repeater length: 24
28607	1668421 GTAATAACGACAAGAACTAAAAC	CAGTACACAAAGTGGATAGGAAAAGTCAACAAT spacer length: 33 repeater length: 24
28608	1668478 GTAATAACGACAAGAACTAAAAC	ATCGTATATTATATTGGGGCAGAAAAAATGAATGAT spacer length: 36 repeater length: 24
28609	1668538 GTAATAACGACAAGAACTAAAAC	CAGGTTCAATTTTCAGTAAATAATGGCATTACAAT spacer length: 34 repeater length: 24
28610	1668596 GTAATAACGACAAGAACTAAAAC	AACATCAGACTTTTGCACCTTTTATTAGAAGGCTTTGGA spacer length: 38 repeater length: 24
28611	1668658 GTAATAACGACAAGAACTAAAAC	GATACATTGCATATATTGGCAATCAGCAATACAA spacer length: 34 repeater length: 24
28612	1668716 GTAATAACGACAAGAACTAAAAC	ACTATATATTGTTTGGAGCTTATCATAAACTTCATC spacer length: 36 repeater length: 24
28613	1668776 GTAATAACGACAAGAACTAAAAC	CTGAATAGAGAGATGATAGAAGAAACGGTAAGTA spacer length: 34 repeater length: 24
28614	1668834 GTAATAACGACAAGAACTAAAAC	TCAGCCTCTAATTCTGCTGCAACTTCCATCAATTTCTT spacer length: 39 repeater length: 24
28615	1668897 GTAATAACGACAAGAACTAAAAC	ATTAATTCCAAAGGACATTGAGAAGAAATTTGGCTTAAA spacer length: 39 repeater length: 24
28616	1668960 GTAATAACGACAAGAACTAAAAC	ATATGAGCAACAGCAACTCAAATCTTTATATGAAGTC spacer length: 37 repeater length: 24
28617	1669021 GTAATAACGACAAGAACTAAAAC	CACCAAAGAGTTTTTGTCCAAAGCCTTTTATGGA spacer length: 34 repeater length: 24
28618	1669079 GTAATAACGACAAGAACTAAAAC	CAGTCTCAATGTCTTTATGAGACAATTCTATATCCAA spacer length: 37 repeater length: 24
28619	1669140 GTAATAACGACAAGAACTAAAAC	GCACTTCTACTTGCTTAACGCTATAGCAAGCAAGAA spacer length: 36 repeater length: 24
28620	1669200 GTAATAACGACAAGAACTAAAAC	GTTTCATCAACCTCATGCTGAGTAAGACTATTAGTATGT spacer length: 38 repeater length: 24
28621	1669262 GTAATAACGACAAGAACTAAAAC	CTCGTATTCGTAAAAGCCCTCGTGGGTGGTGACGAT spacer length: 36 repeater length: 24
28622	1669322 GTAATAACGACAAGAACTAAAAC	CTTTACAACATAATTTTTTCAGGAAAACAAATTGAA spacer length: 35 repeater length: 24
28623	1669381 GTAATAACGACAAGAACTAAAAC	TATGTCTTAGATAGTTGAAAAAGCTAAAGCTTTT spacer length: 34 repeater length: 24
28624	1669439 GTAATAACGACAAGAACTAAAAC	GAATGTGTCCCCCTAGAGTTTTTACCAAACAACCA spacer length: 36 repeater length: 24
28625	1669499 GTAATAACGACAAGAACTAAAAC	AAAAAACCTTTAACCTCTATCGAATGCTGTCAAAAA spacer length: 34 repeater length: 24

36 repeater length: 24

28626 1669559 GTAATAACGACAAGAACTAAAAC AACGTTACGACCCTACTACTCAGAAGAAGATAGT spacer length: 35
35 repeater length: 24

28627 1669618 GTAATAACGACAAGAACTAAAAC GAGGGATGAAGGCAAATCAGTATCAGCAATAGTAGAG spacer length: 37
37 repeater length: 24

28628 1669679 GTAATAACGACAAGAACTAAAAC GAAGTAGAACAGCTGTTTTTCAGGATTGAAATTAT spacer length: 35
35 repeater length: 24

28629 1669738 GTAATAACGACAAGAACTAAAAC AAGAGAATACTTTCTCGCCTCAGCAAGAATCGTATCAAT spacer length: 39
39 repeater length: 24

28630 1669801 GTAATAACGACAAGAACTAAAAC GTATGTGGGAGAGCTTTATGAGTGGTAAGACACAC spacer length: 35
35 repeater length: 24

28631 1669860 GTAATAACGACAAGAACTAAAAC ATGCAGGTACTTACTGAGCCTGATGAACAGCA spacer length: 33
33 repeater length: 24

28632 1669917 GTAATAACGACAAGAACTAAAAC AAATTTAAGGAAAATGGAGTGTATGTATATAAAT spacer length: 34
34 repeater length: 24

28633 1669975 GTAATAACGACAAGAACTAAAAC CTCAATTATTTTCAATGCTTTTTCTTTTTCGTTGT spacer length: 35
35 repeater length: 24

28634 1670034 GTAATAACGACAAGAACTAAAAC ACATCAGCACTTATGGATACTACGCCATGCTCATCT spacer length: 36
36 repeater length: 24

28635 1670094 GTAATAACGACAAGAACTAAAAC ACTATTACTTTTGAAAATATGTAGATAAGACTGGT spacer length: 35
35 repeater length: 24

28636 1670153 GTAATAACGACAAGAACTAAAAC TTACAGTTGTTCCGTTAGGAAGTATATAGTTACT spacer length: 34
34 repeater length: 24

28637 1670211 GTAATAACGACAAGAACTAAAAC AAAATAATCATAAAACCCGAGCATTACGAAGAATTGA spacer length: 37
37 repeater length: 24

28638 1670272 GTAATAACGACAAGAACTAAAAC TGTAAGGACTTCTTAAAAAGGTTAGAGGGGTTTCTC spacer length: 37
37 repeater length: 24

28639 1670333 GTAATAACGACAAGAACTAAAAC GTAATTATTCTGATGGGTGCTATAATCTCGATGGC spacer length: 35
35 repeater length: 24

28640 1670392 GTAATAACGACAAGAACTAAAAC AGCGATTAGTTTAGTCAATTAGCTATTGCGACTT spacer length: 35
35 repeater length: 24

28641 1670451 GTAATAACGACAAGAACTAAAAC ATGGGATCCTGATAATTCGGCATCAGCACAATTC spacer length: 34
34 repeater length: 24

28642 1670509 GTAATAACGACAAGAACTAAAAC CTCTTCATTTGTCTCGTGAAATATAGGGTTTTTCA spacer length: 35
35 repeater length: 24

28643 1670568 GTAATAACGACAAGAACTAAAAC ATAGGGTAGTTCACAAAGAGCCAGCCCTCGTCAAC spacer length: 35
35 repeater length: 24

28644 1670627 GTAATAACGACAAGAACTAAAAC CTTTACGTAGTAGTTATAGAGCTTCGTTACGTGCT spacer length: 35
35 repeater length: 24

28645 1670686 GTAATAACGACAAGAACTAAAAC CTTGAACCATTGAACCTGCGATTGCAGGGATTAAGTAT spacer length: 38
38 repeater length: 24

28646 1670748 GTAATAACGACAAGAACTAAAAC GCTGACTGGGGGTGAGCCAGAAATGAAGACTGGAAG spacer length: 36
36 repeater length: 24

28647 1670808 GTAATAACGACAAGAACTAAAAC TAAAATTAGTCTGCTGGCCAATTAAGAACAACTCT spacer length: 36
36 repeater length: 24

28648 1670868 GTAATAACGACAAGAACTAAAAC GTGCAACAGGGTGAAACATAGATGAGCACATTTTT spacer length: 35
35 repeater length: 24

28649 1670927 GTAATAACGACAAGAACTAAAAC ATTATGCTCATTATCTCTGATTTGACCTTAAAGC spacer length: 35
35 repeater length: 24

28650 1670986 GTAATAACGACAAGAACTAAAAC CTACATTGTCCTGAAGTCCTAACTTCTTTAATTCCTT spacer length: 37
37 repeater length: 24

28651 1671047 GTAATAACGACAAGAACTAAAAC TTTTTATTTTCAGTAGCTATCACCATAGTAGCCCTAAAA spacer length: 39
39 repeater length: 24

28652 1671110 GTAATAACGACAAGAACTAAAAC TACTCCCCAGGCTTACCCAGCAAGAAGAGGAAGCCTT spacer length: 37
37 repeater length: 24

28653 1671171 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length: 35
35 repeater length: 24

28654 1671230 GTAATAACGACAAGAACTAAAAC CATTTTAGCTCAAGCATCACCAGCATCAATTGAAAG spacer length: 36
36 repeater length: 24

28655 1671290 GTAATAACGACAAGAACTAAAAC ACCGTTCCGTAGATATTATTACTGTAACCTCCCTCCC spacer length: 36
36 repeater length: 24

28656 1671350 GTAATAACGACAAGAACTAAAAC ACTGGGCTCCCCGTGATCACTCCAGGTCCTTATGTTG spacer length: 37
37 repeater length: 24

28657 1671411 GTAATAACGACAAGAACTAAAAC GACGCTAAAAAGCAAGAACAACAATCACAACAATCG spacer length: 36
36 repeater length: 24

28658 1671471 GTAATAACGACAAGAACTAAAAC TTTCTTAGTGAATCCCATGTACGTATATCTAATTTA spacer length: 36
36 repeater length: 24

28659 1671531 GTAATAACGACAAGAACTAAAAC

28660

28661

28662 crispr 4


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28663 1781912 ACTTTCAATCCCTTATGGGATTCTTC CTACCTTTTGAGATGCTTTCACCGATCTATGTTAAAGCAA spacer
length: 40 repeater length: 26
28664 1781978 ACTTTCAATCCCTTATGGGATTCTTC CTCGTTTTCAATAAATGTCTATAGGGATGAATGTG spacer
length: 35 repeater length: 26
28665 1782039 ACTTTCAATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATAT spacer
length: 36 repeater length: 26
28666 1782101 ACTTTCAATCCCTTATGGGATTCTTC
28667
28668
28669 crispr 5
28670 1821512 CTTTCAATCCCTTTTGGGATTCATC AGAGTCCCCTTCAACATAAAACCTAACTTGGTTTGG spacer
length: 36 repeater length: 25
28671 1821573 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGAT spacer
length: 38 repeater length: 25
28672 1821636 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAGC spacer
length: 37 repeater length: 25
28673 1821698 CTTTCAATCCCTTTTGGGATTCATC TGCGGAAATATGGAAAGAAGTATTATGAAAAAGGAGAAAA spacer
length: 41 repeater length: 25
28674 1821764 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAACT spacer
length: 36 repeater length: 25
28675 1821825 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTATACCC spacer
length: 38 repeater length: 25
28676 1821888 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGCT spacer
length: 37 repeater length: 25
28677 1821950 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTTGAG spacer
length: 39 repeater length: 25
28678 1822014 CTTTCAATCCCTTTTGGGATTCATC TATGAACTAACAGATAAAGGGAAGAGAAGTGTTCCTCCAAAAT spacer
length: 42 repeater length: 25
28679 1822081 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGAG spacer
length: 39 repeater length: 25
28680 1822145 CTTTCAATCCCTTTTGGGATTCATC
28681
28682
28683 GCA_002215565.1_ASM221556v1_genomic.fna(PilerCR):
28684 START REPEAT
SPACER
28685 crispr 1
28686 1650671 GTTTtagtttcttgTCGTTATTAC ATCATTTGGAATTGGGCTAGCCCTATTTTTCTTGATA spacer length:
36 repeater length: 24
28687 1650731 GTTTtagtttcttgTCGTTATTAC AGTTGGTAGTGGGCAGATATCTAGCCCTGACCACT spacer length:
35 repeater length: 24
28688 1650790 GTTTtagtttcttgTCGTTATTAC TGATGTCGAATACCGGAGTCAAGATGTTGATGAAAA spacer length:
36 repeater length: 24
28689 1650850 GTTTtagtttcttgTCGTTATTAC AAATAACGAAGATTTAAGTGGTTTTGAACCAAGAGAA spacer
length: 37 repeater length: 24
28690 1650911 GTTTtagtttcttgTCGTTATTAC TGATCACATGTTTTATCGGTAGTACATAATGTAGAAA spacer
length: 37 repeater length: 24
28691 1650972 GTTTtagtttcttgTCGTTATTAC GAGGAGTTTGATAAACTTTTGAATTTCTTGAGAG spacer length:
35 repeater length: 24
28692 1651031 GTTTtagtttcttgTCGTTATTAC GAAATATAGCAAGAGTTCTGTGGTCGCTATATTA spacer length:
34 repeater length: 24
28693 1651089 GTTTtagtttcttgTCGTTATTAC ATCATTAGCACGATATTTATCATCACTGCAGTAATC spacer
length: 37 repeater length: 24
28694 1651150 GTTTtagtttcttgTCGTTATTAC CTCAAAAATATAATGCGTAAGCTTAAATACCCAAC spacer length:
35 repeater length: 24
28695 1651209 GTTTtagtttcttgTCGTTATTAC TTTTtattctatatttGAATAAAGCATAAAGTAATC spacer length:
36 repeater length: 24
28696 1651269 GTTTtagtttcttgTCGTTATTAC CTAATATTAATGGCAGTAGAAGTCTCGAACAACAC spacer length:
35 repeater length: 24
28697 1651328 GTTTtagtttcttgTCGTTATTAC TATCTCGCAATAAATGAGAGAGAGTCGGCGAGTGT spacer length:
35 repeater length: 24
28698 1651387 GTTTtagtttcttgTCGTTATTAC TATGTTTGTGTATTGCTAGCGTAATATTGTATTACA spacer
length: 37 repeater length: 24
28699 1651448 GTTTtagtttcttgTCGTTATTAC ACACAATATCTTAGTCATTACTGGAATGACTACAAC spacer length:
36 repeater length: 24
28700 1651508 GTTTtagtttcttgTCGTTATTAC ATCATTAGCACGATATTTATCATCACTGCAGTAATC spacer
length: 37 repeater length: 24
28701 1651569 GTTTtagtttcttgTCGTTATTAC TGTAGTAAATTGATATAATCGGATTGAAGAGAGTG spacer length:
35 repeater length: 24
28702 1651628 GTTTtagtttcttgTCGTTATTAC AGGGATATCTGGAAGTAATACACCAGTACTATAC spacer length:
34 repeater length: 24

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28703	1651686	GTTTGTAGTTTCTTGTCGTTATTAC	GCCATTCAACTCAAACTTATAGAAGATTACGAAATA	spacer
		length: 37	repeater length: 24	
28704	1651747	GTTTGTAGTTTCTTGTCGTTATTAC	CCAAATGCTAAAAATAGAAAAGGTAGGAGAGTTATTA	spacer
		length: 37	repeater length: 24	
28705	1651808	GTTTGTAGTTTCTTGTCGTTATTAC	CGGTCTTCCAAAATTACTTAATGCTCTTGATAATAAA	spacer
		length: 37	repeater length: 24	
28706	1651869	GTTTGTAGTTTCTTGTCGTTATTAC	TAAGGCTAATTTTGATCGATAAAGATGAAGAAGAAAG	spacer
		length: 37	repeater length: 24	
28707	1651930	GTTTGTAGTTTCTTGTCGTTATTAC	TATCTAACCCTCTCTTTTTCAACTCTTTGAAGATAAAA	spacer
		length: 38	repeater length: 24	
28708	1651992	GTTTGTAGTTTCTTGTCGTTATTAC	CCTCCCTGATATTCACCTTCTCCATTTCTGTAGCAA	spacer
		length: 37	repeater length: 24	
28709	1652053	GTTTGTAGTTTCTTGTCGTTATTAC	ACCAACTCTCAATTACTCATAATATTCAAATAAAT	spacer length:
		36	repeater length: 24	
28710	1652113	GTTTGTAGTTTCTTGTCGTTATTAC	ATTCCGACTTGCTTAAATTCAGCTTTTTTTGTACAA	spacer length:
		35	repeater length: 24	
28711	1652172	GTTTGTAGTTTCTTGTCGTTATTAC	ACAGTAGTAGCTCCGGCTGTCATTCCTAATAATAT	spacer length:
		35	repeater length: 24	
28712	1652231	GTTTGTAGTTTCTTGTCGTTATTAC	AAATGATATAAAAAATGAACAACAGAATATAAAA	spacer length:
		34	repeater length: 24	
28713	1652289	GTTTGTAGTTTCTTGTCGTTATTAC	AACAAGAATTGATGAAGTATTCAAAAGAGCGATATGAA	spacer
		length: 38	repeater length: 24	
28714	1652351	GTTTGTAGTTTCTTGTCGTTATTAC	CTTTCAGAGGGCGAGATCGCAGAGTACTTGAGAATAGCG	spacer
		length: 39	repeater length: 24	
28715	1652414	GTTTGTAGTTTCTTGTCGTTATTAC	ATTTCTGCAAATGTATAATACATCAATTTTATAAT	spacer length:
		35	repeater length: 24	
28716	1652473	GTTTGTAGTTTCTTGTCGTTATTAC	GCATCAGCAATTATGGAAGTCGCTAGATATTACTA	spacer length:
		35	repeater length: 24	
28717	1652532	GTTTGTAGTTTCTTGTCGTTATTAC	AGGAATGTGTACAACAGCTATAAAAAAGAAAGAATTGT	spacer
		length: 39	repeater length: 24	
28718	1652595	GTTTGTAGTTTCTTGTCGTTATTAC	TTTGGAATATCTTGCGAGGCGAGGGTGAGTGAACCT	spacer length:
		36	repeater length: 24	
28719	1652655	GTTTGTAGTTTCTTGTCGTTATTAC	AATAAAAGGAGATTTTCATAGACTCTATTCTCAAAA	spacer length:
		35	repeater length: 24	
28720	1652714	GTTTGTAGTTTCTTGTCGTTATTAC	TTGTTCTAGAAGTGGCGCATTAACGGCAGTTTTTTG	spacer length:
		36	repeater length: 24	
28721	1652774	GTTTGTAGTTTCTTGTCGTTATTAC	GAGAGACAAAATTTCCAAGTAAGTGACTCTGAAAATT	spacer
		length: 37	repeater length: 24	
28722	1652835	GTTTGTAGTTTCTTGTCGTTATTAC	AATATACGCTGCATAATATACGCTCTCTTACGCTAAG	spacer
		length: 37	repeater length: 24	
28723	1652896	GTTTGTAGTTTCTTGTCGTTATTAC	AGAGTGGCATACTTATTTGTTTTGTTGAGTTATGAAG	spacer
		length: 38	repeater length: 24	
28724	1652958	GTTTGTAGTTTCTTGTCGTTATTAC	TTCCATTTTCTTCATAAGTAGCATCTCTCAACAAT	spacer length:
		35	repeater length: 24	
28725	1653017	GTTTGTAGTTTCTTGTCGTTATTAC	ATAACAATTGTCGGTAACTTATTTAGACGCTTA	spacer length: 33
		repeater length: 24		
28726	1653074	GTTTGTAGTTTCTTGTCGTTATTAC	TTTGATACGATTACAATAAAGTTCACTTAAAGTAGAC	spacer
		length: 37	repeater length: 24	
28727	1653135	GTTTGTAGTTTCTTGTCGTTATTAC	AAAGTCTATTTTTATTTTATCTTTATCTATCAGC	spacer length:
		34	repeater length: 24	
28728	1653193	GTTTGTAGTTTCTTGTCGTTATTAC	ATTGGATAGTCAGTACCAAAGGTACATTAAGCCACT	spacer
		length: 37	repeater length: 24	
28729	1653254	GTTTGTAGTTTCTTGTCGTTATTAC	ATCATTAATAGAATACGAAAAGCTAAAAGCAAAAAA	spacer length:
		36	repeater length: 24	
28730	1653314	GTTTGTAGTTTCTTGTCGTTATTAC	ATGTAGATAACATCACTATATTGATAAAGAGACTCGT	spacer
		length: 37	repeater length: 24	
28731	1653375	GTTTGTAGTTTCTTGTCGTTATTAC	AAAATCATTGAACATAATGTAGATCTTGCAGTA	spacer length:
		34	repeater length: 24	
28732	1653433	GTTTGTAGTTTCTTGTCGTTATTAC	TTTCCAGCCCAGCCTCTTGCAGCTTCTAGCCTAT	spacer length:
		35	repeater length: 24	
28733	1653492	GTTTGTAGTTTCTTGTCGTTATTAC	ATCTAGTGAGACAAAAGAACCTCAGTCTCAGAGTT	spacer length:
		36	repeater length: 24	
28734	1653552	GTTTGTAGTTTCTTGTCGTTATTAC	TTCCTTATACACATCAAGTAACACAGGCGAGTTCATC	spacer
		length: 37	repeater length: 24	
28735	1653613	GTTTGTAGTTTCTTGTCGTTATTAC	TGCGGGATACTACTTCGCCCCAAGTTCTGTAAAGAC	spacer length:
		36	repeater length: 24	
28736	1653673	GTTTGTAGTTTCTTGTCGTTATTAC	TGGTGAAGTGGTACAGATACATCCTTATGAAGAA	spacer length:
		34	repeater length: 24	
28737	1653731	GTTTGTAGTTTCTTGTCGTTATTAC	CCATTACTGGACAAAGACTATGTCATCACAGCTGGTG	spacer
		length: 37	repeater length: 24	
28738	1653792	GTTTGTAGTTTCTTGTCGTTATTAC	TTAACACTGGTTGAATTCGCAAGGAAAGTGATAGGT	spacer length:

36 repeater length: 24

28739 1653852 GTTT TAGTTT CTTGTCGTTATTAC AGATATTTAGCGTTAAACTGCAGGAGACAGGGGCAC spacer length: 37 repeater length: 24

28740 1653913 GTTT TAGTTT CTTGTCGTTATTAC AAGTTTTTGTATCTGTCCCTGCAGTGTCTAGTG spacer length: 34 repeater length: 24

28741 1653971 GTTT TAGTTT CTTGTCGTTATTAC CTTCATACTCATACCAATTGTAAGTGTTCCTTGTGTTGA spacer length: 40 repeater length: 24

28742 1654035 GTTT TAGTTT CTTGTCGTTATTAC TCTTGGAAAGACCTTAAAAAAGGATTGATTTATT spacer length: 35 repeater length: 24

28743 1654094 GTTT TAGTTT CTTGTCGTTATTAC TCGCATGCCTTAAATCGATCGTTTTCTCTACATCT spacer length: 35 repeater length: 24

28744 1654153 GTTT TAGTTT CTTGTCGTTATTAC TACGCTCCATGCCCAGCTGTGCTCTCATCAACACATAG spacer length: 38 repeater length: 24

28745 1654215 GTTT TAGTTT CTTGTCGTTATTAC GCGAGAAAGACTTCTACTGGGGCGCCGAATTTAAC spacer length: 35 repeater length: 24

28746 1654274 GTTT TAGTTT CTTGTCGTTATTAC ATCGCTGAGATCCTAGCGACTTTCTACCTGCCCGAT spacer length: 36 repeater length: 24

28747 1654334 GTTT TAGTTT CTTGTCGTTATTAC CGCTAAAGAACGCCCTAAGGGAAGCCTTCAAATA spacer length: 34 repeater length: 24

28748 1654392 GTTT TAGTTT CTTGTCGTTATTAC TATCGCCTCACGCCATCTCTTTGGCGTGGTATAAT spacer length: 35 repeater length: 24

28749 1654451 GTTT TAGTTT CTTGTCGTTATTAC AAGTCGCAAAGAAGCTGCTAGACAAATTTGACAGTGAA spacer length: 38 repeater length: 24

28750 1654513 GTTT TAGTTT CTTGTCGTTATTAC TGACTTATTTTTTGTCTTAACTTCACTACTCATTTTCT spacer length: 38 repeater length: 24

28751 1654575 GTTT TAGTTT CTTGTCGTTATTAC AAAGAACTCATTATCTTTAAGGACAAAGTCAGGGGT spacer length: 36 repeater length: 24

28752 1654635 GTTT TAGTTT CTTGTCGTTATTAC TTCCCTGCGGATACTTCTGCCTCAATTTGGTCACA spacer length: 36 repeater length: 24

28753 1654695 GTTT TAGTTT CTTGTCGTTATTAC AAACCTTTTCAGAGGCTTACCTCATCAATGTGGAA spacer length: 35 repeater length: 24

28754 1654754 GTTT TAGTTT CTTGTCGTTATTAC AAAGAAAAAGAAAAGGCGGGGCGAGGGCATGGA spacer length: 34 repeater length: 24

28755 1654812 GTTT TAGTTT CTTGTCGTTATTAC TCTGTGTAACGTATCAGCAATGCGCTTTGTTATAT spacer length: 35 repeater length: 24

28756 1654871 GTTT TAGTTT CTTGTCGTTATTAC GCGGATTTCCACTGTTTCCAGCCTGAGCTTGGGC spacer length: 34 repeater length: 24

28757 1654929 GTTT TAGTTT CTTGTCGTTATTAC AGCAAATTTTTTAACAAATGTATTCCATTCTTGAAGT spacer length: 36 repeater length: 24

28758 1654989 GTTT TAGTTT CTTGTCGTTATTAC AATTTTATAATGTCTGTAAACTAAAACATTGTTTT spacer length: 36 repeater length: 24

28759 1655049 GTTT TAGTTT CTTGTCGTTATTAC AAGGGATCTAGCCTGGCTAGAGAGCTTGCCGCTTTAATTAA spacer length: 41 repeater length: 24

28760 1655114 GTTT TAGTTT CTTGTCGTTATTAC ATGGGTGCACCACCAGAAGTAGTAGAAGAGGTCGAG spacer length: 36 repeater length: 24

28761 1655174 GTTT TAGTTT CTTGTCGTTATTAC TGTATTGCCACAAATGTCCCGTTTTCGTTGTACAGG spacer length: 36 repeater length: 24

28762 1655234 GTTT TAGTTT CTTGTCGTTATTAC CAAGAGAAAGGAGCTAGGAAGAGGATCTTTTCCCT spacer length: 35 repeater length: 24

28763 1655293 GTTT TAGTTT CTTGTCGTTATTAC ATTAGGACTCGAAAAATTTATATAAAAAAGACATT spacer length: 36 repeater length: 24

28764 1655353 GTTT TAGTTT CTTGTCGTTATTAC TTCTCATCAACATTTGCTGTACAAATTCATAATCAT spacer length: 37 repeater length: 24

28765 1655414 GTTT TAGTTT CTTGTCGTTATTAC ACCAGTCTTACTCAACAAGTCAGCCCTTACTTATAAT spacer length: 37 repeater length: 24

28766 1655475 GTTT TAGTTT CTTGTCGTTATTAC CTCAGTCAGATACGTCTTCTTTAGCTGGCTTATGT spacer length: 35 repeater length: 24

28767 1655534 GTTT TAGTTT CTTGTCGTTATTAC ATCGAGTGAAGGCGTTAGACCCAGTAGCTGCCGC spacer length: 35 repeater length: 24

28768 1655593 GTTT TAGTTT CTTGTCGTTATTAC AGCCTGGATCTGAAGAAACATAACCATGAGATAT spacer length: 34 repeater length: 24

28769 1655651 GTTT TAGTTT CTTGTCGTTATTAC AGGTCAGGAATATAGATTATTCGTACTTTGCTAT spacer length: 34 repeater length: 24

28770 1655709 GTTT TAGTTT CTTGTCGTTATTAC AAGTCTTCAGAAAATCATCAACACGCATATACTG spacer length: 34 repeater length: 24

28771 1655767 GTTT TAGTTT CTTGTCGTTATTAC TTTGATTAAAATGGGTTGGTATGGCATAAAAAAT spacer length: 34 repeater length: 24

28772 1655825 GTTT TAGTTT CTTGTCGTTATTAC ATCGGAATTATAGGCGGATTTTTAACAATATTCCTAACAT spacer length: 40 repeater length: 24

28773 1655889 GTTT TAGTTT CTTGTCGTTATTAC GGAGACAAAGTTTGTCTGTGCAATATATCCCAA spacer length: 33 repeater length: 24

28774	1655946	GTTTGTAGTTTCTTGTGCGTTATTAC	AGAAAGAGGAACATAAGGTCTAGATCTTACCCAA	spacer length: 34	repeater length: 24
28775	1656004	GTTTGTAGTTTCTTGTGCGTTATTAC	TAATTCATCTTTTATAGTGTAACTTTTTGAAATAAA	spacer length: 35	repeater length: 24
28776	1656063	GTTTGTAGTTTCTTGTGCGTTATTAC	AACTAAGAAAAATTCAGTCAGCAGTATTA	ACTACTACTA	spacer length: 39
28777	1656126	GTTTGTAGTTTCTTGTGCGTTATTAC	TACACCAGTGAGAATGTCTTCCCGAACTACAAGAA	spacer length: 36	repeater length: 24
28778	1656186	GTTTGTAGTTTCTTGTGCGTTATTAC	AATTGGCAACTAAGAAGTTTGTACAAATAACATAA	spacer length: 35	repeater length: 24
28779	1656245	GTTTGTAGTTTCTTGTGCGTTATTAC	GAATAGGGGATGCGATAAACAGTTAGCACAAACA	spacer length: 35	repeater length: 24
28780	1656304	GTTTGTAGTTTCTTGTGCGTTATTAC	GGCATATAGAATTTTTCGCTTTGTTGCCTCTTTAA	spacer length: 35	repeater length: 24
28781	1656363	GTTTGTAGTTTCTTGTGCGTTATTAC	ATTCAATTTTTTTTCGTTTTGTGCGTGAAAATAAAA	spacer length: 35	repeater length: 24
28782	1656422	GTTTGTAGTTTCTTGTGCGTTATTAC	GCTTGTGGTAACATATCCATCGTCATCAGCAATC	spacer length: 34	repeater length: 24
28783	1656480	GTTTGTAGTTTCTTGTGCGTTATTAC	AACGCATTATTGCTAATGCACGGTGCTAACAACTAG	spacer length: 37	repeater length: 24
28784	1656541	GTTTGTAGTTTCTTGTGCGTTATTAC	GTTTAAAACGGTAAATAGATAAAACCAAGAAAATG	spacer length: 35	repeater length: 24
28785	1656600	GTTTGTAGTTTCTTGTGCGTTATTAC	ACGTCTTGTGCTGACTTGTAACATCGCTGTTCTT	spacer length: 35	repeater length: 24
28786	1656659	GTTTGTAGTTTCTTGTGCGTTATTAC	AAAGAAGTGCAAAAAAATGGCTACGGTGTACATT	spacer length: 34	repeater length: 24
28787	1656717	GTTTGTAGTTTCTTGTGCGTTATTAC	ATGCATTCAATTAAGACTTAACAATTCAAGAGTT	spacer length: 34	repeater length: 24
28788	1656775	GTTTGTAGTTTCTTGTGCGTTATTAC	AAGTTTCTTAATTTATTACAGTTATATGAACAGC	spacer length: 34	repeater length: 24
28789	1656833	GTTTGTAGTTTCTTGTGCGTTATTAC	ACAATAGCCCGCAAATGTCAGTATCATCACGTTGTT	spacer length: 36	repeater length: 24
28790	1656893	GTTTGTAGTTTCTTGTGCGTTATTAC	AGATTTTATGAAACATTAACATTTTATTTTATCTAT	spacer length: 36	repeater length: 24
28791	1656953	GTTTGTAGTTTCTTGTGCGTTATTAC	ATTAATCAGATAGAACTAGCAGTGTTTTTTATGTT	spacer length: 36	repeater length: 24
28792	1657013	GTTTGTAGTTTCTTGTGCGTTATTAC	ACCTTCACTTATTGAAGATGGGGCTGAAACAACCTT	spacer length: 36	repeater length: 24
28793	1657073	GTTTGTAGTTTCTTGTGCGTTATTAC	TTGGTTACTGATATTTTCTGAACTCCAGCAAATGT	spacer length: 35	repeater length: 24
28794	1657132	GTTTGTAGTTTCTTGTGCGTTATTAC	CGTTAAACAGACTAGGCTCAGGACAAGCATTCACT	spacer length: 35	repeater length: 24
28795	1657191	GTTTGTAGTTTCTTGTGCGTTATTAC	AGCCCAAATCTGTTATCTCTTTAGAAATGAAATTTT	spacer length: 35	repeater length: 24
28796	1657250	GTTTGTAGTTTCTTGTGCGTTATTAC	AGAGTACCTTTACCTAACAGAGCGTCGTATATTAT	spacer length: 36	repeater length: 24
28797	1657310	GTTTGTAGTTTCTTGTGCGTTATTAC	TGTAGTCTTGCGCAATACCTGCGCTCTTTAGCAGT	spacer length: 35	repeater length: 24
28798	1657369	GTTTGTAGTTTCTTGTGCGTTATTAC	AGAAGCTATACAACGAGGCTATATAAATAAAATG	spacer length: 34	repeater length: 24
28799	1657427	GTTTGTAGTTTCTTGTGCGTTATTAC	GTGAAGATGTCGATAGTGACGATAGCTGAGATAGT	spacer length: 35	repeater length: 24
28800	1657486	GTTTGTAGTTTCTTGTGCGTTATTAC	AAAGTAAGCCCGATAGTCCTTAGGTCAGGATCCCTTTA	spacer length: 38	repeater length: 24
28801	1657548	GTTTGTAGTTTCTTGTGCGTTATTAC	TATATTTGGTCAAGTGTCTTCTACAGCATTTTAAT	spacer length: 34	repeater length: 24
28802	1657606	GTTTGTAGTTTCTTGTGCGTTATTAC	GCAGAGTCTTTCGCTACGTCTTTCAGCGTCTCAAA	spacer length: 35	repeater length: 24
28803	1657665	GTTTGTAGTTTCTTGTGCGTTATTAC	GATCACAGTAATGCGTTATATAAAAAGGCAGAATTCA	spacer length: 37	repeater length: 24
28804	1657726	GTTTGTAGTTTCTTGTGCGTTATTAC	CTTTGATCAATTACTAAATTCTGTAATTGTGCCTCTA	spacer length: 37	repeater length: 24
28805	1657787	GTTTGTAGTTTCTTGTGCGTTATTAC	GTAGAAAGTCATAACCCAAAACCTTCATTTTTTTGTT	spacer length: 36	repeater length: 24
28806	1657847	GTTTGTAGTTTCTTGTGCGTTATTAC	ACAGGCTGTACCAAGCTGTTAGCGATGTAGTTAAT	spacer length: 35	repeater length: 24
28807	1657906	GTTTGTAGTTTCTTGTGCGTTATTAC	AGCTCCCATTAATAATCACGACCACTCCAAATATCA	spacer length: 35	repeater length: 24
28808	1657965	GTTTGTAGTTTCTTGTGCGTTATTAC	AGTTATAATCTATCTCCGGAACATTAAAATATTTTA	spacer length: 36	repeater length: 24
28809	1658025	GTTTGTAGTTTCTTGTGCGTTATTAC	ATAGTTGGTGGGACGGAATGGAGAAACAGCTAAAA	spacer length: 35	repeater length: 24

35 repeater length: 24

28810 1658084 GTTT TAGTTTCTTGTCGTTATTAC TATAAAAAAGCATTTGCACAGTCTTGAAACC ACTATTT spacer
length: 39 repeater length: 24

28811 1658147 GTTT TAGTTTCTTGTCGTTATTAC ATGCTCGCCCCACCAGCACACCGGACAGATCGACATA spacer length:
36 repeater length: 24

28812 1658207 GTTT TAGTTTCTTGTCGTTATTAC AACTGAAGGAACCTTGTAGAGCGGTATGCTTTGCTTCTTCTC spacer
length: 42 repeater length: 24

28813 1658273 GTTT TAGTTTCTTGTCGTTATTAC AACTGGAGCAACGTATTGTTGAATATAGCCCCTATGA spacer
length: 37 repeater length: 24

28814 1658334 GTTT TAGTTTCTTGTCGTTATTAC AATGAGATATTCAGTGGGTCATGGAGCGTGAAA spacer length:
34 repeater length: 24

28815 1658392 GTTT TAGTTTCTTGTCGTTATTAC TTTCTTATTTTTTAACGAGGGAAATGGTCAGGCTAAAA spacer
length: 39 repeater length: 24

28816 1658455 GTTT TAGTTTCTTGTCGTTATTAC TACGGTAAACTGGGGAGTTAACTCAGCATCCA spacer length: 32
repeater length: 24

28817 1658511 GTTT TAGTTTCTTGTCGTTATTAC CTTTCGCATACTTCCTCGCCCTCCTTGAGATATTTTCT spacer
length: 38 repeater length: 24

28818 1658573 GTTT TAGTTTCTTGTCGTTATTAC TCTCTTCAGG

28819

28820

28821 crispr 2

28822 1670964 GTAATAACGACAAGAACTAAAAC ATCTTCTCTGTCCTCTACTACTTTCTGCTCTTCTTT spacer length:
36 repeater length: 24

28823 1671024 GTAATAACGACAAGAACTAAAAC TGAAAAGTTCATAAAAAAGTACCCTAACGTAGAACA spacer length:
36 repeater length: 24

28824 1671084 GTAATAACGACAAGAACTAAAAC AATTTTATGATATCGCTTTTGTTCAGGAAACAT spacer length:
34 repeater length: 24

28825 1671142 GTAATAACGACAAGAACTAAAAC AATTCTAAGTGCACAAGAAGGACTAGAAGAGGCAGGCCT spacer
length: 39 repeater length: 24

28826 1671205 GTAATAACGACAAGAACTAAAAC TAATGCCCAGTAACATAGATGCCTCCTTGATTAT spacer length:
34 repeater length: 24

28827 1671263 GTAATAACGACAAGAACTAAAAC AATTTGGATTGACGTCACCTCAAGATCTATTACCT spacer length:
35 repeater length: 24

28828 1671322 GTAATAACGACAAGAACTAAAAC ATATTTAAGCCTTACTCTTTACATTAAAAGTAACAA spacer length:
36 repeater length: 24

28829 1671382 GTAATAACGACAAGAACTAAAAC TCGACGTTAGTCTTAGATTTTTTATCATTTTTAGGT spacer length:
35 repeater length: 24

28830 1671441 GTAATAACGACAAGAACTAAAAC TTGTGCTCTTTAATGTCAAACAGTGTGATCTATT spacer length:
34 repeater length: 24

28831 1671499 GTAATAACGACAAGAACTAAAAC ACAGTGCATGAAGTAGCATCATATGTCGTAAGTGA spacer length:
35 repeater length: 24

28832 1671558 GTAATAACGACAAGAACTAAAAC TCTCTGGGTAAAGTGCAAAGAGCACTGGGATTACAA spacer length:
36 repeater length: 24

28833 1671618 GTAATAACGACAAGAACTAAAAC CAACAAGGCTGAGAAGATAGCAAAGAAGCTAGTA spacer length:
34 repeater length: 24

28834 1671676 GTAATAACGACAAGAACTAAAAC TACAATAATTTT CAGATTTCCAGTAAATGATACAAATTC spacer
length: 38 repeater length: 24

28835 1671738 GTAATAACGACAAGAACTAAAAC TTGTCATTAAACTGACAACCTTTGTCTCTGACCCAAA spacer length:
36 repeater length: 24

28836 1671798 GTAATAACGACAAGAACTAAAAC AGTAGCGGTATACAAAAATGTATTTGTTGTGATA spacer length:
34 repeater length: 24

28837 1671856 GTAATAACGACAAGAACTAAAAC TGGCTCACAGGCATTAATACCTGCAAAGCCTAGG spacer length:
34 repeater length: 24

28838 1671914 GTAATAACGACAAGAACTAAAAC AAAAGTTTGCCAATTTAGGTGCTGTGCAGGAAGCATTTA spacer
length: 39 repeater length: 24

28839 1671977 GTAATAACGACAAGAACTAAAAC GAATAATTGTAGATCAGCCATCAACTTCCACACG spacer length:
34 repeater length: 24

28840 1672035 GTAATAACGACAAGAACTAAAAC AGAAAATGAGTAGTGAGATAAAGACAAAAAATAAGT spacer length:
36 repeater length: 24

28841 1672095 GTAATAACGACAAGAACTAAAAC AATTTCTATATAATCCAAGAGACACAGAGAGGTTTCTAC spacer
length: 39 repeater length: 24

28842 1672158 GTAATAACGACAAGAACTAAAAC TACATTACTTTTAGAAATATAGTATGAGCGTAACATA spacer
length: 37 repeater length: 24

28843 1672219 GTAATAACGACAAGAACTAAAAC CAGTACACAAAGTGGATAGGAAAAGTCAACAAT spacer length: 33
repeater length: 24

28844 1672276 GTAATAACGACAAGAACTAAAAC ATCGTATATTATATTGGGGCAGAAAAAATGAATGAT spacer length:
36 repeater length: 24

28845 1672336 GTAATAACGACAAGAACTAAAAC CAGGTTCAATTTT CAGTAAATAATGGCATTACAAT spacer length:
34 repeater length: 24

28846 1672394 GTAATAACGACAAGAACTAAAAC AACATCAGACTTTTGCACCTTTTATTAGAAGGCTTTGGA spacer
length: 38 repeater length: 24

28847 1672456 GTAATAACGACAAGAACTAAAAC GATACATTGCATATATTGGCAATCAGCAATACAA spacer length:
34 repeater length: 24

28848 1672514 GTAATAACGACAAGAACTAAAAC ACTATATATTGTTTGGAGCTTATCATAAACTTCATC spacer length:
36 repeater length: 24

28849 1672574 GTAATAACGACAAGAACTAAAAC CTGAATAGAGAGATGATAGAAGAAACGGTAAGTA spacer length:
34 repeater length: 24

28850 1672632 GTAATAACGACAAGAACTAAAAC TCAGCCTCTAATTCTGCTGCAACTTCCATCAATTTTCCTT spacer
length: 39 repeater length: 24

28851 1672695 GTAATAACGACAAGAACTAAAAC ATTAATTCCAAAGGACATTGAGAAGAAATTTGGCTTAAA spacer
length: 39 repeater length: 24

28852 1672758 GTAATAACGACAAGAACTAAAAC ATATGAGCAACAGCAACTCAAATCTTTATATGAAGTC spacer
length: 37 repeater length: 24

28853 1672819 GTAATAACGACAAGAACTAAAAC CACCAAAGAGTTTTTGTCCAAAGCCTTTTATGGA spacer length:
34 repeater length: 24

28854 1672877 GTAATAACGACAAGAACTAAAAC CAGTCTCAATGTCTTTATGAGACAATTCTATATCCAA spacer
length: 37 repeater length: 24

28855 1672938 GTAATAACGACAAGAACTAAAAC GCACTTCTACTTGCTTAACGCTATAGCAAGCAAGAA spacer length:
36 repeater length: 24

28856 1672998 GTAATAACGACAAGAACTAAAAC GTTCATCAACCTCATGCTGAGTAAGACTATTAGTATGT spacer
length: 38 repeater length: 24

28857 1673060 GTAATAACGACAAGAACTAAAAC CTCGTATTCTGTAAGCCCTCGTGGGTGGTGACGAT spacer length:
36 repeater length: 24

28858 1673120 GTAATAACGACAAGAACTAAAAC CTTTACAACATAATTTTTTCAGGAAAACAAATTGAA spacer length:
35 repeater length: 24

28859 1673179 GTAATAACGACAAGAACTAAAAC TATGTCTTAGATAGTTGAAAAAGCTAAAGCTTTT spacer length:
34 repeater length: 24

28860 1673237 GTAATAACGACAAGAACTAAAAC GAATGTGTCCCCCTAGAGGTTTTACCAAACAACCA spacer length:
36 repeater length: 24

28861 1673297 GTAATAACGACAAGAACTAAAAC AAAAAACCTTTAACCTCTATCGAATGCTGTCAAAAA spacer length:
36 repeater length: 24

28862 1673357 GTAATAACGACAAGAACTAAAAC AACGTTACGACCCTACTACTCAGAAGAAGATAGT spacer length:
35 repeater length: 24

28863 1673416 GTAATAACGACAAGAACTAAAAC GAGGGATGAAGGCAAATCAGTATCAGCAATAGTAGAG spacer
length: 37 repeater length: 24

28864 1673477 GTAATAACGACAAGAACTAAAAC GAAGTAGAACAGCTGTTTTTCAGGATTGAAATTAT spacer length:
35 repeater length: 24

28865 1673536 GTAATAACGACAAGAACTAAAAC AAGAGAATACTTTCTCGCCTCAGCAAGAATCGTATCAAT spacer
length: 39 repeater length: 24

28866 1673599 GTAATAACGACAAGAACTAAAAC GTATGTGGGAGAGCTTTATGAGTGGTAAGACACAC spacer length:
35 repeater length: 24

28867 1673658 GTAATAACGACAAGAACTAAAAC ATGCAGGTACTATACTGAGCCTGATGAACAGCA spacer length: 33
repeater length: 24

28868 1673715 GTAATAACGACAAGAACTAAAAC AAATTTAAGGAAAATGGAGTGTATGTATATAAAT spacer length:
34 repeater length: 24

28869 1673773 GTAATAACGACAAGAACTAAAAC CTCAATTATTTTCAATGCTTTTTCTTTTCGTTGT spacer length:
35 repeater length: 24

28870 1673832 GTAATAACGACAAGAACTAAAAC ACATCAGCACTTATGGATACTACGCCATGCTCATCT spacer length:
36 repeater length: 24

28871 1673892 GTAATAACGACAAGAACTAAAAC ACTATTACTTTTGAAAATATGTAGATAAGACTGGT spacer length:
35 repeater length: 24

28872 1673951 GTAATAACGACAAGAACTAAAAC TTACAGTTGTTCCGTTAGGAAGTATATAGTTACT spacer length:
34 repeater length: 24

28873 1674009 GTAATAACGACAAGAACTAAAAC AAAATAATCATAAAACCCGAGCATTACGAAGAATTGA spacer
length: 37 repeater length: 24

28874 1674070 GTAATAACGACAAGAACTAAAAC TGTAAGGACTTCTTAAAAAGGTTAGAGGGGTTTCTC spacer
length: 37 repeater length: 24

28875 1674131 GTAATAACGACAAGAACTAAAAC GTAATTATTCTGATGGGTGCTATAATCTCGATGGC spacer length:
35 repeater length: 24

28876 1674190 GTAATAACGACAAGAACTAAAAC AGCGATTAGTTTAGTCGAATTAGCTATTGCGACTT spacer length:
35 repeater length: 24

28877 1674249 GTAATAACGACAAGAACTAAAAC ATGGGATCCTGATAATTCGGCATCAGCACAAATTC spacer length:
34 repeater length: 24

28878 1674307 GTAATAACGACAAGAACTAAAAC CTCTTCATTTGTCTCGTGAAATATAGGGTTTTTCA spacer length:
35 repeater length: 24

28879 1674366 GTAATAACGACAAGAACTAAAAC ATAGGGTAGTTCACAAAGAGCCAGCCCTCGTCAAC spacer length:
35 repeater length: 24

28880 1674425 GTAATAACGACAAGAACTAAAAC CTTTACGTAGTAGTTATAGAGCTTCGTTACGTGCT spacer length:
35 repeater length: 24

28881 1674484 GTAATAACGACAAGAACTAAAAC CTTGAACCATTGAACCTGCGATTGCAGGGATTAAGTAT spacer
length: 38 repeater length: 24

28882 1674546 GTAATAACGACAAGAACTAAAAC GCTGACTGGGGGTGAGCCAGAAATGAAGACTGGAAG spacer length:

36 repeater length: 24
 28883 1674606 GTAATAACGACAAGAACTAAAAC TAAAATTAGTCTGCTGGCCAATTAAGAACAACTCT spacer length:
 36 repeater length: 24
 28884 1674666 GTAATAACGACAAGAACTAAAAC GTGCAACAGGGTGAACATAGATGAGCACATTTTT spacer length:
 35 repeater length: 24
 28885 1674725 GTAATAACGACAAGAACTAAAAC ATTATGCTCATTATCTCTGATTTTCGACCTTAAAGC spacer length:
 35 repeater length: 24
 28886 1674784 GTAATAACGACAAGAACTAAAAC CTACATTGTCCTGAAGTCCTAACTTCTTTAATTCCTT spacer
 length: 37 repeater length: 24
 28887 1674845 GTAATAACGACAAGAACTAAAAC TTTTTATTTTCAGTAGCTATCACCATAGTAGCCCTAAAA spacer
 length: 39 repeater length: 24
 28888 1674908 GTAATAACGACAAGAACTAAAAC TACTCCCCAGGCTTACCCAGCAAGAAGAGGAAGCCTT spacer
 length: 37 repeater length: 24
 28889 1674969 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
 35 repeater length: 24
 28890 1675028 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
 35 repeater length: 24
 28891 1675087 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
 35 repeater length: 24
 28892 1675146 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
 35 repeater length: 24
 28893 1675205 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
 35 repeater length: 24
 28894 1675264 GTAATAACGACAAGAACTAAAAC TAGGAGGAAAATATAGGAATATAAAGATAGTACTA spacer length:
 35 repeater length: 24
 28895 1675323 GTAATAACGACAAGAACTAAAAC CATTTTAGCTCAAGCATCACCAGCATCAATTGAAAG spacer length:
 36 repeater length: 24
 28896 1675383 GTAATAACGACAAGAACTAAAAC ACCGTTCCGTAGATATTATTACTGTAACCTCCCTCCC spacer length:
 36 repeater length: 24
 28897 1675443 GTAATAACGACAAGAACTAAAAC ACTGGGCTCCCCGTGATCACTCCAGGTCCTTATGTTG spacer
 length: 37 repeater length: 24
 28898 1675504 GTAATAACGACAAGAACTAAAAC GACGCTAAAAAGCAAGAACAACAATCACAACAATCG spacer length:
 36 repeater length: 24
 28899 1675564 GTAATAACGACAAGAACTAAAAC TTTCTTAGTGAATCCCATGTACGTATATCTAATTTA spacer length:
 36 repeater length: 24
 28900 1675624 GTAATAACGACAAGAACTAAAAC
 28901
 28902
 28903 crispr 3
 28904 1786263 ACTTTCAATCCCTTATGGGATTCTTC CTACCTTTTGAGATGCTTTCACCGATCTATGTTAAAGCAA spacer
 length: 40 repeater length: 26
 28905 1786329 ACTTTCAATCCCTTATGGGATTCTTC CTCGTTTTCAATAAATGTCTATAGGGATGAATGTG spacer
 length: 35 repeater length: 26
 28906 1786390 ACTTTCAATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATAT spacer
 length: 36 repeater length: 26
 28907 1786452 ACTTTCAATCCCTTATGGGATTCTTC
 28908
 28909
 28910 crispr 4
 28911 1825863 CTTTCAATCCCTTTTGGGATTCATC AGAGTCCCCTTCAACATAAAACCTAACTTGGTTTGG spacer
 length: 36 repeater length: 25
 28912 1825924 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGAT spacer
 length: 38 repeater length: 25
 28913 1825987 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAGC spacer
 length: 37 repeater length: 25
 28914 1826049 CTTTCAATCCCTTTTGGGATTCATC TGCGGAAATATGGAAAGAAGTATTATGAAAAAGGAGAAAA spacer
 length: 41 repeater length: 25
 28915 1826115 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAACT spacer
 length: 36 repeater length: 25
 28916 1826176 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTATACCC spacer
 length: 38 repeater length: 25
 28917 1826239 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGCT spacer
 length: 37 repeater length: 25
 28918 1826301 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTTGAG spacer
 length: 39 repeater length: 25
 28919 1826365 CTTTCAATCCCTTTTGGGATTCATC TATGAACTAACAGATAAAGGGAAGAGAAGTGTTCCCAAACT spacer
 length: 42 repeater length: 25
 28920 1826432 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGAG spacer
 length: 39 repeater length: 25
 28921 1826496 CTTTCAATCCCTTTTGGGATTCATC
 28922

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28923
28924 GCA_002356395.1_ASM235639v1_genomic.fna (PilerCR):
28925 START          REPEAT
28926 SPACER
28926 crispr 1
28927 541380 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCGTAAGCGACCTATACATAAAAAAACTTCTTCTCATAGC
28928 spacer length: 40 repeater length: 30
28928 541450 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTGGGAAATCGGTGAGTGTGGAGCAGAGATAAAAGC spacer
28929 length: 37 repeater length: 30
28929 541517 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGTATTTAGTGAATTAAATACTACACTAAATAATAC spacer
28930 length: 36 repeater length: 30
28930 541583 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACTGTTGGGGCGATACAATCGTAGATTCTGGAATGG spacer
28931 length: 36 repeater length: 30
28931 541649 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCAGGGCACGGATGAAGCAGGCCCTCTCCACCCTTG spacer
28932 length: 36 repeater length: 30
28932 541715 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGCCTGTACATCTCGTTTCCTATCCGTATCATTTCT spacer
28933 length: 36 repeater length: 30
28933 541781 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGTCTTGGTTCTGGTGTTCCTGAGGTCAAAATCGAT spacer
28934 length: 37 repeater length: 30
28934 541848 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGAATCCAGCGTGGAGTAATGAATATGGCTATATCA spacer
28935 length: 37 repeater length: 30
28935 541915 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCATCCTGTTTATCCTTTATCTTTATTTTGCTAATT spacer
28936 length: 36 repeater length: 30
28936 541981 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACACACAAAAAAGGAAAAAGAAAGAAAAAGAAAAAG spacer
28937 length: 36 repeater length: 30
28937 542047 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGTCCTCCTTGATACCATTATCATATTCAAGCTCCC spacer
28938 length: 36 repeater length: 30
28938 542113 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGCATGACACTCAAAAAGGACAGCAACAACTCCGC spacer
28939 length: 37 repeater length: 30
28939 542180 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGGTTGAATGTGATGGTGAGTATAGTGTAGAGACTGC spacer
28940 length: 37 repeater length: 30
28940 542247 ATTTCAATCCCATTTTGGTCTGATTTTAAC GTACTCAAAGAACACAACGTCACCGAGGCCATGTAC spacer
28941 length: 36 repeater length: 30
28941 542313 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGGCCTATTTTGTAGTGGTGATTTGGTGTTCCTAATT spacer
28942 length: 37 repeater length: 30
28942 542380 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCCTTCCCTCCCTTTTCAGGAGTTCCTCAAATAGTTGG spacer
28943 length: 37 repeater length: 30
28943 542447 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCACTATCTTCACATAGCAGGGTGTGGTGACTTTTG spacer
28944 length: 36 repeater length: 30
28944 542513 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTCTAACTTTGTCTCAAACTTATTGGAGGAATCAC spacer
28945 length: 36 repeater length: 30
28945 542579 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCATATTCCTGCAGAAACATGAGAACCCACCCCTCGT spacer
28946 length: 37 repeater length: 30
28946 542646 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCATGACCCAGGAGTCTGTCCTGAGAACAGCGCTGG spacer
28947 length: 36 repeater length: 30
28947 542712 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGGGGTCCAGGTCGTCCTCGTCGAGGGTCCTGT spacer
28948 length: 35 repeater length: 30
28948 542777 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTTCTAGGGCGGGTTTGACTTTTATTGAGTACCCG spacer
28949 length: 36 repeater length: 30
28949 542843 ATTTCAATCCCATTTTGGTCTGATTTTAAC GCCTCACAGAAGAAGAGGCGGATGAAATAAGCGAGG spacer
28950 length: 36 repeater length: 30
28950 542909 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGATTATGAGATTGATTTTTTTGAAGTCTTTGTGTGT spacer
28951 length: 36 repeater length: 30
28951 542975 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACGTATATACTTCCTGAACCCATCAATTTTAATACA spacer
28952 length: 36 repeater length: 30
28952 543041 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCACCGCCACACTGTTGATCTTCACATTATCG spacer
28953 length: 32 repeater length: 30
28953 543103 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGCCTCACCCGTAAGATCACTCTTCAGGAACCCC spacer
28954 length: 35 repeater length: 30
28954 543168 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGTCGTAGTGATTTTTTCGTGTCATGTGTTCTATTA spacer
28955 length: 35 repeater length: 30
28955 543233 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAGGTAGAGGTAGTAGGGTTTGTCTGGTGGTTCTTTG spacer
28956 length: 37 repeater length: 30
28956 543300 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTCCTTGTTCTTTGCCGGGGCTGGGTTCCTGTTTTG spacer
28957 length: 36 repeater length: 30
28957 543366 ATTTCAATCCCATTTTGGTCTGATTTTAAC CATCATAAGGGACTTGCAGGAGCGTATCAGCAGTTAC spacer
28958 length: 37 repeater length: 30
28958 543433 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGACCCCGCA
28959
28960
28961 crispr 2

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28962 966688 ATTTCCATACTATTCAGTCTATTTTAAAGC AATTCTGGTGGCTCCAGGAAGTCCAAGTACTCAACGT spacer
length: 37 repeater length: 30
28963 966755 ATTTCCATACTATTCAGTCTATTTTAAAGC ACTGCTTGCATACATACTTATGTAGCTACTACTATA spacer
length: 36 repeater length: 30
28964 966821 ATTTCCATACTATTCAGTCTATTTTAAAGC TATATTGCCCTGTGCTTCCAGTCATCGATATTCACCA spacer
length: 37 repeater length: 30
28965 966888 ATTTCCATACTATTCAGTCTATTTTAAAGC TCTTTTTTCTATGTTTCTTTTTTCTGATTATTTCCACC spacer
length: 38 repeater length: 30
28966 966956 ATTTCCATACTATTCAGTCTATTTTAAAGC TGTCTTGTCTCAGCATTCCATTGAGCATCCGTTGGTGT spacer
length: 39 repeater length: 30
28967 967025 ATTTCCATACTATTCAGTCTATTTTAAAGC ATTGATGACAGGGTGGTGTCAAGTTTATCAAGTTTAT spacer
length: 37 repeater length: 30
28968 967092 ATTTCCATACTATTCAGTCTATTTTAAAGC CCACATTCGACGCCGGAACAGCAGGCACTATGACCG spacer
length: 36 repeater length: 30
28969 967158 ATTTCCATACTATTCAGTCTATTTTAAAGC CGGGGTTGTCTCTGTCTTCTGTTTCTGCTGAAGAG spacer
length: 37 repeater length: 30
28970 967225 ATTTCCATACTATTCAGTCTATTTTAAAGC AGAACCCGGCACACCCAATTCATGAATAACCTCTTCA spacer
length: 37 repeater length: 30
28971 967292 ATTTCCATACTATTCAGTCTATTTTAAAGC CTGATCCCCTTGAAGAGGGGAGAAAATGAAATTGAAGAT spacer
length: 39 repeater length: 30
28972 967361 ATTTCCATACTATTCAGTCTATTTTAAAGC GGGCCTTGAATGCATTGTATTCTGTGTGAGGGTCATT spacer
length: 37 repeater length: 30
28973 967428 ATTTCCATACTATTCAGTCTATTTTAAAGC TCTACGAGGAAGTCGCCCCGACCCATCAGATCATT spacer
length: 36 repeater length: 30
28974 967494 ATTTCCATACTATTCAGTCTATTTTAAAGC CGCCATCAGATGGCTCCTCCTGGAATCCCGTGAGGGCC spacer
length: 38 repeater length: 30
28975 967562 ATTTCCATACTATTCAGTCTATTTTAAAGC TCGCCACGATGATCCAAAAGGGAAGCCCGCGCAATCAA
spacer length: 40 repeater length: 30
28976 967632 ATTTCCATACTATTCAGTCTATTTTAAAGC GTGACTGCCCCCTGGAGCAGACCACGCAGACTCCGCA spacer
length: 36 repeater length: 30
28977 967698 ATTTCCATACTATTCAGTCTATTTTAAAGC CCATTTCAGATGAATATAGCGATGAAGAGCTGAATAGGA spacer
length: 38 repeater length: 30
28978 967766 ATTTCCATACTATTCAGTCTATTTTAAAGC GAAGCTGACGAATTCTATTACATAGCAATTAGGCGCAG spacer
length: 38 repeater length: 30
28979 967834 ATTTCCATACTATTCAGTCTATTTTAAAGC CCCATTTTCTCTATCTCCATTCTTTTACCTCTTCAA spacer
length: 37 repeater length: 30
28980 967901 ATTTCCATACTATTCAGTCTATTTTAAAGC TTCGACTATTATCTCTCCCTTGGCCCTGAGAGGAGTAT spacer
length: 38 repeater length: 30
28981 967969 ATTTCCATACTATTCAGTCTATTTTAAAGC CCTCATGAGGACCTGCTACGAGGCAGGGCGCAGGGCCTT spacer
length: 39 repeater length: 30
28982 968038 ATTTCCATACTATTCAGTCTATTTTAAAGC GCTTCTACGTCATCAACTACTACATCCTGCAGCAGTG spacer
length: 37 repeater length: 30
28983 968105 ATTTCCATACTATTCAGTCTATTTTAAAGC ACGTAAAGGTATAGGCGGTCGTCATCGACCACCCTTT spacer
length: 37 repeater length: 30
28984 968172 ATTTCCATACTATTCAGTCTATTTTAAAGC AGGAACTCCTGAAAGGGAGAGAAGGATACGTTGAACA spacer
length: 37 repeater length: 30
28985 968239 ATTTCCATACTATTCAGTCTATTTTAAAGC CTCCGAGAAACAGGCCAGGTCATCACACGGGAGTACA spacer
length: 37 repeater length: 30
28986 968306 ATTTCCATACTATTCAGTCTATTTTAAAGC TCTTCTATCTGCGCTGACAGGAGGTCAGCGAGTT spacer
length: 34 repeater length: 30
28987 968370 ATTTCCATACTATTCAGTCTATTTTAAAGC CATAGTACCCTGCGATCTGCCCCGCGGGAACGCGGA spacer
length: 37 repeater length: 30
28988 968437 ATTTCCATACTATTCAGTCTATTTTAAAGC AGACAAGCCTACAAGCCAAAACCTCCACCAGAACGTCT spacer
length: 37 repeater length: 30
28989 968504 ATTTCCATACTATTCAGTCTATTTTAAAGC GGGTCTTCCCCAACCTGATTGTACTGGCTGATCGCCC spacer
length: 37 repeater length: 30
28990 968571 ATTTCCATACTATTCAGTCTATTTTAAAGC ATGATCTGCTTTGTTGAAGACATGTTTCACGTTACG spacer
length: 37 repeater length: 30
28991 968638 ATTTCCATACTATTCAGTCTATTTTAAAGC GATCACTGATATGCATGGAGTTACAAGGACTGGACTCA spacer
length: 38 repeater length: 30
28992 968706 ATTTCCATACTATTCAGTCTATTTTAAAGC CCGATGACCCACTACCACTCCGTGAATGGTATACCGG spacer
length: 37 repeater length: 30
28993 968773 ATTTCCATACTATTCAGTCTATTTTAAAGC CAGCCTGACAGCAAACGACAAACCAATGAACTGTCAC spacer
length: 37 repeater length: 30
28994 968840 ATTTCCATACTATTCAGTCTATTTTAAAGC CTAACGCTACGCGGTAGAGATCTACCGCGTAATCTT spacer
length: 36 repeater length: 30
28995 968906 ATTTCCATACTATTCAGTCTATTTTAAAGC TCAACAAGGTTTGAACCTATATCCTTGATGTAGGAG spacer
length: 36 repeater length: 30
28996 968972 ATTTCCATACTATTCAGTCTATTTTAAAGC GGAATATGGCCTGTTTGAGGAAGGGTTTATGTGGAATG spacer
length: 38 repeater length: 30
28997 969040 ATTTCCATACTATTCAGTCTATTTTAAAGC TTATGGGGTGACATATTGAGTTTTATTGACAGGA spacer

length: 34 repeater length: 30
28998 969104 ATTTCCATACTATTTCAGTCTATTTTTAAAGC CATTTTGAGGGTGTTCAGGTTTTCCCTTTCCACCCTCC spacer
length: 37 repeater length: 30
28999 969171 ATTTCCATACTATTTCAGTCTATTTTTAAAGC GCAACAGAGATAACATTTGACGGAGAGGCCATCCCA spacer
length: 36 repeater length: 30
29000 969237 ATTTCCATACTATTTCAGTCTATTTTTAAAGC CCTCTTCGTTGAAGGTGATGGTGATCCTATCACCTTC spacer
length: 37 repeater length: 30
29001 969304 ATTTCCATACTATTTCAGTCTATTTTTAAAGC CCTATACTCATCTGAATACCCTCTTTTCGATTAGGTACT spacer
length: 38 repeater length: 30
29002 969372 ATTTCCATACTATTTCAGTCTATTTTTAAAGC TAAACAAAAATAACAATAAAACATAAAACAAACACT spacer
length: 38 repeater length: 30
29003 969440 ATTTCCATACTATTTCAGTCTATTTTTAAAGC GGGCTTTACACATTGGAGATGACGAAGATATAGAAAA spacer
length: 37 repeater length: 30
29004 969507 ATTTCCATACTATTTCAGTCTATTTTTAAAGC ACAATAAACCAAATAAAGCTTTAAGCAACCTTAAAGCCT spacer
length: 39 repeater length: 30
29005 969576 ATTTCCATACTATTTCAGTCTATTTTTAAAGC TTTTCCCAAAAAACGCCCGAAATAGCTTATTCATCA spacer
length: 37 repeater length: 30
29006 969643 ATTTCCATACTATTTCAGTCTATTTTTAAAGC ACTCTTCATGTGTAATATCATTACGCTTGAGGAGTA spacer
length: 36 repeater length: 30
29007 969709 ATTTCCATACTATTTCAGTCTATTTTTAAAGC GAAATAGCAATTAGAATACAAAATGCCCGACTATTAT spacer
length: 37 repeater length: 30
29008 969776 ATTTCCATACTATTTCAGTCTATTTTTAAAGC TACAATTTTAACATATCCACAAAATAGTACCCA spacer
length: 33 repeater length: 30
29009 969839 ATTTCCATACTATTTCAGTCTATTTTTAAAGC AAAACACCCTTGACAACATAAAAAGGGGGAGATAC spacer
length: 35 repeater length: 30
29010 969904 ATTTCCATACTATTTCAGTCTATTTTTAAAGC CGGGCGGAACGGGTTTTGTAAACGTTGAAAATGATT spacer
length: 37 repeater length: 30
29011 969971 ATTTCCATACTATTTCAGTCTATTTTTAAAGC GTGGTATTTATGGATATTATTGAACAGATGAATGATT spacer
length: 37 repeater length: 30
29012 970038 ATTTCCATACTATTTCAGTCTATTTTTAAAGC AATTGCTTATTCTCCTGGATATTCGTTATATCAATATA spacer
length: 38 repeater length: 30
29013 970106 ATTTCCATACTATTTCAGTCTATTTTTAAAGC TATGAACCGGCATTGGATCAGACCGTTTAGCGTGGC spacer
length: 36 repeater length: 30
29014 970172 ATTTCCATACTATTTCAGTCTATTTTTAAAGC AATGACCGTCTTGACGATATTAAACGCCTAATCGACGAA spacer
length: 39 repeater length: 30
29015 970241 ATTTCCATACTATTTCAGTCTATTTTTAAAGC TCTACAAGTGTGACATTCTCACACTTGAGGAATATAA spacer
length: 37 repeater length: 30
29016 970308 ATTTCCATACTATTTCAGTCTATTTTTAAAGC CCACTGAACAATTCTAATTCTACTTCTTTACAACCCA spacer
length: 37 repeater length: 30
29017 970375 ATTTCCATACTATTTCAGTCTATTTTTAAAGC CCGGGGGAGGGTACTGACGGTCCGCAGGAGTATAGATG spacer
length: 38 repeater length: 30
29018 970443 ATTTCCATACTATTTCAGTCTATTTTTAAAGC GAAGTAAGACCTCCACAACCAAGCCCCATTTTCAT spacer
length: 36 repeater length: 30
29019 970509 ATTTCCATACTATTTCAGTCTATTTTTAAAGC GCCTTAAACCACCATTGGAGACTGCCCCGTGAACCTC spacer
length: 36 repeater length: 30
29020 970575 ATTTCCATACTATTTCAGTCTATTTTTAAAGC TGTAAGTGTACCCATCCGCTGTGAGTGACCTGTACTCG spacer
length: 38 repeater length: 30
29021 970643 ATTTCCATACTATTTCAGTCTATTTTTAAAGC CCGCAGATCCCCGGGGCTCTGAGACTTTTCAGTGAG spacer
length: 36 repeater length: 30
29022 970709 ATTTCCATACTATTTCAGTCTATTTTTAAAGC CTGTATGACCTAGCCCTTCAGAGAGCTAGGCGTAAGGA spacer
length: 38 repeater length: 30
29023 970777 ATTTCCATACTATTTCAGTCTATTTTTAAAGC TAGTATGGAAATCCCTAACTTCGGTATATCTGTATA spacer
length: 36 repeater length: 30
29024 970843 ATTTCCATACTATTTCAGTCTATTTTTAAAGC AATATTCATGAAGTTCATAAAAATTTTGAAACGGTGCT spacer
length: 38 repeater length: 30
29025 970911 ATTTCCATACTATTTCAGTCTATTTTTAAAGC GAGGAACATGCGTGAGATAAGGGAACATGTGAGAGAA spacer
length: 37 repeater length: 30
29026 970978 ATTTCCATACTATTTCAGTCTATTTTTAAAGC CCAATATGGACTGATATCTGCCCTCTAATTGTGAAAA spacer
length: 37 repeater length: 30
29027 971045 ATTTCCATACTATTTCAGTCTATTTTTAAAGC CCCCACCCATAACTGCACCCAGGACGAACCAGTCGAG spacer
length: 38 repeater length: 30
29028 971113 ATTTCCATACTATTTCAGTCTATTTTTAAAGC TATGATGTGACATGCAAACCTGAATGCGTCACTCAAGT spacer
length: 38 repeater length: 30
29029 971181 ATTTCCATACTATTTCAGTCTATTTTTAAAGC GGGACTGACACGGTAGCTGATTACAGGACAATCTA spacer
length: 35 repeater length: 30
29030 971246 ATTTCCATACTATTTCAGTCTATTTTTAAAGC GAGTCCAATTAGGAACACTATATGAAACTGTGATTT spacer
length: 36 repeater length: 30
29031 971312 ATTTCCATACTATTTCAGTCTATTTTTAAAGC ATTCATTCGAAACCACAAAGAACCTCCCCATCAA spacer
length: 35 repeater length: 30
29032 971377 ATTTCCATACTATTTCAGTCTATTTTTAAAGC ACAACACTGTCCCTGCACTTAACTCAGACCGGAAAAT spacer
length: 37 repeater length: 30

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29033 971444 ATTTCCATACTATTTCAGTCTATTTTAAAGC CGACTACGTC
29034
29035
29036 GCA_002761295.1_ASM276129v1_genomic.fna (PilerCR):
29037 START REPEAT
SPACER
29038 crispr 1
29039 1376134 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC AGAAACCCTGTAGGGCTGTTTGTAACTGTATAGATG
spacer length: 37 repeater length: 37
29040 1376208 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CTCCTTTTTGCTAGAAATCCTGCTACTGTACCAAT
spacer length: 35 repeater length: 37
29041 1376280 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CTCCTTTTTGCTAGAAATCCTGCTACTGTACCAAT
spacer length: 35 repeater length: 37
29042 1376352 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC
ACCATGCTTAAACTAACCTTAGACCATGCTTAAGACCATGCTTAGAC spacer length: 47 repeater length: 37
29043 1376436 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GCGTCAGGAGATCGAGGGGAAGCAAGAACAGATTAA
spacer length: 36 repeater length: 37
29044 1376509 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATTGTTATTAACAAATATCTGTTGATACTCAT
spacer length: 32 repeater length: 37
29045 1376578 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC
CTTGTCGGACTTCATCCTTATATGATTTGTAACCTTGATAAA spacer length: 41 repeater length: 37
29046 1376656 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TTTTGTGTTGTGGCAAAAATCGCGATCCCATACTCAT
spacer length: 38 repeater length: 37
29047 1376731 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC
CTTGTCGGACTTCATCCTTATATGATTTGTAACCTTGATAAA spacer length: 41 repeater length: 37
29048 1376809 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GGTATATTACCCTTTGCAAGAACTGGAGAACCTTG
spacer length: 36 repeater length: 37
29049 1376882 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATAGAGAACCATGAGTGAAATGTGTATAGTATGCGG
spacer length: 36 repeater length: 37
29050 1376955 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GAGACGGAGAGATGCACACATGGGAAGAACACAAA
spacer length: 35 repeater length: 37
29051 1377027 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TCCATGTAATTGCTGAAGGTTCTGAAGCAATTAA
spacer length: 34 repeater length: 37
29052 1377098 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CACTTGTGCCTCGTATCAGAAATGATGTGGCATTCTG
spacer length: 37 repeater length: 37
29053 1377172 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CAACACACCCATTCCAGACAAGATGTAGAAAGCAAGA
spacer length: 37 repeater length: 37
29054 1377246 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATTAATACGCTCTTCCATTGTGCCTGAATATTGAT
spacer length: 35 repeater length: 37
29055 1377318 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ACTGAGCCACCACCTGATGTATTGAGAGTCTGAA
spacer length: 34 repeater length: 37
29056 1377389 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CCGCAAGGAC
29057
29058
29059 crispr 2
29060 1377544 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CAGAACCCTCAGCATCAACGACAGTCATGAACACA
spacer length: 35 repeater length: 37
29061 1377616 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC
TCAAGAGCAAGATAATACAGTTCGTTCTTGCCCTACCCGAA spacer length: 40 repeater length: 37
29062 1377693 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TTCGAGCTCCTCATGTGCGATCCGCTTAAACGACAGG
spacer length: 37 repeater length: 37
29063 1377767 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TTTTAGAATTGCCTGCTCACATACTGCCGATATATT
spacer length: 36 repeater length: 37
29064 1377840 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CTTATGTCCTAATTTTCTACCAGACATTACATGAT
spacer length: 35 repeater length: 37
29065 1377912 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TTGAACGTGGATTTTCTTGACAGTCACCGTTTAA
spacer length: 35 repeater length: 37
29066 1377984 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATGATGTGGATATATCAGAAGATATGGAGGACCTTAT
spacer length: 37 repeater length: 37
29067 1378058 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GGTATATTACCCTTTGCAAGAACTGGAGAACCTTG
spacer length: 36 repeater length: 37
29068 1378131 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATAGAGAACCATGAGTGAAATGTGTATAGTATGCGG
spacer length: 36 repeater length: 37
29069 1378204 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TGAAGCAAGACGTTCAAACAATTGGAGAGAG
spacer length: 32 repeater length: 37
29070 1378273 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CCGTTATACCCTCAACAAAAGGGTGTAGATGCATATG
spacer length: 37 repeater length: 37
29071 1378347 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATGTTGATGGTGAACCATATTATTTAACTATTGAAGA
spacer length: 37 repeater length: 37
29072 1378421 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TAGATGAGTTACAACCCTTCCATGGCAACGCAAACCTA
spacer length: 37 repeater length: 37

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29073 1378495 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC AATTTTATAACTTTAAGCTTATAGCACCGACACTATAA
 spacer length: 38 repeater length: 37
 29074 1378570 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CAACATAAAGAACGGCAAACCAAGTATTATAAGATAG
 spacer length: 37 repeater length: 37
 29075 1378644 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ACAGCTGTGGCAACATCGGAGGCCTTCTTCTGTGTATC
 spacer length: 38 repeater length: 37
 29076 1378719 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GAACCCGCATCCGTCATATACGGCTACAAAATCGT
 spacer length: 35 repeater length: 37
 29077 1378791 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CTCATCTACT
 29078
 29079
 29080 crispr 3
 29081 1378866 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC
 TGAGTTGCTTGTTGAGCAAGTATATCCATATTGCTTCGACTATGCA spacer length: 46 repeater length: 37
 29082 1378949 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC AAGAAAGAATCCTTGAAC TACAAGTACAAAGAGGA
 spacer length: 35 repeater length: 37
 29083 1379021 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TTTGCCGCATTGCGTGACAGCCATAACAAAATAAATAG
 spacer length: 38 repeater length: 37
 29084 1379096 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TTTCCGCCAGTTTGTCAATGAAGCAAAGGAATTCTA
 spacer length: 35 repeater length: 37
 29085 1379168 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GAAATCCTGTAAGGCTGTTTGTAACTCTGTATAGATG
 spacer length: 36 repeater length: 37
 29086 1379241 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GGATTTAACTGTTTTTCATGCGATCCAACGATGTTG
 spacer length: 35 repeater length: 37
 29087 1379313 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATGAATCGTGGAAGTTCTACACAGCATCTGATGAAA
 spacer length: 36 repeater length: 37
 29088 1379386 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC AAAGGTTATGACAGAAGCCACCAGCCCAGAGGAACA
 spacer length: 36 repeater length: 37
 29089 1379459 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CATATCCTACAGCCGCCGCACCGGCCGCTACGGACAG
 spacer length: 37 repeater length: 37
 29090 1379533 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATAGATGCAAAATCTATTTTCAACTTCAAAGCCCCTGA
 spacer length: 38 repeater length: 37
 29091 1379608 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATTGGTAATAGGAACAAGGTATATATATGTTGCAGACA
 spacer length: 38 repeater length: 37
 29092 1379683 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TGTCATTCAATCCGATTGATGCATACCACTGGATCA
 spacer length: 36 repeater length: 37
 29093 1379756 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATCATTCCAGTACCGTCAGTTATCTCGGTGCTCTGG
 spacer length: 36 repeater length: 37
 29094 1379829 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GCTTAATTCCATGTTTTAATAGTATAATTCCATGTT
 spacer length: 36 repeater length: 37
 29095 1379902 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GATTGAAACCAAAAACCCTTGCAGATTATGTAATGGA
 spacer length: 37 repeater length: 37
 29096 1379976 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GCCTGTATCCGAAATTCCTGAGTGTATATGTCAAAC
 spacer length: 36 repeater length: 37
 29097 1380049 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TGGAGCCACTTCTTCTTCCAGTAAATCAGGATCCTCTT
 spacer length: 38 repeater length: 37
 29098 1380124 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TTCAGGACCC
 29099
 29100
 29101 GCA_002787055.1_ASM278705v1_genomic.fna (PilerCR):
 29102 START REPEAT
 SPACER
 29103 GCA_002788215.1_ASM278821v1_genomic.fna (PilerCR):
 29104 START REPEAT
 SPACER
 29105 crispr 1
 29106 1305777 GCTTCAACCTCACGAGAGTTCGTCTGAAAC CTAAGCACGAGATCGTTGCTGTCGGATCTTATTTTTTT spacer
 length: 37 repeater length: 30
 29107 1305844 GCTTCAACCTCACGAGAGTTCGTCTGAAAC AACAGAGAACCATCACTTCCAAGCTGGTGCGGG spacer
 length: 33 repeater length: 30
 29108 1305907 GCTTCAACCTCACGAGAGTTCGTCTGAAAC TGGTAGCATGAGTGATAGAGACAACGACGGAGATGA spacer
 length: 36 repeater length: 30
 29109 1305973 GCTTCAACCTCACGAGAGTTCGTCTGAAAC CATCCGAATACCGATCAGGCCGCTGTTCCATAATTT spacer
 length: 36 repeater length: 30
 29110 1306039 GCTTCAACCTCACGAGAGTTCGTCTGAAAC CCGTGCATCACTGAGTCAAAGATGCGGTGGCAACT spacer
 length: 35 repeater length: 30
 29111 1306104 GCTTCAACCTCACGAGAGTTCGTCTGAAAC CATCCGAATACCGATCAGGCCGCTGTTCCATAATTT spacer
 length: 36 repeater length: 30
 29112 1306170 GCTTCAACCTCACGAGAGTTCGTCTGAAAC GTTTTTGGGTATCTGAGGCCGCTATGGAAGGCTCTG spacer
 length: 36 repeater length: 30
 29113 1306236 GCTTCAACCTCACGAGAGTTCGTCTGAAAC AACAAACCAGAGCCGCCGATCAGGAGAGATCGACTGT spacer

	length: 37	repeater length: 30	
29114	1306303	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	AAGCACTCACCGCTATATCGATTACCTGCACAGCCA spacer
	length: 36	repeater length: 30	
29115	1306369	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GGCTATTAACAGCCGTATAGAAGTAGGGTAAACA spacer
	length: 34	repeater length: 30	
29116	1306433	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TGGGCTTCAGCCAGCCGCCGTGCAATGGGGCGGTA spacer
	length: 35	repeater length: 30	
29117	1306498	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GAAGAACTGGATGCCACCATTCTCGACGAGCGTCC spacer
	length: 35	repeater length: 30	
29118	1306563	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	AGTTCGGAATCTCGCAACAATCGTCGTTCTGGCAAC spacer
	length: 36	repeater length: 30	
29119	1306629	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	ACCATTGACCCCAGCAAGGCCGACCGACGAGC spacer
	length: 33	repeater length: 30	
29120	1306692	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CATAGGTCCAAAACCGGCCACTGACCTACCACCA spacer
	length: 34	repeater length: 30	
29121	1306756	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CATATTGTAGACACCGTACTCAGCGGCCATGGACT spacer
	length: 35	repeater length: 30	
29122	1306821	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CCGCATACCCTATCCTGCGCGTGGCTCGCCTCAC spacer
	length: 34	repeater length: 30	
29123	1306885	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CAGCGTGTTTCTGGTTCCAGTAGTTAGACAACCAT spacer
	length: 35	repeater length: 30	
29124	1306950	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCGCCCAGATCCCAGACGAGCCAGCCATTCCCGAA spacer
	length: 35	repeater length: 30	
29125	1307015	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GGGAAATACCAATACGCGCGTATCGCAACGTGCACG spacer
	length: 36	repeater length: 30	
29126	1307081	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	AATCCAAATGGCCGAGCATTTTGGTGAGTTTGAGCAC spacer
	length: 37	repeater length: 30	
29127	1307148	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CGGTCGAAGGATGCTCACCGCGCCCCGATCCCGGTC spacer
	length: 36	repeater length: 30	
29128	1307214	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TAGAGTTAGCCCCATCGAAAACCGCAGTCATTTGTT spacer
	length: 36	repeater length: 30	
29129	1307280	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CTGTCGGCTATCTCCGCGGGTGGGCCCCAAGCGAG spacer
	length: 35	repeater length: 30	
29130	1307345	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TGTAGTCGTCAATTCCGGCAGTGTTGATTTAGAATTC spacer
	length: 37	repeater length: 30	
29131	1307412	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	AACCCTTAAGTCAAGCCGACCCGTTGATCTAGTTG spacer
	length: 35	repeater length: 30	
29132	1307477	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GCCGCTGGAATCGGGATTGCGTCGGATGAGTCGCT spacer
	length: 35	repeater length: 30	
29133	1307542	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CATGATCTAGATCCATCTACCTCACGGGAGTTCGTCT spacer
	length: 37	repeater length: 30	
29134	1307609	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TAGTCCGAATGGCCGAGCATTTTGGTGAGTTTGAGGCC spacer
	length: 38	repeater length: 30	
29135	1307677	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GGGGGGCATGCTTCGGCCATATGGACGCACTCCTC spacer
	length: 35	repeater length: 30	
29136	1307742	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	ACCGGTGACTGGGTCTCCTCATCAGGTTTGTAGTAT spacer
	length: 36	repeater length: 30	
29137	1307808	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GACCGACTGGCAAACTATCGACGGAGGGTCGAC spacer
	length: 34	repeater length: 30	
29138	1307872	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCGTCGAGATCGTCAGCTCGTGGATGACTGCCGTATC spacer
	length: 37	repeater length: 30	
29139	1307939	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CACCGACAACCCAGTGACCTCTAATCCATCTCCATC spacer
	length: 36	repeater length: 30	
29140	1308005	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CGTCGTCGCGGTTCTCCAGGAGGTCGGTCCAAGTGTC spacer
	length: 37	repeater length: 30	
29141	1308072	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CCCTGTGGACACACATTGGCCACCGACCTCCACCA spacer
	length: 35	repeater length: 30	
29142	1308137	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GTGGAACCATAACGATCACTGAGGAGCCGTATGAGG spacer
	length: 36	repeater length: 30	
29143	1308203	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CCGCAGGTCGCAGCGTTTCGCGGAGGCGGGCCAATT spacer
	length: 35	repeater length: 30	
29144	1308268	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TTTCGGTGATGGGCGACGTCGACGGCGCGATGAAA spacer
	length: 35	repeater length: 30	
29145	1308333	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCGCAGCTCTCCGACGAGTCGTCGCCGGTTTCCACG spacer
	length: 36	repeater length: 30	
29146	1308399	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCGAACTGCCCCCTCGTAGATCCCCTCGTTGGTGAT spacer
	length: 35	repeater length: 30	
29147	1308464	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	ACGTATCCGACTGTTTCGACTTCGACGAGTTGCCCTTT spacer
	length: 37	repeater length: 30	
29148	1308531	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TATCTTCGACGGGTGGACCGACTACACTAAGGACTC spacer
	length: 36	repeater length: 30	

29149	1308597	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TTTTGACCTTCGAGAAAACACCGGTGACTGTATCGC	spacer
		length: 36 repeater length: 30		
29150	1308663	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CAACTTCGCCGCCGCCACCGGAGTGTCTGTACGGTC	spacer
		length: 37 repeater length: 30		
29151	1308730	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TGTTACTTTCCCCCCCCGATTCTCTCCCCACCCT	spacer
		length: 34 repeater length: 30		
29152	1308794	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TTGGCTGGTACGTGTAAATCGCCTTCGTGCGATA	spacer
		length: 34 repeater length: 30		
29153	1308858	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CTGTTGCGGGGCGTCTTCGAGTAGCAACACACCGCG	spacer
		length: 36 repeater length: 30		
29154	1308924	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CACCCTAGATCACACAGCGGCCAGTGTGCGTCCACA	spacer
		length: 36 repeater length: 30		
29155	1308990	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CCGTTGTGAAACCCCGCGGAAAGCACACGCAGGAAGCG	spacer
		length: 38 repeater length: 30		
29156	1309058	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GTGCGATAGAAGATGCCCCCGGTAGGTTGATCAGT	spacer
		length: 36 repeater length: 30		
29157	1309124	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TAAGTCAAGCCGAGCCTTTGTTTGAGTTGCAATGTC	spacer
		length: 36 repeater length: 30		
29158	1309190	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCACCCACGCCGTCGAGAGTGAGTAGCCGCCGAAGTT	spacer
		length: 37 repeater length: 30		
29159	1309257	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TGTTTCGAGTCCTTTTGTCCCTGAAATAGTCGAAGTC	spacer
		length: 37 repeater length: 30		
29160	1309324	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GCTATGCCAGTCGTCGGGGTCGGACCAGGAGATCGA	spacer
		length: 36 repeater length: 30		
29161	1309390	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CCGTTTCGTTATCGGGTCGGTCCTCGTCGAAAAGCGC	spacer
		length: 36 repeater length: 30		
29162	1309456	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCGACTGGCTGCTGGTGGTGCATCCTCTGATACCT	spacer
		length: 35 repeater length: 30		
29163	1309521	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CCGGTGGGAGCTGCGAAGTTGGCGGCTTTGTTCAA	spacer
		length: 35 repeater length: 30		
29164	1309586	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TGTCTGTCTGGTTCGAATTCGACGACGGAACGACCAT	spacer
		length: 37 repeater length: 30		
29165	1309653	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TTGTACTCGCTAACAAAATCGCCGCTCGGAGGCCT	spacer
		length: 35 repeater length: 30		
29166	1309718	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TGTCGCCACGGTGGATGAGTTCTTTGCGACTCAACAG	spacer
		length: 37 repeater length: 30		
29167	1309785	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CATGCCGGGAGATGACCCATCGGGGGACACCTCC	spacer
		length: 34 repeater length: 30		
29168	1309849	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CGACATTGCCGGGTGGTATGAGATCGGACAGCGGTG	spacer
		length: 36 repeater length: 30		
29169	1309915	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GGTTACTACTGAAGGTATCAACCCAGTGTTGTAAGTC	spacer
		length: 37 repeater length: 30		
29170	1309982	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GACGACGCGATGGCCTTGTGGTTGCCATTGAACGG	spacer
		length: 35 repeater length: 30		
29171	1310047	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCGGAGTGGTCGTCGGGGCCTCTGACGTTGGTAAA	spacer
		length: 35 repeater length: 30		
29172	1310112	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CAGTCTTCGCACACTGGCGCTGGATAATCCCATTCTG	spacer
		length: 36 repeater length: 30		
29173	1310178	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CATTGACCTGCGCTGGACTGACATCTCGGTAGTCCAT	spacer
		length: 37 repeater length: 30		
29174	1310245	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GTGGTGGGCGTACTCGCAACGGTGTGGGTCATGGA	spacer
		length: 35 repeater length: 30		
29175	1310310	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CAAATTACGATGGAGGGCAACGGCCTCGATTTCGGAA	spacer
		length: 36 repeater length: 30		
29176	1310376	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TTTATTACAGCCACGACGAAGGACGTCGATGGACC	spacer
		length: 35 repeater length: 30		
29177	1310441	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCCAATCCATGGCTGCGGAACACGGTGTCTGTAACAT	spacer
		length: 37 repeater length: 30		
29178	1310508	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TACGGTGTCTTGGGACGCGCTGATCGAGTCGAAC	spacer
		length: 34 repeater length: 30		
29179	1310572	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GTGCCCTCTCCGCGCGATATGTCGTAAGTGAAATA	spacer
		length: 35 repeater length: 30		
29180	1310637	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CATCAACGTGAACAATAGCACAGTCGGACGCTGCGGG	spacer
		length: 37 repeater length: 30		
29181	1310704	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	ATGTAAGACGGCCGAAAACCACGTCCCGACAGTTA	spacer
		length: 35 repeater length: 30		
29182	1310769	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CCTCGGTCCCTCAAAGGGATACCCTCGGTTACCACT	spacer
		length: 36 repeater length: 30		
29183	1310835	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	AATTGGTCGGGACTATGCTCCTACTGATATGTTC	spacer
		length: 34 repeater length: 30		
29184	1310899	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TTGAGGAGATTGCACTGGATCGTAGCCAGATAGGCT	spacer

length: 36 repeater length: 30
29185 1310965 GCTTCAACCTCACGAGAGTTCGTCTGAAAC CGGTGTGCCAGTATCCCGATGTTCTCTTCAGATTC spacer
length: 35 repeater length: 30
29186 1311030 GCTTCAACCTCACGAGAGTTCGTCTGAAAC TGATGTAATAATCAGTTTCAGTATCAATAACAACCT spacer
length: 35 repeater length: 30
29187 1311095 GCTTCAACCTCACGAGAGTTCGTCTGAAAC GAGGCAATTTACCCGAAGAGGTTGGTATCGATTC spacer
length: 34 repeater length: 30
29188 1311159 GCTTCAACCTCACGAGAGTTCGTCTGAAAC AAGAGAACACACGAATGGCGATGACTCGGCTGAG spacer
length: 34 repeater length: 30
29189 1311223 GCTTCAACCTCACGAGAGTTCGTCTGAAAC ACGCGCTCAAGAAGTACGTCCC GCAACTCTGTGGCG spacer
length: 36 repeater length: 30
29190 1311289 GCTTCAACCTCACGAGAGTTCGTCTGAAAC GAACGTCGTCTTGCCCCGATCCCTTCGGGCCGTAGGC spacer
length: 36 repeater length: 30
29191 1311355 GCTTCAACCTCACGAGAGTTCGTCTGAAAC TCGGAATCCCTACGATGATCCAGTAGAGGAAAGT spacer
length: 34 repeater length: 30
29192 1311419 GCTTCAACCTCACGAGAGTTCGTCTGAAAC CGCAAGGGGG
29193
29194
29195 crispr 2
29196 1320976 GCTTCAACCGCACAAAGCGTTCGTCTGAAAC AGTCTGGGAGTGGCTGATTCAAGGCACGAAGGGAAT spacer
length: 36 repeater length: 30
29197 1321042 GCTTCAACCGCACAAAGCGTTCGTCTGAAAC CGGGAGAGAAGTCTTGAGCGCATTGAGCAATGTTTCG spacer
length: 37 repeater length: 30
29198 1321109 GCTTCAACCGCACAAAGCGTTCGTCTGAAAC CAGTCGCGACCGCCAACCGAGCGCAGCGCCAACG spacer
length: 34 repeater length: 30
29199 1321173 GCTTCAACCGCACAAAGCGTTCGTCTGAAAC TTCTCCCTG
29200
29201
29202 crispr 3
29203 1474448 GTTTCAGACCAACCCTCGTGGGGTCGGAGG CTCCGAGCTTCGGACTGCGATATGACCCGCGTTA spacer
length: 34 repeater length: 30
29204 1474512 GTTTCAGACCAACCCTCGTGGGGTCGGAGG TAAGTTACCGTCAACGAGATAATCAATGATATGAA spacer
length: 35 repeater length: 30
29205 1474577 GTTTCAGACCAACCCTCGTGGGGTCGGAGG CGCTTCCTGCGGGGTTTCACGACGGGTCGCTGGTA spacer
length: 35 repeater length: 30
29206 1474642 GTTTCAGACCAACCCTCGTGGGGTCGGAGG GTGAACAAAGCCGCAACTACGCAACCATCAGTGG spacer
length: 35 repeater length: 30
29207 1474707 GTTTCAGACCAACCCTCGTGGGGTCGGAGG AGATTCCGATGGTGATGGCACAAGTGGCGTAATA spacer
length: 34 repeater length: 30
29208 1474771 GTTTCAGACCAACCCTCGTGGGGTCGGAGG GAATAATAGACACTAACAGCAAGGTCCACCGTCTT spacer
length: 35 repeater length: 30
29209 1474836 GTTTCAGACCAACCCTCGTGGGGTCGGAGG ACCGGGAGTTTGTGGTACTTCGCGGGGCCGTCGCCG spacer
length: 36 repeater length: 30
29210 1474902 GTTTCAGACCAACCCTCGTGGGGTCGGAGG GGTGAGTGTTGCGTCCGTGGTAGCGTTACCCAATT spacer
length: 35 repeater length: 30
29211 1474967 GTTTCAGACCAACCCTCGTGGGGTCGGAGG CATCGCACCGTCGACGTCGCCCATCACCGCAATCGA spacer
length: 36 repeater length: 30
29212 1475033 GTTTCAGACCAACCCTCGTGGGGTCGGAGG CTGCATGATATCGTCAAACCGAGTGACGTACCGACGC spacer
length: 37 repeater length: 30
29213 1475100 GTTTCAGACCAACCCTCGTGGGGTCGGAGG TGCAATGGGTTGCCGGCGACGTCGGCTGCATCCCC spacer
length: 35 repeater length: 30
29214 1475165 GTTTCAGACCAACCCTCGTGGGGTCGGAGG GGACCACCGCGTTGCGACGTCGGCGTCCGTCGTCG spacer
length: 35 repeater length: 30
29215 1475230 GTTTCAGACCAACCCTCGTGGGGTCGGAGG GGTCAATTGGAGTCATTTGCCACTCGGTAGAAAT spacer
length: 35 repeater length: 30
29216 1475295 GTTTCAGACCAACCCTCGTGGGGTCGGAGG GATCATTACCAAGACTGGGAAAAGGCCCTGATC spacer
length: 33 repeater length: 30
29217 1475358 GTTTCAGACCAACCCTCGTGGGGTCGGAGG GTCCATTGCTACATAACTACCAACGGGCTACCACT spacer
length: 35 repeater length: 30
29218 1475423 GTTTCAGACCAACCCTCGTGGGGTCGGAGG ATCCCAGCCACAAAACAATTGTGGAGCAAGCTGC spacer
length: 34 repeater length: 30
29219 1475487 GTTTCAGACCAACCCTCGTGGGGTCGGAGG AGACCACGACCCTGCCGAGGAGGACGATGTGCCGTA
29220
29221
29222 crispr 4
29223 2597027 GTTTCAGACGAACTCTCGTGAGGTTGAAGC AAGCGGTCGCTCCACCGTAGGGCTTCGTCATCTT spacer
length: 34 repeater length: 30
29224 2597091 GTTTCAGACGAACTCTCGTGAGGTTGAAGC ATCGCAAAGGATGATGGCGACTTGACTGCCTTCGA spacer
length: 35 repeater length: 30
29225 2597156 GTTTCAGACGAACTCTCGTGAGGTTGAAGC AGCTCACGACCGACCAGGAGGACGTCACGCTGGC spacer
length: 34 repeater length: 30

29226 2597220 GTTTCAGACGAACTCTCGTGAGGTTGAAGC CCGAGCGCACGGAGGGCTCGACGTCTTCGGCCAGG spacer
length: 36 repeater length: 30
29227 2597286 GTTTCAGACGAACTCTCGTGAGGTTGAAGC TGCCGGTACCCCGCCGCGGCGTTTCGCGACGTCG spacer
length: 33 repeater length: 30
29228 2597349 GTTTCAGACGAACTCTCGTGAGGTTGAAGC AATCAGTCCGGCGAAACGGCTGAAACGAGCGAGG spacer
length: 34 repeater length: 30
29229 2597413 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GTGACTGCGCCGTTGGCGGGGAGCGATGCGCCGATG spacer
length: 36 repeater length: 30
29230 2597479 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GTCGCGTGGTCGTCGCGTACGTGGCGTTTGAACCGG spacer
length: 36 repeater length: 30
29231 2597545 GTTTCAGACGAACTCTCGTGAGGTTGAAGC TGGGGGCAGTATCCTGGGCGCTCCGTAAAGAGGCA spacer
length: 35 repeater length: 30
29232 2597610 GTTTCAGACGAACTCTCGTGAGGTTGAAGC TACGGAGTCCGAGACACGGTCACCGACGCACTGGG spacer
length: 35 repeater length: 30
29233 2597675 GTTTCAGACGAACTCTCGTGAGGTTGAAGC AAACCTCTAACTCGGAGATTTGCAAATCTACAGTCT spacer
length: 35 repeater length: 30
29234 2597740 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GATCAGTCATCTATCCCTCTGCATGGTGTGCGGTGG spacer
length: 35 repeater length: 30
29235 2597805 GTTTCAGACGAACTCTCGTGAGGTTGAAGC CGACGTGATCCCGGTTCGAGGCCGAGAGCGAGGAGA spacer
length: 35 repeater length: 30
29236 2597870 GTTTCAGACGAACTCTCGTGAGGTTGAAGC CGATTGCTCGTCTGCTCCTCGGGGTGTGGCATCCC spacer
length: 35 repeater length: 30
29237 2597935 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GGAGATAGTAGCACCTCCTAAGTGGCTTCTGTACG spacer
length: 35 repeater length: 30
29238 2598000 GTTTCAGACGAACTCTCGTGAGGTTGAAGC TACAGTAAGCTGATGCAGTACACCCACGCCGAGTA spacer
length: 35 repeater length: 30
29239 2598065 GTTTCAGACGAACTCTCGTGAGGTTGAAGC CTCTCAATCGTCGGGTGCTCCCGTCGGTCCCG spacer
length: 33 repeater length: 30
29240 2598128 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GGCCCCTCGATCTACACGTGCGGTGCTGTTTCGACGAA spacer
length: 36 repeater length: 30
29241 2598194 GTTTCAGACGAACTCTCGTGAGGTTGAAGC CGTGGGCACGTCACCGAAGCTGAGACAGTCCCGAAAG spacer
length: 37 repeater length: 30
29242 2598261 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GTTTCGGAGCGGTGAATGTCACAGATACTGAATCATA spacer
length: 37 repeater length: 30
29243 2598328 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GCGTGGTGGACCGGCCGGGCGAGTTTCAGCGATTGATACGA
spacer length: 40 repeater length: 30
29244 2598398 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GATTGAACCGAGATATCGCCAAACGCATTGTTCGACA spacer
length: 36 repeater length: 30
29245 2598464 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GACTCCGGGACAGCCGTTGTCTGGAGATGATAATGGC spacer
length: 36 repeater length: 30
29246 2598530 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GGCGACCGCTCGAAATCGAAGTCGGTCGCGGTCCGG spacer
length: 36 repeater length: 30
29247 2598596 GTTTCAGACGAACTCTCGTGAGGTTGAAGC
29248
29249
29250 GCA_002813085.1_ASM281308v1_genomic.fna (PilerCR):
29251 START REPEAT
SPACER
29252 crispr 1
29253 853980 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAGCAAAAGATAAAATGAAATTAAAAAGCTATCCAA
spacer length: 36 repeater length: 37
29254 854053 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATAGCCTAAACGAAATATCAGATGAAGAATATGGC
spacer length: 35 repeater length: 37
29255 854125 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ACCAGTATATGTCTATTACAACGACATAGACGGAA
spacer length: 35 repeater length: 37
29256 854197 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT GAATCACATCTCGATGCAGATAATGACCTGAAAT
spacer length: 35 repeater length: 37
29257 854269 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TATGCAGTTAATAATGAAGTTACATACGGATTGCC
spacer length: 35 repeater length: 37
29258 854341 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT GATATGCCTTTAAAAAAGTTACATATGGAAGAAA
spacer length: 34 repeater length: 37
29259 854412 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATAGCTACATTGTTATAAACTGGTCTTTTAAGGTT
spacer length: 35 repeater length: 37
29260 854484 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TATTATTTATGAACAAGAAAAATAAACAAGGAAG
spacer length: 35 repeater length: 37
29261 854556 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAGGTGTTTAAATGGAGAAAATAAAATTTATTAG
spacer length: 35 repeater length: 37
29262 854628 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TTATAGATGAAATAAATGAATTAAAGGAAATTTTGAA
spacer length: 37 repeater length: 37
29263 854702 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AGGACGAACAAATTTTAAATGTTAATGGTTTTTT
spacer length: 34 repeater length: 37

29264	854773	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	TCTTCAAAATGGAAGAAGGAGAGAATTAAAGCATC
	spacer	length: 35	repeater length: 37
29265	854845	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	CCCCAAAAAGGACGAATACGGCGTTTACGAATCAAA
	spacer	length: 36	repeater length: 37
29266	854918	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	GGTAATGTGTATCAGTACTTGAAAAATCAGTATTTTA
	spacer	length: 37	repeater length: 37
29267	854992	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	AAAGAGACACTATTAATAGATATATTTATCTACAG
	spacer	length: 35	repeater length: 37
29268	855064	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ACGGATAATTGAGGTGATAATAAATGTTAATAAGA
	spacer	length: 35	repeater length: 37
29269	855136	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	AATATTTGAATTACTCGTAATATGCATTACCGAGG
	spacer	length: 35	repeater length: 37
29270	855208	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	AAATCAATGTTAAAATACAGAAAAACCTAAAATA
	spacer	length: 35	repeater length: 37
29271	855280	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	TAGACCAAAGGGGGTTTAAACACCCCAAAAAGGTC
	spacer	length: 36	repeater length: 37
29272	855353	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	GGTAAAATGTAAAATTATCGTATTTGAACAAGTAA
	spacer	length: 35	repeater length: 37
29273	855425	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	GGAGTAGAAAAATGTATAAATATCAAGAAAAAAT
	spacer	length: 34	repeater length: 37
29274	855496	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	AGAGTTAATTTGCAAGTTTTTAAGCAAAGGAATGTT
	spacer	length: 36	repeater length: 37
29275	855569	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	CAAAAACCTGAAGAAGCAATTGAGTTTTTAGCAAAAAG
	spacer	length: 37	repeater length: 37
29276	855643	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	AATAAGTTGTTAAATAATTGATTGACTTATGAAT
	spacer	length: 34	repeater length: 37
29277	855714	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	AAGGGTAGGTATACAGTTGTTGATGGTGGTAATGAAA
	spacer	length: 37	repeater length: 37
29278	855788	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ACTTTTAAGGCGACTGATGAATTTTTAGCTAATGTT
	spacer	length: 36	repeater length: 37
29279	855861	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	TTTAACACTAATAGCATTTTAATTGATGTCTTAAAA
	spacer	length: 36	repeater length: 37
29280	855934	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	CTAGACGTGCAAGAATTTATGAAAGGAAAAATAG
	spacer	length: 34	repeater length: 37
29281	856005	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATAACGGACTATCTTTGCAAGATTTCAATTGTAAGGA
	spacer	length: 37	repeater length: 37
29282	856079	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	CTTCATAAAATGTATCGGTGTCTATATAAATAATAGT
	spacer	length: 37	repeater length: 37
29283	856153	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	CTAAAACATTAGAGAGAAGCTGTAACATTATTACAA
	spacer	length: 36	repeater length: 37
29284	856226	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATCGAAGACCCCGTGTCTAAAACATTACAAAGAAGC
	spacer	length: 36	repeater length: 37
29285	856299	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	TTTTGGTGTGTTGAACAACCTGGAAAAAAGAAGAC
	spacer	length: 35	repeater length: 37
29286	856371	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	AGTACGAAGTGGATTTATCATTAACAAAAAATTA
	spacer	length: 35	repeater length: 37
29287	856443	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATGTATTCCAAAAAGAATTAAAGACTGTGAATACA
	spacer	length: 36	repeater length: 37
29288	856516	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	CGAAAAAACAACAAAAGACCTCGACCCCGTGTCAAAG
	spacer	length: 37	repeater length: 37
29289	856590	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	TCTTTCCAAGATTATCATAACGAAGAAGAAGATGT
	spacer	length: 35	repeater length: 37
29290	856662	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATCATAATGCGGAAATGGAGGAATTATATATTGATG
	spacer	length: 36	repeater length: 37
29291	856735	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	AAGATTGAGACCATGATACATGGTCTCTAAATCTAG
	spacer	length: 36	repeater length: 37
29292	856808	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	TCATCACAAGAGTGATTGATATAGACCAAGAAATATA
	spacer	length: 37	repeater length: 37
29293	856882	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATCTACGCAGGAATATTTAAAAGGACAAGAAGT
	spacer	length: 33	repeater length: 37
29294	856952	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATTATGACTGTTATTATAATCAGTCCGTTTTTAAAAA
	spacer	length: 37	repeater length: 37
29295	857026	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ACACAAAACGGGGTATATTTCAATTGTTATGTTGTAA
	spacer	length: 37	repeater length: 37
29296	857100	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	TCAATATAGAGAAATTTAAAGTAAAGACAATAGAT
	spacer	length: 35	repeater length: 37
29297	857172	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	TAAAAAAGCTATCAATTAATTGATAGCAAAATATA
	spacer	length: 36	repeater length: 37
29298	857245	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	TTTCCAACCAATCGCTTCATTACTCCCCCATGCCAT
	spacer	length: 38	repeater length: 37
29299	857320	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	AATAAGGAGAGATTATATGGCAATTATAGTTAATAA

spacer length: 36 repeater length: 37
 29300 857393 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATTAGACACCGTGTCTAAAACATTACAATATGCATG
 spacer length: 36 repeater length: 37
 29301 857466 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AATAAAAAATAACTAAACAAAAAGTACAAACAGTAGAC
 spacer length: 37 repeater length: 37
 29302 857540 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CTGCGTAAAGATAAGGATTTAAAGTACTTAAAAA
 spacer length: 36 repeater length: 37
 29303 857613 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATATTATATATCATCCGATAGATATTTCTAGCTTTAG
 spacer length: 37 repeater length: 37
 29304 857687 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CAATATAGTAACTATTGGTCCAATAAAGACTGTTCA
 spacer length: 36 repeater length: 37
 29305 857760 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT GAAAAATTATGGATTTAATATTATTTAAATCAA
 spacer length: 33 repeater length: 37
 29306 857830 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATCGGAAGGTAAAAGCTAATCCAATTATATTTCCA
 spacer length: 35 repeater length: 37
 29307 857902 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATATAAACAGGTTATATTACAGAAAGAGGATAAGCAAA
 spacer length: 38 repeater length: 37
 29308 857977 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ACGGGTGATAACATGAATGTATGGAAGGGAACAAA
 spacer length: 35 repeater length: 37
 29309 858049 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATTATAACGGGTTTGTAGTAATTAATACTAAGATAG
 spacer length: 36 repeater length: 37
 29310 858122 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AACTTATAACTTATTAATACTAATGATTTTATT
 spacer length: 34 repeater length: 37
 29311 858193 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AATATTAATGGTTTTTTTGAGCTAATAAGTATTTGCA
 spacer length: 37 repeater length: 37
 29312 858267 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAAGTTACGATTTGCTAAGCACCAAAGAATATTTAAA
 spacer length: 37 repeater length: 37
 29313 858341 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAATAAACGGATTAATTATAACAAAAAAGTATACA
 spacer length: 36 repeater length: 37
 29314 858414 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CGCAAATGGAAGTATACATCAAATGGGTATGTAG
 spacer length: 35 repeater length: 37
 29315 858486 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ACACACGACGACACATGTTTTAATGGACTTATACA
 spacer length: 35 repeater length: 37
 29316 858558 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CTCAGTCACTATAAAAGAATAATGTACGGGGAAGAA
 spacer length: 36 repeater length: 37
 29317 858631 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAAAGACAACAAAAGAAGACAACAAAAGCTATCAAT
 spacer length: 36 repeater length: 37
 29318 858704 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CAATAAGTAATAAAATAAATTTAAAAAGCGAAAGC
 spacer length: 35 repeater length: 37
 29319 858776 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATAAATGAAGGTAGAAATTTTAGTTTATAGGCAAA
 spacer length: 35 repeater length: 37
 29320 858848 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ACTATCAGGTTAAGGCCAATAGAACTATTATAAAT
 spacer length: 35 repeater length: 37
 29321 858920 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATATAAGCAACAAAGAATAAAAAAGAAGACAAGA
 spacer length: 35 repeater length: 37
 29322 858992 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATATTTAACCTACAGGATTTAAATTTTAAATCTG
 spacer length: 35 repeater length: 37
 29323 859064 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ACTTAAATATAATCAATATATCAAAGTAAAGTATT
 spacer length: 35 repeater length: 37
 29324 859136 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATCACCAGCATCAGCAAAAGGATATTTAACAGGA
 spacer length: 34 repeater length: 37
 29325 859207 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ACAGAAAGGGGATTTGATGATATTATTGATATTAA
 spacer length: 35 repeater length: 37
 29326 859279 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CGGACAAGGGGGTTTATAAAATATGTACGTGTTACAA
 spacer length: 38 repeater length: 37
 29327 859354 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TCTCTCTCCAAACAGATTGTGGGGCAGTTAAACTG
 spacer length: 35 repeater length: 37
 29328 859426 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TTAGCTAATGTCAATTATGTTGAGTATGAAGGATT
 spacer length: 35 repeater length: 37
 29329 859498 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATATAGTAGCAAAAAAAGATTTATACAGTTCT
 spacer length: 33 repeater length: 37
 29330 859568 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AGGGGCAAGGAGGATGATATTATATATCATCCACT
 spacer length: 35 repeater length: 37
 29331 859640 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATTATAGCGCTTTTAAATGGTAATTTAAAAGATTT
 spacer length: 34 repeater length: 37
 29332 859711 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TCAAGGTGTTAAATGGAATTTAACTTTTAGGAT
 spacer length: 35 repeater length: 37
 29333 859783 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATTAAGCACTAAGGACTTTTTAGATGGCAAAGAAA
 spacer length: 35 repeater length: 37
 29334 859855 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TGTTAGTAGATGATAACTGTTTATGCTTGGATGATT
 spacer length: 36 repeater length: 37

29335 859928 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ACAAGTAAGTGACAAGGAGGAGATTATTATTATCC
spacer length: 36 repeater length: 37

29336 860001 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TTATGCCTGATGGGAGCGTAATATTATGAAAAAAAA
spacer length: 36 repeater length: 37

29337 860074 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATAGACAAAACATACAGAAAAAGAGGATAAAAC
spacer length: 34 repeater length: 37

29338 860145 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAATATCAACGACTTTTTACAAAATGCACAAATT
spacer length: 34 repeater length: 37

29339 860216 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AGAGTTGGAATTAGGGCTACAAGGTCAAAGTGGTG
spacer length: 35 repeater length: 37

29340 860288 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CATGCCACACACATAATACGAAATTTTGGAGAGAAA
spacer length: 36 repeater length: 37

29341 860361 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT GATGATATTGATAAAGCGATGCAAATATACAAAGAAAT
spacer length: 38 repeater length: 37

29342 860436 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TTATTAATGGGAATCAGGTTATAGCTAAAAAATA
spacer length: 36 repeater length: 37

29343 860509 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAGGTTAGGGAATATATTCATAGTAAGGATAAAACAA
spacer length: 37 repeater length: 37

29344 860583 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATGGGGTGTTGAGTTATGAGTTGCAAATACAATAAC
spacer length: 36 repeater length: 37

29345 860656 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT GGAAGAAACACTGTAAAAGGGATAATGTTAATACA
spacer length: 36 repeater length: 37

29346 860729 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TGATTACATGAATGTTGAGATAATCGTATAT spacer
length: 31 repeater length: 37

29347 860797 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AATGGAAGAAGATGGTTACGAACACAGAAAG spacer
length: 32 repeater length: 37

29348 860866 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAAGAAAAATCATATATTAAATACATCAGGGACAAT
spacer length: 36 repeater length: 37

29349 860939 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATTTGAGATAATTGTTTTTAGACAAAATAAAAGG
spacer length: 34 repeater length: 37

29350 861010 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATTGACAAAATTATGGAAGGTCAAAGTGGTGTTTA
spacer length: 35 repeater length: 37

29351 861082 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATGACAACTATCATAAATAATGCATTTAGCACAA
spacer length: 34 repeater length: 37

29352 861153 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CCAGATGCTACATATTTTAACATGTATGTTGGAGT
spacer length: 35 repeater length: 37

29353 861225 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATAGATTTAAAAACATTAAAAAATGTATTAAAGTATT
spacer length: 37 repeater length: 37

29354 861299 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AATAATTCATTAGACATGAACTTATTATTCTATCAT
spacer length: 37 repeater length: 37

29355 861373 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AATGAATTGTGGACTCAATATGGGCAGTATATGCCA
spacer length: 36 repeater length: 37

29356 861446 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AGTATTCACAAATTCTTACAAAGGACACAAATTAAT
spacer length: 36 repeater length: 37

29357 861519 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATAGGTTAGATGCAATTCCAGAGTTAAATGATGATTATA
spacer length: 39 repeater length: 37

29358 861595 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATAAATGCTGGGACTATATGTATAACATTAGACA
spacer length: 34 repeater length: 37

29359 861666 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT GGTCATGCCG

29360

29361

29362 GCA_002813655.1_ASM281365v1_genomic.fna (PilerCR):

29363 START REPEAT

29364 SPACER

29364 crispr 1

29365 2361835 ATTTCAATCCCAAAATGGTCTGATTTTAGT GTATGTGTGGTGTGCTATTTCCACGGCGTAAGCAC spacer
length: 36 repeater length: 30

29366 2361901 ATTTCAATCCCAAAATGGTCTGATTTTAGT TTGCAACTGCTTCCGGGTCGTCATTGTCTGCTAGTG spacer
length: 36 repeater length: 30

29367 2361967 ATTTCAATCCCAAAATGGTCTGATTTTAGT GTTACCAGTTCCTGGATGAGCCGGTGGACTGTTGCG spacer
length: 36 repeater length: 30

29368 2362033 ATTTCAATCCCAAAATGGTCTGATTTTAGT GATTTCAATTTCTTCATCATATAGTGAATTATCTATT spacer
length: 37 repeater length: 30

29369 2362100 ATTTCAATCCCAAAATGGTCTGATTTTAGT GTTTTGCTGTTATTGATTTCTGGAGGGTTTAATTTT spacer
length: 36 repeater length: 30

29370 2362166 ATTTCAATCCCAAAATGGTCTGATTTTAGT CTACATAAGTTTCCCTTTGATTGTTACATCGTAAT spacer
length: 35 repeater length: 30

29371 2362231 ATTTCAATCCCAAAATGGTCTGATTTTAGT CTGGGCAGATTCTGTCTTAAATTTTGTGTTGTAT spacer
length: 37 repeater length: 30

29372 2362298 ATTTCAATCCCAAAATGGTCTGATTTTAGT TGATAATGCTCCAGCTATTTCTTTCTGCATGATCTT spacer
length: 36 repeater length: 30

29373	2362364	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTTTAATCATGATTGCCTGTACTTCTTCATTGTGTA	spacer
	length:	36	repeater length:	30
29374	2362430	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTAGTGTTCATGGTTTTGATATATTGTCAAAGTAGCG	spacer
	length:	37	repeater length:	30
29375	2362497	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GAATAATATAGGTCCTAATTATGCAAATAGCCATAT	spacer
	length:	36	repeater length:	30
29376	2362563	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CATTTTTTCACCATGATTACATTATCATTAAATTCTT	spacer
	length:	36	repeater length:	30
29377	2362629	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GTAAATCGTATACCATTATAACTTCTTAATCGTTGCC	spacer
	length:	37	repeater length:	30
29378	2362696	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GCATTAAGTGTATTGCACCACTTTAAAGAATACCAAA	spacer
	length:	37	repeater length:	30
29379	2362763	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AGTGCATGGAGGTTAGAAAAAGATGACTAATTATAT	spacer
	length:	37	repeater length:	30
29380	2362830	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TGGGGCTGTGCCAGTGGACATTTCAAAGTTTGTTT	spacer
	length:	35	repeater length:	30
29381	2362895	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GTTGTGTTGGAGGTTAGTATTTTACAAAAAGGAGA	spacer
	length:	35	repeater length:	30
29382	2362960	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GTTAAAAAAGGAAACGGAGATGATAATATTCCTAATA	spacer
	length:	37	repeater length:	30
29383	2363027	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TCCGATGGTTCATTGACTTCTCAGGATACTTCCGA	spacer
	length:	35	repeater length:	30
29384	2363092	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ACAACGTGTAGAATTACTTTGTATCCTCCATTAACTA	spacer
	length:	37	repeater length:	30
29385	2363159	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TAATATAACTGGAAGAGATTATGTTGGAGGAATTGT	spacer
	length:	36	repeater length:	30
29386	2363225	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CCCACTACCTTCTAAAGTAGTTAAAGATTATAAAAA	spacer
	length:	36	repeater length:	30
29387	2363291	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTGCAGAAGCTGCAGCATACTTAGTAAGTTCTTATTT	spacer
	length:	37	repeater length:	30
29388	2363358	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTAGTATAAAGATTTAGACCCACACCAGACAGACCC	spacer
	length:	37	repeater length:	30
29389	2363425	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTCTTTTGATGTAAACTTAGTAACTAATAATAATGA	spacer
	length:	36	repeater length:	30
29390	2363491	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GTATCTTTTCAGTGACGTTACACACTATGCGATTACC	spacer
	length:	37	repeater length:	30
29391	2363558	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TGTGTTAAACCTGATAGAATCATTTTAGGGGGTGG	spacer
	length:	36	repeater length:	30
29392	2363624	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GCTCACTTTCTCAGTGAACATTATGACCTTCTTAAA	spacer
	length:	36	repeater length:	30
29393	2363690	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GTGACAAGCTCCCAAGTAGCTAACCGGGGTGTGTGG	spacer
	length:	36	repeater length:	30
29394	2363756	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATGTTAAAGATGCAATAAGTGACGAAGGCTTCAAACA	spacer
	length:	37	repeater length:	30
29395	2363823	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ACGGATAATCTAACAACATATCGTATTCACAACACCCAC	spacer
	length:	38	repeater length:	30
29396	2363891	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AAGGCTTGGAAGATGATAAATCATAAAATTAGAT	spacer
	length:	36	repeater length:	30
29397	2363957	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTAGATCGTGTTCGAGCCATGCTGTGATGACAAGCGT	spacer
	length:	38	repeater length:	30
29398	2364025	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTGTGGATTACTCTAACTACCACACAGTATTAATGA	spacer
	length:	36	repeater length:	30
29399	2364091	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TAACCCGAAGAGATTAAGTCTTAAACGGTTTGATTT	spacer
	length:	36	repeater length:	30
29400	2364157	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CGGCGGTATTCGCCCCGCTGATGTGGAGACTGGCAG	spacer
	length:	36	repeater length:	30
29401	2364223	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TAAGCACCCCTACCCTATAATGTGTTTAATAGTGTT	spacer
	length:	36	repeater length:	30
29402	2364289	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GTCTGAGGATCTTGACCTATAATATATTATAATGGT	spacer
	length:	36	repeater length:	30
29403	2364355	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTACTGAACTCTTTTTATCAATTTTCAATCTTTTTT	spacer
	length:	36	repeater length:	30
29404	2364421	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TCATTTAGAGGTAGGTACTAAAGTTAAAATTACTAA	spacer
	length:	36	repeater length:	30
29405	2364487	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AATGAAAGTAGAGGTATGATAACATGACATGTATCG	spacer
	length:	36	repeater length:	30
29406	2364553	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TGTAATTAACAACAGACCGTACTCCATGTTCTGATGT	spacer
	length:	37	repeater length:	30
29407	2364620	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTTAACCTTACGTATTCCTTTTTATCTGTTTTCTTTA	spacer
	length:	38	repeater length:	30
29408	2364688	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AGTTACATGAGGGATTTCTCGATGCACATCTCCAAG	spacer

	length: 37	repeater length: 30	
29409	2364755	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CAATATAAAGAGCAAAAAGCTTTTAAACAAGAAAGTAA spacer
	length: 37	repeater length: 30	
29410	2364822	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TATTCAAATATCCAAGACTGGTGTTTTCTAGTTGTC spacer
	length: 36	repeater length: 30	
29411	2364888	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTCATTAGTTTTTCAATATCAGGTGAAGGTTGAACA spacer
	length: 36	repeater length: 30	
29412	2364954	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CCGTACACGACAGCAGCCCCGAGAAAATAATAGCAA spacer
	length: 36	repeater length: 30	
29413	2365020	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TCAGAGCTAGGGAATACAAGGCGATGGGTGAACTAC spacer
	length: 36	repeater length: 30	
29414	2365086	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATGAATGTGTTTTAAGACCTTTCGAGGTTGAAGTGT spacer
	length: 36	repeater length: 30	
29415	2365152	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CCTGCGTAACCAGGAGAACCTTAACGCCACTGAGAT spacer
	length: 36	repeater length: 30	
29416	2365218	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ACATGAAAAAACAATTAAAATTAATACATATCTAA spacer
	length: 36	repeater length: 30	
29417	2365284	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATTACTCCTTATTCCACATAACAAACACCTAAAACA spacer
	length: 37	repeater length: 30	
29418	2365351	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CAGTGGAGGGGAAGTAGTAGTACAAAAGTAACTCT spacer
	length: 36	repeater length: 30	
29419	2365417	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AAGGATTGTGGATGTAAATTAGAAGTTTTCATTAAT spacer
	length: 36	repeater length: 30	
29420	2365483	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TGATACTGCAACTGGACTTCCAATTACCCCAAATGG spacer
	length: 36	repeater length: 30	
29421	2365549	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GCATATCCGTTCCCGGCGTTCTACATTCATACTTTG spacer
	length: 36	repeater length: 30	
29422	2365615	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GGGGTGAAAGGATGTCTTATGAAGTATGTCAGATATG spacer
	length: 37	repeater length: 30	
29423	2365682	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CACAATAAAACAGTCGTGTTTTTCTCATAGTCCGTA spacer
	length: 36	repeater length: 30	
29424	2365748	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATTATTTTCCTGTTTTTGTCTGCCTTAGTTCCATA spacer
	length: 35	repeater length: 30	
29425	2365813	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AAAACAGGGTTGGGAGAATATGAAATTGTGACCTGT spacer
	length: 36	repeater length: 30	
29426	2365879	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CCACAGCAGCCCAGGACAAAACCTTCATGCCAAAAC spacer
	length: 35	repeater length: 30	
29427	2365944	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GACGTTTATAGCAACTGCTTCGTCCACTCCTAGTTC spacer
	length: 36	repeater length: 30	
29428	2366010	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TGTCTTAGCGTTTTTGTCCAGGGAATACAATTGCATA spacer
	length: 36	repeater length: 30	
29429	2366076	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AAGTGAAGGGTGTGAATTTACAGAAGAATTTAGTAG spacer
	length: 36	repeater length: 30	
29430	2366142	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTTGATTTATGTTTCAAGAGTATGAGGGGGTGCTATA spacer
	length: 37	repeater length: 30	
29431	2366209	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTAATTAACAGCTTTGTTGGTTGGCTTACTGAATGA spacer
	length: 36	repeater length: 30	
29432	2366275	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TCATTATTATCGCCTTTTTTAGTGTAAGTCATAATT spacer
	length: 36	repeater length: 30	
29433	2366341	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTATTAATCCAAATATAATTATCCCTATGTCTTTT spacer
	length: 35	repeater length: 30	
29434	2366406	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CCATCATTTGTAACCACATAATATTTCCCATATACCC spacer
	length: 37	repeater length: 30	
29435	2366473	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AGGAACAAAATAAAGCCTTCTTCAAACAACGTGGAT spacer
	length: 36	repeater length: 30	
29436	2366539	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TCCTTATATACTGGAACAATATTTCCCTGGATGAAA spacer
	length: 36	repeater length: 30	
29437	2366605	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TGATCTATTAGATCACTTATTGTTGTGCCGTTTTTA spacer
	length: 36	repeater length: 30	
29438	2366671	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TCCTCAATCTCTAAGAGAATTTCTTCTGTCTCTTC spacer
	length: 35	repeater length: 30	
29439	2366736	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATTAATAAGAACCCGCTTTAATGACTTTAAACAATA spacer
	length: 36	repeater length: 30	
29440	2366802	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TATGGTTTTTTTCCCCTGACTTTCACTGCTTAGTATGT spacer
	length: 37	repeater length: 30	
29441	2366869	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATCCCTTCGGATTCTAAGAAATTGATATCGGATAAG spacer
	length: 36	repeater length: 30	
29442	2366935	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATTTGGCATGTTTTGGGCTATTGTACCAATCAGCCAT spacer
	length: 37	repeater length: 30	
29443	2367002	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTTATGAAGACATGATGACCGTTGCCAACAACTAG spacer
	length: 36	repeater length: 30	

29444	2367068	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTGACCATGTTTGCTGTCTTTAATAATATAATTATA	spacer
	length:	36	repeater length:	30
29445	2367134	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTTTTCAACCCAATAGTCTTTTCATTGACACATCATC	spacer
	length:	36	repeater length:	30
29446	2367200	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTTATTCCCCCTCTAATAATTCTATTAATTCCATTC	spacer
	length:	36	repeater length:	30
29447	2367266	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GGGCTAATTTGTTTCCTTGAAGGGCATAATCACAGAA	spacer
	length:	36	repeater length:	30
29448	2367332	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TCGCATTAGGCGAACCCACAGAACACACCGAAACAAG	spacer
	length:	37	repeater length:	30
29449	2367399	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CGACCTTGAAAGTGAAGGAATCACACAAGGGGAAGGA	spacer
	length:	37	repeater length:	30
29450	2367466	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTATTAATGCCATTACTTGAACACATAGACAATAAA	spacer
	length:	36	repeater length:	30
29451	2367532	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TCATTAAGGTGTCAAGGTCCCATTCCTGGGACTTTT	spacer
	length:	36	repeater length:	30
29452	2367598	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AATATTGCTGCTAGTCACACGTGTTGACACATTGTA	spacer
	length:	36	repeater length:	30
29453	2367664	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTATTGCATTTTTACTATAATACAGAGGTGAACACT	spacer
	length:	36	repeater length:	30
29454	2367730	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TGGGGTGTGTTTGTGGGGTTTATGCTGTTTTTTATTG	spacer
	length:	37	repeater length:	30
29455	2367797	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GAAGACACACCCTCATGGGAACGGCAAACAATCACA	spacer
	length:	36	repeater length:	30
29456	2367863	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTCGTTACTATTGTATTCTTTTTTATCGAGTTTAAT	spacer
	length:	36	repeater length:	30
29457	2367929	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTTAAGGAGCTTATAAAAGAATACAAAGACATCATT	spacer
	length:	36	repeater length:	30
29458	2367995	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CAGGGAGTTTTTGAAGTGTACGGCCTTTCGGTATCTT	spacer
	length:	37	repeater length:	30
29459	2368062	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GAATAAAGCAAGTAAAAGGTTTACATTAAATGTTAAA	spacer
	length:	37	repeater length:	30
29460	2368129	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATAGAGATGTTACCATGTTGGTTGTGGACTTGACGC	spacer
	length:	36	repeater length:	30
29461	2368195	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AAACATTGAATAAAACATCCTTGAGGGGATAAACCA	spacer
	length:	37	repeater length:	30
29462	2368262	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GCATTAGCGTAATAATCATCAAAGTAGCATATTTG	spacer
	length:	36	repeater length:	30
29463	2368328	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATTTAAAGTGTCAATATCCATTAGTTCTATCAATGGA	spacer
	length:	37	repeater length:	30
29464	2368395	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTCCCTGGCTTACCGGGTTATATTTCTACTTTTGT	spacer
	length:	35	repeater length:	30
29465	2368460	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATCTAACCGTTCCACACTGCCCTCTGGGTAGAACTCAA	spacer
	length:	38	repeater length:	30
29466	2368528	ATTTCAATCCCAAAATGGTCTGATTTTAGT		
29467				
29468				
29469	GCA_002813675.1_ASM281367v1_genomic.fna (PilerCR):			
29470	START	REPEAT		
	SPACER			
29471	crispr 1			
29472	2002109	GCTTTAAAATAGACTCAATAGTCTGGAAAT	TCAGCATCCAAGCCACTGCCAGATCCGTCAACGGTT	spacer
	length:	36	repeater length:	30
29473	2002175	GCTTTAAAATAGACTCAATAGTCTGGAAAT	CCAATACCCTTCTCAGACGTGACGATAAACACCCCTC	spacer length: 39 repeater length: 30
29474	2002244	GCTTTAAAATAGACTCAATAGTCTGGAAAT	TTGTATGTTGCTGTATTTGAAGAAGATGTGCATCCT	spacer
	length:	36	repeater length:	30
29475	2002310	GCTTTAAAATAGACTCAATAGTCTGGAAAT	GGGGTTGATAGTATTCCGGATTTATGTACGGTAAGCAA	spacer
	length:	38	repeater length:	30
29476	2002378	GCTTTAAAATAGACTCAATAGTCTGGAAAT	TCTTCTTTTCCTCACATTTTCAGTAGCACCACCACC	spacer
	length:	36	repeater length:	30
29477	2002444	GCTTTAAAATAGACTCAATAGTCTGGAAAT	TCCGGGGCCATCCTCCATCTGGTAGGCGTTCTATTGG	spacer
	length:	37	repeater length:	30
29478	2002511	GCTTTAAAATAGACTCAATAGTCTGGAAAT	CCTTGTTCTTGTCTTCTTCTTCTCCATAATAACCTGT	spacer
	length:	37	repeater length:	30
29479	2002578	GCTTTAAAATAGACTCAATAGTCTGGAAAT	AAAAAGTGGGAGAGAAATAGCCCAAAGGCACATTCTC	spacer
	length:	38	repeater length:	30
29480	2002646	GCTTTAAAATAGACTCAATAGTCTGGAAAT	ACCTTTGGAACCGCACCTATACTGGTGGATGTTGCAGG	spacer
	length:	38	repeater length:	30
29481	2002714	GCTTTAAAATAGACTCAATAGTCTGGAAAT	ATTGGTATAGGGTAAACTGGTTATTTATGGTGGTCT	spacer
	length:	36	repeater length:	30

29482	2002780	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	AAAAATTAGCAGAAGAAGTCGCAAGACAAAAAGAAGA	spacer
		length: 37	repeater length: 30	
29483	2002847	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ACACTCCAGGGGCCAACATTTCCAAAGATGTCATCAA	spacer
		length: 37	repeater length: 30	
29484	2002914	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TAGGTGAACTCTAACTCTCCACCCATCATACTGTACCG	spacer
		length: 38	repeater length: 30	
29485	2002982	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTGTGTAGTCACAATACAGTTTAAATCCTTTATCTTG	spacer
		length: 37	repeater length: 30	
29486	2003049	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	GGAAAAAGAGGTCTGTGTATTGTGTGTGTGCTTTGATA	spacer
		length: 38	repeater length: 30	
29487	2003117	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CTCCTTCATCTGTTGAAACCATGATCGAGGTAGATCC	spacer
		length: 37	repeater length: 30	
29488	2003184	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CCGGTGTAATAACAACGTACAGGTAAAGGGTCATCTAT	spacer
		length: 38	repeater length: 30	
29489	2003252	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CGCCCACCATAGCCCCAGGGGTTTACCTATCGCCAT	spacer
		length: 38	repeater length: 30	
29490	2003320	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	GAATATTAAGATTGTTTGAAATTAANAATCTTAATTTGA	spacer
		length: 39	repeater length: 30	
29491	2003389	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTAATAGAATGGGGGTGAATTGATTAATGGTTTACGA	spacer
		length: 37	repeater length: 30	
29492	2003456	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CTAGATATTGTATATTTGCGTCTTGTTTTAACATAAAATAAA	spacer
		length: 42	repeater length: 30	
29493	2003528	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	AGAGTGGAGGGGTAAGTGTGATTACCAACGCAAGCAC	spacer
		length: 37	repeater length: 30	
29494	2003595	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ATCGCAAGCCTCCTAAACTCGGTTTAATAGTTAAAGG	spacer
		length: 37	repeater length: 30	
29495	2003662	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CCTACTAAGGGTTCTCAGCAGAATGTTGCTTCTTCTT	spacer
		length: 37	repeater length: 30	
29496	2003729	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ATGACATTGAATAAGAGATAAAAATCTCTAAATTTAT	spacer
		length: 37	repeater length: 30	
29497	2003796	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	AAGTAATACTTTTTCTAGAAATTCATGAAATCCTTGAG	spacer
		length: 38	repeater length: 30	
29498	2003864	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTCATTTGCCGCTCCAGCATCCGGGCCAACCGAAGAT	spacer
		length: 37	repeater length: 30	
29499	2003931	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ATTTTATTTAAAGTCTCTTTGTTATGATCAAAAATAT	spacer
		length: 37	repeater length: 30	
29500	2003998	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ATTCATGCTACTGCCAGGAAGTCTCCTTAACCTTCTT	spacer
		length: 37	repeater length: 30	
29501	2004065	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ACCGATATTGTGGTTCATGGACAACAAAACAAGACGCAA	spacer
		length: 39	repeater length: 30	
29502	2004134	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTTGATTTAAACACACTATGAGCCACCTGTAAAGGAG	spacer
		length: 37	repeater length: 30	
29503	2004201	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ATGTCTTCATCTGCCATGGGTAGGAGTGAAATATCCA	spacer
		length: 37	repeater length: 30	
29504	2004268	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ACTAAAACCTCAGGAAGTGCACCAATAAGTTCATCTT	spacer
		length: 37	repeater length: 30	
29505	2004335	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TGGACTATGTCCCTACTTCTACCGCACGATATGGGA	spacer
		length: 37	repeater length: 30	
29506	2004402	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	GTAAGAAGATAATAAGGTATGTGCCTCCTGGAGAAGA	spacer
		length: 37	repeater length: 30	
29507	2004469	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ACATAGTCCTGGTCAATCTCCATTCCAGTACAAAGT	spacer
		length: 37	repeater length: 30	
29508	2004536	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TCACAGGGCAATCCGTTTCTCGGATGCACCACCCTC	spacer
		length: 37	repeater length: 30	
29509	2004603	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TCCCTTCTAGTATCCCGAACCCGTACACCCTGCCAG	spacer
		length: 36	repeater length: 30	
29510	2004669	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CTGGTTAGATCGTTCTCATGGAGATAGTGTGCCGGGA	spacer
		length: 38	repeater length: 30	
29511	2004737	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ATGGAATCTTCCTTTAAACCCTGCTCCAGGTAAGTGT	spacer
		length: 37	repeater length: 30	
29512	2004804	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	AGATAAATGATGAATCCTTTGTTATCAGTGCTAGTCAT	spacer
		length: 38	repeater length: 30	
29513	2004872	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	GCTATAAAAAAAGCTAATCCTGATAATGCTAATACTTT	spacer
		length: 38	repeater length: 30	
29514	2004940	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CAGGGAAAGGATGAATCATTAGAGGATAAAATTAGC	spacer
		length: 36	repeater length: 30	
29515	2005006	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TACGCCTCCGCTTTCAACGTTCACTTCCAATACTGTTC	spacer
		length: 38	repeater length: 30	
29516	2005074	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	GGAGTAACCCTCCCAGACAATGCCCTCGTTGTTGGTGG	spacer
		length: 38	repeater length: 30	
29517	2005142	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CATAGCCGGTGGGCGCATTATGAACGGATAGTTTAC	spacer

	length: 36	repeater length: 30	
29518	2005208	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTGTTGATGAGCCATAGGGGTTACCCAGGTTTCCCC spacer
	length: 37	repeater length: 30	
29519	2005275	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TCGAATGAGGTTGGATATGTTTTGAGGTTTACAACA spacer
	length: 36	repeater length: 30	
29520	2005341	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	AAATCATTAGTTCCTCTCCCCGCTCCAATAAACAT spacer
	length: 36	repeater length: 30	
29521	2005407	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ATCGTAGTCCTTTGTATTTGAAAGCCATAACAGTAGC spacer
	length: 37	repeater length: 30	
29522	2005474	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ATAATTCAATTAACCCAATAAGGTGACTAAATGAAAG spacer
	length: 37	repeater length: 30	
29523	2005541	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	GGGGTAGCGTCAATCATGGAATCAAAGATAGCCTC spacer
	length: 35	repeater length: 30	
29524	2005606	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	AGTCTTCGAATGCTTTTGTCACTGTCTGCCGGTTCTG spacer
	length: 37	repeater length: 30	
29525	2005673	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CAAACCAAAGTACAAATAACATACAATGGAGAACCAG spacer
	length: 37	repeater length: 30	
29526	2005740	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTTTTAAAAGCATTACATGACAAAACAGTAACGAA spacer
	length: 35	repeater length: 30	
29527	2005805	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTGGTATGTGAGTGGTGTGATTGATTTTTGAAAGTGA spacer
	length: 37	repeater length: 30	
29528	2005872	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	AGTTTTGGGCTGTCCATGACTTCCATCCGAGCCTCTG spacer
	length: 37	repeater length: 30	
29529	2005939	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ACACCATACATGTTGAAGAAGTACAAGCGGTTATGAT spacer
	length: 37	repeater length: 30	
29530	2006006	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CAAGATGAAATAAAAGCCTTAAAGAAACCATAGGGG spacer
	length: 37	repeater length: 30	
29531	2006073	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TCACAGTATTTGTCATTAAGGAAATCACAATAATCA spacer
	length: 36	repeater length: 30	
29532	2006139	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTCACTCTAACCAGGGGGGTTCAAACACTTCAATCAA spacer
	length: 38	repeater length: 30	
29533	2006207	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CTGTAAAGGGTGTTCGCAATTGCGAACGCATAATTCTG spacer
	length: 37	repeater length: 30	
29534	2006274	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	AAATATGATGCAACAACCTATGTTTCAGCTTGGAGGC spacer
	length: 36	repeater length: 30	
29535	2006340	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TGTTTCTTTTTTCGTTCCCATTCTTCTAAATCATTCTC spacer
	length: 37	repeater length: 30	
29536	2006407	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	AGATGGCATTGGGGGTGTTGAGTGTGGGGGTGTCCAC spacer
	length: 37	repeater length: 30	
29537	2006474	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TGTCCTGCTGTAATTTTTCACCCTGCTTTTGTCTCTC spacer
	length: 36	repeater length: 30	
29538	2006540	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTGTGTAAAATAAATAGATTGAAATTGAATAAATTT spacer
	length: 36	repeater length: 30	
29539	2006606	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TCAGCATAGCGACCAAGTACGGGGCGCTATTAATGGA spacer
	length: 37	repeater length: 30	
29540	2006673	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ATGTCTTTGCCTTGTTGTTTTTGTGTGCTTTCTAGG spacer
	length: 36	repeater length: 30	
29541	2006739	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ATTTAGGCCTTGGCCTTGGTAGTGGAGTTGTTGAAGG spacer
	length: 37	repeater length: 30	
29542	2006806	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CCAAAACACCAGTTATACCTGCGGCCCTCAAGTGC spacer
	length: 36	repeater length: 30	
29543	2006872	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTCAGTGACATGTTTAAACAGATTCAAGAAAACCTG spacer
	length: 37	repeater length: 30	
29544	2006939	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CTAAAAGATCATTAAGGATAGATCATAGTATTCATGG spacer
	length: 37	repeater length: 30	
29545	2007006	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTTCATCATATTTGTCAATGAAATATTCGTGAATAAA spacer
	length: 37	repeater length: 30	
29546	2007073	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TGATCCGAGTGGGAACGGAACATACTCAAGACCGT spacer
	length: 36	repeater length: 30	
29547	2007139	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CGCATGAACTCTATTTCCACCTTCATGATTTGGAAT spacer
	length: 36	repeater length: 30	
29548	2007205	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TGGAAATAAGATTTTAATCAATAGGTGATAAAATGAA spacer
	length: 37	repeater length: 30	
29549	2007272	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CTCCTTAACCTCCTTATCCCATTGAAATTCAAGA spacer
	length: 36	repeater length: 30	
29550	2007338	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	AATATTATGGTGACATGATATCACCAACATAATTTAT spacer
	length: 37	repeater length: 30	
29551	2007405	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ATTCCAAGTAAATTCAGGCCCACTAATCTTTAAA spacer
	length: 36	repeater length: 30	
29552	2007471	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TCTTATTTGTTTTAATATAACACCCAATGAACATAA spacer
	length: 36	repeater length: 30	

29553 2007537 GCTTTAAATAGACTCAATAGTCTGGAAAT

29554

29555

29556 GCA_002813695.1_ASM281369v1_genomic.fna (PilerCR) :

29557 START REPEAT
SPACER

29558 crispr 1

29559 427109 ACTAAATCAGACCATTTTGGGATTGAAAC GGGGCCACTGAGTATGCAAGGAGCCTGGGTGTTACCA spacer
length: 37 repeater length: 30

29560 427176 ACTAAATCAGACCATTTTGGGATTGAAAC TCATAGAAGATTTGAATTATATTTGTCAGCCCTGAT spacer
length: 36 repeater length: 30

29561 427242 ACTAAATCAGACCATTTTGGGATTGAAAC CTGGCCACTTCGGAGTTTTATCGACCTTTAATATTG spacer
length: 36 repeater length: 30

29562 427308 ACTAAATCAGACCATTTTGGGATTGAAAC TATATCTGCCATTGATGATCTCCCCTGGCTCAAAGG spacer
length: 36 repeater length: 30

29563 427374 ACTAAATCAGACCATTTTGGGATTGAAAC TGTCCCCAAGACTGAAATATTTACCATCTAACCACC spacer
length: 36 repeater length: 30

29564 427440 ACTAAATCAGACCATTTTGGGATTGAAAC CACTGTGACAAATTACAGTCAGGCGGAAATGACAGAC spacer
length: 37 repeater length: 30

29565 427507 ACTAAATCAGACCATTTTGGGATTGAAAC CCCTTTGACACGATCAATTATATCCAGGTGCACCTT spacer
length: 36 repeater length: 30

29566 427573 ACTAAATCAGACCATTTTGGGATTGAAAC AATATTTTCACAGGACATTATGGAGAATATAATTAT spacer
length: 36 repeater length: 30

29567 427639 ACTAAATCAGACCATTTTGGGATTGAAAC GAAATATGGAACAATACCTCTACAAATGCAGCTGCG spacer
length: 37 repeater length: 30

29568 427706 ACTAAATCAGACCATTTTGGGATTGAAAC TAATGTTTAATTTATGGGATGTTTTGAAGTCTTTGT spacer
length: 36 repeater length: 30

29569 427772 ACTAAATCAGACCATTTTGGGATTGAAAC GATGATGTGTGGGATCCGGATTGTACCTCGATCACT spacer
length: 36 repeater length: 30

29570 427838 ACTAAATCAGACCATTTTGGGATTGAAAC ACTACATACATACCATCCGTTTTCAAATTTAAGGTT spacer
length: 36 repeater length: 30

29571 427904 ACTAAATCAGACCATTTTGGGATTGAAAC TCTAACTTGTCTGCATCAAGACCACTGCCAGGGCCA spacer
length: 36 repeater length: 30

29572 427970 ACTAAATCAGACCATTTTGGGATTGAAAC TATAATATTCTCACAGAAAACCAGTATGATGTTGAA spacer
length: 36 repeater length: 30

29573 428036 ACTAAATCAGACCATTTTGGGATTGAAAC TTTCAGTAGTAGTATAGTAGTATAGTAGTAGAATAA spacer
length: 36 repeater length: 30

29574 428102 ACTAAATCAGACCATTTTGGGATTGAAAC TAACAAAAATCACCTTACACTAATAAGACATTTAAA spacer
length: 37 repeater length: 30

29575 428169 ACTAAATCAGACCATTTTGGGATTGAAAC GTGGCTATTACAAAGTGCAATGCATAGAGTGGA spacer
length: 35 repeater length: 30

29576 428234 ACTAAATCAGACCATTTTGGGATTGAAAC GATGGTTTTTCAGTGCCCTTGGATATAGTTTCAGTGA spacer
length: 36 repeater length: 30

29577 428300 ACTAAATCAGACCATTTTGGGATTGAAAC TTGCACTGGAAACCTTTTATTTCCGGTGC GTATAATA spacer
length: 36 repeater length: 30

29578 428366 ACTAAATCAGACCATTTTGGGATTGAAAC CACAATTAAAAGGTATGATTGAGAAGAGGATTTTTGG spacer
length: 37 repeater length: 30

29579 428433 ACTAAATCAGACCATTTTGGGATTGAAAC ACTGTTGCAGAAAATGCAACTAGTGCAATATTGCAC spacer
length: 37 repeater length: 30

29580 428500 ACTAAATCAGACCATTTTGGGATTGAAAC GTTGGGGCTGTTACATCTGTTTTAATTAGTGTTGC spacer
length: 35 repeater length: 30

29581 428565 ACTAAATCAGACCATTTTGGGATTGAAAC TTTATTGTGATATTTGCAGTTTTAACTGAAATTATG spacer
length: 36 repeater length: 30

29582 428631 ACTAAATCAGACCATTTTGGGATTGAAAC TCAACAACCTGCCGGTTAGCAATGGAACATGCCCCA spacer
length: 36 repeater length: 30

29583 428697 ACTAAATCAGACCATTTTGGGATTGAAAC AGATTAAGGAAATTGGATGATTAAAAAGTGGAGGG spacer
length: 35 repeater length: 30

29584 428762 ACTAAATCAGACCATTTTGGGATTGAAAC TGGAACCTTCAAATGTGGCGGTCACGTATGGGTAAC spacer
length: 36 repeater length: 30

29585 428828 ACTAAATCAGACCATTTTGGGATTGAAAC AATGGTACAAGTGAAC TAATAAATGAAAGTCTTGTA spacer
length: 36 repeater length: 30

29586 428894 ACTAAATCAGACCATTTTGGGATTGAAAC TACCTCTTTAAATGTAGTTACTGTCTGAATTGCTGT spacer
length: 36 repeater length: 30

29587 428960 ACTAAATCAGACCATTTTGGGATTGAAAC TACAAACAACCACTCATAACAACATTAGTGTAATCT spacer
length: 36 repeater length: 30

29588 429026 ACTAAATCAGACCATTTTGGGATTGAAAC GTCACATACCTAGGACATTACCTTAAATGCAGATAAT spacer
length: 37 repeater length: 30

29589 429093 ACTAAATCAGACCATTTTGGGATTGAAAC TTTTCAGTTATCGTTAGGGGGCTAATAGGTTTCTAA spacer
length: 36 repeater length: 30

29590 429159 ACTAAATCAGACCATTTTGGGATTGAAAC CGCTGATGGTGATGACGACAGTGCAACCGTAGCAAT spacer
length: 36 repeater length: 30

29591 429225 ACTAAATCAGACCATTGTTGGGATTGAAAC CTGAAACAGTGTAAATCCCTATCATTAAGTTAAAG spacer
length: 36 repeater length: 30

29592 429291 ACTAAATCAGACCATTGTTGGGATTGAAAC CTGTATAGGGGTAATGGAAAAACGGAAGGATGATA spacer
length: 36 repeater length: 30

29593 429357 ACTAAATCAGACCATTGTTGGGATTGAAAC TATCTCTGCTGCAACATGGCAACCACCACCGCTGAT spacer
length: 36 repeater length: 30

29594 429423 ACTAAATCAGACCATTGTTGGGATTGAAAC TACTTCATCATACCCGCAGCATCAAATACTGTATTAT spacer
length: 37 repeater length: 30

29595 429490 ACTAAATCAGACCATTGTTGGGATTGAAAC ATGGTTCAATGAAGTTTAATTTGAAAGCTGATTTTA spacer
length: 36 repeater length: 30

29596 429556 ACTAAATCAGACCATTGTTGGGATTGAAAC ATCGTAGTAGAATAAATTTAATCAATTTTAAATGGAG spacer
length: 37 repeater length: 30

29597 429623 ACTAAATCAGACCATTGTTGGGATTGAAAC TACTGATGAATAGGGTGTGCTGACACGATAAGC spacer
length: 35 repeater length: 30

29598 429688 ACTAAATCAGACCATTGTTGGGATTGAAAC TTCAATATACCAATATATTATATTGTGTTGATGATA spacer
length: 37 repeater length: 30

29599 429755 ACTAAATCAGACCATTGTTGGGATTGAAAC GGACTTTACCGGCTGCATCTACTGGGACAGTGGTTA spacer
length: 36 repeater length: 30

29600 429821 ACTAAATCAGACCATTGTTGGGATTGAAAC ATGTATGGTGAAGAATTAGGATGGATGAAATCACA spacer
length: 36 repeater length: 30

29601 429887 ACTAAATCAGACCATTGTTGGGATTGAAAC ACGCTTAGCCATACTCATTCGCTTATGCCTCCTGC spacer
length: 35 repeater length: 30

29602 429952 ACTAAATCAGACCATTGTTGGGATTGAAAC CTAAAAAAGATTAAAATTGTTGTTGTAATCAATAGC spacer
length: 36 repeater length: 30

29603 430018 ACTAAATCAGACCATTGTTGGGATTGAAAC GGATAACCAGGCCCCCTTAACTTTTGTATTTTGAT spacer
length: 36 repeater length: 30

29604 430084 ACTAAATCAGACCATTGTTGGGATTGAAAC CATACATGCATACCTCGAAACATAATCACAACAA spacer
length: 36 repeater length: 30

29605 430150 ACTAAATCAGACCATTGTTGGGATTGAAAC CCTCATTACTCTGATTGAAAACTTCCCTTATCCTC spacer
length: 36 repeater length: 30

29606 430216 ACTAAATCAGACCATTGTTGGGATTGAAAC TAATTTAATGCCTTACAACATTTTAACGGACAATCAA spacer
length: 37 repeater length: 30

29607 430283 ACTAAATCAGACCATTGTTGGGATTGAAAC TGTTGAAACTAAGCCAGAACGAAATAGATTTTGTGG spacer
length: 37 repeater length: 30

29608 430350 ACTAAATCAGACCATTGTTGGGATTGAAAC ACTACAACCCCTAACAGTAACAATATTATTTATC spacer
length: 36 repeater length: 30

29609 430416 ACTAAATCAGACCATTGTTGGGATTGAAAC TATACTGACATTAGTTACACGAGGATGGCAGGAGG spacer
length: 35 repeater length: 30

29610 430481 ACTAAATCAGACCATTGTTGGGATTGAAAC TACAGAGGACCCTTATGTGACAGTGGAAATATGGG spacer
length: 35 repeater length: 30

29611 430546 ACTAAATCAGACCATTGTTGGGATTGAAAC TCGTCATAACAAGCATAGAGGTTGTAATCCTTCCCTG spacer
length: 37 repeater length: 30

29612 430613 ACTAAATCAGACCATTGTTGGGATTGAAAC AAATAAATACTTTGCTTATTGTTTTTAATTTATTCA spacer
length: 36 repeater length: 30

29613 430679 ACTAAATCAGACCATTGTTGGGATTGAAAC GACCTGGCGAATGAACTATTAGAAGAATTACAAGAA spacer
length: 36 repeater length: 30

29614 430745 ACTAAATCAGACCATTGTTGGGATTGAAAC CGTTCTACACGTTTTAACTAAGTCCCCGTGGGGTTT spacer
length: 37 repeater length: 30

29615 430812 ACTAAATCAGACCATTGTTGGGATTGAAAC ACTAGTAAACAAACCCTCCAGCTAAGCCAACCAC spacer
length: 35 repeater length: 30

29616 430877 ACTAAATCAGACCATTGTTGGGATTGAAAC TTCTTTCTTTTATTAAAATAATGGAAGGGGGTCGT spacer
length: 35 repeater length: 30

29617 430942 ACTAAATCAGACCATTGTTGGGATTGAAAC GTGGGGTTAACTAGCCTTTGGAGTAAGTGTTACATC spacer
length: 37 repeater length: 30

29618 431009 ACTAAATCAGACCATTGTTGGGATTGAAAC ATGGTTACGCTCCAAACTATACACCACTAGATATGG spacer
length: 37 repeater length: 30

29619 431076 ACTAAATCAGACCATTGTTGGGATTGAAAC ATTAACTCAATAAAAAAGAACACAATAGTACCAA spacer
length: 36 repeater length: 30

29620 431142 ACTAAATCAGACCATTGTTGGGATTGAAAC AACATTGCACCGGTCCTGCTTCCATCTGTGGGGAC spacer
length: 36 repeater length: 30

29621 431208 ACTAAATCAGACCATTGTTGGGATTGAAAC CTTTCTCCAAGGGCAAATAGTCTCCGCGGTCCAG spacer
length: 36 repeater length: 30

29622 431274 ACTAAATCAGACCATTGTTGGGATTGAAAC AAATCCTCATAGCATAATGATATTTTATTATCAATG spacer
length: 36 repeater length: 30

29623 431340 ACTAAATCAGACCATTGTTGGGATTGAAAC ACTGTTTTTATATAATTTATTTTCTTTGATTTTAAG spacer
length: 37 repeater length: 30

29624 431407 ACTAAATCAGACCATTGTTGGGATTGAAAC GTTAGAAATCCCGAAACCTAAAAAGAAATAGGAG spacer
length: 36 repeater length: 30

29625 431473 ACTAAATCAGACCATTGTTGGGATTGAAAC ATACTAAGGCCATCTTTGTCAATATTCATCAATGGT spacer
length: 36 repeater length: 30

29626 431539 ACTAAATCAGACCATTGTTGGGATTGAAAC TTATTTATGATGTCATTGTTTGAAATCATCAACCGA spacer

length: 36 repeater length: 30
29627 431605 ACTAAATCAGACCATTGTTGGGATTGAAAC GCCAGGATATAATAATCACTGCTAATAATTATTGGTC spacer
length: 37 repeater length: 30
29628 431672 ACTAAATCAGACCATTGTTGGGATTGAAAC TGGAGAACCTGTCTGAAGTACAGGAACAGTATGTTGA spacer
length: 36 repeater length: 30
29629 431738 ACTAAATCAGACCATTGTTGGGATTGAAAC TTGCATTTTCCACGCTGCAGCGGTGTTATGGGCGG spacer
length: 36 repeater length: 30
29630 431804 ACTAAATCAGACCATTGTTGGGATTGAAAC CTAATATCACCTCAAAAAAGAGTTTAAATAAATAAT spacer
length: 36 repeater length: 30
29631 431870 ACTAAATCAGACCATTGTTGGGATTGAAAC CCAGAATGGGCCTTCTTCTTCTTGTATTGTGGCCAT spacer
length: 36 repeater length: 30
29632 431936 ACTAAATCAGACCATTGTTGGGATTGAAAC AACAAATGCAAAATATGAAGGCGTGACATGGACGGT spacer
length: 35 repeater length: 30
29633 432001 ACTAAATCAGACCATTGTTGGGATTGAAAC AGTGAAAGTTGGGACAGGATCAACACTAGCTCCGCCA spacer
length: 37 repeater length: 30
29634 432068 ACTAAATCAGACCATTGTTGGGATTGAAAC GTTTATACATGGCCTCATAAGTATCCGCATCACCAT spacer
length: 36 repeater length: 30
29635 432134 ACTAAATCAGACCATTGTTGGGATTGAAAC TGAGAAAGGCCGTGGCCCTATCTATCCAAAGCTCCGG spacer
length: 37 repeater length: 30
29636 432201 ACTAAATCAGACCATTGTTGGGATTGAAAC TTTCTTCATCTTCCATCTCATTAGCAAAAAATGTC spacer
length: 35 repeater length: 30
29637 432266 ACTAAATCAGACCATTGTTGGGATTGAAAC TACTTATACAACTTCCTTTACTTCCAGGAAGATCAT spacer
length: 37 repeater length: 30
29638 432333 ACTAAATCAGACCATTGTTGGGATTGAAAC GTACAAACCATGCAACCGTATAATTCATAAAAAAAC spacer
length: 36 repeater length: 30
29639 432399 ACTAAATCAGACCATTGTTGGGATTGAAAC CTGTAGATGGGAACATACCCATCTAGGAGTATTGG spacer
length: 35 repeater length: 30
29640 432464 ACTAAATCAGACCATTGTTGGGATTGAAAC AGTGCTATGAGTACGGTATCACCAGGCCACATGCTG spacer
length: 36 repeater length: 30
29641 432530 ACTAAATCAGACCATTGTTGGGATTGAAAC AGTAATATTAGAAGAAAAGCTCCTTGCGAATTTGA spacer
length: 35 repeater length: 30
29642 432595 ACTAAATCAGACCATTGTTGGGATTGAAAC GGGAGATGAAAACATAATCTGAAACCATCAAGAAAG spacer
length: 36 repeater length: 30
29643 432661 ACTAAATCAGACCATTGTTGGGATTGAAAC GATGTAGATCCATCTACAGTTTTTAATTTCTGTGAGA spacer
length: 36 repeater length: 30
29644 432727 ACTAAATCAGACCATTGTTGGGATTGAAAC TTCGTGGAACCAACCAGGCGGTCAATGAGGGTAATGT spacer
length: 37 repeater length: 30
29645 432794 ACTAAATCAGACCATTGTTGGGATTGAAAC TATTTACAGGGAATACTATGTTTAGTTATTTCTTCT spacer
length: 36 repeater length: 30
29646 432860 ACTAAATCAGACCATTGTTGGGATTGAAAC GAACATCAAACTACCATCAAGCAGAGTTAGATACTT spacer
length: 37 repeater length: 30
29647 432927 ACTAAATCAGACCATTGTTGGGATTGAAAC ACGTATATACTGACACCTATAATGACAGACCGAGGA spacer
length: 36 repeater length: 30
29648 432993 ACTAAATCAGACCATTGTTGGGATTGAAAC AAAC TAGAACTATTAACATCAGTTGGACTCAAATA spacer
length: 36 repeater length: 30
29649 433059 ACTAAATCAGACCATTGTTGGGATTGAAAC TGACTACCCCATAGTATCATATAATGGTTTGTTAAA spacer
length: 37 repeater length: 30
29650 433126 ACTAAATCAGACCATTGTTGGGATTGAAAC AGAATATTTTGGGGAACTCAAGATATGGCATATTT spacer
length: 36 repeater length: 30
29651 433192 ACTAAATCAGACCATTGTTGGGATTGAAAC AGAGGACGCTATTTCAAAATATTTATTAGCAGTACAAC spacer
length: 38 repeater length: 30
29652 433260 ACTAAATCAGACCATTGTTGGGATTGAAAC ACATAATAATAACGTTGGGAGATAAAAGGAACAAGT spacer
length: 36 repeater length: 30
29653 433326 ACTAAATCAGACCATTGTTGGGATTGAAAC TGGGGATAAACCCCAAACCTCTTTTGGAGGTGAGAAA spacer
length: 36 repeater length: 30
29654 433392 ACTAAATCAGACCATTGTTGGGATTGAAAC AAGAACAAGGCATGGAAGAACGATTTAAAGATGCTT spacer
length: 36 repeater length: 30
29655 433458 ACTAAATCAGACCATTGTTGGGATTGAAAC TGATTGGCTCTACCAGTGATGGGTCTGCTAGTATTG spacer
length: 36 repeater length: 30
29656 433524 ACTAAATCAGACCATTGTTGGGATTGAAAC AAAGAACTGTCAGCTTCTATGGCTGCAGCTAGACGG spacer
length: 36 repeater length: 30
29657 433590 ACTAAATCAGACCATTGTTGGGATTGAAAC TTGGCTGATTTAAGCCCTGATGGGATGCGTAACTAT spacer
length: 36 repeater length: 30
29658 433656 ACTAAATCAGACCATTGTTGGGATTGAAAC ACTTCAAGGGAGAAAATATTGTGACGACGAAGCAAA spacer
length: 36 repeater length: 30
29659 433722 ACTAAATCAGACCATTGTTGGGATTGAAAC TACGTTTTTTCAACCGTTACACCATATTTGAACT spacer
length: 35 repeater length: 30
29660 433787 ACTAAATCAGACCATTGTTGGGATTGAAAC TTCGCTTATTATCTGATTATAATCTATGTAAGTAT spacer
length: 36 repeater length: 30
29661 433853 ACTAAATCAGACCATTGTTGGGATTGAAAC TAAATATACATGGTGATTAAATGGGACAAATAAAAC spacer
length: 36 repeater length: 30

29662	433919	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TCTTAATCACCTCTTATTTTTCATCTTTAGGTCTGC	spacer
		length: 36	repeater length: 30	
29663	433985	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTTAGTGACAATATCATTTTGTAAATAAGGCCATCCGG	spacer
		length: 37	repeater length: 30	
29664	434052	ACTAAAAATCAGACCATTTTGGGATTGAAAC	AATGATGATGATGCGGAACCTTTTAAGTTTATCAAA	spacer
		length: 35	repeater length: 30	
29665	434117	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GATGATAATCCAGTGGAAGAAGGTAAAGGAGTACCA	spacer
		length: 36	repeater length: 30	
29666	434183	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TGATGTATTGGGCTTAATGCTTCAATGTTTCCTTTT	spacer
		length: 36	repeater length: 30	
29667	434249	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GAAAACCTATAAGTCACGTTTGTAAAAGTTATTCCC	spacer
		length: 37	repeater length: 30	
29668	434316	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CTTTACTCACCTCTACACCTGCTAAGGTCCTAACAA	spacer
		length: 36	repeater length: 30	
29669	434382	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GAAATACTAGGAATACTAAAAAAATAAAAAAGTGTT	spacer
		length: 36	repeater length: 30	
29670	434448	ACTAAAAATCAGACCATTTTGGGATTGAAAC	AACGTCATCTGGTTTTAAGACTTTTGCTTTATCGGT	spacer
		length: 36	repeater length: 30	
29671	434514	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TATACAACATACCCTGTATCTGGATCGGTTACGGTT	spacer
		length: 36	repeater length: 30	
29672	434580	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CCCATAAACCATGTTATGAGGTTAATGCGGCCTTCAA	spacer
		length: 37	repeater length: 30	
29673	434647	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TACCTTACACAGATCTATGAAAACGATGGGGACAAT	spacer
		length: 36	repeater length: 30	
29674	434713	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GTCATGAAGGTCTGATAGGTTAATCCGAGTAGGAATA	spacer
		length: 37	repeater length: 30	
29675	434780	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CACATGGTCCTCATAGTAAATCTGGTAAGATATTGCG	spacer
		length: 37	repeater length: 30	
29676	434847	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTGATGGAACGGTAGGCCATGCTATGTATTATATGG	spacer
		length: 37	repeater length: 30	
29677	434914	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTCTTTGTTTGCAGTTGGTGATTTACATCCTACTTT	spacer
		length: 36	repeater length: 30	
29678	434980	ACTAAAAATCAGACCATTTTGGGATTGAAAC	AAAAGCAAACGTAAAGTAGACTTCTCATTTAAAGCA	spacer
		length: 36	repeater length: 30	
29679	435046	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ACTACATGAGATTAGTAAAGATAAAGAAGAAGAGGC	spacer
		length: 36	repeater length: 30	
29680	435112	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTCGTTATCCTTGGAACCGGTGAACATTGGATAGGT	spacer
		length: 36	repeater length: 30	
29681	435178	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ACTCAATCCTTGTTTTCGTAATTGATAGGCAACACC	spacer
		length: 36	repeater length: 30	
29682	435244	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GAACTTGATGATATTAAGTTGGCAATCACCAGGAGCA	spacer
		length: 37	repeater length: 30	
29683	435311	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CTCGGATCAAGATCTTCAACTTTTCAAAAAATGATC	spacer
		length: 36	repeater length: 30	
29684	435377	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TCATGAATGTTATGTTACTTTAGTAAGAAAGTGGAA	spacer
		length: 36	repeater length: 30	
29685	435443	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTCATGAGTTGACCTGTCTTCTGGTTCATAATCAAA	spacer
		length: 36	repeater length: 30	
29686	435509	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CTGCTTATCATGGGGAAGGTAGTGGGCTGTTTCTT	spacer
		length: 35	repeater length: 30	
29687	435574	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTCAATTAGCTATGCAGAACTTGATGATATTTTCTAC	spacer
		length: 36	repeater length: 30	
29688	435640	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GAACCCGAACCACTACGTGCAGAAAATACAACAGTT	spacer
		length: 36	repeater length: 30	
29689	435706	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ATCAGATTATGATTGATAATATTAGTCAGACTGTGGG	spacer
		length: 37	repeater length: 30	
29690	435773	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TCATTACTCTAAAAAATCTACTAGTGGAACCAAAAT	spacer
		length: 36	repeater length: 30	
29691	435839	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CCTTAAAAGTTTGTGTATTTGTGTAAGGGATTATAAG	spacer
		length: 37	repeater length: 30	
29692	435906	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CCAACCCATCATCTTGATGGACCACGAGGAAACAC	spacer
		length: 35	repeater length: 30	
29693	435971	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTGTGTTTTGTGTGTTTGTCTGTGTCAGTTGTGTT	spacer
		length: 36	repeater length: 30	
29694	436037	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TGAAATACACCACCTTGGGGGGTGTGTGGGGTTTTCA	spacer
		length: 37	repeater length: 30	
29695	436104	ACTAAAAATCAGACCATTTTGGGATTGAAAC	AAACAACCTCAATACTCTAAAGTGATACAAAATGAAAG	spacer
		length: 37	repeater length: 30	
29696	436171	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ACCGTTATTATGTCCGGGGCCGTCCCGGTCCGCATA	spacer
		length: 36	repeater length: 30	
29697	436237	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GCCGTACATACGGATAGTTGGGATGTTGATAGTAC	spacer

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length: 35 repeater length: 30
29698 436302 ACTAAATCAGACCATTGTTGGGATTGAAAC ACATTTATTAGGTATTTAATTGTCCTCTCCTTCGTCT spacer
length: 37 repeater length: 30
29699 436369 ACTAAATCAGACCATTGTTGGGATTGAAAC CCTGGAAGTCATGGCAGAAGCAGGAAGAATCCAGTT spacer
length: 36 repeater length: 30
29700 436435 ACTAAATCAGACCATTGTTGGGATTGAAAC TCTTCATGGATGGGTGAATGTTCTGGGAAGTGTTC spacer
length: 36 repeater length: 30
29701 436501 ACTAAATCAGACCATTGTTGGGATTGAAAC GGCAATATCATCTCAATCTTCAGATAAGCATCAGTT spacer
length: 37 repeater length: 30
29702 436568 ACTAAATCAGACCATTGTTGGGATTGAAAC TTTAGTCACAATATCATTTTGAAGTAACGCCATCCGG spacer
length: 37 repeater length: 30
29703 436635 ACTAAATCAGACCATTGTTGGGATTGAAAC CCTATCACCATCCAGAGGGTGCTCTGTCCCTGTGTTT spacer
length: 37 repeater length: 30
29704 436702 ACTAAATCAGACCATTGTTGGGATTGAAAC TAGATCTGAAATTTAAAGGAGGCATCTAATTGGTTAA spacer
length: 37 repeater length: 30
29705 436769 ACTAAATCAGACCATTGTTGGGATTGAAAC CAAGAATTATCGTCATTGATGGTAGTGGATTATCATG spacer
length: 37 repeater length: 30
29706 436836 ACTAAATCAGACCATTGTTGGGATTGAAAC AGACGGAACAACAACATTAGGCGAAGCCAAAGAAG spacer
length: 35 repeater length: 30
29707 436901 ACTAAATCAGACCATTGTTGGGATTGAAAC ATATATGAGTCGGTCTTTTCTGTGGAGTCCTGATGA spacer
length: 36 repeater length: 30
29708 436967 ACTAAATCAGACCATTGTTGGGATTGAAAC TTGTCACAGGTCCGGAGGTATACATTATGCGCTGAA spacer
length: 36 repeater length: 30
29709 437033 ACTAAATCAGACCATTGTTGGGATTGAAAC GCTAGCTAATTTGGAAGGTAAAGAGTTCTTTGTGAA spacer
length: 36 repeater length: 30
29710 437099 ACTAAATCAGACCATTGTTGGGATTGAAAC GGGTTGTTTCGTTGGCTGTTAGTAAGAATCTGCTGT spacer
length: 36 repeater length: 30
29711 437165 ACTAAATCAGACCATTGTTGGGATTGAAAC GTTCCAGGTTGTCTTCGAGGGTATCATAGTCAATCC spacer
length: 36 repeater length: 30
29712 437231 ACTAAATCAGACCATTGTTGGGATTGAAAC CTGGCTATGACTCTGATGAAAGGAAAGTATTCTACAT spacer
length: 37 repeater length: 30
29713 437298 ACTAAATCAGACCATTGTTGGGATTGAAAC TCTGGGATGTTGGACAGGTCTTAACACTGGTAAAA spacer
length: 36 repeater length: 30
29714 437364 ACTAAATCAGACCATTGTTGGGATTGAAAC GTGCAAACGTTAAATCACAGCTCGAACTATCCTCT spacer
length: 36 repeater length: 30
29715 437430 ACTAAATCAGACCATTGTTGGGATTGAAAC CCTTTATCAGTGATTTAGCTACGGAAAATTTAGATA spacer
length: 36 repeater length: 30
29716 437496 ACTAAATCAGACCATTGTTGGGATTGAAAC TGCTCCCCCT
29717
29718
29719 GCA_002906215.1_ASM290621v1_genomic.fna (PilerCR):
29720 START REPEAT
SPACER
29721 crispr 1
29722 158923 GTTGAATCGAACTATAGTAGGATTGAAA TATCAGCTGGTTCATTTACTTCTGAAAGTCTATATGCAT spacer
length: 39 repeater length: 29
29723 158991 GTTGAATCGAACTATAGTAGGATTGAAA TCTATTCTGATGAAGAAGGGTGATAAATTATATATTCT spacer
length: 38 repeater length: 29
29724 159058 GTTGAATCGAACTATAGTAGGATTGAAA TTTATTTTTATTGCTGTTATCTTGTTTCATGCTTGCTTT spacer
length: 38 repeater length: 29
29725 159125 GTTGAATCGAACTATAGTAGGATTGAAA TTAATGAAAAGGCACTAATGTTGACATTTGTACAGATCA spacer
length: 39 repeater length: 29
29726 159193 GTTGAATCGAACTATAGTAGGATTGAAA TGGATGAGGTTATATACTATAACATGTTAGATTGTGTA spacer
length: 38 repeater length: 29
29727 159260 GTTGAATCGAACTATAGTAGGATTGAAA TAAGATGAGGGTGAATTTAAAGAGATAAAGAGTGGCAAG spacer
length: 39 repeater length: 29
29728 159328 GTTGAATCGAACTATAGTAGGATTGAAA TACAGTACAGCAATTCTCATGTCCAAGTACAGGCAACAG spacer
length: 38 repeater length: 29
29729 159395 GTTGAATCGAACTATAGTAGGATTGAAA TTTTGCAGAAGAGATAGCAAAGAGAGCAGAAGGCATGC spacer
length: 38 repeater length: 29
29730 159462 GTTGAATCGAACTATAGTAGGATTGAAA TTCCAAAATAATCTCGTACGCTGTCTTCGACGTCGTAA spacer
length: 39 repeater length: 29
29731 159530 GTTGAATCGAACTATAGTAGGATTGAAA TTGAACATAATGTAATTTTCTATGCCTTTTAGAGGCCTC spacer
length: 39 repeater length: 29
29732 159598 GTTGAATCGAACTATAGTAGGATTGAAA TATGGTCTTACATTCCCTTAATTCCTCTATGCTTATA spacer
length: 37 repeater length: 29
29733 159664 GTTGAATCGAACTATAGTAGGATTGAAA TCCTAAATACTTAAACAAGTAGTGTATTACAAAGTTATTAT
spacer length: 41 repeater length: 29
29734 159734 GTTGAATCGAACTATAGTAGGATTGAAA TAGTGCAGGGGTAAACATGGAATAACAAGAATAAAATG spacer
length: 38 repeater length: 29
29735 159801 GTTGAATCGAACTATAGTAGGATTGAAA TCAGGCATGGATATTTTTATGGTCATGAGTTGCTCTAT spacer

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length: 38 repeater length: 29
29736 159868 GTTGAATCGAACTATAGTAGGATTGAAA TGGGCCTGAACTACCCAAAAACCTATTTCTACAAAAA spacer
length: 39 repeater length: 29
29737 159936 GTTGAATCGAACTATAGTAGGATTGAAA TAAGTAATAGCAAGTGTATTACCTCAGTTTACTAGATAGT
spacer length: 42 repeater length: 29
29738 160007 GTTGAATCGAACTATAGTAGGATTGAAA TTGTTTATTATAAGGTATGTATTCCCTACTTGAAGGTT spacer
length: 38 repeater length: 29
29739 160074 GTTGAATCGAACTATAGTAGGATTGAAA TCAAGGCTATTAAATACTTGGGATGTCATTTCTCAATTC spacer
length: 39 repeater length: 29
29740 160142 GTTGAATCGAACTATAGTAGGATTGAAA TCCCCAAAATACCCTTTTTTTGCACATGCATATAATA spacer
length: 37 repeater length: 29
29741 160208 GTTGAATCGAACTATAGTAGGATTGAAA TTTAATTGCTAAATAAGTATTTGCAGATACAAATAAAA spacer
length: 38 repeater length: 29
29742 160275 GTTGAATCGAACTATAGTAGGATTGAAA TATGTAAGAACAGGAAGGCTCAAGAAAAGTATCAAAGT spacer
length: 38 repeater length: 29
29743 160342 GTTGAATCGAACTATAGTAGGATTGAAA TTTAATATCATCAGGCTTACTGAATCCTACTACTCAAT spacer
length: 38 repeater length: 29
29744 160409 GTTGAATCGAACTATAGTAGGATTGAAA TTGTGTATCCTGATAATGAGGTATTTGAGGAAGCCTCTA spacer
length: 39 repeater length: 29
29745 160477 GTTGAATCGAACTATAGTAGGATTGAAA TGAAGATAACAGCATCAAGTAACCTAGATTTCATTCTTAC spacer
length: 39 repeater length: 29
29746 160545 GTTGAATCGAACTATAGTAGGATTGAAA TATGCAAGAGATAATAAATGAATCCATGGATAGAATGGA spacer
length: 39 repeater length: 29
29747 160613 GTTGAATCGAACTATAGTAGGATTGAAA TTAGATATTGATACTGCTAAGGTTTATGAGTTTGATT spacer
length: 37 repeater length: 29
29748 160679 GTTGAATCGAACTATAGTAGGATTGAAA TCATTTATACATACTGTTGCCTCTACCCCTTATCATT spacer
length: 38 repeater length: 29
29749 160746 GTTGAATCGAACTATAGTAGGATTGAAA TATTACTCATGAAATTAGAGAAGCAAGTATTTTCATGAC spacer
length: 38 repeater length: 29
29750 160813 GTTGAATCGAACTATAGTAGGATTGAAA TAAGAGAGAGTTCATAGTTCATAGCAGGCATTTAAAC spacer
length: 38 repeater length: 29
29751 160880 GTTGAATCGAACTATAGTAGGATTGAAA TCTTGATAAGGCTATTAATCCTTTTGCCATTAAGTTGC spacer
length: 38 repeater length: 29
29752 160947 GTTGAATCGAACTATAGTAGGATTGAAA TAATACATAGGTTATAGGCAATCTGTTAGTGATTTAGC spacer
length: 38 repeater length: 29
29753 161014 GTTGAATCGAACTATAGTAGGATTGAAA TGAAGCACTAGTAACACTTGCATTATGTAGGGTTTCTA spacer
length: 38 repeater length: 29
29754 161081 GTTGAATCGAACTATAGTAGGATTGAAA TTTTGGACATGTATACTGAGGATGGTTTTTTAAGTTCATG spacer
length: 40 repeater length: 29
29755 161150 GTTGAATCGAACTATAGTAGGATTGAAA TTACAATAAAGCACTATTTTCAAGTGTTTGATAGCCCT spacer
length: 38 repeater length: 29
29756 161217 GTTGAATCGAACTATAGTAGGATTGAAA TAGATGTTAAGGATGCAATAATAATTGGGGTGATCTGA spacer
length: 38 repeater length: 29
29757 161284 GTTGAATCGAACTATAGTAGGATTGAAA TTCAATAGCGGTGTATTACCAAACACAAGCACACCCC spacer
length: 37 repeater length: 29
29758 161350 GTTGAATCGAACTATAGTAGGATTGAAA TGAGAGGGTTCATCAGACTTTACATATACACTTATCA spacer
length: 37 repeater length: 29
29759 161416 GTTGAATCGAACTATAGTAGGATTGAAA TTAATGTCGATAATAAGCATTTTTGAATATAACTGA spacer
length: 37 repeater length: 29
29760 161482 GTTGAATCGAACTATAGTAGGATTGAAA TAAATTGAGATTAAATAGTATATGTTTGTGTTTCA spacer
length: 39 repeater length: 29
29761 161550 GTTGAATCGAACTATAGTAGGATTGAAA TTCATTATTGCTAATGTGACCCAGCCAAAGAAATCTTTT spacer
length: 39 repeater length: 29
29762 161618 GTTGAATCGAACTATAGTAGGATTGAAA TGAATTATTGTCGTCGATCCACGTATTACAGAGTTTCG spacer
length: 37 repeater length: 29
29763 161684 GTTGAATCGAACTATAGTAGGATTGAAA TCCATTTATCACATATTGAATTATCTCGTTCTCTCAA spacer
length: 38 repeater length: 29
29764 161751 GTTGAATCGAACTATAGTAGGATTGAAA TTCGTTCTTTATGTTACCCTCGCTATCAATAAATAAT spacer
length: 37 repeater length: 29
29765 161817 GTTGAATCGAACTATAGTAGGATTGAAA TTTCTTTGTTTATGTACTGTAAGTGTATTTTGGTTTAT spacer
length: 38 repeater length: 29
29766 161884 GTTGAATCGAACTATAGTAGGATTGAAA TGCTTATACATTCCCTAATAGCTCGCTGACTTCTGCACT spacer
length: 38 repeater length: 29
29767 161951 GTTGAATCGAACTATAGTAGGATTGAAA TTGGCTTGCAATCGTATACGCAAAGTTACCAAGATTCTC spacer
length: 39 repeater length: 29
29768 162019 GTTGAATCGAACTATAGTAGGATTGAAA TAAGCCAATAAGGATAATATCAGATCAACGCAGTATAAATT
spacer length: 41 repeater length: 29
29769 162089 GTTGAATCGAACTATAGTAGGATTGAAA TGACATACAACCTTGACGCGGGCAATTACGCACTTATAA spacer
length: 38 repeater length: 29
29770 162156 GTTGAATCGAACTATAGTAGGATTGAAA TGAATTATCGTCGACGAACCCTACATTACAATATTCG spacer
length: 37 repeater length: 29

29771	162222	GTTTGAATCGAACTATAGTAGGATTGAAA	TGAGCTAACTTACTTATCGTTACACTTGCATTACCTATT	spacer
	length:	39	repeater length:	29
29772	162290	GTTTGAATCGAACTATAGTAGGATTGAAA	TTTAGTTCACATAATATAGTCATTGAATCCCTTTCTATTTC	spacer
	length:	39	repeater length:	29
29773	162358	GTTTGAATCGAACTATAGTAGGATTGAAA	TTCTTTGCCACCTCTTCCGCAAAGGGTAAGAACTGACTC	spacer
	length:	39	repeater length:	29
29774	162426	GTTTGAATCGAACTATAGTAGGATTGAAA	TCTCAGCTAGCAGATGGAGTAGTAATATCATCAAAAATA	spacer
	length:	39	repeater length:	29
29775	162494	GTTTGAATCGAACTATAGTAGGATTGAAA	TTAGCTATAAAGAATCTCTCGTAACTCTGATTTCGTAA	spacer
	length:	38	repeater length:	29
29776	162561	GTTTGAATCGAACTATAGTAGGATTGAAA	TTGGTGTACTTCTCTTGCAAATAATAAAGGTTATAAACTC	spacer
	length:	40	repeater length:	29
29777	162630	GTTTGAATCGAACTATAGTAGGATTGAAA	TTGATAATACCAATTTCTACAAGTTTAGTATCAAGGA	spacer
	length:	37	repeater length:	29
29778	162696	GTTTGAATCGAACTATAGTAGGATTGAAA	TTCTTTGATTATCTCACTCTCACTGTCAACGAATAATA	spacer
	length:	38	repeater length:	29
29779	162763	GTTTGAATCGAACTATAGTAGGATTGAAA	TTTCGACGTAATCACATTTATTAAAGCGTTGGGAGATGAAA	spacer
	length:	41	repeater length:	29
29780	162833	GTTTGAATCGAACTATAGTAGGATTGAAA	TAACCTACCGTACAACTGTTTCAGCAATAATTTATAAA	spacer
	length:	38	repeater length:	29
29781	162900	GTTTGAATCGAACTATAGTAGGATTGAAA	TTCGGAAAAGGCAGTTGCAAAGAAGGAGAAGTTTATT	spacer
	length:	37	repeater length:	29
29782	162966	GTTTGAATCGAACTATAGTAGGATTGAAA	TAAGAAGAAAGATTTAAATCCAAGCCTTCAACCTCAAGC	spacer
	length:	39	repeater length:	29
29783	163034	GTTTGAATCGAACTATAGTAGGATTGAAA	TACTTCTCGGGGTACTTTCTGCAAAGAAATTATATT	spacer
	length:	37	repeater length:	29
29784	163100	GTTTGAATCGAACTATAGTAGGATTGAAA	TTGTTCTGCCAACCATTCACACTTCAACACTTCAACA	spacer
	length:	38	repeater length:	29
29785	163167	GTTTGAATCGAACTATAGTAGGATTGAAA	TTAGAGGTATTATAACCAAAGACGAGTTTTCTGAATTGC	spacer
	length:	39	repeater length:	29
29786	163235	GTTTGAATCGAACTATAGTAGGATTGAAA	TCTCTCTTACGAGTTGTCCAAACTTACCGTACAGACT	spacer
	length:	37	repeater length:	29
29787	163301	GTTTGAATCGAACTATAGTAGGATTGAAA	TAGGACAGCGTAAAGGACCTTTTTGGCTGGGTCACA	spacer
	length:	36	repeater length:	29
29788	163366	GTTTGAATCGAACTATAGTAGGATTGAAA	TTAGTGATGGGAGTGAACTATGAACAACGAGTCTAA	spacer
	length:	37	repeater length:	29
29789	163432	GTTTGAATCGAACTATAGTAGGATTGAAA	TTTTTCCCAATTCCTCGATCGATGTTTTATAAAAGTT	spacer
	length:	38	repeater length:	29
29790	163499	GTTTGAATCGAACTATAGTAGGATTGAAA	TCAATGATTTAACCCTGATCTCGATGTTGACTTACGATA	spacer
	length:	40	repeater length:	29
29791	163568	GTTTGAATCGAACTATAGTAGGATTGAAA	TAGTTGTATACATGAAGGTTGTAAAGCTGAGGTAATG	spacer
	length:	37	repeater length:	29
29792	163634	GTTTGAATCGAACTATAGTAGGATTGAAA	TCAGTAAGAGCCTTAACCTACTTCATTCAACTTAACAATTA	spacer
	length:	40	repeater length:	29
29793	163703	GTTTGAATCGAACTATAGTAGGATTGAAA	TATAGTTAATTTAAAGATAATATCTACAATCATAAAT	spacer
	length:	37	repeater length:	29
29794	163769	GTTTGAATCGAACTATAGTAGGATTGAAA	TTTGCCTTATATGCCTTAATGTATTCATCCTTATCCAATA	spacer
	length:	40	repeater length:	29
29795	163838	GTTTGAATCGAACTATAGTAGGATTGAAA	TCTGTATGAGTCTAACTCAAGTTTAATTGCATCAATGT	spacer
	length:	38	repeater length:	29
29796	163905	GTTTGAATCGAACTATAGTAGGATTGAAA	TTCTTGCGAGTAAATTCGTGTTTAGATTTTACAGTATAT	spacer
	length:	38	repeater length:	29
29797	163972	GTTTGAATCGAACTATAGTAGGATTGAAA	TATATTTCAACATCTCTGTAACAATACTCAACTAACTT	spacer
	length:	38	repeater length:	29
29798	164039	GTTTGAATCGAACTATAGTAGGATTGAAA	TTGTAAATCTAGTAGTATTTGTATATGTCTTTTCATCAT	spacer
	length:	38	repeater length:	29
29799	164106	GTTTGAATCGAACTATAGTAGGATTGAAA	TTAGAATCTATCTAGAAATGTAAGATCAAATATTATCT	spacer
	length:	38	repeater length:	29
29800	164173	GTTTGAATCGAACTATAGTAGGATTGAAA	TCTTACTTCATATCTGCCTTCTACTTGCCACCTATCTT	spacer
	length:	38	repeater length:	29
29801	164240	GTTTGAATCGAACTATAGTAGGATTGAAA	TACAAGAGTTGACTTACGTCGTATGTATCGTATTGGTGT	spacer
	length:	39	repeater length:	29
29802	164308	GTTTGAATCGAACTATAGTAGGATTGAAA	TTGAAATATTATGAAGGTCATATTTAGAATACAGAAG	spacer
	length:	37	repeater length:	29
29803	164374	GTTTGAATCGAACTATAGTAGGATTGAAA	TATTTTACGAATAAAATTTATAACGGCTTTATCGAAGT	spacer
	length:	38	repeater length:	29
29804	164441	GTTTGAATCGAACTATAGTAGGATTGAAA	TTCGATAAGTGATTTAGTGCGTTTTGCTGTAAGAGA	spacer
	length:	36	repeater length:	29
29805	164506	GTTTGAATCGAACTATAGTAGGATTGAAA	TTCGAATGATATAACTTTAAAGTCGGTTGCTCCGTATTC	spacer
	length:	39	repeater length:	29
29806	164574	GTTTGAATCGAACTATAGTAGGATTGAAA	TCTGATCTACCTCTCACAAGATATGAGCATGACAAGGAAG	spacer

length: 40 repeater length: 29
29807 164643 GTTTGAATCGAACTATAGTAGGATTGAAA TTCTTGTGCTTCTTCTTTACAGCACTCCAGAAATAT spacer
length: 37 repeater length: 29
29808 164709 GTTTGAATCGAACTATAGTAGGATTGAAA TCTAAGAAATCAGCAAATTCAGAAATTCTGGTACACAA spacer
length: 38 repeater length: 29
29809 164776 GTTTGAATCGAACTATAGTAGGATTGAAA TAAATTTAAACACACTAAAAACAGATTTTCAGTTCATA spacer
length: 37 repeater length: 29
29810 164842 GTTTGAATCGAACTATAGTAGGATTGAAA TTAAACAAAATAAAAGAAGAACAAAAGCAAAACAAA spacer
length: 38 repeater length: 29
29811 164909 GTTTGAATCGAACTATAGTAGGATTGAAA TCTATTTCAACATCTCTATAACAATATGTAACATAAGT spacer
length: 37 repeater length: 29
29812 164975 GTTTGAATCGAACTATAGTAGGATTGAAA TAATTTGAAAGAGTTGAAAAAGTGCGTGCGGTTTAAA spacer
length: 38 repeater length: 29
29813 165042 GTTTGAATCGAACTATAGTAGGATTGAAA TGTTTTGATAACTGTTAGGGCAATCCATGTGTTCAAT spacer
length: 37 repeater length: 29
29814 165108 GTTTGAATCGAACTATAGTAGGATTGAAA TCATACCTAGATGCAGTATATAATGCCAATATCTGCA spacer
length: 37 repeater length: 29
29815 165174 GTTTGAATCGAACTATAGTAGGATTGAAA TTCCTCTAGTAACATTACCTTATATTCTTTTACTCTTTG spacer
length: 39 repeater length: 29
29816 165242 GTTTGAATCGAACTATAGTAGGATTGAAA TATAAGTTAACTGAGATAATAGAGAAAGAGATGCTTGA spacer
length: 38 repeater length: 29
29817 165309 GTTTGAATCGAACTATAGTAGGATTGAAA TAGTGAAATAAGTAATAAGTGGGTAAGAAGGCTATCAG spacer
length: 38 repeater length: 29
29818 165376 GTTTGAATCGAACTATAGTAGGATTGAAA TGATTTAAATAGACCTGCATCTAATGATGCAGTTCTAG spacer
length: 38 repeater length: 29
29819 165443 GTTTGAATCGAACTATAGTAGGATTGAAA TATACTTGTGATTTATAGGCTCAAGTGTAGATATAGATA spacer
length: 39 repeater length: 29
29820 165511 GTTTGAATCGAACTATAGTAGGATTGAAA TCAAGATTTATATAACCCATAATTCTATACTATGGCA spacer
length: 37 repeater length: 29
29821 165577 GTTTGAATCGAACTATAGTAGGATTGAAA TTGTTGCTGGTAAGACTAAGGCAAAAGTAAGTATTAA spacer
length: 37 repeater length: 29
29822 165643 GTTTGAATCGAACTATAGTAGGATTGAAA GAACTGAACCTGAAAGGCAAGCATTTCATTGAAAAAT spacer
length: 37 repeater length: 29
29823 165709 GTTTGAATCGAACTATAGTAGGATTGAAA TCTCCCGGCT
29824
29825
29826 crispr 2
29827 781588 GTTTGAATCGAACTATAGTAGGATTGAAAG TCATTTTTATTGCTGTTATCTTGTTTCATGCTTGCTTT spacer
length: 37 repeater length: 30
29828 781655 GTTTGAATCGAACTATAGTAGGATTGAAAG AAAGCCTCTCTTACCCTTACCCTTATTGATTATTAA spacer
length: 36 repeater length: 30
29829 781721 GTTTGAATCGAACTATAGTAGGATTGAAAG CATTATCTAAGAACTTGTTATTGCCTTTAAGGAACTTG spacer
length: 38 repeater length: 30
29830 781789 GTTTGAATCGAACTATAGTAGGATTGAAAG AAATCAATTCAAGTAACCCAACACAACAAAAACAA spacer
length: 36 repeater length: 30
29831 781855 GTTTGAATCGAACTATAGTAGGATTGAAAG TGAACCTTCTTAATGCTCTTGTCTCTATGTATGCCTTTA spacer
length: 39 repeater length: 30
29832 781924 GTTTGAATCGAACTATAGTAGGATTGAAAG TCATTCTTTTTGAATTCTTGCATAAGATATTTACTA spacer
length: 36 repeater length: 30
29833 781990 GTTTGAATCGAACTATAGTAGGATTGAAAG CTGTATACATGTCTAATAAGGCTTTATGTAGAAGTAG spacer
length: 37 repeater length: 30
29834 782057 GTTTGAATCGAACTATAGTAGGATTGAAAG TAAGCCTCTTAAAAGTATCATAATCAAATCAAATC spacer
length: 37 repeater length: 30
29835 782124 GTTTGAATCGAACTATAGTAGGATTGAAAG CTAATAATAGTTGACAGTCCCTATGAATCTTTAATTT spacer
length: 37 repeater length: 30
29836 782191 GTTTGAATCGAACTATAGTAGGATTGAAAG TGATGTTATGCAAATCAAGCAATATCTCGATGTGTGCG spacer
length: 37 repeater length: 30
29837 782258 GTTTGAATCGAACTATAGTAGGATTGAAAG AGAATTCGAATTGGGGTATTGCCTTATGAGTGAATA spacer
length: 36 repeater length: 30
29838 782324 GTTTGAATCGAACTATAGTAGGATTGAAAG AGCTCGTGTCAGGCATGCCATCTGCTCTCTTTGCTATCTC
spacer length: 40 repeater length: 30
29839 782394 GTTTGAATCGAACTATAGTAGGATTGAAAG CGATGATACGTCATCATTCCAACGATTCTCTCTTATCATA
spacer length: 40 repeater length: 30
29840 782464 GTTTGAATCGAACTATAGTAGGATTGAAAG GTGATAACTCATCCTTCTCTATCGATGCTGATGTGT spacer
length: 36 repeater length: 30
29841 782530 GTTTGAATCGAACTATAGTAGGATTGAAAG TCCCATGCATGCATGCATATGCATGCATGTTTCATCAACA spacer
length: 39 repeater length: 30
29842 782599 GTTTGAATCGAACTATAGTAGGATTGAAAG GTGGTGGTGGTGTGTTGGTATCCTTGTGATGGCCTGAC spacer
length: 39 repeater length: 30
29843 782668 GTTTGAATCGAACTATAGTAGGATTGAAAG TGCTAGGAGCACTTCCAGAAGTAGGATATTCCTTCTC spacer
length: 37 repeater length: 30

29844 782735 GTTTGAATCGAACTATAGTAGGATTGAAAG AGGAAAAATAGGAAAGAGAGAGATTTAGTCGTTGTCCTT spacer
length: 39 repeater length: 30
29845 782804 GTTTGAATCGAACTATAGTAGGATTGAAAG AGGTCTGCCTTCTGCTTATGCTTCTTATTTATAAAGT spacer
length: 37 repeater length: 30
29846 782871 GTTTGAATCGAACTATAGTAGGATTGAAAG ACAGTTGCTACCGATCCAAATAAGGTAAAAGATAGAATA spacer
length: 39 repeater length: 30
29847 782940 GTTTGAATCGAACTATAGTAGGATTGAAAG TTCAACACCATAACCCATCCCATCCCATGCATGCATATG spacer
length: 38 repeater length: 30
29848 783008 GTTTGAATCGAACTATAGTAGGATTGAAAG TTCTTATTTCTTATTTTTTGTGTTTTGATATGGGATGA spacer
length: 37 repeater length: 30
29849 783075 GTTTGAATCGAACTATAGTAGGATTGAAAG GATGTAAC TCAA CTGATTTACTAGGTACAAACAAG spacer
length: 36 repeater length: 30
29850 783141 GTTTGAATCGAACTATAGTAGGATTGAAAG ACACTAATACCAACACTAATACTAACAGTAACAGTAA spacer
length: 37 repeater length: 30
29851 783208 GTTTGAATCGAACTATAGTAGGATTGAAAG GTGAGAGTTAAGATAAGTGAGACCAAATCAATTCTAGA spacer
length: 38 repeater length: 30
29852 783276 GTTTGAATCGAACTATAGTAGGATTGAAAG ATGCCTTTACTCCACTTCTTGATGTGTATGACTTCATC spacer
length: 38 repeater length: 30
29853 783344 GTTTGAATCGAACTATAGTAGGATTGAAAG TTAAGTAGAGAGATAAGGCATAATCTTAATAAATTAA spacer
length: 37 repeater length: 30
29854 783411 GTTTGAATCGAACTATAGTAGGATTGAAAG CTTAACCATTTCTCTAAATGCCATCTCTTTCTTAGTC spacer
length: 36 repeater length: 30
29855 783477 GTTTGAATCGAACTATAGTAGGATTGAAAG AATAGAGAGGCGTATTTTACGCCTCTCCAAAAGAGG spacer
length: 36 repeater length: 30
29856 783543 GTTTGAATCGAACTATAGTAGGATTGAAAG TGTATAGGCGTTGCGCTCTTCCTCCTCCATTTTCATAC spacer
length: 38 repeater length: 30
29857 783611 GTTTGAATCGAACTATAGTAGGATTGAAAG TTCGAACAAAATTTTATTTTATGTGCGCCAAATAAAA spacer
length: 36 repeater length: 30
29858 783677 GTTTGAATCGAACTATAGTAGGATTGAAAG ATGTCCTAGCGTCAAATATGCGTAACGTAAAATAAA spacer
length: 36 repeater length: 30
29859 783743 GTTTGAATCGAACTATAGTAGGATTGAAAG AGCGGATGCATGCCCCGAATAATATGAATCCCTATT spacer
length: 37 repeater length: 30
29860 783810 GTTTGAATCGAACTATAGTAGGATTGAAAG ATACAATTTCCATGTTCTGAAAAGGATCGATGCAAA spacer
length: 37 repeater length: 30
29861 783877 GTTTGAATCGAACTATAGTAGGATTGAAAG TAGATGCCTCAGCCCCAGATGCAATCCTACCTATTC spacer
length: 36 repeater length: 30
29862 783943 GTTTGAATCGAACTATAGTAGGATTGAAAG TTGCACAAGCAGAGGTAAATGAGGAGTGGTTAGGGAT spacer
length: 37 repeater length: 30
29863 784010 GTTTGAATCGAACTATAGTAGGATTGAAAG TGTCCATATTGGGACAAGGCAAATTTAATATTTGC spacer
length: 36 repeater length: 30
29864 784076 GTTTGAATCGAACTATAGTAGGATTGAAAG TGTATAGGATCGTGCCTCCTTAATTGCGTTCATAATATT spacer
length: 39 repeater length: 30
29865 784145 GTTTGAATCGAACTATAGTAGGATTGAAAG CTCATTTGCAGGATCAATTCGCAAATTTCTAATGAA spacer
length: 36 repeater length: 30
29866 784211 GTTTGAATCGAACTATAGTAGGATTGAAAG ATCTCGTTGCGCTTTCATACTCCCTTTACGACTCAG spacer
length: 36 repeater length: 30
29867 784277 GTTTGAATCGAACTATAGTAGGATTGAAAG TTCCTAAAAACCTCCCTTTTCAGGACTTCTATTATC spacer
length: 36 repeater length: 30
29868 784343 GTTTGAATCGAACTATAGTAGGATTGAAAG TCGCTACAAATTTATGGTGTCTTTTTTGAAAACGATC spacer
length: 37 repeater length: 30
29869 784410 GTTTGAATCGAACTATAGTAGGATTGAAAG TTCCCAACTTGATCGAATTAGGCGAACCTAATTGCTC spacer
length: 37 repeater length: 30
29870 784477 GTTTGAATCGAACTATAGTAGGATTGAAAG CCTGTTGAACCTGCTACTGGTATCTATCTCAAAGCT spacer
length: 36 repeater length: 30
29871 784543 GTTTGAATCGAACTATAGTAGGATTGAAAG ATGCTATGAATGATGTTACTATACCTATCACTACCTTA spacer
length: 38 repeater length: 30
29872 784611 GTTTGAATCGAACTATAGTAGGATTGAAAG AACACCATCCTCTTCTCTATCTTTCTATCTCGCTTCT spacer
length: 37 repeater length: 30
29873 784678 GTTTGAATCGAACTATAGTAGGATTGAAAG ATGTTTGTATTAGTTTTGTATTTATTTTATTTTCTAATA
spacer length: 40 repeater length: 30
29874 784748 GTTTGAATCGAACTATAGTAGGATTGAAAG TCAATTATAAAATTGCTTAAAAAGATTATAGCACATT spacer
length: 37 repeater length: 30
29875 784815 GTTTGAATCGAACTATAGTAGGATTGAAAG TTGTTTGATGAACTCTTTGATCTCTGCAGGAAGTGAAG spacer
length: 38 repeater length: 30
29876 784883 GTTTGAATCGAACTATAGTAGGATTGAAAG AGAAATTGCTGAATCAGTTGAAGAAGTGATTGTGGCGC spacer
length: 38 repeater length: 30
29877 784951 GTTTGAATCGAACTATAGTAGGATTGAAAG TTAGAGCATAAGCCTAAACGATTAGAAGGGAAGTAT spacer
length: 36 repeater length: 30
29878 785017 GTTTGAATCGAACTATAGTAGGATTGAAAG ATAGGAGATGAGGTAATAGTGCTAGAGGAGGGTGAAC spacer
length: 37 repeater length: 30
29879 785084 GTTTGAATCGAACTATAGTAGGATTGAAAG GCAGGTTCAACAATACAGTTGAAGGGTGCTCAATTGA spacer

length: 37 repeater length: 30
29880 785151 GTTTGAATCGAACTATAGTAGGATTGAAAG TCTTTCATTACTTTCATACATTCTATTGCTAAACTCT spacer
length: 37 repeater length: 30
29881 785218 GTTTGAATCGAACTATAGTAGGATTGAAAG GTTGAATAACTGTATATAATAGTCATCATCAACAAAATT spacer
length: 39 repeater length: 30
29882 785287 GTTTGAATCGAACTATAGTAGGATTGAAAG ATAGCATAACCATAACCCATTTTTTCATACCACCCCTAT spacer
length: 38 repeater length: 30
29883 785355 GTTTGAATCGAACTATAGTAGGATTGAAAG TGCTCTACCTATGCCATAACGTGTTGCTACTCTCTG spacer
length: 36 repeater length: 30
29884 785421 GTTTGAATCGAACTATAGTAGGATTGAAAG TTAGGGTATAGTTTGTATGCGCATCGCATGCAGTAATA spacer
length: 38 repeater length: 30
29885 785489 GTTTGAATCGAACTATAGTAGGATTGAAAG TCAAATTCTACACTTGCACTTAGATCTCTAGCACATG spacer
length: 37 repeater length: 30
29886 785556 GTTTGAATCGAACTATAGTAGGATTGAAAG GATTCCCTCGATAAAATCGAAGAATTAGGCAAATCAAG spacer
length: 37 repeater length: 30
29887 785623 GTTTGAATCGAACTATAGTAGGATTGAAAG TTTCGGTAACAGTTATACCGTAAATTGAACGAGCGA spacer
length: 36 repeater length: 30
29888 785689 GTTTGAATCGAACTATAGTAGGATTGAAAG GTAGGTGGTGTCTGTAGGTGAATATATTTTACCTTATG spacer
length: 37 repeater length: 30
29889 785756 GTTTGAATCGAACTATAGTAGGATTGAAAG TTAAGAGGAGATAATACATGTTTTGGCTATGTAGAAGATTA
spacer length: 41 repeater length: 30
29890 785827 GTTTGAATCGAACTATAGTAGGATTGAAAG TTAAGAGGAGATAATACATGTTTTGGCTATGTAGAAGATTA
spacer length: 41 repeater length: 30
29891 785898 GTTTGAATCGAACTATAGTAGGATTGAAAG TGTATACATCTTATCGCATTCCTTGCATCTTAGCATA spacer
length: 38 repeater length: 30
29892 785966 GTTTGAATCGAACTATAGTAGGATTGAAAG TTAGGTAACCTAAACTTCAAATTGCATCTATAGCATT spacer
length: 37 repeater length: 30
29893 786033 GTTTGAATCGAACTATAGTAGGATTGAAAG TCAAATTTCCAACATAACGTAATTTTAAATATAATTG spacer
length: 36 repeater length: 30
29894 786099 GTTTGAATCGAACTATAGTAGGATTGAAAG AGGTTTATCTGAGACCTAAGCCTGTCTGTGCCTTCC spacer
length: 36 repeater length: 30
29895 786165 GTTTGAATCGAACTATAGTAGGATTGAAAG ATTCTTCATATCAAGTTATTATCACACTACCGAAGT spacer
length: 36 repeater length: 30
29896 786231 GTTTGAATCGAACTATAGTAGGATTGAAAG AAACAAATGC
29897
29898
29899 GCA_002952775.1_ASM295277v1_genomic.fna (PilerCR):
29900 START REPEAT
SPACER
29901 crispr 1
29902 557573 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC TCGACTCCCTGGTTCGGTCCGGAGGTGCGGACGTACG
spacer length: 36 repeater length: 37
29903 557646 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC GTTCGAACTCTCGACGTGAACGTCCAACCCCTCGCCGC
spacer length: 38 repeater length: 37
29904 557721 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC CCTCGAGTGAGGAGACGCCGACCTCGACCTCGACGT
spacer length: 36 repeater length: 37
29905 557794 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC CTTACACCCCTAACGGCCTGTTTCTCAAGGAGTTAGT
spacer length: 37 repeater length: 37
29906 557868 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC CGGGGATAACCTCACCCCACTCGATCGGGACACGCT
spacer length: 36 repeater length: 37
29907 557941 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC AAGATGCCGTTGCCGCGTCCACTGGCGGCGGCTGGT
spacer length: 36 repeater length: 37
29908 558014 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC CCACGAACCCGACGACGATCTCGGAGCGATCCTTTG
spacer length: 36 repeater length: 37
29909 558087 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC ACGTCCCGGATCAAACGGGAGACTCGACTTATCG
spacer length: 34 repeater length: 37
29910 558158 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC CCGACTCTCCCCGGAGCCGACGACGTCACTCCGATA
spacer length: 36 repeater length: 37
29911 558231 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC GGGACGTCCGATCCGACGGTCGTCTCGAGCCGATCG
spacer length: 37 repeater length: 37
29912 558305 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC TCAATACCGAGAGTCCGACGTATCCACCAAAGAC
spacer length: 34 repeater length: 37
29913 558376 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC ACGAGCCTCCGGCTCGTTCGGGCAACAGCAGCCGG
spacer length: 35 repeater length: 37
29914 558448 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC TTTAGCTAAGACGGTACGACTCGACACAAACGCGG
spacer length: 35 repeater length: 37
29915 558520 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC ACGACTGACGAAGACCAGGAGCGAGCGCGCAG spacer
length: 32 repeater length: 37
29916 558589 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC GACAAGTCGGACCCGTGGAAAATAGCGATGTACT
spacer length: 34 repeater length: 37
29917 558660 GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC TATGCGGGATCGACTCTCGCCGGACGCGGACGTCTGA

spacer length: 36 repeater length: 37
 29918 558733 GTTTC AATCCCCGTGCTGGGTTTTCTCCCTGCTGCGAC TGGTCCGCATCACCGCGCGTTTCGAGGCCGCCGTGAT
 spacer length: 36 repeater length: 37
 29919 558806 GTTTC AATCCCCGTGCTGGGTTTTCTCCCTGCTGCGAC CAAAACAAGGGATTTATCCGAGACAAAGACGACGAT
 spacer length: 36 repeater length: 37
 29920 558879 GTTTC AATCCCCGTGCTGGGTTTTCTCCCTGCTGCGAC ACCCCGCAGAGGTACGTGCCTTCCGCGCGGCTGCT
 spacer length: 35 repeater length: 37
 29921 558951 GTTTC AATCCCCGTGCTGGGTTTTCTCCCTGCTGCGAC CCAGCTGCGGCGGAGGTCTGTCGGCCCGACGAACAGC
 spacer length: 37 repeater length: 37
 29922 559025 GTTTC AATCCCCGTGCTGGGTTTTCTCCCTGCTGCGAC TTCGGGGTCGTTTGTGTGCTCGAGCGAAAGTTCGT
 spacer length: 35 repeater length: 37
 29923 559097 GTTTC AATCCCCGTGCTGGGTTTTCTCCCTGCTGCGAC CCAATCAACCCCGTTTCAGGGGTCTGTTTCCTTCCGTT
 spacer length: 36 repeater length: 37
 29924 559170 GTTTC AATCCCCGTGCTGGGTTTTCTCCCTGCTGCGAC CCGGCTGAGAACCGGATTCGAGGGACGCTGCAAGAGG
 spacer length: 37 repeater length: 37
 29925 559244 GTTTC AATCCCCGTGCTGGGTTTTCTCCCTGCTGCGAC TCTTTGTTGTCTCGATCTGCGGGAGCATCAGCGGC
 spacer length: 36 repeater length: 37
 29926 559317 GTTTC AATCCCCGTGCTGGGTTTTCTCCCTGCTGCGAC CCGACTCGCTCCCCGGCTCGGACCGAGACCGATCCGT
 spacer length: 37 repeater length: 37
 29927 559391 GTTTC AATCCCCGTGCTGGGTTTTCTCCCTGCTGCGAC ATCAGTGGATGTTGTGCAGTGCTCGGGCTGTGTTCT
 spacer length: 36 repeater length: 37
 29928 559464 GTTTC AATCCCCGTGCTGGGTTTTCTCCCTGCTGCGAC TCGATCGTGTTTCAGTGTCTCCCCGAACCTCTCGACGCT
 spacer length: 38 repeater length: 37
 29929 559539 GTTTC AATCCCCGTGCTGGGTTTTCTCCCTGCTGCGAC CATCGTCCCC
 29930
 29931
 29932 crispr 2
 29933 571698 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC ACCTGGAGATCGTCGACGGCGAGGCGTTTCGAGCC
 spacer length: 34 repeater length: 37
 29934 571769 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC GTTTACACGGGGACTTATACTTACGGGGTCGCGACAC
 spacer length: 37 repeater length: 37
 29935 571843 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC TCTTCGATGTACTGCTCGTACACGTTAACCGT spacer
 length: 32 repeater length: 37
 29936 571912 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC CGATCATCGAGCCGTTCAATGATACGGCACCGTCAG
 spacer length: 36 repeater length: 37
 29937 571985 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC ATCGGCGTCCGGCGGTTTCGCGTTTTTCGGGCGAACG
 spacer length: 36 repeater length: 37
 29938 572058 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC GCTTTGTCTCTCGAGACTGGGCAGTTTCACGATCGT
 spacer length: 34 repeater length: 37
 29939 572129 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC ACGTATCACGAGCGGATCTATTTCGGAGCTGTGGGGCG
 spacer length: 37 repeater length: 37
 29940 572203 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC CTCCAGCCGGTCGCTTTCCGAGCTGTAAAACCGGA
 spacer length: 35 repeater length: 37
 29941 572275 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC AGCATGAGGCTATCACGCCGCGCGAAGATACAGAAGA
 spacer length: 37 repeater length: 37
 29942 572349 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC TGCTGACCTGATCGCCACGGAAGGCAACACCGGCCC
 spacer length: 36 repeater length: 37
 29943 572422 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC CGAGAGTGAACGATCTGCGCGTCGAGATCGCTGTC
 spacer length: 35 repeater length: 37
 29944 572494 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC CGATCGCGATCGGCCTCGGATGGGTTGAACCGGTCGT
 spacer length: 37 repeater length: 37
 29945 572568 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC GCGACACATC
 29946
 29947
 29948 GCA_003009795.1_ASM300979v1_genomic.fna (PilerCR):
 29949 START REPEAT
 SPACER
 29950 GCA_003058365.1_ASM305836v1_genomic.fna (PilerCR):
 29951 START REPEAT
 SPACER
 29952 crispr 1
 29953 556854 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC AGGTCCCGCGATGGCTGAAGCTGGCGGCGATCGC spacer
 length: 34 repeater length: 31
 29954 556919 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC GACGCCGACGAACGCGAGAAAATCGCAGAGGCCGC spacer
 length: 35 repeater length: 31
 29955 556985 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC AACTGCCTCAATGACCTAGGGACCGACGGCGTGAGGG spacer
 length: 37 repeater length: 31
 29956 557053 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC GCTATCCATCGATTCAAGGTCTTTAGTCATAACCATA spacer
 length: 37 repeater length: 31
 29957 557121 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC GGCTTTACGTCCGACGAAATCGAACCGCCGAACGA spacer
 length: 35 repeater length: 31

29958	557187	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GGGGTCGGTGCCGCCGCTGGCGTGGCAACGCTC	spacer
		length: 34	repeater length: 31	
29959	557252	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	CGTCTCGGGATCGGGGTTGCGGCCGGTGACCTG	spacer
		length: 33	repeater length: 31	
29960	557316	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	ACCGCCTGAGATTCTGCCCCGCTCAGGTCGTCGTGAT	spacer
		length: 37	repeater length: 31	
29961	557384	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GAGGTCGGGGAGACCTACTCCGCGAGCAATCTGACGG	spacer
		length: 37	repeater length: 31	
29962	557452	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	ACCGAGTCTCGGCCGGTCGAGACGATGACCGTGCG	spacer
		length: 35	repeater length: 31	
29963	557518	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GTCACGGGTGACCAGTGATGTCGTGGACTGTTGTC	spacer
		length: 35	repeater length: 31	
29964	557584	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	CCTCTTTGGGATCTTTTTCCGTAAAAGACCCATAA	spacer
		length: 35	repeater length: 31	
29965	557650	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	CGAATCAGGTCGAGCAGGCTGTGGTACAGTTCGCG	spacer
		length: 35	repeater length: 31	
29966	557716	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	ATAACTGAACACCCGTAGGAAAACCTACGGTAAAA	spacer
		length: 35	repeater length: 31	
29967	557782	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GCAGGAGACGATCGCCGCAGCCTACCACGCACTGC	spacer
		length: 35	repeater length: 31	
29968	557848	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GGCCCCTGGAATCGATCGCCATGCGAGTGTCTCTG	spacer
		length: 35	repeater length: 31	
29969	557914	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GTCCTGAGCT	
29970				
29971				
29972	crispr	2		
29973	568561	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GACCGTCTGTTCGGGCAGGAAGTCGTGGGTAAGGTC	spacer
		length: 36	repeater length: 31	
29974	568628	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	TGTCGATCGACGAAGCGCACAACTGGATTCCA	spacer
		length: 32	repeater length: 31	
29975	568691	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GTACGCGGTGGAAAAGTCGAACCCGTCCCCTACAGC	spacer
		length: 36	repeater length: 31	
29976	568758	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	ACCCGGCGGAATGTCTATATCGACCGTATCGTCACT	spacer
		length: 36	repeater length: 31	
29977	568825	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GGGCGTCACCTCGTGAAGCTCGTGGGTCCCGTCGAC	spacer
		length: 36	repeater length: 31	
29978	568892	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GAGTTGGTCAACCTGACCGGCACGGAGGATAACGA	spacer
		length: 35	repeater length: 31	
29979	568958	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	TTCGTGTTCCGCCGATCGCGTACTCTCGCATG	spacer
		length: 33	repeater length: 31	
29980	569022	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GGTCTCTCATTGATCGATAACCACTCGTTGAGCATCTG	spacer
		length: 37	repeater length: 31	
29981	569090	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	TAACCCCTCGTCGATCAAATGGAGAGCGACACCCT	spacer
		length: 35	repeater length: 31	
29982	569156	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GCCTACGCGATGCTGGTCGCGTACGTCTATGACCGA	spacer
		length: 36	repeater length: 31	
29983	569223	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GACGTCGGTCCGAGAGCGCGGAGATCGGCGGAGACG	spacer
		length: 37	repeater length: 31	
29984	569291	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GCGCTGATCGAGGCGGGCAACTACTACGTGATCAGT	spacer
		length: 36	repeater length: 31	
29985	569358	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	CGGTCGACGATCGAGACGCACGTGGACGCGTGCGA	spacer
		length: 35	repeater length: 31	
29986	569424	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	ACTTCGTAGTTGCTCGTTTGGGCGTTCGCTTGCGT	spacer
		length: 35	repeater length: 31	
29987	569490	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	TCGGGGAACCTCGTCGAAGCTCGGTTGTCGTCGTT	spacer
		length: 35	repeater length: 31	
29988	569556	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	ACCTGGTACAACGAAGGACCGCTTACGGCAGGGAT	spacer
		length: 35	repeater length: 31	
29989	569622	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GGCAACCGCCACAGTCTCAACGGCCTGACTGACAT	spacer
		length: 35	repeater length: 31	
29990	569688	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	ACATCGGACTATCGGAGTCAAACGCACTCCTGGCCCC	spacer
		length: 37	repeater length: 31	
29991	569756	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GGGGGTGAGGGGTAACGATGGTCCGGATTAGCGCCTG	spacer
		length: 37	repeater length: 31	
29992	569824	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GTCGTTTGGAGGGTCCGATTGATGCCCGGTCGC	spacer
		length: 33	repeater length: 31	
29993	569888	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GGCCCGCCGAGACCGCTGAGGACGCCGCGATTCCGGTG	spacer
		length: 37	repeater length: 31	
29994	569956	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	CGGTCCCTCTTTTCTCCAACTCAGTTGCGTAACG	spacer
		length: 35	repeater length: 31	
29995	570022	GTTTCAGACGGACCCCTTGTGGGGTTGAAGC	GCCGCCGGTCCATGGTCGCCCTCCTGCTTGCGGATCA	spacer

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length: 37 repeater length: 31
29996 570090 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC GGTTCGCGACGAGGCCGACCGCTCGCCCACGACTACG spacer
length: 37 repeater length: 31
29997 570158 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC AGTCTGATGGAAATGCTCCTCGTCGCCGCGATCGGC spacer
length: 36 repeater length: 31
29998 570225 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC GTCGCGGAGATAGATCGTCCGGGCGGAGTCGGTCGC spacer
length: 36 repeater length: 31
29999 570292 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC TCAGACAATGGCCGTCTGAGCCATGAGCGCCAAA spacer
length: 34 repeater length: 31
30000 570357 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC TCTATCTTGTGCAGTCGGGGGTTGGACGTTGTGCC spacer
length: 35 repeater length: 31
30001 570423 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC CTATACGATTGAGACCGCCGTCATCAGCGATCGCG spacer
length: 35 repeater length: 31
30002 570489 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC TGGGATGGGCGTGCGAACCCCATCAAGATCCACAA spacer
length: 35 repeater length: 31
30003 570555 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC GGGACCTACCAGAAGGTCGAACCTCCTCAAAGACTGC spacer
length: 36 repeater length: 31
30004 570622 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC GCCGTACGTCGTGAGGTAGTCGTGACAGGTGCGA spacer
length: 34 repeater length: 31
30005 570687 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC AACTCGTACGTCGTGCGGTGTGTTTGCTGTTGTCCGTC spacer
length: 37 repeater length: 31
30006 570755 GTTTCAGACGGACCCCTTGTGGGGTTGAAGC CGGGAAGATC
30007
30008
30009 GCA_003201675.1_ASM320167v1_genomic.fna (PilerCR):
30010 START REPEAT
SPACER
30011 crispr 1
30012 384881 GTTTCAAACCCCTCTAAGGAACCCTACAAAC ACCCGAGAAGAAGGAGAGGAGAGATTATGAGTCAAG spacer
length: 37 repeater length: 30
30013 384948 GTTTCAAACCCCTCTAAGGAACCCTACAAAC TCTTCAGGATGTCTACTACGAGCTCTACGTCATCGT spacer
length: 36 repeater length: 30
30014 385014 GTTTCAAACCCCTCTAAGGAACCCTACAAAC CCTGTCTCTGTAGAGAGTATTCTACTTTCTCAGGCGA spacer
length: 37 repeater length: 30
30015 385081 GTTTCAAACCCCTCTAAGGAACCCTACAAAC CCAGGAGGAACCGAAACCGTGTGCGTAACCGTATGAG spacer
length: 37 repeater length: 30
30016 385148 GTTTCAAACCCCTCTAAGGAACCCTACAAAC TCGTTGTGCGCTGTTTCTATTGTGAGGGCTAGGCAGATT spacer
length: 39 repeater length: 30
30017 385217 GTTTCAAACCCCTCTAAGGAACCCTACAAAC TTCGTGGACCAGAACGGAACCACTACGTTTCTAGAC spacer
length: 36 repeater length: 30
30018 385283 GTTTCAAACCCCTCTAAGGAACCCTACAAAC CTGAAGGTCATCACCAGGAAGCAGGCCTTTGAACTGC spacer
length: 37 repeater length: 30
30019 385350 GTTTCAAACCCCTCTAAGGAACCCTACAAAC TCAGTTGTGAGACCTTCCTTGAGTAGTAGATAGCTA spacer
length: 36 repeater length: 30
30020 385416 GTTTCAAACCCCTCTAAGGAACCCTACAAAC CGGACACCTTGTGTAGACAAGCTTACAGGAGAGCATG spacer
length: 38 repeater length: 30
30021 385484 GTTTCAAACCCCTCTAAGGAACCCTACAAAC CTCAGGGTTTCAGGGAGCAGGGAAGACAACCTTATGCGG spacer
length: 38 repeater length: 30
30022 385552 GTTTCAAACCCCTCTAAGGAACCCTACAAAC CTCACTCTCTTGAGAAAATCAATTTTCTTTTGTTCG spacer
length: 37 repeater length: 30
30023 385619 GTTTCAAACCCCTCTAAGGAACCCTACAAAC CGATATTGGGCGTTTCTACTTCTGCTATTACTTCCC spacer
length: 36 repeater length: 30
30024 385685 GTTTCAAACCCCTCTAAGGAACCCTACAAAC TTAAGCATGCTAATGACCTCGGGAAGGGGAGGATCTC spacer
length: 37 repeater length: 30
30025 385752 GTTTCAAACCCCTCTAAGGAACCCTACAAAC TCTGATAAGTGCCGGGAAATCGGTGCTGAAGGACTA spacer
length: 36 repeater length: 30
30026 385818 GTTTCAAACCCCTCTAAGGAACCCTACAAAC TCTCTTTCTGCCGATTAGCTAAATTGCTAGTTTCTCC spacer
length: 38 repeater length: 30
30027 385886 GTTTCAAACCCCTCTAAGGAACCCTACAAAC TGATAACTCGGCATCAACAACCTCCTCATACTTTGAA spacer
length: 37 repeater length: 30
30028 385953 GTTTCAAACCCCTCTAAGGAACCCTACAAAC GCTATTCCTCAGGGTTTTTCAGCTTTTAAGATCCTTTGTA spacer
length: 39 repeater length: 30
30029 386022 GTTTCAAACCCCTCTAAGGAACCCTACAAAC TGAAAATCTTAGTTGTGCGATGGTGTAGACGGAGTGGG spacer
length: 37 repeater length: 30
30030 386089 GTTTCAAACCCCTCTAAGGAACCCTACAAAC GAGATATTTAAATCTTTCTACCCCTTTCTCCTCTCCCC spacer
length: 38 repeater length: 30
30031 386157 GTTTCAAACCCCTCTAAGGAACCCTACAAAC TGGAACAGCTGTACACAGGGAAGTCCCTCACCTGGAT spacer
length: 37 repeater length: 30
30032 386224 GTTTCAAACCCCTCTAAGGAACCCTACAAAC ATTTTCTTTCTAGCGGTAAGTCTTGCGTGACAAACT spacer
length: 37 repeater length: 30
30033 386291 GTTTCAAACCCCTCTAAGGAACCCTACAAAC GAAAACAGAGGAAAATACGTGGGTGAGGTGGAGAGAG spacer

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length: 37 repeater length: 30
30034 386358 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC ACACTGTGTCGTCTCTTGCCCCATTCCCGTTCTGCGA spacer
length: 38 repeater length: 30
30035 386426 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC TAAGAGATTTCAATAAGACGGTTATCGGTCTTATTCC spacer
length: 37 repeater length: 30
30036 386493 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC ATAACCCTGTAGACCTATCATCGTTCTGGAGTTCAT spacer
length: 36 repeater length: 30
30037 386559 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC AGTTCCATGGGGTTCAAAGTGGTATATATCCACTTCCCCAT
spacer length: 41 repeater length: 30
30038 386630 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC GGATCCACATAGAAAAGCGTTGGAAGAGGCAATGA spacer
length: 35 repeater length: 30
30039 386695 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC AAGTAAGCATGGGTTTACTGTTGAACGCTATACTCG spacer
length: 36 repeater length: 30
30040 386761 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC CAATCAAGTAGAATATCTTATACGAGAATTTAATATTCC spacer
length: 39 repeater length: 30
30041 386830 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC CTGAGGATCCTCCTGGCTGCCCTATCTGTGCTCAC spacer
length: 35 repeater length: 30
30042 386895 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC TATGTATTTCTCTAAATTACTCCGTGTGAATTCCACGC spacer
length: 38 repeater length: 30
30043 386963 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC TCAACGTCTGAAACCGCTTATAGATGCTGGACTATT spacer
length: 36 repeater length: 30
30044 387029 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC CTTCAAAGCAGATGAAGAACTACGTCTTTGTAAAGAA spacer
length: 38 repeater length: 30
30045 387097 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC CTCCTTTTTCTATTTCTTCTCTTTTCTTTCTATTTCTCT spacer
length: 39 repeater length: 30
30046 387166 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC TTCCATTGCCATGATGTAAATTCATCAAATGGTGGGAT spacer
length: 38 repeater length: 30
30047 387234 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC TATTTAACAGGTGGTAATACAGTTTCTCAAATTTTA spacer
length: 36 repeater length: 30
30048 387300 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC TTCCACAAAATATTACGGCTCAACAAGGAAATTTTT spacer
length: 36 repeater length: 30
30049 387366 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC TGAATCTCTCCCGCTGAAAAGAAGCAATCGAAACAT spacer
length: 38 repeater length: 30
30050 387434 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC TCTTACCAATAACCGTTTATCATGCTCAGAATACA spacer
length: 36 repeater length: 30
30051 387500 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC CGAATATTACATCGCTCCTCCGTGCCGTATATCCG spacer
length: 35 repeater length: 30
30052 387565 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC AAGGTGACAATAAGGTAATGGATAGTACAGTGATAGCTA spacer
length: 39 repeater length: 30
30053 387634 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC CTTCTCTACCACCTCCCTTACCGTATCATAGTACGG spacer
length: 37 repeater length: 30
30054 387701 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC CTTCTATGTCGCGAGAGACATAGGAGACTCTCTCGCGA spacer
length: 38 repeater length: 30
30055 387769 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC AATATATCGAAATGCCTGATGATTTGATTGCATTTGT spacer
length: 37 repeater length: 30
30056 387836 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC GCCTTATCTACTTTCTCACCTGACTGCTTCAACTTCTC spacer
length: 38 repeater length: 30
30057 387904 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC CATAGGATATGGTGGTAAAGGTGGTGGTGCCAGCACCAT spacer
length: 39 repeater length: 30
30058 387973 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC TGAACGCCACAATCACATATGAGACCTACGATCAGCACG spacer
length: 39 repeater length: 30
30059 388042 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC TACCAGAGAGTTTCTCGCTGACATTCGTGACTGCTT spacer
length: 36 repeater length: 30
30060 388108 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC TTAAACCCCTGAGCACCATAGCACGTTTTAAGATCCTT spacer
length: 38 repeater length: 30
30061 388176 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC ACGTCCAAGGAAATCTCGGCACGTGGGGTGCCGGTGG spacer
length: 37 repeater length: 30
30062 388243 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC TTTTTATGAAAATCCTTG TAGTAGATGGAATAGACGGAGTGGG
spacer length: 43 repeater length: 30
30063 388316 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC GGGAACCCGAGACTCTATTATGAGCGGGAAGTTCCCCACA
spacer length: 40 repeater length: 30
30064 388386 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC ATCGTTCGTAAACTATTTTTATAGTTTCTTCTGAACG spacer
length: 39 repeater length: 30
30065 388455 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC AGAATCCACGCTTTTTAGTTGTGAAGCAAAAATCTACCG spacer
length: 39 repeater length: 30
30066 388524 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC CTCCCGTGCGAGCATCCTGTCTTTAGTTGCCAGTGCCT spacer
length: 38 repeater length: 30
30067 388592 GTTTCAAACCCCTCTAAGGAACCCCTACAAAC CACGGTTTCC
30068
30069
30070 crispr 2

30071	389888	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TTTTCGAACGGGTAAGATAATCAATTCACGACTTCATA	spacer
		length: 38	repeater length: 30	
30072	389956	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	CATTATGAGCCTCTTCCTTTTTTATGTATTTCTTTTTTC	spacer
		length: 37	repeater length: 30	
30073	390023	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	ATACAATTACTAAACAGAAATAAACCGAAAACAGAAA	spacer
		length: 37	repeater length: 30	
30074	390090	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	ATGATGATAGGTTCAAAACTCAACATCATCATCAA	spacer
		length: 35	repeater length: 30	
30075	390155	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	CTAGGAATCGAAGTCACGGTCTTTATCACCGGACTAG	spacer
		length: 37	repeater length: 30	
30076	390222	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	ATGAGCCTCTTCCTTTTTTTACGTATTCTTTGCGTCTTT	spacer
		length: 38	repeater length: 30	
30077	390290	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TTCTCTACACAGTTGATGATGTGTGTACCGACCACCA	spacer
		length: 37	repeater length: 30	
30078	390357	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	AGAACGAAAACATTATCGATTTTACAATCAAGGGAAT	spacer
		length: 37	repeater length: 30	
30079	390424	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TTCAAATAGATGAAAATGGACAACCTCAAGAGGTGCA	spacer
		length: 37	repeater length: 30	
30080	390491	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TATCTCCTTGAATGCATTGAGCGTCAACATATTCAGTG	spacer
		length: 38	repeater length: 30	
30081	390559	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	CAATTTTGTCCGTCGGAAAGTTTTTCCATTCAA	spacer
		length: 33	repeater length: 30	
30082	390622	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	CGTAGCCGTCGCCCACTGGGGACACGGCCACGTCACC	spacer
		length: 38	repeater length: 30	
30083	390690	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TAACCAGGGAGAGGCGATAATTCCTATACCTAGTGCCAT	spacer
		length: 39	repeater length: 30	
30084	390759	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TGAAGAGGATGATGAAGAATGAAGACTTCAACTTGGTG	spacer
		length: 38	repeater length: 30	
30085	390827	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	CAAATGAAGTACCGACACAACTTTCCAGACGAGAGTT	spacer
		length: 38	repeater length: 30	
30086	390895	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	CAAAGTGGTGAGAGCGAAATGACGTATGAGGAATGGG	spacer
		length: 37	repeater length: 30	
30087	390962	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	CGTGGCAACTGGTTGCTTATTCACCCCCACCCCGTTCA	spacer
		length: 38	repeater length: 30	
30088	391030	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	CCTGGCCCCGGTGGTCTGTTCCAGGCCACCGTGATAG	spacer
		length: 37	repeater length: 30	
30089	391097	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TCTGTGACGTTGGTTCATTGCCTAGGGAGGCGGT	spacer
		length: 35	repeater length: 30	
30090	391162	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TGAAGAGCGAGGATCCTAGTGAGGCCCTTCCCCTCGT	spacer
		length: 37	repeater length: 30	
30091	391229	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	CGGATTGTAGAAAAAGACTCATATGTTATGAAGAAGAA	spacer
		length: 38	repeater length: 30	
30092	391297	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TGTTGGCACTTGCAGAAACGCTTATCGCTTGAGAGAG	spacer
		length: 37	repeater length: 30	
30093	391364	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TTTCCAACATCTTTTCAAATCCTTTTCATGCATCGTT	spacer
		length: 36	repeater length: 30	
30094	391430	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TTCTTCTGACATATTATTGAAATATTTATCGACTATCACG	spacer
		length: 40	repeater length: 30	
30095	391500	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	ATTACATAAACTACAAATATCAACATCTCTTTTTAT	spacer
		length: 36	repeater length: 30	
30096	391566	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TACTCGGAGACAGTAGCGGAACGATTGAATTCTAGAT	spacer
		length: 37	repeater length: 30	
30097	391633	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	ACATAGAAGAGGAAGTTAAAAAACACGAACACTACGT	spacer
		length: 37	repeater length: 30	
30098	391700	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TCAACATTCTACCTATATAGACTCCCACTATGACGG	spacer
		length: 36	repeater length: 30	
30099	391766	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	ACAAGGTAAAGGCACAACAATTCGATAATAACGAGAAGG	spacer
		length: 39	repeater length: 30	
30100	391835	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	GAGAAGAAATTGCAGATTTGCCCTGATTTATGAAAAA	spacer
		length: 38	repeater length: 30	
30101	391903	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TGTTGGAGACATTTTTTATGAGAATCGTCACTTTACG	spacer
		length: 37	repeater length: 30	
30102	391970	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	AGATGGTATCGTCTTTCCCACCATAACCAGTTCGCCTA	spacer
		length: 38	repeater length: 30	
30103	392038	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TGTACAACCTTGATGAGAACGAAAACATCATAGATT	spacer
		length: 35	repeater length: 30	
30104	392103	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	AAGTACCCATCACGGAGGTATTGAATCCCCCAAGTCCCAG	spacer
		length: 41	repeater length: 30	
30105	392174	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	AGGCATAAGCAGAAACGTAACGAACAACAGACACAGGGA	spacer
		length: 39	repeater length: 30	
30106	392243	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	CTATTTCTGTCTACTTTCTATCGAGGTGAGAACATTA	spacer

	length: 37	repeater length: 30	
30107	392310	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	GGTATATTACCTTTTCGGTGTCTAGCAAGGTTTATATA spacer
	length: 37	repeater length: 30	
30108	392377	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	AGAACGACATGAGGGCCTTCGCCCTGAAGAGGCACCA spacer
	length: 37	repeater length: 30	
30109	392444	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	CACAGAGCTGAAGTCCGACCAGGACAACTGAACGCTA spacer
	length: 38	repeater length: 30	
30110	392512	GTTTCAAACCCCTCTAAGGAACCCCTACAAAC	TCGCGATACT
30111			
30112			
30113		crispr 3	
30114	501009	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TATTCGACCAGTATATACCCAACCTAGGGCAAGGATA spacer
	length: 37	repeater length: 30	
30115	501076	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ACCAGTAGCCACATCTTGGCCTCGGAGATCTCCCTGAA spacer
	length: 38	repeater length: 30	
30116	501144	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TAAAACGAAAAGGAGTCGATTAACGTAAGGTTTCCGTA spacer
	length: 38	repeater length: 30	
30117	501212	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGGACTAAGGAGAGGAGCGTGGAGGAAGTGGCCAAAGAGC
	spacer length: 40	repeater length: 30	
30118	501282	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CGTACATCTCTCAAAGGGTGAACGACTTGGCCTCCT spacer
	length: 36	repeater length: 30	
30119	501348	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTGTGAAAAAAGAAATGGGAGACGAACGAATATATAGAG spacer
	length: 39	repeater length: 30	
30120	501417	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAAACGACTCGGAAGGTATGATGAGAAGACCATCAAAGT
	spacer length: 40	repeater length: 30	
30121	501487	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GGTCGAGAACAAAGAAATTAAGATGTTTCAATTGCTTCA spacer
	length: 39	repeater length: 30	
30122	501556	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAGAGAGGATAATACGGGTGAATAAGGAGACGCAAAC spacer
	length: 37	repeater length: 30	
30123	501623	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GGCATAGAATAGTAGAAATTCACAGACGTGAAAACCTG spacer
	length: 37	repeater length: 30	
30124	501690	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CAAAACGACGACGTCATAAACTAAAGTAATACTC spacer
	length: 35	repeater length: 30	
30125	501755	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATGCCAGGGTGGGCTAAATCAAGGCTTAGGGACGAG spacer
	length: 36	repeater length: 30	
30126	501821	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAGATTTCTGAAGTATGGTACATTAGGAGCTATAGGAGT spacer
	length: 38	repeater length: 30	
30127	501889	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCTCACTGGTTTAGCCGTTTATCCGGAGTGGAAGA spacer
	length: 36	repeater length: 30	
30128	501955	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CGTCGTGTGTAATCGTGATGAAATCACTTGCCCCGT spacer
	length: 36	repeater length: 30	
30129	502021	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GGAGTTTGTTGATTCTCTGCCATCGCACTCACCCCAA spacer
	length: 37	repeater length: 30	
30130	502088	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTTCCACCACCATTGTTATTATTGTTTCCACCACCAT spacer
	length: 37	repeater length: 30	
30131	502155	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CCGTCATACAAAGGCGGAAGAGTTGAGGCGTTCAT spacer
	length: 35	repeater length: 30	
30132	502220	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGAATTGAGTAGATTTCGATTAGTTCGTCTATCTTCT spacer
	length: 36	repeater length: 30	
30133	502286	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TGGCTTACCAATTTCAATTATTCACCCATTTTTTTTACT spacer
	length: 38	repeater length: 30	
30134	502354	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTCTTCATAAAAAACAATTGGATAAGCAACCCTAAA spacer
	length: 36	repeater length: 30	
30135	502420	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CAGGACAACCCGTGCTGACAGAAGAAGACCCAATCT spacer
	length: 36	repeater length: 30	
30136	502486	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTAAAAAGAGTAAAAGTGAGCAGTATGAAAGTACTG spacer
	length: 36	repeater length: 30	
30137	502552	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GATAAATCACTTCTTCAGTAAGAGAACGGTAAAAGAGC spacer
	length: 38	repeater length: 30	
30138	502620	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTACATCTAATTTTCCATATGCTGAGTCGAATTCATA spacer
	length: 37	repeater length: 30	
30139	502687	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TGAACTCCCGTCCCTATGCCTTTTCCTTGGAATTCTTAT spacer
	length: 39	repeater length: 30	
30140	502756	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTGTATCAACAATCACAGGGAGAGGAGCGAAGTTATCA spacer
	length: 38	repeater length: 30	
30141	502824	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTTCCGGTCACGTTTCTAGATAGACCGAACTGTTGTAGAT spacer
	length: 38	repeater length: 30	
30142	502892	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GCCTTCTTCGCCTCCATTCTCAACTTCTTGCTCTGT spacer
	length: 36	repeater length: 30	
30143	502958	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TGTAAGCGGATATTCTAGCAAATATTGGTTGGGTTTA spacer
	length: 36	repeater length: 30	

30144	503024	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTGAGAGCAATAGAGATAGCACTGAAGATTCATAAT	spacer
		length: 36	repeater length: 30	
30145	503090	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAGACGAAAAGCAGAGAGATCAGGTACTTTCGGACTT	spacer
		length: 37	repeater length: 30	
30146	503157	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTACACCCACTGCCACGATAATGAGGAACAGGACGA	spacer
		length: 36	repeater length: 30	
30147	503223	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GGGAGAAATGGGAACAGATAGCGAAACAACATGAAGAAG	spacer
		length: 39	repeater length: 30	
30148	503292	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GGGAGAAAGTAAAGGAGATAAAATTAGGGAGTTCCTC	spacer
		length: 37	repeater length: 30	
30149	503359	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CGGTTTCAACTGTCTGAACAATCCTGTGCCTTTGGA	spacer
		length: 36	repeater length: 30	
30150	503425	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CAGTACCCTGATGTTGGTTGGTGCTGGGGCAAGAA	spacer
		length: 36	repeater length: 30	
30151	503491	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATGTAAAAACCGTCAATAAACAATCTTCCTAACTCT	spacer
		length: 37	repeater length: 30	
30152	503558	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATGGCGAGGTTGAAGGTATAGTAATAGGAACGGGGT	spacer
		length: 37	repeater length: 30	
30153	503625	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CGTCGTGAAATAGTCTTCTATTCTTTTCCCACGTAC	spacer
		length: 37	repeater length: 30	
30154	503692	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCAACGCACTGGGTCAAGGCTTCAATGACGTCAAGG	spacer
		length: 36	repeater length: 30	
30155	503758	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTCGTATACATCAAAGTGACGGGAGACCACGAAGAAC	spacer
		length: 37	repeater length: 30	
30156	503825	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAACAGTTTTGTATACTTTCATGAAGATTTTTTGAAAT	spacer
		length: 38	repeater length: 30	
30157	503893	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CACTGAATATGTTGACGCTCAATGCGTTCAGGGAGATA	spacer
		length: 38	repeater length: 30	
30158	503961	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCCTCCAGATAAAGTAGTATTTGATGAGCAAAGAGCGG	spacer
		length: 38	repeater length: 30	
30159	504029	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GACAAGGAGCCTCGAAAGACTCTTCGCTGGTATGGG	spacer
		length: 36	repeater length: 30	
30160	504095	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAGAGGTTGATCAAGTAATGTCAATCTTTAGCAGTCC	spacer
		length: 37	repeater length: 30	
30161	504162	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TATTTGAAAGCACATGCTCCAAAACCTCCGCTTCCT	spacer
		length: 36	repeater length: 30	
30162	504228	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCGCACCGAAACTTCCCATAAGACCTCTCGCAGCTCCG	spacer
		length: 38	repeater length: 30	
30163	504296	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAAGTTTCCTATATGTCTTAGACAGACTCGGTTGC	spacer
		length: 35	repeater length: 30	
30164	504361	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ACAAAATGTAGTATTTAGGATCATTATCGCGAGAGCAAGG	spacer
		length: 40	repeater length: 30	
30165	504431	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTTTCTGAATCCATCTAGCCATGTACCCACCTCATTAGC	spacer
		length: 39	repeater length: 30	
30166	504500	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAATACGGCGTAATCAAGACCTTCACTGTGACCA	spacer
		length: 34	repeater length: 30	
30167	504564	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ACTCTGACTTTGAACTCATCTGGAGTTCAAGGTAAAGT	spacer
		length: 38	repeater length: 30	
30168	504632	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TGAGTTCAATGGCTCTGTAGGCTACAGGATAAGTA	spacer
		length: 35	repeater length: 30	
30169	504697	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTGACCCAATGAGCAATTACAACAGGTTTTTCGAAAAGG	spacer
		length: 39	repeater length: 30	
30170	504766	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTAAGCCCAGAAGACAGAGATATGAAAATGAAGGAAT	spacer
		length: 37	repeater length: 30	
30171	504833	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CAAAC TAGAATAAAGAATTGGGAAACAATTTATGAGTT	spacer
		length: 38	repeater length: 30	
30172	504901	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTAAACTCCATGCCTCTGATAACGCGTTTTTCAATT	spacer
		length: 36	repeater length: 30	
30173	504967	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CGGTCTATTTATCTAGAATGTCGAAAGAAGGGATAA	spacer
		length: 36	repeater length: 30	
30174	505033	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGGAACTCCGCCTTACCATGTCCTCCACCGCCTTCCG	spacer
		length: 38	repeater length: 30	
30175	505101	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TAGCCCTGGATAACGATCACATATTCGGTGCTATTC	spacer
		length: 36	repeater length: 30	
30176	505167	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATGGAGGTGGACACGCTGGACGACCCGTCGGTCCTAAA	spacer
		length: 38	repeater length: 30	
30177	505235	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TACTCACCTAACACTTTCATGGTCAAATCTCGGTGA	spacer
		length: 36	repeater length: 30	
30178	505301	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ACAATCGAAGTAATTGGTTCTCAGTTGCCTATAATT	spacer
		length: 36	repeater length: 30	
30179	505367	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATCTTCACCGTATAGCCGTTCTCGTAATGTATTTCAA	spacer

length: 37 repeater length: 30
30180 505434 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GAAGTCATTGGAGACGGTCTAAGAAAGGAATTAATGG spacer
length: 37 repeater length: 30
30181 505501 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TGTCCCTTCCCTAGCCATAGTCGTTAAGTGTAAATTCA spacer
length: 37 repeater length: 30
30182 505568 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CGTGGGCCAGGGGTACAACCTTCTTCGTGGGCCTTATA spacer
length: 37 repeater length: 30
30183 505635 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TAGACCAGTCTCAGCCAATTTGGAAAGGTATACTT spacer
length: 35 repeater length: 30
30184 505700 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TAGATAGGGCAGGGTATCTTCCCCCATGGAAGGACAA spacer
length: 37 repeater length: 30
30185 505767 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GATGGATTTTTGTAAAGAGTTTATTATTGCTGCAAG spacer
length: 35 repeater length: 30
30186 505832 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GTAATTTAGGAGGACCTGCGTGGTCACAGTGAAGGTCT spacer
length: 38 repeater length: 30
30187 505900 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AGGAGCTTCAGACAAATGACTAGAAAATCTGATAAT spacer
length: 36 repeater length: 30
30188 505966 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CGGTAAACGGTAGACAAAATCCACACTGGGCCATAACA spacer
length: 38 repeater length: 30
30189 506034 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CTTTCAACACCGTTTTAAATACTATTGAAAATATATA spacer
length: 37 repeater length: 30
30190 506101 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GAGGGCTGGAGTAAGGTTTACGACGGGTCTGAGGACC spacer
length: 37 repeater length: 30
30191 506168 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AGGAAGAACTTTTGACGAAGCTGGACCTCTACTGTAT spacer
length: 37 repeater length: 30
30192 506235 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AGCTCGAAGAATTGCTCAAACAACAAAGCGAAGAAGTA spacer
length: 38 repeater length: 30
30193 506303 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TTCTAATTTCAATCTTTGCTTTTATTTCAATATTTTCTT spacer
length: 39 repeater length: 30
30194 506372 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TTCGCATTGGAAGAGCTGGAAGAGAAACGAACCGTGGC spacer
length: 38 repeater length: 30
30195 506440 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TTCTCTAACCTTAGAACAGATAGACCTGGATAACGGAA spacer
length: 38 repeater length: 30
30196 506508 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TAGCACTCGCATTCCTGGAGCCACTGGTGTATTG spacer
length: 36 repeater length: 30
30197 506574 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TCCCCTGTGCGTATTGTATAGCGTTGTAAATATCAG spacer
length: 37 repeater length: 30
30198 506641 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ATGGTGCAGCATCCTCGCTTTGCTATGTAGATCTT spacer
length: 35 repeater length: 30
30199 506706 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GTATCAGAAGGTGGATCAGAATTCATTTGATTAATTAA spacer
length: 38 repeater length: 30
30200 506774 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ATCTCCTGCACTGACAATACTTTGCCCTCCTCGAGTC spacer
length: 37 repeater length: 30
30201 506841 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TTGACAGTAGCGTTGGATTTGGAAAACAGAGGAGATG spacer
length: 37 repeater length: 30
30202 506908 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AAAATGTAAACAGTACTAGGAATTTTAGGGAATAGAA spacer
length: 37 repeater length: 30
30203 506975 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TGTTAATAGGGTCTGGAAAGAATGGCAAATCAACATT spacer
length: 37 repeater length: 30
30204 507042 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AATACGTAAGGAAGTTCGTCGCCTCTAAAATGGCAGAGT spacer
length: 39 repeater length: 30
30205 507111 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CTCTGATGTTAATCCACAGTCACCCTCTCCTGGACCA spacer
length: 37 repeater length: 30
30206 507178 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CACTCCTCCTCGCTCATCCACTGACACGGCATCTT spacer
length: 35 repeater length: 30
30207 507243 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GACTTCGTGATGAGTAACTTCCAATTGGACGTACTGTA spacer
length: 38 repeater length: 30
30208 507311 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GACTTTTCCCCGGTTCCCCCGGTTAGCGAGTAAATT spacer
length: 37 repeater length: 30
30209 507378 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AAGACTAGCGAAGCTTCACTGGTGTACGGGTGGGCG spacer
length: 37 repeater length: 30
30210 507445 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AAGAACCGBAACGTGATGTATGCGACCTGGGGGACA spacer
length: 36 repeater length: 30
30211 507511 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AGGGCCTGAGAAGTCTGGAAGGGGACGTGACATATG spacer
length: 36 repeater length: 30
30212 507577 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TCCTTAGATATATTGAAACTGATTTTAGTCATCTTCGATT
spacer length: 40 repeater length: 30
30213 507647 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TCCCCCTCACGGAAGAAGCTACCATAGTGAGGTTCCGGCA
spacer length: 40 repeater length: 30
30214 507717 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TATCAAGGAGCTAGCACGTACTGGAACGTCTCTGTGAC spacer
length: 38 repeater length: 30

30215	507785	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CCTTTACGCCTTCCGTTATTTTTTCCACTTTTCTA	spacer
		length: 35	repeater length: 30	
30216	507850	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGGGAGACTCAGGCGAAAGTGATGAGTATCCTTTTCGT	spacer
		length: 37	repeater length: 30	
30217	507917	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TGGATTCCGCAATACGGAATATGGAAAATAATTTA	spacer
		length: 36	repeater length: 30	
30218	507983	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CCTAGATTAGACCTCGTTACCTGCCACAGTAGATACT	spacer
		length: 37	repeater length: 30	
30219	508050	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GTCTTCTCCGTGTGTGTGGACGCCCTCGGGCTGAAAC	spacer
		length: 37	repeater length: 30	
30220	508117	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TAAAAGAGGACTTCTGGTTAAGTGGATATGCAAAA	spacer
		length: 35	repeater length: 30	
30221	508182	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTGGATCAATCTTTCTGCCAATTAAGTATATGTC	spacer
		length: 35	repeater length: 30	
30222	508247	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GAATAGAAGTCCCTCTCTGTGGCTAACCTCACCTCGG	spacer
		length: 37	repeater length: 30	
30223	508314	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCGAGAACTGGCGTATAGATTGGGTCAGACTTTCAATG	spacer
		length: 38	repeater length: 30	
30224	508382	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GCTGAAAGTACCTTCGTTTCAGTTTCCTCGAAATTGT	spacer
		length: 36	repeater length: 30	
30225	508448	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CATCGCTTGGTTTCCTCTTCAACGTCCTCCACATTAG	spacer
		length: 36	repeater length: 30	
30226	508514	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GAGGAGATTTCGCTTGGCCCACTTCCGCTACGACGAT	spacer
		length: 37	repeater length: 30	
30227	508581	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTCTCAATACTCTCAAACGGTCTGATACTAATACCGT	spacer
		length: 37	repeater length: 30	
30228	508648	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TAGCACTCGCATTCCTGGAGCCACTGGTGTATTGT	spacer
		length: 37	repeater length: 30	
30229	508715	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGATAAACTAACTATCTTTAATTTTCGCACTAAAAAAGA	spacer
		length: 38	repeater length: 30	
30230	508783	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGAATCAGTGATAATCCTTGTAGATGGTTTAGGAAAAT	spacer
		length: 38	repeater length: 30	
30231	508851	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAGAACCGBAACGTGATGTATGCGACCTGGAGGACACAC	spacer
		length: 39	repeater length: 30	
30232	508920	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCAATAAGGGCAGGTATCTCTACTTGGTCATCCCAT	spacer
		length: 36	repeater length: 30	
30233	508986	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGGAACTGGAACAGAGATGGATGTCGGAGGTAGCGTA	spacer
		length: 37	repeater length: 30	
30234	509053	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CGACAATGAGATAAAATATAATGTGCTAGATGGGACGT	spacer
		length: 38	repeater length: 30	
30235	509121	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CCTCCAGGTACTTTTCGGGTCTGTAAGTCTTACTT	spacer
		length: 35	repeater length: 30	
30236	509186	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GCAACGCTAGGTATAGGGTGGTGGTTAGGAAGTACATT	spacer
		length: 38	repeater length: 30	
30237	509254	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATCTTGTAATAATTAACACTTAGAAATATCGAAGAAAA	spacer
		length: 37	repeater length: 30	
30238	509321	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATATATATTCATGAGGATTATAGCCAAATTGTGAAACA	spacer
		length: 38	repeater length: 30	
30239	509389	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGTCCATAGGCTCTAAGCACACGTCTTCGTTGTAAAT	spacer
		length: 37	repeater length: 30	
30240	509456	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CCTCTTTTACAGTTATTTTCAGCCTTACCACTTTTCGGG	spacer
		length: 38	repeater length: 30	
30241	509524	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CCATACTGGAGCACTTTCTTTCTTTTAGTTTTCTCTA	spacer
		length: 37	repeater length: 30	
30242	509591	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AATATAAGGTATTATATCCAAACGTGACGATAGCTT	spacer
		length: 36	repeater length: 30	
30243	509657	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCCATAATGCTTGCATTCTCCGATTAATTTTGATG	spacer
		length: 36	repeater length: 30	
30244	509723	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTTTATGCGGAAGACGCATATCAGTCTATATACAGCCAG	spacer
		length: 39	repeater length: 30	
30245	509792	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AATAAGTGAATAGAAGTAATTATCAGTTTGTGGCAC	spacer
		length: 36	repeater length: 30	
30246	509858	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTGTCGGTAGTAGTGCTCCTCTGCCGGGCGCGGCGG	spacer
		length: 36	repeater length: 30	
30247	509924	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TACACTTCAAGCAATTGGTGTGAATACATATCCTTA	spacer
		length: 36	repeater length: 30	
30248	509990	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTTCAAATTAAATTCCATAGATGAAATCTATAGGTGTG	spacer
		length: 38	repeater length: 30	
30249	510058	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGTTTTCCCAACTCGCTTTCATCGGTGAGTCCCACTTT	spacer
		length: 38	repeater length: 30	
30250	510126	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATGGAGATGAAAGTAGATGAAAAGAAAGTACAAAACCTC	spacer

length: 38 repeater length: 30
30251 510194 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TCATTCAAAATCAACATATTCAACAAATCCTGGACCCT spacer
length: 38 repeater length: 30
30252 510262 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AATCAAGAGTTTGAGCGTTTTGATTACCGATAAGGA spacer
length: 36 repeater length: 30
30253 510328 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ATGCTGGGACGGAGATGAACGCGAGCATCCGCTCTAGT spacer
length: 38 repeater length: 30
30254 510396 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TCCGCCTCCTCCACCTGTTGCTACTGATTCTCGACGG spacer
length: 38 repeater length: 30
30255 510464 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GAAAAAGTTAAGTCTCATAGACTGCTAGAGTGGAGA spacer
length: 36 repeater length: 30
30256 510530 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CGGACAAGTATATCCTTAATATAAATGTTACATATTA spacer
length: 37 repeater length: 30
30257 510597 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ACACATATCACCGACCACATTTTCGTAGGATTGCTAATT spacer
length: 38 repeater length: 30
30258 510665 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ACCTTCGCACCCTCAGATACTATGGCGTGGAAAATAGC spacer
length: 38 repeater length: 30
30259 510733 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TCAAAAAGATGATAATTCATTTGCAAAAATATGGGAAG spacer
length: 38 repeater length: 30
30260 510801 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CTGACTCTCTGAGAAGGCACAACTAGCACTAGGGC spacer
length: 36 repeater length: 30
30261 510867 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ACTGGAAGAACTAAACTGGAAGAGGATGTGAATAAAA spacer
length: 37 repeater length: 30
30262 510934 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GACGGTATATCAGCAAGTGTCTTATTTGAGACTTCC spacer
length: 37 repeater length: 30
30263 511001 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TAACTCCCACATTATATATCTTCCGGGGAACAGGAGA spacer
length: 37 repeater length: 30
30264 511068 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TACATCTAGCTTTTCGGTCATCGTACGAAATACCTCCCT spacer
length: 39 repeater length: 30
30265 511137 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TACCGTGCTTAGCCTTACCCTTCTTCTTTATCTCCAA spacer
length: 38 repeater length: 30
30266 511205 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GCAATCAATGGGTTTCGAGAACTGTAAGAGTATGCCG spacer
length: 37 repeater length: 30
30267 511272 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GACGTAAATGATGAGATATTCGAAAAGGAAGTCGAAG spacer
length: 37 repeater length: 30
30268 511339 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TAGCCCAATAGTGTCCGTCCACATTCCGGACAGGTGT spacer
length: 37 repeater length: 30
30269 511406 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ATGTAATGTGGGAATTCGATCTTGCTAGATTCCCC spacer
length: 35 repeater length: 30
30270 511471 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GACATGGGGGATGAAGAATGATAGAGAAGAAAAAGG spacer
length: 36 repeater length: 30
30271 511537 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ATAGAAAGAACTCCTTTCTATGAATATGCAATACAA spacer
length: 36 repeater length: 30
30272 511603 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ATCCCAATCTTCAACTCTACTACTAATGATACGATAA spacer
length: 37 repeater length: 30
30273 511670 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AAGAAAGATTTTCGACGAGTTCGGTGCTGAGCCGTTG spacer
length: 36 repeater length: 30
30274 511736 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CTGCAGAAATACATACTCATAGTAAGGAGATCTACCCC spacer
length: 38 repeater length: 30
30275 511804 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GTGAGACTGACTTACAATATCGACGTGTGAAGATAG spacer
length: 37 repeater length: 30
30276 511871 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TTTTACAATAAACTTCCCGTTTGCTCGGAAGAAATT spacer
length: 37 repeater length: 30
30277 511938 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ATTTCTTGCAAACACTAGGGCTAAACAACAGTGAAG spacer
length: 36 repeater length: 30
30278 512004 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ACATGATCGAATTCAGGTCTCCGAGGGTCATAAACG spacer
length: 36 repeater length: 30
30279 512070 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CCACCGATTGTGAGAGTATAACCAGAGGCTATCTCCAG spacer
length: 38 repeater length: 30
30280 512138 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CCGACGTATCCAGAGTGGAAGAGAAAATCACGAAGTGG spacer
length: 39 repeater length: 30
30281 512207 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TCGGGTAACTCATCTAAACTCCGCACCTGTGCCTTTCCA spacer
length: 39 repeater length: 30
30282 512276 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TACTGCAGCTTCAACTTATTCCCTACCTTTTCCGTAG spacer
length: 37 repeater length: 30
30283 512343 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CCGACGTATCCAGAGTGGAAGAGAAAATCACGAAGTGG spacer
length: 39 repeater length: 30
30284 512412 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CTTTCGACGATACTTCTACCGAGGCATTCTGGGGA spacer
length: 35 repeater length: 30
30285 512477 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ACGAGATCGTTGCAGTTGATTATTTTCGGAAGAGAG spacer
length: 35 repeater length: 30

30286 512542 GTTGTAGGGTTCCTTAGAGGGTTTGAAAC TACTTCTCATACACCTCATTCTTAACCCTGATAG spacer
 length: 34 repeater length: 30
 30287 512606 GTTGTAGGGTTCCTTAGAGGGTTTGAAAC CTTGGGCATC
 30288
 30289
 30290 crispr 4
 30291 2504563 CTTTCAATTCCTTTTGGGATGCAAC TCAGAACAACAATCAACAGATGAAAGGGACTGACGCAAAAAC spacer
 length: 42 repeater length: 25
 30292 2504630 CTTTCAATTCCTTTTGGGATGCAAC GGGTTAAGGTATCAGGTTTCGCAGATCTTATATGTGAAAA spacer
 length: 40 repeater length: 25
 30293 2504695 CTTTCAATTCCTTTTGGGATGCAAC TAAATTTTTTTTCAACTTTCATTCTAGCGATATGTAATA spacer
 length: 38 repeater length: 25
 30294 2504758 CTTTCAATTCCTTTTGGGATGCAAC TATGTCTCCTCTCCTACAACAATGTACAACAGAACCATAG spacer
 length: 40 repeater length: 25
 30295 2504823 CTTTCAATTCCTTTTGGGATGCAAC CCTACCTTTGCCGGTATTCTAGAGTATGCAGAGGT spacer
 length: 36 repeater length: 25
 30296 2504884 CTTTCAATTCCTTTTGGGATGCAAC TGGAAAAACCAAATCTGTGGTATACGTATTTGATAAC spacer
 length: 38 repeater length: 25
 30297 2504947 CTTTCAATTCCTTTTGGGATGCAAC ATACTTTTCTTACTAAAGAGGAAAATCATCTTGTATTTTGACA spacer
 length: 43 repeater length: 25
 30298 2505015 CTTTCAATTCCTTTTGGGATGCAAC CCTTCTGGGGAATGGGGTATAGTGTACGGGTGCCTTACT spacer
 length: 40 repeater length: 25
 30299 2505080 CTTTCAATTCCTTTTGGGATGCAAC ACAATTAAGAAATTAGGAGGAAAATGGATTGGAAGTCAAT spacer
 length: 40 repeater length: 25
 30300 2505145 CTTTCAATTCCTTTTGGGATGCAAC ATGCATATATTTTCATCTCTACATCTAAAATATGCTAT spacer
 length: 37 repeater length: 25
 30301 2505207 CTTTCAATTCCTTTTGGGATGCAAC ACAAGACGATTAGCAGAATATCGATCCATAAAGGGAACA spacer
 length: 39 repeater length: 25
 30302 2505271 CTTTCAATTCCTTTTGGGATGCAAC GTACTACAGATAAATAAGTACCACCTAAAGGACGGGTG spacer
 length: 38 repeater length: 25
 30303 2505334 CTTTCAATTCCTTTTGGGATGCAAC ATGTAAATTCTGTGGTTATGAAACAGAGGACGAGGCAG spacer
 length: 38 repeater length: 25
 30304 2505397 CTTTCAATTCCTTTTGGGATGCAAC GAGGAATCCGAAGAGGACGATGAAGAATGAGATGCATCAAAC spacer
 length: 43 repeater length: 25
 30305 2505465 CTTTCAATTCCTTTTGGGATGCAAC CCTACCTTTGCCGGTATTCTAGAGTATGCAGAGGT spacer
 length: 36 repeater length: 25
 30306 2505526 CTTTCAATTCCTTTTGGGATGCAAC CTGAAACAAGTCAGAAAGAAAGAATATTTGAATGCTAC spacer
 length: 38 repeater length: 25
 30307 2505589 CTTTCAATTCCTTTTGGGATGCAAC TTAATCATAATTACATGATATGTGAAAACGGATTTC spacer
 length: 36 repeater length: 25
 30308 2505650 CTTTCAATTCCTTTTGGGATGCAAC TCTTATCATACCCAAATGCCAGATATGGTGAGTATGGTGAC spacer
 length: 41 repeater length: 25
 30309 2505716 CTTTCAATTCCTTTTGGGATGCAAC TTAAGGAAATAATGCAATACAGCGTTGTCGTTGTAAG spacer
 length: 37 repeater length: 25
 30310 2505778 CTTTCAATTCCTTTTGGGATGCAAC GTTGAGGGTCTGAAGAAGACCCTCGAGGACCTGGGCTG spacer
 length: 38 repeater length: 25
 30311 2505841 CTTTCAATTCCTTTTGGGATGCAAC AATTGTGGAAAAATGGAGAGATGTGTGTAGTTTATCTC spacer
 length: 38 repeater length: 25
 30312 2505904 CTTTCAATTCCTTTTGGGATGCAAC ATTTACCCAACAACATTAGAGAAATAATAATGAAGAATAG spacer
 length: 40 repeater length: 25
 30313 2505969 CTTTCAATTCCTTTTGGGATGCAAC GGAAGGGGGTGAGAAGAATGAACAGGGAGCTGCTTAAG spacer
 length: 38 repeater length: 25
 30314 2506032 CTTTCAATTCCTTTTGGGATGCAAC GTTATTTCTGTCTGCTTTCTACCCAACTAAAACGTTGTA spacer
 length: 40 repeater length: 25
 30315 2506097 CTTTCAATTCCTTTTGGGATGCAAC AGGGGGCATATACCCCTAATAATATGACACAGGAATT spacer
 length: 38 repeater length: 25
 30316 2506160 CTTTCAATTCCTTTTGGGATGCAAC TCTATAAGGATCCGCAAGACGCAGAAATGCTATATAGCAATAT spacer
 length: 43 repeater length: 25
 30317 2506228 CTTTCAATTCCTTTTGGGATGCAAC CTCGCTGGGTTTCAGGTCAGAGACTTATGATCTAAAAAGC spacer
 length: 39 repeater length: 25
 30318 2506292 CTTTCAATTCCTTTTGGGATGCAAC ATCAATATGAGATAAAGATAGCTAGGGTGAAAGAATGAATC spacer
 length: 41 repeater length: 25
 30319 2506358 CTTTCAATTCCTTTTGGGATGCAAC CATGGACAAAAGAAATAGTACACCCGTTCTATCTCAACG spacer
 length: 39 repeater length: 25
 30320 2506422 CTTTCAATTCCTTTTGGGATGCAAC CATGAAATTACTAAACAAGGATAAAGCAAAGATCATATACATAG
 spacer length: 44 repeater length: 25
 30321 2506491 CTTTCAATTCCTTTTGGGATGCAAC GAATGACGTCAACCTGGCGTAAATATCCGTCATTTTGTAAG spacer
 length: 41 repeater length: 25
 30322 2506557 CTTTCAATTCCTTTTGGGATGCAAC CCCCAGCTATCTGATGCCCCGTGCGGAAGTTATTAT spacer
 length: 36 repeater length: 25
 30323 2506618 CTTTCAATTCCTTTTGGGATGCAAC CACGTGGGGAAAACGCATGCCCTGGTAGTGGATATAATATT spacer

length: 41 repeater length: 25
30324 2506684 CTTTCAATTCCTTTTGGGATGCAAC CTTATTCAATTGCGGAAATTATTATGTTGGGGTTGATGA spacer
length: 39 repeater length: 25
30325 2506748 CTTTCAATTCCTTTTGGGATGCAAC GTTGGTTGAGGCTCAGTGTATGACGGAGAGATTATCTC spacer
length: 38 repeater length: 25
30326 2506811 CTTTCAATTCCTTTTGGGATGCAAC TCATGATATGATACTCCTATACACAAAAAATGGGAATAC spacer
length: 40 repeater length: 25
30327 2506876 CTTTCAATTCCTTTTGGGATGCAAC GGGCCTAGTAGCCTCCCCGCTAGGTTGGCCCTTACCTAGC spacer
length: 40 repeater length: 25
30328 2506941 CTTTCAATTCCTTTTGGGATGCAAC CCATTATACGATGGCGAGGAGTGGTTTGAACAATAGA spacer
length: 38 repeater length: 25
30329 2507004 CTTTCAATTCCTTTTGGGATGCAAC TACCTGAGCCGTAGAACCCTTGGATCGCTGTATTTCAGGT spacer
length: 39 repeater length: 25
30330 2507068 CTTTCAATTCCTTTTGGGATGCAAC AAAGATGCTTTACAATCTCAACATAATCAGTGCTAG spacer
length: 36 repeater length: 25
30331 2507129 CTTTCAATTCCTTTTGGGATGCAAC GGGGGTACAAAATGAAGGTTACTAGTAAAGGCGAGCTCAT spacer
length: 40 repeater length: 25
30332 2507194 CTTTCAATTCCTTTTGGGATGCAAC CGGCGAGGGTGGTGGCAAGGGTGGTGGCGAACACGTA spacer
length: 37 repeater length: 25
30333 2507256 CTTTCAATTCCTTTTGGGATGCAAC CTGGGTATACCCTCCGAAGTGGTGGACTTCTATCAGGGT spacer
length: 39 repeater length: 25
30334 2507320 CTTTCAATTCCTTTTGGGATGCAAC CGATGTAACCTTTCTCAAGAACGCTAACGATGAAATTGA spacer
length: 39 repeater length: 25
30335 2507384 CTTTCAATTCCTTTTGGGATGCAAC AAAAATAACTTAGATCAGAGGTTTTTAAATCTTATGGA spacer
length: 38 repeater length: 25
30336 2507447 CTTTCAATTCCTTTTGGGATGCAAC ACTCGACAATTTTCGCAACCTTTCTAGCGTCACGTGGCGAC spacer
length: 41 repeater length: 25
30337 2507513 CTTTCAATTCCTTTTGGGATGCAAC AATGATCTTTACTGCACCTCGTGACCATGCGTATTTAAT spacer
length: 39 repeater length: 25
30338 2507577 CTTTCAATTCCTTTTGGGATGCAAC GGCATTGCCGACCCCAAGCTTGCGGGGGCCGTCCTGGA spacer
length: 38 repeater length: 25
30339 2507640 CTTTCAATTCCTTTTGGGATGCAAC AGAAAACGAGAGTAGTCGTACGGGGAGGCATTTTTCTG spacer
length: 38 repeater length: 25
30340 2507703 CTTTCAATTCCTTTTGGGATGCAAC ATGAACGAGTGAAGATAAAGAACATAACACGTATCATAATA spacer
length: 41 repeater length: 25
30341 2507769 CTTTCAATTCCTTTTGGGATGCAAC TCCCACCGTATTTACCGGTGGGAAGCTAATGTAGATGG spacer
length: 38 repeater length: 25
30342 2507832 CTTTCAATTCCTTTTGGGATGCAAC ATAATTTGCTCTTTGTTTGCCGAGCGCGCATTTGAG spacer
length: 38 repeater length: 25
30343 2507895 CTTTCAATTCCTTTTGGGATGCAAC AGTGTACGGAAACGTCATGCCCGCTCCCGGAGAGAAAG spacer
length: 38 repeater length: 25
30344 2507958 CTTTCAATTCCTTTTGGGATGCAAC CTGCAATCTCGAAGTGACCGCTCTCGGGCATATACA spacer
length: 36 repeater length: 25
30345 2508019 CTTTCAATTCCTTTTGGGATGCAAC AAAGGAGATGGGCAAGTTAAAGTTTCTTTTTTATATTA spacer
length: 38 repeater length: 25
30346 2508082 CTTTCAATTCCTTTTGGGATGCAAC GTCCTTACGCTGACAGATGGGTCAAAGGGAAGAGAAAGG spacer
length: 39 repeater length: 25
30347 2508146 CTTTCAATTCCTTTTGGGATGCAAC
30348
30349
30350 crispr 5
30351 2530040 GTTGCATCCCCAAAAGGAATTGAAAG TTCTTGATGTTTCTCGAGAAGGTTTAAGTAATTCAGCC spacer
length: 39 repeater length: 26
30352 2530105 GTTGCATCCCCAAAAGGAATTGAAAG GTCACGTCGCCGACAGTACGTGCTATGTTCTGCCCTCC spacer
length: 38 repeater length: 26
30353 2530169 GTTGCATCCCCAAAAGGAATTGAAAG AACGCTTGGGGTTTGTGCCATTTTTCTTCACTATAA spacer
length: 36 repeater length: 26
30354 2530231 GTTGCATCCCCAAAAGGAATTGAAAG TCAACATCAACGATGACGGGGCTAGTCTAGGGGGCTA spacer
length: 37 repeater length: 26
30355 2530294 GTTGCATCCCCAAAAGGAATTGAAAG TGTGTCATCAAACCTCTTCAGCATCGCTAGAGCGAGG spacer
length: 37 repeater length: 26
30356 2530357 GTTGCATCCCCAAAAGGAATTGAAAG TTATGAATATTACTGAAATGCCATAACTTCCCGAACCT spacer
length: 39 repeater length: 26
30357 2530422 GTTGCATCCCCAAAAGGAATTGAAAG ATAGTATACCTGGAAGAGAACCTCATCAAGCAATTGT spacer
length: 37 repeater length: 26
30358 2530485 GTTGCATCCCCAAAAGGAATTGAAAG TCAAATACGCAGAGGCTATGATGCAGAAGGCATCTGGA spacer
length: 38 repeater length: 26
30359 2530549 GTTGCATCCCCAAAAGGAATTGAAAG CGTACTATTGCTACTACCTCATCTCTGTTTTTTCTAT spacer
length: 38 repeater length: 26
30360 2530613 GTTGCATCCCCAAAAGGAATTGAAAG CTTTTCTTCTGTGTCTGTAAGTTTCATTTTCTCACCGT spacer
length: 38 repeater length: 26

30361	2530677	GTTGCATCCCCAAAAAGGAATTGAAAG	GATTATCGATTTAATTTGCTTATTAAATGGTTTATAA	spacer
		length: 37	repeater length: 26	
30362	2530740	GTTGCATCCCCAAAAAGGAATTGAAAG	CAACTGCGACTTGGATACGGAAGAAACAGCATACCCGT	spacer
		length: 38	repeater length: 26	
30363	2530804	GTTGCATCCCCAAAAAGGAATTGAAAG	TTATATAAATTTACATTTTCAATAATAAGTTGTTGA	spacer
		length: 36	repeater length: 26	
30364	2530866	GTTGCATCCCCAAAAAGGAATTGAAAG	ATAACGATAAAAAATGAACCTGTTGATGCTTACATTAC	spacer
		length: 38	repeater length: 26	
30365	2530930	GTTGCATCCCCAAAAAGGAATTGAAAG	GATGTACAAGAACGTTGTACGACCTCATCAATCTCTTC	spacer
		length: 38	repeater length: 26	
30366	2530994	GTTGCATCCCCAAAAAGGAATTGAAAG	TTGTTGAACCTTCTTTTTGCATTTTAAACCCCGGAAAAA	spacer
		length: 38	repeater length: 26	
30367	2531058	GTTGCATCCCCAAAAAGGAATTGAAAG	GATTCAAAATGGATCCTGAGGAGGTAGAACTTCTCGATGCGT	spacer
		length: 42	repeater length: 26	
30368	2531126	GTTGCATCCCCAAAAAGGAATTGAAAG	TTATCTACGCTCAGAGCCCAAAGATAGGTCACCAACGA	spacer
		length: 38	repeater length: 26	
30369	2531190	GTTGCATCCCCAAAAAGGAATTGAAAG	CAATAATGGGCTTTACAACCTTCATCGAGCTCCACGAAG	spacer
		length: 38	repeater length: 26	
30370	2531254	GTTGCATCCCCAAAAAGGAATTGAAAG	TAGGCCTGGGTCTGGTCGGTGTCTCATCGTAGTGGCCTAC	spacer
		length: 41	repeater length: 26	
30371	2531321	GTTGCATCCCCAAAAAGGAATTGAAAG	CCACCTTTGCCTTTCCACCTTCTCATTTCTCATCTCAC	spacer
		length: 39	repeater length: 26	
30372	2531386	GTTGCATCCCCAAAAAGGAATTGAAAG	CATTTCTCATCTCATCAAGAAGAGGCTGTATCGCCATAC	spacer
		length: 39	repeater length: 26	
30373	2531451	GTTGCATCCCCAAAAAGGAATTGAAAG	ATTGACTACGTAGCAATTTTCCCGGTACAAACGAAGCCG	spacer
		length: 39	repeater length: 26	
30374	2531516	GTTGCATCCCCAAAAAGGAATTGAAAG	TACTCCTTTTGCATTTTTTGACACTCCTCATATAAAA	spacer
		length: 37	repeater length: 26	
30375	2531579	GTTGCATCCCCAAAAAGGAATTGAAAG	AAGAAGGCGACCCTCCCGAACCTCCTGAACCTCCGGCAC	spacer
		length: 39	repeater length: 26	
30376	2531644	GTTGCATCCCCAAAAAGGAATTGAAAG	TGCAAAAACGTCGTTTTTCGTCCCAATGTCCGTTGTTACTT	spacer
		length: 40	repeater length: 26	
30377	2531710	GTTGCATCCCCAAAAAGGAATTGAAAG	TCCGGGAGGAGCGGTGACAATAAAAGGTCTTCGATAAA	spacer
		length: 38	repeater length: 26	
30378	2531774	GTTGCATCCCCAAAAAGGAATTGAAAG	CTTTATTCCTGTCTGTAGCAGACTATCGATCTTGTTGT	spacer
		length: 38	repeater length: 26	
30379	2531838	GTTGCATCCCCAAAAAGGAATTGAAAG	ATCTTTTCCTGCAGACATTTCTATCTTTAACAGTTCAGG	spacer
		length: 39	repeater length: 26	
30380	2531903	GTTGCATCCCCAAAAAGGAATTGAAAG	ACCTTTGACCTAATAATAATGTGTAACATAACATCTTTAA	spacer
		length: 40	repeater length: 26	
30381	2531969	GTTGCATCCCCAAAAAGGAATTGAAAG	TTCAAACAATACTGCACACTGTTAAGATTGTTATATAGT	spacer
		length: 39	repeater length: 26	
30382	2532034	GTTGCATCCCCAAAAAGGAATTGAAAG	GTATTAACCTTAATACCGATTATGGTTCAATACACAGTTA	spacer
		length: 39	repeater length: 26	
30383	2532099	GTTGCATCCCCAAAAAGGAATTGAAAG	GAAGAACTCCACTGGCCTGAAGAACTCCAGAAGAACT	spacer
		length: 37	repeater length: 26	
30384	2532162	GTTGCATCCCCAAAAAGGAATTGAAAG	GCTGTTAGTATTAAGCGATTGGTGGGTTTCTCCCCGGC	spacer
		length: 38	repeater length: 26	
30385	2532226	GTTGCATCCCCAAAAAGGAATTGAAAG	TGTATTATTTCTGCATTTCCACCGTTGCAGATGCTGAA	spacer
		length: 39	repeater length: 26	
30386	2532291	GTTGCATCCCCAAAAAGGAATTGAAAG	ATATTGAACTTCGCGTACTTCCTAACTTCTTCGCGTCCTTGT	spacer
		length: 43	repeater length: 26	
30387	2532360	GTTGCATCCCCAAAAAGGAATTGAAAG	ATTGCCATCGTTCCACTACTTTTCAGTGTAGCAATACTTT	spacer
		length: 39	repeater length: 26	
30388	2532425	GTTGCATCCCCAAAAAGGAATTGAAAG	GGGACTTCACTAGCAACCATATGACGAATCCATGTGTTCCA	spacer
		length: 41	repeater length: 26	
30389	2532492	GTTGCATCCCCAAAAAGGAATTGAAAG	TGATGTTTCTAGACAGCTTTACTCCCCACCAATCTCCT	spacer
		length: 39	repeater length: 26	
30390	2532557	GTTGCATCCCCAAAAAGGAATTGAAAG	AATACACATAATCTTCATCGAACTTGGATATACATATC	spacer
		length: 39	repeater length: 26	
30391	2532622	GTTGCATCCCCAAAAAGGAATTGAAAG	GATTCATTATTAACAAGAGCGAACACGTTCTTCTGGTTACC	spacer
		length: 41	repeater length: 26	
30392	2532689	GTTGCATCCCCAAAAAGGAATTGAAAG	GAAAAGGGGTTCCTCGCTGGGCTAACGTCAAACCCCGT	spacer
		length: 38	repeater length: 26	
30393	2532753	GTTGCATCCCCAAAAAGGAATTGAAAG	TCGTTGTTCCGGGCACAAATTGAAAGGTATTGAAAAAT	spacer
		length: 38	repeater length: 26	
30394	2532817	GTTGCATCCCCAAAAAGGAATTGAAAG	TCTTCAGTCCAACATAAACACAGCTTGGGCTTATCGA	spacer
		length: 37	repeater length: 26	
30395	2532880	GTTGCATCCCCAAAAAGGAATTGAAAG	TGGTTCATCTTGACCATCCCTCAAGTTGGACTAACGTAA	spacer
		length: 39	repeater length: 26	
30396	2532945	GTTGCATCCCCAAAAAGGAATTGAAAG	GTATTACTTAGGGCCACCAAAACCACTCCGATTTTTCCGT	spacer

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length: 40 repeater length: 26
30397 2533011 GTTGCATCCCCAAAAAGGAATTGAAAG GGATATGGGGCGGGAGGAAACGGTGGAAACACAAATTCAG spacer
length: 40 repeater length: 26
30398 2533077 GTTGCATCCCCAAAAAGGAATTGAAAG AAAATGCTCCCGTCCGCTAACACGGCCCCCTGCAAG spacer
length: 35 repeater length: 26
30399 2533138 GTTGCATCCCCAAAAAGGAATTGAAAG TTTTTTAAGGGGAGAGTGGCTAACGACCACCCTCCCCC spacer
length: 38 repeater length: 26
30400 2533202 GTTGCATCCCCAAAAAGGAATTGAAAG GTAGAAAGTGAGGTCCACAACCCTTCTCCATCAGGATTAG spacer
length: 40 repeater length: 26
30401 2533268 GTTGCATCCCCAAAAAGGAATTGAAAG
30402
30403
30404 GCA_003201765.1_ASM320176v1_genomic.fna (PilerCR):
30405 START REPEAT
SPACER
30406 crispr 1
30407 2161098 ATCCAGAAAGGAATTGAAAG CATCCTTCTAACGTTTCGCAGAAATTGACTAGTATGTTAT spacer length:
40 repeater length: 20
30408 2161158 ATCCAGAAAGGAATTGAAAG ATGATATAATCTTCACCGTAATCAAACCTCTGACAATACTTGTTAT spacer
length: 45 repeater length: 20
30409 2161223 ATCCAGAAAGGAATTGAAAG TAAGTATTACTCTTGAACCAGAAATAAATAGAAAAAATATGTTAT spacer
length: 46 repeater length: 20
30410 2161289 ATCCAGAAAGGAATTGAAAG TTAAATACAAATAAATGGTATGATACTGGTGAAAATACAGTTAT spacer
length: 44 repeater length: 20
30411 2161353 ATCCAGAAAGGAATTGAAAG CCGAGTAACTTTCTTTGTAGAAATAGATACTCTTTGTATGTTAT spacer
length: 44 repeater length: 20
30412 2161417 ATCCAGAAAGGAATTGAAAG GAGAAATTTCCGCTTGATGCTGAAATTATTCCTGGTAAGTGTTAT spacer
length: 45 repeater length: 20
30413 2161482 ATCCAGAAAGGAATTGAAAG AAAATATATATTTTTTCTTAAATTTTCAATACGAATTCTTGTTAT spacer
length: 45 repeater length: 20
30414 2161547 ATCCAGAAAGGAATTGAAAG GTAAATAGTGGCGGTACAGTGTACCGGGTTCTGCATTAGTTAT spacer
length: 44 repeater length: 20
30415 2161611 ATCCAGAAAGGAATTGAAAG TATATCGCCAACCTCATATCCATTATTTTCTAGCGTTTGTTAT spacer
length: 43 repeater length: 20
30416 2161674 ATCCAGAAAGGAATTGAAAG TGCTACTAGTCTTGCTCTCGTTCTCGTTATTGCTCTCTTCTGTTAT spacer
length: 46 repeater length: 20
30417 2161740 ATCCAGAAAGGAATTGAAAG ATTACTCAATTTAAACATAACTAAGTACATACTATTTGGTTAT spacer
length: 43 repeater length: 20
30418 2161803 ATCCAGAAAGGAATTGAAAG AGGTCAAACGGATATGTCCTATCAAGTTGTGGCTTAAGTTAT spacer
length: 42 repeater length: 20
30419 2161865 ATCCAGAAAGGAATTGAAAG ATTGCACGAGATTCTCCTATCGTCAGTGGTTGATTACTGTTAT spacer
length: 43 repeater length: 20
30420 2161928 ATCCAGAAAGGAATTGAAAG TTATTATCTATAGCATCACTAAGCTTATTCAAGTACCATTAT spacer
length: 42 repeater length: 20
30421 2161990 ATCCAGAAAGGAATTGAAAG TATCTATACTCATTCGCATTAGGCTGTAAGTTATTTGCTGTTAT spacer
length: 44 repeater length: 20
30422 2162054 ATCCAGAAAGGAATTGAAAG ATCTGATATCCTAGCACTTAGTTGCCTCAATCATAGCACGTTAT spacer
length: 44 repeater length: 20
30423 2162118 ATCCAGAAAGGAATTGAAAG AAAAGTGGTAAAAGTCTAATTAAATAATCTTTGATATTTGAGTTAT spacer
length: 46 repeater length: 20
30424 2162184 ATCCAGAAAGGAATTGAAAG TTAGTAAGTGAATTTACTTTGAAACTACATTTGAATCGGTTAT spacer
length: 44 repeater length: 20
30425 2162248 ATCCAGAAAGGAATTGAAAG AAAAATTGAGAAAAATAGTTCATAAAAAAATAAAATATGTTAT spacer
length: 44 repeater length: 20
30426 2162312 ATCCAGAAAGGAATTGAAAG TATTTGATCTAATTCGAATTCACCTCATTTTCTCCCAAGTTGC spacer
length: 44 repeater length: 20
30427 2162376 ATCCAGAAAGGAATTGAAAG CATATAGCAACACATCCATCTTCATCACTTGAATTCTTTGTTGC spacer
length: 44 repeater length: 20
30428 2162440 ATCCAGAAAGGAATTGAAAG TTAGTTAACTTTAATGGCACTGGCACTAACACATCGACCGTTGC spacer
length: 44 repeater length: 20
30429 2162504 ATCCAGAAAGGAATTGAAAG TGTACTGGTACATTTAACAGCTGAACTAATTCTTTTAGTTGC spacer
length: 42 repeater length: 20
30430 2162566 ATCCAGAAAGGAATTGAAAG AATTTCTTCACTTTTAATACTTCAAGCAATTGTTGTACAGGGTTGC spacer
length: 46 repeater length: 20
30431 2162632 ATCCAGAAAGGAATTGAAAG TCGTCTGGTTCGCTTTTCATATGCCAGTCATATGTCTCTGTTGC spacer
length: 44 repeater length: 20
30432 2162696 ATCCAGAAAGGAATTGAAAG GGTAATGGACCTGGTACTATCTTAATTCACCTTTTAGTGTGGTTGC spacer
length: 46 repeater length: 20
30433 2162762 ATCCAGAAAGGAATTGAAAG ATGCTGGATTAGCATTATTCGCTAGTGATATTTGTGATGGTTGC spacer
length: 44 repeater length: 20
30434 2162826 ATCCAGAAAGGAATTGAAAG TCGTCTACCCTTTTCTGTATTTGCCATCCGTCATCTATCAGTTGC spacer

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length: 45 repeater length: 20
30435 2162891 ATCCAGAAAGGAATTGAAAG TTTAGTATATCAATAAATATCGGTAGTTTAAATTTATATGTTGC spacer
length: 44 repeater length: 20
30436 2162955 ATCCAGAAAGGAATTGAAAG TGAAGTAGAAGAAAAATTGCCAAATTTAACTGAAGATGAGTTGC spacer
length: 44 repeater length: 20
30437 2163019 ATCCAGAAAGGAATTGAAAG CTAAATTTGTTTGATGTCAGGATTATCCATAGATTTTCATTAC spacer
length: 43 repeater length: 20
30438 2163082 ATCCAGAAAGGAATTGAAAG GAACCACTTGGTACATAGCCTGATGTAGTAGTTGAGAAGCGTTAT spacer
length: 45 repeater length: 20
30439 2163147 ATCCAGAAAGGAATTGAAAG GAAATGACGAAGAAAAATTTTATATATCAGAAAATACATATCAC spacer
length: 44 repeater length: 20
30440 2163211 ATCCAGAAAGGAATTGAAAG
30441
30442
30443 crispr 2
30444 2172457 CTTTCAATTCCTTTCTGGAT ACAACACTTTTCGATCCCTCTCATCTACGTTGAAAAATTAGAAC spacer
length: 44 repeater length: 20
30445 2172521 CTTTCAATTCCTTTCTGGAT GCAATCAGTTCGACTGCACAATATCTCTCCAAGATAGCAGGAAA spacer
length: 44 repeater length: 20
30446 2172585 CTTTCAATTCCTTTCTGGAT GCAACAGAAAGGGACAAATAGATAGTATAAAGAAATTTAT spacer length:
40 repeater length: 20
30447 2172645 CTTTCAATTCCTTTCTGGAT ACATCCTGAGAATCCTGCAATAGTAGGAAAATGGCAAGTATGGTC spacer
length: 45 repeater length: 20
30448 2172710 CTTTCAATTCCTTTCTGGAT GCAACAATATATTAGATTTGGTGATATTTATTTAGAGGAGTTAAT spacer
length: 45 repeater length: 20
30449 2172775 CTTTCAATTCCTTTCTGGAT GCAACGCTTTTGATACAGAAGCCTGGATAAATCAAACCTGATAAT spacer
length: 44 repeater length: 20
30450 2172839 CTTTCAATTCCTTTCTGGAT GCAACGCAAGAAAACAGTACAAATAGGTCAATTCGAAGTAGAGAT spacer
length: 45 repeater length: 20
30451 2172904 CTTTCAATTCCTTTCTGGAT GCAACGAAAGGCTAATAACAGATGAGTTTTCTTTCATTTATAA spacer
length: 43 repeater length: 20
30452 2172967 CTTTCAATTCCTTTCTGGAT GCAACTGGCGAGGTAACATATATTAAATCTATACTATCTATAAG spacer
length: 44 repeater length: 20
30453 2173031 CTTTCAATTCCTTTCTGGAT GCAACAAATTATTGGATCATAATGTTTGTCTTCAATAAAATCATCAGTATTCAAT
spacer length: 55 repeater length: 20
30454 2173106 CTTTCAATTCCTTTCTGGAT ATAACCAAGAGCTTCACTTTTACTTGGGTTCTCCCTCGTGGGA spacer
length: 43 repeater length: 20
30455 2173169 CTTTCAATTCCTTTCTGGAT ACTACCTTCACCATTATGGGCAATTAGTCCAGTATTTTAAGTCA spacer
length: 44 repeater length: 20
30456 2173233 CTTTCAATTCCTTTCTGGAT ACTACGGTAGTTCTTTTCCATGGAGGGCTATCGAGAGAGGAGAG spacer
length: 44 repeater length: 20
30457 2173297 CTTTCAATTCCTTTCTGGAT GCAACTACCACCTCCGCAAATAACACTAGACGATATAATATTTAT spacer
length: 45 repeater length: 20
30458 2173362 CTTTCAATTCCTTTCTGGAT GTAACGCAAGGTAGAAGAATAATTGGACACGATGATGGATTTTCAAT spacer
length: 47 repeater length: 20
30459 2173429 CTTTCAATTCCTTTCTGGAT GTAACAATGGACGGATTTACCAACAAATGGGAGCACGAACCTAG spacer
length: 44 repeater length: 20
30460 2173493 CTTTCAATTCCTTTCTGGAT GCAACGATAACCAATCGTTTCGACGGATACGTTGAGGGTATATC spacer
length: 44 repeater length: 20
30461 2173557 CTTTCAATTCCTTTCTGGAT GCTACCTACAGTATATGTTACAATTTATGTGACATATAATCCGTACGG spacer
length: 48 repeater length: 20
30462 2173625 CTTTCAATTCCTTTCTGGAT ACAACTATTCTGTTAAGCAGTTTATAAACAAATTAATGACCTATAG spacer
length: 45 repeater length: 20
30463 2173690 CTTTCAATTCCTTTCTGGAT ACAACCCTAGGCTAGCATTCTACTAATCAACATAAACAAAAA spacer
length: 43 repeater length: 20
30464 2173753 CTTTCAATTCCTTTCTGGAT GTAACCTGATGAGGGTACCTGACGACCTCAAAGCATTCTATCGT spacer
length: 45 repeater length: 20
30465 2173818 CTTTCAATTCCTTTCTGGAT GTAACAGTAAAAGCGGAATAAGGTTATTGCCAGGACCATTAGC spacer
length: 43 repeater length: 20
30466 2173881 CTTTCAATTCCTTTCTGGAT GTAACCTTATTACTGACCTAAACGACATACCAGATTATTCGTTTGC spacer
length: 45 repeater length: 20
30467 2173946 CTTTCAATTCCTTTCTGGAT
30468
30469
30470 crispr 3
30471 2179557 CTTTCAATTCCTTTTTTGGAT ATAACGAACAGAAGGGATATATAATCAACTTCGACGTTAGCTTATT spacer
length: 46 repeater length: 20
30472 2179623 CTTTCAATTCCTTTTTTGGAT ATAACACGTAAAGAGAGATTAAAGCCCCTGATTTTCCCTATGC spacer
length: 44 repeater length: 20
30473 2179687 CTTTCAATTCCTTTTTTGGAT GTAACGATATAACATAACAATTTAGAAAAATACGACACAGAATA spacer
length: 43 repeater length: 20

30474 2179750 CTTTCAATTCCTTTTGGAT GCAACATATAGTAGCTGCATTAGAGGCGAATTATAGCAGTGTAG spacer
length: 44 repeater length: 20
30475 2179814 CTTTCAATTCCTTTTGGAT
30476
30477
30478 crispr 4
30479 2180015 CTTTCAATTCCTTTCTGGATACTAC TATACTCCCTTCACTCCCTTCATTCATCGCTTAAATC spacer
length: 37 repeater length: 25
30480 2180077 CTTTCAATTCCTTTCTGGATACTAC TAATCTTAGTGATGTAAATCGGTGATGAGTAAAGACGA spacer
length: 39 repeater length: 25
30481 2180141 CTTTCAATTCCTTTCTGGATACTAC ACAGACTTATTGAGTTATATCAACTGTACGGCTATGAAG spacer
length: 39 repeater length: 25
30482 2180205 CTTTCAATTCCTTTCTGGATACTAC ATAGATTAACAAAATGAGCAAATAATTCTACCTGATTTA spacer
length: 39 repeater length: 25
30483 2180269 CTTTCAATTCCTTTCTGGATACTAC ATATGCTGATATACTATGGATATTTTACTATTGAGCGATTT spacer
length: 41 repeater length: 25
30484 2180335 CTTTCAATTCCTTTCTGGATACTAC TATTACTTCTGTTTTTTTCAGTGTATTCTAGTGAAGCTAAC spacer
length: 41 repeater length: 25
30485 2180401 CTTTCAATTCCTTTCTGGATACTAC AGTGGGGACAAGTGCATAGTGGCGGGGTGTTGCCGTGCGA spacer
length: 40 repeater length: 25
30486 2180466 CTTTCAATTCCTTTCTGGATACTAC TTTATGTTAATGGAAATACTCCAACCTTCAGATTATTATAC spacer
length: 40 repeater length: 25
30487 2180531 CTTTCAATTCCTTTCTGGATACTAC ATATGAGTTGATCCAGAGAGTTTACGATAAGACAAAAAG spacer
length: 39 repeater length: 25
30488 2180595 CTTTCAATTCCTTTCTGGATACTAC GCACTGGAGCCGATTACTTATTGGGTCTATCGAGTGT CAT spacer
length: 40 repeater length: 25
30489 2180660 CTTTCAATTCCTTTCTGGATACTAC GTGGATCGGATTAAGTAGTGAAGAGTGGGAGATAGCCCG spacer
length: 39 repeater length: 25
30490 2180724 CTTTCAATTCCTTTCTGGATACTAC AAAGAAAAATTCGATGACAATATAGCATTGTTATTGTCC spacer
length: 39 repeater length: 25
30491 2180788 CTTTCAATTCCTTTCTGGATACTAC GAGAATATAAATTAACCTTGCTACGCTTACTTTTCATTTC spacer
length: 39 repeater length: 25
30492 2180852 CTTTCAATTCCTTTCTGGATACTAC TAGTAATTATAATAATTATTGGCTATCTTCATGGAAAAT spacer
length: 39 repeater length: 25
30493 2180916 CTTTCAATTCCTTTCTGGATACTAC CGGAGATTGATTTGAGTGATGTTAGGTTACTTATTAT spacer
length: 37 repeater length: 25
30494 2180978 CTTTCAATTCCTTTCTGGATACTAC AAGGCGTTTGTTTTAGAATAATAATGAAGATGATATAATAAAA spacer
length: 43 repeater length: 25
30495 2181046 CTTTCAATTCCTTTCTGGATACTAC TCTGAAGATATCAACGATTCTTCATGCATACAGTATCTA spacer
length: 39 repeater length: 25
30496 2181110 CTTTCAATTCCTTTCTGGATACTAC
30497
30498
30499 crispr 5
30500 2186221 CTTTCAATTCCTATAGTAGATTAAC TCTTTCTAGTGGTACCTACTAAGTTTTTCAT spacer length: 30
repeater length: 24
30501 2186275 CTTTCAATTCCTATAGTAGATTAAC ATTGAAAGTTTTGTCTACTACTAGATAGTCAAAATCTAGCT spacer
length: 41 repeater length: 24
30502 2186340 CTTTCAATTCCTATAGTAGATTAAC TTCTGTGGTTTTTAAACCGCGGTAGTAATTTTATCACAAT spacer
length: 39 repeater length: 24
30503 2186403 CTTTCAATTCCTATAGTAGATTAAC AATAAGATTGCAAGCGTTCCTATCGCTTGTAAGTATCAAT spacer
length: 41 repeater length: 24
30504 2186468 CTTTCAATTCCTATAGTAGATTAAC ATGAAGAAATATAATGTAAAGTATATGAAGGAATTAG spacer
length: 37 repeater length: 24
30505 2186529 CTTTCAATTCCTATAGTAGATTAAC AGGCCAGTTATACTTCCCGGTAAC TCGATTACGTAGGTAG spacer
length: 41 repeater length: 24
30506 2186594 CTTTCAATTCCTATAGTAGATTAAC CTTCCAGGCGAAATTGCATATGCAATAAAACAATCAATTC spacer
length: 40 repeater length: 24
30507 2186658 CTTTCAATTCCTATAGTAGATTAAC AGCCGAGCATCAAATCTGGAGAGTTCTTGTTGAAAGTTT spacer
length: 39 repeater length: 24
30508 2186721 CTTTCAATTCCTATAGTAGATTAAC AAATATCCAAGAGAAAGAGGAAGAATCTGAAGATGAAAATC spacer
length: 41 repeater length: 24
30509 2186786 CTTTCAATTCCTATAGTAGATTAAC ATTCCTCTTTTGTACTTGTAAGTATTAGCCAAACTGTAAGG spacer
length: 42 repeater length: 24
30510 2186852 CTTTCAATTCCTATAGTAGATTAAC ATAATTAGTATAACAAAATCTTTCTGACTTACCATATTTT spacer
length: 40 repeater length: 24
30511 2186916 CTTTCAATTCCTATAGTAGATTAAC GCGATGAAGATCAATGCATCGCCTGGTGCGAAAGGATATA spacer
length: 40 repeater length: 24
30512 2186980 CTTTCAATTCCTATAGTAGATTAAC AAGATGATAAAGCACGGCAAGAAGAAAACAACGATTTACCTGG spacer
length: 43 repeater length: 24
30513 2187047 CTTTCAATTCCTATAGTAGATTAAC ATGAGTATGTATTCCTAGGCTCATACTATCACCTTGTA spacer

	length: 38	repeater length: 24	
30514	2187109	CTTTCAATTCTATAGTAGATTAAC	TACCTTTTACCAGACCTAGTAATGCTAAAGTAATTGAGCCT spacer
	length: 41	repeater length: 24	
30515	2187174	CTTTCAATTCTATAGTAGATTAAC	TTCTCGACCCATCCTCTTATTATGTATATCCTCAGCCT spacer
	length: 38	repeater length: 24	
30516	2187236	CTTTCAATTCTATAGTAGATTAAC	CTTCACAAAGGTAAGGGATATGTGGAACCTTGGTGTTT spacer
	length: 38	repeater length: 24	
30517	2187298	CTTTCAATTCTATAGTAGATTAAC	TGTACCTGCTGGACATACTTTGCAAAGCCATTTATGGCAGT spacer
	length: 41	repeater length: 24	
30518	2187363	CTTTCAATTCTATAGTAGATTAAC	TTTGTAATACAATATTTTCATGTCATCAAAATTCAATCCC spacer
	length: 39	repeater length: 24	
30519	2187426	CTTTCAATTCTATAGTAGATTAAC	ATTATAACGCCGTTGCACAAGCAGAGCAAGATCTCAATGC spacer
	length: 40	repeater length: 24	
30520	2187490	CTTTCAATTCTATAGTAGATTAAC	CAATTGCGGTGCTATACAGCCTTCCCATGACGTTCCCGA spacer
	length: 39	repeater length: 24	
30521	2187553	CTTTCAATTCTATAGTAGATTAAC	GTATGTAGATAAGCAATCCTCAACGCAGAGATAATAATC spacer
	length: 39	repeater length: 24	
30522	2187616	CTTTCAATTCTATAGTAGATTAAC	TAAATCTACTTCTAGAAGTGACCAAAAGGGCGGATTAAAT spacer
	length: 41	repeater length: 24	
30523	2187681	CTTTCAATTCTATAGTAGATTAAC	AGTGCTGGTGCTACTGTTTTTAGTGCGTTCACACGGTCAT spacer
	length: 40	repeater length: 24	
30524	2187745	CTTTCAATTCTATAGTAGATTAAC	GGCAAGTACGTTCCATATGGTACATCATTTTCTGTTTCTAT spacer
	length: 41	repeater length: 24	
30525	2187810	CTTTCAATTCTATAGTAGATTAAC	AAAATTATAAAGCCTGGCATATGCTGTAACAAACTTGCTAT spacer
	length: 42	repeater length: 24	
30526	2187876	CTTTCAATTCTATAGTAGATTAAC	TAGAAATTCTAGAACTGATAAAGGAAAAGGAAGATACTTCCT spacer
	length: 43	repeater length: 24	
30527	2187943	CTTTCAATTCTATAGTAGATTAAC	ATACTAGATATGCAAAGGAGCTCAGATAACAGAGTT spacer
	length: 37	repeater length: 24	
30528	2188004	CTTTCAATTCTATAGTAGATTAAC	ATTTAGTGGCTCAGGCTTTTCAAAGCTTTTCAAGAATAT spacer
	length: 39	repeater length: 24	
30529	2188067	CTTTCAATTCTATAGTAGATTAAC	TTTCAAGTTCTTCCTTATTATATTCAAAGCCGGCCTTT spacer
	length: 38	repeater length: 24	
30530	2188129	CTTTCAATTCTATAGTAGATTAAC	TAGTTCATTAAAAAGTGTCTCAGATTGTTTTTTCACATGC spacer
	length: 40	repeater length: 24	
30531	2188193	CTTTCAATTCTATAGTAGATTAAC	CGTAAACTGTTGCGGGTCCGGTTGCCCATGCATAGATGTTAG spacer
	length: 42	repeater length: 24	
30532	2188259	CTTTCAATTCTATAGTAGATTAAC	TGGAACCAATTTGTAAATTTACTCTTAGAAGTGTATCAAAA spacer
	length: 41	repeater length: 24	
30533	2188324	CTTTCAATTCTATAGTAGATTAAC	TTGGCGCTAGTTGATTCCTTAGCGTTTTTGTGTTTTAGTGTTT spacer
	length: 43	repeater length: 24	
30534	2188391	CTTTCAATTCTATAGTAGATTAAC	GTTTAATGAATCACATTCGATAACAAAATCGATAAGCAAT spacer
	length: 40	repeater length: 24	
30535	2188455	CTTTCAATTCTATAGTAGATTAAC	TAAACCATTTATTAATTATCCGATAGCATGGGATATTTTA spacer
	length: 40	repeater length: 24	
30536	2188519	CTTTCAATTCTATAGTAGATTAAC	GATACAAACATCACTAACTCAATAATTAAAGTCTCTATCAG spacer
	length: 41	repeater length: 24	
30537	2188584	CTTTCAATTCTATAGTAGATTAAC	GAATTACAGTGGTAAGATTACAGTCTTACAGAAAAACCTTA spacer
	length: 41	repeater length: 24	
30538	2188649	CTTTCAATTCTATAGTAGATTAAC	TGTTAATGTTTTGAATAGTGAAATCAATGCAAAGTTAGT spacer
	length: 40	repeater length: 24	
30539	2188713	CTTTCAATTCTATAGTAGATTAAC	CCTGTGATATCAAATAGAGCAACCCAATTCTCAATGTATTT spacer
	length: 41	repeater length: 24	
30540	2188778	CTTTCAATTCTATAGTAGATTAAC	GGGCAAAATGTCTCATGTATACAGAATAAGTCATTTGGGG spacer
	length: 40	repeater length: 24	
30541	2188842	CTTTCAATTCTATAGTAGATTAAC	AGCAGAATTTAACTACTTTAACTCACAGTGGTGTAAATGG spacer
	length: 39	repeater length: 24	
30542	2188905	CTTTCAATTCTATAGTAGATTAAC	ATACACCAGATTTGATTGACAAGTATCTCAAACTATCTAT spacer
	length: 41	repeater length: 24	
30543	2188970	CTTTCAATTCTATAGTAGATTAAC	GTTGTGATAATTGAATTTGTTGTGAACTACATCCTTGAAA spacer
	length: 40	repeater length: 24	
30544	2189034	CTTTCAATTCTATAGTAGATTAAC	GAGAAAAAATTGAATTTGATGTGGACGGTATGAAAGTATC spacer
	length: 41	repeater length: 24	
30545	2189099	CTTTCAATTCTATAGTAGATTAAC	TACAATTTAGAATATAAAGTCGGAGAACAGAGAATTGTA spacer
	length: 39	repeater length: 24	
30546	2189162	CTTTCAATTCTATAGTAGATTAAC	ACGGGTGCGGGAACACAGCGGACTTAGTCCGCGATCGGGG spacer
	length: 40	repeater length: 24	
30547	2189226	CTTTCAATTCTATAGTAGATTAAC	GAACAGATGGGCCAGTTTTATAATTTTCGCGTTATATCA spacer
	length: 40	repeater length: 24	
30548	2189290	CTTTCAATTCTATAGTAGATTAAC	CATCATTCAACAATGACATATTGATTATAGCGTTAATTC spacer
	length: 39	repeater length: 24	

30549	2189353	CTTTCAATTCTATAGTAGATTAAC	TGATTCTAATTGTGTTGGATTCCAAATTTGAGTTTTTTAATAGT	spacer
	length:	44	repeater length:	24
30550	2189421	CTTTCAATTCTATAGTAGATTAAC	AAGACCGCGTTCAAATTTTCTAAGTATAAGTCCATTCCTAAG	spacer
	length:	43	repeater length:	24
30551	2189488	CTTTCAATTCTATAGTAGATTAAC	GCGGATAGAAGTCAGGGAGGATAAAGATAGAAATAGAAAGCA	spacer
	length:	42	repeater length:	24
30552	2189554	CTTTCAATTCTATAGTAGATTAAC	TTGCCACTGGTGTCCCATCTACCAACTTAGTTTTTCAAAT	spacer
	length:	40	repeater length:	24
30553	2189618	CTTTCAATTCTATAGTAGATTAAC	CTAAAAGTTTTGAAGGAGCATGGCTTCGACGCGAAAATACA	spacer
	length:	41	repeater length:	24
30554	2189683	CTTTCAATTCTATAGTAGATTAAC	TTAACAGGATATCCGATCCACTCTGATTCTATTATGTAATC	spacer
	length:	41	repeater length:	24
30555	2189748	CTTTCAATTCTATAGTAGATTAAC	TGTTTATCTGAAGTATGACAGAGAAGGCATGGTAATGAT	spacer
	length:	39	repeater length:	24
30556	2189811	CTTTCAATTCTATAGTAGATTAAC	TTGATATTGTTGTAGATTTTGTGTAACTGCTGGGCGTAAG	spacer
	length:	41	repeater length:	24
30557	2189876	CTTTCAATTCTATAGTAGATTAAC	CCCACTGTAGAAACGACATACTAAAAATTTTGAAAGAACA	spacer
	length:	40	repeater length:	24
30558	2189940	CTTTCAATTCTATAGTAGATTAAC	AAAAATAGAATGCCTTTAGGGTGAAACCCCGCCTGGGGTG	spacer
	length:	40	repeater length:	24
30559	2190004	CTTTCAATTCTATAGTAGATTAAC	TTCTTTCTAGAGGTCACCTTCATCTAACTATGATAATATA	spacer
	length:	39	repeater length:	24
30560	2190067	CTTTCAATTCTATAGTAGATTAAC	AATTTTTGCTCTCCCTTTTTCAATATATGCATTAAATATTG	spacer
	length:	41	repeater length:	24
30561	2190132	CTTTCAATTCTATAGTAGATTAAC	AATAAATTAAGTGTATATTTATCTCCCCCGCGGTAAA	spacer
	length:	38	repeater length:	24
30562	2190194	CTTTCAATTCTATAGTAGATTAAC	ATAGTAACGATATAAACACTTACCACAGACCCCATTTTG	spacer
	length:	39	repeater length:	24
30563	2190257	CTTTCAATTCTATAGTAGATTAAC	ATAATGTATGTGATGATGGAAGCAGTAAATCATTGTTA	spacer
	length:	39	repeater length:	24
30564	2190320	CTTTCAATTCTATAGTAGATTAAC	TTTCCTTGATAAATATTGATGAAGGTAGAACATTAATTG	spacer
	length:	39	repeater length:	24
30565	2190383	CTTTCAATTCTATAGTAGATTAAC	CGTATTGGCTTGGAAGGCAATCCTATTCGCTACTAAGTT	spacer
	length:	40	repeater length:	24
30566	2190447	CTTTCAATTCTATAGTAGATTAAC	GGCAATTTTATCTTTTTTCTCGAATATCCCAGCAAATAATT	spacer
	length:	41	repeater length:	24
30567	2190512	CTTTCAATTCTATAGTAGATTAAC	ACAGTTTGTAACGTAGGTCCTGTATAAAGTGGAGCTTT	spacer
	length:	38	repeater length:	24
30568	2190574	CTTTCAATTCTATAGTAGATTAAC	ATGAAGCTGATTCATTTATTCCAATGAGGGCAGAAAAAT	spacer
	length:	39	repeater length:	24
30569	2190637	CTTTCAATTCTATAGTAGATTAAC	ATTTTAGCATTTGCTAAGTCTTCCTTAGGTGCTAAGTTTTCT	spacer
	length:	42	repeater length:	24
30570	2190703	CTTTCAATTCTATAGTAGATTAAC	CTGAAAATAGTTGCAGGCATACTCCCACAAACAATTGAAG	spacer
	length:	40	repeater length:	24
30571	2190767	CTTTCAATTCTATAGTAGATTAAC	AAAGTGACATAGAAAGTGAGTCAAAAACAAATCAAATGACTCAT	spacer length: 45
	length:	45	repeater length:	24
30572	2190836	CTTTCAATTCTATAGTAGATTAAC	AAAACAAGGTGACGTGATTTTAGACCCTTTCGCGGGGG	spacer
	length:	38	repeater length:	24
30573	2190898	CTTTCAATTCTATAGTAGATTAAC	GGGACATCATGACTACCCATACTACCATATGCCATAACAAA	spacer
	length:	41	repeater length:	24
30574	2190963	CTTTCAATTCTATAGTAGATTAAC	CACTAGATTTTGAGCTTTTCAACAAGCTTGAAATTTATGCCA	spacer
	length:	43	repeater length:	24
30575	2191030	CTTTCAATTCTATAGTAGATTAAC	CTTATTTTCTAGAAAGTCACCAGTAGTAAATATGACAATATT	spacer
	length:	41	repeater length:	24
30576	2191095	CTTTCAATTCTATAGTAGATTAAC	AAGGCTATCTTTTTAGCACAAAGTCTAGAAGACATCTTTTTC	spacer
	length:	41	repeater length:	24
30577	2191160	CTTTCAATTCTATAGTAGATTAAC	TATTTAAAGCCGGAAGATGGAAAACCAGATCATATCTAT	spacer
	length:	39	repeater length:	24
30578	2191223	CTTTCAATTCTATAGTAGATTAAC	ATACGAGTAGGGCGTTGCGTTTATTACTACTGAAGTCAA	spacer
	length:	39	repeater length:	24
30579	2191286	CTTTCAATTCTATAGTAGATTAAC	GGAACGATTGCGATAATTGCGTTCCCCTATGTGAGAGGCTGTA	spacer
	length:	43	repeater length:	24
30580	2191353	CTTTCAATTCTATAGTAGATTAAC	ATCCACAGTCTTTATTGGCATTCAATTAATGCAGTACAGAA	spacer
	length:	40	repeater length:	24
30581	2191417	CTTTCAATTCTATAGTAGATTAAC	TAATATTACTCTAAATGCATATCCCATTATGAATAAGCTAAT	spacer
	length:	42	repeater length:	24
30582	2191483	CTTTCAATTCTATAGTAGATTAAC	AAGGTGAGGTGAAAAAGAATGTTCCCAATTAAGATAGGAAC	spacer
	length:	41	repeater length:	24
30583	2191548	CTTTCAATTCTATAGTAGATTAAC	TCAGTTCTGGAAAACTAAGTAGACAAGACTAGATAAGAGCTTT	spacer
	length:	44	repeater length:	24
30584	2191616	CTTTCAATTCTATAGTAGATTAAC	GAAGAGGAAGTTGAAGTAGTAGGTGGTGTATTATGATTGG	spacer

length: 41 repeater length: 24
30585 2191681 CTTTCAATTCTATAGTAGATTAAC TAAACAAAGGCTCTATGATCCCTCACCAGGCGGATTAAATGT spacer
length: 42 repeater length: 24
30586 2191747 CTTTCAATTCTATAGTAGATTAAC TTAATAGCCCCACCAACGCTTAATATAGTCACTAGTAGTATA spacer
length: 42 repeater length: 24
30587 2191813 CTTTCAATTCTATAGTAGATTAAC
30588
30589
30590 crispr 6
30591 2196507 GTTAATCTACTATAGAATTGAAAG TTTGGTAGGCGACTATAACAGTCTTTTGGCGAATACCC spacer
length: 38 repeater length: 24
30592 2196569 GTTAATCTACTATAGAATTGAAAG AAAAGGAGGTCTTCAGTGGCAAAAATATTATCAAAATGGA spacer
length: 40 repeater length: 24
30593 2196633 GTTAATCTACTATAGAATTGAAAG CCAAGATTCTGTATTACAATTTTATCGGAACAAACAAAT spacer
length: 39 repeater length: 24
30594 2196696 GTTAATCTACTATAGAATTGAAAG AATAGCCTCTATAATTTTCTCATTTAGTTTATCTCCATGAGTATTAAT
spacer length: 48 repeater length: 24
30595 2196768 GTTAATCTACTATAGAATTGAAAG GTAAGTAGAAATACAAGTAATTCCTCTCCAGAAATAATTGT spacer
length: 41 repeater length: 24
30596 2196833 GTTAATCTACTATAGAATTGAAAG TTCCAAACAATATAAATATCTCCATTTTCTTTAAGA spacer length:
36 repeater length: 24
30597 2196893 GTTAATCTACTATAGAATTGAAAG TTTCTATTATCATAATACTCTTCAATTTCTCGTGATGG spacer
length: 38 repeater length: 24
30598 2196955 GTTAATCTACTATAGAATTGAAAG ATATTACTTAGTGAGATTGAACTCAATTTGCACTAGAGATT spacer
length: 42 repeater length: 24
30599 2197021 GTTAATCTACTATAGAATTGAAAG TTATATTCTGTCAAGCCGTGGCGGTTTCATTTCGAATTGAA spacer
length: 39 repeater length: 24
30600 2197084 GTTAATCTACTATAGAATTGAAAG TTGGTCTTTTTTCAACATCTACTAACATTATTTTTCTAA spacer
length: 39 repeater length: 24
30601 2197147 GTTAATCTACTATAGAATTGAAAG TCTAAATTTTCAATAAAAGATCCCAATGGTATTAACATTAATT spacer
length: 43 repeater length: 24
30602 2197214 GTTAATCTACTATAGAATTGAAAG CTAAAAAATCAATACTTTAAATACTCGCATGCCACAATTT spacer
length: 40 repeater length: 24
30603 2197278 GTTAATCTACTATAGAATTGAAAG ACTTTTATATAATGTAAAAAGTATTGCGGAAAATATTATACAAG spacer
length: 43 repeater length: 24
30604 2197345 GTTAATCTACTATAGAATTGAAAG TTTTCTTTTATCTACATCACCGATTACACGCTGGTTCAT spacer
length: 38 repeater length: 24
30605 2197407 GTTAATCTACTATAGAATTGAAAG TCATATATCAATATTTTATAAATTATCATTTATAAATAT spacer
length: 39 repeater length: 24
30606 2197470 GTTAATCTACTATAGAATTGAAAG TAATCTAAATATATCCTAACAACTGAGGTTCTGAGT spacer
length: 38 repeater length: 24
30607 2197532 GTTAATCTACTATAGAATTGAAAG AAAGACAGAAAATCAAAGATAATGGATATTGTAATATTGCACC spacer
length: 43 repeater length: 24
30608 2197599 GTTAATCTACTATAGAATTGAAAG TTTGGAGGATAATATAATGCAAATCCCCAATATAGATATACATAATC
spacer length: 47 repeater length: 24
30609 2197670 GTTAATCTACTATAGAATTGAAAG ATTACTAATCCAAGTTCTTACATAAATTCAGTATTACAAT spacer
length: 40 repeater length: 24
30610 2197734 GTTAATCTACTATAGAATTGAAAG
30611
30612
30613 crispr 7
30614 2207010 GTTAATCTATTATAGAATTGAAAG GTATCCGGACAAGATGTCCAAGTGAGTAGCTGGTCAGACCT spacer
length: 41 repeater length: 24
30615 2207075 GTTAATCTATTATAGAATTGAAAG TATTTAGTGTTATTTTTTACACAAAAGATATATTTTCTGCA spacer
length: 41 repeater length: 24
30616 2207140 GTTAATCTATTATAGAATTGAAAG ACTTTAAGTCAAAATATGAGAAATAATCAAATTCAGATG spacer
length: 40 repeater length: 24
30617 2207204 GTTAATCTATTATAGAATTGAAAG CAAAATACAAGTAGTTCTTCATCTACAAAATCATCTAAT spacer
length: 39 repeater length: 24
30618 2207267 GTTAATCTATTATAGAATTGAAAG TTCTTAATGGCTTCTCCAATATCTCATTTTCGTCTAAGCT spacer
length: 39 repeater length: 24
30619 2207330 GTTAATCTATTATAGAATTGAAAG ATATAAAAGCCTCTGTGACAGGTAATGTAAATGCAACCA spacer
length: 39 repeater length: 24
30620 2207393 GTTAATCTATTATAGAATTGAAAG AATCATTCACATCTTCATCTGTCAATGCAATTTTCAGGCATG spacer
length: 41 repeater length: 24
30621 2207458 GTTAATCTATTATAGAATTGAAAG ATAATATATAGATATATTATATCTTAGATATGTCATCCAATT spacer
length: 42 repeater length: 24
30622 2207524 GTTAATCTATTATAGAATTGAAAG TTTATGTATACGTATTTCTAACTCATTCTTTTCATTTAAT spacer
length: 40 repeater length: 24
30623 2207588 GTTAATCTATTATAGAATTGAAAG TATATTTTTCCGAGAGAAAGCACTGCCAGAACGCCTTCT spacer
length: 39 repeater length: 24

30624	2207651	GTTAATCTATTATAGAATTGAAAG	ATTATTCGGCATTAGCCAGTTATTACCAACAATTATCGCA	spacer
	length:	40	repeater length:	24
30625	2207715	GTTAATCTATTATAGAATTGAAAG	CTTCTAGCGCCATTAATTTCTGAATCTCTTGCCATGCTA	spacer
	length:	39	repeater length:	24
30626	2207778	GTTAATCTATTATAGAATTGAAAG	CATCAAAACTTAAATAATAAACTACTGGTTTGCCCAATTCATA	spacer
	length:	43	repeater length:	24
30627	2207845	GTTAATCTATTATAGAATTGAAAG	TTTTGAATGAAGAAATATGCTACAATCAGGGGAGTTAACTT	spacer
	length:	41	repeater length:	24
30628	2207910	GTTAATCTATTATAGAATTGAAAG	AATATGTGCAATATTGATATTTGATTTATATAATGCAACA	spacer
	length:	40	repeater length:	24
30629	2207974	GTTAATCTATTATAGAATTGAAAG	TTCATTATTTTGCCCAAGTCCAGTACTTTCTATCTGGAAT	spacer
	length:	40	repeater length:	24
30630	2208038	GTTAATCTATTATAGAATTGAAAG	ATATTGCACTCTAAAGTATTTAAACCTTACTATTGGGCT	spacer
	length:	39	repeater length:	24
30631	2208101	GTTAATCTATTATAGAATTGAAAG	TCTACATTACTTCTATTGCCAAGTTGTGCGAATGCTTTGT	spacer
	length:	40	repeater length:	24
30632	2208165	GTTAATCTATTATAGAATTGAAAG	ATTGCAATTGCAAAGAGCAATGCACCAAACACAGCAATAT	spacer
	length:	40	repeater length:	24
30633	2208229	GTTAATCTATTATAGAATTGAAAG	ATTTTACATCTTTGATTTGAGAAACAGTGAGTTGATAGGA	spacer
	length:	40	repeater length:	24
30634	2208293	GTTAATCTATTATAGAATTGAAAG	TTATGATGTCTAATTCCTTTTCTAAAATGTTTTTATCAA	spacer
	length:	40	repeater length:	24
30635	2208357	GTTAATCTATTATAGAATTGAAAG	ATTATCAAGACCTAAGTTAAAATCTGCATAAATTAAAAA	spacer
	length:	39	repeater length:	24
30636	2208420	GTTAATCTATTATAGAATTGAAAG	TATTTTTCTACAAATGCCATTTGTACAGAATTTAATGA	spacer
	length:	38	repeater length:	24
30637	2208482	GTTAATCTATTATAGAATTGAAAG	TACTCCACCTTTACATTTATTGTCTCTCTAGATTCAACTTT	spacer
	length:	41	repeater length:	24
30638	2208547	GTTAATCTATTATAGAATTGAAAG	CATGAAGAGAAACCCAAAGCTGAAGAGAAAAAATCTTCAGATT	spacer
	length:	43	repeater length:	24
30639	2208614	GTTAATCTATTATAGAATTGAAAG	ATAGCTTGTCTACGGGGTCCATAATGGATAATAAAAAAT	spacer
	length:	38	repeater length:	24
30640	2208676	GTTAATCTATTATAGAATTGAAAG	CTTTTTATAGGCTAACTCAAAAAACAATACACACTTTCTTTT	spacer
	length:	42	repeater length:	24
30641	2208742	GTTAATCTATTATAGAATTGAAAG	ATAAAGGGGCCTTACCTTGGTTTAGGTTTGATTGACTTG	spacer
	length:	39	repeater length:	24
30642	2208805	GTTAATCTATTATAGAATTGAAAG	AACTTAGTGTTAAGAGGTAGAGTAGATTTTCATGACTGA	spacer
	length:	38	repeater length:	24
30643	2208867	GTTAATCTATTATAGAATTGAAAG	CTACACGCCGACAACAATGCTAGGCGCGCTAATCGATGC	spacer
	length:	39	repeater length:	24
30644	2208930	GTTAATCTATTATAGAATTGAAAG	TTAGGTATTGCAAAGCTATCAGTGTGAGTATACCAAACCT	spacer
	length:	40	repeater length:	24
30645	2208994	GTTAATCTATTATAGAATTGAAAG	AGTTCTATTGCTATTATGAAGAGCACTAGAACTACTAGAGTA	spacer
	length:	42	repeater length:	24
30646	2209060	GTTAATCTATTATAGAATTGAAAG	ACTTAAATGTAATTATTCTCACTGTACTTCACCCCTTC	spacer
	length:	39	repeater length:	24
30647	2209123	GTTAATCTATTATAGAATTGAAAG	CGATTAAGTCAATTATTAATACTGATTCTATTGAGTTTGCC	spacer
	length:	41	repeater length:	24
30648	2209188	GTTAATCTATTATAGAATTGAAAG	TTAAAAATACTTTAAGCTATACTTTAAGCGAATTAAAAAT	spacer
	length:	39	repeater length:	24
30649	2209251	GTTAATCTATTATAGAATTGAAAG	TCGTAACGCCATTGGACATTGACGATAAAACGATAACTG	spacer
	length:	39	repeater length:	24
30650	2209314	GTTAATCTATTATAGAATTGAAAG	CCAACACTTTTTTTCAGATGATACAGAATTACAATATATGTTTG	spacer
	length:	43	repeater length:	24
30651	2209381	GTTAATCTATTATAGAATTGAAAG	GTCTAAGCATTCTTCGATATCGTCCATACTTATGTCCTCTG	spacer
	length:	41	repeater length:	24
30652	2209446	GTTAATCTATTATAGAATTGAAAG	TATCTTCTGATACCATTCTTCATCAGGGGATACTTTGTGT	spacer
	length:	40	repeater length:	24
30653	2209510	GTTAATCTATTATAGAATTGAAAG	TGTATTCTTTTGAATTTCAAACCTATATAAATTTAACTCATA	spacer
	length:	41	repeater length:	24
30654	2209575	GTTAATCTATTATAGAATTGAAAG	CTTTTATTTGGGGCAGGTAGCGGGGATCTACAGATTATG	spacer
	length:	40	repeater length:	24
30655	2209639	GTTAATCTATTATAGAATTGAAAG	AATTCCTTAGCATTAATTATTGCTAACGCCATCTCATT	spacer
	length:	37	repeater length:	24
30656	2209700	GTTAATCTATTATAGAATTGAAAG	GTCTCCATATTATCGCCTCATTTTCTAGAACTCTATTA	spacer
	length:	39	repeater length:	24
30657	2209763	GTTAATCTATTATAGAATTGAAAG	CGCGGTGGTAGGCTCTTTCTGAGTGCATCCATTGCTGGG	spacer
	length:	39	repeater length:	24
30658	2209826	GTTAATCTATTATAGAATTGAAAG	ACATTTGGTAATGTTGTAAGCACATCTATAGCCACTGATT	spacer
	length:	40	repeater length:	24
30659	2209890	GTTAATCTATTATAGAATTGAAAG		

30660
30661
30662 crispr 8
30663 2209954 GTTAATCTATTATAGAATTGAAAG ATATTATATATTAAACAACCTTACTAGCTTACTAACTATTATACT spacer
length: 44 repeater length: 24
30664 2210022 GTTAATCTATTATAGAATTGAAAG TCAATTTCTTTAATAATCAATCTCAGCACTTTATCATCTTCAT spacer
length: 43 repeater length: 24
30665 2210089 GTTAATCTATTATAGAATTGAAAG CAGTAACGAATAAGTCTATCAGTTTATTCTCTATAATTAACCCTA spacer
length: 44 repeater length: 24
30666 2210157 GTTAATCTATTATAGAATTGAAAG ACTATGCACTGCCACACACCCCTCATCAAATTGAGATAAATCAT spacer
length: 44 repeater length: 24
30667 2210225 GTTAATCTATTATAGAATTGAAAG TTATGACTATTTGTCACAAAAGTGGAGAGTCTGAACTATT spacer
length: 41 repeater length: 24
30668 2210290 GTTAATCTATTATAGAATTGAAAG AATAAGAGCAAATCTGTATTACTAAGCAAAGAAGATGAAG spacer
length: 40 repeater length: 24
30669 2210354 GTTAATCTATTATAGAATTGAAAG TCAGTCCTTTGCATAATATTTTCATCATTAATCTCAAAATTA spacer
length: 41 repeater length: 24
30670 2210419 GTTAATCTATTATAGAATTGAAAG TAAGGCTTATGCAATCCATTTATCCATTTGGTTATAA spacer
length: 37 repeater length: 24
30671 2210480 GTTAATCTATTATAGAATTGAAAG GAAAATAGTATTATAGGCGTCTATGCAGATTATGATATA spacer
length: 39 repeater length: 24
30672 2210543 GTTAATCTATTATAGAATTGAAAG TGGCTAGCCAGTAGGGACTTTATATCGTCAAAGCAAG spacer
length: 38 repeater length: 24
30673 2210605 GTTAATCTATTATAGAATTGAAAG TGTATTCTTTTGAATTTCAAACCTATATAAATTTAACTCATA spacer
length: 41 repeater length: 24
30674 2210670 GTTAATCTATTATAGAATTGAAAG ACTATCTAAAGAAACAGATTCCAAAGGTAATTTGTAAGA spacer
length: 39 repeater length: 24
30675 2210733 GTTAATCTATTATAGAATTGAAAG AATTTTTTAAACCCCCAACCCGCATGCCGTGTAGAATTAA spacer
length: 40 repeater length: 24
30676 2210797 GTTAATCTATTATAGAATTGAAAG GGTTTGGCTGAAGGAGCCATAACAATGGGGGGTATTCAT spacer
length: 39 repeater length: 24
30677 2210860 GTTAATCTATTATAGAATTGAAAG CATTATTATATATCCATAATAGTAATAACTCTATAATTTCTT spacer
length: 42 repeater length: 24
30678 2210926 GTTAATCTATTATAGAATTGAAAG CAACTATATGCTAAATATCCAGTGTTATCATTAACTCTTAG spacer
length: 41 repeater length: 24
30679 2210991 GTTAATCTATTATAGAATTGAAAG TTTACATTACCTGTAAGTGTGCCCCTAATATAAGAATTGA spacer
length: 40 repeater length: 24
30680 2211055 GTTAATCTATTATAGAATTGAAAG TCTACGAAAAAGTAGAAATGAAAACCTCGTTTGTAGTTTCTA spacer
length: 40 repeater length: 24
30681 2211119 GTTAATCTATTATAGAATTGAAAG GTTGAAATTACATTAAGAGTCGGCACTCCAGAAAAAATTA spacer
length: 40 repeater length: 24
30682 2211183 GTTAATCTATTATAGAATTGAAAG TTTTTTTCACCAAGAATTCAGTTGTTTGTCACTGTTTTT spacer
length: 39 repeater length: 24
30683 2211246 GTTAATCTATTATAGAATTGAAAG AATGCTTGAGCGTTCAAGTGCTTAAACGCTTGAGCACTTG spacer
length: 40 repeater length: 24
30684 2211310 GTTAATCTATTATAGAATTGAAAG AATCCTATTTTTGATATTTTATTAATTTTGATAGCTTTTA spacer
length: 40 repeater length: 24
30685 2211374 GTTAATCTATTATAGAATTGAAAG ACCTTTTTTACAGTATTACCTACCATCAATGCTTTTAGTTT spacer
length: 41 repeater length: 24
30686 2211439 GTTAATCTATTATAGAATTGAAAG CTAAGTTAATTCTTTTTTCTCTTCTTATTTGTTATTTTTT spacer
length: 40 repeater length: 24
30687 2211503 GTTAATCTATTATAGAATTGAAAG ACTACGCTGGATCATCTGATAGGTCCAGTCGGAGAGTAC spacer
length: 39 repeater length: 24
30688 2211566 GTTAATCTATTATAGAATTGAAAG AGGTTTAGTGCATCCAAAGGCGTCAAATATTATATCTTA spacer
length: 39 repeater length: 24
30689 2211629 GTTAATCTATTATAGAATTGAAAG ATTAGTTATCAATTCTATCCAGTTGTTTCATGGAATTCCT spacer
length: 39 repeater length: 24
30690 2211692 GTTAATCTATTATAGAATTGAAAG GTGCTAAGTTCAATATTTAACTGTGCATCTGTTGTTCCCTT spacer
length: 40 repeater length: 24
30691 2211756 GTTAATCTATTATAGAATTGAAAG TAAAGCTAAAGCGTCATCAAACCTGAGACTCTGGAATCTCTGG spacer
length: 42 repeater length: 24
30692 2211822 GTTAATCTATTATAGAATTGAAAG ACAAATGTCACCTATTTTCAATTTTCTCACCCAAAAGCAT spacer
length: 40 repeater length: 24
30693 2211886 GTTAATCTATTATAGAATTGAAAG ACTATATTTTCAAGAAATTGAAGATATATTATTTAAGCAT spacer
length: 38 repeater length: 24
30694 2211948 GTTAATCTATTATAGAATTGAAAG TGTACAAGGTGTAGTTATGAGGAAATCGCGAGAACGATG spacer
length: 39 repeater length: 24
30695 2212011 GTTAATCTATTATAGAATTGAAAG TTTAGTTTGCTTTTTTATAATAATTTCTTCACGTTCTTTTT spacer
length: 40 repeater length: 24
30696 2212075 GTTAATCTATTATAGAATTGAAAG TAGTGACCCGAAGTGAAACCTGCCGTCTTCAATTTATTGT spacer
length: 40 repeater length: 24

30697	2212139	GTTAATCTATTATAGAATTGAAAG	ACGTAAGAGATTCCACTATATTTCATTATCATCATAATAAT	spacer
	length:	40	repeater length:	24
30698	2212203	GTTAATCTATTATAGAATTGAAAG	TTCTCTATTTCTTCACATTTAAATCATAACCTATTTTCAT	spacer
	length:	40	repeater length:	24
30699	2212267	GTTAATCTATTATAGAATTGAAAG	TTTATTATGATATAACTATCATAATCTTCTGCAAATATCAC	spacer
	length:	41	repeater length:	24
30700	2212332	GTTAATCTATTATAGAATTGAAAG	TGATATTCAAAACTCTGTGTTCCCCAGGGTCTAAGTTCTA	spacer
	length:	40	repeater length:	24
30701	2212396	GTTAATCTATTATAGAATTGAAAG	CATATTGCATTCTTTCTGCTCTTCTGAAAAAATGATT	spacer
	length:	38	repeater length:	24
30702	2212458	GTTAATCTATTATAGAATTGAAAG	TTTGTCTAAACCAACTGATTTCGGTTGGTAATTTAAATAAA	spacer
	length:	40	repeater length:	24
30703	2212522	GTTAATCTATTATAGAATTGAAAG	ACGTATCCATTTGAAAATTCTGCCATAATAAGTCCATCTT	spacer
	length:	40	repeater length:	24
30704	2212586	GTTAATCTATTATAGAATTGAAAG	TTTCAAAGACTAACTAGTGGCATGTGGAATACCGCAGTTTT	spacer
	length:	41	repeater length:	24
30705	2212651	GTTAATCTATTATAGAATTGAAAG	TCTTCAATTTGTGCCGGAAGAAAAAGATAGATTCAACAC	spacer
	length:	40	repeater length:	24
30706	2212715	GTTAATCTATTATAGAATTGAAAG	TGTAATTGGATCGATTTGTCCATTACTTATTGTAGT	spacer length:
	length:	36	repeater length:	24
30707	2212775	GTTAATCTATTATAGAATTGAAAG	TTAAATGAATAAGTATGGCAAGAAGAAAAAATTACATTT	spacer
	length:	40	repeater length:	24
30708	2212839	GTTAATCTATTATAGAATTGAAAG	GATTGCGAACTTATTATTTGTTCACTAACGTCTATCATTACTGG	spacer
	length:	44	repeater length:	24
30709	2212907	GTTAATCTATTATAGAATTGAAAG	AGCCCTTTTGGGTTTGGGAAAACACAATTCCACTAGCCTC	spacer
	length:	40	repeater length:	24
30710	2212971	GTTAATCTATTATAGAATTGAAAG	ATTCTTGATTTTTTCAAAGATGTAAACACGGAAGTTTCAA	spacer
	length:	41	repeater length:	24
30711	2213036	GTTAATCTATTATAGAATTGAAAG		
30712				
30713				
30714		crispr 9		
30715	2226772	GTTTTAGTTTCTTTGAGTTGTTAC	ATTCTCCAGACTTTTTTTTACTGCTTGGAGAAATG	spacer length:
	length:	34	repeater length:	24
30716	2226830	GTTTTAGTTTCTTTGAGTTGTTAC	ACGACATAATAGAATTTAATGGAAATGAAACAAAA	spacer length:
	length:	35	repeater length:	24
30717	2226889	GTTTTAGTTTCTTTGAGTTGTTAC	AACACCAGCCTTTTCAAATTCATTAACGATTTGTTT	spacer length:
	length:	36	repeater length:	24
30718	2226949	GTTTTAGTTTCTTTGAGTTGTTAC	CTGGAATCGGAGGAGGAAAGTGAAGGATTGACTG	spacer length:
	length:	34	repeater length:	24
30719	2227007	GTTTTAGTTTCTTTGAGTTGTTAC	GTCAGTACGTAGTTTTTCTCTTTTTCCGTTCTCA	spacer length:
	length:	34	repeater length:	24
30720	2227065	GTTTTAGTTTCTTTGAGTTGTTAC	AGACAGAGAAGAGGGAAAATTGGAAAAACGCATATAT	spacer
	length:	37	repeater length:	24
30721	2227126	GTTTTAGTTTCTTTGAGTTGTTAC	GATACCAAATGCAGTGATACCTTTTCCTTTAAACAGT	spacer
	length:	37	repeater length:	24
30722	2227187	GTTTTAGTTTCTTTGAGTTGTTAC		
30723				
30724				
30725		crispr 10		
30726	2236460	GTAACAACTCAAAGAACTAAAAC	GCTCTAGCTCCCCATAGGGAACCTTTAGGCTTATCGT	spacer
	length:	37	repeater length:	24
30727	2236521	GTAACAACTCAAAGAACTAAAAC	TATAAACTTTGGCTGTACTGACGAGATAAAGAATTT	spacer length:
	length:	36	repeater length:	24
30728	2236581	GTAACAACTCAAAGAACTAAAAC	AAATTCAATTTTTACATGTTTCGCATGCTACTATAT	spacer length:
	length:	35	repeater length:	24
30729	2236640	GTAACAACTCAAAGAACTAAAAC	ATATTTGTAATCCAGGTGGGGTTGGGTCGCTTTGAGT	spacer
	length:	37	repeater length:	24
30730	2236701	GTAACAACTCAAAGAACTAAAAC	TATAAAGTGTTAAAACCTGCTGTATTCCACATTCCAC	spacer length:
	length:	36	repeater length:	24
30731	2236761	GTAACAACTCAAAGAACTAAAAC	AGATTATCTGAACCATTTATAGGCATAAATCCTTCT	spacer length:
	length:	36	repeater length:	24
30732	2236821	GTAACAACTCAAAGAACTAAAAC	GTTCTAGTTCAAAAAGGTTAGGTTTTGCTTCTGGTAT	spacer
	length:	37	repeater length:	24
30733	2236882	GTAACAACTCAAAGAACTAAAAC	TTATCAAACCTCGTCGATAGTTAGCACTGTCGGCTT	spacer length:
	length:	35	repeater length:	24
30734	2236941	GTAACAACTCAAAGAACTAAAAC	TATAAGCTCTTTCTCAATCTTTTCTGTTCTTCTTT	spacer length:
	length:	35	repeater length:	24
30735	2237000	GTAACAACTCAAAGAACTAAAAC	AACGGGCTGCTAAGAAATGCCATAAGCAAATCATTAT	spacer
	length:	37	repeater length:	24
30736	2237061	GTAACAACTCAAAGAACTAAAAC	GTACATCTAGTTTTGTTACGCCTAGTAAAACCTGGT	spacer length:

35 repeater length: 24

30737 2237120 GTAACAACTCAAAGAACTAAAAAC TGGGCTCGTAGTTTGCCTGTTAATGATCGTCATATCAGC spacer length: 39 repeater length: 24

30738 2237183 GTAACAACTCAAAGAACTAAAAAC TCTGAGAATTGCTTTATAGCAAAGCGAATCCCA spacer length: 33 repeater length: 24

30739 2237240 GTAACAACTCAAAGAACTAAAAAC TTCTCAGATAAGCTGGGGGATCTGCTGGAAAGAA spacer length: 34 repeater length: 24

30740 2237298 GTAACAACTCAAAGAACTAAAAAC ATCATCGTAAACATCGTAAGTATTATGTACACTT spacer length: 34 repeater length: 24

30741 2237356 GTAACAACTCAAAGAACTAAAAAC CTAACAGTTCCGTAGTTCTCATAGTTCTTATAGTTC spacer length: 36 repeater length: 24

30742 2237416 GTAACAACTCAAAGAACTAAAAAC ACACAATCTGTTTACATAAATGTCCTAAGAATGCCAAAG spacer length: 39 repeater length: 24

30743 2237479 GTAACAACTCAAAGAACTAAAAAC ATGGGAGAACACCAGATTTTGTATTCATGCTAGGA spacer length: 35 repeater length: 24

30744 2237538 GTAACAACTCAAAGAACTAAAAAC AATTCTACCATTATTCCTGTGTATAAGCCATCGAAAT spacer length: 37 repeater length: 24

30745 2237599 GTAACAACTCAAAGAACTAAAAAC ATAATATTTTGATGCAAACCTAGTATCTCTTTAAA spacer length: 36 repeater length: 24

30746 2237659 GTAACAACTCAAAGAACTAAAAAC AACTGCATATCCTTTACTTTCCAAAACTCTCTTAGG spacer length: 37 repeater length: 24

30747 2237720 GTAACAACTCAAAGAACTAAAAAC TGCAAGTACTTTATCTCCTAGGTTTCCTGCTACAAC spacer length: 36 repeater length: 24

30748 2237780 GTAACAACTCAAAGAACTAAAAAC TATAAAAATTATGGGAAAAAAGGGATTGACTTTTC spacer length: 35 repeater length: 24

30749 2237839 GTAACAACTCAAAGAACTAAAAAC TAGTCTTACACTCAACCTAAAATTCTGAAGATAATC spacer length: 36 repeater length: 24

30750 2237899 GTAACAACTCAAAGAACTAAAAAC TTAAAGTTAATGGCATTATAGTGACGCTTACTTTAC spacer length: 37 repeater length: 24

30751 2237960 GTAACAACTCAAAGAACTAAAAAC

30752

30753

30754 crispr 11

30755 2249267 GTAACAACTCAAAGAACTAAAAAC ATGAGAGCGATGGGAATGATGCTAGGGGCTCTAAC spacer length: 35 repeater length: 24

30756 2249326 GTAACAACTCAAAGAACTAAAAAC ATTTTATGAGAGTTGAAAAATTCCAACAAGATAT spacer length: 34 repeater length: 24

30757 2249384 GTAACAACTCAAAGAACTAAAAAC TGGAAAATTATGACTTCAAAGGACTTGACTATTT spacer length: 35 repeater length: 24

30758 2249443 GTAACAACTCAAAGAACTAAAAAC ATTCTACATTTTCTATTGTCTATATTGTTTCTGACCA spacer length: 37 repeater length: 24

30759 2249504 GTAACAACTCAAAGAACTAAAAAC TACTACAAGAACTAGGAAGAAGGTGTGTAAACTCCT spacer length: 37 repeater length: 24

30760 2249565 GTAACAACTCAAAGAACTAAAAAC TACGATATTTTGCACGAATTAGAAAAAGATGAAAT spacer length: 35 repeater length: 24

30761 2249624 GTAACAACTCAAAGAACTAAAAAC TTTATTACTTTAGCATTATTTGTAGAATATTCAAGT spacer length: 36 repeater length: 24

30762 2249684 GTAACAACTCAAAGAACTAAAAAC TAAAATTTTTAATCCAATTCTCGGCATATTTGTAATT spacer length: 37 repeater length: 24

30763 2249745 GTAACAACTCAAAGAACTAAAAAC AAAGTAGGTAGACTCATAATCTACACCTCCTTAATACGT spacer length: 39 repeater length: 24

30764 2249808 GTAACAACTCAAAGAACTAAAAAC TACACACGAGGAATCTGTATGATAGTGTGTTAGCGG spacer length: 35 repeater length: 24

30765 2249867 GTAACAACTCAAAGAACTAAAAAC TATTGTCTTAACATTAATCGTTTAATGTCAAAGTGC spacer length: 36 repeater length: 24

30766 2249927 GTAACAACTCAAAGAACTAAAAAC GGCATATACACTACGCACGTGTACTTTGTTTTACA spacer length: 35 repeater length: 24

30767 2249986 GTAACAACTCAAAGAACTAAAAAC CTCCAGAAGATCGATATCGAGAATACTGACCTAGT spacer length: 35 repeater length: 24

30768 2250045 GTAACAACTCAAAGAACTAAAAAC GACGAATCAGATGGAGATTCTGGTTTGGGGGAGA spacer length: 34 repeater length: 24

30769 2250103 GTAACAACTCAAAGAACTAAAAAC

30770

30771

30772 GCA_003201835.1_ASM320183v1_genomic.fna(PilerCR):

30773 START REPEAT

SPACER

30774 crispr 1

30775 213675 CTTTCAACTCTATGGAAGATTAAC ACATACCTACTGTTTCTTGTCTGATAGAACGCATATGTA spacer length: 39 repeater length: 24

30776 213738 CTTTCAACTCTATGGAAGATTAAC ATACAGAAGAATCTTAGAGCAATTTCTTCACCTATAAGAAC spacer

length: 41 repeater length: 24
30777 213803 CTTTCAACTCTATGGAAGATTAAC GGAAACTTTTGGCGGAGTTTGTCTCCACTGGATTAGATAT spacer
length: 40 repeater length: 24
30778 213867 CTTTCAACTCTATGGAAGATTAAC TGCTAGCGTCTTGGCCTTACATTTTAGGAGCGATAGCAAT spacer
length: 40 repeater length: 24
30779 213931 CTTTCAACTCTATGGAAGATTAAC CATTGGGTTTGTGCTTTAGTGGGAGGAATCGTCGAGTAC spacer
length: 40 repeater length: 24
30780 213995 CTTTCAACTCTATGGAAGATTAAC AAATGTACTTAGTAACAATAGTATACCAATCATGCCCAGA spacer
length: 40 repeater length: 24
30781 214059 CTTTCAACTCTATGGAAGATTAAC CGATATTATCAAGGTAACATATACAGTATGGGGAAATGG spacer
length: 39 repeater length: 24
30782 214122 CTTTCAACTCTATGGAAGATTAAC AGACGTTTGTACGTCTTCAGCATAACGTTAGCCATAATGTC spacer
length: 40 repeater length: 24
30783 214186 CTTTCAACTCTATGGAAGATTAAC AATAATCCAGATAGCTCAACTTGCGGGATTGGGAAGTTA spacer
length: 40 repeater length: 24
30784 214250 CTTTCAACTCTATGGAAGATTAAC AAAAACCTTGAGGAGTAAAGGCATAGTAATAAGTGATAGAA spacer
length: 41 repeater length: 24
30785 214315 CTTTCAACTCTATGGAAGATTAAC TAGAGGTGAACCTGTGGATTTTAGTAAGAATATTATTGT spacer
length: 39 repeater length: 24
30786 214378 CTTTCAACTCTATGGAAGATTAAC CAATTTAAAGGGTTTGACCACGCGTACTTAGACTCACAA spacer
length: 39 repeater length: 24
30787 214441 CTTTCAACTCTATGGAAGATTAAC CAAAAGAGGTTGGTTGGAAATATTTTCAACAATAATA spacer
length: 38 repeater length: 24
30788 214503 CTTTCAACTCTATGGAAGATTAAC AAAGAAATATTTAAAAACCCCAATATTTCTCAGAGAAA spacer
length: 39 repeater length: 24
30789 214566 CTTTCAACTCTATGGAAGATTAAC ATTTTCAGATGGTGAACCTGCAGTTAATTTTAAACAATTTTT spacer
length: 41 repeater length: 24
30790 214631 CTTTCAACTCTATGGAAGATTAAC AGAACACATAAGGATATTCTTAGACTCAAATGCAGACAGG spacer
length: 40 repeater length: 24
30791 214695 CTTTCAACTCTATGGAAGATTAAC TAACGTTTTCAATGCATAGCTATTAATTATTTGTAAATT spacer
length: 40 repeater length: 24
30792 214759 CTTTCAACTCTATGGAAGATTAAC CAACTTCACCTGGGATACGTGAAAGAGACGAGACGAT spacer length:
37 repeater length: 24
30793 214820 CTTTCAACTCTATGGAAGATTAAC ACGTACCAGCGGATGGTCGGAACCTCCTGAACTCGTAAAGTA spacer
length: 41 repeater length: 24
30794 214885 CTTTCAACTCTATGGAAGATTAAC GCGTCGACCATGTCAACGCCACGCCAGCTCATTT spacer length:
37 repeater length: 24
30795 214946 CTTTCAACTCTATGGAAGATTAAC ATTATTATTTAAAATCAGGGTTGAAATTGCAAACTCAAA spacer
length: 40 repeater length: 24
30796 215010 CTTTCAACTCTATGGAAGATTAAC TCATAGATAATATTGACACTTATAAAAAGAAAAGTGC GGAA spacer
length: 41 repeater length: 24
30797 215075 CTTTCAACTCTATGGAAGATTAAC TGTACTGCTCCAGTCACAACGTTGACTATTGCGTTTAATA spacer
length: 40 repeater length: 24
30798 215139 CTTTCAACTCTATGGAAGATTAAC GGTTCTCTTTAACAGAACCTAACGGTGTCTTCTTAGGTG spacer
length: 39 repeater length: 24
30799 215202 CTTTCAACTCTATGGAAGATTAAC AGGTTTTGAGTTTTTAGAGTCTGGCGATAAGCCAGAAATT spacer
length: 40 repeater length: 24
30800 215266 CTTTCAACTCTATGGAAGATTAAC TCGAAAAGTTAATTGAGAAGGTAAATTCGAGTAAGAAA spacer
length: 38 repeater length: 24
30801 215328 CTTTCAACTCTATGGAAGATTAAC ATGGTGGAGCAGAATACGACTTTAGACTAGAATATAG spacer length:
37 repeater length: 24
30802 215389 CTTTCAACTCTATGGAAGATTAAC TTCCATGTTAGCCTATAGGTATTCTGTTGATGGTACTTTTAT spacer
length: 42 repeater length: 24
30803 215455 CTTTCAACTCTATGGAAGATTAAC CTTATACTCAAACCGACAGAAACAGCATTAAATTACTACCT spacer
length: 40 repeater length: 24
30804 215519 CTTTCAACTCTATGGAAGATTAAC AAATGGCTCAAAAAAATCCCCAGTTTAGTGTAGGAA spacer length:
37 repeater length: 24
30805 215580 CTTTCAACTCTATGGAAGATTAAC AGCTGTAAAGTAAAGCTGCAAAAGTGAAGAGTTAGA spacer length:
37 repeater length: 24
30806 215641 CTTTCAACTCTATGGAAGATTAAC ACATTTTCTACTGCGTCAGCACCGACACCTAACGGTTTTTA spacer
length: 40 repeater length: 24
30807 215705 CTTTCAACTCTATGGAAGATTAAC TAGGTTTCAGCACTTTAGGGTATTCTTTTCTCAGCGACGA spacer
length: 40 repeater length: 24
30808 215769 CTTTCAACTCTATGGAAGATTAAC TTAAAAATCGGGGTTTCTTATATGGATAAAGTGAAAG spacer length:
37 repeater length: 24
30809 215830 CTTTCAACTCTATGGAAGATTAAC AAATCATCAGTCGGCGGTTCTAGATAAGCGTTAGTAAACCATG spacer
length: 43 repeater length: 24
30810 215897 CTTTCAACTCTATGGAAGATTAAC ACGGAGTGGATTATACGTTTATGCTTTATGACGTTGATGATA spacer
length: 42 repeater length: 24
30811 215963 CTTTCAACTCTATGGAAGATTAAC GATTTGTAATTGATGTAGCTTATTTACAGTAGTAAGGG spacer
length: 38 repeater length: 24

30812 216025 CTTTCAACTCTATGGAAGATTAAC GTTTTTTTGGCTATTGATGGAGACGATGATATAAAATTGAAC spacer
length: 41 repeater length: 24

30813 216090 CTTTCAACTCTATGGAAGATTAAC AGACTTTATGAATGATAAGCTCAAGATCCTGGACAAACTTA spacer
length: 41 repeater length: 24

30814 216155 CTTTCAACTCTATGGAAGATTAAC ACAATATACAGCACAGTTTACAATGTTAAGTCTTATTT spacer
length: 38 repeater length: 24

30815 216217 CTTTCAACTCTATGGAAGATTAAC CCAGCATTTCTTCTACCTGAACGCTGCTACTGGCGTAT spacer
length: 38 repeater length: 24

30816 216279 CTTTCAACTCTATGGAAGATTAAC AGCGGGAAAAGCAAAGCAGCTTAGAAAGGAGCAAAGAAAG spacer
length: 40 repeater length: 24

30817 216343 CTTTCAACTCTATGGAAGATTAAC CCGTACTAATCGTGGTTTATATAATATCATTCTTTCTATCGTT spacer
length: 43 repeater length: 24

30818 216410 CTTTCAACTCTATGGAAGATTAAC ACTTGCCTAACTTCATTCTAATTCTTCTAATTCTAT spacer length:
36 repeater length: 24

30819 216470 CTTTCAACTCTATGGAAGATTAAC TATTCTATGGATGGAGAAATATAATGAAATGGATGG spacer length:
36 repeater length: 24

30820 216530 CTTTCAACTCTATGGAAGATTAAC CCATTAAGTATAAGCTTATTATCATTATTACTAACTC spacer length:
37 repeater length: 24

30821 216591 CTTTCAACTCTATGGAAGATTAAC AAAAGGCTAATAAAATGGGGATTTGTAGAAGCTGAAGGTAT spacer
length: 41 repeater length: 24

30822 216656 CTTTCAACTCTATGGAAGATTAAC GGTTGAGGCTAGTGAGGTTCTTCGTAGGTGCACCAACTG spacer
length: 39 repeater length: 24

30823 216719 CTTTCAACTCTATGGAAGATTAAC GTAATTTTCCAACGTGTTTACCAGGAAATCCAATCCACAT spacer
length: 40 repeater length: 24

30824 216783 CTTTCAACTCTATGGAAGATTAAC ATGTTCTCATTATCGTTGGGTGGAATGTAATGAAGCCGTT spacer
length: 40 repeater length: 24

30825 216847 CTTTCAACTCTATGGAAGATTAAC GAATATAAATCAAAATGACAAAATAATTCAAAGGTATAAA spacer
length: 40 repeater length: 24

30826 216911 CTTTCAACTCTATGGAAGATTAAC AGTCATGTATCTCAAAAATGTCGAGTCCTCTCTGGTAACAC spacer
length: 41 repeater length: 24

30827 216976 CTTTCAACTCTATGGAAGATTAAC TGTAGATTATAGTAATAGCATGTGGTGCATGAGACTTCA spacer
length: 39 repeater length: 24

30828 217039 CTTTCAACTCTATGGAAGATTAAC TCCACTGTTGAACCACATCCCCAGAACACTTCGATAC spacer length:
37 repeater length: 24

30829 217100 CTTTCAACTCTATGGAAGATTAAC TAATTCTAACTATGAGGCTAGAGGAAGGGCGTGTACTAA spacer
length: 39 repeater length: 24

30830 217163 CTTTCAACTCTATGGAAGATTAAC TCAGAAACCC

30831

30832

30833 crispr 2

30834 2177763 CTTTCAACTCTATGGAAGATTAAC GGCTCCTCCACGTCGGGAGGAGGGACGGGGTTTTCTGTAC spacer
length: 41 repeater length: 24

30835 2177828 CTTTCAACTCTATGGAAGATTAAC CACTTTCACACAGGAAGGAGCGGGTTCTATAGATCTCGA spacer
length: 39 repeater length: 24

30836 2177891 CTTTCAACTCTATGGAAGATTAAC ATGCTTTAGATTTTCGTAGTAGTAGTAGTAGGCGTCATAGT spacer
length: 40 repeater length: 24

30837 2177955 CTTTCAACTCTATGGAAGATTAAC GATATTTCGTAGATCTGCCGCGTACTGGCATATAAATTATCT spacer
length: 41 repeater length: 24

30838 2178020 CTTTCAACTCTATGGAAGATTAAC ATGGCGAAGGAGAATGACATGCATGAAAGGAATGAGAATG spacer
length: 40 repeater length: 24

30839 2178084 CTTTCAACTCTATGGAAGATTAAC CAAATCCAGAAGTATTAGACGCTGTAACAAATATAATAAC spacer
length: 40 repeater length: 24

30840 2178148 CTTTCAACTCTATGGAAGATTAAC ATTATTATGTTGTCTTTTCGTTTGGGAAGAAGGGAAAGTACT spacer
length: 41 repeater length: 24

30841 2178213 CTTTCAACTCTATGGAAGATTAAC TATTTTCGTAACAGGGATATGGAAAAGTGATACTGGTATTA spacer
length: 41 repeater length: 24

30842 2178278 CTTTCAACTCTATGGAAGATTAAC CCGTCAACCGTCCAACGTATTTCTTTTGAATTATAACGAG spacer
length: 41 repeater length: 24

30843 2178343 CTTTCAACTCTATGGAAGATTAAC TGCGGAAATTGCCCTAGGTCCTATAGCAAAAATTGCCCT spacer
length: 39 repeater length: 24

30844 2178406 CTTTCAACTCTATGGAAGATTAAC TTATCATTTGCTGATATTTTTCCAATACAAAGCACAGTAAT spacer
length: 41 repeater length: 24

30845 2178471 CTTTCAACTCTATGGAAGATTAAC AAAAAGATGATCTATAACGGTAGCAATTTCCACATAAATGA spacer
length: 41 repeater length: 24

30846 2178536 CTTTCAACTCTATGGAAGATTAAC AGTGCCATGTCGGTTGGTGAACTTTATCAACATAGCC spacer
length: 38 repeater length: 24

30847 2178598 CTTTCAACTCTATGGAAGATTAAC TTATTTTTTTTAACTAGTTCTTAACTAGAGTTATATTAG spacer
length: 39 repeater length: 24

30848 2178661 CTTTCAACTCTATGGAAGATTAAC ACTGAAGGGTAATAAAAAGCAGATGGCAGTGAAGTTAATG spacer
length: 40 repeater length: 24

30849 2178725 CTTTCAACTCTATGGAAGATTAAC AGTATTACGTATTTCTGAATGATGTCAAATACAGGGGGTTG spacer

length: 41 repeater length: 24
30850 2178790 CTTTCAACTCTATGGAAGATTAAC TAAACGTGACGAATAGGGTTATTATAGGCAACGAAA spacer length:
36 repeater length: 24
30851 2178850 CTTTCAACTCTATGGAAGATTAAC TAGTCGATAAAAAAATAGCAAACGACTAAACGTAAAAATA spacer
length: 40 repeater length: 24
30852 2178914 CTTTCAACTCTATGGAAGATTAAC CATCTGAACGTCGATAAAAAGTAGTGTCGTCTGGTGGGCGTAT spacer
length: 42 repeater length: 24
30853 2178980 CTTTCAACTCTATGGAAGATTAAC TGCGATGAGATGGAGTATGACACCTTAGCGGTTAGAGCAA spacer
length: 40 repeater length: 24
30854 2179044 CTTTCAACTCTATGGAAGATTAAC CGATATATCGAATTATTGCCGGTAGGCACAATCACG spacer length:
36 repeater length: 24
30855 2179104 CTTTCAACTCTATGGAAGATTAAC GAGAGCAATATGTCACAGTCAAAAAACCCAAGATGGGAAT spacer
length: 40 repeater length: 24
30856 2179168 CTTTCAACTCTATGGAAGATTAAC GCGTTTAAGCCTGGGGTAGATCTCCCTGCTCTCCACTTGTA spacer
length: 41 repeater length: 24
30857 2179233 CTTTCAACTCTATGGAAGATTAAC GGAGACCTAGTAGATTTAGGTATGGATTTCTTCTACAGGTCA spacer
length: 42 repeater length: 24
30858 2179299 CTTTCAACTCTATGGAAGATTAAC TTAATTAACGGATACACTAGGCTGAAGATAGCTAAGGAATT spacer
length: 41 repeater length: 24
30859 2179364 CTTTCAACTCTATGGAAGATTAAC TAACTCTGGAGTTTTAGAACCTACCAACATAACTTCTAATTC spacer
length: 42 repeater length: 24
30860 2179430 CTTTCAACTCTATGGAAGATTAAC
30861
30862
30863 crispr 3
30864 2183493 GTTAATCTTCCATAGAGTTGAAAG GTTCTCGAACTGTATCCTCTCAACGTCGCTAGCAAACATT spacer
length: 40 repeater length: 24
30865 2183557 GTTAATCTTCCATAGAGTTGAAAG TTTGACATAAACTTTTTTATATTTAAACGTTTTAACGGCGT spacer
length: 42 repeater length: 24
30866 2183623 GTTAATCTTCCATAGAGTTGAAAG TATAGTACTATTAGACCTATATGCCATGGAAAACGGGTT spacer
length: 39 repeater length: 24
30867 2183686 GTTAATCTTCCATAGAGTTGAAAG AGTACTAGTAGCTCAGGAGGACCCTAAGTATAATATTCC spacer
length: 39 repeater length: 24
30868 2183749 GTTAATCTTCCATAGAGTTGAAAG CTCCAGACAACACCAAGTAGTAAGGCGTGAACATGCTCAT spacer
length: 40 repeater length: 24
30869 2183813 GTTAATCTTCCATAGAGTTGAAAG AGTGCTGTCCCGCAGCGTCATAAATCACCTTGTTCCCGT spacer
length: 39 repeater length: 24
30870 2183876 GTTAATCTTCCATAGAGTTGAAAG ATTAATACAAAACCAGCTTTTTTATAAATTGTATTTGTATAAT spacer
length: 43 repeater length: 24
30871 2183943 GTTAATCTTCCATAGAGTTGAAAG TTGACTGAGGGACATACTGTAACCTCAGCGTTTGCACTTC spacer
length: 40 repeater length: 24
30872 2184007 GTTAATCTTCCATAGAGTTGAAAG GACTGCAATTGAGCTCCACAGCCCGCCTGGATGGTAGCAT spacer
length: 40 repeater length: 24
30873 2184071 GTTAATCTTCCATAGAGTTGAAAG TAACCATTACGATGTATAGCTGATCGCTACATTGGCCTG spacer
length: 40 repeater length: 24
30874 2184135 GTTAATCTTCCATAGAGTTGAAAG CAACACTGTGCAAGATATTGCAAAAAAGTTCAACTGCG spacer
length: 38 repeater length: 24
30875 2184197 GTTAATCTTCCATAGAGTTGAAAG TTTCACCTCAAATCGCTCTTATTCCCTTCTCCCTTCCATTG spacer
length: 40 repeater length: 24
30876 2184261 GTTAATCTTCCATAGAGTTGAAAG AACGTCGTTTGAGACGCTGACGGTGCCGTGTTGTTATTA spacer
length: 39 repeater length: 24
30877 2184324 GTTAATCTTCCATAGAGTTGAAAG CAGCCTTTTCCCTAAATTTCTTTTCTGTTTTTATTATAT spacer
length: 39 repeater length: 24
30878 2184387 GTTAATCTTCCATAGAGTTGAAAG AAAATATGAATGAGTAGAATTGAATTTTCTCTTATTATAT spacer
length: 40 repeater length: 24
30879 2184451 GTTAATCTTCCATAGAGTTGAAAG AATTTTCGGGCTTTGCGCCTGGCCCCCTTTTCTAACTCTCT spacer
length: 39 repeater length: 24
30880 2184514 GTTAATCTTCCATAGAGTTGAAAG CATCAACGTTAATGTTATGTGACTCGGCGTACTCTAGCACC spacer
length: 41 repeater length: 24
30881 2184579 GTTAATCTTCCATAGAGTTGAAAG ATACATTCTTCAGGAGTAACGGTAATATTAAGAACTTCTT spacer
length: 40 repeater length: 24
30882 2184643 GTTAATCTTCCATAGAGTTGAAAG
30883
30884
30885 crispr 4
30886 2335231 GTTTCATCCAAAAAGGAATTGAAAG AGAAAAAATACAAAATCTAGAGAAAATAGCAAATGAAGAGA spacer
length: 42 repeater length: 25
30887 2335298 GTTTCATCCAAAAAGGAATTGAAAG GCAGAAGCCTTACTGCAGATACACAGGGCTTCCTTATCCTAT spacer
length: 42 repeater length: 25
30888 2335365 GTTTCATCCAAAAAGGAATTGAAAG ATTATCTTCACTTATAAAAGTCAAAACACAACCGTATAATT spacer
length: 41 repeater length: 25

30889	2335431	GTTTCATCCAAAAAGGAATTGAAAG	TTTTCCGCATCCTTTGTGCTAATAATATAATTTTGTAACAT	spacer
		length: 41	repeater length: 25	
30890	2335497	GTTTCATCCAAAAAGGAATTGAAAG	TTAATTATATAATTATGTTTCTACCCGCGTTTTATTTTTT	spacer
		length: 41	repeater length: 25	
30891	2335563	GTTTCATCCAAAAAGGAATTGAAAG	TCAACGGAGATATAGTTTTTTTTTCTTCTTTCAATTCGCGT	spacer
		length: 40	repeater length: 25	
30892	2335628	GTTTCATCCAAAAAGGAATTGAAAG	ACTCATAACAACAAACGCAATTTTGACGAAGTTATACG	spacer
		length: 38	repeater length: 25	
30893	2335691	GTTTCATCCAAAAAGGAATTGAAAG	GACTGGAGGGTACTATTCCGCCTATAGCGCTTGGAGATG	spacer
		length: 39	repeater length: 25	
30894	2335755	GTTTCATCCAAAAAGGAATTGAAAG	TCTATTTTCAAATATATGTGCGTCCCGATATTAATACGGA	spacer
		length: 41	repeater length: 25	
30895	2335821	GTTTCATCCAAAAAGGAATTGAAAG	TAACTCGGTAGGATAACTAAGTTAAGTCCGTCCTTTGT	spacer
		length: 38	repeater length: 25	
30896	2335884	GTTTCATCCAAAAAGGAATTGAAAG	CCCTTTAGGGGGATGTTTCCTTAATTAAATAATTGGAGAAT	spacer
		length: 41	repeater length: 25	
30897	2335950	GTTTCATCCAAAAAGGAATTGAAAG	ATGAATAGCCCTTCCATCGGTTTTGCAAGCATCTCATACCTTG	spacer
		length: 43	repeater length: 25	
30898	2336018	GTTTCATCCAAAAAGGAATTGAAAG	TAATTATCAACTTCATTTATATGTATTTTTCAATATATTAA	spacer
		length: 41	repeater length: 25	
30899	2336084	GTTTCATCCAAAAAGGAATTGAAAG	TATTAAGAAGAAAAGCTATAAATGCTGAATGAAGATGAAATTAA	spacer
		length: 44	repeater length: 25	
30900	2336153	GTTTCATCCAAAAAGGAATTGAAAG	TTTATTTGGGGTTTTTCCCTTTGGGTATGATTGTTTGC	spacer
		length: 39	repeater length: 25	
30901	2336217	GTTTCATCCAAAAAGGAATTGAAAG	ATTACATTCTTTTCACCATGCCTTATGAAGCCTCAC	spacer
		length: 36	repeater length: 25	
30902	2336278	GTTTCATCCAAAAAGGAATTGAAAG	AAAAGATGTAGTTGAATATGAAATAAATCCTTTAATTTTAGA	spacer
		length: 42	repeater length: 25	
30903	2336345	GTTTCATCCAAAAAGGAATTGAAAG	TTCTGCTCCTCATAAACTTAGCCAATTTATCATCATAACCGA	spacer
		length: 43	repeater length: 25	
30904	2336413	GTTTCATCCAAAAAGGAATTGAAAG	TAATAAAATATAGTCTACTTCACTATACATTAATA	spacer length: 35
		length: 35	repeater length: 25	
30905	2336473	GTTTCATCCAAAAAGGAATTGAAAG	AAATTGCGTATTTCCTCTTCTAAAACAAATCACAAAACAAA	spacer
		length: 40	repeater length: 25	
30906	2336538	GTTTCATCCAAAAAGGAATTGAAAG	AAATATTCACAGTCTAGTATTAGCATCAGGTGGAAATCAA	spacer
		length: 41	repeater length: 25	
30907	2336604	GTTTCATCCAAAAAGGAATTGAAAG	GCATAAGGGGAATCTGTATAGCCCAATTATGAGAAATT	spacer
		length: 39	repeater length: 25	
30908	2336668	GTTTCATCCAAAAAGGAATTGAAAG	AACATTAGAAAAAACGGATATCTTTTAATGGTGAATAAAG	spacer
		length: 41	repeater length: 25	
30909	2336734	GTTTCATCCAAAAAGGAATTGAAAG	GTTGTATGGTGAAATATTTGACGAGTTGTCACAAAATTCG	spacer
		length: 41	repeater length: 25	
30910	2336800	GTTTCATCCAAAAAGGAATTGAAAG	TTAATTATATAATTATGTTTCTACCCGCGTTTTAT	spacer
		length: 36	repeater length: 25	
30911	2336861	GTTTCATCCAAAAAGGAATTGAAAG	ATGAAAGAATCATTATGAGTGATATAGACCAATTATTGTTAA	spacer
		length: 43	repeater length: 25	
30912	2336929	GTTTCATCCAAAAAGGAATTGAAAG	ATAGAAATATCAACAACATACGGCAATGCCACAGTACTTA	spacer
		length: 40	repeater length: 25	
30913	2336994	GTTTCATCCAAAAAGGAATTGAAAG	AAAAAAGTTGTTAAATGAAGTAGACCTATTTGCTATAAATAA	spacer
		length: 42	repeater length: 25	
30914	2337061	GTTTCATCCAAAAAGGAATTGAAAG	AGTACCTCTAGAATATTTACAATTTACTCCTAATATATCGGA	spacer
		length: 42	repeater length: 25	
30915	2337128	GTTTCATCCAAAAAGGAATTGAAAG	TTAAAATTGATAAGAAACGATACAATTGAGATATTCAATAG	spacer
		length: 41	repeater length: 25	
30916	2337194	GTTTCATCCAAAAAGGAATTGAAAG	AAATATTTTGTGAATATGAATAATATAATATCAACCATTCAA	spacer
		length: 42	repeater length: 25	
30917	2337261	GTTTCATCCAAAAAGGAATTGAAAG	TCGGGTTTAACATCGTCAGTAGCATAAGGGCATACCGAGTTC	spacer
		length: 42	repeater length: 25	
30918	2337328	GTTTCATCCAAAAAGGAATTGAAAG	CCGAAACATAACTATCTAATGCATACAAGAACTGATTTAA	spacer
		length: 40	repeater length: 25	
30919	2337393	GTTTCATCCAAAAAGGAATTGAAAG	TGCTTACCGAAGAGAAATGTTGTTATGTCAAACCTGGAAA	spacer
		length: 42	repeater length: 25	
30920	2337460	GTTTCATCCAAAAAGGAATTGAAAG	TTCTCTTTCCGCCTTTCAACAGAAGATTAATGATGTGAA	spacer
		length: 40	repeater length: 25	
30921	2337525	GTTTCATCCAAAAAGGAATTGAAAG	ATCTGTATTGCGATCTCAATCGCCCTCATTAATATATTATT	spacer
		length: 41	repeater length: 25	
30922	2337591	GTTTCATCCAAAAAGGAATTGAAAG	TCTATTAGCTCATCAAGCTTTGTTTTAACGTAATCCCTTATG	spacer
		length: 42	repeater length: 25	
30923	2337658	GTTTCATCCAAAAAGGAATTGAAAG	GCTCTAAAGTCTTCAAATGCCAGCACTTCTTTCCGAAGCTCC	spacer
		length: 42	repeater length: 25	
30924	2337725	GTTTCATCCAAAAAGGAATTGAAAG	ATATATACAAATTACTGGCACTAGGAGCGATAGAGACCAG	spacer

length: 40 repeater length: 25
30925 2337790 GTTTCATCCAAAAAGGAATTGAAAG CTTAATAGTGTTTCGTGCTAACATTAATGATAGTAGGACT spacer
length: 39 repeater length: 25
30926 2337854 GTTTCATCCAAAAAGGAATTGAAAG CTTCCCAACACTGTCATAGTATTTGGGGAGACAAAGACATACA spacer
length: 43 repeater length: 25
30927 2337922 GTTTCATCCAAAAAGGAATTGAAAG ATATACCATATGAGGACATTAGGGCAACTAATAAAGAGGAAAA spacer
length: 43 repeater length: 25
30928 2337990 GTTTCATCCAAAAAGGAATTGAAAG AAATCGGTCTCCTCGTAGTAAGTAGGGTAATCAGCGTTCACCAGGTAAT
spacer length: 49 repeater length: 25
30929 2338064 GTTTCATCCAAAAAGGAATTGAAAG ATTTCGTTTTTGGCTAACTGCTTTAGTGTCTTATATGC spacer
length: 38 repeater length: 25
30930 2338127 GTTTCATCCAAAAAGGAATTGAAAG CTGTTTATAAAAGATGTCTATAAGGACTTACCGATCCTTCAT spacer
length: 42 repeater length: 25
30931 2338194 GTTTCATCCAAAAAGGAATTGAAAG AACTTTACATCTGCGGTGAAGTAATCTCCACCAGTTAGCCGT spacer
length: 42 repeater length: 25
30932 2338261 GTTTCATCCAAAAAGGAATTGAAAG TTCCGCTCTGAGCAGGATCGAGATGTTAGCGACAAATGAG spacer
length: 40 repeater length: 25
30933 2338326 GTTTCATCCAAAAAGGAATTGAAAG TCTTCTGTTACATACTTTATGACGTAGTTGAGGCTAAGCCCC spacer
length: 42 repeater length: 25
30934 2338393 GTTTCATCCAAAAAGGAATTGAAAG TTCAACTCCAGAAAAGTGAGGAGAAAACGGTTGCATC spacer
length: 38 repeater length: 25
30935 2338456 GTTTCATCCAAAAAGGAATTGAAAG TAGACTTTACACGTACCGTCCTTAAGCTTCATTACAATTCTG spacer
length: 42 repeater length: 25
30936 2338523 GTTTCATCCAAAAAGGAATTGAAAG TGAAAAAAGAAGATTAACTTTTTTCAGGTGTCAAATCTATAT spacer
length: 43 repeater length: 25
30937 2338591 GTTTCATCCAAAAAGGAATTGAAAG TTCTTTATTTATCTCCTTATAATACCCTCCCCTAATTAATTT spacer
length: 42 repeater length: 25
30938 2338658 GTTTCATCCAAAAAGGAATTGAAAG ACAAACTTGTATCACAGTATGGACAGGATAGAACAGTGATAT spacer
length: 42 repeater length: 25
30939 2338725 GTTTCATCCAAAAAGGAATTGAAAG AGTGCAGACCTAAGTGCGTTCATGATAGCAACAGTTACA spacer
length: 39 repeater length: 25
30940 2338789 GTTTCATCCAAAAAGGAATTGAAAG TCAAATATTGCATCCCAATTTATGAATGACGCTTATTCATTT spacer
length: 42 repeater length: 25
30941 2338856 GTTTCATCCAAAAAGGAATTGAAAG CCCTGAAACTAAGATATTGTTGAATTATTTCCAAAAGTACTTGT
spacer length: 44 repeater length: 25
30942 2338925 GTTTCATCCAAAAAGGAATTGAAAG CTGTTTTTAAACATCATAAATCTCTTCTCGATTGTAATCAT spacer
length: 42 repeater length: 25
30943 2338992 GTTTCATCCAAAAAGGAATTGAAAG TTTAATCTAGACGACTTTTACGAAAACAACCTCAGGAAAAAA spacer
length: 42 repeater length: 25
30944 2339059 GTTTCATCCAAAAAGGAATTGAAAG
30945
30946
30947 crispr 5
30948 2379286 CTTTCAATTCCTTTTTGGATGAAAC GAACTAGCAAATGCAGGAGGGAAATACGACGAAAGACAATA spacer
length: 41 repeater length: 25
30949 2379352 CTTTCAATTCCTTTTTGGATGAAAC AGGGGGATATATTACTCCCCCATACCAATGATGTTTAAAGT spacer
length: 41 repeater length: 25
30950 2379418 CTTTCAATTCCTTTTTGGATGAAAC GAGGCTAGGAAGGTCATGTCGTATCACCTACAAGTCGCGAAT spacer
length: 42 repeater length: 25
30951 2379485 CTTTCAATTCCTTTTTGGATGAAAC GTTTGTATTCTGACACCCATTTTTCCCGTTAAACTT spacer
length: 37 repeater length: 25
30952 2379547 CTTTCAATTCCTTTTTGGATGAAAC ATTATAAAATTCAGAAGATGAATAGTAGACCGTCAAAGC spacer
length: 40 repeater length: 25
30953 2379612 CTTTCAATTCCTTTTTGGATGAAAC TAGGCCTTTGAGGTCTGCTTTGCTTATTTTCATGATTATTTAAT spacer
length: 43 repeater length: 25
30954 2379680 CTTTCAATTCCTTTTTGGATGAAAC CCGTATCATTATATACGTCAGTTAGAACTCAAATGAATTA spacer
length: 41 repeater length: 25
30955 2379746 CTTTCAATTCCTTTTTGGATGAAAC TCACCTCTTGGGTGGATAGAAGGAGCAATCACAGGCGCAATTTCT
spacer length: 45 repeater length: 25
30956 2379816 CTTTCAATTCCTTTTTGGATGAAAC AAACATATTTCTCCATCAGTTGTTATAATGTAATAAATA spacer
length: 40 repeater length: 25
30957 2379881 CTTTCAATTCCTTTTTGGATGAAAC AATAATAATCCGCGTAGATGCTTAGATCTCGGGCTAAATCA spacer
length: 41 repeater length: 25
30958 2379947 CTTTCAATTCCTTTTTGGATGAAAC TTGACCGATGAAGATAAAGCGAAGTTCAGGGAGAAATTAAA spacer
length: 41 repeater length: 25
30959 2380013 CTTTCAATTCCTTTTTGGATGAAAC ATATCTTTTATATTACAATTCATAATAACAAAATCTCAATA spacer
length: 41 repeater length: 25
30960 2380079 CTTTCAATTCCTTTTTGGATGAAAC TTTGAGCTAATTTTATCGAATTCTCAAGTTTTGCTTGTCCTC spacer
length: 41 repeater length: 25
30961 2380145 CTTTCAATTCCTTTTTGGATGAAAC AGTGCAAATTTAATTTCTAGTTTGGTATTAAGCAGTTTTTTTA spacer
length: 42 repeater length: 25

30962 2380212 CTTTCAATTCCTTTTTGGATGAAAC ACTACAACATAATCAAAATCCAATTCTTCTAAATAATT spacer
length: 38 repeater length: 25

30963 2380275 CTTTCAATTCCTTTTTGGATGAAAC ATTTTGTAATAATAGATATTATTTTATCTTTATTTTCAATAA spacer
length: 41 repeater length: 25

30964 2380341 CTTTCAATTCCTTTTTGGATGAAAC CGTAGTAAAGATTAAAGGGTTCGGGCTCGGTAAAGCT spacer
length: 37 repeater length: 25

30965 2380403 CTTTCAATTCCTTTTTGGATGAAAC ACATACGGAATTACCCGACGTTGGTGACACGATAGTAGAAAA spacer
length: 42 repeater length: 25

30966 2380470 CTTTCAATTCCTTTTTGGATGAAAC ATATCTTTTATATTACAATTCATAATAACAAAATCTCAATA spacer
length: 41 repeater length: 25

30967 2380536 CTTTCAATTCCTTTTTGGATGAAAC TTTGAGCTAATTTTATCGAATTCTCAAGTTTTGCTTGTCCT spacer
length: 41 repeater length: 25

30968 2380602 CTTTCAATTCCTTTTTGGATGAAAC AGTGCAAATTTAATTTCTAGTTTGGTATTAAGCAGTTTTTTA spacer
length: 42 repeater length: 25

30969 2380669 CTTTCAATTCCTTTTTGGATGAAAC ACTACAACATAATCAAAATCCAATTCTTCTAAATAATT spacer
length: 38 repeater length: 25

30970 2380732 CTTTCAATTCCTTTTTGGATGAAAC ATTTTGTAATAATAGATATTATTTTATCTTTATTTTCAATAA spacer
length: 41 repeater length: 25

30971 2380798 CTTTCAATTCCTTTTTGGATGAAAC CGTAGTAAAGATTAAAGGGTTCGGGCTCGGTAAAGCT spacer
length: 37 repeater length: 25

30972 2380860 CTTTCAATTCCTTTTTGGATGAAAC ACATACGGAATTACCCGACGTTGGTGACACGATAGTAGAAAA spacer
length: 42 repeater length: 25

30973 2380927 CTTTCAATTCCTTTTTGGATGAAAC ATATCTTTTATATTACAATTCATAATAACAAAATCTCAATA spacer
length: 41 repeater length: 25

30974 2380993 CTTTCAATTCCTTTTTGGATGAAAC TTTGAGCTAATTTTATCGAATTCTCAAGTTTTGCTTGTCCT spacer
length: 41 repeater length: 25

30975 2381059 CTTTCAATTCCTTTTTGGATGAAAC AGTGCAAATTTAATTTCTAGTTTGGTATTAAGCAGTTTTTTA spacer
length: 42 repeater length: 25

30976 2381126 CTTTCAATTCCTTTTTGGATGAAAC ACTACAACATAATCAAAATCCAATTCTTCTAAATAATT spacer
length: 38 repeater length: 25

30977 2381189 CTTTCAATTCCTTTTTGGATGAAAC ATTTTGTAATAATAGATATTATTTTATCTTTATTTTCAATAA spacer
length: 41 repeater length: 25

30978 2381255 CTTTCAATTCCTTTTTGGATGAAAC CGTAGTAAAGATTAAAGGGTTCGGGCTCGGTAAAGCT spacer
length: 37 repeater length: 25

30979 2381317 CTTTCAATTCCTTTTTGGATGAAAC ACATACGGAATTACCCGACGTTGGTGACACGATAGTAGAAAA spacer
length: 42 repeater length: 25

30980 2381384 CTTTCAATTCCTTTTTGGATGAAAC

30981

30982

30983 crispr 6

30984 2386694 GTTTC AAGTCCTCTAAGGATTTCTACAAAT GGGTATAGGAATTCCTATGCTATCCTTCTTAGTAGGGTCAA
spacer length: 41 repeater length: 30

30985 2386765 GTTTC AAGTCCTCTAAGGATTTCTACAAAT TTTCAGTAGTCACTTTCTAGTTTGACGTTCTCTGTTG spacer
length: 37 repeater length: 30

30986 2386832 GTTTC AAGTCCTCTAAGGATTTCTACAAAT AATATTACAAAAGTGATAAAAAATATGCAGAAAAAA spacer
length: 36 repeater length: 30

30987 2386898 GTTTC AAGTCCTCTAAGGATTTCTACAAAT GAAATGAAGTAGACCACGTTATTCCATTCCACATCAAAT
spacer length: 39 repeater length: 30

30988 2386967 GTTTC AAGTCCTCTAAGGATTTCTACAAAT ACCGCTTTGTAGCGTTATGTAGCCCGACACTTGAATTA spacer
length: 38 repeater length: 30

30989 2387035 GTTTC AAGTCCTCTAAGGATTTCTACAAAT TATAATATTTTCAGAACTTTTAGAATCATACAATTT spacer
length: 36 repeater length: 30

30990 2387101 GTTTC AAGTCCTCTAAGGATTTCTACAAAT AATGTTTTTTGTGTGCTTTTCAAATTTATTTCTTGT spacer
length: 35 repeater length: 30

30991 2387166 GTTTC AAGTCCTCTAAGGATTTCTACAAAT CCGAGAATGTGAAGATATGGAACTTTTCTTTTTTAAA spacer
length: 36 repeater length: 30

30992 2387232 GTTTC AAGTCCTCTAAGGATTTCTACAAAT CCCTTAGTAATGCCCTTTATCCAATTAAGACAGGAAT spacer
length: 37 repeater length: 30

30993 2387299 GTTTC AAGTCCTCTAAGGATTTCTACAAAT TCTTATAATTATTATGCTTTTCCTCCTTTAGACGGA spacer
length: 36 repeater length: 30

30994 2387365 GTTTC AAGTCCTCTAAGGATTTCTACAAAT AAAATCCAGTAAGACGCGTCTTCTAAACTGAGAACAG spacer
length: 38 repeater length: 30

30995 2387433 GTTTC AAGTCCTCTAAGGATTTCTACAAAT GAAACACGGTGAGTAAAGAACTATTTGAATGTTC spacer
length: 36 repeater length: 30

30996 2387499 GTTTC AAGTCCTCTAAGGATTTCTACAAAT CCGCCTTACTGGTTTTTGGAGTATTACACTGAAGTGTA spacer
length: 38 repeater length: 30

30997 2387567 GTTTC AAGTCCTCTAAGGATTTCTACAAAT TGTGTGTAGGCATAAACTGTTATCCAAAAAGGAAA spacer
length: 36 repeater length: 30

30998 2387633 GTTTC AAGTCCTCTAAGGATTTCTACAAAT ATGCGGGATATCGTACAATACCAGGCAGGGTTGA spacer
length: 34 repeater length: 30

30999 2387697 GTTTC AAGTCCTCTAAGGATTTCTACAAAT GGAGTCATAGAGAGCGACCAGAGCGAGACAATAAGAT spacer

	length: 37	repeater length: 30	
31000	2387764	GTTTCAAGTCCTCTAAGGATTTCTACAAAT	ACGATTACGTGCCTCGTCCAGGTAGGCGTTAACGCGT spacer
	length: 37	repeater length: 30	
31001	2387831	GTTTCAAGTCCTCTAAGGATTTCTACAAAT	ATAATACTAGTATTTTTTTCTAATTAGTTTGGTATAGA spacer
	length: 38	repeater length: 30	
31002	2387899	GTTTCAAGTCCTCTAAGGATTTCTACAAAT	CAACACCATAAACTTTCTAGCCAATTTTTGAGCAT spacer
	length: 36	repeater length: 30	
31003	2387965	GTTTCAAGTCCTCTAAGGATTTCTACAAAT	ATTAATGGAAAAAGCAAAACAAGAAGGAGAAGTTTATG spacer
	length: 38	repeater length: 30	
31004	2388033	GTTTCAAGTCCTCTAAGGATTTCTACAAAT	CCTATTATTTCCAGTTTGGTACATGAGCTATATTTTCG spacer
	length: 38	repeater length: 30	
31005	2388101	GTTTCAAGTCCTCTAAGGATTTCTACAAAT	TTAAGACCGCGTTTTTCCAAATGCAAGAAGTACTTGGA spacer
	length: 37	repeater length: 30	
31006	2388168	GTTTCAAGTCCTCTAAGGATTTCTACAAAT	AAATGCAGTCTTCATTTTCTATCACGTCGATACCTG spacer
	length: 36	repeater length: 30	
31007	2388234	GTTTCAAGTCCTCTAAGGATTTCTACAAAT	ACAGATTTGTTAATACTGTTTCCATCAACGCGGTAG spacer
	length: 36	repeater length: 30	
31008	2388300	GTTTCAAGTCCTCTAAGGATTTCTACAAAT	CCATTGCTTTTCACTAAAATTGATCTTGTTTCAAGATCTTCTA
	spacer length: 43	repeater length: 30	
31009	2388373	GTTTCAAGTCCTCTAAGGATTTCTACAAAT	AGAAATGGATTAAGAGATGCATATAGCGGTGTCAGAAA spacer
	length: 38	repeater length: 30	
31010	2388441	GTTTCAAGTCCTCTAAGGATTTCTACAAAT	TTCTCATTTTTTGCACAAATTACGCAAGATGACAGAT spacer
	length: 37	repeater length: 30	
31011	2388508	GTTTCAAGTCCTCTAAGGATTTCTACAAAT	
31012			
31013			
31014	crispr 7		
31015	2390450	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CTCACAATATAACATATGTCAAACTCATATTTAAAG spacer
	length: 37	repeater length: 30	
31016	2390517	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TCGCGTCGCCGTTAGGGTGAAAACATGGCTAAAGTAAAGA
	spacer length: 40	repeater length: 30	
31017	2390587	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	AAGAGGCGGAAGAAATGAAATATGAACAATTAATAACAAC
	spacer length: 40	repeater length: 30	
31018	2390657	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CAAGATAACGGAATAGACGTAGAACCGTTCATGAGTT spacer
	length: 37	repeater length: 30	
31019	2390724	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CTTTTTTAGAAAAAATTCACCAAACTTGATGCTG spacer
	length: 36	repeater length: 30	
31020	2390790	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	AAATTTGTTTCACAACCGTCATAAAAATCGTCAAGA spacer
	length: 36	repeater length: 30	
31021	2390856	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	ATCACTAAGCTTTAGTTCTTGTAATACATCTTCAATAA spacer
	length: 38	repeater length: 30	
31022	2390924	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	GATTCTACTTAAAAAATCTTCAAATTCTCCTAATAT spacer
	length: 36	repeater length: 30	
31023	2390990	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	GGAATACCGTTTACAATTTTGA CTATATCTGAAAAT spacer
	length: 36	repeater length: 30	
31024	2391056	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	ACAAATCTATTTTCGACCATAATCTTATTTTTATTTG spacer
	length: 37	repeater length: 30	
31025	2391123	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CACCTGCGAGCTTGTAATCGTAGGAATGATGTGCGAG spacer
	length: 37	repeater length: 30	
31026	2391190	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TCAACGTGACCTGGCGACGTATTATATCCCGCATAAA spacer
	length: 37	repeater length: 30	
31027	2391257	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TAATGATAATAATGACAAGTAGAGGGTGAGAGAATGAGCT
	spacer length: 40	repeater length: 30	
31028	2391327	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TAGTATGACGTTGGAAGACGTGTTCTACTGGATTTC spacer
	length: 35	repeater length: 30	
31029	2391392	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	
31030			
31031			
31032	crispr 8		
31033	2391522	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	AAATATAGAATAAATATTCCATTAAGATAATAAA spacer
	length: 34	repeater length: 30	
31034	2391586	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	AACGTATATAAAAGCTTTTGCTTTTATTTCAATTTA spacer
	length: 36	repeater length: 30	
31035	2391652	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	AATATTGTAAATAAGTACTTATTTAAAGATATAATAAA spacer
	length: 38	repeater length: 30	
31036	2391720	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TATAGTTATGCAATATAGAAGTTATAATTTAATAAT spacer
	length: 36	repeater length: 30	
31037	2391786	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CAAATATAGCAATAATATTTTTTCGGCATTCATATCACA
	spacer length: 39	repeater length: 30	
31038	2391855	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	GAAAATATGGATATCCACTTTCATGCCCTATGCGGG spacer
	length: 36	repeater length: 30	

31039	2391921	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CCGCTGTAGCAACTGAGTTTCCGCTGAGAAGGAGGGA	spacer
	length:	37	repeater length:	30
31040	2391988	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CCCAACCCATAGGGAACCAAGGTATTTTCGATCAGC	spacer
	length:	35	repeater length:	30
31041	2392053	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	ACGAGTTCGGTAGTGAGAAGAGATGGGTGGTCTCA	spacer
	length:	35	repeater length:	30
31042	2392118	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CGTCACCAGGTGTAGTCGATAAAATTTACCAACAACGA	spacer
	length:	39	repeater length:	30
31043	2392187	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CATCTGCACAAAACAATTATGAATGTCAATAAAAAAC	spacer
	length:	36	repeater length:	30
31044	2392253	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	GAATATTCAATATATCATGTTCCACCATGCCAAAAAC	spacer
	length:	36	repeater length:	30
31045	2392319	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CCTCATTCGTATCCATTTTAATTGACACACTATAG	spacer
	length:	35	repeater length:	30
31046	2392384	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TAGAAATCAATAGCTTCATCTATGTCCTGGATTGGA	spacer
	length:	36	repeater length:	30
31047	2392450	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TCAACATCATTCACGGTGACTCCAACATGAGCCTATG	spacer
	length:	37	repeater length:	30
31048	2392517	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	ACGAAATGCTACGGTACCTAATAAGGAAGGAGTACGAA	spacer
	length:	38	repeater length:	30
31049	2392585	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TCGCGTTATCGCTCCAACCTCTACCTCTTCAATAAGGAA	spacer
	length:	38	repeater length:	30
31050	2392653	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTGATGATGATGTTTTGCCTAACAAAATTCCTACGAAA	spacer
	length:	38	repeater length:	30
31051	2392721	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTTTTTTCTCGTGTTCTATCGTAACGTTTTGTTCAT	spacer
	length:	37	repeater length:	30
31052	2392788	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TATCTATTTTCGATCTTTTTCTTACATCTCTTGTTTCT	spacer
	length:	38	repeater length:	30
31053	2392856	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTAACACAGGGAAAGAGTAGAATCAAATTAATTCAA	spacer
	length:	37	repeater length:	30
31054	2392923	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	ATATAATCTGTTGGTCTTAATCCTTCATTTTCGTAAAA	spacer
	length:	38	repeater length:	30
31055	2392991	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	ACTATGAAC TATTCTTCAATTAGGAATGTGGCAGATGA	spacer
	length:	38	repeater length:	30
31056	2393059	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTAGAGATAGTATAAACATCGATTGTATCCAAATCA	spacer
	length:	37	repeater length:	30
31057	2393126	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTTTTCATTAGGAGAAAGAGCTTCTGTAGAGAGAGAA	spacer
	length:	37	repeater length:	30
31058	2393193	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTAATTCCTTTTTTTCATAAAAAATATTTTTATAT	spacer
	length:	35	repeater length:	30
31059	2393258	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TAAAAGAACAATTGGAAAAC TTTTGATAGATTCAA	spacer
	length:	36	repeater length:	30
31060	2393324	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	AACTAGAGAACCATGAGAGTTGTAACATTTAAAGCAGAAGAAG	spacer
	length:	43	repeater length:	30
31061	2393397	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CAAATAGTTTCAGTCTGGATACAAAAAGTTTTTAAA	spacer
	length:	37	repeater length:	30
31062	2393464	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	ATTTTTTTACGCAATTTACAGAAAATGATAGAT	spacer
	length:	33	repeater length:	30
31063	2393527	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	GTTAGCTAAATGCTAAGCAAATTCTCTGGATTGAAT	spacer
	length:	36	repeater length:	30
31064	2393593	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTTTTTTATACACATTTTTTATCAGTTTTGTAAATA	spacer
	length:	34	repeater length:	30
31065	2393657	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	AGTTAGTGCAAAGGATAGGAAGAGTAATGAGACCAG	spacer
	length:	36	repeater length:	30
31066	2393723	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTCCATCAGCAGCAAATGTAATAACTGGTTGTATATAA	spacer
	length:	39	repeater length:	30
31067	2393792	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TATCCTAATTCCTGTAATGTCTTCAGATTCTTCATCATAT	spacer
	length:	40	repeater length:	30
31068	2393862	ATTTGTAGAAATCCTTAGAGGACTTGAAAC		
31069				
31070				
31071	crispr 9			
31072	2480424	CTTCAATTCCTTTTTGGATGAAAC	CGCGGAAACATTATGCAGGGTTGAATACTCAAAGTTAGAT	spacer
	length:	40	repeater length:	25
31073	2480489	CTTCAATTCCTTTTTGGATGAAAC	ATAGGTTTGAATGCCTAGAGATGAGTGACGGAATGCTAAC	spacer
	length:	40	repeater length:	25
31074	2480554	CTTCAATTCCTTTTTGGATGAAAC	TTAAAAATATTTGGCAAGCAATACATGTTTCCTATTCTATACTT	spacer
	length:	44	repeater length:	25
31075	2480623	CTTCAATTCCTTTTTGGATGAAAC	TACATTATTACCAGTATATTGAAAATTTATTCGAAAAACC	spacer
	length:	40	repeater length:	25
31076	2480688	CTTCAATTCCTTTTTGGATGAAAC	TCAGAGAGAGTCTTAAACTCTCCCTGACTTCCCTGACGT	spacer

length: 40 repeater length: 25

31077 2480753 CTTTCAATTCCTTTTTGGATGAAAC ATGACACAAGAAAATGTTCAAATGGAAAAATGAA spacer length: 35 repeater length: 25

31078 2480813 CTTTCAATTCCTTTTTGGATGAAAC TTATAGATTATGGGTATGATGTCCTAGGACAATTAATACTAAA spacer length: 43 repeater length: 25

31079 2480881 CTTTCAATTCCTTTTTGGATGAAAC CTATTCTCAAATTGTGTTTCTTCGCAGCTTTTTCAA spacer length: 36 repeater length: 25

31080 2480942 CTTTCAATTCCTTTTTGGATGAAAC TTTGCCTTTAGGCTAAAGAACGGTGTGATCCTAAAGGTAAGAC spacer length: 43 repeater length: 25

31081 2481010 CTTTCAATTCCTTTTTGGATGAAAC TTATACTATAGATATGGAAAAGACAAAATACGTATTAATTAA spacer length: 42 repeater length: 25

31082 2481077 CTTTCAATTCCTTTTTGGATGAAAC GAGTACTTTGAGTTTGACATATACAATAAGAAGCCATACGTG spacer length: 42 repeater length: 25

31083 2481144 CTTTCAATTCCTTTTTGGATGAAAC CCCATTGCTTCCTTCTTTGTTCTTCATTAATGTATC spacer length: 36 repeater length: 25

31084 2481205 CTTTCAATTCCTTTTTGGATGAAAC TCGCCATCAGGGAAACATTTACATATCTTTATCGTGCTTGA spacer length: 41 repeater length: 25

31085 2481271 CTTTCAATTCCTTTTTGGATGAAAC CTGATAGCGTAATAGAGACATACTTGAAAACATTAATGTATC spacer length: 42 repeater length: 25

31086 2481338 CTTTCAATTCCTTTTTGGATGAAAC CTAAGACTGATTTCCATGTTTACTCCATTAGAAGTTATAAT spacer length: 41 repeater length: 25

31087 2481404 CTTTCAATTCCTTTTTGGATGAAAC TAAGTTCAAATTATAAAAATTTGAACCCAATCGAAAAATT spacer length: 41 repeater length: 25

31088 2481470 CTTTCAATTCCTTTTTGGATGAAAC ATCAGCCATCGCAAAACACGGTAAAGAACTGATACTAAA spacer length: 39 repeater length: 25

31089 2481534 CTTTCAATTCCTTTTTGGATGAAAC

31090

31091

31092 crispr 10

31093 2481599 CTTTCAATTCCTTTTTGGATGAAAC ATAGCAAATTATTAACGAAATTATTCCAGTCTTGCAAAGTCA spacer length: 42 repeater length: 25

31094 2481666 CTTTCAATTCCTTTTTGGATGAAAC AGGAATCCAATTGCTGCAGGACAGCAACGGCAACTTATACTT spacer length: 42 repeater length: 25

31095 2481733 CTTTCAATTCCTTTTTGGATGAAAC AGCTATAGCTAATTATTTTTCTTTCTTTGATAATTT spacer length: 36 repeater length: 25

31096 2481794 CTTTCAATTCCTTTTTGGATGAAAC GAACAAATTATCGAAAATGACCAGGAGTTAAAGAAA spacer length: 37 repeater length: 25

31097 2481856 CTTTCAATTCCTTTTTGGATGAAAC ATTGTAGGAGTTTTAACAAGCTATTCTCCTCAAATCCGCCAA spacer length: 43 repeater length: 25

31098 2481924 CTTTCAATTCCTTTTTGGATGAAAC GTAACATAAAGAAAAACAGTTTTAATAATCACAGATATGATTA spacer length: 43 repeater length: 25

31099 2481992 CTTTCAATTCCTTTTTGGATGAAAC GTGATTTAGAATTTTACGATATAAATATTTTGAAGAATACTAATT spacer length: 45 repeater length: 25

31100 2482062 CTTTCAATTCCTTTTTGGATGAAAC CCTCAAAGGCATTGCGTATCGCGTTTTCTAGAATGT spacer length: 36 repeater length: 25

31101 2482123 CTTTCAATTCCTTTTTGGATGAAAC TAAAGGAGTATTTAAATCTTTTTTCTCTGTTTTTCTTAGAAAAT spacer length: 44 repeater length: 25

31102 2482192 CTTTCAATTCCTTTTTGGATGAAAC ACTAACTGGAAATAATGAGGATAAAATAGAGGAGTATGTA spacer length: 40 repeater length: 25

31103 2482257 CTTTCAATTCCTTTTTGGATGAAAC CTTAAATAACAGATTAACATACATGTATATCGACCAAAAA spacer length: 40 repeater length: 25

31104 2482322 CTTTCAATTCCTTTTTGGATGAAAC CTATTACAGAACTATAACGTGGTAATAGGAACATTACCAG spacer length: 40 repeater length: 25

31105 2482387 CTTTCAATTCCTTTTTGGATGAAAC AATAATTTAATTTTTTCATGCTTAATTTGTTTCATGTT spacer length: 38 repeater length: 25

31106 2482450 CTTTCAATTCCTTTTTGGATGAAAC CCATACCCCAAAACGACTGATATCCAGTATATTGAAATACT spacer length: 41 repeater length: 25

31107 2482516 CTTTCAATTCCTTTTTGGATGAAAC GCGAATTTATCGCCATCGATTATATGAAAGACGAAAAGTATG spacer length: 42 repeater length: 25

31108 2482583 CTTTCAATTCCTTTTTGGATGAAAC ATGCCACACATTAAGTGTGGCATCAAATTACGCCGAAATTAT spacer length: 42 repeater length: 25

31109 2482650 CTTTCAATTCCTTTTTGGATGAAAC CATATAATTAAGCTGGAGAACGAGAATATGATCTTGAAAA spacer length: 40 repeater length: 25

31110 2482715 CTTTCAATTCCTTTTTGGATGAAAC TAAATCTGATTTATTTTCATTTTCTTTATTTATC spacer length: 35 repeater length: 25

31111 2482775 CTTTCAATTCCTTTTTGGATGAAAC CCTTCAAACAAATGCAAAGTACTTAATTAAGATGTAAAAG spacer length: 41 repeater length: 25

31112 2482841 CTTTCAATTCCTTTTTGGATGAAAC CCAAGATTACGGTTTAATGACAAAGGTGTATTAAAAAATGC spacer length: 41 repeater length: 25

31113 2482907 CTTTCAATTCCTTTTTGGATGAAAC TTTAATTAGGCGAAAAAGATGGCAAGTTTGAAGGAAATATTAGA spacer length: 44 repeater length: 25

31114	2482976	CTTTCAATTCCTTTTTGGATGAAAC	CTTCCAAACCGTTAAGTTCAAAACTTCCACCCCTTGATGGTAAT
		spacer length: 44	repeater length: 25
31115	2483045	CTTTCAATTCCTTTTTGGATGAAAC	CTTATTCTCTATAATTTTTTTTAGAGCAAGACAATAAATTAA
		length: 41	repeater length: 25
31116	2483111	CTTTCAATTCCTTTTTGGATGAAAC	
31117			
31118			
31119		crispr 11	
31120	2531874	CTTTCAATTCCTTCTTGGATGAAAC	TCCACTTTTTTCGTAATTTCTCATAAAGCATTTAAAGATTT
		length: 40	repeater length: 25
31121	2531939	CTTTCAATTCCTTCTTGGATGAAAC	CCCGGCGAAGAGCCCTTGCTGGGCTCTCCCGGGTACGAGGA
		length: 41	repeater length: 25
31122	2532005	CTTTCAATTCCTTCTTGGATGAAAC	GTAGTTTAGGCGTAGAGTTGGAGGGCGTTATGCCCTA
		length: 37	repeater length: 25
31123	2532067	CTTTCAATTCCTTCTTGGATGAAAC	TGCGTTGGTATGCAGAAATATTGCCTATAGTTACCGAAGA
		length: 40	repeater length: 25
31124	2532132	CTTTCAATTCCTTCTTGGATGAAAC	AAATATTCAAACTGATAACGGCGGAATATATTTAGCTTACT
		length: 41	repeater length: 25
31125	2532198	CTTTCAATTCCTTCTTGGATGAAAC	GTATGGTATTATCAAATGGTGAAAAAATGGGAAACGAAAC
		length: 41	repeater length: 25
31126	2532264	CTTTCAATTCCTTCTTGGATGAAAC	TTGAGGACTTCCAGGGGGGATATTACTATATCCCCTACAA
		length: 40	repeater length: 25
31127	2532329	CTTTCAATTCCTTCTTGGATGAAAC	TTATTCAACACCTGCAGCAAGGTATCCAGCTAATTCAA
		length: 38	repeater length: 25
31128	2532392	CTTTCAATTCCTTCTTGGATGAAAC	AAAAGGTCTAATTCAAAGAAAGAGCGTAAAGGATATCATAAA
		length: 42	repeater length: 25
31129	2532459	CTTTCAATTCCTTCTTGGATGAAAC	ATTGTAAATGGGTTTAGCCCAAGCATGTTAAGTCAAATTC
		length: 41	repeater length: 25
31130	2532525	CTTTCAATTCCTTCTTGGATGAAAC	TTATGAGTTTAAGAGAGACGCCATAAGGAAGCTAATGGAAAAATA
		spacer length: 45	repeater length: 25
31131	2532595	CTTTCAATTCCTTCTTGGATGAAAC	AATGAATAAGTATGTGACAAACGGGTTCAGCCCAGTATGATA
		length: 43	repeater length: 25
31132	2532663	CTTTCAATTCCTTCTTGGATGAAAC	ATACTATACGTATCGTATGACGACGGGTTTGAAAAAGACTT
		length: 41	repeater length: 25
31133	2532729	CTTTCAATTCCTTCTTGGATGAAAC	ACATGATGAATATGAACCGTTTGCAAGCGCTAAATTAGAAAT
		length: 42	repeater length: 25
31134	2532796	CTTTCAATTCCTTCTTGGATGAAAC	CTGAGGTTATTGTCTTAAACTTAATGATTTTGATAAGATAA
		length: 42	repeater length: 25
31135	2532863	CTTTCAATTCCTTCTTGGATGAAAC	TTCTTCTCCTCCGACATGTCTCATTACCTCTCATATTTAACA
		length: 43	repeater length: 25
31136	2532931	CTTTCAATTCCTTCTTGGATGAAAC	CTGTTTATTTCTTTTAATTCCAATAGATTTTTTGACTGATT
		length: 42	repeater length: 25
31137	2532998	CTTTCAATTCCTTCTTGGATGAAAC	CATTTAAATATTAGTTAGGTCTTAATGTAACATGATAAACA
		length: 41	repeater length: 25
31138	2533064	CTTTCAATTCCTTCTTGGATGAAAC	AAGTGATGGCAAGGGAAGGCACAAAAATGATGAGTATTGA
		length: 40	repeater length: 25
31139	2533129	CTTTCAATTCCTTCTTGGATGAAAC	CTTATATCATTCGGCTGTTCCCTCTGGGGTCTATAGAAAAAC
		length: 41	repeater length: 25
31140	2533195	CTTTCAATTCCTTCTTGGATGAAAC	TACAATACGGTTCATTACCAGACGCGTTAATAAAATCA
		length: 38	repeater length: 25
31141	2533258	CTTTCAATTCCTTCTTGGATGAAAC	TCAAATAAGTCAAATTTAGATCAACAATTAAATCAAATTTT
		length: 42	repeater length: 25
31142	2533325	CTTTCAATTCCTTCTTGGATGAAAC	TAAAATCAAGGGGGAAATATGGTTGAGTTTAACAAAGCGG
		length: 40	repeater length: 25
31143	2533390	CTTTCAATTCCTTCTTGGATGAAAC	ATATCGATTTGTCACATAAGAATTTTGACTTTTTTAA
		length: 36	repeater length: 25
31144	2533451	CTTTCAATTCCTTCTTGGATGAAAC	GTCCCTAAGTGAATTACTTAGGGACATAGTGTGTTGAATATAT
		length: 42	repeater length: 25
31145	2533518	CTTTCAATTCCTTCTTGGATGAAAC	TTCCCAAAGAATGCCAATGGGTGGCGGAGCTGGAAAAAATT
		length: 41	repeater length: 25
31146	2533584	CTTTCAATTCCTTCTTGGATGAAAC	ATAAATTCATTAACTACCGTAACCGTTGGGCAATATATAACTGC
		spacer length: 44	repeater length: 25
31147	2533653	CTTTCAATTCCTTCTTGGATGAAAC	CTTAAAGAAATTGCAAATTGGGTTGGGGCAAGATCATTTAG
		length: 41	repeater length: 25
31148	2533719	CTTTCAATTCCTTCTTGGATGAAAC	ATAATGACATACTAGTAATAGTGTACCCAAGTCTGCATGATAT
		length: 43	repeater length: 25
31149	2533787	CTTTCAATTCCTTCTTGGATGAAAC	CTACTGAGCTCGAAAGTTTTGGGTGTGCCTCTGGGGTCTAT
		length: 41	repeater length: 25
31150	2533853	CTTTCAATTCCTTCTTGGATGAAAC	AGTAAGGACTTACAGTGCAGAAACCGGGAAACCGGTGGC
		length: 39	repeater length: 25
31151	2533917	CTTTCAATTCCTTCTTGGATGAAAC	TTGCTACCTTCATTTGTGAGCCACCTCAACGACAATTATTT
			spacer

length: 41 repeater length: 25
31152 2533983 CTTTCAATTCCTTCTTGGATGAAAC AGGAGGACTATAAACGCACTATATATTGACGTTGTAATGAT spacer
length: 41 repeater length: 25
31153 2534049 CTTTCAATTCCTTCTTGGATGAAAC ACAAAAAGGGATGGAGGTTTTTTTACAACCTCTAAAAAAGA spacer
length: 42 repeater length: 25
31154 2534116 CTTTCAATTCCTTCTTGGATGAAAC TCTTCTGCTTCCATAAAATCATATCCAGCAAAAAGTTTTTCG spacer
length: 41 repeater length: 25
31155 2534182 CTTTCAATTCCTTCTTGGATGAAAC AGAAAAATTAAAGATAAAATTAGCTAAAGAATAATAAAT spacer
length: 39 repeater length: 25
31156 2534246 CTTTCAATTCCTTCTTGGATGAAAC CTATTTAGTGTCAATGCAACGACTGGTGTGCAGTTACAAA spacer
length: 42 repeater length: 25
31157 2534313 CTTTCAATTCCTTCTTGGATGAAAC AAGAAATAATTTTACAGTTGTGAGAAAAATTAAGCATAAAA spacer
length: 41 repeater length: 25
31158 2534379 CTTTCAATTCCTTCTTGGATGAAAC AAGGATACGAACGACAAAACAGATCCAGCTATAACAAACGG spacer
length: 41 repeater length: 25
31159 2534445 CTTTCAATTCCTTCTTGGATGAAAC ACAACAACGACTTGAAGCAATTAGGTGACAACGATGATGAGTAA
spacer length: 44 repeater length: 25
31160 2534514 CTTTCAATTCCTTCTTGGATGAAAC AAAAAATCGACGATCGTTTGGAAACCTGCCCCTATAGAG spacer
length: 40 repeater length: 25
31161 2534579 CTTTCAATTCCTTCTTGGATGAAAC ATGAAATAAAATTACGAGAGTGAGAAATTTGATAAAGAGA spacer
length: 40 repeater length: 25
31162 2534644 CTTTCAATTCCTTCTTGGATGAAAC CTCAACTAAATAATAATAAAAGTAATACACTTCAAATGAACAG spacer
length: 43 repeater length: 25
31163 2534712 CTTTCAATTCCTTCTTGGATGAAAC ACAGCCGAACAGCAAATCTAGAGAATAACGAGACGGTAAA spacer
length: 40 repeater length: 25
31164 2534777 CTTTCAATTCCTTCTTGGATGAAAC CAAAAATAGAACCGAAAATGATAATGAAAACAATGAAAGAATA
spacer length: 44 repeater length: 25
31165 2534846 CTTTCAATTCCTTCTTGGATGAAAC CTATCTGGATTGATTTCCGGTCTTATAGAAATTAGACCTTTTTTGT
spacer length: 45 repeater length: 25
31166 2534916 CTTTCAATTCCTTCTTGGATGAAAC TAGTAACGAGGCACCAACTACTAAGACTTCAGGAACA spacer
length: 37 repeater length: 25
31167 2534978 CTTTCAATTCCTTCTTGGATGAAAC TTTAGTCATTATATTACTACTTTTACTTTAACGTAACGTAAAA spacer
length: 43 repeater length: 25
31168 2535046 CTTTCAATTCCTTCTTGGATGAAAC ACAAAAAATGTAATTAAGTATATGCGTAAAAATAGAAGAAAAA spacer
length: 43 repeater length: 25
31169 2535114 CTTTCAATTCCTTCTTGGATGAAAC AATAGAATTCCTTGTATTTTTATTTTTTTCGTTTTTTTAT spacer
length: 40 repeater length: 25
31170 2535179 CTTTCAATTCCTTCTTGGATGAAAC CTTTCAAAGTTTGTATTTGCGAAAATAGAATTAAAAATTTTT spacer
length: 42 repeater length: 25
31171 2535246 CTTTCAATTCCTTCTTGGATGAAAC TTGATAAAGTATACTGCAAAGGTCTACATAATAATCATACAAT spacer
length: 43 repeater length: 25
31172 2535314 CTTTCAATTCCTTCTTGGATGAAAC ACTGTTGCGTTAGAAATTTTGCAAAATGAATTGGAATATACA spacer
length: 42 repeater length: 25
31173 2535381 CTTTCAATTCCTTCTTGGATGAAAC GCGGTTTTTTCGGCTAATAATCTGCCAAACGTCTACAAATT spacer
length: 40 repeater length: 25
31174 2535446 CTTTCAATTCCTTCTTGGATGAAAC TTAGAACGTAAGGGCGGAAAAGCTCCACTCATTGCAATCCAAA spacer
length: 43 repeater length: 25
31175 2535514 CTTTCAATTCCTTCTTGGATGAAAC TCTGCAATATCGACAGTTGTCTATAGCAATATTTTCGTGAC spacer
length: 41 repeater length: 25
31176 2535580 CTTTCAATTCCTTCTTGGATGAAAC AAAAGGGTTAGTGGACATCGATAAAGATAAAGCAAATAGA spacer
length: 40 repeater length: 25
31177 2535645 CTTTCAATTCCTTCTTGGATGAAAC GAACATTAGTAATAAAATATGAACCAAATTCAACATTATATAT spacer
length: 43 repeater length: 25
31178 2535713 CTTTCAATTCCTTCTTGGATGAAAC CATTTTTATCGATAATAATAAATAAAGTATATTGCTAG spacer
length: 39 repeater length: 25
31179 2535777 CTTTCAATTCCTTCTTGGATGAAAC
31180
31181
31182 GCA_003268005.1_ASM326800v1_genomic.fna (PilerCR):
31183 START REPEAT
SPACER
31184 GCA_003431325.1_ASM343132v1_genomic.fna (PilerCR):
31185 START REPEAT
SPACER
31186 GCA_003491285.1_ASM349128v1_genomic.fna (PilerCR):
31187 START REPEAT
SPACER
31188 crispr 1
31189 476698 GTTAAAAATCAGACTATTTTAGGATTGAAAT GAAGATAAGCTATTCATACTGAAAGAAAGAAGTGT spacer
length: 35 repeater length: 30
31190 476763 GTTAAAAATCAGACTATTTTAGGATTGAAAT TACAAAGCACGTAGAATTGAAAAAGACACAATATCC spacer

length: 36 repeater length: 30
31191 476829 GTTAAATCAGACTATTTTAGGATTGAAAT GGATTTGTCTGTGGTTGATGGAGACGTGATCACTAG spacer
length: 36 repeater length: 30
31192 476895 GTTAAATCAGACTATTTTAGGATTGAAAT CTATGGGCAACTAAAGATCAAGATGACAACCTGGATA spacer
length: 36 repeater length: 30
31193 476961 GTTAAATCAGACTATTTTAGGATTGAAAT GCAGTCACCAGATCAAGAGCATAATATATAAAATTAA spacer
length: 37 repeater length: 30
31194 477028 GTTAAATCAGACTATTTTAGGATTGAAAT GTACTTAGGCTGCAACTACACCTTGCTGTGCGAAGTG spacer
length: 36 repeater length: 30
31195 477094 GTTAAATCAGACTATTTTAGGATTGAAAT CTGGTAAGGCTGCATTCATAGCAGCGGTGGGTATA spacer
length: 35 repeater length: 30
31196 477159 GTTAAATCAGACTATTTTAGGATTGAAAT TTATTTTACAAAGACTTGGAAAAAGCAGGGCTGGATAA spacer
length: 38 repeater length: 30
31197 477227 GTTAAATCAGACTATTTTAGGATTGAAAT CGAAATCTTTGATTAAAGGAGGAATTTGTGATGGTAA spacer
length: 37 repeater length: 30
31198 477294 GTTAAATCAGACTATTTTAGGATTGAAAT TTACAACCTTATGGGATTGGAGTAAAAGTGTAGCAACA spacer
length: 37 repeater length: 30
31199 477361 GTTAAATCAGACTATTTTAGGATTGAAAT GTATTATTTTATAAATTATTTCAAACAGAATACTCA spacer
length: 36 repeater length: 30
31200 477427 GTTAAATCAGACTATTTTAGGATTGAAAT TCATAATAAAGAATTAATTCCTCATAATGTTTAAA spacer
length: 35 repeater length: 30
31201 477492 GTTAAATCAGACTATTTTAGGATTGAAAT ATTGTTGAAGAATAAATAATTTTTAGTATTTTATTT spacer
length: 36 repeater length: 30
31202 477558 GTTAAATCAGACTATTTTAGGATTGAAAT TATATCGGGAAAGAGGAGAAGGTTAAATATTGTTTTA spacer
length: 37 repeater length: 30
31203 477625 GTTAAATCAGACTATTTTAGGATTGAAAT TATTAGTTGCCTCCTTCAGCGTCTATTAATTCGT spacer
length: 34 repeater length: 30
31204 477689 GTTAAATCAGACTATTTTAGGATTGAAAT AAAATATGATTGGCTATCACTACACATCGCATTCC spacer
length: 35 repeater length: 30
31205 477754 GTTAAATCAGACTATTTTAGGATTGAAAT ATACCGTTACGTCACATTCCTGCCCTACGAAGTCCT spacer
length: 36 repeater length: 30
31206 477820 GTTAAATCAGACTATTTTAGGATTGAAAT GAAAAATAAAAAGAAAAAGGTGTTAAAAAGTGGAA spacer
length: 36 repeater length: 30
31207 477886 GTTAAATCAGACTATTTTAGGATTGAAAT CCGTGTAACCGCTAATTGTACAGCGTTAATTGG spacer
length: 35 repeater length: 30
31208 477951 GTTAAATCAGACTATTTTAGGATTGAAAT ATGCACTTATCAGGTAATAATATGATCCGATTGGAA spacer
length: 36 repeater length: 30
31209 478017 GTTAAATCAGACTATTTTAGGATTGAAAT ATGCCTTTGTAGAGGGTGTGGGTGGAAGTGTATT spacer
length: 35 repeater length: 30
31210 478082 GTTAAATCAGACTATTTTAGGATTGAAAT ATGTTCAAATCAAGAGTTTGGTCTAACGAATTCAC spacer
length: 35 repeater length: 30
31211 478147 GTTAAATCAGACTATTTTAGGATTGAAAT AGCTTGTAATATTAGATGCTGTGTCTAACCAAGTGCG spacer
length: 36 repeater length: 30
31212 478213 GTTAAATCAGACTATTTTAGGATTGAAAT GCTGAGTTTGTAGATGTACATAATTTTCATCAACAC spacer
length: 35 repeater length: 30
31213 478278 GTTAAATCAGACTATTTTAGGATTGAAAT GCATTGCAAATAGTAAAGTGTATGTGTACCAAATCA spacer
length: 36 repeater length: 30
31214 478344 GTTAAATCAGACTATTTTAGGATTGAAAT TAGAACAAGCATACCCGCACCTATCGTCCGACAA spacer
length: 34 repeater length: 30
31215 478408 GTTAAATCAGACTATTTTAGGATTGAAAT ATGGTAGTCATGTTATTGTAAGAATAGAGCAGGAAGG spacer
length: 37 repeater length: 30
31216 478475 GTTAAATCAGACTATTTTAGGATTGAAAT TATACTAGTAAGAGGGAGATACTGGAAATATAAGTTG spacer
length: 37 repeater length: 30
31217 478542 GTTAAATCAGACTATTTTAGGATTGAAAT ATTGGAAAGTGATAGTAGTAACCGGGCCGTGGCCCAG spacer
length: 37 repeater length: 30
31218 478609 GTTAAATCAGACTATTTTAGGATTGAAAT CTGTGATAATCACATGCATATCCATAAATGATGTGG spacer
length: 36 repeater length: 30
31219 478675 GTTAAATCAGACTATTTTAGGATTGAAAT CTAATTATAATCTATTGTTAACAAGCCAACCACAAA spacer
length: 36 repeater length: 30
31220 478741 GTTAAATCAGACTATTTTAGGATTGAAAT GATTGTTAAAAAGTTTTGCAGCATATCTAGGAAAAGA spacer
length: 37 repeater length: 30
31221 478808 GTTAAATCAGACTATTTTAGGATTGAAAT GAAATCGGGGGAATAGTAGGATCTATCAGGAGAGTT spacer
length: 37 repeater length: 30
31222 478875 GTTAAATCAGACTATTTTAGGATTGAAAT ATGCACGTGTGGGTATACGGTTTTTGTGGAGTCATG spacer
length: 36 repeater length: 30
31223 478941 GTTAAATCAGACTATTTTAGGATTGAAAT ACCAGCATTTTTTCTTTTGCTTCATCCTTCTTTTTT spacer
length: 37 repeater length: 30
31224 479008 GTTAAATCAGACTATTTTAGGATTGAAAT AAAAGAAGCAGAAAAAATACGGAAAAACCTAACCTT spacer
length: 36 repeater length: 30
31225 479074 GTTAAATCAGACTATTTTAGGATTGAAAT AATTTAAGGAGATACTCATATAATTCAGGGGAATAT spacer
length: 36 repeater length: 30

31226	479140	GTTAAAAATCAGACTATTTTAGGATTGAAAT	TAACCTCACAGGGAATTAAAGGTGCAAGTACAGTTAC	spacer
		length: 37	repeater length: 30	
31227	479207	GTTAAAAATCAGACTATTTTAGGATTGAAAT	TGATGGGCGTGGTTACTTCCTGACAAGGACAAGTGTT	spacer
		length: 37	repeater length: 30	
31228	479274	GTTAAAAATCAGACTATTTTAGGATTGAAAT	CAGACAACCTGCTAATCCTTTGAGGAAGACTGCATAAA	spacer
		length: 37	repeater length: 30	
31229	479341	GTTAAAAATCAGACTATTTTAGGATTGAAAT	CGTCTATGATTAATACGTTTGGGATTTTCTTTTTGC	spacer
		length: 36	repeater length: 30	
31230	479407	GTTAAAAATCAGACTATTTTAGGATTGAAAT	CTGTAACCTGATCGGCCAGATCAAACTATCACAAAC	spacer
		length: 36	repeater length: 30	
31231	479473	GTTAAAAATCAGACTATTTTAGGATTGAAAT	ACGGTATAGGATGGTGGTCTTCATGCACAAGTGTTA	spacer
		length: 36	repeater length: 30	
31232	479539	GTTAAAAATCAGACTATTTTAGGATTGAAAT	TGAAAAAAGTTGGAGCTAAAAAATAAACTTCATT	spacer
		length: 36	repeater length: 30	
31233	479605	GTTAAAAATCAGACTATTTTAGGATTGAAAT	GAAACAAGCACGATGGAGGTTGGCGGTCTTGAAATA	spacer
		length: 36	repeater length: 30	
31234	479671	GTTAAAAATCAGACTATTTTAGGATTGAAAT	TTTAGTCTCTGTATCGTAGCGGTAGAATATCAGTC	spacer
		length: 35	repeater length: 30	
31235	479736	GTTAAAAATCAGACTATTTTAGGATTGAAAT	GATTAACACTCACTCTCATTTTTTACATAAAATGGAA	spacer
		length: 37	repeater length: 30	
31236	479803	GTTAAAAATCAGACTATTTTAGGATTGAAAT	CAGAAATATTTATAAAAAAGTTTAGTAAGTTTCATA	spacer
		length: 36	repeater length: 30	
31237	479869	GTTAAAAATCAGACTATTTTAGGATTGAAAT	GGTTAAAAGAGGCGTTTAGTAATCATGAGTTCAGC	spacer
		length: 35	repeater length: 30	
31238	479934	GTTAAAAATCAGACTATTTTAGGATTGAAAT	TTTATAAATCATCGGCAGGAGGTGATGTTGCTTAG	spacer
		length: 35	repeater length: 30	
31239	479999	GTTAAAAATCAGACTATTTTAGGATTGAAAT	TTTTGGTTGTAAGACACTGACAGCATTACGAAG	spacer
		length: 33	repeater length: 30	
31240	480062	GTTAAAAATCAGACTATTTTAGGATTGAAAT	ATAGTTTTGGTGGTGATTTGGCGTAGGTTTTTTAGTG	spacer
		length: 37	repeater length: 30	
31241	480129	GTTAAAAATCAGACTATTTTAGGATTGAAAT	GCGGTATTTTAGTGAATTGAATGAGGCAGGGTTTTTA	spacer
		length: 37	repeater length: 30	
31242	480196	GTTAAAAATCAGACTATTTTAGGATTGAAAT	AGTAATCATATAAATTATATTATTACAGTAAATAAGAG	spacer
		length: 38	repeater length: 30	
31243	480264	GTTAAAAATCAGACTATTTTAGGATTGAAAT	CTTGTATTAGAGACAGATAATTTGGTTTTAGAGCGG	spacer
		length: 36	repeater length: 30	
31244	480330	GTTAAAAATCAGACTATTTTAGGATTGAAAT	ACAAATAATCGTATCTGGTCAGGGAAATCGAAGACTA	spacer
		length: 37	repeater length: 30	
31245	480397	GTTAAAAATCAGACTATTTTAGGATTGAAAT	GTTTTATGCTAGTTAATTTATCATAAACCGTTCTAC	spacer
		length: 36	repeater length: 30	
31246	480463	GTTAAAAATCAGACTATTTTAGGATTGAAAT	GTCTTTTTCTTTTACTATTGTTTTTTCATATTCTTC	spacer
		length: 36	repeater length: 30	
31247	480529	GTTAAAAATCAGACTATTTTAGGATTGAAAT	CTCAGTAATGCATATAAAGCTTTTACTTTGCTTTCT	spacer
		length: 36	repeater length: 30	
31248	480595	GTTAAAAATCAGACTATTTTAGGATTGAAAT	TTTATTCCTTCAGCAAGAAATCTAAATCTGTAAATA	spacer
		length: 37	repeater length: 30	
31249	480662	GTTAAAAATCAGACTATTTTAGGATTGAAAT	ACAATATTCTTTTCTTAAATTATTTATTGAACCAAA	spacer
		length: 36	repeater length: 30	
31250	480728	GTTAAAAATCAGACTATTTTAGGATTGAAAT	CTAACACTGAAATATAGATTATCAAAATTACTG	spacer
		length: 33	repeater length: 30	
31251	480791	GTTAAAAATCAGACTATTTTAGGATTGAAAT	ACCGATAGAATTCTTATTTTACTACTAGTAAAACT	spacer
		length: 35	repeater length: 30	
31252	480856	GTTAAAAATCAGACTATTTTAGGATTGAAAT	TATTATAATCTATAAATATTTTAACGCGTCCATGT	spacer
		length: 35	repeater length: 30	
31253	480921	GTTAAAAATCAGACTATTTTAGGATTGAAAT	CTGAGGTAACAGCTAAAAAAGTGGAGAAGGTGAATGATG	spacer
		length: 39	repeater length: 30	
31254	480990	GTTAAAAATCAGACTATTTTAGGATTGAAAT	TGTTTATATGAGACATGGTAAAGGAACAGCGGCTTA	spacer
		length: 36	repeater length: 30	
31255	481056	GTTAAAAATCAGACTATTTTAGGATTGAAAT	AAAACAATGTGCCAATGAAGAATCGCCTAAATATAC	spacer
		length: 36	repeater length: 30	
31256	481122	GTTAAAAATCAGACTATTTTAGGATTGAAAT	GTAAAAAAGAGTACGTTTTCTTCGAGGATGATATG	spacer
		length: 36	repeater length: 30	
31257	481188	GTTAAAAATCAGACTATTTTAGGATTGAAAT	TGCTAACGCCTCAACAGCATCCATAAAAGTATTAGGC	spacer
		length: 37	repeater length: 30	
31258	481255	GTTAAAAATCAGACTATTTTAGGATTGAAAT	ACCAGTGTAGGGCTAGCATGTTTATAAAGAAATATAG	spacer
		length: 37	repeater length: 30	
31259	481322	GTTAAAAATCAGACTATTTTAGGATTGAAAT	AGATGTGCTCGTTGCTGGAAATGGTATGCAAGGCG	spacer
		length: 35	repeater length: 30	
31260	481387	GTTAAAAATCAGACTATTTTAGGATTGAAAT	GCAATACGTATAGTACACCCATACGGTTCGATACAT	spacer
		length: 37	repeater length: 30	
31261	481454	GTTAAAAATCAGACTATTTTAGGATTGAAAT	TGGAATGAGCTTTGGGGTAAGAGTTTGATTGATAA	spacer

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length: 35 repeater length: 30
31262 481519 GTTAAAAATCAGACTATTTTAGGATTGAAAT TTCCTTTTATTTTGGTTTAAACGTTTATATCGTAGGT spacer
length: 37 repeater length: 30
31263 481586 GTTAAAAATCAGACTATTTTAGGATTGAAAT GAAGGGGTCAAAGGGACAGTTAACCGACAGGTATAT spacer
length: 36 repeater length: 30
31264 481652 GTTAAAAATCAGACTATTTTAGGATTGAAAT AGTTCTAATGCTTTTCCTTTAACTATTTTATAGCATT spacer
length: 36 repeater length: 30
31265 481718 GTTAAAAATCAGACTATTTTAGGATTGAAAT ATATCTTTTTTCATCACTTTCTGTGATTTCCACATC spacer
length: 36 repeater length: 30
31266 481784 GTTAAAAATCAGACTATTTTAGGATTGAAAT CAGAAGAGCT
31267
31268
31269 GCA_003491305.1_ASM349130v1_genomic.fna (PilerCR):
31270 START REPEAT
SPACER
31271 crispr 1
31272 1047253 GCCAAAAATCAGACTATTTTAGGATTGAAAT ATATAGATGATATAATCGATGATGCGACCCAGACAT spacer
length: 37 repeater length: 30
31273 1047320 GCCAAAAATCAGACTATTTTAGGATTGAAAT CGATTTTCATGAGTGCAGGGTATGGGTTTTTGTTTAAT spacer
length: 37 repeater length: 30
31274 1047387 GCCAAAAATCAGACTATTTTAGGATTGAAAT ATCTATCTTCTTCTGGAGTGCGGTGGGTGTGAAGTC spacer
length: 36 repeater length: 30
31275 1047453 GCCAAAAATCAGACTATTTTAGGATTGAAAT GTCACCCACTTGGTAACAATACCTATTCTCATAAG spacer
length: 35 repeater length: 30
31276 1047518 GCCAAAAATCAGACTATTTTAGGATTGAAAT TACTACATCATAGCGGGGTGTTCCCCCTGGTATGGA spacer
length: 36 repeater length: 30
31277 1047584 GCCAAAAATCAGACTATTTTAGGATTGAAAT CAAATCCACCAAACGGATAGACTACGAACTCATCA spacer
length: 35 repeater length: 30
31278 1047649 GCCAAAAATCAGACTATTTTAGGATTGAAAT GCAAAGTGCAGCGGGAGATCGACCAGAAAAGCATC spacer
length: 35 repeater length: 30
31279 1047714 GCCAAAAATCAGACTATTTTAGGATTGAAAT CGGGCAAGGTCATCGGTCAACTTCCGGATCAGGTC spacer
length: 35 repeater length: 30
31280 1047779 GCCAAAAATCAGACTATTTTAGGATTGAAAT CATGATGCTTATGGGAACGAGTTAGGATACATTA spacer
length: 36 repeater length: 30
31281 1047845 GCCAAAAATCAGACTATTTTAGGATTGAAAT CTATCACAATAGGGAGGGGTCAAGCCGCCCTAAGTC spacer
length: 36 repeater length: 30
31282 1047911 GCCAAAAATCAGACTATTTTAGGATTGAAAT TCATTTGTTCTTATCTTGAATGGGCCGTTGGTGGCT spacer
length: 36 repeater length: 30
31283 1047977 GCCAAAAATCAGACTATTTTAGGATTGAAAT ATATAAATGATATAATCCATGATGCCACCCAGACAT spacer
length: 37 repeater length: 30
31284 1048044 GCCAAAAATCAGACTATTTTAGGATTGAAAT GAAACTATTATATTCTTTATGAAGACCTCCCACAA spacer
length: 36 repeater length: 30
31285 1048110 GCCAAAAATCAGACTATTTTAGGATTGAAAT GCAACTGTGGGCCTTGCTGCAACAATCTCAGAGTAT spacer
length: 36 repeater length: 30
31286 1048176 GCCAAAAATCAGACTATTTTAGGATTGAAAT GTAGACCTCACGGACTGGCTCCACTCTGAATGAGAA spacer
length: 36 repeater length: 30
31287 1048242 GCCAAAAATCAGACTATTTTAGGATTGAAAT ATATGGGGGGGTAAAAAGTTTAAATTATTCAACATC spacer
length: 36 repeater length: 30
31288 1048308 GCCAAAAATCAGACTATTTTAGGATTGAAAT GTATCTACAGCTTTAGTTTTTAATTGCTGAGGAATGGT spacer
length: 37 repeater length: 30
31289 1048375 GCCAAAAATCAGACTATTTTAGGATTGAAAT GGAGAATGGACATGCCTTGTGTGTGATGCCGATTT spacer
length: 35 repeater length: 30
31290 1048440 GCCAAAAATCAGACTATTTTAGGATTGAAAT TTAAGTGGCGACATGATAACTGATTTACTCGTAGTC spacer
length: 36 repeater length: 30
31291 1048506 GCCAAAAATCAGACTATTTTAGGATTGAAAT CACTTTTACCTGCTGTGTAAAACCTTCTCAGTATAAG spacer
length: 36 repeater length: 30
31292 1048572 GCCAAAAATCAGACTATTTTAGGATTGAAAT TTTAGCACTGAAACTGGCCATGTGGGTGACTAATA spacer
length: 35 repeater length: 30
31293 1048637 GCCAAAAATCAGACTATTTTAGGATTGAAAT GAACCTCAGAACTTGGCAAAGACTAATCCATTGAAT spacer
length: 36 repeater length: 30
31294 1048703 GCCAAAAATCAGACTATTTTAGGATTGAAAT GGCATACTCGAAAAACACAACACACAACAACCACA spacer
length: 36 repeater length: 30
31295 1048769 GCCAAAAATCAGACTATTTTAGGATTGAAAT AAGAACCCCTAAAAACGCTCGGTGGGCTTATGAAA spacer
length: 35 repeater length: 30
31296 1048834 GCCAAAAATCAGACTATTTTAGGATTGAAAT CCCATGGGGAACAGCCGAACCGGTTCTGTGGGAG spacer
length: 34 repeater length: 30
31297 1048898 GCCAAAAATCAGACTATTTTAGGATTGAAAT TAAGTTATAATAATAATAGATTTATTTGGATTGTGCG spacer
length: 36 repeater length: 30
31298 1048964 GCCAAAAATCAGACTATTTTAGGATTGAAAT GTTAAAATAGAGGGGAATTATTAGCTAAATTAGG spacer
length: 35 repeater length: 30
31299 1049029 GCCAAAAATCAGACTATTTTAGGATTGAAAT ATGGCAGGGTGGAAAAAGGCACAAACCGGAAAAGG spacer

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	length: 35	repeater length: 30	
31300	1049094	GCCAAAATCAGACTATTTTAGGATTGAAAT	TATATCCTCCTAAACAGTCAAAGCCAAAGTAACCA spacer
	length: 35	repeater length: 30	
31301	1049159	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTCATGGATTAAAGGATGATAATCTGGGTTTAATTC spacer
	length: 36	repeater length: 30	
31302	1049225	GCCAAAATCAGACTATTTTAGGATTGAAAT	GGTTGGAAGTAAAAGGTTTTATGTTTCAACTAAGG spacer
	length: 35	repeater length: 30	
31303	1049290	GCCAAAATCAGACTATTTTAGGATTGAAAT	ACTTAATTCAATATCAGCTGTGGTTGTGTGTACTCT spacer
	length: 36	repeater length: 30	
31304	1049356	GCCAAAATCAGACTATTTTAGGATTGAAAT	GCCTATATTGGATGACCTGGGTAAGCCAACTGGTAAA spacer
	length: 37	repeater length: 30	
31305	1049423	GCCAAAATCAGACTATTTTAGGATTGAAAT	CGTTATCAGCGTTAACAAAAAATTCATATTAGTTTC spacer
	length: 37	repeater length: 30	
31306	1049490	GCCAAAATCAGACTATTTTAGGATTGAAAT	GTGTAACACTAATGAGGATAGGGAGAAGCATATCTC spacer
	length: 36	repeater length: 30	
31307	1049556	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTAAAGATGTGATAAAAAATCATAGAGGATCACGGG spacer
	length: 35	repeater length: 30	
31308	1049621	GCCAAAATCAGACTATTTTAGGATTGAAAT	GCAACCATACTGGCTTCAAAGTTGTTGGATAAGGAT spacer
	length: 36	repeater length: 30	
31309	1049687	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTAATGTAATAAGCATTACAGGGCAGGATGTTTCCGT spacer
	length: 36	repeater length: 30	
31310	1049753	GCCAAAATCAGACTATTTTAGGATTGAAAT	TAATCCCAAAGATGGGTTTCATGTTTCATAACGCCA spacer
	length: 35	repeater length: 30	
31311	1049818	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTCAGGTAACGCTGACAACATGAAGGACAATTAATA spacer
	length: 36	repeater length: 30	
31312	1049884	GCCAAAATCAGACTATTTTAGGATTGAAAT	CAGATGAGGACAACATAACCATCTACGGCACAGTGG spacer
	length: 36	repeater length: 30	
31313	1049950	GCCAAAATCAGACTATTTTAGGATTGAAAT	GGTCATCCATACTTACGGTTGATGAAGGAGAAGGC spacer
	length: 35	repeater length: 30	
31314	1050015	GCCAAAATCAGACTATTTTAGGATTGAAAT	GTGTAGTAGAGTTGTAGAATAACTGATCCAGGTTTG spacer
	length: 36	repeater length: 30	
31315	1050081	GCCAAAATCAGACTATTTTAGGATTGAAAT	TATAATAATTAAACTAGTAAAAGTCTTTCTGAAACG spacer
	length: 37	repeater length: 30	
31316	1050148	GCCAAAATCAGACTATTTTAGGATTGAAAT	GGTCTTCCTTACCCTCAGTGACTTTGATTATATACT spacer
	length: 36	repeater length: 30	
31317	1050214	GCCAAAATCAGACTATTTTAGGATTGAAAT	TGAACAAGGCGGTATGGCTACTGCAATGCCAGCATTTGTT
	spacer length: 40	repeater length: 30	
31318	1050284	GCCAAAATCAGACTATTTTAGGATTGAAAT	CGACTAATGAGTTATAATGATGGCAGTGAGGACAGT spacer
	length: 36	repeater length: 30	
31319	1050350	GCCAAAATCAGACTATTTTAGGATTGAAAT	GTAAAGATGATGGTGTGTTTTACACCTCGATCAC spacer
	length: 35	repeater length: 30	
31320	1050415	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTCAAAAATAATCACCTTCATAATGGTCGTTTAAAA spacer
	length: 36	repeater length: 30	
31321	1050481	GCCAAAATCAGACTATTTTAGGATTGAAAT	TGGGAAAAGGCCACCACGTGTTTAGGGATAATGAG spacer
	length: 36	repeater length: 30	
31322	1050547	GCCAAAATCAGACTATTTTAGGATTGAAAT	ACCACGGGCCGAATTTATGGTGCCTTATGGGAGCGTG spacer
	length: 37	repeater length: 30	
31323	1050614	GCCAAAATCAGACTATTTTAGGATTGAAAT	TACTGGAGTCAATTAAACCCTGATTTGACAATTGTTG spacer
	length: 37	repeater length: 30	
31324	1050681	GCCAAAATCAGACTATTTTAGGATTGAAAT	GGTCATCCTCATTCAATTATAGCCGGACAAAGTGCCT spacer
	length: 36	repeater length: 30	
31325	1050747	GCCAAAATCAGACTATTTTAGGATTGAAAT	AAAGTGGCATTAAATGGATTATAATAGGTATAAAGTT spacer
	length: 36	repeater length: 30	
31326	1050813	GCCAAAATCAGACTATTTTAGGATTGAAAT	CCTAATATGCAGTAATACAGGTGTAGGATTCCTA spacer
	length: 34	repeater length: 30	
31327	1050877	GCCAAAATCAGACTATTTTAGGATTGAAAT	CTATAGAAGTTACCAATGCAACTGAGATAATAACCG spacer
	length: 36	repeater length: 30	
31328	1050943	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTCAGAGAATGAAATTGAAAGTGTGGCTTACTGGT spacer
	length: 35	repeater length: 30	
31329	1051008	GCCAAAATCAGACTATTTTAGGATTGAAAT	AGTAATATTTTAACAATGGACACGGACACGGACACCC spacer
	length: 37	repeater length: 30	
31330	1051075	GCCAAAATCAGACTATTTTAGGATTGAAAT	ATGATCAGTACAAAGCGAATATTGAATCAATCATAC spacer
	length: 36	repeater length: 30	
31331	1051141	GCCAAAATCAGACTATTTTAGGATTGAAAT	ATAATTGGTGTCTTGTTTGATGTTTGCCTCGGTTAG spacer
	length: 36	repeater length: 30	
31332	1051207	GCCAAAATCAGACTATTTTAGGATTGAAAT	AAAAAAGTCAAACATTGAGGCCACCTTTAGTTGG spacer
	length: 35	repeater length: 30	
31333	1051272	GCCAAAATCAGACTATTTTAGGATTGAAAT	GTTACACAAAGAACAATATTTAGGAGCTTTGTAGATG spacer
	length: 37	repeater length: 30	
31334	1051339	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTAGCTTTAAAGCTGAAGTCCACTTTCCTTTTACTTTT spacer
	length: 38	repeater length: 30	

31335	1051407	GCCAAAATCAGACTATTTTAGGATTGAAAT	AACAACACGGAAGGGCAGAGCACTTATTCATTCTAT	spacer
	length:	38	repeater length:	30
31336	1051475	GCCAAAATCAGACTATTTTAGGATTGAAAT	GTTGAGTTTACCAACTTTCCTGCGAAGTGTATTATA	spacer
	length:	36	repeater length:	30
31337	1051541	GCCAAAATCAGACTATTTTAGGATTGAAAT	TCTCAGACAGTTTACTTGTGCATTTCTTCACAAGTA	spacer
	length:	36	repeater length:	30
31338	1051607	GCCAAAATCAGACTATTTTAGGATTGAAAT	ACAACCCCTGGCCCTGGTTCACAGTGGGGATGGAAT	spacer
	length:	36	repeater length:	30
31339	1051673	GCCAAAATCAGACTATTTTAGGATTGAAAT	GCAGTCATATCACGCATATCAGAGCGGATACGCTC	spacer
	length:	35	repeater length:	30
31340	1051738	GCCAAAATCAGACTATTTTAGGATTGAAAT	ATTAGGCTCATTCTTTGTCTAAATTCTTGTGAATGT	spacer
	length:	36	repeater length:	30
31341	1051804	GCCAAAATCAGACTATTTTAGGATTGAAAT	AAAAATTTGATTCTTTGGTTATATCTAATTCCAGAC	spacer
	length:	36	repeater length:	30
31342	1051870	GCCAAAATCAGACTATTTTAGGATTGAAAT	TGTTCTTTGCAGTACAAACAGCGATTCCTTTTCACT	spacer
	length:	36	repeater length:	30
31343	1051936	GCCAAAATCAGACTATTTTAGGATTGAAAT	GTAGAAAAAGGACTCTTTGTAGCAAAGAACGATGTCAA	spacer
	length:	38	repeater length:	30
31344	1052004	GCCAAAATCAGACTATTTTAGGATTGAAAT	ATATTTTAATTTTCATCGTTGAAGAAGGAAATGGAAC	spacer
	length:	36	repeater length:	30
31345	1052070	GCCAAAATCAGACTATTTTAGGATTGAAAT	ATAATCGCAGGTAAATTATAGAGGTAATGGCCATGG	spacer
	length:	36	repeater length:	30
31346	1052136	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTGCAAAGTCTGCCGCTTCTTTGAGTAATGTTACACG	spacer
	length:	37	repeater length:	30
31347	1052203	GCCAAAATCAGACTATTTTAGGATTGAAAT	GTAAAAACCGGACTAAGATTTTTCAGTTTCTGAAG	spacer
	length:	36	repeater length:	30
31348	1052269	GCCAAAATCAGACTATTTTAGGATTGAAAT	TAGAAGGAGGATCTGCATCAGGAAGTCAACCGCTG	spacer
	length:	36	repeater length:	30
31349	1052335	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTTAACTCTCCTTAAAAAACAGAAATACCGCCTAA	spacer
	length:	35	repeater length:	30
31350	1052400	GCCAAAATCAGACTATTTTAGGATTGAAAT	TCATGAAAATGTATTTTGTATTGGTGTGTCCCG	spacer
	length:	35	repeater length:	30
31351	1052465	GCCAAAATCAGACTATTTTAGGATTGAAAT	TAGTTTATTCCTCCTTTTTTATAATATGAGCGCTAAA	spacer
	length:	36	repeater length:	30
31352	1052531	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTAACTGAACTTTAGGAGTTAATCACTGTTCCAT	spacer
	length:	35	repeater length:	30
31353	1052596	GCCAAAATCAGACTATTTTAGGATTGAAAT	ATCCTCAGGAGAACCCTTAGAGAGGTGAATCGGAT	spacer
	length:	35	repeater length:	30
31354	1052661	GCCAAAATCAGACTATTTTAGGATTGAAAT	AGAAGGATGATGGTAGGCTTAAAAACACTAAGCGAGA	spacer
	length:	37	repeater length:	30
31355	1052728	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTAAAGACTTTGCAGATTACCTGGAGAATAAGCCAC	spacer
	length:	36	repeater length:	30
31356	1052794	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTCAGCAAACAGGAGTATGAATTCTTCAAATTCCAT	spacer
	length:	36	repeater length:	30
31357	1052860	GCCAAAATCAGACTATTTTAGGATTGAAAT	ATACTAGACGATTTGAAAATATTTGCACAAATTTTT	spacer
	length:	36	repeater length:	30
31358	1052926	GCCAAAATCAGACTATTTTAGGATTGAAAT	TCAACAGATCATTAACGGCGGGAAAGCTATTGCACA	spacer
	length:	36	repeater length:	30
31359	1052992	GCCAAAATCAGACTATTTTAGGATTGAAAT	AGTACAGGTTAATTCATCATATCGTTTTACGCCACGT	spacer
	length:	37	repeater length:	30
31360	1053059	GCCAAAATCAGACTATTTTAGGATTGAAAT	GATGTCGGCGGTTTTCCAATCGTAGAGCGGATAAAA	spacer
	length:	36	repeater length:	30
31361	1053125	GCCAAAATCAGACTATTTTAGGATTGAAAT	TAATATCATTAGAGTAGAATGATATAAATCCAGGGCC	spacer
	length:	37	repeater length:	30
31362	1053192	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTATGAATCATTAACCCATTTTTATTAATAGATAAA	spacer
	length:	36	repeater length:	30
31363	1053258	GCCAAAATCAGACTATTTTAGGATTGAAAT	TAAATTTTCAACCAGGCCTTGATATATTTTGGGTTT	spacer
	length:	36	repeater length:	30
31364	1053324	GCCAAAATCAGACTATTTTAGGATTGAAAT	CTAAGTGGGCCATAGTTACATATGCCCCACTCCCTG	spacer
	length:	36	repeater length:	30
31365	1053390	GCCAAAATCAGACTATTTTAGGATTGAAAT	TCCTTAATATAACCATCCATTTAGATAGATATTCAAT	spacer
	length:	36	repeater length:	30
31366	1053456	GCCAAAATCAGACTATTTTAGGATTGAAAT	TCAATCTTTCAAATGTTAGGGTTGCCTAACACTTGA	spacer
	length:	36	repeater length:	30
31367	1053522	GCCAAAATCAGACTATTTTAGGATTGAAAT	GGTATACCCCATCATATTTATTATCAACTAAATTAA	spacer
	length:	36	repeater length:	30
31368	1053588	GCCAAAATCAGACTATTTTAGGATTGAAAT	TCTGCTATAACCCCTCTTGATAATTCATTCCTAAAG	spacer
	length:	36	repeater length:	30
31369	1053654	GCCAAAATCAGACTATTTTAGGATTGAAAT	CAGGTACAGGGAACATACTCGATCAACTCCCTTATAC	spacer
	length:	37	repeater length:	30
31370	1053721	GCCAAAATCAGACTATTTTAGGATTGAAAT	ACTTTCAACTAACTATTATACATATCACTTATGGG	spacer

length: 36 repeater length: 30
31371 1053787 GCCAAAATCAGACTATTTTAGGATTGAAAT GGTTCACCATCTGCAATGAGGTACAGTGATAGTAAAT spacer
length: 37 repeater length: 30
31372 1053854 GCCAAAATCAGACTATTTTAGGATTGAAAT GGAAATGGATGTTCACTTAGATACAACCTGTTGCTT spacer
length: 35 repeater length: 30
31373 1053919 GCCAAAATCAGACTATTTTAGGATTGAAAT TTTGGAGTAATATGATGGGGTGAAATCTTCTTTCACT spacer
length: 37 repeater length: 30
31374 1053986 GCCAAAATCAGACTATTTTAGGATTGAAAT AAAAGAAGGAAGAACTAATAAAAGAACTGGCAGGGG spacer
length: 36 repeater length: 30
31375 1054052 GCCAAAATCAGACTATTTTAGGATTGAAAT CGGGTGCCAG
31376
31377
31378 GCA_003584605.1_ASM358460v1_genomic.fna (PilerCR):
31379 START REPEAT
SPACER
31380 crispr 1
31381 959141 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT
TGGTCGAATGGAACATCAGAAGCCGCGCTGACGGATGGT spacer length: 40 repeater length: 37
31382 959218 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT AAATTAGGACAAGAACGAGCTAGAAAAGATGGAAAAA
spacer length: 37 repeater length: 37
31383 959292 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT ACTCAGAAAATGGGTGGAATGCGAGCACGTCCTCAA
spacer length: 37 repeater length: 37
31384 959366 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT ATGAGTATGCTCCTGATTCCACGGGGCAGCAGCATA
spacer length: 37 repeater length: 37
31385 959440 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TTTGTTATATCCATTCTCAGTACTCCATTTAGCTTA
spacer length: 36 repeater length: 37
31386 959513 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT ATTTCCGTTGATGGTGCTTCTCCCTGGTCAAAAAAAGG
spacer length: 38 repeater length: 37
31387 959588 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT ATGGTGAAGATAGCTTAAGAGGCTCCGATTACTGCA
spacer length: 36 repeater length: 37
31388 959661 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT CTGGGAGTTTTAATACCAGTGAAAGCATAGGAAGCAT
spacer length: 37 repeater length: 37
31389 959735 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TTACTATACAGATCCTTTTACCTTCGGGAAAAACAA
spacer length: 36 repeater length: 37
31390 959808 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TCATAGCCTTATAAAATCACGTCTTATAAAAGTCC
spacer length: 35 repeater length: 37
31391 959880 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TTTATCATGTCTTCTCTTTGAAATTCATCCATCTT
spacer length: 35 repeater length: 37
31392 959952 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT ATAGTATTGAGAAAATGCTTTGTGGTGGACCATGACG
spacer length: 37 repeater length: 37
31393 960026 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT ATTCAAAATCTTTTCGACTGCTTCGGGATGCGCTG
spacer length: 35 repeater length: 37
31394 960098 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT AGTGGCTGAAATTTAGTTTCCACTTTGACTTTATAAA
spacer length: 37 repeater length: 37
31395 960172 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TCCAATCCTAGTGAAATACATTGACGGACCGGATT
spacer length: 35 repeater length: 37
31396 960244 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT ATGCAACGCTCCAAACATCCCCGGTAATCTCCTAC
spacer length: 36 repeater length: 37
31397 960317 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT AGTGTTACGGTCCTTTCTCCAGTCGCTGGAAACGA
spacer length: 35 repeater length: 37
31398 960389 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT AAGGCACTTCACGTGAGAAGCCTATAGAGATCCTCT
spacer length: 36 repeater length: 37
31399 960462 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT ATATGTATTCTCTTTTTGACTTTTCGGAAGCTGCTCT
spacer length: 37 repeater length: 37
31400 960536 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TCAAAGTTCGCTAATTCTGCAGCATACTGAGCCGAAT
spacer length: 37 repeater length: 37
31401 960610 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT AGACAATGTAGCCCGTGAAGCATGGTTTGTGGAGAA
spacer length: 36 repeater length: 37
31402 960683 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT CGTGCTCCTGCTTTCTAACATGTCAGCCTATAACAT
spacer length: 36 repeater length: 37
31403 960756 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT AGAGCGACGATAATAACCAGGATTTTCGCCAAAATAA
spacer length: 37 repeater length: 37
31404 960830 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT GTTACCGGGCTGGTATCTGTCCCGTTATTATGAGCGTA
spacer length: 38 repeater length: 37
31405 960905 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT AGGATCAGATAAATTGTATCAGTCGGCTGCATATCTT
spacer length: 37 repeater length: 37
31406 960979 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT AATAACGTCTCTGAAGAGTTTAAACAAACACTTTCA
spacer length: 37 repeater length: 37
31407 961053 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TACTCATCTTAACCAAAACCAGATTAACGAAGCCA
spacer length: 35 repeater length: 37
31408 961125 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT GAAACAATTCGAAAGTCTATGATCTGTTTCGAGACTTA

spacer length: 37 repeater length: 37
 31409 961199 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CCAACTCAACTCTGGTATTAGGAAGTACGGAACG
 spacer length: 34 repeater length: 37
 31410 961270 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT ACCGGAATAACTCTCAGATGGTTTTACTCCACTTTAAA
 spacer length: 37 repeater length: 37
 31411 961344 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CTGAGTTTTGCGGAAGCGTTAGGAGTGTAGGTATAGG
 spacer length: 37 repeater length: 37
 31412 961418 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT GCAACCCGGAAAGAAGTAGATACCATTACATCCATGC
 spacer length: 37 repeater length: 37
 31413 961492 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CGCACAAATCAGGAGCTTGAAAAAATGACATCAACAA
 spacer length: 37 repeater length: 37
 31414 961566 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TCTTCCAGGGCTGCCCTATAACCCAGAAATGTGAGTT
 spacer length: 37 repeater length: 37
 31415 961640 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CGTGTATTGATCTTCATATTCCCGCTCCCTCAGTTA
 spacer length: 36 repeater length: 37
 31416 961713 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AGACCTCCACGGGAGCCTGACAGGAAAGAGTACAA
 spacer length: 35 repeater length: 37
 31417 961785 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT ATTTACGTGCTTGTCTAAGTCTGTTTTTGAGGCA
 spacer length: 36 repeater length: 37
 31418 961858 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT ACTGAATCACAGGAAAACCTACGCTGTAAGTGATCT
 spacer length: 35 repeater length: 37
 31419 961930 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CAGCCGGACGGATCCGTCAGGAAGATCGCAGTATT
 spacer length: 35 repeater length: 37
 31420 962002 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CTTGACTTTTGCTCATGACGCTCCAATTGCTTTGA
 spacer length: 35 repeater length: 37
 31421 962074 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CTCCAAGGAGGGAGGATACATAATATACCCTTCACAGA
 spacer length: 38 repeater length: 37
 31422 962149 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAATCTCCTATGTTTCGTCTTGTTATAGCTTTGCTA
 spacer length: 36 repeater length: 37
 31423 962222 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT ATTGAAGGAGAATTCGACCAGGATAAACTAAAGA
 spacer length: 34 repeater length: 37
 31424 962293 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CCTGTGATCTCCTCAAACCTGTTTATAGAAGTTTT
 spacer length: 35 repeater length: 37
 31425 962365 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAGAAGAATTCTGGGAATGGCATGTAGGAAAGAAGTT
 spacer length: 37 repeater length: 37
 31426 962439 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TACAACCTTACAAGGACCATTTCTCTGTTTTATATTA
 spacer length: 37 repeater length: 37
 31427 962513 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT ACGTTGTTTTGCCTATGGATTTGGCAAATGTTGCCAA
 spacer length: 37 repeater length: 37
 31428 962587 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT GAAGTTGTTTTTTTAACTACCATCTGGATCGACCCAA
 spacer length: 37 repeater length: 37
 31429 962661 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAGTCAAACCGAAAACCGAATGAAAGCTCAGAGGAAA
 spacer length: 37 repeater length: 37
 31430 962735 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CTGTGGGCTTTAACCTGCTTACCTGAGCAATGAACATT
 spacer length: 38 repeater length: 37
 31431 962810 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TGTTAGAAACAAAAATAAGTAATCACAAGAACAGAT
 spacer length: 36 repeater length: 37
 31432 962883 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AATTCTATCATTTCTGGTTAGAAAATGAGACACCTTG
 spacer length: 37 repeater length: 37
 31433 962957 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAGGTTCAATTTTAAAGAGGGTTTAGGTATAAGTCT
 spacer length: 35 repeater length: 37
 31434 963029 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT GGTATATAGGACAATAGAGGTTCAATTGTTACAGATG
 spacer length: 37 repeater length: 37
 31435 963103 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AATGTCCAAGCCATGATTGACCAATATGCAGCAAAAG
 spacer length: 37 repeater length: 37
 31436 963177 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT GAAAGCAGGCAAAAACATCAGATTCAAATATGAAGT
 spacer length: 36 repeater length: 37
 31437 963250 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT ATTTTGGGGAATAGGGAGAAAGTGAGGTGGTATAGA
 spacer length: 36 repeater length: 37
 31438 963323 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TTTTGCAAATTGTGTTTGGTGTGTGTCGAATTTAA
 spacer length: 35 repeater length: 37
 31439 963395 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAAGGGCATTTTTACAAAAGCGGAACGCTACACG
 spacer length: 35 repeater length: 37
 31440 963467 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT ATGTTTCCGAAAGCGGCAGACTTAGCCGACAACTCA
 spacer length: 37 repeater length: 37
 31441 963541 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CCTTTTACAAGCTCTCGCGTGGAATTGACGGTTT
 spacer length: 35 repeater length: 37
 31442 963613 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAAATAGAACTCAATCCTTCTTATCTCGAGAATCC
 spacer length: 35 repeater length: 37
 31443 963685 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CCGGGGCATATAACCAGAAAACCGGGAAGTGGGAA
 spacer length: 35 repeater length: 37

31444 963757 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT CCAAATTCATTCTCAATGACATTGACGAGCTTCT
spacer length: 35 repeater length: 37
31445 963829 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TAGTATGTGTTATATATAATATAGTATGTCTGTTC
spacer length: 35 repeater length: 37
31446 963901 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TCCAAAAGTGCTTTCTGCATATCATTATCAATCTGCT
spacer length: 37 repeater length: 37
31447 963975 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TCATTTTACTACATGAAATTTAATTTTTTTTGGTATA
spacer length: 36 repeater length: 37
31448 964048 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT AAAAATGCCACAAGTAAGAGATCTAATTGAAATGC
spacer length: 35 repeater length: 37
31449 964120 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TTGAGTAATGTCTGAAATCGAAATCCTCAACATGCG
spacer length: 36 repeater length: 37
31450 964193 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT GCCTCGAAAT
31451
31452
31453 crispr 2
31454 1578246 GTTAAAAATCAGACCTTAGAGGGATTGAAAC AGGGTTTTTTTGCCTTCTGGCGTTGTTTCCAAGTTATCC spacer
length: 38 repeater length: 30
31455 1578314 GTTAAAAATCAGACCTTAGAGGGATTGAAAC ATTAAGGATATTTTTTGCATGTGCAATTCTAACGG spacer
length: 35 repeater length: 30
31456 1578379 GTTAAAAATCAGACCTTAGAGGGATTGAAAC ACACAACACAACAGACGAACAGGCGGCGCAACTCGTAG spacer
length: 38 repeater length: 30
31457 1578447 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TTTTTCGGTGTAGATCAGGAAGACCTCTTCATCAA spacer
length: 35 repeater length: 30
31458 1578512 GTTAAAAATCAGACCTTAGAGGGATTGAAAC ACTAATGAGATTATAGAAGAGACTTTCACGGATGTGC spacer
length: 37 repeater length: 30
31459 1578579 GTTAAAAATCAGACCTTAGAGGGATTGAAAC ACAGAAGATCCAACTTCAGTGTCTGGATTGACGATG spacer
length: 37 repeater length: 30
31460 1578646 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TCCGCTACCTAGCAGACGTATTTTGTGGCTACTCAAT spacer
length: 37 repeater length: 30
31461 1578713 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TTGATAGAACCTGTGACTCCTGCCCTGGGTGAGCCTCTG
spacer length: 39 repeater length: 30
31462 1578782 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TTTTCGTAAATGCTTTTTTTAGTTCTGGTTCTGGCAT spacer
length: 35 repeater length: 30
31463 1578847 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TCATATTCAACCTCTATAATATACAAGGCACACAAT spacer
length: 36 repeater length: 30
31464 1578913 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TTTTTTAGGTTTGGGTGTATTTTCAGGCATATGAC spacer
length: 35 repeater length: 30
31465 1578978 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TTTAATTTCCAGTAGGGCTTCCACGTCGTAACGAG spacer
length: 35 repeater length: 30
31466 1579043 GTTAAAAATCAGACCTTAGAGGGATTGAAAC GATATCGGTTTCATCAATTTTCGATTGAAGTGTGCG spacer
length: 35 repeater length: 30
31467 1579108 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TCACTTATAGAGTAACTTATAGAGTATGATAGGGAAAAA
spacer length: 39 repeater length: 30
31468 1579177 GTTAAAAATCAGACCTTAGAGGGATTGAAAC CTTTCTTAACGCCTTGAATATAGTCAACAGCCGCCTG spacer
length: 37 repeater length: 30
31469 1579244 GTTAAAAATCAGACCTTAGAGGGATTGAAAC AAAC TGACAAGTACAGACTGGTGTATAATGAAAAA spacer
length: 36 repeater length: 30
31470 1579310 GTTAAAAATCAGACCTTAGAGGGATTGAAAC CATTTATAGCAGGATTTATAGCAGGAGATATCTGCATT spacer
length: 38 repeater length: 30
31471 1579378 GTTAAAAATCAGACCTTAGAGGGATTGAAAC ATTTCTTCTCTTCAACTGTTCTTTGCATCATTTTG spacer
length: 36 repeater length: 30
31472 1579444 GTTAAAAATCAGACCTTAGAGGGATTGAAAC ACAAGCAAGCCATTTACCTTTAAGTTCGTGAAGATC spacer
length: 36 repeater length: 30
31473 1579510 GTTAAAAATCAGACCTTAGAGGGATTGAAAC ATGCTCTATAAGATCCACCATGCTCCCCTTCACCTCAG spacer
length: 38 repeater length: 30
31474 1579578 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TTTCTAGTTTATGCTCACTATGATATTTTATGTCTGAAAT
spacer length: 40 repeater length: 30
31475 1579648 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TTTCTAGTTTATGCTCACTATGATATTTTATG spacer
length: 32 repeater length: 30
31476 1579710 GTTAAAAATCAGACCTTAGAGGGATTGAAAC ATTCATCTATTTTTTAACTGTATTTTAGGATCTCTTG spacer
length: 37 repeater length: 30
31477 1579777 GTTAAAAATCAGACCTTAGAGGGATTGAAAC CTCGGATGAAACTCCCGCCCGGATTGCAACCGAGGTTTCTAG
spacer length: 42 repeater length: 30
31478 1579849 GTTAAAAATCAGACCTTAGAGGGATTGAAAC TACACTGACTGATACTAAATTTGTCAGGCTTGCCCA spacer
length: 36 repeater length: 30
31479 1579915 GTTAAAAATCAGACCTTAGAGGGATTGAAAC ATAAGTAGCTCGGAAGGGTCGAAGGTCTTCTGAGATG spacer
length: 37 repeater length: 30
31480 1579982 GTTAAAAATCAGACCTTAGAGGGATTGAAAC GCTCTAAGTATAGCATCCCTCCTAGAAGGCTTCTAG spacer
length: 36 repeater length: 30
31481 1580048 GTTAAAAATCAGACCTTAGAGGGATTGAAAC CGATAAGAGGAGAAAGACTTGATACAGAATATAAC spacer

	length: 35	repeater length: 30	
31482	1580113	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGCATTGATATGATAGCACCTGCCCCTGAAAACCTG spacer
	length: 36	repeater length: 30	
31483	1580179	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ACCCTTAAACCGGCCTCAAATAACCGACGTATATA spacer
	length: 35	repeater length: 30	
31484	1580244	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTCGAAAAGCGTGTGATAAGCCTCTCTGATGCAAAA spacer
	length: 36	repeater length: 30	
31485	1580310	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGTTGTAAATTTTGCAGGATTCCAAATGGGTTTTACC spacer
	length: 37	repeater length: 30	
31486	1580377	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTTAAAATGATATTACTGGAGCTAATGACTATAGGC spacer
	length: 36	repeater length: 30	
31487	1580443	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTGTAATCGCTATTAATCGCTATCCTGCAATGAGG spacer
	length: 35	repeater length: 30	
31488	1580508	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GAAGTTACGATAGTATTGAGTATCTGGATTCCGTTT spacer
	length: 36	repeater length: 30	
31489	1580574	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ACGAAACACCATATTTCGAAGCAAGACCGCCAAAG spacer
	length: 35	repeater length: 30	
31490	1580639	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTAATTGTAGTGCCTGAATTTAGTTTTATGGGATTTT spacer
	length: 37	repeater length: 30	
31491	1580706	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GAAGACTACATTAAGTGTGGAGAATGCACAATCAGA spacer
	length: 36	repeater length: 30	
31492	1580772	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGTTACACAGGGTTTGAAGGCTGTCTGGATGAGCT spacer
	length: 36	repeater length: 30	
31493	1580838	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATAATACTCTCAATCGAAACATGATATCCATAAGCAG spacer
	length: 37	repeater length: 30	
31494	1580905	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAATGAAGATTTGGTCGGTATCGTAAAAGCGGAAG spacer
	length: 35	repeater length: 30	
31495	1580970	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCTCCGATGATCGCCATGCAGTTTGCCCCTTCGACAGG spacer
	length: 38	repeater length: 30	
31496	1581038	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGTTCAGATAAGCCAGGCTATTAAAGCAGAAAACGA spacer
	length: 36	repeater length: 30	
31497	1581104	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGTTATACGGGTACCCGGCTACGAAATGGAGCAATT spacer
	length: 36	repeater length: 30	
31498	1581170	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATTTTTCAAGGTCTTCATTTCTTCCGGGATTGAATC spacer
	length: 36	repeater length: 30	
31499	1581236	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTTTATCTCCTCCTGTGCCTTTTAGTCGCTTTGTGAGG spacer
	length: 38	repeater length: 30	
31500	1581304	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATTATTCAGCCCCCAGAGGCAAAAGGCTAAGGGAAA spacer
	length: 36	repeater length: 30	
31501	1581370	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CTCGTTGAAAGGATCAGAGCATAGGGAATACCCGC spacer
	length: 35	repeater length: 30	
31502	1581435	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGTTATACGGGTACCCGGCTACGAAATGGAGCAATT spacer
	length: 36	repeater length: 30	
31503	1581501	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TATAATTTTCACGGGAACACATGATTATTATAAAAC spacer
	length: 36	repeater length: 30	
31504	1581567	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CTCGTTGAAAGGATCAGAGCATAGGGAATACCCGCG spacer
	length: 36	repeater length: 30	
31505	1581633	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTTGATATTACTTTTGTCCATGACCTGTACGGCTCA spacer
	length: 36	repeater length: 30	
31506	1581699	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GCTGACATACTATGTCATGCTCTACGGTGGAGACGTC spacer
	length: 37	repeater length: 30	
31507	1581766	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGTCAATAATATATTTTCTTCTTCATTCGGTTTTAAGG spacer
	length: 38	repeater length: 30	
31508	1581834	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GCCGCAGCCGATACACCTGGTACTTATATCGTGTACTG spacer
	length: 38	repeater length: 30	
31509	1581902	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTTGTCTCAACCTCTTATAACTCAGTACATAGTATTA spacer
	length: 37	repeater length: 30	
31510	1581969	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ACATCCCCGGTGATCAACGTCCCGCTATTCAACCGA spacer
	length: 36	repeater length: 30	
31511	1582035	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATCCACAATCCAACCAATAGAAGCACAAACATTAAAC spacer
	length: 38	repeater length: 30	
31512	1582103	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAACTGATCAATAATTTCTACTCGCTTTGTGATTG spacer
	length: 36	repeater length: 30	
31513	1582169	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTTGTACAAGGCGTTATTATCATTTTCTGTGATGTTTC spacer
	length: 38	repeater length: 30	
31514	1582237	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGGTTCTTTGATAGTTCTTCGTCTGCCCGTCCAAGT spacer
	length: 36	repeater length: 30	
31515	1582303	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GATAAAATATGGAATCTTGTGATTCTCATATGATA spacer
	length: 36	repeater length: 30	
31516	1582369	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATGAGAGCCAGCGCTCCTACTATCAAAGTCGAGGCC spacer
	length: 37	repeater length: 30	

31517	1582436	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTATATAATCCGTAATCGTTCCACGGTAAGCATAATTAGCATA
		spacer length: 43 repeater length: 30	
31518	1582509	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ACCGGTTATTTTAACTGCTCTTTTATTTCTACCGTTGCTC
		length: 38 repeater length: 30	spacer
31519	1582577	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TATGCAACGGTCCGAGTCCAAATGTGCACATATTTA
		length: 37 repeater length: 30	spacer
31520	1582644	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCAAGACCGTTTCCAGTTGCCTGGATCGTCGTATTATA
		length: 38 repeater length: 30	spacer
31521	1582712	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GAAGCAATATGCACAACGTTTCGACATATTTTCAGCCC
		length: 36 repeater length: 30	spacer
31522	1582778	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATTTCCCCATTGTAGATCTGTCCAAGCCCAGCAAAA
		length: 36 repeater length: 30	spacer
31523	1582844	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGCTATCAGATGAGTTTAGGGAGTTTCATGAAATGG
		length: 36 repeater length: 30	spacer
31524	1582910	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TGAAATACCTTTCAGGGCAGCCTGTCGTTTTCTAT
		length: 36 repeater length: 30	spacer
31525	1582976	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTTTTATGCCCTCGCTGTAAACTGCTAAATGGAACG
		length: 37 repeater length: 30	spacer
31526	1583043	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTGATTAGGAGCCCATACTCTTATTATTGCGTCTCTG
		length: 36 repeater length: 30	spacer
31527	1583109	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAGGATGAGAGGGAGGAAGGGGCAATAAAAAGAGAGT
		length: 37 repeater length: 30	spacer
31528	1583176	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATTAGCACGCGGGTGATCCAAATCTCGTTATCAGT
		length: 35 repeater length: 30	spacer
31529	1583241	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GAGTTCTCAGGGTCCACTAAATTACCGTTCTCGTCAACT
		spacer length: 39 repeater length: 30	
31530	1583310	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ACGTGTAGGCGTTTAGTATCTGACGACAATCGGGGATT
		length: 38 repeater length: 30	spacer
31531	1583378	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTTTCCATCACCTTTTTTCTGCCCTAAAACATAATCCT
		length: 38 repeater length: 30	spacer
31532	1583446	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAATTAGACCCTGATTTCTCGACATGGTTAAGGCGAAC
		spacer length: 39 repeater length: 30	
31533	1583515	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ACGATCTGTGAAGGGCTTGTGAGGCTTTCCAATGCGTC
		length: 38 repeater length: 30	spacer
31534	1583583	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GCCTACCGTCCGAGCATAAAAACTAGTTAAAAAATT
		length: 36 repeater length: 30	spacer
31535	1583649	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCTTTAGCGGATCTGATAGAGGCAGCGCAAGCCCGGAAA
		spacer length: 39 repeater length: 30	
31536	1583718	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AACATTAGACAATATAGCTGATTCTGTGAAGAAGTCCT
		length: 38 repeater length: 30	spacer
31537	1583786	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAAGCCGATGAAGGCACAAATTATAGGTCTGTAGCC
		length: 36 repeater length: 30	spacer
31538	1583852	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TATTTTCAGGCAGGCCCGTTATACGGACTTCAATATC
		length: 36 repeater length: 30	spacer
31539	1583918	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCAATTTCTCTTGTTATGAGTTTCGTCTGATACATACA
		length: 38 repeater length: 30	spacer
31540	1583986	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTAAATCCAGAAAATGTATACGGCGGCGGTGAGTGG
		length: 36 repeater length: 30	spacer
31541	1584052	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GCTGCTAGACCTCCCGGACTTATTGCCGTAAAGTC
		length: 35 repeater length: 30	spacer
31542	1584117	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAGTACCAAAGGCCTCGAAGCCTAAGAAGCCAACAA
		length: 36 repeater length: 30	spacer
31543	1584183	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTCCCTCCGGGCTTAAGCCCGTCGGAACGATTAAAA
		length: 37 repeater length: 30	spacer
31544	1584250	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GCGTGATCTACCAGCAGGAACCAACCGAGCCGG
		length: 33 repeater length: 30	spacer
31545	1584313	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGGATACATGGAGAAAGATCGCGAAATACTTCGAGAA
		length: 37 repeater length: 30	spacer
31546	1584380	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGAAAGCGCATTGAGTCGGCAAGTGTGCAAAGACT
		length: 35 repeater length: 30	spacer
31547	1584445	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTGATCTGGATTCTGCGATATCAGAAGGCGATTTTACGA
		spacer length: 39 repeater length: 30	
31548	1584514	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTAGTAAACTAACGCTTTTCTAATAATTCTTTTTACTT
		length: 38 repeater length: 30	spacer
31549	1584582	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CCAGATATTGCAATTTCTGCAACATAAGTATCATAAAC
		length: 38 repeater length: 30	spacer
31550	1584650	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCCAAGTCCTGGTTATCGAAGCATACGGACATTTT
		length: 35 repeater length: 30	spacer
31551	1584715	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATGGGACCGGAGGGGACGTTTTTAGACTGGATAGGAT
		length: 36 repeater length: 30	spacer
31552	1584781	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAGGACTTCGAGATGCCTGTGGAGATCCTGGAAGAG
			spacer

length: 36 repeater length: 30
31553 1584847 GTTAAATCAGACCTTAGAGGGATTGAAAC ATGTTCTCTGTGGTCTTATTATCCTGGTCTGGATTG spacer
length: 36 repeater length: 30
31554 1584913 GTTAAATCAGACCTTAGAGGGATTGAAAC CCGCTTGTTATATGCGAACTCCAGGAATGAGGCCTC spacer
length: 37 repeater length: 30
31555 1584980 GTTAAATCAGACCTTAGAGGGATTGAAAC ACAAAGAGGAGATCGAATCAAGAGCCAATGAGCTTGC spacer
length: 38 repeater length: 30
31556 1585048 GTTAAATCAGACCTTAGAGGGATTGAAAC AAATCAAAAGGATGTGGACATTAAACCGAGAACG spacer
length: 36 repeater length: 30
31557 1585114 GTTAAATCAGACCTTAGAGGGATTGAAAC GTTTACATGGTACTTGATGAGATTCTCAGGGAGAAT spacer
length: 36 repeater length: 30
31558 1585180 GTTAAATCAGACCTTAGAGGGATTGAAAC ATTTCTCAACTCCAATGAGGTGGCTTTTGTGGCAAC spacer
length: 37 repeater length: 30
31559 1585247 GTTAAATCAGACCTTAGAGGGATTGAAAC GTGTAACCCTAGTGTAAACCATAGAGGGGGTTACT spacer
length: 36 repeater length: 30
31560 1585313 GTTAAATCAGACCTTAGAGGGATTGAAAC TTAATGTAGGCACAGGCGACAATTTAGGATTATCAA spacer
length: 37 repeater length: 30
31561 1585380 GTTAAATCAGACCTTAGAGGGATTGAAAC AGGATACTGCAGATCGAGCGAAAAAGTATGTATTAG spacer
length: 36 repeater length: 30
31562 1585446 GTTAAATCAGACCTTAGAGGGATTGAAAC GGGTTCGTAAAAGGATCAAAGTAGGTGTAAAGGTAAC spacer
length: 38 repeater length: 30
31563 1585514 GTTAAATCAGACCTTAGAGGGATTGAAAC ATATATTGCATTACCTTTCCGTTTTGCCGAATGCCG spacer
length: 36 repeater length: 30
31564 1585580 GTTAAATCAGACCTTAGAGGGATTGAAAC TCCGTAAAGCTCTCCATCGAGTGCATCTTCTTCGT spacer
length: 35 repeater length: 30
31565 1585645 GTTAAATCAGACCTTAGAGGGATTGAAAC GATAAGAATAAGCCAGGCTCGCGGGGAAACATTAC spacer
length: 38 repeater length: 30
31566 1585713 GTTAAATCAGACCTTAGAGGGATTGAAAC TTATCCATGTTAAGCTTTCCGAGTCCTTGGTATAATC spacer
length: 37 repeater length: 30
31567 1585780 GTTAAATCAGACCTTAGAGGGATTGAAAC GCTTTATTTTAGCCGTGGTTTTTTGAAGGACTTATATT spacer
length: 37 repeater length: 30
31568 1585847 GTTAAATCAGACCTTAGAGGGATTGAAAC TAAATTGAACCATTGACCACACAGGAAAAGAAAATCCC spacer
length: 38 repeater length: 30
31569 1585915 GTTAAATCAGACCTTAGAGGGATTGAAAC ATATTTTTCATAGATCGCATTTGCTTAGTTATTATT spacer
length: 36 repeater length: 30
31570 1585981 GTTAAATCAGACCTTAGAGGGATTGAAAC AAAATATAATTAGTACAGTTCAGCCCCACTGCTG spacer
length: 35 repeater length: 30
31571 1586046 GTTAAATCAGACCTTAGAGGGATTGAAAC CTCTTCGATGTACTTTAAACTTTAAGCTCCAAATCTG spacer
length: 38 repeater length: 30
31572 1586114 GTTAAATCAGACCTTAGAGGGATTGAAAC TGAAGACCGT
31573
31574
31575 crispr 3
31576 1594148 GTTAAATCAGACCTTAGAGGGATTGAAAC ATCTTTTGCATTTGTCTCATCCTCTTTTCTTTGTTTATT
spacer length: 39 repeater length: 30
31577 1594217 GTTAAATCAGACCTTAGAGGGATTGAAAC ATATAAACTTTACGTTAGATCAAACGAAAAAATAA spacer
length: 36 repeater length: 30
31578 1594283 GTTAAATCAGACCTTAGAGGGATTGAAAC ACCCGAGGGGAAAGCAAGCCTCACGCTAAAGCAGTG spacer
length: 36 repeater length: 30
31579 1594349 GTTAAATCAGACCTTAGAGGGATTGAAAC CAGGTATTCGGCTACATCTACCTTTTCGACTCCTTCAGG
spacer length: 39 repeater length: 30
31580 1594418 GTTAAATCAGACCTTAGAGGGATTGAAAC TAAATTCAGCCTTATAACTTTCAACCTCGTCCATGAG spacer
length: 37 repeater length: 30
31581 1594485 GTTAAATCAGACCTTAGAGGGATTGAAAC GAAGCTCCCT
31582
31583
31584 crispr 4
31585 2754424 GTTTCATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCGAAGACAACAGGAGCCGGGCAGGAGTCTTTAAACG
spacer length: 37 repeater length: 37
31586 2754498 GTTTCATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CCGCTACCCATGCTAAACGGTTATCCCCACATCCA
spacer length: 36 repeater length: 37
31587 2754571 GTTTCATCCTTGTTTTAGTGGATCTTGCATTCTGAAT ATGTAGATGGGATTGCCTAACCCTCACTTGTA
spacer length: 34 repeater length: 37
31588 2754642 GTTTCATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCGTAAATGCCGAGGATCACGAAACGTTTGTAGAATT
spacer length: 37 repeater length: 37
31589 2754716 GTTTCATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AGAATTCTTCAGTTCATCCCTGATAGGTCTTTCACCCG
spacer length: 38 repeater length: 37
31590 2754791 GTTTCATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GTTCTCACCGGACATGGTCGAGGATGGTATGACTA
spacer length: 35 repeater length: 37
31591 2754863 GTTTCATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CCATTTTGATTTTATTTTTTTCGTTTGATCTAACG
spacer length: 35 repeater length: 37

31592 2754935 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT CTTAATTTAATCAGGCTTATAACTGAACTCCCCGACT
spacer length: 37 repeater length: 37

31593 2755009 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT TTCAGACAAAAAGAACGCAACTGTGGAGAAGGTATA
spacer length: 37 repeater length: 37

31594 2755083 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT GATATTGTACGCGGTGCAGTCGATTGTCCTTGAAAG
spacer length: 37 repeater length: 37

31595 2755157 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT AAGTATCCGGTACGAACGCTCAGCTGTACATAGGCG
spacer length: 36 repeater length: 37

31596 2755230 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT AAGTATTGGATGAGTACGAAGAGATGAAAAGGAAA
spacer length: 36 repeater length: 37

31597 2755303 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT TGGTCTTCCCGCTGTGCCCTCTGCACTCCCAGGAGA
spacer length: 36 repeater length: 37

31598 2755376 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT TTCTAACGAGAAACAGGTAAGTTCTTGTCCAAATTG
spacer length: 36 repeater length: 37

31599 2755449 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT AAAAGGAACTGCTGGAAGGTTATCTATACGAGCCAT
spacer length: 36 repeater length: 37

31600 2755522 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT AATTATGCAAGCGGAGGAACGGTATAGGAACCGCAGCA
spacer length: 38 repeater length: 37

31601 2755597 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT ATGGTTGAAATTACCTTCCCGCTTGGATTCTTCAGTG
spacer length: 37 repeater length: 37

31602 2755671 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT GGGCTTGATGTCTTGCCAATGGATACAAAGAAGATAT
spacer length: 37 repeater length: 37

31603 2755745 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT AGCAGTCGAAAAGATTTTGAATGTCAGAGAAGAAC
spacer length: 35 repeater length: 37

31604 2755817 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT CAATCGACGACAAGATTACCTTTATTTACGGTACTG
spacer length: 36 repeater length: 37

31605 2755890 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT GGATCGTCAGATGCTTTTGTGGAAAGAACTGTACGC
spacer length: 36 repeater length: 37

31606 2755963 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT GAGCTGGATGTAATTCTCATCCTGGCTGCACTACGAT
spacer length: 37 repeater length: 37

31607 2756037 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT AGTTTTATATCAGTTTTGACGATTTTCGGAATATCAA
spacer length: 37 repeater length: 37

31608 2756111 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT CAAGATTAAAGTTTTGTAGTAAAGCCCCAAAGCCTA
spacer length: 35 repeater length: 37

31609 2756183 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT ATATTTAAACAGTTGACTGCCTACGCAAAGAACAACCTG
spacer length: 38 repeater length: 37

31610 2756258 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT GAGGTGGAAATGTCGAATGTCGAATTATGATACACA
spacer length: 36 repeater length: 37

31611 2756331 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT CCGTCAATTTTTTCAGGATCGAATGACCCATTTATA
spacer length: 35 repeater length: 37

31612 2756403 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT TCAACCGCTACCGAATTTTCGTTTTTGAATACTTG
spacer length: 35 repeater length: 37

31613 2756475 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT TCCGGGGGTTGAAGGTTGGCGGCCTTCAATCTCTACT
spacer length: 37 repeater length: 37

31614 2756549 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT CTTTAATCTTGTCTTCTCTGCTCTCTCAATCTCAGT
spacer length: 36 repeater length: 37

31615 2756622 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT
CCAGTGATGATAAAATGTACTGTCTGAAAGGGAAGCG spacer length: 40 repeater length: 37

31616 2756699 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT TTTTTTCCCGTTTTTCATCGAGAGAATTCCTCATG
spacer length: 35 repeater length: 37

31617 2756771 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT CATCAAAAAATACCTCTTGAGTAGTGCCATCTTTA
spacer length: 35 repeater length: 37

31618 2756843 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT TGGGATAAATGACGAGGTTGAGATTCAGGCAGCTA
spacer length: 35 repeater length: 37

31619 2756915 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT CTAATCAACAAAAAATTGAGGGAAACAATAATGAA
spacer length: 36 repeater length: 37

31620 2756988 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT ATATTTTATCTAAGAAGGCGAGAAATATTTACCT
spacer length: 34 repeater length: 37

31621 2757059 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT TTTATACCAGTTTGCAAAATCCCAGTTTCCAGCTCTG
spacer length: 37 repeater length: 37

31622 2757133 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT TAGTCAATCCCCAGGACGTCCAGGACCTCGATGAATT
spacer length: 37 repeater length: 37

31623 2757207 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT ATGGATATTCTTCTGTACGCTGTTCTGCTCGTTTTGG
spacer length: 37 repeater length: 37

31624 2757281 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT GTGCTTAAGCTGTCTGGGAGGGTTGGGGCTGAAGATA
spacer length: 37 repeater length: 37

31625 2757355 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT GTCGTTCAAGGTTTCATCGTGGGGTAGTTGACATAA
spacer length: 35 repeater length: 37

31626 2757427 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT
TCTTAATGCAGAGATGGAGAATGCTGGAGTTCTGAGTGA spacer length: 39 repeater length: 37

31627 2757503 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCAAT GTTAATGGTTGCAGGTGGAGCTGCAGCAGGAGCAG

spacer length: 35 repeater length: 37
 31628 2757575 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT GTATAACGAGGTAATCAGGGAAAGGCTAAAACAAA
 spacer length: 35 repeater length: 37
 31629 2757647 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT CTGTCCCATAACACATCTGAAAATTTCTGTAACATTTGC
 spacer length: 37 repeater length: 37
 31630 2757721 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT CTGTCAATAGCTCGGCATACGGTCCTTTTCGGCAAA
 spacer length: 35 repeater length: 37
 31631 2757793 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT AAATAGTACCCCAATCAATAGTCTTTTTATTGACCA
 spacer length: 36 repeater length: 37
 31632 2757866 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT TGGTATGTCGTCATGTTCTGTCCTCAATGTCTATAGA
 spacer length: 37 repeater length: 37
 31633 2757940 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT GATGGGGAAAGCTGCTCGGTCGCTGGACTTGTGGAGCA
 spacer length: 38 repeater length: 37
 31634 2758015 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT GGGATGAAGAAACCACGCTCTTCGTAGATTTTCCGG
 spacer length: 36 repeater length: 37
 31635 2758088 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT AATTAAC TCGGATAATTTAGTTCTGAAGGGCAAAAC
 spacer length: 36 repeater length: 37
 31636 2758161 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT CTTTATTTGTACGGGGTGTACGGGGTATTTTTTGAAAAA
 spacer length: 38 repeater length: 37
 31637 2758236 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT GCCGAGAACCGAGGAATAGACCTCTGTGTAATAAACAT
 spacer length: 38 repeater length: 37
 31638 2758311 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT TGATGATTTGGATTTATAACAGGATATTTTGAGGGA
 spacer length: 36 repeater length: 37
 31639 2758384 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT AGGCGTTGTAGATGTTTAACAGGGTCGAATAAGTA
 spacer length: 35 repeater length: 37
 31640 2758456 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT TGAGAGGCTACAGGAGTTATCCTTCGAGGGAGTAAAAA
 spacer length: 38 repeater length: 37
 31641 2758531 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT AGACTAGGATGTCAGCTGAGATATTCATCCGAGCCG
 spacer length: 36 repeater length: 37
 31642 2758604 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT
 TCTTAGGTTGTACAATATACTATAACAACCTATTACTATA spacer length: 39 repeater length: 37
 31643 2758680 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT TTGAATCATTGGTGAGTTTTCAAACGGCTACCTTT
 spacer length: 35 repeater length: 37
 31644 2758752 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT GTCACAGAGCGCATGATATGCCACATACGTAATCTA
 spacer length: 36 repeater length: 37
 31645 2758825 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT CGGATATTATATGTGTGGATACAATCAGAAGGAATA
 spacer length: 36 repeater length: 37
 31646 2758898 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT TAGGGATATCACACGTTCAATTCGCGTGAGGCCGTCG
 spacer length: 37 repeater length: 37
 31647 2758972 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT TCCTCGCACTCATCCGACTCTGGAAAATATCCGCAA
 spacer length: 36 repeater length: 37
 31648 2759045 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT ATCACGGAAAAAGGCAGCACAGCCGAGCGTGAAGCCA
 spacer length: 37 repeater length: 37
 31649 2759119 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT ATGTTTGCAACGGCATAATCTCCCGAAGGCGAATATG
 spacer length: 37 repeater length: 37
 31650 2759193 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT TTAAAAATTTAGTAAGTGAACCTTCAATAGACTCCTC
 spacer length: 37 repeater length: 37
 31651 2759267 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT AAAAAGAACTAATTCGGAGGAAAAGAAAATGATAT
 spacer length: 35 repeater length: 37
 31652 2759339 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT AGTATATCCTGTTTTTCAAAGTATGGTCATGCAGG
 spacer length: 35 repeater length: 37
 31653 2759411 GTTTC AATCCTTGT TTTAGTGGATCTTGCATT CGAAT
 31654
 31655
 31656 GCA_003584625.1_ASM358462v1_genomic.fna (PilerCR):
 31657 START REPEAT
 SPACER
 31658 crispr 1
 31659 1043597 ATTTCCATACTATTTAGTCTATTTCAAAGC AATCACTTTATAAATCAGATTCTCCTTTTCTGAAACAG spacer
 length: 38 repeater length: 30
 31660 1043665 ATTTCCATACTATTTAGTCTATTTCAAAGC TCAAACCATAGAGGGGGGTTTTATTTTGGAAGAGA spacer
 length: 35 repeater length: 30
 31661 1043730 ATTTCCATACTATTTAGTCTATTTCAAAGC TCGTCAATGGTGGTGTAACTTTTGGGGTGGGTTGG spacer
 length: 37 repeater length: 30
 31662 1043797 ATTTCCATACTATTTAGTCTATTTCAAAGC TTGGATTGTGACAGTATCCCCATCCGCGGGGACGCCGCT
 spacer length: 39 repeater length: 30
 31663 1043866 ATTTCCATACTATTTAGTCTATTTCAAAGC GAGAGGGGATGCAAAAAAAGAAAGGATTTGGGTGT spacer
 length: 36 repeater length: 30
 31664 1043932 ATTTCCATACTATTTAGTCTATTTCAAAGC TATTTTTTCGTTTTTTTGATGATTCTCAGGGAGGGGAT spacer
 length: 37 repeater length: 30
 31665 1043999 ATTTCCATACTATTTAGTCTATTTCAAAGC ATAGTATAGAAAAAAATTCAGCGAATACAGCGACTT spacer

length: 37 repeater length: 30
31666 1044066 ATTTCCATACTATTTAGTCTATTTCAAAGC TTTGAGTTCATCTCATTCAAGTATGCTTTTAATTCCT spacer
length: 37 repeater length: 30
31667 1044133 ATTTCCATACTATTTAGTCTATTTCAAAGC CTAGGCCCCCAAAAAAACACCCCCCAAAAAACAT spacer
length: 37 repeater length: 30
31668 1044200 ATTTCCATACTATTTAGTCTATTTCAAAGC GAGAGAGGCCTGGCCCCAAAAAACACCCATGAAAAA spacer
length: 37 repeater length: 30
31669 1044267 ATTTCCATACTATTTAGTCTATTTCAAAGC TCAGTCTTGAGACTGAGGTGAGTTCAGAGTAGACGAA spacer
length: 38 repeater length: 30
31670 1044335 ATTTCCATACTATTTAGTCTATTTCAAAGC CCCTTCCCTTCTCTCCTGAATGATGATTTTCGAGAAAAC spacer
length: 38 repeater length: 30
31671 1044403 ATTTCCATACTATTTAGTCTATTTCAAAGC CCACAAAACCCCCCAACAACACCACCAAAAAAACCCAC spacer
length: 38 repeater length: 30
31672 1044471 ATTTCCATACTATTTAGTCTATTTCAAAGC AGAAGAAATATCAGAACTCGAAAAACAATCGGAAAAAC
spacer length: 39 repeater length: 30
31673 1044540 ATTTCCATACTATTTAGTCTATTTCAAAGC CCTGAATCATCCAAAAACGAAAAATATATATATGAT spacer
length: 37 repeater length: 30
31674 1044607 ATTTCCATACTATTTAGTCTATTTCAAAGC AGTCCTCGGAACTACGAGAGCGAGGATGATGAGCT spacer
length: 36 repeater length: 30
31675 1044673 ATTTCCATACTATTTAGTCTATTTCAAAGC TTTCGTTTCATGTTCTTTTTTGTACTTTTTGCCTATATA spacer
length: 37 repeater length: 30
31676 1044740 ATTTCCATACTATTTAGTCTATTTCAAAGC TAGCAAAATATAAAAGAAAACCAAAAATAGTAGCCA spacer
length: 36 repeater length: 30
31677 1044806 ATTTCCATACTATTTAGTCTATTTCAAAGC TCTTTACATACTCTATTTTTAGTTTCAGTTTTTCTTTT spacer
length: 38 repeater length: 30
31678 1044874 ATTTCCATACTATTTAGTCTATTTCAAAGC CTCTCTTTGTGCGCATATGTGAATGAATCGGTTGAGGAAT
spacer length: 39 repeater length: 30
31679 1044943 ATTTCCATACTATTTAGTCTATTTCAAAGC AGTATTTTTTCGGCCTGTTTAATCCTCTCTACTAAGAC spacer
length: 36 repeater length: 30
31680 1045009 ATTTCCATACTATTTAGTCTATTTCAAAGC CATATTGCTCAGCTGTCATTTCCCCAGCATAAATACAA spacer
length: 38 repeater length: 30
31681 1045077 ATTTCCATACTATTTAGTCTATTTCAAAGC AACTTAAAGTCTATTGTAAGGCAATGGAGGGGTCTT spacer
length: 36 repeater length: 30
31682 1045143 ATTTCCATACTATTTAGTCTATTTCAAAGC GCAGCTATGGCGAATATAAGCCAGCCAAGCATATTAT spacer
length: 37 repeater length: 30
31683 1045210 ATTTCCATACTATTTAGTCTATTTCAAAGC TCATCATCGAATCGCAAATATATATATTCGGAGTAC spacer
length: 37 repeater length: 30
31684 1045277 ATTTCCATACTATTTAGTCTATTTCAAAGC CAGCTGAGGCCAGACAATATCTGAAGGGTTATTTCAACT
spacer length: 39 repeater length: 30
31685 1045346 ATTTCCATACTATTTAGTCTATTTCAAAGC TTAAAAATGTTGCAAGGGAAATAAAAGAGAAAGATAT spacer
length: 37 repeater length: 30
31686 1045413 ATTTCCATACTATTTAGTCTATTTCAAAGC CTTACGGTCTTGTTCAACCTTAATCTCTTGGAATAGGC
spacer length: 39 repeater length: 30
31687 1045482 ATTTCCATACTATTTAGTCTATTTCAAAGC GCGGATATGTCCCACAAACCCCTGGAACTTCTATA spacer
length: 36 repeater length: 30
31688 1045548 ATTTCCATACTATTTAGTCTATTTCAAAGC AGTGCACAGGATTGTTCTATTGTGAAACCTTGTTCTA spacer
length: 37 repeater length: 30
31689 1045615 ATTTCCATACTATTTAGTCTATTTCAAAGC AGAGACCTTCGAATTGGAAACGGATGAAGAATTAGA spacer
length: 36 repeater length: 30
31690 1045681 ATTTCCATACTATTTAGTCTATTTCAAAGC AGTGCACAGGATTGTTCTATTGTGAAACCTTGTTCTA spacer
length: 37 repeater length: 30
31691 1045748 ATTTCCATACTATTTAGTCTATTTCAAAGC GCCCATACTTGAATAACATGATACAAATGCAGCCAA spacer
length: 36 repeater length: 30
31692 1045814 ATTTCCATACTATTTAGTCTATTTCAAAGC GTGCTTTGATCCGCTCTTCAACTGTAGCCTGATTTT spacer
length: 36 repeater length: 30
31693 1045880 ATTTCCATACTATTTAGTCTATTTCAAAGC CTTATATGTGCAGGCTAATCTGAAAGGCCTCCAAA spacer
length: 35 repeater length: 30
31694 1045945 ATTTCCATACTATTTAGTCTATTTCAAAGC TCTTTGACCGCTCTGTCTACGATTTTCAGGAGTTATCA spacer
length: 37 repeater length: 30
31695 1046012 ATTTCCATACTATTTAGTCTATTTCAAAGC AAGGAGAATGTGTACTTTGAGAGTGTACAAAATA spacer
length: 35 repeater length: 30
31696 1046077 ATTTCCATACTATTTAGTCTATTTCAAAGC CAGTTGAAGAGACCCGTGAGATTGGGAAACCAAGGCAG spacer
length: 38 repeater length: 30
31697 1046145 ATTTCCATACTATTTAGTCTATTTCAAAGC ACAATCTTATCAATCCACTGCGACAAGCCCTCAAAA spacer
length: 36 repeater length: 30
31698 1046211 ATTTCCATACTATTTAGTCTATTTCAAAGC ACAAGATGATCGATGCTGTTCTGAGGAGTACTTCAT spacer
length: 37 repeater length: 30
31699 1046278 ATTTCCATACTATTTAGTCTATTTCAAAGC TATACCGCTTATTTCCCTCACAGTCTCAATATTTTCAT spacer
length: 38 repeater length: 30
31700 1046346 ATTTCCATACTATTTAGTCTATTTCAAAGC GTTAGGCCAACGCACCGTAGAAATCACCTGCAGATCA spacer
length: 37 repeater length: 30

31701	1046413	ATTTCCATACTATTTAGTCTATTTCAAAGC	TATCGTTCTTCACGGCTTATAGCATCCCCAATAACCTT	spacer
	length:	38	repeater length:	30
31702	1046481	ATTTCCATACTATTTAGTCTATTTCAAAGC	TTGAATTGGCGTGTGGCCTCGCCTTCAAATGTTAATA	spacer
	length:	37	repeater length:	30
31703	1046548	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACGCCATCTCTTTTTATCCCCATGCTTTTTATCGAT	spacer
	length:	36	repeater length:	30
31704	1046614	ATTTCCATACTATTTAGTCTATTTCAAAGC	GTGAGGCCTTCCCCTCCATTCTCGATAGATTCAATG	spacer
	length:	36	repeater length:	30
31705	1046680	ATTTCCATACTATTTAGTCTATTTCAAAGC	CGGAATATTAATATGTATTCTGTTTCATGGGTTACA	spacer
	length:	36	repeater length:	30
31706	1046746	ATTTCCATACTATTTAGTCTATTTCAAAGC	AGTAACCCCATCCACCATATTTGAAACCACCACCATC	spacer
	length:	38	repeater length:	30
31707	1046814	ATTTCCATACTATTTAGTCTATTTCAAAGC	ATACCCAGTATTTTTGTTCAATTTCCGGTTGTTTAC	spacer
	length:	37	repeater length:	30
31708	1046881	ATTTCCATACTATTTAGTCTATTTCAAAGC	TGTGATGGTCTTGGAGATCGCTATGATCTCATCATT	spacer
	length:	36	repeater length:	30
31709	1046947	ATTTCCATACTATTTAGTCTATTTCAAAGC	GGTTTCAGTGGTTTGATAGTAACAAGACCCTTATCCTC	spacer
	length:	38	repeater length:	30
31710	1047015	ATTTCCATACTATTTAGTCTATTTCAAAGC	CAATACTCTGCTTAGAGCAAAGTAGAGCGGATACCGG	spacer
	length:	37	repeater length:	30
31711	1047082	ATTTCCATACTATTTAGTCTATTTCAAAGC	CGCGGGGATTCGCAAATACACTTGTTGACTTACTTGTG	spacer length: 39
	length:	39	repeater length:	30
31712	1047151	ATTTCCATACTATTTAGTCTATTTCAAAGC	TTCATTATATAATTTCTTCTTCCCATTCTATAGAGT	spacer
	length:	37	repeater length:	30
31713	1047218	ATTTCCATACTATTTAGTCTATTTCAAAGC	TGCCGATATTCGCCGCTAAAGCAGCAACACCAATATAA	spacer
	length:	38	repeater length:	30
31714	1047286	ATTTCCATACTATTTAGTCTATTTCAAAGC	ATTCATCCCCTCAACATGGAGGGAAAACCCTTATCT	spacer
	length:	36	repeater length:	30
31715	1047352	ATTTCCATACTATTTAGTCTATTTCAAAGC	CAACACCTAGAATCATGGAAGCATGTGAAAAAGGGAG	spacer
	length:	37	repeater length:	30
31716	1047419	ATTTCCATACTATTTAGTCTATTTCAAAGC	GACTTTATGTATATCAACGTACACTCCTCTTTTTTT	spacer
	length:	36	repeater length:	30
31717	1047485	ATTTCCATACTATTTAGTCTATTTCAAAGC	AGCCCGTGAAGGCACATTCTTGAGCGTTGTTTTCAA	spacer
	length:	36	repeater length:	30
31718	1047551	ATTTCCATACTATTTAGTCTATTTCAAAGC	AATTGAATCCCTTCATCATACCCAGGGATCCTTAGAA	spacer
	length:	37	repeater length:	30
31719	1047618	ATTTCCATACTATTTAGTCTATTTCAAAGC	CATCTGAAAGAGTTGTATGGGTATGGTGTGATCTAT	spacer
	length:	36	repeater length:	30
31720	1047684	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACAATCGACGCTTACAGGGTTAGCATAGTCCCCGGAC	spacer
	length:	37	repeater length:	30
31721	1047751	ATTTCCATACTATTTAGTCTATTTCAAAGC	TGTGCCGATGATAATGTCATGGCCACCTAGATTACACA	spacer
	length:	37	repeater length:	30
31722	1047818	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACGGATGTTATTGACTTGAAATTCAAGATGACAGGCCTT	spacer length: 39
	length:	39	repeater length:	30
31723	1047887	ATTTCCATACTATTTAGTCTATTTCAAAGC	AAGCAAAAAATGCAAAAAGAACATACAAGCACAGTT	spacer
	length:	36	repeater length:	30
31724	1047953	ATTTCCATACTATTTAGTCTATTTCAAAGC	TAGACCCGGACAAACCGCGCATATTTTGAATTCGTAG	spacer
	length:	37	repeater length:	30
31725	1048020	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACAGTCATTGTACCAGCATCTCCAGCATCGAAGGTTG	spacer
	length:	37	repeater length:	30
31726	1048087	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACTCCCTAATTATGTGAACATAGCAACCACAACCCT	spacer
	length:	36	repeater length:	30
31727	1048153	ATTTCCATACTATTTAGTCTATTTCAAAGC	GCTACTGGGAAGATCGCAGAACTTGTTAAAGAGTTAT	spacer
	length:	37	repeater length:	30
31728	1048220	ATTTCCATACTATTTAGTCTATTTCAAAGC	AATAACGTGTCAGCACCGAGCATTTTAAATGTTAAACGT	spacer
	length:	38	repeater length:	30
31729	1048288	ATTTCCATACTATTTAGTCTATTTCAAAGC	TAGATGTATCCTTCATTTTACCAGTTGGCATTGAAT	spacer
	length:	37	repeater length:	30
31730	1048355	ATTTCCATACTATTTAGTCTATTTCAAAGC	CGTTCTAAAAATGCTTTTTTGTACCTATAACCTTCACC	spacer
	length:	38	repeater length:	30
31731	1048423	ATTTCCATACTATTTAGTCTATTTCAAAGC	GTAGGCCCTCCAATGGCATTAGTTTCATGTAACAGT	spacer
	length:	36	repeater length:	30
31732	1048489	ATTTCCATACTATTTAGTCTATTTCAAAGC	TGTGACTTGCTCGAAGATTCCCCGTTACTATGGGTGCA	spacer
	length:	38	repeater length:	30
31733	1048557	ATTTCCATACTATTTAGTCTATTTCAAAGC	CATCCACCAGTTTTCTGGTCCAACCAATTGAATTTAT	spacer
	length:	37	repeater length:	30
31734	1048624	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACAACAAACAGAAGAAGTAAATGGCTAATACAAAGAA	spacer
	length:	38	repeater length:	30
31735	1048692	ATTTCCATACTATTTAGTCTATTTCAAAGC	AGTGAAAAGGGACTTAGAAGAACTCCCATCACCTGATAT	spacer length: 39
	length:	39	repeater length:	30
31736	1048761	ATTTCCATACTATTTAGTCTATTTCAAAGC	CTGGATATCCACCCAGTACTTCATAAAATGGCCTG	spacer

length: 36 repeater length: 30
31737 1048827 ATTTCCATACTATTTAGTCTATTTCAAAGC GGGGGATGGTTGGGATTATAAAGCTGTTAGGTTTGG spacer
length: 36 repeater length: 30
31738 1048893 ATTTCCATACTATTTAGTCTATTTCAAAGC GTTGAGAAGAAGAAAAAGAATATGGGTGGGGATCCCT spacer
length: 37 repeater length: 30
31739 1048960 ATTTCCATACTATTTAGTCTATTTCAAAGC CCGTGTGAATGCCGTGGTTGAGGAGTTGACACAACCTTA spacer
length: 38 repeater length: 30
31740 1049028 ATTTCCATACTATTTAGTCTATTTCAAAGC ATTGCAGCGCATTCCCTGAGGATTGGCTGGATTTTGT spacer
length: 37 repeater length: 30
31741 1049095 ATTTCCATACTATTTAGTCTATTTCAAAGC GGTGCTGCCCTGTCACCGGGGAATTTCTGCCC GTTTC spacer
length: 37 repeater length: 30
31742 1049162 ATTTCCATACTATTTAGTCTATTTCAAAGC GTAGTCAATTGCAGGGTCTTTCATATATTCTTTCCATT spacer
length: 38 repeater length: 30
31743 1049230 ATTTCCATACTATTTAGTCTATTTCAAAGC AAGCCAGTTATACCATCACCAGAGATTATCAAACCAT spacer
length: 37 repeater length: 30
31744 1049297 ATTTCCATACTATTTAGTCTATTTCAAAGC TCTTGGATTAGCTGCTACTGCATTACAACCATTTTT spacer
length: 36 repeater length: 30
31745 1049363 ATTTCCATACTATTTAGTCTATTTCAAAGC TTTAGATCTGCTATTTTTTCTTGTATGTCTCTATCG spacer
length: 37 repeater length: 30
31746 1049430 ATTTCCATACTATTTAGTCTATTTCAAAGC CCTTCGCAACGAGTGATGCTCCTTCCATTGGGTTTT spacer
length: 36 repeater length: 30
31747 1049496 ATTTCCATACTATTTAGTCTATTTCAAAGC TCGCAGGATACGATCATGAAATGGAATTACTATGGG spacer
length: 36 repeater length: 30
31748 1049562 ATTTCCATACTATTTAGTCTATTTCAAAGC ACCCGCACTTCTTTTCAGTTTTTCCCTAATAATCATCTG spacer
length: 38 repeater length: 30
31749 1049630 ATTTCCATACTATTTAGTCTATTTCAAAGC AGATTGACCACAATACGTACCATTAGCCATCATCCTCA spacer
length: 38 repeater length: 30
31750 1049698 ATTTCCATACTATTTAGTCTATTTCAAAGC ACGCCAAGTAGAGGAAATAAAACGCTTATCCCCA spacer
length: 34 repeater length: 30
31751 1049762 ATTTCCATACTATTTAGTCTATTTCAAAGC CATAAAAATACACCATTCAACCTACCCTAAACACAA spacer
length: 36 repeater length: 30
31752 1049828 ATTTCCATACTATTTAGTCTATTTCAAAGC AAGCTTCTAACGCTGCACAAAGCAAAGGATTGCTCT spacer
length: 36 repeater length: 30
31753 1049894 ATTTCCATACTATTTAGTCTATTTCAAAGC ACGCCCCAGGAAGGCCCCACATTGAAATAGAGACCAG spacer
length: 38 repeater length: 30
31754 1049962 ATTTCCATACTATTTAGTCTATTTCAAAGC TCTTGTGAAAGCCGTGACAGACCTTGAAACTCAGGATG spacer
length: 38 repeater length: 30
31755 1050030 ATTTCCATACTATTTAGTCTATTTCAAAGC AATATCTTGACAAAGGGACAGGAATTCACGGACCTAA spacer
length: 37 repeater length: 30
31756 1050097 ATTTCCATACTATTTAGTCTATTTCAAAGC TTTGAACCCTATTTCCACACAACCAACGAGAACATA spacer
length: 36 repeater length: 30
31757 1050163 ATTTCCATACTATTTAGTCTATTTCAAAGC GGTATTTGTCCAGCCATCGGCAGCTTCTCATACCTTT spacer
length: 37 repeater length: 30
31758 1050230 ATTTCCATACTATTTAGTCTATTTCAAAGC AGAACATGCAACAATACAAAACATAAAAAGATCCAA spacer
length: 36 repeater length: 30
31759 1050296 ATTTCCATACTATTTAGTCTATTTCAAAGC AAATTCATCCTTTTGATGCTCTACGCTACCTTAGATCG spacer
length: 38 repeater length: 30
31760 1050364 ATTTCCATACTATTTAGTCTATTTCAAAGC TATCAGCTTAACAAACAGGCCATGCGTCTATGATGC spacer
length: 36 repeater length: 30
31761 1050430 ATTTCCATACTATTTAGTCTATTTCAAAGC TTTCAATTGCTTTTCAGATACACTTGATGATACCTATTA spacer
length: 37 repeater length: 30
31762 1050497 ATTTCCATACTATTTAGTCTATTTCAAAGC ACCCGTTCTTGGTTTTGTACTTCACAATTCGTCTT spacer
length: 36 repeater length: 30
31763 1050563 ATTTCCATACTATTTAGTCTATTTCAAAGC CATACAAAGGCAACTACCATGCGAATAGCACATGGAT spacer
length: 37 repeater length: 30
31764 1050630 ATTTCCATACTATTTAGTCTATTTCAAAGC TCTTTCTTGGCTTTCTCACATTCTTGATAAATGCTTT spacer
length: 38 repeater length: 30
31765 1050698 ATTTCCATACTATTTAGTCTATTTCAAAGC CATAGATCTATCAGAGGATCTTAAAGAAATCGATGA spacer
length: 36 repeater length: 30
31766 1050764 ATTTCCATACTATTTAGTCTATTTCAAAGC TGGAAGTGTTACGGTTGTGGGGCCCATGGTAGTACGC spacer
length: 37 repeater length: 30
31767 1050831 ATTTCCATACTATTTAGTCTATTTCAAAGC AGCGTGTGGGCTGGGATTATAGCAAGTGGAAGGATGT spacer
length: 37 repeater length: 30
31768 1050898 ATTTCCATACTATTTAGTCTATTTCAAAGC TAAACCGGTTTATTTTCATCCATTTTCATCTACCATCCC spacer
length: 37 repeater length: 30
31769 1050965 ATTTCCATACTATTTAGTCTATTTCAAAGC CCACGTCTACGCAGGCCATATGGATGCTATTACCT spacer
length: 36 repeater length: 30
31770 1051031 ATTTCCATACTATTTAGTCTATTTCAAAGC CATAGACCTC
31771
31772
31773

	START	REPEAT	
31774	SPACER		
31775	crispr 1		
31776	868127 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	CCTCGGCGGCAGATGTGGAGACAGAA	spacer length: 26 repeater length: 36
31777	868189 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	ACATCAAGCCCCTCCAGTCATCCGTCC	spacer length: 27 repeater length: 36
31778	868252 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	ATTAAGAGGGGCAGTGCCGAACCGA	spacer length: 25 repeater length: 36
31779	868313 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	CCACTTCACAGCCAAAAGCGTATCTTT	spacer length: 27 repeater length: 36
31780	868376 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	CAACCAAATATGGCCCGTTGTTGTTTGC	spacer length: 28 repeater length: 36
31781	868440 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	CAACCAAATATGGCCCGTTGTTGTTTGC	spacer length: 28 repeater length: 36
31782	868504 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	ACTTATGACGACATTTTTAGGGCATAAC	spacer length: 27 repeater length: 36
31783	868567 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	CCCTGCCGCCTGAATATCTTTGCACCT	spacer length: 27 repeater length: 36
31784	868630 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	GCCGGAGGCGTGGCGGGATGGTTCCT	spacer length: 26 repeater length: 36
31785	868692 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	GTTTCGCCCTCTCTCGGTTCATCAA	spacer length: 25 repeater length: 36
31786	868753 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	TCGCCTTGTCTCGAGGCGGTCTTGT	spacer length: 26 repeater length: 36
31787	868815 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	CTTCAGATCTTCAGGATCATCCTCAA	spacer length: 26 repeater length: 36
31788	868877 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	GGTGACGCAGCTGACCGCCGAACGCGA	spacer length: 27 repeater length: 36
31789	868940 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	TCTCTCCTTCATCTGGCCTGTCCGTT	spacer length: 26 repeater length: 36
31790	869002 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	GAACGCCCGGAGGTCTGAAGCCGCAAG	spacer length: 27 repeater length: 36
31791	869065 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	TGTGCGGCTCGTCGCTTTCCCGTGGTA	spacer length: 28 repeater length: 36
31792	869129 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	TACCCCTTCCTCCGTACGTAGTCTTT	spacer length: 26 repeater length: 36
31793	869191 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	CACAGCCGACTTCATCAGGAAGAGAC	spacer length: 26 repeater length: 36
31794	869253 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	CCACGAAAGCCTTACGCTCCGCTTTGA	spacer length: 27 repeater length: 36
31795	869316 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	ATGCGCTCCGCGATCAACTCCATCGA	spacer length: 26 repeater length: 36
31796	869378 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	CAGGCGGACATGGAAAGCGCGATAGC	spacer length: 26 repeater length: 36
31797	869440 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	ACGCTGAAGATAGACGACGTGAGCTTT	spacer length: 27 repeater length: 36
31798	869503 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	TAACCTTCCGTAAGTAACACGTTTATATC	spacer length: 29 repeater length: 36
31799	869568 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	CGATCATCGCAGACGAGGTAGATTTCAT	spacer length: 27 repeater length: 36
31800	869631 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	AACAGTGTCTGTTCACGTGTGGTATTCTT	spacer length: 29 repeater length: 36
31801	869696 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	CCGGTCTGCGTCCTTGGCGAAGCTCT	spacer length: 26 repeater length: 36
31802	869758 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	AAGAAGGCCGTGGTGGTCACCGCCACT	spacer length: 27 repeater length: 36
31803	869821 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	GCACCACGTGGGCGACCCTCATCAG	spacer length: 25 repeater length: 36
31804	869882 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	AGACGTTGAATCTCTGGCGTTGCT	spacer length: 25 repeater length: 36
31805	869943 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	CAGGTCGAACTTGAGAACGGAAGACTT	spacer length: 27 repeater length: 36
31806	870006 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	CTGCAGCGCACTGTTCCCAATTTTAA	spacer length: 26 repeater length: 36
31807	870068 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	CGCCCGAAGAAGCCCAGGAATTCTAC	spacer length: 26 repeater length: 36
31808	870130 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	GTTACCGCACCGTGGGGAATATCGTT	spacer length: 27 repeater length: 36
31809	870193 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC	TCCGGTCTTGGAGTAGTGAGCCACTT	spacer length: 26 repeater length: 36

31810 870255 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GGGAGTTCGACCAGTTCATAACCTGGAA spacer
length: 28 repeater length: 36
31811 870319 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GGAGCAGTATTAGACTTAATCGTCTG spacer
length: 26 repeater length: 36
31812 870381 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GGCGCGGCCCGCAGCTTCCTGACCGA spacer
length: 26 repeater length: 36
31813 870443 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GAGTTTTAGACGGGAGTTCGACCAGTTCATAACCTGGAA
spacer length: 39 repeater length: 36
31814 870518 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GGAGCAGTATTAGACTTAATCGTCTG spacer
length: 26 repeater length: 36
31815 870580 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GACGGGAGTT
31816
31817
31818 crispr 2
31819 872578 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC ACATATAATCAATGGCGGATGTCATA spacer
length: 26 repeater length: 36
31820 872640 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC ATCGTCCGCATCGGCATCCATCAATCA spacer
length: 27 repeater length: 36
31821 872703 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GAAATGGCAGGGAAGCGGACGGCACC spacer
length: 26 repeater length: 36
31822 872765 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GGGCGGTGAACACGCAGTGGGCGCTAT spacer
length: 27 repeater length: 36
31823 872828 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GGGCGGTGAACACGCAGTGGGCGCTAT spacer
length: 27 repeater length: 36
31824 872891 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC CAATGCAGGCTCTCCAACCAGTCCTT spacer
length: 26 repeater length: 36
31825 872953 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC ATCCGCGTCGAGAAGGTGGGTGCGT spacer length:
25 repeater length: 36
31826 873014 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC GTATGGTGTCAATAACATCCCCCAGGT spacer
length: 27 repeater length: 36
31827 873077 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC TATGGAGACTCGGATTTAGTCTCGCGAT spacer
length: 28 repeater length: 36
31828 873141 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC CGGATTATGGGTCGGCAGAATGAGGGT spacer
length: 27 repeater length: 36
31829 873204 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC AACATGTAACACAATGCCCAAGTTGGA spacer
length: 27 repeater length: 36
31830 873267 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC TTACAGGAGGCAGATAAATGCGTATTC spacer
length: 27 repeater length: 36
31831 873330 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTAGAC TTAGACAACA
31832
31833
31834 GCA_003852095.1_ASM385209v1_genomic.fna(PilerCR):
31835 START REPEAT
SPACER
31836 crispr 1
31837 2054143 GATTAATCCCAAAAGGAATTGAAAG TCACATCCCTCACAATCCATAATGAAAATGTCGGCAT spacer
length: 37 repeater length: 25
31838 2054205 GATTAATCCCAAAAGGAATTGAAAG ATTTTAGCAATGCAATAGATCAACAATTGAAAGAACT spacer
length: 38 repeater length: 25
31839 2054268 GATTAATCCCAAAAGGAATTGAAAG ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTTC spacer
length: 39 repeater length: 25
31840 2054332 GATTAATCCCAAAAGGAATTGAAAG TGTTTCACAAATTTCAAACCTTGCAAACGCAACAATTAAATA spacer
length: 41 repeater length: 25
31841 2054398 GATTAATCCCAAAAGGAATTGAAAG GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTGG spacer
length: 40 repeater length: 25
31842 2054463 GATTAATCCCAAAAGGAATTGAAAG TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACTC spacer
length: 38 repeater length: 25
31843 2054526 GATTAATCCCAAAAGGAATTGAAAG GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAGT spacer
length: 39 repeater length: 25
31844 2054590 GATTAATCCCAAAAGGAATTGAAAG CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTCT spacer
length: 41 repeater length: 25
31845 2054656 GATTAATCCCAAAAGGAATTGAAAG CAAAATTCCAAACCTTGGGAATTTCTAGTTTCCAAATTC spacer
length: 40 repeater length: 25
31846 2054721 GATTAATCCCAAAAGGAATTGAAAG TTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGAC spacer
length: 39 repeater length: 25
31847 2054785 GATTAATCCCAAAAGGAATTGAAAG CGCTTTCGACTGCGACAACGTGTCGTTTGGCTCATTTGTTGC spacer
length: 41 repeater length: 25
31848 2054851 GATTAATCCCAAAAGGAATTGAAAG TTATTTCAAATACTATTATCTCCGCATATGTTTACAT spacer
length: 38 repeater length: 25
31849 2054914 GATTAATCCCAAAAGGAATTGAAAG ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATTT spacer
length: 38 repeater length: 25

31850 2054977 GATTAATCCCAAAAAGGAATTGAAAG TTTTCTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTCA spacer
length: 40 repeater length: 25

31851 2055042 GATTAATCCCAAAAAGGAATTGAAAG CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAATA spacer
length: 39 repeater length: 25

31852 2055106 GATTAATCCCAAAAAGGAATTGAAAG AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTTC
spacer length: 44 repeater length: 25

31853 2055175 GATTAATCCCAAAAAGGAATTGAAAG GCTTTAACTTGGTACGCACTTTACGCCATGATAAACG spacer
length: 37 repeater length: 25

31854 2055237 GATTAATCCCAAAAAGGAATTGAAAG GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGTT spacer
length: 39 repeater length: 25

31855 2055301 GATTAATCCCAAAAAGGAATTGAAAG GTTGAATTTTTGCAACTGGTATGTTGTATTTTTGCA spacer
length: 36 repeater length: 25

31856 2055362 GATTAATCCCAAAAAGGAATTGAAAG AATTTGTTACACGGCTAGGATTTTTTTTCTAGATGTACAAT spacer
length: 42 repeater length: 25

31857 2055429 GATTAATCCCAAAAAGGAATTGAAAG TTCTAATCTTTTGCCATTACTGCATCATATCTACTAG spacer
length: 38 repeater length: 25

31858 2055492 GATTAATCCCAAAAAGGAATTGAAAG ATCTTTACCTTTATATAAATCTTGTTTCGTAACAAATAA spacer
length: 38 repeater length: 25

31859 2055555 GATTAATCCCAAAAAGGAATTGAAAG ACAAACGAGGAGTTTATAGTAAATCAACTATGAAA spacer
length: 37 repeater length: 25

31860 2055617 GATTAATCCCAAAAAGGAATTGAAAG ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAAG spacer length:
35 repeater length: 25

31861 2055677 GATTAATCCCAAAAAGGAATTGAAAG AACTACAACGAGGTGAGAAACGATGACTAAACGTTT spacer
length: 36 repeater length: 25

31862 2055738 GATTAATCCCAAAAAGGAATTGAAAG TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATTG spacer
length: 38 repeater length: 25

31863 2055801 GATTAATCCCAAAAAGGAATTGAAAG TAGATATATGGCGATGAATTGCATTAGTCAGTGGTG spacer
length: 36 repeater length: 25

31864 2055862 GATTAATCCCAAAAAGGAATTGAAAG ATTTTAAACGCTATGACGCTAGCCCTCATGTTAGCTTTT spacer
length: 39 repeater length: 25

31865 2055926 GATTAATCCCAAAAAGGAATTGAAAG AAAGTTTGTCTCTTCTGTTTCGTTTTGTTGTTCTGACT spacer
length: 37 repeater length: 25

31866 2055988 GATTAATCCCAAAAAGGAATTGAAAG CCCCTTTTGCCGTCTTTTTAGTTACCACAATGCACCAA spacer
length: 38 repeater length: 25

31867 2056051 GATTAATCCCAAAAAGGAATTGAAAG CCGTATCCAGAAATAATTAACCAATCGCTTGTTTGTGAC spacer
length: 39 repeater length: 25

31868 2056115 GATTAATCCCAAAAAGGAATTGAAAG AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCAA spacer
length: 37 repeater length: 25

31869 2056177 GATTAATCCCAAAAAGGAATTGAAAG GAATAACATTGGTACTGTACTTTGTAGTACTGCATACGGTG spacer
length: 42 repeater length: 25

31870 2056244 GATTAATCCCAAAAAGGAATTGAAAG GCATCTGTCGGCAACCTCACTTATTCACGTGGGGGTGCG spacer
length: 39 repeater length: 25

31871 2056308 GATTAATCCCAAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTGA spacer
length: 37 repeater length: 25

31872 2056370 GATTAATCCCAAAAAGGAATTGAAAG TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTTG spacer
length: 39 repeater length: 25

31873 2056434 GATTAATCCCAAAAAGGAATTGAAAG TTGAACCTGTAGAAATTGTTTCATATGAAACAGCATAATTTTC spacer
length: 42 repeater length: 25

31874 2056501 GATTAATCCCAAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAACG spacer
length: 40 repeater length: 25

31875 2056566 GATTAATCCCAAAAAGGAATTGAAAG CTCATTATTTTCATCATAAAGATTATCCACTGCAATT spacer
length: 36 repeater length: 25

31876 2056627 GATTAATCCCAAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCTCTTTACGCATTTCT spacer
length: 39 repeater length: 25

31877 2056691 GATTAATCCCAAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGCG spacer
length: 36 repeater length: 25

31878 2056752 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACAT spacer
length: 39 repeater length: 25

31879 2056816 GATTAATCCCAAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTATG spacer
length: 41 repeater length: 25

31880 2056882 GATTAATCCCAAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTCT spacer
length: 41 repeater length: 25

31881 2056948 GATTAATCCCAAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAGACTTTTCAGCCCTC spacer
length: 36 repeater length: 25

31882 2057009 GATTAATCCCAAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAATC spacer
length: 36 repeater length: 25

31883 2057070 GATTAATCCCAAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTGT spacer
length: 39 repeater length: 25

31884 2057134 GATTAATCCCAAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTTCAT spacer length:
34 repeater length: 25

31885 2057193 GATTAATCCCAAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCAT spacer

length: 38 repeater length: 25
31886 2057256 GATTAATCCCAAAAGGAATTGAAAG TTATATTACGATAAAAAGTGCCAGATATGGTTGTTGGCATT spacer
length: 40 repeater length: 25
31887 2057321 GATTAATCCCAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCGG spacer
length: 40 repeater length: 25
31888 2057386 GATTAATCCCAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTCTG spacer
length: 40 repeater length: 25
31889 2057451 GATTAATCCCAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTGC spacer
length: 39 repeater length: 25
31890 2057515 GATTAATCCCAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCATT spacer
length: 40 repeater length: 25
31891 2057580 GATTAATCCCAAAAGGAATTGAAAG CCCCCTGGAATGCACCATTCTTGCAAGTAATACATTT spacer
length: 39 repeater length: 25
31892 2057644 GATTAATCCCAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTGC spacer
length: 40 repeater length: 25
31893 2057709 GATTAATCCCAAAAGGAATTGAAAG CCATTATTGGGCACTGCATTTAATTGAAGCACTATACT spacer
length: 38 repeater length: 25
31894 2057772 GATTAATCCCAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCAG spacer
length: 39 repeater length: 25
31895 2057836 GATTAATCCCAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCTT spacer
length: 37 repeater length: 25
31896 2057898 GATTAATCCCAAAAGGAATTGAAAG TTTTATTTAAGAACACTGATGGAAAGATCTATAG spacer length:
35 repeater length: 25
31897 2057958 GATTAATCCCAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCTA spacer
length: 37 repeater length: 25
31898 2058020 GATTAATCCCAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGAT spacer
length: 38 repeater length: 25
31899 2058083 GATTAATCCCAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACATT spacer
length: 39 repeater length: 25
31900 2058147 GATTAATCCCAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCCTTTTGTAAGACATTCTCA spacer
length: 40 repeater length: 25
31901 2058212 GATTAATCCCAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCGG spacer
length: 40 repeater length: 25
31902 2058277 GATTAATCCCAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATTC spacer
length: 39 repeater length: 25
31903 2058341 GATTAATCCCAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTTCGTC spacer
length: 42 repeater length: 25
31904 2058408 GATTAATCCCAAAAGGAATTGAAAG GTATTCAAAGAGAACTGGGGGATTCAAGGTAATACCT spacer
length: 38 repeater length: 25
31905 2058471 GATTAATCCCAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATAACAGTAAAGTAGCAGTTTT spacer
length: 36 repeater length: 25
31906 2058532 GATTAATCCCAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTGT spacer
length: 37 repeater length: 25
31907 2058594 GATTAATCCCAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAGT spacer
length: 36 repeater length: 25
31908 2058655 GATTAATCCCAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTGA spacer
length: 39 repeater length: 25
31909 2058719 GATTAATCCCAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTTCGTT spacer
length: 38 repeater length: 25
31910 2058782 GATTAATCCCAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTTT spacer
length: 38 repeater length: 25
31911 2058845 GATTAATCCCAAAAGGAATTGAAAG TCAAATCATGAAGCTACTGTAATCCATTTACATAAA spacer
length: 38 repeater length: 25
31912 2058908 GATTAATCCCAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAATT spacer
length: 38 repeater length: 25
31913 2058971 GATTAATCCCAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCGAAAATGATTT spacer
length: 40 repeater length: 25
31914 2059036 GATTAATCCCAAAAGGAATTGAAAG AAAAATTTTTCACATTCGACATTAAAAAATAAATAATTTTG spacer
length: 42 repeater length: 25
31915 2059103 GATTAATCCCAAAAGGAATTGAAAG AATTCGTATACCTTAGTAGTATTATCATCAATATTGTAT spacer
length: 39 repeater length: 25
31916 2059167 GATTAATCCCAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTAG spacer
length: 39 repeater length: 25
31917 2059231 GATTAATCCCAAAAGGAATTGAAAG TCTACGTTGTTAAATTCATATACAGCTTGGCTCATAT spacer
length: 37 repeater length: 25
31918 2059293 GATTAATCCCAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTTCTTGTGTAT spacer
length: 38 repeater length: 25
31919 2059356 GATTAATCCCAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTGATAGCTTTGCATCTT spacer
length: 41 repeater length: 25
31920 2059422 GATTAATCCCAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTAC spacer
length: 40 repeater length: 25

31921	2059487	GATTAATCCCAAAAAGGAATTGAAAG	CAGCAAGAAGTTCACCTCTCTACATCTTATGATTTTCGG spacer
	length:	37	repeater length: 25
31922	2059549	GATTAATCCCAAAAAGGAATTGAAAG	CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCCT spacer
	length:	36	repeater length: 25
31923	2059610	GATTAATCCCAAAAAGGAATTGAAAG	ACCTTTATTTTAAAGTCCTAGCCTCTTCCCTATCCAT spacer
	length:	36	repeater length: 25
31924	2059671	GATTAATCCCAAAAAGGAATTGAAAG	TTGTTTCACCTCCTTATTAAAAGCGACAGACGGTCGAC spacer
	length:	38	repeater length: 25
31925	2059734	GATTAATCCCAAAAAGGAATTGAAAG	TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTTT spacer
	length:	37	repeater length: 25
31926	2059796	GATTAATCCCAAAAAGGAATTGAAAG	CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGATG spacer
	length:	40	repeater length: 25
31927	2059861	GATTAATCCCAAAAAGGAATTGAAAG	AGCTTTATGACACTCATTATCATATACTCAAATTATA spacer
	length:	38	repeater length: 25
31928	2059924	GATTAATCCCAAAAAGGAATTGAAAG	TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGCC spacer
	length:	40	repeater length: 25
31929	2059989	GATTAATCCCAAAAAGGAATTGAAAG	CAGCTCGACGATGACGAATACAAGATGCTGTATAATGCG spacer
	length:	39	repeater length: 25
31930	2060053	GATTAATCCCAAAAAGGAATTGAAAG	TTTCTCAACTGATCCACGGCTTCAGAGAAGATGTTTGGAT spacer
	length:	40	repeater length: 25
31931	2060118	GATTAATCCCAAAAAGGAATTGAAAG	GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGATG spacer
	length:	39	repeater length: 25
31932	2060182	GATTAATCCCAAAAAGGAATTGAAAG	CTCAGCAGATTTAAACTAACGATATTAATTGTACACACTG spacer
	length:	40	repeater length: 25
31933	2060247	GATTAATCCCAAAAAGGAATTGAAAG	TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCAA spacer
	length:	39	repeater length: 25
31934	2060311	GATTAATCCCAAAAAGGAATTGAAAG	CAAGTGCAATAGCAAACACTACTAAATATAACATATAT spacer
	length:	39	repeater length: 25
31935	2060375	GATTAATCCCAAAAAGGAATTGAAAG	CTATATGGGGTCAGGGTGGAATAAAATCGTGGCTTTA spacer
	length:	38	repeater length: 25
31936	2060438	GATTAATCCCAAAAAGGAATTGAAAG	CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAGT spacer
	length:	39	repeater length: 25
31937	2060502	GATTAATCCCAAAAAGGAATTGAAAG	GAACTCTCTATTGCTGACGAATAAGAGAAAATTGTTTCAA spacer
	length:	41	repeater length: 25
31938	2060568	GATTAATCCCAAAAAGGAATTGAAAG	TCTAACAATGAATCTGTCTATAAAGTGCCCCGCAACTCTT spacer
	length:	38	repeater length: 25
31939	2060631	GATTAATCCCAAAAAGGAATTGAAAG	AGATTATCAATCAAGTGATAGAGATATTGCAATTTT spacer
	length:	36	repeater length: 25
31940	2060692	GATTAATCCCAAAAAGGAATTGAAAG	TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATGT spacer
	length:	39	repeater length: 25
31941	2060756	GATTAATCCCAAAAAGGAATTGAAAG	AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTTT spacer
	length:	39	repeater length: 25
31942	2060820	GATTAATCCCAAAAAGGAATTGAAAG	ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGGC spacer
	length:	36	repeater length: 25
31943	2060881	GATTAATCCCAAAAAGGAATTGAAAG	TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCTC spacer
	length:	39	repeater length: 25
31944	2060945	GATTAATCCCAAAAAGGAATTGAAAG	TCGTAAACTTGAAACTGACCCGTATATCCGAATTTAC spacer
	length:	37	repeater length: 25
31945	2061007	GATTAATCCCAAAAAGGAATTGAAAG	GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCTA spacer
	length:	39	repeater length: 25
31946	2061071	GATTAATCCCAAAAAGGAATTGAAAG	CGTGATTACATGGAACATTACTTTTCCACCGAATATT spacer
	length:	37	repeater length: 25
31947	2061133	GATTAATCCCAAAAAGGAATTGAAAG	TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCTA spacer
	length:	39	repeater length: 25
31948	2061197	GATTAATCCCAAAAAGGAATTGAAAG	GTCAGTTATACGCTACATATGAAAAGATAAATGAAG spacer
	length:	36	repeater length: 25
31949	2061258	GATTAATCCCAAAAAGGAATTGAAAG	ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCCT spacer
	length:	38	repeater length: 25
31950	2061321	GATTAATCCCAAAAAGGAATTGAAAG	TCTATCTTTATTGTTACAACCTTTTGCATACGACATAATTT spacer
	length:	40	repeater length: 25
31951	2061386	GATTAATCCCAAAAAGGAATTGAAAG	TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACTT spacer
	length:	39	repeater length: 25
31952	2061450	GATTAATCCCAAAAAGGAATTGAAAG	TAATACTGCAGTAACGGTACAAGTCATTGACAGCGCT spacer
	length:	37	repeater length: 25
31953	2061512	GATTAATCCCAAAAAGGAATTGAAAG	
31954			
31955			
31956	crispr 2		
31957	2076060	CTTTCAATTCCTTTTAGGATTAATC	TTGAAGATAGAGTTAAATGAACCTTTTGATGACACAAAA spacer
	length:	38	repeater length: 25
31958	2076123	CTTTCAATTCCTTTTAGGATTAATC	GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCAA spacer

length: 41 repeater length: 25
31959 2076189 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTGA spacer
length: 39 repeater length: 25
31960 2076253 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATAT spacer
length: 37 repeater length: 25
31961 2076315 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAAT spacer
length: 38 repeater length: 25
31962 2076378 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAACTCATTGAGAGTCTCTTCCAACCCGTACA spacer
length: 40 repeater length: 25
31963 2076443 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGCG spacer length:
35 repeater length: 25
31964 2076503 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG spacer
length: 39 repeater length: 25
31965 2076567 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG spacer
length: 39 repeater length: 25
31966 2076631 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAATATTGGTGGAGTAGTTGATTTGATAATAT spacer
length: 41 repeater length: 25
31967 2076697 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTAA spacer
length: 39 repeater length: 25
31968 2076761 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGATA spacer
length: 39 repeater length: 25
31969 2076825 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGAA spacer
length: 37 repeater length: 25
31970 2076887 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGAT spacer
length: 37 repeater length: 25
31971 2076949 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTGA spacer
length: 40 repeater length: 25
31972 2077014 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTACA spacer
length: 38 repeater length: 25
31973 2077077 CTTTCAATTCCTTTTAGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAAA spacer
length: 40 repeater length: 25
31974 2077142 CTTTCAATTCCTTTTAGGATTAATC GAGTGAGACCATGATCATTAACACTGATATTACGGTAAG spacer
length: 39 repeater length: 25
31975 2077206 CTTTCAATTCCTTTTAGGATTAATC AACAAAACCTTCACCAGTGATGGAACATTTGAATGTAA spacer
length: 37 repeater length: 25
31976 2077268 CTTTCAATTCCTTTTAGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATACT spacer
length: 40 repeater length: 25
31977 2077333 CTTTCAATTCCTTTTAGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATAT spacer
length: 42 repeater length: 25
31978 2077400 CTTTCAATTCCTTTTAGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACGG spacer
length: 38 repeater length: 25
31979 2077463 CTTTCAATTCCTTTTAGGATTAATC CCGTGATCAGATACAGTAACAGTCATGTTTTTATCT spacer
length: 36 repeater length: 25
31980 2077524 CTTTCAATTCCTTTTAGGATTAATC CATGGAAACGGGAGGAGGGTGAGACAATGAAGGTAC spacer
length: 37 repeater length: 25
31981 2077586 CTTTCAATTCCTTTTAGGATTAATC CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAACT spacer
length: 38 repeater length: 25
31982 2077649 CTTTCAATTCCTTTTAGGATTAATC GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTAG spacer
length: 40 repeater length: 25
31983 2077714 CTTTCAATTCCTTTTAGGATTAATC AAATTCTGCAAAGGTAACACAATTGACGAGGTAAA spacer length:
35 repeater length: 25
31984 2077774 CTTTCAATTCCTTTTAGGATTAATC CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCAA spacer
length: 40 repeater length: 25
31985 2077839 CTTTCAATTCCTTTTAGGATTAATC TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAACT spacer
length: 40 repeater length: 25
31986 2077904 CTTTCAATTCCTTTTAGGATTAATC GGCATAACCGCTGCTTTCCGCTGCTGCTGCTAATTGGTCTC spacer
length: 41 repeater length: 25
31987 2077970 CTTTCAATTCCTTTTAGGATTAATC CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCTT spacer
length: 39 repeater length: 25
31988 2078034 CTTTCAATTCCTTTTAGGATTAATC ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAAT spacer
length: 38 repeater length: 25
31989 2078097 CTTTCAATTCCTTTTAGGATTAATC AAGTCACTGAATTGTTGGACGAACTAACTGAAAAATTAG spacer
length: 40 repeater length: 25
31990 2078162 CTTTCAATTCCTTTTAGGATTAATC GGCATTAGAATATGGGTAAAACTTATAGCGACGAAGA spacer
length: 38 repeater length: 25
31991 2078225 CTTTCAATTCCTTTTAGGATTAATC TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGAT spacer
length: 36 repeater length: 25
31992 2078286 CTTTCAATTCCTTTTAGGATTAATC TTTACCACCGCTCAGACTTCTTGAGATGTTTAAACC spacer
length: 37 repeater length: 25
31993 2078348 CTTTCAATTCCTTTTAGGATTAATC GAATTCATCAAGTATTGCGGAAGTAAATACTTCATATTTATCA
spacer length: 44 repeater length: 25

31994	2078417	CTTTCAATTCCTTTTAGGATTAATC	TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGTG	spacer
		length: 38	repeater length: 25	
31995	2078480	CTTTCAATTCCTTTTAGGATTAATC	CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGCT	spacer
		length: 36	repeater length: 25	
31996	2078541	CTTTCAATTCCTTTTAGGATTAATC	CACATTAGCAAGAATCGTGCTAGCTACAGTTGGATT	spacer
		length: 36	repeater length: 25	
31997	2078602	CTTTCAATTCCTTTTAGGATTAATC	AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTTT	spacer
		length: 39	repeater length: 25	
31998	2078666	CTTTCAATTCCTTTTAGGATTAATC	TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTCT	spacer
		length: 41	repeater length: 25	
31999	2078732	CTTTCAATTCCTTTTAGGATTAATC	GGTAATGGTCTGTATATTGTCTTTAAGTATTTAT	spacer length:
		34	repeater length: 25	
32000	2078791	CTTTCAATTCCTTTTAGGATTAATC	AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTAA	spacer
		length: 39	repeater length: 25	
32001	2078855	CTTTCAATTCCTTTTAGGATTAATC	CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAAG	spacer
		length: 40	repeater length: 25	
32002	2078920	CTTTCAATTCCTTTTAGGATTAATC	ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCATT	spacer
		length: 40	repeater length: 25	
32003	2078985	CTTTCAATTCCTTTTAGGATTAATC	ATTAGCTAAACCATTTCAAAGGCTAACATCTTCTATGT	spacer
		length: 38	repeater length: 25	
32004	2079048	CTTTCAATTCCTTTTAGGATTAATC	ATAAATCCACAAAGTGGCCGTTCAAAGCAAAGAGTTTATT	spacer
		length: 40	repeater length: 25	
32005	2079113	CTTTCAATTCCTTTTAGGATTAATC	TGATATTTATTTTCTCGTGAAAAGTGGAGGGCCTAGAAC	spacer
		length: 39	repeater length: 25	
32006	2079177	CTTTCAATTCCTTTTAGGATTAATC	ATTATATCATGGAGACCCAGGTGCTGTGACTATCAA	spacer
		length: 36	repeater length: 25	
32007	2079238	CTTTCAATTCCTTTTAGGATTAATC	AATTAGCCAGCGTGCCATCTGGGTAAACGTGTATTTTGGTTAA	spacer
		length: 43	repeater length: 25	
32008	2079306	CTTTCAATTCCTTTTAGGATTAATC	ATAATATATTTTCGTTCCAACCTACACCTAATGGATTCGGG	spacer
		length: 39	repeater length: 25	
32009	2079370	CTTTCAATTCCTTTTAGGATTAATC	TAATTGTCTGCCCTTGAGTTCCACTGAGAGAAACGC	spacer
		length: 36	repeater length: 25	
32010	2079431	CTTTCAATTCCTTTTAGGATTAATC	AAAAGACGTACAAATATACATCGCACCGAACGGACACAT	spacer
		length: 39	repeater length: 25	
32011	2079495	CTTTCAATTCCTTTTAGGATTAATC	GGGTGCGTGCCCCACAGGTCGCGGGTCTACCCCTTGC	spacer
		length: 37	repeater length: 25	
32012	2079557	CTTTCAATTCCTTTTAGGATTAATC	TTATGTCGTTATCTTCTTCGTTTTTGCTGCGTTGTTT	spacer
		length: 37	repeater length: 25	
32013	2079619	CTTTCAATTCCTTTTAGGATTAATC	GATAAAATATTAAATTCTCAAATTCATTTAGAG	spacer length:
		34	repeater length: 25	
32014	2079678	CTTTCAATTCCTTTTAGGATTAATC	AAAATTTGAAACAATATCGCATCTTGAATAATTAT	spacer length:
		35	repeater length: 25	
32015	2079738	CTTTCAATTCCTTTTAGGATTAATC	GCTTCTTCCCAACGCTGTACGTACTCTTAGGTGTCACA	spacer
		length: 38	repeater length: 25	
32016	2079801	CTTTCAATTCCTTTTAGGATTAATC	AATTACAGGAAAAAGACGAATAAATGAGGAAGAAATG	spacer
		length: 38	repeater length: 25	
32017	2079864	CTTTCAATTCCTTTTAGGATTAATC	TACTCAATTTGTGCGCAGTTTTTTCATTGAGGGAGACTT	spacer
		length: 38	repeater length: 25	
32018	2079927	CTTTCAATTCCTTTTAGGATTAATC	AAAAATTCTGAGTGCAATGTATAATGAAAATATGGATAATA	spacer
		length: 41	repeater length: 25	
32019	2079993	CTTTCAATTCCTTTTAGGATTAATC	TGTTGTCCAAATAAATGCTGTACCGACTAACATAATGTA	spacer
		length: 40	repeater length: 25	
32020	2080058	CTTTCAATTCCTTTTAGGATTAATC	CAGGAGTTGGAGGTATTATCGGAGCATTGTTAGCAT	spacer
		length: 36	repeater length: 25	
32021	2080119	CTTTCAATTCCTTTTAGGATTAATC	ATGATTTGAAAATAGATGAAGAGCTATCTAACTCATTCC	spacer
		length: 40	repeater length: 25	
32022	2080184	CTTTCAATTCCTTTTAGGATTAATC	ACCACATTATGAAGGTACTCCAGAATTCTCTAAGAT	spacer
		length: 36	repeater length: 25	
32023	2080245	CTTTCAATTCCTTTTAGGATTAATC	TAGATCTATTTCGAGAGTTTGCATCAACACATAAGTAC	spacer
		length: 38	repeater length: 25	
32024	2080308	CTTTCAATTCCTTTTAGGATTAATC	ATAATATGGTGAAAATTGAAGGTGAATCATTAGCAAA	spacer
		length: 37	repeater length: 25	
32025	2080370	CTTTCAATTCCTTTTAGGATTAATC	AATTTTTTGTTTTAAAGATGATTCAAGTGAAGAATATTA	spacer
		length: 38	repeater length: 25	
32026	2080433	CTTTCAATTCCTTTTAGGATTAATC	CAATCCCCAAAAGTAAATCCCCAATCTTCAAATAATATGG	spacer
		length: 40	repeater length: 25	
32027	2080498	CTTTCAATTCCTTTTAGGATTAATC		
32028				
32029				
32030	crispr 3			
32031	2091897	GATAATCTCTTATAGAATTGAAAG	TTTGTAACCGTATAAGTCCCGTTAATGAGAAGACGGC	spacer

length: 38 repeater length: 24
32032 2091959 GATAATCTCTTATAGAATTGAAAG CAACGCCAACTCCGCCAATTTCCGCATTGATGTTTCGCTGG spacer
length: 40 repeater length: 24
32033 2092023 GATAATCTCTTATAGAATTGAAAG TCTTCAAACCTTCCCACGGCACAACGGAGGCATGCAAATTATT spacer
length: 42 repeater length: 24
32034 2092089 GATAATCTCTTATAGAATTGAAAG GTAGTAAGCTTTCTTCTTTATCCTCTAGACCGCTGTAGT spacer
length: 40 repeater length: 24
32035 2092153 GATAATCTCTTATAGAATTGAAAG AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTCA spacer
length: 38 repeater length: 24
32036 2092215 GATAATCTCTTATAGAATTGAAAG GAACTGTCGTGGTGTTCATGAAATATGGGTATGCATATT spacer
length: 39 repeater length: 24
32037 2092278 GATAATCTCTTATAGAATTGAAAG GCAAAGAGTCCATTCAATAACACATATTTTGCACATAAG spacer
length: 39 repeater length: 24
32038 2092341 GATAATCTCTTATAGAATTGAAAG AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGCT spacer
length: 39 repeater length: 24
32039 2092404 GATAATCTCTTATAGAATTGAAAG ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTCT spacer
length: 39 repeater length: 24
32040 2092467 GATAATCTCTTATAGAATTGAAAG CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTAA spacer
length: 40 repeater length: 24
32041 2092531 GATAATCTCTTATAGAATTGAAAG CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGAG spacer
length: 39 repeater length: 24
32042 2092594 GATAATCTCTTATAGAATTGAAAG ACCACGAGCACGACCTCAAATATAACACCGCCAAAAATC spacer
length: 39 repeater length: 24
32043 2092657 GATAATCTCTTATAGAATTGAAAG TATCTTCCAGATGTCTCAGAAACGCCTTAAATTATTGAT spacer
length: 40 repeater length: 24
32044 2092721 GATAATCTCTTATAGAATTGAAAG TACATTAGACCCTAGTTGGTTTATCGCTGGTAACGTCG spacer
length: 38 repeater length: 24
32045 2092783 GATAATCTCTTATAGAATTGAAAG AACTTAGCGACATAAAAACCGCACTGACTTACAATTACC spacer
length: 40 repeater length: 24
32046 2092847 GATAATCTCTTATAGAATTGAAAG CGACATACATATATATGCATTTCCGTGGGAGTGTTACAAA spacer
length: 40 repeater length: 24
32047 2092911 GATAATCTCTTATAGAATTGAAAG ACATATGGTTGGTCTCCAACATTTGGTGAGTATATCT spacer
length: 37 repeater length: 24
32048 2092972 GATAATCTCTTATAGAATTGAAAG GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCTT spacer
length: 38 repeater length: 24
32049 2093034 GATAATCTCTTATAGAATTGAAAG ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCAA spacer
length: 39 repeater length: 24
32050 2093097 GATAATCTCTTATAGAATTGAAAG AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGAA spacer
length: 38 repeater length: 24
32051 2093159 GATAATCTCTTATAGAATTGAAAG CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTAT spacer
length: 38 repeater length: 24
32052 2093221 GATAATCTCTTATAGAATTGAAAG TCTGATAGCACCAGACAAGTAAAAGCGTATATCCTAGTCAA spacer
length: 41 repeater length: 24
32053 2093286 GATAATCTCTTATAGAATTGAAAG AACATATTCTGGTACGGGTTCGCCATCTGGTACACCATT spacer
length: 39 repeater length: 24
32054 2093349 GATAATCTCTTATAGAATTGAAAG TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAAA spacer
length: 39 repeater length: 24
32055 2093412 GATAATCTCTTATAGAATTGAAAG AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAGG spacer
length: 37 repeater length: 24
32056 2093473 GATAATCTCTTATAGAATTGAAAG CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGTC spacer
length: 38 repeater length: 24
32057 2093535 GATAATCTCTTATAGAATTGAAAG ACATCGCAAGCGATCTATTGTTCACTATTTCCTGGCGGC spacer
length: 40 repeater length: 24
32058 2093599 GATAATCTCTTATAGAATTGAAAG AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA spacer
length: 38 repeater length: 24
32059 2093661 GATAATCTCTTATAGAATTGAAAG CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA spacer
length: 37 repeater length: 24
32060 2093722 GATAATCTCTTATAGAATTGAAAG AATTTGAACATAATTTCGGCCTCGTCAGTTTTCCACAGATA spacer
length: 40 repeater length: 24
32061 2093786 GATAATCTCTTATAGAATTGAAAG TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT spacer
length: 39 repeater length: 24
32062 2093849 GATAATCTCTTATAGAATTGAAAG TTTACTGACAACGCCATCATACTTACTAGCCCAACTAA spacer
length: 38 repeater length: 24
32063 2093911 GATAATCTCTTATAGAATTGAAAG GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGGA spacer
length: 40 repeater length: 24
32064 2093975 GATAATCTCTTATAGAATTGAAAG TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT spacer
length: 41 repeater length: 24
32065 2094040 GATAATCTCTTATAGAATTGAAAG CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG spacer
length: 37 repeater length: 24
32066 2094101 GATAATCTCTTATAGAATTGAAAG ATCTGAATTTCTCAGCTTCCATTGCATAATTTATTCTA spacer
length: 39 repeater length: 24

32067	2094164	GATAATCTCTTATAGAATTGAAAG	TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT	spacer
		length: 40	repeater length: 24	
32068	2094228	GATAATCTCTTATAGAATTGAAAG	ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTC	spacer
		length: 38	repeater length: 24	
32069	2094290	GATAATCTCTTATAGAATTGAAAG	TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAGC	spacer
		length: 38	repeater length: 24	
32070	2094352	GATAATCTCTTATAGAATTGAAAG	GTCAAAATTGCCCAACCGAACGTTAGCAAAATGCAGCAC	spacer
		length: 40	repeater length: 24	
32071	2094416	GATAATCTCTTATAGAATTGAAAG	TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA	spacer
		length: 41	repeater length: 24	
32072	2094481	GATAATCTCTTATAGAATTGAAAG	GCTGAATTGTAAAATTACGTTTATTACTTTCAGTCAACC	spacer
		length: 39	repeater length: 24	
32073	2094544	GATAATCTCTTATAGAATTGAAAG	GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGTT	spacer
		length: 39	repeater length: 24	
32074	2094607	GATAATCTCTTATAGAATTGAAAG	TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT	spacer
		length: 40	repeater length: 24	
32075	2094671	GATAATCTCTTATAGAATTGAAAG	GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT	spacer length: 35
		length: 35	repeater length: 24	
32076	2094730	GATAATCTCTTATAGAATTGAAAG	GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC	spacer
		length: 39	repeater length: 24	
32077	2094793	GATAATCTCTTATAGAATTGAAAG	CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAAT	spacer length: 36
		length: 36	repeater length: 24	
32078	2094853	GATAATCTCTTATAGAATTGAAAG	AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTTG	spacer
		length: 38	repeater length: 24	
32079	2094915	GATAATCTCTTATAGAATTGAAAG	ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATTA	spacer
		length: 38	repeater length: 24	
32080	2094977	GATAATCTCTTATAGAATTGAAAG	GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAAG	spacer
		length: 38	repeater length: 24	
32081	2095039	GATAATCTCTTATAGAATTGAAAG	AATCACGAAAGCGATACTAAGGGCAATACAATACAAACATG	spacer
		length: 41	repeater length: 24	
32082	2095104	GATAATCTCTTATAGAATTGAAAG	CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTGC	spacer
		length: 39	repeater length: 24	
32083	2095167	GATAATCTCTTATAGAATTGAAAG	AGATTGTTTTATTAATACCAAGTAGACAATTATATATTTT	spacer
		length: 40	repeater length: 24	
32084	2095231	GATAATCTCTTATAGAATTGAAAG	CCAAAACATGTCACATGTGCCGATATTGATATTTACAAA	spacer
		length: 39	repeater length: 24	
32085	2095294	GATAATCTCTTATAGAATTGAAAG	AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGAA	spacer
		length: 38	repeater length: 24	
32086	2095356	GATAATCTCTTATAGAATTGAAAG	GGGAGTTCCCATTCGATTTTGGGAACCTCAAGCACAGTCTGTG	spacer
		length: 44	repeater length: 24	
32087	2095424	GATAATCTCTTATAGAATTGAAAG	TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCAT	spacer
		length: 41	repeater length: 24	
32088	2095489	GATAATCTCTTATAGAATTGAAAG	CTAACTTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTGT	spacer
		length: 38	repeater length: 24	
32089	2095551	GATAATCTCTTATAGAATTGAAAG	GTTCCAGCTAAGATGTTCTTTCCTGCAGTCTTTGTT	spacer length: 36
		length: 36	repeater length: 24	
32090	2095611	GATAATCTCTTATAGAATTGAAAG	AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTAT	spacer
		length: 39	repeater length: 24	
32091	2095674	GATAATCTCTTATAGAATTGAAAG	ATCCGTTCTCCGTCCCCTACCGTACCGTTCTCTGTACT	spacer
		length: 38	repeater length: 24	
32092	2095736	GATAATCTCTTATAGAATTGAAAG	AGCATAACTTCATCTTCTTCTACAACCTTCGACAGCTT	spacer
		length: 37	repeater length: 24	
32093	2095797	GATAATCTCTTATAGAATTGAAAG	TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATTA	spacer
		length: 42	repeater length: 24	
32094	2095863	GATAATCTCTTATAGAATTGAAAG	ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCAT	spacer
		length: 39	repeater length: 24	
32095	2095926	GATAATCTCTTATAGAATTGAAAG	CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGGT	spacer
		length: 40	repeater length: 24	
32096	2095990	GATAATCTCTTATAGAATTGAAAG	CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATA	spacer
		length: 37	repeater length: 24	
32097	2096051	GATAATCTCTTATAGAATTGAAAG	ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCCC	spacer
		length: 38	repeater length: 24	
32098	2096113	GATAATCTCTTATAGAATTGAAAG	ATACCAACAGCAACAACAACTTATTCTTCGCTCATACA	spacer
		length: 39	repeater length: 24	
32099	2096176	GATAATCTCTTATAGAATTGAAAG	ACGAACACACCCCTTAAAACCTTTTTTCCAACATTCACCT	spacer
		length: 40	repeater length: 24	
32100	2096240	GATAATCTCTTATAGAATTGAAAG	CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGAG	spacer
		length: 40	repeater length: 24	
32101	2096304	GATAATCTCTTATAGAATTGAAAG	TCTTAGCGAACTTGCAAAATATCCGACCAAAGCTAATA	spacer
		length: 39	repeater length: 24	
32102	2096367	GATAATCTCTTATAGAATTGAAAG	TCAGGTGAGGAAGATGGTCTCCAAAACCTACTGTTATTGGT	spacer

length: 40 repeater length: 24
32103 2096431 GATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTAG spacer
length: 43 repeater length: 24
32104 2096498 GATAATCTCTTATAGAATTGAAAG ATACAGATTTTCGTTATCCATATCCTACATGACTTTCC spacer
length: 37 repeater length: 24
32105 2096559 GATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAAATTAGATATCCATTGACTGTTAT spacer
length: 39 repeater length: 24
32106 2096622 GATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTATT spacer
length: 40 repeater length: 24
32107 2096686 GATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAACG spacer
length: 40 repeater length: 24
32108 2096750 GATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTTGGCCTGAGTA spacer
length: 38 repeater length: 24
32109 2096812 GATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGAT spacer
length: 40 repeater length: 24
32110 2096876 GATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATATA spacer
length: 44 repeater length: 24
32111 2096944 GATAATCTCTTATAGAATTGAAAG CTAAGCAGTGACTCACAGTTTAGACATTCACAAGTATC spacer
length: 38 repeater length: 24
32112 2097006 GATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAAGATCTATCTGACAACACGAAACTATG spacer
length: 41 repeater length: 24
32113 2097071 GATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCTATAATAGAC spacer
length: 40 repeater length: 24
32114 2097135 GATAATCTCTTATAGAATTGAAAG CAATCCCATTCGTTTTACTCACTTCTAAGAACCTCGC spacer
length: 37 repeater length: 24
32115 2097196 GATAATCTCTTATAGAATTGAAAG AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTCT spacer
length: 40 repeater length: 24
32116 2097260 GATAATCTCTTATAGAATTGAAAG ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCTG spacer
length: 40 repeater length: 24
32117 2097324 GATAATCTCTTATAGAATTGAAAG GTCTTTATGGCCCTCTGGGTCTTCCACCATTGAGAGGA spacer
length: 39 repeater length: 24
32118 2097387 GATAATCTCTTATAGAATTGAAAG TTATCCTCATTCTATCGGTGAGTGGAACAAATTGGGTAGC spacer
length: 40 repeater length: 24
32119 2097451 GATAATCTCTTATAGAATTGAAAG ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTTT spacer
length: 40 repeater length: 24
32120 2097515 GATAATCTCTTATAGAATTGAAAG AGTTAACAATACTTTATTGTCAAAGAAGCAAGGATATGCG spacer
length: 40 repeater length: 24
32121 2097579 GATAATCTCTTATAGAATTGAAAG TTCAAAGTAGATCTAGAAGATTTCTATCGGCATCTTTACAT spacer
length: 41 repeater length: 24
32122 2097644 GATAATCTCTTATAGAATTGAAAG ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTTC spacer
length: 40 repeater length: 24
32123 2097708 GATAATCTCTTATAGAATTGAAAG GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTATT spacer
length: 39 repeater length: 24
32124 2097771 GATAATCTCTTATAGAATTGAAAG TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT spacer
length: 37 repeater length: 24
32125 2097832 GATAATCTCTTATAGAATTGAAAG CTACTACATCATCTCTACCACGCCAAGCCAACAACC spacer
length: 37 repeater length: 24
32126 2097893 GATAATCTCTTATAGAATTGAAAG ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT spacer
length: 38 repeater length: 24
32127 2097955 GATAATCTCTTATAGAATTGAAAG ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACTA spacer
length: 41 repeater length: 24
32128 2098020 GATAATCTCTTATAGAATTGAAAG ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTCT spacer
length: 39 repeater length: 24
32129 2098083 GATAATCTCTTATAGAATTGAAAG AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT spacer
length: 37 repeater length: 24
32130 2098144 GATAATCTCTTATAGAATTGAAAG ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT spacer
length: 39 repeater length: 24
32131 2098207 GATAATCTCTTATAGAATTGAAAG ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTGC spacer
length: 41 repeater length: 24
32132 2098272 GATAATCTCTTATAGAATTGAAAG AAGCCTACACAGGATAGGATACTCAAATTATATGAAAAT spacer
length: 39 repeater length: 24
32133 2098335 GATAATCTCTTATAGAATTGAAAG TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCAT spacer
length: 42 repeater length: 24
32134 2098401 GATAATCTCTTATAGAATTGAAAG CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA spacer
length: 37 repeater length: 24
32135 2098462 GATAATCTCTTATAGAATTGAAAG TGTTCTGTCGTTACTGTCGTAAAGCACGTCCTATTAT spacer
length: 37 repeater length: 24
32136 2098523 GATAATCTCTTATAGAATTGAAAG ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC spacer
length: 38 repeater length: 24
32137 2098585 GATAATCTCTTATAGAATTGAAAG TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGAA spacer
length: 39 repeater length: 24

32138	2098648	GATAATCTCTTATAGAATTGAAAG	GCACAATTCGCCAACGATTTTCGGTTCGCTTTATACCTT	spacer
	length:	38	repeater length:	24
32139	2098710	GATAATCTCTTATAGAATTGAAAG	CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTGG	spacer
	length:	41	repeater length:	24
32140	2098775	GATAATCTCTTATAGAATTGAAAG	AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG	spacer
	length:	40	repeater length:	24
32141	2098839	GATAATCTCTTATAGAATTGAAAG	ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGAT	spacer
	length:	42	repeater length:	24
32142	2098905	GATAATCTCTTATAGAATTGAAAG	TTCTGTTTTCGAAGAAAACCCGCCTCAGATTCATTATGGG	spacer
	length:	39	repeater length:	24
32143	2098968	GATAATCTCTTATAGAATTGAAAG	AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAAA	spacer
	length:	39	repeater length:	24
32144	2099031	GATAATCTCTTATAGAATTGAAAG	CCTCATCGTAAACATGCAATCTTGCATATTCAGTGTA	spacer
	length:	37	repeater length:	24
32145	2099092	GATAATCTCTTATAGAATTGAAAG	GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCT	spacer
	length:	39	repeater length:	24
32146	2099155	GATAATCTCTTATAGAATTGAAAG	ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT	spacer
	length:	41	repeater length:	24
32147	2099220	GATAATCTCTTATAGAATTGAAAG	GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCGT	spacer
	length:	38	repeater length:	24
32148	2099282	GATAATCTCTTATAGAATTGAAAG	ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA	spacer
	length:	39	repeater length:	24
32149	2099345	GATAATCTCTTATAGAATTGAAAG	AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA	spacer
	length:	37	repeater length:	24
32150	2099406	GATAATCTCTTATAGAATTGAAAG	CGTTCTAGAGCTAAACGATGCATACGCGGTGGTACAACTA	spacer
	length:	40	repeater length:	24
32151	2099470	GATAATCTCTTATAGAATTGAAAG	ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATTT	spacer
	length:	41	repeater length:	24
32152	2099535	GATAATCTCTTATAGAATTGAAAG	TCAAATAAGGAACAACTCTGGGTAAGCCCACAATACGCAA	spacer
	length:	40	repeater length:	24
32153	2099599	GATAATCTCTTATAGAATTGAAAG	CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAAC	spacer
	length:	38	repeater length:	24
32154	2099661	GATAATCTCTTATAGAATTGAAAG	TAACTAGATCCTTATATTTACGTAAATGTAAAGGGG	spacer
	length:	38	repeater length:	24
32155	2099723	GATAATCTCTTATAGAATTGAAAG	TAAGGAGTAAGCTAGCACTAGCAATAGCGGTGCAATA	spacer
	length:	38	repeater length:	24
32156	2099785	GATAATCTCTTATAGAATTGAAAG	G TTCATCAGTTCTACCTTTTGGTCCAAAGGCTGATCCAA	spacer
	length:	39	repeater length:	24
32157	2099848	GATAATCTCTTATAGAATTGAAAG		
32158				
32159				
32160	crispr 4			
32161	2499116	GATAATCTACTATAGAATTGAAAG	ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGTG	spacer
	length:	39	repeater length:	24
32162	2499179	GATAATCTACTATAGAATTGAAAG	TTATCTAATTTTAATAATCAAGGAAATTCATTAACTCAAATA	spacer
	length:	42	repeater length:	24
32163	2499245	GATAATCTACTATAGAATTGAAAG	CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAGCATT	spacer
	length:	39	repeater length:	24
32164	2499308	GATAATCTACTATAGAATTGAAAG	TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTGA	spacer
	length:	41	repeater length:	24
32165	2499373	GATAATCTACTATAGAATTGAAAG	ATTTTCTAATATATCTAATTCACTCTGCGTATCATTATGGATAA	spacer
	length:	44	repeater length:	24
32166	2499441	GATAATCTACTATAGAATTGAAAG	CCCGCCCAGCCAGACTGTTTTTCAGCCCAAACCGGCTAATT	spacer
	length:	40	repeater length:	24
32167	2499505	GATAATCTACTATAGAATTGAAAG		
32168				
32169				
32170	GCA_003852115.1_ASM385211v1_genomic.fna (PilerCR) :			
32171	START	REPEAT		
	SPACER			
32172	crispr 1			
32173	2088281	GATTAATCCCAAAAGGAATTGAAAG	TCACATCCCTCACAATCCATAATGAAAATGTCGGCAT	spacer
	length:	37	repeater length:	25
32174	2088343	GATTAATCCCAAAAGGAATTGAAAG	ATTTTAGCAATGCAATAGATCAACAATTGAAAGAACT	spacer
	length:	38	repeater length:	25
32175	2088406	GATTAATCCCAAAAGGAATTGAAAG	ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTTC	spacer
	length:	39	repeater length:	25
32176	2088470	GATTAATCCCAAAAGGAATTGAAAG	TGTTTCACAAATTTCAAACCTTGCAAACGCAACAATTAAATA	spacer
	length:	41	repeater length:	25
32177	2088536	GATTAATCCCAAAAGGAATTGAAAG	GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTGG	spacer
	length:	40	repeater length:	25

32178	2088601	GATTAATCCCAAAAGGAATTGAAAG	length: 38	repeater length: 25	TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACTC	spacer
32179	2088664	GATTAATCCCAAAAGGAATTGAAAG	length: 39	repeater length: 25	GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAGT	spacer
32180	2088728	GATTAATCCCAAAAGGAATTGAAAG	length: 41	repeater length: 25	CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTCT	spacer
32181	2088794	GATTAATCCCAAAAGGAATTGAAAG	length: 40	repeater length: 25	CAAAATTCCAAACTTTGGGAATTTCTAGTTTCCAAATTTT	spacer
32182	2088859	GATTAATCCCAAAAGGAATTGAAAG	length: 39	repeater length: 25	TTTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGAC	spacer
32183	2088923	GATTAATCCCAAAAGGAATTGAAAG	length: 41	repeater length: 25	CGCTTTCGACTGCGACAACCTGTCGTTTGGCTCATTGTGTC	spacer
32184	2088989	GATTAATCCCAAAAGGAATTGAAAG	length: 38	repeater length: 25	TTATTTCAAATACTATTATCTCCGCCATATGTTTACAT	spacer
32185	2089052	GATTAATCCCAAAAGGAATTGAAAG	length: 38	repeater length: 25	ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATTT	spacer
32186	2089115	GATTAATCCCAAAAGGAATTGAAAG	length: 40	repeater length: 25	TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTCA	spacer
32187	2089180	GATTAATCCCAAAAGGAATTGAAAG	length: 39	repeater length: 25	CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAATA	spacer
32188	2089244	GATTAATCCCAAAAGGAATTGAAAG	length: 44	repeater length: 25	AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTTC	spacer
32189	2089313	GATTAATCCCAAAAGGAATTGAAAG	length: 37	repeater length: 25	GCTTTAACTTGGTACGCACTTTACGCCATGATAAACG	spacer
32190	2089375	GATTAATCCCAAAAGGAATTGAAAG	length: 39	repeater length: 25	GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGTT	spacer
32191	2089439	GATTAATCCCAAAAGGAATTGAAAG	length: 36	repeater length: 25	GTTGAATTTTGGCAACTGGTATGTTGTATTTTGGCA	spacer
32192	2089500	GATTAATCCCAAAAGGAATTGAAAG	length: 42	repeater length: 25	AATTTGTTACACGGCTAGGATTTTTTTTCTAGATGTACAAT	spacer
32193	2089567	GATTAATCCCAAAAGGAATTGAAAG	length: 38	repeater length: 25	TTCTAATCTTTTGCCCATTAAGCATCATATCTACTAG	spacer
32194	2089630	GATTAATCCCAAAAGGAATTGAAAG	length: 38	repeater length: 25	ATCTTTACCTTTATATAAATCTTGTTCGTAACAAATAA	spacer
32195	2089693	GATTAATCCCAAAAGGAATTGAAAG	length: 37	repeater length: 25	ACAAAACGAGGAGTTTATAGTAAATCAACTATGAAA	spacer
32196	2089755	GATTAATCCCAAAAGGAATTGAAAG	length: 35	repeater length: 25	ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAAG	spacer length:
32197	2089815	GATTAATCCCAAAAGGAATTGAAAG	length: 36	repeater length: 25	AACTACAACGAGGTGAGAAACGATGACTAAACGTTT	spacer
32198	2089876	GATTAATCCCAAAAGGAATTGAAAG	length: 38	repeater length: 25	TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATTG	spacer
32199	2089939	GATTAATCCCAAAAGGAATTGAAAG	length: 36	repeater length: 25	TAGATATATGGCGATGAATTGCATTAGTCAGTGGTG	spacer
32200	2090000	GATTAATCCCAAAAGGAATTGAAAG	length: 39	repeater length: 25	ATTTTAAACGCTATGACGCTAGCCCTCATGTTAGCTTTT	spacer
32201	2090064	GATTAATCCCAAAAGGAATTGAAAG	length: 37	repeater length: 25	AAAGTTTGTCTTCTGTTTCGTTTTGTTGTTCTGACT	spacer
32202	2090126	GATTAATCCCAAAAGGAATTGAAAG	length: 38	repeater length: 25	CCCCTTTTGCCGTCTTTTGTAGTTACCACAATGCACCAA	spacer
32203	2090189	GATTAATCCCAAAAGGAATTGAAAG	length: 39	repeater length: 25	CCGTATCCAGAAATAATTAACCAATCGCTTGTGTGAC	spacer
32204	2090253	GATTAATCCCAAAAGGAATTGAAAG	length: 37	repeater length: 25	AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCAA	spacer
32205	2090315	GATTAATCCCAAAAGGAATTGAAAG	length: 42	repeater length: 25	GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGTG	spacer
32206	2090382	GATTAATCCCAAAAGGAATTGAAAG	length: 39	repeater length: 25	GCATCTGTGCGCAACCTCACTTATTCACGTGGGGGTGCG	spacer
32207	2090446	GATTAATCCCAAAAGGAATTGAAAG	length: 37	repeater length: 25	TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTGA	spacer
32208	2090508	GATTAATCCCAAAAGGAATTGAAAG	length: 42	repeater length: 25	TTGAACTTGTAGAAATTGTTTCATATGAAACAGCATAATTTTC	spacer
32209	2090575	GATTAATCCCAAAAGGAATTGAAAG	length: 40	repeater length: 25	TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAACG	spacer
32210	2090640	GATTAATCCCAAAAGGAATTGAAAG	length: 36	repeater length: 25	CTCATTATTTTCATCATAAAGATTATCCACTGCAATT	spacer
32211	2090701	GATTAATCCCAAAAGGAATTGAAAG	length: 39	repeater length: 25	ATGCATTCCACCTCTGTTTCTTCTCTTTACGCATTTCT	spacer
32212	2090765	GATTAATCCCAAAAGGAATTGAAAG	length: 36	repeater length: 25	CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGCG	spacer
32213	2090826	GATTAATCCCAAAAGGAATTGAAAG			ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACAT	spacer

length: 39 repeater length: 25
32214 2090890 GATTAATCCCAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTATG spacer
length: 41 repeater length: 25
32215 2090956 GATTAATCCCAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTCT spacer
length: 41 repeater length: 25
32216 2091022 GATTAATCCCAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAAGACTTTCAGCCCTC spacer
length: 36 repeater length: 25
32217 2091083 GATTAATCCCAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAATC spacer
length: 36 repeater length: 25
32218 2091144 GATTAATCCCAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTGT spacer
length: 39 repeater length: 25
32219 2091208 GATTAATCCCAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTTCAT spacer length:
34 repeater length: 25
32220 2091267 GATTAATCCCAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCAT spacer
length: 38 repeater length: 25
32221 2091330 GATTAATCCCAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCATT spacer
length: 40 repeater length: 25
32222 2091395 GATTAATCCCAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGTGGGGGGCAAGGGCCCCGG spacer
length: 40 repeater length: 25
32223 2091460 GATTAATCCCAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTCTG spacer
length: 40 repeater length: 25
32224 2091525 GATTAATCCCAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTGC spacer
length: 39 repeater length: 25
32225 2091589 GATTAATCCCAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCATT spacer
length: 40 repeater length: 25
32226 2091654 GATTAATCCCAAAAGGAATTGAAAG CCCCCTGGAATGCACCATTTCTTGCAAGTAATACATTT spacer
length: 39 repeater length: 25
32227 2091718 GATTAATCCCAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTGC spacer
length: 40 repeater length: 25
32228 2091783 GATTAATCCCAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATACT spacer
length: 38 repeater length: 25
32229 2091846 GATTAATCCCAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCAG spacer
length: 39 repeater length: 25
32230 2091910 GATTAATCCCAAAAGGAATTGAAAG TATCTCTTATTTCGTAAGGGTTAAACAAAATTATCTT spacer
length: 37 repeater length: 25
32231 2091972 GATTAATCCCAAAAGGAATTGAAAG TTTTTATTTAAGAACTGATGGAAAGATCTATAG spacer length:
35 repeater length: 25
32232 2092032 GATTAATCCCAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCTA spacer
length: 37 repeater length: 25
32233 2092094 GATTAATCCCAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGAT spacer
length: 38 repeater length: 25
32234 2092157 GATTAATCCCAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACATT spacer
length: 39 repeater length: 25
32235 2092221 GATTAATCCCAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCCTTTTGTAAGACATTCTCA spacer
length: 40 repeater length: 25
32236 2092286 GATTAATCCCAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCGG spacer
length: 40 repeater length: 25
32237 2092351 GATTAATCCCAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATTC spacer
length: 39 repeater length: 25
32238 2092415 GATTAATCCCAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTCGTC spacer
length: 42 repeater length: 25
32239 2092482 GATTAATCCCAAAAGGAATTGAAAG GTATTCAAAGAGAACTGGGGGATTCAAGGTAATACCT spacer
length: 38 repeater length: 25
32240 2092545 GATTAATCCCAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATAACGTAAAGTAGCAGTTTT spacer
length: 36 repeater length: 25
32241 2092606 GATTAATCCCAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTGT spacer
length: 37 repeater length: 25
32242 2092668 GATTAATCCCAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAGT spacer
length: 36 repeater length: 25
32243 2092729 GATTAATCCCAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTGA spacer
length: 39 repeater length: 25
32244 2092793 GATTAATCCCAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTCGTT spacer
length: 38 repeater length: 25
32245 2092856 GATTAATCCCAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTTT spacer
length: 38 repeater length: 25
32246 2092919 GATTAATCCCAAAAGGAATTGAAAG TCAAACCTCATGAAGCTACTGTAATCCATTTACATAAA spacer
length: 38 repeater length: 25
32247 2092982 GATTAATCCCAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAATT spacer
length: 38 repeater length: 25
32248 2093045 GATTAATCCCAAAAGGAATTGAAAG
32249

32250

32251 crispr 2

32252 2093110 GATTAATCCCAAAAGGAATTGAAAG AAAAAGCTTTTACATTTCGACATTAAAAAATAAAATAATTTTG spacer
length: 42 repeater length: 25

32253 2093177 GATTAATCCCAAAAGGAATTGAAAG AATTTCGTATACCTTAGTAGTATTATCATCAATATTGTAT spacer
length: 39 repeater length: 25

32254 2093241 GATTAATCCCAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTAG spacer
length: 39 repeater length: 25

32255 2093305 GATTAATCCCAAAAGGAATTGAAAG TCTACGTTGTTAAATTCATATACAGCTTGGCTCATAT spacer
length: 37 repeater length: 25

32256 2093367 GATTAATCCCAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTAT spacer
length: 38 repeater length: 25

32257 2093430 GATTAATCCCAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTGATAGCTTTGCATCTT spacer
length: 41 repeater length: 25

32258 2093496 GATTAATCCCAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTAC spacer
length: 40 repeater length: 25

32259 2093561 GATTAATCCCAAAAGGAATTGAAAG CAGCAAGAAGTTCACCTCTCTACATCTTATGATTTTCGG spacer
length: 37 repeater length: 25

32260 2093623 GATTAATCCCAAAAGGAATTGAAAG CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCCT spacer
length: 36 repeater length: 25

32261 2093684 GATTAATCCCAAAAGGAATTGAAAG ACCTTTATTTTAAAGTCTAGCCTCTTCCCTATCCAT spacer
length: 36 repeater length: 25

32262 2093745 GATTAATCCCAAAAGGAATTGAAAG TTGTTTCACCTCCTTATTTAAAAGCGACAGACGGTCGAC spacer
length: 38 repeater length: 25

32263 2093808 GATTAATCCCAAAAGGAATTGAAAG TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTTT spacer
length: 37 repeater length: 25

32264 2093870 GATTAATCCCAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGATG spacer
length: 40 repeater length: 25

32265 2093935 GATTAATCCCAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAATTATA spacer
length: 38 repeater length: 25

32266 2093998 GATTAATCCCAAAAGGAATTGAAAG TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGCC spacer
length: 40 repeater length: 25

32267 2094063 GATTAATCCCAAAAGGAATTGAAAG CAGCTCGACGATGACGAATACAAGATGCTGTATAATGCG spacer
length: 39 repeater length: 25

32268 2094127 GATTAATCCCAAAAGGAATTGAAAG TTTCTCACTGATCCACGGCTTCAGAGAAGATGTTTGGAT spacer
length: 40 repeater length: 25

32269 2094192 GATTAATCCCAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGATG spacer
length: 39 repeater length: 25

32270 2094256 GATTAATCCCAAAAGGAATTGAAAG CTCAGCAGATTTAACTAACGATATTAATTGTACACACTG spacer
length: 40 repeater length: 25

32271 2094321 GATTAATCCCAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCAA spacer
length: 39 repeater length: 25

32272 2094385 GATTAATCCCAAAAGGAATTGAAAG CAAGTGCAATAGCAAACCTACTACTAAATATAACATATAT spacer
length: 39 repeater length: 25

32273 2094449 GATTAATCCCAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAACTAAAATCGTGGCTTTA spacer
length: 38 repeater length: 25

32274 2094512 GATTAATCCCAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAGT spacer
length: 39 repeater length: 25

32275 2094576 GATTAATCCCAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACCTAAGAGAAAATTGTTTCAA spacer
length: 41 repeater length: 25

32276 2094642 GATTAATCCCAAAAGGAATTGAAAG TCTAACAATGAATCTGTCTATAAAGTGCCCGCAACTCTT spacer
length: 38 repeater length: 25

32277 2094705 GATTAATCCCAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTTT spacer
length: 36 repeater length: 25

32278 2094766 GATTAATCCCAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATGT spacer
length: 39 repeater length: 25

32279 2094830 GATTAATCCCAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTTT spacer
length: 39 repeater length: 25

32280 2094894 GATTAATCCCAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGGC spacer
length: 36 repeater length: 25

32281 2094955 GATTAATCCCAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCTC spacer
length: 39 repeater length: 25

32282 2095019 GATTAATCCCAAAAGGAATTGAAAG TCGTAAACTTGAACTGACCCGTATATCCGAATTTAC spacer
length: 37 repeater length: 25

32283 2095081 GATTAATCCCAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCTA spacer
length: 39 repeater length: 25

32284 2095145 GATTAATCCCAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATATT spacer
length: 37 repeater length: 25

32285 2095207 GATTAATCCCAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCTA spacer
length: 39 repeater length: 25

32286 2095271 GATTAATCCCAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAAG spacer

length: 36 repeater length: 25
32287 2095332 GATTAATCCCAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCCT spacer
length: 38 repeater length: 25
32288 2095395 GATTAATCCCAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACCTTTTGCATACGACATAATTT spacer
length: 40 repeater length: 25
32289 2095460 GATTAATCCCAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACTT spacer
length: 39 repeater length: 25
32290 2095524 GATTAATCCCAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGCT spacer
length: 37 repeater length: 25
32291 2095586 GATTAATCCCAAAAGGAATTGAAAG
32292
32293
32294 crispr 3
32295 2110134 CTTTCAATTCCTTTTAGGATTAATC TTGAAGATAGAGTTAAATGAACCTTTTGATGACACAAAA spacer
length: 38 repeater length: 25
32296 2110197 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCAA spacer
length: 41 repeater length: 25
32297 2110263 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTGA spacer
length: 39 repeater length: 25
32298 2110327 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATAT spacer
length: 37 repeater length: 25
32299 2110389 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAAT spacer
length: 38 repeater length: 25
32300 2110452 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAAACTCATTGAGAGTCTCTTCCAACCCGTACA spacer
length: 40 repeater length: 25
32301 2110517 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGCG spacer length:
35 repeater length: 25
32302 2110577 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG spacer
length: 39 repeater length: 25
32303 2110641 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG spacer
length: 39 repeater length: 25
32304 2110705 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAAATATTGGTGGAGTAGTTGATTTGATAATAT spacer
length: 41 repeater length: 25
32305 2110771 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTAA spacer
length: 39 repeater length: 25
32306 2110835 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGATA spacer
length: 39 repeater length: 25
32307 2110899 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGAA spacer
length: 37 repeater length: 25
32308 2110961 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGAT spacer
length: 37 repeater length: 25
32309 2111023 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTGA spacer
length: 40 repeater length: 25
32310 2111088 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTACA spacer
length: 38 repeater length: 25
32311 2111151 CTTTCAATTCCTTTTAGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAAA spacer
length: 40 repeater length: 25
32312 2111216 CTTTCAATTCCTTTTAGGATTAATC GAGTGAGACCATGATCATTAACACTGATATTACGGTAAG spacer
length: 39 repeater length: 25
32313 2111280 CTTTCAATTCCTTTTAGGATTAATC AACAAAACCTTCACCAGTGATGGAACATTTGAATGTAA spacer
length: 37 repeater length: 25
32314 2111342 CTTTCAATTCCTTTTAGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATACT spacer
length: 40 repeater length: 25
32315 2111407 CTTTCAATTCCTTTTAGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATAT spacer
length: 42 repeater length: 25
32316 2111474 CTTTCAATTCCTTTTAGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACGG spacer
length: 38 repeater length: 25
32317 2111537 CTTTCAATTCCTTTTAGGATTAATC CCGTGATCAGATACAGTAACAGTCATGTTTTTATCT spacer
length: 36 repeater length: 25
32318 2111598 CTTTCAATTCCTTTTAGGATTAATC CATGGAAACGGGAGGAGGGTGAGACAATGAAGGTAC spacer
length: 37 repeater length: 25
32319 2111660 CTTTCAATTCCTTTTAGGATTAATC CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAACT spacer
length: 38 repeater length: 25
32320 2111723 CTTTCAATTCCTTTTAGGATTAATC GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTAG spacer
length: 40 repeater length: 25
32321 2111788 CTTTCAATTCCTTTTAGGATTAATC AAATTCTGCAAAGGTAACACAATTGACGAGGTAAA spacer length:
35 repeater length: 25
32322 2111848 CTTTCAATTCCTTTTAGGATTAATC CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCAA spacer
length: 40 repeater length: 25
32323 2111913 CTTTCAATTCCTTTTAGGATTAATC TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAACT spacer
length: 40 repeater length: 25

32324	2111978	CTTTC AATTCCTTTT TAGGATTAATC	GGCATAACCGCTGCTTT CGGCTGCTGCTAATTGGTCTC	spacer
	length:	41	repeater length:	25
32325	2112044	CTTTC AATTCCTTTT TAGGATTAATC	CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCTT	spacer
	length:	39	repeater length:	25
32326	2112108	CTTTC AATTCCTTTT TAGGATTAATC	ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAAT	spacer
	length:	38	repeater length:	25
32327	2112171	CTTTC AATTCCTTTT TAGGATTAATC	AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTAG	spacer
	length:	40	repeater length:	25
32328	2112236	CTTTC AATTCCTTTT TAGGATTAATC	GGCATTAGAATATGGGTAAAACTTATAGCGACGAAGA	spacer
	length:	38	repeater length:	25
32329	2112299	CTTTC AATTCCTTTT TAGGATTAATC	TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGAT	spacer
	length:	36	repeater length:	25
32330	2112360	CTTTC AATTCCTTTT TAGGATTAATC	TTTACCACCGCTCAGACTTCTTGAGATGTTTAAACC	spacer
	length:	37	repeater length:	25
32331	2112422	CTTTC AATTCCTTTT TAGGATTAATC	GAATTCTATCAAGTATTGCGGAAGTAAATACTTCATATTTATCA	spacer length: 44
	length:	44	repeater length:	25
32332	2112491	CTTTC AATTCCTTTT TAGGATTAATC	TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGTG	spacer
	length:	38	repeater length:	25
32333	2112554	CTTTC AATTCCTTTT TAGGATTAATC	CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGCT	spacer
	length:	36	repeater length:	25
32334	2112615	CTTTC AATTCCTTTT TAGGATTAATC	CACATTAGCAAGAATCGTGCTAGCTACAGTTGGATT	spacer
	length:	36	repeater length:	25
32335	2112676	CTTTC AATTCCTTTT TAGGATTAATC	AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTTC	spacer
	length:	39	repeater length:	25
32336	2112740	CTTTC AATTCCTTTT TAGGATTAATC	TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTCT	spacer
	length:	41	repeater length:	25
32337	2112806	CTTTC AATTCCTTTT TAGGATTAATC	GGTAATGGTCTGTATATTGTCTTTAAGTATTTAT	spacer length: 34
	length:	34	repeater length:	25
32338	2112865	CTTTC AATTCCTTTT TAGGATTAATC	AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTAA	spacer
	length:	39	repeater length:	25
32339	2112929	CTTTC AATTCCTTTT TAGGATTAATC	CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAAG	spacer
	length:	40	repeater length:	25
32340	2112994	CTTTC AATTCCTTTT TAGGATTAATC	ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCATT	spacer
	length:	40	repeater length:	25
32341	2113059	CTTTC AATTCCTTTT TAGGATTAATC	ATTAGCTAAACCATTTCAAAGGCTAACATCTTCTATGT	spacer
	length:	38	repeater length:	25
32342	2113122	CTTTC AATTCCTTTT TAGGATTAATC	ATAAATCCACAAAGTGGCCGTTCAAAGCAAAGAGTTTATT	spacer
	length:	40	repeater length:	25
32343	2113187	CTTTC AATTCCTTTT TAGGATTAATC	TGATATTTATTTTCTCGTGAAAAGTGGAGGGCCTAGAAC	spacer
	length:	39	repeater length:	25
32344	2113251	CTTTC AATTCCTTTT TAGGATTAATC	ATTATATCATGGAGACCCAGGTGCTGTGACTATCAA	spacer
	length:	36	repeater length:	25
32345	2113312	CTTTC AATTCCTTTT TAGGATTAATC	AATTAGCCAGCGTGCCATCTGGGTAAACGTGTATTTTGGTTAA	spacer
	length:	43	repeater length:	25
32346	2113380	CTTTC AATTCCTTTT TAGGATTAATC	ATAATATATTTTCGTTCCAACCTACACCTAATGGATTCGGG	spacer
	length:	39	repeater length:	25
32347	2113444	CTTTC AATTCCTTTT TAGGATTAATC	TAATTGTCTGCCCTTGAGTTCCACTGAGAGAAACGC	spacer
	length:	36	repeater length:	25
32348	2113505	CTTTC AATTCCTTTT TAGGATTAATC	AAAAGACGTACAAATATACATCGCACCGAACGGACACAT	spacer
	length:	39	repeater length:	25
32349	2113569	CTTTC AATTCCTTTT TAGGATTAATC	GGGTGCGTGCCCCACAGGTCGCGGGTCTACCCCTTGC	spacer
	length:	37	repeater length:	25
32350	2113631	CTTTC AATTCCTTTT TAGGATTAATC	TTATGTCGTTATCTTCTTCGTTTTTGCTGCGTTGTTT	spacer
	length:	37	repeater length:	25
32351	2113693	CTTTC AATTCCTTTT TAGGATTAATC	GATAAAATATTAAATTCTCAAATTCATTTAGAG	spacer length: 34
	length:	34	repeater length:	25
32352	2113752	CTTTC AATTCCTTTT TAGGATTAATC	AAAATTTGAAACAATATCGCATCTTGAATAATTAT	spacer length: 35
	length:	35	repeater length:	25
32353	2113812	CTTTC AATTCCTTTT TAGGATTAATC	GCTTCTTCCCAACGCTGTACGTACTCTTAGGTGTCACA	spacer
	length:	38	repeater length:	25
32354	2113875	CTTTC AATTCCTTTT TAGGATTAATC	AATTACAGGAAAAAGACGAACTAAATGAGGAAGAAATG	spacer
	length:	38	repeater length:	25
32355	2113938	CTTTC AATTCCTTTT TAGGATTAATC	TACTCAATTTGTGCGCAGTTTTTCATTGAGGGAGACTT	spacer
	length:	38	repeater length:	25
32356	2114001	CTTTC AATTCCTTTT TAGGATTAATC	AAAAATTCTGAGTGCAATGTATAATGAAAATATGGATAATA	spacer
	length:	41	repeater length:	25
32357	2114067	CTTTC AATTCCTTTT TAGGATTAATC	TGTTGTCCAAATAAATGCTGTACCGACTAACAATAATGTA	spacer
	length:	40	repeater length:	25
32358	2114132	CTTTC AATTCCTTTT TAGGATTAATC	CAGGAGTTGGAGGTATTATCGGAGCATTGTTAGCAT	spacer
	length:	36	repeater length:	25
32359	2114193	CTTTC AATTCCTTTT TAGGATTAATC	ATGATTTGAAAATAGATGAAGAGCTATCTAACTCATTCC	spacer

length: 40 repeater length: 25
32360 2114258 CTTTCAATTCCTTTTAGGATTAATC ACCACATTATGAAGGTACTCCAGAATTCTCTAAGAT spacer
length: 36 repeater length: 25
32361 2114319 CTTTCAATTCCTTTTAGGATTAATC TAGATCTATTTCGCAGAGTTTGCATCAACACATAAGTAC spacer
length: 38 repeater length: 25
32362 2114382 CTTTCAATTCCTTTTAGGATTAATC ATAATATGGTGAAAATTGAAGGTGAATCATTAGCAAA spacer
length: 37 repeater length: 25
32363 2114444 CTTTCAATTCCTTTTAGGATTAATC AATTTTTTGTTTAAAGATGATTGAGTGAAGAATATTA spacer
length: 38 repeater length: 25
32364 2114507 CTTTCAATTCCTTTTAGGATTAATC CAATCCCCAAAAGTAAATCCCCAATCTTCAAATAATATGG spacer
length: 40 repeater length: 25
32365 2114572 CTTTCAATTCCTTTTAGGATTAATC
32366
32367
32368 crispr 4
32369 2125969 GATAATCTCTTATAGAATTGAAAG TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGGC spacer
length: 38 repeater length: 24
32370 2126031 GATAATCTCTTATAGAATTGAAAG CAACGCCAACTCCGCCAATTTCCGCATTGATGTTTCGCTGG spacer
length: 40 repeater length: 24
32371 2126095 GATAATCTCTTATAGAATTGAAAG TCTTCAAACCTCCCACGGCACAACGGAGGCATGCAAATTATT spacer
length: 42 repeater length: 24
32372 2126161 GATAATCTCTTATAGAATTGAAAG GTAGTAAGCTTTCCTTCTTTATCCTCTAGACCGCTGTAGT spacer
length: 40 repeater length: 24
32373 2126225 GATAATCTCTTATAGAATTGAAAG AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTCA spacer
length: 38 repeater length: 24
32374 2126287 GATAATCTCTTATAGAATTGAAAG GAACTGTCGTGGTGTTCATGAAATATGGGTATGCATATT spacer
length: 39 repeater length: 24
32375 2126350 GATAATCTCTTATAGAATTGAAAG GCAAAGAGTCCATTCAATAACACATATTTTGCACATAAG spacer
length: 39 repeater length: 24
32376 2126413 GATAATCTCTTATAGAATTGAAAG AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGCT spacer
length: 39 repeater length: 24
32377 2126476 GATAATCTCTTATAGAATTGAAAG ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTCT spacer
length: 39 repeater length: 24
32378 2126539 GATAATCTCTTATAGAATTGAAAG CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTAA spacer
length: 40 repeater length: 24
32379 2126603 GATAATCTCTTATAGAATTGAAAG CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGAG spacer
length: 39 repeater length: 24
32380 2126666 GATAATCTCTTATAGAATTGAAAG ACCACGAGCACGACCTCAAATATAACACCGCCAAAAATC spacer
length: 39 repeater length: 24
32381 2126729 GATAATCTCTTATAGAATTGAAAG TATCTTCCAGATGTCTCAGAAACGCCTTAAAATTATTGAT spacer
length: 40 repeater length: 24
32382 2126793 GATAATCTCTTATAGAATTGAAAG TACATTAGACCCTAGTTGGTTTATCGCTGGTAACGTCG spacer
length: 38 repeater length: 24
32383 2126855 GATAATCTCTTATAGAATTGAAAG ACACTTAGCGACATAAAAACCGCACTGACTTACAATTACC spacer
length: 40 repeater length: 24
32384 2126919 GATAATCTCTTATAGAATTGAAAG CGACATACATATATATGCATTTCCGTGGGAGTGTACAAA spacer
length: 40 repeater length: 24
32385 2126983 GATAATCTCTTATAGAATTGAAAG ACATATGGTTGGTCTCCAACATTTGGTGAGTATATCT spacer
length: 37 repeater length: 24
32386 2127044 GATAATCTCTTATAGAATTGAAAG GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCTT spacer
length: 38 repeater length: 24
32387 2127106 GATAATCTCTTATAGAATTGAAAG ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCAA spacer
length: 39 repeater length: 24
32388 2127169 GATAATCTCTTATAGAATTGAAAG AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGAA spacer
length: 38 repeater length: 24
32389 2127231 GATAATCTCTTATAGAATTGAAAG CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTAT spacer
length: 38 repeater length: 24
32390 2127293 GATAATCTCTTATAGAATTGAAAG TCTGATAGCACCAGACAAGTAAAGCGTATATCCTAGTCAA spacer
length: 41 repeater length: 24
32391 2127358 GATAATCTCTTATAGAATTGAAAG AACATATTCTGGTACGGGTTCGCCATCTGGTACACCATT spacer
length: 39 repeater length: 24
32392 2127421 GATAATCTCTTATAGAATTGAAAG TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAAA spacer
length: 39 repeater length: 24
32393 2127484 GATAATCTCTTATAGAATTGAAAG AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAGG spacer
length: 37 repeater length: 24
32394 2127545 GATAATCTCTTATAGAATTGAAAG CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGTC spacer
length: 38 repeater length: 24
32395 2127607 GATAATCTCTTATAGAATTGAAAG ACATCGCAAGCGATCTATTGTTCACTATTCTGGCGGC spacer
length: 40 repeater length: 24
32396 2127671 GATAATCTCTTATAGAATTGAAAG AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA spacer
length: 38 repeater length: 24

32397	2127733	GATAATCTCTTATAGAATTGAAAG	CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA	spacer
	length:	37	repeater length:	24
32398	2127794	GATAATCTCTTATAGAATTGAAAG	AATTTGAACATAATTCGGCCTCGTCAGTTTTCCACAGATA	spacer
	length:	40	repeater length:	24
32399	2127858	GATAATCTCTTATAGAATTGAAAG	TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT	spacer
	length:	39	repeater length:	24
32400	2127921	GATAATCTCTTATAGAATTGAAAG	TTTACTGACAACGCCATCATACTTACTAGCCCCAACTAA	spacer
	length:	38	repeater length:	24
32401	2127983	GATAATCTCTTATAGAATTGAAAG	GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGGA	spacer
	length:	40	repeater length:	24
32402	2128047	GATAATCTCTTATAGAATTGAAAG	TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT	spacer
	length:	41	repeater length:	24
32403	2128112	GATAATCTCTTATAGAATTGAAAG	CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG	spacer
	length:	37	repeater length:	24
32404	2128173	GATAATCTCTTATAGAATTGAAAG	ATCTGAATTTCTCAGCTTCCATTGCATAATTTATTCTA	spacer
	length:	39	repeater length:	24
32405	2128236	GATAATCTCTTATAGAATTGAAAG	TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT	spacer
	length:	40	repeater length:	24
32406	2128300	GATAATCTCTTATAGAATTGAAAG	ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTGTC	spacer
	length:	38	repeater length:	24
32407	2128362	GATAATCTCTTATAGAATTGAAAG	TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAGC	spacer
	length:	38	repeater length:	24
32408	2128424	GATAATCTCTTATAGAATTGAAAG	GTCAAAATTGCCCAACCGAACGTTAGCAAAATGCAGCAC	spacer
	length:	40	repeater length:	24
32409	2128488	GATAATCTCTTATAGAATTGAAAG	TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA	spacer
	length:	41	repeater length:	24
32410	2128553	GATAATCTCTTATAGAATTGAAAG	GCTGAATTGTAAAATTACGTTTATTACTTTCAGTCAACC	spacer
	length:	39	repeater length:	24
32411	2128616	GATAATCTCTTATAGAATTGAAAG	GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGTT	spacer
	length:	39	repeater length:	24
32412	2128679	GATAATCTCTTATAGAATTGAAAG	TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT	spacer
	length:	40	repeater length:	24
32413	2128743	GATAATCTCTTATAGAATTGAAAG	GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT	spacer length:
	length:	35	repeater length:	24
32414	2128802	GATAATCTCTTATAGAATTGAAAG	GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC	spacer
	length:	39	repeater length:	24
32415	2128865	GATAATCTCTTATAGAATTGAAAG	CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAAT	spacer length:
	length:	36	repeater length:	24
32416	2128925	GATAATCTCTTATAGAATTGAAAG	AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTTG	spacer
	length:	38	repeater length:	24
32417	2128987	GATAATCTCTTATAGAATTGAAAG	ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATTA	spacer
	length:	38	repeater length:	24
32418	2129049	GATAATCTCTTATAGAATTGAAAG	GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAAG	spacer
	length:	38	repeater length:	24
32419	2129111	GATAATCTCTTATAGAATTGAAAG	AATCACGAAAGCGATACTAAGGGCAATACAATACAAACATG	spacer
	length:	41	repeater length:	24
32420	2129176	GATAATCTCTTATAGAATTGAAAG	CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTGC	spacer
	length:	39	repeater length:	24
32421	2129239	GATAATCTCTTATAGAATTGAAAG	AGATTGTTTTATTAATACCAAGTAGACAATTATATATTTT	spacer
	length:	40	repeater length:	24
32422	2129303	GATAATCTCTTATAGAATTGAAAG	CCAAAACATGTCACATGTGCCGATATTGATATTTACAAA	spacer
	length:	39	repeater length:	24
32423	2129366	GATAATCTCTTATAGAATTGAAAG	AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGAA	spacer
	length:	38	repeater length:	24
32424	2129428	GATAATCTCTTATAGAATTGAAAG	GGGAGTTCCCATTTCGATTTTGGGAACCCTCAAGCACAGTCTGTG	spacer
	length:	44	repeater length:	24
32425	2129496	GATAATCTCTTATAGAATTGAAAG	TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCAT	spacer
	length:	41	repeater length:	24
32426	2129561	GATAATCTCTTATAGAATTGAAAG	CTAACTTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTGT	spacer
	length:	38	repeater length:	24
32427	2129623	GATAATCTCTTATAGAATTGAAAG	GTTCCAGCTAAGATGTTCTTTCCTGCAGTCTTTGTT	spacer length:
	length:	36	repeater length:	24
32428	2129683	GATAATCTCTTATAGAATTGAAAG	AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTAT	spacer
	length:	39	repeater length:	24
32429	2129746	GATAATCTCTTATAGAATTGAAAG	ATCCGTTCTCCGTCCCGATCCGTACCGTTCTCTGTACT	spacer
	length:	38	repeater length:	24
32430	2129808	GATAATCTCTTATAGAATTGAAAG	AGCATAACTTCATCTTCTCTACAACCTTCGACAGCTT	spacer
	length:	37	repeater length:	24
32431	2129869	GATAATCTCTTATAGAATTGAAAG	TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATTA	spacer
	length:	42	repeater length:	24
32432	2129935	GATAATCTCTTATAGAATTGAAAG	ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCAT	spacer

length: 39 repeater length: 24
32433 2129998 GATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGGT spacer
length: 40 repeater length: 24
32434 2130062 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATA spacer
length: 37 repeater length: 24
32435 2130123 GATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCCC spacer
length: 38 repeater length: 24
32436 2130185 GATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATACA spacer
length: 39 repeater length: 24
32437 2130248 GATAATCTCTTATAGAATTGAAAG ACGAACACACCCCCTTAAACTCTTTTTCCAACATTACCT spacer
length: 40 repeater length: 24
32438 2130312 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGAG spacer
length: 40 repeater length: 24
32439 2130376 GATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATTCCGACCAAAGCTAATA spacer
length: 39 repeater length: 24
32440 2130439 GATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGGT spacer
length: 40 repeater length: 24
32441 2130503 GATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTAG spacer
length: 43 repeater length: 24
32442 2130570 GATAATCTCTTATAGAATTGAAAG ATACAGATTTTCGTTATCCATATCCTACATGACTTTCC spacer
length: 37 repeater length: 24
32443 2130631 GATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAATTAGATATCCATTGACTGTTAT spacer
length: 39 repeater length: 24
32444 2130694 GATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTATT spacer
length: 40 repeater length: 24
32445 2130758 GATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAACG spacer
length: 40 repeater length: 24
32446 2130822 GATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTGGCCTGAGTA spacer
length: 38 repeater length: 24
32447 2130884 GATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGAT spacer
length: 40 repeater length: 24
32448 2130948 GATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATATA spacer
length: 44 repeater length: 24
32449 2131016 GATAATCTCTTATAGAATTGAAAG CTAAGCAGTGA CTACAGTTTAGACATTCACAAGTATC spacer
length: 38 repeater length: 24
32450 2131078 GATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAGATCTATCTGACAACACGAACTATG spacer
length: 41 repeater length: 24
32451 2131143 GATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGAC spacer
length: 40 repeater length: 24
32452 2131207 GATAATCTCTTATAGAATTGAAAG CAATCCCATTTCGTTTTACTCACTTCTAAGAACCTCGC spacer
length: 37 repeater length: 24
32453 2131268 GATAATCTCTTATAGAATTGAAAG AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTCT spacer
length: 40 repeater length: 24
32454 2131332 GATAATCTCTTATAGAATTGAAAG ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCTG spacer
length: 40 repeater length: 24
32455 2131396 GATAATCTCTTATAGAATTGAAAG GTCTTTATGGCCCTCTGGGTCTTCCACCATTGAGAGGA spacer
length: 39 repeater length: 24
32456 2131459 GATAATCTCTTATAGAATTGAAAG TTATCCTCATTCTATCGGTGAGTGGAACAAATTGGGTAGC spacer
length: 40 repeater length: 24
32457 2131523 GATAATCTCTTATAGAATTGAAAG ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTTT spacer
length: 40 repeater length: 24
32458 2131587 GATAATCTCTTATAGAATTGAAAG AGTTACAATACTTTATTGTCAAAGAAGCAAGGATATGCG spacer
length: 40 repeater length: 24
32459 2131651 GATAATCTCTTATAGAATTGAAAG TTCAAAGTAGATCTAGAAGATTTCTATCGGCATCTTTACAT spacer
length: 41 repeater length: 24
32460 2131716 GATAATCTCTTATAGAATTGAAAG ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTTC spacer
length: 40 repeater length: 24
32461 2131780 GATAATCTCTTATAGAATTGAAAG GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTATT spacer
length: 39 repeater length: 24
32462 2131843 GATAATCTCTTATAGAATTGAAAG TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT spacer
length: 37 repeater length: 24
32463 2131904 GATAATCTCTTATAGAATTGAAAG ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT spacer
length: 38 repeater length: 24
32464 2131966 GATAATCTCTTATAGAATTGAAAG ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACTA spacer
length: 41 repeater length: 24
32465 2132031 GATAATCTCTTATAGAATTGAAAG ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTCT spacer
length: 39 repeater length: 24
32466 2132094 GATAATCTCTTATAGAATTGAAAG AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT spacer
length: 37 repeater length: 24
32467 2132155 GATAATCTCTTATAGAATTGAAAG ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT spacer
length: 39 repeater length: 24

32468	2132218	GATAATCTCTTATAGAATTGAAAG	ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTGC	spacer
	length:	41	repeater length:	24
32469	2132283	GATAATCTCTTATAGAATTGAAAG	AAGCCTACACAGGATAGGATACTCAAATTATATGAAAT	spacer
	length:	39	repeater length:	24
32470	2132346	GATAATCTCTTATAGAATTGAAAG	TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCAT	spacer
	length:	42	repeater length:	24
32471	2132412	GATAATCTCTTATAGAATTGAAAG	CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA	spacer
	length:	37	repeater length:	24
32472	2132473	GATAATCTCTTATAGAATTGAAAG	TGTTCTGTCGTTACTGTCGTAAAGCACGTCCTATTAT	spacer
	length:	37	repeater length:	24
32473	2132534	GATAATCTCTTATAGAATTGAAAG	ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC	spacer
	length:	38	repeater length:	24
32474	2132596	GATAATCTCTTATAGAATTGAAAG	TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGAA	spacer
	length:	39	repeater length:	24
32475	2132659	GATAATCTCTTATAGAATTGAAAG	GCACAATTCGCCAACGATTTGCGTTTCGCTTTATACCTT	spacer
	length:	38	repeater length:	24
32476	2132721	GATAATCTCTTATAGAATTGAAAG	CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTGG	spacer
	length:	41	repeater length:	24
32477	2132786	GATAATCTCTTATAGAATTGAAAG	AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG	spacer
	length:	40	repeater length:	24
32478	2132850	GATAATCTCTTATAGAATTGAAAG	ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGAT	spacer
	length:	42	repeater length:	24
32479	2132916	GATAATCTCTTATAGAATTGAAAG	TTCTGTTTTCGAAGAAAACCCGCCTCAGATTCATTATGGG	spacer
	length:	39	repeater length:	24
32480	2132979	GATAATCTCTTATAGAATTGAAAG	AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAAA	spacer
	length:	39	repeater length:	24
32481	2133042	GATAATCTCTTATAGAATTGAAAG	CCTCATCGTAAACATGCAATCTTGCATATTCAGTGTA	spacer
	length:	37	repeater length:	24
32482	2133103	GATAATCTCTTATAGAATTGAAAG	GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCT	spacer
	length:	39	repeater length:	24
32483	2133166	GATAATCTCTTATAGAATTGAAAG	ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT	spacer
	length:	41	repeater length:	24
32484	2133231	GATAATCTCTTATAGAATTGAAAG	GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCGT	spacer
	length:	38	repeater length:	24
32485	2133293	GATAATCTCTTATAGAATTGAAAG	ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA	spacer
	length:	39	repeater length:	24
32486	2133356	GATAATCTCTTATAGAATTGAAAG	AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA	spacer
	length:	37	repeater length:	24
32487	2133417	GATAATCTCTTATAGAATTGAAAG	CGTTCCTAGAGCTAAACGATGCATACGCGGTGGTACAATA	spacer
	length:	40	repeater length:	24
32488	2133481	GATAATCTCTTATAGAATTGAAAG	ATTCGGGGAAACTTATGCATTATAAGAAGAAGAGATATTT	spacer
	length:	41	repeater length:	24
32489	2133546	GATAATCTCTTATAGAATTGAAAG	TCAAATAAGGAACAACTCTGGGTAAGCCCACAATACGCAA	spacer
	length:	40	repeater length:	24
32490	2133610	GATAATCTCTTATAGAATTGAAAG	CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAAC	spacer
	length:	38	repeater length:	24
32491	2133672	GATAATCTCTTATAGAATTGAAAG	TAAACTAGATCCTTATATTTACGTAAATGTAAAGGGG	spacer
	length:	38	repeater length:	24
32492	2133734	GATAATCTCTTATAGAATTGAAAG	TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAATA	spacer
	length:	38	repeater length:	24
32493	2133796	GATAATCTCTTATAGAATTGAAAG	GTTTCATCAGTTCTACCTTTTGGTCCAAAGGCTGATCCAA	spacer
	length:	39	repeater length:	24
32494	2133859	GATAATCTCTTATAGAATTGAAAG		
32495				
32496				
32497	crispr 5			
32498	2539655	GATAATCTACTATAGAATTGAAAG	ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGTG	spacer
	length:	39	repeater length:	24
32499	2539718	GATAATCTACTATAGAATTGAAAG	TTATCTAATTTTAATAATCAAGGAAATTCATTAACTCAAATA	spacer
	length:	42	repeater length:	24
32500	2539784	GATAATCTACTATAGAATTGAAAG	CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAACATTA	spacer
	length:	39	repeater length:	24
32501	2539847	GATAATCTACTATAGAATTGAAAG	TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTGA	spacer
	length:	41	repeater length:	24
32502	2539912	GATAATCTACTATAGAATTGAAAG	ATTTTCTAATATATCTAATTCACTCTGCGTATCATTATGGATAA	spacer
	length:	44	repeater length:	24
32503	2539980	GATAATCTACTATAGAATTGAAAG	CCCGCCCAGCCAGACTGTTTTTCAGCCCAAACCGGCTAATT	spacer
	length:	40	repeater length:	24
32504	2540044	GATAATCTACTATAGAATTGAAAG		
32505				
32506				

32507 GCA_003852135.1_ASM385213v1_genomic.fna (PilerCR):
 32508 START REPEAT
 SPACER
 32509 crispr 1
 32510 2054516 GATTAATCCCAAAAGGAATTGAAAG TCACATCCCTCACAATCCATAATGAAAATGTCGGCAT spacer
 length: 37 repeater length: 25
 32511 2054578 GATTAATCCCAAAAGGAATTGAAAG ATTTTAGCAATGCAATAGATCAACAATTGAAAGAACT spacer
 length: 38 repeater length: 25
 32512 2054641 GATTAATCCCAAAAGGAATTGAAAG ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTTC spacer
 length: 39 repeater length: 25
 32513 2054705 GATTAATCCCAAAAGGAATTGAAAG TGTTTCACAAATTTCAAAC TTGCAAACGCAACAATTAAATA spacer
 length: 41 repeater length: 25
 32514 2054771 GATTAATCCCAAAAGGAATTGAAAG GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTGG spacer
 length: 40 repeater length: 25
 32515 2054836 GATTAATCCCAAAAGGAATTGAAAG TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACTC spacer
 length: 38 repeater length: 25
 32516 2054899 GATTAATCCCAAAAGGAATTGAAAG GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAGT spacer
 length: 39 repeater length: 25
 32517 2054963 GATTAATCCCAAAAGGAATTGAAAG CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTCT spacer
 length: 41 repeater length: 25
 32518 2055029 GATTAATCCCAAAAGGAATTGAAAG CAAAATTCCAAAC TTTGGGAATTTCTAGTTTCCAAATTTTC spacer
 length: 40 repeater length: 25
 32519 2055094 GATTAATCCCAAAAGGAATTGAAAG TTTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGAC spacer
 length: 39 repeater length: 25
 32520 2055158 GATTAATCCCAAAAGGAATTGAAAG CGCTTTCGACTGCGACAAC TGTGCTTTGGCTCATTTGTTGC spacer
 length: 41 repeater length: 25
 32521 2055224 GATTAATCCCAAAAGGAATTGAAAG TTATTTCAAATACTATTATCTCCGCCATATGTTTACAT spacer
 length: 38 repeater length: 25
 32522 2055287 GATTAATCCCAAAAGGAATTGAAAG ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATTT spacer
 length: 38 repeater length: 25
 32523 2055350 GATTAATCCCAAAAGGAATTGAAAG TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTC spacer
 length: 40 repeater length: 25
 32524 2055415 GATTAATCCCAAAAGGAATTGAAAG CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAATA spacer
 length: 39 repeater length: 25
 32525 2055479 GATTAATCCCAAAAGGAATTGAAAG AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTTC
 spacer length: 44 repeater length: 25
 32526 2055548 GATTAATCCCAAAAGGAATTGAAAG GCTTTAACTTGGTACGCACTTTACGCCATGATAAACG spacer
 length: 37 repeater length: 25
 32527 2055610 GATTAATCCCAAAAGGAATTGAAAG GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGTT spacer
 length: 39 repeater length: 25
 32528 2055674 GATTAATCCCAAAAGGAATTGAAAG GTTGAATTTTGGCAACTGGTATGTTGTATTTTGC spacer
 length: 36 repeater length: 25
 32529 2055735 GATTAATCCCAAAAGGAATTGAAAG AATTTGTTACACGGCTAGGATTTTTTTTCTAGATGTACAAT spacer
 length: 42 repeater length: 25
 32530 2055802 GATTAATCCCAAAAGGAATTGAAAG TTCTAATCTTTTGCCATTACTGCATCATATCTACTAG spacer
 length: 38 repeater length: 25
 32531 2055865 GATTAATCCCAAAAGGAATTGAAAG ATCTTTACCTTTATATAAATCTTGTTGTAACAAATAA spacer
 length: 38 repeater length: 25
 32532 2055928 GATTAATCCCAAAAGGAATTGAAAG ACAAACGAGGAGTTTATAGTAAATCAACTATGAAA spacer
 length: 37 repeater length: 25
 32533 2055990 GATTAATCCCAAAAGGAATTGAAAG ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAAG spacer length:
 35 repeater length: 25
 32534 2056050 GATTAATCCCAAAAGGAATTGAAAG AACTACAACGAGGTGAGAAACGATGACTAAACGTTT spacer
 length: 36 repeater length: 25
 32535 2056111 GATTAATCCCAAAAGGAATTGAAAG TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATTG spacer
 length: 38 repeater length: 25
 32536 2056174 GATTAATCCCAAAAGGAATTGAAAG TAGATATATGGCGATGAATTGCATTAGTCAGTGGTG spacer
 length: 36 repeater length: 25
 32537 2056235 GATTAATCCCAAAAGGAATTGAAAG ATTTTAAACGCTATGACGCTAGCCCTCATGTTAGCTTTT spacer
 length: 39 repeater length: 25
 32538 2056299 GATTAATCCCAAAAGGAATTGAAAG AAAGTTTGTCTCTGTTTCGTTTTGTTGTTCTGACT spacer
 length: 37 repeater length: 25
 32539 2056361 GATTAATCCCAAAAGGAATTGAAAG CCCCTTTTGCCGTCTTTTATGTTACCACAATGCACCAA spacer
 length: 38 repeater length: 25
 32540 2056424 GATTAATCCCAAAAGGAATTGAAAG CCGTATCCAGAAATAATTAACCAATCGCTTGTTTGTGAC spacer
 length: 39 repeater length: 25
 32541 2056488 GATTAATCCCAAAAGGAATTGAAAG AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCAA spacer
 length: 37 repeater length: 25
 32542 2056550 GATTAATCCCAAAAGGAATTGAAAG GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGTG spacer
 length: 42 repeater length: 25
 32543 2056617 GATTAATCCCAAAAGGAATTGAAAG GCATCTGTCGGCAACCTCACTTATTCACGTGGGGGTGCG spacer

length: 39 repeater length: 25
32544 2056681 GATTAATCCCAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTGA spacer
length: 37 repeater length: 25
32545 2056743 GATTAATCCCAAAAGGAATTGAAAG TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTTG spacer
length: 39 repeater length: 25
32546 2056807 GATTAATCCCAAAAGGAATTGAAAG TTGAACTTGTAGAAATTGTTTCATATGAAACAGCATAATTTTC spacer
length: 42 repeater length: 25
32547 2056874 GATTAATCCCAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAACG spacer
length: 40 repeater length: 25
32548 2056939 GATTAATCCCAAAAGGAATTGAAAG CTCATTATTTTCATCATAAAGATTATCCACTGCAATT spacer
length: 36 repeater length: 25
32549 2057000 GATTAATCCCAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCCTCTTTACGCATTTCT spacer
length: 39 repeater length: 25
32550 2057064 GATTAATCCCAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGCG spacer
length: 36 repeater length: 25
32551 2057125 GATTAATCCCAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACAT spacer
length: 39 repeater length: 25
32552 2057189 GATTAATCCCAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTATG spacer
length: 41 repeater length: 25
32553 2057255 GATTAATCCCAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTCT spacer
length: 41 repeater length: 25
32554 2057321 GATTAATCCCAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAGACTTTCAGCCCTC spacer
length: 36 repeater length: 25
32555 2057382 GATTAATCCCAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAATC spacer
length: 36 repeater length: 25
32556 2057443 GATTAATCCCAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTGT spacer
length: 39 repeater length: 25
32557 2057507 GATTAATCCCAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTTCAT spacer length:
34 repeater length: 25
32558 2057566 GATTAATCCCAAAAGGAATTGAAAG ATCTTTAATAAATCCTCTTTATTCTCATGTAATGCAT spacer
length: 38 repeater length: 25
32559 2057629 GATTAATCCCAAAAGGAATTGAAAG TTATATTACGATAAAAAGTGCCAGATATGGTTGTTGGCATT spacer
length: 40 repeater length: 25
32560 2057694 GATTAATCCCAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCGG spacer
length: 40 repeater length: 25
32561 2057759 GATTAATCCCAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTCTG spacer
length: 40 repeater length: 25
32562 2057824 GATTAATCCCAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTGC spacer
length: 39 repeater length: 25
32563 2057888 GATTAATCCCAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTCTATACCCTTGTTGTTTCATT spacer
length: 40 repeater length: 25
32564 2057953 GATTAATCCCAAAAGGAATTGAAAG CCCCCTGGAATGCACCATTTCTTGCAAGTAATACATTT spacer
length: 39 repeater length: 25
32565 2058017 GATTAATCCCAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTGC spacer
length: 40 repeater length: 25
32566 2058082 GATTAATCCCAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATACT spacer
length: 38 repeater length: 25
32567 2058145 GATTAATCCCAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCAG spacer
length: 39 repeater length: 25
32568 2058209 GATTAATCCCAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCTT spacer
length: 37 repeater length: 25
32569 2058271 GATTAATCCCAAAAGGAATTGAAAG TTTTTATTTAAGAACTGATGGAAAGATCTATAG spacer length:
35 repeater length: 25
32570 2058331 GATTAATCCCAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCTA spacer
length: 37 repeater length: 25
32571 2058393 GATTAATCCCAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGAT spacer
length: 38 repeater length: 25
32572 2058456 GATTAATCCCAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACATT spacer
length: 39 repeater length: 25
32573 2058520 GATTAATCCCAAAAGGAATTGAAAG CACTACATCTATTGTTTTCTTTTTGTAAGACATTCTCA spacer
length: 40 repeater length: 25
32574 2058585 GATTAATCCCAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAGCGG spacer
length: 40 repeater length: 25
32575 2058650 GATTAATCCCAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATTC spacer
length: 39 repeater length: 25
32576 2058714 GATTAATCCCAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTTCGTC spacer
length: 42 repeater length: 25
32577 2058781 GATTAATCCCAAAAGGAATTGAAAG GTATTCAAAAGAGAACTGGGGGATTCAAGGTAATACCT spacer
length: 38 repeater length: 25
32578 2058844 GATTAATCCCAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATACAGTAAAGTAGCAGTTTT spacer
length: 36 repeater length: 25

32579	2058905	GATTAATCCCAAAAAGGAATTGAAAG	ATAGAAATATAAATCTCAGCAATTCTTGATATATTGT	spacer
		length: 37	repeater length: 25	
32580	2058967	GATTAATCCCAAAAAGGAATTGAAAG	TCCGTTATCATGTTGACTGGAAATGCGTTTAATAGT	spacer
		length: 36	repeater length: 25	
32581	2059028	GATTAATCCCAAAAAGGAATTGAAAG	ACCCACAGCACATTGCCATATCCACTAAAATTATACTGA	spacer
		length: 39	repeater length: 25	
32582	2059092	GATTAATCCCAAAAAGGAATTGAAAG	ATAAATATGTTAACGAATGTTGTAAATTGGTATTCGTT	spacer
		length: 38	repeater length: 25	
32583	2059155	GATTAATCCCAAAAAGGAATTGAAAG	AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTTT	spacer
		length: 38	repeater length: 25	
32584	2059218	GATTAATCCCAAAAAGGAATTGAAAG	TCAAACTCATGAAGCTACTGTAATCCATTTACATAAA	spacer
		length: 38	repeater length: 25	
32585	2059281	GATTAATCCCAAAAAGGAATTGAAAG	ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAATT	spacer
		length: 38	repeater length: 25	
32586	2059344	GATTAATCCCAAAAAGGAATTGAAAG	ATTATATTGATAAATTGATAAGAATGCCCAAAATGATTT	spacer
		length: 40	repeater length: 25	
32587	2059409	GATTAATCCCAAAAAGGAATTGAAAG	AAAAACTTTTCACATTGACATTAAAAAATAAAATAATTTTG	spacer
		length: 42	repeater length: 25	
32588	2059476	GATTAATCCCAAAAAGGAATTGAAAG	AATTCGTATACCTTAGTAGTATTATCATCAATATTGTAT	spacer
		length: 39	repeater length: 25	
32589	2059540	GATTAATCCCAAAAAGGAATTGAAAG	TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTAG	spacer
		length: 39	repeater length: 25	
32590	2059604	GATTAATCCCAAAAAGGAATTGAAAG	TCTACGTTGTAAATTCATATACAGCTTGGCTCATAT	spacer
		length: 37	repeater length: 25	
32591	2059666	GATTAATCCCAAAAAGGAATTGAAAG	ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTAT	spacer
		length: 38	repeater length: 25	
32592	2059729	GATTAATCCCAAAAAGGAATTGAAAG	AGTATACAACAATGCAATAAGTGTTGATAGCTTGCATCTT	spacer
		length: 41	repeater length: 25	
32593	2059795	GATTAATCCCAAAAAGGAATTGAAAG	CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTAC	spacer
		length: 40	repeater length: 25	
32594	2059860	GATTAATCCCAAAAAGGAATTGAAAG	CAGCAAGAAGTTCACCTCTCTACATCTTATGATTTCGG	spacer
		length: 37	repeater length: 25	
32595	2059922	GATTAATCCCAAAAAGGAATTGAAAG	CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCCT	spacer
		length: 36	repeater length: 25	
32596	2059983	GATTAATCCCAAAAAGGAATTGAAAG	ACCTTTATTTTAAGTCCTAGCCTCTTCCCTATCCAT	spacer
		length: 36	repeater length: 25	
32597	2060044	GATTAATCCCAAAAAGGAATTGAAAG	TTGTTTCACCTCCTTATTAAAAGCGACAGACGGTCGAC	spacer
		length: 38	repeater length: 25	
32598	2060107	GATTAATCCCAAAAAGGAATTGAAAG	TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTTT	spacer
		length: 37	repeater length: 25	
32599	2060169	GATTAATCCCAAAAAGGAATTGAAAG	CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGATG	spacer
		length: 40	repeater length: 25	
32600	2060234	GATTAATCCCAAAAAGGAATTGAAAG	AGCTTTATGACACTCATTATCATATACTCAAAATTATA	spacer
		length: 38	repeater length: 25	
32601	2060297	GATTAATCCCAAAAAGGAATTGAAAG	TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGCC	spacer
		length: 40	repeater length: 25	
32602	2060362	GATTAATCCCAAAAAGGAATTGAAAG	CAGCTCGACGATGACGAATACAAGATGCTGTATAATGCG	spacer
		length: 39	repeater length: 25	
32603	2060426	GATTAATCCCAAAAAGGAATTGAAAG	TTTCTCAACTGATCCACGGCTTCAGAGAAGATGTTTGGAT	spacer
		length: 40	repeater length: 25	
32604	2060491	GATTAATCCCAAAAAGGAATTGAAAG	GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGATG	spacer
		length: 39	repeater length: 25	
32605	2060555	GATTAATCCCAAAAAGGAATTGAAAG	CTCAGCAGATTTAAACTAACGATATTAATTGTACACACTG	spacer
		length: 40	repeater length: 25	
32606	2060620	GATTAATCCCAAAAAGGAATTGAAAG	TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCAA	spacer
		length: 39	repeater length: 25	
32607	2060684	GATTAATCCCAAAAAGGAATTGAAAG	CAAGTGCAATAGCAAACACTACTACTAAATATAACATATAT	spacer
		length: 39	repeater length: 25	
32608	2060748	GATTAATCCCAAAAAGGAATTGAAAG	CTATATGGGGTCAGGGTGGAACATAAATCGTGGCTTTA	spacer
		length: 38	repeater length: 25	
32609	2060811	GATTAATCCCAAAAAGGAATTGAAAG	CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAGT	spacer
		length: 39	repeater length: 25	
32610	2060875	GATTAATCCCAAAAAGGAATTGAAAG	GAACTCTCTATTGCTGACGAACTAAGAGAAAATTGTTTCAA	spacer
		length: 41	repeater length: 25	
32611	2060941	GATTAATCCCAAAAAGGAATTGAAAG	TCTAACAATGAATCTGTCATAAAGTGCCCGCAACTCTT	spacer
		length: 38	repeater length: 25	
32612	2061004	GATTAATCCCAAAAAGGAATTGAAAG	AGATTATCAATCAAGTGATAGAGATATTGCAATTTT	spacer
		length: 36	repeater length: 25	
32613	2061065	GATTAATCCCAAAAAGGAATTGAAAG	TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATGT	spacer
		length: 39	repeater length: 25	
32614	2061129	GATTAATCCCAAAAAGGAATTGAAAG	AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTTT	spacer

length: 39 repeater length: 25
32615 2061193 GATTAATCCCAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGGC spacer
length: 36 repeater length: 25
32616 2061254 GATTAATCCCAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCTC spacer
length: 39 repeater length: 25
32617 2061318 GATTAATCCCAAAAGGAATTGAAAG TCGTAAACTTGAACTGACCCGTATATCCGAATTTAC spacer
length: 37 repeater length: 25
32618 2061380 GATTAATCCCAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCTA spacer
length: 39 repeater length: 25
32619 2061444 GATTAATCCCAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATATT spacer
length: 37 repeater length: 25
32620 2061506 GATTAATCCCAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCTA spacer
length: 39 repeater length: 25
32621 2061570 GATTAATCCCAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAAG spacer
length: 36 repeater length: 25
32622 2061631 GATTAATCCCAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCCT spacer
length: 38 repeater length: 25
32623 2061694 GATTAATCCCAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACCTTTGCATACGACATAATTT spacer
length: 40 repeater length: 25
32624 2061759 GATTAATCCCAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACTT spacer
length: 39 repeater length: 25
32625 2061823 GATTAATCCCAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGCT spacer
length: 37 repeater length: 25
32626 2061885 GATTAATCCCAAAAGGAATTGAAAG
32627
32628
32629 crispr 2
32630 2076433 CTTTCAATTCCTTTTAGGATTAATC TTGAAGATAGAGTTAAATGAACTTTTGATGACACAAAA spacer
length: 38 repeater length: 25
32631 2076496 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCAA spacer
length: 41 repeater length: 25
32632 2076562 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTGA spacer
length: 39 repeater length: 25
32633 2076626 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATAT spacer
length: 37 repeater length: 25
32634 2076688 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAAT spacer
length: 38 repeater length: 25
32635 2076751 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAACTCATTCAGAGTCTCTTCCAACCCGTACA spacer
length: 40 repeater length: 25
32636 2076816 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGCG spacer length:
35 repeater length: 25
32637 2076876 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG spacer
length: 39 repeater length: 25
32638 2076940 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG spacer
length: 39 repeater length: 25
32639 2077004 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAATATTGGTGGAGTAGTTGATTTCGATAATAT spacer
length: 41 repeater length: 25
32640 2077070 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTAA spacer
length: 39 repeater length: 25
32641 2077134 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGATA spacer
length: 39 repeater length: 25
32642 2077198 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGAA spacer
length: 37 repeater length: 25
32643 2077260 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGAT spacer
length: 37 repeater length: 25
32644 2077322 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTGA spacer
length: 40 repeater length: 25
32645 2077387 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTACA spacer
length: 38 repeater length: 25
32646 2077450 CTTTCAATTCCTTTTAGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAAA spacer
length: 40 repeater length: 25
32647 2077515 CTTTCAATTCCTTTTAGGATTAATC GAGTGAGACCATGATCATTAACACTGATATTACGGTAAG spacer
length: 39 repeater length: 25
32648 2077579 CTTTCAATTCCTTTTAGGATTAATC AACAAAACCTTACCAGTGATGGAACATTTGAATGTAA spacer
length: 37 repeater length: 25
32649 2077641 CTTTCAATTCCTTTTAGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATACT spacer
length: 40 repeater length: 25
32650 2077706 CTTTCAATTCCTTTTAGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATAT spacer
length: 42 repeater length: 25
32651 2077773 CTTTCAATTCCTTTTAGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACGG spacer
length: 38 repeater length: 25

32652	2077836	CTTTCAATTCCTTTTAGGATTAATC	CCGTGATCAGATACAGTAACAGTCATGTTTTTATCT	spacer
		length: 36	repeater length: 25	
32653	2077897	CTTTCAATTCCTTTTAGGATTAATC	CATGGAAACGGGAGGAGGTGAGACAATGAAGGTTAC	spacer
		length: 37	repeater length: 25	
32654	2077959	CTTTCAATTCCTTTTAGGATTAATC	CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAACT	spacer
		length: 38	repeater length: 25	
32655	2078022	CTTTCAATTCCTTTTAGGATTAATC	GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTAG	spacer
		length: 40	repeater length: 25	
32656	2078087	CTTTCAATTCCTTTTAGGATTAATC	AAATTCTGCAAAGGTAACACAATTGACGAGGTAAA	spacer length:
		35	repeater length: 25	
32657	2078147	CTTTCAATTCCTTTTAGGATTAATC	CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCAA	spacer
		length: 40	repeater length: 25	
32658	2078212	CTTTCAATTCCTTTTAGGATTAATC	TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAACT	spacer
		length: 40	repeater length: 25	
32659	2078277	CTTTCAATTCCTTTTAGGATTAATC	GGCATAACCGCTGCTTTCGGCTGCTGCTAATTGGTCTC	spacer
		length: 41	repeater length: 25	
32660	2078343	CTTTCAATTCCTTTTAGGATTAATC	CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCTT	spacer
		length: 39	repeater length: 25	
32661	2078407	CTTTCAATTCCTTTTAGGATTAATC	ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAAT	spacer
		length: 38	repeater length: 25	
32662	2078470	CTTTCAATTCCTTTTAGGATTAATC	AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTAG	spacer
		length: 40	repeater length: 25	
32663	2078535	CTTTCAATTCCTTTTAGGATTAATC	GGCATTAGAATATGGGTAAAACTTATAGCGACGAAGA	spacer
		length: 38	repeater length: 25	
32664	2078598	CTTTCAATTCCTTTTAGGATTAATC	TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGAT	spacer
		length: 36	repeater length: 25	
32665	2078659	CTTTCAATTCCTTTTAGGATTAATC		
32666				
32667				
32668	crispr 3			
32669	2078789	CTTTCAATTCCTTTTGGGATTAATC	TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGTG	spacer
		length: 38	repeater length: 25	
32670	2078852	CTTTCAATTCCTTTTGGGATTAATC	CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGCT	spacer
		length: 36	repeater length: 25	
32671	2078913	CTTTCAATTCCTTTTGGGATTAATC	CACATTAGCAAGAATCGTGCTAGCTACAGTTGGATT	spacer
		length: 36	repeater length: 25	
32672	2078974	CTTTCAATTCCTTTTGGGATTAATC	AACTTGGGAAGAGTTTAGTGATAAAATCATGGAAATGTTC	spacer
		length: 39	repeater length: 25	
32673	2079038	CTTTCAATTCCTTTTGGGATTAATC	TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTCT	spacer
		length: 41	repeater length: 25	
32674	2079104	CTTTCAATTCCTTTTGGGATTAATC	GGTAATGGTCTGTATATTGTCTTTAAGTATTTAT	spacer length:
		34	repeater length: 25	
32675	2079163	CTTTCAATTCCTTTTGGGATTAATC	AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTAA	spacer
		length: 39	repeater length: 25	
32676	2079227	CTTTCAATTCCTTTTGGGATTAATC	CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAAG	spacer
		length: 40	repeater length: 25	
32677	2079292	CTTTCAATTCCTTTTGGGATTAATC	ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCATT	spacer
		length: 40	repeater length: 25	
32678	2079357	CTTTCAATTCCTTTTGGGATTAATC	ATTAGCTAAACCATTTCAAAGGCTAACATCTTCTATGT	spacer
		length: 38	repeater length: 25	
32679	2079420	CTTTCAATTCCTTTTGGGATTAATC	ATAAATCCACAAAGTGGCCGTTCAAAGCAAAGAGTTTATT	spacer
		length: 40	repeater length: 25	
32680	2079485	CTTTCAATTCCTTTTGGGATTAATC	TGATATTTATTTTCTCGTGAAAAGTGGAGGGCCTAGAAC	spacer
		length: 39	repeater length: 25	
32681	2079549	CTTTCAATTCCTTTTGGGATTAATC	ATTATATCATGGAGACCCAGGTGCTGTGACTATCAA	spacer
		length: 36	repeater length: 25	
32682	2079610	CTTTCAATTCCTTTTGGGATTAATC	AATTAGCCAGCGTGCCATCTGGGTAAACGTGTATTTTGGTTAA	spacer
		length: 43	repeater length: 25	
32683	2079678	CTTTCAATTCCTTTTGGGATTAATC	ATAATATATTTCTGTTCCAACCTACACCTAATGGATTCGGG	spacer
		length: 39	repeater length: 25	
32684	2079742	CTTTCAATTCCTTTTGGGATTAATC	TAATTGTCTGCCCTTGAGTTCCACTGAGAGAAACGC	spacer
		length: 36	repeater length: 25	
32685	2079803	CTTTCAATTCCTTTTGGGATTAATC	AAAAGACGTACAAATATACATCGCACCGAACGGACACAT	spacer
		length: 39	repeater length: 25	
32686	2079867	CTTTCAATTCCTTTTGGGATTAATC	GGGTGCGTGCCCCACAGGTCGCGGGTCTACCCCTTGC	spacer
		length: 37	repeater length: 25	
32687	2079929	CTTTCAATTCCTTTTGGGATTAATC	TTATGTCGTTATCTTCTTCGTTTTTGCTGCGTTGTTT	spacer
		length: 37	repeater length: 25	
32688	2079991	CTTTCAATTCCTTTTGGGATTAATC	GATAAAATATTAAATTCTCAAATTCCATTTAGAG	spacer length:
		34	repeater length: 25	
32689	2080050	CTTTCAATTCCTTTTGGGATTAATC	AAAATTTGAAACAATATCGCATCTTGAATAATTAT	spacer length:

35 repeater length: 25

32690 2080110 CTTTCAATTCCTTTTGGGATTAATC GCTTCTTCCCAACGCTGTACGTACTCTTAGGTGTCACA spacer
length: 38 repeater length: 25
32691 2080173 CTTTCAATTCCTTTTGGGATTAATC AATTACAGGAAAAAGACGAATAAATGAGGAAGAAATG spacer
length: 38 repeater length: 25
32692 2080236 CTTTCAATTCCTTTTGGGATTAATC TACTCAATTTGTGCGCAGTTTTTCATTGAGGGAGACTT spacer
length: 38 repeater length: 25
32693 2080299 CTTTCAATTCCTTTTGGGATTAATC AAAAATTCTGAGTGCAATGTATAATGAAAATATGGATAATA spacer
length: 41 repeater length: 25
32694 2080365 CTTTCAATTCCTTTTGGGATTAATC TGTGTGCCAAATAAATGCTGTACCGACTAACAATAATGTA spacer
length: 40 repeater length: 25
32695 2080430 CTTTCAATTCCTTTTGGGATTAATC CAGGAGTTGGAGGTATTATCGGAGCATTGTTAGCAT spacer
length: 36 repeater length: 25
32696 2080491 CTTTCAATTCCTTTTGGGATTAATC ATGATTTGAAAATAGATGAAGAGCTATCTAAACTCATTCC spacer
length: 40 repeater length: 25
32697 2080556 CTTTCAATTCCTTTTGGGATTAATC ACCACATTATGAAGGTACTCCAGAATTCTCTAAGAT spacer
length: 36 repeater length: 25
32698 2080617 CTTTCAATTCCTTTTGGGATTAATC TAGATCTATTTCGCAGAGTTTGCATCAACACATAAGTAC spacer
length: 38 repeater length: 25
32699 2080680 CTTTCAATTCCTTTTGGGATTAATC ATAATATGGTGAAAATTGAAGGTGAATCATTAGCAAA spacer
length: 37 repeater length: 25
32700 2080742 CTTTCAATTCCTTTTGGGATTAATC AATTTTTTGTTTAAAGATGATTCAAGTGAAGAATATTA spacer
length: 38 repeater length: 25
32701 2080805 CTTTCAATTCCTTTTGGGATTAATC CAATCCCCAAAAGTAAATCCCCAATCTTCAAATAATATGG spacer
length: 40 repeater length: 25
32702 2080870 CTTTCAATTCCTTTTGGGATTAATC

32703
32704
32705

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32706 2092270 GATAATCTCTTATAGAATTGAAAG TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGGC spacer
length: 38 repeater length: 24
32707 2092332 GATAATCTCTTATAGAATTGAAAG CAACGCCAACTCCGCCAATTTCCGCATTGATGTTTCGCTGG spacer
length: 40 repeater length: 24
32708 2092396 GATAATCTCTTATAGAATTGAAAG TCTTCAAACCTTCCCACGGCACAACGGAGGCATGCAAATTATT spacer
length: 42 repeater length: 24
32709 2092462 GATAATCTCTTATAGAATTGAAAG GTAGTAAGCTTTCCTTCTTTATCCTCTAGACCGCTGTAGT spacer
length: 40 repeater length: 24
32710 2092526 GATAATCTCTTATAGAATTGAAAG AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTCA spacer
length: 38 repeater length: 24
32711 2092588 GATAATCTCTTATAGAATTGAAAG GAACTGTCGTGGTGTTCATGAAATATGGGTATGCATATT spacer
length: 39 repeater length: 24
32712 2092651 GATAATCTCTTATAGAATTGAAAG GCAAAGAGTCCATTCAATAACACATATTTTGCACATAAG spacer
length: 39 repeater length: 24
32713 2092714 GATAATCTCTTATAGAATTGAAAG AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGCT spacer
length: 39 repeater length: 24
32714 2092777 GATAATCTCTTATAGAATTGAAAG ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTCT spacer
length: 39 repeater length: 24
32715 2092840 GATAATCTCTTATAGAATTGAAAG CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTAA spacer
length: 40 repeater length: 24
32716 2092904 GATAATCTCTTATAGAATTGAAAG CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGAG spacer
length: 39 repeater length: 24
32717 2092967 GATAATCTCTTATAGAATTGAAAG ACCACGAGCACGACCTCAAATATAACACCGCCAAAAATC spacer
length: 39 repeater length: 24
32718 2093030 GATAATCTCTTATAGAATTGAAAG TATCTTCCAGATGTCTCAGAAACGCCTTAAATTATTGAT spacer
length: 40 repeater length: 24
32719 2093094 GATAATCTCTTATAGAATTGAAAG TACATTAGACCCTAGTTGGTTTATCGCTGGTAACGTCG spacer
length: 38 repeater length: 24
32720 2093156 GATAATCTCTTATAGAATTGAAAG ACACTTAGCGACATAAAAACCGCACTGACTTACAATTACC spacer
length: 40 repeater length: 24
32721 2093220 GATAATCTCTTATAGAATTGAAAG CGACATACATATATATGCATTTCCGTGGGAGTGTTACAAA spacer
length: 40 repeater length: 24
32722 2093284 GATAATCTCTTATAGAATTGAAAG ACATATGGTTGGTCTCCAACATTTGGTGAGTATATCT spacer
length: 37 repeater length: 24
32723 2093345 GATAATCTCTTATAGAATTGAAAG GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCTT spacer
length: 38 repeater length: 24
32724 2093407 GATAATCTCTTATAGAATTGAAAG ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCAA spacer
length: 39 repeater length: 24
32725 2093470 GATAATCTCTTATAGAATTGAAAG AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGAA spacer
length: 38 repeater length: 24
32726 2093532 GATAATCTCTTATAGAATTGAAAG CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTAT spacer
length: 38 repeater length: 24

32727	2093594	GATAATCTCTTATAGAATTGAAAG	TCTGATAGCACCAGACAAGTAAAGCGTATATCCTAGTCAA	spacer
	length:	41	repeater length:	24
32728	2093659	GATAATCTCTTATAGAATTGAAAG	AACATATTCTGGTACGGGTTCGCCATCTGGTACACCATT	spacer
	length:	39	repeater length:	24
32729	2093722	GATAATCTCTTATAGAATTGAAAG	TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAAA	spacer
	length:	39	repeater length:	24
32730	2093785	GATAATCTCTTATAGAATTGAAAG	AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAGG	spacer
	length:	37	repeater length:	24
32731	2093846	GATAATCTCTTATAGAATTGAAAG	CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGTC	spacer
	length:	38	repeater length:	24
32732	2093908	GATAATCTCTTATAGAATTGAAAG	ACATCGCAAGCGATCTATTGTTCACTCTATTCCTGGCGGC	spacer
	length:	40	repeater length:	24
32733	2093972	GATAATCTCTTATAGAATTGAAAG	AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA	spacer
	length:	38	repeater length:	24
32734	2094034	GATAATCTCTTATAGAATTGAAAG	CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA	spacer
	length:	37	repeater length:	24
32735	2094095	GATAATCTCTTATAGAATTGAAAG	AATTTGAACATAATTTCGGCCTCGTCAGTTTTCCACAGATA	spacer
	length:	40	repeater length:	24
32736	2094159	GATAATCTCTTATAGAATTGAAAG	TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT	spacer
	length:	39	repeater length:	24
32737	2094222	GATAATCTCTTATAGAATTGAAAG	TTTACTGACAACGCCATCATACTTACTAGCCCACTAA	spacer
	length:	38	repeater length:	24
32738	2094284	GATAATCTCTTATAGAATTGAAAG	GTCCATTCTCCATTTATCTCAACCTTATCACAATTTGGA	spacer
	length:	40	repeater length:	24
32739	2094348	GATAATCTCTTATAGAATTGAAAG	TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT	spacer
	length:	41	repeater length:	24
32740	2094413	GATAATCTCTTATAGAATTGAAAG	CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG	spacer
	length:	37	repeater length:	24
32741	2094474	GATAATCTCTTATAGAATTGAAAG	ATCTGAATTTCTCAGCTTCCATTGCATAATTTATTCTA	spacer
	length:	39	repeater length:	24
32742	2094537	GATAATCTCTTATAGAATTGAAAG	TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT	spacer
	length:	40	repeater length:	24
32743	2094601	GATAATCTCTTATAGAATTGAAAG	ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTC	spacer
	length:	38	repeater length:	24
32744	2094663	GATAATCTCTTATAGAATTGAAAG	TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAGC	spacer
	length:	38	repeater length:	24
32745	2094725	GATAATCTCTTATAGAATTGAAAG	GTCAAAATTGCCCAACCGAACGTTAGCAAAATGCAGCAC	spacer
	length:	40	repeater length:	24
32746	2094789	GATAATCTCTTATAGAATTGAAAG	TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA	spacer
	length:	41	repeater length:	24
32747	2094854	GATAATCTCTTATAGAATTGAAAG	GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAACC	spacer
	length:	39	repeater length:	24
32748	2094917	GATAATCTCTTATAGAATTGAAAG	GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGTT	spacer
	length:	39	repeater length:	24
32749	2094980	GATAATCTCTTATAGAATTGAAAG	TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT	spacer
	length:	40	repeater length:	24
32750	2095044	GATAATCTCTTATAGAATTGAAAG	GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT	spacer length:
	length:	35	repeater length:	24
32751	2095103	GATAATCTCTTATAGAATTGAAAG	GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC	spacer
	length:	39	repeater length:	24
32752	2095166	GATAATCTCTTATAGAATTGAAAG	CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAAT	spacer length:
	length:	36	repeater length:	24
32753	2095226	GATAATCTCTTATAGAATTGAAAG	AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTTG	spacer
	length:	38	repeater length:	24
32754	2095288	GATAATCTCTTATAGAATTGAAAG	ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATTA	spacer
	length:	38	repeater length:	24
32755	2095350	GATAATCTCTTATAGAATTGAAAG	GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAAG	spacer
	length:	38	repeater length:	24
32756	2095412	GATAATCTCTTATAGAATTGAAAG	AATCACGAAAGCGATACTAAGGGCAATACAATACAAACATG	spacer
	length:	41	repeater length:	24
32757	2095477	GATAATCTCTTATAGAATTGAAAG	CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTGC	spacer
	length:	39	repeater length:	24
32758	2095540	GATAATCTCTTATAGAATTGAAAG	AGATTGTTTTATTAATACCAAGTAGACAATTATATATTTT	spacer
	length:	40	repeater length:	24
32759	2095604	GATAATCTCTTATAGAATTGAAAG	CCAAAACATGTCACATGTGCCGATATTGATATTTACAAA	spacer
	length:	39	repeater length:	24
32760	2095667	GATAATCTCTTATAGAATTGAAAG	AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGAA	spacer
	length:	38	repeater length:	24
32761	2095729	GATAATCTCTTATAGAATTGAAAG	GGGAGTTCCCATTTCGATTTTGGGAACCCTCAAGCACAGTCTGTG	spacer
	length:	44	repeater length:	24
32762	2095797	GATAATCTCTTATAGAATTGAAAG	TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCAT	spacer

length: 41 repeater length: 24
32763 2095862 GATAATCTCTTATAGAATTGAAAG CTAACCTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTGT spacer
length: 38 repeater length: 24
32764 2095924 GATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTTCTGCAGTCTTTGTT spacer length:
36 repeater length: 24
32765 2095984 GATAATCTCTTATAGAATTGAAAG AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTAT spacer
length: 39 repeater length: 24
32766 2096047 GATAATCTCTTATAGAATTGAAAG ATCCGTTCTCCGTCCCGATCCGTACCGTTCTCTGTACT spacer
length: 38 repeater length: 24
32767 2096109 GATAATCTCTTATAGAATTGAAAG AGCATAACTTCATCTTCTTCTACAACCTTCGACAGCTT spacer
length: 37 repeater length: 24
32768 2096170 GATAATCTCTTATAGAATTGAAAG TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATTA spacer
length: 42 repeater length: 24
32769 2096236 GATAATCTCTTATAGAATTGAAAG ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCAT spacer
length: 39 repeater length: 24
32770 2096299 GATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGGT spacer
length: 40 repeater length: 24
32771 2096363 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATA spacer
length: 37 repeater length: 24
32772 2096424 GATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCCC spacer
length: 38 repeater length: 24
32773 2096486 GATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATACA spacer
length: 39 repeater length: 24
32774 2096549 GATAATCTCTTATAGAATTGAAAG ACGAACACACCCCTTAAACTCTTTTTCCAACATTCACCT spacer
length: 40 repeater length: 24
32775 2096613 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGAG spacer
length: 40 repeater length: 24
32776 2096677 GATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATTCCGACCAAAGCTAATA spacer
length: 39 repeater length: 24
32777 2096740 GATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGGT spacer
length: 40 repeater length: 24
32778 2096804 GATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTAG spacer
length: 43 repeater length: 24
32779 2096871 GATAATCTCTTATAGAATTGAAAG ATACAGATTTCTGTTATCCATATCCTACATGACTTTCC spacer
length: 37 repeater length: 24
32780 2096932 GATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAATTAGATATCCATTGACTGTTAT spacer
length: 39 repeater length: 24
32781 2096995 GATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTATT spacer
length: 40 repeater length: 24
32782 2097059 GATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAACG spacer
length: 40 repeater length: 24
32783 2097123 GATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTTGGCCTGAGTA spacer
length: 38 repeater length: 24
32784 2097185 GATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGAT spacer
length: 40 repeater length: 24
32785 2097249 GATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATATA spacer
length: 44 repeater length: 24
32786 2097317 GATAATCTCTTATAGAATTGAAAG CTAAGCAGTGACTCACAGTTTAGACATTCACAAGTATC spacer
length: 38 repeater length: 24
32787 2097379 GATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAGATCTATCTGACAACACGAACTATG spacer
length: 41 repeater length: 24
32788 2097444 GATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGAC spacer
length: 40 repeater length: 24
32789 2097508 GATAATCTCTTATAGAATTGAAAG CAATCCCATTCGTTTTACTCACTTCTAAGAACCTCGC spacer
length: 37 repeater length: 24
32790 2097569 GATAATCTCTTATAGAATTGAAAG AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTCT spacer
length: 40 repeater length: 24
32791 2097633 GATAATCTCTTATAGAATTGAAAG ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCTG spacer
length: 40 repeater length: 24
32792 2097697 GATAATCTCTTATAGAATTGAAAG GTCTTTATGGCCCTCTGGGTCTTTCCACCATTGAGAGGA spacer
length: 39 repeater length: 24
32793 2097760 GATAATCTCTTATAGAATTGAAAG TTATCCTCATTCTATCGGTGAGTGGAACAAATTGGGTAGC spacer
length: 40 repeater length: 24
32794 2097824 GATAATCTCTTATAGAATTGAAAG ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTTT spacer
length: 40 repeater length: 24
32795 2097888 GATAATCTCTTATAGAATTGAAAG AGTTAACAATACTTTATTGTCAAAGAAGCAAGGATATGCG spacer
length: 40 repeater length: 24
32796 2097952 GATAATCTCTTATAGAATTGAAAG TTCAAACCTAGATCTAGAAGATTTCTATCGGCATCTTTACAT spacer
length: 41 repeater length: 24
32797 2098017 GATAATCTCTTATAGAATTGAAAG ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTTC spacer
length: 40 repeater length: 24

32798	2098081	GATAATCTCTTATAGAATTGAAAG	GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTATT	spacer
	length:	39	repeater length:	24
32799	2098144	GATAATCTCTTATAGAATTGAAAG	TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT	spacer
	length:	37	repeater length:	24
32800	2098205	GATAATCTCTTATAGAATTGAAAG	CTACTACATCATCCTCTACCACGCCAAGCCAACAACC	spacer
	length:	37	repeater length:	24
32801	2098266	GATAATCTCTTATAGAATTGAAAG	ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT	spacer
	length:	38	repeater length:	24
32802	2098328	GATAATCTCTTATAGAATTGAAAG	ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACTA	spacer
	length:	41	repeater length:	24
32803	2098393	GATAATCTCTTATAGAATTGAAAG	ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTCT	spacer
	length:	39	repeater length:	24
32804	2098456	GATAATCTCTTATAGAATTGAAAG	AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT	spacer
	length:	37	repeater length:	24
32805	2098517	GATAATCTCTTATAGAATTGAAAG	ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT	spacer
	length:	39	repeater length:	24
32806	2098580	GATAATCTCTTATAGAATTGAAAG	ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTGC	spacer
	length:	41	repeater length:	24
32807	2098645	GATAATCTCTTATAGAATTGAAAG	AAGCCTACACAGGATAGGATACTCAAATTATATGAAAT	spacer
	length:	39	repeater length:	24
32808	2098708	GATAATCTCTTATAGAATTGAAAG	TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCAT	spacer
	length:	42	repeater length:	24
32809	2098774	GATAATCTCTTATAGAATTGAAAG	CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA	spacer
	length:	37	repeater length:	24
32810	2098835	GATAATCTCTTATAGAATTGAAAG	TGTTCTGTCGTTACTGTCGTAAAGCACGTCCTATTAT	spacer
	length:	37	repeater length:	24
32811	2098896	GATAATCTCTTATAGAATTGAAAG	ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC	spacer
	length:	38	repeater length:	24
32812	2098958	GATAATCTCTTATAGAATTGAAAG	TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGAA	spacer
	length:	39	repeater length:	24
32813	2099021	GATAATCTCTTATAGAATTGAAAG	GCACAATTCGCCAACGATTTTCGGTTTCGCTTTATACCTT	spacer
	length:	38	repeater length:	24
32814	2099083	GATAATCTCTTATAGAATTGAAAG	CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTGG	spacer
	length:	41	repeater length:	24
32815	2099148	GATAATCTCTTATAGAATTGAAAG	AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG	spacer
	length:	40	repeater length:	24
32816	2099212	GATAATCTCTTATAGAATTGAAAG	ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGAT	spacer
	length:	42	repeater length:	24
32817	2099278	GATAATCTCTTATAGAATTGAAAG	TTCTGTTTCGAAGAAAACCCGCCTCAGATTCATTATGGG	spacer
	length:	39	repeater length:	24
32818	2099341	GATAATCTCTTATAGAATTGAAAG	AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAAA	spacer
	length:	39	repeater length:	24
32819	2099404	GATAATCTCTTATAGAATTGAAAG	CCTCATCGTAAACATGCAATCTTGCATATTCAGTGTA	spacer
	length:	37	repeater length:	24
32820	2099465	GATAATCTCTTATAGAATTGAAAG	GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCCT	spacer
	length:	39	repeater length:	24
32821	2099528	GATAATCTCTTATAGAATTGAAAG	ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT	spacer
	length:	41	repeater length:	24
32822	2099593	GATAATCTCTTATAGAATTGAAAG	GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCGT	spacer
	length:	38	repeater length:	24
32823	2099655	GATAATCTCTTATAGAATTGAAAG	ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA	spacer
	length:	39	repeater length:	24
32824	2099718	GATAATCTCTTATAGAATTGAAAG	AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA	spacer
	length:	37	repeater length:	24
32825	2099779	GATAATCTCTTATAGAATTGAAAG	CGTTC TAGAGCTAAACGATGCATACGCGTGGTACAATA	spacer
	length:	40	repeater length:	24
32826	2099843	GATAATCTCTTATAGAATTGAAAG	ATTTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATT	spacer
	length:	41	repeater length:	24
32827	2099908	GATAATCTCTTATAGAATTGAAAG	TCAAATAAGGAACAACTCTGGGTAAGCCCACAATACGCAA	spacer
	length:	40	repeater length:	24
32828	2099972	GATAATCTCTTATAGAATTGAAAG	CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAAC	spacer
	length:	38	repeater length:	24
32829	2100034	GATAATCTCTTATAGAATTGAAAG	TAAACTAGATCCTTATATTTACGTAAATGTAAAGGGG	spacer
	length:	38	repeater length:	24
32830	2100096	GATAATCTCTTATAGAATTGAAAG	TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAATA	spacer
	length:	38	repeater length:	24
32831	2100158	GATAATCTCTTATAGAATTGAAAG	GTTTCATCAGTTCTACCTTTTGGTCCAAAGGCTGATCCAA	spacer
	length:	39	repeater length:	24
32832	2100221	GATAATCTCTTATAGAATTGAAAG		
32833				
32834				

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32835 crispr 5
32836 2499489 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGTG spacer
length: 39 repeater length: 24
32837 2499552 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAACTCAAATA spacer
length: 42 repeater length: 24
32838 2499618 GATAATCTACTATAGAATTGAAAG CCCATTTCATCTCTTTCTTTGCAGCTTTGTTCTAGCATT spacer
length: 39 repeater length: 24
32839 2499681 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTGA spacer
length: 41 repeater length: 24
32840 2499746 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTCACTCTGCGTATCATTATGGATAA spacer
length: 44 repeater length: 24
32841 2499814 GATAATCTACTATAGAATTGAAAG CCCGCCAGCCAGACTGTTTTTCAGCCCAAACCGGCTAATT spacer
length: 40 repeater length: 24
32842 2499878 GATAATCTACTATAGAATTGAAAG
32843
32844
32845 GCA_003852155.1_ASM385215v1_genomic.fna (PilerCR):
32846 START REPEAT
SPACER
32847 crispr 1
32848 2053142 GATTAATCCCAAAAGGAATTGAAAG TCACATCCCTCACAATCCATAATGAAAATGTCGGCAT spacer
length: 37 repeater length: 25
32849 2053204 GATTAATCCCAAAAGGAATTGAAAG ATTTTAGCAATGCAATAGATCAACAATTGAAAGAACT spacer
length: 38 repeater length: 25
32850 2053267 GATTAATCCCAAAAGGAATTGAAAG ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTTC spacer
length: 39 repeater length: 25
32851 2053331 GATTAATCCCAAAAGGAATTGAAAG TGTTTCACAAATTTCAAACCTGCAAACGCAACAATTAAATA spacer
length: 41 repeater length: 25
32852 2053397 GATTAATCCCAAAAGGAATTGAAAG GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTGG spacer
length: 40 repeater length: 25
32853 2053462 GATTAATCCCAAAAGGAATTGAAAG TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACTC spacer
length: 38 repeater length: 25
32854 2053525 GATTAATCCCAAAAGGAATTGAAAG GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAGT spacer
length: 39 repeater length: 25
32855 2053589 GATTAATCCCAAAAGGAATTGAAAG CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTCT spacer
length: 41 repeater length: 25
32856 2053655 GATTAATCCCAAAAGGAATTGAAAG CAAATTTCAAACCTTTGGGAATTTCTAGTTTCAAATTTTC spacer
length: 40 repeater length: 25
32857 2053720 GATTAATCCCAAAAGGAATTGAAAG TTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGAC spacer
length: 39 repeater length: 25
32858 2053784 GATTAATCCCAAAAGGAATTGAAAG CGCTTTCGACTGCGACAACCTGTCGTTTGGCTCATTTGTTGC spacer
length: 41 repeater length: 25
32859 2053850 GATTAATCCCAAAAGGAATTGAAAG TTATTTCAAATACTATTATCTCCGCCATATGTTTACAT spacer
length: 38 repeater length: 25
32860 2053913 GATTAATCCCAAAAGGAATTGAAAG ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATTT spacer
length: 38 repeater length: 25
32861 2053976 GATTAATCCCAAAAGGAATTGAAAG TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTC spacer
length: 40 repeater length: 25
32862 2054041 GATTAATCCCAAAAGGAATTGAAAG CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAATA spacer
length: 39 repeater length: 25
32863 2054105 GATTAATCCCAAAAGGAATTGAAAG AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTTC
spacer length: 44 repeater length: 25
32864 2054174 GATTAATCCCAAAAGGAATTGAAAG GCTTTAACTTGGTACGCACTTTACGCCATGATAAACG spacer
length: 37 repeater length: 25
32865 2054236 GATTAATCCCAAAAGGAATTGAAAG GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGTT spacer
length: 39 repeater length: 25
32866 2054300 GATTAATCCCAAAAGGAATTGAAAG GTTGAATTTTGTCAACTGGTATGTTGTATTTTGTGCA spacer
length: 36 repeater length: 25
32867 2054361 GATTAATCCCAAAAGGAATTGAAAG AATTTGTTACACGGCTAGGATTTTTTTTCTAGATGTACAAT spacer
length: 42 repeater length: 25
32868 2054428 GATTAATCCCAAAAGGAATTGAAAG TTCTAATCTTTTGCCATTACTGCATCATATCTACTAG spacer
length: 38 repeater length: 25
32869 2054491 GATTAATCCCAAAAGGAATTGAAAG ATCTTTACCTTTATATAAATCTTGTTTCGTAACAAATAA spacer
length: 38 repeater length: 25
32870 2054554 GATTAATCCCAAAAGGAATTGAAAG ACAAACGAGGAGTTTATAGTAAATCAACTATGAAA spacer
length: 37 repeater length: 25
32871 2054616 GATTAATCCCAAAAGGAATTGAAAG ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAAG spacer length:
35 repeater length: 25
32872 2054676 GATTAATCCCAAAAGGAATTGAAAG AACTACAACGAGGTGAGAAACGATGACTAAACGTTT spacer
length: 36 repeater length: 25
32873 2054737 GATTAATCCCAAAAGGAATTGAAAG TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATTG spacer

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length: 38 repeater length: 25
32874 2054800 GATTAATCCCAAAAGGAATTGAAAG TAGATATATGGCGATGAATTGCATTAGTCAGTGGTG spacer
length: 36 repeater length: 25
32875 2054861 GATTAATCCCAAAAGGAATTGAAAG ATTTTAAACGCTATGACGCTAGCCCTCATGTTAGCTTTT spacer
length: 39 repeater length: 25
32876 2054925 GATTAATCCCAAAAGGAATTGAAAG AAAGTTTGTCTTCTGTTTCGTTTTGTTGTTCTGACT spacer
length: 37 repeater length: 25
32877 2054987 GATTAATCCCAAAAGGAATTGAAAG CCCCTTTTGCCGTCTTTTGTAGTTACCACAATGCACCAA spacer
length: 38 repeater length: 25
32878 2055050 GATTAATCCCAAAAGGAATTGAAAG CCGTATCCAGAAATAATTAACCAATCGCTTGTGTTGTGAC spacer
length: 39 repeater length: 25
32879 2055114 GATTAATCCCAAAAGGAATTGAAAG AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCAA spacer
length: 37 repeater length: 25
32880 2055176 GATTAATCCCAAAAGGAATTGAAAG GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGTG spacer
length: 42 repeater length: 25
32881 2055243 GATTAATCCCAAAAGGAATTGAAAG GCATCTGTCGGCAACCTCACTTATTCACGTGGGGGTGCG spacer
length: 39 repeater length: 25
32882 2055307 GATTAATCCCAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTGA spacer
length: 37 repeater length: 25
32883 2055369 GATTAATCCCAAAAGGAATTGAAAG TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTTG spacer
length: 39 repeater length: 25
32884 2055433 GATTAATCCCAAAAGGAATTGAAAG TTGAACTTGTAGAAATTGTTTCATATGAAACAGCATAATTTTC spacer
length: 42 repeater length: 25
32885 2055500 GATTAATCCCAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAACG spacer
length: 40 repeater length: 25
32886 2055565 GATTAATCCCAAAAGGAATTGAAAG CTCATTATTTTCATCATAAAGATTATCCACTGCAATT spacer
length: 36 repeater length: 25
32887 2055626 GATTAATCCCAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCCTCTTTACGCATTTCT spacer
length: 39 repeater length: 25
32888 2055690 GATTAATCCCAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGCG spacer
length: 36 repeater length: 25
32889 2055751 GATTAATCCCAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACAT spacer
length: 39 repeater length: 25
32890 2055815 GATTAATCCCAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTATG spacer
length: 41 repeater length: 25
32891 2055881 GATTAATCCCAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTCT spacer
length: 41 repeater length: 25
32892 2055947 GATTAATCCCAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAGACTTTTCAGCCCTC spacer
length: 36 repeater length: 25
32893 2056008 GATTAATCCCAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAATC spacer
length: 36 repeater length: 25
32894 2056069 GATTAATCCCAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTGT spacer
length: 39 repeater length: 25
32895 2056133 GATTAATCCCAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTTCAT spacer length:
34 repeater length: 25
32896 2056192 GATTAATCCCAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCAT spacer
length: 38 repeater length: 25
32897 2056255 GATTAATCCCAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCATT spacer
length: 40 repeater length: 25
32898 2056320 GATTAATCCCAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCGG spacer
length: 40 repeater length: 25
32899 2056385 GATTAATCCCAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTCTG spacer
length: 40 repeater length: 25
32900 2056450 GATTAATCCCAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTGC spacer
length: 39 repeater length: 25
32901 2056514 GATTAATCCCAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCATT spacer
length: 40 repeater length: 25
32902 2056579 GATTAATCCCAAAAGGAATTGAAAG CCCCACTGGAATGCACCATTTCTTGCAAGTAATACATTT spacer
length: 39 repeater length: 25
32903 2056643 GATTAATCCCAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTGC spacer
length: 40 repeater length: 25
32904 2056708 GATTAATCCCAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATACT spacer
length: 38 repeater length: 25
32905 2056771 GATTAATCCCAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCAG spacer
length: 39 repeater length: 25
32906 2056835 GATTAATCCCAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCTT spacer
length: 37 repeater length: 25
32907 2056897 GATTAATCCCAAAAGGAATTGAAAG TTTTATTTAAGAACACTGATGGAAAGATCTATAG spacer length:
35 repeater length: 25
32908 2056957 GATTAATCCCAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCTA spacer
length: 37 repeater length: 25

32909	2057019	GATTAATCCCAAAAAGGAATTGAAAG	TGATTGCGTTACGTCACCATGGGGCTATTTCGTTCTGAT	spacer
		length: 38	repeater length: 25	
32910	2057082	GATTAATCCCAAAAAGGAATTGAAAG	TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACATT	spacer
		length: 39	repeater length: 25	
32911	2057146	GATTAATCCCAAAAAGGAATTGAAAG	CACTACATCTATTGTTTTTCCTTTTGTAAAGACATTCTCA	spacer
		length: 40	repeater length: 25	
32912	2057211	GATTAATCCCAAAAAGGAATTGAAAG	CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCGG	spacer
		length: 40	repeater length: 25	
32913	2057276	GATTAATCCCAAAAAGGAATTGAAAG	ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATTC	spacer
		length: 39	repeater length: 25	
32914	2057340	GATTAATCCCAAAAAGGAATTGAAAG	GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTCGTC	spacer
		length: 42	repeater length: 25	
32915	2057407	GATTAATCCCAAAAAGGAATTGAAAG	GTATTCAAAAGAGAACTGGGGGATTCAAGGTAATACCT	spacer
		length: 38	repeater length: 25	
32916	2057470	GATTAATCCCAAAAAGGAATTGAAAG	CTCCGTAAGGCCCCCATACAGTAAAGTAGCAGTTTT	spacer
		length: 36	repeater length: 25	
32917	2057531	GATTAATCCCAAAAAGGAATTGAAAG	ATAGAAATATAAATCTCAGCAATTCTTGATATATTGT	spacer
		length: 37	repeater length: 25	
32918	2057593	GATTAATCCCAAAAAGGAATTGAAAG	TCCGTTATCATGTTGACTGGAAATGCGTTTAATAGT	spacer
		length: 36	repeater length: 25	
32919	2057654	GATTAATCCCAAAAAGGAATTGAAAG	ACCCACAGCACATTGCCATATCCACTAAAATTATACTGA	spacer
		length: 39	repeater length: 25	
32920	2057718	GATTAATCCCAAAAAGGAATTGAAAG	ATAAATATGTTAACGAATGTTGTAAATTGGTATTCGTT	spacer
		length: 38	repeater length: 25	
32921	2057781	GATTAATCCCAAAAAGGAATTGAAAG	AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTTT	spacer
		length: 38	repeater length: 25	
32922	2057844	GATTAATCCCAAAAAGGAATTGAAAG	TCAAATCATGAAGCTACTGTAATCCATTTACATAAA	spacer
		length: 38	repeater length: 25	
32923	2057907	GATTAATCCCAAAAAGGAATTGAAAG	ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAATT	spacer
		length: 38	repeater length: 25	
32924	2057970	GATTAATCCCAAAAAGGAATTGAAAG	ATTATATTGATAAATTGATAAGAATGCCCGAAAATGATTT	spacer
		length: 40	repeater length: 25	
32925	2058035	GATTAATCCCAAAAAGGAATTGAAAG	AAAAACTTTTCACATTCGACATTAAAAAATAAAATAATTTTG	spacer
		length: 42	repeater length: 25	
32926	2058102	GATTAATCCCAAAAAGGAATTGAAAG	AATTCGTATACCTTAGTAGTATTATCATCAATATTGTAT	spacer
		length: 39	repeater length: 25	
32927	2058166	GATTAATCCCAAAAAGGAATTGAAAG	TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTAG	spacer
		length: 39	repeater length: 25	
32928	2058230	GATTAATCCCAAAAAGGAATTGAAAG	TCTACGTTGTAAATTCATATACAGCTTGGCTCATAT	spacer
		length: 37	repeater length: 25	
32929	2058292	GATTAATCCCAAAAAGGAATTGAAAG	ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTAT	spacer
		length: 38	repeater length: 25	
32930	2058355	GATTAATCCCAAAAAGGAATTGAAAG	AGTATACAACAATGCAATAAGTGTTGATAGCTTTCATCTT	spacer
		length: 41	repeater length: 25	
32931	2058421	GATTAATCCCAAAAAGGAATTGAAAG	CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTAC	spacer
		length: 40	repeater length: 25	
32932	2058486	GATTAATCCCAAAAAGGAATTGAAAG	CAGCAAGAAGTTCACCTCTCTACATCTTATGATTTTCGG	spacer
		length: 37	repeater length: 25	
32933	2058548	GATTAATCCCAAAAAGGAATTGAAAG	CGTTTTCGTCTGGATTATTTATTATCTCTAAGCCCT	spacer
		length: 36	repeater length: 25	
32934	2058609	GATTAATCCCAAAAAGGAATTGAAAG	ACCTTTATTTTAAAGTCCTAGCCTCTTCCCTATCCAT	spacer
		length: 36	repeater length: 25	
32935	2058670	GATTAATCCCAAAAAGGAATTGAAAG	TTGTTTTACCTCCTTATTAAAAGCGACAGACGGTCGAC	spacer
		length: 38	repeater length: 25	
32936	2058733	GATTAATCCCAAAAAGGAATTGAAAG	TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTTT	spacer
		length: 37	repeater length: 25	
32937	2058795	GATTAATCCCAAAAAGGAATTGAAAG	CTTTGATTGTCCGCTCTCGTTCCTTTCCACACTGAAGATG	spacer
		length: 40	repeater length: 25	
32938	2058860	GATTAATCCCAAAAAGGAATTGAAAG	AGCTTTATGACACTCATTATCATATACTCAAAATTATA	spacer
		length: 38	repeater length: 25	
32939	2058923	GATTAATCCCAAAAAGGAATTGAAAG	TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGCC	spacer
		length: 40	repeater length: 25	
32940	2058988	GATTAATCCCAAAAAGGAATTGAAAG	CAGCTCGACGATGACGAATACAAGATGCTGTATAATGCG	spacer
		length: 39	repeater length: 25	
32941	2059052	GATTAATCCCAAAAAGGAATTGAAAG	TTTCTCAACTGATCCACGGCTTCAGAGAAGATGTTTGGAT	spacer
		length: 40	repeater length: 25	
32942	2059117	GATTAATCCCAAAAAGGAATTGAAAG	GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGATG	spacer
		length: 39	repeater length: 25	
32943	2059181	GATTAATCCCAAAAAGGAATTGAAAG	CTCAGCAGATTTAACTAACGATATTAATTGTACACACTG	spacer
		length: 40	repeater length: 25	
32944	2059246	GATTAATCCCAAAAAGGAATTGAAAG	TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCAA	spacer

length: 39 repeater length: 25
32945 2059310 GATTAATCCCAAAAGGAATTGAAAG CAAGTGCAATAGCAAACCTACTACTAAATATAACATATAT spacer
length: 39 repeater length: 25
32946 2059374 GATTAATCCCAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAACTAAAATCGTGGCTTTA spacer
length: 38 repeater length: 25
32947 2059437 GATTAATCCCAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAGT spacer
length: 39 repeater length: 25
32948 2059501 GATTAATCCCAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACTAAGAGAAAATTGTTTCAA spacer
length: 41 repeater length: 25
32949 2059567 GATTAATCCCAAAAGGAATTGAAAG TCTACAATGAATCTGTCATAAAGTGCCCGCAACTCTT spacer
length: 38 repeater length: 25
32950 2059630 GATTAATCCCAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTTT spacer
length: 36 repeater length: 25
32951 2059691 GATTAATCCCAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATGT spacer
length: 39 repeater length: 25
32952 2059755 GATTAATCCCAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTTT spacer
length: 39 repeater length: 25
32953 2059819 GATTAATCCCAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGGC spacer
length: 36 repeater length: 25
32954 2059880 GATTAATCCCAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCTC spacer
length: 39 repeater length: 25
32955 2059944 GATTAATCCCAAAAGGAATTGAAAG TCGTAAACTTGAACTGACCCGTATATCCGAATTTAC spacer
length: 37 repeater length: 25
32956 2060006 GATTAATCCCAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCTA spacer
length: 39 repeater length: 25
32957 2060070 GATTAATCCCAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATATT spacer
length: 37 repeater length: 25
32958 2060132 GATTAATCCCAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCTA spacer
length: 39 repeater length: 25
32959 2060196 GATTAATCCCAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAAG spacer
length: 36 repeater length: 25
32960 2060257 GATTAATCCCAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCCT spacer
length: 38 repeater length: 25
32961 2060320 GATTAATCCCAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACCTTTTGCATACGACATAATTT spacer
length: 40 repeater length: 25
32962 2060385 GATTAATCCCAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACTT spacer
length: 39 repeater length: 25
32963 2060449 GATTAATCCCAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGCT spacer
length: 37 repeater length: 25
32964 2060511 GATTAATCCCAAAAGGAATTGAAAG
32965
32966
32967 crispr 2
32968 2075059 CTTTCAATTCCTTTTAGGATTAATC TTGAAGATAGAGTTAAATGAACTTTTGATGACACAAAA spacer
length: 38 repeater length: 25
32969 2075122 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCAA spacer
length: 41 repeater length: 25
32970 2075188 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTGA spacer
length: 39 repeater length: 25
32971 2075252 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATAT spacer
length: 37 repeater length: 25
32972 2075314 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAAT spacer
length: 38 repeater length: 25
32973 2075377 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAACTCATTCAGAGTCTCTTCCAACCCGTACA spacer
length: 40 repeater length: 25
32974 2075442 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGCG spacer length:
35 repeater length: 25
32975 2075502 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG spacer
length: 39 repeater length: 25
32976 2075566 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG spacer
length: 39 repeater length: 25
32977 2075630 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAATATTGGTGGAGTAGTTGATTTGATAATAT spacer
length: 41 repeater length: 25
32978 2075696 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTAA spacer
length: 39 repeater length: 25
32979 2075760 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGATA spacer
length: 39 repeater length: 25
32980 2075824 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGAA spacer
length: 37 repeater length: 25
32981 2075886 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGAT spacer
length: 37 repeater length: 25

32982	2075948	CTTTCAATTCCTTTTAGGATTAATC	CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTGA	spacer
		length: 40	repeater length: 25	
32983	2076013	CTTTCAATTCCTTTTAGGATTAATC	CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTACA	spacer
		length: 38	repeater length: 25	
32984	2076076	CTTTCAATTCCTTTTAGGATTAATC	CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAAA	spacer
		length: 40	repeater length: 25	
32985	2076141	CTTTCAATTCCTTTTAGGATTAATC	GAGTGAGACCATGATCATTAACACTGATATTACGGTAAG	spacer
		length: 39	repeater length: 25	
32986	2076205	CTTTCAATTCCTTTTAGGATTAATC	AACAAAACCTTCACCAGTGATGGAACATTTGAATGTAA	spacer
		length: 37	repeater length: 25	
32987	2076267	CTTTCAATTCCTTTTAGGATTAATC	AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATACT	spacer
		length: 40	repeater length: 25	
32988	2076332	CTTTCAATTCCTTTTAGGATTAATC	ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATAT	spacer
		length: 42	repeater length: 25	
32989	2076399	CTTTCAATTCCTTTTAGGATTAATC	GAATATACAGAGAATAGAGAATAGAGAACAGAGAACGG	spacer
		length: 38	repeater length: 25	
32990	2076462	CTTTCAATTCCTTTTAGGATTAATC	CCGTGATCAGATACAGTAACAGTCATGTTTTTATCT	spacer
		length: 36	repeater length: 25	
32991	2076523	CTTTCAATTCCTTTTAGGATTAATC	CATGGAAACGGGAGGAGGGTGAGACAATGAAGGTTAC	spacer
		length: 37	repeater length: 25	
32992	2076585	CTTTCAATTCCTTTTAGGATTAATC	CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAACT	spacer
		length: 38	repeater length: 25	
32993	2076648	CTTTCAATTCCTTTTAGGATTAATC	GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTAG	spacer
		length: 40	repeater length: 25	
32994	2076713	CTTTCAATTCCTTTTAGGATTAATC	AAATTCTGCAAAGGTAACACAATTGACGAGGTAAA	spacer length: 35
		length: 35	repeater length: 25	
32995	2076773	CTTTCAATTCCTTTTAGGATTAATC	CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCAA	spacer
		length: 40	repeater length: 25	
32996	2076838	CTTTCAATTCCTTTTAGGATTAATC	TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAACT	spacer
		length: 40	repeater length: 25	
32997	2076903	CTTTCAATTCCTTTTAGGATTAATC	GGCATAACCGCTGCTTTCCGCTGCTGCTAATTGGTCTC	spacer
		length: 41	repeater length: 25	
32998	2076969	CTTTCAATTCCTTTTAGGATTAATC	CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCTT	spacer
		length: 39	repeater length: 25	
32999	2077033	CTTTCAATTCCTTTTAGGATTAATC	ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAAT	spacer
		length: 38	repeater length: 25	
33000	2077096	CTTTCAATTCCTTTTAGGATTAATC	AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTAG	spacer
		length: 40	repeater length: 25	
33001	2077161	CTTTCAATTCCTTTTAGGATTAATC	GGCATTAGAATATGGGTAAAAACTTATAGCGACGAAGA	spacer
		length: 38	repeater length: 25	
33002	2077224	CTTTCAATTCCTTTTAGGATTAATC	TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGAT	spacer
		length: 36	repeater length: 25	
33003	2077285	CTTTCAATTCCTTTTAGGATTAATC		
33004				
33005				
33006		crispr 3		
33007	2077346	CTTTCAATTCCTTTTAGGATTAATC	GAATTCTATCAAGTATTGCGGAAGTAAATACTTCATATTTATCA	spacer length: 44
		length: 44	repeater length: 25	
33008	2077415	CTTTCAATTCCTTTTAGGATTAATC	TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGTG	spacer
		length: 38	repeater length: 25	
33009	2077478	CTTTCAATTCCTTTTAGGATTAATC	CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGCT	spacer
		length: 36	repeater length: 25	
33010	2077539	CTTTCAATTCCTTTTAGGATTAATC	CACATTAGCAAGAATCGTGCTAGCTACAGTTGGATT	spacer
		length: 36	repeater length: 25	
33011	2077600	CTTTCAATTCCTTTTAGGATTAATC	AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTTT	spacer
		length: 39	repeater length: 25	
33012	2077664	CTTTCAATTCCTTTTAGGATTAATC	TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTCT	spacer
		length: 41	repeater length: 25	
33013	2077730	CTTTCAATTCCTTTTAGGATTAATC	GGTAATGGTCTGTATATTGTCTTTAAGTATTTAT	spacer length: 34
		length: 34	repeater length: 25	
33014	2077789	CTTTCAATTCCTTTTAGGATTAATC	AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTAA	spacer
		length: 39	repeater length: 25	
33015	2077853	CTTTCAATTCCTTTTAGGATTAATC	CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAAG	spacer
		length: 40	repeater length: 25	
33016	2077918	CTTTCAATTCCTTTTAGGATTAATC	ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCATT	spacer
		length: 40	repeater length: 25	
33017	2077983	CTTTCAATTCCTTTTAGGATTAATC	ATTAGCTAAACCATTTCAAAGGCTAACATCTTCTATGT	spacer
		length: 38	repeater length: 25	
33018	2078046	CTTTCAATTCCTTTTAGGATTAATC	ATAAATCCACAAAGTGGCCGTTCAAAGCAAAGAGTTTATT	spacer
		length: 40	repeater length: 25	
33019	2078111	CTTTCAATTCCTTTTAGGATTAATC	TGATATTTATTTTCTCGTGAAAAGTGGAGGGCCTAGAAC	spacer

length: 39 repeater length: 25
33020 2078175 CTTTCAATTCCTTTTAGGATTAATC ATTATATCATGGAGACCCAGGTGCTGTGACTATCAA spacer
length: 36 repeater length: 25
33021 2078236 CTTTCAATTCCTTTTAGGATTAATC AATTAGCCAGCGTGCCATCTGGGTAAACGTGTATTTTGGTTAA spacer
length: 43 repeater length: 25
33022 2078304 CTTTCAATTCCTTTTAGGATTAATC ATAATATATTTTCGTTCCAACCTACACCTAATGGATTTCGGG spacer
length: 39 repeater length: 25
33023 2078368 CTTTCAATTCCTTTTAGGATTAATC TAATTGTCTGCCCTTGAGTTCCACTGAGAGAAACGC spacer
length: 36 repeater length: 25
33024 2078429 CTTTCAATTCCTTTTAGGATTAATC AAAAGACGTACAAATATACATCGCACCGAACGGACACAT spacer
length: 39 repeater length: 25
33025 2078493 CTTTCAATTCCTTTTAGGATTAATC GGGTGCGTGCCCCACAGGTCGCGGGTCTACCCCTTGC spacer
length: 37 repeater length: 25
33026 2078555 CTTTCAATTCCTTTTAGGATTAATC TTATGTCGTTATCTTCTTCGTTTTTGTCTGCGTTGTTT spacer
length: 37 repeater length: 25
33027 2078617 CTTTCAATTCCTTTTAGGATTAATC
33028
33029
33030 crispr 4
33031 2078736 CTTTCAATTCCTTTTGGGATTAATC GCTTCTTCCCAACGCTGTACGTACTCTTAGGTGTCACA spacer
length: 38 repeater length: 25
33032 2078799 CTTTCAATTCCTTTTGGGATTAATC AATTACAGGAAAAAGACGAACCTAAATGAGGAAGAAATG spacer
length: 38 repeater length: 25
33033 2078862 CTTTCAATTCCTTTTGGGATTAATC TACTCAATTTGTGCGCAGTTTTTCATTGAGGGAGACTT spacer
length: 38 repeater length: 25
33034 2078925 CTTTCAATTCCTTTTGGGATTAATC AAAAATTCTGAGTGCAATGTATAATGAAAATATGGATAATA spacer
length: 41 repeater length: 25
33035 2078991 CTTTCAATTCCTTTTGGGATTAATC TGTTGTCCAAATAAATGCTGTACCGACTAACAATAATGTA spacer
length: 40 repeater length: 25
33036 2079056 CTTTCAATTCCTTTTGGGATTAATC CAGGAGTTGGAGGTATTATCGGAGCATTGTTAGCAT spacer
length: 36 repeater length: 25
33037 2079117 CTTTCAATTCCTTTTGGGATTAATC ATGATTTGAAAATAGATGAAGAGCTATCTAAACTCATTCC spacer
length: 40 repeater length: 25
33038 2079182 CTTTCAATTCCTTTTGGGATTAATC ACCACATTATGAAGGTACTCCAGAATTCTCTAAGAT spacer
length: 36 repeater length: 25
33039 2079243 CTTTCAATTCCTTTTGGGATTAATC TAGATCTATTTCGCAGAGTTTGCATCAACACATAAGTAC spacer
length: 38 repeater length: 25
33040 2079306 CTTTCAATTCCTTTTGGGATTAATC ATAATATGGTGAAAATTGAAGGTGAATCATTAGCAAA spacer
length: 37 repeater length: 25
33041 2079368 CTTTCAATTCCTTTTGGGATTAATC AATTTTTTGTTTAAAGATGATTTCAGTGGAAGAATATTA spacer
length: 38 repeater length: 25
33042 2079431 CTTTCAATTCCTTTTGGGATTAATC CAATCCCAAAAAGTAAATCCCAATCTTCAAATAATATGG spacer
length: 40 repeater length: 25
33043 2079496 CTTTCAATTCCTTTTGGGATTAATC
33044
33045
33046 crispr 5
33047 2090896 GATAATCTCTTATAGAATTGAAAG TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGGC spacer
length: 38 repeater length: 24
33048 2090958 GATAATCTCTTATAGAATTGAAAG CAACGCCAACTCCGCCAATTTCCGCATTGATGTTTCGCTGG spacer
length: 40 repeater length: 24
33049 2091022 GATAATCTCTTATAGAATTGAAAG TCTTCAAACCTCCCACGGCACAACGGAGGCATGCAAATTATT spacer
length: 42 repeater length: 24
33050 2091088 GATAATCTCTTATAGAATTGAAAG GTAGTAAGCTTTCCTTCTTTATCCTCTAGACCGCTGTAGT spacer
length: 40 repeater length: 24
33051 2091152 GATAATCTCTTATAGAATTGAAAG AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTCA spacer
length: 38 repeater length: 24
33052 2091214 GATAATCTCTTATAGAATTGAAAG GAACTGTCGTGGTGTTCATGAAATATGGGTATGCATATT spacer
length: 39 repeater length: 24
33053 2091277 GATAATCTCTTATAGAATTGAAAG GCAAAGAGTCCATTCAATAACACATATTTTGCACATAAG spacer
length: 39 repeater length: 24
33054 2091340 GATAATCTCTTATAGAATTGAAAG AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGCT spacer
length: 39 repeater length: 24
33055 2091403 GATAATCTCTTATAGAATTGAAAG ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTCT spacer
length: 39 repeater length: 24
33056 2091466 GATAATCTCTTATAGAATTGAAAG CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTAA spacer
length: 40 repeater length: 24
33057 2091530 GATAATCTCTTATAGAATTGAAAG CTATCCCCAAATCATCTGCCTAATGCGTCAGGAGGGAG spacer
length: 39 repeater length: 24
33058 2091593 GATAATCTCTTATAGAATTGAAAG ACCACGAGCACGACCTCAAATATAACACCGCCAAAAATC spacer
length: 39 repeater length: 24

33059	2091656	GATAATCTCTTATAGAATTGAAAG	TATCTTCCAGATGTCTCAGAAACGCCTTAAATTATTGAT	spacer
	length:	40	repeater length:	24
33060	2091720	GATAATCTCTTATAGAATTGAAAG	TACATTAGACCCTAGTTGGTTTATCGCTGGTAACGTCG	spacer
	length:	38	repeater length:	24
33061	2091782	GATAATCTCTTATAGAATTGAAAG	ACACTTAGCGACATAAAAACCGCACTGACTTACAATTACC	spacer
	length:	40	repeater length:	24
33062	2091846	GATAATCTCTTATAGAATTGAAAG	CGACATACATATATATGCATTTCCGTGGGAGTGTTACAAA	spacer
	length:	40	repeater length:	24
33063	2091910	GATAATCTCTTATAGAATTGAAAG	ACATATGGTTGGTCTCCAACATTTGGTGAGTATATCT	spacer
	length:	37	repeater length:	24
33064	2091971	GATAATCTCTTATAGAATTGAAAG	GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCTT	spacer
	length:	38	repeater length:	24
33065	2092033	GATAATCTCTTATAGAATTGAAAG	ACTTAAGACATTAAACGTTGCCCTAGGTGAAGTAGGCAA	spacer
	length:	39	repeater length:	24
33066	2092096	GATAATCTCTTATAGAATTGAAAG	AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGAA	spacer
	length:	38	repeater length:	24
33067	2092158	GATAATCTCTTATAGAATTGAAAG	CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTAT	spacer
	length:	38	repeater length:	24
33068	2092220	GATAATCTCTTATAGAATTGAAAG	TCTGATAGCACCAGACAAGTAAAGCGTATATCCTAGTCAA	spacer
	length:	41	repeater length:	24
33069	2092285	GATAATCTCTTATAGAATTGAAAG	AACATATTCTGGTACGGGTTGCCATCTGGTACACCATT	spacer
	length:	39	repeater length:	24
33070	2092348	GATAATCTCTTATAGAATTGAAAG	TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAAA	spacer
	length:	39	repeater length:	24
33071	2092411	GATAATCTCTTATAGAATTGAAAG	AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAGG	spacer
	length:	37	repeater length:	24
33072	2092472	GATAATCTCTTATAGAATTGAAAG	CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGTC	spacer
	length:	38	repeater length:	24
33073	2092534	GATAATCTCTTATAGAATTGAAAG	ACATCGCAAGCGATCTATTGTTCACTCTATTCTGGCGGC	spacer
	length:	40	repeater length:	24
33074	2092598	GATAATCTCTTATAGAATTGAAAG	AACCTCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA	spacer
	length:	38	repeater length:	24
33075	2092660	GATAATCTCTTATAGAATTGAAAG	CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA	spacer
	length:	37	repeater length:	24
33076	2092721	GATAATCTCTTATAGAATTGAAAG	AATTTGAACATAATTCGGCCTCGTCAGTTTTCCACAGATA	spacer
	length:	40	repeater length:	24
33077	2092785	GATAATCTCTTATAGAATTGAAAG	TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT	spacer
	length:	39	repeater length:	24
33078	2092848	GATAATCTCTTATAGAATTGAAAG	TTTACTGACAACGCCATCATACTTACTAGCCCACTAA	spacer
	length:	38	repeater length:	24
33079	2092910	GATAATCTCTTATAGAATTGAAAG	GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGGA	spacer
	length:	40	repeater length:	24
33080	2092974	GATAATCTCTTATAGAATTGAAAG	TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT	spacer
	length:	41	repeater length:	24
33081	2093039	GATAATCTCTTATAGAATTGAAAG	CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG	spacer
	length:	37	repeater length:	24
33082	2093100	GATAATCTCTTATAGAATTGAAAG	ATCTGAATTTCCCTCAGCTTCCATTGCATAATTTATTCTA	spacer
	length:	39	repeater length:	24
33083	2093163	GATAATCTCTTATAGAATTGAAAG	TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT	spacer
	length:	40	repeater length:	24
33084	2093227	GATAATCTCTTATAGAATTGAAAG	ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTC	spacer
	length:	38	repeater length:	24
33085	2093289	GATAATCTCTTATAGAATTGAAAG	TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAGC	spacer
	length:	38	repeater length:	24
33086	2093351	GATAATCTCTTATAGAATTGAAAG	GTCAAAATTGCCCAACCGAACGTTAGCAAAATGCAGCAC	spacer
	length:	40	repeater length:	24
33087	2093415	GATAATCTCTTATAGAATTGAAAG	TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA	spacer
	length:	41	repeater length:	24
33088	2093480	GATAATCTCTTATAGAATTGAAAG	GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAACC	spacer
	length:	39	repeater length:	24
33089	2093543	GATAATCTCTTATAGAATTGAAAG	GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGTT	spacer
	length:	39	repeater length:	24
33090	2093606	GATAATCTCTTATAGAATTGAAAG	TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT	spacer
	length:	40	repeater length:	24
33091	2093670	GATAATCTCTTATAGAATTGAAAG	GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT	spacer length:
	length:	35	repeater length:	24
33092	2093729	GATAATCTCTTATAGAATTGAAAG	GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC	spacer
	length:	39	repeater length:	24
33093	2093792	GATAATCTCTTATAGAATTGAAAG	CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAAT	spacer length:
	length:	36	repeater length:	24
33094	2093852	GATAATCTCTTATAGAATTGAAAG	AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTTG	spacer

length: 38 repeater length: 24

33095 2093914 GATAATCTCTTATAGAATTGAAAG ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATTA spacer
length: 38 repeater length: 24

33096 2093976 GATAATCTCTTATAGAATTGAAAG GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAAG spacer
length: 38 repeater length: 24

33097 2094038 GATAATCTCTTATAGAATTGAAAG AATCACGAAAGCGATACTAAGGGCAATACAATACAAACATG spacer
length: 41 repeater length: 24

33098 2094103 GATAATCTCTTATAGAATTGAAAG CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTGC spacer
length: 39 repeater length: 24

33099 2094166 GATAATCTCTTATAGAATTGAAAG AGATTGTTTTATTAATACCAAGTAGACAATTATATATTTT spacer
length: 40 repeater length: 24

33100 2094230 GATAATCTCTTATAGAATTGAAAG CCAAAACATGTCACATGTGCCGATATTGATATTTACAAA spacer
length: 39 repeater length: 24

33101 2094293 GATAATCTCTTATAGAATTGAAAG AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGAA spacer
length: 38 repeater length: 24

33102 2094355 GATAATCTCTTATAGAATTGAAAG GGGAGTTCCCATTTCGATTTTGGGAACCCTCAAGCACAGTCTGTG spacer
length: 44 repeater length: 24

33103 2094423 GATAATCTCTTATAGAATTGAAAG TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCAT spacer
length: 41 repeater length: 24

33104 2094488 GATAATCTCTTATAGAATTGAAAG CTAACTTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTGT spacer
length: 38 repeater length: 24

33105 2094550 GATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTCCTGCAGTCTTTGTT spacer length:
36 repeater length: 24

33106 2094610 GATAATCTCTTATAGAATTGAAAG AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTAT spacer
length: 39 repeater length: 24

33107 2094673 GATAATCTCTTATAGAATTGAAAG ATCCGTTCTCCGTCCCGATCCGTACCGTTCTCTGTACT spacer
length: 38 repeater length: 24

33108 2094735 GATAATCTCTTATAGAATTGAAAG AGCATAACTTCATCTTCTTCTACAACCTCGACAGCTT spacer
length: 37 repeater length: 24

33109 2094796 GATAATCTCTTATAGAATTGAAAG TTAATTTATTGTTCATCAAATCTATTTAGATACGCTAGTATTA spacer
length: 42 repeater length: 24

33110 2094862 GATAATCTCTTATAGAATTGAAAG ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCAT spacer
length: 39 repeater length: 24

33111 2094925 GATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGGT spacer
length: 40 repeater length: 24

33112 2094989 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATA spacer
length: 37 repeater length: 24

33113 2095050 GATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCCC spacer
length: 38 repeater length: 24

33114 2095112 GATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATACA spacer
length: 39 repeater length: 24

33115 2095175 GATAATCTCTTATAGAATTGAAAG ACGAACACACCCCCTTAAACTCTTTTTCCAACATTCACCT spacer
length: 40 repeater length: 24

33116 2095239 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGAG spacer
length: 40 repeater length: 24

33117 2095303 GATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATTCCGACCAAAGCTAATA spacer
length: 39 repeater length: 24

33118 2095366 GATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGGT spacer
length: 40 repeater length: 24

33119 2095430 GATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTAG spacer
length: 43 repeater length: 24

33120 2095497 GATAATCTCTTATAGAATTGAAAG ATACAGATTTTCGTTATCCATATCCTACATGACTTTCC spacer
length: 37 repeater length: 24

33121 2095558 GATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAATTAGATATCCATTGACTGTTAT spacer
length: 39 repeater length: 24

33122 2095621 GATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTATT spacer
length: 40 repeater length: 24

33123 2095685 GATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAACG spacer
length: 40 repeater length: 24

33124 2095749 GATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTGGCCTGAGTA spacer
length: 38 repeater length: 24

33125 2095811 GATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGAT spacer
length: 40 repeater length: 24

33126 2095875 GATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATATA spacer
length: 44 repeater length: 24

33127 2095943 GATAATCTCTTATAGAATTGAAAG CTAAGCAGTGACTCACAGTTTAGACATTCACAAGTATC spacer
length: 38 repeater length: 24

33128 2096005 GATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAGATCTATCTGACAACACGAACTATG spacer
length: 41 repeater length: 24

33129 2096070 GATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGAC spacer
length: 40 repeater length: 24

33130	2096134	GATAATCTCTTATAGAATTGAAAG	CAATCCCATTCGTTTTACTCACTTCTAAGAACCTCGC	spacer
	length:	37	repeater length:	24
33131	2096195	GATAATCTCTTATAGAATTGAAAG	AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTCT	spacer
	length:	40	repeater length:	24
33132	2096259	GATAATCTCTTATAGAATTGAAAG	ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCTG	spacer
	length:	40	repeater length:	24
33133	2096323	GATAATCTCTTATAGAATTGAAAG	GTCTTTATGGCCCTCTGGGTCTTTCCACCATTGAGAGGA	spacer
	length:	39	repeater length:	24
33134	2096386	GATAATCTCTTATAGAATTGAAAG	TTATCCTCATTCTATCGGTGAGTGAACAAATTGGGTAGC	spacer
	length:	40	repeater length:	24
33135	2096450	GATAATCTCTTATAGAATTGAAAG	ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTTT	spacer
	length:	40	repeater length:	24
33136	2096514	GATAATCTCTTATAGAATTGAAAG	AGTTAACAATACTTTATTGTCAAAGAAGCAAGGATATGCG	spacer
	length:	40	repeater length:	24
33137	2096578	GATAATCTCTTATAGAATTGAAAG	TTCAAAC TAGATCTAGAAGATTTCTATCGGCATCTTTACAT	spacer
	length:	41	repeater length:	24
33138	2096643	GATAATCTCTTATAGAATTGAAAG	ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTTC	spacer
	length:	40	repeater length:	24
33139	2096707	GATAATCTCTTATAGAATTGAAAG	GCTTCTTGTCCCTGAACTCCTTCTTGAAATGGATTTATT	spacer
	length:	39	repeater length:	24
33140	2096770	GATAATCTCTTATAGAATTGAAAG	TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT	spacer
	length:	37	repeater length:	24
33141	2096831	GATAATCTCTTATAGAATTGAAAG	CTACTACATCATCCTCTACCACGCCAAGCCAACAACC	spacer
	length:	37	repeater length:	24
33142	2096892	GATAATCTCTTATAGAATTGAAAG	ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT	spacer
	length:	38	repeater length:	24
33143	2096954	GATAATCTCTTATAGAATTGAAAG	ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACTA	spacer
	length:	41	repeater length:	24
33144	2097019	GATAATCTCTTATAGAATTGAAAG	ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTCT	spacer
	length:	39	repeater length:	24
33145	2097082	GATAATCTCTTATAGAATTGAAAG	AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT	spacer
	length:	37	repeater length:	24
33146	2097143	GATAATCTCTTATAGAATTGAAAG	ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT	spacer
	length:	39	repeater length:	24
33147	2097206	GATAATCTCTTATAGAATTGAAAG	ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTGC	spacer
	length:	41	repeater length:	24
33148	2097271	GATAATCTCTTATAGAATTGAAAG	AAGCCTACACAGGATAGGATACTCAAATTATATGAAAT	spacer
	length:	39	repeater length:	24
33149	2097334	GATAATCTCTTATAGAATTGAAAG	TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCAT	spacer
	length:	42	repeater length:	24
33150	2097400	GATAATCTCTTATAGAATTGAAAG	CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA	spacer
	length:	37	repeater length:	24
33151	2097461	GATAATCTCTTATAGAATTGAAAG	TGTTCTGTCGTTACTGTCGTAAAGCACGTCCTATTAT	spacer
	length:	37	repeater length:	24
33152	2097522	GATAATCTCTTATAGAATTGAAAG	ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC	spacer
	length:	38	repeater length:	24
33153	2097584	GATAATCTCTTATAGAATTGAAAG	TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGAA	spacer
	length:	39	repeater length:	24
33154	2097647	GATAATCTCTTATAGAATTGAAAG	GCACAATTCGCCAACGATTTCGGTTTCGCTTTATACCTT	spacer
	length:	38	repeater length:	24
33155	2097709	GATAATCTCTTATAGAATTGAAAG	CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTGG	spacer
	length:	41	repeater length:	24
33156	2097774	GATAATCTCTTATAGAATTGAAAG	AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG	spacer
	length:	40	repeater length:	24
33157	2097838	GATAATCTCTTATAGAATTGAAAG	ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGAT	spacer
	length:	42	repeater length:	24
33158	2097904	GATAATCTCTTATAGAATTGAAAG	TTCTGTTTCGAAGAAAACCCGCCTCAGATTCATTATGGG	spacer
	length:	39	repeater length:	24
33159	2097967	GATAATCTCTTATAGAATTGAAAG	AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAAA	spacer
	length:	39	repeater length:	24
33160	2098030	GATAATCTCTTATAGAATTGAAAG	CCTCATCGTAAACATGCAATCTTGCATATTCAGTGTA	spacer
	length:	37	repeater length:	24
33161	2098091	GATAATCTCTTATAGAATTGAAAG	GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCCT	spacer
	length:	39	repeater length:	24
33162	2098154	GATAATCTCTTATAGAATTGAAAG	ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT	spacer
	length:	41	repeater length:	24
33163	2098219	GATAATCTCTTATAGAATTGAAAG	GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCGT	spacer
	length:	38	repeater length:	24
33164	2098281	GATAATCTCTTATAGAATTGAAAG	ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA	spacer
	length:	39	repeater length:	24
33165	2098344	GATAATCTCTTATAGAATTGAAAG	AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA	spacer

length: 37 repeater length: 24
33166 2098405 GATAATCTCTTATAGAATTGAAAG CGTTCTAGAGCTAAACGATGCATACGCGGTGGTACAAC TA spacer
length: 40 repeater length: 24
33167 2098469 GATAATCTCTTATAGAATTGAAAG ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATTT spacer
length: 41 repeater length: 24
33168 2098534 GATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACCTCTGGGTAAGCCCACAATACGCAA spacer
length: 40 repeater length: 24
33169 2098598 GATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAAC spacer
length: 38 repeater length: 24
33170 2098660 GATAATCTCTTATAGAATTGAAAG TAAACTAGATCCTTATATTTTACGTAAATGTAAAGGGG spacer
length: 38 repeater length: 24
33171 2098722 GATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAATA spacer
length: 38 repeater length: 24
33172 2098784 GATAATCTCTTATAGAATTGAAAG GTTCATCAGTTCTACCTTTTGGTCCAAAGGCTGATCCAA spacer
length: 39 repeater length: 24
33173 2098847 GATAATCTCTTATAGAATTGAAAG
33174
33175
33176 crispr 6
33177 2498115 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGTG spacer
length: 39 repeater length: 24
33178 2498178 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAAC TCAATA spacer
length: 42 repeater length: 24
33179 2498244 GATAATCTACTATAGAATTGAAAG CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAGCATT A spacer
length: 39 repeater length: 24
33180 2498307 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTGA spacer
length: 41 repeater length: 24
33181 2498372 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTCACTCTGCGTATCATTATGGATAA spacer
length: 44 repeater length: 24
33182 2498440 GATAATCTACTATAGAATTGAAAG CCCGCCAGCCAGACTGTTTTTCAGCCCAAACCGGCTAATT spacer
length: 40 repeater length: 24
33183 2498504 GATAATCTACTATAGAATTGAAAG
33184
33185
33186 GCA_003852175.1_ASM385217v1_genomic.fna (PilerCR):
33187 START REPEAT
SPACER
33188 crispr 1
33189 2053142 GATTAATCCCAAAAGGAATTGAAAG TCACATCCCTCACAATCCATAATGAAAATGTCGGCAT spacer
length: 37 repeater length: 25
33190 2053204 GATTAATCCCAAAAGGAATTGAAAG ATTTTAGCAATGCAATAGATCAACAATTGAAAGAACT spacer
length: 38 repeater length: 25
33191 2053267 GATTAATCCCAAAAGGAATTGAAAG ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTTC spacer
length: 39 repeater length: 25
33192 2053331 GATTAATCCCAAAAGGAATTGAAAG TGTTTCACAAATTTCAAAC TTGCAAACGCAACAATTAAATA spacer
length: 41 repeater length: 25
33193 2053397 GATTAATCCCAAAAGGAATTGAAAG GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTGG spacer
length: 40 repeater length: 25
33194 2053462 GATTAATCCCAAAAGGAATTGAAAG TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACTC spacer
length: 38 repeater length: 25
33195 2053525 GATTAATCCCAAAAGGAATTGAAAG GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAGT spacer
length: 39 repeater length: 25
33196 2053589 GATTAATCCCAAAAGGAATTGAAAG CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTCT spacer
length: 41 repeater length: 25
33197 2053655 GATTAATCCCAAAAGGAATTGAAAG CAAAATTCCAAAC TTTGGGAATTTCTAGTTTCCAAATTTTC spacer
length: 40 repeater length: 25
33198 2053720 GATTAATCCCAAAAGGAATTGAAAG TTTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGAC spacer
length: 39 repeater length: 25
33199 2053784 GATTAATCCCAAAAGGAATTGAAAG CGCTTTCGACTGCGACAAC TGTGCTTTGGCTCATTTGTTGC spacer
length: 41 repeater length: 25
33200 2053850 GATTAATCCCAAAAGGAATTGAAAG TTATTTCAAATACTATTATCTCCGCCATATGTTTACAT spacer
length: 38 repeater length: 25
33201 2053913 GATTAATCCCAAAAGGAATTGAAAG ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATTT spacer
length: 38 repeater length: 25
33202 2053976 GATTAATCCCAAAAGGAATTGAAAG TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTC A spacer
length: 40 repeater length: 25
33203 2054041 GATTAATCCCAAAAGGAATTGAAAG CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAATA spacer
length: 39 repeater length: 25
33204 2054105 GATTAATCCCAAAAGGAATTGAAAG AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTTC
spacer length: 44 repeater length: 25
33205 2054174 GATTAATCCCAAAAGGAATTGAAAG GCTTTAACTTGGTACGCACTTTACGCCATGATAAACG spacer

length: 37 repeater length: 25

33206 2054236 GATTAATCCCAAAAGGAATTGAAAG GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGTT spacer
length: 39 repeater length: 25

33207 2054300 GATTAATCCCAAAAGGAATTGAAAG GTTGAATTTTGTCAACTGGTATGTTGTATTTTGTGCA spacer
length: 36 repeater length: 25

33208 2054361 GATTAATCCCAAAAGGAATTGAAAG AATTTGTTACACGGCTAGGATTTTTTTTCTAGATGTACAAT spacer
length: 42 repeater length: 25

33209 2054428 GATTAATCCCAAAAGGAATTGAAAG TTCTAATCTTTTGCCATTACTGCATCATATCTACTAG spacer
length: 38 repeater length: 25

33210 2054491 GATTAATCCCAAAAGGAATTGAAAG ATCTTTACCTTTATATAAATCTTGTTTCGTAACAAATAA spacer
length: 38 repeater length: 25

33211 2054554 GATTAATCCCAAAAGGAATTGAAAG ACAAACGAGGAGTTTATAGTAAATCAACTATGAAA spacer
length: 37 repeater length: 25

33212 2054616 GATTAATCCCAAAAGGAATTGAAAG ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAAG spacer length:
35 repeater length: 25

33213 2054676 GATTAATCCCAAAAGGAATTGAAAG AACTACAACGAGGTGAGAAACGATGACTAAACGTTT spacer
length: 36 repeater length: 25

33214 2054737 GATTAATCCCAAAAGGAATTGAAAG TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATTG spacer
length: 38 repeater length: 25

33215 2054800 GATTAATCCCAAAAGGAATTGAAAG TAGATATATGGCGATGAATTGCATTAGTCAGTGGTG spacer
length: 36 repeater length: 25

33216 2054861 GATTAATCCCAAAAGGAATTGAAAG ATTTTAAACGCTATGACGCTAGCCCTCATGTTAGCTTTT spacer
length: 39 repeater length: 25

33217 2054925 GATTAATCCCAAAAGGAATTGAAAG AAAGTTTGTCTTCTGTTTCGTTTTGTTGTTCTGACT spacer
length: 37 repeater length: 25

33218 2054987 GATTAATCCCAAAAGGAATTGAAAG CCCCTTTTGCCGTCTTTTGTAGTTACCACAATGCACCAA spacer
length: 38 repeater length: 25

33219 2055050 GATTAATCCCAAAAGGAATTGAAAG CCGTATCCAGAAATAATTAACCAATCGCTTGTGTTGTGAC spacer
length: 39 repeater length: 25

33220 2055114 GATTAATCCCAAAAGGAATTGAAAG AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCAA spacer
length: 37 repeater length: 25

33221 2055176 GATTAATCCCAAAAGGAATTGAAAG GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGTG spacer
length: 42 repeater length: 25

33222 2055243 GATTAATCCCAAAAGGAATTGAAAG GCATCTGTGCGCAACCTCACTTATTCACGTGGGGGTGCG spacer
length: 39 repeater length: 25

33223 2055307 GATTAATCCCAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTGA spacer
length: 37 repeater length: 25

33224 2055369 GATTAATCCCAAAAGGAATTGAAAG TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTTG spacer
length: 39 repeater length: 25

33225 2055433 GATTAATCCCAAAAGGAATTGAAAG TTGAACTTGTAGAAATTGTTTCATATGAAACAGCATAATTTTC spacer
length: 42 repeater length: 25

33226 2055500 GATTAATCCCAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTGTGCATACAATAACG spacer
length: 40 repeater length: 25

33227 2055565 GATTAATCCCAAAAGGAATTGAAAG CTCATTATTTATCATATAAGATTATCCACTGCAATT spacer
length: 36 repeater length: 25

33228 2055626 GATTAATCCCAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCTCTTTACGCATTTCT spacer
length: 39 repeater length: 25

33229 2055690 GATTAATCCCAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGCG spacer
length: 36 repeater length: 25

33230 2055751 GATTAATCCCAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACAT spacer
length: 39 repeater length: 25

33231 2055815 GATTAATCCCAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAAATTATAATTATGGCTATG spacer
length: 41 repeater length: 25

33232 2055881 GATTAATCCCAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTCT spacer
length: 41 repeater length: 25

33233 2055947 GATTAATCCCAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAGACTTTTCAGCCCTC spacer
length: 36 repeater length: 25

33234 2056008 GATTAATCCCAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAATC spacer
length: 36 repeater length: 25

33235 2056069 GATTAATCCCAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTGT spacer
length: 39 repeater length: 25

33236 2056133 GATTAATCCCAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTTCAT spacer length:
34 repeater length: 25

33237 2056192 GATTAATCCCAAAAGGAATTGAAAG ATCTTTAATAAATCCTCTTTATTCTCATGTAATGCAT spacer
length: 38 repeater length: 25

33238 2056255 GATTAATCCCAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCATT spacer
length: 40 repeater length: 25

33239 2056320 GATTAATCCCAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGTGGGGGGCAAGGGCCCCGG spacer
length: 40 repeater length: 25

33240 2056385 GATTAATCCCAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTGCGCATATCTGTCTG spacer
length: 40 repeater length: 25

33241 2056450 GATTAATCCCAAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTGC spacer
length: 39 repeater length: 25

33242 2056514 GATTAATCCCAAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTATT spacer
length: 40 repeater length: 25

33243 2056579 GATTAATCCCAAAAAGGAATTGAAAG CCCCCTGGAATGCACCATTCTTGTGCAAGTAATACATTT spacer
length: 39 repeater length: 25

33244 2056643 GATTAATCCCAAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTGC spacer
length: 40 repeater length: 25

33245 2056708 GATTAATCCCAAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATACT spacer
length: 38 repeater length: 25

33246 2056771 GATTAATCCCAAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCAG spacer
length: 39 repeater length: 25

33247 2056835 GATTAATCCCAAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCTT spacer
length: 37 repeater length: 25

33248 2056897 GATTAATCCCAAAAAGGAATTGAAAG TTTTTATTTAAGAACACTGATGGAAAGATCTATAG spacer length:
35 repeater length: 25

33249 2056957 GATTAATCCCAAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCTA spacer
length: 37 repeater length: 25

33250 2057019 GATTAATCCCAAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGAT spacer
length: 38 repeater length: 25

33251 2057082 GATTAATCCCAAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACATT spacer
length: 39 repeater length: 25

33252 2057146 GATTAATCCCAAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCTTTTGTAAAGACATTCTCA spacer
length: 40 repeater length: 25

33253 2057211 GATTAATCCCAAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCGG spacer
length: 40 repeater length: 25

33254 2057276 GATTAATCCCAAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATTC spacer
length: 39 repeater length: 25

33255 2057340 GATTAATCCCAAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTTCGTC spacer
length: 42 repeater length: 25

33256 2057407 GATTAATCCCAAAAAGGAATTGAAAG GTATTCAAAAGAGAACTGGGGGATTCAAGGTAATACCT spacer
length: 38 repeater length: 25

33257 2057470 GATTAATCCCAAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATACAGTAAAGTAGCAGTTTT spacer
length: 36 repeater length: 25

33258 2057531 GATTAATCCCAAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTGT spacer
length: 37 repeater length: 25

33259 2057593 GATTAATCCCAAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAGT spacer
length: 36 repeater length: 25

33260 2057654 GATTAATCCCAAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTGA spacer
length: 39 repeater length: 25

33261 2057718 GATTAATCCCAAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTCGTT spacer
length: 38 repeater length: 25

33262 2057781 GATTAATCCCAAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTTT spacer
length: 38 repeater length: 25

33263 2057844 GATTAATCCCAAAAAGGAATTGAAAG TCAAACATGAAGCTACTGTAATCCATTTACATAAA spacer
length: 38 repeater length: 25

33264 2057907 GATTAATCCCAAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAATT spacer
length: 38 repeater length: 25

33265 2057970 GATTAATCCCAAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCCGAAAATGATTT spacer
length: 40 repeater length: 25

33266 2058035 GATTAATCCCAAAAAGGAATTGAAAG AAAAAGTTTTTACATTTCGACATTAAAAATAAATAATTTTG spacer
length: 42 repeater length: 25

33267 2058102 GATTAATCCCAAAAAGGAATTGAAAG AATTCGTATACCTTAGTAGTATTATCATCAATATTGTAT spacer
length: 39 repeater length: 25

33268 2058166 GATTAATCCCAAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTAG spacer
length: 39 repeater length: 25

33269 2058230 GATTAATCCCAAAAAGGAATTGAAAG TCTACGTTGTTAAATTCATATACAGCTTGCTCATAT spacer
length: 37 repeater length: 25

33270 2058292 GATTAATCCCAAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTAT spacer
length: 38 repeater length: 25

33271 2058355 GATTAATCCCAAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTTGATAGCTTTCATCTT spacer
length: 41 repeater length: 25

33272 2058421 GATTAATCCCAAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTAC spacer
length: 40 repeater length: 25

33273 2058486 GATTAATCCCAAAAAGGAATTGAAAG CAGCAAGAAGTTCACTCTCTACATCTTATGATTTTCG spacer
length: 37 repeater length: 25

33274 2058548 GATTAATCCCAAAAAGGAATTGAAAG CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCCT spacer
length: 36 repeater length: 25

33275 2058609 GATTAATCCCAAAAAGGAATTGAAAG ACCTTTATTTTAAAGTCCTAGCCTCTCCCTATCCAT spacer
length: 36 repeater length: 25

33276 2058670 GATTAATCCCAAAAAGGAATTGAAAG TTGTTTCACCTCCTTATTAAAAGCGACAGACGGTCGAC spacer

length: 38 repeater length: 25
33277 2058733 GATTAATCCCAAAAGGAATTGAAAG TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTTTT spacer
length: 37 repeater length: 25
33278 2058795 GATTAATCCCAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCCTTTTCCACACTGAAGATG spacer
length: 40 repeater length: 25
33279 2058860 GATTAATCCCAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAAATTATA spacer
length: 38 repeater length: 25
33280 2058923 GATTAATCCCAAAAGGAATTGAAAG TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGCC spacer
length: 40 repeater length: 25
33281 2058988 GATTAATCCCAAAAGGAATTGAAAG CAGCTCGACGATGACGAATACAAGATGCTGTATAATGCG spacer
length: 39 repeater length: 25
33282 2059052 GATTAATCCCAAAAGGAATTGAAAG TTTCTCAACTGATCCACGGCTTCAGAGAAGATGTTTGGAT spacer
length: 40 repeater length: 25
33283 2059117 GATTAATCCCAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGATG spacer
length: 39 repeater length: 25
33284 2059181 GATTAATCCCAAAAGGAATTGAAAG CTCAGCAGATTTAACTAACGATATTAATTGTACACACTG spacer
length: 40 repeater length: 25
33285 2059246 GATTAATCCCAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCAA spacer
length: 39 repeater length: 25
33286 2059310 GATTAATCCCAAAAGGAATTGAAAG CAAGTGCAATAGCAAACCTACTACTAAATATAACATATAT spacer
length: 39 repeater length: 25
33287 2059374 GATTAATCCCAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAACTAAAATCGTGGCTTTA spacer
length: 38 repeater length: 25
33288 2059437 GATTAATCCCAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAGT spacer
length: 39 repeater length: 25
33289 2059501 GATTAATCCCAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACTAAGAGAAAATTGTTTCAA spacer
length: 41 repeater length: 25
33290 2059567 GATTAATCCCAAAAGGAATTGAAAG TCTAACAAATGAATCTGTCATAAAGTGCCCCGCAACTCTT spacer
length: 38 repeater length: 25
33291 2059630 GATTAATCCCAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTTT spacer
length: 36 repeater length: 25
33292 2059691 GATTAATCCCAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATGT spacer
length: 39 repeater length: 25
33293 2059755 GATTAATCCCAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTTT spacer
length: 39 repeater length: 25
33294 2059819 GATTAATCCCAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCAATTCCTTTTGGAGTAGGC spacer
length: 36 repeater length: 25
33295 2059880 GATTAATCCCAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCTC spacer
length: 39 repeater length: 25
33296 2059944 GATTAATCCCAAAAGGAATTGAAAG TCGTAAACTTGAACTGACCCGTATATCCGAATTTAC spacer
length: 37 repeater length: 25
33297 2060006 GATTAATCCCAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCTA spacer
length: 39 repeater length: 25
33298 2060070 GATTAATCCCAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATATT spacer
length: 37 repeater length: 25
33299 2060132 GATTAATCCCAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCTA spacer
length: 39 repeater length: 25
33300 2060196 GATTAATCCCAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAAG spacer
length: 36 repeater length: 25
33301 2060257 GATTAATCCCAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCCT spacer
length: 38 repeater length: 25
33302 2060320 GATTAATCCCAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACCTTTTGCATACGACATAATTT spacer
length: 40 repeater length: 25
33303 2060385 GATTAATCCCAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACTT spacer
length: 39 repeater length: 25
33304 2060449 GATTAATCCCAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGCT spacer
length: 37 repeater length: 25
33305 2060511 GATTAATCCCAAAAGGAATTGAAAG
33306
33307
33308 crispr 2
33309 2075059 CTTTCAATTCCTTTTAGGATTAATC TTGAAGATAGAGTTAAATGAACTTTTGATGACACAAAA spacer
length: 38 repeater length: 25
33310 2075122 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCAA spacer
length: 41 repeater length: 25
33311 2075188 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTGA spacer
length: 39 repeater length: 25
33312 2075252 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATAT spacer
length: 37 repeater length: 25
33313 2075314 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAAT spacer
length: 38 repeater length: 25

33314	2075377	CTTTCAATTCCTTTTAGGATTAATC	AGTAATAGAACTCATTAGAGTCTCTTCCAACCCGTACA	spacer
		length: 40	repeater length: 25	
33315	2075442	CTTTCAATTCCTTTTAGGATTAATC	CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGCG	spacer length:
		35	repeater length: 25	
33316	2075502	CTTTCAATTCCTTTTAGGATTAATC	TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG	spacer
		length: 39	repeater length: 25	
33317	2075566	CTTTCAATTCCTTTTAGGATTAATC	TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG	spacer
		length: 39	repeater length: 25	
33318	2075630	CTTTCAATTCCTTTTAGGATTAATC	AAAATGTTTAATATTGGTGGAGTAGTTGATTTGATAATAT	spacer
		length: 41	repeater length: 25	
33319	2075696	CTTTCAATTCCTTTTAGGATTAATC	AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTAA	spacer
		length: 39	repeater length: 25	
33320	2075760	CTTTCAATTCCTTTTAGGATTAATC	GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGATA	spacer
		length: 39	repeater length: 25	
33321	2075824	CTTTCAATTCCTTTTAGGATTAATC	CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGAA	spacer
		length: 37	repeater length: 25	
33322	2075886	CTTTCAATTCCTTTTAGGATTAATC	CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGAT	spacer
		length: 37	repeater length: 25	
33323	2075948	CTTTCAATTCCTTTTAGGATTAATC	CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTGA	spacer
		length: 40	repeater length: 25	
33324	2076013	CTTTCAATTCCTTTTAGGATTAATC	CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTACA	spacer
		length: 38	repeater length: 25	
33325	2076076	CTTTCAATTCCTTTTAGGATTAATC	CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAAA	spacer
		length: 40	repeater length: 25	
33326	2076141	CTTTCAATTCCTTTTAGGATTAATC	GAGTGAGACCATGATCATTAACTGATATTACGGTAAG	spacer
		length: 39	repeater length: 25	
33327	2076205	CTTTCAATTCCTTTTAGGATTAATC	AACAAAAC TTCACAGTGATGGAACATTTGAATGTAA	spacer
		length: 37	repeater length: 25	
33328	2076267	CTTTCAATTCCTTTTAGGATTAATC	AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATACT	spacer
		length: 40	repeater length: 25	
33329	2076332	CTTTCAATTCCTTTTAGGATTAATC	ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATAT	spacer
		length: 42	repeater length: 25	
33330	2076399	CTTTCAATTCCTTTTAGGATTAATC	GAATATACAGAGAATAGAGAATAGAGAACAGAGAACGG	spacer
		length: 38	repeater length: 25	
33331	2076462	CTTTCAATTCCTTTTAGGATTAATC	CCGTGATCAGATACAGTAACAGTCATGTTTTTATCT	spacer
		length: 36	repeater length: 25	
33332	2076523	CTTTCAATTCCTTTTAGGATTAATC	CATGGAAACGGGAGGAGGGTGAGACAATGAAGGTTAC	spacer
		length: 37	repeater length: 25	
33333	2076585	CTTTCAATTCCTTTTAGGATTAATC	CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAACT	spacer
		length: 38	repeater length: 25	
33334	2076648	CTTTCAATTCCTTTTAGGATTAATC	GTAGTGTGAGTAGTGAGTAGTAGTGGCCTGAATAAGTAG	spacer
		length: 40	repeater length: 25	
33335	2076713	CTTTCAATTCCTTTTAGGATTAATC	AAATTCTGCAAAGGTAACACAATTGACGAGGTAAA	spacer length:
		35	repeater length: 25	
33336	2076773	CTTTCAATTCCTTTTAGGATTAATC	CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCAA	spacer
		length: 40	repeater length: 25	
33337	2076838	CTTTCAATTCCTTTTAGGATTAATC	TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAACT	spacer
		length: 40	repeater length: 25	
33338	2076903	CTTTCAATTCCTTTTAGGATTAATC	GGCATAACCGCTGCTTTCGGCTGCTGCTGCTAATTGGTCTC	spacer
		length: 41	repeater length: 25	
33339	2076969	CTTTCAATTCCTTTTAGGATTAATC	CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCTT	spacer
		length: 39	repeater length: 25	
33340	2077033	CTTTCAATTCCTTTTAGGATTAATC	ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAAAT	spacer
		length: 38	repeater length: 25	
33341	2077096	CTTTCAATTCCTTTTAGGATTAATC	AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTAG	spacer
		length: 40	repeater length: 25	
33342	2077161	CTTTCAATTCCTTTTAGGATTAATC	GGCATTAGAATATGGGTAAAACTTATAGCGACGAAGA	spacer
		length: 38	repeater length: 25	
33343	2077224	CTTTCAATTCCTTTTAGGATTAATC	TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGAT	spacer
		length: 36	repeater length: 25	
33344	2077285	CTTTCAATTCCTTTTAGGATTAATC	TTTACCACCGCTCAGACTTCTTGAGATGTTTAAACC	spacer
		length: 37	repeater length: 25	
33345	2077347	CTTTCAATTCCTTTTAGGATTAATC	GAATTCTATCAAGTATTGCGGAAGTAAATACTTCATATTTATCA	spacer
		length: 44	repeater length: 25	
33346	2077416	CTTTCAATTCCTTTTAGGATTAATC	TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGTG	spacer
		length: 38	repeater length: 25	
33347	2077479	CTTTCAATTCCTTTTAGGATTAATC	CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGCT	spacer
		length: 36	repeater length: 25	
33348	2077540	CTTTCAATTCCTTTTAGGATTAATC	CACATTAGCAAGAATCGTGCTAGCTACAGTTGGATT	spacer
		length: 36	repeater length: 25	
33349	2077601	CTTTCAATTCCTTTTAGGATTAATC	AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTTC	spacer

length: 39 repeater length: 25
33350 2077665 CTTTCAATTCCTTTTAGGATTAATC TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTCT spacer
length: 41 repeater length: 25
33351 2077731 CTTTCAATTCCTTTTAGGATTAATC GGTAATGGTCTGTATATTGTCTTTAAGTATTTAT spacer length:
34 repeater length: 25
33352 2077790 CTTTCAATTCCTTTTAGGATTAATC AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTAA spacer
length: 39 repeater length: 25
33353 2077854 CTTTCAATTCCTTTTAGGATTAATC CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAAG spacer
length: 40 repeater length: 25
33354 2077919 CTTTCAATTCCTTTTAGGATTAATC ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCATT spacer
length: 40 repeater length: 25
33355 2077984 CTTTCAATTCCTTTTAGGATTAATC ATTAGCTAAACCATTTCAAAGGCTAACATCTTCTATGT spacer
length: 38 repeater length: 25
33356 2078047 CTTTCAATTCCTTTTAGGATTAATC ATAAATCCACAAAGTGGCCGTTCAAAGCAAAGAGTTTATT spacer
length: 40 repeater length: 25
33357 2078112 CTTTCAATTCCTTTTAGGATTAATC TGATATTTATTTTCTCGTGAAAAGTGGAGGGCCTAGAAC spacer
length: 39 repeater length: 25
33358 2078176 CTTTCAATTCCTTTTAGGATTAATC ATTATATCATGGAGACCCAGGTGCTGTGACTATCAA spacer
length: 36 repeater length: 25
33359 2078237 CTTTCAATTCCTTTTAGGATTAATC AATTAGCCAGCGTGCCATCTGGGTAAACGTGTATTTTGGTTAA spacer
length: 43 repeater length: 25
33360 2078305 CTTTCAATTCCTTTTAGGATTAATC ATAATATATTTCTGTTCCAACCTACACCTAATGGATTCTGGG spacer
length: 39 repeater length: 25
33361 2078369 CTTTCAATTCCTTTTAGGATTAATC TAATTGTCTGCCCTTGAGTTCCACTGAGAGAAACGC spacer
length: 36 repeater length: 25
33362 2078430 CTTTCAATTCCTTTTAGGATTAATC AAAAGACGTACAAATATACATCGCACCGAACGGACACAT spacer
length: 39 repeater length: 25
33363 2078494 CTTTCAATTCCTTTTAGGATTAATC GGGTGCGTGCCCCACAGGTCGCGGGTCTACCCCTTGC spacer
length: 37 repeater length: 25
33364 2078556 CTTTCAATTCCTTTTAGGATTAATC TTATGTCGTTATCTTCTTCGTTTTTGTCTGCGTTGTTT spacer
length: 37 repeater length: 25
33365 2078618 CTTTCAATTCCTTTTAGGATTAATC
33366
33367
33368 crispr 3
33369 2078736 CTTTCAATTCCTTTTGGGATTAATC GCTTCTTCCCAACGCTGTACGTACTCTTAGGTGTCACA spacer
length: 38 repeater length: 25
33370 2078799 CTTTCAATTCCTTTTGGGATTAATC AATTACAGGAAAAAGACGAATAAATGAGGAAGAAATG spacer
length: 38 repeater length: 25
33371 2078862 CTTTCAATTCCTTTTGGGATTAATC TACTCAATTTGTGCGCAGTTTTTCATTGAGGGAGACTT spacer
length: 38 repeater length: 25
33372 2078925 CTTTCAATTCCTTTTGGGATTAATC AAAAATTCTGAGTGCAATGTATAATGAAAATATGGATAATA spacer
length: 41 repeater length: 25
33373 2078991 CTTTCAATTCCTTTTGGGATTAATC TGTTGTCCAAATAAATGCTGTACCGACTAACAATAATGTA spacer
length: 40 repeater length: 25
33374 2079056 CTTTCAATTCCTTTTGGGATTAATC CAGGAGTTGGAGGTATTATCGGAGCATTGTTAGCAT spacer
length: 36 repeater length: 25
33375 2079117 CTTTCAATTCCTTTTGGGATTAATC ATGATTTGAAAATAGATGAAGAGCTATCTAAACTCATTCC spacer
length: 40 repeater length: 25
33376 2079182 CTTTCAATTCCTTTTGGGATTAATC ACCACATTATGAAGGTACTCCAGAATTCTCTAAGAT spacer
length: 36 repeater length: 25
33377 2079243 CTTTCAATTCCTTTTGGGATTAATC TAGATCTATTTCGCAGAGTTTGCATCAACACATAAGTAC spacer
length: 38 repeater length: 25
33378 2079306 CTTTCAATTCCTTTTGGGATTAATC ATAATATGGTGAAAATTGAAGGTGAATCATTAGCAAA spacer
length: 37 repeater length: 25
33379 2079368 CTTTCAATTCCTTTTGGGATTAATC AATTTTTTGTTTAAAGATGATTCAAGTGAAGAATATTA spacer
length: 38 repeater length: 25
33380 2079431 CTTTCAATTCCTTTTGGGATTAATC CAATCCCAAAAAGTAAATCCCAATCTTCAAATAATATGG spacer
length: 40 repeater length: 25
33381 2079496 CTTTCAATTCCTTTTGGGATTAATC
33382
33383
33384 crispr 4
33385 2090896 GATAATCTCTTATAGAATTGAAAG TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGGC spacer
length: 38 repeater length: 24
33386 2090958 GATAATCTCTTATAGAATTGAAAG CAACGCCAACTCCGCCAATTTCCGCATTGATGTTCTGCTGG spacer
length: 40 repeater length: 24
33387 2091022 GATAATCTCTTATAGAATTGAAAG TCTTCAAACCTCCCACGGCACAACGGAGGCATGCAAATTATT spacer
length: 42 repeater length: 24
33388 2091088 GATAATCTCTTATAGAATTGAAAG GTAGTAAGCTTTCCTTCTTTATCCTCTAGACCGCTGTAGT spacer
length: 40 repeater length: 24

33389	2091152	GATAATCTCTTATAGAATTGAAAG	AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTCA	spacer
	length:	38	repeater length:	24
33390	2091214	GATAATCTCTTATAGAATTGAAAG	GAAGTGTCTGTTGGTTCATGAAATATGGGTATGCATATT	spacer
	length:	39	repeater length:	24
33391	2091277	GATAATCTCTTATAGAATTGAAAG	GCAAAGAGTCCATTCAATAACACATATTTTGCACATAAG	spacer
	length:	39	repeater length:	24
33392	2091340	GATAATCTCTTATAGAATTGAAAG	AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGCT	spacer
	length:	39	repeater length:	24
33393	2091403	GATAATCTCTTATAGAATTGAAAG	ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTCT	spacer
	length:	39	repeater length:	24
33394	2091466	GATAATCTCTTATAGAATTGAAAG	CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTAA	spacer
	length:	40	repeater length:	24
33395	2091530	GATAATCTCTTATAGAATTGAAAG	CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGAG	spacer
	length:	39	repeater length:	24
33396	2091593	GATAATCTCTTATAGAATTGAAAG	ACCACGAGCACGACCTCAAATATAACACCGCCAAAAATC	spacer
	length:	39	repeater length:	24
33397	2091656	GATAATCTCTTATAGAATTGAAAG	TATCTTCCAGATGTCTCAGAAACGCCTTAAATTTATTGAT	spacer
	length:	40	repeater length:	24
33398	2091720	GATAATCTCTTATAGAATTGAAAG	TACATTAGACCCTAGTTGGTTTTATCGCTGGTAACGTCG	spacer
	length:	38	repeater length:	24
33399	2091782	GATAATCTCTTATAGAATTGAAAG	ACACTTAGCGACATAAAAACCGCACTGACTTACAATTACC	spacer
	length:	40	repeater length:	24
33400	2091846	GATAATCTCTTATAGAATTGAAAG	CGACATACATATATATGCATTTCCGTGGGAGTGTTACAAA	spacer
	length:	40	repeater length:	24
33401	2091910	GATAATCTCTTATAGAATTGAAAG	ACATATGGTTGGTCTCCAACATTTGGTGAGTATATCT	spacer
	length:	37	repeater length:	24
33402	2091971	GATAATCTCTTATAGAATTGAAAG	GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCTT	spacer
	length:	38	repeater length:	24
33403	2092033	GATAATCTCTTATAGAATTGAAAG	ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCAA	spacer
	length:	39	repeater length:	24
33404	2092096	GATAATCTCTTATAGAATTGAAAG	AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGAA	spacer
	length:	38	repeater length:	24
33405	2092158	GATAATCTCTTATAGAATTGAAAG	CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTAT	spacer
	length:	38	repeater length:	24
33406	2092220	GATAATCTCTTATAGAATTGAAAG	TCTGATAGCACCAGACAAGTAAAGCGTATATCCTAGTCAA	spacer
	length:	41	repeater length:	24
33407	2092285	GATAATCTCTTATAGAATTGAAAG	AACATATTCTGGTACGGGTTGCCATCTGGTACACCATT	spacer
	length:	39	repeater length:	24
33408	2092348	GATAATCTCTTATAGAATTGAAAG	TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAAA	spacer
	length:	39	repeater length:	24
33409	2092411	GATAATCTCTTATAGAATTGAAAG	AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAGG	spacer
	length:	37	repeater length:	24
33410	2092472	GATAATCTCTTATAGAATTGAAAG	CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGTC	spacer
	length:	38	repeater length:	24
33411	2092534	GATAATCTCTTATAGAATTGAAAG	ACATCGCAAGCGATCTATTGTTCACTATTCTGGCGGC	spacer
	length:	40	repeater length:	24
33412	2092598	GATAATCTCTTATAGAATTGAAAG	AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA	spacer
	length:	38	repeater length:	24
33413	2092660	GATAATCTCTTATAGAATTGAAAG	CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA	spacer
	length:	37	repeater length:	24
33414	2092721	GATAATCTCTTATAGAATTGAAAG	AATTTGAACATAATTTCGGCCTCGTCAGTTTTCCACAGATA	spacer
	length:	40	repeater length:	24
33415	2092785	GATAATCTCTTATAGAATTGAAAG	TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT	spacer
	length:	39	repeater length:	24
33416	2092848	GATAATCTCTTATAGAATTGAAAG	TTTACTGACAACGCCATCATACTTACTAGCCCACTAA	spacer
	length:	38	repeater length:	24
33417	2092910	GATAATCTCTTATAGAATTGAAAG	GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGGA	spacer
	length:	40	repeater length:	24
33418	2092974	GATAATCTCTTATAGAATTGAAAG	TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT	spacer
	length:	41	repeater length:	24
33419	2093039	GATAATCTCTTATAGAATTGAAAG	CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG	spacer
	length:	37	repeater length:	24
33420	2093100	GATAATCTCTTATAGAATTGAAAG	ATCTGAATTTCCCTCAGCTTCCATTGCATAATTTATTCTA	spacer
	length:	39	repeater length:	24
33421	2093163	GATAATCTCTTATAGAATTGAAAG	TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT	spacer
	length:	40	repeater length:	24
33422	2093227	GATAATCTCTTATAGAATTGAAAG	ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTC	spacer
	length:	38	repeater length:	24
33423	2093289	GATAATCTCTTATAGAATTGAAAG	TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAGC	spacer
	length:	38	repeater length:	24
33424	2093351	GATAATCTCTTATAGAATTGAAAG	GTCAAAATTGCCCAACCGAACGTTAGCAAAATGCAGCAC	spacer

length: 40 repeater length: 24
33425 2093415 GATAATCTCTTATAGAATTGAAAG TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA spacer
length: 41 repeater length: 24
33426 2093480 GATAATCTCTTATAGAATTGAAAG GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAACC spacer
length: 39 repeater length: 24
33427 2093543 GATAATCTCTTATAGAATTGAAAG GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGTT spacer
length: 39 repeater length: 24
33428 2093606 GATAATCTCTTATAGAATTGAAAG TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT spacer
length: 40 repeater length: 24
33429 2093670 GATAATCTCTTATAGAATTGAAAG GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT spacer length:
35 repeater length: 24
33430 2093729 GATAATCTCTTATAGAATTGAAAG GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC spacer
length: 39 repeater length: 24
33431 2093792 GATAATCTCTTATAGAATTGAAAG CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAAT spacer length:
36 repeater length: 24
33432 2093852 GATAATCTCTTATAGAATTGAAAG AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTTG spacer
length: 38 repeater length: 24
33433 2093914 GATAATCTCTTATAGAATTGAAAG ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATTA spacer
length: 38 repeater length: 24
33434 2093976 GATAATCTCTTATAGAATTGAAAG GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAAG spacer
length: 38 repeater length: 24
33435 2094038 GATAATCTCTTATAGAATTGAAAG AATCACGAAAGCGATACTAAGGGCAATACAATACAAACATG spacer
length: 41 repeater length: 24
33436 2094103 GATAATCTCTTATAGAATTGAAAG CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTGC spacer
length: 39 repeater length: 24
33437 2094166 GATAATCTCTTATAGAATTGAAAG AGATTGTTTTATTAATACCAAGTAGACAATTATATATTTT spacer
length: 40 repeater length: 24
33438 2094230 GATAATCTCTTATAGAATTGAAAG CCAAAACATGTCACATGTGCCGATATTGATATTTACAAA spacer
length: 39 repeater length: 24
33439 2094293 GATAATCTCTTATAGAATTGAAAG AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGAA spacer
length: 38 repeater length: 24
33440 2094355 GATAATCTCTTATAGAATTGAAAG GGGAGTTCCCATTCGATTTTGGGAACCCTCAAGCACAGTCTGTG spacer
length: 44 repeater length: 24
33441 2094423 GATAATCTCTTATAGAATTGAAAG TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCAT spacer
length: 41 repeater length: 24
33442 2094488 GATAATCTCTTATAGAATTGAAAG CTAACCTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTGT spacer
length: 38 repeater length: 24
33443 2094550 GATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTCCTGCAGTCTTTGTT spacer length:
36 repeater length: 24
33444 2094610 GATAATCTCTTATAGAATTGAAAG AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTAT spacer
length: 39 repeater length: 24
33445 2094673 GATAATCTCTTATAGAATTGAAAG ATCCGTTCTCCGTCCCGATCCGTACCGTTCTCTGTACT spacer
length: 38 repeater length: 24
33446 2094735 GATAATCTCTTATAGAATTGAAAG AGCATAACTTCATCTTCTTCTACAACCTTCGACAGCTT spacer
length: 37 repeater length: 24
33447 2094796 GATAATCTCTTATAGAATTGAAAG TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATTA spacer
length: 42 repeater length: 24
33448 2094862 GATAATCTCTTATAGAATTGAAAG ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCAT spacer
length: 39 repeater length: 24
33449 2094925 GATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGGT spacer
length: 40 repeater length: 24
33450 2094989 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATA spacer
length: 37 repeater length: 24
33451 2095050 GATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCCC spacer
length: 38 repeater length: 24
33452 2095112 GATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATACA spacer
length: 39 repeater length: 24
33453 2095175 GATAATCTCTTATAGAATTGAAAG ACGAACACACCCCTTAAACTCTTTTTCCAACATTCACCT spacer
length: 40 repeater length: 24
33454 2095239 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGAG spacer
length: 40 repeater length: 24
33455 2095303 GATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATCCGACCAAAGCTAATA spacer
length: 39 repeater length: 24
33456 2095366 GATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGGT spacer
length: 40 repeater length: 24
33457 2095430 GATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTAG spacer
length: 43 repeater length: 24
33458 2095497 GATAATCTCTTATAGAATTGAAAG ATACAGATTTGTTATCCATATCCTACATGACTTTCC spacer
length: 37 repeater length: 24
33459 2095558 GATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAATTAGATATCCATTGACTGTTAT spacer
length: 39 repeater length: 24

33460	2095621	GATAATCTCTTATAGAATTGAAAG	ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTATT	spacer
	length:	40	repeater length:	24
33461	2095685	GATAATCTCTTATAGAATTGAAAG	TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAACG	spacer
	length:	40	repeater length:	24
33462	2095749	GATAATCTCTTATAGAATTGAAAG	CGTTTCTATTGCAAGGTCTGAGATTTTTGGCCTGAGTA	spacer
	length:	38	repeater length:	24
33463	2095811	GATAATCTCTTATAGAATTGAAAG	GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGAT	spacer
	length:	40	repeater length:	24
33464	2095875	GATAATCTCTTATAGAATTGAAAG	ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATATA	spacer
	length:	44	repeater length:	24
33465	2095943	GATAATCTCTTATAGAATTGAAAG	CTAAGCAGTGA CTACAGTTTAGACATTCACAAGTATC	spacer
	length:	38	repeater length:	24
33466	2096005	GATAATCTCTTATAGAATTGAAAG	TTCTAAGCGTGTAAGATCTATCTGACAACACGAACTATG	spacer
	length:	41	repeater length:	24
33467	2096070	GATAATCTCTTATAGAATTGAAAG	TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGAC	spacer
	length:	40	repeater length:	24
33468	2096134	GATAATCTCTTATAGAATTGAAAG	CAATCCCATTCGTTTTACTCACTTCTAAGAACCTCGC	spacer
	length:	37	repeater length:	24
33469	2096195	GATAATCTCTTATAGAATTGAAAG	AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTCT	spacer
	length:	40	repeater length:	24
33470	2096259	GATAATCTCTTATAGAATTGAAAG	ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCTG	spacer
	length:	40	repeater length:	24
33471	2096323	GATAATCTCTTATAGAATTGAAAG	GTCTTTATGGCCCTCTGGGTCTTCCACCATTGAGAGGA	spacer
	length:	39	repeater length:	24
33472	2096386	GATAATCTCTTATAGAATTGAAAG	TTATCCTCATCTATCGGTGAGTGGAACAAATTGGGTAGC	spacer
	length:	40	repeater length:	24
33473	2096450	GATAATCTCTTATAGAATTGAAAG	ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTTT	spacer
	length:	40	repeater length:	24
33474	2096514	GATAATCTCTTATAGAATTGAAAG	AGTTACAATACTTTATTGTCAAAGAAGCAAGGATATGCG	spacer
	length:	40	repeater length:	24
33475	2096578	GATAATCTCTTATAGAATTGAAAG	TTCAAAC TAGATCTAGAAGATTTCTATCGGCATCTTTACAT	spacer
	length:	41	repeater length:	24
33476	2096643	GATAATCTCTTATAGAATTGAAAG	ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTTC	spacer
	length:	40	repeater length:	24
33477	2096707	GATAATCTCTTATAGAATTGAAAG	GCTTCTGTGCCCTGAACTCCTTCTTGAAATGGATTTATT	spacer
	length:	39	repeater length:	24
33478	2096770	GATAATCTCTTATAGAATTGAAAG	TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT	spacer
	length:	37	repeater length:	24
33479	2096831	GATAATCTCTTATAGAATTGAAAG	CTACTACATCATCCTCTACCACGCCAAGCCAACAACC	spacer
	length:	37	repeater length:	24
33480	2096892	GATAATCTCTTATAGAATTGAAAG	ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT	spacer
	length:	38	repeater length:	24
33481	2096954	GATAATCTCTTATAGAATTGAAAG	ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACTA	spacer
	length:	41	repeater length:	24
33482	2097019	GATAATCTCTTATAGAATTGAAAG	ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTCT	spacer
	length:	39	repeater length:	24
33483	2097082	GATAATCTCTTATAGAATTGAAAG	AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT	spacer
	length:	37	repeater length:	24
33484	2097143	GATAATCTCTTATAGAATTGAAAG	ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT	spacer
	length:	39	repeater length:	24
33485	2097206	GATAATCTCTTATAGAATTGAAAG	ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTGC	spacer
	length:	41	repeater length:	24
33486	2097271	GATAATCTCTTATAGAATTGAAAG	AAGCCTACACAGGATAGGATACTCAAATTATATGAAAT	spacer
	length:	39	repeater length:	24
33487	2097334	GATAATCTCTTATAGAATTGAAAG	TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCAT	spacer
	length:	42	repeater length:	24
33488	2097400	GATAATCTCTTATAGAATTGAAAG	CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA	spacer
	length:	37	repeater length:	24
33489	2097461	GATAATCTCTTATAGAATTGAAAG	TGTTCTGTCGTTACTGTCGTAAAGCACGTCCTATTAT	spacer
	length:	37	repeater length:	24
33490	2097522	GATAATCTCTTATAGAATTGAAAG	ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC	spacer
	length:	38	repeater length:	24
33491	2097584	GATAATCTCTTATAGAATTGAAAG	TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGAA	spacer
	length:	39	repeater length:	24
33492	2097647	GATAATCTCTTATAGAATTGAAAG	GCACAATTCGCCAACGATTTTCGGTTCGCTTTATACCTT	spacer
	length:	38	repeater length:	24
33493	2097709	GATAATCTCTTATAGAATTGAAAG	CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTGG	spacer
	length:	41	repeater length:	24
33494	2097774	GATAATCTCTTATAGAATTGAAAG	AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG	spacer
	length:	40	repeater length:	24
33495	2097838	GATAATCTCTTATAGAATTGAAAG	ATTAGAAAAGTTTAAGATTACGCATGCAATATGTTTTTGAT	spacer

length: 42 repeater length: 24
33496 2097904 GATAATCTCTTATAGAATTGAAAG TTCTGTTTTCGAAGAAAACCCGCCTCAGATTTCATTATGGG spacer
length: 39 repeater length: 24
33497 2097967 GATAATCTCTTATAGAATTGAAAG AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAAA spacer
length: 39 repeater length: 24
33498 2098030 GATAATCTCTTATAGAATTGAAAG CCTCATCGTAAACATGCAATCTTGCATATTCAGTGTA spacer
length: 37 repeater length: 24
33499 2098091 GATAATCTCTTATAGAATTGAAAG GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCT spacer
length: 39 repeater length: 24
33500 2098154 GATAATCTCTTATAGAATTGAAAG ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT spacer
length: 41 repeater length: 24
33501 2098219 GATAATCTCTTATAGAATTGAAAG GAAGTTGCAAAAATTGCCAATGTTTTTTCAAACGCGT spacer
length: 38 repeater length: 24
33502 2098281 GATAATCTCTTATAGAATTGAAAG ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA spacer
length: 39 repeater length: 24
33503 2098344 GATAATCTCTTATAGAATTGAAAG AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA spacer
length: 37 repeater length: 24
33504 2098405 GATAATCTCTTATAGAATTGAAAG CGTTC TAGAGCTAAACGATGCATACGCGGTGGTACAATA spacer
length: 40 repeater length: 24
33505 2098469 GATAATCTCTTATAGAATTGAAAG ATTTCGGGGAAACTTATGCATTATAAGAAGAAGAGATATTT spacer
length: 41 repeater length: 24
33506 2098534 GATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACCTCTGGGTAAGCCACAATACGCAA spacer
length: 40 repeater length: 24
33507 2098598 GATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAAC spacer
length: 38 repeater length: 24
33508 2098660 GATAATCTCTTATAGAATTGAAAG TAACTAGATCCTTATATTTACGTAAATGTAAAGGGG spacer
length: 38 repeater length: 24
33509 2098722 GATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTGCAATA spacer
length: 38 repeater length: 24
33510 2098784 GATAATCTCTTATAGAATTGAAAG GTTCATCAGTTCTACCTTTTGGTCCAAAGGCTGATCCAA spacer
length: 39 repeater length: 24
33511 2098847 GATAATCTCTTATAGAATTGAAAG
33512
33513
33514 crispr 5
33515 2498115 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGTG spacer
length: 39 repeater length: 24
33516 2498178 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTA ACTCAAATA spacer
length: 42 repeater length: 24
33517 2498244 GATAATCTACTATAGAATTGAAAG CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAGCATT spacer
length: 39 repeater length: 24
33518 2498307 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTGA spacer
length: 41 repeater length: 24
33519 2498372 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTC ACTCTGCGTATCATTATGGATAA spacer
length: 44 repeater length: 24
33520 2498440 GATAATCTACTATAGAATTGAAAG CCCGCCAGCCAGACTGTTTT CAGCCAAACCGGCTAATT spacer
length: 40 repeater length: 24
33521 2498504 GATAATCTACTATAGAATTGAAAG
33522
33523
33524 GCA_003852195.1_ASM385219v1_genomic.fna(PilerCR):
33525 START REPEAT
SPACER
33526 crispr 1
33527 2054516 GATTAATCCCAAAAGGAATTGAAAG TCACATCCCTCACAATCCATAATGAAAATGTCGGCAT spacer
length: 37 repeater length: 25
33528 2054578 GATTAATCCCAAAAGGAATTGAAAG ATTTTAGCAATGCAATAGATCAACAATTGAAAGAACT spacer
length: 38 repeater length: 25
33529 2054641 GATTAATCCCAAAAGGAATTGAAAG ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTTC spacer
length: 39 repeater length: 25
33530 2054705 GATTAATCCCAAAAGGAATTGAAAG TGTTTCACAAATTTCAAAC TTGCAAACGCAACAATTAAATA spacer
length: 41 repeater length: 25
33531 2054771 GATTAATCCCAAAAGGAATTGAAAG GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTGG spacer
length: 40 repeater length: 25
33532 2054836 GATTAATCCCAAAAGGAATTGAAAG TAGTCAACGACAAAGTGCTTAAAACCGTGTTATACTC spacer
length: 38 repeater length: 25
33533 2054899 GATTAATCCCAAAAGGAATTGAAAG GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAGT spacer
length: 39 repeater length: 25
33534 2054963 GATTAATCCCAAAAGGAATTGAAAG CAATAGAATTTTCTTAGTTGGCATTGACAAGTATAATTCT spacer
length: 41 repeater length: 25
33535 2055029 GATTAATCCCAAAAGGAATTGAAAG CAAATTCCAAAC TTTGGGAATTTCTAGTTTCAAATTTCTC spacer

length: 40 repeater length: 25
33536 2055094 GATTAATCCCAAAAGGAATTGAAAG TTTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGAC spacer
length: 39 repeater length: 25
33537 2055158 GATTAATCCCAAAAGGAATTGAAAG CGCTTTTCGACTGCGACAACGTGCTGTTGGCTCATTTGTTGC spacer
length: 41 repeater length: 25
33538 2055224 GATTAATCCCAAAAGGAATTGAAAG TTATTTCAAATACTATTATCTCCGCCATATGTTTACAT spacer
length: 38 repeater length: 25
33539 2055287 GATTAATCCCAAAAGGAATTGAAAG ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATTT spacer
length: 38 repeater length: 25
33540 2055350 GATTAATCCCAAAAGGAATTGAAAG TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTCA spacer
length: 40 repeater length: 25
33541 2055415 GATTAATCCCAAAAGGAATTGAAAG CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAATA spacer
length: 39 repeater length: 25
33542 2055479 GATTAATCCCAAAAGGAATTGAAAG AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTTC
spacer length: 44 repeater length: 25
33543 2055548 GATTAATCCCAAAAGGAATTGAAAG GCTTTAACTTGGTACGCACTTTACGCCATGATAAACG spacer
length: 37 repeater length: 25
33544 2055610 GATTAATCCCAAAAGGAATTGAAAG GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGTT spacer
length: 39 repeater length: 25
33545 2055674 GATTAATCCCAAAAGGAATTGAAAG GTTGAATTTTTGCAACTGGTATGTTGTATTTTTGCA spacer
length: 36 repeater length: 25
33546 2055735 GATTAATCCCAAAAGGAATTGAAAG AATTTGTTACACGGCTAGGATTTTTTTTCTTAGATGTACAAT spacer
length: 42 repeater length: 25
33547 2055802 GATTAATCCCAAAAGGAATTGAAAG TTCTAATCTTTTGCCATTACTGCATCATATCTACTAG spacer
length: 38 repeater length: 25
33548 2055865 GATTAATCCCAAAAGGAATTGAAAG ATCTTTACCTTTATATAAATCTTGTTTCGTAACAAATAA spacer
length: 38 repeater length: 25
33549 2055928 GATTAATCCCAAAAGGAATTGAAAG ACAAACGAGGAGTTTATAGTAAATCAACTATGAAA spacer
length: 37 repeater length: 25
33550 2055990 GATTAATCCCAAAAGGAATTGAAAG ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAAG spacer length:
35 repeater length: 25
33551 2056050 GATTAATCCCAAAAGGAATTGAAAG AACTACAACGAGGTGAGAAACGATGACTAAACGTTT spacer
length: 36 repeater length: 25
33552 2056111 GATTAATCCCAAAAGGAATTGAAAG TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATTG spacer
length: 38 repeater length: 25
33553 2056174 GATTAATCCCAAAAGGAATTGAAAG TAGATATATGGCGATGAATTGCATTAGTCAGTGGTG spacer
length: 36 repeater length: 25
33554 2056235 GATTAATCCCAAAAGGAATTGAAAG ATTTTTAACGCTATGACGCTAGCCCTCATGTTAGCTTTT spacer
length: 39 repeater length: 25
33555 2056299 GATTAATCCCAAAAGGAATTGAAAG AAAGTTTGTCTTCTGTTTCGTTTTGTTGTTCTGACT spacer
length: 37 repeater length: 25
33556 2056361 GATTAATCCCAAAAGGAATTGAAAG CCCCTTTTGCCGTCTTTTGTAGTTACCACAATGCACCAA spacer
length: 38 repeater length: 25
33557 2056424 GATTAATCCCAAAAGGAATTGAAAG CCGTATCCAGAAATAATTAACCAATCGCTTGTGTTGTGAC spacer
length: 39 repeater length: 25
33558 2056488 GATTAATCCCAAAAGGAATTGAAAG AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCAA spacer
length: 37 repeater length: 25
33559 2056550 GATTAATCCCAAAAGGAATTGAAAG GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGTG spacer
length: 42 repeater length: 25
33560 2056617 GATTAATCCCAAAAGGAATTGAAAG GCATCTGTCGGCAACCTCACTTATTCACGTGGGGGTGCG spacer
length: 39 repeater length: 25
33561 2056681 GATTAATCCCAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTGA spacer
length: 37 repeater length: 25
33562 2056743 GATTAATCCCAAAAGGAATTGAAAG TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTTG spacer
length: 39 repeater length: 25
33563 2056807 GATTAATCCCAAAAGGAATTGAAAG TTGAACTTGTAGAAATTGTTTCATATGAAACAGCATAATTTTC spacer
length: 42 repeater length: 25
33564 2056874 GATTAATCCCAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAACG spacer
length: 40 repeater length: 25
33565 2056939 GATTAATCCCAAAAGGAATTGAAAG CTCATTATTTATCATATAAAGATTATCCACTGCAATT spacer
length: 36 repeater length: 25
33566 2057000 GATTAATCCCAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCCTCTTTACGCATTTCT spacer
length: 39 repeater length: 25
33567 2057064 GATTAATCCCAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGCG spacer
length: 36 repeater length: 25
33568 2057125 GATTAATCCCAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACAT spacer
length: 39 repeater length: 25
33569 2057189 GATTAATCCCAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTATG spacer
length: 41 repeater length: 25
33570 2057255 GATTAATCCCAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTCT spacer
length: 41 repeater length: 25

33571 2057321 GATTAATCCCAAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAAGACTTTTCAGCCCTC spacer
length: 36 repeater length: 25

33572 2057382 GATTAATCCCAAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAATC spacer
length: 36 repeater length: 25

33573 2057443 GATTAATCCCAAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTGT spacer
length: 39 repeater length: 25

33574 2057507 GATTAATCCCAAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTTCAT spacer length:
34 repeater length: 25

33575 2057566 GATTAATCCCAAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCAT spacer
length: 38 repeater length: 25

33576 2057629 GATTAATCCCAAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCATT spacer
length: 40 repeater length: 25

33577 2057694 GATTAATCCCAAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCGG spacer
length: 40 repeater length: 25

33578 2057759 GATTAATCCCAAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTCTG spacer
length: 40 repeater length: 25

33579 2057824 GATTAATCCCAAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTGC spacer
length: 39 repeater length: 25

33580 2057888 GATTAATCCCAAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCATT spacer
length: 40 repeater length: 25

33581 2057953 GATTAATCCCAAAAAGGAATTGAAAG CCCCCTGGAATGCACCATTTCTTGCAAGTAATACATTT spacer
length: 39 repeater length: 25

33582 2058017 GATTAATCCCAAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTGC spacer
length: 40 repeater length: 25

33583 2058082 GATTAATCCCAAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATACT spacer
length: 38 repeater length: 25

33584 2058145 GATTAATCCCAAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCAG spacer
length: 39 repeater length: 25

33585 2058209 GATTAATCCCAAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCTT spacer
length: 37 repeater length: 25

33586 2058271 GATTAATCCCAAAAAGGAATTGAAAG TTTTTATTTAAGAACACTGATGGAAAGATCTATAG spacer length:
35 repeater length: 25

33587 2058331 GATTAATCCCAAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCTA spacer
length: 37 repeater length: 25

33588 2058393 GATTAATCCCAAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGAT spacer
length: 38 repeater length: 25

33589 2058456 GATTAATCCCAAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACATT spacer
length: 39 repeater length: 25

33590 2058520 GATTAATCCCAAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCTTTTGTAAAGACATTCCTCA spacer
length: 40 repeater length: 25

33591 2058585 GATTAATCCCAAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCGG spacer
length: 40 repeater length: 25

33592 2058650 GATTAATCCCAAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATTC spacer
length: 39 repeater length: 25

33593 2058714 GATTAATCCCAAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTTCGTC spacer
length: 42 repeater length: 25

33594 2058781 GATTAATCCCAAAAAGGAATTGAAAG GTATTCAAAAGAGAACTGGGGGATTCAAGGTAATACCT spacer
length: 38 repeater length: 25

33595 2058844 GATTAATCCCAAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATACAGTAAAGTAGCAGTTTT spacer
length: 36 repeater length: 25

33596 2058905 GATTAATCCCAAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTGT spacer
length: 37 repeater length: 25

33597 2058967 GATTAATCCCAAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAGT spacer
length: 36 repeater length: 25

33598 2059028 GATTAATCCCAAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTGA spacer
length: 39 repeater length: 25

33599 2059092 GATTAATCCCAAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTTCGTT spacer
length: 38 repeater length: 25

33600 2059155 GATTAATCCCAAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTTT spacer
length: 38 repeater length: 25

33601 2059218 GATTAATCCCAAAAAGGAATTGAAAG TCAAACCTCATGAAGCTACTGTAATCCATTTACATAAA spacer
length: 38 repeater length: 25

33602 2059281 GATTAATCCCAAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAATT spacer
length: 38 repeater length: 25

33603 2059344 GATTAATCCCAAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCCGAAAATGATTT spacer
length: 40 repeater length: 25

33604 2059409 GATTAATCCCAAAAAGGAATTGAAAG AAAAACTTTTCACATTTCGACATTAAAAAATAAAATAATTTTG spacer
length: 42 repeater length: 25

33605 2059476 GATTAATCCCAAAAAGGAATTGAAAG AATTCGTATACCTTAGTAGTATTATCATCAATATTGTAT spacer
length: 39 repeater length: 25

33606 2059540 GATTAATCCCAAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCCACGATAACCTCAATCCAGTAG spacer

length: 39 repeater length: 25
33607 2059604 GATTAATCCCAAAAAGGAATTGAAAG TCTACGTTGTTAAATTCATATACAGCTTGGCTCATAT spacer
length: 37 repeater length: 25
33608 2059666 GATTAATCCCAAAAAGGAATTGAAAG ACGTATTTTAAATTTTTTGGTAGTACTTTTCCTTGTGTAT spacer
length: 38 repeater length: 25
33609 2059729 GATTAATCCCAAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTTGATAGCTTTGCATCTT spacer
length: 41 repeater length: 25
33610 2059795 GATTAATCCCAAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTAC spacer
length: 40 repeater length: 25
33611 2059860 GATTAATCCCAAAAAGGAATTGAAAG CAGCAAGAAGTTCCTCTCTACATCTTATGATTTTCGG spacer
length: 37 repeater length: 25
33612 2059922 GATTAATCCCAAAAAGGAATTGAAAG CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCCT spacer
length: 36 repeater length: 25
33613 2059983 GATTAATCCCAAAAAGGAATTGAAAG ACCTTTATTTTAAAGTCCTAGCCTCTTCCCTATCCAT spacer
length: 36 repeater length: 25
33614 2060044 GATTAATCCCAAAAAGGAATTGAAAG TTGTTTTCACCTCCTTATTAAAAGCGACAGACGGTCGAC spacer
length: 38 repeater length: 25
33615 2060107 GATTAATCCCAAAAAGGAATTGAAAG TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTTT spacer
length: 37 repeater length: 25
33616 2060169 GATTAATCCCAAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCCTTTCCACACTGAAGATG spacer
length: 40 repeater length: 25
33617 2060234 GATTAATCCCAAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAATTATA spacer
length: 38 repeater length: 25
33618 2060297 GATTAATCCCAAAAAGGAATTGAAAG TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGCC spacer
length: 40 repeater length: 25
33619 2060362 GATTAATCCCAAAAAGGAATTGAAAG CAGCTCGACGATGACGAATACAAGATGCTGTATAATGCG spacer
length: 39 repeater length: 25
33620 2060426 GATTAATCCCAAAAAGGAATTGAAAG TTTCTCAACTGATCCACGGCTTCAGAGAAGATGTTTGGAT spacer
length: 40 repeater length: 25
33621 2060491 GATTAATCCCAAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGATG spacer
length: 39 repeater length: 25
33622 2060555 GATTAATCCCAAAAAGGAATTGAAAG CTCAGCAGATTTAACTAACGATATTAATTGTACACACTG spacer
length: 40 repeater length: 25
33623 2060620 GATTAATCCCAAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCAA spacer
length: 39 repeater length: 25
33624 2060684 GATTAATCCCAAAAAGGAATTGAAAG CAAGTGCAATAGCAAACCTACTACTAAATATAACATATAT spacer
length: 39 repeater length: 25
33625 2060748 GATTAATCCCAAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAACATAAATCGTGGCTTTA spacer
length: 38 repeater length: 25
33626 2060811 GATTAATCCCAAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAGT spacer
length: 39 repeater length: 25
33627 2060875 GATTAATCCCAAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACTAAGAGAAAATTGTTTCAA spacer
length: 41 repeater length: 25
33628 2060941 GATTAATCCCAAAAAGGAATTGAAAG TCTAACAATGAATCTGTCATAAAGTGCCCCGCAACTCTT spacer
length: 38 repeater length: 25
33629 2061004 GATTAATCCCAAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTTT spacer
length: 36 repeater length: 25
33630 2061065 GATTAATCCCAAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATGT spacer
length: 39 repeater length: 25
33631 2061129 GATTAATCCCAAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTTT spacer
length: 39 repeater length: 25
33632 2061193 GATTAATCCCAAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGGC spacer
length: 36 repeater length: 25
33633 2061254 GATTAATCCCAAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCTC spacer
length: 39 repeater length: 25
33634 2061318 GATTAATCCCAAAAAGGAATTGAAAG TCGTAAACTTGAAACTGACCCGTATATCCGAATTTAC spacer
length: 37 repeater length: 25
33635 2061380 GATTAATCCCAAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCTA spacer
length: 39 repeater length: 25
33636 2061444 GATTAATCCCAAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATATT spacer
length: 37 repeater length: 25
33637 2061506 GATTAATCCCAAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCTA spacer
length: 39 repeater length: 25
33638 2061570 GATTAATCCCAAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAAG spacer
length: 36 repeater length: 25
33639 2061631 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCCT spacer
length: 38 repeater length: 25
33640 2061694 GATTAATCCCAAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACCTTTTGCATACGACATAATTT spacer
length: 40 repeater length: 25
33641 2061759 GATTAATCCCAAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACTT spacer
length: 39 repeater length: 25

33642	2061823	GATTAATCCCAAAAGGAATTGAAAG	TAATACTGCAGTAACGGTACAAGTCATTGACAGCGCT	spacer
	length:	37	repeater length:	25
33643	2061885	GATTAATCCCAAAAGGAATTGAAAG		
33644				
33645				
33646	crispr 2			
33647	2076433	CTTTCAATTCCTTTTAGGATTAATC	TTGAAGATAGAGTTAAATGAACTTTTGATGACACAAAA	spacer
	length:	38	repeater length:	25
33648	2076496	CTTTCAATTCCTTTTAGGATTAATC	GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCAA	spacer
	length:	41	repeater length:	25
33649	2076562	CTTTCAATTCCTTTTAGGATTAATC	AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTGA	spacer
	length:	39	repeater length:	25
33650	2076626	CTTTCAATTCCTTTTAGGATTAATC	ACCAAGTGAAACTTGGAATATATAACCAAAAAGATAT	spacer
	length:	37	repeater length:	25
33651	2076688	CTTTCAATTCCTTTTAGGATTAATC	GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAAT	spacer
	length:	38	repeater length:	25
33652	2076751	CTTTCAATTCCTTTTAGGATTAATC	AGTAATAGAAACTCATTGAGAGTCTCTTCCAACCCGTACA	spacer
	length:	40	repeater length:	25
33653	2076816	CTTTCAATTCCTTTTAGGATTAATC	CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGCG	spacer length:
	length:	35	repeater length:	25
33654	2076876	CTTTCAATTCCTTTTAGGATTAATC	TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG	spacer
	length:	39	repeater length:	25
33655	2076940	CTTTCAATTCCTTTTAGGATTAATC	TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG	spacer
	length:	39	repeater length:	25
33656	2077004	CTTTCAATTCCTTTTAGGATTAATC	AAAATGTTTAATATTGGTGGAGTAGTTGATTTGATAATAT	spacer
	length:	41	repeater length:	25
33657	2077070	CTTTCAATTCCTTTTAGGATTAATC	AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTAA	spacer
	length:	39	repeater length:	25
33658	2077134	CTTTCAATTCCTTTTAGGATTAATC	GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGATA	spacer
	length:	39	repeater length:	25
33659	2077198	CTTTCAATTCCTTTTAGGATTAATC	CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGAA	spacer
	length:	37	repeater length:	25
33660	2077260	CTTTCAATTCCTTTTAGGATTAATC	CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGAT	spacer
	length:	37	repeater length:	25
33661	2077322	CTTTCAATTCCTTTTAGGATTAATC	CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTGA	spacer
	length:	40	repeater length:	25
33662	2077387	CTTTCAATTCCTTTTAGGATTAATC	CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTACA	spacer
	length:	38	repeater length:	25
33663	2077450	CTTTCAATTCCTTTTAGGATTAATC	CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAAA	spacer
	length:	40	repeater length:	25
33664	2077515	CTTTCAATTCCTTTTAGGATTAATC	GAGTGAGACCATGATCATTAACTGATATTACGGTAAG	spacer
	length:	39	repeater length:	25
33665	2077579	CTTTCAATTCCTTTTAGGATTAATC	AACAAAACCTCACCAGTGATGGAACATTTGAATGTAA	spacer
	length:	37	repeater length:	25
33666	2077641	CTTTCAATTCCTTTTAGGATTAATC	AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATACT	spacer
	length:	40	repeater length:	25
33667	2077706	CTTTCAATTCCTTTTAGGATTAATC	ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATAT	spacer
	length:	42	repeater length:	25
33668	2077773	CTTTCAATTCCTTTTAGGATTAATC	GAATATACAGAGAATAGAGAATAGAGAACAGAGAACGG	spacer
	length:	38	repeater length:	25
33669	2077836	CTTTCAATTCCTTTTAGGATTAATC	CCGTGATCAGATACAGTAACAGTCATGTTTTTATCT	spacer
	length:	36	repeater length:	25
33670	2077897	CTTTCAATTCCTTTTAGGATTAATC	CATGGAAACGGGAGGAGGGTGAGACAATGAAGGTTAC	spacer
	length:	37	repeater length:	25
33671	2077959	CTTTCAATTCCTTTTAGGATTAATC	CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAACT	spacer
	length:	38	repeater length:	25
33672	2078022	CTTTCAATTCCTTTTAGGATTAATC	GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTAG	spacer
	length:	40	repeater length:	25
33673	2078087	CTTTCAATTCCTTTTAGGATTAATC	AAATTCTGCAAAGGTAACACAATTGACGAGGTAAA	spacer length:
	length:	35	repeater length:	25
33674	2078147	CTTTCAATTCCTTTTAGGATTAATC	CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCAA	spacer
	length:	40	repeater length:	25
33675	2078212	CTTTCAATTCCTTTTAGGATTAATC	TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAACT	spacer
	length:	40	repeater length:	25
33676	2078277	CTTTCAATTCCTTTTAGGATTAATC	GGCATAACCGCTGCTTTCGGCTGCTGCTAATTGGTCTC	spacer
	length:	41	repeater length:	25
33677	2078343	CTTTCAATTCCTTTTAGGATTAATC	CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCTT	spacer
	length:	39	repeater length:	25
33678	2078407	CTTTCAATTCCTTTTAGGATTAATC	ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAAT	spacer
	length:	38	repeater length:	25
33679	2078470	CTTTCAATTCCTTTTAGGATTAATC	AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTAG	spacer

length: 40 repeater length: 25
33680 2078535 CTTTCAATTCCTTTTAGGATTAATC GGCATTAGAATATGGGTAAAACTTATAGCGACGAAGA spacer
length: 38 repeater length: 25
33681 2078598 CTTTCAATTCCTTTTAGGATTAATC TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGAT spacer
length: 36 repeater length: 25
33682 2078659 CTTTCAATTCCTTTTAGGATTAATC
33683
33684
33685 crispr 3
33686 2078789 CTTTCAATTCCTTTTGGGATTAATC TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGTG spacer
length: 38 repeater length: 25
33687 2078852 CTTTCAATTCCTTTTGGGATTAATC CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGCT spacer
length: 36 repeater length: 25
33688 2078913 CTTTCAATTCCTTTTGGGATTAATC CACATTAGCAAGAATCGTGCTAGCTACAGTTGGATT spacer
length: 36 repeater length: 25
33689 2078974 CTTTCAATTCCTTTTGGGATTAATC AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTTC spacer
length: 39 repeater length: 25
33690 2079038 CTTTCAATTCCTTTTGGGATTAATC TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTCT spacer
length: 41 repeater length: 25
33691 2079104 CTTTCAATTCCTTTTGGGATTAATC GGTAATGGTCTGTATATTGTCTTTAAGTATTTAT spacer length:
34 repeater length: 25
33692 2079163 CTTTCAATTCCTTTTGGGATTAATC AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTAA spacer
length: 39 repeater length: 25
33693 2079227 CTTTCAATTCCTTTTGGGATTAATC CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAAG spacer
length: 40 repeater length: 25
33694 2079292 CTTTCAATTCCTTTTGGGATTAATC ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCATT spacer
length: 40 repeater length: 25
33695 2079357 CTTTCAATTCCTTTTGGGATTAATC ATTAGCTAAACCATTTCAAAGGCTAACATCTTCTATGT spacer
length: 38 repeater length: 25
33696 2079420 CTTTCAATTCCTTTTGGGATTAATC ATAAATCCACAAAGTGGCCGTTCAAAGCAAAGAGTTTATT spacer
length: 40 repeater length: 25
33697 2079485 CTTTCAATTCCTTTTGGGATTAATC TGATATTTATTTTCTCGTGAAAAGTGGAGGGCCTAGAAC spacer
length: 39 repeater length: 25
33698 2079549 CTTTCAATTCCTTTTGGGATTAATC ATTATATCATGGAGACCCAGGTGCTGTGACTATCAA spacer
length: 36 repeater length: 25
33699 2079610 CTTTCAATTCCTTTTGGGATTAATC AATTAGCCAGCGTGCCATCTGGGTAAACGTGTATTTTGGTTAA spacer
length: 43 repeater length: 25
33700 2079678 CTTTCAATTCCTTTTGGGATTAATC ATAATATATTTCTGTTCCAACCTACACCTAATGGATTCTGGG spacer
length: 39 repeater length: 25
33701 2079742 CTTTCAATTCCTTTTGGGATTAATC TAATTGTCTGCCCTTGAGTTCCACTGAGAGAAACGC spacer
length: 36 repeater length: 25
33702 2079803 CTTTCAATTCCTTTTGGGATTAATC AAAAGACGTACAAATATACATCGCACCGAACGGACACAT spacer
length: 39 repeater length: 25
33703 2079867 CTTTCAATTCCTTTTGGGATTAATC GGGTGCGTGCCCCACAGGTCGCGGGTCTACCCCTTGC spacer
length: 37 repeater length: 25
33704 2079929 CTTTCAATTCCTTTTGGGATTAATC TTATGTCGTTATCTTCTTCGTTTTTGTGCGTTGTTT spacer
length: 37 repeater length: 25
33705 2079991 CTTTCAATTCCTTTTGGGATTAATC GATAAAATATTAAATTCTCAAATTCCATTTAGAG spacer length:
34 repeater length: 25
33706 2080050 CTTTCAATTCCTTTTGGGATTAATC AAAATTTGAAACAATATCGCATCTTGAATAATTAT spacer length:
35 repeater length: 25
33707 2080110 CTTTCAATTCCTTTTGGGATTAATC GCTTCTTCCCAACGCTGTACGTACTCTTAGGTGTCACA spacer
length: 38 repeater length: 25
33708 2080173 CTTTCAATTCCTTTTGGGATTAATC AATTACAGGAAAAAGACGAATAAATGAGGAAGAAATG spacer
length: 38 repeater length: 25
33709 2080236 CTTTCAATTCCTTTTGGGATTAATC TACTCAATTTGTGCGCAGTTTTTCATTGAGGGAGACTT spacer
length: 38 repeater length: 25
33710 2080299 CTTTCAATTCCTTTTGGGATTAATC AAAAATTCTGAGTGCAATGTATAATGAAAATATGGATAATA spacer
length: 41 repeater length: 25
33711 2080365 CTTTCAATTCCTTTTGGGATTAATC TGTTGTCCAAATAAATGCTGTACCGACTAACAATAATGTA spacer
length: 40 repeater length: 25
33712 2080430 CTTTCAATTCCTTTTGGGATTAATC CAGGAGTTGGAGGTATTATCGGAGCATTGTTAGCAT spacer
length: 36 repeater length: 25
33713 2080491 CTTTCAATTCCTTTTGGGATTAATC ATGATTTGAAAATAGATGAAGAGCTATCTAACTCATTCC spacer
length: 40 repeater length: 25
33714 2080556 CTTTCAATTCCTTTTGGGATTAATC ACCACATTATGAAGGTACTCCAGAATTCTCTAAGAT spacer
length: 36 repeater length: 25
33715 2080617 CTTTCAATTCCTTTTGGGATTAATC TAGATCTATTTCGAGAGTTTGCATCAACACATAAGTAC spacer
length: 38 repeater length: 25
33716 2080680 CTTTCAATTCCTTTTGGGATTAATC ATAATATGGTGAAAATTGAAGGTGAATCATTAGCAAA spacer
length: 37 repeater length: 25

33717	2080742	CTTTC AATTCCTTTTGGGATTAATC	AATTTTTTGTTTAAAGATGATT CAGTGAAGAATATTA	spacer
	length:	38	repeater length:	25
33718	2080805	CTTTC AATTCCTTTTGGGATTAATC	CAATCCCCAAAAGTAAATCCCCAATCTTCAAATAATATGG	spacer
	length:	40	repeater length:	25
33719	2080870	CTTTC AATTCCTTTTGGGATTAATC		
33720				
33721				
33722	crispr	4		
33723	2092270	GATAATCTCTTATAGAATTGAAAG	TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGGC	spacer
	length:	38	repeater length:	24
33724	2092332	GATAATCTCTTATAGAATTGAAAG	CAACGCCAACTCCGCCAATTTCCGCATTGATGTTGCTGG	spacer
	length:	40	repeater length:	24
33725	2092396	GATAATCTCTTATAGAATTGAAAG	TCTTCAAACCTTCCCACGGCACAACGGAGGCATGCAAATTATT	spacer
	length:	42	repeater length:	24
33726	2092462	GATAATCTCTTATAGAATTGAAAG	GTAGTAAGCTTTCCTTCTTTATCCTCTAGACCGCTGTAGT	spacer
	length:	40	repeater length:	24
33727	2092526	GATAATCTCTTATAGAATTGAAAG	AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTCA	spacer
	length:	38	repeater length:	24
33728	2092588	GATAATCTCTTATAGAATTGAAAG	GAAGTGTCTGGTGTTCATGAAATATGGGTATGCATATT	spacer
	length:	39	repeater length:	24
33729	2092651	GATAATCTCTTATAGAATTGAAAG	GCAAAGAGTCCATTCAATAACACATATTTTGCACATAAG	spacer
	length:	39	repeater length:	24
33730	2092714	GATAATCTCTTATAGAATTGAAAG	AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGCT	spacer
	length:	39	repeater length:	24
33731	2092777	GATAATCTCTTATAGAATTGAAAG	ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTCT	spacer
	length:	39	repeater length:	24
33732	2092840	GATAATCTCTTATAGAATTGAAAG	CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTAA	spacer
	length:	40	repeater length:	24
33733	2092904	GATAATCTCTTATAGAATTGAAAG	CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGAG	spacer
	length:	39	repeater length:	24
33734	2092967	GATAATCTCTTATAGAATTGAAAG	ACCACGAGCACGACCTCAAATATAACACCGCCAAAAATC	spacer
	length:	39	repeater length:	24
33735	2093030	GATAATCTCTTATAGAATTGAAAG	TATCTTCCAGATGTCTCAGAAACGCCTTAAATTTATTGAT	spacer
	length:	40	repeater length:	24
33736	2093094	GATAATCTCTTATAGAATTGAAAG	TACATTAGACCCTAGTTGGTTTTATCGCTGGTAACGTCG	spacer
	length:	38	repeater length:	24
33737	2093156	GATAATCTCTTATAGAATTGAAAG	ACACTTAGCGACATAAAAACCGCACTGACTTACAATTACC	spacer
	length:	40	repeater length:	24
33738	2093220	GATAATCTCTTATAGAATTGAAAG	CGACATACATATATATGCATTTCCGTGGGAGTGTTACAAA	spacer
	length:	40	repeater length:	24
33739	2093284	GATAATCTCTTATAGAATTGAAAG	ACATATGGTTGGTCTCCAACATTTGGTGAGTATATCT	spacer
	length:	37	repeater length:	24
33740	2093345	GATAATCTCTTATAGAATTGAAAG	GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCTT	spacer
	length:	38	repeater length:	24
33741	2093407	GATAATCTCTTATAGAATTGAAAG	ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCAA	spacer
	length:	39	repeater length:	24
33742	2093470	GATAATCTCTTATAGAATTGAAAG	AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGAA	spacer
	length:	38	repeater length:	24
33743	2093532	GATAATCTCTTATAGAATTGAAAG	CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTAT	spacer
	length:	38	repeater length:	24
33744	2093594	GATAATCTCTTATAGAATTGAAAG	TCTGATAGCACCAGACAAGTAAAGCGTATATCCTAGTCAA	spacer
	length:	41	repeater length:	24
33745	2093659	GATAATCTCTTATAGAATTGAAAG	AACATATTCTGGTACGGGTTGCCATCTGGTACACCATT	spacer
	length:	39	repeater length:	24
33746	2093722	GATAATCTCTTATAGAATTGAAAG	TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAAA	spacer
	length:	39	repeater length:	24
33747	2093785	GATAATCTCTTATAGAATTGAAAG	AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAGG	spacer
	length:	37	repeater length:	24
33748	2093846	GATAATCTCTTATAGAATTGAAAG	CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGTC	spacer
	length:	38	repeater length:	24
33749	2093908	GATAATCTCTTATAGAATTGAAAG	ACATCGCAAGCGATCTATTGTTCACTATTCTGGCGGC	spacer
	length:	40	repeater length:	24
33750	2093972	GATAATCTCTTATAGAATTGAAAG	AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA	spacer
	length:	38	repeater length:	24
33751	2094034	GATAATCTCTTATAGAATTGAAAG	CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA	spacer
	length:	37	repeater length:	24
33752	2094095	GATAATCTCTTATAGAATTGAAAG	AATTTGAACATAATTTCGGCCTCGTCAGTTTTCCACAGATA	spacer
	length:	40	repeater length:	24
33753	2094159	GATAATCTCTTATAGAATTGAAAG	TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT	spacer
	length:	39	repeater length:	24
33754	2094222	GATAATCTCTTATAGAATTGAAAG	TTTACTGACAACGCCATCATACTTACTAGCCCAACTAA	spacer

length: 38 repeater length: 24
33755 2094284 GATAATCTCTTATAGAATTGAAAG GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGGA spacer
length: 40 repeater length: 24
33756 2094348 GATAATCTCTTATAGAATTGAAAG TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT spacer
length: 41 repeater length: 24
33757 2094413 GATAATCTCTTATAGAATTGAAAG CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG spacer
length: 37 repeater length: 24
33758 2094474 GATAATCTCTTATAGAATTGAAAG ATCTGAATTTCTCTCAGCTTCCATTGCATAATTTATTCTA spacer
length: 39 repeater length: 24
33759 2094537 GATAATCTCTTATAGAATTGAAAG TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT spacer
length: 40 repeater length: 24
33760 2094601 GATAATCTCTTATAGAATTGAAAG ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTC spacer
length: 38 repeater length: 24
33761 2094663 GATAATCTCTTATAGAATTGAAAG TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAGC spacer
length: 38 repeater length: 24
33762 2094725 GATAATCTCTTATAGAATTGAAAG GTCAAAATTGCCCAACCGAACGTTAGCAAAAATGCAGCAC spacer
length: 40 repeater length: 24
33763 2094789 GATAATCTCTTATAGAATTGAAAG TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA spacer
length: 41 repeater length: 24
33764 2094854 GATAATCTCTTATAGAATTGAAAG GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAACC spacer
length: 39 repeater length: 24
33765 2094917 GATAATCTCTTATAGAATTGAAAG GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGTT spacer
length: 39 repeater length: 24
33766 2094980 GATAATCTCTTATAGAATTGAAAG TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT spacer
length: 40 repeater length: 24
33767 2095044 GATAATCTCTTATAGAATTGAAAG GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT spacer length:
35 repeater length: 24
33768 2095103 GATAATCTCTTATAGAATTGAAAG GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC spacer
length: 39 repeater length: 24
33769 2095166 GATAATCTCTTATAGAATTGAAAG CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAAT spacer length:
36 repeater length: 24
33770 2095226 GATAATCTCTTATAGAATTGAAAG AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTTG spacer
length: 38 repeater length: 24
33771 2095288 GATAATCTCTTATAGAATTGAAAG ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATTA spacer
length: 38 repeater length: 24
33772 2095350 GATAATCTCTTATAGAATTGAAAG GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAAG spacer
length: 38 repeater length: 24
33773 2095412 GATAATCTCTTATAGAATTGAAAG AATCACGAAAGCGATACTAAGGGCAATACAATACAAACATG spacer
length: 41 repeater length: 24
33774 2095477 GATAATCTCTTATAGAATTGAAAG CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTGC spacer
length: 39 repeater length: 24
33775 2095540 GATAATCTCTTATAGAATTGAAAG AGATTGTTTTATTAATACCAAGTAGACAATTATATATTTT spacer
length: 40 repeater length: 24
33776 2095604 GATAATCTCTTATAGAATTGAAAG CCAAAACATGTCACATGTGCCGATATTGATATTTACAAA spacer
length: 39 repeater length: 24
33777 2095667 GATAATCTCTTATAGAATTGAAAG AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGAA spacer
length: 38 repeater length: 24
33778 2095729 GATAATCTCTTATAGAATTGAAAG GGGAGTTCCCATTTCGATTTTGGGAACCCTCAAGCACAGTCTGTG spacer
length: 44 repeater length: 24
33779 2095797 GATAATCTCTTATAGAATTGAAAG TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCAT spacer
length: 41 repeater length: 24
33780 2095862 GATAATCTCTTATAGAATTGAAAG CTAACTTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTGT spacer
length: 38 repeater length: 24
33781 2095924 GATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTCTGCAGTCTTTGTT spacer length:
36 repeater length: 24
33782 2095984 GATAATCTCTTATAGAATTGAAAG AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTAT spacer
length: 39 repeater length: 24
33783 2096047 GATAATCTCTTATAGAATTGAAAG ATCCGTTCTCCGTCCCGATCCGTACCGTTCTCTGTACT spacer
length: 38 repeater length: 24
33784 2096109 GATAATCTCTTATAGAATTGAAAG AGCATAACTTCATCTTCTTCTACAACCTTCGACAGCTT spacer
length: 37 repeater length: 24
33785 2096170 GATAATCTCTTATAGAATTGAAAG TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATTA spacer
length: 42 repeater length: 24
33786 2096236 GATAATCTCTTATAGAATTGAAAG ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCAT spacer
length: 39 repeater length: 24
33787 2096299 GATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGGT spacer
length: 40 repeater length: 24
33788 2096363 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATA spacer
length: 37 repeater length: 24
33789 2096424 GATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCCC spacer
length: 38 repeater length: 24

33790	2096486	GATAATCTCTTATAGAATTGAAAG	ATACCAACAGCAACAACAACTTATTCTTCGCTCATACA	spacer
	length:	39	repeater length:	24
33791	2096549	GATAATCTCTTATAGAATTGAAAG	ACGAACACACCCCTTAAACTCTTTTTCCAACATTCACCT	spacer
	length:	40	repeater length:	24
33792	2096613	GATAATCTCTTATAGAATTGAAAG	CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGAG	spacer
	length:	40	repeater length:	24
33793	2096677	GATAATCTCTTATAGAATTGAAAG	TCTTAGCGAACTTGCAAAATATTCCGACCAAAGCTAATA	spacer
	length:	39	repeater length:	24
33794	2096740	GATAATCTCTTATAGAATTGAAAG	TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGGT	spacer
	length:	40	repeater length:	24
33795	2096804	GATAATCTCTTATAGAATTGAAAG	GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTAG	spacer
	length:	43	repeater length:	24
33796	2096871	GATAATCTCTTATAGAATTGAAAG	ATACAGATTTTCGTTATCCATATCCTACATGACTTTCC	spacer
	length:	37	repeater length:	24
33797	2096932	GATAATCTCTTATAGAATTGAAAG	ATACATCGATCTTGTAATTAGATATCCATTGACTGTTAT	spacer
	length:	39	repeater length:	24
33798	2096995	GATAATCTCTTATAGAATTGAAAG	ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTATT	spacer
	length:	40	repeater length:	24
33799	2097059	GATAATCTCTTATAGAATTGAAAG	TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAACG	spacer
	length:	40	repeater length:	24
33800	2097123	GATAATCTCTTATAGAATTGAAAG	CGTTTCTATTGCAAGGTCTGAGATTTTTGGCCTGAGTA	spacer
	length:	38	repeater length:	24
33801	2097185	GATAATCTCTTATAGAATTGAAAG	GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGAT	spacer
	length:	40	repeater length:	24
33802	2097249	GATAATCTCTTATAGAATTGAAAG	ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATATA	spacer
	length:	44	repeater length:	24
33803	2097317	GATAATCTCTTATAGAATTGAAAG	CTAAGCAGTGACTCACAGTTTAGACATTCACAAGTATC	spacer
	length:	38	repeater length:	24
33804	2097379	GATAATCTCTTATAGAATTGAAAG	TTCTAAGCGTGTAAGATCTATCTGACAACACGAAACTATG	spacer
	length:	41	repeater length:	24
33805	2097444	GATAATCTCTTATAGAATTGAAAG	TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGAC	spacer
	length:	40	repeater length:	24
33806	2097508	GATAATCTCTTATAGAATTGAAAG	CAATCCCATTTCGTTTTACTCACTTCTAAGAACCTCGC	spacer
	length:	37	repeater length:	24
33807	2097569	GATAATCTCTTATAGAATTGAAAG	AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTCT	spacer
	length:	40	repeater length:	24
33808	2097633	GATAATCTCTTATAGAATTGAAAG	ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCTG	spacer
	length:	40	repeater length:	24
33809	2097697	GATAATCTCTTATAGAATTGAAAG	GTCTTTATGGCCCTCTGGGTCTTTCCACCATTGAGAGGA	spacer
	length:	39	repeater length:	24
33810	2097760	GATAATCTCTTATAGAATTGAAAG	TTATCCTCATTCTATCGGTGAGTGGAACAAATTGGGTAGC	spacer
	length:	40	repeater length:	24
33811	2097824	GATAATCTCTTATAGAATTGAAAG	ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTTT	spacer
	length:	40	repeater length:	24
33812	2097888	GATAATCTCTTATAGAATTGAAAG	AGTTACAATACTTTATTGTCAAAGAAGCAAGGATATGCG	spacer
	length:	40	repeater length:	24
33813	2097952	GATAATCTCTTATAGAATTGAAAG	TTCAAAC TAGATCTAGAAGATTTCTATCGGCATCTTTACAT	spacer
	length:	41	repeater length:	24
33814	2098017	GATAATCTCTTATAGAATTGAAAG	ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTTC	spacer
	length:	40	repeater length:	24
33815	2098081	GATAATCTCTTATAGAATTGAAAG	GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTATT	spacer
	length:	39	repeater length:	24
33816	2098144	GATAATCTCTTATAGAATTGAAAG	TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT	spacer
	length:	37	repeater length:	24
33817	2098205	GATAATCTCTTATAGAATTGAAAG	CTACTACATCATCCTCTACCACGCCAAGCCAACAACC	spacer
	length:	37	repeater length:	24
33818	2098266	GATAATCTCTTATAGAATTGAAAG	ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT	spacer
	length:	38	repeater length:	24
33819	2098328	GATAATCTCTTATAGAATTGAAAG	ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACTA	spacer
	length:	41	repeater length:	24
33820	2098393	GATAATCTCTTATAGAATTGAAAG	ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTCT	spacer
	length:	39	repeater length:	24
33821	2098456	GATAATCTCTTATAGAATTGAAAG	AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT	spacer
	length:	37	repeater length:	24
33822	2098517	GATAATCTCTTATAGAATTGAAAG	ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT	spacer
	length:	39	repeater length:	24
33823	2098580	GATAATCTCTTATAGAATTGAAAG	ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTGC	spacer
	length:	41	repeater length:	24
33824	2098645	GATAATCTCTTATAGAATTGAAAG	AAGCCTACACAGGATAGGATACTCAAATTATATGAAAT	spacer
	length:	39	repeater length:	24
33825	2098708	GATAATCTCTTATAGAATTGAAAG	TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCAT	spacer

length: 42 repeater length: 24
33826 2098774 GATAATCTCTTATAGAATTGAAAG CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA spacer
length: 37 repeater length: 24
33827 2098835 GATAATCTCTTATAGAATTGAAAG TGTTCTGTCGTTACTGTCGTAAAGCACGTCCTATTAT spacer
length: 37 repeater length: 24
33828 2098896 GATAATCTCTTATAGAATTGAAAG ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC spacer
length: 38 repeater length: 24
33829 2098958 GATAATCTCTTATAGAATTGAAAG TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGAA spacer
length: 39 repeater length: 24
33830 2099021 GATAATCTCTTATAGAATTGAAAG GCACAATTCGCCAACGATTTTCGGTTCGCTTTATACCTT spacer
length: 38 repeater length: 24
33831 2099083 GATAATCTCTTATAGAATTGAAAG CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTGG spacer
length: 41 repeater length: 24
33832 2099148 GATAATCTCTTATAGAATTGAAAG AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG spacer
length: 40 repeater length: 24
33833 2099212 GATAATCTCTTATAGAATTGAAAG ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGAT spacer
length: 42 repeater length: 24
33834 2099278 GATAATCTCTTATAGAATTGAAAG TTCTGTTTTCGAAGAAAACCCGCCTCAGATTCATTATGGG spacer
length: 39 repeater length: 24
33835 2099341 GATAATCTCTTATAGAATTGAAAG AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAAA spacer
length: 39 repeater length: 24
33836 2099404 GATAATCTCTTATAGAATTGAAAG CCTCATCGTAAACATGCAATCTTGCATATTCAGTGTA spacer
length: 37 repeater length: 24
33837 2099465 GATAATCTCTTATAGAATTGAAAG GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCT spacer
length: 39 repeater length: 24
33838 2099528 GATAATCTCTTATAGAATTGAAAG ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT spacer
length: 41 repeater length: 24
33839 2099593 GATAATCTCTTATAGAATTGAAAG GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCGT spacer
length: 38 repeater length: 24
33840 2099655 GATAATCTCTTATAGAATTGAAAG ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA spacer
length: 39 repeater length: 24
33841 2099718 GATAATCTCTTATAGAATTGAAAG AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA spacer
length: 37 repeater length: 24
33842 2099779 GATAATCTCTTATAGAATTGAAAG CGTTCCTAGAGCTAAACGATGCATACGCGGTGGTACAACATA spacer
length: 40 repeater length: 24
33843 2099843 GATAATCTCTTATAGAATTGAAAG ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATTT spacer
length: 41 repeater length: 24
33844 2099908 GATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACCTCTGGGTAAAGCCACAATACGCAA spacer
length: 40 repeater length: 24
33845 2099972 GATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAAC spacer
length: 38 repeater length: 24
33846 2100034 GATAATCTCTTATAGAATTGAAAG TAAACTAGATCCTTATATTTACGTAAATGTAAAGGGG spacer
length: 38 repeater length: 24
33847 2100096 GATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTGCAATA spacer
length: 38 repeater length: 24
33848 2100158 GATAATCTCTTATAGAATTGAAAG GTTCATCAGTTCTACCTTTTGGTCCAAAGGCTGATCCAA spacer
length: 39 repeater length: 24
33849 2100221 GATAATCTCTTATAGAATTGAAAG
33850
33851
33852 crispr 5
33853 2499489 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGTG spacer
length: 39 repeater length: 24
33854 2499552 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAACCAATA spacer
length: 42 repeater length: 24
33855 2499618 GATAATCTACTATAGAATTGAAAG CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAGCATT spacer
length: 39 repeater length: 24
33856 2499681 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTGA spacer
length: 41 repeater length: 24
33857 2499746 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTCACCTCTGCGTATCATTATGGATAA spacer
length: 44 repeater length: 24
33858 2499814 GATAATCTACTATAGAATTGAAAG CCCGCCAGCCAGACTGTTTTTCAGCCCAAACCGGCTAATT spacer
length: 40 repeater length: 24
33859 2499878 GATAATCTACTATAGAATTGAAAG
33860
33861
33862 GCA_003852215.1_ASM385221v1_genomic.fna (PilerCR):
33863 START REPEAT
SPACER
33864 crispr 1
33865 2054516 GATTAATCCCAAAAGGAATTGAAAG TCACATCCCTCACAATCCATAATGAAAATGTCGGCAT spacer

length: 37 repeater length: 25
33866 2054578 GATTAATCCCAAAAGGAATTGAAAG ATTTTAGCAATGCAATAGATCAACAATTGAAAGAACT spacer
length: 38 repeater length: 25
33867 2054641 GATTAATCCCAAAAGGAATTGAAAG ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTTC spacer
length: 39 repeater length: 25
33868 2054705 GATTAATCCCAAAAGGAATTGAAAG TGTTTCACAAATTTCAAACCTTGCAAACGCAACAATTAAATA spacer
length: 41 repeater length: 25
33869 2054771 GATTAATCCCAAAAGGAATTGAAAG GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTGG spacer
length: 40 repeater length: 25
33870 2054836 GATTAATCCCAAAAGGAATTGAAAG TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACTC spacer
length: 38 repeater length: 25
33871 2054899 GATTAATCCCAAAAGGAATTGAAAG GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAGT spacer
length: 39 repeater length: 25
33872 2054963 GATTAATCCCAAAAGGAATTGAAAG CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTCT spacer
length: 41 repeater length: 25
33873 2055029 GATTAATCCCAAAAGGAATTGAAAG CAAAATTCCAAACCTTTGGGAATTTCTAGTTTCCAAATTTTC spacer
length: 40 repeater length: 25
33874 2055094 GATTAATCCCAAAAGGAATTGAAAG TTTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGAC spacer
length: 39 repeater length: 25
33875 2055158 GATTAATCCCAAAAGGAATTGAAAG CGCTTTCGACTGCGACAACCTGTCGTTTGGCTCATTGTGTC spacer
length: 41 repeater length: 25
33876 2055224 GATTAATCCCAAAAGGAATTGAAAG TTATTTCAAATACTATTATCTCCGCCATATGTTTACAT spacer
length: 38 repeater length: 25
33877 2055287 GATTAATCCCAAAAGGAATTGAAAG ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATTT spacer
length: 38 repeater length: 25
33878 2055350 GATTAATCCCAAAAGGAATTGAAAG TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTCA spacer
length: 40 repeater length: 25
33879 2055415 GATTAATCCCAAAAGGAATTGAAAG CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAATA spacer
length: 39 repeater length: 25
33880 2055479 GATTAATCCCAAAAGGAATTGAAAG AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTTC
spacer length: 44 repeater length: 25
33881 2055548 GATTAATCCCAAAAGGAATTGAAAG GCTTTAACTTGGTACGCACTTTACGCCATGATAAACG spacer
length: 37 repeater length: 25
33882 2055610 GATTAATCCCAAAAGGAATTGAAAG GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGTT spacer
length: 39 repeater length: 25
33883 2055674 GATTAATCCCAAAAGGAATTGAAAG GTTGAATTTTTGCAACTGGTATGTTGTATTTTTGCA spacer
length: 36 repeater length: 25
33884 2055735 GATTAATCCCAAAAGGAATTGAAAG AATTTGTTACACGGCTAGGATTTTTTTTCTTAGATGTACAAT spacer
length: 42 repeater length: 25
33885 2055802 GATTAATCCCAAAAGGAATTGAAAG TTCTAATCTTTTGCCATTACTGCATCATATCTACTAG spacer
length: 38 repeater length: 25
33886 2055865 GATTAATCCCAAAAGGAATTGAAAG ATCTTTACCTTTATATAAATCTTGTTTCGTAACAAATAA spacer
length: 38 repeater length: 25
33887 2055928 GATTAATCCCAAAAGGAATTGAAAG ACAAACGAGGAGTTTATAGTAAATCAACTATGAAA spacer
length: 37 repeater length: 25
33888 2055990 GATTAATCCCAAAAGGAATTGAAAG ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAAG spacer length:
35 repeater length: 25
33889 2056050 GATTAATCCCAAAAGGAATTGAAAG AACTACAACGAGGTGAGAAACGATGACTAAACGTTT spacer
length: 36 repeater length: 25
33890 2056111 GATTAATCCCAAAAGGAATTGAAAG TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATTG spacer
length: 38 repeater length: 25
33891 2056174 GATTAATCCCAAAAGGAATTGAAAG TAGATATATGGCGATGAATTGCATTAGTCAGTGGTG spacer
length: 36 repeater length: 25
33892 2056235 GATTAATCCCAAAAGGAATTGAAAG ATTTTTAACGCTATGACGCTAGCCCTCATGTTAGCTTTT spacer
length: 39 repeater length: 25
33893 2056299 GATTAATCCCAAAAGGAATTGAAAG AAAGTTTGTCTTCTGTTTCGTTTTGTTGTTCTGACT spacer
length: 37 repeater length: 25
33894 2056361 GATTAATCCCAAAAGGAATTGAAAG CCCCTTTTGCCGTCTTTTGTAGTTACCACAATGCACCAA spacer
length: 38 repeater length: 25
33895 2056424 GATTAATCCCAAAAGGAATTGAAAG CCGTATCCAGAAATAATTAACCAATCGCTTGTTTGTGAC spacer
length: 39 repeater length: 25
33896 2056488 GATTAATCCCAAAAGGAATTGAAAG AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCAA spacer
length: 37 repeater length: 25
33897 2056550 GATTAATCCCAAAAGGAATTGAAAG GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGTG spacer
length: 42 repeater length: 25
33898 2056617 GATTAATCCCAAAAGGAATTGAAAG GCATCTGTCGGCAACCTCACTTATTCACGTGGGGGTGCG spacer
length: 39 repeater length: 25
33899 2056681 GATTAATCCCAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTGA spacer
length: 37 repeater length: 25
33900 2056743 GATTAATCCCAAAAGGAATTGAAAG TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTTG spacer
length: 39 repeater length: 25

33901 2056807 GATTAATCCCAAAAAGGAATTGAAAG TTGAACCTGTAGAAATTGTTTCATATGAAACAGCATAATTTTC spacer
length: 42 repeater length: 25

33902 2056874 GATTAATCCCAAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAACG spacer
length: 40 repeater length: 25

33903 2056939 GATTAATCCCAAAAAGGAATTGAAAG CTCATTATTTTCATCATAAAGATTATCCACTGCAATT spacer
length: 36 repeater length: 25

33904 2057000 GATTAATCCCAAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCCTCTTTACGCATTTCT spacer
length: 39 repeater length: 25

33905 2057064 GATTAATCCCAAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGCG spacer
length: 36 repeater length: 25

33906 2057125 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACAT spacer
length: 39 repeater length: 25

33907 2057189 GATTAATCCCAAAAAGGAATTGAAAG TAAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTATG spacer
length: 41 repeater length: 25

33908 2057255 GATTAATCCCAAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTCT spacer
length: 41 repeater length: 25

33909 2057321 GATTAATCCCAAAAAGGAATTGAAAG GGAGTAATCTTTCAGTCAAAAGACTTTCAGCCCTC spacer
length: 36 repeater length: 25

33910 2057382 GATTAATCCCAAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAATC spacer
length: 36 repeater length: 25

33911 2057443 GATTAATCCCAAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTGT spacer
length: 39 repeater length: 25

33912 2057507 GATTAATCCCAAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTTCAT spacer length:
34 repeater length: 25

33913 2057566 GATTAATCCCAAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCAT spacer
length: 38 repeater length: 25

33914 2057629 GATTAATCCCAAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCATT spacer
length: 40 repeater length: 25

33915 2057694 GATTAATCCCAAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCGG spacer
length: 40 repeater length: 25

33916 2057759 GATTAATCCCAAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTCTG spacer
length: 40 repeater length: 25

33917 2057824 GATTAATCCCAAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAAATGTCTGC spacer
length: 39 repeater length: 25

33918 2057888 GATTAATCCCAAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCATT spacer
length: 40 repeater length: 25

33919 2057953 GATTAATCCCAAAAAGGAATTGAAAG CCCCCTGGAATGCACCATTTCTTGCAAGTAATACATTT spacer
length: 39 repeater length: 25

33920 2058017 GATTAATCCCAAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTGC spacer
length: 40 repeater length: 25

33921 2058082 GATTAATCCCAAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATACT spacer
length: 38 repeater length: 25

33922 2058145 GATTAATCCCAAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCAG spacer
length: 39 repeater length: 25

33923 2058209 GATTAATCCCAAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCTT spacer
length: 37 repeater length: 25

33924 2058271 GATTAATCCCAAAAAGGAATTGAAAG TTTTATTTAAGAACACTGATGGAAAGATCTATAG spacer length:
35 repeater length: 25

33925 2058331 GATTAATCCCAAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCTA spacer
length: 37 repeater length: 25

33926 2058393 GATTAATCCCAAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGAT spacer
length: 38 repeater length: 25

33927 2058456 GATTAATCCCAAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACATT spacer
length: 39 repeater length: 25

33928 2058520 GATTAATCCCAAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCCTTTTGTAAGACATTCTCA spacer
length: 40 repeater length: 25

33929 2058585 GATTAATCCCAAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCGG spacer
length: 40 repeater length: 25

33930 2058650 GATTAATCCCAAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATTC spacer
length: 39 repeater length: 25

33931 2058714 GATTAATCCCAAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTTCATTCGTC spacer
length: 42 repeater length: 25

33932 2058781 GATTAATCCCAAAAAGGAATTGAAAG GTATTCAAAAGAGAACTGGGGGATTCAAGGTAATACCT spacer
length: 38 repeater length: 25

33933 2058844 GATTAATCCCAAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATACAGTAAAGTAGCAGTTTT spacer
length: 36 repeater length: 25

33934 2058905 GATTAATCCCAAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTGT spacer
length: 37 repeater length: 25

33935 2058967 GATTAATCCCAAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAGT spacer
length: 36 repeater length: 25

33936 2059028 GATTAATCCCAAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTGA spacer

length: 39 repeater length: 25
33937 2059092 GATTAATCCCAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTTCGTT spacer
length: 38 repeater length: 25
33938 2059155 GATTAATCCCAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTTCACGCTTT spacer
length: 38 repeater length: 25
33939 2059218 GATTAATCCCAAAAGGAATTGAAAG TCAAACCTCATGAAGCTACTGTAATCCATTTACATAAA spacer
length: 38 repeater length: 25
33940 2059281 GATTAATCCCAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAATT spacer
length: 38 repeater length: 25
33941 2059344 GATTAATCCCAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCCGAAAATGATTT spacer
length: 40 repeater length: 25
33942 2059409 GATTAATCCCAAAAGGAATTGAAAG AAAAAGCTTTTCACATTTCGACATTAAAAATAAAATAATTTTG spacer
length: 42 repeater length: 25
33943 2059476 GATTAATCCCAAAAGGAATTGAAAG AATTCGTATACCTTAGTAGTATTATCATCAATATTGTAT spacer
length: 39 repeater length: 25
33944 2059540 GATTAATCCCAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTAG spacer
length: 39 repeater length: 25
33945 2059604 GATTAATCCCAAAAGGAATTGAAAG TCTACGTTGTAAATTCATATACAGCTTGGCTCATAT spacer
length: 37 repeater length: 25
33946 2059666 GATTAATCCCAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTTCTTGTGTAT spacer
length: 38 repeater length: 25
33947 2059729 GATTAATCCCAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTGATAGCTTTGCATCTT spacer
length: 41 repeater length: 25
33948 2059795 GATTAATCCCAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTAC spacer
length: 40 repeater length: 25
33949 2059860 GATTAATCCCAAAAGGAATTGAAAG CAGCAAGAAGTTCCTCTCTACATCTTATGATTTTCGG spacer
length: 37 repeater length: 25
33950 2059922 GATTAATCCCAAAAGGAATTGAAAG CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCCT spacer
length: 36 repeater length: 25
33951 2059983 GATTAATCCCAAAAGGAATTGAAAG ACCTTTATTTTAAAGTCCTAGCCTCTTCCCTATCCAT spacer
length: 36 repeater length: 25
33952 2060044 GATTAATCCCAAAAGGAATTGAAAG TTGTTTCACCTCCTTATTTAAAGCGACAGACGGTCGAC spacer
length: 38 repeater length: 25
33953 2060107 GATTAATCCCAAAAGGAATTGAAAG TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTTT spacer
length: 37 repeater length: 25
33954 2060169 GATTAATCCCAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGATG spacer
length: 40 repeater length: 25
33955 2060234 GATTAATCCCAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAATTATA spacer
length: 38 repeater length: 25
33956 2060297 GATTAATCCCAAAAGGAATTGAAAG TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGCC spacer
length: 40 repeater length: 25
33957 2060362 GATTAATCCCAAAAGGAATTGAAAG CAGCTCGACGATGACGAATACAAGATGCTGTATAATGCG spacer
length: 39 repeater length: 25
33958 2060426 GATTAATCCCAAAAGGAATTGAAAG TTTCTCACTGATCCACGGCTTCAGAGAAGATGTTTGGAT spacer
length: 40 repeater length: 25
33959 2060491 GATTAATCCCAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGATG spacer
length: 39 repeater length: 25
33960 2060555 GATTAATCCCAAAAGGAATTGAAAG CTCAGCAGATTTAACTAACGATATTAATTGTACACACTG spacer
length: 40 repeater length: 25
33961 2060620 GATTAATCCCAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCAA spacer
length: 39 repeater length: 25
33962 2060684 GATTAATCCCAAAAGGAATTGAAAG CAAGTGCAATAGCAAACCTACTACTAAATATAACATATAT spacer
length: 39 repeater length: 25
33963 2060748 GATTAATCCCAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAATAAATCGTGGCTTTA spacer
length: 38 repeater length: 25
33964 2060811 GATTAATCCCAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAGT spacer
length: 39 repeater length: 25
33965 2060875 GATTAATCCCAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACTAAGAGAAAATTGTTTCAA spacer
length: 41 repeater length: 25
33966 2060941 GATTAATCCCAAAAGGAATTGAAAG TCTACAATGAATCTGTCATAAAGTGCCCGCAACTCTT spacer
length: 38 repeater length: 25
33967 2061004 GATTAATCCCAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTTT spacer
length: 36 repeater length: 25
33968 2061065 GATTAATCCCAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATGT spacer
length: 39 repeater length: 25
33969 2061129 GATTAATCCCAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTTT spacer
length: 39 repeater length: 25
33970 2061193 GATTAATCCCAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCAATCCTTTTGGAGTAGGC spacer
length: 36 repeater length: 25
33971 2061254 GATTAATCCCAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCTC spacer
length: 39 repeater length: 25

33972	2061318	GATTAATCCCAAAAAGGAATTGAAAG	TCGTAAACTTGAAACTGACCCGTATATCCGAATTTAC	spacer
	length:	37	repeater length:	25
33973	2061380	GATTAATCCCAAAAAGGAATTGAAAG	GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCTA	spacer
	length:	39	repeater length:	25
33974	2061444	GATTAATCCCAAAAAGGAATTGAAAG	CGTGATTACATGGAACATTACTTTTCCACCGAATATT	spacer
	length:	37	repeater length:	25
33975	2061506	GATTAATCCCAAAAAGGAATTGAAAG	TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCTA	spacer
	length:	39	repeater length:	25
33976	2061570	GATTAATCCCAAAAAGGAATTGAAAG	GTCAGTTATACGCTACATATGAAAAGATAAATGAAG	spacer
	length:	36	repeater length:	25
33977	2061631	GATTAATCCCAAAAAGGAATTGAAAG	ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCCT	spacer
	length:	38	repeater length:	25
33978	2061694	GATTAATCCCAAAAAGGAATTGAAAG	TCTATCTTTATTGTTACAACCTTTTGCATACGACATAATTT	spacer
	length:	40	repeater length:	25
33979	2061759	GATTAATCCCAAAAAGGAATTGAAAG	TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACTT	spacer
	length:	39	repeater length:	25
33980	2061823	GATTAATCCCAAAAAGGAATTGAAAG	TAATACTGCAGTAACGGTACAAGTCATTGACAGCGCT	spacer
	length:	37	repeater length:	25
33981	2061885	GATTAATCCCAAAAAGGAATTGAAAG		
33982				
33983				
33984		crispr 2		
33985	2076433	CTTTC AATTCC TTTTAGGATTAATC	TTGAAGATAGAGTTAAATGAACTTTTGATGACACAAAA	spacer
	length:	38	repeater length:	25
33986	2076496	CTTTC AATTCC TTTTAGGATTAATC	GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCAA	spacer
	length:	41	repeater length:	25
33987	2076562	CTTTC AATTCC TTTTAGGATTAATC	AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTGA	spacer
	length:	39	repeater length:	25
33988	2076626	CTTTC AATTCC TTTTAGGATTAATC	ACCAAGTGAACTTGGAATATATAACCAAAAAGATAT	spacer
	length:	37	repeater length:	25
33989	2076688	CTTTC AATTCC TTTTAGGATTAATC	GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAAT	spacer
	length:	38	repeater length:	25
33990	2076751	CTTTC AATTCC TTTTAGGATTAATC	AGTAATAGAACTCATTGAGAGTCTCTTCCAACCCGTACA	spacer
	length:	40	repeater length:	25
33991	2076816	CTTTC AATTCC TTTTAGGATTAATC	CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGCG	spacer length:
	length:	35	repeater length:	25
33992	2076876	CTTTC AATTCC TTTTAGGATTAATC	TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG	spacer
	length:	39	repeater length:	25
33993	2076940	CTTTC AATTCC TTTTAGGATTAATC	TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG	spacer
	length:	39	repeater length:	25
33994	2077004	CTTTC AATTCC TTTTAGGATTAATC	AAAATGTTTAATATTGGTGGAGTAGTTGATTTGATAATAT	spacer
	length:	41	repeater length:	25
33995	2077070	CTTTC AATTCC TTTTAGGATTAATC	AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTAA	spacer
	length:	39	repeater length:	25
33996	2077134	CTTTC AATTCC TTTTAGGATTAATC	GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGATA	spacer
	length:	39	repeater length:	25
33997	2077198	CTTTC AATTCC TTTTAGGATTAATC	CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGAA	spacer
	length:	37	repeater length:	25
33998	2077260	CTTTC AATTCC TTTTAGGATTAATC	CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGAT	spacer
	length:	37	repeater length:	25
33999	2077322	CTTTC AATTCC TTTTAGGATTAATC	CAAATCCATTGAGGAAGTGTTAGAAGAGGTGTATGGTGA	spacer
	length:	40	repeater length:	25
34000	2077387	CTTTC AATTCC TTTTAGGATTAATC	CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTACA	spacer
	length:	38	repeater length:	25
34001	2077450	CTTTC AATTCC TTTTAGGATTAATC	CAATATTAAATATTAGTGATTTGGTAATAACGAAATAAA	spacer
	length:	40	repeater length:	25
34002	2077515	CTTTC AATTCC TTTTAGGATTAATC	GAGTGAGACCATGATCATTAACACTGATATTACGGTAAG	spacer
	length:	39	repeater length:	25
34003	2077579	CTTTC AATTCC TTTTAGGATTAATC	AACAAAACCTCACCAGTGATGGAACATTTGAATGTAA	spacer
	length:	37	repeater length:	25
34004	2077641	CTTTC AATTCC TTTTAGGATTAATC	AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATACT	spacer
	length:	40	repeater length:	25
34005	2077706	CTTTC AATTCC TTTTAGGATTAATC	ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATAT	spacer
	length:	42	repeater length:	25
34006	2077773	CTTTC AATTCC TTTTAGGATTAATC	GAATATACAGAGAATAGAGAATAGAGAACAGAGAACGG	spacer
	length:	38	repeater length:	25
34007	2077836	CTTTC AATTCC TTTTAGGATTAATC	CCGTGATCAGATACAGTAACAGTCATGTTTTTATCT	spacer
	length:	36	repeater length:	25
34008	2077897	CTTTC AATTCC TTTTAGGATTAATC	CATGGAAACGGGAGGAGGGTGAGACAATGAAGGTAC	spacer
	length:	37	repeater length:	25
34009	2077959	CTTTC AATTCC TTTTAGGATTAATC	CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAACT	spacer

length: 38 repeater length: 25
34010 2078022 CTTTCAATTCCTTTTAGGATTAATC GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTAG spacer
length: 40 repeater length: 25
34011 2078087 CTTTCAATTCCTTTTAGGATTAATC AAATTCCTGCAAAGGTAACACAATTGACGAGGTAAA spacer length:
35 repeater length: 25
34012 2078147 CTTTCAATTCCTTTTAGGATTAATC CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCAA spacer
length: 40 repeater length: 25
34013 2078212 CTTTCAATTCCTTTTAGGATTAATC TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAACT spacer
length: 40 repeater length: 25
34014 2078277 CTTTCAATTCCTTTTAGGATTAATC GGCATAACCGCTGCTTTCGGCTGCTGCTGCTAATTGGTCTC spacer
length: 41 repeater length: 25
34015 2078343 CTTTCAATTCCTTTTAGGATTAATC CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCTT spacer
length: 39 repeater length: 25
34016 2078407 CTTTCAATTCCTTTTAGGATTAATC ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAAT spacer
length: 38 repeater length: 25
34017 2078470 CTTTCAATTCCTTTTAGGATTAATC AAGTCACTGAATTGTTGGACGAACCTAACTGAAAAATTAG spacer
length: 40 repeater length: 25
34018 2078535 CTTTCAATTCCTTTTAGGATTAATC GGCATTAGAATATGGGTAAAACTTATAGCGACGAAGA spacer
length: 38 repeater length: 25
34019 2078598 CTTTCAATTCCTTTTAGGATTAATC TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGAT spacer
length: 36 repeater length: 25
34020 2078659 CTTTCAATTCCTTTTAGGATTAATC
34021
34022
34023 crispr 3
34024 2078789 CTTTCAATTCCTTTTGGGATTAATC TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGTG spacer
length: 38 repeater length: 25
34025 2078852 CTTTCAATTCCTTTTGGGATTAATC CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGCT spacer
length: 36 repeater length: 25
34026 2078913 CTTTCAATTCCTTTTGGGATTAATC CACATTAGCAAGAATCGTGCTAGCTACAGTTGGATT spacer
length: 36 repeater length: 25
34027 2078974 CTTTCAATTCCTTTTGGGATTAATC AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTTC spacer
length: 39 repeater length: 25
34028 2079038 CTTTCAATTCCTTTTGGGATTAATC TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTCT spacer
length: 41 repeater length: 25
34029 2079104 CTTTCAATTCCTTTTGGGATTAATC GGTAATGGTCTGTATATTGTCTTTAAGTATTTAT spacer length:
34 repeater length: 25
34030 2079163 CTTTCAATTCCTTTTGGGATTAATC AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTAA spacer
length: 39 repeater length: 25
34031 2079227 CTTTCAATTCCTTTTGGGATTAATC CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAAG spacer
length: 40 repeater length: 25
34032 2079292 CTTTCAATTCCTTTTGGGATTAATC ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCATT spacer
length: 40 repeater length: 25
34033 2079357 CTTTCAATTCCTTTTGGGATTAATC ATTAGCTAAACCATTTCAAAGGCTAACATCTTCTATGT spacer
length: 38 repeater length: 25
34034 2079420 CTTTCAATTCCTTTTGGGATTAATC ATAAATCCACAAAGTGGCCGTTCAAAGCAAAGAGTTTATT spacer
length: 40 repeater length: 25
34035 2079485 CTTTCAATTCCTTTTGGGATTAATC TGATATTTATTTTCTCGTGAAAAGTGGAGGGCCTAGAAC spacer
length: 39 repeater length: 25
34036 2079549 CTTTCAATTCCTTTTGGGATTAATC ATTATATCATGGAGACCCAGGTGCTGTGACTATCAA spacer
length: 36 repeater length: 25
34037 2079610 CTTTCAATTCCTTTTGGGATTAATC AATTAGCCAGCGTGCCATCTGGGTAAACGTGTATTTTGGTTAA spacer
length: 43 repeater length: 25
34038 2079678 CTTTCAATTCCTTTTGGGATTAATC ATAATATATTTTCGTTCCAACCTACACCTAATGGATTTCGGG spacer
length: 39 repeater length: 25
34039 2079742 CTTTCAATTCCTTTTGGGATTAATC TAATTGTCTGCCCTTGAGTTCCACTGAGAGAAACGC spacer
length: 36 repeater length: 25
34040 2079803 CTTTCAATTCCTTTTGGGATTAATC AAAAGACGTACAAATATACATCGCACCGAACGGACACAT spacer
length: 39 repeater length: 25
34041 2079867 CTTTCAATTCCTTTTGGGATTAATC GGGTGCGTGCCCCACAGGTCGCGGGTCTACCCCTTGC spacer
length: 37 repeater length: 25
34042 2079929 CTTTCAATTCCTTTTGGGATTAATC TTATGTCGTTATCTTCTTCGTTTTTGTGCGTTGTTT spacer
length: 37 repeater length: 25
34043 2079991 CTTTCAATTCCTTTTGGGATTAATC GATAAAATATTAAATTCTCAAATTCCATTTAGAG spacer length:
34 repeater length: 25
34044 2080050 CTTTCAATTCCTTTTGGGATTAATC AAAATTTGAAACAATATCGCATCTTGAATAATTAT spacer length:
35 repeater length: 25
34045 2080110 CTTTCAATTCCTTTTGGGATTAATC GCTTCTTCCCAACGCTGTACGTACTCTTAGGTGTCACA spacer
length: 38 repeater length: 25
34046 2080173 CTTTCAATTCCTTTTGGGATTAATC AATTACAGGAAAAAGACGAACCTAAATGAGGAAGAAATG spacer
length: 38 repeater length: 25

34047	2080236	CTTTCAATTCCTTTTGGGATTAATC	TACTCAATTTGTGCGCAGTTTTTCATTGAGGGAGACTT	spacer
	length:	38	repeater length:	25
34048	2080299	CTTTCAATTCCTTTTGGGATTAATC	AAAAATTCTGAGTGCAATGTATAATGAAAATATGGATAATA	spacer
	length:	41	repeater length:	25
34049	2080365	CTTTCAATTCCTTTTGGGATTAATC	TGTTGTCCAAATAAATGCTGTACCGACTAACAAATAATGTA	spacer
	length:	40	repeater length:	25
34050	2080430	CTTTCAATTCCTTTTGGGATTAATC	CAGGAGTTGGAGGTATTATCGGAGCATTGTTAGCAT	spacer
	length:	36	repeater length:	25
34051	2080491	CTTTCAATTCCTTTTGGGATTAATC	ATGATTTGAAAATAGATGAAGAGCTATCTAAACTCATTCC	spacer
	length:	40	repeater length:	25
34052	2080556	CTTTCAATTCCTTTTGGGATTAATC	ACCACATTATGAAGGTACTCCAGAATTCTCTAAGAT	spacer
	length:	36	repeater length:	25
34053	2080617	CTTTCAATTCCTTTTGGGATTAATC	TAGATCTATTTCGCAGAGTTTGCATCAACACATAAGTAC	spacer
	length:	38	repeater length:	25
34054	2080680	CTTTCAATTCCTTTTGGGATTAATC	ATAATATGGTGAAAATTGAAGGTGAATCATTAGCAAA	spacer
	length:	37	repeater length:	25
34055	2080742	CTTTCAATTCCTTTTGGGATTAATC	AATTTTTTGTTTAAAGATGATTGAGTGAAGAATATTA	spacer
	length:	38	repeater length:	25
34056	2080805	CTTTCAATTCCTTTTGGGATTAATC	CAATCCCCAAAAGTAAATCCCCAATCTTCAAATAATATGG	spacer
	length:	40	repeater length:	25
34057	2080870	CTTTCAATTCCTTTTGGGATTAATC		
34058				
34059				
34060	crispr 4			
34061	2092270	GATAATCTCTTATAGAATTGAAAG	TTTGTAACCGTATAAGTCCCGTTAATGAGAAGACGGC	spacer
	length:	38	repeater length:	24
34062	2092332	GATAATCTCTTATAGAATTGAAAG	CAACGCCAACTCCGCCAATTTCCGCATTGATGTTGCTGG	spacer
	length:	40	repeater length:	24
34063	2092396	GATAATCTCTTATAGAATTGAAAG	TCTTCAAACCTTCCCACGGCACAACGGAGGCATGCAAATTATT	spacer
	length:	42	repeater length:	24
34064	2092462	GATAATCTCTTATAGAATTGAAAG	GTAGTAAGCTTTCCTTCTTTATCCTCTAGACCGCTGTAGT	spacer
	length:	40	repeater length:	24
34065	2092526	GATAATCTCTTATAGAATTGAAAG	AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTCA	spacer
	length:	38	repeater length:	24
34066	2092588	GATAATCTCTTATAGAATTGAAAG	GAAGTGTCTGTTGTTTCATGAAATATGGGTATGCATATT	spacer
	length:	39	repeater length:	24
34067	2092651	GATAATCTCTTATAGAATTGAAAG	GCAAAGAGTCCATTCAATAACACATATTTTGCACATAAG	spacer
	length:	39	repeater length:	24
34068	2092714	GATAATCTCTTATAGAATTGAAAG	AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGCT	spacer
	length:	39	repeater length:	24
34069	2092777	GATAATCTCTTATAGAATTGAAAG	ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTCT	spacer
	length:	39	repeater length:	24
34070	2092840	GATAATCTCTTATAGAATTGAAAG	CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTAA	spacer
	length:	40	repeater length:	24
34071	2092904	GATAATCTCTTATAGAATTGAAAG	CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGAG	spacer
	length:	39	repeater length:	24
34072	2092967	GATAATCTCTTATAGAATTGAAAG	ACCACGAGCACGACCTCAAATATAACACCGCCAAAAATC	spacer
	length:	39	repeater length:	24
34073	2093030	GATAATCTCTTATAGAATTGAAAG	TATCTTCCAGATGTCTCAGAAACGCCTTAAAATTATTGAT	spacer
	length:	40	repeater length:	24
34074	2093094	GATAATCTCTTATAGAATTGAAAG	TACATTAGACCCTAGTTGGTTTATCGCTGGTAACGTCG	spacer
	length:	38	repeater length:	24
34075	2093156	GATAATCTCTTATAGAATTGAAAG	ACACTTAGCGACATAAAAACCGCACTGACTTACAATTACC	spacer
	length:	40	repeater length:	24
34076	2093220	GATAATCTCTTATAGAATTGAAAG	CGACATACATATATATGCATTTCCGTGGGAGTGTTACAAA	spacer
	length:	40	repeater length:	24
34077	2093284	GATAATCTCTTATAGAATTGAAAG	ACATATGGTTGGTCTCCAACATTTGGTGAGTATATCT	spacer
	length:	37	repeater length:	24
34078	2093345	GATAATCTCTTATAGAATTGAAAG	GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCTT	spacer
	length:	38	repeater length:	24
34079	2093407	GATAATCTCTTATAGAATTGAAAG	ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCAA	spacer
	length:	39	repeater length:	24
34080	2093470	GATAATCTCTTATAGAATTGAAAG	AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGAA	spacer
	length:	38	repeater length:	24
34081	2093532	GATAATCTCTTATAGAATTGAAAG	CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTAT	spacer
	length:	38	repeater length:	24
34082	2093594	GATAATCTCTTATAGAATTGAAAG	TCTGATAGCACCAGACAAGTAAAAGCGTATATCCTAGTCAA	spacer
	length:	41	repeater length:	24
34083	2093659	GATAATCTCTTATAGAATTGAAAG	AACATATTCTGGTACGGGTTGCCATCTGGTACACCATT	spacer
	length:	39	repeater length:	24
34084	2093722	GATAATCTCTTATAGAATTGAAAG	TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAAA	spacer

length: 39 repeater length: 24

34085 2093785 GATAATCTCTTATAGAATTGAAAG AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAGG spacer
length: 37 repeater length: 24

34086 2093846 GATAATCTCTTATAGAATTGAAAG CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGTC spacer
length: 38 repeater length: 24

34087 2093908 GATAATCTCTTATAGAATTGAAAG ACATCGCAAGCGATCTATTGTTCACTCTATTCTGGCGGC spacer
length: 40 repeater length: 24

34088 2093972 GATAATCTCTTATAGAATTGAAAG AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA spacer
length: 38 repeater length: 24

34089 2094034 GATAATCTCTTATAGAATTGAAAG CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA spacer
length: 37 repeater length: 24

34090 2094095 GATAATCTCTTATAGAATTGAAAG AATTTGAACATAATTCGGCCTCGTCAGTTTTCCACAGATA spacer
length: 40 repeater length: 24

34091 2094159 GATAATCTCTTATAGAATTGAAAG TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT spacer
length: 39 repeater length: 24

34092 2094222 GATAATCTCTTATAGAATTGAAAG TTTACTGACAACGCCATCATACTTACTAGCCCACTAA spacer
length: 38 repeater length: 24

34093 2094284 GATAATCTCTTATAGAATTGAAAG GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGGA spacer
length: 40 repeater length: 24

34094 2094348 GATAATCTCTTATAGAATTGAAAG TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT spacer
length: 41 repeater length: 24

34095 2094413 GATAATCTCTTATAGAATTGAAAG CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG spacer
length: 37 repeater length: 24

34096 2094474 GATAATCTCTTATAGAATTGAAAG ATCTGAATTTCTCAGCTTCCATTGCATAATTTATTCTA spacer
length: 39 repeater length: 24

34097 2094537 GATAATCTCTTATAGAATTGAAAG TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT spacer
length: 40 repeater length: 24

34098 2094601 GATAATCTCTTATAGAATTGAAAG ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTC spacer
length: 38 repeater length: 24

34099 2094663 GATAATCTCTTATAGAATTGAAAG TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAGC spacer
length: 38 repeater length: 24

34100 2094725 GATAATCTCTTATAGAATTGAAAG GTCAAAATTGCCCAACCGAAGCTTAGCAAAATGCAGCAC spacer
length: 40 repeater length: 24

34101 2094789 GATAATCTCTTATAGAATTGAAAG TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA spacer
length: 41 repeater length: 24

34102 2094854 GATAATCTCTTATAGAATTGAAAG GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAACC spacer
length: 39 repeater length: 24

34103 2094917 GATAATCTCTTATAGAATTGAAAG GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGTT spacer
length: 39 repeater length: 24

34104 2094980 GATAATCTCTTATAGAATTGAAAG TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT spacer
length: 40 repeater length: 24

34105 2095044 GATAATCTCTTATAGAATTGAAAG GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT spacer length:
35 repeater length: 24

34106 2095103 GATAATCTCTTATAGAATTGAAAG GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC spacer
length: 39 repeater length: 24

34107 2095166 GATAATCTCTTATAGAATTGAAAG CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAAT spacer length:
36 repeater length: 24

34108 2095226 GATAATCTCTTATAGAATTGAAAG AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTTG spacer
length: 38 repeater length: 24

34109 2095288 GATAATCTCTTATAGAATTGAAAG ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATTA spacer
length: 38 repeater length: 24

34110 2095350 GATAATCTCTTATAGAATTGAAAG GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAAG spacer
length: 38 repeater length: 24

34111 2095412 GATAATCTCTTATAGAATTGAAAG AATCACGAAAGCGATACTAAGGGCAATACAATACAAACATG spacer
length: 41 repeater length: 24

34112 2095477 GATAATCTCTTATAGAATTGAAAG CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTGC spacer
length: 39 repeater length: 24

34113 2095540 GATAATCTCTTATAGAATTGAAAG AGATTGTTTTATTAATACCAAGTAGACAATTATATATTTT spacer
length: 40 repeater length: 24

34114 2095604 GATAATCTCTTATAGAATTGAAAG CCAAAACATGTCACATGTGCCGATATTGATATTTACAAA spacer
length: 39 repeater length: 24

34115 2095667 GATAATCTCTTATAGAATTGAAAG AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGAA spacer
length: 38 repeater length: 24

34116 2095729 GATAATCTCTTATAGAATTGAAAG GGGAGTTCCCATTCGATTTTGGGAACCCTCAAGCACAGTCTGTG spacer
length: 44 repeater length: 24

34117 2095797 GATAATCTCTTATAGAATTGAAAG TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCAT spacer
length: 41 repeater length: 24

34118 2095862 GATAATCTCTTATAGAATTGAAAG CTAACTTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTGT spacer
length: 38 repeater length: 24

34119 2095924 GATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTCTGCAGTCTTTGTT spacer length:
36 repeater length: 24

34120	2095984	GATAATCTCTTATAGAATTGAAAG	AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTAT	spacer
		length: 39	repeater length: 24	
34121	2096047	GATAATCTCTTATAGAATTGAAAG	ATCCGTTCTCCGTCCCGATCCGTACCGTTCTCTGTACT	spacer
		length: 38	repeater length: 24	
34122	2096109	GATAATCTCTTATAGAATTGAAAG	AGCATAACTTCATCTTCTTCTACAACCTTCGACAGCTT	spacer
		length: 37	repeater length: 24	
34123	2096170	GATAATCTCTTATAGAATTGAAAG	TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATTA	spacer
		length: 42	repeater length: 24	
34124	2096236	GATAATCTCTTATAGAATTGAAAG	ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCAT	spacer
		length: 39	repeater length: 24	
34125	2096299	GATAATCTCTTATAGAATTGAAAG	CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGGT	spacer
		length: 40	repeater length: 24	
34126	2096363	GATAATCTCTTATAGAATTGAAAG	CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATA	spacer
		length: 37	repeater length: 24	
34127	2096424	GATAATCTCTTATAGAATTGAAAG	ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCCC	spacer
		length: 38	repeater length: 24	
34128	2096486	GATAATCTCTTATAGAATTGAAAG	ATACCAACAGCAACAACAAACTTATTCTTCGCTCATACA	spacer
		length: 39	repeater length: 24	
34129	2096549	GATAATCTCTTATAGAATTGAAAG	ACGAACACACCCCTTAAAACTCTTTTTCCAACATTCACCT	spacer
		length: 40	repeater length: 24	
34130	2096613	GATAATCTCTTATAGAATTGAAAG	CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGAG	spacer
		length: 40	repeater length: 24	
34131	2096677	GATAATCTCTTATAGAATTGAAAG	TCTTAGCGAACTTGCAAAATATTCCGACCAAAGCTAATA	spacer
		length: 39	repeater length: 24	
34132	2096740	GATAATCTCTTATAGAATTGAAAG	TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGGT	spacer
		length: 40	repeater length: 24	
34133	2096804	GATAATCTCTTATAGAATTGAAAG	GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTAG	spacer
		length: 43	repeater length: 24	
34134	2096871	GATAATCTCTTATAGAATTGAAAG	ATACAGATTTTCGTTATCCATATCCTACATGACTTTCC	spacer
		length: 37	repeater length: 24	
34135	2096932	GATAATCTCTTATAGAATTGAAAG	ATACATCGATCTTGTAATTAGATATCCATTGACTGTTAT	spacer
		length: 39	repeater length: 24	
34136	2096995	GATAATCTCTTATAGAATTGAAAG	ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTATT	spacer
		length: 40	repeater length: 24	
34137	2097059	GATAATCTCTTATAGAATTGAAAG	TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAACG	spacer
		length: 40	repeater length: 24	
34138	2097123	GATAATCTCTTATAGAATTGAAAG	CGTTTCTATTGCAAGGTCTGAGATTTTTGGCCTGAGTA	spacer
		length: 38	repeater length: 24	
34139	2097185	GATAATCTCTTATAGAATTGAAAG	GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGAT	spacer
		length: 40	repeater length: 24	
34140	2097249	GATAATCTCTTATAGAATTGAAAG	ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATATA	spacer
		length: 44	repeater length: 24	
34141	2097317	GATAATCTCTTATAGAATTGAAAG	CTAAGCAGTGACTCACAGTTTAGACATTCACAAGTATC	spacer
		length: 38	repeater length: 24	
34142	2097379	GATAATCTCTTATAGAATTGAAAG	TTCTAAGCGTGTAAGATCTATCTGACAACACGAACTATG	spacer
		length: 41	repeater length: 24	
34143	2097444	GATAATCTCTTATAGAATTGAAAG	TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGAC	spacer
		length: 40	repeater length: 24	
34144	2097508	GATAATCTCTTATAGAATTGAAAG	CAATCCCATTCGTTTTACTCACTTCTAAGAACCTCGC	spacer
		length: 37	repeater length: 24	
34145	2097569	GATAATCTCTTATAGAATTGAAAG	AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTCT	spacer
		length: 40	repeater length: 24	
34146	2097633	GATAATCTCTTATAGAATTGAAAG	ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCTG	spacer
		length: 40	repeater length: 24	
34147	2097697	GATAATCTCTTATAGAATTGAAAG	GTCTTTATGGCCCTCTGGGTCTTCCACCATTGAGAGGA	spacer
		length: 39	repeater length: 24	
34148	2097760	GATAATCTCTTATAGAATTGAAAG	TTATCCTCATTCTATCGGTGAGTGGAACAAATTGGGTAGC	spacer
		length: 40	repeater length: 24	
34149	2097824	GATAATCTCTTATAGAATTGAAAG	ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTTT	spacer
		length: 40	repeater length: 24	
34150	2097888	GATAATCTCTTATAGAATTGAAAG	AGTTACAATACTTTATTGTCAAAGAAGCAAGGATATGCG	spacer
		length: 40	repeater length: 24	
34151	2097952	GATAATCTCTTATAGAATTGAAAG	TTCAAAC TAGATCTAGAAGATTTCTATCGGCATCTTTACAT	spacer
		length: 41	repeater length: 24	
34152	2098017	GATAATCTCTTATAGAATTGAAAG	ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTTC	spacer
		length: 40	repeater length: 24	
34153	2098081	GATAATCTCTTATAGAATTGAAAG	GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTATT	spacer
		length: 39	repeater length: 24	
34154	2098144	GATAATCTCTTATAGAATTGAAAG	TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT	spacer
		length: 37	repeater length: 24	
34155	2098205	GATAATCTCTTATAGAATTGAAAG	CTACTACATCATCTCTACCACGCCAAGCCAACAACC	spacer

	length: 37	repeater length: 24	
34156	2098266	GATAATCTCTTATAGAATTGAAAG	ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT spacer
	length: 38	repeater length: 24	
34157	2098328	GATAATCTCTTATAGAATTGAAAG	ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACTA spacer
	length: 41	repeater length: 24	
34158	2098393	GATAATCTCTTATAGAATTGAAAG	ATCAAAAAGTCCGCTATGGTCTAACGGTGTAATAATTCT spacer
	length: 39	repeater length: 24	
34159	2098456	GATAATCTCTTATAGAATTGAAAG	AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT spacer
	length: 37	repeater length: 24	
34160	2098517	GATAATCTCTTATAGAATTGAAAG	ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT spacer
	length: 39	repeater length: 24	
34161	2098580	GATAATCTCTTATAGAATTGAAAG	ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTGC spacer
	length: 41	repeater length: 24	
34162	2098645	GATAATCTCTTATAGAATTGAAAG	AAGCCTACACAGGATAGGATACTCAAATTATATGAAAAT spacer
	length: 39	repeater length: 24	
34163	2098708	GATAATCTCTTATAGAATTGAAAG	TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCAT spacer
	length: 42	repeater length: 24	
34164	2098774	GATAATCTCTTATAGAATTGAAAG	CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA spacer
	length: 37	repeater length: 24	
34165	2098835	GATAATCTCTTATAGAATTGAAAG	TGTTCTGTCGTTACTGTCGTAAAGCACGTCCTATTAT spacer
	length: 37	repeater length: 24	
34166	2098896	GATAATCTCTTATAGAATTGAAAG	ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC spacer
	length: 38	repeater length: 24	
34167	2098958	GATAATCTCTTATAGAATTGAAAG	TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGAA spacer
	length: 39	repeater length: 24	
34168	2099021	GATAATCTCTTATAGAATTGAAAG	GCACAATTCGCCAACGATTTTCGGTTCGCTTTATACCTT spacer
	length: 38	repeater length: 24	
34169	2099083	GATAATCTCTTATAGAATTGAAAG	CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTGG spacer
	length: 41	repeater length: 24	
34170	2099148	GATAATCTCTTATAGAATTGAAAG	AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG spacer
	length: 40	repeater length: 24	
34171	2099212	GATAATCTCTTATAGAATTGAAAG	ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGAT spacer
	length: 42	repeater length: 24	
34172	2099278	GATAATCTCTTATAGAATTGAAAG	TTCTGTTTTCGAAGAAAACCCGCCTCAGATTCATTATGGG spacer
	length: 39	repeater length: 24	
34173	2099341	GATAATCTCTTATAGAATTGAAAG	AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAAA spacer
	length: 39	repeater length: 24	
34174	2099404	GATAATCTCTTATAGAATTGAAAG	CCTCATCGTAAACATGCAATCTTGCATATTCAGTGTA spacer
	length: 37	repeater length: 24	
34175	2099465	GATAATCTCTTATAGAATTGAAAG	GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCT spacer
	length: 39	repeater length: 24	
34176	2099528	GATAATCTCTTATAGAATTGAAAG	ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT spacer
	length: 41	repeater length: 24	
34177	2099593	GATAATCTCTTATAGAATTGAAAG	GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCGT spacer
	length: 38	repeater length: 24	
34178	2099655	GATAATCTCTTATAGAATTGAAAG	ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA spacer
	length: 39	repeater length: 24	
34179	2099718	GATAATCTCTTATAGAATTGAAAG	AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA spacer
	length: 37	repeater length: 24	
34180	2099779	GATAATCTCTTATAGAATTGAAAG	CGTTCCTAGAGCTAAACGATGCATACGCGGTGGTACAATA spacer
	length: 40	repeater length: 24	
34181	2099843	GATAATCTCTTATAGAATTGAAAG	ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATTT spacer
	length: 41	repeater length: 24	
34182	2099908	GATAATCTCTTATAGAATTGAAAG	TCAAATAAGGAACAACCTCTGGGTAAGCCCACAATACGCAA spacer
	length: 40	repeater length: 24	
34183	2099972	GATAATCTCTTATAGAATTGAAAG	CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAAC spacer
	length: 38	repeater length: 24	
34184	2100034	GATAATCTCTTATAGAATTGAAAG	TAACTAGATCCTTATATTTTACGTAAATGTAAAGGGG spacer
	length: 38	repeater length: 24	
34185	2100096	GATAATCTCTTATAGAATTGAAAG	TAAGGAGTAAGCTAGCACTAGCAATAGCGGTGCAATA spacer
	length: 38	repeater length: 24	
34186	2100158	GATAATCTCTTATAGAATTGAAAG	GTTTCATCAGTTCTACCTTTTGGTCCAAAGGCTGATCCAA spacer
	length: 39	repeater length: 24	
34187	2100221	GATAATCTCTTATAGAATTGAAAG	
34188			
34189			
34190	crispr 5		
34191	2499489	GATAATCTACTATAGAATTGAAAG	ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGTG spacer
	length: 39	repeater length: 24	
34192	2499552	GATAATCTACTATAGAATTGAAAG	TTATCTAATTTTAAATAATCAAGGAAATTCATTAACCTCAAATA spacer
	length: 42	repeater length: 24	

34193 2499618 GATAATCTACTATAGAAATTGAAAG CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAGCATT spacer
length: 39 repeater length: 24

34194 2499681 GATAATCTACTATAGAAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTGA spacer
length: 41 repeater length: 24

34195 2499746 GATAATCTACTATAGAAATTGAAAG ATTTTCTAATATATCTAATTCACCTCTGCGTATCATTATGGATAA spacer
length: 44 repeater length: 24

34196 2499814 GATAATCTACTATAGAAATTGAAAG CCCGCCAGCCAGACTGTTTTAGCCCAAACCGGCTAATT spacer
length: 40 repeater length: 24

34197 2499878 GATAATCTACTATAGAAATTGAAAG

34198

34199

34200 GCA_003967175.1_Sacidi_1.0_genomic.fna (PilerCR):

34201 START REPEAT
SPACER

34202 crispr 1

34203 1672570 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC ACATAGCTGGCGTGACGACGCAGGTGACACAGGTCAC spacer
length: 37 repeater length: 30

34204 1672637 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TTTTACGTGGGATATCAGGTTATCTTCGTGTGACA spacer
length: 35 repeater length: 30

34205 1672702 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TAGGTTCCCTCTATTTCATGCTTAGCTTTACATCGCA spacer
length: 36 repeater length: 30

34206 1672768 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TACAGCCCATCCACGCTAAGGACATTGTACAAGTCGT spacer
length: 37 repeater length: 30

34207 1672835 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC ATAGATATGATCGACAGATTTTACCAGCCTAGAGGA spacer
length: 36 repeater length: 30

34208 1672901 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC GCTAGTTTCCTAAGTAAAGTGCTAGAATTTATTTATCT spacer
length: 38 repeater length: 30

34209 1672969 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TCTCCTGCTTCCTAACGGGGATACAGTCCGGCATTAT spacer
length: 37 repeater length: 30

34210 1673036 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC ACTCCTCGGAGGACGAGGAGGACTCGGAGGAGGAC spacer
length: 35 repeater length: 30

34211 1673101 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TCGTTGCCATGGGTTTCGTTTGTCTTACGCTATTATT spacer
length: 36 repeater length: 30

34212 1673167 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC CAACGACGGTGAGGAAGAGCAGCTCGCCAGCACCG spacer
length: 35 repeater length: 30

34213 1673232 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC AGGTCGGCTGTTCCGCGGTGGCGTTGAGGTATGCCCT spacer
length: 37 repeater length: 30

34214 1673299 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC GGGAGGGGAGGGGAAGAAAAAGGGTTAGGGAAGAA spacer
length: 36 repeater length: 30

34215 1673365 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC CGTTACTGACCCATCCCAGTTGCTATCGGCCCAGA spacer
length: 35 repeater length: 30

34216 1673430 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC GCAGTCTTTCGCCGTTTCTCCTTCTTTACATAAAG spacer
length: 38 repeater length: 30

34217 1673498 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC CATATCCCTCGTACCCCTGTTTCGAGGGATATGATATT spacer
length: 37 repeater length: 30

34218 1673565 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC ACTAACTGAATGGTACAAAAAGGCTGGGTGCAGTTTTA
spacer length: 39 repeater length: 30

34219 1673634 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC CCAGCCAGAAGGAAGAAGAGGAGAGAAGGAAGGAAAG spacer
length: 37 repeater length: 30

34220 1673701 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC ACCCTGTACGTCGTCGTCATATCGGCGTCGGTCTT spacer
length: 35 repeater length: 30

34221 1673766 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TGAGACTTCATGTGCGAAAAAGCGTGACGGAACAAA spacer
length: 37 repeater length: 30

34222 1673833 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC CGTGTACGCCGGCCTGAAAGGCCGTTGAAGATATTA spacer
length: 37 repeater length: 30

34223 1673900 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC AGGCCGGCTGACACGCACGAAGTCTTTGTTTGGAAGAA spacer
length: 38 repeater length: 30

34224 1673968 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC CCCCAAACAAATGTATCTAGGGTACAAGGAGGGTGAGTT
spacer length: 39 repeater length: 30

34225 1674037 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC GGAGTGAGAATGGCGGCTCGGTAGTGTTTTCCGCACC spacer
length: 37 repeater length: 30

34226 1674104 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC CCCTTCCACCCCGTGCGGGGCAGCCATACAACCCTACAC
spacer length: 39 repeater length: 30

34227 1674173 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TGTACACCGCTTCCGGGTGTGACAACACCAGGCGG spacer
length: 36 repeater length: 30

34228 1674239 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC ACTTAACACCGCAGCAGATAGCCCAGTATGTCAAG spacer
length: 35 repeater length: 30

34229 1674304 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TTTAAGGAACAAGTCTTAGCCCTACTCTTTGTCATGG spacer
length: 37 repeater length: 30

34230 1674371 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC ACACGATAGTGGTGAAGAACGGGAAGCTACATATAGGA spacer
length: 38 repeater length: 30

34231	1674439	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TTGAGGTGATTGCGGTTTGGGCTTGGGTCGATACCG	spacer
		length: 36	repeater length: 30	
34232	1674505	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTTCGGCATCTCGTCGAAATTTGATGTGTTTATCCA	spacer
		length: 36	repeater length: 30	
34233	1674571	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TTCCCATTTTTATCAACTCTTGCTGAGAGAATTGATT	spacer
		length: 37	repeater length: 30	
34234	1674638	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATGAGTGAGCAGAAGCAGGATTCTCAACAGGAAGAG	spacer
		length: 36	repeater length: 30	
34235	1674704	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATGTCTTTGTACCTCTCATATACTTCATTCTTCAGTC	spacer
		length: 37	repeater length: 30	
34236	1674771	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TTTTCCACGACGAATATTTACAGACATCACGTCAC	spacer
		length: 36	repeater length: 30	
34237	1674837	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TGTGGGAAAAGAGGAAAGTGTGAAAAGATGAGGTT	spacer
		length: 36	repeater length: 30	
34238	1674903	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAAGTGACGGCCATGGTGTAGATGCCAACACCATCG	spacer
		length: 37	repeater length: 30	
34239	1674970	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GGAATTTATCTTTCTATTTGTCTGCTTATTTGTATT	spacer
		length: 36	repeater length: 30	
34240	1675036	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AGAACTCGGGTCTTCACCGAGGCCACACCCATCGC	spacer
		length: 37	repeater length: 30	
34241	1675103	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AGAGTGCATACCTGGTCCTTACGACCAGGTATAGAT	spacer
		length: 36	repeater length: 30	
34242	1675169	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCAGGGGCATGCTCAGGGACCCGGACACACCCCTT	spacer
		length: 36	repeater length: 30	
34243	1675235	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AATATCCCTGCTAACACAACATACTTAGCCCCCGAAAG	spacer length: 39
		length: 36	repeater length: 30	
34244	1675304	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACGTCCTGCGCCGTGACTTTGCGCCACATGTCCGGG	spacer
		length: 36	repeater length: 30	
34245	1675370	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CGTGAGCATCTTTTCAATTTCCATGAGCACCTTTT	spacer
		length: 35	repeater length: 30	
34246	1675435	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTCTTCACCCGTGGGCTCGGGCCTGAGGCTCTTCGAG	spacer
		length: 37	repeater length: 30	
34247	1675502	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCGTCACCATCCCCACACAAACGAAGACCAAGACGG	spacer
		length: 36	repeater length: 30	
34248	1675568	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACGTTTCGTTTCCTTGCGCCCAAACTCGCACTTGCCCCA	spacer length: 39
		length: 36	repeater length: 30	
34249	1675637	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACAAAAGGAGTTTAAAAAGATTACACGGGAAGAGGG	spacer
		length: 36	repeater length: 30	
34250	1675703	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCACGGATCCCAACGTGAAACTCTTCTCGTGGCCTAAGGG	spacer length: 40
		length: 36	repeater length: 30	
34251	1675773	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GAAATTCAAAGCCTGGGGTCATAAGCCCCAGGGCGTC	spacer
		length: 37	repeater length: 30	
34252	1675840	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTTTTCCCGATCCCGGTGACTTATCCCAAGCTAAAG	spacer
		length: 37	repeater length: 30	
34253	1675907	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AATGTCATTTCCGGCAGTTTGTTGTTGTCCGGTTTTAG	spacer
		length: 38	repeater length: 30	
34254	1675975	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACGTTTTTTTTACTCGTACACAATTGTATACACATGGC	spacer
		length: 37	repeater length: 30	
34255	1676042	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATCGTCCTCGGAGGACGAGTCGGACTAACCCACCCACC	spacer length: 39
		length: 36	repeater length: 30	
34256	1676111	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAATCGTTTCCGATAGAAGACTGCCATCACATTTTC	spacer
		length: 36	repeater length: 30	
34257	1676177	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACACGAAGAGGACTCCAGTAGTGACCTTCACGACGGG	spacer
		length: 37	repeater length: 30	
34258	1676244	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTTTACTCGCTCTTCCAGCTCTGCTATTATTCTTTTA	spacer
		length: 38	repeater length: 30	
34259	1676312	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTCTTCTTTCTCTTCTTTCTTCTTCTTCTTCTCTC	spacer
		length: 37	repeater length: 30	
34260	1676379	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GGATGTACTTTACCACACTGGGTGTCACCCAGTGTGG	spacer
		length: 37	repeater length: 30	
34261	1676446	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CATCCCCTACTTCTCTACCACCTCCCTGACCGTATCA	spacer
		length: 38	repeater length: 30	
34262	1676514	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCCTCACGTCCATCGCTAGAGAGCCCCCGTGACGTTT	spacer
		length: 37	repeater length: 30	
34263	1676581	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TTCTTACGATCAACGTAGCATTGAACACGAACACCA	spacer
		length: 36	repeater length: 30	
34264	1676647	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCGTGCAGTAGGTCGTAGATGGTTCCGTAGTTGTTGTTT	spacer length: 39
		length: 36	repeater length: 30	
34265	1676716	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GCTTGCATCCTCGGTACTTGTTTCAAGTCATCTACGT	spacer
		length: 37	repeater length: 30	
34266	1676783	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAATTCCTGTACCTCTTTGTTTCATCTTCTCATCTTCT	spacer

	length: 38	repeater length: 30	
34267	1676851	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AGGGCACAGCAGATCCAGGTTTCGGACGAGTTCGCCGC spacer
	length: 38	repeater length: 30	
34268	1676919	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GTATCGTCGCGGGAGAAGTGGTGCTTCCGGTGCCTT spacer
	length: 36	repeater length: 30	
34269	1676985	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACCAGCTGGGCATCTTGAAGTTCTTCCTTCAACTCCTCG
	spacer length: 39	repeater length: 30	
34270	1677054	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCCGAAGGAAAAGTCTGTGCGGCACAAGAGGCGATAGGG
	spacer length: 39	repeater length: 30	
34271	1677123	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CGGCGTGGGGGGTGCTCAAGTACGACCTGCCTCCCGG spacer
	length: 37	repeater length: 30	
34272	1677190	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTCACGATGGAAC TTCATTTTCAAGCACTACATCG spacer
	length: 35	repeater length: 30	
34273	1677255	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAAGTAGAGGAAGACGTGAAATGGCTTACCAAGACGC spacer
	length: 37	repeater length: 30	
34274	1677322	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTGGGAGGGGAAAAGGATGCCTGAGAAGGACGAGAA spacer
	length: 36	repeater length: 30	
34275	1677388	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTTTACAGCTATTGGTGTATTCGTGGGAGGTCTAGCCA
	spacer length: 39	repeater length: 30	
34276	1677457	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTCTCCAGGTTGACCATTTTCTCACCAAGGTAATGT spacer
	length: 37	repeater length: 30	
34277	1677524	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTTCCTACTAGAACCCCTATGGCTGTACTCAGCCTCA spacer
	length: 37	repeater length: 30	
34278	1677591	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GGCCACCCCCCTCGAGGGGGGAGACCCGAAAACAG spacer
	length: 35	repeater length: 30	
34279	1677656	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTCAATTGGACAAAGAATTACAGGCAAATGACATT spacer
	length: 35	repeater length: 30	
34280	1677721	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTCACGCTCGCCCCACGCTTCCTAGCGTGTTTTGTAT spacer
	length: 38	repeater length: 30	
34281	1677789	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TATATGTGTGTCAAATGAAGTGGTAGCATGCCAAAA spacer
	length: 36	repeater length: 30	
34282	1677855	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TACTTTCTTGATAATCTCTTGAAATTCCTCAAGTGC spacer
	length: 36	repeater length: 30	
34283	1677921	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACATCCTCAACCGGCCTTTCAGGCCGGTCGATTTTGA spacer
	length: 37	repeater length: 30	
34284	1677988	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AATTTTGAACGAAATCGTCTTAGAAGTCATTATTT spacer
	length: 35	repeater length: 30	
34285	1678053	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTGCGCCGCCCTCGTCGGAGGTAAGGGTGTGGT spacer
	length: 36	repeater length: 30	
34286	1678119	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TATAAGCTAGAAAGCCAAAATGCCCTGGTTGTTTG spacer
	length: 35	repeater length: 30	
34287	1678184	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCGAGGCACTAGGCACCGCTGGTACGTCCAGGCCC spacer
	length: 36	repeater length: 30	
34288	1678250	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AGGGCGAGGATCCGAGCGAAGCTCTTCTCTCGTGAAT spacer
	length: 38	repeater length: 30	
34289	1678318	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GTAACACAAGTGGTGGAAATACAACCAGCGGAAACAA spacer
	length: 37	repeater length: 30	
34290	1678385	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TTTTGGAATCACGTTTACCCTTATTGTGTTGTTGT spacer
	length: 35	repeater length: 30	
34291	1678450	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTATGATTTTAGCCGCCTGAATGGCACGATGTTCAA spacer
	length: 37	repeater length: 30	
34292	1678517	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GTGCCTCCAGTCGGGTCTCTTCAGGAACGGGTTCOA spacer
	length: 37	repeater length: 30	
34293	1678584	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAGGCACCGCAAGCACCATTCTCCCGTGACGATAC spacer
	length: 36	repeater length: 30	
34294	1678650	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GAAGTACCAGTAGTGGCAGTAGCGGAAGTGGTAACA spacer
	length: 36	repeater length: 30	
34295	1678716	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TGGATGAAGAACTCGGTTTCGCGGATTGCTCGGATGG spacer
	length: 38	repeater length: 30	
34296	1678784	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAAAACCTCATCCACGTTTATTTTTTCGATGTGTGGCA spacer
	length: 38	repeater length: 30	
34297	1678852	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACGGCACCTGTTGTGAGTGCAGTACCGTGCCATAT spacer
	length: 35	repeater length: 30	
34298	1678917	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCTTCCAGCCATAGGGAACAAAGGATCGATTCCGC spacer
	length: 35	repeater length: 30	
34299	1678982	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AATCCGAGCCCGTCGAAGAGACGGGCACTTCTTGATCG spacer
	length: 38	repeater length: 30	
34300	1679050	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CGTGCGGAACGGACCTCTTTCGGTGCTCTACTATCC spacer
	length: 37	repeater length: 30	
34301	1679117	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TGGGGAGGCTAATTTATTGTTTGTTAACAGAGGTATA spacer
	length: 37	repeater length: 30	

34302	1679184	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCACCGCGGTCTTCGTCTTGGTCTTGTTCGTCGTTT	spacer
	length:	36	repeater length:	30
34303	1679250	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CAGGGAGGGTTGATCGAGTCGACCCAAACCCAAACCG	spacer
	length:	37	repeater length:	30
34304	1679317	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GGAGGGAGGCGGGCAAGGGCAGAGGAGGAAGGACGG	spacer
	length:	36	repeater length:	30
34305	1679383	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACGAGCGTCAATCAGATCAACCCGTCCTAGTTACT	spacer
	length:	35	repeater length:	30
34306	1679448	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AATAATTACTCCATCGTACGCGGAACCATCACAAA	spacer
	length:	35	repeater length:	30
34307	1679513	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATACGTTGTTCTGCCAAACGGAGACTTCGTGCATAT	spacer
	length:	36	repeater length:	30
34308	1679579	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GAGTTAGATAGATAGCTAGCTAGAAAAGCTAGTTTCCGTTTCAAGCTAGACCCTCAGGCAGTCTTTGCGTCAACGACACCACCTAGC	
			TAGAAAAGCTAGTTTCCGTTTCAAGCCCTCAAAGGTAAGCTACAAACGATACGAAGGTATGAATAACGTTTTGGAACGTGTCGTTTC	
			AAGCCCTCAAAGGTAAGCTACAAACTAAACTCGCTGTCCCGTATTTCTTTGATGGCGTTCTCGTTTCAAGCCCTCAAAGGTAAGCT	
			ACAAACTATACAGAAAACCATCTGGTGATTCCAACACAAGGAAGTTTCAAGCCCTCAAAGGTAAGCTACAAACATGTATTTTCGTACC	
			CCGTCACTTCTATTAGATTTTGTTCGTTTCAAGCCCTCAAAGGTAAGCTACAAACACATACGATGAACCTCGTGCTTCTTCGAGTCCAATG	
			AGTTTCAAGCCCTCAAAGGTAAGCTACAAACAAATTTTCGACGAGATGCCGAAGGAAGGAAGGTGATGTTTCAAGCCCTCAAAGGT	
			AAGCTACAAACTGGTTACCATAAATACATGTAATACAAGTAGGGTTTTGTTTCAAGCCCTCAAAGGTAAGCTACAAACTAGCTTGA	
			AGGCACGCAGGTACTCCAGCTGCTTGGTTTCAAGCCCTCAAAGGTAAGCTACAAACAATGAGAATGAGATAGCAGAATGGTACAAG	
			AAAGGGTTTCAAGCCCTCAAAGGTAAGCTACAAACATATGATAACAGTTTTCTCGTTTATACCCAGATGGGTTTCAAGCCCTCAA	
			AGGTAAGCTACAAACTGGAAGTCTCAAGAGCCTGAAGGGCGGGGGGACAGCGTTTCAAGCCCTCAAAGGTAAGCTACAAACGCCA	
			TTCTAGCCATTTTCCAAAAAATACAGGGGCCAGGTTTCAAGCCCTCAAAGGTAAGCTACAAACAAGGGCCTCAAATGAGTACTAAA	
			GTGTCCCAAAATGAAGTTTCAAGCCCTCAAAGGTAAGCTACAAACATATTTAAGTCTTTTTTCATTCGTCTTAGTCTTTTAGGTTTC	
			AAGCCCTCAAAGGTAAGCTACAAACAGTATCGGAAAGCTGATTGTTGAACAGGGTGAACCGGTTTCAAGCCCTCAAAGGTAAGCT	
			ACAAACTTCCCACTGGAAATGGGAACAGTGGAGGAGTGAAGTTTCAAGCCCTCAAAGGTAAGCTACAAACAAGGCACGCTCGATG	
			AGGCAGGAAGGGAGGTCGG	spacer length: 1223 repeater length: 30
34309	1680832	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC		
34310				
34311				
34312		crispr 2		
34313	1679711	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GATACGAAGGTATGAATAACGTTTTGGAACGTGTC	spacer
	length:	35	repeater length:	30
34314	1679776	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TAAACTCGCTGTCCCGTATTTCTTTGATGGCGTTCTC	spacer
	length:	37	repeater length:	30
34315	1679843	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TATACAGAAACCATCTGGTGATTCCAACACAAGGAA	spacer
	length:	36	repeater length:	30
34316	1679909	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATGTATTTTCGTACCCCGTCACTTCTATTAGATTTT	spacer
	length:	35	repeater length:	30
34317	1679974	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACATACGATGAACTCGTGCTTCTTCGAGTCCAATGA	spacer
	length:	36	repeater length:	30
34318	1680040	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAATTTTCGACGAGATGCCGAAGGAAGGAAGGTGAT	spacer
	length:	36	repeater length:	30
34319	1680106	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TGGTTACCATAAATACATGTAATACAAGTAGGGTTTT	spacer
	length:	37	repeater length:	30
34320	1680173	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TAGCTTGAAGGCACGCAGGTACTCCAGCTGCTTG	spacer
	length:	34	repeater length:	30
34321	1680237	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AATGAGAATGAGATAGCAGAATGGTACAAGAAAGG	spacer
	length:	35	repeater length:	30
34322	1680302	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATATGATAACAGTTTTCTCGTTTATACCCAGATGG	spacer
	length:	36	repeater length:	30
34323	1680368	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TGGAAGTCTCAAGAGCCTGAAGGGCGGGGGGACAGC	spacer
	length:	37	repeater length:	30
34324	1680435	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GCCATTCTAGCCATTTTCCAAAAAATACAGGGGCCAG	spacer
	length:	37	repeater length:	30
34325	1680502	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAGGGCCTCAAATGAGTACTAAAGTGTCCCAAAATGAA	spacer
	length:	38	repeater length:	30
34326	1680570	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATATTTAAGTCTTTTTTCATTCGTCTTAGTCTTTTAG	spacer
	length:	36	repeater length:	30
34327	1680636	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CAGTATCGGAAAGCTGATTGTTGAACAGGGTGAAACG	spacer
	length:	37	repeater length:	30
34328	1680703	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TTCCCACTGGAAATGGGAACAGTGGAGGAGTGGA	spacer
	length:	35	repeater length:	30
34329	1680768	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAGGCACGCTCGATGAGGCAGGAAGGGAGGTTCGG	spacer
	length:	34	repeater length:	30
34330	1680832	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC		
34331				
34332				
34333		crispr 3		
34334	1688611	GAAGCATCCTAGAAGGAATTGAAAG	GTACAGGGTACGGCAAATGTGGATGTAACCAACGCGGTAAC	spacer

length: 41 repeater length: 25

34335 1688677 GAAGCATCCTAGAAGGAATTGAAAG CTGAATTTTCCGGGTTTATTACAGTTACTGATTTTATTAC spacer
length: 40 repeater length: 25

34336 1688742 GAAGCATCCTAGAAGGAATTGAAAG GCCTCCTCCTGCTGTTTCTCCTGTTGTACTTGCTACAGT spacer
length: 39 repeater length: 25

34337 1688806 GAAGCATCCTAGAAGGAATTGAAAG TGACGAGGAACGAAACCGCGTCGGTCTACTTGAGAAAT spacer
length: 39 repeater length: 25

34338 1688870 GAAGCATCCTAGAAGGAATTGAAAG TACCCTTGGGGGACCCCCTAGAAAATGTGATGGCAGTCT spacer
length: 39 repeater length: 25

34339 1688934 GAAGCATCCTAGAAGGAATTGAAAG TTTTACGTACCCGAGGTACGCTTCCCTCGGGTACGTCACG spacer
length: 40 repeater length: 25

34340 1688999 GAAGCATCCTAGAAGGAATTGAAAG AGCCAATTTATGACGTCGACAAGCTGTCCCTCCTCACC spacer
length: 39 repeater length: 25

34341 1689063 GAAGCATCCTAGAAGGAATTGAAAG ACGTCAGCGCGAGGGGGCTGGAGTTCAGCCTCGTCTACTCG spacer
length: 41 repeater length: 25

34342 1689129 GAAGCATCCTAGAAGGAATTGAAAG CACTTCTCTCTCGGTTTCTTCTCTAGGGCTGGTGTGAAA spacer
length: 39 repeater length: 25

34343 1689193 GAAGCATCCTAGAAGGAATTGAAAG TTACAAAATAGACAAACGAGACTTTTCTTTCCATCTCCTC spacer
length: 41 repeater length: 25

34344 1689259 GAAGCATCCTAGAAGGAATTGAAAG AGGAATCCTAGGGCAGATCGAGATATAGTAGTTAGCCTT spacer
length: 39 repeater length: 25

34345 1689323 GAAGCATCCTAGAAGGAATTGAAAG AGAATATAGGGCTCGTACCCGCATCCCCAAGCCGAAT spacer
length: 38 repeater length: 25

34346 1689386 GAAGCATCCTAGAAGGAATTGAAAG TCGATTTTCATTAATGCCATGCCGTCCTATAACAGT spacer length:
35 repeater length: 25

34347 1689446 GAAGCATCCTAGAAGGAATTGAAAG CTTATTCTCACCTTCCTTTTCTCGCCTTCCACTTTTCT spacer
length: 38 repeater length: 25

34348 1689509 GAAGCATCCTAGAAGGAATTGAAAG GCGAAGATGATCGAGCAAAACACTCACCCCTTCATCGTCGCGGT
spacer length: 44 repeater length: 25

34349 1689578 GAAGCATCCTAGAAGGAATTGAAAG CTTGTACTCTTCGATTGGGAGGAGGTACTCCTCCT spacer
length: 36 repeater length: 25

34350 1689639 GAAGCATCCTAGAAGGAATTGAAAG CCCATTTTCTGGGCGACAAGGGTGGGGTGAAGTACTTCG spacer
length: 40 repeater length: 25

34351 1689704 GAAGCATCCTAGAAGGAATTGAAAG AACCATCGTCGACGCGGGGTTTTCGGGACAACCTCACGAT spacer
length: 39 repeater length: 25

34352 1689768 GAAGCATCCTAGAAGGAATTGAAAG AACCACAACGAGTTTTCAATCGTTTTACTTAGTAACA spacer
length: 39 repeater length: 25

34353 1689832 GAAGCATCCTAGAAGGAATTGAAAG ATCACTTCGTTTAATTCTCCCAGTTTCTTACAATATT spacer
length: 37 repeater length: 25

34354 1689894 GAAGCATCCTAGAAGGAATTGAAAG TTGAAGGCGAGGATGATTTCTCGCCTTCGGCGAAGTAC spacer
length: 39 repeater length: 25

34355 1689958 GAAGCATCCTAGAAGGAATTGAAAG ATTGCCCCCGCGTCTCGCTCCACCACCCCAACATACGA spacer
length: 38 repeater length: 25

34356 1690021 GAAGCATCCTAGAAGGAATTGAAAG TGCCAGGGGGCCCCGGTGTGCGAACCAGGGGCCACATATG spacer
length: 40 repeater length: 25

34357 1690086 GAAGCATCCTAGAAGGAATTGAAAG CAAAAGGAGGGGAGGGGGAAATTTTTCGCATGATATTACATCC
spacer length: 44 repeater length: 25

34358 1690155 GAAGCATCCTAGAAGGAATTGAAAG TATTAACTCCCCTTTCTTGTACCCCAAATACGTTTCTAC spacer
length: 40 repeater length: 25

34359 1690220 GAAGCATCCTAGAAGGAATTGAAAG GCAGAGTATATTTCTATGTACTCTGCCAACGTCATGAA spacer
length: 38 repeater length: 25

34360 1690283 GAAGCATCCTAGAAGGAATTGAAAG CCCTAGAGGGGAAGGGGTGCGCCAGGATCACCTCCCC spacer
length: 38 repeater length: 25

34361 1690346 GAAGCATCCTAGAAGGAATTGAAAG ACAGACGCCCTCAGCCACACCCGCACCACCGTGCGGGTG spacer
length: 39 repeater length: 25

34362 1690410 GAAGCATCCTAGAAGGAATTGAAAG AGTCACACTTCCACCCTGAAGACGGTGAACCTGTACCCTACCTTCT
spacer length: 46 repeater length: 25

34363 1690481 GAAGCATCCTAGAAGGAATTGAAAG CGCATAAAAAACCCAAGCCAGTTCAGCGCCGAGACGCGG spacer
length: 40 repeater length: 25

34364 1690546 GAAGCATCCTAGAAGGAATTGAAAG GCCTCCCCTTCCCGGGGAGGCAGAGGGACGAGCAATT spacer
length: 37 repeater length: 25

34365 1690608 GAAGCATCCTAGAAGGAATTGAAAG ATTCTTTCGCGAATTGAAAGAACTTTTTAGGGGTG spacer length:
35 repeater length: 25

34366 1690668 GAAGCATCCTAGAAGGAATTGAAAG CTCATTTCTTTTCAAAAAAGATATCGAAACGCTAGAAAAG spacer
length: 41 repeater length: 25

34367 1690734 GAAGCATCCTAGAAGGAATTGAAAG CGAAAACCCAAGCTAGCTCGGTGTGGCAAATACCACACCGAACCGCA
spacer length: 47 repeater length: 25

34368 1690806 GAAGCATCCTAGAAGGAATTGAAAG CTCTGACGCGGGGGTTCAGCCCCGCTCTCGCTCCACCAC spacer
length: 39 repeater length: 25

34369 1690870 GAAGCATCCTAGAAGGAATTGAAAG ATGGGGACATAGTCCCCATTGGGCATCACCACATAGT spacer
length: 37 repeater length: 25

34370	1690932	GAAGCATCCTAGAAAGGAATTGAAAG	TTATCTTAAGTCCCTCTCCATCTCTCTGGACGTAAATAT	spacer
		length: 39	repeater length: 25	
34371	1690996	GAAGCATCCTAGAAAGGAATTGAAAG	GAACCAACCCGTCGAACCGGCGGTGAGTGGGGCACCCGCT	spacer
		length: 40	repeater length: 25	
34372	1691061	GAAGCATCCTAGAAAGGAATTGAAAG	GGGGAGGAGTCGGAGGTGGGGGAGGTGGCTTTCTGCT	spacer
		length: 37	repeater length: 25	
34373	1691123	GAAGCATCCTAGAAAGGAATTGAAAG	ACTTTGGCGCGACTCGGATTGGCTATACCTCCAACCATCG	spacer
		length: 40	repeater length: 25	
34374	1691188	GAAGCATCCTAGAAAGGAATTGAAAG	TCCAAAAAGCGGGGGGTGGGGGGTGCTTCGCGTTGCGGGG	spacer
		length: 40	repeater length: 25	
34375	1691253	GAAGCATCCTAGAAAGGAATTGAAAG	GTTTCAGTTAGCGGGAGCACTATTACTCTCGCCAGCGAGAG	spacer
		length: 40	repeater length: 25	
34376	1691318	GAAGCATCCTAGAAAGGAATTGAAAG	CTTCCGGCCCGCTCCCACGCCTCATTACCCCAGGCTTCCCA	spacer
		length: 41	repeater length: 25	
34377	1691384	GAAGCATCCTAGAAAGGAATTGAAAG	CGTCTTTTTTGGGCAGCCGGGGAGGGGTGAAGTACTTCGC	spacer
		length: 39	repeater length: 25	
34378	1691448	GAAGCATCCTAGAAAGGAATTGAAAG	GGGTCGGGGGAGGAGACAGGGACGAGCTCCCAAACAGAG	spacer
		length: 39	repeater length: 25	
34379	1691512	GAAGCATCCTAGAAAGGAATTGAAAG	GACAAGATCGTACGAAACCACCCCGCTTTTCACGGCCTCC	spacer
		length: 40	repeater length: 25	
34380	1691577	GAAGCATCCTAGAAAGGAATTGAAAG	ATAGACTCGTTCTTGGGCGTGAGACGGAGTATAGAAACG	spacer
		length: 39	repeater length: 25	
34381	1691641	GAAGCATCCTAGAAAGGAATTGAAAG	TTTCAATCAGATTTGCCATTACATGAAGGTTTTAGGTGGC	spacer
		length: 40	repeater length: 25	
34382	1691706	GAAGCATCCTAGAAAGGAATTGAAAG	AACCGTTGTGGCTTTACTTGAATAATTGTTTTCGTCATC	spacer
		length: 40	repeater length: 25	
34383	1691771	GAAGCATCCTAGAAAGGAATTGAAAG	TAGTATCAGCGAGCCAATCTAGATATGGCCCATTGATCCAG	spacer
		length: 41	repeater length: 25	
34384	1691837	GAAGCATCCTAGAAAGGAATTGAAAG	ACTTCATTTTCAGTTTCGGGCCGACCCCGGCCCTCGTGTTG	spacer
		length: 41	repeater length: 25	
34385	1691903	GAAGCATCCTAGAAAGGAATTGAAAG	TTAACCGGCCTTTCAGGCCGGGTGACCCGCACAAAGT	spacer
		length: 37	repeater length: 25	
34386	1691965	GAAGCATCCTAGAAAGGAATTGAAAG	ACCTGGGAGGAGCGGGATGAACTGGGAGCTCGTCCCAGC	spacer
		length: 39	repeater length: 25	
34387	1692029	GAAGCATCCTAGAAAGGAATTGAAAG	CCATTTTCACGTGGGAAACCTGGGGGAACGAGGCGTGGGAACGA	spacer
		length: 43	repeater length: 25	
34388	1692097	GAAGCATCCTAGAAAGGAATTGAAAG	ACGGGCAGAACGCATACGCTTATGCCGAAGTACCTCAACTCG	spacer
		length: 42	repeater length: 25	
34389	1692164	GAAGCATCCTAGAAAGGAATTGAAAG	AGCAAAGCTCCCTGCCGGCACCCCTTCGTTCCGAGAAACAG	spacer
		length: 40	repeater length: 25	
34390	1692229	GAAGCATCCTAGAAAGGAATTGAAAG	GCCTCCCCGGAAGGGGAGGCAGAGGCTCTATTTTGAA	spacer
		length: 38	repeater length: 25	
34391	1692292	GAAGCATCCTAGAAAGGAATTGAAAG	TTCCGTCTCCCCTCCCCTTCTCGATGAAGGGAAGCACCGC	spacer
		length: 40	repeater length: 25	
34392	1692357	GAAGCATCCTAGAAAGGAATTGAAAG	GTCATCATAGACGAGATCCACAACATAAGCGACAGAAGTG	spacer
		length: 40	repeater length: 25	
34393	1692422	GAAGCATCCTAGAAAGGAATTGAAAG	CCTAACCCACCTAACCCCTTTTTTTTCTTCTTCCCTTT	spacer
		length: 39	repeater length: 25	
34394	1692486	GAAGCATCCTAGAAAGGAATTGAAAG	TTGGAGTACTTGTCTTAGTTTGTCTAAACTCTCAACATCCCG	spacer
		length: 42	repeater length: 25	
34395	1692553	GAAGCATCCTAGAAAGGAATTGAAAG	ATTCTCTCTTCCAGCCGAGAGAGGATTTTCCCCAATAA	spacer
		length: 38	repeater length: 25	
34396	1692616	GAAGCATCCTAGAAAGGAATTGAAAG	TATGGGGTGTAGTCTCCGGGCTTGATTTAGTGTCTAA	spacer
		length: 37	repeater length: 25	
34397	1692678	GAAGCATCCTAGAAAGGAATTGAAAG	CTGTCCAAGGGGAGAGAAGGGGATAGGGGACGGAAGAAG	spacer
		length: 39	repeater length: 25	
34398	1692742	GAAGCATCCTAGAAAGGAATTGAAAG	CGAAAAGAAGGAAGAAAAGGCTCGTACTCGCACCCCC	spacer
		length: 37	repeater length: 25	
34399	1692804	GAAGCATCCTAGAAAGGAATTGAAAG	GACAGGAAGGGGAAGGACGGGAAGGAAAAAGGGGTAG	spacer
		length: 39	repeater length: 25	
34400	1692868	GAAGCATCCTAGAAAGGAATTGAAAG	TTAACCTCGGCAGATTTTCCAAGACATCATCAACC	spacer length: 35
		length: 35	repeater length: 25	
34401	1692928	GAAGCATCCTAGAAAGGAATTGAAAG	GACATAGGCGGCGGCAGCAGCTATGACGACGGTTCCTACT	spacer
		length: 40	repeater length: 25	
34402	1692993	GAAGCATCCTAGAAAGGAATTGAAAG	AAGACCCAACCTAATTCCGGCGCCACAATGGCACCGAAT	spacer
		length: 38	repeater length: 25	
34403	1693056	GAAGCATCCTAGAAAGGAATTGAAAG	AGGATGCTTCAGGGGAGGCAGAGGGGGGGGGGAGAAGGGAAG	spacer
		length: 42	repeater length: 25	
34404	1693123	GAAGCATCCTAGAAAGGAATTGAAAG	ACTACTTGTGTTTCCACCACCGGTGCTTCCGCTCGTGTTG	spacer
		length: 40	repeater length: 25	
34405	1693188	GAAGCATCCTAGAAAGGAATTGAAAG	ATACCAACATGCTACAACAAAGTTTTTATATTACCTTCG	spacer

length: 39 repeater length: 25

34406 1693252 GAAGCATCCTAGAAAGGAATTGAAAG AACGTCGCACAGGTGCCTCCGTACAAAGGAACCATATCTA spacer
length: 40 repeater length: 25

34407 1693317 GAAGCATCCTAGAAAGGAATTGAAAG CCATCGAGGTAGTGACGGTGAACGCCGACGGGAAGATGAGTCGC
spacer length: 44 repeater length: 25

34408 1693386 GAAGCATCCTAGAAAGGAATTGAAAG TCCGACTCCAACGAGGAGCCGGACGAGGAGGACTCGGAG spacer
length: 39 repeater length: 25

34409 1693450 GAAGCATCCTAGAAAGGAATTGAAAG CCGGAATCGTTCTCTTGGGCATGTTGTCTCAACCAT spacer
length: 36 repeater length: 25

34410 1693511 GAAGCATCCTAGAAAGGAATTGAAAG AGGGGTACTCCCCTGGTTCCGAGAGGGCGTACCTGGTCCT spacer
length: 40 repeater length: 25

34411 1693576 GAAGCATCCTAGAAAGGAATTGAAAG ACGAGGAGGGGAAAGAGGGGAGGGAGGGCAGAGGACGGCAG spacer
length: 41 repeater length: 25

34412 1693642 GAAGCATCCTAGAAAGGAATTGAAAG CTTTCATAATTTTCATCCTTCGGTTTTCTAAGCTGTTTCAT spacer
length: 39 repeater length: 25

34413 1693706 GAAGCATCCTAGAAAGGAATTGAAAG GTTTTAGAGCGGCCTCCAGGCCGCTCTCCAGCCTCTCTAA spacer
length: 40 repeater length: 25

34414 1693771 GAAGCATCCTAGAAAGGAATTGAAAG TTTGATTTCCGGATTGTAGTTGTTAATCTTGTTCCT spacer
length: 36 repeater length: 25

34415 1693832 GAAGCATCCTAGAAAGGAATTGAAAG ATAACCTTTGCGGTCTTATTTTCTCACGTCTTAACCTTCT spacer
length: 39 repeater length: 25

34416 1693896 GAAGCATCCTAGAAAGGAATTGAAAG TTCCGTTTCCCTTGGAGTAGGACTGGGCATATTGGAACAGGG spacer
length: 42 repeater length: 25

34417 1693963 GAAGCATCCTAGAAAGGAATTGAAAG GAAGGGCCCCGCTCCCACCCCTCGTTTCCCCAGGCTTCCCA spacer
length: 40 repeater length: 25

34418 1694028 GAAGCATCCTAGAAAGGAATTGAAAG TATCATGCTCTTTATCAACAACCTTCTTGCAACTACAGTT spacer
length: 40 repeater length: 25

34419 1694093 GAAGCATCCTAGAAAGGAATTGAAAG CGTCGGAGTCCTCGTCCGAGGAGGTGGTGGGGGAG spacer length:
35 repeater length: 25

34420 1694153 GAAGCATCCTAGAAAGGAATTGAAAG GTGTTTTCTGTTTTTCTCGCGTGGTTCTCAAGAAGGTCT spacer
length: 39 repeater length: 25

34421 1694217 GAAGCATCCTAGAAAGGAATTGAAAG TTACACCGCGAACGGAACGGCACAGTTCAACGCGTCCGCT spacer
length: 40 repeater length: 25

34422 1694282 GAAGCATCCTAGAAAGGAATTGAAAG TGTAGACCGTGTTCATGAGTATCTTTCGACAGTAA spacer length:
35 repeater length: 25

34423 1694342 GAAGCATCCTAGAAAGGAATTGAAAG CTGAACAGGGGTACCCCTGGTTCAGGGAGAACTTGTAAC spacer
length: 40 repeater length: 25

34424 1694407 GAAGCATCCTAGAAAGGAATTGAAAG ATTCTCAGTCTTCCAGCCCGGATCAGTCTAGCAGGTTCCGT spacer
length: 41 repeater length: 25

34425 1694473 GAAGCATCCTAGAAAGGAATTGAAAG CGGCAAGTACGGCGCCTTTTGGGTCAGCGGTCGGGCCCCG spacer
length: 39 repeater length: 25

34426 1694537 GAAGCATCCTAGAAAGGAATTGAAAG CGATCAACCCTCCCTGCGACACGGTCTCCCCGGAAGGTA spacer
length: 39 repeater length: 25

34427 1694601 GAAGCATCCTAGAAAGGAATTGAAAG CGACCTCGGCCAATATACCGCTCCTCCGGAGTCCCC spacer
length: 37 repeater length: 25

34428 1694663 GAAGCATCCTAGAAAGGAATTGAAAG GGTTTGTGCCACTTTCCAGTTGTTCGATAGTCACCCTCGAA spacer
length: 41 repeater length: 25

34429 1694729 GAAGCATCCTAGAAAGGAATTGAAAG TCTGAGCATCCATCAACCCACTGACAACACTGTGCCCCAT spacer
length: 40 repeater length: 25

34430 1694794 GAAGCATCCTAGAAAGGAATTGAAAG GCTCCGTCGCACCTCAAAGGGGGGAGAGAAGCATGGGAGGC spacer
length: 41 repeater length: 25

34431 1694860 GAAGCATCCTAGAAAGGAATTGAAAG AGGGGAGAGATGAGGGGAAGGGGAGAAGGGGATTAG spacer
length: 42 repeater length: 25

34432 1694927 GAAGCATCCTAGAAAGGAATTGAAAG CTACCGTTATGCAATACGGGACGTACGGGTCTCGTCCGTGC spacer
length: 41 repeater length: 25

34433 1694993 GAAGCATCCTAGAAAGGAATTGAAAG CAGGACCAGTGCAGAGAACTTAACGTAATGGGGTCAAGTG spacer
length: 41 repeater length: 25

34434 1695059 GAAGCATCCTAGAAAGGAATTGAAAG GTTCATGTCTAACGTGAAATCCATTCGGAAAACTATAT spacer
length: 39 repeater length: 25

34435 1695123 GAAGCATCCTAGAAAGGAATTGAAAG AAACAGATTTTCATAGACTTCGGCGGCAACGAACCGAC spacer
length: 38 repeater length: 25

34436 1695186 GAAGCATCCTAGAAAGGAATTGAAAG TTTATAGGCGGAATTGAGCCTTTGTTCCCAATTGCGGG spacer
length: 38 repeater length: 25

34437 1695249 GAAGCATCCTAGAAAGGAATTGAAAG CGACTGGGAAATCAAATTCTTGCCATGTGTTGGCCGGAATT spacer
length: 41 repeater length: 25

34438 1695315 GAAGCATCCTAGAAAGGAATTGAAAG ATGTAAACTTTGTCAAAATCATAAAACCCCATATTTTTCA spacer
length: 40 repeater length: 25

34439 1695380 GAAGCATCCTAGAAAGGAATTGAAAG TACTCCCCGTCGTAAACAACGGGGAGGTTGGGAGTGG spacer
length: 37 repeater length: 25

34440 1695442 GAAGCATCCTAGAAAGGAATTGAAAG CATCCCAGCTCGGTGCCGCACCTGCGGCA spacer length: 29
repeater length: 25

34441	1695496	GAAGCATCCTAGAAAGGAATTGAAAG	TAACTCCCTCTCACTCTCATAGTATTCCGTGATCCGGCCC	spacer
	length:	40	repeater length:	25
34442	1695561	GAAGCATCCTAGAAAGGAATTGAAAG	ATGGGAAAGAGGAATAAATTGGTAGGCATCTCCACTC	spacer
	length:	37	repeater length:	25
34443	1695623	GAAGCATCCTAGAAAGGAATTGAAAG	AAACATATGGCGACCCTATCCTACCCTCGCCACCCC	spacer
	length:	36	repeater length:	25
34444	1695684	GAAGCATCCTAGAAAGGAATTGAAAG	TCGTCCTCCGGGTCTCTCGTCCGAGGAGGTGGAGGAGGAG	spacer
	length:	39	repeater length:	25
34445	1695748	GAAGCATCCTAGAAAGGAATTGAAAG	ATTCCTCCCCCGCTTTTCTCTATAATCTGAAACATGCAT	spacer
	length:	39	repeater length:	25
34446	1695812	GAAGCATCCTAGAAAGGAATTGAAAG	GTGATCCGGCCCCCGTCGTTGTGGAATACGTACTTGAGCCG	spacer
	length:	41	repeater length:	25
34447	1695878	GAAGCATCCTAGAAAGGAATTGAAAG	TACGGCGCGCGAGGGTGACCACCCCCACCGCATACCTTCTCTT	spacer
	length:	44	repeater length:	25
34448	1695947	GAAGCATCCTAGAAAGGAATTGAAAG	TTAAGTACGTGTGCCCCACATACACACCCGCCATCATCCTT	spacer
	length:	41	repeater length:	25
34449	1696013	GAAGCATCCTAGAAAGGAATTGAAAG	TGTTTTCAACGTCCTGCGCCGTGACTTCGCGCCACGTGTC	spacer
	length:	40	repeater length:	25
34450	1696078	GAAGCATCCTAGAAAGGAATTGAAAG	TTGTAAGTCGTATTGCGTCACCGAGTTCATCAGCACGTT	spacer
	length:	39	repeater length:	25
34451	1696142	GAAGCATCCTAGAAAGGAATTGAAAG	TTCTCGAGGACCGAGCCGAATTTACGGGCACTTTTTCTT	spacer
	length:	40	repeater length:	25
34452	1696207	GAAGCATCCTAGAAAGGAATTGAAAG	CGTCGGAGGGGACGAGCTCCCAAACACTCGTCCCGTCCC	spacer
	length:	39	repeater length:	25
34453	1696271	GAAGCATCCTAGAAAGGAATTGAAAG	TGGGGGAAGGGGATAAATTGATAATTCGTCCCCCGCGT	spacer
	length:	41	repeater length:	25
34454	1696337	GAAGCATCCTAGAAAGGAATTGAAAG	ACCCCGGTGTAGGTGGGAGTGGTGGGAGTGACGGTG	spacer
	length:	36	repeater length:	25
34455	1696398	GAAGCATCCTAGAAAGGAATTGAAAG	TAGTCGACGTCCTCGATTCTGAACATATGGACCTTCGCCGG	spacer
	length:	40	repeater length:	25
34456	1696463	GAAGCATCCTAGAAAGGAATTGAAAG	CGAATTCGGCAAGCGTCATCACGTAGTCGTCGAGCCACG	spacer
	length:	39	repeater length:	25
34457	1696527	GAAGCATCCTAGAAAGGAATTGAAAG	CTGAGCTCGCGCATGGGAAGACGGATGTTGCCGTATGTC	spacer
	length:	39	repeater length:	25
34458	1696591	GAAGCATCCTAGAAAGGAATTGAAAG	TCTACCCCGCAAATACGGCCTTTACTCCCTGTACGGGTAT	spacer
	length:	41	repeater length:	25
34459	1696657	GAAGCATCCTAGAAAGGAATTGAAAG	CTTGCACGACAGGACGAGGACCTGTCTGGTCCCCGTCTTCA	spacer
	length:	41	repeater length:	25
34460	1696723	GAAGCATCCTAGAAAGGAATTGAAAG	AACAATATCAGAGACAGTATACCAAAGTCAATAATTTCTTT	spacer
	length:	41	repeater length:	25
34461	1696789	GAAGCATCCTAGAAAGGAATTGAAAG	CCGAGGTCGTACTGAGTCTCAGGAACGCAGGGGGCGCCGTG	spacer
	length:	41	repeater length:	25
34462	1696855	GAAGCATCCTAGAAAGGAATTGAAAG	ATCACAACGTCGCAACCCTCCCTCACTTCCCATGCCTTTG	spacer
	length:	40	repeater length:	25
34463	1696920	GAAGCATCCTAGAAAGGAATTGAAAG	GCACGATCCTGCCTTTGACGAAGTGATCCTTAGTTAT	spacer
	length:	37	repeater length:	25
34464	1696982	GAAGCATCCTAGAAAGGAATTGAAAG	TCCTTTTGCGACCCACCCTCCACATCCTCAGCGACCGC	spacer
	length:	38	repeater length:	25
34465	1697045	GAAGCATCCTAGAAAGGAATTGAAAG	CCTAACCCACCCACCTAACCCTTTTTTTCTTCTTCCCTT	spacer
	length:	41	repeater length:	25
34466	1697111	GAAGCATCCTAGAAAGGAATTGAAAG	GCTCTTCGACTTGGTCGGGGTCGATGTACCACTTACCAAT	spacer
	length:	41	repeater length:	25
34467	1697177	GAAGCATCCTAGAAAGGAATTGAAAG	TAGTTCATGCTGCAAAACCCCCAGATTTCTTCGGAAACCTT	spacer
	length:	41	repeater length:	25
34468	1697243	GAAGCATCCTAGAAAGGAATTGAAAG	ACCTCCCCTGGGGAGGGAGGCAAAGGCGTTTTTTCGATCTC	spacer
	length:	41	repeater length:	25
34469	1697309	GAAGCATCCTAGAAAGGAATTGAAAG	GCTGCTTTCACCCTGTTGGGGGTTACGTGCCACCAACA	spacer
	length:	41	repeater length:	25
34470	1697375	GAAGCATCCTAGAAAGGAATTGAAAG	AGGTAGGGTCCACTGACCCATATCGTATCCTCAGTCTC	spacer
	length:	38	repeater length:	25
34471	1697438	GAAGCATCCTAGAAAGGAATTGAAAG	TAGTTTATACAGGGTCTCTATATCCCCACTACTAAAAAATTG	spacer
	length:	42	repeater length:	25
34472	1697505	GAAGCATCCTAGAAAGGAATTGAAAG	TTATACCCCAGGTAAGCGTACCTGGGGTACGTCACATACT	spacer
	length:	40	repeater length:	25
34473	1697570	GAAGCATCCTAGAAAGGAATTGAAAG	GCGACCTCGAGGGCGTCCACGTGCCCGCGGAGGCGGCGA	spacer
	length:	39	repeater length:	25
34474	1697634	GAAGCATCCTAGAAAGGAATTGAAAG	ATCATGGTCGTATTTCTCTTGCACTTTTACATTCTTG	spacer
	length:	39	repeater length:	25
34475	1697698	GAAGCATCCTAGAAAGGAATTGAAAG	TTAAGGGGTGCTTTCCGAGCCTCCCTTTCGAGAGGCGCTT	spacer
	length:	40	repeater length:	25
34476	1697763	GAAGCATCCTAGAAAGGAATTGAAAG	TCCAGCAGCCCGTTAAGTTCGAGCCCGAAACGGGCGCT	spacer

length: 39 repeater length: 25
34477 1697827 GAAGCATCCTAGAAAGGAATTGAAAG TATCGCTGAAACGAAGCCATCGCTTATCAAGCCCTTGACTTCG spacer
length: 43 repeater length: 25
34478 1697895 GAAGCATCCTAGAAAGGAATTGAAAG CAAACAGAGGAGCCGTCACCAATGGGAGCGGGCTCCCC spacer
length: 40 repeater length: 25
34479 1697960 GAAGCATCCTAGAAAGGAATTGAAAG TCGCGGGGAGGCTAATTGCACTCTTCTCACGGTGGTATATAA spacer
length: 42 repeater length: 25
34480 1698027 GAAGCATCCTAGAAAGGAATTGAAAG ACCAATTCATCGCCCTCTCCCATTCTTCACCCCGTATTG spacer
length: 40 repeater length: 25
34481 1698092 GAAGCATCCTAGAAAGGAATTGAAAG ACGATTGGAGCGAGGTGCCGGAAGACCTTCGCTAC spacer length:
35 repeater length: 25
34482 1698152 GAAGCATCCTAGAAAGGAATTGAAAG AACTAACTGAGGCTCTTGCTCGAGGAGCCTCAGGATC spacer
length: 37 repeater length: 25
34483 1698214 GAAGCATCCTAGAAAGGAATTGAAAG CCGGGAAGGGGAGACAAGGGTTCTGTATGGAATTCCACTTT spacer
length: 41 repeater length: 25
34484 1698280 GAAGCATCCTAGAAAGGAATTGAAAG CTTTAAGGGCTTGTTCCAACCCTTCCTTCAAACGTT spacer
length: 36 repeater length: 25
34485 1698341 GAAGCATCCTAGAAAGGAATTGAAAG CCCTGAGGTCTTTGATGTACGTTTGCGCTTTCTCTCCGT spacer
length: 39 repeater length: 25
34486 1698405 GAAGCATCCTAGAAAGGAATTGAAAG TCTGCGGGTGCCTTTTCCTCTTGTTCTGACATTTTTTCCTT spacer
length: 40 repeater length: 25
34487 1698470 GAAGCATCCTAGAAAGGAATTGAAAG CCACAAGAAGGGGTGGCCTCTGGAATCTTATCGATCCGGT spacer
length: 41 repeater length: 25
34488 1698536 GAAGCATCCTAGAAAGGAATTGAAAG ATTCTGGAAAAAATACGGAGGAACTACCCTCCCTGTCAG spacer
length: 41 repeater length: 25
34489 1698602 GAAGCATCCTAGAAAGGAATTGAAAG ACCAGGAACGACAACCGAGTTTCCCTTAACGAGTTGGCAC spacer
length: 40 repeater length: 25
34490 1698667 GAAGCATCCTAGAAAGGAATTGAAAG ACAGTCTCCAGGTCCCTCTCATTAAAAAACTCGGGAAACC spacer
length: 40 repeater length: 25
34491 1698732 GAAGCATCCTAGAAAGGAATTGAAAG ATTTATACCGTATCTCCTAACAAGATACTTTTCAGCAAGG spacer
length: 40 repeater length: 25
34492 1698797 GAAGCATCCTAGAAAGGAATTGAAAG CGGTTACAGGTACGGGCCTTGTTGGCCTCCGTCGGAGCCTG spacer
length: 40 repeater length: 25
34493 1698862 GAAGCATCCTAGAAAGGAATTGAAAG TGTGGTTGTAGTCCTAGTTCATGCTGCAAAAATCCCCAGAT spacer
length: 41 repeater length: 25
34494 1698928 GAAGCATCCTAGAAAGGAATTGAAAG TTCTCCCGCTGCCGTCCCCCTGCCTCCTCCCTTTTTTT spacer
length: 39 repeater length: 25
34495 1698992 GAAGCATCCTAGAAAGGAATTGAAAG TCAAAGCCACCCCTTCCACCTGCCGGTAGTACTCTCGAA spacer
length: 40 repeater length: 25
34496 1699057 GAAGCATCCTAGAAAGGAATTGAAAG AATGAGGGTGGTGGGAGCGGGCCCGCAGGGGAACCCGC spacer
length: 38 repeater length: 25
34497 1699120 GAAGCATCCTAGAAAGGAATTGAAAG GTTGCTCCCTCTCAATATGGAGTCGTGGGTGTGAAGTTG spacer
length: 39 repeater length: 25
34498 1699184 GAAGCATCCTAGAAAGGAATTGAAAG CTTATCTTGTTCCACGTCGTGGCCCATACGACTCATAG spacer
length: 39 repeater length: 25
34499 1699248 GAAGCATCCTAGAAAGGAATTGAAAG CACAGTTCACATCCCTGTTTCCAGCAGGGATTTTTACCAT spacer
length: 40 repeater length: 25
34500 1699313 GAAGCATCCTAGAAAGGAATTGAAAG GAAACACCGAGAGATTGCCTTTGGAGGTGGCACCGA spacer
length: 36 repeater length: 25
34501 1699374 GAAGCATCCTAGAAAGGAATTGAAAG AATTCGTGAGTGAGGAACTCCAGATTTCTCACTTATCTTG spacer
length: 42 repeater length: 25
34502 1699441 GAAGCATCCTAGAAAGGAATTGAAAG ATGAGGGGAGAACCATGAACGTTCAACAATTAGTA spacer length:
35 repeater length: 25
34503 1699501 GAAGCATCCTAGAAAGGAATTGAAAG GGGGCGAAGCGTAAACCGACCTGTAAGGCGACATCAACA spacer
length: 39 repeater length: 25
34504 1699565 GAAGCATCCTAGAAAGGAATTGAAAG GTTTCCATTCTTCTGCACAATATGGGGTGAAGGAA spacer
length: 36 repeater length: 25
34505 1699626 GAAGCATCCTAGAAAGGAATTGAAAG ACCAACACCCCGGCCGTCTTAGGGTCGGCTTCTGGGGCGGT spacer
length: 41 repeater length: 25
34506 1699692 GAAGCATCCTAGAAAGGAATTGAAAG CCATATTGGAGTATTAATACGTGGGCACTTCGCTTGGTC spacer
length: 39 repeater length: 25
34507 1699756 GAAGCATCCTAGAAAGGAATTGAAAG CTTCGTTTCCCCAGGCTTCCCACCGAAGGTGGGCACAGCC spacer
length: 40 repeater length: 25
34508 1699821 GAAGCATCCTAGAAAGGAATTGAAAG GTTCGGAAGGAAGATGCCTAAATTGCCGCTCGAATCGAGT spacer
length: 40 repeater length: 25
34509 1699886 GAAGCATCCTAGAAAGGAATTGAAAG AGGATAATGATAATTTCTGTGGTTGCAATCCCAATTCGT spacer
length: 40 repeater length: 25
34510 1699951 GAAGCATCCTAGAAAGGAATTGAAAG TACTCGTAACGTTGTCGGGAGGTTGTCGTACCGTTCTCC spacer
length: 40 repeater length: 25
34511 1700016 GAAGCATCCTAGAAAGGAATTGAAAG TTATTGATTCTGAACATATGTCCCCATTAGGAAGCTTTATG spacer
length: 39 repeater length: 25

34512 1700080 GAAGCATCCTAGAAAGGAATTGAAAG AGTACCTCTGGTGTTCAGTACAAACGCGACGTGGAGGG spacer
length: 39 repeater length: 25

34513 1700144 GAAGCATCCTAGAAAGGAATTGAAAG CTGCCACTTCGTCTTGGGTGATTTTCTTCGAGGGATCGG spacer
length: 39 repeater length: 25

34514 1700208 GAAGCATCCTAGAAAGGAATTGAAAG ATTCTTCCTCCTGCCGCATATGTGATTTTAAAGCATTC spacer
length: 38 repeater length: 25

34515 1700271 GAAGCATCCTAGAAAGGAATTGAAAG ACTCGGTCAAAAACAAATATCCCGATTTAACTTACGG spacer
length: 37 repeater length: 25

34516 1700333 GAAGCATCCTAGAAAGGAATTGAAAG AGGCAGGAAGCATATACCTATCGAACCCAACAACAAGTTTT spacer
length: 41 repeater length: 25

34517 1700399 GAAGCATCCTAGAAAGGAATTGAAAG ACATTCTTCCGACGTATACGCCTACGATGACGGCCACAGCC spacer
length: 41 repeater length: 25

34518 1700465 GAAGCATCCTAGAAAGGAATTGAAAG GATCTTTCTGTCTTTCTGTTCTTTAGTGTTTCAAGT spacer
length: 38 repeater length: 25

34519 1700528 GAAGCATCCTAGAAAGGAATTGAAAG AAAGGCTATTAAACACCCGGGTCTGTCTGTTAGAGCGATGA spacer
length: 41 repeater length: 25

34520 1700594 GAAGCATCCTAGAAAGGAATTGAAAG ATATATTAGGCTCCATCATTCTCCCCTTCACTCCGAGTG spacer
length: 39 repeater length: 25

34521 1700658 GAAGCATCCTAGAAAGGAATTGAAAG GGTGAAGTAGTAAACTCCGCAACGAACCCTATTCTGTGTT spacer
length: 40 repeater length: 25

34522 1700723 GAAGCATCCTAGAAAGGAATTGAAAG AACCCGTACTCCAGTCTACGACAGCGCCAACCACCATCTCC spacer
length: 42 repeater length: 25

34523 1700790 GAAGCATCCTAGAAAGGAATTGAAAG ACATGACTCTTATCAAGAATACTGCTGAGTTTTTCTAGCGT spacer
length: 41 repeater length: 25

34524 1700856 GAAGCATCCTAGAAAGGAATTGAAAG CAACTAACGTACCATAGTTTCTCTTCCTTCGACCACCTTAT spacer
length: 41 repeater length: 25

34525 1700922 GAAGCATCCTAGAAAGGAATTGAAAG GATCTCGCGGATGCCGGAGACGAAGAGCGGTGACTCCAT spacer
length: 39 repeater length: 25

34526 1700986 GAAGCATCCTAGAAAGGAATTGAAAG TAGGCCACATACCATAGTTTCTCTTCATTGCTCCATCGCA spacer
length: 40 repeater length: 25

34527 1701051 GAAGCATCCTAGAAAGGAATTGAAAG GGGTTAACAATTACGAAAAGCCAGTACTAGACAT spacer length:
34 repeater length: 25

34528 1701110 GAAGCATCCTAGAAAGGAATTGAAAG GTAGGCGAGGGGTTGCACATATTGTGCCCCCTCACC spacer
length: 36 repeater length: 25

34529 1701171 GAAGCATCCTAGAAAGGAATTGAAAG GGTGGGGGTCGTTCGACCTCCCATTCGATGTCATTGTCT spacer
length: 39 repeater length: 25

34530 1701235 GAAGCATCCTAGAAAGGAATTGAAAG TACCAAATTCTGTCTGTCATTCTAACTTCGTATTTTGTG spacer
length: 39 repeater length: 25

34531 1701299 GAAGCATCCTAGAAAGGAATTGAAAG CCAGGAGGTCTGGTCACACTCTGCCCCGCCAGACTGT spacer
length: 37 repeater length: 25

34532 1701361 GAAGCATCCTAGAAAGGAATTGAAAG TTGGTCAAGTTGGTGCGGGCTATGGGGTACTCTCAAGAGAT spacer
length: 41 repeater length: 25

34533 1701427 GAAGCATCCTAGAAAGGAATTGAAAG TGTTATGAAAGTGACGCTGACGTTCTTCGCCTTGATTTT spacer
length: 39 repeater length: 25

34534 1701491 GAAGCATCCTAGAAAGGAATTGAAAG GCGCGCGTCCTTGTACCCGTACAGGGAGTAAAGGCC spacer
length: 36 repeater length: 25

34535 1701552 GAAGCATCCTAGAAAGGAATTGAAAG TTATTGATTGAACTATGTCCCCATTAGGAAGCTTTATG spacer
length: 39 repeater length: 25

34536 1701616 GAAGCATCCTAGAAAGGAATTGAAAG AGTACCTCTGGTGTTCAGTACAAACGCGACGTGGAGGG spacer
length: 39 repeater length: 25

34537 1701680 GAAGCATCCTAGAAAGGAATTGAAAG CTGCCACTTCGTCTTGGGTGATTTTCTTCGAGGGATCGG spacer
length: 39 repeater length: 25

34538 1701744 GAAGCATCCTAGAAAGGAATTGAAAG TAAAGGGGGAGGTTGTGTATACCACTCCTAACATATTTTA spacer
length: 40 repeater length: 25

34539 1701809 GAAGCATCCTAGAAAGGAATTGAAAG

34540

34541

34542 GCA_003990725.1_ASM399072v1_genomic.fna (PilerCR):

34543 START REPEAT
SPACER

34544 GCA_004340645.1_ASM434064v1_genomic.fna (PilerCR):

34545 START REPEAT
SPACER

34546 crispr 1

34547 15254 ATTTCAATCCCTCTAAGGTCTGATTATAAC CAGTCAGGTTGCCGAAATACTGAAATTAACTCAATC spacer
length: 38 repeater length: 30

34548 15322 ATTTCAATCCCTCTAAGGTCTGATTATAAC TATATACTCTATTATAGATGTTTTTATACATATAA spacer
length: 35 repeater length: 30

34549 15387 ATTTCAATCCCTCTAAGGTCTGATTATAAC ACCGTTCAAGACGAAACATACAAACATGATAATTGC spacer
length: 36 repeater length: 30

34550 15453 ATTTCAATCCCTCTAAGGTCTGATTATAAC TGAGCCACCACAAAAACAACAATTCAAATTATTGA spacer

	length: 36	repeater length: 30	
34551	15519 ATTTCAATCCCTCTAAGGTCTGATTATAAC	AATGAAAGTATAAAAAGAATATAAAAAACATATAAGAAA	spacer
	length: 38	repeater length: 30	
34552	15587 ATTTCAATCCCTCTAAGGTCTGATTATAAC	AGGTGCAGATTACAGCAGATACAAACATAGGAACGAA	spacer
	length: 36	repeater length: 30	
34553	15653 ATTTCAATCCCTCTAAGGTCTGATTATAAC	AAAAGTATGATGATGAATTCACCGCCAAAGAAGCGC	spacer
	length: 36	repeater length: 30	
34554	15719 ATTTCAATCCCTCTAAGGTCTGATTATAAC	GCAATCGTCACCGAGTGATATATATTTTGATCCGTTTACGCATTT	spacer
	length: 45	repeater length: 30	
34555	15794 ATTTCAATCCCTCTAAGGTCTGATTATAAC	ACGGATCGATACACAAAGATCCGTACAACAACAAGCAGAT	spacer
	length: 40	repeater length: 30	
34556	15864 ATTTCAATCCCTCTAAGGTCTGATTATAAC	ATCCAGTCATAAATAGTTCGTTATCAGTACATGAA	spacer
	length: 35	repeater length: 30	
34557	15929 ATTTCAATCCCTCTAAGGTCTGATTATAAC	AGGGACCGAAAGAATGTTCCCTATTATCTATGGCTGTTT	spacer
	length: 38	repeater length: 30	
34558	15997 ATTTCAATCCCTCTAAGGTCTGATTATAAC	GTCAAGATGATTACGTTCTTCATGTTACCCGCTCGTTT	spacer
	length: 39	repeater length: 30	
34559	16066 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TTTTGGTTACTCGTGTTACCATTACCTTTTGTGTGTAACA	spacer
	length: 39	repeater length: 30	
34560	16135 ATTTCAATCCCTCTAAGGTCTGATTATAAC	ATGATGTCTACTGATTCCATATTTTATATTGTGT	spacer
	length: 34	repeater length: 30	
34561	16199 ATTTCAATCCCTCTAAGGTCTGATTATAAC	ATCATACTCATTTTCATTCCATGTATTTTCAATCACATCATC	spacer
	length: 42	repeater length: 30	
34562	16271 ATTTCAATCCCTCTAAGGTCTGATTATAAC	CTGCTGTAGAGAACAGACCAAAGCATTTCCAAAGAG	spacer
	length: 37	repeater length: 30	
34563	16338 ATTTCAATCCCTCTAAGGTCTGATTATAAC	CTGGGTACCGTAACAAGTTCGGCTGCAACACTGAA	spacer
	length: 35	repeater length: 30	
34564	16403 ATTTCAATCCCTCTAAGGTCTGATTATAAC	GAAGACAAAGGAACGGGTACAGGACAAGATGGCATCAA	spacer
	length: 38	repeater length: 30	
34565	16471 ATTTCAATCCCTCTAAGGTCTGATTATAAC	AAAATCAAGAATGGGCGCGCAAGGCTCCTATGCAGA	spacer
	length: 36	repeater length: 30	
34566	16537 ATTTCAATCCCTCTAAGGTCTGATTATAAC	AGTATATAAATCGTGTACTTGCACGGTTTTATAAGT	spacer
	length: 36	repeater length: 30	
34567	16603 ATTTCAATCCCTCTAAGGTCTGATTATAAC	GAAATATGACCCTCATGAAATCAAGCATGCCAAGAT	spacer
	length: 36	repeater length: 30	
34568	16669 ATTTCAATCCCTCTAAGGTCTGATTATAAC	AAAAAATTATGGAAAAGTATGGAATTGATAGAGGAGA	spacer
	length: 37	repeater length: 30	
34569	16736 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TCCAACCTTGAACATACTTCTATAGTTCATGTTAT	spacer
	length: 36	repeater length: 30	
34570	16802 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TTGAATCTCGATCATCTACAAGGAATACAGACATA	spacer
	length: 35	repeater length: 30	
34571	16867 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TCATAGATCT	
34572			
34573			
34574	crispr 2		
34575	19354 ATTTCAATCCCTCTAAGGTCTGATTATAAC	ATTCCTTTTCATCGCCTGCAGATATCGTAATCTATGG	spacer
	length: 36	repeater length: 30	
34576	19420 ATTTCAATCCCTCTAAGGTCTGATTATAAC	ACAGCATCACGGTAGTTTTTGCCCTTCTTTGATTCCC	spacer
	length: 37	repeater length: 30	
34577	19487 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TAATCTTGAAGCAGTACTTGAAGAAAAGATTAGAGA	spacer
	length: 36	repeater length: 30	
34578	19553 ATTTCAATCCCTCTAAGGTCTGATTATAAC	CACCTCGAGACGGAAAACAACAAGAAATATGAGCAGA	spacer
	length: 37	repeater length: 30	
34579	19620 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TTATTTTTTGTGTCATGTTTCATACATCCTTATTA	spacer
	length: 35	repeater length: 30	
34580	19685 ATTTCAATCCCTCTAAGGTCTGATTATAAC	GATTTTGCACGACAAAGCATATCGATCCTTTCTGATGT	spacer
	length: 38	repeater length: 30	
34581	19753 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TATAATCACCTTAAAAAGATTACTGGCCCCCTATTAT	spacer
	length: 36	repeater length: 30	
34582	19819 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TATTCCTATGATTACAGGCTCAATGCATCATATATC	spacer
	length: 36	repeater length: 30	
34583	19885 ATTTCAATCCCTCTAAGGTCTGATTATAAC	CTGGCATTAGAAGACACCTCCACCGACATCATCTTC	spacer
	length: 36	repeater length: 30	
34584	19951 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TGCTCCACAAATAGAAATGCCAGTATTGAAAGTCC	spacer
	length: 36	repeater length: 30	
34585	20017 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TCTGGAGTGGTTGCCCTAATGGAATTGTGGACGAT	spacer
	length: 36	repeater length: 30	
34586	20083 ATTTCAATCCCTCTAAGGTCTGATTATAAC	ATTCTGTACTTTATTCTGTATTTTATCCGTTATTAT	spacer
	length: 36	repeater length: 30	
34587	20149 ATTTCAATCCCTCTAAGGTCTGATTATAAC	CATCATCATACTTTTTTTTCATCGACATCCTCGCCGG	spacer
	length: 36	repeater length: 30	

34588	20215 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 36 repeater length: 30	GACTATTATGAATGATGACGGTTCACCGTTTGGCTT spacer
34589	20281 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 35 repeater length: 30	CCTGTTGATCCACAGGGGCTTGCTCTGTGGTTTTTC spacer
34590	20346 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 35 repeater length: 30	TTTCCCTGGCTCATCGTGGTATGCAGCTCTGTTTT spacer
34591	20411 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 36 repeater length: 30	CATTGCGCTTTTTGGGGAAATACTCTACCACACAGT spacer
34592	20477 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 35 repeater length: 30	CTAGGATTGCTTCCATAAGTAACTTCACCTGTTGC spacer
34593	20542 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 36 repeater length: 30	ATGTTCCGTGTAGTCTTCTATTTTTCCCTCCCCTGT spacer
34594	20608 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 35 repeater length: 30	ACAAACGTTGTTTTAGAGTGTTCAGTGCCAAACAT spacer
34595	20673 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 36 repeater length: 30	GTCTATCGTGGTATCGAAAATCTCTGGGGTAATGTA spacer
34596	20739 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 35 repeater length: 30	AATTGCATAAGTACCTTTGATATGTGCTTAATTGA spacer
34597	20804 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 36 repeater length: 30	CCTACTGGAGTATGTCTGGAGTAGCCATTGATGAGG spacer
34598	20870 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 37 repeater length: 30	AGAATTGCATAAGTACCTTTGATATGTGCTTAATCGA spacer
34599	20937 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 35 repeater length: 30	TTAAACGTACCTCTAACTTCTTTACCACCAATATC spacer
34600	21002 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 38 repeater length: 30	ATAGCCATTGTTTCATTGTACATGTATGTACATTAATGT spacer
34601	21070 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 36 repeater length: 30	GTGTTGAGTTTGTACACCTGATAATGATACGTCAT spacer
34602	21136 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 36 repeater length: 30	ATGTGCTATATCAATGCGGAAATGTGAGCATACTAC spacer
34603	21202 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 36 repeater length: 30	TATCAGTATTGTTCCATATAAGGTATGCTTATTTGA spacer
34604	21268 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 36 repeater length: 30	CTTCCATTTTCAGCAGTTGTACTAAATCCAATCTGTC spacer
34605	21334 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 37 repeater length: 30	TTTTTCAGTTCATTTATATGCTTATACATATTTAATA spacer
34606	21401 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 35 repeater length: 30	TATAATATTATTTTTGATGAAGACAACAGAATTTTC spacer
34607	21466 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 37 repeater length: 30	TACCACAGATTACTTATAATACTGTGATAGTGCATC spacer
34608	21533 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 40 repeater length: 30	GTGAACCAACATGTATTATTTCCATCGTTGTGTCATCGTC spacer
34609	21603 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 35 repeater length: 30	ACATACCTGCTGGTTTCGATACTAAACGCCTTGGT spacer
34610	21668 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 37 repeater length: 30	CAAAGCAACCCGAACAACCTAAGTACAACTGATTAA spacer
34611	21735 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 35 repeater length: 30	GATTGCAATGTTTTAGATAGTATAAGACTAGGAAA spacer
34612	21800 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 36 repeater length: 30	GGAATACGTCGTTCCATTCCAGAACGAAATAGCATG spacer
34613	21866 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 35 repeater length: 30	TGTCTGGCGTATGCAGTAACAAAACAGCGATAAC spacer
34614	21931 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 38 repeater length: 30	AAGAAAGGTTTGGTAGATAAAAATGAAGCCGAACCTTAT spacer
34615	21999 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 35 repeater length: 30	TAATTGTATCAATGCATTATCATATCGACATAAAC spacer
34616	22064 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 36 repeater length: 30	ACGTTTCTTGTAAATGTTCTAAATCCTCAAATACTGT spacer
34617	22130 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 36 repeater length: 30	GATGACATGAAAGAAGGTAAGATAGAAGGTAAGACT spacer
34618	22196 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 36 repeater length: 30	TAAATCTTTTATAGTTTCCCAAAAAGAATTAAATGC spacer
34619	22262 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 38 repeater length: 30	AAAAAAAGGAGGAAAGGAAATGCAACCCGGCGCGCTTA spacer
34620	22330 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 36 repeater length: 30	CCTTGACAGGCATCTCGAAAGTGTGCGCTTTTGAGT spacer
34621	22396 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 35 repeater length: 30	GCAGGCTGTGGATCATTAATACGCACCCACGGAAC spacer
34622	22461 ATTTCAATCCCTCTAAGGTCTGATTATAAC length: 36 repeater length: 30	CGTAGATGAAATATTTATACCATCACAGGAAGTAAC spacer
34623	22527 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TGGTCTGTTTCATATAAATGATTGTTTGCCAACA spacer

length: 34 repeater length: 30
34624 22591 ATTTCAATCCCTCTAAGGTCTGATTATAAC ACAATAATATATCCAGCGCAGATGGATATGTGTATTA spacer
length: 37 repeater length: 30
34625 22658 ATTTCAATCCCTCTAAGGTCTGATTATAAC TATCAGTGTAAACAAGTATTCGAATATGAGGTGAGAGAA spacer
length: 38 repeater length: 30
34626 22726 ATTTCAATCCCTCTAAGGTCTGATTATAAC TTGACAATACGCTGCCGTCAAGTTCTGCAAACTGTG spacer
length: 36 repeater length: 30
34627 22792 ATTTCAATCCCTCTAAGGTCTGATTATAAC ATTGAGAAGGCTGACGTCAATGAACTCTCAAGAGTTC spacer
length: 37 repeater length: 30
34628 22859 ATTTCAATCCCTCTAAGGTCTGATTATAAC CCATCCGGTC
34629
34630
34631 crispr 3
34632 770244 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC AACGATTTCCCCGAGTTTGAGGACAAGGACATAAG
spacer length: 35 repeater length: 37
34633 770316 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TTGATCATATGTATACGTTTCACTCCGTCTTTTTT
spacer length: 35 repeater length: 37
34634 770388 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TCAATAGAAGAAGAAGCGGTTTTAAGTGC GTTAGT
spacer length: 35 repeater length: 37
34635 770460 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC ATGGATCGTTAAATTAAC TTAAATTTCTATGCTA
spacer length: 35 repeater length: 37
34636 770532 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC GACTCATGATACACATGCACAGCACATGCACCATAAT
spacer length: 37 repeater length: 37
34637 770606 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC AACAGTACCTGCCGATAGCGTTTTTAAATTAGTGCG
spacer length: 36 repeater length: 37
34638 770679 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TTCAATGCATACATAGTTACCACTCATTGCTTAAAGG
spacer length: 38 repeater length: 37
34639 770754 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC AAAATTCTGAATATCCGGGGCTTAATTTGTTCTTAG
spacer length: 36 repeater length: 37
34640 770827 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TTTATGTCCTGGTTAAAGCCCAGGACCAGGACGCC
spacer length: 35 repeater length: 37
34641 770899 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC GATTTATGGTCTAAGGTTAGTCTTAAGCATGGTCTAA
spacer length: 37 repeater length: 37
34642 770973 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC ATCAACCCTTTTATCGCATAGTTGCGGTTGCTG
spacer length: 33 repeater length: 37
34643 771043 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC ATTCCATTAACCAGGAAATAAACATACTGGAACGTAT
spacer length: 37 repeater length: 37
34644 771117 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC AGATCGCCAA
34645
34646
34647 crispr 4
34648 773769 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC CCCATACCTACTCTAATTTCTGTTGCCATTTGTTCA
spacer length: 36 repeater length: 37
34649 773842 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC ATCAATGCATTAATTGATTCATGATAACTTAGTAAGT
spacer length: 37 repeater length: 37
34650 773916 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC ATTCCATGTTCTTTAATTCCATTCATGATTAAACCA
spacer length: 37 repeater length: 37
34651 773990 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TCGATGTAGATTTTCGTTTGTTCAATCGTAGATTC
spacer length: 35 repeater length: 37
34652 774062 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TTGTTTTCTTTTAGTTCACTGAGTAGTTCTCTTAC
spacer length: 35 repeater length: 37
34653 774134 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC AACATGTAGTCCTTGCCATGTTACACAACTGT
spacer length: 35 repeater length: 37
34654 774206 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC CACTAATGGTACATTAGTACCAATTGCAACAAATCAA
spacer length: 37 repeater length: 37
34655 774280 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TTGCGGCCCTTCTTTTCACTTATACTGACATTGCTG
spacer length: 35 repeater length: 37
34656 774352 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TTATCGTTCACCAGCAATACAGTTCCATATGGCAT
spacer length: 35 repeater length: 37
34657 774424 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TTCATCACCTCAATACACAAATACATTTCCATCTGCT
spacer length: 37 repeater length: 37
34658 774498 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TTGGTACATGAACATCTCTCATCAACGCTTCCGTTA
spacer length: 36 repeater length: 37
34659 774571 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC ATGTTATCATGATGTAGGTAGATGTTAGGTACATGATT
spacer length: 38 repeater length: 37
34660 774646 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC GATATTTTCTATAATCTGCTTTTAGGTATGGTTCACCT
spacer length: 38 repeater length: 37
34661 774721 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TTAGTATTACCAACTGATGGATTAAATTGTGGGTT
spacer length: 35 repeater length: 37
34662 774793 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC
GCGTCTGCAATTGCTTTACTGATATCTGTCTTAGACATGC spacer length: 40 repeater length: 37

34663 774870 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC CTTTTACCTTTCTTTTTATAGGTAAACTTCTTCTCA
spacer length: 36 repeater length: 37
34664 774943 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TGTATGCTATGTAGTCATCAATCCAGTATTACGAATG
spacer length: 38 repeater length: 37
34665 775018 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TTTGATGTAGTCTACATCTATGTACATGTATCATGGA
spacer length: 37 repeater length: 37
34666 775092 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC ATATTTTATTCGATTTGATACTAACAATAAAGGATAA
spacer length: 37 repeater length: 37
34667 775166 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TGGATTGGTTTGACGGGGCTAGCCGTGAATGCAGCG
spacer length: 36 repeater length: 37
34668 775239 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC ATAAATATATGGTTCTGGACAGAGATGAAATTAGA
spacer length: 35 repeater length: 37
34669 775311 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC AACGCCACACAGACGCTCTCACAGCCCCAAATCA
spacer length: 34 repeater length: 37
34670 775382 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TAATCTCGCCGACTTATACAAATGTATATAGGTT
spacer length: 35 repeater length: 37
34671 775454 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC AAATCAGCATATCGAATATGGAATAGGTGAATAAAATGG
spacer length: 39 repeater length: 37
34672 775530 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC ATTTCTCTTGTTTTTTCATACTCTCTGATAACATCGA
spacer length: 37 repeater length: 37
34673 775604 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TACTTATCATCCAATTGGTTGATTGCCTCACCCAATG
spacer length: 37 repeater length: 37
34674 775678 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC AAATATATTCTAGGTAATACAAAGAAGGAAGAGT
spacer length: 34 repeater length: 37
34675 775749 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC ATATCTCCGCCGTGAGTATCTCCCTCTGTCCATGTGGT
spacer length: 38 repeater length: 37
34676 775824 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC TATGAATGAAGTCTCAATGCATGAGTATGATACTG
spacer length: 35 repeater length: 37
34677 775896 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC CTTTGACAGGCTTTTCTTTTCGACTGCTGCTCTTA
spacer length: 35 repeater length: 37
34678 775968 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC AAAAATATTCTCTTGAAGCGGTGTCTTGTGTTGGAA
spacer length: 37 repeater length: 37
34679 776042 GTCAAAATTCAATATCCACTAAAACAAGGATTGAAAC GGGTGCCACT
34680
34681
34682 crispr 5
34683 1630998 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC
ACATATCTATGTGATAAGTTTTATGCGCATGAGGCAGGCG spacer length: 40 repeater length: 37
34684 1631075 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC
TTAAAAATTTGGAAACGTGGAAGGAGAAGGCACCACAGCCACACGA spacer length: 46 repeater length: 37
34685 1631158 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC ATATAATGCACCGTTCGACCTTGGAAAATTAAGTTCT
spacer length: 37 repeater length: 37
34686 1631232 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC
AGATTACAGCACTACTACCTATGTATGGCCTAACAGGTA spacer length: 39 repeater length: 37
34687 1631308 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC
TTAAGACTAAATTGGGAATGAGCAAAACGGAGGCTGCTAA spacer length: 40 repeater length: 37
34688 1631385 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC
ACATTAAGCGTATAGATTTGACCGTATGAGTTTACGGGTGA spacer length: 40 repeater length: 37
34689 1631462 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC TTATATCCTCATGTAATGAAAAAATATGACTATCCGTT
spacer length: 38 repeater length: 37
34690 1631537 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC
AAGATACGTGCAGATGCTACTTCTGAAATGGGTGCACAGGT spacer length: 41 repeater length: 37
34691 1631615 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC
TTAGCGTATATGAATTGGATGATAGTAACCAATATGTAA spacer length: 39 repeater length: 37
34692 1631691 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC AGAACTGAAATTAACATGAATTAATTTATATAGT
spacer length: 35 repeater length: 37
34693 1631763 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC
ATTTTACTTTTATCAATTAATATTGATTTAACTTAACTTAT spacer length: 40 repeater length: 37
34694 1631840 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC CGATAATATGG
34695
34696
34697 crispr 6
34698 1644958 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC AAAATAGATGATGACATACTCCAAGGCGGTATGCTTGA
spacer length: 38 repeater length: 37
34699 1645033 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC CCAGATGCACCTGTCAGATCAAGCCCGTCACCACGT
spacer length: 36 repeater length: 37
34700 1645106 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC TTACTATAGTATATGTCATCCCAATCCGGGCGGGCGAA
spacer length: 38 repeater length: 37
34701 1645181 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC GCAAACCCATATGTCACGAATTTACCGTCATTTATTAT
spacer length: 38 repeater length: 37
34702 1645256 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC AGCATGTATTGAGTGTACCGATTGTGGTACACTTTTAT

spacer length: 38 repeater length: 37
 34703 1645331 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC
 TAGATAGCAATTCTGTGGACAGTCAGTCTGTCTTTTTGGACATT spacer length: 43 repeater length: 37
 34704 1645411 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC
 TTAATCTCATCTCTAGTGTATAATGTCCGATTGAATCA spacer length: 40 repeater length: 37
 34705 1645488 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC
 TGTACGTTTGTCATATTGATAAAACCTGTTTGCTACATCA spacer length: 40 repeater length: 37
 34706 1645565 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC
 TTGCCTTCATTTTCTGTTTGTAATTCCTGCATGACGACTT spacer length: 40 repeater length: 37
 34707 1645642 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC CCTGTGTGTTTCAGGTGGCCTTTCGGCATTGGCTTTTG
 spacer length: 38 repeater length: 37
 34708 1645717 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC CATTTGCTTGTTTGCGAATTATCATATCATCAATTTTC
 spacer length: 37 repeater length: 37
 34709 1645791 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC ACAACTCCTTAGTAACAACCAATGTAGACTCATCT
 spacer length: 35 repeater length: 37
 34710 1645863 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC TTTGGGTCCTGCGAGCCCAGGGATAGTGGAGATCCC
 spacer length: 36 repeater length: 37
 34711 1645936 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC
 ATTTGATTTTTCTCATTGTTGGCACAACTATATATATT spacer length: 39 repeater length: 37
 34712 1646012 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC
 ATAAATCAATTCTGCTCCTGTAGGGAGATCGAAATATTCC spacer length: 40 repeater length: 37
 34713 1646089 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC
 TTTGTTCTGTTTTTCGGCCTGTGTCCAGGAAAATTCCACGTGG spacer length: 42 repeater length: 37
 34714 1646168 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC CCAGTTCACCTGCGCAATATTTGAGATGAATATTGA
 spacer length: 36 repeater length: 37
 34715 1646241 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC
 GCAGAGGACAGGCCAACATCTGCAAGAGTCGCAACAATTTTC spacer length: 41 repeater length: 37
 34716 1646319 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC ACGACCGCCT
 34717
 34718
 34719 GCA_004799665.1_ASM479966v1_genomic.fna(PilerCR):
 34720 START REPEAT
 SPACER
 34721 crispr 1
 34722 3059612 GAGCCGGCCGTCGACAATACACG TCTCCCGGCTGGACTATTTCGCACATGAACATGCTCAC spacer length:
 37 repeater length: 23
 34723 3059672 GAGCCGGCCGTCGACAATACACG TCTCCCGGCTGGACTATTTCGCACATGAACATGCTCAC spacer length:
 37 repeater length: 23
 34724 3059732 GAGCCGGCCGTCGACAATACACG
 34725
 34726
 34727 GCA_004799685.1_ASM479968v1_genomic.fna(PilerCR):
 34728 START REPEAT
 SPACER
 34729 GCA_005155585.1_ASM515558v1_genomic.fna(PilerCR):
 34730 START REPEAT
 SPACER
 34731 GCA_005222525.1_ASM522252v1_genomic.fna(PilerCR):
 34732 START REPEAT
 SPACER
 34733 crispr 1
 34734 141211 GTTTCAAACCCCTCAAAGGATCACTACAA ACTGAGGAAGGAAAAGGGCCGTAAGGCGAGGGTGAAGGTGG spacer
 length: 41 repeater length: 28
 34735 141280 GTTTCAAACCCCTCAAAGGATCACTACAA GTCCTCGACCTCAGCCGTGTGAGAGCGTATAGAGTTAT spacer
 length: 39 repeater length: 28
 34736 141347 GTTTCAAACCCCTCAAAGGATCACTACAA ACAACGGCGACACGCGGGCATGTGAGTGTGATCGCGTCGTGTA
 spacer length: 43 repeater length: 28
 34737 141418 GTTTCAAACCCCTCAAAGGATCACTACAA ACTATCTTCTTGATGCTATACGGCGGGTCGATACGTCTAT spacer
 length: 40 repeater length: 28
 34738 141486 GTTTCAAACCCCTCAAAGGATCACTACAA ACAGACTGAATAGAAGCGAAGTTATCAGGTTGCTATCGA spacer
 length: 40 repeater length: 28
 34739 141554 GTTTCAAACCCCTCAAAGGATCACTACAA ACAGAAGATACAAGAGATATACTGATTTTCCAAAGTATA spacer
 length: 39 repeater length: 28
 34740 141621 GTTTCAAACCCCTCAAAGGATCACTACAA AGAGGAGCAGCTGCCCCATCAAAGATGGGGACAAACAC spacer
 length: 39 repeater length: 28
 34741 141688 GTTTCAAACCCCTCAAAGGATCACTACAA ACCCGGAACCACGGGGAGGATGTATATGTTCTTTCCGA spacer
 length: 39 repeater length: 28
 34742 141755 GTTTCAAACCCCTCAAAGGATCACTACAA GTCGAAGTTCCCCCGAGGGGGAATACCCATGGTTCACTTA spacer
 length: 41 repeater length: 28
 34743 141824 GTTTCAAACCCCTCAAAGGATCACTACAA GTCCCCTTACGCTAGCCTTTTCTTTTTAGAGAATTGACGC spacer
 length: 41 repeater length: 28

34744 141893 GTTTCAAACCCCTCAAAGGATCACTACAA ACCTGTAAATTGATAATCGAGTACTTTCAAGACGTAAG spacer
length: 39 repeater length: 28

34745 141960 GTTTCAAACCCCTCAAAGGATCACTACAA ACTTCATACTCCCTTGGAGAGTGTGGGAAAGGCCTTTGC spacer
length: 39 repeater length: 28

34746 142027 GTTTCAAACCCCTCAAAGGATCACTACAA ACGCTATTATCACCTAGCCGTATCAAGTCAGTACTATTT spacer
length: 39 repeater length: 28

34747 142094 GTTTCAAACCCCTCAAAGGATCACTACAA AGAGGCATGGC

34748

34749

34750 crispr 2

34751 143337 GTTTGTAGAGATCCTTCGAGGGTTTGAAAC TGCCTCCAGAGGTGGGAAGCGTACGCAGAATAGCCCT spacer
length: 37 repeater length: 30

34752 143404 GTTTGTAGAGATCCTTCGAGGGTTTGAAAC AAGTACCTCAGAGTTCCGTTCCGGTGACATGGCTATGATGT
spacer length: 40 repeater length: 30

34753 143474 GTTTGTAGAGATCCTTCGAGGGTTTGAAAC TTGGTTTTTATGGTCTCAGCTACTCTTAGTGTGTAGAG spacer
length: 38 repeater length: 30

34754 143542 GTTTGTAGAGATCCTTCGAGGGTTTGAAAC ACGTGCAATCAAGTATTGGTTCAGTCGTAACAGGGGA spacer
length: 37 repeater length: 30

34755 143609 GTTTGTAGAGATCCTTCGAGGGTTTGAAAC TCTTCAATTTCTCCGAAATCTTCATCACAATGGACCCCA spacer
length: 39 repeater length: 30

34756 143678 GTTTGTAGAGATCCTTCGAGGGTTTGAAAC
GGGATCCCCGCTTCCCACACTCACGACCGGGGGGGTGTAGACGTGTC spacer length: 48 repeater length: 30

34757 143756 GTTTGTAGAGATCCTTCGAGGGTTTGAAAC GACCAGATCC

34758

34759

34760 crispr 3

34761 165205 CTTTCAACTCTATAGAAGATTAAC TGCGTAATCCTGAGCCTTCTCTACTATGTTCTTATGATA spacer
length: 39 repeater length: 24

34762 165268 CTTTCAACTCTATAGAAGATTAAC AGGGTCTGGTCTAATGCATCTAGGAGAGACAGGGAACCATGAG spacer
length: 43 repeater length: 24

34763 165335 CTTTCAACTCTATAGAAGATTAAC AGGATCTAGGTTGTGCAGAAGATGGATCAAGTTACATAAGG spacer
length: 41 repeater length: 24

34764 165400 CTTTCAACTCTATAGAAGATTAAC TTCTCAACGACGTCGGAGATGCGATAAAGAGCAAAGTGA spacer
length: 39 repeater length: 24

34765 165463 CTTTCAACTCTATAGAAGATTAAC CGTATAACGAAGGGTTTTGTCAATTCAAGAGCTCATTCCTTTA spacer
length: 42 repeater length: 24

34766 165529 CTTTCAACTCTATAGAAGATTAAC TCTAGATAGAAGATATGGTCAATATACAGTGGAAAAGAT spacer
length: 39 repeater length: 24

34767 165592 CTTTCAACTCTATAGAAGATTAAC TAAGGAATATATACAGTACAGTACATAACAGTAGTATAAT spacer
length: 40 repeater length: 24

34768 165656 CTTTCAACTCTATAGAAGATTAAC TTCTGTTATAGAAGTCTTGAGGATATACGCTACATTATC spacer
length: 40 repeater length: 24

34769 165720 CTTTCAACTCTATAGAAGATTAAC GCAGGATCTTATTCTCCTTGAGCAATTAGGTTTCATCCTTA spacer
length: 40 repeater length: 24

34770 165784 CTTTCAACTCTATAGAAGATTAAC ATTGCCAGTAGTGGCAGTACCGTAACCGAGAAAATTA spacer length:
37 repeater length: 24

34771 165845 CTTTCAACTCTATAGAAGATTAAC AGCAATCGGAGCAGGTGGAGGTGGGGGAGGCGGAGGTGC spacer
length: 39 repeater length: 24

34772 165908 CTTTCAACTCTATAGAAGATTAAC CTATGTTTGTTCATTCTCCTTTACCGACAACAATTGTGC spacer
length: 40 repeater length: 24

34773 165972 CTTTCAACTCTATAGAAGATTAAC TACTTGTATCGTCGCATTGGTTAGTTCCTCAAACGCTAC spacer
length: 39 repeater length: 24

34774 166035 CTTTCAACTCTATAGAAGATTAAC GGTCTAATTCGGGGCATTGGGACATAAGGGTGAGGAAGAT spacer
length: 40 repeater length: 24

34775 166099 CTTTCAACTCTATAGAAGATTAAC TTTGGGGAAAATACGCTGGAGTTGATTGAGTTCTTGGAT spacer
length: 39 repeater length: 24

34776 166162 CTTTCAACTCTATAGAAGATTAAC TATCATGATAACATATGAGTGCTAAAGATGATCAGGG spacer length:
37 repeater length: 24

34777 166223 CTTTCAACTCTATAGAAGATTAAC AGGAACTAGCACGGGTGGAGGTGGTACAGGGACTTCGA spacer
length: 38 repeater length: 24

34778 166285 CTTTCAACTCTATAGAAGATTAAC CTATCACTTTCCAGTGTTTCCATAATCCAGAAATTGCAATATTC spacer
length: 42 repeater length: 24

34779 166351 CTTTCAACTCTATAGAAGATTAAC TCAAACCTAAGGTAAATCCAAATGCCCCTGACTATAGAA spacer
length: 39 repeater length: 24

34780 166414 CTTTCAACTCTATAGAAGATTAAC CTGTCCTCATAGAATTCCGGCATTAAACGTCCCTGGGTGAAT spacer
length: 40 repeater length: 24

34781 166478 CTTTCAACTCTATAGAAGATTAAC GGGGGCAAAGAAATATATGACTTTGAACTTTGTCCGCAATA spacer
length: 41 repeater length: 24

34782 166543 CTTTCAACTCTATAGAAGATTAAC GGATCCTATAGCATTTCTGTATCCCTGCTCCTAGACTCTCT spacer
length: 40 repeater length: 24

34783 166607 CTTTCAACTCTATAGAAGATTAAC TTTTTCCTGAACAGTTGTTTTGGCGTTGCCTTCAGTTCATCG spacer

length: 42 repeater length: 24

34784 166673 CTTTCAACTCTATAGAAGATTAAC TGTATACGTCCACATTCGTGGGATTGACCGATATTAC spacer length: 37 repeater length: 24

34785 166734 CTTTCAACTCTATAGAAGATTAAC CGTAGATTTTTTCGGCGACATCCCCGCGCTGCGATACT spacer length: 39 repeater length: 24

34786 166797 CTTTCAACTCTATAGAAGATTAAC ATTATTCGTAACGCCTAGTACAAATGCAGGACCTATTTTACT spacer length: 42 repeater length: 24

34787 166863 CTTTCAACTCTATAGAAGATTAAC GGTGAGATTCGTCTCTGGTACCCTGAAGCTGAAGATATGAAG spacer length: 42 repeater length: 24

34788 166929 CTTTCAACTCTATAGAAGATTAAC AGACGTCAATATTGGAAGGGTTTACACTAGGGACTGGTGCA spacer length: 41 repeater length: 24

34789 166994 CTTTCAACTCTATAGAAGATTAAC TTGGTATAAGGAGAAGCACGTCATTTTACGTACAAAGCA spacer length: 39 repeater length: 24

34790 167057 CTTTCAACTCTATAGAAGATTAAC ATGAGGCTGTATGATGACTATAGTGATTTTCACACCTAC spacer length: 39 repeater length: 24

34791 167120 CTTTCAACTCTATAGAAGATTAAC GGAAAGACTCAACATATCAAGAGTGTATCCTTAAGCTGAA spacer length: 41 repeater length: 24

34792 167185 CTTTCAACTCTATAGAAGATTAAC GTGAGACATTTGGTCTGGCAGTAGTTGAGGCGATGGCAA spacer length: 39 repeater length: 24

34793 167248 CTTTCAACTCTATAGAAGATTAAC TTAGTAGTAGTATTAGTAGTAGTAACCTTCATCATTTGGCTTGT spacer length: 43 repeater length: 24

34794 167315 CTTTCAACTCTATAGAAGATTAAC TCAGGGCAACGCTATTCCGAACTTAGAGAATTCGCGGAG spacer length: 40 repeater length: 24

34795 167379 CTTTCAACTCTATAGAAGATTAAC TGCCTTCGCGATTCTCTGTATTTTCTCGTCGAATTTT spacer length: 37 repeater length: 24

34796 167440 CTTTCAACTCTATAGAAGATTAAC CGACTATGGTTCTCACGATACCTTGGGGTGGACTAATTGAGAA spacer length: 43 repeater length: 24

34797 167507 CTTTCAACTCTATAGAAGATTAAC TATAGAGGAAAATATCAGGGACAGAAGGGGGTTAGACT spacer length: 38 repeater length: 24

34798 167569 CTTTCAACTCTATAGAAGATTAAC TCGATTCCCTAGATCGCTAATTCGCGGTCTAAGTAGGAAGTT spacer length: 41 repeater length: 24

34799 167634 CTTTCAACTCTATAGAAGATTAAC TGGTTCCACTAAATGAATCAATTATATACGGATTCCAGTA spacer length: 40 repeater length: 24

34800 167698 CTTTCAACTCTATAGAAGATTAAC ATCCTTACCGAAATTATCGTTAATTCTAATGATTTGGAT spacer length: 39 repeater length: 24

34801 167761 CTTTCAACTCTATAGAAGATTAAC ATCATTTCTATTTTCTTTTCAAAGCGGTTTAACCGATTA spacer length: 39 repeater length: 24

34802 167824 CTTTCAACTCTATAGAAGATTAAC AAAAGAAAGGTCGCTACTTGCTCTCCAGCTTTTGATAGC spacer length: 39 repeater length: 24

34803 167887 CTTTCAACTCTATAGAAGATTAAC TCGAAGCTAAACCAGTCTCTATGAGATACCTAAGGATAAA spacer length: 40 repeater length: 24

34804 167951 CTTTCAACTCTATAGAAGATTAAC ATACTTAGTTCCTTTGGACCGTTGGGTAAGATTGATAATCTAC spacer length: 43 repeater length: 24

34805 168018 CTTTCAACTCTATAGAAGATTAAC TGGTGGTTATTTCTGGGATCATGCCCTAGGGGACTTACTAA spacer length: 41 repeater length: 24

34806 168083 CTTTCAACTCTATAGAAGATTAAC TACACCCAATATAGCAGCAACAGATCCAACAAGAATAATTTTT spacer length: 43 repeater length: 24

34807 168150 CTTTCAACTCTATAGAAGATTAAC ATCTTGGCGGTTTTTGATGAGAAAATAATGCCTCTTGATGAG spacer length: 41 repeater length: 24

34808 168215 CTTTCAACTCTATAGAAGATTAAC CATGAGTTCATTCAAAAACGTTTTGATCACGATTTTATTG spacer length: 40 repeater length: 24

34809 168279 CTTTCAACTCTATAGAAGATTAAC CCCCATTATATCTTAGAGTTAGTGATCGTGAACAAAGAAA spacer length: 41 repeater length: 24

34810 168344 CTTTCAACTCTATAGAAGATTAAC TTTTATCTACACATTCGTATATTTCTTCTAAAAATTT spacer length: 38 repeater length: 24

34811 168406 CTTTCAACTCTATAGAAGATTAAC CCTCCTCCTAGCATGCCGTGACCGCACGAGCGGGGTCACG spacer length: 40 repeater length: 24

34812 168470 CTTTCAACTCTATAGAAGATTAAC AAAGTTCGTGAAGGTCACCTACTTCCACGCAGACTATT spacer length: 38 repeater length: 24

34813 168532 CTTTCAACTCTATAGAAGATTAAC CTGATACAGGGTATCCCCCGCGTCGGCGACGGCGTACCGT spacer length: 40 repeater length: 24

34814 168596 CTTTCAACTCTATAGAAGATTAAC CAATCACTCACGTGAGAATGACCGCGGATAACGATAT spacer length: 37 repeater length: 24

34815 168657 CTTTCAACTCTATAGAAGATTAAC CCATTTTTTTTGATGGGATTAACAAGTCTTTGAGATTTTC spacer length: 39 repeater length: 24

34816 168720 CTTTCAACTCTATAGAAGATTAAC CCTCAACGTCTGCCTTCGTATTTTTCGAGGTAGATCTCAT spacer length: 39 repeater length: 24

34817 168783 CTTTCAACTCTATAGAAGATTAAC GTCCCTTCGAATAGTTTTCATTCTCCACCCCTCCGTGGA spacer length: 38 repeater length: 24

34818 168845 CTTTCAACTCTATAGAAGATTAAC GCGTCTTTGACGGCGGGGGTAACGTTGGTTCAACGT spacer length: 37 repeater length: 24

34819	168906	CTTTCAACTCTATAGAAGATTAAC	ATATCTATCCCCAATTGATTATTAGAAATCTCTATATGGA	spacer
		length: 40	repeater length: 24	
34820	168970	CTTTCAACTCTATAGAAGATTAAC	TACAGTATATCAAGGAGGTGGTGAATAGCGAGAAAATCATA	spacer
		length: 41	repeater length: 24	
34821	169035	CTTTCAACTCTATAGAAGATTAAC	CTTCAGCTAAACGCAACAATGGATAATCAAGGTAATGTA	spacer
		length: 39	repeater length: 24	
34822	169098	CTTTCAACTCTATAGAAGATTAAC	TAAAGTAATAAAAGAAGCAGAAAACCTCTGACTTCAAAGTT	spacer
		length: 40	repeater length: 24	
34823	169162	CTTTCAACTCTATAGAAGATTAAC	CGGGATATATTTGTCAAGAGTAATAAGGTCAATCTTTA	spacer
		length: 38	repeater length: 24	
34824	169224	CTTTCAACTCTATAGAAGATTAAC	TTTATTACCCGCTTTAGGAACTCCTTTTATGGTCCAGTCTCT	spacer
		length: 42	repeater length: 24	
34825	169290	CTTTCAACTCTATAGAAGATTAAC	TCTGAGTTCGCGTGGCAAGGCCTTCCCAACGTGTCCA	spacer
		length: 38	repeater length: 24	
34826	169352	CTTTCAACTCTATAGAAGATTAAC	GTGGGGTGAGGTTACGCAATGGCTGAGCAACAAGC	spacer length: 35
		repeater length: 24		
34827	169411	CTTTCAACTCTATAGAAGATTAAC	CTGACTTGACTGGTGTACCACCCGGACAACCTCACTTCATTCCT	spacer
		length: 43	repeater length: 24	
34828	169478	CTTTCAACTCTATAGAAGATTAAC	TGTTCTTTGCCTCATACTTGTAGGGAAACGCTGGTTTTAT	spacer
		length: 39	repeater length: 24	
34829	169541	CTTTCAACTCTATAGAAGATTAAC	ATATGATAGATGTAATGAGGGGCCTCGGCCTGACTCTCTCATT	spacer
		length: 43	repeater length: 24	
34830	169608	CTTTCAACTCTATAGAAGATTAAC	AAAAGCCTTGATAATTATCAAATCAATCGTGGAGTTGAA	spacer
		length: 39	repeater length: 24	
34831	169671	CTTTCAACTCTATAGAAGATTAAC	ATCGTCTTTGAGGGCTTTGAGTAAGTTCCTTAACGAGAG	spacer
		length: 39	repeater length: 24	
34832	169734	CTTTCAACTCTATAGAAGATTAAC	TCTGACATAACGTGGGAGATATATGAGAACTCGAAATAA	spacer
		length: 40	repeater length: 24	
34833	169798	CTTTCAACTCTATAGAAGATTAAC	ATTCAACAAAACAAGAATCCAGAGAGATCAAAGAGGAATTA	spacer
		length: 41	repeater length: 24	
34834	169863	CTTTCAACTCTATAGAAGATTAAC	ATAGAATTGGTATCTTTCTTAAAGTCTTCATAATCAATAT	spacer
		length: 40	repeater length: 24	
34835	169927	CTTTCAACTCTATAGAAGATTAAC	TCTCTTGTAACGTCTTACGTTACTTTTTAACGATCAA	spacer
		length: 39	repeater length: 24	
34836	169990	CTTTCAACTCTATAGAAGATTAAC	ACTGAGAGTGCATCCCTATAACAGTCCTCAGCAACCTTTGA	spacer
		length: 41	repeater length: 24	
34837	170055	CTTTCAACTCTATAGAAGATTAAC	ATCTAGATCTTTCACGTTTGGATTGGCCCCGTGATCTAGG	spacer
		length: 40	repeater length: 24	
34838	170119	CTTTCAACTCTATAGAAGATTAAC	CAGGATATGGGGAATCTGTAAAGGTTAAAATCGTGGAAT	spacer
		length: 39	repeater length: 24	
34839	170182	CTTTCAACTCTATAGAAGATTAAC	TATGACTCCTCATACCGTACAACCTTCCACTGAATGATACT	spacer
		length: 41	repeater length: 24	
34840	170247	CTTTCAACTCTATAGAAGATTAAC	TTTTTCTTTTCTCTTTCTCGAGTAGTTCTTTCACCCGCC	spacer
		length: 39	repeater length: 24	
34841	170310	CTTTCAACTCTATAGAAGATTAAC	AAGGTTAAAATAACCTTGCCTAAGAAGAAGGAAGTGTACA	spacer
		length: 40	repeater length: 24	
34842	170374	CTTTCAACTCTATAGAAGATTAAC	CCCTCATTTTTACACACAGTCCCCTACTCGATCGTATTGTCTG	spacer
		length: 43	repeater length: 24	
34843	170441	CTTTCAACTCTATAGAAGATTAAC	TCCTTAGGTCAAGGATTTTATACGAACCCAATGAAAGA	spacer
		length: 39	repeater length: 24	
34844	170504	CTTTCAACTCTATAGAAGATTAAC	ATTGATCACGGTCCTGGTCTACCCATCCAGGCTTGGTACA	spacer
		length: 40	repeater length: 24	
34845	170568	CTTTCAACTCTATAGAAGATTAAC	CTATCTATTGTTTGGACTGCATCATCTACGTCAGGAAGATA	spacer
		length: 41	repeater length: 24	
34846	170633	CTTTCAACTCTATAGAAGATTAAC	CGTTCCGGGTCCATTATAAACC CGGAAGAAATAAG	spacer length: 35
		repeater length: 24		
34847	170692	CTTTCAACTCTATAGAAGATTAAC	CACGCGAAAAAGTGGGGAAGTAGCGTTCTCATTATAGATG	spacer
		length: 40	repeater length: 24	
34848	170756	CTTTCAACTCTATAGAAGATTAAC	AGAGTATAGAAGAGAAATATTCAGGAAGGACTGTTACGG	spacer
		length: 39	repeater length: 24	
34849	170819	CTTTCAACTCTATAGAAGATTAAC	AATGTGGATAGTTGACTATTATCTCACGTTCTGCTGGTAT	spacer
		length: 40	repeater length: 24	
34850	170883	CTTTCAACTCTATAGAAGATTAAC	CTCCTCGTCCATAGAAATGAACGACAACCTTGTCAGTTAA	spacer
		length: 40	repeater length: 24	
34851	170947	CTTTCAACTCTATAGAAGATTAAC	CTGCGCTCATTATGGGCAAAGCCTTTAGTGGAGTAAATAT	spacer
		length: 40	repeater length: 24	
34852	171011	CTTTCAACTCTATAGAAGATTAAC	TTGCCCCCTTTTAACGCCTCTTTGACTATCGAGACTGCCT	spacer
		length: 40	repeater length: 24	
34853	171075	CTTTCAACTCTATAGAAGATTAAC	TTAACTGACAAGGTTGTCGTTCCGACGTTTTCTATAGGAGGAG	spacer
		length: 43	repeater length: 24	
34854	171142	CTTTCAACTCTATAGAAGATTAAC	TGAACCCATCAACGGCTTTCACGACCAAGTCTCCCTAGA	spacer

length: 40 repeater length: 24

34855 171206 CTTTCAACTCTATAGAAGATTAAC CGGTCAGGGA

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34858 crispr 4

34859 174681 CTTTCAACTCTATAGGAGATTAAG ATTCAAAATCGAAGAGCAGGATCTTCTCCTGCTAGAGCAACT spacer
length: 42 repeater length: 24

34860 174747 CTTTCAACTCTATAGGAGATTAAG TTATTGTGAACCTCTGTTGAAGTGGGAATCGTACGACGAATA spacer
length: 40 repeater length: 24

34861 174811 CTTTCAACTCTATAGGAGATTAAG AGTGCTCGACTCTGCTTAGTTTCTCGACTCTTTCTTCGTTG spacer
length: 41 repeater length: 24

34862 174876 CTTTCAACTCTATAGGAGATTAAG TATCTAATTCTAACATTTGTCACAGCATTTAGAAGAATCCT spacer
length: 41 repeater length: 24

34863 174941 CTTTCAACTCTATAGGAGATTAAG AGAGGGAGAATTGGAAGCATCCCCTCATCAAGGCAGTGT spacer
length: 40 repeater length: 24

34864 175005 CTTTCAACTCTATAGGAGATTAAG CAGTCACCAAGTGGGCTGCAGATAGTAAACGTCAGTGC spacer
length: 38 repeater length: 24

34865 175067 CTTTCAACTCTATAGGAGATTAAG AAGAATGGGATATTGAGACCATGGCCAAGGCCTTATGTCCT spacer
length: 41 repeater length: 24

34866 175132 CTTTCAACTCTATAGGAGATTAAG TCGATAGATGCAACGACATCATAAAGTATCACGTGAAAAC spacer
length: 40 repeater length: 24

34867 175196 CTTTCAACTCTATAGGAGATTAAG TGCTTCCACTGAGCTCGATTACTTCAGGTAGTCCAAC spacer length:
37 repeater length: 24

34868 175257 CTTTCAACTCTATAGGAGATTAAG ACTGTACTTTAGTAAGACTAGGTAGGTATGATAAATTGA spacer
length: 39 repeater length: 24

34869 175320 CTTTCAACTCTATAGGAGATTAAG GTTCCTGTTCAAGAAGAAAGATAACGATAAGGCGGATGTTC spacer
length: 41 repeater length: 24

34870 175385 CTTTCAACTCTATAGGAGATTAAG TTCTCGTCTGAGCCTGGTTACACATCTACAGGTTACGT spacer
length: 38 repeater length: 24

34871 175447 CTTTCAACTCTATAGGAGATTAAG ACAATCTTCTCCCTGAGCTTATAATCATCCTCGTGAA spacer length:
37 repeater length: 24

34872 175508 CTTTCAACTCTATAGGAGATTAAG ATCAACAACCTAGCTCAACAAAGAGCATACGTAAACACTAA spacer
length: 40 repeater length: 24

34873 175572 CTTTCAACTCTATAGGAGATTAAG ACAGAACAAAATGCCAATCTTCCTCTTTATCCTCCTTAGA spacer
length: 41 repeater length: 24

34874 175637 CTTTCAACTCTATAGGAGATTAAG AGATAGATGAAGAGACAATAAATGTCTTGATCGAGAGTTT spacer
length: 40 repeater length: 24

34875 175701 CTTTCAACTCTATAGGAGATTAAG AATCTCTTCCGTACGCTTGAGGGGTCCGAGTTGCCAAGG spacer
length: 40 repeater length: 24

34876 175765 CTTTCAACTCTATAGGAGATTAAG AGAAATAGTTGGAATAATAGCTTTTATTCTATCACTTTA spacer
length: 39 repeater length: 24

34877 175828 CTTTCAACTCTATAGGAGATTAAG TCTAGGAAAGTCGGAAAAAATGAACTCATATATGTTTAG spacer
length: 39 repeater length: 24

34878 175891 CTTTCAACTCTATAGGAGATTAAG GTCGTAAACACCACTCAAAACGTAAACACAACCCCTTTAC spacer
length: 41 repeater length: 24

34879 175956 CTTTCAACTCTATAGGAGATTAAG GGGACATTCCACTGTTTATAAGGTACAGCGCAAAGTACGAT spacer
length: 41 repeater length: 24

34880 176021 CTTTCAACTCTATAGGAGATTAAG CAGCTACTAGAAGAACACCGACTACCTTGAGACCCGTAGT spacer
length: 40 repeater length: 24

34881 176085 CTTTCAACTCTATAGGAGATTAAG AACATGGTCGGTGACGCATCTACATCAGCACTCCCAGGTATACT spacer
length: 44 repeater length: 24

34882 176153 CTTTCAACTCTATAGGAGATTAAG TAATAAGGAAGAGTTAAGGGATACAGTTGCTGAGTATTTCAATGA spacer
length: 45 repeater length: 24

34883 176222 CTTTCAACTCTATAGGAGATTAAG AGGCATATATCTAGCCCTGAGGTGATCAATAGTGTCCACTTA spacer
length: 42 repeater length: 24

34884 176288 CTTTCAACTCTATAGGAGATTAAG CGCGAGCGATTTATTCGATCTAATAGCAAGAATAAAGG spacer
length: 38 repeater length: 24

34885 176350 CTTTCAACTCTATAGGAGATTAAG TTTTCTCACGCCCTCACTTTGAGGGCTGGATTCAACC spacer length:
37 repeater length: 24

34886 176411 CTTTCAACTCTATAGGAGATTAAG CAGAAATGGCGTTTCAGGTGGTTCAAGTGGAGGGGCAGA spacer
length: 39 repeater length: 24

34887 176474 CTTTCAACTCTATAGGAGATTAAG TAGCGGAGCTCATAGACGTACATAGCAGGGAGATCTTTCCA spacer
length: 41 repeater length: 24

34888 176539 CTTTCAACTCTATAGGAGATTAAG TCGCGCCTGGGCCTTATTGGGAGGTCAGCGATTTAGC spacer length:
37 repeater length: 24

34889 176600 CTTTCAACTCTATAGGAGATTAAG AAGTTGAGAGGGAGATGAGAGTTACTGAGTTGAGAGAGGGC spacer
length: 41 repeater length: 24

34890 176665 CTTTCAACTCTATAGGAGATTAAG AATCCTTGCTCTTTTATAGCCTTCTTCAGTTCTCTCGTAT spacer
length: 39 repeater length: 24

34891 176728 CTTTCAACTCTATAGGAGATTAAG ATGTTTCATTCAAACATTTCTAAAGAATAAAAAAGGCTTCT spacer
length: 40 repeater length: 24

34892 176792 CTTTCAACTCTATAGGAGATTAAG CTTTCAACCAAAACAACGAATAACGGAGTGCCTTAACGT spacer
length: 39 repeater length: 24

34893 176855 CTTTCAACTCTATAGGAGATTAAG AAAAATCATTGTGCCATGAGTGGTGGCACATAGGTATGGTT spacer
length: 41 repeater length: 24

34894 176920 CTTTCAACTCTATAGGAGATTAAG GTAACGTCAATGAGGTACTTGAAGTGCCTAGGGACCAGT spacer
length: 39 repeater length: 24

34895 176983 CTTTCAACTCTATAGGAGATTAAG TTATTACACCCTTCTTAACATATTCTTGCAAGGTTCTGTA spacer
length: 40 repeater length: 24

34896 177047 CTTTCAACTCTATAGGAGATTAAG AGGTTTAGTGAAGAGGTATGCAAGGAGTTCTCAATTTGCGATA spacer
length: 43 repeater length: 24

34897 177114 CTTTCAACTCTATAGGAGATTAAG AGGAAACTATAATTGTTGAGGAAGTTTATCCACTTTTGAC spacer
length: 40 repeater length: 24

34898 177178 CTTTCAACTCTATAGGAGATTAAG AGTAGGATCCTTTCTTGTGGGGATGCTGGTTCACTTTTTGT spacer
length: 41 repeater length: 24

34899 177243 CTTTCAACTCTATAGGAGATTAAG TCCAGATCTGGCCTAGCTCCATGCCTCAGCAGGACCT spacer length:
37 repeater length: 24

34900 177304 CTTTCAACTCTATAGGAGATTAAG CAGAGGGATGGCCCTACCGCTCTTCGAGCAGACGTAGT spacer
length: 38 repeater length: 24

34901 177366 CTTTCAACTCTATAGGAGATTAAG ACAGGAAAAGGGCGTTTCTAGAGGCGCTTCTTGAGGTTG spacer
length: 39 repeater length: 24

34902 177429 CTTTCAACTCTATAGGAGATTAAG CTTCCCTAGCCTCATATACGTCGGGCTCATCCTCCTCA spacer length:
37 repeater length: 24

34903 177490 CTTTCAACTCTATAGGAGATTAAG GAACTACAAATATCCTAATTGGTCAATTTACCAGTAATAA spacer
length: 40 repeater length: 24

34904 177554 CTTTCAACTCTATAGGAGATTAAG ATATTACAATAAAGGAATTATTTGTTTATAAAAAATCAGTAT spacer
length: 42 repeater length: 24

34905 177620 CTTTCAACTCTATAGGAGATTAAG AACCTGATGACTATTACGTATACACTTCAGAGCTAAC spacer length:
37 repeater length: 24

34906 177681 CTTTCAACTCTATAGGAGATTAAG TTTTCCCCGCGGAGCCTCTGACCCATGATGAAGGATCC spacer
length: 38 repeater length: 24

34907 177743 CTTTCAACTCTATAGGAGATTAAG AGGGGACACTGCTTTTGTAGTATGACCCAGTAACGAAGTACC spacer
length: 41 repeater length: 24

34908 177808 CTTTCAACTCTATAGGAGATTAAG GGGAATATAGCAGTGGAATACCCTGGGCAGGTGTACTCTAT spacer
length: 41 repeater length: 24

34909 177873 CTTTCAACTCTATAGGAGATTAAG AAAGTAATGGAGGAGATACCATTATGAAAGTTCCTTCATCT spacer
length: 41 repeater length: 24

34910 177938 CTTTCAACTCTATAGGAGATTAAG CTATAAACCCCTCTAGGCGGTCCCTATGGATGATGTAGAG spacer
length: 40 repeater length: 24

34911 178002 CTTTCAACTCTATAGGAGATTAAG CGTGAATTCTTAGAGAAAATAAAGCGCCCCGGCGTTCT spacer length:
37 repeater length: 24

34912 178063 CTTTCAACTCTATAGGAGATTAAG CATATCCAGACGCTGATTCCAAACAGCTTAGGTATTTGCTT spacer
length: 41 repeater length: 24

34913 178128 CTTTCAACTCTATAGGAGATTAAG GTGAGAGATTCAAGTTAGTGTTAGAATTACAATTCACGACAA spacer
length: 42 repeater length: 24

34914 178194 CTTTCAACTCTATAGGAGATTAAG AGTTCGTTTTGACGCTAAGTGGCGCTAGGCTATAGTAGTT spacer
length: 40 repeater length: 24

34915 178258 CTTTCAACTCTATAGGAGATTAAG CCATCTTTAGCCGTTAACTCCCCGGTTAAGGGCTCAGT spacer
length: 38 repeater length: 24

34916 178320 CTTTCAACTCTATAGGAGATTAAG GAGTGGGGGCAGAGATGCCTCGCTCGTTTTTCAGTGC spacer length:
36 repeater length: 24

34917 178380 CTTTCAACTCTATAGGAGATTAAG TGTAAGTTTTTTCTTGTAATTGAAAGAGGGATCAGTT spacer
length: 38 repeater length: 24

34918 178442 CTTTCAACTCTATAGGAGATTAAG ACTTCTATCGTCAGAACCTACGTTTATTTTAGGACGAGT spacer
length: 39 repeater length: 24

34919 178505 CTTTCAACTCTATAGGAGATTAAG ACCACCACCGCAACAAACGACACAACAGCAAGAAACAA spacer
length: 38 repeater length: 24

34920 178567 CTTTCAACTCTATAGGAGATTAAG GAAACGCGTTACAAATACTTTTCACACCACGACTGGGT spacer
length: 38 repeater length: 24

34921 178629 CTTTCAACTCTATAGGAGATTAAG AACCTTGAAACCAGGATGTCCCTGAGTTCGCTGGACTTGT spacer
length: 41 repeater length: 24

34922 178694 CTTTCAACTCTATAGGAGATTAAG CTTAGTGTTATCCTTCCGCCACCGTTTGTGTATATTTTG spacer
length: 41 repeater length: 24

34923 178759 CTTTCAACTCTATAGGAGATTAAG TGATGAGACTTACTTTGTCTGTTTCAGTTCTCAAGAAGCAA spacer
length: 39 repeater length: 24

34924 178822 CTTTCAACTCTATAGGAGATTAAG TTATTATTTGCAATTGGTGGCATGATGCCTTCTAGCAAAA spacer
length: 41 repeater length: 24

34925 178887 CTTTCAACTCTATAGGAGATTAAG AGATCTGCAAACTCATATACATTATATTATGTATATAGCAAAT spacer
length: 43 repeater length: 24

34926 178954 CTTTCAACTCTATAGGAGATTAAG AATGAAGTGG

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34930 184389 GTTAATCTCCTATAGAGTTGAAAG ACAATAATTTCTGAAACCCCTTATCATGTACAGTC spacer length: 36 repeater length: 24

34931 184449 GTTAATCTCCTATAGAGTTGAAAG TATCTCCTTTTACACCAACGCTCACTCCTAGATTTCGTCTT spacer length: 40 repeater length: 24

34932 184513 GTTAATCTCCTATAGAGTTGAAAG ACCCCCATCCCATCCGTGACCAGTTGAGGGGTGTCGCTG spacer length: 39 repeater length: 24

34933 184576 GTTAATCTCCTATAGAGTTGAAAG TTACTTATTATGTAAAACTTATATTTAAATTTTTCTCTAT spacer length: 41 repeater length: 24

34934 184641 GTTAATCTCCTATAGAGTTGAAAG TGGGAACCTCCAGTAATTCACCAATTGATGGCTCCATTT spacer length: 38 repeater length: 24

34935 184703 GTTAATCTCCTATAGAGTTGAAAG TCCGTGAGGGCTCACATAAACCTCTCAATCAACCTCCC spacer length: 38 repeater length: 24

34936 184765 GTTAATCTCCTATAGAGTTGAAAG TTCTTGTGAGGCCGCCATTCTAGACATTTCTTAACCTCGT spacer length: 41 repeater length: 24

34937 184830 GTTAATCTCCTATAGAGTTGAAAG AATAGCTAACGTATTGGAACCTCTCGATAAACTACTCAA spacer length: 39 repeater length: 24

34938 184893 GTTAATCTCCTATAGAGTTGAAAG TAATAACCTCCTCTTTCCATGCACCTCCACCCTTTTCTTTT spacer length: 41 repeater length: 24

34939 184958 GTTAATCTCCTATAGAGTTGAAAG TAGTAATGAACGACAACAACCTTGTCTAACGGTAACAGA spacer length: 39 repeater length: 24

34940 185021 GTTAATCTCCTATAGAGTTGAAAG TTCATTCAAGAGATACCTTAGAGGAAGAGGTTGAGGAGGT spacer length: 39 repeater length: 24

34941 185084 GTTAATCTCCTATAGAGTTGAAAG ATAGTGTCTTTTTCTTAAGACCAGCTCTCCACCAA spacer length: 37 repeater length: 24

34942 185145 GTTAATCTCCTATAGAGTTGAAAG AAGAAGGGGGTTTCATCTCGAGGCCCGATTTGATATTCAA spacer length: 40 repeater length: 24

34943 185209 GTTAATCTCCTATAGAGTTGAAAG AGTGCCCCACCGTACACGGTAATCGGAACAACCACTAGCCA spacer length: 41 repeater length: 24

34944 185274 GTTAATCTCCTATAGAGTTGAAAG TGGCCCCAGGTCCTGGACCTGGACCTGGAGGTAGGGGG spacer length: 38 repeater length: 24

34945 185336 GTTAATCTCCTATAGAGTTGAAAG CGTCAGTAGCCCTTCCATACTGGACGTATTCGTCTGTCAT spacer length: 39 repeater length: 24

34946 185399 GTTAATCTCCTATAGAGTTGAAAG GAAAGAGCTGAGACGCCAATGGGTCCCTGTCCACCCATAT spacer length: 40 repeater length: 24

34947 185463 GTTAATCTCCTATAGAGTTGAAAG TTCTCGATGATTTAGATGACCAGACCAAGGTCAAGATAA spacer length: 39 repeater length: 24

34948 185526 GTTAATCTCCTATAGAGTTGAAAG TGTCACGCGGTTTTATGCGTAATGATTTACATCGTAAT spacer length: 39 repeater length: 24

34949 185589 GTTAATCTCCTATAGAGTTGAAAG TAAGATTCAGCGTTTCTTTTATAGGCAGCGGTTATAG spacer length: 37 repeater length: 24

34950 185650 GTTAATCTCCTATAGAGTTGAAAG ACATCCGGAAGGCGTATGGAAGATGAATTGATAAGGCATTT spacer length: 42 repeater length: 24

34951 185716 GTTAATCTCCTATAGAGTTGAAAG ACCAACATCAAGAGCGAAACCGCTATTAATTATATCATT spacer length: 39 repeater length: 24

34952 185779 GTTAATCTCCTATAGAGTTGAAAG AGTGAAGTATCTGGAGGAACAAGTCAAGGAGTACGACCTAG spacer length: 41 repeater length: 24

34953 185844 GTTAATCTCCTATAGAGTTGAAAG AATGTCTACTTTCTTATCCCTCTCCCTCAGCCTCTTTAACTT spacer length: 42 repeater length: 24

34954 185910 GTTAATCTCCTATAGAGTTGAAAG TATTCAACCTTTATTTGAATGTCTCCATCAGAAATTCTAT spacer length: 40 repeater length: 24

34955 185974 GTTAATCTCCTATAGAGTTGAAAG AACTACTAATTCAAGAAGTGCGCCATAAGCTAGGGCTACAACCTT spacer length: 44 repeater length: 24

34956 186042 GTTAATCTCCTATAGAGTTGAAAG CTTTTAATTGTCTTAAATATTCTTTTCGCTTTTCGGGTCTAA spacer length: 40 repeater length: 24

34957 186106 GTTAATCTCCTATAGAGTTGAAAG TTTTTTGGAGGATTATTTAACGATGTAGAGAACGCAGTAA spacer length: 40 repeater length: 24

34958 186170 GTTAATCTCCTATAGAGTTGAAAG CTAATGCTGCTTCCGCTCCACATCGGCGGGTCTAAGAAAA spacer length: 41 repeater length: 24

34959 186235 GTTAATCTCCTATAGAGTTGAAAG CACGGTACCGACATACAGCTATTTTCAATGGAGCGACGG spacer length: 39 repeater length: 24

34960 186298 GTTAATCTCCTATAGAGTTGAAAG GCATTATCTTCGGCACTCAGATCCACGAAGGGGGAGTTCCA spacer length: 41 repeater length: 24

34961 186363 GTTAATCTCCTATAGAGTTGAAAG TCAACCTAGTGACCCCGTTACGATCCCTGCAAACCT spacer length: 36 repeater length: 24

34962 186423 GTTAATCTCCTATAGAGTTGAAAG GCGGTTCTCCTCCTCGTCCATAGAAATGAACGACAACCTTGT spacer length: 42 repeater length: 24

34963 186489 GTTAATCTCCTATAGAGTTGAAAG CAACAAAACATTATCGGGCGTCATAAACCGATAAGCCATATCG spacer length: 43 repeater length: 24

34964 186556 GTTAATCTCCTATAGAGTTGAAAG GGGACTAGTTCTTCTTTTCGCTTTTGGCCCGGGCGCTGTTCTT spacer length: 43 repeater length: 24

34965	186623	GTTAATCTCCTATAGAGTTGAAAG	TAATCCTGTACGAACTCACATCCCCATCTTCTTCTCCACA	spacer
		length: 41	repeater length: 24	
34966	186688	GTTAATCTCCTATAGAGTTGAAAG	TCACGTATGCGGCCCCAACCCATTCTCGTGAAGCCGCCA	spacer
		length: 39	repeater length: 24	
34967	186751	GTTAATCTCCTATAGAGTTGAAAG	ACAGTGAGAAAATGATTATTGGCGTGGGACGTTACCGGGGG	spacer
		length: 42	repeater length: 24	
34968	186817	GTTAATCTCCTATAGAGTTGAAAG	TTTATTTTTTTGTTATACTAAATAATTAACTTAAATTAT	spacer
		length: 38	repeater length: 24	
34969	186879	GTTAATCTCCTATAGAGTTGAAAG	CCTACACTGAACGTAAGTAGTTTCACCGCTGCTTACAGCTT	spacer
		length: 41	repeater length: 24	
34970	186944	GTTAATCTCCTATAGAGTTGAAAG	TCCGTAAGGGAGGGGATGAATAGCCCCCTTACAGAAACCT	spacer
		length: 40	repeater length: 24	
34971	187008	GTTAATCTCCTATAGAGTTGAAAG	GCTCTAATACGTTGTCAATACTGTCTTTAGAGAAGAGCT	spacer
		length: 39	repeater length: 24	
34972	187071	GTTAATCTCCTATAGAGTTGAAAG	TAACGCCATCCTTGTATCATGACTATATCATTATGGAGCG	spacer
		length: 40	repeater length: 24	
34973	187135	GTTAATCTCCTATAGAGTTGAAAG	AGATGAGTGACCTAATACGTCTGATATTCGCCATGATAA	spacer
		length: 39	repeater length: 24	
34974	187198	GTTAATCTCCTATAGAGTTGAAAG	TAGGATTGCGTCCTACCTGAATGCCGTAACCTTTCAGGTG	spacer
		length: 40	repeater length: 24	
34975	187262	GTTAATCTCCTATAGAGTTGAAAG	CTCTCATGAATTTCCCCACATAGGGAGCACGTCTTAGAA	spacer
		length: 39	repeater length: 24	
34976	187325	GTTAATCTCCTATAGAGTTGAAAG	AAGCCAGAATATCTTAAGATAACACCTAAGATGTTAAAT	spacer
		length: 39	repeater length: 24	
34977	187388	GTTAATCTCCTATAGAGTTGAAAG	GAATACCTCTCCAATCAAAGCCAACGTCCCACTGAGG	spacer
		length: 38	repeater length: 24	
34978	187450	GTTAATCTCCTATAGAGTTGAAAG	CTAGATGAGCAGTACAAGGAGGCAAGGCAAAGATTGGTCCGT	spacer
		length: 43	repeater length: 24	
34979	187517	GTTAATCTCCTATAGAGTTGAAAG	AGTTCTACCGCTAGGTGCAAAGGGGTGTAACCATCAGGGAAG	spacer
		length: 42	repeater length: 24	
34980	187583	GTTAATCTCCTATAGAGTTGAAAG	CTACCCTCCCATCCACCTTTTTTCATGAGGTTGAGAGG	spacer length:
		37	repeater length: 24	
34981	187644	GTTAATCTCCTATAGAGTTGAAAG	TTCTAGTAATGTGGAGCGGACATGGATTTTCATCTATTTTAC	spacer
		length: 41	repeater length: 24	
34982	187709	GTTAATCTCCTATAGAGTTGAAAG	AACCCCTGACCGAACTCCCTAGCCAATTTTCATTAGATCGA	spacer
		length: 40	repeater length: 24	
34983	187773	GTTAATCTCCTATAGAGTTGAAAG	TCTCTTCCTTAACCATCTTCTCGATGGCTCTTCTGA	spacer length:
		36	repeater length: 24	
34984	187833	GTTAATCTCCTATAGAGTTGAAAG	ACGTGAGCGGGACGACCATCACCCCTGGGTCTGTCCGT	spacer
		length: 39	repeater length: 24	
34985	187896	GTTAATCTCCTATAGAGTTGAAAG	TGAACTCATCAAACCTCTTCTCTTTGCCGTAAAGCT	spacer length:
		36	repeater length: 24	
34986	187956	GTTAATCTCCTATAGAGTTGAAAG	AATGCAGGGACCGCTTTCAGTACGATTCTGCAACAGTT	spacer
		length: 39	repeater length: 24	
34987	188019	GTTAATCTCCTATAGAGTTGAAAG	TGGTTAAATTCTGCATTCAATTTTTATCAAATCTAGCATGT	spacer
		length: 42	repeater length: 24	
34988	188085	GTTAATCTCCTATAGAGTTGAAAG	TTGAGATTTCATGATTGCAATGACGTCACGGTCGTTTTTCAT	spacer
		length: 40	repeater length: 24	
34989	188149	GTTAATCTCCTATAGAGTTGAAAG	CAAGTTGAGCCAGGACCTCCTCAACTTCTTCCTCTAGGGTAT	spacer
		length: 42	repeater length: 24	
34990	188215	GTTAATCTCCTATAGAGTTGAAAG	TCTCAAGAAGAAGTTAGAGTCTCAGCCAGAGACTCAGACCG	spacer
		length: 41	repeater length: 24	
34991	188280	GTTAATCTCCTATAGAGTTGAAAG	TGAATCATGGAGAAGAAAATTTGAGAAAGGAAAAGCAAAA	spacer
		length: 40	repeater length: 24	
34992	188344	GTTAATCTCCTATAGAGTTGAAAG	TAACTTTCACGATATACTCGCGTCATCCAATAACCGTATAA	spacer
		length: 41	repeater length: 24	
34993	188409	GTTAATCTCCTATAGAGTTGAAAG	TTCCCTTATTATTTTGTTCCTCTTCTCCAGTAATTTGAT	spacer
		length: 41	repeater length: 24	
34994	188474	GTTAATCTCCTATAGAGTTGAAAG	TCATTTTTTGGTTTTGTATTTCTACTGTAACCTTCAATTA	spacer
		length: 39	repeater length: 24	
34995	188537	GTTAATCTCCTATAGAGTTGAAAG	CTCGTGGTCTCAACTAAGGGTGGATCGGCTTCAGTGACCG	spacer
		length: 40	repeater length: 24	
34996	188601	GTTAATCTCCTATAGAGTTGAAAG	AGTACTTTACTTTGTGAATGGAGGAACATGGAAAGTAAG	spacer
		length: 39	repeater length: 24	
34997	188664	GTTAATCTCCTATAGAGTTGAAAG	ATTCCAAGAAGTTATCAAACAATTCCGTTTGTGAACTGT	spacer
		length: 39	repeater length: 24	
34998	188727	GTTAATCTCCTATAGAGTTGAAAG	CCTCGTCTGGAATCACTAAATCTTGCTCGTCAATTATTGA	spacer
		length: 40	repeater length: 24	
34999	188791	GTTAATCTCCTATAGAGTTGAAAG	TCAAACATGAGTCTTGTCAAACTTTCACGGCACCGAGTGGA	spacer
		length: 42	repeater length: 24	
35000	188857	GTTAATCTCCTATAGAGTTGAAAG	CCTGCTCCTCCTGATCCATTGCTGACGATGTACCTGGA	spacer

length: 39 repeater length: 24
35001 188920 GTTAATCTCCTATAGAGTTGAAAG CTTGATACACCAATCACAGTGAGTAGTAATACACCGATG spacer
length: 39 repeater length: 24
35002 188983 GTTAATCTCCTATAGAGTTGAAAG GGAGCAAACGGGCAAAACGGAGCCGTGGTGGTAATCGCAT spacer
length: 40 repeater length: 24
35003 189047 GTTAATCTCCTATAGAGTTGAAAG TCTTTATTGCTATCTGGATTGATAGTTTTCCGTAGAACT spacer
length: 39 repeater length: 24
35004 189110 GTTAATCTCCTATAGAGTTGAAAG CTAATAACTGACTCTCTATCACCTTGACCATTTTTTGAA spacer
length: 39 repeater length: 24
35005 189173 GTTAATCTCCTATAGAGTTGAAAG AGACTGTTTTCCAATTCATTATGATAACCTTAATGAATCACG spacer
length: 42 repeater length: 24
35006 189239 GTTAATCTCCTATAGAGTTGAAAG AATTTTTTCTCTAACTTTCTAAGTAAAGCCTTATCATGTT spacer
length: 40 repeater length: 24
35007 189303 GTTAATCTCCTATAGAGTTGAAAG ATGAAAAGAATAGGTAGATCACTTTTTGGCATCATTTGAT spacer
length: 40 repeater length: 24
35008 189367 GTTAATCTCCTATAGAGTTGAAAG TCTAAAAATTCAATCTTCTTTTCAAGTATACTTTTTCTTCT spacer
length: 41 repeater length: 24
35009 189432 GTTAATCTCCTATAGAGTTGAAAG CTTCTGCTCGGTATCGTCTAAGGCAGGATTCCGTGAATCCTCAC spacer
length: 44 repeater length: 24
35010 189500 GTTAATCTCCTATAGAGTTGAAAG TTCGACTCGATTAGCTTCCTTACCTCTGCCAATTTTCAGC spacer
length: 39 repeater length: 24
35011 189563 GTTAATCTCCTATAGAGTTGAAAG GAGAGAAGGGTTCGAGAAATCCCTGTAATCATTAGAAGTAA spacer
length: 42 repeater length: 24
35012 189629 GTTAATCTCCTATAGAGTTGAAAG AATTGCTCAAAGACTTTTTGGAGTTTTAGGTTTTGGGTCT spacer
length: 40 repeater length: 24
35013 189693 GTTAATCTCCTATAGAGTTGAAAG AATTGAACTAGGGCGAGAATGCCCAATATTATACCTATTA spacer
length: 40 repeater length: 24
35014 189757 GTTAATCTCCTATAGAGTTGAAAG TATGCGTTTTTATTACATTTTGATAGGCCGTGTCAAATCA spacer
length: 41 repeater length: 24
35015 189822 GTTAATCTCCTATAGAGTTGAAAG TTTCGTCATC
35016
35017
35018 GCA_005485005.1_ASM548500v1_genomic.fna (PilerCR):
35019 START REPEAT
SPACER
35020 crispr 1
35021 1896870 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAATGTATTTTCCAGCATCAGTAACCATAGCAAG
spacer length: 35 repeater length: 37
35022 1896942 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC CGGACATTGACAGAATCATATCAAAGGGCAATTTTGGG
spacer length: 38 repeater length: 37
35023 1897017 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCGCGTTCAGGTGCGAAGTTCCCATATCCTCCTT
spacer length: 35 repeater length: 37
35024 1897089 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC ATGTATAGAGTTCATATTTTTGTACCATTATTTT
spacer length: 34 repeater length: 37
35025 1897160 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TGGATTCTCCGAACGAATCAGTAGCTACAGGCAG
spacer length: 35 repeater length: 37
35026 1897232 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC AAATTTTGATTCTGACGTTCTGAGCAGAAAATAG
spacer length: 36 repeater length: 37
35027 1897305 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGCTACTCCTGTAAAATCGTACACCGTTGTAGAA
spacer length: 35 repeater length: 37
35028 1897377 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC
TTGNNNNNNNNNCGTCTGGTAATACGGCATCTGAGTGAAATAGA spacer length: 46 repeater length: 37
35029 1897460 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC
NNNNNNNNCTAGCTTATGCGGTCTTTCTCTCCATTCTTCAA spacer length: 41 repeater length: 37
35030 1897538 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAAATGAATGCTGCTGCAGATATGAGACAAAATGA
spacer length: 36 repeater length: 37
35031 1897611 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TGATCCAACCAATCACGCCCAACCGTTTTGTGGT
spacer length: 35 repeater length: 37
35032 1897683 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC CGATTACTCCAGGGTCACGGTGGAACCCGTCAGA
spacer length: 34 repeater length: 37
35033 1897754 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC
35034
35035
35036 crispr 2
35037 2058419 TTTCATCCTTGTTTTAATGGA TCTTGTTATCGAATGAATTTGTCTGTACTCTTATTTGCGTTTTTCGTCTGCA
spacer length: 52 repeater length: 22
35038 2058493 TTTCATCCTTGTTTTAATGGA AGCTGCTTCTCGACAAGGAAAAACCTTCAAAGTAAAAACCCATTTCACTG
spacer length: 52 repeater length: 22
35039 2058567 TTTCATCCTTGTTTTAATGGA TCTTGCTCACGAATAATAAAATCCGATCCTCTCTCATTTTTTCAATATGG
spacer length: 50 repeater length: 22
35040 2058639 TTTCATCCTTGTTTTAATGGA

AGCTACTTCTCGACACGAGCGAACAGACAATGGATCCTTGCCCCTAAATCAAAG spacer length: 54 repeater length: 22

2058715 TTTCAATCCTTGTTTTAATGGA

crispr 3

2101981 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TCCTTGCAGTGATCTTGATGTGATGCGATTTATA
spacer length: 34 repeater length: 37

2102052 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ACGTATGTAAGGGCTATCACCTAAGAGAACTATTGGC
spacer length: 37 repeater length: 37

2102126 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ATCTTTATAGATTTTAGCTGTTGCTATCAATTTGC
spacer length: 35 repeater length: 37

2102198 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TGTATCGTGTAATTTCTGCAAGTTTCTGTATAGTG
spacer length: 35 repeater length: 37

2102270 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AAATACAAATCCATTTCTAAAATTCAAATTAGGAAA
spacer length: 36 repeater length: 37

2102343 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AGATACTGATACAATTAGAAGACAACGCAAAGAGAT
spacer length: 36 repeater length: 37

2102416 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ATCGGTCCGGATGCTTCAGAAACAGGAGTTACCTG
spacer length: 35 repeater length: 37

2102488 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GAAACTAGTAATGCACATGGCAACATAGACGAAAA
spacer length: 35 repeater length: 37

2102560 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CGGTAGGCGAGAATTCCTTTTTCATCCCTGGCCT
spacer length: 34 repeater length: 37

2102631 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CCGCACGGAGTCCAAAACACAGGATTCCATCAA
spacer length: 34 repeater length: 37

2102702 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCGCGAAT

crispr 4

2103278 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT AGTATTACAGACCTCGAATCGATTGGCTGTGCAT
spacer length: 34 repeater length: 37

2103349 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT ACCTTATTAGGCCAGATAAGCTTTTTTCAAGCTCGGGA
spacer length: 37 repeater length: 37

2103423 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT ATTCTTGAAATGCCTGTAACCGGCTTGCCCGGGTTTG
spacer length: 37 repeater length: 37

2103497 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT CCATATCAGGAGAAGCTGCCGGAGTATAAGGAGAGG
spacer length: 36 repeater length: 37

2103570 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT TCGACGAAAATACATTTTCAGCAGGCGACGAAG
spacer length: 33 repeater length: 37

2103640 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT GCCTCTTGTGCCTGATATAGTGAGATTACTTTTTAT
spacer length: 35 repeater length: 37

2103712 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT ATATTGGAGGTTCTGTATGACAGAACCCGTAAGAT
spacer length: 36 repeater length: 37

2103785 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT AGATCTCCTGAAACTCACTGAGGGCAAACAGCAGA
spacer length: 35 repeater length: 37

2103857 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT

crispr 5

2225941 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TTATACAGTGCTTCAATAGGTCCGGTCATTTTCTTA
spacer length: 36 repeater length: 37

2226014 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAAAAGAGTAAATGCGTTTTTTTGCAGCTAGAGAACT
spacer length: 37 repeater length: 37

2226088 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC ACATACTCAAGTGCTTCAGGTGCAACGACAATAAG
spacer length: 35 repeater length: 37

2226160 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC AATATAATCAACATGGATACACATACATGAAAAA
spacer length: 34 repeater length: 37

2226231 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC CAATATCTTAAGGCTAAGTCCTTCAGAGCTGCACCTT
spacer length: 37 repeater length: 37

2226305 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC AGGCTATGCGTTTCTTAACTCGATTGTTCTATAGA
spacer length: 35 repeater length: 37

2226377 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TGAACCGAGGGAAGATGATTGAATATATCTTACTT
spacer length: 35 repeater length: 37

2226449 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC ACATTCTTATAATTACCTTCGTTCTCCCAAAAAACAT
spacer length: 37 repeater length: 37

2226523 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTTATATCAAGTTCGTTTCATTGTGTTTTACCT
spacer length: 35 repeater length: 37

2226595 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TTGATTCCGTCATTCTGATCTGTAGATGACCAA
spacer length: 34 repeater length: 37

2226666 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TATCGTATCCTAATTTTCATTAGGATATTCATGCTTC

spacer length: 37 repeater length: 37
 35082 2226740 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC CGTCAATTATTCCCTCCCAATCGACTACAGCAAAAA
 spacer length: 36 repeater length: 37
 35083 2226813 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TGGCATATGATTGATTAGATGTAATGAAGTGT
 spacer length: 32 repeater length: 37
 35084 2226882 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTAATGTCAACTCTATGTATAAGTATGTACTATT
 spacer length: 35 repeater length: 37
 35085 2226954 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC AGGGTTTCATGCTGTTTTCCGTTTCATTCATACAC
 spacer length: 34 repeater length: 37
 35086 2227025 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TACGGACTGGAATTAAACACGGCTTCAAAGGCGAT
 spacer length: 35 repeater length: 37
 35087 2227097 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC ATAGCGATTGTATGAACTCCGTGAACATCCTTCGGT
 spacer length: 36 repeater length: 37
 35088 2227170 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC GATATTAACCAACCAGGCATGGGCGAGTCTGTTTTAT
 spacer length: 37 repeater length: 37
 35089 2227244 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCTCCCTCTCTTTTTTCATCTAGAGAATTCCGCAA
 spacer length: 35 repeater length: 37
 35090 2227316 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC ACGACAGAATCAGGACACAAAATAAGCAAGGATT
 spacer length: 34 repeater length: 37
 35091 2227387 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC
 35092
 35093
 35094 crispr 6
 35095 3716817 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA TTAGCTATAAGCTCATTTCATCCATTACGCTTTATTT
 spacer length: 37 repeater length: 36
 35096 3716890 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA
 NNNNNNNNTCAACAGACTGAAGATATCCAGTGATCCTAGA spacer length: 40 repeater length: 36
 35097 3716966 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA
 NNNNNNNNNNACTGTAACAGAAGCAGGAACCGCTATACTCACAT spacer length: 44 repeater length: 36
 35098 3717046 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA
 TCCNNNNNNNNNNCGGTGACGGTTTTCAATATGACACTATCCACT spacer length: 46 repeater length: 36
 35099 3717128 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA TTCAATGGATTTCATGGTGTCTTTGAAAACATGTGCA
 spacer length: 36 repeater length: 36
 35100 3717200 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA TTCGGGTGTTTCGTGATCTATCATAGTGATTTCCTCTT
 spacer length: 37 repeater length: 36
 35101 3717273 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA
 TNNNNNNNNNNNACAATATACTATAACAACCTAATACTATATA spacer length: 41 repeater length: 36
 35102 3717350 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA
 TNNNNNNNNNNNCAAGCCCCATCAATCAATCAGGTTAGATGACT spacer length: 44 repeater length: 36
 35103 3717430 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA TTTCTATAAGAAAATTAAGGAAGTTATACAATGAG
 spacer length: 35 repeater length: 36
 35104 3717501 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA TAAGAACAGCTTCTAAGTGTTAGAATGTTGGAATCTAG
 spacer length: 38 repeater length: 36
 35105 3717575 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA TTCTTGAAAAGGTCATTAGCTCCCTGCTTAACGTTTT
 spacer length: 38 repeater length: 36
 35106 3717649 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA TATTGTTCTCTAGTTAATGTTTTTGGTATACGTTAACC
 spacer length: 38 repeater length: 36
 35107 3717723 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA
 TNNNNNNNNNNNCCACATTTCCCGAACAAATACACTGCAGGACTG spacer length: 43 repeater length: 36
 35108 3717802 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA TAAGACAGTATGGGCGATGGATGCCGTATAGTCCATGC
 spacer length: 38 repeater length: 36
 35109 3717876 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA
 TACTNNNNNNNNNNNTTTTATATTACTGTGTGTTTTCCATATCGGT spacer length: 45 repeater length: 36
 35110 3717957 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA TTGCATATATCTTTAATTTTCTTGAATTATTAGTTT
 spacer length: 36 repeater length: 36
 35111 3718029 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA
 TNNNNNNNNNNNTGCCATAGTTCCCCCGGTGAATTATCCCAG spacer length: 41 repeater length: 36
 35112 3718106 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA
 NNNNNNNNNNAATAGGAGTTTGATCTAACATGGCATACTATAAAA spacer length: 45 repeater length: 36
 35113 3718187 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA NNNNNNNNNNGGCCATACACGTATATAATCTCAA
 spacer length: 35 repeater length: 36
 35114 3718258 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAA
 35115
 35116
 35117 crispr 7
 35118 3718882 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT AAAATTGTCTATGTGCGGTTGCTTCAACTTACATAC
 spacer length: 36 repeater length: 37
 35119 3718955 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT GCAGACAATAACCTGCATCCTCGATGAAGGGGCGA
 spacer length: 35 repeater length: 37
 35120 3719027 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT
 CNNNNNNNNNNNTAGTTGAAATGAAAGAGAAGAAGGATTTCGA spacer length: 41 repeater length: 37

35121 3719105 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT
NNNNNNNNNGGTTTTAATTATGATCCTGAACTTGCAGCTAGTCCCGT spacer length: 47 repeater length: 37

35122 3719189 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT
ATNNNNNNNNNCAGAAAAGCGCTGGAAATGCGCTGAGAAACAATT spacer length: 46 repeater length: 37

35123 3719272 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT ATTAATATCAGTTAGACCCTCGGTCCATTCTCTG
spacer length: 35 repeater length: 37

35124 3719344 GTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT

35125

35126

35127 crispr 8

35128 3719422 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA ACATTCTTCGGACTCACCGGTTAATTCCGGAAACACA
spacer length: 37 repeater length: 35

35129 3719494 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA ACTCTGAGCAATAATAGGCGTCATTGAAGCCCACATGC
spacer length: 38 repeater length: 35

35130 3719567 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA
ACNNNNNNNNNNNATTGGCTTAATTCCCTTCTCTGCATGAAG spacer length: 41 repeater length: 35

35131 3719643 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA ACTAATAAAATTTGGGTATTGAAACCATTACATTACC
spacer length: 37 repeater length: 35

35132 3719715 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA
ANNNNNNNNNNTGTGGTCAGATGAAACACATAGCAGGAGTTG spacer length: 42 repeater length: 35

35133 3719792 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA ACCCGCTCTGGTAACTATGAAGAGTACGACGGTACTTT
spacer length: 38 repeater length: 35

35134 3719865 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA
NNNNNNNNNNNGAGATGCTACAGCAGAAATTAACCTCGATGAT spacer length: 42 repeater length: 35

35135 3719942 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA ACNNNNNNNNNNNCAGAAATATGTTTCATCATAACAGGTGG
spacer length: 40 repeater length: 35

35136 3720017 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA
ACTNNNNNNNNNNGTAGTAACCTCCGAGAATAACGTTTTTCA spacer length: 41 repeater length: 35

35137 3720093 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA ACATTCACGCCATCAAGGGGATTGCATTAGGCTTGTA
spacer length: 37 repeater length: 35

35138 3720165 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA
ACTNNNNNNNNNNNTACGTTTTTGCTGTATCGGTCATTTTCGGGAA spacer length: 45 repeater length: 35

35139 3720245 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA
ACNNNNNNNNNNNTTGATGTTCTGAAAACCTCGCCTTGAAGG spacer length: 41 repeater length: 35

35140 3720321 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA
ACNNNNNNNNNNNTCGGAGCGGTCAGAGGATTTGCGTATTTTCCTTG spacer length: 45 repeater length: 35

35141 3720401 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA ACTTTGGTGTTCATGTTGAAATCCCGATCACCGGAGAA
spacer length: 37 repeater length: 35

35142 3720473 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA ACTCATACCGACAACGAACAACCTGTTTCCTGCAGAA
spacer length: 37 repeater length: 35

35143 3720545 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA ACCCATCGTAGCTCATGACGTGAAGACAGCTTTTAC
spacer length: 36 repeater length: 35

35144 3720616 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA

35145

35146

35147 crispr 9

35148 3720924 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA
NNNNNNNNNNNTCAGTTGAGTCGGCTGTCGCAATGCTTCAGC spacer length: 42 repeater length: 35

35149 3721001 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA ACCTTTTGAGTTCTCAATCCATCCCTTTATATCCG
spacer length: 35 repeater length: 35

35150 3721071 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA
ACNNNNNNNNNNNAAATCTGTCGGTGTTTTTAAAAAGAGTAAAG spacer length: 43 repeater length: 35

35151 3721149 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA ACTCAAACCTTTGTTAAGAGAGGGCTTACCAGTTCAAA
spacer length: 37 repeater length: 35

35152 3721221 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA ANNNNNNNNNNNAAGCATGTATTACACCTGTGTATAGA
spacer length: 37 repeater length: 35

35153 3721293 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA NNNNNNNNNNCGGGTAGAATAATAATACACTAGCGTATCAG
spacer length: 40 repeater length: 35

35154 3721368 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAA

35155

35156

35157 crispr 10

35158 3721529 AAAATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC
NNNNNNNNNNNGAGAATCAAAAAAATTGATACCTCTCTC spacer length: 38 repeater length: 40

35159 3721607 AAAATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTAGTTTTCGACTTGTCGGGGCTGCCGTCTAA
spacer length: 32 repeater length: 40

35160 3721679 AAAATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC

35161

35162

35163 crispr 11

35164 3722078 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCG

35165 AANNNNNNNNNNCAAAACGAACCTTCATCGGTTTGTACAAGAAAA spacer length: 44 repeater length: 34
3722156 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG AATTCTATAGCAAAGGTGTATAACATGCTTCTAACCG
spacer length: 37 repeater length: 34

35166 3722227 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG
ANNNNNNNNNNCTCATAATCAGGCTTGTTAAATGTTGTAAAATG spacer length: 44 repeater length: 34

35167 3722305 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG
AATNNNNNNNNNTTGGTTATATATTAAGATCCCATATTAATTAT spacer length: 45 repeater length: 34

35168 3722384 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG AATACAAAACCACTTTACATGACACAGACGACCTTATTT
spacer length: 39 repeater length: 34

35169 3722457 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG
NNNNNNNNNGTATAATTTATAACTAATTTTCGCCCCGAACCTTTAT spacer length: 43 repeater length: 34

35170 3722534 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG AATAATTCGACAGATTTAAAACCATTTATTCAAATTATGAT
spacer length: 41 repeater length: 34

35171 3722609 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG
NNNNNNNNNNGCAACGTAAGCCACACAGCCCCGCTCGACTGTGCG spacer length: 45 repeater length: 34

35172 3722688 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG AATGCGATATCTATCTTATCAATGCATTCGGGCTTCGG
spacer length: 38 repeater length: 34

35173 3722760 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG
AATTNNNNNNNNNCGTCTTAAGCTCTCGTTTTTGTCTACTGTGATG spacer length: 48 repeater length: 34

35174 3722842 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG

35175

35176

35177 crispr 12

35178 3722999 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCGAA
NNNNNNNNNNCAGGAATAGTAAGCATTACTTCTCTATCGTCAT spacer length: 43 repeater length: 36

35179 3723078 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCGAA TTTGACAAGCATTCAATACCCTTTTTCAATCTCCTAT
spacer length: 37 repeater length: 36

35180 3723151 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCGAA

35181

35182

35183 crispr 13

35184 3723305 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC
NNNNNNNNNNGAGTTAACGTGGCGTCTTCATAAGAAGATGCAATAT spacer length: 46 repeater length: 37

35185 3723388 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC
ANNNNNNNNNNCGACTTTCCCGTTTTGGTCTACAAGGGCAAGTTGC spacer length: 46 repeater length: 37

35186 3723471 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTTTTCTCGATCATTCCCAAATCTTCAAAACAT
spacer length: 35 repeater length: 37

35187 3723543 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CAATAAGCAATCTGCAAGCCATCCGAGTACGAATC
spacer length: 35 repeater length: 37

35188 3723615 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC

35189

35190

35191 crispr 14

35192 3723689 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG
ANNNNNNNNNNTATGTCTTTGCAGTTGATGAAAGGAGAGGGAA spacer length: 43 repeater length: 34

35193 3723766 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG NNNNNNNNNNAAGTCGATATATATTACAGACTCTACGATTAT
spacer length: 41 repeater length: 34

35194 3723841 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG ANNNNNNNNNNGAATGTGTAATATGTGCAGCAAACGACTAT
spacer length: 41 repeater length: 34

35195 3723916 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG
AANNNNNNNNNNCCAGAAATTGAGGTACACTCTTTTATATTTCCA spacer length: 44 repeater length: 34

35196 3723994 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG AATTTCAATATATATATAGTTATGCATAGAAAATATGAT
spacer length: 39 repeater length: 34

35197 3724067 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCG

35198

35199

35200 crispr 15

35201 3725086 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAA CAAAATTTAGTTTTGACAGCAAGCCGGGATTCTGATT
spacer length: 38 repeater length: 36

35202 3725160 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAA
NNNNNNNNNNNCTCATTTGTGCCATCTGTCAATGTATAATTCACATG spacer length: 45 repeater length: 36

35203 3725241 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAA
CNNNNNNNNNNTTGTTCGGTTTCCGAGTCGGATAGCTGCA spacer length: 40 repeater length: 36

35204 3725317 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAA
NNNNNNNNNNNTGTGATAGTGTGTGCGCTTAATTCATTATT spacer length: 41 repeater length: 36

35205 3725394 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAA
CTCAGTCTGCTTGCCCCGAAGATTCGGCTGAATTCCTCAGT spacer length: 41 repeater length: 36

35206 3725471 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAA
NNNNNNNNNNCATCTGGAACCCATATATTCATTCTCGGCATTGA spacer length: 44 repeater length: 36

35207 3725551 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAA CAGTGTGAGAATAGTAACCTTAAAGTACAATAAAGT
spacer length: 36 repeater length: 36

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35208 3725623 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAA CTGCTTTGGTCCCGTACATAGCTATCTTGGCTAT
spacer length: 34 repeater length: 36
35209 3725693 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAA
35210
35211
35212 crispr 16
35213 3725936 AATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAATATTGAAAAAGATATGAGATGAAGAAAGCCG
spacer length: 35 repeater length: 38
35214 3726009 AATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC NNNNNNNNNNGCATGAAGGCGGGATATCCTCCATAGAT
spacer length: 37 repeater length: 38
35215 3726084 AATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC
NNNNNNNNNNGCCTATTACGAGTTCGCCCGATGTTGTAATA spacer length: 41 repeater length: 38
35216 3726163 AATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC
35217
35218
35219 crispr 17
35220 3726787 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCGAA
TCNNNNNNNNNNNCAGCAATTCCCGCACAAAGTCGCGTTAGATTG spacer length: 43 repeater length: 36
35221 3726866 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCGAA
NNNNNNNNNNNAAACAGGTGTTTTTCTCGAATTTTGTAAGAGT spacer length: 43 repeater length: 36
35222 3726945 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCGAA
TCTNNNNNNNNNNNTGTGGGGCATTGGGTGTGTCAGCATGATAG spacer length: 44 repeater length: 36
35223 3727025 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCGAA TGGTATCGGGCTCTTCTCCCTGCGACTCCTGAATAA
spacer length: 36 repeater length: 36
35224 3727097 GTTTC AATCCTTGTTTTAATGGATCTTGCTCGCGAA
35225
35226
35227 crispr 18
35228 3727171 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTCGAAAAGTCCGGGTAAAAATTGCAGCGTTGTCC
spacer length: 36 repeater length: 37
35229 3727244 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATCTGTAGTCATTTTAGATATACCTCGCAAACATT
spacer length: 35 repeater length: 37
35230 3727316 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTC AAGACGGAGATATCTGGAGAGTTGATAATGA
spacer length: 36 repeater length: 37
35231 3727389 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC
35232
35233
35234 GCA_006740685.1_ASM674068v1_genomic.fna (PilerCR):
35235 START REPEAT
SPACER
35236 crispr 1
35237 8942 CTCTCTGACTCTATAGGAACATCTGA CACAATTAACACTGTATTTGTTAGAGAC spacer length: 28
repeater length: 26
35238 8996 CTCTCTGACTCTATAGGAACATCTGA TGCTGTAACAACAAC TCAAACATCAAAAACA spacer length: 31
repeater length: 26
35239 9053 CTCTCTGACTCTATAGGAACATCTGA TACAGTTGTCACTGTAAAATCCATCACAAAACA spacer length: 34
repeater length: 26
35240 9113 CTCTCTGACTCTATAGGAACATCTGA CACAATTAACACTGTATTTGTTAGAGAC spacer length: 28
repeater length: 26
35241 9167 CTCTCTGACTCTATAGGAACATCTGA TGCTGTAACAACAAC TCAAACATCAAAAACA spacer length: 31
repeater length: 26
35242 9224 CTCTCTGACTCTATAGGAACATCTGA TACAGTTGTCACTGTAAAATCCATCACAAAACA spacer length: 34
repeater length: 26
35243 9284 CTCTCTGACTCTATAGGAACATCTGA CACAATTAACACTGTATTTGTTAGAGAC spacer length: 28
repeater length: 26
35244 9338 CTCTCTGACTCTATAGGAACATCTGA TGCTGTAACAACAAC TCAAACATCAAAAACA spacer length: 31
repeater length: 26
35245 9395 CTCTCTGACTCTATAGGAACATCTGA TACAGTTGTCACTGTAAAATCCATCACAAAACA spacer length: 34
repeater length: 26
35246 9455 CTCTCTGACTCTATAGGAACATCTGA CACAATTAACACTGTATTTGTTAGAGAC spacer length: 28
repeater length: 26
35247 9509 CTCTCTGACTCTATAGGAACATCTGA TGCTGTAACAACAAC TCAAACATCAAAAACA spacer length: 31
repeater length: 26
35248 9566 CTCTCTGACTCTATAGGAACATCTGA TACAGTTGTCACTGTAAAATCCATCACAAAACA spacer length: 34
repeater length: 26
35249 9626 CTCTCTGACTCTATAGGAACATCTGA TCCGATGCAGA
35250
35251
35252 GCA_008033705.1_ASM803370v1_genomic.fna (PilerCR):
35253 START REPEAT
SPACER

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35254 crispr 1
35255 638301 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATGAGGACCATGAGCCGCTCTGAGCACTCGTATATG spacer
length: 36 repeater length: 30
35256 638367 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGCTACAGGAAAACCGTTGAGGATCTAATAAGA spacer
length: 34 repeater length: 30
35257 638431 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCAACCCCTGTCAGTAACCGTAAGAGGTGAAAAATA spacer
length: 36 repeater length: 30
35258 638497 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGGTCTGGTTGTCACGGATCTTATCACCTTCGATT spacer
length: 36 repeater length: 30
35259 638563 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTGATCATGACCTCAACTTTGACGTTGTTGATTA spacer
length: 34 repeater length: 30
35260 638627 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATACTATCCATCCTTGAGGGTAGGGAGTACGTATTTG spacer
length: 37 repeater length: 30
35261 638694 ATTTCAATCCCATTTTGGTCTGATTTTAAC AATTGCATCGGCGCCCGCTTCACACCACCAGAGTAC spacer
length: 36 repeater length: 30
35262 638760 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACGAAGTAATCGGATGCACTCTGACCCAGTAACCTG spacer
length: 36 repeater length: 30
35263 638826 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAAGATGACACAGGAACCACACCCTGAACCTATCCA spacer
length: 35 repeater length: 30
35264 638891 ATTTCAATCCCATTTTGGTCTGATTTTAAC GCGAGAGCAGTGAAGTGAAACAATTCAAAGTCTCAA spacer
length: 36 repeater length: 30
35265 638957 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGAAACCGGTGCTGGCCTGCCGTGTTCTGTGCTGA spacer
length: 36 repeater length: 30
35266 639023 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGGTGACTGCTGATTGGGTCTGCCTAACAGTTGA spacer
length: 35 repeater length: 30
35267 639088 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGGAAGATCACCACCGCCATGAGCTACCAGATAAACA spacer
length: 37 repeater length: 30
35268 639155 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTCTTCCAGAACCCTACTTGCTCCTCATATCCATAA spacer
length: 36 repeater length: 30
35269 639221 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTGGATGATTGAAGGTGGAAGCTGAAGAGTATATGT spacer
length: 37 repeater length: 30
35270 639288 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGGAGAAGCGGGGACTATGTGAACCTCGCAACATTCA spacer
length: 37 repeater length: 30
35271 639355 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTATTTGTCTCCGGAATCTCAGATGAGTACCTTGA spacer
length: 35 repeater length: 30
35272 639420 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGATAGTGCAACGGGGGGTTGGGCTTCCACTATCCTCG spacer
length: 38 repeater length: 30
35273 639488 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAAACGCATACCTCTCAAATGACGCGCATGTGAAGCTGC spacer
length: 39 repeater length: 30
35274 639557 ATTTCAATCCCATTTTGGTCTGATTTTAAC CATCTATGAGAGGGTTAAGGATACGATGATCATTGAC spacer
length: 37 repeater length: 30
35275 639624 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTTCCGTGGGAACAGGCTTAATCCTTCAATTTCCAAG spacer
length: 37 repeater length: 30
35276 639691 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGAATCCAGCGATAGCCCCGCCAATCGCCCCATTC spacer
length: 36 repeater length: 30
35277 639757 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCCGGAGACAACACAGGAGCACTCGAATCATATGAA spacer
length: 36 repeater length: 30
35278 639823 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGAATCCAGCGATAGCCCCGCCAATCGCCCCATTC spacer
length: 36 repeater length: 30
35279 639889 ATTTCAATCCCATTTTGGTCTGATTTTAAC CATAAATGTTACCAGTTACTGAGGCATTTGAGACTT spacer
length: 36 repeater length: 30
35280 639955 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAGTCATAGAATAAGCCAGGGCTTTACAACCCTATGCA spacer
length: 38 repeater length: 30
35281 640023 ATTTCAATCCCATTTTGGTCTGATTTTAAC GTATAGTATGAGAAGGATAAAATCCTTCAAGTAAAAAC spacer
length: 38 repeater length: 30
35282 640091 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCCTTGAACCTTGACACAGCGATACTTAATGACCAG spacer
length: 35 repeater length: 30
35283 640156 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGGATGACCTGAAGCAATTCATCCAGTCAGATTCAAC spacer
length: 37 repeater length: 30
35284 640223 ATTTCAATCCCATTTTGGTCTGATTTTAAC CATCGAATCTGCGGAGGAAGACGGGGTGGCTTGTGA spacer
length: 36 repeater length: 30
35285 640289 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATGCCTCTG
35286
35287
35288 crispr 2
35289 861801 GAGACATGCATTTCAAGTGTA ATTTTCCCCGGCAGTCTGCTGGATGTGAAGGA spacer length: 32
repeater length: 22
35290 861855 GAGACATGCATTTCAAGTGTA CACTTATTTGTCCACTCAGTCGTGAATGG spacer length: 29
repeater length: 22
35291 861906 GAGACATGCATTTCAAGTGTA TGATTCTGAAATGTTGGATATTGTAAGG spacer length: 29
repeater length: 22

35292 861957 GAGACATGCATTTCAAGTGTA GGAGTAACCC
 35293
 35294
 35295 crispr 3
 35296 1155537 GTTAAATCAGACCAAAATGGGATTGAAAT CCTCAAGGATGGCGGATGGCATCTTAATAGTCATCT spacer
 length: 36 repeater length: 30
 35297 1155603 GTTAAATCAGACCAAAATGGGATTGAAAT AAAACAAAACCAATAAAAACCAACAAAACAAAA spacer
 length: 35 repeater length: 30
 35298 1155668 GTTAAATCAGACCAAAATGGGATTGAAAT GCTAAATCTAATTAAATATTTATTGCTGTCATTTA spacer
 length: 35 repeater length: 30
 35299 1155733 GTTAAATCAGACCAAAATGGGATTGAAAT GTTTATACTATCAATTATATCGCTGATCAATTCCTG spacer
 length: 36 repeater length: 30
 35300 1155799 GTTAAATCAGACCAAAATGGGATTGAAAT GATGCTGATAAGAATGATGCGGATGCACTGTGGAGC spacer
 length: 36 repeater length: 30
 35301 1155865 GTTAAATCAGACCAAAATGGGATTGAAAT ATGTATTTTATTATTGATATGTCTGTTTTTATTGCAT spacer
 length: 37 repeater length: 30
 35302 1155932 GTTAAATCAGACCAAAATGGGATTGAAAT GGATATTGGATATTAAATGTAAATTATTCTAAAAATATTG
 spacer length: 40 repeater length: 30
 35303 1156002 GTTAAATCAGACCAAAATGGGATTGAAAT GTTATTGTGTAGAATCTTGGAGTCCCTGATCCGGTTGA spacer
 length: 38 repeater length: 30
 35304 1156070 GTTAAATCAGACCAAAATGGGATTGAAAT GTTATTATGTTGCATTTGAAGAGTTGATACGCAAAT spacer
 length: 36 repeater length: 30
 35305 1156136 GTTAAATCAGACCAAAATGGGATTGAAAT TGAAAATGATTTAAGAGGGGTATTACCCGAATAA spacer
 length: 36 repeater length: 30
 35306 1156202 GTTAAATCAGACCAAAATGGGATTGAAAT GGATCACTGTGAGGTATTTTCTCCCTCGTGATCCA spacer
 length: 36 repeater length: 30
 35307 1156268 GTTAAATCAGACCAAAATGGGATTGAAAT ATATGAGTATGCTCCCCAGTCCTGTTCTTGCCAGG spacer
 length: 36 repeater length: 30
 35308 1156334 GTTAAATCAGACCAAAATGGGATTGAAAT TACTTCGTATGGGAGCTCTACTTTTCTTTCGTCTGT spacer
 length: 36 repeater length: 30
 35309 1156400 GTTAAATCAGACCAAAATGGGATTGAAAT TCAACTCAGAATACGTGGTGTGGCAAGATCATTCT spacer
 length: 36 repeater length: 30
 35310 1156466 GTTAAATCAGACCAAAATGGGATTGAAAT GTTTATTGTTCTTTGCAGGATTTTCGGTTTGTTTTTG spacer
 length: 37 repeater length: 30
 35311 1156533 GTTAAATCAGACCAAAATGGGATTGAAAT TGAAAAACGGGTGAGTATCGATCTCACTGCTACGATT spacer
 length: 37 repeater length: 30
 35312 1156600 GTTAAATCAGACCAAAATGGGATTGAAAT TAAAAACGGATTATCCTTAACGAATAACTTCTCCTT spacer
 length: 36 repeater length: 30
 35313 1156666 GTTAAATCAGACCAAAATGGGATTGAAAT CATAGAATGCGAGTGGAGTGTCAACGAAGCCCGTGG spacer
 length: 36 repeater length: 30
 35314 1156732 GTTAAATCAGACCAAAATGGGATTGAAAT AAAAAATCAATGAAAATGGTGTGCATACCCCTTTTTTA spacer
 length: 38 repeater length: 30
 35315 1156800 GTTAAATCAGACCAAAATGGGATTGAAAT GTCAACGGTGTGATACTATGTTGAACTCAGCAGTTTC spacer
 length: 37 repeater length: 30
 35316 1156867 GTTAAATCAGACCAAAATGGGATTGAAAT TGAGGTCTTCGGTGACGACGCCGAAGCCCTCAAAATCCT
 spacer length: 39 repeater length: 30
 35317 1156936 GTTAAATCAGACCAAAATGGGATTGAAAT AAAGAAGATGGGAAGTCAGGGGCACAGCCCGATTTC spacer
 length: 36 repeater length: 30
 35318 1157002 GTTAAATCAGACCAAAATGGGATTGAAAT TCCTGAGCAGTTTCTCCGAGACTCTGATCCTATCCT spacer
 length: 36 repeater length: 30
 35319 1157068 GTTAAATCAGACCAAAATGGGATTGAAAT CAAAAACAGGAGGGTAACATCATCTCCTACCCCTAC spacer
 length: 36 repeater length: 30
 35320 1157134 GTTAAATCAGACCAAAATGGGATTGAAAT CATATGATGATGAGGGCTCAGGGAGGCCCTCCTAA spacer
 length: 36 repeater length: 30
 35321 1157200 GTTAAATCAGACCAAAATGGGATTGAAAT GACTGCAGGGGGTTGTACAGGCATGTGGCTGATAT spacer
 length: 36 repeater length: 30
 35322 1157266 GTTAAATCAGACCAAAATGGGATTGAAAT GATAGTCGATAAGGCGACACGTGGATTGCAGAGG spacer
 length: 34 repeater length: 30
 35323 1157330 GTTAAATCAGACCAAAATGGGATTGAAAT GTTTTCAGTTGCATCCATCATGAACCACCTCGTCTT spacer
 length: 36 repeater length: 30
 35324 1157396 GTTAAATCAGACCAAAATGGGATTGAAAT CAGCATCACGTGAGATGAGCAACAGCCTGATGAGT spacer
 length: 35 repeater length: 30
 35325 1157461 GTTAAATCAGACCAAAATGGGATTGAAAT CACAGGCAAGGGAATACTCCAAGGTAATCAGTGAAGT spacer
 length: 37 repeater length: 30
 35326 1157528 GTTAAATCAGACCAAAATGGGATTGAAAT AGGACTTGCAGGAGAAGGTGAAGGATCATGTTCTA spacer
 length: 35 repeater length: 30
 35327 1157593 GTTAAATCAGACCAAAATGGGATTGAAAT TAAAAGGTGATGTACGGGTACCATATGAAGAGTTGC spacer
 length: 36 repeater length: 30
 35328 1157659 GTTAAATCAGACCAAAATGGGATTGAAAT GAGATTTTGAAGGTGATGAGGCCCCCGGTGGTTA spacer
 length: 34 repeater length: 30
 35329 1157723 GTTAAATCAGACCAAAATGGGATTGAAAT CCTCAAATGTATCCGTCTCCTCGTCGAGGAGACGGG spacer

	length: 36	repeater length: 30	
35330	1157789	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TCAATTTTCGGGTTGAAACTGCTGAGTTCAACATAGT spacer
	length: 37	repeater length: 30	
35331	1157856	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AGGGCGATTAAGGAGACATTCACGGTTAAATCAGAGG spacer
	length: 37	repeater length: 30	
35332	1157923	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CTGCAGGGATGCTATTATCCTAGACTGCCTAGTAAC spacer
	length: 36	repeater length: 30	
35333	1157989	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TCAGCACAGGAACACGGCAGGCCAGCACCGGTTTCAG spacer
	length: 37	repeater length: 30	
35334	1158056	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AGTTCAGCATATCATCAGTCTTCAAGGCGGTTCCG spacer
	length: 35	repeater length: 30	
35335	1158121	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GGAAACGGGTTGAGCTCGCATTCAAGGGTTCAGGG spacer
	length: 35	repeater length: 30	
35336	1158186	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TATCTTTTCAGCATGTCTTGAACGTTTCAATATTCA spacer
	length: 37	repeater length: 30	
35337	1158253	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TGGTGATCTACAGCAGGAACTATACAAGGAGGTT spacer
	length: 35	repeater length: 30	
35338	1158318	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GTATAGGGGCTGTGTTCTCTGATTTCTCTTCAATGA spacer
	length: 37	repeater length: 30	
35339	1158385	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TTATTCTTTTTTCGTTTCGTTAGGGTGCATAGTTGTAC spacer
	length: 37	repeater length: 30	
35340	1158452	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	ATAGGAAAGCATTATACTGGCTGCTGTGCCGCCATT spacer
	length: 37	repeater length: 30	
35341	1158519	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TAAATCAGCTACTCTCAGGGGCACTCGCAAGGCAGA spacer
	length: 36	repeater length: 30	
35342	1158585	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TTAATAATCTGGATAGTGCAACGGGGGTTGGGCTTCCACTAT
	spacer length: 43	repeater length: 30	
35343	1158658	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GTATTTCTGAATGAATTCGAGTATAAAGGCGTGAGA spacer
	length: 36	repeater length: 30	
35344	1158724	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AACGCCGTCACGGGGCCCTGCTGATGAACCTTAACCC spacer
	length: 37	repeater length: 30	
35345	1158791	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CTGTATGTCACTGTCTTTTTATTTTCTGTTTCGACG spacer
	length: 36	repeater length: 30	
35346	1158857	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AATCATGTTGCAGTCATGAGAATGACAACAAGTGGG spacer
	length: 36	repeater length: 30	
35347	1158923	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GGCGGAGGGAGTTCATCACTGAGGTCCTCGCCTTCC spacer
	length: 36	repeater length: 30	
35348	1158989	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TTTATTTTTTTTGGAGGTGTACCCATCAATTCCCGTCT spacer
	length: 37	repeater length: 30	
35349	1159056	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CTGGGGCTAACCCGAATAGCTCGCCTTTACTGTTAT spacer
	length: 36	repeater length: 30	
35350	1159122	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TCTTTTAACAGGTTACGATGCTCTTATCTAATTTA spacer
	length: 36	repeater length: 30	
35351	1159188	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AACTACCCTTATAGTCATACTTCAGGGCTGGGAGGGG spacer
	length: 37	repeater length: 30	
35352	1159255	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	ACGGGATACCGAGGCCCTCGCAGCCAGATCAGAGAG spacer
	length: 36	repeater length: 30	
35353	1159321	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GGGGGAGACTATACCCACCCCAGATGCTTAAACC spacer
	length: 35	repeater length: 30	
35354	1159386	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GAAGGGGTTCCGCCTCCTCTTCTTGGCCTCCTCCTC spacer
	length: 36	repeater length: 30	
35355	1159452	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TATCTCCATCAGATGGGACCCCTGTGGGGCTCCATGT spacer
	length: 37	repeater length: 30	
35356	1159519	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CTTAAACCGTTCGTAAAGCTGCTATGGTCCGCATCGA spacer
	length: 37	repeater length: 30	
35357	1159586	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GTCGGGGTGGAGTCGGACGCCGCCAGTGACTTG spacer
	length: 35	repeater length: 30	
35358	1159651	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	ACTGATAGAAGAGGAGGTCAGGGATGCAGAGGAAG spacer
	length: 35	repeater length: 30	
35359	1159716	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CTTATGGAAAAATCATTCTCCCGCAGACCGGTGAAC spacer
	length: 36	repeater length: 30	
35360	1159782	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CTCATAGTTTCTCTGATGAAATACTACGTTATTTAT spacer
	length: 36	repeater length: 30	
35361	1159848	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TCTGCGCTGTCGATGGGCAGTTCAATGACTGCCCAT spacer
	length: 36	repeater length: 30	
35362	1159914	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TCATAGAAGAAAAAAAAGCCCTTGAGGGCGGTGATGA spacer
	length: 37	repeater length: 30	
35363	1159981	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	ACGGACACGAAGACAGACACACATTTCAATCCCAT spacer
	length: 36	repeater length: 30	
35364	1160047	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	ACCTCTTCAAGAAAGAGAACAACCGCGAACCCAAAAT spacer
	length: 37	repeater length: 30	

35365	1160114	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCTTTCACCTTCACACCATCCCAATCCAGGTGCTTGA	spacer
	length:	36	repeater length:	30
35366	1160180	GTTAAAATCAGACCAAAATGGGATTGAAAT	CAGCGAGGAGGCTCATGAGCTGGTATCTGCGTGCATAT	spacer
	length:	38	repeater length:	30
35367	1160248	GTTAAAATCAGACCAAAATGGGATTGAAAT	TATCTCCTCTCCATGTCCTTGAAAACCTCTAGAGTCA	spacer
	length:	37	repeater length:	30
35368	1160315	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTTCACTGTCATCCTCCGCGAGATCGGGTACACGGT	spacer
	length:	36	repeater length:	30
35369	1160381	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCTCCACGCGGCCTTCTATGGTTTCTTTTTCTGTAGTAG	spacer
	length:	38	repeater length:	30
35370	1160449	GTTAAAATCAGACCAAAATGGGATTGAAAT	CATCTGGAGGGTCTCCACCTTCCACAGGCTCCCCCA	spacer
	length:	37	repeater length:	30
35371	1160516	GTTAAAATCAGACCAAAATGGGATTGAAAT	GAGTGAAGATATTGATTCACTTATTAGCTTAATTC	spacer
	length:	36	repeater length:	30
35372	1160582	GTTAAAATCAGACCAAAATGGGATTGAAAT	GATCATCTATATCCTCTCCTTCAGGTCTCTCGGAGG	spacer
	length:	37	repeater length:	30
35373	1160649	GTTAAAATCAGACCAAAATGGGATTGAAAT	GGTTTGTTCATCCCCTCACACCCCCCTCTGACAT	spacer
	length:	35	repeater length:	30
35374	1160714	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTTCATAGTAGACGCTTGGGGGGTTCTTGGTGATTAG	spacer
	length:	37	repeater length:	30
35375	1160781	GTTAAAATCAGACCAAAATGGGATTGAAAT	TGGTAGAGGGCTTTGTCTGCGTATATGTCACCAATG	spacer
	length:	36	repeater length:	30
35376	1160847	GTTAAAATCAGACCAAAATGGGATTGAAAT	AAGAGGCTGAGAAGCGCAGCGAAACCCTCCAAGCCCT	spacer
	length:	37	repeater length:	30
35377	1160914	GTTAAAATCAGACCAAAATGGGATTGAAAT	ATGTTAGTGCGTATGACTTCGCCATCTCCCAGGCGA	spacer
	length:	36	repeater length:	30
35378	1160980	GTTAAAATCAGACCAAAATGGGATTGAAAT	TTTCAGCACATCATCCACAGTCTTCCGGTACTTGTGT	spacer
	length:	37	repeater length:	30
35379	1161047	GTTAAAATCAGACCAAAATGGGATTGAAAT	AAAGGGGAATTTGTATGTAAATACTACCAATTTGCTT	spacer
	length:	37	repeater length:	30
35380	1161114	GTTAAAATCAGACCAAAATGGGATTGAAAT	GATCATCCACATGATACCACCCGACCACCCGAAAA	spacer
	length:	36	repeater length:	30
35381	1161180	GTTAAAATCAGACCAAAATGGGATTGAAAT	ATGATGAGATAGCAGAAAGGAATGAGTTCTATATCAT	spacer
	length:	37	repeater length:	30
35382	1161247	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCTTCCCAGGCCTTTTCTTGCGGGTCTGCGGGTTT	spacer
	length:	36	repeater length:	30
35383	1161313	GTTAAAATCAGACCAAAATGGGATTGAAAT	TGAGGCTATTACTGATTTTCATAACCTCTCTACTTGG	spacer
	length:	36	repeater length:	30
35384	1161379	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTCTGTTTCTTTCACATCCCCCCCATGTGACTTATAA	spacer
	length:	36	repeater length:	30
35385	1161445	GTTAAAATCAGACCAAAATGGGATTGAAAT	TTGATCAGGGGGAATGGGATACCACCCACCCAGCAG	spacer
	length:	37	repeater length:	30
35386	1161512	GTTAAAATCAGACCAAAATGGGATTGAAAT	TTTGGTTAGTGGTATCATTTATTCCACCTCCATTTCT	spacer
	length:	37	repeater length:	30
35387	1161579	GTTAAAATCAGACCAAAATGGGATTGAAAT	AGGATTTTCGGTTTGTTTTTGATTATCCTTTATATG	spacer
	length:	36	repeater length:	30
35388	1161645	GTTAAAATCAGACCAAAATGGGATTGAAAT	GTTACACCACCCTCCAGGAGTTCATGGAGGAGGACTG	spacer
	length:	38	repeater length:	30
35389	1161713	GTTAAAATCAGACCAAAATGGGATTGAAAT	TTGTCTCTTGCGAATGATTTAACGTCTTCGACGCTAA	spacer
	length:	37	repeater length:	30
35390	1161780	GTTAAAATCAGACCAAAATGGGATTGAAAT	TAGAAATCTGCTCAAGTACTACCGCCAGAACCAACCCC	spacer
	length:	38	repeater length:	30
35391	1161848	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTTGGAAGTAGCGTTTCAGTGGAGGGGTGATGC	spacer
	length:	34	repeater length:	30
35392	1161912	GTTAAAATCAGACCAAAATGGGATTGAAAT	CAGAATCCTCTGGATGAGTTTCTGGGCGTGGGCCTC	spacer
	length:	36	repeater length:	30
35393	1161978	GTTAAAATCAGACCAAAATGGGATTGAAAT	AATGATGTTCTCCGCCAGGTCATCAATTCATCAGG	spacer
	length:	35	repeater length:	30
35394	1162043	GTTAAAATCAGACCAAAATGGGATTGAAAT	GAAAGCGCAGTGCAGAAGAAAGCCTTCGAGTACTATC	spacer
	length:	37	repeater length:	30
35395	1162110	GTTAAAATCAGACCAAAATGGGATTGAAAT	GATCTTCCATGATCTCATAGGCCCTGTCTTCCAGGG	spacer
	length:	36	repeater length:	30
35396	1162176	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTCACAGATGTGCATGTGCAGCGCATCGAACACAT	spacer
	length:	35	repeater length:	30
35397	1162241	GTTAAAATCAGACCAAAATGGGATTGAAAT	GCTATGTGGATGGTGAATAAGAAGAGGAGGATATGA	spacer
	length:	36	repeater length:	30
35398	1162307	GTTAAAATCAGACCAAAATGGGATTGAAAT	AGGAGCTCTTAGACAAGCTCTACTTCCTTGACATCAT	spacer
	length:	37	repeater length:	30
35399	1162374	GTTAAAATCAGACCAAAATGGGATTGAAAT	TAGAAATCTGCTCAAGTACTACCGCCAGAACCAACC	spacer
	length:	36	repeater length:	30
35400	1162440	GTTAAAATCAGACCAAAATGGGATTGAAAT	GGATGTTCTCAGGGAGAAGTATGGGGAGGGGGATGT	spacer

	length: 36	repeater length: 30	
35401	1162506	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CATGGGTCGTGCCATGCAGCCTCTAGGACCTGGTAG spacer
	length: 36	repeater length: 30	
35402	1162572	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TCTCTTTAAGTTCTCGAGATACCTCCGGGAGGCTTCG spacer
	length: 37	repeater length: 30	
35403	1162639	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GGGGGAATCTGGGCGATGCTACCTCCATGACATGATC spacer
	length: 37	repeater length: 30	
35404	1162706	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TGCAGGAGTTCTGCAGGCCTTTCTCACAGATTACAT spacer
	length: 36	repeater length: 30	
35405	1162772	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TAGGTAGCTTCCGCCTCTTTGGCATCTATTTAAATTA spacer
	length: 37	repeater length: 30	
35406	1162839	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AAGTTCCTCAATTTGTATATGCACTCTTTCAAATCG spacer
	length: 36	repeater length: 30	
35407	1162905	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GTTGTGTCTGGCTCTGACTGTAAGTGGCGCTGGCTTT spacer
	length: 37	repeater length: 30	
35408	1162972	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CTGCAGCTGCCAGTCTCTCAATCTCATCCGCATAGC spacer
	length: 36	repeater length: 30	
35409	1163038	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GCGTATCTCATCGATACGGAATTGGACTTCGTCTGTCT spacer
	length: 37	repeater length: 30	
35410	1163105	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AGGCCAGTGAAGCCACAGAGCTGCCAACTGTGAGCAT spacer
	length: 37	repeater length: 30	
35411	1163172	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TTAAATTATCAATATAAAATTCGGGCGGCTTCTCTCCTA spacer
	length: 38	repeater length: 30	
35412	1163240	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GACCAAATTCTTCGTCTCCCCGCAGCGCACAGGTAC spacer
	length: 36	repeater length: 30	
35413	1163306	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GTAACTTCTACGAGGAGTCCTACCTCCTCTACACGTTAAA
	spacer length: 41	repeater length: 30	
35414	1163377	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GGGGCAATTGTGGTGGTGGTTTCAGCGCTCCTAGCCGC spacer
	length: 38	repeater length: 30	
35415	1163445	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	ACTACGCAGACACAAAGACAATCATGTTCTCTCTGAA spacer
	length: 38	repeater length: 30	
35416	1163513	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AGGAAGAAACGGCGGAGTATCATGTTATCATTGTACTT spacer
	length: 38	repeater length: 30	
35417	1163581	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GCGTTATGATGCTTATGGTCGTTCTGTGTGGGTAG spacer
	length: 36	repeater length: 30	
35418	1163647	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AATGGGGACTTTGAAGTGTCTGGCCGTGTTTACCCC spacer
	length: 36	repeater length: 30	
35419	1163713	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CAAAAATAATTTCAATGACGTCATAATCTTCAAAAAAA spacer
	length: 38	repeater length: 30	
35420	1163781	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CAAAAATAATTTCAATGACGTCATAATCTTCAAAAAAA spacer
	length: 38	repeater length: 30	
35421	1163849	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GTTTTTTATAAACAAAATATAATGAATGATGATCTTT spacer
	length: 37	repeater length: 30	
35422	1163916	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GATAGTACCATATTCCTCCGCTTGAG spacer
	length: 37	repeater length: 30	
35423	1163983	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CTGTCTTCTTCGGGTTCTGTATCTCCTCCTGGACG spacer
	length: 35	repeater length: 30	
35424	1164048	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	ACTCATATGTCGCATTAGCAGTGCCTGAGAAATAC spacer
	length: 35	repeater length: 30	
35425	1164113	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CAGGTTTCGGCAGTTGATGTTGTGCTCTTTGTCTGTGT spacer
	length: 37	repeater length: 30	
35426	1164180	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	ACATATGAAAATTATGTAAATGAAGTTATAATACAAA spacer
	length: 37	repeater length: 30	
35427	1164247	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GAGGGAATGGTTCACAGGAGGTACACCACCATCCCT spacer
	length: 37	repeater length: 30	
35428	1164314	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	ACTGATTAGGAAGACCTCGCCATCAACCCTAAACCTA spacer
	length: 37	repeater length: 30	
35429	1164381	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TTGTAGGGCGCGAGGCTGTGCCAGGCCCGCTGAGG spacer
	length: 36	repeater length: 30	
35430	1164447	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TCCTGTTTTAAATCACTAAATTTTTTTATAATTATAT spacer
	length: 37	repeater length: 30	
35431	1164514	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CATGAAGAGGAGTGAGACGATACGGTAGAGTTCCTT spacer
	length: 36	repeater length: 30	
35432	1164580	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CATGGTGGGTGAGGGTGGCGTCCACGCCGTACCTGTAA spacer
	length: 38	repeater length: 30	
35433	1164648	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AGAGGATCGA
35434			
35435			
35436	GCA_008152015.1_ASM815201v1_genomic.fna (PilerCR):		
35437	START	REPEAT	
	SPACER		

35438 crispr 1
35439 82134 CTTTCAATTCTCCCAGAGTCTTATTGCAAC CCAGCCCGCGTGATTGAGTTTAAGTATGACACGCTTG spacer
length: 37 repeater length: 30
35440 82201 CTTTCAATTCTCCCAGAGTCTTATTGCAAC TCAGAGTCCAGCCCGCTGAACTCTATTTCTCGCGGA spacer
length: 37 repeater length: 30
35441 82268 CTTTCAATTCTCCCAGAGTCTTATTGCAAC ACCGTCGTGCGCTTCCCCATTAGAACCACCGTAGTA spacer
length: 36 repeater length: 30
35442 82334 CTTTCAATTCTCCCAGAGTCTTATTGCAAC TTTTTTGACTATATGCTTTGGTGATTGCTATGCTCGA spacer
length: 37 repeater length: 30
35443 82401 CTTTCAATTCTCCCAGAGTCTTATTGCAAC GGTACATTGTGCTTTTCAGCTTGTCCAGGTTCGAAAT spacer
length: 37 repeater length: 30
35444 82468 CTTTCAATTCTCCCAGAGTCTTATTGCAAC CAAAGCTGAAGCGGTTGAACTCGGCTTAGAAAAGGCT spacer
length: 37 repeater length: 30
35445 82535 CTTTCAATTCTCCCAGAGTCTTATTGCAAC AAGCGTGCCCT
35446
35447
35448 crispr 2
35449 82688 CTTTCAATTCTCCCAGAGTCTTATTGCAAC AGATCCGCCCTCAAAAACACGGAGGTGGTCGGAATGA spacer
length: 37 repeater length: 30
35450 82755 CTTTCAATTCTCCCAGAGTCTTATTGCAAC AGATCCGCCCTCAAAAACACGGAGGTGGTCGGAATGA spacer
length: 37 repeater length: 30
35451 82822 CTTTCAATTCTCCCAGAGTCTTATTGCAAC ACGGACGGCCTCGTGCTCTTCTATGCCCCGATAGCG spacer
length: 37 repeater length: 30
35452 82889 CTTTCAATTCTCCCAGAGTCTTATTGCAAC CAAAGCTGTGGGCCATTGGGCTCGGGCCAGTCCTCAT spacer
length: 37 repeater length: 30
35453 82956 CTTTCAATTCTCCCAGAGTCTTATTGCAAC GCCTGCTTTCTCCTCTTCATCAGCTCCTCATGTAGTG spacer
length: 37 repeater length: 30
35454 83023 CTTTCAATTCTCCCAGAGTCTTATTGCAAC GATATGGCATTTCCTGCCGTCGGAGTAAGAATTATATA spacer
length: 38 repeater length: 30
35455 83091 CTTTCAATTCTCCCAGAGTCTTATTGCAAC CCTTATCGATTAGACTCTTCATGACCTCTAGGACCT spacer
length: 36 repeater length: 30
35456 83157 CTTTCAATTCTCCCAGAGTCTTATTGCAAC ATGAAGCGCCGCAAGCAGGCTTTAGGGGAGGGCGGCGA spacer
length: 38 repeater length: 30
35457 83225 CTTTCAATTCTCCCAGAGTCTTATTGCAAC CATAGGTATCGCCAGGTTACCAACCCGGCCGCTTGA spacer
length: 37 repeater length: 30
35458 83292 CTTTCAATTCTCCCAGAGTCTTATTGCAAC GGAGATAACT
35459
35460
35461 crispr 3
35462 852192 GTTGCAATAAGACTCTAGGAGAATTGAAAG GAACACCACAACCTGGCGAGATCCTCGACAACGCTACAG spacer
length: 38 repeater length: 30
35463 852260 GTTGCAATAAGACTCTAGGAGAATTGAAAG AATTGGCTGGGGCTGGCTGATGGCTATCATCGTCGG spacer
length: 36 repeater length: 30
35464 852326 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTCTGACAAGTACAAGCGCTTCAAGCTGTTTCCTTGCAA spacer
length: 38 repeater length: 30
35465 852394 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTAATACCCCTAATGCGCTTAGGTTTCGTTTTATTA spacer
length: 37 repeater length: 30
35466 852461 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTTCCAAACCGTTCAACAGCAGAGTCATCACTATCATA spacer
length: 38 repeater length: 30
35467 852529 GTTGCAATAAGACTCTAGGAGAATTGAAAG ACCTAAACTCCAACCTTGCATGTCAGGATAGATGAC spacer
length: 36 repeater length: 30
35468 852595 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAGCTCGTGCTGTCTGAAGCATGCACCTGTCCGGCGT spacer
length: 37 repeater length: 30
35469 852662 GTTGCAATAAGACTCTAGGAGAATTGAAAG CAGATTGGGCAACGCTCACCTTCAACCATATATCATC spacer
length: 37 repeater length: 30
35470 852729 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTGGCGTTTCGAGAGTGAGTGAATAGCCATCAAACG spacer
length: 36 repeater length: 30
35471 852795 GTTGCAATAAGACTCTAGGAGAATTGAAAG GGACGACCCGAACGAGGAGCGCTACGGCGAACTGCTT spacer
length: 37 repeater length: 30
35472 852862 GTTGCAATAAGACTCTAGGAGAATTGAAAG TGCTGCCAAGCCCCGCCATAGAACAATGCCAGTCACT spacer
length: 37 repeater length: 30
35473 852929 GTTGCAATAAGACTCTAGGAGAATTGAAAG GCGATTCTCTATTGTGTAGAGCAGAATGCCGGCGTAG spacer
length: 37 repeater length: 30
35474 852996 GTTGCAATAAGACTCTAGGAGAATTGAAAG TCTCTCAATGCTTGCCTGGCTCAGGGACTACGAAGG spacer
length: 36 repeater length: 30
35475 853062 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTCCCTACCGTTTCGCCTATAAGGGCCACCTTGAAC spacer
length: 36 repeater length: 30
35476 853128 GTTGCAATAAGACTCTAGGAGAATTGAAAG CCCAATGCCCCAATCAGTGGGGAGATTAGGGAGCTG spacer
length: 36 repeater length: 30
35477 853194 GTTGCAATAAGACTCTAGGAGAATTGAAAG TCGTTTCGAGGTTGCTTTGTACATGAGGTACATCA spacer
length: 36 repeater length: 30

35478	853260	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CGACTCTGACTTTCTCTTTTGGGAGGCTGAGCATTATT	spacer
		length: 38	repeater length: 30	
35479	853328	GTTGCAATAAGACTCTAGGAGAATTGAAAG	TCGGCGGGCGCCCCACGCTTCTTTTTTGGGCTTCTCC	spacer
		length: 35	repeater length: 30	
35480	853393	GTTGCAATAAGACTCTAGGAGAATTGAAAG	TCTGTATGAACTGTGGGTGCTGATTGCCTCGGCAAC	spacer
		length: 37	repeater length: 30	
35481	853460	GTTGCAATAAGACTCTAGGAGAATTGAAAG	ATGAGTTTTGCCATGTCTGAATTCTTGAATTCATCC	spacer
		length: 36	repeater length: 30	
35482	853526	GTTGCAATAAGACTCTAGGAGAATTGAAAG	AATACCTGTCCGCCCCAACCCCTATGATGCCTAAGTAG	spacer
		length: 37	repeater length: 30	
35483	853593	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CAATCTCTTTCCTAGGGGTTCAAACAGACCTTCGA	spacer
		length: 36	repeater length: 30	
35484	853659	GTTGCAATAAGACTCTAGGAGAATTGAAAG	TACTACGGTGGTTCTAATGGGGAAGCGCACGACGGT	spacer
		length: 36	repeater length: 30	
35485	853725	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CACTCCTAGTGACCCACTCTCCAGCCACCCCTATATC	spacer
		length: 37	repeater length: 30	
35486	853792	GTTGCAATAAGACTCTAGGAGAATTGAAAG	TTCTGGCCCCCGTAGTGGAGCCTTTCATTGCTTCG	spacer
		length: 37	repeater length: 30	
35487	853859	GTTGCAATAAGACTCTAGGAGAATTGAAAG	TGTTACTCGTCAGCTTCGGTGAAGTGATTCCAGTGCT	spacer
		length: 37	repeater length: 30	
35488	853926	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CTGTATGTTGAGGCATAATTGCTCAGTATTGGAAGCTT	spacer
		length: 38	repeater length: 30	
35489	853994	GTTGCAATAAGACTCTAGGAGAATTGAAAG	AGCGGGGGGGAAGAATGAAGTTTAAACCAGTACGGT	spacer
		length: 36	repeater length: 30	
35490	854060	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CGCTTTAGCCGCTACGACAGTATTGTTTCAGCGTATCA	spacer
		length: 37	repeater length: 30	
35491	854127	GTTGCAATAAGACTCTAGGAGAATTGAAAG	TCGTCTGAAGGAGGTGGTGAAAGGTGGTGTATAGGT	spacer
		length: 36	repeater length: 30	
35492	854193	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CTGGCTCCGTGACAACCTCCACCCTCACTACCCGCTC	spacer
		length: 37	repeater length: 30	
35493	854260	GTTGCAATAAGACTCTAGGAGAATTGAAAG	ACTGATTTTAGGTCTTTGTTGCCAGCGGCTTGCCCTG	spacer
		length: 38	repeater length: 30	
35494	854328	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CGCTGTCCCC	
35495				
35496				
35497	GCA_008326385.1_SulIC007_1.0_genomic.fna (PilerCR) :			
35498	START	REPEAT		
	SPACER			
35499	crispr 1			
35500	477370	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGGAGGCTGACCTGGTTCTAACGCGTAGCTCCCATA	spacer
		length: 36	repeater length: 30	
35501	477436	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGTTCGGCTATCAGGTTAGGGTTGGCTCTAGCTCTTC	spacer
		length: 37	repeater length: 30	
35502	477503	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CCTCAACATAGAGAAAGACTAATCGGCGTAAGAAAAA	spacer
		length: 37	repeater length: 30	
35503	477570	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CATCCTGATCATTGACGGGACTGAAACCCGTCTTTTG	spacer
		length: 37	repeater length: 30	
35504	477637	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CAGAGAAGAAGAGCAAAATATAGATAATTGGAAAAGGA	spacer
		length: 38	repeater length: 30	
35505	477705	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATGCTTTGTATCACTATCCCTTCTGGCAACCTCTTATT	spacer
		length: 38	repeater length: 30	
35506	477773	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ACGACACGCTATATGTAGCAGTGTTAAGTGTTAATG	spacer
		length: 36	repeater length: 30	
35507	477839	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TAATCTAAGTGAGGATTATCATGACAAGTATACAAT	spacer
		length: 36	repeater length: 30	
35508	477905	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CTATGAGTATGAGCATGAACTGAAGAATTGTTTTTT	spacer
		length: 36	repeater length: 30	
35509	477971	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GTCTTCGGCAAGGACTCTCCCGAGGTCCTCTCCTTT	spacer
		length: 37	repeater length: 30	
35510	478038	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTTTTGAATTTGATGTTAACGATAGTATGTTATTAT	spacer
		length: 36	repeater length: 30	
35511	478104	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTTTTGAATTTGATGTTAACGATAGTATGTTATTAT	spacer
		length: 36	repeater length: 30	
35512	478170	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CCGCCGTCGCCACCCGTTGGTGGTGGTGGAGTACCT	spacer
		length: 36	repeater length: 30	
35513	478236	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CGAAGAAGTCGTGAAAGAGCTTCTACAAAAAGACGAG	spacer
		length: 37	repeater length: 30	
35514	478303	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GAGAGTGTCTAACGGTCAGGCTAGGGAAAACGTGAA	spacer
		length: 36	repeater length: 30	
35515	478369	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GGAACGTTTACGGCTTATAGTAATAGTTTCTATATA	spacer
		length: 36	repeater length: 30	

35516 478435 GTTTCAAACCCCTCTAAGGATCACTACAAAC CCAGAAAGATTTATATACCTCTATGACAGAGAGGTATA spacer
length: 38 repeater length: 30
35517 478503 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTTCTTTTCGTATAATTATCCGTTATTGTATCATCA spacer
length: 35 repeater length: 30
35518 478568 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATATACCCGTTAGTTTTTTCGAATTTTTCTCTTTCTTT spacer
length: 37 repeater length: 30
35519 478635 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACTTTCTTCAGATTGTTTAACAATTTAAGAGAGTCAC spacer
length: 37 repeater length: 30
35520 478702 GTTTCAAACCCCTCTAAGGATCACTACAAAC AACCCGTCTTTTCGTAGTTCTTCAGCGGTGAGCGTTGT spacer
length: 37 repeater length: 30
35521 478769 GTTTCAAACCCCTCTAAGGATCACTACAAAC TATTCCCAGGGACTCGAAGGCTTTCATGATTTGTAG spacer
length: 36 repeater length: 30
35522 478835 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATGTCCCCTTTTAATGCACTCTTCTCTCGTATATCTTTG spacer
length: 39 repeater length: 30
35523 478904 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTACTGGTCTCTGAGGAGGTTCAGCAGTCTCTAGAT spacer
length: 36 repeater length: 30
35524 478970 GTTTCAAACCCCTCTAAGGATCACTACAAAC TACCCAACCTTTCTCGATATATCTCTTTAGCCTGGGG spacer
length: 37 repeater length: 30
35525 479037 GTTTCAAACCCCTCTAAGGATCACTACAAAC CAAATTTAATACCTAGAGGACCTAAAACGGCATTCT spacer
length: 36 repeater length: 30
35526 479103 GTTTCAAACCCCTCTAAGGATCACTACAAAC GTCTGAGCAC
35527
35528
35529 crispr 2
35530 507208 GTTGAACCCATAAAGGGATTGAAAG CTTATCATTTTGATTTGTATAAATTGCAAGTCCGTTAGTTT spacer
length: 40 repeater length: 25
35531 507273 GTTGAACCCATAAAGGGATTGAAAG ACTTATCATTATACGTATCCGTAGCATACTCTAAAACTCTC spacer
length: 42 repeater length: 25
35532 507340 GTTGAACCCATAAAGGGATTGAAAG TTTATTTCTACATCCTTAAAGCCATATTTCTTCTGAAA spacer
length: 38 repeater length: 25
35533 507403 GTTGAACCCATAAAGGGATTGAAAG CCATATCCTTGGCTGTAACCTTCACCAGGATCCCTCTTAA spacer
length: 40 repeater length: 25
35534 507468 GTTGAACCCATAAAGGGATTGAAAG TTAGCACACCAGGCTCCTTTGAGAAACCGCTCTTCGT spacer
length: 37 repeater length: 25
35535 507530 GTTGAACCCATAAAGGGATTGAAAG AGGGACGCCTGGGAGGAAAGCCCTGTCCAGGGGGTAACCAT spacer
length: 42 repeater length: 25
35536 507597 GTTGAACCCATAAAGGGATTGAAAG TGATGATATAGATGAGTTCTACTACCGATGAGTTTGAAAA spacer
length: 40 repeater length: 25
35537 507662 GTTGAACCCATAAAGGGATTGAAAG CGGTATATGCAAACCTTCTTCCTCATGTTAGAATGATG spacer
length: 37 repeater length: 25
35538 507724 GTTGAACCCATAAAGGGATTGAAAG CCGGATAGCACTGCCTGCCGTAGAGGTTGTAATTGAAC spacer
length: 39 repeater length: 25
35539 507788 GTTGAACCCATAAAGGGATTGAAAG TCCTCTAGCCTTTTCTTTACATCAATCTTCTTCAA spacer length:
35 repeater length: 25
35540 507848 GTTGAACCCATAAAGGGATTGAAAG ATATCGTAGAACAGTGATTTTTTCGTTGGTCTGAGGCGT spacer
length: 38 repeater length: 25
35541 507911 GTTGAACCCATAAAGGGATTGAAAG CTACTTTGTGCCATACGATAAGTTCATGTCATTAG spacer length:
35 repeater length: 25
35542 507971 GTTGAACCCATAAAGGGATTGAAAG GATAAGTCTTACTATAACAGAGGTTTTCCACATACGTAT spacer
length: 39 repeater length: 25
35543 508035 GTTGAACCCATAAAGGGATTGAAAG CCACTACTATCGGATCAAATAATAAAAAAGGATCCGAAATGT spacer
length: 42 repeater length: 25
35544 508102 GTTGAACCCATAAAGGGATTGAAAG TTTATTAATTTTATTCCGCTATATTTAGTAATTCTGTATTT spacer
length: 41 repeater length: 25
35545 508168 GTTGAACCCATAAAGGGATTGAAAG ATGGGTATGCTCAATTGGGCTTCAACATCGAAGAGCCTTG spacer
length: 40 repeater length: 25
35546 508233 GTTGAACCCATAAAGGGATTGAAAG TGCTCATGGGCGGGGAGGTTTGCGAGAAAATTAATGAAAAC spacer
length: 41 repeater length: 25
35547 508299 GTTGAACCCATAAAGGGATTGAAAG GAAACAACAT
35548
35549
35550 crispr 3
35551 519989 CTTTCAATCCCTTTATGGGTTCAAC ATGACGTATGTATCAACAAGACAGACGACCCAGAGTT spacer
length: 37 repeater length: 25
35552 520051 CTTTCAATCCCTTTATGGGTTCAAC CTGGAAGTGACCCTCGAGGGAAGAGGGCTTGGCATCACAAG spacer
length: 41 repeater length: 25
35553 520117 CTTTCAATCCCTTTATGGGTTCAAC AATTTCTTTTCGTATGACGAGCATGGCACTCTCGAAATA spacer
length: 39 repeater length: 25
35554 520181 CTTTCAATCCCTTTATGGGTTCAAC ATACAAGCACGATACAAGGGTATACTGTGTGGTAAGAAT spacer
length: 39 repeater length: 25
35555 520245 CTTTCAATCCCTTTATGGGTTCAAC ATAATTACCCAAGTCAAGGCTGACATGGATTCAAAGGTAC spacer

length: 40 repeater length: 25
35556 520310 CTTTCAATCCCTTTATGGGTTCAAC ATGAAAAAGAATTGCAAGATGCTATTAACGAATTAGCGA spacer
length: 39 repeater length: 25
35557 520374 CTTTCAATCCCTTTATGGGTTCAAC AGATTTAAAAAAATTTCTTAAATTTACAATATTCTT spacer
length: 38 repeater length: 25
35558 520437 CTTTCAATCCCTTTATGGGTTCAAC GGGAAACGGGGAAGGAGTTAGCTGTCACGCTCCTCTTTA spacer
length: 39 repeater length: 25
35559 520501 CTTTCAATCCCTTTATGGGTTCAAC ATGTTGATAAGACGTTATCTATCAAACCTTCCTCAGTCT spacer
length: 39 repeater length: 25
35560 520565 CTTTCAATCCCTTTATGGGTTCAAC CTATCATGAAAACACATATTCATGAAGAGAATAACATAGAA spacer
length: 41 repeater length: 25
35561 520631 CTTTCAATCCCTTTATGGGTTCAAC TGCTCACCTGTACAAGCGAACGGAAGTGCAGGATGC spacer length:
36 repeater length: 25
35562 520692 CTTTCAATCCCTTTATGGGTTCAAC TCACTCTCGTGACTTTCCAACCTGATTGGGGGTATACT spacer
length: 38 repeater length: 25
35563 520755 CTTTCAATCCCTTTATGGGTTCAAC TTAGTCATTACGTCTACATCTCTAGTGATTTTACTATT spacer
length: 38 repeater length: 25
35564 520818 CTTTCAATCCCTTTATGGGTTCAAC AGACTTCCTGAAGGCACCATCATTACAAGTGAAGAAGAGTT spacer
length: 41 repeater length: 25
35565 520884 CTTTCAATCCCTTTATGGGTTCAAC TGTA AAAATTACAGATAAAGAACAAAAACAGGTTAGA spacer
length: 37 repeater length: 25
35566 520946 CTTTCAATCCCTTTATGGGTTCAAC ATTCGATTCATGTTTGCCAATAACCAGTGGAGTAGGTTA spacer
length: 39 repeater length: 25
35567 521010 CTTTCAATCCCTTTATGGGTTCAAC TTCGGAATCGTTGAAAGCTAAGGTAAAGAAGAAAATAGT spacer
length: 39 repeater length: 25
35568 521074 CTTTCAATCCCTTTATGGGTTCAAC CAATGCGATGTTGCTGAATCGATAATATTTTCAAGATTTA spacer
length: 39 repeater length: 25
35569 521138 CTTTCAATCCCTTTATGGGTTCAAC GTACTGCTACTTCGCTTTGATGCGTAATCTATTAGTAAA spacer
length: 39 repeater length: 25
35570 521202 CTTTCAATCCCTTTATGGGTTCAAC CGGGGACCAT
35571
35572
35573 crispr 4
35574 561515 CTTTCAATCCCGTTATGGGTTCAAC CAGAGTCCTTTATTTGAAGGACATAAATTACGTCAATAA spacer
length: 39 repeater length: 25
35575 561579 CTTTCAATCCCGTTATGGGTTCAAC CAGAGTCTAAAGTTGATTATCATATAGGTGCGTTTAGGAG spacer
length: 40 repeater length: 25
35576 561644 CTTTCAATCCCGTTATGGGTTCAAC TAAATCACGATTATCACGATAAGTATAATATCCGATATTT spacer
length: 40 repeater length: 25
35577 561709 CTTTCAATCCCGTTATGGGTTCAAC AAACCTTCAAATAAAAGTAGGAAATAAAATTGTTAAATT spacer
length: 39 repeater length: 25
35578 561773 CTTTCAATCCCGTTATGGGTTCAAC GAATTACGTTTTTCCAGATCATTTGTTGGAAGGAAAGGT spacer
length: 39 repeater length: 25
35579 561837 CTTTCAATCCCGTTATGGGTTCAAC GGTGATTAGATGACCATTAATCTTTACGGCAAGCAATA spacer
length: 38 repeater length: 25
35580 561900 CTTTCAATCCCGTTATGGGTTCAAC AAACCTGGGTCTAAAGGAAGGCGATGAAGAGAAAGAGAATA spacer
length: 40 repeater length: 25
35581 561965 CTTTCAATCCCGTTATGGGTTCAAC ATAACCTAAAGAAGATAAATTCTGGTATCTCCTATCTTGT spacer
length: 40 repeater length: 25
35582 562030 CTTTCAATCCCGTTATGGGTTCAAC TGATTTTCTTTTTATGGGAATTGTCAGACTGAAAGA spacer length:
36 repeater length: 25
35583 562091 CTTTCAATCCCGTTATGGGTTCAAC TAGTAGTTTTTCTATCCCCGTCGGTGCGACGAGGA spacer length:
36 repeater length: 25
35584 562152 CTTTCAATCCCGTTATGGGTTCAAC ATTAGGAAGAGTGGCATTGCAAGTGTGCTGGGCTAT spacer
length: 38 repeater length: 25
35585 562215 CTTTCAATCCCGTTATGGGTTCAAC AGACGGTCCT
35586
35587
35588 crispr 5
35589 570976 GTTTGTAGCAATCCTTAGAGGGTTTGAAAC CTCCTTCATCAACTGCCACGATGTGCATGACGTC spacer
length: 35 repeater length: 30
35590 571041 GTTTGTAGCAATCCTTAGAGGGTTTGAAAC AGGCATGGAAGGAGAACTTTAGGCAACCATGCATTA spacer
length: 36 repeater length: 30
35591 571107 GTTTGTAGCAATCCTTAGAGGGTTTGAAAC TTCCCCGTAACTGGGGAGTTTTCCGAAACCATTTCG spacer
length: 37 repeater length: 30
35592 571174 GTTTGTAGCAATCCTTAGAGGGTTTGAAAC AAATCGAGTTCTCTTCACCTCCTTCTTTCCCCCA spacer
length: 36 repeater length: 30
35593 571240 GTTTGTAGCAATCCTTAGAGGGTTTGAAAC TAATAGCACTAACGATATCAACGAAGCTAATATAT spacer
length: 35 repeater length: 30
35594 571305 GTTTGTAGCAATCCTTAGAGGGTTTGAAAC CGAGGGAGGAGCCGCCGCCCTCGCCGTTTCTCCGG
35595

35596
35597 crispr 6
35598 576369 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCTATTCAATAAGAAACGGAGGTGAGGAAAATGGGTAC spacer
length: 38 repeater length: 30
35599 576437 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTTGTAATCATCATTTTCAAATATTTGATCATTGGC spacer
length: 36 repeater length: 30
35600 576503 GTTTCAAACCCCTCTAAGGATCACTACAAAC TATTCTATAATTAAAGAATACTGCAATTTTTAGAAAAA spacer
length: 38 repeater length: 30
35601 576571 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACCACCTGAAGTATTCATTGCATTTCCAAATGAAGA spacer
length: 36 repeater length: 30
35602 576637 GTTTCAAACCCCTCTAAGGATCACTACAAAC GCAAAGGGATATGCACAGGTAGGAAAGAAGGTTCTTC spacer
length: 37 repeater length: 30
35603 576704 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATCACATTGTCCTTGGCATTCCATTATTTCTGATATG spacer
length: 37 repeater length: 30
35604 576771 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCTCTTGTAGATTTAAAAAAAATTTCTTACAATTTA spacer
length: 37 repeater length: 30
35605 576838 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACCCACTCCAAACACGATGAGTATTAGGAGCTATTA spacer
length: 37 repeater length: 30
35606 576905 GTTTCAAACCCCTCTAAGGATCACTACAAAC TACTATCGTCAGAGGGAATTGAAAGTCTACATCGGT spacer
length: 36 repeater length: 30
35607 576971 GTTTCAAACCCCTCTAAGGATCACTACAAAC CGTATTAATGAAGCCTGAACCGGTCTTCCATACTCTC spacer
length: 38 repeater length: 30
35608 577039 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTGTAGTGTTAATATTGAATGCGCCGACTAATGCGC spacer
length: 36 repeater length: 30
35609 577105 GTTTCAAACCCCTCTAAGGATCACTACAAAC TAAACCGCGAAAAAGTTTAGGAAATATGCCTTCGTGT spacer
length: 38 repeater length: 30
35610 577173 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTCTCATAGAGAAGGGTACTGACATCAGACTGGGGACAT spacer
length: 39 repeater length: 30
35611 577242 GTTTCAAACCCCTCTAAGGATCACTACAAAC AATATTAAAGTATCGAAATCTTCTTTGTTCCATGT spacer
length: 35 repeater length: 30
35612 577307 GTTTCAAACCCCTCTAAGGATCACTACAAAC TGAAGTGGTTAGTGAATTTCGGTGATGCCATAGGAAA spacer
length: 36 repeater length: 30
35613 577373 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACATCCGCCGTAGGGCACGAAGCAACAGCAAAATTGC spacer
length: 37 repeater length: 30
35614 577440 GTTTCAAACCCCTCTAAGGATCACTACAAAC CCTTATATACCTTTTCATGTACCATTTTTCTCTCTGAT spacer
length: 38 repeater length: 30
35615 577508 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACCTGTTGGATGATCACAGGTCCAGGCTCAAGAGTACGG spacer
length: 39 repeater length: 30
35616 577577 GTTTCAAACCCCTCTAAGGATCACTACAAAC CGAAATGAAATTTTCGGCGTTACTAGTATTTTTCTACTG spacer
length: 38 repeater length: 30
35617 577645 GTTTCAAACCCCTCTAAGGATCACTACAAAC CCTATCGTGAATATATTGCCTCATTACTTGGCATTTTA spacer
length: 38 repeater length: 30
35618 577713 GTTTCAAACCCCTCTAAGGATCACTACAAAC TAGCTACTCTCTCAGTGATTTTTTGCTCTTCATCTA spacer
length: 36 repeater length: 30
35619 577779 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCCCCCTCAAGGAGGGGGACAGATATGTGATCGAAGC spacer
length: 37 repeater length: 30
35620 577846 GTTTCAAACCCCTCTAAGGATCACTACAAAC TGGTAGAAAATGTGTCGTAAGCATTGAAGACGAAAACA spacer
length: 38 repeater length: 30
35621 577914 GTTTCAAACCCCTCTAAGGATCACTACAAAC GAAAACAATACTTTGCGTTGTATAGCCTTAGAAAAA spacer
length: 36 repeater length: 30
35622 577980 GTTTCAAACCCCTCTAAGGATCACTACAAAC AGGACGAGGGTTAGGAATATTGGGGGTAGTTGGGGTAA spacer
length: 38 repeater length: 30
35623 578048 GTTTCAAACCCCTCTAAGGATCACTACAAAC CCGCTCCTACTTCTCCTCCACGAAGCGCCGAAGCTG spacer
length: 36 repeater length: 30
35624 578114 GTTTCAAACCCCTCTAAGGATCACTACAAAC AAGCGTGCCAAGACAGAGAAGACGATATGTCGTGA spacer
length: 35 repeater length: 30
35625 578179 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTCTGGGTTGCTGTGCGGTGCTGGAATATTCATTATAT spacer
length: 37 repeater length: 30
35626 578246 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCTTCATCTATCTCATGTGGTTCCCAGTCCTTCGGTA spacer
length: 37 repeater length: 30
35627 578313 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATTATCGCATCAATCTGTGACTGATTTACATGAATTCC spacer
length: 38 repeater length: 30
35628 578381 GTTTCAAACCCCTCTAAGGATCACTACAAAC AAAGCTCAGAACGAAAAGATAGAGCTACTTGCAAAGG spacer
length: 37 repeater length: 30
35629 578448 GTTTCAAACCCCTCTAAGGATCACTACAAAC GCAAAGGGATATGCACAGGTAGGAAAGAAGGTTCTTC spacer
length: 37 repeater length: 30
35630 578515 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATCACATTGTCCTTGGCATTCCATTATTTCTGATATG spacer
length: 37 repeater length: 30
35631 578582 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCTCTTGTAGATTTAAAAAAAATTTCTTACAATTTA spacer
length: 37 repeater length: 30
35632 578649 GTTTCAAACCCCTCTAAGGATCACTACAAAC CCATTTGCTACATTTTTTCTGGTCTTCTTCATCTAATG spacer

length: 37 repeater length: 30
35633 578716 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCAGAAATAGCTTCCGTATCATCTCTTTTTACAAAGG spacer
length: 37 repeater length: 30
35634 578783 GTTTCAAACCCCTCTAAGGATCACTACAAAC AATACACTATGGGACATAAAGTATACATATATTTTC spacer
length: 35 repeater length: 30
35635 578848 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATAGGAAGTATTGCAAGTAACGTTGAATCATTATT spacer
length: 35 repeater length: 30
35636 578913 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTCGACACTGTGGATGTTTTTCTATTGTATTCCCA spacer
length: 35 repeater length: 30
35637 578978 GTTTCAAACCCCTCTAAGGATCACTACAAAC CAGATTTCATCATTGACGGGGGCAAACCCCGTCGACT spacer
length: 36 repeater length: 30
35638 579044 GTTTCAAACCCCTCTAAGGATCACTACAAAC TGAAAACACATATGTGTTTTTCATTTACGTGATTTTTCA spacer
length: 38 repeater length: 30
35639 579112 GTTTCAAACCCCTCTAAGGATCACTACAAAC TACTACGATCAATTAGCAGCGCTTCCAGCACAAATAG spacer
length: 37 repeater length: 30
35640 579179 GTTTCAAACCCCTCTAAGGATCACTACAAAC GTACATTGAGACGGTTTTAGTTGAAGTCCATTCTGTA spacer
length: 37 repeater length: 30
35641 579246 GTTTCAAACCCCTCTAAGGATCACTACAAAC TGGAGGGAACCTTTTAGGTCCCTCCACTACTACTGGAT spacer
length: 38 repeater length: 30
35642 579314 GTTTCAAACCCCTCTAAGGATCACTACAAAC CGGTCGCCGGAAATTGGGCGAGAATGGACCCATATCG spacer
length: 37 repeater length: 30
35643 579381 GTTTCAAACCCCTCTAAGGATCACTACAAAC AGGACCTATGACCTGACTTTCTGACTGTGACTCTTGAC spacer
length: 38 repeater length: 30
35644 579449 GTTTCAAACCCCTCTAAGGATCACTACAAAC CTATATAACCAATTGACTCAACATATCGATAATAAATA spacer
length: 38 repeater length: 30
35645 579517 GTTTCAAACCCCTCTAAGGATCACTACAAAC CATCAAGAAGTATACCATTTTCTTGGCTGACTTGAAC spacer
length: 37 repeater length: 30
35646 579584 GTTTCAAACCCCTCTAAGGATCACTACAAAC AAAATCAAGCAAACATCTCTAGCCCACTTAATGTTCA spacer
length: 37 repeater length: 30
35647 579651 GTTTCAAACCCCTCTAAGGATCACTACAAAC CAGCTTGGAAGAACTGGAGAAATATACGAAAGTAAA spacer
length: 36 repeater length: 30
35648 579717 GTTTCAAACCCCTCTAAGGATCACTACAAAC CTTCTTTTGCCTTCATAATTTACCTCTGGCTTAGAG spacer
length: 37 repeater length: 30
35649 579784 GTTTCAAACCCCTCTAAGGATCACTACAAAC CCATTTGGAGATTTGCCTTAAATCCAAATTCCC GGCA spacer
length: 38 repeater length: 30
35650 579852 GTTTCAAACCCCTCTAAGGATCACTACAAAC GGCAGTGAACCTCTCAAGGTAAGTTTTTTTTTATTAT spacer
length: 36 repeater length: 30
35651 579918 GTTTCAAACCCCTCTAAGGATCACTACAAAC CCGCGGTCGGACACGAAGCTACCGCACGCCTACTAA spacer
length: 36 repeater length: 30
35652 579984 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCTCTTTGTCCCTATCATGACAGCCCTAGTGCAATCA spacer
length: 38 repeater length: 30
35653 580052 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTTTCATTCTTCTAAAAATAATAGAAAAGCTTAAA spacer
length: 35 repeater length: 30
35654 580117 GTTTCAAACCCCTCTAAGGATCACTACAAAC CTATGTGACTTAAATGACAGAGGAGTGTATCGGATT spacer
length: 37 repeater length: 30
35655 580184 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTTCGGGTCTGTAAGTCTTACTTTTACGGTTATTCGA spacer
length: 38 repeater length: 30
35656 580252 GTTTCAAACCCCTCTAAGGATCACTACAAAC AGTATGGCACCGATCACACCGCCTGCCCTGAAATTG spacer
length: 37 repeater length: 30
35657 580319 GTTTCAAACCCCTCTAAGGATCACTACAAAC CCGTAATCGTATCGATAACTCTGAAAGTTGATCAAGAAAG
spacer length: 40 repeater length: 30
35658 580389 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATTACACTGATTTTAGTTCTTCTTCTCATCTCCTT spacer
length: 36 repeater length: 30
35659 580455 GTTTCAAACCCCTCTAAGGATCACTACAAAC AGTGACGACGATATTTGCTGTAGTCGTCTTCATATT spacer
length: 36 repeater length: 30
35660 580521 GTTTCAAACCCCTCTAAGGATCACTACAAAC AAGATAACAAGAGATAGGGATGTAATGGTTGATTTGA spacer
length: 37 repeater length: 30
35661 580588 GTTTCAAACCCCTCTAAGGATCACTACAAAC TACCTCCTTAGAGAGGGAGGTAGAGGCGAGAGCCT spacer
length: 35 repeater length: 30
35662 580653 GTTTCAAACCCCTCTAAGGATCACTACAAAC CAAACATATCTATGTTTTTCGTTTCTTCTACGCACGA spacer
length: 38 repeater length: 30
35663 580721 GTTTCAAACCCCTCTAAGGATCACTACAAAC GATCTTTAGTCCTTCTGATTCCCTAATTCCGCTCTC spacer
length: 36 repeater length: 30
35664 580787 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATGACAAATTAGCACAGGAACGTTTAGAGGAAAAA spacer
length: 35 repeater length: 30
35665 580852 GTTTCAAACCCCTCTAAGGATCACTACAAAC GGAGGCGTTTCAAACGCTACGGTGACTGTAGAACT spacer
length: 35 repeater length: 30
35666 580917 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACGAAGTTTCAGTTTCTATTTATGAACGGCTATGTCGA spacer
length: 38 repeater length: 30
35667 580985 GTTTCAAACCCCTCTAAGGATCACTACAAAC TATACGCCTTCTTCCTAAACCCGATAATAAAGATAA spacer
length: 36 repeater length: 30

35668	581051	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AAAGAATTATCAACGCTAACGGTAGTGCTATTTCGCCT	spacer
		length: 37	repeater length: 30	
35669	581118	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTACACATTAACAATTGTCCAGGGAGAGAGATATGGA	spacer
		length: 37	repeater length: 30	
35670	581185	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CACCTAACCAAACGGGAAAGTCGTTATTGGTAGATG	spacer
		length: 36	repeater length: 30	
35671	581251	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CCCCGATATA	
35672				
35673				
35674		crispr 7		
35675	581317	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CGGGCTCGGCTCTACTACGTACCATGTGTATTTCTTCTCTTCCTT	
		spacer length: 45	repeater length: 30	
35676	581392	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ACGTCCTTACTTTTTTGAATAGTCAAAGAGTACTG	spacer
		length: 36	repeater length: 30	
35677	581458	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTTCCCGTTTCCCGCAAATGTAACGGACTTCATGTAT	spacer
		length: 37	repeater length: 30	
35678	581525	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATATATGTCTTTCAAGATTTCTATAGCCATAGGCGA	spacer
		length: 36	repeater length: 30	
35679	581591	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATGAATATATTTCTAAAAGCTCCTTCGACAGCTCTAC	spacer
		length: 37	repeater length: 30	
35680	581658	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GCTCTACTTCTGTAATATGCCTTTTAGGCCGTTTAT	spacer
		length: 36	repeater length: 30	
35681	581724	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGAATGCAGTTACTCCAAATCATGTCCACACTTGATGA	spacer
		length: 38	repeater length: 30	
35682	581792	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGTATTATGAGAGTAGCAGTATCACGGATTCTTTTAT	spacer
		length: 37	repeater length: 30	
35683	581859	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ACGTACTATTGTCGTCCCTAGTTGCAATTGTAATA	spacer
		length: 35	repeater length: 30	
35684	581924	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AAGACATTTGCCGAGACTGGTGAGAAGGAGTTTATGA	spacer
		length: 37	repeater length: 30	
35685	581991	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCGTCCGCTAAATCCATAATATAAACACGTATATCGT	spacer
		length: 37	repeater length: 30	
35686	582058	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CGCCTACTGACAACCTCTCTGAGCACAGATGTACCCCT	spacer
		length: 38	repeater length: 30	
35687	582126	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTAGATTCTGATATCATATCGGTGAACCATTATGGA	spacer
		length: 36	repeater length: 30	
35688	582192	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AAGCTATTTACCGCCCATTCAGTTACATCTATCTTCTT	spacer
		length: 38	repeater length: 30	
35689	582260	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TAGAACTGAACGTTTCGATAAGTTATTCCGTATTTTT	spacer
		length: 37	repeater length: 30	
35690	582327	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TGTGACAAGATCACCTCTTGTCATAAAGATTGTCAA	spacer
		length: 36	repeater length: 30	
35691	582393	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CTCCTCTTCTGAAGAGGAGGAGGAGGAAGAGGACTTTC	spacer
		length: 38	repeater length: 30	
35692	582461	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CATCAACTCCTTAATCGATATTCGAGAGAATAAATC	spacer
		length: 36	repeater length: 30	
35693	582527	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GCGAAGCTGAAGCGTCCCTTCTAGTGATGAGGTAAA	spacer
		length: 37	repeater length: 30	
35694	582594	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CGGCCTCGTC	
35695				
35696				
35697		crispr 8		
35698	601673	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CCGCTACGAATAGACTATTGACTTGATCCGAATCATT	spacer
		length: 37	repeater length: 30	
35699	601740	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTTGCGGGGGCTTGATTCTCTTTTGCCTTCTCTTTTGC	spacer
		length: 38	repeater length: 30	
35700	601808	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CTATGTTGCCAATCGCTACTTTGACGAATTGCAGATGA	spacer
		length: 38	repeater length: 30	
35701	601876	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CTCCTTTGCGAAGGCTTGGGAAATCATAGCGGAGAA	spacer
		length: 36	repeater length: 30	
35702	601942	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTCAGCAGCACCGTCACAGGCTACGCCTCCGCAGCAAA	spacer
		length: 38	repeater length: 30	
35703	602010	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CGTACACATTCTGTGGGCCCTGTAATATTGAACTCTA	spacer
		length: 36	repeater length: 30	
35704	602076	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AAGCTTCGGGACAGATCCCGAAGAAGAAGATCGTCA	spacer
		length: 36	repeater length: 30	
35705	602142	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CGGGGCTATCAGGGTAGCAGTGATGAGAGAGTACTCCTT	spacer
		length: 39	repeater length: 30	
35706	602211	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCGTGGCAAGTGAGCGGTGGATGTTCTACAGCTTAGTG	spacer
		length: 38	repeater length: 30	
35707	602279	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATTGTATTGTCCCGGGGATTTCTATGCACTATTAAA	spacer

length: 36 repeater length: 30
35708 602345 GTTTCAAACCCCTCTAAGGATCACTACAAAC AGCATGAGGACGAAGATTTAGAGGAATGCCCAGCCGG spacer
length: 37 repeater length: 30
35709 602412 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATGGGACATGATAGAGTGGAGTGAACTGAAGATGAAG spacer
length: 38 repeater length: 30
35710 602480 GTTTCAAACCCCTCTAAGGATCACTACAAAC TGTATCTCCCCCTTCTTGACCTTGTTTAGAAGAGTATA spacer
length: 38 repeater length: 30
35711 602548 GTTTCAAACCCCTCTAAGGATCACTACAAAC AAATGGAAGGGTGATATTGCCTAACGGACAGATAC spacer
length: 35 repeater length: 30
35712 602613 GTTTCAAACCCCTCTAAGGATCACTACAAAC AAAAAACCATCATCATTTCCGTTTTTCAGGTCGGTCTT spacer
length: 37 repeater length: 30
35713 602680 GTTTCAAACCCCTCTAAGGATCACTACAAAC CCCCCTGCCCTCTCGACCATTTTTTGTITTTAAGT spacer
length: 35 repeater length: 30
35714 602745 GTTTCAAACCCCTCTAAGGATCACTACAAAC GACATAGCCAGCGCTGTAGGCATAAAAGAAGACACGG spacer
length: 37 repeater length: 30
35715 602812 GTTTCAAACCCCTCTAAGGATCACTACAAAC CTTTTTCTTTCAACTCATTAGCCTTAACAGTGTAGG spacer
length: 36 repeater length: 30
35716 602878 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATAATTATGTTGATGTACCATTAAACATTACTATTG spacer
length: 36 repeater length: 30
35717 602944 GTTTCAAACCCCTCTAAGGATCACTACAAAC CATGAAGGGAAAAACGTGAAAGAGAACGCAGGACTAC spacer
length: 37 repeater length: 30
35718 603011 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACCAATGCGGGAGTGTGAGCCGTACGGATCTATGCAA spacer
length: 38 repeater length: 30
35719 603079 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACGTTTCTAATGATGAAGCGTATTTCAAATATTCTGA spacer
length: 37 repeater length: 30
35720 603146 GTTTCAAACCCCTCTAAGGATCACTACAAAC CTTAGCCCCCTATAATGGCCACCACGAAAACGAAGATG spacer
length: 37 repeater length: 30
35721 603213 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACGTTTCAGCTGATCTAATACTGAACGTTTTGTGTC spacer
length: 36 repeater length: 30
35722 603279 GTTTCAAACCCCTCTAAGGATCACTACAAAC GATACGTATGGAAGCTATGGTCAACATGGGTAAACA spacer
length: 37 repeater length: 30
35723 603346 GTTTCAAACCCCTCTAAGGATCACTACAAAC AAGTTCTTCGACGACGGGCGTATATCAGCTCAACA spacer
length: 35 repeater length: 30
35724 603411 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCTAAGGATTTTCTCGTTAGCCCTGACCATCCCCTT spacer
length: 36 repeater length: 30
35725 603477 GTTTCAAACCCCTCTAAGGATCACTACAAAC AAGAATCAGTTAACAGAACATATCGACAGTCAATA spacer
length: 35 repeater length: 30
35726 603542 GTTTCAAACCCCTCTAAGGATCACTACAAAC CATGATACTATGTGACCCTCCTTTAGGTGGTATTC spacer
length: 35 repeater length: 30
35727 603607 GTTTCAAACCCCTCTAAGGATCACTACAAAC AAGGATAGCCTTAATCTTGTCGAACCTCCCCTACCTC spacer
length: 36 repeater length: 30
35728 603673 GTTTCAAACCCCTCTAAGGATCACTACAAAC TGCATAAGACTTGAAAACAGGCTTTTATTCCATAGTA spacer
length: 37 repeater length: 30
35729 603740 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATTTTAATGACATAAGTTCCACGCTTTAGCCTAAGGC spacer
length: 37 repeater length: 30
35730 603807 GTTTCAAACCCCTCTAAGGATCACTACAAAC CAGAGGGTAGAAGTACTGTCCAGAGTACGTATACTCC spacer
length: 37 repeater length: 30
35731 603874 GTTTCAAACCCCTCTAAGGATCACTACAAAC GGGACAGATCCCGAAGAAGCATATTATCCTCACGAG spacer
length: 36 repeater length: 30
35732 603940 GTTTCAAACCCCTCTAAGGATCACTACAAAC CTACAACAAAACAGATTCTGAATCAGCTGTGGGACATT spacer
length: 37 repeater length: 30
35733 604007 GTTTCAAACCCCTCTAAGGATCACTACAAAC TATGAGCATGAGATACGTCCTTACTTTTTAAGCATAT spacer
length: 37 repeater length: 30
35734 604074 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACGCCACTCATGGAGATATACTAATTGCCTTCCTAC spacer
length: 36 repeater length: 30
35735 604140 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATGTTCAAGGAGGGGTACGAATACGAATACCGAGGTG spacer
length: 37 repeater length: 30
35736 604207 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACCATGCTACCTGTTTTGCTCCTCTCTTGCGGGGGG spacer
length: 36 repeater length: 30
35737 604273 GTTTCAAACCCCTCTAAGGATCACTACAAAC AGAGCAGTAGTATGAAAAACGCTGCACCGCCGAATG spacer
length: 36 repeater length: 30
35738 604339 GTTTCAAACCCCTCTAAGGATCACTACAAAC CGATAGGAAAGAAAATTCTTCCTCTGAACGTATATTA spacer
length: 37 repeater length: 30
35739 604406 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCGAAGTAAATTAGCCCTAAACCTGAATGCCGATAAAA spacer
length: 39 repeater length: 30
35740 604475 GTTTCAAACCCCTCTAAGGATCACTACAAAC TATAACCACCCATTAGGTTCTTGAAGTGCGTCCCTATG spacer
length: 38 repeater length: 30
35741 604543 GTTTCAAACCCCTCTAAGGATCACTACAAAC CGAACCACACCACGACGGACGGGATCTTTGTCCCCC spacer
length: 36 repeater length: 30
35742 604609 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTAGGTCAGGTGGGGACACGTTACCCACGAAGAACG spacer
length: 37 repeater length: 30

35743	604676	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GTGGTCATGGACTTCCCGGAGCCAGCCTCCCCTAAGA	spacer
		length: 37	repeater length: 30	
35744	604743	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCTACTTGGGGTTCCGTGGACTGTATAGCTAGTCCCA	spacer
		length: 37	repeater length: 30	
35745	604810	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GATGAAAATATTTCAGGCAGAACGATAGGACCATACCA	spacer
		length: 38	repeater length: 30	
35746	604878	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATTTCTTTCCTACTATTTTCATTTCTTATCAAAAATATG	spacer
		length: 36	repeater length: 30	
35747	604944	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AAGTCCAGATGGTAGCAGATTAGCTGGTAGTTGTAGGG	spacer
		length: 38	repeater length: 30	
35748	605012	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CTTGAGCGTAAATAGCAAAGCTGCAGAGAGAGAATG	spacer
		length: 37	repeater length: 30	
35749	605079	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CACTCATGTTACATTAGAATAATTCAAAACTCATA	spacer
		length: 35	repeater length: 30	
35750	605144	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ACCCGCCGCCCGATTACCGTTTTGACCCATCTCC	spacer
		length: 35	repeater length: 30	
35751	605209	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTCATCTCCACGACCTCTTCTGGGATCTGAACGCATTC	spacer
		length: 38	repeater length: 30	
35752	605277	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GTTCGTCATAAAGAGAACCGAAGAATGGAAAGTAGAAA	spacer
		length: 38	repeater length: 30	
35753	605345	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CTGAAGAATTGTTTTTTTGAAATAGTTCAGGAGTATTG	spacer
		length: 38	repeater length: 30	
35754	605413	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CCATCCTCGTGATCTGGGATTCCGTATTAATTCTGTCTA	spacer
		length: 39	repeater length: 30	
35755	605482	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGCAACGGCAAAGTTGCTAACATCGGTTCTAGGGGT	spacer
		length: 36	repeater length: 30	
35756	605548	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CCCTTTGTGCTCCTGTGGCGTTCGAGCGTTCTTGATT	spacer
		length: 37	repeater length: 30	
35757	605615	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CTCGGTGCATTAGCCGGCTTCGTCAGTGATTCCGTAATA	spacer
		length: 39	repeater length: 30	
35758	605684	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GATCATGGAGAGTTTCCAAAATTTTCATCCTTCCACG	spacer
		length: 36	repeater length: 30	
35759	605750	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GCCCTCTTCCTCCCTATTCCCGGTATATCGACGAGTGA	spacer
		length: 38	repeater length: 30	
35760	605818	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GCGGGTTACTTCAGTAACTTAATGATAGCAACAATA	spacer
		length: 36	repeater length: 30	
35761	605884	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GCATCTTTTACTTTCCACCATGAGCCTATTGCTTGAA	spacer
		length: 37	repeater length: 30	
35762	605951	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GGGGTCAATGTCCCATGAACCGAGTGGAATAAAAG	spacer
		length: 37	repeater length: 30	
35763	606018	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AAAAATGAACGCAGAAGAGGAAGCAAAGAGACGTA	spacer
		length: 35	repeater length: 30	
35764	606083	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CGCTACCGAAAGACCGATACCGCTTTACGAATACGTA	spacer
		length: 37	repeater length: 30	
35765	606150	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GGGGAGGCTGGCTCCGGGAAGTCCATGACCACCAAGACTT	spacer
		length: 40	repeater length: 30	
35766	606220	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GGGAAAAAATGATATACATAACAAATGCTCCAA	spacer
		length: 34	repeater length: 30	
35767	606284	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AAAACACCCAAACTGAAAGTCAAATCGAAATGGATT	spacer
		length: 36	repeater length: 30	
35768	606350	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATTGTGGGTGTGCGCGTGTTCGGGTATGAGATCTTT	spacer
		length: 36	repeater length: 30	
35769	606416	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATTATACGAGGAGGCATCTAAGGGAGCTTACACGAGT	spacer
		length: 37	repeater length: 30	
35770	606483	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GCTAACGACTAGGGGGTGAAAGCGATGACAGATTGGAT	spacer
		length: 38	repeater length: 30	
35771	606551	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TGAAAAAATGGAGACACAAAATCAAGGTCGACCAAATT	spacer
		length: 38	repeater length: 30	
35772	606619	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GTGGGGGTGATCGGGATCATTAATTTGTTAAAAAAGA	spacer
		length: 38	repeater length: 30	
35773	606687	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCGATTTTCTTCCTTTTATAACAGTAACATAAAATGG	spacer
		length: 37	repeater length: 30	
35774	606754	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GCAACCCCTGCTGTCTCTTACAAGGAATTAGTAGAAA	spacer
		length: 37	repeater length: 30	
35775	606821	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CCAAGTTTGTAGGGGTCCTTAGAGGGAGTCCACGGAG	spacer
		length: 38	repeater length: 30	
35776	606889	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GCCATCTACGCCTCCTAGTACTGTATATACATCATACA	spacer
		length: 38	repeater length: 30	
35777	606957	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATCTTATCTGGCGAAAGTATGAAGTTGTTATCTTTCAA	spacer
		length: 38	repeater length: 30	
35778	607025	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCAACTCCGCTTCCGACATGATTACCTGCCCTTCTGC	spacer

length: 37 repeater length: 30
35779 607092 GTTTCAAACCCCTCTAAGGATCACTACAAAC CAAACCAGTTTAGGAACTCATGCTCTCAGAAATAGTTGTTT
spacer length: 42 repeater length: 30
35780 607164 GTTTCAAACCCCTCTAAGGATCACTACAAAC GGTGTGGTTCGTAAAAATATCAAGAAGACCGTTTGT spacer
length: 36 repeater length: 30
35781 607230 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCCCTGCGAA
35782
35783
35784 crispr 9
35785 2027125 CTTTCAATCCCGTTATGGGTTCAAC ACGCCGTCGGATTTCGTGATAAAGAGAATAGAGAAGTGA spacer
length: 39 repeater length: 25
35786 2027189 CTTTCAATCCCGTTATGGGTTCAAC GACGGTGTATTAGCCATGGGGTCATTGTGCGCTATGGCTAT spacer
length: 41 repeater length: 25
35787 2027255 CTTTCAATCCCGTTATGGGTTCAAC TAACCCTGAAAGCCGTAAAGTGTGAGGTCTGGTTGGTTC spacer
length: 39 repeater length: 25
35788 2027319 CTTTCAATCCCGTTATGGGTTCAAC ATAACGTATGTAGCTTACCTTATGGTGCTTCTTACTTTAA spacer
length: 40 repeater length: 25
35789 2027384 CTTTCAATCCCGTTATGGGTTCAAC ATGCTCCCAGTTTTGCTGATCTCTTGCGGGGGGCAGTGGTG spacer
length: 41 repeater length: 25
35790 2027450 CTTTCAATCCCGTTATGGGTTCAAC GTAGGGACTTCGGTATTATTGCCGAGTCTCTACTCACGTT spacer
length: 40 repeater length: 25
35791 2027515 CTTTCAATCCCGTTATGGGTTCAAC AGTTTTTCCTATCCCCGTCGGTGCGACGAGGACGA spacer length:
35 repeater length: 25
35792 2027575 CTTTCAATCCCGTTATGGGTTCAAC GTGTCAATGGCAATTTCTAGTGTACGCCTGAAATCATA spacer
length: 40 repeater length: 25
35793 2027640 CTTTCAATCCCGTTATGGGTTCAAC AGTCGGTATCGCGGAAATCGACGACGGCATTTTAGCAAT spacer
length: 39 repeater length: 25
35794 2027704 CTTTCAATCCCGTTATGGGTTCAAC TAACCCTGAAAGCCGTAAAGTGTGAGGTCTGGTTGGTTC spacer
length: 39 repeater length: 25
35795 2027768 CTTTCAATCCCGTTATGGGTTCAAC ATAACGTATGTAGCTTACCTTATGGTGCTTCTTACTTTAA spacer
length: 40 repeater length: 25
35796 2027833 CTTTCAATCCCGTTATGGGTTCAAC ATGCTCCCAGTTTTGCTGATCTCTTGCGGGGGGCAGTGGTG spacer
length: 41 repeater length: 25
35797 2027899 CTTTCAATCCCGTTATGGGTTCAAC GTAGGGACTTCGGTATTATTGCCGAGTCTCTACTCACGTT spacer
length: 40 repeater length: 25
35798 2027964 CTTTCAATCCCGTTATGGGTTCAAC AGTTTTTCCTATCCCCGTCGGTGCGACGAGGACGA spacer length:
35 repeater length: 25
35799 2028024 CTTTCAATCCCGTTATGGGTTCAAC GTGTCAATGGCAATTTCTAGTGTACGCCTGAAATCATA spacer
length: 40 repeater length: 25
35800 2028089 CTTTCAATCCCGTTATGGGTTCAAC AGTCGGTATCGCGGAAATCGACGACGGCATTTTAGCAAT spacer
length: 39 repeater length: 25
35801 2028153 CTTTCAATCCCGTTATGGGTTCAAC TTTCTTTTCAGTCTTGAAGGAAACATCAGGTAAAATC spacer
length: 37 repeater length: 25
35802 2028215 CTTTCAATCCCGTTATGGGTTCAAC CTTTGAAAAATACTAAGAACATCGTAATCGTGAAAAAT spacer
length: 38 repeater length: 25
35803 2028278 CTTTCAATCCCGTTATGGGTTCAAC TCTGTGGCGAAAGGGCACTATATAGTGGAAGAGGTGGATT spacer
length: 40 repeater length: 25
35804 2028343 CTTTCAATCCCGTTATGGGTTCAAC TTTCCAGCAGTATAGTATGCATGTATCTGGAATGCCTAG spacer
length: 39 repeater length: 25
35805 2028407 CTTTCAATCCCGTTATGGGTTCAAC AGCCTCGCCCTTTAGGGCTGGGAGGAAGTCAGTTTGTCA spacer
length: 39 repeater length: 25
35806 2028471 CTTTCAATCCCGTTATGGGTTCAAC AGTTCTATATGGCATGGCTTAACAGTCACGCAGATGA spacer
length: 37 repeater length: 25
35807 2028533 CTTTCAATCCCGTTATGGGTTCAAC CCTTGGATATTTTTTCATTATCCAAGGGTGAATACA spacer
length: 36 repeater length: 25
35808 2028594 CTTTCAATCCCGTTATGGGTTCAAC ATATGTGTCTTGGACGCGACATAGATTCAATGCGTTCAG spacer
length: 39 repeater length: 25
35809 2028658 CTTTCAATCCCGTTATGGGTTCAAC GCGAATTCACCGCAAGTACAGAAAATATCAAGGAAT spacer
length: 36 repeater length: 25
35810 2028719 CTTTCAATCCCGTTATGGGTTCAAC CTATCGTACTTTGCCTTCTTCATTAAACCTGCTACAATA spacer
length: 39 repeater length: 25
35811 2028783 CTTTCAATCCCGTTATGGGTTCAAC ACGATAGTACACCTTCACCGGAAGAACCTTCTTTCCTAAA spacer
length: 40 repeater length: 25
35812 2028848 CTTTCAATCCCGTTATGGGTTCAAC ATAAATAAAACGTGAGAATAAAAATACTTTCCGATATCAA spacer
length: 40 repeater length: 25
35813 2028913 CTTTCAATCCCGTTATGGGTTCAAC TTTACAAGAGCTTTATGGGAACACGAGCAACTTAGAATAT spacer
length: 40 repeater length: 25
35814 2028978 CTTTCAATCCCGTTATGGGTTCAAC TAGAGGACGGTGAGACGTTCTATGCACGCTCACCGCTGA spacer
length: 40 repeater length: 25
35815 2029043 CTTTCAATCCCGTTATGGGTTCAAC GTACTCACGTTTCAATTCAGTTATGTTTTTCATGAAGAATA spacer
length: 39 repeater length: 25

35816 2029107 CTTTCAATCCCGTTATGGGTTCAAC ACGAGACCATAAGGGAAGCTTTTACACGTTTCGTTGAGG spacer
length: 39 repeater length: 25
35817 2029171 CTTTCAATCCCGTTATGGGTTCAAC ACTTTATCTATCTCGGACATCTTAGTAGGTGTATAAACGT spacer
length: 40 repeater length: 25
35818 2029236 CTTTCAATCCCGTTATGGGTTCAAC
35819
35820
35821 crispr 10
35822 2037678 GTTGAACCCATAACGGGATTGAAA GTTCGTCTTCTTGAAGGGAAGAATATATCCTGTTAT spacer
length: 38 repeater length: 24
35823 2037740 GTTGAACCCATAACGGGATTGAAA GGCCTCTGTTTGTCAATTGACGGAAGAGGCGTACTCCAG spacer
length: 39 repeater length: 24
35824 2037803 GTTGAACCCATAACGGGATTGAAA GTCGACCTCAGTTCTTCAGCGGTGAGCGTGGTTAAAAA spacer
length: 38 repeater length: 24
35825 2037865 GTTGAACCCATAACGGGATTGAAA GCACTCTCATCATTGACGGGGCGAACCCCGTCTTTTTCAG spacer
length: 41 repeater length: 24
35826 2037930 GTTGAACCCATAACGGGATTGAAA GCTTCAAGGCAAAGTTAACTAACGGACATGAAGTCGA spacer
length: 37 repeater length: 24
35827 2037991 GTTGAACCCATAACGGGATTGAAA GTCACACCATATCTCCCTTTACTTTTCATATACATCACTG spacer
length: 39 repeater length: 24
35828 2038054 GTTGAACCCATAACGGGATTGAAA GTTATAAGAAGTACGGCTGACGCAGGCACCTTAACGATCTT spacer
length: 41 repeater length: 24
35829 2038119 GTTGAACCCATAACGGGATTGAAA GCTATCCCCATAGACGCATTAGGTATACTATAATTAA spacer
length: 37 repeater length: 24
35830 2038180 GTTGAACCCATAACGGGATTGAAA GCTAGATACGGTATAACTATTTGTTGTGTACACATGTTGG spacer
length: 40 repeater length: 24
35831 2038244 GTTGAACCCATAACGGGATTGAAA GACAGAAAAATGGGGTAAAGAACATCATCCTAATGTAGCC spacer
length: 40 repeater length: 24
35832 2038308 GTTGAACCCATAACGGGATTGAAA GATTTATAGCTCGACTTTACAAATGAATTAGAACTTAATTT spacer
length: 41 repeater length: 24
35833 2038373 GTTGAACCCATAACGGGATTGAAA GATAGTAACGTTATTACCTTTTATCCAAGGGTATTTCCAC spacer
length: 40 repeater length: 24
35834 2038437 GTTGAACCCATAACGGGATTGAAA GATGTTTACGCCATTTCTTTTGAGGTTCTGGAATAT spacer length:
36 repeater length: 24
35835 2038497 GTTGAACCCATAACGGGATTGAAA GTTGCAATAATCCTGGACGGTAACTCCGATAGATCATCCTC spacer
length: 41 repeater length: 24
35836 2038562 GTTGAACCCATAACGGGATTGAAA GTACAATTATGTATCCTTTTTCTTTTATAACATTCTT spacer
length: 37 repeater length: 24
35837 2038623 GTTGAACCCATAACGGGATTGAAA GGTAGGCAACTCTGGTTTAATCTCTATACCAAAGCAT spacer
length: 37 repeater length: 24
35838 2038684 GTTGAACCCATAACGGGATTGAAA GTTAATATTGGAATCCTTAAGTCTAATGCCTTTCTTAA spacer
length: 39 repeater length: 24
35839 2038747 GTTGAACCCATAACGGGATTGAAA GTACCTAGTAAGAGTTACACCCTCCTGTTTCTGATATTTCC spacer
length: 41 repeater length: 24
35840 2038812 GTTGAACCCATAACGGGATTGAAA GAAGGAAGAAGAGGAAGGTGTCCAAAACACATACGTACGTC spacer
length: 41 repeater length: 24
35841 2038877 GTTGAACCCATAACGGGATTGAAA GATCTCAACGTACTTTGCTGAAGGTAGCCCCTTAAGACTACCT spacer
length: 43 repeater length: 24
35842 2038944 GTTGAACCCATAACGGGATTGAAA GAGTCGGTAGGAGGGATGCCGACCCCTCCACCCCATATTGT spacer
length: 41 repeater length: 24
35843 2039009 GTTGAACCCATAACGGGATTGAAA
35844
35845
35846 crispr 11
35847 2153085 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC ATGAAGATACTTCCGAAGTGATAACGGGTAGCAACAC spacer
length: 37 repeater length: 30
35848 2153152 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC TAAACAGCCCCGTTTTAGTAGAGTCGCTAGCTCGT spacer
length: 35 repeater length: 30
35849 2153217 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC TCACATATTGCTAGCTGTCATGTAGTAAAAAATATC spacer
length: 37 repeater length: 30
35850 2153284 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC AGGCTTCTCAATTACAACAAAAGTAGAGCCGAAT spacer
length: 35 repeater length: 30
35851 2153349 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC AAGAAAGCGGTATGTCGACATATACGGTAGGGACAGAG spacer
length: 38 repeater length: 30
35852 2153417 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC TATTTTATATCGCTGTTATACTTCCTCATAACGTTA spacer
length: 36 repeater length: 30
35853 2153483 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC GAGAAGAAGACGGAATAACAGTAACGGGACTCATAAA spacer
length: 37 repeater length: 30
35854 2153550 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC TGCATGTAGCTACTATAATGTATTTTCCAGGGGAAT spacer
length: 36 repeater length: 30
35855 2153616 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC ACGCGTTGGGCAAGAACTGGTCTAATCCGTACCTAA spacer

length: 36 repeater length: 30
35856 2153682 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC ATTTCAAATCACTCAAGCCAGAATTGTTTGAGCTTG spacer
length: 36 repeater length: 30
35857 2153748 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC TTTTTCATAATAACGTAATCTTGTCCTACTTCTGC spacer
length: 36 repeater length: 30
35858 2153814 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC GAGAAGACGGCAGACTGTTGGGTAAAGTATAGGCATA spacer
length: 37 repeater length: 30
35859 2153881 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC CAGAGGACGACGTAAAGGTCAGGGACAGGGTGAGGAAG spacer
length: 38 repeater length: 30
35860 2153949 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC ACCTCAGGGTAGGTGAGGAAATAGCCCGCTTTAGGAG spacer
length: 37 repeater length: 30
35861 2154016 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC GGACAAAACGCCTCCGAAGTTACTCCTCAAGAGTATG spacer
length: 37 repeater length: 30
35862 2154083 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC ATATTCTGTTAAAATCGTTCATTAACGCGTTTATCG spacer
length: 36 repeater length: 30
35863 2154149 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC AAACACCGTTGCCGGTGCTCAGTGGTAATTCGTTTC spacer
length: 36 repeater length: 30
35864 2154215 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC CAATGTAGCAGAAAAATATCTACGAAAGAGAATGAA spacer
length: 36 repeater length: 30
35865 2154281 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC AAATGAAATGAAATGAAATGAAATATATGGACTGGG spacer
length: 37 repeater length: 30
35866 2154348 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC TGATCAACACATCTAGAACTAACTGTATAATGCTCAT spacer
length: 37 repeater length: 30
35867 2154415 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC TATATCCTTTCCCGTTGATAACGTTCTTTTCATATGGAC
spacer length: 39 repeater length: 30
35868 2154484 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC TTGAATTTGAGTAGCGGGTTGAACTGTGATATATTG spacer
length: 36 repeater length: 30
35869 2154550 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC TATGAGTAACAGTCTTTCTCTTCATAGAGCTCTTGAGC spacer
length: 38 repeater length: 30
35870 2154618 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC TCCTCATCTTCATGGGAATCGGTTGGAAGTTCATGGG spacer
length: 37 repeater length: 30
35871 2154685 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC ACTTGGTGTCTCTTGCTCTTGCTCCTAATTCATACTGAAT
spacer length: 39 repeater length: 30
35872 2154754 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC ACATATAGCGTAAAGTTGTCATACCCGTTGTACTTGA spacer
length: 37 repeater length: 30
35873 2154821 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC AATTTGTGATTTTTACTGTTTGAGAGCCTGAAAGGG spacer
length: 36 repeater length: 30
35874 2154887 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC CAAAACCTCTAACTCCTTTAGCCTTCTAACCTTTTA spacer
length: 36 repeater length: 30
35875 2154953 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC TAATCTATGGCGAAACAAAAGCGAATTGAAAGATAA spacer
length: 37 repeater length: 30
35876 2155020 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC GGGGACTTGGTTCAGGAGAATCAACCCATGGCAGA spacer
length: 35 repeater length: 30
35877 2155085 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC TTTTGAAAGTATTGGTAGTTTTTGGTTTTGTAAAATGGT
spacer length: 39 repeater length: 30
35878 2155154 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC TAAATCCTACTGAAGAACAAAAACATTACTAAAGCAG spacer
length: 38 repeater length: 30
35879 2155222 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC GAAGATTTGGCAAGACAAAAGAGACTGACATTAAGCGA spacer
length: 38 repeater length: 30
35880 2155290 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC CAGCGAGGAGGTGAAAAAATGGCTAAATCGAAAAGA spacer
length: 36 repeater length: 30
35881 2155356 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC GATTAATGGTACCTACAATAGTAGAGTACAAACAACC spacer
length: 37 repeater length: 30
35882 2155423 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC TCTTTAAGTCCGTCACATAGAAAATCTAGTTCTTCCC spacer
length: 37 repeater length: 30
35883 2155490 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC CTGCCAATGGGCAATGGCAACAAGTAGTAGTAAGTGT spacer
length: 37 repeater length: 30
35884 2155557 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC TAAAAAAGATGAGTATTACTTCATTCTCACTATGT spacer
length: 36 repeater length: 30
35885 2155623 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC TCGCTAATTTCCATGCCATAGCGTCAGACGGGGCATG spacer
length: 37 repeater length: 30
35886 2155690 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC TGAGCCATATTGGTAAAATGTGTTCCCTCACAAATCTT spacer
length: 37 repeater length: 30
35887 2155757 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC TCCTCACTCATTTCCAAATATTTTTGTAAAACATATG spacer
length: 37 repeater length: 30
35888 2155824 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC CAAAACCCCGGAGTGCTATAGGCTGTTTCCCTGAGTG spacer
length: 37 repeater length: 30
35889 2155891 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC TAGTAATAGTAGTGTTGCGAGAAGATAGAGATAGC spacer
length: 36 repeater length: 30
35890 2155957 GTTTGTAGTGATCCCTTAGAGGGTTTGAAC CAAAACCTTCGATTGCCTTCGACTAAAGTCCAGTTTT spacer
length: 36 repeater length: 30

35891	2156023	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TTTTAGCAATCAGATCTCTGTGATACGTTTCTGGGAG	spacer
	length:	37	repeater length:	30
35892	2156090	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	ATAGTGGCGTTTTTCTTTAGCAAGCTGGAGTGATTTGT	spacer
	length:	38	repeater length:	30
35893	2156158	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GTAACAGCAAACCTCATTAGGAGCCTGAGCTTGCCCTA	spacer
	length:	37	repeater length:	30
35894	2156225	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	AAAATACAGTGCCACAATTTTTTCTCAGTAAACTGG	spacer
	length:	36	repeater length:	30
35895	2156291	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TAGCACAAAAGAAAGGAAATTGTACTTTTTAGATGAA	spacer
	length:	37	repeater length:	30
35896	2156358	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GAATTAGCACTTTTCCACATGAACTGAACACCAAGA	spacer
	length:	36	repeater length:	30
35897	2156424	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GGTCATTTATCTTGAATCCTACTACGACGATATTTT	spacer
	length:	36	repeater length:	30
35898	2156490	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TCGCGTCGAAAATGGCTGAACTAGGCGTACCGTTAGA	spacer
	length:	37	repeater length:	30
35899	2156557	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	ACATCTAGAACACCGTAACATTATTATGCGTTACGG	spacer
	length:	36	repeater length:	30
35900	2156623	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TAATAAATAATAAGAAAATAAGAGAGGATTTTCTAA	spacer
	length:	36	repeater length:	30
35901	2156689	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GAGATAGATTTCTATATATTTTAGAATAATTCGGCTG	spacer
	length:	37	repeater length:	30
35902	2156756	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CCATTTAATTCCGAATAAAGAGCTGTCCACGCCATAG	spacer
	length:	37	repeater length:	30
35903	2156823	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GATTTGGGTTTGGGTCTGAGTTGCCATCTTTTCGCA	spacer
	length:	36	repeater length:	30
35904	2156889	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	AAAGTACGCCTTCCCTAGTTTTTGTATCCATATTG	spacer
	length:	37	repeater length:	30
35905	2156956	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GAAGGGGGACATTGGGATAACCTCATGGCTAAAGTA	spacer
	length:	36	repeater length:	30
35906	2157022	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CACATAAGGTGCCGGTATAGGTGCCGGTTCAGCT	spacer
	length:	35	repeater length:	30
35907	2157087	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GTGGAAAACCACCAACATACTATCAAGGTCTGCTA	spacer
	length:	35	repeater length:	30
35908	2157152	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	ATCTTTCAATAGGTACCACTTCCTCAATATAAGTTAG	spacer
	length:	37	repeater length:	30
35909	2157219	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TGCGTACAATGTAGCTACACAATACGATGCTACTGGT	spacer
	length:	37	repeater length:	30
35910	2157286	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	AATATACTCAGGTCGATTCTGTTCCGTTTGGTATACG	spacer
	length:	37	repeater length:	30
35911	2157353	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GGAAAGACAGATACTCGATTCACTGGCACATGCACC	spacer
	length:	36	repeater length:	30
35912	2157419	TTTTGTAGTGATCCTTAGAGGGTTTGAAAC		
35913				
35914				
35915	GCA_008326425.1_SulIC006_1.0_genomic.fna (PilerCR) :			
35916	START	REPEAT		
	SPACER			
35917	crispr 1			
35918	515175	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GTTAGTCTTCTTTCAATTTTACACATTTTACGAAGTG	spacer
	length:	38	repeater length:	30
35919	515243	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CTATGGCTAGTGGAACCTTCTGAGCGTCTGAGTTGAG	spacer
	length:	37	repeater length:	30
35920	515310	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCCTTTGTGAAGGCGGGTTGAACCTTGTGTTTCAAGGA	spacer
	length:	37	repeater length:	30
35921	515377	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATCATTCGTAGACTGAATAGACTGACAGGATTTTAG	spacer
	length:	36	repeater length:	30
35922	515443	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCCTAACGAAGGCATGGCTTTGGCTTTCACGTATGA	spacer
	length:	36	repeater length:	30
35923	515509	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGATAGTACACCTCCTATACTTAACACACCGTCCGA	spacer
	length:	36	repeater length:	30
35924	515575	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GATGTATCATGATAACCCTTATCCCGCTTTACACGG	spacer
	length:	36	repeater length:	30
35925	515641	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GCAGGTGAGGAAAAATGACTTTCTTAGACCCTGATAT	spacer
	length:	37	repeater length:	30
35926	515708	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TGGATTGTGAAAGAAGATGTTCTTCATACATAGGGCTA	spacer
	length:	38	repeater length:	30
35927	515776	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CTTTTGAAACTACCCAAATGATGAATCCTGTATTGGT	spacer
	length:	37	repeater length:	30
35928	515843	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTCTTAGGAAAACCTCATGAAAAGCTCAGCCTACATA	spacer
	length:	37	repeater length:	30

35929	515910	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ACAAGGGCACTTCCTAGAGAGGATAGTATGCTCATA	spacer
		length: 36	repeater length: 30	
35930	515976	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CGGTTTTGTCTAGTGTGTATTCCATATTGAACGACTA	spacer
		length: 37	repeater length: 30	
35931	516043	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTAACCAAGGAAGATCACTTTTCTATGTTTACCCAAAG	spacer
		length: 37	repeater length: 30	
35932	516110	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GACTAGGACTTTGAGGTGCACTCATCTCAATAAAA	spacer
		length: 35	repeater length: 30	
35933	516175	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CATGAATGTACATGAAACACTGGCGTCCTCATGAT	spacer
		length: 35	repeater length: 30	
35934	516240	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATTTATCAGGACATAGGGAAGTCATTGCGCCTGTCCT	spacer
		length: 37	repeater length: 30	
35935	516307	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTGTCTTAACGATGAGGAATCCTTATCACCTACTTTTA	spacer
		length: 38	repeater length: 30	
35936	516375	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TAAGTAGAACATTGTATCTTGAGGTGTTACTAGCTCGG	spacer
		length: 38	repeater length: 30	
35937	516443	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGAAAGAAGGGGTATTCATAGAGCCGAGACCGTT	spacer
		length: 34	repeater length: 30	
35938	516507	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCGCAGGGCTAGTAGCTTACATGCTTAGTCCTGATTA	spacer
		length: 37	repeater length: 30	
35939	516574	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CATTCTTCATATTTTCGGTTGAACTTTGCCCTCTTT	spacer
		length: 35	repeater length: 30	
35940	516639	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCATCACAGGAGGAGGTGCATGCTCATGCTCACCTGTA	spacer
		length: 38	repeater length: 30	
35941	516707	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CCTGCAGGAAGTCGAAGCCAAAGATAGGGGACTCCTG	spacer
		length: 37	repeater length: 30	
35942	516774	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGCATACCATTCTATGTTCTGATTGTTATGTGAAAG	spacer
		length: 36	repeater length: 30	
35943	516840	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CAGTTTTCGAACTCACCTTTTCACCTTGTGATGAACAG	spacer
		length: 38	repeater length: 30	
35944	516908	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTAACCGGAGGGTTTCGTGTCCGCAGTCGGACACGAAT	spacer
		length: 37	repeater length: 30	
35945	516975	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CCCCTAACAGCTTATCCTTCTTCTGGTACTAGTACTAC	spacer
		length: 38	repeater length: 30	
35946	517043	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AAGATAAACTCGATGAAATGGAAGATATGGAATTAAT	spacer
		length: 37	repeater length: 30	
35947	517110	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CAGGAAGTGTAGATACTAACATCACCAACTCCATCAT	spacer
		length: 37	repeater length: 30	
35948	517177	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CAGTTTTCGAACTCACCTTTTCACCTTGTGATGAACAG	spacer
		length: 38	repeater length: 30	
35949	517245	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTAACCGGAGGGTTTCGTGTCCGCAGTCGGACACGAAT	spacer
		length: 37	repeater length: 30	
35950	517312	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CCCCTAACAGCTTATCCTTCTTCTGGTACTAGTACTAC	spacer
		length: 38	repeater length: 30	
35951	517380	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AAGATAAACTCGATGAAATGGAAGATATGGAATTAAT	spacer
		length: 37	repeater length: 30	
35952	517447	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CAGGAAGTGTAGATACTAACATCACCAACTCCATCAT	spacer
		length: 37	repeater length: 30	
35953	517514	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TAATCAGCTTTGCTACTGAATTGCCGAGCGGTGGGG	spacer
		length: 36	repeater length: 30	
35954	517580	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATTTATCAGGACATAGGGAAGTCATTGCGCCTGTCCT	spacer
		length: 37	repeater length: 30	
35955	517647	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTGTCTTAACGATGAGGAATCCTTATCACCTACTTTTA	spacer
		length: 38	repeater length: 30	
35956	517715	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TAAGTAGAACATTGTATCTTGAGGTGTTACTAGCTCGG	spacer
		length: 38	repeater length: 30	
35957	517783	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGAAAGAAGGGGTATTCATAGAGCCGAGACCGTT	spacer
		length: 34	repeater length: 30	
35958	517847	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCGCAGGGCTAGTAGCTTACATGCTTAGTCCTGATTA	spacer
		length: 37	repeater length: 30	
35959	517914	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CTATATACTCTTTTCTATCCACCTGTTTAGGGTTACT	spacer
		length: 37	repeater length: 30	
35960	517981	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AATTTTGAAAAACGTCTTCTGTATGTCTGTGTACCAG	spacer
		length: 37	repeater length: 30	
35961	518048	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGGTGTCTAAAGTCCCGATACCGCTAGGCATGACATA	spacer
		length: 37	repeater length: 30	
35962	518115	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GGAATCGGCTTAGCTGTAGGAGCAGGGGCATACTACTA	spacer
		length: 38	repeater length: 30	
35963	518183	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CCACTCATTCCAATTACTGTATATTTGTACTCTTGTT	spacer
		length: 37	repeater length: 30	
35964	518250	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TAGGAGATGTGTTAGGAGATGTAGCAGACGGGCTAAGA	spacer

length: 38 repeater length: 30
35965 518318 GTTTCAAACCCCTCTAAGGATCACTACAAAC AAGAGAGAGAGACAATCCTCTCTTTTGTCTTGTCAATTGT spacer
length: 39 repeater length: 30
35966 518387 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATCTTTAACATAGATACCAGCCTCGGTAAACATATCGTTTG
spacer length: 41 repeater length: 30
35967 518458 GTTTCAAACCCCTCTAAGGATCACTACAAAC GTGGTCGGTG
35968
35969
35970 crispr 2
35971 546520 GTTGAACCCATAAAGGGATTGAAAG ACCTAGACAAGAGCTTAGCCGTCATATATGCACTCGTCTC spacer
length: 40 repeater length: 25
35972 546585 GTTGAACCCATAAAGGGATTGAAAG TGATGAGTGCAATTTCAAAAATGAGTAGAGAGGAGTAG spacer
length: 38 repeater length: 25
35973 546648 GTTGAACCCATAAAGGGATTGAAAG ATAACAACGAAGTACCCAGACTTTTCAATATATTATTTAG spacer
length: 40 repeater length: 25
35974 546713 GTTGAACCCATAAAGGGATTGAAAG TAATGAACTAATAACTGGAAGAGTAGGTTCTGGAAAAACC spacer
length: 41 repeater length: 25
35975 546779 GTTGAACCCATAAAGGGATTGAAAG TGTAATACCCCGTTTTTGAATGACGTCTCTACTTCCGCTA spacer
length: 40 repeater length: 25
35976 546844 GTTGAACCCATAAAGGGATTGAAAG CTACTTTGTGCCATACGATAAGTTCATGTCATTAG spacer length:
35 repeater length: 25
35977 546904 GTTGAACCCATAAAGGGATTGAAAG GATAAGTCTTACTATAACAGAGGTTTTCCACATACGTAT spacer
length: 39 repeater length: 25
35978 546968 GTTGAACCCATAAAGGGATTGAAAG CCACTACTATCGGATCAAATAATAAAAAAGGATCCGAAATGT spacer
length: 42 repeater length: 25
35979 547035 GTTGAACCCATAAAGGGATTGAAAG AGTTTGTATAACTGCTGTCTGTATATTTCTTCACTA spacer length:
36 repeater length: 25
35980 547096 GTTGAACCCATAAAGGGATTGAAAG ATGGGTATGCTCAATTGGGCTTCAACATCGAAGAGCCTTG spacer
length: 40 repeater length: 25
35981 547161 GTTGAACCCATAAAGGGATTGAAAG TGCTCATGGGCGGGGAGGTTTGCAGAGAAAATTGATGAAAAC spacer
length: 41 repeater length: 25
35982 547227 GTTGAACCCATAAAGGGATTGAAAG ACGAGGATGA
35983
35984
35985 crispr 3
35986 558919 CTTTCAATCCCTTTATGGGTTCAAC ATGACGTATGTATCAACGAGACAGACGACCCAGAGTT spacer
length: 37 repeater length: 25
35987 558981 CTTTCAATCCCTTTATGGGTTCAAC CTGGAAGTGACCCTCGAGGGAAGAGGGCTTGGCATCACAAG spacer
length: 41 repeater length: 25
35988 559047 CTTTCAATCCCTTTATGGGTTCAAC AATTTCTTTTCGTATGACAAGCATGGCACTCTCGAAATA spacer
length: 39 repeater length: 25
35989 559111 CTTTCAATCCCTTTATGGGTTCAAC ATACAAGCACGATACAAGGGTATACTGTGTGGTAAGAAT spacer
length: 39 repeater length: 25
35990 559175 CTTTCAATCCCTTTATGGGTTCAAC ATAATTACCCAAGTCAAGGCTGACATGGATTCAAAGGTAC spacer
length: 40 repeater length: 25
35991 559240 CTTTCAATCCCTTTATGGGTTCAAC ATGAAAAAGAATTGCAAGATGCTATTAACGAATTAGCGA spacer
length: 39 repeater length: 25
35992 559304 CTTTCAATCCCTTTATGGGTTCAAC AAGCCGTCAAACAAGTAGCGACTTCAAGACCTGTAATTAT spacer
length: 40 repeater length: 25
35993 559369 CTTTCAATCCCTTTATGGGTTCAAC AAAGAAACATGCGGGATACATGGAATGAGGGGAGTATA spacer
length: 38 repeater length: 25
35994 559432 CTTTCAATCCCTTTATGGGTTCAAC ACGAAGCGTTATTTGGAGGTTTAGGACGAGAGATAA spacer length:
36 repeater length: 25
35995 559493 CTTTCAATCCCTTTATGGGTTCAAC AGGAGTTGCAGATCCTGAGGTATGTTGACGCTGTAGTTTTG spacer
length: 41 repeater length: 25
35996 559559 CTTTCAATCCCTTTATGGGTTCAAC GTATTTAAACAACCTGGTTTAGGTGTTTTCTCTTTTCTAT spacer
length: 40 repeater length: 25
35997 559624 CTTTCAATCCCTTTATGGGTTCAAC AGGTATCGTGTGCGTTTTCTCTTTTCAATTTTGGGTAAACAT spacer
length: 40 repeater length: 25
35998 559689 CTTTCAATCCCTTTATGGGTTCAAC TACGCTAGAGTATTTGAGCTTTCCGGTTAAAGCTTC spacer length:
36 repeater length: 25
35999 559750 CTTTCAATCCCTTTATGGGTTCAAC GAAAATAAGGGTAGAACTAGAGGTAATGAGACTAAAC spacer
length: 38 repeater length: 25
36000 559813 CTTTCAATCCCTTTATGGGTTCAAC CTTTAATGATGGTTCTAAATTATAACGATAAACTGGA spacer
length: 37 repeater length: 25
36001 559875 CTTTCAATCCCTTTATGGGTTCAAC AGAAATGCAGTGTTCAACTTGAAGTAGATATGTCA spacer length:
35 repeater length: 25
36002 559935 CTTTCAATCCCTTTATGGGTTCAAC AGCGTCTCCTCTAGCCCCATAAATGACTAGAGACCTTTC spacer
length: 39 repeater length: 25
36003 559999 CTTTCAATCCCTTTATGGGTTCAAC CTACTAGGATATCGGATAAAGGGTTTATGATGATAGAGCAAC spacer
length: 42 repeater length: 25

36004 560066 CTTTCAATCCCTTTATGGGTTCAAC ATATTTGTTACATAATTCGATATAGATTCAAGTAATGTAT spacer
length: 40 repeater length: 25
36005 560131 CTTTCAATCCCTTTATGGGTTCAAC CTTATTAGTTAACGGCACTGTGAAGGATAGTACATCT spacer
length: 37 repeater length: 25
36006 560193 CTTTCAATCCCTTTATGGGTTCAAC GTGGCAAATATTATCTTTTCATCGTCACTTTTTAAGAAA spacer
length: 39 repeater length: 25
36007 560257 CTTTCAATCCCTTTATGGGTTCAAC TGGTTTTATCATGTCACCTATGCCTATTAC spacer length:
34 repeater length: 25
36008 560316 CTTTCAATCCCTTTATGGGTTCAAC TTTTTCATCGTGAACATGGTGATGGCGTGTCCACGGTGTT spacer
length: 40 repeater length: 25
36009 560381 CTTTCAATCCCTTTATGGGTTCAAC AGCGAACATGACGCCAGGGGAGGAAGTAAAGATAATAGA spacer
length: 39 repeater length: 25
36010 560445 CTTTCAATCCCTTTATGGGTTCAAC TTATTGACTTCGTTAAGCGTTTCCTTATATTTATTGACT spacer
length: 39 repeater length: 25
36011 560509 CTTTCAATCCCTTTATGGGTTCAAC ACACGGCAATAATCCCCTTGCAAGAAGGGGATAAATACA spacer
length: 39 repeater length: 25
36012 560573 CTTTCAATCCCTTTATGGGTTCAAC CATATGTAATACTAACTTGTTAATAACAATGGAATTTATATAT spacer
length: 43 repeater length: 25
36013 560641 CTTTCAATCCCTTTATGGGTTCAAC GCCTCGATGA
36014
36015
36016 crispr 4
36017 603117 CTTTCAATCCCGTTATGGGTTCAAC CAGAGTCCTTTATTTGAAGGACATAAATTACGTCAATAA spacer
length: 39 repeater length: 25
36018 603181 CTTTCAATCCCGTTATGGGTTCAAC CAGAGTCTAAAGTTGATTATCATATAGGTGCGTTTAGGAG spacer
length: 40 repeater length: 25
36019 603246 CTTTCAATCCCGTTATGGGTTCAAC TAAATCACGATTATCACGATAAGTATAATATCCGATATTT spacer
length: 40 repeater length: 25
36020 603311 CTTTCAATCCCGTTATGGGTTCAAC AAACCTTCAAATAAAAGTAGGAAATAAAATTGTTAAATT spacer
length: 39 repeater length: 25
36021 603375 CTTTCAATCCCGTTATGGGTTCAAC GGGAAAGGATATACAATTGTAAGAATAGGTGATTATGTAATC spacer
length: 42 repeater length: 25
36022 603442 CTTTCAATCCCGTTATGGGTTCAAC GGTGATTAGATGACCATTAATCTTTACGGCAAGCAATA spacer
length: 38 repeater length: 25
36023 603505 CTTTCAATCCCGTTATGGGTTCAAC CCTAATGCGGGAAGATACGACGTCGTGGTTACAGCCTC spacer
length: 38 repeater length: 25
36024 603568 CTTTCAATCCCGTTATGGGTTCAAC TCGCCGGCTAT
36025
36026
36027 crispr 5
36028 612333 GTTTGTAGCAATCCTTAGAGGGTTTGAAA GTCGTTTTTGTTCGTTTTCGTATTTCTGTACCATAGT spacer
length: 38 repeater length: 29
36029 612400 GTTTGTAGCAATCCTTAGAGGGTTTGAAA GGGTAAATATGAGGACGTGGTTTTTCATAGTTCTGTAT spacer
length: 37 repeater length: 29
36030 612466 GTTTGTAGCAATCCTTAGAGGGTTTGAAA GGGTACGTGACAGGCAAATACCCTCGTGGGTATTTGC spacer
length: 37 repeater length: 29
36031 612532 GTTTGTAGCAATCCTTAGAGGGTTTGAAA GTCAGTAACAAGGAGGCTGACATCGGCATTATTCGT spacer
length: 36 repeater length: 29
36032 612597 GTTTGTAGCAATCCTTAGAGGGTTTGAAA CAAATCGAGTTCTCTTCACCTCCTTCTCTTTCCCCCA spacer
length: 37 repeater length: 29
36033 612663 GTTTGTAGCAATCCTTAGAGGGTTTGAAA CTAATAGCACTAACGATATCAACGAAGCTAATATAT spacer
length: 36 repeater length: 29
36034 612728 GTTTGTAGCAATCCTTAGAGGGTTTGAAA TTAACCTCAGTAGATATGGTGCGACAGTATGTTCCAG
36035
36036
36037 crispr 6
36038 620756 GTTTCAAACCCCTCTAAGGATCACTACAAAC CTACATTACCCGACGGTATACTGTGTGTGTACGTATA spacer
length: 37 repeater length: 30
36039 620823 GTTTCAAACCCCTCTAAGGATCACTACAAAC CGGAAGCCGAGTTCAAATACAATATTACGGGGCGTT spacer
length: 36 repeater length: 30
36040 620889 GTTTCAAACCCCTCTAAGGATCACTACAAAC GGACGGGAAGGAGTTACGAGGGAGTGAGGCACGCCA spacer
length: 36 repeater length: 30
36041 620955 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATACTTCGCAGCGTTTTCAATGCCATGGTTGAACTA spacer
length: 36 repeater length: 30
36042 621021 GTTTCAAACCCCTCTAAGGATCACTACAAAC CAATAGGTGAAGGCGAAACAGCTGAAAGGATTATGAT spacer
length: 37 repeater length: 30
36043 621088 GTTTCAAACCCCTCTAAGGATCACTACAAAC GAAATCGAACGGGTCAGGCAACTGACGGGCTTAAGC spacer
length: 36 repeater length: 30
36044 621154 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACGAAGCACCAGTGAAGAGTAACCGCAGTAACCCA spacer
length: 36 repeater length: 30
36045 621220 GTTTCAAACCCCTCTAAGGATCACTACAAAC CCGGTAGAAATAGGTAAAATTACTGATTTCTCTTTTCG spacer

length: 37 repeater length: 30
36046 621287 GTTTCAAACCCCTCTAAGGATCACTACAAAC CACAGGTGATGAAAATGACTTTCTTAGACCCTGATAT spacer
length: 37 repeater length: 30
36047 621354 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACTCGTTCAGCTTGTTCGGTTGGGATAAAGTCTATCA spacer
length: 38 repeater length: 30
36048 621422 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATTCCAAAGCAAAAGAAATTAGAAGAAGAACAAAAG spacer
length: 36 repeater length: 30
36049 621488 GTTTCAAACCCCTCTAAGGATCACTACAAAC AGAGTAGTAATGGGTATGAAAGATAGAAAGAAACCA spacer
length: 36 repeater length: 30
36050 621554 GTTTCAAACCCCTCTAAGGATCACTACAAAC TGGTTATGGACGAAGGAAAAAAGAAAACGAAAATG spacer
length: 36 repeater length: 30
36051 621620 GTTTCAAACCCCTCTAAGGATCACTACAAAC CTTATCCTCAAACCTTTATCCTTTCCATTGAAAGTTCTA spacer
length: 38 repeater length: 30
36052 621688 GTTTCAAACCCCTCTAAGGATCACTACAAAC CTCAACTTGCTCCTCAGGGTGTTCCTCTCCTCCTACCAC spacer
length: 39 repeater length: 30
36053 621757 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCTCATCCACCTTTCTCAGATATTTTGAGAACTGCTT spacer
length: 37 repeater length: 30
36054 621824 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACAGATATTCGTATGAGCAATATATCTAGCACTTCTAC spacer
length: 38 repeater length: 30
36055 621892 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACACTACTGGAATCTCATTTGTGCCTGACTGAAGATTA spacer
length: 38 repeater length: 30
36056 621960 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTAAAGAAAGAGCTTTCTGAAATCGCACTAACTTA spacer
length: 35 repeater length: 30
36057 622025 GTTTCAAACCCCTCTAAGGATCACTACAAAC CGGAGAACATACAGGCAGTAGCGGACAGCATTACAG spacer
length: 36 repeater length: 30
36058 622091 GTTTCAAACCCCTCTAAGGATCACTACAAAC CTATTTGGTGCGCCTCTAGAATGGATGACTTATTAC spacer
length: 37 repeater length: 30
36059 622158 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATTCGGTCGCCTAATCGTTACTGTATTTTTCCGAATATA spacer
length: 39 repeater length: 30
36060 622227 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCTTTTTTCATTTTTTCCACTGAAATCGAAAGATTTTAT spacer
length: 38 repeater length: 30
36061 622295 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATAGTATATTAGGGGAAAAAATGGTTGTATATCTAC spacer
length: 36 repeater length: 30
36062 622361 GTTTCAAACCCCTCTAAGGATCACTACAAAC CGACTCATGGCGATGTGATTATAGCGTTCCTCTTGAAG spacer
length: 38 repeater length: 30
36063 622429 GTTTCAAACCCCTCTAAGGATCACTACAAAC CCCTACGTTGCCGTCAACTAAAGTCTGAAATTTCTTCTGTTTG
spacer length: 43 repeater length: 30
36064 622502 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTGATATTTGTCTCGACGAACCTTTCTCTGACTGG spacer
length: 35 repeater length: 30
36065 622567 GTTTCAAACCCCTCTAAGGATCACTACAAAC AGAAAAGGGCCTTAGCGCCCAAGTGATCCATCCTAT spacer
length: 36 repeater length: 30
36066 622633 GTTTCAAACCCCTCTAAGGATCACTACAAAC TGTTTGAATGAGCTGTATGAATACATGGCTAACGT spacer
length: 36 repeater length: 30
36067 622699 GTTTCAAACCCCTCTAAGGATCACTACAAAC GCCGGGAGAGCCATATGCGTTAGATTCTTGATTTTG spacer
length: 36 repeater length: 30
36068 622765 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCAACCTCAAGATATGGATTACATAGTTTCGGTAGC spacer
length: 36 repeater length: 30
36069 622831 GTTTCAAACCCCTCTAAGGATCACTACAAAC TATGTTCTCTCGTCAAAATTTCCAGAATTTTCTGC spacer
length: 35 repeater length: 30
36070 622896 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACTTTGGAACACTATGAGCTTAGCACTTCGTTCTATCA spacer
length: 38 repeater length: 30
36071 622964 GTTTCAAACCCCTCTAAGGATCACTACAAAC GGTCGTATATGTGATGAATACCGGATTATCCCCCT spacer
length: 36 repeater length: 30
36072 623030 GTTTCAAACCCCTCTAAGGATCACTACAAAC TGTCAGACCATGGTATGCCCCATTCTGTGATCT spacer
length: 36 repeater length: 30
36073 623096 GTTTCAAACCCCTCTAAGGATCACTACAAAC TACTATTTTCGCTCCTGCCAATACAAAAGAAGCTATT spacer
length: 37 repeater length: 30
36074 623163 GTTTCAAACCCCTCTAAGGATCACTACAAAC GTGGTTTTAGCTGAATCTAACAGTCTGCCTAGTCCG spacer
length: 36 repeater length: 30
36075 623229 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTATTTAAAATGTTTTCTTCGTATACACGGACAAAA spacer
length: 37 repeater length: 30
36076 623296 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTTTCCTGACATACCCTAACTCTCTCGTTGATGTCGTA spacer
length: 38 repeater length: 30
36077 623364 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATGTAGGCACAGCGTTCTTTGTGATTCTCACTATT spacer
length: 36 repeater length: 30
36078 623430 GTTTCAAACCCCTCTAAGGATCACTACAAAC AATGAACAATTAAGGATTTGGATAATCCTAGAACC spacer
length: 35 repeater length: 30
36079 623495 GTTTCAAACCCCTCTAAGGATCACTACAAAC AAGAGAAAGAGCAGGATAACGAAGACGTCTTCAATGC spacer
length: 37 repeater length: 30
36080 623562 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCCCCTGCGACAGCCATAGTAGATTTTCAAGGAAGTACTT spacer
length: 38 repeater length: 30

36081	623630	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCGATATTGGATACACTGTGGAACAAAAGCCTGTTCT	spacer
	length:	37	repeater length:	30
36082	623697	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TAAAAAAGACGATGCACAGAAAGAATATGAGAAGAT	spacer
	length:	36	repeater length:	30
36083	623763	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CAGGGAAAGACATGAGTGAAATGAGTACATTAAAT	spacer
	length:	36	repeater length:	30
36084	623829	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGTAGCCTACCTTCTCAGCCCCGGTTACGTAAAAATTG	spacer
	length:	38	repeater length:	30
36085	623897	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GAGATTCTGAGTTGTTTTTTACGAAACATCTTCCACA	spacer
	length:	37	repeater length:	30
36086	623964	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGTAGCGTTCATTCTAGTCTTAGTGTGGCTTTTCAT	spacer
	length:	36	repeater length:	30
36087	624030	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CGTCTGGGGCGGAGTCCAAATTACTGATAGCCCAGTC	spacer
	length:	37	repeater length:	30
36088	624097	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AAGTCAAAGACAAGAAAAATAAAGGTAAATTTCTTTT	spacer
	length:	37	repeater length:	30
36089	624164	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CGAATATGAGAATAATTCCCGATGTAAATAGAGAA	spacer
	length:	36	repeater length:	30
36090	624230	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCCTCAATAGGCTGGATAGCCGTCATGAGGACGGGG	spacer
	length:	37	repeater length:	30
36091	624297	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATATCTCTCGCCTCCCGCAAATCCCGATATTGATTC	spacer
	length:	36	repeater length:	30
36092	624363	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AACTCACTTATGCGCTCAATCATTTTTTCCACTCTTT	spacer
	length:	37	repeater length:	30
36093	624430	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CGTTGCTTCCATCACAGTTTTGTGTTTCCGTAGTTTG	spacer
	length:	36	repeater length:	30
36094	624496	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GAAAAACGACACGATCATACTTGCATCAACTTTTTCTCAT	spacer length: 40
	length:	30	repeater length:	30
36095	624566	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CATCTTCCTCCTCATAGGCACGCCTTATTGATGAGA	spacer
	length:	36	repeater length:	30
36096	624632	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTGTGCTTAAACTCTCACCCCTTACCCGCCGCCCGGA	spacer
	length:	36	repeater length:	30
36097	624698	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CTCACAGAAGGCAACTTCTTATTATCCTTCATTTCAGAA	spacer
	length:	38	repeater length:	30
36098	624766	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CTCTTCTGACGAGTTATAGGGAGATGGCTAGAAGG	spacer
	length:	35	repeater length:	30
36099	624831	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTTTCATTTGCAACATGCAAGGTAAAAAACGTTTATCT	spacer
	length:	38	repeater length:	30
36100	624899	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCCGTTTTGCTCTCGTATACCGTTACAGTGCAATTAG	spacer
	length:	37	repeater length:	30
36101	624966	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TATAAATATTAGTTCCAGTTATCGATTTCTGATAAA	spacer
	length:	36	repeater length:	30
36102	625032	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CATGACCTATGCGTCTACAACATCCGCGACCTCTT	spacer
	length:	35	repeater length:	30
36103	625097	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AAGCTATGAAGCTGTTAGGCACGCTGTATCTGAAGGAA	spacer
	length:	38	repeater length:	30
36104	625165	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGTCTACCCATAACCCTAGAAGATGTGAAGAAAGGT	spacer
	length:	36	repeater length:	30
36105	625231	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATACGGGACAAATTGAAACTCATCCTAGATGTGATA	spacer
	length:	37	repeater length:	30
36106	625298	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GAAAAGAAGATCAAAAACTAGAGAGGGAAATAAATG	spacer
	length:	37	repeater length:	30
36107	625365	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AAATCAATTGGCGTTCTAAGTGGTGGGGGGAATCTA	spacer
	length:	36	repeater length:	30
36108	625431	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CCTCAGCTTAGTCCATTTAATTTTACCATTCTTTAG	spacer
	length:	36	repeater length:	30
36109	625497	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCATCTATCTTCTCTACTTCGAATCCGAATGTGAACGT	spacer
	length:	38	repeater length:	30
36110	625565	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CGTTTGCCCGAATGCTACAGCACTCAGTGATAGGGA	spacer
	length:	36	repeater length:	30
36111	625631	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CGTTTGCCCGAATGCTACAGCACTCAGTGATAGGGA	spacer
	length:	36	repeater length:	30
36112	625697	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CCAACCACGTCGTATCAAACCTTCCAAGATTTATG	spacer
	length:	36	repeater length:	30
36113	625763	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGGTATAAATGTTGAGGACGTTTTAGAGAAATTGAAAA	spacer
	length:	38	repeater length:	30
36114	625831	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ACATATTTCTATCAGTACAACCTCAAAACCGGGAACG	spacer
	length:	37	repeater length:	30
36115	625898	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGATTTGCGAGGAATACATTTTACCAATATGGGTTTA	spacer
	length:	37	repeater length:	30
36116	625965	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTGATGTATCATTTGTAACTTTTATTCGCACTAAATA	spacer

length: 37 repeater length: 30
36117 626032 GTTTCAAACCCCTCTAAGGATCACTACAAAC CGGCTTTATCTCAGCCCTAGTATTTCGGAAGCAGGG spacer
length: 36 repeater length: 30
36118 626098 GTTTCAAACCCCTCTAAGGATCACTACAAAC GATGAGGGGGGGGGGAAGAAAGAGAGGTTTTTTTTTC spacer
length: 36 repeater length: 30
36119 626164 GTTTCAAACCCCTCTAAGGATCACTACAAAC CACAACGTGACACAGAAATATGACATAGAAACCTTGA spacer
length: 37 repeater length: 30
36120 626231 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTTTTTGACCTACCTAGAGTTATCGAAGGTCATTTA spacer
length: 37 repeater length: 30
36121 626298 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATACGAGAGAGGGTTAAGCCCTCATTCGTGACCCGTA spacer
length: 37 repeater length: 30
36122 626365 GTTTCAAACCCCTCTAAGGATCACTACAAAC GTTCGATTC
36123
36124
36125 crispr 7
36126 645461 TTCAAACCCCTCTAAGGATCACTACAAAC CCGCTACGAATAGACTATTGACTTGATCCGAATCATTGT spacer
length: 39 repeater length: 28
36127 645528 TTCAAACCCCTCTAAGGATCACTACAAAC TTTGCGGGGGCTTGATTCTCTTTTGCTTCTCTTTTGCGT spacer
length: 40 repeater length: 28
36128 645596 TTCAAACCCCTCTAAGGATCACTACAAAC TCTCAGCAGCTCCGAGCATGCTCAGTGCGACTTGTTTCGGGT spacer
length: 41 repeater length: 28
36129 645665 TTCAAACCCCTCTAAGGATCACTACAAAC GATAGGTGAAAAAAGTGGCAACACAAGGAAACCCAGT spacer
length: 38 repeater length: 28
36130 645731 TTCAAACCCCTCTAAGGATCACTACAAAC CTATGTTGCCAATCGCTACTTTGACGAATTGCAGATGAGT spacer
length: 40 repeater length: 28
36131 645799 TTCAAACCCCTCTAAGGATCACTACAAAC CTCCTTTGCGAAGGCTTGGGAAATCATAGCGGAGAAGT spacer
length: 38 repeater length: 28
36132 645865 TTCAAACCCCTCTAAGGATCACTACAAAC TTCAGCAGCACCGTCACAGGCTACGCCTCCGCAGCAAAGT spacer
length: 40 repeater length: 28
36133 645933 TTCAAACCCCTCTAAGGATCACTACAAAC CGTACACATTTCGTGGGCCCTGTAATATTGAACTCTAGT spacer
length: 38 repeater length: 28
36134 645999 TTCAAACCCCTCTAAGGATCACTACAAAC AAGCTTCGGGACAGATCCCGAAGAAGAAGATCGTCAGT spacer
length: 38 repeater length: 28
36135 646065 TTCAAACCCCTCTAAGGATCACTACAAAC CGGGGCTATCAGGGTAGCAGTGATGAGAGAGTACTCCTTGT spacer
length: 41 repeater length: 28
36136 646134 TTCAAACCCCTCTAAGGATCACTACAAAC GAGTCCTGTCAAAATAATACTTGTTAAGTCATTCTGT spacer
length: 38 repeater length: 28
36137 646200 TTCAAACCCCTCTAAGGATCACTACAAAC ACAGAGCGGGCCCAGAGGATTGACGAAATTACGCAGAGT spacer
length: 39 repeater length: 28
36138 646267 TTCAAACCCCTCTAAGGATCACTACAAAC ATTCACCTATGAATCATAAATGATTCACTAATATTGT spacer
length: 37 repeater length: 28
36139 646332 TTCAAACCCCTCTAAGGATCACTACAAAC CAGAACAAAGATGCGTTTGGTCTCAGGTCTCGTATCGT spacer
length: 38 repeater length: 28
36140 646398 TTCAAACCCCTCTAAGGATCACTACAAAC TAGGCTGGTAGATGCGCTAGAAGAAATCCCTGCGACGT spacer
length: 38 repeater length: 28
36141 646464 TTCAAACCCCTCTAAGGATCACTACAAAC CCGCATGGAGAGCCCCAAGTAAAGAAAGACGGTAAAGGT spacer
length: 38 repeater length: 28
36142 646530 TTCAAACCCCTCTAAGGATCACTACAAAC CGAATTTCTTTTTCTACACCTTTTTTTACCCCTTTGT spacer
length: 37 repeater length: 28
36143 646595 TTCAAACCCCTCTAAGGATCACTACAAAC GTCTTATGGTTACTCAGGTAATTTTTGTTACCTGAGTGT spacer
length: 39 repeater length: 28
36144 646662 TTCAAACCCCTCTAAGGATCACTACAAAC CATGCCGTTTCGCTTTCATACTTTACGCTGTAGGACTGTGT spacer
length: 40 repeater length: 28
36145 646730 TTCAAACCCCTCTAAGGATCACTACAAAC CCCTCTTTACAGGCACAGTTACTTCTAGGATCTTTGTGT spacer
length: 39 repeater length: 28
36146 646797 TTCAAACCCCTCTAAGGATCACTACAAAC TCGTGGCAAGTGAGCGGTGGATGTTCTACAGCTTAGTCGT spacer
length: 40 repeater length: 28
36147 646865 TTCAAACCCCTCTAAGGATCACTACAAAC CGTGTTAAAGGATAAATTGCCGTTTCAAGTGCCGTAGT spacer
length: 38 repeater length: 28
36148 646931 TTCAAACCCCTCTAAGGATCACTACAAAC TAGTATTAGAAATAGGTTTTTAGACTTTTATTCTGAGGGT spacer
length: 40 repeater length: 28
36149 646999 TTCAAACCCCTCTAAGGATCACTACAAAC AAAATGAGAAAAACGAGAATAATATAAACGCTATCAGAGGT spacer
length: 41 repeater length: 28
36150 647068 TTCAAACCCCTCTAAGGATCACTACAAAC TAAATTGTCAGAAAAAACGATCTAGATGATTTTCATGT spacer
length: 38 repeater length: 28
36151 647134 TTCAAACCCCTCTAAGGATCACTACAAAC GTGGGCGTAACGCTGAGAAGATTAAAGCCCTCATGGGT spacer
length: 38 repeater length: 28
36152 647200 TTCAAACCCCTCTAAGGATCACTACAAAC GATTTCAAAGGACATCGAAGGCAACATAGACCAGTTAGGTGT
spacer length: 42 repeater length: 28
36153 647270 TTCAAACCCCTCTAAGGATCACTACAAAC AAGAAGAAAATTGGCGTAACAATAAGTACGAAGTGT spacer
length: 38 repeater length: 28

36154	647336	TTCAAACCCCTCTAAGGATCACTACAAAC	TAGTGAACAATGAGGGGTCTCTGGTTGACCCAGAAAGT	spacer
		length: 38	repeater length: 28	
36155	647402	TTCAAACCCCTCTAAGGATCACTACAAAC	CTCCTCCCTGTCTCTCCTTAGCTCTCCGTTCTCATCCTGT	spacer
		length: 40	repeater length: 28	
36156	647470	TTCAAACCCCTCTAAGGATCACTACAAAC	GTGTTGTTAGCATATGAAAAAGTAGGAGAAAAGCATTGT	spacer
		length: 39	repeater length: 28	
36157	647537	TTCAAACCCCTCTAAGGATCACTACAAAC	ATAAGTACCGTTAGACTTTTCTGGCTTGTACATTGT	spacer
		length: 36	repeater length: 28	
36158	647601	TTCAAACCCCTCTAAGGATCACTACAAAC	CTATCACCGGAATCTTATTCGTCCCTGATTGAAGATTAGT	spacer
		length: 40	repeater length: 28	
36159	647669	TTCAAACCCCTCTAAGGATCACTACAAAC	TGCATCTTCTACACACTCCGGCGTTAATTTCTCATGT	spacer
		length: 37	repeater length: 28	
36160	647734	TTCAAACCCCTCTAAGGATCACTACAAAC	TCTCCAAATGGCAAAAAGAACTAGTTGAGAACGCAATGT	spacer
		length: 39	repeater length: 28	
36161	647801	TTCAAACCCCTCTAAGGATCACTACAAAC	AGAAGTTAGTTTCAGAAATAGAAAGAATACGACAACGT	spacer
		length: 38	repeater length: 28	
36162	647867	TTCAAACCCCTCTAAGGATCACTACAAAC	TGGCTTTGTTCCCTCTCTCTTCTTACGCTGTCTCAGAGCGT	spacer
		length: 40	repeater length: 28	
36163	647935	TTCAAACCCCTCTAAGGATCACTACAAAC	TAGTCCTACGTACATTACGTGAGAGTGAGCCCTTGTTTGGT	spacer
		length: 42	repeater length: 28	
36164	648005	TTCAAACCCCTCTAAGGATCACTACAAAC	CTGTTCCAGA	
36165				
36166				
36167		crispr 8		
36168	648138	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AAGTGTAATTCTTCTATAACGTCTTGCTCCATTCTTTT	spacer
		length: 38	repeater length: 30	
36169	648206	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TACCCGAGGCTGAAACGTTGGATCGCCCTGATCGAGAT	spacer
		length: 38	repeater length: 30	
36170	648274	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ACGTGGGTAAGAGTGCGGGCAACGAAGTCAGTGAAATG	spacer
		length: 38	repeater length: 30	
36171	648342	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GTATGGCATCAATTTGGACTTATTGTTTCCAGATCTTT	spacer
		length: 38	repeater length: 30	
36172	648410	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGATACTTCCTCATGAGGAATTAGGCGTTAAAAAAT	spacer
		length: 36	repeater length: 30	
36173	648476	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATGCCCTGTCTGGATATTTTTGCTTCAGCTCTCTAC	spacer
		length: 36	repeater length: 30	
36174	648542	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATCTCCTGGCTGTTTCGCCTTTATGAAACATCTTGCACA	spacer
		length: 38	repeater length: 30	
36175	648610	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATTCCGCTTTACTATATTCCTTACTTTGCATTAGCCC	spacer
		length: 37	repeater length: 30	
36176	648677	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TGGTATTACAGCTATATCTACTATGTATATTCTTGG	spacer
		length: 36	repeater length: 30	
36177	648743	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CAGTAAAGTGAGAGGGCATGAGATACCTTGGTATTT	spacer
		length: 36	repeater length: 30	
36178	648809	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GCTTTAATCGATAGTACAAACGGCCCAAGCAATGTAA	spacer
		length: 37	repeater length: 30	
36179	648876	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GCTCCATTATTGAAATTAGCAGAACCTATGTTAGTAT	spacer
		length: 37	repeater length: 30	
36180	648943	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TTGTACTTCACCGTGAACATGGCGACGGAGTAGATT	spacer
		length: 36	repeater length: 30	
36181	649009	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CGAAATAATATTTCAGGAAATGGCGCGAATACGAAGA	spacer
		length: 36	repeater length: 30	
36182	649075	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ACCACATGAACCGGAACACTTTTCACTTTGGTAAG	spacer
		length: 35	repeater length: 30	
36183	649140	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATACGAGAGTCAGTTTAAGACACCGGTGAGGTTTCAT	spacer
		length: 37	repeater length: 30	
36184	649207	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCCCATTTTTGTCTTATCGAATCTATGTTCTTCTC	spacer
		length: 35	repeater length: 30	
36185	649272	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ACGGAGTCCCCCATTTTTTAGGTACCACTATGCTG	spacer
		length: 36	repeater length: 30	
36186	649338	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CTCTTTTAATGCCGTTGAATTCATAATCCTTTTCGAT	spacer
		length: 37	repeater length: 30	
36187	649405	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TAGAAAAAGAAATTCCGTACCGAACTATGAGAAAAA	spacer
		length: 36	repeater length: 30	
36188	649471	GTTTCAAACCCCTCTAAGGATCACTACAAAC	ATCGAATTGAATAAAGACGTTAGTGATGAGGAAATAG	spacer
		length: 37	repeater length: 30	
36189	649538	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TGAGAGCGAATCCATGACTAGCAGTACTTATGAAAG	spacer
		length: 36	repeater length: 30	
36190	649604	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AACATGAGAACGAAATAAATCCTTACTTTTTTAGAA	spacer
		length: 36	repeater length: 30	
36191	649670	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TATTTATAAATGACCTCGATAAGTATTGGGTAGGTG	spacer

length: 36 repeater length: 30
36192 649736 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATATGTGTCAGAATGATCGCCGTTGAAGACATACT spacer
length: 35 repeater length: 30
36193 649801 GTTTCAAACCCCTCTAAGGATCACTACAAAC CTTTTTTCACCTATCTACTAGTTTCTCACACTAGTATA spacer
length: 38 repeater length: 30
36194 649869 GTTTCAAACCCCTCTAAGGATCACTACAAAC GCTTCGGGACAGATCCCGAAGAAGAAGGTTATATTGT spacer
length: 37 repeater length: 30
36195 649936 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATAGCATTTCGTTTCACGGTATGGTCGTCGTCCTCTCTA spacer
length: 37 repeater length: 30
36196 650003 GTTTCAAACCCCTCTAAGGATCACTACAAAC GTATTGGGTAGGTGCAAAAATGAGCAGAAATAATAAG spacer
length: 37 repeater length: 30
36197 650070 GTTTCAAACCCCTCTAAGGATCACTACAAAC CATTCCACGAATGCGTTTCTTCTCCTTTCTCCTGTCT spacer
length: 37 repeater length: 30
36198 650137 GTTTCAAACCCCTCTAAGGATCACTACAAAC GTGAAAGTTGCAGGTGAAACGAAGTTAGCTTTTACCT spacer
length: 37 repeater length: 30
36199 650204 GTTTCAAACCCCTCTAAGGATCACTACAAAC GCACATGGATGCAAACATTCCCTCCTTTTCTTATTC spacer
length: 37 repeater length: 30
36200 650271 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCATATGACATGCGATTTGAAAAGGTATTGAAAAGG spacer
length: 38 repeater length: 30
36201 650339 GTTTCAAACCCCTCTAAGGATCACTACAAAC AGAACATTACGTCCTTCACCTTCAACCCTGCTTTTTTC spacer
length: 37 repeater length: 30
36202 650406 GTTTCAAACCCCTCTAAGGATCACTACAAAC TAAAATAAGTTGAATAAATCGTGCTTCTGGAAATG spacer
length: 35 repeater length: 30
36203 650471 GTTTCAAACCCCTCTAAGGATCACTACAAAC CAGACATAAGAGCTACGAATTTATTTTTGAAAAAGTTA spacer
length: 38 repeater length: 30
36204 650539 GTTTCAAACCCCTCTAAGGATCACTACAAAC CGACTATGAGGAGGGTGAGGTGGATGAGTGAAACAT spacer
length: 36 repeater length: 30
36205 650605 GTTTCAAACCCCTCTAAGGATCACTACAAAC CCTCAGGCTCGAGAGGGCCATAGACATTACACCA spacer
length: 35 repeater length: 30
36206 650670 GTTTCAAACCCCTCTAAGGATCACTACAAAC GGAACGAGGTGGCAGGTCAGTGAGGGTCATAACGTT spacer
length: 36 repeater length: 30
36207 650736 GTTTCAAACCCCTCTAAGGATCACTACAAAC TGGCAATCACAATTTGGAATAGAGATCCGACTAG spacer
length: 34 repeater length: 30
36208 650800 GTTTCAAACCCCTCTAAGGATCACTACAAAC TACTAAATGGCGTGTTTAATTACCCGCCATCCTAT spacer
length: 35 repeater length: 30
36209 650865 GTTTCAAACCCCTCTAAGGATCACTACAAAC CATTATCTCTTCTCAGGAACACGTTCCCGCCTTTA spacer
length: 37 repeater length: 30
36210 650932 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTATTTGATATTATTTCTATCTTGTCTTTGAGATGA spacer
length: 36 repeater length: 30
36211 650998 GTTTCAAACCCCTCTAAGGATCACTACAAAC GAGGGGACTGGGGGTATTGTCCGTTGTCGGGATCAT spacer
length: 36 repeater length: 30
36212 651064 GTTTCAAACCCCTCTAAGGATCACTACAAAC AAATCGTGTCATGTACTTTGTTAGAACTGTCATTGA spacer
length: 36 repeater length: 30
36213 651130 GTTTCAAACCCCTCTAAGGATCACTACAAAC TGAAGTGAAGCCTCGCCCTTCCAGGGCGTGAGCAAG spacer
length: 38 repeater length: 30
36214 651198 GTTTCAAACCCCTCTAAGGATCACTACAAAC CTCAGCGTCACTGAAACCACTGATTGAAACATAGTCGT spacer
length: 38 repeater length: 30
36215 651266 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTCAGGGGAG
36216
36217
36218 crispr 9
36219 2056524 CTTTCAATCCCGTTATGGGTTCAAC TGAATTCGTTGTCAGGATGATACGCTATCAATTTATCAT spacer
length: 40 repeater length: 25
36220 2056589 CTTTCAATCCCGTTATGGGTTCAAC ACGCCGTCAGATTTCGTGATAAAGAGAATAGAGAAGTGGA spacer
length: 39 repeater length: 25
36221 2056653 CTTTCAATCCCGTTATGGGTTCAAC ATGTATATGGGTTCAATGGAATAAAGGCTGTCA spacer
length: 39 repeater length: 25
36222 2056717 CTTTCAATCCCGTTATGGGTTCAAC CTACTTCAACAAGAAGTTGATATAAAAACTATATG spacer length:
35 repeater length: 25
36223 2056777 CTTTCAATCCCGTTATGGGTTCAAC TATGCAAAAACCTTGATGAATGTTATTTATTCCACAG spacer
length: 37 repeater length: 25
36224 2056839 CTTTCAATCCCGTTATGGGTTCAAC ATTTAATACGGAAATGAAAAAGATATCTCTTGATGTTATA spacer
length: 40 repeater length: 25
36225 2056904 CTTTCAATCCCGTTATGGGTTCAAC CTGAACAACCTGAATAAAGCGACAACATACTTCTATTATTT spacer
length: 41 repeater length: 25
36226 2056970 CTTTCAATCCCGTTATGGGTTCAAC ACCGGTAGGCATGCCCTGAAAATAGTGCCTGATATCGTTTACCA
spacer length: 44 repeater length: 25
36227 2057039 CTTTCAATCCCGTTATGGGTTCAAC ATTATGTAAACAATTATCTACCGATACATACATTAAAT spacer
length: 40 repeater length: 25
36228 2057104 CTTTCAATCCCGTTATGGGTTCAAC TTATATGAAGGCTATAAATTCCTGAAAAAATACATAAAGA spacer
length: 40 repeater length: 25

36229	2057169	CTTTCAATCCCGTTATGGGTTCAAC	AAAGGATATACAATTGTACGAATAGGTGATTGGGTAATC	spacer
		length: 39	repeater length: 25	
36230	2057233	CTTTCAATCCCGTTATGGGTTCAAC	TTCAGCATGAAAAAAGACGACTTAAATTATTATCATAC	spacer
		length: 39	repeater length: 25	
36231	2057297	CTTTCAATCCCGTTATGGGTTCAAC	AAGAAATAGATGAAGTATCTACAACCACTTCTTAA	spacer
		length: 39	repeater length: 25	
36232	2057361	CTTTCAATCCCGTTATGGGTTCAAC	TCTCTGTCTTCCTGCTCTTCCCGATATTTGCTTATACT	spacer
		length: 38	repeater length: 25	
36233	2057424	CTTTCAATCCCGTTATGGGTTCAAC	TAGCTTGACCGTAGACAGCACCTAAGAGGAGACCTA	spacer
		length: 36	repeater length: 25	
36234	2057485	CTTTCAATCCCGTTATGGGTTCAAC	TCAGTTTTCCCGTTAGAGCTGATGAAGTACAACAACAAAT	spacer
		length: 40	repeater length: 25	
36235	2057550	CTTTCAATCCCGTTATGGGTTCAAC	CGAGACTGAAATAAGCTATATTGCTGACGACGTTGC	spacer
		length: 36	repeater length: 25	
36236	2057611	CTTTCAATCCCGTTATGGGTTCAAC	CCTAGGCGTGAGCGTTCCGCTCAACAGAGTCGCAATAAA	spacer
		length: 39	repeater length: 25	
36237	2057675	CTTTCAATCCCGTTATGGGTTCAAC	TAGACATGTCATATACTTTTCATGTGTCACTGTCA	spacer
		length: 37	repeater length: 25	
36238	2057737	CTTTCAATCCCGTTATGGGTTCAAC	TGAATACTCTTATGTCTTTGGATGGGACAGGGAACTG	spacer
		length: 38	repeater length: 25	
36239	2057800	CTTTCAATCCCGTTATGGGTTCAAC	CGAAAGGACGGCATCAATGTGGTGCCGTCCGCTATGACCG	spacer
		length: 40	repeater length: 25	
36240	2057865	CTTTCAATCCCGTTATGGGTTCAAC	TTATTGATTTTCGTGACCTCTGTAGTTTTTATGTCATTTAT	spacer
		length: 40	repeater length: 25	
36241	2057930	CTTTCAATCCCGTTATGGGTTCAAC	AAACCCTCCCTCAAAGTGGAGGGACTTTTCATATCACCCC	spacer
		length: 41	repeater length: 25	
36242	2057996	CTTTCAATCCCGTTATGGGTTCAAC	TACGTCCATGGTTATATATAATCATCAAATACTAATA	spacer
		length: 37	repeater length: 25	
36243	2058058	CTTTCAATCCCGTTATGGGTTCAAC	TCGTCTCATATAAGGAATTGGTAGGGAAAATTTTACAGGG	spacer
		length: 40	repeater length: 25	
36244	2058123	CTTTCAATCCCGTTATGGGTTCAAC	GATTCCTCTAGACAGGAACGAGCAAGGGTATTGTGTTAG	spacer
		length: 39	repeater length: 25	
36245	2058187	CTTTCAATCCCGTTATGGGTTCAAC	CGCTATTATCGCAGTATTGCCATTGCCATTACAGATACG	spacer
		length: 39	repeater length: 25	
36246	2058251	CTTTCAATCCCGTTATGGGTTCAAC	AGTAGTAGGAGTAGGAGTAGGAGGAGTAGTAGGAGGAGT	spacer
		length: 39	repeater length: 25	
36247	2058315	CTTTCAATCCCGTTATGGGTTCAAC	GAATTTTTTTCACCTCCGCGGGGAAATCCCGCAATT	spacer
		length: 36	repeater length: 25	
36248	2058376	CTTTCAATCCCGTTATGGGTTCAAC	GTATCTGAGAAGCCACACTCCTCTATGGCAAGTTCTC	spacer
		length: 37	repeater length: 25	
36249	2058438	CTTTCAATCCCGTTATGGGTTCAAC		
36250				
36251				
36252	crispr 10			
36253	2066648	GTTGAACCCATAACGGGATTGAAAG	GTAGAATATGCATATGCCGTGGTTCAACTGCCACGGCAAAT	spacer
		length: 41	repeater length: 25	
36254	2066714	GTTGAACCCATAACGGGATTGAAAG	AGGTATTATCACTGTCTTCCCTAACGCTAGCATCTCAAG	spacer
		length: 39	repeater length: 25	
36255	2066778	GTTGAACCCATAACGGGATTGAAAG	AAACAATATAATGCCTTGTATGTATGGCAACAAATACAAT	spacer
		length: 40	repeater length: 25	
36256	2066843	GTTGAACCCATAACGGGATTGAAAG	TAAAAAATAAAACTTCTTAGAACGTATCCGTGCTCTT	spacer
		length: 37	repeater length: 25	
36257	2066905	GTTGAACCCATAACGGGATTGAAAG	GAAAAGCGATACGTAGTGTGTGTCACACGCGGGTCG	spacer
		length: 38	repeater length: 25	
36258	2066968	GTTGAACCCATAACGGGATTGAAAG	CAAAAATAAAAATACCAAATCTCACAATCCCATCATCTCC	spacer
		length: 40	repeater length: 25	
36259	2067033	GTTGAACCCATAACGGGATTGAAAG	ATACCTAACTTAGGGCATAAGTCGTTAAGACCCGATAGA	spacer
		length: 39	repeater length: 25	
36260	2067097	GTTGAACCCATAACGGGATTGAAAG	TGAAATTGTTTTAGCAACGTGGTGTAAAGTGTATGTAA	spacer
		length: 39	repeater length: 25	
36261	2067161	GTTGAACCCATAACGGGATTGAAAG	TTTCCAGCTCACTCTCGAGTTGCAACGCTTTGACATATG	spacer
		length: 39	repeater length: 25	
36262	2067225	GTTGAACCCATAACGGGATTGAAAG	TTGTCATAATACTCAGGTAGCTTTTCATATTTATTGATGAG	spacer
		length: 41	repeater length: 25	
36263	2067291	GTTGAACCCATAACGGGATTGAAAG	ATGTATTTGTCAAGATTTAGTTTATCTAACTTGTTTGCAA	spacer
		length: 40	repeater length: 25	
36264	2067356	GTTGAACCCATAACGGGATTGAAAG	ACAGAACCGTTATTCAGGATAAAGTACTGGTCTCCACCC	spacer
		length: 39	repeater length: 25	
36265	2067420	GTTGAACCCATAACGGGATTGAAAG	ATTCCATGCTACCCCTGGGTAGGGCTGTAGCACATTCA	spacer
		length: 38	repeater length: 25	
36266	2067483	GTTGAACCCATAACGGGATTGAAAG	TCTGGAACCTCATTTATAGCTTCAATATCCAAATCGTTAT	spacer

length: 39 repeater length: 25
36267 2067547 GTTGAACCCATAACGGGATTGAAAG CTCATAGCCGGAGAACATATGATAATCATCGGTCCTCCGG spacer
length: 40 repeater length: 25
36268 2067612 GTTGAACCCATAACGGGATTGAAAG TTAAATAGTTCATTTCCGACTGAATCAGTATTTGTATCCAT spacer
length: 41 repeater length: 25
36269 2067678 GTTGAACCCATAACGGGATTGAAAG ATTATCAGTGTATTGGTATTCTGAATACGCTGTTAAGTTC spacer
length: 39 repeater length: 25
36270 2067742 GTTGAACCCATAACGGGATTGAAAG TGTCCAAGTACCACCAAATTCATCCATGACAATACCA spacer
length: 38 repeater length: 25
36271 2067805 GTTGAACCCATAACGGGATTGAAAG ACGGTCAAGCTAGTGCCGATTCTTATCTCGCCTCCTCGGTA spacer
length: 41 repeater length: 25
36272 2067871 GTTGAACCCATAACGGGATTGAAAG AGTTAGTCAATCCGAAATATATTTTTAATATTACAAAT spacer
length: 38 repeater length: 25
36273 2067934 GTTGAACCCATAACGGGATTGAAAG TTAATCAGTTTGTTAATATGAAAATTAAGTAAATTATAC spacer
length: 39 repeater length: 25
36274 2067998 GTTGAACCCATAACGGGATTGAAAG TGATATATTCCGACATAGAGCATTACCGTCATATTTTA spacer
length: 38 repeater length: 25
36275 2068061 GTTGAACCCATAACGGGATTGAAAG GTGTGTCAAAAGATGTCATGTTTTCTTGATTTTGATTTT spacer
length: 39 repeater length: 25
36276 2068125 GTTGAACCCATAACGGGATTGAAAG CGTCCAGCTCGGCTCGTGCGGGGGATAGGCGTACACCAT spacer
length: 39 repeater length: 25
36277 2068189 GTTGAACCCATAACGGGATTGAAAG CAGTTTATGCGGGTAAAAGCGGTTTCTTGATATCTA spacer
length: 36 repeater length: 25
36278 2068250 GTTGAACCCATAACGGGATTGAAAG GATAGAAGCCTCTTCGGCTTCTATCGTGTATTTATCCC spacer
length: 38 repeater length: 25
36279 2068313 GTTGAACCCATAACGGGATTGAAAG TTAGCTATACCGTATCTTTGTCTGTCGATATATTT spacer length:
35 repeater length: 25
36280 2068373 GTTGAACCCATAACGGGATTGAAAG TAAGGTAGGAATACGCCTTAGCCCCCGTATCCC spacer length:
34 repeater length: 25
36281 2068432 GTTGAACCCATAACGGGATTGAAAG ATACTTACTTTGATTTGGGTTTGGGTTTGGGTCGCCAT spacer
length: 38 repeater length: 25
36282 2068495 GTTGAACCCATAACGGGATTGAAAG TTTTCTGACACTCATCATGACAGTGAGGGGCATGACAGC spacer
length: 39 repeater length: 25
36283 2068559 GTTGAACCCATAACGGGATTGAAAG TCTCCTTCTCTCATATATTGTTTTGGATTTTACTTTTTTC spacer
length: 39 repeater length: 25
36284 2068623 GTTGAACCCATAACGGGATTGAAAG TTCAATGAAATAGGTCCGGTTAACGTTACCCTTGATTC spacer
length: 38 repeater length: 25
36285 2068686 GTTGAACCCATAACGGGATTGAAAG TACTCTTCCAGGGTATTGATCAGTTCGTTGAGTTCTTTCTT spacer
length: 41 repeater length: 25
36286 2068752 GTTGAACCCATAACGGGATTGAAAG
36287
36288
36289 crispr 11
36290 2180419 GTTTGTAGTGATCCTTAGAGGGTTTGAAC GTAGGGATGGATCCAGAGAATGGATATGTGGAAGGCG spacer
length: 37 repeater length: 30
36291 2180486 GTTTGTAGTGATCCTTAGAGGGTTTGAAC CTTTATTTATGCTGTGGGACTTCTTTGACAGAAAGTAA spacer
length: 38 repeater length: 30
36292 2180554 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TGTCAATGATTTGGGGCTTCATGCCCTTGTCAAG spacer
length: 35 repeater length: 30
36293 2180619 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TAGTTCCCCGAAAAGGGGTACACTGTTTTCGCTTTCC spacer
length: 37 repeater length: 30
36294 2180686 GTTTGTAGTGATCCTTAGAGGGTTTGAAC AAAGAGCTAAGAATAAAAGAGATTAAGCTTTTCTTGA spacer
length: 37 repeater length: 30
36295 2180753 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TTCCGTCTTCTTCTCTAAGGATCATCAATATTTTCCCA spacer
length: 38 repeater length: 30
36296 2180821 GTTTGTAGTGATCCTTAGAGGGTTTGAAC CTTTTTCTCTTGTTCGCTTTTTCTATCTTCTCTTG spacer
length: 36 repeater length: 30
36297 2180887 GTTTGTAGTGATCCTTAGAGGGTTTGAAC CTAACATCGTTTTTCGCGGTTCCGGGCGGGCCGATA spacer
length: 35 repeater length: 30
36298 2180952 GTTTGTAGTGATCCTTAGAGGGTTTGAAC GGAAAAACGTCCACAAATTCATTCAATCCTGCAGATT spacer
length: 37 repeater length: 30
36299 2181019 GTTTGTAGTGATCCTTAGAGGGTTTGAAC AGAACTAGGTGCAAAGTAATACCCAGCAAAGCCTGG spacer
length: 36 repeater length: 30
36300 2181085 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TGAAAGTCAGGTAGTAGACCTGGTAAATTCTGTATT spacer
length: 36 repeater length: 30
36301 2181151 GTTTGTAGTGATCCTTAGAGGGTTTGAAC GATAGAAGTTGTAAGGTTTGTTCCTCAATGACGACG spacer
length: 36 repeater length: 30
36302 2181217 GTTTGTAGTGATCCTTAGAGGGTTTGAAC AGCCATTTCTGTTATCTTATCCAGCCCGCTTATTGTAG spacer
length: 37 repeater length: 30
36303 2181284 GTTTGTAGTGATCCTTAGAGGGTTTGAAC AAGATCTTAGACGGCGAGCCCGAAAAGGCTGGAGCTCT spacer
length: 38 repeater length: 30

36304	2181352	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CATGGTGAATTAGATGGTTGGTAGAGAGATCATCAT	spacer
	length:	36	repeater length:	30
36305	2181418	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TGTCTTCTACAATTATGTCGTTGTACTCACTTATCTCCT	
	spacer length:	39	repeater length:	30
36306	2181487	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CTAACACAAACGCCTAAGTTCCAAAACGTGTCCATTACGG	
	spacer length:	40	repeater length:	30
36307	2181557	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TTCAAAATTTGAGGGAGAAAAAGAGAGAGATGTGAC	spacer
	length:	37	repeater length:	30
36308	2181624	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TGAAATAACTACTAGTGACATGTACCAATTACAACCTTA	spacer
	length:	38	repeater length:	30
36309	2181692	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TATATACCGAGGTCGGAAAGGGATAACGTAATTAAAG	spacer
	length:	37	repeater length:	30
36310	2181759	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GCCGAAGGCACCATCATTACAAGTGAAAAAGAGTTAG	spacer
	length:	37	repeater length:	30
36311	2181826	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TCTTTTGTTCATGATAAACCCGACGTGCCCATTTTCG	spacer
	length:	37	repeater length:	30
36312	2181893	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CAAAGTCCTCGTTAATTTTTTTGTCTAACTCTTCCC	spacer
	length:	36	repeater length:	30
36313	2181959	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GAATCCCTTGTCCCCTGCCTGGGCTGTTCGTCAGAAA	spacer
	length:	37	repeater length:	30
36314	2182026	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CCGGGGTAGACACATCAAAAATCGGTATCAATGAG	spacer
	length:	35	repeater length:	30
36315	2182091	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TGTTCAAGTGCCAAAGCGGGCTCATCGTTTTCCACCCGT	
	spacer length:	40	repeater length:	30
36316	2182161	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CTTCTCTCATTACCTCATTTATATCGCATACCATACTA	spacer
	length:	38	repeater length:	30
36317	2182229	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CGGGACTGGAATAATTCTAGCTAGTCAGCGAATTTA	spacer
	length:	36	repeater length:	30
36318	2182295	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TGAACGCTGAAATACAAAAAAGTTAGATAAGATGCA	spacer
	length:	37	repeater length:	30
36319	2182362	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	AACACTTCCCAAGCTCTCTTGTGAATGAGGATTTCA	spacer
	length:	37	repeater length:	30
36320	2182429	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GACGGGGGGAAAAGTATAGATCGTGATATAGAAATTGGA	
	spacer length:	39	repeater length:	30
36321	2182498	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TCTGTCAATCAATGGGAGACAAAACCCGCACTGGGCGA	spacer
	length:	38	repeater length:	30
36322	2182566	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	AGGGGGTGTCTAGAATGAGGGTCATCACGTTTAAAG	spacer
	length:	36	repeater length:	30
36323	2182632	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TTCCTTGATTCCGAACACGACATCCCCGCTGATATCTA	spacer
	length:	38	repeater length:	30
36324	2182700	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CGCAATATACCGGATCCTTTTAAGAAATCTAGCGAA	spacer
	length:	36	repeater length:	30
36325	2182766	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TAGGTCATCCCAGTATACTTCTTCCCTCTCTTGTCCA	spacer
	length:	37	repeater length:	30
36326	2182833	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TACGACAATGATATCTCCACACATATTGTCATTATCT	spacer
	length:	37	repeater length:	30
36327	2182900	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	AACACCGTAAGCGGGAAAGCATATTACTCAACTATT	spacer
	length:	36	repeater length:	30
36328	2182966	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TCGATGACGCAATAGAGGAAATGGAAGAAGATCAA	spacer
	length:	35	repeater length:	30
36329	2183031	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TATTGAATGAAGCACCTGTAAAAGCGTCATACGTTCCAT	
	spacer length:	39	repeater length:	30
36330	2183100	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TCTTCTACGCGTTTCTGTGCTAATTTGCTATCTACA	spacer
	length:	36	repeater length:	30
36331	2183166	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CTTCATGTCCCACGGCGGATATAAACCCGCCTGATAG	spacer
	length:	37	repeater length:	30
36332	2183233	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GAGGGGATAAAATGGGAAAAACGTATCTCGTCAACG	spacer
	length:	36	repeater length:	30
36333	2183299	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	AAAAACTAGGGAAAAAGTTGAATGTCTTTTTAGTTGA	spacer
	length:	37	repeater length:	30
36334	2183366	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GGTAAAACGCTATAGACCCTCCGCTGACGCCACCGT	spacer
	length:	36	repeater length:	30
36335	2183432	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CTACTACCATAAGAAGAAGCATCATCACGGGTGACAGT	spacer
	length:	38	repeater length:	30
36336	2183500	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TCAATAAAAAATGACCCCTGTGCGGGTCATGGGGTATA	spacer
	length:	38	repeater length:	30
36337	2183568	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TATGTCTTCTCGTTTGACAAAGGTTGGCAAACATATGT	spacer
	length:	37	repeater length:	30
36338	2183635	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CTCCTTTCCATAGTGCTAGACCGTTACCCGTATAAA	spacer
	length:	36	repeater length:	30
36339	2183701	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CTACTACCATAAGAAGAAGCATCATCACGGGTGACAGT	spacer

length: 38 repeater length: 30
36340 2183769 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TCAATAAAAAATGACCCCTGTCGGGGTCATGGGGTATA spacer
length: 38 repeater length: 30
36341 2183837 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TATGTCTTCTCGTTTGACAAAGGTTGGCAAACATATGT spacer
length: 37 repeater length: 30
36342 2183904 GTTTGTAGTGATCCTTAGAGGGTTTGAAC CTCCTTTCCATAGTGCTAGACCGTTACCCGTATAAA spacer
length: 36 repeater length: 30
36343 2183970 GTTTGTAGTGATCCTTAGAGGGTTTGAAC CAAAGCTCTTTGTATTTGCTATTTCTGGTATTTGCA spacer
length: 35 repeater length: 30
36344 2184035 GTTTGTAGTGATCCTTAGAGGGTTTGAAC CGGATAATGAGATAAATCAGGTGAATCTCATAACAGCAA spacer
length: 38 repeater length: 30
36345 2184103 GTTTGTAGTGATCCTTAGAGGGTTTGAAC GATTTCTGGTGAAAACACTAAAATATATTCAACATGGG spacer
length: 37 repeater length: 30
36346 2184170 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TCCTGCTCTTCATTAGACCTATTGTCTTCAACGTAAA spacer
length: 37 repeater length: 30
36347 2184237 GTTTGTAGTGATCCTTAGAGGGTTTGAAC AGTAGTTGAGAATTGACTAGATTTCGATTAGTTCGT spacer
length: 35 repeater length: 30
36348 2184302 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TGTAAGTGTGGAAGATAGACCGAATCTTCTTCTAGC spacer
length: 36 repeater length: 30
36349 2184368 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TATCCCCGCACCTTGAATTCTGACTTCCTCGCCGCC spacer
length: 36 repeater length: 30
36350 2184434 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TTTTGTAGGGGGGCTTACACACGTTCTTCTCCACGTG spacer
length: 38 repeater length: 30
36351 2184502 GTTTGTAGTGATCCTTAGAGGGTTTGAAC GAGGAGTAATAGACGTAGCTTCCTTAACGGGGATCCT spacer
length: 37 repeater length: 30
36352 2184569 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TCATCACAATCATGTTGGAATTAACCACTGTAA spacer
length: 36 repeater length: 30
36353 2184635 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TATGCTATTTCTTTCTTCTCCTTCTTCTCCATCTTCTT spacer
length: 38 repeater length: 30
36354 2184703 GTTTGTAGTGATCCTTAGAGGGTTTGAAC ATAATGATACCGACAACCTAACTCGTTTAATAATAAGG spacer
length: 38 repeater length: 30
36355 2184771 GTTTGTAGTGATCCTTAGAGGGTTTGAAC CAATTTAACACGGCACAACCCATAACCATAAACCTG spacer
length: 36 repeater length: 30
36356 2184837 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TCTTAAGCCCTTTCTGAAATCCTCTAAGTTTGAGAAGA spacer
length: 38 repeater length: 30
36357 2184905 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TCACTATACGGTCAATATGGAGGATTCATAGAAAATG spacer
length: 37 repeater length: 30
36358 2184972 GTTTGTAGTGATCCTTAGAGGGTTTGAAC ATGATACAACCTAGCGTGACCCAATCGAGCAATGGAA spacer
length: 36 repeater length: 30
36359 2185038 GTTTGTAGTGATCCTTAGAGGGTTTGAAC ACAGTTTCAAACCTAAAAACTCCTCATCCTCTTCA spacer
length: 36 repeater length: 30
36360 2185104 GTTTGTAGTGATCCTTAGAGGGTTTGAAC GGAGCTGAGCTAGCGGGTACATTGAAAGTGGGGATTT spacer
length: 37 repeater length: 30
36361 2185171 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TCTCGTTCTCAACAATTCAGCCAAATCCTTAAGTTC spacer
length: 37 repeater length: 30
36362 2185238 GTTTGTAGTGATCCTTAGAGGGTTTGAAC CAGTTAGCCCCTATATTCATAGCACCTTTCGTGTTATA spacer
length: 38 repeater length: 30
36363 2185306 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TATATGCTTGAGAGGTACTTATACCCCTCTGAATG spacer
length: 35 repeater length: 30
36364 2185371 GTTTGTAGTGATCCTTAGAGGGTTTGAAC
36365
36366
36367 GCA_009217585.1_ASM921758v1_genomic.fna (PilerCR):
36368 START REPEAT
SPACER
36369 crispr 1
36370 272329 GTTTCAGACGGACCCTTGTGGGATTGAAGC TGCGTCGTCCGGTGGCCGTCAATAAATGTCGCAAGGG spacer
length: 37 repeater length: 30
36371 272396 GTTTCAGACGGACCCTTGTGGGATTGAAGC TCCTACGACCTCGTCGGCGTCAACGGCTGGCCCGA spacer
length: 35 repeater length: 30
36372 272461 GTTTCAGACGGACCCTTGTGGGATTGAAGC CACCCTACAACAGGTGAAATCTACCAGACAAAAGA spacer
length: 35 repeater length: 30
36373 272526 GTTTCAGACGGACCCTTGTGGGATTGAAGC TCACCCAAGCGCAAGCAACAGCTGATCGAGGACCTG spacer
length: 36 repeater length: 30
36374 272592 GTTTCAGACGGACCCTTGTGGGATTGAAGC GCGACGGCGGCCAGTTCCGCGAGGGCGGGAAGGTCC spacer
length: 36 repeater length: 30
36375 272658 GTTTCAGACGGACCCTTGTGGGATTGAAGC TGCGAGTGTGCGGGGAACCGACTCGGGTAGGCCAG spacer
length: 36 repeater length: 30
36376 272724 GTTTCAGACGGACCCTTGTGGGATTGAAGC ACGGTTTCGCTACCACCATCGCCACCAGCAACTGCCG spacer
length: 37 repeater length: 30
36377 272791 GTTTCAGACGGACCCTTGTGGGATTGAAGC GACGAGTATGCCAACCGGCTCGTGAGCGGGCGC spacer

length: 33 repeater length: 30
36378 272854 GTTTCAGACGGACCCCTTGTGGGATTGAAGC TGGTAGGCGTCGTAGGTGTTTCGTGGCGAGCGTGTC spacer
length: 35 repeater length: 30
36379 272919 GTTTCAGACGGACCCCTTGTGGGATTGAAGC ACTCACTGGATTATGACCCCTACAACGAGGGCGTCA spacer
length: 36 repeater length: 30
36380 272985 GTTTCAGACGGACCCCTTGTGGGATTGAAGC GGATCTCGATCGTTGTAGTATCCATAGCTGCTATACC spacer
length: 37 repeater length: 30
36381 273052 GTTTCAGACGGACCCCTTGTGGGATTGAAGC GAAGTAACGCAACTCCAGTGAGCGCTACTGAGAGCCC spacer
length: 37 repeater length: 30
36382 273119 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CCGATCACGCCCTGCCGATACTGGTAGTTCGCGATA spacer
length: 36 repeater length: 30
36383 273185 GTTTCAGACGGACCCCTTGTGGGATTGAAGC TCGTCGGCCGGCTCGTCGGCCGACGTGGACTTGC spacer
length: 34 repeater length: 30
36384 273249 GTTTCAGACGGACCCCTTGTGGGATTGAAGC AGTAGGTCTAATGTCTCTCTGTCTATCAGCCCCG spacer
length: 37 repeater length: 30
36385 273316 GTTTCAGACGGACCCCTTGTGGGATTGAAGC GCTCTCCGGTGTACAGGTCAGGTCACGGTCTCCGC spacer
length: 36 repeater length: 30
36386 273382 GTTTCAGACGGACCCCTTGTGGGATTGAAGC ACGGACAAGTCATCCACCCGCCAGTATCTCCCGGT spacer
length: 35 repeater length: 30
36387 273447 GTTTCAGACGGACCCCTTGTGGGATTGAAGC AAATACGATCCTGCGGTGACGCTACGTCCGGGGCAGC spacer
length: 37 repeater length: 30
36388 273514 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CAGATGTGGGGTCTGTGGCCACAGTCTAACATCTCT spacer
length: 36 repeater length: 30
36389 273580 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CCTGATAACGGACTCTTGTAGGTCCGTTAGGTCTG spacer
length: 35 repeater length: 30
36390 273645 GTTTCAGACGGACCCCTTGTGGGATTGAAGC AAAAATGAGTGACGTAGACATTTCGGCAAATGCCGG spacer
length: 36 repeater length: 30
36391 273711 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CAGCAGCGAAACGAGCCGTCCGTCTTTTGAGACA spacer
length: 35 repeater length: 30
36392 273776 GTTTCAGACGGACCCCTTGTGGGATTGAAGC GTCTAGCCCAGTCTGGTTCGGGGTGGTTCGGCAGGATCGG spacer
length: 38 repeater length: 30
36393 273844 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CACTCCTCATATGTCTGTTTCGAGCAGCGGGACGTG spacer
length: 35 repeater length: 30
36394 273909 GTTTCAGACGGACCCCTTGTGGGATTGAAGC ACCGTTGCCGCCGATCGGCAGCGAGCCGGTGATGTGT spacer
length: 37 repeater length: 30
36395 273976 GTTTCAGACGGACCCCTTGTGGGATTGAAGC TCAAAGCGAGCCTCGAACGCGACGACGAAGATATG spacer
length: 35 repeater length: 30
36396 274041 GTTTCAGACGGACCCCTTGTGGGATTGAAGC TCCTCCTTGTACCCACGGTCTTGCCGATCCATCCCG spacer
length: 36 repeater length: 30
36397 274107 GTTTCAGACGGACCCCTTGTGGGATTGAAGC GACTGGCGTGTGTCGTTTCAGGCCGGCGTTGATCCCG spacer
length: 37 repeater length: 30
36398 274174 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CTCAGCAGCAGTCAACGGCATTATATACACCTTGT spacer
length: 35 repeater length: 30
36399 274239 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CACCCTTCCGGGGAGACGAGGAAACCCCGGACGA spacer
length: 35 repeater length: 30
36400 274304 GTTTCAGACGGACCCCTTGTGGGATTGAAGC GTCACGCTGTCTGACGATATGGCTGACCAGGTGC spacer
length: 34 repeater length: 30
36401 274368 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CACTCCTGGGCGGCCTCATCGGCGGCCATCGTC spacer
length: 33 repeater length: 30
36402 274431 GTTTCAGACGGACCCCTTGTGGGATTGAAGC GAAAGGTACGTGTCGTCGACCAGAAAGGAAACGAGT
36403
36404
36405 GCA_009392915.1_ASM939291v1_genomic.fna (PilerCR):
36406 START REPEAT
SPACER
36407 GCA_009601705.1_ASM960170v1_genomic.fna (PilerCR):
36408 START REPEAT
SPACER
36409 crispr 1
36410 929036 CTTTCAATTCTATAAGAGATTAGC TTTACAGTATTTGCAATCATTAACCTAACGCACCGGAATTAGCTGATG
spacer length: 47 repeater length: 24
36411 929107 CTTTCAATTCTATAAGAGATTAGC TAAGCATAGAACTGCGCCAGTTGTATTAAGGACTTCCAC spacer
length: 39 repeater length: 24
36412 929170 CTTTCAATTCTATAAGAGATTAGC TTTGAATTAATTGTACACGTTGTGATAAAAATTGTGTAAG spacer
length: 40 repeater length: 24
36413 929234 CTTTCAATTCTATAAGAGATTAGC ACAGAATGAGATAGCATCGAAAATCATCCAGCTCAAAGA spacer
length: 39 repeater length: 24
36414 929297 CTTTCAATTCTATAAGAGATTAGC AAAAGAACGCCAGGGAAGTGCAACTATATTCAACGAGTAA spacer
length: 40 repeater length: 24
36415 929361 CTTTCAATTCTATAAGAGATTAGC CGTTTATAAATGCGTCTGAGATGATTGCGAGAACTATTGC spacer
length: 40 repeater length: 24

36416 929425 CTTTCAATTCTATAAGAGATTAGC TAGGGTCAATACTGATAATATCGAGAGCTGAAATTATACC spacer
length: 40 repeater length: 24
36417 929489 CTTTCAATTCTATAAGAGATTAGC AAAATAGTGCACCTTGTCGGGGAGATTGAGTCATTGGAAG spacer
length: 39 repeater length: 24
36418 929552 CTTTCAATTCTATAAGAGATTAGC CTTACCACCTTTTAGCTGTGGCCCAAGGCGTTTGATGTT spacer
length: 40 repeater length: 24
36419 929616 CTTTCAATTCTATAAGAGATTAGC GAAATGAATTTTAAACACTTAGGTATGATTTTACTTATAAT spacer
length: 41 repeater length: 24
36420 929681 CTTTCAATTCTATAAGAGATTAGC AGAATGGTACAATAGCATCAAAGGCAAACGATTAATGCTAAA spacer
length: 42 repeater length: 24
36421 929747 CTTTCAATTCTATAAGAGATTAGC CAAAGCCTTTTCTCAGAGATTTACAACCAGCTAATTCAGAT spacer
length: 41 repeater length: 24
36422 929812 CTTTCAATTCTATAAGAGATTAGC TTGCTGGAGTAATGTATATGATATGAAAGTAGAAAGTAAG spacer
length: 40 repeater length: 24
36423 929876 CTTTCAATTCTATAAGAGATTAGC TAACATTTGCTTTGTAGGATTGTTTATTTGTAAGGAAGT spacer
length: 40 repeater length: 24
36424 929940 CTTTCAATTCTATAAGAGATTAGC GCCGTCTGGTATTGTACAACTGCTCCGTTAACTTATTC spacer
length: 39 repeater length: 24
36425 930003 CTTTCAATTCTATAAGAGATTAGC AAGGAAGTAACGATGATCGTACAGGGTTAGACGCTTTCTT spacer
length: 40 repeater length: 24
36426 930067 CTTTCAATTCTATAAGAGATTAGC AATATTGGTCAGTCTCGGAGTAATTGTAGGAGTATATCT spacer
length: 39 repeater length: 24
36427 930130 CTTTCAATTCTATAAGAGATTAGC TTGTGGCGTTGTAAGCTTGGTCGGAGTCAGCATAACATT spacer
length: 39 repeater length: 24
36428 930193 CTTTCAATTCTATAAGAGATTAGC ATTACGCTCTAGCTTCAAGTCAAGATAGTAGTGTTGTTTTTGC spacer
length: 44 repeater length: 24
36429 930261 CTTTCAATTCTATAAGAGATTAGC AAAGGAATTGGAAGAGAAAGTCTCAAAATTGAATGAGTTGC spacer
length: 41 repeater length: 24
36430 930326 CTTTCAATTCTATAAGAGATTAGC GAAACAGAAAAAGAGGAGGAAACAGCGTCTGAAATGAAC spacer
length: 40 repeater length: 24
36431 930390 CTTTCAATTCTATAAGAGATTAGC TTACCAAGGTTTCGCCCTTAAGTTGCAGAGACATCTAAAT spacer
length: 40 repeater length: 24
36432 930454 CTTTCAATTCTATAAGAGATTAGC ACGGCAAAAGTTCCGTTAGGACCTAGTTTATTCCATGAACTT spacer
length: 43 repeater length: 24
36433 930521 CTTTCAATTCTATAAGAGATTAGC TTGGCAATAAAGGAAATTGAAGGCCAGCTGGATAATATTA spacer
length: 40 repeater length: 24
36434 930585 CTTTCAATTCTATAAGAGATTAGC GTGCCGTTCTGAAGAGTTAGGAGTTGGAACAACCTCAGTTTC spacer
length: 41 repeater length: 24
36435 930650 CTTTCAATTCTATAAGAGATTAGC ATAGCATCAGTATTAGATGGCATTGCTAGCACCTATCTTGA spacer
length: 41 repeater length: 24
36436 930715 CTTTCAATTCTATAAGAGATTAGC CTCGCTATTCTGTGCAAAAGTGTTAGATGAGAGCAAAGT spacer
length: 39 repeater length: 24
36437 930778 CTTTCAATTCTATAAGAGATTAGC ACAAGTATGGGTACCAAGCCCACAAAAGCAGTTGAAAGT spacer
length: 40 repeater length: 24
36438 930842 CTTTCAATTCTATAAGAGATTAGC TTTCGACAGAACAACCTACCGACAAGTTGTGGCTTTCAA spacer
length: 39 repeater length: 24
36439 930905 CTTTCAATTCTATAAGAGATTAGC AGAATATGAAGAAACGCCATGGTTTCCTCAGCTTAGTGAA spacer
length: 40 repeater length: 24
36440 930969 CTTTCAATTCTATAAGAGATTAGC CTACGTTTTGTGCTTGCCGTTGCGGGCGTGGATGAAGCAAA spacer
length: 41 repeater length: 24
36441 931034 CTTTCAATTCTATAAGAGATTAGC CGACCTCATACGTTTTCTCGTAGTACTCTAATGGCGATAA spacer
length: 40 repeater length: 24
36442 931098 CTTTCAATTCTATAAGAGATTAGC AAAAAGCTAAGGGGAAGAACAGTGAAAATAATTGAGTA spacer
length: 39 repeater length: 24
36443 931161 CTTTCAATTCTATAAGAGATTAGC AATATTGCAGTAGGTGTGGTGAAAAATTCGCAACTGT spacer length:
37 repeater length: 24
36444 931222 CTTTCAATTCTATAAGAGATTAGC GTATTGCAAATAAATGCAGTACCCAATAACGGCCTGATA spacer
length: 39 repeater length: 24
36445 931285 CTTTCAATTCTATAAGAGATTAGC AAAAATGAACCGGCAGAAGAACAAGTACCCGAAGAAGAAG spacer
length: 40 repeater length: 24
36446 931349 CTTTCAATTCTATAAGAGATTAGC TGGTGCAATAACCCACCTATTACGAGACCGCTGATTACCA spacer
length: 41 repeater length: 24
36447 931414 CTTTCAATTCTATAAGAGATTAGC AGAGTAATTCGGCACTTGCTTTTGTCCAGCCATAAACTGAGGA spacer
length: 43 repeater length: 24
36448 931481 CTTTCAATTCTATAAGAGATTAGC GTCAAGTCCTTCAGGAACAAAGATTCCAAATACTCATTT spacer
length: 39 repeater length: 24
36449 931544 CTTTCAATTCTATAAGAGATTAGC AAGGCATTGTTCTGGAATATTGGCTGGGCTCACAGGAAT spacer
length: 40 repeater length: 24
36450 931608 CTTTCAATTCTATAAGAGATTAGC CTGTAGTGTTGCCATGTTTATCCCTAGTTATCGTTCTCACT spacer
length: 41 repeater length: 24
36451 931673 CTTTCAATTCTATAAGAGATTAGC CAATTTATATGCAGTGATGGGTGCAACAACGATTTTGTTA spacer

length: 41 repeater length: 24
36452 931738 CTTTCAATTCTATAAGAGATTAGC GCGTATCAGTATTCGCAAAACGCAAAGAACGCACTTCTCAA spacer
length: 41 repeater length: 24
36453 931803 CTTTCAATTCTATAAGAGATTAGC GTAAATCTGGCATGGGCCTGTTGCCCACGCATATATGTTCT spacer
length: 41 repeater length: 24
36454 931868 CTTTCAATTCTATAAGAGATTAGC TTAACAAACTAACTAGGTTAGTAAATAGTATCTTTATCGA spacer
length: 40 repeater length: 24
36455 931932 CTTTCAATTCTATAAGAGATTAGC ATATCTCTTTGAAAGATAATTTGCCGTTGTATAATCAGAT spacer
length: 40 repeater length: 24
36456 931996 CTTTCAATTCTATAAGAGATTAGC CCAAAGGCCGAAGAGCAACTTGTGCGATATGCCATAAG spacer
length: 38 repeater length: 24
36457 932058 CTTTCAATTCTATAAGAGATTAGC CATTCAAGCTTCTTCTGCATAGCTTGTGACAATCCATACA spacer
length: 39 repeater length: 24
36458 932121 CTTTCAATTCTATAAGAGATTAGC TTAACGTCTCTATATCTTGAAATTTATATATTAATAAT spacer
length: 39 repeater length: 24
36459 932184 CTTTCAATTCTATAAGAGATTAGC ATCGAAAAAGATGATATAGCGAGAGAAGTTTACGAGTATC spacer
length: 40 repeater length: 24
36460 932248 CTTTCAATTCTATAAGAGATTAGC TGCCACTGGATTTACTGAAATTGGAGCTTCGATAGGA spacer length:
37 repeater length: 24
36461 932309 CTTTCAATTCTATAAGAGATTAGC ACAAATTTTAGAGCAAGTTCAAGCGGCGTTAGGCAGAAG spacer
length: 39 repeater length: 24
36462 932372 CTTTCAATTCTATAAGAGATTAGC GTGGCATATGCGGTGGTGAATGGTGGAACAGCATCATTACG spacer
length: 41 repeater length: 24
36463 932437 CTTTCAATTCTATAAGAGATTAGC ACTTAACGTAAGTGAATCCCAAGTTTCTGAAAACGTAGC spacer
length: 39 repeater length: 24
36464 932500 CTTTCAATTCTATAAGAGATTAGC TAAACATTAGCTACTAATATATCATTAGGTCCTACAGTGTA spacer
length: 41 repeater length: 24
36465 932565 CTTTCAATTCTATAAGAGATTAGC TTCAAACAGAAAGACGTAGTCAAATGCATTGTCACGAAA spacer
length: 39 repeater length: 24
36466 932628 CTTTCAATTCTATAAGAGATTAGC AATGAGAAAGAAAAGGGGTTGGGGATATGACCCTAATATC spacer
length: 40 repeater length: 24
36467 932692 CTTTCAATTCTATAAGAGATTAGC TCTCCTATGTATGCCGCAAAATGATAATAGCCTCTTTG spacer
length: 38 repeater length: 24
36468 932754 CTTTCAATTCTATAAGAGATTAGC ACAGATAGTATGCGCCTTTATACCCTCTTTGCCACGAAAG spacer
length: 40 repeater length: 24
36469 932818 CTTTCAATTCTATAAGAGATTAGC ACTTTTGAATGGTCTTGTCTGGTTTATGTGAGGATACTGA spacer
length: 41 repeater length: 24
36470 932883 CTTTCAATTCTATAAGAGATTAGC GAAGGACCCC
36471
36472
36473 crispr 2
36474 937687 GCTAATCTATTATAGAATTGAAAG CAAATTGAAAAATAATGTCTTCAATTGTGATTTGGCCTTT spacer
length: 40 repeater length: 24
36475 937751 GCTAATCTATTATAGAATTGAAAG TTTCTAACTGTACGATTTTCAATTAATTCCGTCCGAAACCT spacer
length: 39 repeater length: 24
36476 937814 GCTAATCTATTATAGAATTGAAAG GGTCTAGGGCATCGAAGATACTGGCTATCGTGGGTACGTCT spacer
length: 41 repeater length: 24
36477 937879 GCTAATCTATTATAGAATTGAAAG GCACAACAGACAATTAGCTTAGAAGTCACTGACCCTGCCAG spacer
length: 41 repeater length: 24
36478 937944 GCTAATCTATTATAGAATTGAAAG GAAATATTGGCATAAACCGAGACATTGTAGACTTCTGGAA spacer
length: 40 repeater length: 24
36479 938008 GCTAATCTATTATAGAATTGAAAG TTAATACCCGCTACAAGCTTATAATCATCAGTTACGATTT spacer
length: 40 repeater length: 24
36480 938072 GCTAATCTATTATAGAATTGAAAG AATGCTTTAACACTTCAATATCATCATCACCCACATTGAAT spacer
length: 41 repeater length: 24
36481 938137 GCTAATCTATTATAGAATTGAAAG ATTTATTATATTGCGCACGCAATCCCGCGTGAAATTGAAAGAG spacer
length: 43 repeater length: 24
36482 938204 GCTAATCTATTATAGAATTGAAAG CTACGTAAATTGGGTCAGCCTCTGTCAATGCCGTTGCCAGCTAT
spacer length: 46 repeater length: 24
36483 938274 GCTAATCTATTATAGAATTGAAAG ATTTTGTAGCGTATTGCAAATACGTTGACTGTAAATCGC spacer
length: 38 repeater length: 24
36484 938336 GCTAATCTATTATAGAATTGAAAG GTGTCTCGTCTCTTGTATTGTTGTGTCAAGCGCCACAG spacer
length: 39 repeater length: 24
36485 938399 GCTAATCTATTATAGAATTGAAAG TGGGTGGGTGTTTCTTCTGTACGTTGAATTTTTCTCAT spacer
length: 38 repeater length: 24
36486 938461 GCTAATCTATTATAGAATTGAAAG TTTATTATGCCATACGCTATATCAAGCCAATAAGTTGTCC spacer
length: 40 repeater length: 24
36487 938525 GCTAATCTATTATAGAATTGAAAG TTGACAGACAAGATCGTTGACAATAAATTCTTCATCTTCT spacer
length: 40 repeater length: 24
36488 938589 GCTAATCTATTATAGAATTGAAAG ATTATCAGCATCATTAGGTCTGGCCCACTCCCCACCCTAG spacer
length: 40 repeater length: 24

36489	938653	GCTAATCTATTATAGAAATTGAAAG	GATTTAGTCTGCTCATTAGGTTCAAAGTCGTAAAAAACT spacer
		length: 39 repeater length: 24	
36490	938716	GCTAATCTATTATAGAAATTGAAAG	AACACGCTTGTGATGAACGCATCTATTGCTGTAATTTGTGCA spacer
		length: 42 repeater length: 24	
36491	938782	GCTAATCTATTATAGAAATTGAAAG	ATTATAATCTTTGACAATTTCTTTCTCACATTCAAATCCAT spacer
		length: 41 repeater length: 24	
36492	938847	GCTAATCTATTATAGAAATTGAAAG	AAAAATGTCAACTATGGAGGAAATTATGCCAATAAAGT spacer
		length: 38 repeater length: 24	
36493	938909	GCTAATCTATTATAGAAATTGAAAG	CAGCCTAACCCCAACTATCCGTTTACATTTTCTGTCATA spacer
		length: 39 repeater length: 24	
36494	938972	GCTAATCTATTATAGAAATTGAAAG	AACAGAAAGACGAAAACAATAATCACTAACAAAAAAGCTT spacer
		length: 41 repeater length: 24	
36495	939037	GCTAATCTATTATAGAAATTGAAAG	GTCCCTGGGGGGCCATGTAACAGAACAATCTGAAATGGATT spacer
		length: 41 repeater length: 24	
36496	939102	GCTAATCTATTATAGAAATTGAAAG	GAATTATCGGATGAACCTGAACTATCACCAGAACCGGACCCAC spacer
		length: 43 repeater length: 24	
36497	939169	GCTAATCTATTATAGAAATTGAAAG	TTTAATGTACTACCAGCGTATGCTTTTTGAGATGTACTA spacer
		length: 39 repeater length: 24	
36498	939232	GCTAATCTATTATAGAAATTGAAAG	ACGGCAAATTACGTTTATGAAACGCATAGATATTCATTTCGT spacer
		length: 41 repeater length: 24	
36499	939297	GCTAATCTATTATAGAAATTGAAAG	TTCACCATTATTGTGTTCTCTTGCTTCTGATAACTCA spacer length:
		37 repeater length: 24	
36500	939358	GCTAATCTATTATAGAAATTGAAAG	TCAGCAGCGGCAATAAGGCAATTAATAATAGATAACTTCC spacer
		length: 40 repeater length: 24	
36501	939422	GCTAATCTATTATAGAAATTGAAAG	ATAATTTACACTAACTTTACACTAACACACACGGCGT spacer length:
		37 repeater length: 24	
36502	939483	GCTAATCTATTATAGAAATTGAAAG	GTCATCTGCAAGATTACAAAACGTAAAACAAAAAATAGCT spacer
		length: 40 repeater length: 24	
36503	939547	GCTAATCTATTATAGAAATTGAAAG	ATACTGTAGCTGATGCAGCTGTACCTGTAGCCGCACTACC spacer
		length: 40 repeater length: 24	
36504	939611	GCTAATCTATTATAGAAATTGAAAG	TAAGTCCAGCTGGTTGAATCAATGCTGATCCACTTCCA spacer
		length: 38 repeater length: 24	
36505	939673	GCTAATCTATTATAGAAATTGAAAG	TAATTTATCAACCGTCTGTTATTTTTCTGGTTTCGTGGTGG spacer
		length: 41 repeater length: 24	
36506	939738	GCTAATCTATTATAGAAATTGAAAG	ATCTAATGAATTACAGTTGGAAGGTAGAAAGCACAGGTAGCT spacer
		length: 42 repeater length: 24	
36507	939804	GCTAATCTATTATAGAAATTGAAAG	ACAGTTTGTCAATGTCGTGAAGGAGAAGTTCTGGTATTTG spacer
		length: 40 repeater length: 24	
36508	939868	GCTAATCTATTATAGAAATTGAAAG	AATTTTCAGTTTCTACGGTGTACCAAAAAGCGATATTGACT spacer
		length: 41 repeater length: 24	
36509	939933	GCTAATCTATTATAGAAATTGAAAG	AGTAACGACTCAATGTTGTATCCAAATTCTCTCCTAATAA spacer
		length: 40 repeater length: 24	
36510	939997	GCTAATCTATTATAGAAATTGAAAG	TCGTATTTGCTGTCCCTAATCCTAACGCTATAGTACTG spacer
		length: 38 repeater length: 24	
36511	940059	GCTAATCTATTATAGAAATTGAAAG	TAAAAGCATCTATTTGGAACTCTTGCTTTAGCTAATTCC spacer
		length: 40 repeater length: 24	
36512	940123	GCTAATCTATTATAGAAATTGAAAG	AGTATCAGCTAATGTGAGTTTGTTATTGTTGTTCTGCTT spacer
		length: 39 repeater length: 24	
36513	940186	GCTAATCTATTATAGAAATTGAAAG	CAGCGGTGCCTTCATTTTTCAAACTCATTCTCTTCAT spacer
		length: 38 repeater length: 24	
36514	940248	GCTAATCTATTATAGAAATTGAAAG	ATTACGAGGTATATTACACTCCCACCTATCACCTAACTGT spacer
		length: 41 repeater length: 24	
36515	940313	GCTAATCTATTATAGAAATTGAAAG	CAAGTTCTTAGCACAGTAGCGGTAGAGAAACCATAACTTCTA spacer
		length: 42 repeater length: 24	
36516	940379	GCTAATCTATTATAGAAATTGAAAG	ACCTTGTCAT
36517			
36518			
36519	crispr 3		
36520	953860	GTAACAACGAAAAGAACTAAAAAC	CGTAGGTGCATGATTCTTCTGGGTCTAAGTAGCCA spacer length:
		35 repeater length: 24	
36521	953919	GTAACAACGAAAAGAACTAAAAAC	AAAGTATTTGCCAAAACGCGGAGCAAGTAACGAA spacer length: 34
		repeater length: 24	
36522	953977	GTAACAACGAAAAGAACTAAAAAC	TCCTTTGACCGGCTGGAATAGGTGGGTCTGCCAT spacer length: 34
		repeater length: 24	
36523	954035	GTAACAACGAAAAGAACTAAAAAC	TTGTAACCTTTGGACAGAACAGCACTTAGCCTAT spacer length: 34
		repeater length: 24	
36524	954093	GTAACAACGAAAAGAACTAAAAAC	GATGTTCAATTGTCACTCACTGAAGCTTTAAAATAAA spacer length:
		36 repeater length: 24	
36525	954153	GTAACAACGAAAAGAACTAAAAAC	AGCTATCGCTAATTTCTTACAAAAGTATGCTGATA spacer length:
		35 repeater length: 24	
36526	954212	GTAACAACGAAAAGAACTAAAAAC	TCTTTGTTATTGGCGACTTAAATAGCGGAAACAAA spacer length:

35 repeater length: 24
 36527 954271 GTAACAACGAAAAGAACTAAAAAC TTGAGCCGGCTGAGCAAAAATAATAGCGTCTTT spacer length: 33
 repeater length: 24
 36528 954328 GTAACAACGAAAAGAACTAAAAAC GAACTGAGTTCCTACTCTGTGTGCTACGTTCCAC spacer length:
 35 repeater length: 24
 36529 954387 GTAACAACGAAAAGAACTAAAAAC TATTGCGCGCACCTTTTTGCGGTGTCGGCTCCT spacer length: 33
 repeater length: 24
 36530 954444 GTAACAACGAAAAGAACTAAAAAC AAATTTAAATATGATTTCCAAATATAAATATATTC spacer length:
 35 repeater length: 24
 36531 954503 GTAACAACGAAAAGAACTAAAAAC TCTAAGAAGCTTACTATATCTTTTAGCCCAATAGC spacer length:
 35 repeater length: 24
 36532 954562 GTAACAACGAAAAGAACTAAAAAC GTTAGCTAGTACAATAGATGCAGTTCCTATCGTGA spacer length:
 35 repeater length: 24
 36533 954621 GTAACAACGAAAAGAACTAAAAAC TGGGGGAATGTTGGGGATCAAGGTATATTGTAC spacer length: 33
 repeater length: 24
 36534 954678 GTAACAACGAAAAGAACTAAAAAC CTACCAGCAATACACGAGGCACACCATTCTCCAT spacer length: 34
 repeater length: 24
 36535 954736 GTAACAACGAAAAGAACTAAAAAC ACACTCTTGCCAGCGTACATACTCTCTCTATCA spacer length: 34
 repeater length: 24
 36536 954794 GTAACAACGAAAAGAACTAAAAAC GTACGCCAAATAAATGTAACCATTTTGTATGCCTTCT spacer length:
 37 repeater length: 24
 36537 954855 GTAACAACGAAAAGAACTAAAAAC TATATTCCTGCATTTTCTATCCGATATTGGACAG spacer length: 34
 repeater length: 24
 36538 954913 GTAACAACGAAAAGAACTAAAAAC TTACAAAGTTTTACGATGCTTACGTACAGCAGTGTGGGA spacer
 length: 39 repeater length: 24
 36539 954976 GTAACAACGAAAAGAACTAAAAAC ACCTCTACCTCATCATATCTACGGCCAACTTTAACAT spacer length:
 37 repeater length: 24
 36540 955037 GTAACAACGAAAAGAACTAAAAAC TAATTGCACTTTCTTTAGATTTGAGTAACATTATAAG spacer length:
 37 repeater length: 24
 36541 955098 GTAACAACGAAAAGAACTAAAAAC TATGAAGTAGAGATTATTCAAGGTGCAGGATAAAT spacer length:
 35 repeater length: 24
 36542 955157 GTAACAACGAAAAGAACTAAAAAC TTCACCCAAGTATATAATGAGAATATAAAATATAA spacer length:
 35 repeater length: 24
 36543 955216 GTAACAACGAAAAGAACTAAAAAC CTGGTGGTGGTGGATGAGCACACTTTACACGT spacer length: 32
 repeater length: 24
 36544 955272 GTAACAACGAAAAGAACTAAAAAC CCAGGGCTACATAACTACACTAAGGGGGCTTAACT spacer length:
 35 repeater length: 24
 36545 955331 GTAACAACGAAAAGAACTAAAAAC GCTTTTATCGTTCAAAAACGTGTAAAGAGTGCTCATC spacer length:
 37 repeater length: 24
 36546 955392 GTAACAACGAAAAGAACTAAAAAC TCTGTTTCAC
 36547
 36548
 36549 crispr 4
 36550 956635 GTAACAACGAAAAGAACTAAAAAC ATTTTTCAGATGGTTTGAATGTTCTCCTTCAATG spacer length:
 35 repeater length: 24
 36551 956694 GTAACAACGAAAAGAACTAAAAAC AGAAGTGCTTAGTGTCTCAGAAGTACCAGCAATAGAG spacer length:
 37 repeater length: 24
 36552 956755 GTAACAACGAAAAGAACTAAAAAC CTAAAATCAATTTTGGAGAATAAAAGCTAGGGACCT spacer length:
 36 repeater length: 24
 36553 956815 GTAACAACGAAAAGAACTAAAAAC TGGAAGCAAGGAGTCAGTTCGATAGGGGCACAAAGGT spacer length:
 37 repeater length: 24
 36554 956876 GTAACAACGAAAAGAACTAAAAAC TTATTTCCGCCTTAGATACTATCATTCGACAAATCA spacer length:
 36 repeater length: 24
 36555 956936 GTAACAACGAAAAGAACTAAAAAC ATAATATAGTTGAGGACTTCTATAAGAACTAAACA spacer length:
 36 repeater length: 24
 36556 956996 GTAACAACGAAAAGAACTAAAAAC TTTTCTATGTCAATTACGATACCTTTCTCGTCTTTTCG spacer length:
 37 repeater length: 24
 36557 957057 GTAACAACGAAAAGAACTAAAAAC CCAGATTGCTGACCGTATTGGATGATGCAATGAGT spacer length:
 35 repeater length: 24
 36558 957116 GTAACAACGAAAAGAACTAAAAAC TTATCTCCTTCTCTGGATGAAATTACTGTCTCCTT spacer length:
 35 repeater length: 24
 36559 957175 GTAACAACGAAAAGAACTAAAAAC CTGGACCGCTTTCGCCATTTCTGCTGCGCTCGGA spacer length: 34
 repeater length: 24
 36560 957233 GTAACAACGAAAAGAACTAAAAAC TGCCGAAAAGATTGTTTCTGAAGTGATTAAATTAGAA spacer length:
 37 repeater length: 24
 36561 957294 GTAACAACGAAAAGAACTAAAAAC ACCTAGTTTGCCAACAGCTTTGCAAAATGCAGTCAG spacer length:
 36 repeater length: 24
 36562 957354 GTAACAACGAAAAGAACTAAAAAC CATATAGAAAGCTCTTACGATTATATTCGAAGTATTG spacer length:
 37 repeater length: 24
 36563 957415 GTAACAACGAAAAGAACTAAAAAC TTTTCGCTTGGTAGTTCCGCTAACTATTCCAAATT spacer length:
 35 repeater length: 24

36564	957474 GTAACAACGAAAAAGAACTAAAAAC	GCGAATGTGGTTGAAATAATTGTAAAAATTAAAGTTAT	spacer
	length: 38	repeater length: 24	
36565	957536 GTAACAACGAAAAAGAACTAAAAAC	GCAATACTTTTTGCTTTGCTTTTGATGGCTTTGAGA	spacer length:
	36	repeater length: 24	
36566	957596 GTAACAACGAAAAAGAACTAAAAAC	CAACAATGCGGAACGCTATATGCTCCAGCTCAATTT	spacer length:
	36	repeater length: 24	
36567	957656 GTAACAACGAAAAAGAACTAAAAAC	CATTCTTTTTTATCGCAAAGCAGAACATTATATTTG	spacer length:
	36	repeater length: 24	
36568	957716 GTAACAACGAAAAAGAACTAAAAAC	TTCGTGGTCCATTGGAGTTGCGAATGGTAATACT	spacer length: 34
	repeater length: 24		
36569	957774 GTAACAACGAAAAAGAACTAAAAAC	AACTTGACTTTTTTTGGCATTTTTACACCTCTGAAT	spacer length:
	36	repeater length: 24	
36570	957834 GTAACAACGAAAAAGAACTAAAAAC	ATATTTGGAATTTAAGGCAACTGTTGCCCCAAAAGG	spacer length:
	36	repeater length: 24	
36571	957894 GTAACAACGAAAAAGAACTAAAAAC	CATGGCTTCACAATACGCTGCACATGATTCACAGTC	spacer length:
	36	repeater length: 24	
36572	957954 GTAACAACGAAAAAGAACTAAAAAC	TTAGATAATCAAGCTTTCACCGAAACTAACCCT	spacer length:
	35	repeater length: 24	
36573	958013 GTAACAACGAAAAAGAACTAAAAAC	GTTTTGACCCGAGAATGATAGCTGATAATCCAGAT	spacer length:
	35	repeater length: 24	
36574	958072 GTAACAACGAAAAAGAACTAAAAAC	TTCATGTCAATTTTTCCTTTTTCGAATAATAGTGA	spacer length:
	35	repeater length: 24	
36575	958131 GTAACAACGAAAAAGAACTAAAAAC	CTAATAGGCAATGTAGCTTCTATGGGTGGATTTC	spacer length:
	35	repeater length: 24	
36576	958190 GTAACAACGAAAAAGAACTAAAAAC	ATGATTTATATAGTGTACATGATACACTGACTTT	spacer length: 34
	repeater length: 24		
36577	958248 GTAACAACGAAAAAGAACTAAAAAC	TTACTTTTTTTAATATTTCTTTTATCTCACTTTCA	spacer length:
	35	repeater length: 24	
36578	958307 GTAACAACGAAAAAGAACTAAAAAC	AAGATATTGCAAAAATATTACAGAGGAGTAGGGGA	spacer length:
	35	repeater length: 24	
36579	958366 GTAACAACGAAAAAGAACTAAAAAC	CTTACTCCTCGCAAGTCTAATGCTAAGCCTAGGGCCAT	spacer
	length: 38	repeater length: 24	
36580	958428 GTAACAACGAAAAAGAACTAAAAAC	ATAGCTGAATATGCAAATGAAAGCTATTACCCATG	spacer length:
	35	repeater length: 24	
36581	958487 GTAACAACGAAAAAGAACTAAAAAC	GAGTTTTCCTTCTTTGACATGTATAGAACAAAAT	spacer length: 34
	repeater length: 24		
36582	958545 GTAACAACGAAAAAGAACTAAAAAC	CAGCTGTAGCTGAGTATTGCCGATGATGGCATTTTG	spacer length:
	36	repeater length: 24	
36583	958605 GTAACAACGAAAAAGAACTAAAAAC	CCCTACGCCATAGGCAATGAGAGGGTAGTCATA	spacer length: 33
	repeater length: 24		
36584	958662 GTAACAACGAAAAAGAACTAAAAAC	TGCGTTTAAGTATACTTTTATGAACTTAGACAAT	spacer length: 34
	repeater length: 24		
36585	958720 GTAACAACGAAAAAGAACTAAAAAC	GTTTCTGCATCTACATTTCAATTTAGACTAGAGTGG	spacer length:
	36	repeater length: 24	
36586	958780 GTAACAACGAAAAAGAACTAAAAAC	ATTGTGCAACCTAACGTAGACCCATTGACAGGAG	spacer length: 34
	repeater length: 24		
36587	958838 GTAACAACGAAAAAGAACTAAAAAC	GTTATGCCGTCGTTTTGGTACGTAGTACCTAGACT	spacer length:
	35	repeater length: 24	
36588	958897 GTAACAACGAAAAAGAACTAAAAAC	TAAGGTACTACTACTTGTGTATGTGCTTCCCCAGAT	spacer length:
	36	repeater length: 24	
36589	958957 GTAACAACGAAAAAGAACTAAAAAC	TAATTTTCAGCCTTAAATAGAAACGTACAACAAATCAA	spacer length:
	37	repeater length: 24	
36590	959018 GTAACAACGAAAAAGAACTAAAAAC	TTCGTTTGCATAATTATATATACGTAAAGGATAT	spacer length:
	35	repeater length: 24	
36591	959077 GTAACAACGAAAAAGAACTAAAAAC	TGGTCAATTCTTTTCCCCTGGGGTGCCTCATTTCTACT	spacer
	length: 39	repeater length: 24	
36592	959140 GTAACAACGAAAAAGAACTAAAAAC	TAATCACAAGTTCACAGTTGAGATAAATAGCATAAT	spacer length:
	36	repeater length: 24	
36593	959200 GTAACAACGAAAAAGAACTAAAAAC	TTTGCAAATCAGCGTTTGACGGGCTTATTGAAGCAT	spacer length:
	36	repeater length: 24	
36594	959260 GTAACAACGAAAAAGAACTAAAAAC	TTGCTTTCCACGCGGAAAAGCCTAGTTCTAGTTCT	spacer length:
	35	repeater length: 24	
36595	959319 GTAACAACGAAAAAGAACTAAAAAC	GGGAAATCGCTGATATTTATTGAGTTGAGCCAGAA	spacer length:
	35	repeater length: 24	
36596	959378 GTAACAACGAAAAAGAACTAAAAAC	GTAAACTACCCTGACAATAAGGGAATAGTTTATGAG	spacer length:
	36	repeater length: 24	
36597	959438 GTAACAACGAAAAAGAACTAAAAAC	CCAACTTTTGAGCACTTAGAGGTATATGCCTACTTACCCA	spacer
	length: 40	repeater length: 24	
36598	959502 GTAACAACGAAAAAGAACTAAAAAC	GTTGTTGCAGTACCAAATGCCTCGAGCTTTCAATT	spacer length:
	35	repeater length: 24	
36599	959561 GTAACAACGAAAAAGAACTAAAAAC	ATATGCCTTCGCTAACTCTTTCAATTTGCACTTCT	spacer length:

36 36600 959621 GTAACAACGAAAAGAACTAAAAAC TATTAGCTGGGATTTTTTCAAGTTGTTTTCTGCT spacer length: 35
35 36601 959680 GTAACAACGAAAAGAACTAAAAAC TCGCTTAGAAAGAAGAGGGAAAGTGAAGCTGATTTCGAA spacer length: 38
36 36602 959742 GTAACAACGAAAAGAACTAAAAAC CATTCCGCTTCCTTCTAATATACAACATCACAGC spacer length: 34
36 36603 959800 GTAACAACGAAAAGAACTAAAAAC CAAGGGATATTTGCAGTAAATAGCACACGGGTAA spacer length: 35
36 36604 959859 GTAACAACGAAAAGAACTAAAAAC TGCTGACTACCCCCCTCTGGGGGTTTTGACTCTTGT spacer length: 36
36 36605 959919 GTAACAACGAAAAGAACTAAAAAC ATTGTAGCGTTGAATCGCTTCAGATATTGCAGATTG spacer length: 36
36 36606 959979 GTAACAACGAAAAGAACTAAAAAC ATGTATTCTATGCTCTAACAGCGCAACTTTTTTCA spacer length: 34
36 36607 960037 GTAACAACGAAAAGAACTAAAAAC CAGTTTCGGCTTGCTCATAAGTTGCTTTTTGTAAAA spacer length: 36
36 36608 960097 GTAACAACGAAAAGAACTAAAAAC ACTTGCATGGCGTAGTTGAAGCTATTCCGTGTCCT spacer length: 35
36 36609 960156 GTAACAACGAAAAGAACTAAAAAC AGACTCGACC

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36611
36612 crispr 5

36613 967718 GTTTGTAGTTTCTTTTCGTTGTTAC AATCGCTAGAGAAGTCGTGGGGAGAGTGTTATGAT spacer length: 35
35 36614 967777 GTTTGTAGTTTCTTTTCGTTGTTAC CACTTAATGGCAACAATAATACCAAAAGCCCAAGGT spacer length: 36
36 36615 967837 GTTTGTAGTTTCTTTTCGTTGTTAC CTAATTTATGGGTACCATCACTTTCAATATACGCTT spacer length: 36
36 36616 967897 GTTTGTAGTTTCTTTTCGTTGTTAC ATTGTTAGCGGACTAGAGGCCCTTGCGAATGCCATTT spacer length: 37
37 36617 967958 GTTTGTAGTTTCTTTTCGTTGTTAC ATGGAGAGGAAGAGATCATTCATCTATGAGGAGTGTG spacer length: 37
37 36618 968019 GTTTGTAGTTTCTTTTCGTTGTTAC ATTGAAGAACAGCTATAATAAAGAAGAACTAATAGA spacer length: 36
36 36619 968079 GTTTGTAGTTTCTTTTCGTTGTTAC CACAAAGCCATAATTATGTCTAAAGGCATTGGTAAAAGCACACA spacer length: 45
45 36620 968148 GTTTGTAGTTTCTTTTCGTTGTTAC ACAACAGTATCAGGGCGAATTACCACAAGCACCAC spacer length: 35
35 36621 968207 GTTTGTAGTTTCTTTTCGTTGTTAC CATTCCTTCATCAACAACAATAAATGTAACAATACATAT spacer length: 39
39 36622 968270 GTTTGTAGTTTCTTTTCGTTGTTAC TTGTGATAGATTTGCCCCGTGCTCAGAGTTATCAA spacer length: 35
35 36623 968329 GTTTGTAGTTTCTTTTCGTTGTTAC GAATATGCCTTCTGGCGAAGACTGCTGATTGTTGAGTTTCCA spacer length: 42
42 36624 968395 GTTTGTAGTTTCTTTTCGTTGTTAC CCAGTTCGTTGTTTTTAGTAATGGCTAGTAATATCT spacer length: 36
36 36625 968455 GTTTGTAGTTTCTTTTCGTTGTTAC ATGGTGTGTTTGTATCTACAACCTTTAGATAGACA spacer length: 34
34 36626 968513 GTTTGTAGTTTCTTTTCGTTGTTAC TGCTTGCTCTAGCGTCTGCAGATATTGTTGATATGCG spacer length: 37
37 36627 968574 GTTTGTAGTTTCTTTTCGTTGTTAC TCGATAATCTTCGCATCCCAAAGCCTGTAACT spacer length: 34
34 36628 968632 GTTTGTAGTTTCTTTTCGTTGTTAC AAATAATCCCCCTCTTCCCGCAACGAAAAACAAG spacer length: 35
35 36629 968691 GTTTGTAGTTTCTTTTCGTTGTTAC AAGGCTAGTGAAGAAAAAGAGAAGAATCCATACG spacer length: 34
34 36630 968749 GTTTGTAGTTTCTTTTCGTTGTTAC TGGGGCTCCGACATTCCAGCTTCGTGGAGCTGTTGTTGT spacer length: 39
39 36631 968812 GTTTGTAGTTTCTTTTCGTTGTTAC AGAAGGAGGGGGAGAAAAACGTGGACAGCTCTAACACT spacer length: 38
38 36632 968874 GTTTGTAGTTTCTTTTCGTTGTTAC ACGTATTTTGACATTACATTAGTTGTATCAATTGT spacer length: 35
35 36633 968933 GTTTGTAGTTTCTTTTCGTTGTTAC GCTAACTGAAGCTAAGGAACAGAAATGTGCTCCAT spacer length: 35
35 36634 968992 GTTTGTAGTTTCTTTTCGTTGTTAC CACAAGATAACATAAACAGGATGGTGAATTTCTG spacer length: 34
34 36635 969050 GTTTGTAGTTTCTTTTCGTTGTTAC CTGTATCTTCTACTACCGTATCAAGTACGTGTAATAT spacer length: 37
37 36636 969111 GTTTGTAGTTTCTTTTCGTTGTTAC ACATAAATGACTGTGAATGCCGTGTTGATAAAT spacer length: 33
33

36637 969168 GTTTGTAGTTTCTTTTCGTTGTTAC AATTCAGTCTGAAAATGACTAACAGCCTGTCTCTAA spacer length: 36 repeater length: 24
36638 969228 GTTTGTAGTTTCTTTTCGTTGTTAC TTGAAAGCGAACAACAGAGCCTACAAATCTCAAAA spacer length: 35 repeater length: 24
36639 969287 GTTTGTAGTTTCTTTTCGTTGTTAC ACATTTTTTATACATTTGATTCTATGTAAAGATATGG spacer length: 36 repeater length: 24
36640 969347 GTTTGTAGTTTCTTTTCGTTGTTAC CGGAAAAGAAACCATTCTTGAGAAAGAAAAAGAAA spacer length: 35 repeater length: 24
36641 969406 GTTTGTAGTTTCTTTTCGTTGTTAC CTATTACTAGGTTTCCTATTTGGCAATAGAGACTAGT spacer length: 37 repeater length: 24
36642 969467 GTTTGTAGTTTCTTTTCGTTGTTAC CACTTCCTCCTAATGCAAAACAGCAAACCTATAT spacer length: 34 repeater length: 24
36643 969525 GTTTGTAGTTTCTTTTCGTTGTTAC AATAGAAACGTTTACATGGGACATTAAAAAGATAG spacer length: 35 repeater length: 24
36644 969584 GTTTGTAGTTTCTTTTCGTTGTTAC TGTGTATAACCAAAAATAAAGAAAACGACAAAAATTC spacer length: 37 repeater length: 24
36645 969645 GTTTGTAGTTTCTTTTCGTTGTTAC GATGTTGTGGTTGAGGAAAGCGTAGCTGGCGGTGG spacer length: 35 repeater length: 24
36646 969704 GTTTGTAGTTTCTTTTCGTTGTTAC TGAATGCAGGGCAAACCTAACGATGGACAAGGGAGT spacer length: 35 repeater length: 24
36647 969763 GTTTGTAGTTTCTTTTCGTTGTTAC TATAGTGAGTGGGAATTACGTTGAAAGTTCCCAAAG spacer length: 36 repeater length: 24
36648 969823 GTTTGTAGTTTCTTTTCGTTGTTAC TAATATTACCGCTTTCATCTTTGCCAATTGTCACA spacer length: 35 repeater length: 24
36649 969882 GTTTGTAGTTTCTTTTCGTTGTTAC TGTAAGTGACTCAGTTTGGACTTGACTTTCGCCATTAT spacer length: 38 repeater length: 24
36650 969944 GTTTGTAGTTTCTTTTCGTTGTTAC TCCAGCCAGATGGTACCGTAGTTCCAGCAAAATTCCAAT spacer length: 39 repeater length: 24
36651 970007 GTTTGTAGTTTCTTTTCGTTGTTAC TGAATACAAAATATGCAGACGAAACGAAAGATATT spacer length: 35 repeater length: 24
36652 970066 GTTTGTAGTTTCTTTTCGTTGTTAC GTCTACCGCGTCGTTTACGTTCACTCAAAAAAAT spacer length: 35 repeater length: 24
36653 970125 GTTTGTAGTTTCTTTTCGTTGTTAC GAGACAAAAGATATGGTAGTATATGTGCCATTGG spacer length: 34 repeater length: 24
36654 970183 GTTTGTAGTTTCTTTTCGTTGTTAC TACAACACTAAACTCGGGCATATACAACTCAAAA spacer length: 35 repeater length: 24
36655 970242 GTTTGTAGTTTCTTTTCGTTGTTAC TATAGAACAGAACAGTACGGTACGGAGAACGGAACGG spacer length: 37 repeater length: 24
36656 970303 GTTTGTAGTTTCTTTTCGTTGTTAC ACGTTTGGTTTAGCAGTTATGGTAACAAGTGGGA spacer length: 34 repeater length: 24
36657 970361 GTTTGTAGTTTCTTTTCGTTGTTAC ACTTATCTTTTAATGCCATATTACAAGCACAAAAG spacer length: 35 repeater length: 24
36658 970420 GTTTGTAGTTTCTTTTCGTTGTTAC TTATTATTGCATTTGGTGATGATGACCAATTAG spacer length: 33 repeater length: 24
36659 970477 GTTTGTAGTTTCTTTTCGTTGTTAC TTTTACGTGTTTTCTCGATGAAGGGAATTGACAAA spacer length: 35 repeater length: 24
36660 970536 GTTTGTAGTTTCTTTTCGTTGTTAC TTGAGTAACTGCTTTTGTCTGATTTCTGGACTGTT spacer length: 37 repeater length: 24
36661 970597 GTTTGTAGTTTCTTTTCGTTGTTAC AAGCGTTAAATCCGCCAATTTATTTTCGTCTTCA spacer length: 34 repeater length: 24
36662 970655 GTTTGTAGTTTCTTTTCGTTGTTAC TATGCTAACAAGATAGGGGTACATCATTTTACCCT spacer length: 35 repeater length: 24
36663 970714 GTTTGTAGTTTCTTTTCGTTGTTAC CTCCGGTAATTGCTTTGCCTCCGCCTCTATCTTGTCAA spacer length: 38 repeater length: 24
36664 970776 GTTTGTAGTTTCTTTTCGTTGTTAC TCATACCGGCTGAATTATTCAATTTGCATGCAAGCT spacer length: 36 repeater length: 24
36665 970836 GTTTGTAGTTTCTTTTCGTTGTTAC GAATTGAAAGTCCTTCATCAACAATTTCTGACGT spacer length: 34 repeater length: 24
36666 970894 GTTTGTAGTTTCTTTTCGTTGTTAC TACGTAGCCAGCTTCATACACATCAAGAATTTTGA spacer length: 35 repeater length: 24
36667 970953 GTTTGTAGTTTCTTTTCGTTGTTAC GGAAACGAAACAATTGACCTTGACGTTTCCGTTCTGAGTAACAACGA spacer length: 48 repeater length: 24
36668 971025 GTTTGTAGTTTCTTTTCGTTGTTAC AAACACTATATCTTGCAGCATAGTTTTCTAAAAG spacer length: 34 repeater length: 24
36669 971083 GTTTGTAGTTTCTTTTCGTTGTTAC TATCAGTTCTTGATATTCCTTGGACGTATAGAACTTTTT spacer length: 39 repeater length: 24
36670 971146 GTTTGTAGTTTCTTTTCGTTGTTAC TCGGTAAAAAGAGAGAGAAAGATTTTTAACTTGG spacer length: 35 repeater length: 24
36671 971205 GTTTGTAGTTTCTTTTCGTTGTTAC TCTCTCGTCTGTTGAACTGCTGTACCTGAGGAGCCATCTCATT spacer length: 44 repeater length: 24
36672 971273 GTTTGTAGTTTCTTTTCGTTGTTAC AGATACCGCCAAATCAAAACCCAGGTGGATATCA spacer length: 34

repeater length: 24

36673 971331 GTTTGTAGTTTCTTTTCGTTGTTAC GGAACCAACG

36674

36675

36676 crispr 6

36677 974758 GATAAATCCTACAAGGAATTGAAAG ACTAGAATCATTTCTATTGATATTGGAAATATTTATGTTC spacer
length: 40 repeater length: 25

36678 974823 GATAAATCCTACAAGGAATTGAAAG ATAAAATTACGAAAATAATAAAGTTCCCGAAAAGCA spacer length:
36 repeater length: 25

36679 974884 GATAAATCCTACAAGGAATTGAAAG ATAAGTGTGTTTATGTGTTAGCGTTTTGGAATGAGGGGTAT spacer
length: 41 repeater length: 25

36680 974950 GATAAATCCTACAAGGAATTGAAAG CATTCAAATCCATTTAACTTCAACACTTCCTCAACAGCAT spacer
length: 40 repeater length: 25

36681 975015 GATAAATCCTACAAGGAATTGAAAG AAGCTTCTCACCGCAATCCAGCTTCTGATATCGGCAAAC spacer
length: 39 repeater length: 25

36682 975079 GATAAATCCTACAAGGAATTGAAAG GTATCAGTAACATCTAGTGGTATGGTGACGTTAACGGTAT spacer
length: 40 repeater length: 25

36683 975144 GATAAATCCTACAAGGAATTGAAAG TTTCAACACAAACGCTATCGCTTTATCGTTAACTT spacer length:
35 repeater length: 25

36684 975204 GATAAATCCTACAAGGAATTGAAAG TTTTCTTATTCTATTTAATATTTAATATCTTTTTCTAA spacer
length: 38 repeater length: 25

36685 975267 GATAAATCCTACAAGGAATTGAAAG AGAGCATAAACCGCATCATCTAAAATTTTTTGCTTTGAA spacer
length: 39 repeater length: 25

36686 975331 GATAAATCCTACAAGGAATTGAAAG AACACATTGGCAGTGTTATGCTATCACCCACGTTGTCACT spacer
length: 40 repeater length: 25

36687 975396 GATAAATCCTACAAGGAATTGAAAG AAATAAGAAGTTATCCATTTGTTATTTGTATCGGAC spacer length:
36 repeater length: 25

36688 975457 GATAAATCCTACAAGGAATTGAAAG ACAATATACTCAATTTCAATTTTCATGTTTTTGACTTATA spacer
length: 39 repeater length: 25

36689 975521 GATAAATCCTACAAGGAATTGAAAG GCTCTTTCTCTAGCTGTTTATCTTTGCGCTTTTCAATTTT spacer
length: 40 repeater length: 25

36690 975586 GATAAATCCTACAAGGAATTGAAAG CACAGTAACTGTAGCAGCAGCGCCAACTGAATGTTTACC spacer
length: 40 repeater length: 25

36691 975651 GATAAATCCTACAAGGAATTGAAAG TAGCGTTACAGATGTTGTACCTCCAGCATTTCCACTTGTC spacer
length: 40 repeater length: 25

36692 975716 GATAAATCCTACAAGGAATTGAAAG TATAACTTTAGAACTTTTTTTCAGAATATGTCTGAGCACTC spacer
length: 39 repeater length: 25

36693 975780 GATAAATCCTACAAGGAATTGAAAG TTTAAAATAATAATATGTCATTAGATAATTATTTAG spacer length:
36 repeater length: 25

36694 975841 GATAAATCCTACAAGGAATTGAAAG TACAAAAAACTACTCTATCTTTGAGCTGAACTGCGAGA spacer
length: 39 repeater length: 25

36695 975905 GATAAATCCTACAAGGAATTGAAAG TTAATTATTTCTACCGAGTCTGTTGACAAGTCCCTAG spacer
length: 37 repeater length: 25

36696 975967 GATAAATCCTACAAGGAATTGAAAG GTTGAGGAGATTAACGCGTTGCCTCCTATAGCGTCCCTA spacer
length: 39 repeater length: 25

36697 976031 GATAAATCCTACAAGGAATTGAAAG TATGCCAGCTCTTCTCAGACTAACATTTGGAATTACTATT spacer
length: 40 repeater length: 25

36698 976096 GATAAATCCTACAAGGAATTGAAAG AGTTTGAATTTTTTACAAAGTGTATCTATATTCATTTTTAT spacer
length: 41 repeater length: 25

36699 976162 GATAAATCCTACAAGGAATTGAAAG TCCACTTCACTTACGATTAAATCTTCATTTAAAAAACGTT spacer
length: 40 repeater length: 25

36700 976227 GATAAATCCTACAAGGAATTGAAAG GATGACATAATAAATATTGTGAGAAGAACTGAATACCCA spacer
length: 39 repeater length: 25

36701 976291 GATAAATCCTACAAGGAATTGAAAG TTTCTTTAGCTCTTCTACGGGTATGGATACTCGCTTAGACA spacer
length: 41 repeater length: 25

36702 976357 GATAAATCCTACAAGGAATTGAAAG AAAACATCGTCTCATCCAGATAGAAATGATTTGTAATG spacer
length: 39 repeater length: 25

36703 976421 GATAAATCCTACAAGGAATTGAAAG TCCCATACTTTCCATGACCACTGCCCAAGATTAAT spacer length:
35 repeater length: 25

36704 976481 GATAAATCCTACAAGGAATTGAAAG TCGTCGATGG

36705

36706

36707 crispr 7

36708 976729 TGATAAATCCACAAAGGAATTGAAAG TTTAACGTTTTCAGTGCAACACATATTTTCAGTCAGCCCT spacer
length: 38 repeater length: 26

36709 976793 TGATAAATCCACAAAGGAATTGAAAG ATTGCATTGGCAAAACTTGTGCTAGGTGTTATTCTCAAC spacer
length: 39 repeater length: 26

36710 976858 TGATAAATCCACAAAGGAATTGAAAG TCCGCTCCGA

36711

36712

36713 crispr 8

36714 977052 TGATAAATCCTAGAAAGAAATTGAAAGACA AAATATACGGCAGTGC GCGCTGGGTACATCACAAG spacer
length: 35 repeater length: 29
36715 977116 TGATAAATCCTAGAAAGAAATTGAAAGACA TCATCCCATTTTGCTCTAGGAGATGGCATCAACCA spacer
length: 35 repeater length: 29
36716 977180 TGATAAATCCTAGAAAGAAATTGAAAGACA TTATGAGGA
36717
36718
36719 crispr 9
36720 985260 TCTTTC AATTCCTTTGTGGATTTATCA CTGCGAGGCACCCGACTGCGAAAGTTGTTTAGCGTGGT spacer
length: 38 repeater length: 27
36721 985325 TCTTTC AATTCCTTTGTGGATTTATCA GGCAATTGAAGCCATCCTTAATATCCCAGAGACAAAGG spacer
length: 38 repeater length: 27
36722 985390 TCTTTC AATTCCTTTGTGGATTTATCA TGTTTTCGATCGAGATGCAAAC TGTGTGCCATTTATCAA spacer
length: 39 repeater length: 27
36723 985456 TCTTTC AATTCCTTTGTGGATTTATCA AAGAAATCCAG
36724
36725
36726 crispr 10
36727 985619 CTTTCAATTCC TTTGTGGATTTATC AATTTTATTGCCAGACGGGGGAGATATTT CAGTTTATGA spacer
length: 39 repeater length: 25
36728 985683 CTTTCAATTCC TTTGTGGATTTATC CAATTCTCATCAGCTAGCGAGATGGCTAAGGCAATAAG spacer
length: 38 repeater length: 25
36729 985746 CTTTCAATTCC TTTGTGGATTTATC TTAATGCTAAAAAAACATTTTCCA ACTCTTCTAAATTAT spacer
length: 39 repeater length: 25
36730 985810 CTTTCAATTCC TTTGTGGATTTATC CTTGGGATAGTAACTTAGCCAATGCGGGATGCCCTATGAA spacer
length: 40 repeater length: 25
36731 985875 CTTTCAATTCC TTTGTGGATTTATC TCAGATATGTAGCACTCGAGCATATAAAAGCTCTACAAAGT spacer
length: 41 repeater length: 25
36732 985941 CTTTCAATTCC TTTGTGGATTTATC TGGGGACGGGGTCACAGTCCCCAACCC TTAATTTAAACCTCT spacer
length: 43 repeater length: 25
36733 986009 CTTTCAATTCC TTTGTGGATTTATC GAATTCTACAGAGGTTGGCAGAGATATTAGAAGCCCAGAA spacer
length: 40 repeater length: 25
36734 986074 CTTTCAATTCC TTTGTGGATTTATC CATCAAATGTATTTACACATATCAAAAATTGTATGTTCTT spacer
length: 40 repeater length: 25
36735 986139 CTTTCAATTCC TTTGTGGATTTATC ACGAGGAGAGCCAGGAGTCCCACCGAACACACAAACCAT spacer
length: 39 repeater length: 25
36736 986203 CTTTCAATTCC TTTGTGGATTTATC ATTGAGATAAAAAGTTCGCTCTATCCCAACCGTCAAATTAG spacer
length: 41 repeater length: 25
36737 986269 CTTTCAATTCC TTTGTGGATTTATC TTGGATGATTTTGACGAAGTACTCAGACAAGCAAATAAG spacer
length: 39 repeater length: 25
36738 986333 CTTTCAATTCC TTTGTGGATTTATC GAGATATATAACGAGGGGTGTGCTACTGGCAGAGAAAC spacer
length: 38 repeater length: 25
36739 986396 CTTTCAATTCC TTTGTGGATTTATC AGTTGCAACAGAAATGAATTTAAACAATTAAAAGATATTG spacer
length: 40 repeater length: 25
36740 986461 CTTTCAATTCC TTTGTGGATTTATC GGAGACTACGCTAAATGTCTAGCTGATGCCGCTGCGCAA spacer
length: 39 repeater length: 25
36741 986525 CTTTCAATTCC TTTGTGGATTTATC GGATGGGTAGGTGTGGTGCCAAGCGGATGGGTTCTCACT spacer
length: 39 repeater length: 25
36742 986589 CTTTCAATTCC TTTGTGGATTTATC TCGTCAAGTTTTGTGATTGTCTTAAAGCTACCAGAGTAT spacer
length: 39 repeater length: 25
36743 986653 CTTTCAATTCC TTTGTGGATTTATC AATCAAATGCACATATAGTATCAAGTAGTAATATGTTGC spacer
length: 39 repeater length: 25
36744 986717 CTTTCAATTCC TTTGTGGATTTATC CAATATATATTATAACTATAAACTAAATAGCTATATATT spacer
length: 39 repeater length: 25
36745 986781 CTTTCAATTCC TTTGTGGATTTATC GCAGTGAGAAGCTTTGAGGAATTACGGGACCACTTCGA spacer
length: 38 repeater length: 25
36746 986844 CTTTCAATTCC TTTGTGGATTTATC AAATTCCTCATCAGTTTGCAAGATTTCGAAAATGCTA spacer
length: 38 repeater length: 25
36747 986907 CTTTCAATTCC TTTGTGGATTTATC GATTCAATCATA CAGAATTATAGCGGACAACTATAGAATT spacer
length: 41 repeater length: 25
36748 986973 CTTTCAATTCC TTTGTGGATTTATC CCAAAAACGATATGCGGAGTAAACACAGAAAAGCTTTTAAAC spacer
length: 43 repeater length: 25
36749 987041 CTTTCAATTCC TTTGTGGATTTATC CCTTATCTCATTTTCCAACACTAGACGTTTATCATTGTAA spacer
length: 40 repeater length: 25
36750 987106 CTTTCAATTCC TTTGTGGATTTATC GGAAATATTCC TAGGTAAAATGTTGTTGATGAGAA spacer length:
35 repeater length: 25
36751 987166 CTTTCAATTCC TTTGTGGATTTATC ACTGAAGTGTGAGAAGTATGTTGCATTATAGATAGTACT spacer
length: 39 repeater length: 25
36752 987230 CTTTCAATTCC TTTGTGGATTTATC CGCTCTATTCC TATACAAGAATGGATACCATAAAAAACA spacer
length: 39 repeater length: 25
36753 987294 CTTTCAATTCC TTTGTGGATTTATC ACGTGTTCGTTAGAGACCCAATTACAAGAAATATTTAA spacer

length: 39 repeater length: 25
36754 987358 CTTTCAATTCCTTTGTGGATTTATC AATAATAGATAAGGAATTTTACCTAACTAAAATGGATA spacer
length: 38 repeater length: 25
36755 987421 CTTTCAATTCCTTTGTGGATTTATC TTGCATAAATTGCGAAAATTGTGCAAAATGACAGATTAAT spacer
length: 40 repeater length: 25
36756 987486 CTTTCAATTCCTTTGTGGATTTATC TTTCATTGTGTCTGGAATATTTACATTAATTTTGGGTTC spacer
length: 39 repeater length: 25
36757 987550 CTTTCAATTCCTTTGTGGATTTATC TACACGAAGAACAACCTTGAAAGAAGGACCAAAAGAGAAA spacer
length: 39 repeater length: 25
36758 987614 CTTTCAATTCCTTTGTGGATTTATC CCGCCCTCAAGTGGATTTATGAATGGTTCTGGATAAGGAAA spacer
length: 41 repeater length: 25
36759 987680 CTTTCAATTCCTTTGTGGATTTATC CACAGGCCGTAACGAACATCGTCTATCTGGTTACACTAGC spacer
length: 40 repeater length: 25
36760 987745 CTTTCAATTCCTTTGTGGATTTATC ATGAGTATGGAAGAGCAATGTCATATCAATCATATCTTGTT spacer
length: 41 repeater length: 25
36761 987811 CTTTCAATTCCTTTGTGGATTTATC TAATAGCGTTTAAATAAGCTGAAGTTGAAGGTGCTAAAGG spacer
length: 40 repeater length: 25
36762 987876 CTTTCAATTCCTTTGTGGATTTATC CCATATCCACAACCTAGAACTCCACTAAGACGTATTCGTATA spacer
length: 42 repeater length: 25
36763 987943 CTTTCAATTCCTTTGTGGATTTATC CTTTTTTGATAATGTAACGATGTCATTGATAAGAGATTT spacer
length: 39 repeater length: 25
36764 988007 CTTTCAATTCCTTTGTGGATTTATC AAAGACTTGAAACAAGAGATGGAAAATTCTGAATCAATTAA spacer
length: 41 repeater length: 25
36765 988073 CTTTCAATTCCTTTGTGGATTTATC CTATTTACAATATTTTGCAAACGCATTTCGGCGTAATCTT spacer
length: 39 repeater length: 25
36766 988137 CTTTCAATTCCTTTGTGGATTTATC CCCGGAGTCC
36767
36768
36769 crispr 11
36770 996514 GATAAATCCTAAAAGGAATTGAAAG TAAATGATGAGTGCCCAGAACAAATTATACCAATTATTAGTTG spacer
length: 43 repeater length: 25
36771 996582 GATAAATCCTAAAAGGAATTGAAAG TCATTGTAATAAACACCGCCGGATAAACTATTATATAG spacer
length: 39 repeater length: 25
36772 996646 GATAAATCCTAAAAGGAATTGAAAG TTGTATTTCATCGTACTAATATACTTCATCGTAGGTATCA spacer
length: 39 repeater length: 25
36773 996710 GATAAATCCTAAAAGGAATTGAAAG CCTTCGGAATTACAGTTATATACACAAACGCCTACACTATTATCG
spacer length: 45 repeater length: 25
36774 996780 GATAAATCCTAAAAGGAATTGAAAG AAGTTGTCAAAAAGGTTGCCAAACCGCAATCATTATTAC spacer
length: 39 repeater length: 25
36775 996844 GATAAATCCTAAAAGGAATTGAAAG AGAATTAAAAAGACAGCAGGTGGATTTATTAAGAAGAAC spacer
length: 39 repeater length: 25
36776 996908 GATAAATCCTAAAAGGAATTGAAAG ATAAAATTAGGAGGTGTGTGTGAGTCTGTCTTTATTTTGT spacer
length: 40 repeater length: 25
36777 996973 GATAAATCCTAAAAGGAATTGAAAG GTAATAAAACACTCCTACCCATAATTTATGGGTACCATCCTT spacer
length: 42 repeater length: 25
36778 997040 GATAAATCCTAAAAGGAATTGAAAG ATACTTATATGCGAAAAGAGTGGTTCTCGGAGAGTAAGGGT spacer
length: 41 repeater length: 25
36779 997106 GATAAATCCTAAAAGGAATTGAAAG TTAAGTTGGTGGACCAGCTCGTTCTCTGATAAAACCTAT spacer
length: 40 repeater length: 25
36780 997171 GATAAATCCTAAAAGGAATTGAAAG GCTATTTCAGTCCAGTTTCAATTAGAGATGTGATTATAGC spacer
length: 39 repeater length: 25
36781 997235 GATAAATCCTAAAAGGAATTGAAAG ATATACTCTGTTCTCTGTATATTCATTTTTGAACGACATC spacer
length: 40 repeater length: 25
36782 997300 GATAAATCCTAAAAGGAATTGAAAG AATTATTATAAGCATATTGAGAAATTGCAGAAGGATCCAA spacer
length: 40 repeater length: 25
36783 997365 GATAAATCCTAAAAGGAATTGAAAG CTGACTTGTAATGGTACCATAACGCCAACAGTTTTTCAAT spacer
length: 40 repeater length: 25
36784 997430 GATAAATCCTAAAAGGAATTGAAAG AGAACGATTGTTTGACGGCCGAGTTTAACCTAACGACGATT spacer
length: 41 repeater length: 25
36785 997496 GATAAATCCTAAAAGGAATTGAAAG AGAAAATCAATGTTCAAAATCACAAAGAAAATATTTGTTG spacer
length: 40 repeater length: 25
36786 997561 GATAAATCCTAAAAGGAATTGAAAG TATAACTTCCTCGATACTAATCATTCTCTTTCACCTCTTG spacer
length: 40 repeater length: 25
36787 997626 GATAAATCCTAAAAGGAATTGAAAG CTTAACGCATTTAGAGGCAATGCATTAAGTAAATTAATC spacer
length: 40 repeater length: 25
36788 997691 GATAAATCCTAAAAGGAATTGAAAG ATATTGCCGAATTAGCCTTAAATATCTCATCTAGGAAG spacer
length: 38 repeater length: 25
36789 997754 GATAAATCCTAAAAGGAATTGAAAG TTTGCTACCAGTTTCATCAAATTCACATAATAGTCTAG spacer
length: 38 repeater length: 25
36790 997817 GATAAATCCTAAAAGGAATTGAAAG TCATACATCCTCACTTTCTTGCCGTTCAAATATATTTTC spacer
length: 39 repeater length: 25

36791 997881 GATAAATCCTAAAAGGAATTGAAAG TTTGTTAGCTCTAAGTGAAGTCGCAACTTTTTAGTTTCGG spacer
length: 40 repeater length: 25
36792 997946 GATAAATCCTAAAAGGAATTGAAAG GGTCTTGCACCCGATGGGAATGCTATTATTCGCCTGATTCT spacer
length: 41 repeater length: 25
36793 998012 GATAAATCCTAAAAGGAATTGAAAG AATCCTTATAATTATTATATTAATTATTGCCTTCGT spacer length:
36 repeater length: 25
36794 998073 GATAAATCCTAAAAGGAATTGAAAG AGATAAAAACAACATCTCATTTTTTACAAAACATTATG spacer
length: 39 repeater length: 25
36795 998137 GATAAATCCTAAAAGGAATTGAAAG AAGTTGATGCTAACATTGCCAAATCCATCATCACCAGAT spacer
length: 39 repeater length: 25
36796 998201 GATAAATCCTAAAAGGAATTGAAAG GAGGTACCTAACACATTTGAGGGAGTGTTTCATGTTTCAGATAGGGT
spacer length: 45 repeater length: 25
36797 998271 GATAAATCCTAAAAGGAATTGAAAG AAGATTGAAAGGAATTGCGACAGTGAAACTAAGGGATAG spacer
length: 39 repeater length: 25
36798 998335 GATAAATCCTAAAAGGAATTGAAAG TAAATTTTTGCATAAATATTATAGTTTCTATCCATCACAT spacer
length: 40 repeater length: 25
36799 998400 GATAAATCCTAAAAGGAATTGAAAG CTTATGTTTCATAATCTCAATATCTAATTCTGTCAAATC spacer
length: 38 repeater length: 25
36800 998463 GATAAATCCTAAAAGGAATTGAAAG CTTACGGGGTAACCCCCGTTATATGCCCTATGGCTAGCTGAAGG spacer
length: 44 repeater length: 25
36801 998532 GATAAATCCTAAAAGGAATTGAAAG TTATATATTCTAACCTTCTTGATAAAACCCTTGATTGC spacer
length: 40 repeater length: 25
36802 998597 GATAAATCCTAAAAGGAATTGAAAG GTACTTGTTCCTTCAACACCCATCCGTGGGGGACCACCCAT spacer
length: 42 repeater length: 25
36803 998664 GATAAATCCTAAAAGGAATTGAAAG ACATATGTCTCTACGATTGTTGATCCAAGAGTTGTGATAG spacer
length: 40 repeater length: 25
36804 998729 GATAAATCCTAAAAGGAATTGAAAG TGGACTTCCTTATGCCAATATGCCACTGTAATTAAGAA spacer
length: 39 repeater length: 25
36805 998793 GATAAATCCTAAAAGGAATTGAAAG TACGTCTACTTCAACTAAAGATATAAAAGCTTTTCGCTT spacer
length: 39 repeater length: 25
36806 998857 GATAAATCCTAAAAGGAATTGAAAG GCAATAATCTCAGTGTATACTCTTTCGCAAACTAAGTACGCAT spacer
length: 43 repeater length: 25
36807 998925 GATAAATCCTAAAAGGAATTGAAAG TAAGAATTGCCTAACAATTTCGTTGCACAGCATAATCAT spacer
length: 38 repeater length: 25
36808 998988 GATAAATCCTAAAAGGAATTGAAAG CACAAAATATAGCGATATATTACACACCTGTAACACTATC spacer
length: 40 repeater length: 25
36809 999053 GATAAATCCTAAAAGGAATTGAAAG GATTATCATTCATCTAACGCCGTCAACACCAAGCCCACCAC spacer
length: 41 repeater length: 25
36810 999119 GATAAATCCTAAAAGGAATTGAAAG AAATAGATGCTTACTATCTCCAATGCTCTGGGGGAGATGTT spacer
length: 41 repeater length: 25
36811 999185 GATAAATCCTAAAAGGAATTGAAAG TCAAACGGTGGCATCAGTTGGTGGATAACGGGTGTACCCA spacer
length: 40 repeater length: 25
36812 999250 GATAAATCCTAAAAGGAATTGAAAG GGCCACCACTCCTCTCGCAAATTCAGTTATAGTTAATCC spacer
length: 39 repeater length: 25
36813 999314 GATAAATCCTAAAAGGAATTGAAAG TTTTCCACAACCTACCGTATTTTCTTCGATTATAAT spacer length:
36 repeater length: 25
36814 999375 GATAAATCCTAAAAGGAATTGAAAG TCGTCATACACATGGAGCCTTGCACTCTGTGTAGTTAG spacer
length: 40 repeater length: 25
36815 999440 GATAAATCCTAAAAGGAATTGAAAG CTATCTCCCTCAGCAGTAACAATGTAAAAATAGCGATAG spacer
length: 39 repeater length: 25
36816 999504 GATAAATCCTAAAAGGAATTGAAAG GGTCCATCTC
36817
36818
36819 crispr 12
36820 1008355 CTTTCAATTCCTTTGTGGATTTATC TAAGATAACATTAGATATATACCAACAAAATGTAAATAT spacer
length: 39 repeater length: 25
36821 1008419 CTTTCAATTCCTTTGTGGATTTATC ATTGATAAAAAAGAGATTGTCTTTATAGTTTAAGATATTC spacer
length: 40 repeater length: 25
36822 1008484 CTTTCAATTCCTTTGTGGATTTATC GGCATTAATGAGCTTCCAAGGTTGTTAGCAACATTTTGTGCA spacer
length: 42 repeater length: 25
36823 1008551 CTTTCAATTCCTTTGTGGATTTATC GTTTTTATGATGCTGTGGCGCTTGACACAACAGTAACAAGAG spacer
length: 42 repeater length: 25
36824 1008618 CTTTCAATTCCTTTGTGGATTTATC AGGGATAACAGCCACAACAAAAGACAGCAATAATGAGACA spacer
length: 40 repeater length: 25
36825 1008683 CTTTCAATTCCTTTGTGGATTTATC GCTATTGATGCTAGCGGACCTAAAAATAAAAAGTTAAT spacer
length: 38 repeater length: 25
36826 1008746 CTTTCAATTCCTTTGTGGATTTATC ACCATTAACGTATCTGTCACTGGAAGATTGGAATAACTTTGTCAAC
spacer length: 46 repeater length: 25
36827 1008817 CTTTCAATTCCTTTGTGGATTTATC ACCGAGGCACCCAGTTATGCCAATTTAGTATATGACGCT spacer
length: 39 repeater length: 25
36828 1008881 CTTTCAATTCCTTTGTGGATTTATC GTAACCTTGATGGAAAAATCCAGGTGATAGACAATGAG spacer

length: 38 repeater length: 25
36829 1008944 CTTTCAATTCCTTTGTGGATTTATC ACGTGTGTTGTGCCAATAATAAGGGAAGAATATAAAAAAGT spacer
length: 39 repeater length: 25
36830 1009008 CTTTCAATTCCTTTGTGGATTTATC CGAAACATATATTTCAAACATGAATTATACTATAGAATTA spacer
length: 41 repeater length: 25
36831 1009074 CTTTCAATTCCTTTGTGGATTTATC AAAATCCGAAAATCGAGATAGAACTAGACCCGAAAGAGA spacer
length: 39 repeater length: 25
36832 1009138 CTTTCAATTCCTTTGTGGATTTATC TCTTTTGGAACTTGTTTCAGAGATAAGCCTGTATCTCTTAAA spacer
length: 42 repeater length: 25
36833 1009205 CTTTCAATTCCTTTGTGGATTTATC ATGACGTTTTGTATGATGGTGTGAATGTTGTAAAGCGTT spacer
length: 39 repeater length: 25
36834 1009269 CTTTCAATTCCTTTGTGGATTTATC AGTATCTTAGAGCTGGAGTTGCCGAATTTCTACGCAA spacer
length: 38 repeater length: 25
36835 1009332 CTTTCAATTCCTTTGTGGATTTATC CTATAAAGGGTAGAATAAGGTTTAAAGGAATGAAGACCC spacer
length: 40 repeater length: 25
36836 1009397 CTTTCAATTCCTTTGTGGATTTATC CGTCACCTTCGCTGTAATGTCTGCACTTCCCGTCATTT spacer
length: 38 repeater length: 25
36837 1009460 CTTTCAATTCCTTTGTGGATTTATC TGTTGAATTTTTAGCTAGTGAGTTAAATGCTGAGATTGTAGT spacer
length: 42 repeater length: 25
36838 1009527 CTTTCAATTCCTTTGTGGATTTATC AGCAATATTGAATAATCGCCTAAGGCTTATCTTGAAGTT spacer
length: 39 repeater length: 25
36839 1009591 CTTTCAATTCCTTTGTGGATTTATC CGGCTAGACTGAAAGTAAAAAAAAAATTGGACCGCAAAAACG spacer
length: 42 repeater length: 25
36840 1009658 CTTTCAATTCCTTTGTGGATTTATC CGAATATATTCTAGCAAAAAAACTTACGCAAATATATTCTG spacer
length: 40 repeater length: 25
36841 1009723 CTTTCAATTCCTTTGTGGATTTATC AGAAAATCGTTATGATGGAGGATGGTGTGCATGAAGAC spacer
length: 38 repeater length: 25
36842 1009786 CTTTCAATTCCTTTGTGGATTTATC ATACATATTTAAATATTTCTAAAAAACCAAGAAAGAT spacer
length: 37 repeater length: 25
36843 1009848 CTTTCAATTCCTTTGTGGATTTATC ATACTAAATTGGCATAACGATGGTGCCTCAGTGTAATATC spacer
length: 39 repeater length: 25
36844 1009912 CTTTCAATTCCTTTGTGGATTTATC TATTTGTCAGGTAAGTCATTATAATCAACAAGATTATCT spacer
length: 39 repeater length: 25
36845 1009976 CTTTCAATTCCTTTGTGGATTTATC TTGTACTTGAACCTTAGTATCAACTGATGTAAAGT spacer length:
35 repeater length: 25
36846 1010036 CTTTCAATTCCTTTGTGGATTTATC AACGGTTGTCTCACTGGCGTAAACATATAGAAGTTTAAGATT spacer
length: 42 repeater length: 25
36847 1010103 CTTTCAATTCCTTTGTGGATTTATC AAAAAATTAAAGTTTGGAACTTGCTTTTTTGCCTAAAAAG spacer
length: 39 repeater length: 25
36848 1010167 CTTTCAATTCCTTTGTGGATTTATC AAAAAATTAAAGTTTGGAACTTGCTTTTTTGCCTAAAAAG spacer
length: 39 repeater length: 25
36849 1010231 CTTTCAATTCCTTTGTGGATTTATC AGTACCCAAATTTTAACTGAAGATAAGTCAGAGGTATA spacer
length: 38 repeater length: 25
36850 1010294 CTTTCAATTCCTTTGTGGATTTATC AAAGCCGTTGTAGGCTCAGTACCCTCGGCTACAGCGTCAT spacer
length: 40 repeater length: 25
36851 1010359 CTTTCAATTCCTTTGTGGATTTATC TTTGGTTGCCGTATTTGAAATCTGTTATTGTAAGTTA spacer
length: 37 repeater length: 25
36852 1010421 CTTTCAATTCCTTTGTGGATTTATC GAAATGGGGTGGGTTTGCGAAACAAGCCTCAACAGTATCG spacer
length: 40 repeater length: 25
36853 1010486 CTTTCAATTCCTTTGTGGATTTATC GGGAAGGCCG
36854
36855
36856 crispr 13
36857 1010619 CTTTCAATTCCTTTGTGGATTTATC TTAACCTACCATACTCCCGCTAGCTTTTGGCCCTACATTATAT spacer
length: 42 repeater length: 25
36858 1010686 CTTTCAATTCCTTTGTGGATTTATC TAAAAACGCTAACTAGCACTGACGCTAAGCCAAA spacer length:
35 repeater length: 25
36859 1010746 CTTTCAATTCCTTTGTGGATTTATC TTTACGCTCCGCAGAATTTCCAACAAGTCCTAGCTGAGAT spacer
length: 40 repeater length: 25
36860 1010811 CTTTCAATTCCTTTGTGGATTTATC ACAAACCACCCTTGATTGGTGTGGTGGGAATGATGTA spacer
length: 39 repeater length: 25
36861 1010875 CTTTCAATTCCTTTGTGGATTTATC CAAAGGATGGGAACTGAGTGCCGTGGGGGGCCTTTTCTTGG spacer
length: 42 repeater length: 25
36862 1010942 CTTTCAATTCCTTTGTGGATTTATC CGACATAATAGTACAAGCCACTGGTATTCTTAAAGGCTT spacer
length: 39 repeater length: 25
36863 1011006 CTTTCAATTCCTTTGTGGATTTATC GTACCACCCAAGTAAACACTGTCTCCGCTAAACTACT spacer
length: 38 repeater length: 25
36864 1011069 CTTTCAATTCCTTTGTGGATTTATC GTATTTGGGCGATAAAGTAGTAATTTTAGGTCAGTCTT spacer
length: 38 repeater length: 25
36865 1011132 CTTTCAATTCCTTTGTGGATTTATC CAAAGGCTATTCCTTTCTTCATGATTAAGAGGATTGATAA spacer
length: 40 repeater length: 25

36866 1011197 CTTTCAATTCCTTTGTGGATTTATC TTGCGATTTTATGAACTGATGAGGAAATAGAACTGTAT spacer
length: 39 repeater length: 25

36867 1011261 CTTTCAATTCCTTTGTGGATTTATC AATATTCATGGAAGAAAGTCTACGCTATATAACCATAA spacer
length: 38 repeater length: 25

36868 1011324 CTTTCAATTCCTTTGTGGATTTATC CTAAACGATCTACAGACGATAATTGATGCCGTTATGGCT spacer
length: 39 repeater length: 25

36869 1011388 CTTTCAATTCCTTTGTGGATTTATC AAGACATCGTTAAGATTCTGGAAGTTACCATTTTGATAATAT spacer
length: 42 repeater length: 25

36870 1011455 CTTTCAATTCCTTTGTGGATTTATC CATAGAAGGTACGATGGAGGACTATGCGGGTGAGTAATA spacer
length: 39 repeater length: 25

36871 1011519 CTTTCAATTCCTTTGTGGATTTATC CTAAATCCAGACCAAACAGAATTAATTACACAATATGAG spacer
length: 39 repeater length: 25

36872 1011583 CTTTCAATTCCTTTGTGGATTTATC AATGTCATTTTCTGCGGTAGTAAATGCACTGATTATCGC spacer
length: 39 repeater length: 25

36873 1011647 CTTTCAATTCCTTTGTGGATTTATC AATCTCATGTCTTTTCTTTATCTTATCTGGCGTTATTTT spacer
length: 39 repeater length: 25

36874 1011711 CTTTCAATTCCTTTGTGGATTTATC GTAATACTCCGCTTTACGCTTGGATAGAATCATATTCATA spacer
length: 40 repeater length: 25

36875 1011776 CTTTCAATTCCTTTGTGGATTTATC AAGGATTATACATATATGCATGTTTGATAACGTGATACA spacer
length: 39 repeater length: 25

36876 1011840 CTTTCAATTCCTTTGTGGATTTATC TTTGGAGAAGAGTTTTCTGGGAAAGAAAACAGAAGAGAA spacer
length: 39 repeater length: 25

36877 1011904 CTTTCAATTCCTTTGTGGATTTATC GGGACGATGTCATCAGTGCAGTAGATGCAAAGTACAAAC spacer
length: 39 repeater length: 25

36878 1011968 CTTTCAATTCCTTTGTGGATTTATC TTAAGAAGAGAAACAATAAGCTGATATTAGAGTTCTACAA spacer
length: 40 repeater length: 25

36879 1012033 CTTTCAATTCCTTTGTGGATTTATC ATAGCCAGCACCAAACCAGCCGCGCAAACCCTAGTG spacer
length: 38 repeater length: 25

36880 1012096 CTTTCAATTCCTTTGTGGATTTATC CTTGCTTAAGAACGAGAATCTCTATCCAAATGCTGCTGA spacer
length: 39 repeater length: 25

36881 1012160 CTTTCAATTCCTTTGTGGATTTATC GACGACACCCCCAAGGGATAAATCGTACTATCGTGGAAATT spacer
length: 40 repeater length: 25

36882 1012225 CTTTCAATTCCTTTGTGGATTTATC TCAGTTTTTCATCCAAGTAGTAACAACGGTGCTAATAATTT spacer
length: 40 repeater length: 25

36883 1012290 CTTTCAATTCCTTTGTGGATTTATC CTGAAAACCTTTGTATTTTTTCTATACGCAAAAGATGGA spacer
length: 38 repeater length: 25

36884 1012353 CTTTCAATTCCTTTGTGGATTTATC ATCTAGTCTCAAATGAATATTTGGAATTATATGTGGTCT spacer
length: 39 repeater length: 25

36885 1012417 CTTTCAATTCCTTTGTGGATTTATC CTTTAACAAGTTGGTTGAGATTCTTAATAACGCACAACAA spacer
length: 40 repeater length: 25

36886 1012482 CTTTCAATTCCTTTGTGGATTTATC AAAATTGAACAACCTCTTACTTAAGCACAAACCATATAAGTT spacer
length: 41 repeater length: 25

36887 1012548 CTTTCAATTCCTTTGTGGATTTATC AGTAGTATGTTATTTCTCAATGGTGCTGGGTATGGTGGG spacer
length: 39 repeater length: 25

36888 1012612 CTTTCAATTCCTTTGTGGATTTATC TCTATGGTCTTCACAAAGTGTTCCCGCTTCGGGAAGTT spacer
length: 38 repeater length: 25

36889 1012675 CTTTCAATTCCTTTGTGGATTTATC GAAGAAAATACATTATTACAATCACAACAACCTCACAACCTT spacer
length: 41 repeater length: 25

36890 1012741 CTTTCAATTCCTTTGTGGATTTATC GAATGTAACCGTAACAAATAGTTCCCCTATTCCAG spacer length:
35 repeater length: 25

36891 1012801 CTTTCAATTCCTTTGTGGATTTATC GATTTGTTTGAACACAGTACGACTCAAGACGTAAAAAA spacer
length: 38 repeater length: 25

36892 1012864 CTTTCAATTCCTTTGTGGATTTATC AGAGGAATAAACTGAAATGTTTGGGTTTGTCCATTACTAG spacer
length: 40 repeater length: 25

36893 1012929 CTTTCAATTCCTTTGTGGATTTATC TAGGTGTTTTTACCGCAATCTCAATCCTAGATTATAT spacer
length: 37 repeater length: 25

36894 1012991 CTTTCAATTCCTTTGTGGATTTATC GGAAGTGGCCGACACTGATAAACTTTCAAATAAATATAT spacer
length: 39 repeater length: 25

36895 1013055 CTTTCAATTCCTTTGTGGATTTATC TTAATCTACAATACTTTGCACAAACGTTTGGGATGATTCT spacer
length: 40 repeater length: 25

36896 1013120 CTTTCAATTCCTTTGTGGATTTATC AAATATTCTACCCATGCACCGCCTTTAGTTGCAATAACT spacer
length: 39 repeater length: 25

36897 1013184 CTTTCAATTCCTTTGTGGATTTATC AAAAAAGAAGAAGAACAACCTAAACGAAAATCAGAAAATA spacer
length: 39 repeater length: 25

36898 1013248 CTTTCAATTCCTTTGTGGATTTATC CTGACCTTGTTTTTGGTGGTGTGTAGTAGACAAATTTG spacer
length: 39 repeater length: 25

36899 1013312 CTTTCAATTCCTTTGTGGATTTATC TTGTTTTTATCGCAACGGCAAGCTAGTAAAGCGTATTGA spacer
length: 39 repeater length: 25

36900 1013376 CTTTCAATTCCTTTGTGGATTTATC GACCGTCCAA

36901

36902

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36903 GCA_009602405.1_ASM960240v1_genomic.fna (PilerCR):
36904 START          REPEAT
36905 SPACER
36905 crispr 1
36906 1750865 CTTCCAATTCCTGTACGGATTTATC TATAACCTTGCGAATACTTGGGATGTGTTGATAAGACA spacer
length: 38 repeater length: 25
36907 1750928 CTTCCAATTCCTGTACGGATTTATC CAAAGGTTGGTTCAAAGGGGCTAATAGAAGTAAAATT spacer
length: 38 repeater length: 25
36908 1750991 CTTCCAATTCCTGTACGGATTTATC AATACAATACTAGCATGAGCAACATGTCTCAATCTAATTT spacer
length: 40 repeater length: 25
36909 1751056 CTTCCAATTCCTGTACGGATTTATC CCAAATCACTTGTTTTTCTACTACTCCTTCCGCAATATTT spacer
length: 40 repeater length: 25
36910 1751121 CTTCCAATTCCTGTACGGATTTATC TATTATATGACAAGAGGTAAATAGCTTATGATATTCAAGA spacer
length: 40 repeater length: 25
36911 1751186 CTTCCAATTCCTGTACGGATTTATC CATTACATTAATCATAACCTTGTACTGCCAACTGATATT spacer
length: 39 repeater length: 25
36912 1751250 CTTCCAATTCCTGTACGGATTTATC AGCCGTAGGGGTCGAGAATGACGATAATTCGGCGTCATT spacer
length: 39 repeater length: 25
36913 1751314 CTTCCAATTCCTGTACGGATTTATC GTCGCGTTAAAAGCTTTTGATGATAGGATCGTTACGATTA spacer
length: 40 repeater length: 25
36914 1751379 CTTCCAATTCCTGTACGGATTTATC
36915
36916
36917 GCA_009617975.1_ASM961797v1_genomic.fna (PilerCR):
36918 START          REPEAT
36919 SPACER
36919 GCA_009690625.1_ASM969062v1_genomic.fna (PilerCR):
36920 START          REPEAT
36921 SPACER
36921 crispr 1
36922 2104951 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC TCGTCAACTGCAATCATATGATCGAGTACTCCCGAC spacer
length: 36 repeater length: 30
36923 2105017 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC GTGGCTCCGGTGCAAACGATGGGATCGGTTCGGTCGT spacer
length: 36 repeater length: 30
36924 2105083 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC ACGGGACCATGCTATTTCGATCTCGACGACCTCGACGAG spacer
length: 38 repeater length: 30
36925 2105151 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC AGCGACAAAAGCGGGAGTGTGACACTCGGCCCGGC spacer
length: 35 repeater length: 30
36926 2105216 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC CATGAACATGGTTTCGCCGTCCATATCCATACTAT spacer
length: 35 repeater length: 30
36927 2105281 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC CCGGGTCAGGTGTCAATAGAACAACCTGCGTGAAGTC spacer
length: 37 repeater length: 30
36928 2105348 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC TAAGATGTCGCCGACGAACTCGTGGATGTCTGGGTC spacer
length: 36 repeater length: 30
36929 2105414 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC GACCGAACAGGTCGTCATGAGACCGCTGAAAACATATCCT
spacer length: 39 repeater length: 30
36930 2105483 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC CGAAACCAGAGAATCTATCGGCACGGCACAAGTC spacer
length: 34 repeater length: 30
36931 2105547 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC CAGTCTTGACTCCAGTTTGTAGCGGTCTGCCCACG spacer
length: 36 repeater length: 30
36932 2105613 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC CTTCAGAATAATTAGATATGTGGTACTGTTGCGTT spacer
length: 35 repeater length: 30
36933 2105678 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC AATGAGCCTGGGTGGCTGGGCGACGACCAACCGCCG spacer
length: 36 repeater length: 30
36934 2105744 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC CCGGGCCACCACCTTTGTCGCTGCCGTCTCGGTGT spacer
length: 35 repeater length: 30
36935 2105809 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC ATCGTTGCGAGCGATGAACGAGAGGACGTCCCAGGA spacer
length: 36 repeater length: 30
36936 2105875 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC
36937
36938
36939 GCA_009729015.1_ASM972901v1_genomic.fna (PilerCR):
36940 START          REPEAT
36941 SPACER
36941 crispr 1
36942 610745 GTTGAATAAGGAAGAACTGAAAG CAGGAAGCGAAGAAAAGAGTTTAGAAGTTCTAT spacer length: 34
repeater length: 24
36943 610803 GTTGAATAAGGAAGAACTGAAAG AAGCCCAAGTCCGAGAAATCAATGCTCAACCAC spacer length: 33
repeater length: 24
36944 610860 GTTGAATAAGGAAGAACTGAAAG TGAATACAATTATCCTACCACAAACGAATATCAA spacer length: 34
repeater length: 24

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36945 610918 GTTGAAATAAGGAAGAACTGAAAG CTATTCAAAGTTCTTCTAAGTTTGCCTTTAATA spacer length: 34
repeater length: 24

36946 610976 GTTGAAATAAGGAAGAACTGAAAG GTAAAAACTCCCCAGTTAACTGATAGAAATTACT spacer length: 34
repeater length: 24

36947 611034 GTTGAAATAAGGAAGAACTGAAAG ACATTTTCTCTTCTCTGCAGCACTTCTCATATT spacer length: 34
repeater length: 24

36948 611092 GTTGAAATAAGGAAGAACTGAAAG AATACGCTTCTTGTCCACATCAAAGGAGAGTATG spacer length: 34
repeater length: 24

36949 611150 GTTGAAATAAGGAAGAACTGAAAG TCAACTCAATTGGAGATGAACTGTTATCCAGGCT spacer length: 34
repeater length: 24

36950 611208 GTTGAAATAAGGAAGAACTGAAAG TGCCTCTTTGCATATTCTCTTATTTGATCAAATTG spacer length:
35 repeater length: 24

36951 611267 GTTGAAATAAGGAAGAACTGAAAG CTCTTTAAAGCTTCTCTTTGCTTAACTTCAGAAA spacer length: 34
repeater length: 24

36952 611325 GTTGAAATAAGGAAGAACTGAAAG CCTTCCAAAAAATATCACCTTTACTTCATTAGGA spacer length: 34
repeater length: 24

36953 611383 GTTGAAATAAGGAAGAACTGAAAG TCCTTGTA CTGTACTTCAAACGGTGTGATAGTA spacer length: 34
repeater length: 24

36954 611441 GTTGAAATAAGGAAGAACTGAAAG CAAAATTGAGAAGGATGATGAATAAAAAATTATGA spacer length:
35 repeater length: 24

36955 611500 GTTGAAATAAGGAAGAACTGAAAG CTGTTTACGCCAGTGTGTTAAACGACTTGATAGTG spacer length:
35 repeater length: 24

36956 611559 GTTGAAATAAGGAAGAACTGAAAG ATATGTTACCGCTCTTGTGTTGCGTGGATTCTGTC spacer length: 34
repeater length: 24

36957 611617 GTTGAAATAAGGAAGAACTGAAAG TTTCGGAACGGAACAGTGTCTTCTACAG spacer length: 30
repeater length: 24

36958 611671 GTTGAAATAAGGAAGAACTGAAAG ATTTAGCCCCTCTGAAGCGGGCTATAACAGTGG spacer length: 34
repeater length: 24

36959 611729 GTTGAAATAAGGAAGAACTGAAAG CAGTGATCATCCAAACGAGGGGTTGTACCTAAAA spacer length:
35 repeater length: 24

36960 611788 GTTGAAATAAGGAAGAACTGAAAG TTATGTCGTCTATTAGTATTTTTCTTAAGATTTTT spacer length:
35 repeater length: 24

36961 611847 GTTGAAATAAGGAAGAACTGAAAG TGACAAATACTAAGATAATTCCTACATGTCTATT spacer length: 34
repeater length: 24

36962 611905 GTTGAAATAAGGAAGAACTGAAAG CTTAACTCCCGCTCAATATATGTCGTGTTTTTA spacer length: 34
repeater length: 24

36963 611963 GTTGAAATAAGGAAGAACTGAAAG TTATTCTCTGCACCACCGTTAGAGTCGTAGTT spacer length: 32
repeater length: 24

36964 612019 GTTGAAATAAGGAAGAACTGAAAG TTCAAACCTATTACATCGCTCTTCCTCGCGTAAGCTT spacer length:
37 repeater length: 24

36965 612080 GTTGAAATAAGGAAGAACTGAAAG TTGGGTAAACGCCCTACTGTGACTTACGAATATCC spacer length:
35 repeater length: 24

36966 612139 GTTGAAATAAGGAAGAACTGAAAG GAATTCGATACCATGCTTATCTTCTTCCTTCTCAC spacer length:
35 repeater length: 24

36967 612198 GTTGAAATAAGGAAGAACTGAAAG TTTATATCACCTCACTGTTGACTGATTAATTTGT spacer length: 34
repeater length: 24

36968 612256 GTTGAAATAAGGAAGAACTGAAAG AATAATAAGGAGAATGAATAGGGGCTTCAACAGTA spacer length:
35 repeater length: 24

36969 612315 GTTGAAATAAGGAAGAACTGAAAG CAGCGATTCTCTTTACCAAATCGATAACACGTGGGT spacer length:
36 repeater length: 24

36970 612375 GTTGAAATAAGGAAGAACTGAAAG TTCTCTTATGCAAATTTGTCCCAAGCACTTTTCG spacer length: 34
repeater length: 24

36971 612433 GTTGAAATAAGGAAGAACTGAAAG TCAAACCAGACTCCTACGGCATAATAGCCTGGTA spacer length: 34
repeater length: 24

36972 612491 GTTGAAATAAGGAAGAACTGAAAG AGATATGTACATAACGAGAAGATATAAACATATTTTC spacer length:
36 repeater length: 24

36973 612551 GTTGAAATAAGGAAGAACTGAAAG GTTTGTAAATGGGCGTTATAATTGTAACGTTTGCA spacer length:
35 repeater length: 24

36974 612610 GTTGAAATAAGGAAGAACTGAAAG ATTTCTTTTACCTCTACCTCCATCTTTTTTCCCCA spacer length: 34
repeater length: 24

36975 612668 GTTGAAATAAGGAAGAACTGAAAG AAAGGAGCTTATACAGCAAAAGAGCGTGGAATTCT spacer length:
35 repeater length: 24

36976 612727 GTTGAAATAAGGAAGAACTGAAAG TACTTTTTTGAAAATACCAATCCATGAGGTATATCC spacer length:
35 repeater length: 24

36977 612786 GTTGAAATAAGGAAGAACTGAAAG ATTTGTGTTTTTTGAGACTTATTTTCGACTTTCATTT spacer length:
37 repeater length: 24

36978 612847 GTTGAAATAAGGAAGAACTGAAAG GAGACAAGAATTATGCCGAGAAGATGCTAAAGCT spacer length: 34
repeater length: 24

36979 612905 GTTGAAATAAGGAAGAACTGAAAG CCAAATACTTCCGCAAATTCGTCGCGTCAAAAA spacer length: 34
repeater length: 24

36980 612963 GTTGAAATAAGGAAGAACTGAAAG CATCTACCACAATTAAGTAATCTCCAATAATCATAT spacer length:

36 repeater length: 24
36981 613023 GTTGAATAAGGAAGAACTGAAAG TTTTCTGTCTACAACGCTACAATTACTTTCTCATCA spacer length:
37 repeater length: 24
36982 613084 GTTGAATAAGGAAGAACTGAAAG TTGATAGTTTATAAGCAGTAGCTAGACCTT spacer length: 30
repeater length: 24
36983 613138 GTTGAATAAGGAAGAACTGAAAG ACTTACTTCTCAAAATTCCTGGAGTATATTATCC spacer length:
35 repeater length: 24
36984 613197 GTTGAATAAGGAAGAACTGAAAG AAATCATTCCACCACATGTGCACATACCCCCAATT spacer length:
35 repeater length: 24
36985 613256 GTTGAATAAGGAAGAACTGAAAG TCACTTTTTGGTGAAAAAGCCTTTTTTCTTTGAA spacer length: 34
repeater length: 24
36986 613314 GTTGAATAAGGAAGAACTGAAAG CAGAAATGGTAGCACTTGGTGTAAACAAATCCGT spacer length: 33
repeater length: 24
36987 613371 GTTGAATAAGGAAGAACTGAAAG GGTGGTAGAGAAAACACAACCTCAGGGAAAAA spacer length: 33
repeater length: 24
36988 613428 GTTGAATAAGGAAGAACTGAAAG TCAAATATTACTTTTTCTATTTCTCTTGATGGGGG spacer length:
35 repeater length: 24
36989 613487 GTTGAATAAGGAAGAACTGAAAG ACTAGATAAAAGATTTGTGGAGATGTTAAGATAT spacer length:
35 repeater length: 24
36990 613546 GTTGAATAAGGAAGAACTGAAAG TGAAATCATAGTATTTATTGGGGATAAAAAATGG spacer length: 34
repeater length: 24
36991 613604 GTTGAATAAGGAAGAACTGAAAG TCGTTTTTATAGTGCATTAGAAGGGATTTGTCATAC spacer length:
37 repeater length: 24
36992 613665 GTTGAATAAGGAAGAACTGAAAG CCGTCTTCTTCCCTTTATAGTTCGGTTACGAGTA spacer length: 34
repeater length: 24
36993 613723 GTTGAATAAGGAAGAACTGAAAG TAAGCTGGAATTGGGGTTAGCATTCTACTATTTT spacer length:
35 repeater length: 24
36994 613782 GTTGAATAAGGAAGAACTGAAAG ATTTACTGAAAGCTAGTGCAGGTGCAGGCTATGAGC spacer length:
36 repeater length: 24
36995 613842 GTTGAATAAGGAAGAACTGAAAG TCTTAATCTTGTCTTTCTCTCTAGATTCAAACT spacer length:
35 repeater length: 24
36996 613901 GTTGAATAAGGAAGAACTGAAAG ACCCAACATCTCCACTACCAGCGGTTCTCCAC spacer length: 33
repeater length: 24
36997 613958 GTTGAATAAGGAAGAACTGAAAG TTAATCATTTGGTCAAAGGCTTGATGGTTTTTT spacer length: 34
repeater length: 24
36998 614016 GTTGAATAAGGAAGAACTGAAAG GCATCATGCGAAAGGGGGAATTCTGCAAGGTTCTA spacer length:
35 repeater length: 24
36999 614075 GTTGAATAAGGAAGAACTGAAAG TTGCTATACACGCCTCATCCACTCCACTGTTTAA spacer length: 34
repeater length: 24
37000 614133 GTTGAATAAGGAAGAACTGAAAG TTTTCTCTCTCGTGGGGTTACGCTCACTCCTAAA spacer length: 34
repeater length: 24
37001 614191 GTTGAATAAGGAAGAACTGAAAG CCCGAGGTTG
37002
37003
37004 crispr 2
37005 1540611 GTTGCATCCCAAAAGGGATTGAAAG AACTTTATACCCGCATCTTTGTCAATGTACACAAGTGCA spacer
length: 39 repeater length: 25
37006 1540675 GTTGCATCCCAAAAGGGATTGAAAG TATGACAGTTGACAAGAAATATAACATCGTTTTTACATAT spacer
length: 40 repeater length: 25
37007 1540740 GTTGCATCCCAAAAGGGATTGAAAG AAAATCCACTTCTGTCCAAGAGATACTATGCTTATTAACG spacer
length: 40 repeater length: 25
37008 1540805 GTTGCATCCCAAAAGGGATTGAAAG ATGTATGTTACGTGTTTGCCGTTGACGGACAGTACTTT spacer
length: 38 repeater length: 25
37009 1540868 GTTGCATCCCAAAAGGGATTGAAAG TAACATATTTGTCAACATAGGGTTTCGAAATCTTAATCT spacer
length: 39 repeater length: 25
37010 1540932 GTTGCATCCCAAAAGGGATTGAAAG TTTACTTATACAAAAAGAATACGAACTGGAAATGGCTA spacer
length: 38 repeater length: 25
37011 1540995 GTTGCATCCCAAAAGGGATTGAAAG GTGTGTCACAAACAGACAACCTTACTGTTATCCAACGTG spacer
length: 38 repeater length: 25
37012 1541058 GTTGCATCCCAAAAGGGATTGAAAG TAATACTTAGAGATAAAAAATGAACTGAAGATAGAAC spacer
length: 38 repeater length: 25
37013 1541121 GTTGCATCCCAAAAGGGATTGAAAG TTTTCATCGCAATCACATTCTTCAAAAAATTCATCTAA spacer
length: 38 repeater length: 25
37014 1541184 GTTGCATCCCAAAAGGGATTGAAAG TTGATAATTATTGCGGCTATACATAAAATACTTCTAAAA spacer
length: 39 repeater length: 25
37015 1541248 GTTGCATCCCAAAAGGGATTGAAAG AAATTATTCCATCAGTATAATTATTTGCATAATTTATGTAT spacer
length: 41 repeater length: 25
37016 1541314 GTTGCATCCCAAAAGGGATTGAAAG CTCTCCTTCTTCACGTTTCATCAGTACGAAATTAACAT spacer
length: 40 repeater length: 25
37017 1541379 GTTGCATCCCAAAAGGGATTGAAAG ATTTACCCGCCGTCTTTAAATCCGTATTTGTATGCCTA spacer
length: 39 repeater length: 25

37018	1541443	GTTGCATCCCAAAAGGGATTGAAAG	TTGACATATTTTTTTTACTTTGTCAAATGGCATATCA	spacer
	length:	36	repeater length:	25
37019	1541504	GTTGCATCCCAAAAGGGATTGAAAG	CTGCAGCCTT	
37020				
37021				
37022	crispr 3			
37023	1555508	CTTCAATCCCTTTTGGGATGCAAC	ATAAGGTTGAACAATAACGATAACAACTTGCTATATT	spacer
	length:	38	repeater length:	25
37024	1555571	CTTCAATCCCTTTTGGGATGCAAC	CACCAGTCTCTAAACTTCGAATAAACACCCCAGTTTAC	spacer
	length:	38	repeater length:	25
37025	1555634	CTTCAATCCCTTTTGGGATGCAAC	GATATCCACCGACGATAGTAAAAGGGACGACTAACAA	spacer
	length:	37	repeater length:	25
37026	1555696	CTTCAATCCCTTTTGGGATGCAAC	TTATTAGTTGTAGAATGCGAAATGAATCAACAATTCTAG	spacer
	length:	38	repeater length:	25
37027	1555759	CTTCAATCCCTTTTGGGATGCAAC	TTGTTGGAAGTCCTCGCTCAGTTCTTCTTCCCAGTCTAA	spacer
	length:	39	repeater length:	25
37028	1555823	CTTCAATCCCTTTTGGGATGCAAC	ATATATAGATATATCATCAGAGCTGTAAACTAAATTAT	spacer
	length:	39	repeater length:	25
37029	1555887	CTTCAATCCCTTTTGGGATGCAAC	GCAATGGCTTATAGGGACGAATTCGGGTAAAAACAAC	spacer
	length:	38	repeater length:	25
37030	1555950	CTTCAATCCCTTTTGGGATGCAAC	CAATTCATAATTCTTAATTATTATAATATAACAAACAATCA	spacer
	length:	42	repeater length:	25
37031	1556017	CTTCAATCCCTTTTGGGATGCAAC	CTAGTCCTAGTTGAACCCCTTCTCCTTCTCAAGTAAAA	spacer
	length:	39	repeater length:	25
37032	1556081	CTTCAATCCCTTTTGGGATGCAAC	AGAATCTACAGACTGAAAAATAGAGAGAACTTAATCGAT	spacer
	length:	39	repeater length:	25
37033	1556145	CTTCAATCCCTTTTGGGATGCAAC	GCGACACTAGTTTCGTTAGTCCCGATATTCTATCTACT	spacer
	length:	38	repeater length:	25
37034	1556208	CTTCAATCCCTTTTGGGATGCAAC	GTAAGGTACATTCTCTATAGTCAAACGAATCTCTAA	spacer
	length:	36	repeater length:	25
37035	1556269	CTTCAATCCCTTTTGGGATGCAAC	AATATGGTGAGCAAAAAGCCCATGGCTCATATCCGAATG	spacer
	length:	39	repeater length:	25
37036	1556333	CTTCAATCCCTTTTGGGATGCAAC	GGGTACCGAA	
37037				
37038				
37039	crispr 4			
37040	1561915	GTTGCATCCCAAAAGGGATTGAAAG	CCCAAGAACTCATGAAGTACGGCTTAGTAGTATTCGTAG	spacer
	length:	39	repeater length:	25
37041	1561979	GTTGCATCCCAAAAGGGATTGAAAG	ATTTCTTAGGTAAAGGTAATATGGTGTAACGTAATCT	spacer
	length:	39	repeater length:	25
37042	1562043	GTTGCATCCCAAAAGGGATTGAAAG	GCCCCATTGGTAGGGTAAAATCCTAGTTCTTTTAGGAA	spacer
	length:	38	repeater length:	25
37043	1562106	GTTGCATCCCAAAAGGGATTGAAAG	AATAATACGCCCCGCTTAGCCTTGTGAACTGTTCTAAT	spacer
	length:	39	repeater length:	25
37044	1562170	GTTGCATCCCAAAAGGGATTGAAAG	ACAATCTGTGATGCATGTGCTAATCACTTCTTCTTGACAT	spacer
	length:	40	repeater length:	25
37045	1562235	GTTGCATCCCAAAAGGGATTGAAAG	TTTTCTTATCCCCATTAATATCTATGTTTCCGCAAGTA	spacer
	length:	38	repeater length:	25
37046	1562298	GTTGCATCCCAAAAGGGATTGAAAG	TTATCGGCAGAAGTAACTAAGCCAGCATTATTAAGCATT	spacer
	length:	39	repeater length:	25
37047	1562362	GTTGCATCCCAAAAGGGATTGAAAG	CTTCTTATGGAAGCATCAGTAACGTTATCAGTAATGAA	spacer
	length:	38	repeater length:	25
37048	1562425	GTTGCATCCCAAAAGGGATTGAAAG	ATTTCAACTTCATAACCGTTAAAATCACCGCTAATTTCA	spacer
	length:	39	repeater length:	25
37049	1562489	GTTGCATCCCAAAAGGGATTGAAAG	TCAATAGCAATTGTTTCGATAACTGCACATAAAATATA	spacer
	length:	38	repeater length:	25
37050	1562552	GTTGCATCCCAAAAGGGATTGAAAG	ATAATTCTAGACCTTCAATCTTCTTATCATTGATAATTA	spacer
	length:	39	repeater length:	25
37051	1562616	GTTGCATCCCAAAAGGGATTGAAAG	TCATCTGACGTCTTAAATACGCTTTTGGATATAATTTTAA	spacer
	length:	40	repeater length:	25
37052	1562681	GTTGCATCCCAAAAGGGATTGAAAG	ATATGCAATAATTTATGATTATGCAGAAATTATAGAAT	spacer
	length:	38	repeater length:	25
37053	1562744	GTTGCATCCCAAAAGGGATTGAAAG	TTTTCATGTTTCACTTCTAGTAAGAACGTAGTCTT	spacer
	length:	39	repeater length:	25
37054	1562808	GTTGCATCCCAAAAGGGATTGAAAG	TACGTTGACGTTGAGCGTGATATTATTATTGCCGTGAT	spacer
	length:	39	repeater length:	25
37055	1562872	GTTGCATCCCAAAAGGGATTGAAAG	TTTCCAACGACCTCACCACTCCTACTTAGGAAGAACGA	spacer
	length:	38	repeater length:	25
37056	1562935	GTTGCATCCCAAAAGGGATTGAAAG	ATATTATGCAATTAGGAGAAATAGATATTATTTATTGTAC	spacer
	length:	40	repeater length:	25
37057	1563000	GTTGCATCCCAAAAGGGATTGAAAG	AAAAGTATAAATGTCCTTGTTCTGCTAAAGTCTGAAA	spacer

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length: 38 repeater length: 25
37058 1563063 GTTCATCCCCAAAAGGGATTGAAAG TTCCCGTCTGGGTTTGTAAATGTAACAAAACATCATCATCG spacer
length: 39 repeater length: 25
37059 1563127 GTTCATCCCCAAAAGGGATTGAAAG GCTATTTTCATAGACATCTTCTAATGGTCCCCTCTTTATC spacer
length: 39 repeater length: 25
37060 1563191 GTTCATCCCCAAAAGGGATTGAAAG AACATTATCTAGTCTCCAAAGGAGGAAGAGGAAGGAG spacer
length: 37 repeater length: 25
37061 1563253 GTTCATCCCCAAAAGGGATTGAAAG TTAAGCAGAGGATAACGTTTAGATGGGAAGAAGATTAT spacer
length: 38 repeater length: 25
37062 1563316 GTTCATCCCCAAAAGGGATTGAAAG TGA CTACGGA
37063
37064
37065 GCA_009729035.1_ASM972903v1_genomic.fna (PilerCR):
37066 START REPEAT
SPACER
37067 crispr 1
37068 1180293 CTTTCAGTTCTTCCTTATTTTCGAC CTTGCTGGAAAGCTATCTGTGAGAGAAGCGTTGGA spacer length:
35 repeater length: 24
37069 1180352 CTTTCAGTTCTTCCTTATTTTCGAC ACTGTTACACCACCCAATATCGGGTAAAAT spacer length: 30
repeater length: 24
37070 1180406 CTTTCAGTTCTTCCTTATTTTCGAC TCCTTGTGACTGATAGACTAAACAAGAGTAAGCAT spacer length:
35 repeater length: 24
37071 1180465 CTTTCAGTTCTTCCTTATTTTCGAC AAGTGAGACAGTATGTTATTTCGGAGTTCTGGAGTT spacer length:
35 repeater length: 24
37072 1180524 CTTTCAGTTCTTCCTTATTTTCGAC ATACAAGTATATGGGGTATGTTAGCTATAGAAAG spacer length:
34 repeater length: 24
37073 1180582 CTTTCAGTTCTTCCTTATTTTCGAC GAAACATGATATGCTTGAGGTATTGGAGTGGGTTA spacer length:
35 repeater length: 24
37074 1180641 CTTTCAGTTCTTCCTTATTTTCGAC AAATGCTCAATGTTCCAAC TTTCTTTGGGATTGA spacer length:
34 repeater length: 24
37075 1180699 CTTTCAGTTCTTCCTTATTTTCGAC CCTGAGGAGAAAGGAATTCCAGTAAATTGTCCAGG spacer length:
35 repeater length: 24
37076 1180758 CTTTCAGTTCTTCCTTATTTTCGAC GATTAAATGTAGATTGTGTGGCAAGGAAC TTAG spacer length:
34 repeater length: 24
37077 1180816 CTTTCAGTTCTTCCTTATTTTCGAC TCTTATCGCCAGTAAGATCGCCAATAAGGATGACCC spacer length:
36 repeater length: 24
37078 1180876 CTTTCAGTTCTTCCTTATTTTCGAC GAATCCCAAATACAACAAATACCTGAATATATAA spacer length:
34 repeater length: 24
37079 1180934 CTTTCAGTTCTTCCTTATTTTCGAC ATAATAACGATGACGTTTTCACTGGCGACGAGTAA spacer length:
35 repeater length: 24
37080 1180993 CTTTCAGTTCTTCCTTATTTTCGAC ATTTACTCAAGGATTTGCTGTATAATGCGGAGGA spacer length:
34 repeater length: 24
37081 1181051 CTTTCAGTTCTTCCTTATTTTCGAC ACCTATTAGCGGCATCAGTAAGTGCATCTTGTA spacer length:
34 repeater length: 24
37082 1181109 CTTTCAGTTCTTCCTTATTTTCGAC GAACTGATAACAAAGGATGTACTATTTCAGTGCAA spacer length:
34 repeater length: 24
37083 1181167 CTTTCAGTTCTTCCTTATTTTCGAC ACGAATGGCAAAAAGAAAAGTATGTTCAAAAATT spacer length:
35 repeater length: 24
37084 1181226 CTTTCAGTTCTTCCTTATTTTCGAC TGTATGGTCTGCTACGTGGTTTTAATTTCATACTAG spacer length:
36 repeater length: 24
37085 1181286 CTTTCAGTTCTTCCTTATTTTCGAC TAATCTTCACAATCGTTTTGATGCTAAGAAGCTTA spacer length:
35 repeater length: 24
37086 1181345 CTTTCAGTTCTTCCTTATTTTCGAC TAGAGGAGGGAAAAATATTATCACAAAAGAGTT spacer length:
34 repeater length: 24
37087 1181403 CTTTCAGTTCTTCCTTATTTTCGAC TAGAGGAGGGAAAAATATTATCACAAAAGAGTT spacer length:
34 repeater length: 24
37088 1181461 CTTTCAGTTCTTCCTTATTTTCGAC TAGAGGAGGGAAAAATATTATCACAAAAGAGTT spacer length:
34 repeater length: 24
37089 1181519 CTTTCAGTTCTTCCTTATTTTCGAC TAGAGGAGGGAAAAATATTATCACAAAAGAGTT spacer length:
34 repeater length: 24
37090 1181577 CTTTCAGTTCTTCCTTATTTTCGAC TAGAGGAGGGAAAAATATTATCACAAAAGAGTT spacer length:
34 repeater length: 24
37091 1181635 CTTTCAGTTCTTCCTTATTTTCGAC TAGAGGAGGGAAAAATATTATCACAAAAGAGTT spacer length:
34 repeater length: 24
37092 1181693 CTTTCAGTTCTTCCTTATTTTCGAC TAGAGGAGGGAAAAATATTATCACAAAAGAGTT spacer length:
34 repeater length: 24
37093 1181751 CTTTCAGTTCTTCCTTATTTTCGAC TAGAGGAGGGAAAAATATTATCACAAAAGAGTT spacer length:
34 repeater length: 24
37094 1181809 CTTTCAGTTCTTCCTTATTTTCGAC AAATATCCCTTTAGCATAATTAATAATGGGGAT spacer length:
34 repeater length: 24
37095 1181867 CTTTCAGTTCTTCCTTATTTTCGAC TGATCTTCTTCGTATTTTATTTTATTTTAGTTCCATTTT spacer length:

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35 repeater length: 24
37096 1181926 CTTTCAGTTCTTCCTTATTTTCGAC TAAAGTTTGACGATAGATTGCTAACTAACCTGGA spacer length:
34 repeater length: 24
37097 1181984 CTTTCAGTTCTTCCTTATTTTCGAC ACTTATGGCACTACTATCGGTGGTTATGGTGCCT spacer length:
34 repeater length: 24
37098 1182042 CTTTCAGTTCTTCCTTATTTTCGAC ATGAGGCACATCATGCTCATGTAGGAACTAAGCTTTG spacer
length: 37 repeater length: 24
37099 1182103 CTTTCAGTTCTTCCTTATTTTCGAC CCGTCAAAGAAACAGTCTATTCCACCGAAATTTA spacer length:
34 repeater length: 24
37100 1182161 CTTTCAGTTCTTCCTTATTTTCGAC TGGAACATTGTTAGTGATGTTTACTTCGTAGCTC spacer length:
34 repeater length: 24
37101 1182219 CTTTCAGTTCTTCCTTATTTTCGAC TGGAAACTTGTTGAAGAAAAGAAAGATCTTGTGA spacer length:
34 repeater length: 24
37102 1182277 CTTTCAGTTCTTCCTTATTTTCGAC ACCATATACC
37103
37104
37105 crispr 2
37106 1201693 TCTTTCAGTTCTTCCTTATTTTCGAC GCAAGGAGATATTTTCATATAAAATTCTTGACTTA spacer length:
34 repeater length: 25
37107 1201752 TCTTTCAGTTCTTCCTTATTTTCGAC ATTTTGGTCAAAGATAACAAATGTCTTGTGGATG spacer length:
34 repeater length: 25
37108 1201811 TCTTTCAGTTCTTCCTTATTTTCGAC TTCTTTCTAAGCGTTTTTCCGCTACGTGGTTTTAAT spacer
length: 36 repeater length: 25
37109 1201872 TCTTTCAGTTCTTCCTTATTTTCGAC CGGTTCTGGAGCTACAAGGCACGCAGGAGAATA spacer length:
33 repeater length: 25
37110 1201930 TCTTTCAGTTCTTCCTTATTTTCGAC AGAGAGAGTGAGTTGGTATGAAAAGAGAAAAGT spacer length:
33 repeater length: 25
37111 1201988 TCTTTCAGTTCTTCCTTATTTTCGAC CGTATTCCAC
37112
37113
37114 crispr 3
37115 1211522 CTTTCAGTTCTTCCTTATTTTCGAC TTTATAGAGGATACGGTAAGAAGGCCTATAGTCA spacer length:
34 repeater length: 24
37116 1211580 CTTTCAGTTCTTCCTTATTTTCGAC AGAAAAGTTAGAGACAAGCAAAATTATGGAGTTAA spacer length:
35 repeater length: 24
37117 1211639 CTTTCAGTTCTTCCTTATTTTCGAC GAATGCAAATATATTGATGATATTAAATGAAATAA spacer length:
35 repeater length: 24
37118 1211698 CTTTCAGTTCTTCCTTATTTTCGAC TAAGAGTTCTAAAATACGAGTTTCGATGCTCAGCA spacer length:
34 repeater length: 24
37119 1211756 CTTTCAGTTCTTCCTTATTTTCGAC CAATCCTTCTGTACCGGAGGTATACCGCCGGTGT spacer length:
34 repeater length: 24
37120 1211814 CTTTCAGTTCTTCCTTATTTTCGAC TTAACGGTGTATATATTATATTATAATAAAAAGTC spacer length:
34 repeater length: 24
37121 1211872 CTTTCAGTTCTTCCTTATTTTCGAC CGTTGTAGCTCCTCAGGCTTTTCTTGCAACACCT spacer length:
34 repeater length: 24
37122 1211930 CTTTCAGTTCTTCCTTATTTTCGAC CATCGTTTTTC
37123
37124
37125 GCA_009729055.1_ASM972905v1_genomic.fna(PilerCR):
37126 START REPEAT
SPACER
37127 crispr 1
37128 2623164 CTTTCAATTCCATTAAGGATTATC AGATAACAATACGGTTCAAGTCGTTAAGCTTTACGTTAATGA spacer
length: 41 repeater length: 24
37129 2623229 CTTTCAATTCCATTAAGGATTATC GTAATGCGTGCTAAAGAGAGTGAGGGGGTGGAGTTTAGAGAAA spacer
length: 43 repeater length: 24
37130 2623296 CTTTCAATTCCATTAAGGATTATC TAGTATATTATGTAACACCAAAAACGTAATAATTTAGCT spacer
length: 39 repeater length: 24
37131 2623359 CTTTCAATTCCATTAAGGATTATC AGTTCAGCGTGACCAGCAACATAGCTAAACAACCGGAAT spacer
length: 39 repeater length: 24
37132 2623422 CTTTCAATTCCATTAAGGATTATC CCTATCAATGTTACCTATAGGTTATACAATGTCTCGGTCTACAAT
spacer length: 45 repeater length: 24
37133 2623491 CTTTCAATTCCATTAAGGATTATC AGTATGCTTAGCCTCAACTAAACACGCTCTGTTTTTCTCT spacer
length: 40 repeater length: 24
37134 2623555 CTTTCAATTCCATTAAGGATTATC ATAAGCTTTCAGACAAACGAAACGCCTTCAGAAATCATTGCAGA spacer
length: 44 repeater length: 24
37135 2623623 CTTTCAATTCCATTAAGGATTATC TCCCGGAATTACGTCTATGCCGAACCTTACGTTCCCTACCCTCA spacer
length: 43 repeater length: 24
37136 2623690 CTTTCAATTCCATTAAGGATTATC AGGAAGTGGAGAAGGCAAAAGAAGAGATGTTAGCGATGGAAGA spacer
length: 43 repeater length: 24
37137 2623757 CTTTCAATTCCATTAAGGATTATC CTAAGTGGATTACGCAACGTATGCAGCGTGGATCTTCGTTTTTC spacer

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length: 42 repeater length: 24

37138 2623823 CTTTCAATTCCATTAAGGATTATC TTCTATCAGAAGTACAAAGAGGAGAGACAAAAGGCTAAGA spacer
length: 40 repeater length: 24

37139 2623887 CTTTCAATTCCATTAAGGATTATC ATACTTCTGCAATTGGAGCCTTTTCTTCATCCCTCCATATC spacer
length: 41 repeater length: 24

37140 2623952 CTTTCAATTCCATTAAGGATTATC ATATAAATCAGCAAAATGAAAATAAAGATGGGGGTGAAA spacer
length: 39 repeater length: 24

37141 2624015 CTTTCAATTCCATTAAGGATTATC AACAGGGTGTGGACGAGTAACGCTATGGTAAAAGCAGCAACC spacer
length: 42 repeater length: 24

37142 2624081 CTTTCAATTCCATTAAGGATTATC CTGGTGATATTGTTTCATTTTCTAGGCGCGATAAAAAACATCAT
spacer length: 45 repeater length: 24

37143 2624150 CTTTCAATTCCATTAAGGATTATC GCGGTTACGTCATGATGTCGAAAGGTTTGTAGAACTGTTGTA spacer
length: 42 repeater length: 24

37144 2624216 CTTTCAATTCCATTAAGGATTATC CTTTGATTTATTGACCCTGGAAGCCTGAGCACCTAGCT spacer
length: 39 repeater length: 24

37145 2624279 CTTTCAATTCCATTAAGGATTATC TTCTAGAAAGTAAAAACAAGTAATGGTTATATATGAG spacer
length: 38 repeater length: 24

37146 2624341 CTTTCAATTCCATTAAGGATTATC AATTCTATTGGTATAAAAAATAGCACTTTATCCAGACTA spacer
length: 38 repeater length: 24

37147 2624403 CTTTCAATTCCATTAAGGATTATC TATTTATAAAATAGATCCTTATTTTGAACTAATAA spacer length:
36 repeater length: 24

37148 2624463 CTTTCAATTCCATTAAGGATTATC GGAAATCGCAACAGAGAATAAAGAGCAAGTTCTCGAGAAGTTAA spacer
length: 44 repeater length: 24

37149 2624531 CTTTCAATTCCATTAAGGATTATC ACTGGAATGACCAGTGCTGATGGTCTAATTGCTATAGTAAT spacer
length: 41 repeater length: 24

37150 2624596 CTTTCAATTCCATTAAGGATTATC AAACGGATTTTCATCGCCGTCAATCTCTATTTCCCAGTATCT spacer
length: 41 repeater length: 24

37151 2624661 CTTTCAATTCCATTAAGGATTATC CGAAGGTATCAAGAATGTAAGCCAGGAGCACACGCATT spacer
length: 39 repeater length: 24

37152 2624724 CTTTCAATTCCATTAAGGATTATC TTCGAAGAACATCTATTAAATGATAAGAAGGAAGTATGGGAT spacer
length: 42 repeater length: 24

37153 2624790 CTTTCAATTCCATTAAGGATTATC CCGAACAACCAGAAGGTGGTATTGTCAAATGTCTACTTGA spacer
length: 40 repeater length: 24

37154 2624854 CTTTCAATTCCATTAAGGATTATC TTGTGGAGGTGGTGGTGGATTACTCTTCTGTGCTTCAGGTGA spacer
length: 42 repeater length: 24

37155 2624920 CTTTCAATTCCATTAAGGATTATC CAAAACTTACCTCAACCTAACCGGGCCTAGTCTGTTC spacer
length: 38 repeater length: 24

37156 2624982 CTTTCAATTCCATTAAGGATTATC AAATCTTAATAGAGGATTGGGAAATTGAGCATGTTGTATATG spacer
length: 42 repeater length: 24

37157 2625048 CTTTCAATTCCATTAAGGATTATC TTATCAAACAACCTCGCGAAGTTAATTCTGAATTCTTCTTAT spacer
length: 41 repeater length: 24

37158 2625113 CTTTCAATTCCATTAAGGATTATC TTTATGATAGTATTAAAAGTTTTGGCAAAAAGATTTTTAT spacer
length: 40 repeater length: 24

37159 2625177 CTTTCAATTCCATTAAGGATTATC TTTTCAACTTGGAGGAAGGGAAGAGGAGCGGAAATAACGTCTA spacer
length: 43 repeater length: 24

37160 2625244 CTTTCAATTCCATTAAGGATTATC ATAATAGCCAACCACATGCCCCGCATATAATTAGGAAATATCA spacer
length: 43 repeater length: 24

37161 2625311 CTTTCAATTCCATTAAGGATTATC ATCCTAATCCTTTACGAGGATTAAGAGACCGTAATGAATGGCAT spacer
length: 44 repeater length: 24

37162 2625379 CTTTCAATTCCATTAAGGATTATC AACGGTCCTTCACACATGTTATTAGACGCATTACGGAAAAC spacer
length: 42 repeater length: 24

37163 2625445 CTTTCAATTCCATTAAGGATTATC TGGACAGAAATAGCGATAGGATTGCTGGTGGGTGCTAATTTTCAT spacer
length: 44 repeater length: 24

37164 2625513 CTTTCAATTCCATTAAGGATTATC TGGCATTATTCTCCCCAGCCAGTGCTTGCAACCTTACGA spacer
length: 39 repeater length: 24

37165 2625576 CTTTCAATTCCATTAAGGATTATC TTATGATGTTGGTGATCTCATCGATTCTAGCAGACTTCTC spacer
length: 40 repeater length: 24

37166 2625640 CTTTCAATTCCATTAAGGATTATC AAGTGAAAAAGCTATGGGATTTTTTTCTATTTTTTAATCAAAT spacer
length: 42 repeater length: 24

37167 2625706 CTTTCAATTCCATTAAGGATTATC TGTGACGTTTCCAATCGTATAAGAGGTATTATAATACTTCTCG spacer
length: 43 repeater length: 24

37168 2625773 CTTTCAATTCCATTAAGGATTATC GAAGAGTTAGACGTTATGCATGTAGCTACTATAATGTATTTTCC spacer
length: 44 repeater length: 24

37169 2625841 CTTTCAATTCCATTAAGGATTATC TAATGATTTTTTTAAATATTCATCTAATGCTTTCCTTATAAGTT spacer
length: 43 repeater length: 24

37170 2625908 CTTTCAATTCCATTAAGGATTATC TTAATAAGGCGACACAGAAATGAACCACGTCCCATTAGAAA spacer
length: 41 repeater length: 24

37171 2625973 CTTTCAATTCCATTAAGGATTATC ACATCGATGAATTTCAAATGTTGCCATTTACCTTACATCA spacer
length: 42 repeater length: 24

37172 2626039 CTTTCAATTCCATTAAGGATTATC AACGGCGAGACAGTTGTTTTAGCGCCGTATGACTTTCTCAGA spacer
length: 42 repeater length: 24

37173	2626105	CTTTCAATTCCATTAAGGATTATC	TCATTACTTATTTTCTTCATAATTCTTCAACTAATTATTTTC	spacer
	length:	41	repeater length:	24
37174	2626170	CTTTCAATTCCATTAAGGATTATC	ATATCTTTTCTCCAAACGTAGGCGATCAGAGTACTGAC	spacer
	length:	38	repeater length:	24
37175	2626232	CTTTCAATTCCATTAAGGATTATC	TAGAGCTAAAAATATCGATACCAGGATTATAAGCCTGTTCT	spacer
	length:	41	repeater length:	24
37176	2626297	CTTTCAATTCCATTAAGGATTATC	TTTGTTTCGCCCTCTACTTGTTCAATTTTCTCCAGTTTGTG	spacer
	length:	40	repeater length:	24
37177	2626361	CTTTCAATTCCATTAAGGATTATC	TAAAAAGAAAAAGCGGGCGGGCGAGAGCCCCGAAATGGT	spacer
	length:	38	repeater length:	24
37178	2626423	CTTTCAATTCCATTAAGGATTATC	CTAGCATCCGGTGGAAAGAGCAAAATTAACTTCTGCAAAGGAT	spacer
	length:	44	repeater length:	24
37179	2626491	CTTTCAATTCCATTAAGGATTATC	ATATCACGTATCTGAAGTATATCATCTTAGATATGGCAAAG	spacer
	length:	41	repeater length:	24
37180	2626556	CTTTCAATTCCATTAAGGATTATC	ATAGGGAGAAGAAACACAAAGACTATGTTGAACTCATAGAC	spacer
	length:	41	repeater length:	24
37181	2626621	CTTTCAATTCCATTAAGGATTATC	AAAAC TGAAAAATCATTAACCTTAAGGTTCAATAGCAA	spacer
	length:	38	repeater length:	24
37182	2626683	CTTTCAATTCCATTAAGGATTATC	GTAATCCGTTTGGCTTTAGTCTTCCAAATTTTGCTATAATTTCTTG	spacer
	length:	46	repeater length:	24
37183	2626753	CTTTCAATTCCATTAAGGATTATC	GAAGTCAAAAACATCATTAGGTATTATTTTATACAATAGTT	spacer
	length:	41	repeater length:	24
37184	2626818	CTTTCAATTCCATTAAGGATTATC	ACAGTAATTTCTTGTTATCGTAGAAAGCTGGATAAGCATAG	spacer
	length:	41	repeater length:	24
37185	2626883	CTTTCAATTCCATTAAGGATTATC	AAACTCTCTCTAGCAATCTTAAGCAGTGACACAATATAAT	spacer
	length:	40	repeater length:	24
37186	2626947	CTTTCAATTCCATTAAGGATTATC	TAAGTGTAGTACCTAAGCCTTGGCAATCGTTTACGCTAGA	spacer
	length:	40	repeater length:	24
37187	2627011	CTTTCAATTCCATTAAGGATTATC	CCTCCTTTCGGATTTCTAGACTATTTTGATAGCTGTGAAAT	spacer
	length:	41	repeater length:	24
37188	2627076	CTTTCAATTCCATTAAGGATTATC	CCAGAGTGAAATATCGGATATACCTCTATACTAATGTTAA	spacer
	length:	40	repeater length:	24
37189	2627140	CTTTCAATTCCATTAAGGATTATC	AAGTGTTAGAAGAGGAGATGAGAAAAAGGAAAGAGATTA	spacer
	length:	40	repeater length:	24
37190	2627204	CTTTCAATTCCATTAAGGATTATC	TTAGTGATAAGATTTAACGGCAGATAATCAAATAGAAAAT	spacer
	length:	40	repeater length:	24
37191	2627268	CTTTCAATTCCATTAAGGATTATC	TCTGGTTGGGTGGGACTGGCTTAGTTGGTTTGGTTTGA	spacer
	length:	38	repeater length:	24
37192	2627330	CTTTCAATTCCATTAAGGATTATC	GTCAGGGTATTTAGGTTTTAGAACCCAGGCTTCTAATAA	spacer
	length:	39	repeater length:	24
37193	2627393	CTTTCAATTCCATTAAGGATTATC	ATAAACTTTATGCTTTACATAAACAATAGAGCATAATATAA	spacer
	length:	41	repeater length:	24
37194	2627458	CTTTCAATTCCATTAAGGATTATC	AACTTCTTCCCATGAATTACCCTCTGCTACGATATTCCTATTTT	spacer
	length:	44	repeater length:	24
37195	2627526	CTTTCAATTCCATTAAGGATTATC	ATGACCCGTTATTTTCGCAATAACTGCAGGGTCTACGG	spacer
	length:	38	repeater length:	24
37196	2627588	CTTTCAATTCCATTAAGGATTATC	AAGACCAGACTCACTATAGCCATTTTCCATCACTTTTTTCT	spacer
	length:	40	repeater length:	24
37197	2627652	CTTTCAATTCCATTAAGGATTATC		
37198				
37199				
37200	crispr 2			
37201	2631765	CTTTCAATTCCATTATGGATTAAC	CGAGATAACCGTTACAGAGCTCATAAGCAGAATAAATTC	spacer
	length:	39	repeater length:	24
37202	2631828	CTTTCAATTCCATTATGGATTAAC	CTTCTTTAATTTTCGGCCCTAAGTATATCTTCTCTAAAC	spacer
	length:	38	repeater length:	24
37203	2631890	CTTTCAATTCCATTATGGATTAAC	TGAAAGTTTAGGGTTGATAAGTGTAACCTCAGGGTAAGACTAGTGT	spacer
	length:	45	repeater length:	24
37204	2631959	CTTTCAATTCCATTATGGATTAAC	TCTGTATATTCTCAGGTTTAATTTCTCCAGATATTT	spacer
	length:	37	repeater length:	24
37205	2632020	CTTTCAATTCCATTATGGATTAAC	TTATGAGAAAAGGCAAACGGAATTAATGCTTCAACAATTT	spacer
	length:	40	repeater length:	24
37206	2632084	CTTTCAATTCCATTATGGATTAAC	AATACGCACCGACCATCAGAGCTAAGAAGACGTCAAAGAGT	spacer
	length:	41	repeater length:	24
37207	2632149	CTTTCAATTCCATTATGGATTAAC	ATTTGACTAAGTTTTTAAAGTCTATTGAGTATAAATTATTTT	spacer
	length:	42	repeater length:	24
37208	2632215	CTTTCAATTCCATTATGGATTAAC	AGAAAATACGGGATGCATCTGATCCTCGCCCACCAGCACAC	spacer
	length:	41	repeater length:	24
37209	2632280	CTTTCAATTCCATTATGGATTAAC	CTGAGTAGAAGTGCAAAGCATCGATGATTTCTGGAGCTCCT	spacer
	length:	42	repeater length:	24
37210	2632346	CTTTCAATTCCATTATGGATTAAC	TACATCTCGCCATTACCTAACGGATGGACAATAAATT	spacer

length: 37 repeater length: 24
37211 2632407 CTTTCAATTCCATTATGGATTAAC TTTGTTGAGGTGTTCTGTAATTGGTTATACAACTTTGGAT spacer
length: 41 repeater length: 24
37212 2632472 CTTTCAATTCCATTATGGATTAAC TCAGACGAAGAGATAGATTACGTCCTAAGGAGTAATACTGGAT spacer
length: 43 repeater length: 24
37213 2632539 CTTTCAATTCCATTATGGATTAAC AAAAATATTGATCACAACCAGTGCTATTCTCGGATATAT spacer
length: 39 repeater length: 24
37214 2632602 CTTTCAATTCCATTATGGATTAAC AGTGTTAAGTGCTGAAGAACTGCAAAGTCTGTTACAACA spacer
length: 39 repeater length: 24
37215 2632665 CTTTCAATTCCATTATGGATTAAC CCCTACCTGAGGGTCATAGAGTTGCTGCTACGGTATCTCGTG spacer
length: 42 repeater length: 24
37216 2632731 CTTTCAATTCCATTATGGATTAAC TCTGAGGGGGGCTTAATAAACTCTTCCCCTTTTTTTCTA spacer
length: 39 repeater length: 24
37217 2632794 CTTTCAATTCCATTATGGATTAAC ACTTTGCAGAAGTCTTAGGACCCTTTGTCTGACAGAGCGAAAA spacer
length: 43 repeater length: 24
37218 2632861 CTTTCAATTCCATTATGGATTAAC AGACTATCGGAGATTGAAGGACAAAAGTGAATTCTTTGCCCC spacer
length: 43 repeater length: 24
37219 2632928 CTTTCAATTCCATTATGGATTAAC TTTTCTTTACCGGCTATGTTGAATAGTCTATAGAGGTTTTGGC spacer
length: 43 repeater length: 24
37220 2632995 CTTTCAATTCCATTATGGATTAAC ATGGAAGGAGATATAGAATATTTTCTTGAGAGAGGATATCAAT spacer
length: 43 repeater length: 24
37221 2633062 CTTTCAATTCCATTATGGATTAAC TGGTAATAGAAAAATGAGTTTGGTCGAAATGGTTTCAAAT spacer
length: 41 repeater length: 24
37222 2633127 CTTTCAATTCCATTATGGATTAAC AATATACAGGCTATGGGGACAGGATATTAGTTGTTAAATTAC spacer
length: 42 repeater length: 24
37223 2633193 CTTTCAATTCCATTATGGATTAAC TCTAACACTATCCACGTCAATTCCGGCATACTGAAGTAAAAT spacer
length: 42 repeater length: 24
37224 2633259 CTTTCAATTCCATTATGGATTAAC ACCGATCACACCCCCCGCTCCTGAGATTGCGATAGATTTTAC spacer
length: 42 repeater length: 24
37225 2633325 CTTTCAATTCCATTATGGATTAAC TGTACTAGGGCCAAGGAGTTTTCCGACATACTATATGGGGTAT spacer
length: 43 repeater length: 24
37226 2633392 CTTTCAATTCCATTATGGATTAAC TTATTAAAACAAGCCCTCGCGAGGGGGTTTATTTGAAAGAGA spacer
length: 43 repeater length: 24
37227 2633459 CTTTCAATTCCATTATGGATTAAC TTCATCTTCCTCAATTTCTACAGCATAACATTCCTCAG spacer
length: 38 repeater length: 24
37228 2633521 CTTTCAATTCCATTATGGATTAAC GGCTCCCTGCCCCCAGAAGGGGCGAGGCTTCCTAATTTTCG spacer
length: 40 repeater length: 24
37229 2633585 CTTTCAATTCCATTATGGATTAAC ATAACGATTTAACAGACGCTAAGAGGTTCTCGGAGAATT spacer
length: 40 repeater length: 24
37230 2633649 CTTTCAATTCCATTATGGATTAAC TAATTGAAAGGTGTTTCTTCATATATAGAAATTTGACGTAA spacer
length: 41 repeater length: 24
37231 2633714 CTTTCAATTCCATTATGGATTAAC CCCTATAATAGAAGTAAAGCCTCTTTGACGATTGAAAGAAG spacer
length: 42 repeater length: 24
37232 2633780 CTTTCAATTCCATTATGGATTAAC TCCGAACCTCTGACTAAACTCCTTAAGCCTCAAACCAAAG spacer
length: 42 repeater length: 24
37233 2633846 CTTTCAATTCCATTATGGATTAAC GCAGTTTACGAGTTGAAGTACACTCACCATCAGCCCGGTAATG spacer
length: 43 repeater length: 24
37234 2633913 CTTTCAATTCCATTATGGATTAAC TCCTGGAAGAAGATTGCTGAAATTTTAGGAGTAAAGAGAACAA spacer
length: 43 repeater length: 24
37235 2633980 CTTTCAATTCCATTATGGATTAAC GTGATTAGTTTAGCTAGTTCTGGTTTAGGAACACGCTTGTCT spacer
length: 42 repeater length: 24
37236 2634046 CTTTCAATTCCATTATGGATTAAC GTATTAAGTGAGGCTAGGAAATACGGGATGCACATAGTAA spacer
length: 40 repeater length: 24
37237 2634110 CTTTCAATTCCATTATGGATTAAC TCAACCAAGGGGGTGAGCTGAATGGCTGAATCCAGAATAATGA spacer
length: 43 repeater length: 24
37238 2634177 CTTTCAATTCCATTATGGATTAAC
37239
37240
37241 crispr 3
37242 2634248 CTTTCAATTCCATTATGGATTAAC ATCTTCTTCCTGTCAACTTCCTCAACCTCGGTGTCAAACATATACTCT
spacer length: 50 repeater length: 24
37243 2634322 CTTTCAATTCCATTATGGATTAAC GAAAATCGCATGCGATTGAATCGATTGTGTTGATGATACCTGA spacer
length: 43 repeater length: 24
37244 2634389 CTTTCAATTCCATTATGGATTAAC TTGCTGCAGCATGGCTATATAATGTTCCGCACTGAATAAGC spacer
length: 41 repeater length: 24
37245 2634454 CTTTCAATTCCATTATGGATTAAC CAACCTATACAAATAGGGAGTTTAAGCGGATATACTAA spacer
length: 38 repeater length: 24
37246 2634516 CTTTCAATTCCATTATGGATTAAC AGAAATTTTTAGGGAAAGGGAGAAACTAACGACGTGAACAGAAAT
spacer length: 46 repeater length: 24
37247 2634586 CTTTCAATTCCATTATGGATTAAC GTAAGGTAAAAGTACCAGCTGAAGATAAGACGTTAACCGGG spacer
length: 41 repeater length: 24

37248	2634651	CTTTCAATTCCATTATGGATTAAC	ATAGAGAGCGTTTACCGGGGGGTAAACGGGAAATGATAAT	spacer
	length:	40	repeater length:	24
37249	2634715	CTTTCAATTCCATTATGGATTAAC	ACCGTATTGGCAGAATGGTGAGTTAGTGGTGAACAGTAC	spacer
	length:	39	repeater length:	24
37250	2634778	CTTTCAATTCCATTATGGATTAAC	CCGCTTCCCACCAGTATGATGGTGAGTTAGAAGGGCTGTAAG	spacer
	length:	42	repeater length:	24
37251	2634844	CTTTCAATTCCATTATGGATTAAC	TTTCTTTACTTCAATTCTTTCTTCAATTATCTCTTTAGCTAG	spacer
	length:	42	repeater length:	24
37252	2634910	CTTTCAATTCCATTATGGATTAAC	CACCCATAGGTGTGACATTGTTTAGCGGGTCTGCAAATTATAT	spacer
	length:	43	repeater length:	24
37253	2634977	CTTTCAATTCCATTATGGATTAAC	ATGTAGGTGCTGAAATTGGGGAATCAGCTGAGATGTTTAAAGCTCT	spacer
	length:	46	repeater length:	24
37254	2635047	CTTTCAATTCCATTATGGATTAAC	AATACTACGCAATATCACTTGAAGCATTAAAGTCGTTGGAAA	spacer
	length:	42	repeater length:	24
37255	2635113	CTTTCAATTCCATTATGGATTAAC	TAATACCACACGTTTCTTTTTTCTTTTTCTTTTTCTTCTA	spacer
	length:	42	repeater length:	24
37256	2635179	CTTTCAATTCCATTATGGATTAAC	AAGTAAAGACGCTTCCGACTTCTGCCCTTACCACTCTTTAA	spacer
	length:	41	repeater length:	24
37257	2635244	CTTTCAATTCCATTATGGATTAAC	TGACATACAAAAGTTAGCGGAAGTATGTAAAGCCTTCCAAGA	spacer
	length:	42	repeater length:	24
37258	2635310	CTTTCAATTCCATTATGGATTAAC	ACAGTCCTTATCACCATGTCCATGTCTCTCTGGTACTCTGTTTTATC	spacer
	length:	47	repeater length:	24
37259	2635381	CTTTCAATTCCATTATGGATTAAC	AAATCCATTTTTATCAGCAATGAAGAAGTTTTTAGAAG	spacer
	length:	38	repeater length:	24
37260	2635443	CTTTCAATTCCATTATGGATTAAC	GGAGTAGTACACCGCAAACCTCAGGGTGTATCAGGAGGAG	spacer
	length:	39	repeater length:	24
37261	2635506	CTTTCAATTCCATTATGGATTAAC	ACACGCATATTATTAATAATCTTAAGCACTGAGTTAATGT	spacer
	length:	40	repeater length:	24
37262	2635570	CTTTCAATTCCATTATGGATTAAC	AAAATATTGATCACAACCAGTGCTATTCCCGGATATAT	spacer
	length:	38	repeater length:	24
37263	2635632	CTTTCAATTCCATTATGGATTAAC	AAGAAGCAAAGACGAATTAAATCAAATAAGTGAAGAATT	spacer
	length:	39	repeater length:	24
37264	2635695	CTTTCAATTCCATTATGGATTAAC	AAATTTGCTGTGGATTGTAGATTATAACAACATCATCATT	spacer
	length:	41	repeater length:	24
37265	2635760	CTTTCAATTCCATTATGGATTAAC	TTAATTGCAGGAGCTGCTGCAGTAATGATGAATGCGGTGAT	spacer
	length:	41	repeater length:	24
37266	2635825	CTTTCAATTCCATTATGGATTAAC	TTAAGCTATACCAATACAAATATGGAAACACAATTATTACT	spacer
	length:	41	repeater length:	24
37267	2635890	CTTTCAATTCCATTATGGATTAAC	AAAATCATAGCGGTGCAGAATGATAGTATCAAGAATTATCAT	spacer
	length:	42	repeater length:	24
37268	2635956	CTTTCAATTCCATTATGGATTAAC	CCCCGCCCCCGCCGCTCGCCCCCGCGCTTTTCCGCCTTCAT	spacer
	length:	42	repeater length:	24
37269	2636022	CTTTCAATTCCATTATGGATTAAC	CTGGAATTGTTCTAGCTTCGTTTCCCATAATGGGTCGTTCTGA	spacer
	length:	42	repeater length:	24
37270	2636088	CTTTCAATTCCATTATGGATTAAC	GTTGAAAGTAAACTAGTTTCTTACTCTAAAGATGGCGAGA	spacer
	length:	41	repeater length:	24
37271	2636153	CTTTCAATTCCATTATGGATTAAC	TTTTGTTTCCACTTTAACTTCTACTAATTCTTTTATCATAT	spacer
	length:	41	repeater length:	24
37272	2636218	CTTTCAATTCCATTATGGATTAAC	TCCTAATGTAATGATCACTCTATGGGACGTGAAGTTAAT	spacer
	length:	39	repeater length:	24
37273	2636281	CTTTCAATTCCATTATGGATTAAC	CTAGTTGTTACAGAAGTTTCATTAATTATCCGGTAAACTGG	spacer
	length:	41	repeater length:	24
37274	2636346	CTTTCAATTCCATTATGGATTAAC	TTATTACTCGAATCCGGAGTTAGAGAGGCTGAGGCGTTAA	spacer
	length:	40	repeater length:	24
37275	2636410	CTTTCAATTCCATTATGGATTAAC	TCATATTGCGGAAAACACGGAAAGGAATCGGGGTGTTTCGATG	spacer
	length:	42	repeater length:	24
37276	2636476	CTTTCAATTCCATTATGGATTAAC	CTTAATTCCTGCAAGGAAATAGGGATGCCGTTGTTTCTAC	spacer
	length:	40	repeater length:	24
37277	2636540	CTTTCAATTCCATTATGGATTAAC	CTAATGTTAAAGCCCCCTCTTTCGCCAACACAAGCAATATTTTT	spacer
	length:	44	repeater length:	24
37278	2636608	CTTTCAATTCCATTATGGATTAAC	ATTCCAAGTAATTCTACAGCTCTTGTTCCTCTTGTTGA	spacer
	length:	39	repeater length:	24
37279	2636671	CTTTCAATTCCATTATGGATTAAC	TCATCTCAATAGAATAAGTATTTAAAAAGGGGTAAACT	spacer
	length:	39	repeater length:	24
37280	2636734	CTTTCAATTCCATTATGGATTAAC	ATAGGAGAAACGCTGGAGAGGGAGGGCTTTAACATATTATA	spacer
	length:	41	repeater length:	24
37281	2636799	CTTTCAATTCCATTATGGATTAAC	GAAAGGTCCGTCACGATCGGAGGATCATCTCGTCTGCTGGAGT	spacer
	length:	43	repeater length:	24
37282	2636866	CTTTCAATTCCATTATGGATTAAC	ACAGTAATTATCACACAACCTGTCAGTTCCGGGGGCTT	spacer
	length:	38	repeater length:	24
37283	2636928	CTTTCAATTCCATTATGGATTAAC	ATTTTATGGAAGTTACTAGCGACAGTGTCAACAATAAGAAGTTT	spacer

length: 44 repeater length: 24

37284 2636996 CTTTCAATTCCATTATGGATTAAC AATTTTTACTGTAATACTACTCCATCACCCGCCGAGAAGA spacer
length: 39 repeater length: 24

37285 2637059 CTTTCAATTCCATTATGGATTAAC ATAAGGCTCTAGGAGAAGCACTCAGTGGTACAACAATTG spacer
length: 39 repeater length: 24

37286 2637122 CTTTCAATTCCATTATGGATTAAC CGAAGTTAAGACAGAAGAGAATCCCAGTCTGACTATTAT spacer
length: 40 repeater length: 24

37287 2637186 CTTTCAATTCCATTATGGATTAAC TATACATAGGTCCTGGTAATCCTGCTTCAGGGACTGATTTTG spacer
length: 42 repeater length: 24

37288 2637252 CTTTCAATTCCATTATGGATTAAC CTAACCCTTCAGGCTTGAAACCCGTCGACGTTTGGACTAC spacer
length: 40 repeater length: 24

37289 2637316 CTTTCAATTCCATTATGGATTAAC CTAGTGATAACAAGCATCTGCTCTCGCCAAGTATCTCGTTTACTT spacer
length: 44 repeater length: 24

37290 2637384 CTTTCAATTCCATTATGGATTAAC CCTACCGGGGTGCTTCTTTCTGTCATGAAATCCCTTCAAGT spacer
length: 41 repeater length: 24

37291 2637449 CTTTCAATTCCATTATGGATTAAC TGCTGTAGATGTATCGCGACCCTGTTAACGCTGAAATTCGTA spacer
length: 42 repeater length: 24

37292 2637515 CTTTCAATTCCATTATGGATTAAC GCAGGCTTTAAATTTATGAATCCCGTTATCGTTTTATAAGCATCAG
spacer length: 46 repeater length: 24

37293 2637585 CTTTCAATTCCATTATGGATTAAC CGGATCCAGGGTTAGCAACACAGTACGCTACGCTAATTAGTTACCG
spacer length: 46 repeater length: 24

37294 2637655 CTTTCAATTCCATTATGGATTAAC TCTTAAAGTCCTCCCAATCAACATTTACACGAACTGGT spacer
length: 38 repeater length: 24

37295 2637717 CTTTCAATTCCATTATGGATTAAC TTTTGCCTTAAACAATGAGTCTAAGCAGCCGTTTTGCTTA spacer
length: 40 repeater length: 24

37296 2637781 CTTTCAATTCCATTATGGATTAAC TGGAGTGTGATCGAAGATGTCTCTTATTGGTTTATTTCT spacer
length: 39 repeater length: 24

37297 2637844 CTTTCAATTCCATTATGGATTAAC ATCAAGTTGACAAGTGGTTTATAAAGATAATTTTATCAAA spacer
length: 40 repeater length: 24

37298 2637908 CTTTCAATTCCATTATGGATTAAC ATAATCTACATGTCTTCTAATCCACACTTCACATACTTT spacer
length: 39 repeater length: 24

37299 2637971 CTTTCAATTCCATTATGGATTAAC AAGCTGCTAAGATATTGCAGACTTCTGATCTAAGTGTACTAA spacer
length: 42 repeater length: 24

37300 2638037 CTTTCAATTCCATTATGGATTAAC GAGAGCAAGCAATACCCTCTGTTGCATTTCCGTTAGATAAATTCA spacer
length: 44 repeater length: 24

37301 2638105 CTTTCAATTCCATTATGGATTAAC CTCTATCATATACAACCACGAGTCCGTCATGCCATCACGTAG spacer
length: 43 repeater length: 24

37302 2638172 CTTTCAATTCCATTATGGATTAAC GGCTGATTTGAAGAACTGATATTACCATTTCATGATTCTT spacer
length: 39 repeater length: 24

37303 2638235 CTTTCAATTCCATTATGGATTAAC TTCATTTTCTTCCAATTCCTCATTTTCTTCTATTTTCATCTT spacer
length: 41 repeater length: 24

37304 2638300 CTTTCAATTCCATTATGGATTAAC AAGATTCTTGAAGGAAATTGAAGAAAATGGCGGGATAATAAT spacer
length: 42 repeater length: 24

37305 2638366 CTTTCAATTCCATTATGGATTAAC AAAAGAAACAATTGAAAAACAAAAGAAATCAGACAATACA spacer
length: 40 repeater length: 24

37306 2638430 CTTTCAATTCCATTATGGATTAAC GTCCTCTGTTATGATAGAGCTGGTCTACCAATTATTGTCGGTT spacer
length: 43 repeater length: 24

37307 2638497 CTTTCAATTCCATTATGGATTAAC AACGGTGAGGTATTGAATGGAACGTTTTTGATACAGCCCTA spacer
length: 41 repeater length: 24

37308 2638562 CTTTCAATTCCATTATGGATTAAC CCTCTTCAATAACGATAATATATCCCTTCTTTTCGAGAAC spacer
length: 40 repeater length: 24

37309 2638626 CTTTCAATTCCATTATGGATTAAC GGGGGGTGCAATAGGAGCGGCGTTCTTATTGACTTTCGGTT spacer
length: 41 repeater length: 24

37310 2638691 CTTTCAATTCCATTATGGATTAAC CAACTAACTCGGTAATGGCACGGTTGGTGACGGTGTAT spacer
length: 38 repeater length: 24

37311 2638753 CTTTCAATTCCATTATGGATTAAC TAAGACAGACACCGCCCCAAGCACCAGTGGGACTGAT spacer
length: 37 repeater length: 24

37312 2638814 CTTTCAATTCCATTATGGATTAAC TTAGGTAAGTATATCGATACTGTATTTAGGCCAGGTTT spacer
length: 39 repeater length: 24

37313 2638877 CTTTCAATTCCATTATGGATTAAC AAAGATAGATTGAGGTATGTTAAGATTAATGAGAATGAATTTCT spacer
length: 44 repeater length: 24

37314 2638945 CTTTCAATTCCATTATGGATTAAC

37315

37316

37317 crispr 4

37318 2646158 CTTTCAATTCCATTAAAGGATTATC CTAATCGGGTGATTTTTTCGTATGTCTAACACACAAAATTTTAAA spacer
length: 44 repeater length: 24

37319 2646226 CTTTCAATTCCATTAAAGGATTATC AATAACGGCGGAAACGTCATATATGTGGCGGGAGGAGTAACTAT spacer
length: 44 repeater length: 24

37320 2646294 CTTTCAATTCCATTAAAGGATTATC TTTGCTTCTGAAGATGATGTGATAATAATTGTTACGGATGAAC spacer
length: 43 repeater length: 24

37321	2646361	CTTTCAATTCCATTAAGGATTATC	AGATGATGAAGTTGCAAGAACTTTTAGATGCATATTATTCTACAG
		spacer length: 45 repeater length: 24	
37322	2646430	CTTTCAATTCCATTAAGGATTATC	TTAGAGTTAGTAGAAGGCTGAAAGAGTTTTTTCATATCTTGA
		length: 42 repeater length: 24	
37323	2646496	CTTTCAATTCCATTAAGGATTATC	TTGTCTATAGGAACAACATATTCATTGTGCGAGGGATAA
		length: 39 repeater length: 24	
37324	2646559	CTTTCAATTCCATTAAGGATTATC	AAACTTGAGTAAGGATTGAGATAAGAGAACCAATTTGTATCGTATT
		spacer length: 46 repeater length: 24	
37325	2646629	CTTTCAATTCCATTAAGGATTATC	AACAACAATGGCTGAGATACCAGCCAGTTTACTAAAT
		length: 37 repeater length: 24	
37326	2646690	CTTTCAATTCCATTAAGGATTATC	ACACCCACACCCGCTGAGGAAACACCTCAGGTAGAAATAA
		length: 40 repeater length: 24	
37327	2646754	CTTTCAATTCCATTAAGGATTATC	GTTCCCGGTAAACTCCCCAGTTTACCAAAGCCCATCGACTTCCGT
		spacer length: 45 repeater length: 24	
37328	2646823	CTTTCAATTCCATTAAGGATTATC	TTCTTTATGTGTTATTCTTATTGCCGGAGGTTGTACAATGAAG
		length: 43 repeater length: 24	
37329	2646890	CTTTCAATTCCATTAAGGATTATC	TGGAGAACATTATAATAGTTGATGACTATACTCGAGAAT
		length: 39 repeater length: 24	
37330	2646953	CTTTCAATTCCATTAAGGATTATC	AAAAATTCCTAGCGGATATGAGGGTTTTAGTACCATTTA
		length: 39 repeater length: 24	
37331	2647016	CTTTCAATTCCATTAAGGATTATC	TTAAAACAATAATAAGAGAATTATTGATAATGAATAACTTAT
		length: 42 repeater length: 24	
37332	2647082	CTTTCAATTCCATTAAGGATTATC	TTCCGTAACTTTTTACGCTGAATTGAGGGCCGTATACTGT
		length: 40 repeater length: 24	
37333	2647146	CTTTCAATTCCATTAAGGATTATC	CCCATTTAGTACTGGTAGTGGAGGTTCTACTGGTCTTCCAAC
		length: 42 repeater length: 24	
37334	2647212	CTTTCAATTCCATTAAGGATTATC	ACGTTTAGGATGGAAAAAGGATAAGGGAGAACCTTTGTTCA
		length: 41 repeater length: 24	
37335	2647277	CTTTCAATTCCATTAAGGATTATC	ATACGTTTGATAAAATCGGGATTGTGTTTGTGTATCATAT
		length: 40 repeater length: 24	
37336	2647341	CTTTCAATTCCATTAAGGATTATC	ATTGAGCAATGTAGGAGTGTGGTTTTTCAGGGGAGAATACCA
		length: 41 repeater length: 24	
37337	2647406	CTTTCAATTCCATTAAGGATTATC	TCCGCAAAAAACACCACAACCACAGCGAGAAAATATAAGG
		length: 40 repeater length: 24	
37338	2647470	CTTTCAATTCCATTAAGGATTATC	AAGCAATAAAAGTAGGGAATGGGATTAGACAGGTTTGTC
		length: 39 repeater length: 24	
37339	2647533	CTTTCAATTCCATTAAGGATTATC	GAATTATTAAATTTTTTAATTTCAATATTAGAGTAGTGAGGT
		length: 42 repeater length: 24	
37340	2647599	CTTTCAATTCCATTAAGGATTATC	AGGAACATAACTGCTTCCACTTTTTAGTAGACAGGAAAA
		length: 40 repeater length: 24	
37341	2647663	CTTTCAATTCCATTAAGGATTATC	TAGTGGTGTTAACTCATATGTGATTGTGACAGCATTAAAGA
		length: 41 repeater length: 24	
37342	2647728	CTTTCAATTCCATTAAGGATTATC	
37343			
37344			
37345	crispr 5		
37346	2649006	CTTTCAATTCCATTAAGGATTATC	CCGGATTAGTTATACGTTTAATCTGGAATTGTCTATTAGAT
		length: 41 repeater length: 24	
37347	2649071	CTTTCAATTCCATTAAGGATTATC	ACGAGTTGGCGGCAATTTCTGGCAATCCCGGCTTAATAAT
		length: 40 repeater length: 24	
37348	2649135	CTTTCAATTCCATTAAGGATTATC	TTTAATGAATCATTTAGACCTATCGCGGTATGGTTGGAAGA
		length: 41 repeater length: 24	
37349	2649200	CTTTCAATTCCATTAAGGATTATC	TTCTAGAGTTTAAGAAAAGGGGCTACATCAGTGTTGATGATGAA
		length: 44 repeater length: 24	
37350	2649268	CTTTCAATTCCATTAAGGATTATC	AGTTTGACAAACCATTTATCAATTTGGTATAAGTAGACTTT
		length: 41 repeater length: 24	
37351	2649333	CTTTCAATTCCATTAAGGATTATC	GTGAGGTTAAGGTCTGATAAAAATGCTGTCACTACATCGAAAAT
		length: 44 repeater length: 24	
37352	2649401	CTTTCAATTCCATTAAGGATTATC	TGGTACTATAAAAATTATTAGAATTAATCCGGCAAGAATG
		length: 40 repeater length: 24	
37353	2649465	CTTTCAATTCCATTAAGGATTATC	TGGCATGGTGGATATGGGCCTACAGTAGCACTTTCTA
		length: 37 repeater length: 24	
37354	2649526	CTTTCAATTCCATTAAGGATTATC	AATGATGAAGGAGATGAATTCATAATAGAATATCGAATATC
		length: 41 repeater length: 24	
37355	2649591	CTTTCAATTCCATTAAGGATTATC	TCTGAAAGTGTAAGGCATTTTTTCTAGTTTTTGTGGCATTAA
		length: 42 repeater length: 24	
37356	2649657	CTTTCAATTCCATTAAGGATTATC	CCACTCCCAGTGTTAACATAGACTTTTGTAGTTGTATTTATGGT
		length: 44 repeater length: 24	
37357	2649725	CTTTCAATTCCATTAAGGATTATC	TTATATTAGTGTTGATTTCAAAAATATTACAATAGATTTT
		length: 40 repeater length: 24	
37358	2649789	CTTTCAATTCCATTAAGGATTATC	AAGTTTTCTTTACAGGAGATTGAAGAGTGGTTGATGAAGAAG
		spacer	

length: 42 repeater length: 24
37359 2649855 CTTTCAATTCCATTAAGGATTATC TATACTGATTCCCTATAATCTCTTAGGCCTTCAGTGGTATA spacer
length: 40 repeater length: 24
37360 2649919 CTTTCAATTCCATTAAGGATTATC CCAGGCCTTTAACTAGTGAACACCTTGAGGGAGTCGTTAA spacer
length: 41 repeater length: 24
37361 2649984 CTTTCAATTCCATTAAGGATTATC TTGGAGAAGCACGAATCCATTTATTCCCATCATATGTTGA spacer
length: 40 repeater length: 24
37362 2650048 CTTTCAATTCCATTAAGGATTATC GTCTGGGGGTCTAAGCAGCCTAGTAGGGATGGCTAGTGGAGT spacer
length: 42 repeater length: 24
37363 2650114 CTTTCAATTCCATTAAGGATTATC AAAAGCTAACAACGTGATTGAGTCTAATATGGATGATATACTAC spacer
length: 44 repeater length: 24
37364 2650182 CTTTCAATTCCATTAAGGATTATC GGATTTTCAGATGGCGGATAATAGTTTCTGCTATGGCCAAGGC spacer
length: 42 repeater length: 24
37365 2650248 CTTTCAATTCCATTAAGGATTATC GTATACCTAATAGACGTTTCAGGACGCCTCGACGCTCAGATA spacer
length: 41 repeater length: 24
37366 2650313 CTTTCAATTCCATTAAGGATTATC CTGATGCCATCGCATTTTATGTTTTAGCTAAATTTCTTG spacer
length: 39 repeater length: 24
37367 2650376 CTTTCAATTCCATTAAGGATTATC ATTCAGTAGTTCAGATAGTGAATTCGCGAGAGACTTACCTCAA spacer
length: 43 repeater length: 24
37368 2650443 CTTTCAATTCCATTAAGGATTATC GAGCTTGGGCCTGTGTGGAATATAAGTTTTTCGTTAAGAAGAAGTA
spacer length: 46 repeater length: 24
37369 2650513 CTTTCAATTCCATTAAGGATTATC CAGATATCCATATCACTGGTGAATATGAGTCAGAAGGATACTC spacer
length: 43 repeater length: 24
37370 2650580 CTTTCAATTCCATTAAGGATTATC TCCAGATAAATTGAAAAGGACAGGCAGTCTGGCAATAAATTAA spacer
length: 42 repeater length: 24
37371 2650646 CTTTCAATTCCATTAAGGATTATC TCAATCCTTTCAAATCAGCGGGGGTCAGGGGAAGGGAGTGA spacer
length: 42 repeater length: 24
37372 2650712 CTTTCAATTCCATTAAGGATTATC TCAAAGCACTGTCTTCCGAATGGGAAATGTAGTTATCAT spacer
length: 40 repeater length: 24
37373 2650776 CTTTCAATTCCATTAAGGATTATC GAGGAACAGCTATTCAGAAAAAATTTTCCTTATTAC spacer
length: 37 repeater length: 24
37374 2650837 CTTTCAATTCCATTAAGGATTATC ATCATTATTCTCATTTGTGATAACTCCTGTGGTCATCTCGT spacer
length: 41 repeater length: 24
37375 2650902 CTTTCAATTCCATTAAGGATTATC AAGCCCTCAGCAAACCTCTTAAGGGCGTCTGCGAGATCTG spacer
length: 40 repeater length: 24
37376 2650966 CTTTCAATTCCATTAAGGATTATC GTAGCTGGTATAGTTCTCAATATCCTTACATCATTACTTC spacer
length: 40 repeater length: 24
37377 2651030 CTTTCAATTCCATTAAGGATTATC AACACCAGAAGAACTCTATTAAGTGCCATAAAAGAAT spacer
length: 38 repeater length: 24
37378 2651092 CTTTCAATTCCATTAAGGATTATC GGTAATGAGATTTCTTCGTACCGTTTCGAACTTCTTCT spacer
length: 40 repeater length: 24
37379 2651156 CTTTCAATTCCATTAAGGATTATC GTACATAATATCAGATATTTTAGAGAGCATGCAATAATA spacer
length: 39 repeater length: 24
37380 2651219 CTTTCAATTCCATTAAGGATTATC AAGCTAATCAACGTTTGCCCATTCCATACGTCATTGCAGATA spacer
length: 42 repeater length: 24
37381 2651285 CTTTCAATTCCATTAAGGATTATC GAAGGAAAACGTGTTTCATTGCTTCTTCTTTAACTTTTTTC spacer
length: 39 repeater length: 24
37382 2651348 CTTTCAATTCCATTAAGGATTATC AGGCGAATATGATATGCCTGAGCCCGAGTTGTTAGCACAGT spacer
length: 41 repeater length: 24
37383 2651413 CTTTCAATTCCATTAAGGATTATC AGTTCTACGCAATTGACTGATTTATTGAGATCATTAAGGGA spacer
length: 41 repeater length: 24
37384 2651478 CTTTCAATTCCATTAAGGATTATC TTGTGTTACACTTAAAACATCTGTTTTAGGTGTTGATTTTC spacer
length: 40 repeater length: 24
37385 2651542 CTTTCAATTCCATTAAGGATTATC CAGGTTTGTAGTGACGTTGAATGCGGGACAGAGCAACAAC spacer
length: 40 repeater length: 24
37386 2651606 CTTTCAATTCCATTAAGGATTATC TCTGTAAATGTGTCAAATTCATTGCTCAAAGTCACTTTGAG spacer
length: 41 repeater length: 24
37387 2651671 CTTTCAATTCCATTAAGGATTATC AAACGTTTCGAGTATCCGTTGAACCCCGTTCAACCTATACAAAT spacer
length: 44 repeater length: 24
37388 2651739 CTTTCAATTCCATTAAGGATTATC CGGGGTGATAAGGACTTCAGAAAAGCGGTACAATACAAAA spacer
length: 40 repeater length: 24
37389 2651803 CTTTCAATTCCATTAAGGATTATC TGTTAGATAGTGAAGAGAGAAAGAGGTTAGAGGTAATAAA spacer
length: 40 repeater length: 24
37390 2651867 CTTTCAATTCCATTAAGGATTATC GAAGAGAATTGTAATGTTTTTAGTAGAGACTGGCATACTAAAT spacer
length: 44 repeater length: 24
37391 2651935 CTTTCAATTCCATTAAGGATTATC ATACAAGTGAACCCGTTCTGATAAACGGGACTCTGGTTAA spacer
length: 40 repeater length: 24
37392 2651999 CTTTCAATTCCATTAAGGATTATC ACTTCTATTTTACGATAGGAGACCCTAACAGAGACCCTAACTTC spacer
length: 44 repeater length: 24
37393 2652067 CTTTCAATTCCATTAAGGATTATC TAAATTAACCAATATGACAAGCATGCCAGTTCACAATTTGT spacer
length: 42 repeater length: 24

37394	2652133	CTTTCAATTCCATTAAGGATTATC	CCTATAGGTGAGGTGTTTGATAAGCTCTTCTTAGTTAG spacer
	length:	38	repeater length: 24
37395	2652195	CTTTCAATTCCATTAAGGATTATC	GGAATTTAAATAATGAGGTGACCGGTAAAGCCTGCATAATG spacer
	length:	42	repeater length: 24
37396	2652261	CTTTCAATTCCATTAAGGATTATC	TGACATTGTGGGAAACCCACTCCAAAACACGATGAGCATT spacer
	length:	40	repeater length: 24
37397	2652325	CTTTCAATTCCATTAAGGATTATC	TTTTCGATGATGCGTCAATTTGGCTTAGCAAGTATTAT spacer
	length:	38	repeater length: 24
37398	2652387	CTTTCAATTCCATTAAGGATTATC	GCCGGTAGTCCAGGAGGCATATAATCTACTAAGTAGAAT spacer
	length:	39	repeater length: 24
37399	2652450	CTTTCAATTCCATTAAGGATTATC	TGGACAGTGTACCATACAGAGATACTGATTAATGGTAAC spacer
	length:	40	repeater length: 24
37400	2652514	CTTTCAATTCCATTAAGGATTATC	GAAATTTTAGGACTCACCGGGTTTGGTCTTGGATTTGTTAG spacer
	length:	41	repeater length: 24
37401	2652579	CTTTCAATTCCATTAAGGATTATC	TAAAGACGAAGTTAAACAGATGGCAGAAAATTCTCACATAA spacer
	length:	41	repeater length: 24
37402	2652644	CTTTCAATTCCATTAAGGATTATC	TTGTAATCGTAAAGAAAAGCACTGCAGCCAAAGCAAT spacer
	length:	37	repeater length: 24
37403	2652705	CTTTCAATTCCATTAAGGATTATC	CATAAATAAAAAAAGCTTACATGAATGCATTGAAGAATATAAAAT spacer
	length:	44	repeater length: 24
37404	2652773	CTTTCAATTCCATTAAGGATTATC	TCATCTTTAGCTTGTGACAGCATAAAGATAACTTTTCTCAGA spacer
	length:	39	repeater length: 24
37405	2652836	CTTTCAATTCCATTAAGGATTATC	TCTACGTATACCGTACTTATTATAATTAATGTAATAGAGTAT spacer
	length:	42	repeater length: 24
37406	2652902	CTTTCAATTCCATTAAGGATTATC	GGAATATTCCCTTCGTGAAGATACAAGATATGACAGAATC spacer
	length:	40	repeater length: 24
37407	2652966	CTTTCAATTCCATTAAGGATTATC	AGGAGGATAGAGAGAGTAGGGAATATGGCCTGGAGGCTCAAC spacer
	length:	42	repeater length: 24
37408	2653032	CTTTCAATTCCATTAAGGATTATC	CTATATCACCTTCCTCTAGTTCACTATCTTTAACTAAGTT spacer
	length:	40	repeater length: 24
37409	2653096	CTTTCAATTCCATTAAGGATTATC	CACAGGGCGGTGACCCAGTCACTACATCGAATCTTTCTGT spacer
	length:	40	repeater length: 24
37410	2653160	CTTTCAATTCCATTAAGGATTATC	AAGCGTTACGGCGTGTTGAAGTATAGGGATTTCGATAAAAAGTTC spacer
	length:	43	repeater length: 24
37411	2653227	CTTTCAATTCCATTAAGGATTATC	ATAATTATCTTTGACTGAACCCTATCAACTGCAATCTCCT spacer
	length:	40	repeater length: 24
37412	2653291	CTTTCAATTCCATTAAGGATTATC	AAATCTTTAAACCTAATCGTAAAGAATCCGAAAAATTAAC spacer
	length:	41	repeater length: 24
37413	2653356	CTTTCAATTCCATTAAGGATTATC	
37414			
37415			
37416	crispr 6		
37417	2685334	GATGAATCCTCAAAGGAATTGAAAG	TATTTGAATGAGAAAGAGATAACGAAAGTTTGAATTT spacer
	length:	38	repeater length: 25
37418	2685397	GATGAATCCTCAAAGGAATTGAAAG	TATTGAGACAGAAGGAAGCGGGAGTTAAGACCCTCAAAGAGAT spacer
	length:	43	repeater length: 25
37419	2685465	GATGAATCCTCAAAGGAATTGAAAG	TTATGGCAGATGATAACTCGTCAATTGCCTCTTCTGCACT spacer
	length:	40	repeater length: 25
37420	2685530	GATGAATCCTCAAAGGAATTGAAAG	GCTTTACGACGAGGGGGGTGCCCCCTAGTACATCTGCAA spacer
	length:	39	repeater length: 25
37421	2685594	GATGAATCCTCAAAGGAATTGAAAG	AGATCTTACCCACATCCGCCTCATGTCTAAAAGTAATATTT spacer
	length:	41	repeater length: 25
37422	2685660	GATGAATCCTCAAAGGAATTGAAAG	TGATATGACTTTCAAAGCGACCTTCTTCCCTACCTCATTTTC spacer
	length:	42	repeater length: 25
37423	2685727	GATGAATCCTCAAAGGAATTGAAAG	ACACAGAAAAGTAAACCGTTAGTCCCTGCACAAATAGAGA spacer
	length:	40	repeater length: 25
37424	2685792	GATGAATCCTCAAAGGAATTGAAAG	GTATTCCCAAAGCTTATGAATTCATATTTACATTTAT spacer
	length:	38	repeater length: 25
37425	2685855	GATGAATCCTCAAAGGAATTGAAAG	TTCCATATTTCAATGATAGAAAAAATATCAATGTCAATATA spacer
	length:	41	repeater length: 25
37426	2685921	GATGAATCCTCAAAGGAATTGAAAG	TTCCATATTTCAATGATAGAAAAAATATCAATGTCAATATA spacer
	length:	41	repeater length: 25
37427	2685987	GATGAATCCTCAAAGGAATTGAAAG	CACGAGCATTAATCCATGTTTTATTTAGAGCATTAAACA spacer
	length:	40	repeater length: 25
37428	2686052	GATGAATCCTCAAAGGAATTGAAAG	ATAGAGGACTTAAGGAGTGGTTATGGAAGAATAATTTTAT spacer
	length:	40	repeater length: 25
37429	2686117	GATGAATCCTCAAAGGAATTGAAAG	GGTATAAGAATAACAAAGAGCACTATACACCGCATATTCTTC spacer
	length:	42	repeater length: 25
37430	2686184	GATGAATCCTCAAAGGAATTGAAAG	GTATGTCGTTATGAACTACGTTATTGGATTTCATCGTTAG spacer
	length:	39	repeater length: 25
37431	2686248	GATGAATCCTCAAAGGAATTGAAAG	AAGAACAATTTTAGCATATAATCCATTATTGATTATT spacer

length: 37 repeater length: 25
37432 2686310 GATGAATCCTCAAAGGAATTGAAAG AATCCATCTAATTCAATTCAACCTGTTTTTTCTTCAAAC spacer
length: 39 repeater length: 25
37433 2686374 GATGAATCCTCAAAGGAATTGAAAG CCATAGAGAATGTTATAATAGTTGATGATTACAC spacer length:
34 repeater length: 25
37434 2686433 GATGAATCCTCAAAGGAATTGAAAG
37435
37436
37437 crispr 7
37438 2686556 GATGAATCCTCAAAGGAATTGAAAG TTAATTCCACAACCACCAATTTCAACAACCACAACACCAGCCAG spacer
length: 43 repeater length: 25
37439 2686624 GATGAATCCTCAAAGGAATTGAAAG AATAATTTGATTACTTTATCGTAGAACTCCTTTTCCTTT spacer
length: 39 repeater length: 25
37440 2686688 GATGAATCCTCAAAGGAATTGAAAG AAAAATATCTCAATAATATTGTCAGATGGCACTTCAA spacer
length: 37 repeater length: 25
37441 2686750 GATGAATCCTCAAAGGAATTGAAAG ATAATCGCATAATCCGCAATATAATAACCCATCACCAA spacer
length: 38 repeater length: 25
37442 2686813 GATGAATCCTCAAAGGAATTGAAAG CTCCTTGAGGCACTGTGATATTCTCGGCTCTCGCAAATC spacer
length: 39 repeater length: 25
37443 2686877 GATGAATCCTCAAAGGAATTGAAAG CTTTCTTTTCCTTCTTCTGTTCAAGAAGCTTTATTAGGAAT spacer
length: 41 repeater length: 25
37444 2686943 GATGAATCCTCAAAGGAATTGAAAG AGCTGAACTTCATCTGGAGATATTTCCAGGTCAGTGT spacer
length: 39 repeater length: 25
37445 2687007 GATGAATCCTCAAAGGAATTGAAAG AGGTTTCTTTGTTGATACCACTTATATAATTCGTAT spacer
length: 36 repeater length: 25
37446 2687068 GATGAATCCTCAAAGGAATTGAAAG TTAAATATCGTTATGTTGATTTCTTCACCTAACGTCTT spacer
length: 38 repeater length: 25
37447 2687131 GATGAATCCTCAAAGGAATTGAAAG ATACGACAACTGTCACCGCCATAACGTTTGACTCTCTTAG spacer
length: 40 repeater length: 25
37448 2687196 GATGAATCCTCAAAGGAATTGAAAG TTAAGGGCCGTTTTCAACACGTCTATATCACGTTTAGT spacer
length: 38 repeater length: 25
37449 2687259 GATGAATCCTCAAAGGAATTGAAAG AGCCAGACTAAAAAATTGAATACATCACATGCATTA spacer
length: 36 repeater length: 25
37450 2687320 GATGAATCCTCAAAGGAATTGAAAG TGTATTGAAGTTCCGTAACATAGTTAACAACCTTTCCGTT spacer
length: 40 repeater length: 25
37451 2687385 GATGAATCCTCAAAGGAATTGAAAG GGTTAATAATAAACAACAATCGAAATATATTAGCATTAGCC spacer
length: 41 repeater length: 25
37452 2687451 GATGAATCCTCAAAGGAATTGAAAG TAATAAAAAATTAGCTTTGACTTGAAACTTGTTACTGTTT spacer
length: 39 repeater length: 25
37453 2687515 GATGAATCCTCAAAGGAATTGAAAG TCCCCGCCTTTGGCGGGGTCGATTTTTTTATTCTTGCCCTC spacer
length: 39 repeater length: 25
37454 2687579 GATGAATCCTCAAAGGAATTGAAAG TTTAAAGCGTTAATAAAGTCGTTACCGATTTTCGTTTAAT spacer
length: 39 repeater length: 25
37455 2687643 GATGAATCCTCAAAGGAATTGAAAG GACGTCTTCTTCTTCTAACGTTTCTTCTTCTACGTTTAA spacer
length: 39 repeater length: 25
37456 2687707 GATGAATCCTCAAAGGAATTGAAAG GTACTTCCAATAGGTTCAAACGTTATGATTTCTTTGTTGTTCT spacer
length: 43 repeater length: 25
37457 2687775 GATGAATCCTCAAAGGAATTGAAAG TTAATAAAATCTTTTATTTTCTTCTCATCTATTATAAAGATT spacer
length: 42 repeater length: 25
37458 2687842 GATGAATCCTCAAAGGAATTGAAAG
37459
37460
37461 crispr 8
37462 2703302 CTTTCAATTCCTTTGAGGATTCATC TTAGGTTATATTACGCTGGCATAATCAACGTAAAAGCGAC spacer
length: 40 repeater length: 25
37463 2703367 CTTTCAATTCCTTTGAGGATTCATC TGGTATATTGTATAGTCATGGTGTATATGTAGATGGAAA spacer
length: 39 repeater length: 25
37464 2703431 CTTTCAATTCCTTTGAGGATTCATC TGTATATTGAAAAATATTATGGCAAGGTTGATGAGGTTTA spacer
length: 40 repeater length: 25
37465 2703496 CTTTCAATTCCTTTGAGGATTCATC TAATATTAGAGTGAGGTGGGGGAAAATGAAAATGAATT spacer
length: 39 repeater length: 25
37466 2703560 CTTTCAATTCCTTTGAGGATTCATC TCAAGGCAATATAAGTTTAGAGTGTTAATGATACTAGATA spacer
length: 40 repeater length: 25
37467 2703625 CTTTCAATTCCTTTGAGGATTCATC ATGAAGACATTTGAATGGAGTACCGCTTTTCGATATCCTAGT spacer
length: 41 repeater length: 25
37468 2703691 CTTTCAATTCCTTTGAGGATTCATC AAACGACTTCAAAGGATTTTTTCGCTAGAGCGTATAACGT spacer
length: 39 repeater length: 25
37469 2703755 CTTTCAATTCCTTTGAGGATTCATC CTAAATGCCCTAAAAGCAAGACTGTATGATTTCA spacer length:
34 repeater length: 25
37470 2703814 CTTTCAATTCCTTTGAGGATTCATC GAATAGTTTTTTGATAGAAAATGGTGGATTGCAATAACTA spacer
length: 40 repeater length: 25

37471	2703879	CTTTCAATTCCTTTGAGGATTCATC	AAAAATGGCAAGGAAGTTATTGCGTTTTAAACCTGTATCAC	spacer
	length:	40	repeater length:	25
37472	2703944	CTTTCAATTCCTTTGAGGATTCATC	ATTAGTATAGAGCCCCCGCGTTTCGGGGGAAGTGGTCTT	spacer
	length:	39	repeater length:	25
37473	2704008	CTTTCAATTCCTTTGAGGATTCATC	GACGAAATTTACGCCATATTGAAAGACAGATCCAAATGGA	spacer
	length:	40	repeater length:	25
37474	2704073	CTTTCAATTCCTTTGAGGATTCATC	TTTGTACACAATAAATAATGAGTTAACGATGAAAAAG	spacer
	length:	38	repeater length:	25
37475	2704136	CTTTCAATTCCTTTGAGGATTCATC	AGAAGACGCACTTTATGAAAGAGTAATTAAGAATAAACC	spacer
	length:	39	repeater length:	25
37476	2704200	CTTTCAATTCCTTTGAGGATTCATC	CTGGCATATTTAACGAATAGTAGTAAGGTTGAAATTAATGTAGAG	spacer
	length:	45	repeater length:	25
37477	2704270	CTTTCAATTCCTTTGAGGATTCATC	GTTCAACGTTTCGTTAATGCATTAAGACGATATATAAACG	spacer
	length:	40	repeater length:	25
37478	2704335	CTTTCAATTCCTTTGAGGATTCATC	GTATACAGCTTTTAAAAAATAAATTTTTCCCTTCTATC	spacer
	length:	40	repeater length:	25
37479	2704400	CTTTCAATTCCTTTGAGGATTCATC	AGTCGTTGATGGCAAGAGCGAGATGTCTGTCATTGTTTCAAT	spacer
	length:	42	repeater length:	25
37480	2704467	CTTTCAATTCCTTTGAGGATTCATC	GTCAAATTAATAGCATTAGGTAAAGCAACGGCTAATTTAAT	spacer
	length:	41	repeater length:	25
37481	2704533	CTTTCAATTCCTTTGAGGATTCATC	ATTATTTCCAATTAAAAAAATGGTGAGCTAAAAATGGT	spacer
	length:	38	repeater length:	25
37482	2704596	CTTTCAATTCCTTTGAGGATTCATC	CGATGGACTATGCAACAGATCTTCAAAGGATTGATTTTC	spacer
	length:	39	repeater length:	25
37483	2704660	CTTTCAATTCCTTTGAGGATTCATC	CGTTATTGAGCTCTTAGCATATCTTTTGGCGTATCATAA	spacer
	length:	39	repeater length:	25
37484	2704724	CTTTCAATTCCTTTGAGGATTCATC	GATAACATAACGTTATTACGCTGTAAATGTTGTCAA	spacer
	length:	37	repeater length:	25
37485	2704786	CTTTCAATTCCTTTGAGGATTCATC	ACATATTTAGCGATTTAAACGGTGACCAGAACGACATATT	spacer
	length:	40	repeater length:	25
37486	2704851	CTTTCAATTCCTTTGAGGATTCATC	TAACAATGAAGGCAATGGGGAAAGCAGTTTCTAATGCTAT	spacer
	length:	40	repeater length:	25
37487	2704916	CTTTCAATTCCTTTGAGGATTCATC	GAGCAAGTAAACATGAAAGGTAGGAAAATATTGGTTCCT	spacer
	length:	39	repeater length:	25
37488	2704980	CTTTCAATTCCTTTGAGGATTCATC	AATAGTGGATAAGCTCAAGGAATATATATTAAGACGGTAAC	spacer
	length:	42	repeater length:	25
37489	2705047	CTTTCAATTCCTTTGAGGATTCATC	CCATCGTTAAGAAGCGGATAAACGCTGGGTTGTCTTTAAT	spacer
	length:	40	repeater length:	25
37490	2705112	CTTTCAATTCCTTTGAGGATTCATC	GTTATAGTTACGTTAGAATACGACTTCAGAAACGGAATA	spacer
	length:	39	repeater length:	25
37491	2705176	CTTTCAATTCCTTTGAGGATTCATC	ATTACGATATTTATTAACGCAATGTTACAAAACATGGTG	spacer
	length:	39	repeater length:	25
37492	2705240	CTTTCAATTCCTTTGAGGATTCATC	TTTATTACTATGACGAATTAAACGAAATCGCTAACGACTTCTT	spacer
	length:	43	repeater length:	25
37493	2705308	CTTTCAATTCCTTTGAGGATTCATC	GCAAAGTAGAAAAATGGATTTGGTCTGGGCGAGAGAAAT	spacer
	length:	39	repeater length:	25
37494	2705372	CTTTCAATTCCTTTGAGGATTCATC	ACTGAAGAAGTTGACGGTAGACATGGTCTTTTTTAAGA	spacer
	length:	38	repeater length:	25
37495	2705435	CTTTCAATTCCTTTGAGGATTCATC	CTTTTTCCCCTATGGAGAGAATGTTCTCCCCCTAGAGA	spacer
	length:	38	repeater length:	25
37496	2705498	CTTTCAATTCCTTTGAGGATTCATC	CTGGTAACGTGTACAAAATGTTATTTTTGGCGAGTCAA	spacer
	length:	38	repeater length:	25
37497	2705561	CTTTCAATTCCTTTGAGGATTCATC	AATGTTGATGTTGGGTGAAAAAAGTGAAAATCCAAAACA	spacer
	length:	41	repeater length:	25
37498	2705627	CTTTCAATTCCTTTGAGGATTCATC	GTTTGATGGGCTTGTATGGTTGCCTCAGCCACCTATAC	spacer
	length:	38	repeater length:	25
37499	2705690	CTTTCAATTCCTTTGAGGATTCATC	AATATGTCGTTAGCAATAATACCATTTTCTAAACGTTTAT	spacer
	length:	40	repeater length:	25
37500	2705755	CTTTCAATTCCTTTGAGGATTCATC	AGTTGATGAACAATAACGAGATAAGATTAAACGCTATTG	spacer
	length:	39	repeater length:	25
37501	2705819	CTTTCAATTCCTTTGAGGATTCATC	ATAAACTAGGAAATTGTTGACAGAACTGGGGGTCATT	spacer
	length:	37	repeater length:	25
37502	2705881	CTTTCAATTCCTTTGAGGATTCATC	TACGCTCAACGTCTGTTACGCCAATTATATCAACATCTAAA	spacer
	length:	41	repeater length:	25
37503	2705947	CTTTCAATTCCTTTGAGGATTCATC	TAGTTAAAGATTCTGAACTAGAAAATGTCCAAATAATAGT	spacer
	length:	40	repeater length:	25
37504	2706012	CTTTCAATTCCTTTGAGGATTCATC	TTTCAGGATATATTGGTAGGGTGATGGTGGTAGTA	spacer length:
	length:	35	repeater length:	25
37505	2706072	CTTTCAATTCCTTTGAGGATTCATC	AACTATTTAAATCTTCTCTACACAAATGATAGAGAA	spacer
	length:	37	repeater length:	25
37506	2706134	CTTTCAATTCCTTTGAGGATTCATC	CTTCAGAGGAGAATTTCAAGGAATTCAGGATTTTGGAG	spacer

length: 38 repeater length: 25
37507 2706197 CTTTCAATTCCTTTGAGGATTCATC AAATTTATCAAAGGAGTTGAGACAATGATTAAGTTCACA spacer
length: 39 repeater length: 25
37508 2706261 CTTTCAATTCCTTTGAGGATTCATC GGAAATCAGTAATCACGTTTATACCTTTAACACAAAATAA spacer
length: 40 repeater length: 25
37509 2706326 CTTTCAATTCCTTTGAGGATTCATC CTATTAGACTTTTTTGCAAAACGCTAGGGTGTCTGTACGTAT spacer
length: 41 repeater length: 25
37510 2706392 CTTTCAATTCCTTTGAGGATTCATC ATTTATCCCAATCATTACAAAAGTAAGTGACAAACTA spacer
length: 38 repeater length: 25
37511 2706455 CTTTCAATTCCTTTGAGGATTCATC ATCGTTTTTCGTGCAAATCTAACCAATATTGCTGTTGT spacer
length: 37 repeater length: 25
37512 2706517 CTTTCAATTCCTTTGAGGATTCATC GAGTAATATGGGTGGTAAGATGTCGTTTGAATTTGAATA spacer
length: 39 repeater length: 25
37513 2706581 CTTTCAATTCCTTTGAGGATTCATC AATTTGAAGCATACGTAGAAGACTACGTTATATT spacer length:
34 repeater length: 25
37514 2706640 CTTTCAATTCCTTTGAGGATTCATC GAAGATGAACAACAACTGAAAGTAATGATAGTCAACA spacer
length: 38 repeater length: 25
37515 2706703 CTTTCAATTCCTTTGAGGATTCATC ATGACTATGCAAAAAGATGCTCAAGTTCAAAATAT spacer length:
35 repeater length: 25
37516 2706763 CTTTCAATTCCTTTGAGGATTCATC GTAAAGTATCGGCTAACGTTTGGATGATGATCTTAT spacer
length: 36 repeater length: 25
37517 2706824 CTTTCAATTCCTTTGAGGATTCATC TTACCTAAATATGAGAGGGAACAACCTCTTACTACAAA spacer
length: 38 repeater length: 25
37518 2706887 CTTTCAATTCCTTTGAGGATTCATC ATTTACTATAACTGGTTGTTGGGGAAGGTACTGCAGTATAT spacer
length: 41 repeater length: 25
37519 2706953 CTTTCAATTCCTTTGAGGATTCATC CAACTAACCACCCATGTCCTTCGTTAGATCGAGTAAAT spacer
length: 39 repeater length: 25
37520 2707017 CTTTCAATTCCTTTGAGGATTCATC TATTTTCAAAAATAGGGAGCCTATACATAAAAATTCATGA spacer
length: 40 repeater length: 25
37521 2707082 CTTTCAATTCCTTTGAGGATTCATC GTTTCCCAACCATGACATCGACCCGCTGTTGTCTAGTA spacer
length: 38 repeater length: 25
37522 2707145 CTTTCAATTCCTTTGAGGATTCATC GTAGACTATTTACAGAAGAGAATAATGAAATGGTTAT spacer
length: 38 repeater length: 25
37523 2707208 CTTTCAATTCCTTTGAGGATTCATC
37524
37525
37526 GCA_009797925.1_ASM979792v1_genomic.fna (PilerCR):
37527 START REPEAT
SPACER
37528 crispr 1
37529 2208624 GTTTCAGACGGACCCTTGTGGGGTTGAAG GTACGTTCTCAGTTACCTCGGGTGA CTCTCAAATGAA spacer
length: 37 repeater length: 29
37530 2208690 GTTTCAGACGGACCCTTGTGGGGTTGAAG GCCTCCTTGGATACGATGTTGACAAGCAAGGGTATATC spacer
length: 38 repeater length: 29
37531 2208757 GTTTCAGACGGACCCTTGTGGGGTTGAAG GTTTGAGTCTGCACCGGATTTTGACACCCACACTTGTT spacer
length: 38 repeater length: 29
37532 2208824 GTTTCAGACGGACCCTTGTGGGGTTGAAG GGGTCAGCAGAAGGTGCCAAGCAACTCAAGCACGATA spacer
length: 37 repeater length: 29
37533 2208890 GTTTCAGACGGACCCTTGTGGGGTTGAAG GACTCCACGGGAGAATATACTCAAATAACTCCGGTA spacer
length: 36 repeater length: 29
37534 2208955 GTTTCAGACGGACCCTTGTGGGGTTGAAG GCATTCCGGGCTTCAGCGTATCTATAACCTGTTCGT spacer
length: 36 repeater length: 29
37535 2209020 GTTTCAGACGGACCCTTGTGGGGTTGAAG GATGATCGGGACGAACGGCGGGGAGAGCACGAGCCA spacer
length: 36 repeater length: 29
37536 2209085 GTTTCAGACGGACCCTTGTGGGGTTGAAG GGTGATAGGCGAGGTTAGTCATCGGCGACCCCTCGA spacer
length: 37 repeater length: 29
37537 2209151 GTTTCAGACGGACCCTTGTGGGGTTGAAG GACTTGCGCTAATGGTTTTGCCAAGTTCTTCCTGCTG spacer
length: 37 repeater length: 29
37538 2209217 GTTTCAGACGGACCCTTGTGGGGTTGAAG GGTCGGCGGCTTTGTACCATTACCCCTCCTTTTTGAGT spacer
length: 38 repeater length: 29
37539 2209284 GTTTCAGACGGACCCTTGTGGGGTTGAAG GCATTGACAAACGGAGACTCCCAATCAATGTTGCTGG spacer
length: 37 repeater length: 29
37540 2209350 GTTTCAGACGGACCCTTGTGGGGTTGAAG GCCTTGTGGCGAGTCCGTCGTTGATGGATGCTCGCAC spacer
length: 37 repeater length: 29
37541 2209416 GTTTCAGACGGACCCTTGTGGGGTTGAAG GACGTAGACTTCCCGGACGTAGTACCCATCTGCCTG spacer
length: 36 repeater length: 29
37542 2209481 GTTTCAGACGGACCCTTGTGGGGTTGAAG GCCCGCATCATCCATATCATCCTCGGCGCTCTTGC spacer
length: 36 repeater length: 29
37543 2209546 GTTTCAGACGGACCCTTGTGGGGTTGAAG GTGAGCAACCGGCGGACTAATCGCACTCAAAGCATG spacer
length: 37 repeater length: 29
37544 2209612 GTTTCAGACGGACCCTTGTGGGGTTGAAG CGTCCCTGCCTCCGCTGCTCCGGGAGACAGTGAGACCG spacer

length: 38 repeater length: 29
37545 2209679 GTTTCAGACGGACCCTTGTGGGGTTGAAG CAACGACAGCGGACAGCATGAGCTACGATTTGCGT spacer
length: 35 repeater length: 29
37546 2209743 GTTTCAGACGGACCCTTGTGGGGTTGAAG CAACGTGAGTTTGAGATTAGCACTGAAAGCGACGTTG spacer
length: 37 repeater length: 29
37547 2209809 GTTTCAGACGGACCCTTGTGGGGTTGAAG CCAATCCTAACCCTGGCCTTGACGTTTCGACTAAGA spacer
length: 37 repeater length: 29
37548 2209875 GTTTCAGACGGACCCTTGTGGGGTTGAAG CGAGACGTTGCCCACGTCAAAGTACGTCTCATTTGC spacer
length: 36 repeater length: 29
37549 2209940 GTTTCAGACGGACCCTTGTGGGGTTGAAG CCTGATCGGCGATCCGGGCGTCGGGAAATCCGTGGCGC spacer
length: 38 repeater length: 29
37550 2210007 GTTTCAGACGGACCCTTGTGGGGTTGAAG CGCACCAACTACCGATATATTGGCCAGTTTCGGCGTA spacer
length: 37 repeater length: 29
37551 2210073 GTTTCAGACGGACCCTTGTGGGGTTGAAG CGTCATCAATGAACCGGATGTAATCAGTCCCAGCG spacer
length: 36 repeater length: 29
37552 2210138 GTTTCAGACGGACCCTTGTGGGGTTGAAG CGCACCGAAGGAAGCGGCCAAGAGACTTCGGAATAGAA spacer
length: 38 repeater length: 29
37553 2210205 GTTTCAGACGGACCCTTGTGGGGTTGAAG CGCTATCATCCATTATATCCGTCCGGCGGTTTTTGATG spacer
length: 38 repeater length: 29
37554 2210272 GTTTCAGACGGACCCTTGTGGGGTTGAAG CTATCGGATGCTTTTGTGCGCCAGGCATCACACCCTTC spacer
length: 38 repeater length: 29
37555 2210339 GTTTCAGACGGACCCTTGTGGGGTTGAAG CAACCGACCTTCGAGCAGTGTGCCTTCTGTGCTGGAA spacer
length: 37 repeater length: 29
37556 2210405 GTTTCAGACGGACCCTTGTGGGGTTGAAG CCCACGGAACAATCTCAGACCTGAACGATGGGCTTG spacer
length: 38 repeater length: 29
37557 2210472 GTTTCAGACGGACCCTTGTGGGGTTGAAG CCGCCCCGTGAAGTGTGGGTGTAGAGGTAGCTGTG spacer
length: 37 repeater length: 29
37558 2210538 GTTTCAGACGGACCCTTGTGGGGTTGAAG CAAGAAAGTCCGTCTGTTGCCTGGGGACCGAACGGAA spacer
length: 37 repeater length: 29
37559 2210604 GTTTCAGACGGACCCTTGTGGGGTTGAAG CTGCGACATCTCTTGCAATTTATGTCGAAAACCTCCGT spacer
length: 38 repeater length: 29
37560 2210671 GTTTCAGACGGACCCTTGTGGGGTTGAAG

37561
37562
37563 GCA_009911715.1_ASM991171v1_genomic.fna (PilerCR):
37564 START REPEAT

SPACER
37565 crispr 1
37566 566866 GATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CCACTTCCAATCTTCACACCACCAAGCGTA spacer
length: 30 repeater length: 36
37567 566932 GATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CAGGCCGTTTTGGATAATCCGGATTTTCTC spacer
length: 30 repeater length: 36
37568 566998 GATCGAGAACTCTCGTATTTGACAACACTCTCAAAC ATGGTTCGATGTTTACCACGGTCTACAATG spacer
length: 30 repeater length: 36
37569 567064 GATCGAGAACTCTCGTATTTGACAACACTCTCAAAC GGTCCGGCGGTACGTCCCCGTCCCCTCTC spacer
length: 30 repeater length: 36
37570 567130 GATCGAGAACTCTCGTATTTGACAACACTCTCAAAC AGGCCGAGAGGCATCGGATCATCTTCACCG spacer
length: 30 repeater length: 36
37571 567196 GATCGAGAACTCTCGTATTTGACAACACTCTCAAAC TCGGAATCGACAGCCAGGACGCATTCCAGA spacer
length: 30 repeater length: 36
37572 567262 GATCGAGAACTCTCGTATTTGACAACACTCTCAAAC AGAACACAACTGGACAAGATCTAACCGCC spacer
length: 30 repeater length: 36
37573 567328 GATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CTTATGAACGGCTTTTTGGATAACAACCGC spacer
length: 30 repeater length: 36
37574 567394 GATCGAGAACTCTCGTATTTGACAACACTCTCAAAC GCATGTCATCGTATGCCATCTTACCTCATC spacer
length: 30 repeater length: 36
37575 567460 GATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CATGCGCCACGTCTCCCAGATCCGTGGGCA spacer
length: 30 repeater length: 36
37576 567526 GATCGAGAACTCTCGTATTTGACAACACTCTCAAAC AACCTACCTAACCTTGTTCGATGAAGATT spacer
length: 30 repeater length: 36
37577 567592 GATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CACTATCTCGTCGCCCTCTTCATCCCTCTT spacer
length: 30 repeater length: 36
37578 567658 GATCGAGAACTCTCGTATTTGACAACACTCTCAAAC GGAATTCCTCGGTATCATCAGTCATAAGGA spacer
length: 30 repeater length: 36
37579 567724 GATCGAGAACTCTCGTATTTGACAACACTCTCAAAC ACATCTCAGAACCTCCCAGCTTGACGGTC spacer
length: 30 repeater length: 36
37580 567790 GATCGAGAACTCTCGTATTTGACAACACTCTCAAAC GGAACGGACG

37581
37582
37583 GCA_009914355.1_ASM991435v1_genomic.fna (PilerCR):
37584 START REPEAT

SPACER

37585 crispr 1

37586 605116 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCATGCATGGAGAGACCGAATCCCAGAAATAGATGAAG spacer
length: 38 repeater length: 30

37587 605184 ATTTCAATCCCATTTTGGTCTGATTTTAAC GACGTTATCATAGATTCCGGTCAGAATACTCCTCCCG spacer
length: 37 repeater length: 30

37588 605251 ATTTCAATCCCATTTTGGTCTGATTTTAAC GCATAGGTCTGGGGAAGATAGTGACGTCAGACCAA spacer
length: 35 repeater length: 30

37589 605316 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTTGCTAAAAACCTTAATCAAAAAAATATCAAACCA spacer
length: 36 repeater length: 30

37590 605382 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGAGGGATGGGCGGAGTATCACCATAGCATCTGAAA spacer
length: 36 repeater length: 30

37591 605448 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGTAGTTGAAATGGGAATGCCAGAAGAAGAAAGAAAT spacer
length: 37 repeater length: 30

37592 605515 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGGCGGCTGC

37593

37594

37595 crispr 2

37596 605727 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATACTATAGACGATAAAGAATAGCATACCAAAACGG spacer
length: 36 repeater length: 30

37597 605793 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGGAGGAGCAGGTGGAGGACCCGATCCGCTTCCTCC spacer
length: 36 repeater length: 30

37598 605859 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTGAGAAGTACGCACAAGATGCGTACTTCGCCAAGTTC spacer
length: 39 repeater length: 30

37599 605928 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTGAGAAGTACGCACAAGATGCGTACTTCGCCAAGTTC spacer
length: 39 repeater length: 30

37600 605997 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTATCATGTAGTTTTACCAAACATACCATTTGAGTGT spacer
length: 37 repeater length: 30

37601 606064 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTGCGGAGGAGTATGAGGCGTACGTGAACGTTGAGC spacer
length: 37 repeater length: 30

37602 606131 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGAGTTCATCGAGAGTGAAGTACTTCCTCTCGA spacer
length: 33 repeater length: 30

37603 606194 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCTCACAAGCCGTGGGAAATATGTGAACGGAAAGTAC spacer
length: 37 repeater length: 30

37604 606261 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAGAGAAAGAGTCAAAATATTCGAAGACGTATTCAA spacer
length: 36 repeater length: 30

37605 606327 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGATCTCGCTGAATACATTGAGGAGGCGAAGAATATG spacer
length: 37 repeater length: 30

37606 606394 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGAAGTAGCCCTCCCCGACAACCTGCGAATTAATCTTC spacer
length: 37 repeater length: 30

37607 606461 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGGTTAATGAGTATGTAGGTAGTGTATAGTCTACC spacer
length: 36 repeater length: 30

37608 606527 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGGAACGGCATTCCAGAATTATTCATTACCCTTTC spacer
length: 36 repeater length: 30

37609 606593 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCAGGTAAGATACGTGGTTCGGAGTCACAGTGGAGG spacer
length: 35 repeater length: 30

37610 606658 ATTTCAATCCCATTTTGGTCTGATTTTAAC TAGGCAAACGAAAAAGAATAATGGAAATCACAAAAGA spacer
length: 37 repeater length: 30

37611 606725 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCATTTGAGCAGATAGAATTTCGCGCTTATGGACCCAC spacer
length: 37 repeater length: 30

37612 606792 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTCTGTTGTTTTCTACTAGTTTTCCGCCGTGTGCG spacer
length: 37 repeater length: 30

37613 606859 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGAGGCCGGGTAAAGCCACCAGAACCCCTGGAGG spacer
length: 36 repeater length: 30

37614 606925 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAGAAATATTCGCCAGGATATGCATGGAAACAAC spacer
length: 34 repeater length: 30

37615 606989 ATTTCAATCCCATTTTGGTCTGATTTTAAC GATGAGCTGGAGGAAATAGCAGGATCAGAATTAGAT spacer
length: 36 repeater length: 30

37616 607055 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGTACCAAAGTCCATATAGATTATTATGGAGGTTTT spacer
length: 36 repeater length: 30

37617 607121 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGAAGTAATATGTCTCCAAATAGAGCAAAAGCCG spacer
length: 35 repeater length: 30

37618 607186 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGATGAAAGAAGATAATTTAGAACAGGCTGAACAAGTTC spacer
length: 39 repeater length: 30

37619 607255 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACACCACCCAAACCAGTCATAGAAGCCTACTTCACAG spacer
length: 37 repeater length: 30

37620 607322 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCCTCCACCACACCCTCCAAGACCAGGAAGGATGGG spacer
length: 36 repeater length: 30

37621 607388 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTCCTGGATGAGCGTTCGGAGCAACCGAAGCAGAT spacer
length: 36 repeater length: 30

37622 607454 ATTTCAATCCCATTTTGGTCTGATTTTAAC GATTCATAGTGACAGGCAGCGTAAAATACGTGCAG spacer

length: 35 repeater length: 30
37623 607519 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCTTCCTGTGGGAGGTTTCTGATTGTCTCTGAGACGG spacer
length: 37 repeater length: 30
37624 607586 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCTCAGCGAAGAAGGCGGGCAATAGTAGTCAGTGGC spacer
length: 37 repeater length: 30
37625 607653 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAACTTCGCTGACAACAAAATACACATACATAATAT spacer
length: 36 repeater length: 30
37626 607719 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCACACTCGAACACAGGAAAACACAGGAGAAGATCA spacer
length: 36 repeater length: 30
37627 607785 ATTTCAATCCCATTTTGGTCTGATTTTAAC TATATATACTTGATTCCATAGATATAGATATGTGGT spacer
length: 36 repeater length: 30
37628 607851 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGATCTGAGGCGTCAGAGCCGCCAGCCGATCACCAG spacer
length: 36 repeater length: 30
37629 607917 ATTTCAATCCCATTTTGGTCTGATTTTAAC GATTCCCAAGGGAAGTGAACATTGTTGATGGCTT spacer
length: 36 repeater length: 30
37630 607983 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAATTCATTACCTCCACCTTGAATAAGTCGATGCGTGA spacer
length: 39 repeater length: 30
37631 608052 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGACCGTCGCTGAGGCTTATGGAGACACTATATTTCC spacer
length: 37 repeater length: 30
37632 608119 ATTTCAATCCCATTTTGGTCTGATTTTAAC AATGAATAGAAATATAAGGGAAATAAGGGAATATG spacer
length: 35 repeater length: 30
37633 608184 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCTGCCACCATGAACTTCCCAATTCCCATTAGGAAC spacer
length: 37 repeater length: 30
37634 608251 ATTTCAATCCCATTTTGGTCTGATTTTAAC GATGACATAATAACATTTGCATACCAATTACACAAAGT spacer
length: 38 repeater length: 30
37635 608319 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTTCTCCTGTGACTGTGAATCTAGCCCCTACATCG spacer
length: 35 repeater length: 30
37636 608384 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCTGTTGCGTTGTTGAAGTATCCTAGTTCATCTATG spacer
length: 36 repeater length: 30
37637 608450 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAATACAATTACCGAGTACTTGTAAGCATCTTCAG spacer
length: 36 repeater length: 30
37638 608516 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAATGTTACGTCTACAATGGCACAGGAAGGTATGA spacer
length: 35 repeater length: 30
37639 608581 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAGTAGCCAGTTCAATGTGAACATCACTGAATTAAATG spacer
length: 38 repeater length: 30
37640 608649 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGTGCGGAGGAGAACATTCCGCAGGGACGGATATGA spacer
length: 36 repeater length: 30
37641 608715 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGTCAGGAGAATCACCATCATGGCCAGCATCCTCAA spacer
length: 36 repeater length: 30
37642 608781 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTCTACTACGTCCATATGCATCACCTCTTTCCCTT spacer
length: 36 repeater length: 30
37643 608847 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGTGCCCTCCATGGAGGAAGACTGAGTCCTCTA spacer
length: 34 repeater length: 30
37644 608911 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGGGGGCCGGGAGGACAGCATCATCAATCTTCACTG spacer
length: 36 repeater length: 30
37645 608977 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGAACATGGTGTGTAGCGTTTGGCTGAGAGTTCA spacer
length: 36 repeater length: 30
37646 609043 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTCCTTAAATGATTTGCTGAGTTTCCCCACTTCCTTTG spacer
length: 38 repeater length: 30
37647 609111 ATTTCAATCCCATTTTGGTCTGATTTTAAC AATGCATCAGGAAACCAAAGAAATGGGTATCATAC spacer
length: 36 repeater length: 30
37648 609177 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATATCTTATTATGTATATATCTTTTTTGTATTTCATC spacer
length: 36 repeater length: 30
37649 609243 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTTAATCAAATTAGTGGTGCAATGGTGGATACACG spacer
length: 36 repeater length: 30
37650 609309 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAATATTGCATATTTATTATGTTTCATATAATATAAAA spacer
length: 37 repeater length: 30
37651 609376 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAAAGCCTTAAAAAGCACCATCCAAAAAGTCATAGA spacer
length: 36 repeater length: 30
37652 609442 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAAAGCACCGCTATGCACCCCGTTCACGGAGAAACC spacer
length: 36 repeater length: 30
37653 609508 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCAAGGGCAAACCTAATCAACAACGTCAAAGTTG spacer
length: 36 repeater length: 30
37654 609574 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTATTTTTCATTATATTTATCACCTATATTTATATAAT spacer
length: 37 repeater length: 30
37655 609641 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGTAGATTACTTAAACTCCAGCAATCACCAATGTT spacer
length: 36 repeater length: 30
37656 609707 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTATGTTTCTTACATGTCTTGTTCCTTGACTGGTA spacer
length: 36 repeater length: 30
37657 609773 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTCGCCGATCCGGTAGGGTGTGTTGAACTGCTCCCTC spacer
length: 38 repeater length: 30

37658 609841 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGGCCACCCTGACGCCAGACCACCCAAACCACCAC spacer
length: 36 repeater length: 30
37659 609907 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACTATGTCTTGTATTTCTTCGTATTCACTGTGACTT spacer
length: 36 repeater length: 30
37660 609973 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGAACGGTTTAAATATAGTTTATGATGATATGGTTGG spacer
length: 36 repeater length: 30
37661 610039 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGGTGTAGAGGTGAAAATTGTAAGAAAAAGACTACAAA
spacer length: 40 repeater length: 30
37662 610109 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTAAAGAGTTTGTTAATTTTGTAAAAACCCGTTTGG spacer
length: 37 repeater length: 30
37663 610176 ATTTCAATCCCATTTTGGTCTGATTTTAAC TATTAATAAAAAAAGATATAGAACAGGCGGAACAAGTTC spacer
length: 39 repeater length: 30
37664 610245 ATTTCAATCCCATTTTGGTCTGATTTTAAC CATCATGGCT
37665
37666
37667 crispr 3
37668 610839 GGTCATCTCTAACTATGTACTTCACAAATT TTCATGGTCTGCTTCTTCGTCAGACCTGTCACATC spacer
length: 35 repeater length: 30
37669 610904 GGTCATCTCTAACTATGTACTTCACAAATT AGGTTGAAGAATTCCACCCAGATTACAAAG spacer length:
31 repeater length: 30
37670 610965 GGTCATCTCTAACTATGTACTTCACAAATT ACTCGCCAA
37671
37672
37673 crispr 4
37674 999834 GTTTCATCCCATTTTGGTCTGATTTTAAC AGAAAGGCAAAGACTTCCTCCCATGGCTCCTACTCTA spacer
length: 37 repeater length: 30
37675 999901 GTTTCATCCCATTTTGGTCTGATTTTAAC GGTATCCGGTTTCCTTCTTCGTCGTGGATGGTTGTGCGT
spacer length: 40 repeater length: 30
37676 999971 GTTTCATCCCATTTTGGTCTGATTTTAAC TGAGATGGAAAAAGCTGTAGAGAAAATCATGGATGC spacer
length: 36 repeater length: 30
37677 1000037 GTTTCATCCCATTTTGGTCTGATTTTAAC CATATTACGAAAGGTGTAGAGACCTCCTACAAGAGG spacer
length: 36 repeater length: 30
37678 1000103 GTTTCATCCCATTTTGGTCTGATTTTAAC TCTACAGTTCCCGGCTATCCTATGACAAGTACATCA spacer
length: 36 repeater length: 30
37679 1000169 GTTTCATCCCATTTTGGTCTGATTTTAAC GGGTGCTTTGATCTGCCGTTTCCTGTTGTTTATCAGGT spacer
length: 38 repeater length: 30
37680 1000237 GTTTCATCCCATTTTGGTCTGATTTTAAC GTCCGGATCACCTTGTAGGTGATGGAGGGGTCGAAAT spacer
length: 37 repeater length: 30
37681 1000304 GTTTCATCCCATTTTGGTCTGATTTTAAC CGAGTATAAAGGCGTGAAAACACGCCAATACCTCTA spacer
length: 36 repeater length: 30
37682 1000370 GTTTCATCCCATTTTGGTCTGATTTTAAC TGATACGCTGAAAAAGAGATAGGATAGAGGTGGTGT spacer
length: 36 repeater length: 30
37683 1000436 GTTTCATCCCATTTTGGTCTGATTTTAAC ACATGCAACGCCGCTACAACCTCTTCAAGAAGGAAAA spacer
length: 37 repeater length: 30
37684 1000503 GTTTCATCCCATTTTGGTCTGATTTTAAC AGGACCATATCATATTCAGCGCTGGCGAGGAAGGTA spacer
length: 36 repeater length: 30
37685 1000569 GTTTCATCCCATTTTGGTCTGATTTTAAC CCTGCGGAGGAACATCATCATCACGGATATCATC spacer
length: 36 repeater length: 30
37686 1000635 GTTTCATCCCATTTTGGTCTGATTTTAAC ACTACACGGTTCAATGTGAACAATTGTATTCGTTTCA spacer
length: 37 repeater length: 30
37687 1000702 GTTTCATCCCATTTTGGTCTGATTTTAAC GCATTACTAAACCTATCACCATAATAATAATCATACC spacer
length: 37 repeater length: 30
37688 1000769 GTTTCATCCCATTTTGGTCTGATTTTAAC ACACATTAGATATGATAGAAAAGGGTAGATACTAA spacer
length: 35 repeater length: 30
37689 1000834 GTTTCATCCCATTTTGGTCTGATTTTAAC TTGTTTTTCAGCCTGTCGCATTTCAATAGCGACTACA spacer
length: 37 repeater length: 30
37690 1000901 GTTTCATCCCATTTTGGTCTGATTTTAAC CTGGCAGTGGTGTAGTACTATGTCACTGCTACGTT spacer
length: 35 repeater length: 30
37691 1000966 GTTTCATCCCATTTTGGTCTGATTTTAAC CGAATCAATTTTACAACGTGTTCAATTTGGCAAATTT spacer
length: 36 repeater length: 30
37692 1001032 GTTTCATCCCATTTTGGTCTGATTTTAAC TTGGAAACAACCACATCAAAACGGTAGGTGATAGATA spacer
length: 37 repeater length: 30
37693 1001099 GTTTCATCCCATTTTGGTCTGATTTTAAC ACGGAGGTGACATCAATGAAAACGAAGACGATAGAGAGGC
spacer length: 40 repeater length: 30
37694 1001169 GTTTCATCCCATTTTGGTCTGATTTTAAC TTGACGCGGATGAGTGTTCCTTCCCCGTCTGGGTTCC spacer
length: 37 repeater length: 30
37695 1001236 GTTTCATCCCATTTTGGTCTGATTTTAAC TTCTTTTCCGTGTCTCTTCCTTTCTGTTTCTCTCAT spacer
length: 36 repeater length: 30
37696 1001302 GTTTCATCCCATTTTGGTCTGATTTTAAC GAGGGTCGTGAGGCCCTCCTCCAGGCCATAACTG spacer
length: 34 repeater length: 30
37697 1001366 GTTTCATCCCATTTTGGTCTGATTTTAAC TTCTCCTGCCCAGTATTTTCATCATGATGCACCTTG spacer

length: 35 repeater length: 30
37698 1001431 GTTTCAATCCCATTTTGGTCTGATTTTAAC AATAAATTAATAAAAAGTAACAAAGTAACAAAGTAACA spacer
length: 37 repeater length: 30
37699 1001498 GTTTCAATCCCATTTTGGTCTGATTTTAAC AAGGAGGTGAAAGGGAAATGATGAAAGAGATCCTG spacer
length: 35 repeater length: 30
37700 1001563 GTTTCAATCCCATTTTGGTCTGATTTTAAC GATGAAAAAAACTTCCTTGAAGGTGAAAAAATGA spacer
length: 36 repeater length: 30
37701 1001629 GTTTCAATCCCATTTTGGTCTGATTTTAAC TATTTCTACCATATCTATCACCTATTTCTGTTTTTA spacer
length: 36 repeater length: 30
37702 1001695 GTTTCAATCCCATTTTGGTCTGATTTTAAC TATTTTTTCGTTTTTCATTGATGTCACCTCCGTGCTTG spacer
length: 36 repeater length: 30
37703 1001761 GTTTCAATCCCATTTTGGTCTGATTTTAAC GAATGAGAAGAGTTGAAGTGAGCGCCCTCCATAGGG spacer
length: 36 repeater length: 30
37704 1001827 GTTTCAATCCCATTTTGGTCTGATTTTAAC CATCTGCGCCTTCTCCTTCTTTTTCTCATGATGACCT spacer
length: 37 repeater length: 30
37705 1001894 GTTTCAATCCCATTTTGGTCTGATTTTAAC CTGGCCCAGATAGTCAACATGATCCTTCAAGATGC spacer
length: 35 repeater length: 30
37706 1001959 GTTTCAATCCCATTTTGGTCTGATTTTAAC GGGGTGCGGTTTCGTGCAGAATTTTCGTGAACCTCCTA spacer
length: 36 repeater length: 30
37707 1002025 GTTTCAATCCCATTTTGGTCTGATTTTAAC GAAAACAGGGAGCACAAAGCCATATAAACACGTTACGA spacer
length: 37 repeater length: 30
37708 1002092 GTTTCAATCCCATTTTGGTCTGATTTTAAC ACACCGACTACCACAGCCTTCCCTTCCAAGTCACCAT spacer
length: 37 repeater length: 30
37709 1002159 GTTTCAATCCCATTTTGGTCTGATTTTAAC ACGGTCACAGGGGGCTCCTTCACAGAGGGAACACC spacer
length: 35 repeater length: 30
37710 1002224 GTTTCAATCCCATTTTGGTCTGATTTTAAC GAGGCCAGCCCCGCCCCGAGCGCCAGCGAAGAGGC spacer
length: 35 repeater length: 30
37711 1002289 GTTTCAATCCCATTTTGGTCTGATTTTAAC GATGATGCGGGCGAACAATCTGCTGAAC TACTACGC spacer
length: 36 repeater length: 30
37712 1002355 GTTTCAATCCCATTTTGGTCTGATTTTAAC TGCTTTTAGGTGCTCTAGTATAATTTATTAACATTGA spacer
length: 37 repeater length: 30
37713 1002422 GTTTCAATCCCATTTTGGTCTGATTTTAAC CTTGTGATGAAAAGAGTAGATGAGAAACAGAAAT spacer
length: 34 repeater length: 30
37714 1002486 GTTTCAATCCCATTTTGGTCTGATTTTAAC TAATATAGTGGAATTTGGAGATGAATAAAATGAAAA spacer
length: 36 repeater length: 30
37715 1002552 GTTTCAATCCCATTTTGGTCTGATTTTAAC CTACATACCCACTACATACCCACTTAAGAATAAAAAA spacer
length: 37 repeater length: 30
37716 1002619 GTTTCAATCCCATTTTGGTCTGATTTTAAC CGTCTCAGGGCTGATCAGATCGCGAGGAGTATCGCG spacer
length: 36 repeater length: 30
37717 1002685 GTTTCAATCCCATTTTGGTCTGATTTTAAC GAGAATGGGGACTACGAACTTGATTCTACGTCGCT spacer
length: 36 repeater length: 30
37718 1002751 GTTTCAATCCCATTTTGGTCTGATTTTAAC GGCCCCGTTGGAAGGCCTTCGACGCCGCTAAGAACTT spacer
length: 36 repeater length: 30
37719 1002817 GTTTCAATCCCATTTTGGTCTGATTTTAAC CAGTTGTAAAATTGATTTGGGTACTGACCTTGATTC spacer
length: 36 repeater length: 30
37720 1002883 GTTTCAATCCCATTTTGGTCTGATTTTAAC AATTGGTTCTGGATGCCCTTGAAAAGGATTTTAA spacer
length: 34 repeater length: 30
37721 1002947 GTTTCAATCCCATTTTGGTCTGATTTTAAC TTTGGGGTTGGTGGGGTGAGGTTGAGCCTTATTTT spacer
length: 35 repeater length: 30
37722 1003012 GTTTCAATCCCATTTTGGTCTGATTTTAAC ATGTAATATTATATATATATCTTTTTTGTATATATT spacer
length: 36 repeater length: 30
37723 1003078 GTTTCAATCCCATTTTGGTCTGATTTTAAC CTGATCTCCTCGAGGATGTCTGTGTCTGTGTCTGTTA spacer
length: 37 repeater length: 30
37724 1003145 GTTTCAATCCCATTTTGGTCTGATTTTAAC TAACCCAAAGTAAGAAAATAAAAAATGTTTCAAGATT spacer
length: 36 repeater length: 30
37725 1003211 GTTTCAATCCCATTTTGGTCTGATTTTAAC TATGTGGTTATAACCAGCCCGTTTCTCAAGATTCTG spacer
length: 36 repeater length: 30
37726 1003277 GTTTCAATCCCATTTTGGTCTGATTTTAAC ACTTGCAGGGATCATCGATGCAGTGGCCAGGCACCT spacer
length: 36 repeater length: 30
37727 1003343 GTTTCAATCCCATTTTGGTCTGATTTTAAC CAATCGTGTGGTGACCTTGCAAATGGTGCAAATAA spacer
length: 35 repeater length: 30
37728 1003408 GTTTCAATCCCATTTTGGTCTGATTTTAAC CCTCGGACGGAGATCCTCCCACTGCAGAAGATGCAC spacer
length: 36 repeater length: 30
37729 1003474 GTTTCAATCCCATTTTGGTCTGATTTTAAC CAGGCTTTCATCAGCCTGAATGAAGCCACCCACGGAT spacer
length: 37 repeater length: 30
37730 1003541 GTTTCAATCCCATTTTGGTCTGATTTTAAC GCATCCATCAAGGGCTCCACACCAACATCTAGTATAG spacer
length: 37 repeater length: 30
37731 1003608 GTTTCAATCCCATTTTGGTCTGATTTTAAC TGGACGAATCATTAACACACGCCGTTAAGTTCGTAG spacer
length: 36 repeater length: 30
37732 1003674 GTTTCAATCCCATTTTGGTCTGATTTTAAC AAGCCCAACCCCCCGTTGCACTATCCAGATTATTGA spacer
length: 36 repeater length: 30

37733	1003740	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GTGGAGCATACTCATACATGCTCCACATAAAAAA spacer
	length:	34	repeater length: 30
37734	1003804	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GGTCCAAGTGGATGAGACTGGAGCGATAGTGGAGTATGTGA
	spacer length:	41	repeater length: 30
37735	1003875	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CTGTACGACAAATATGGACTATATGGGCTATACG spacer
	length:	34	repeater length: 30
37736	1003939	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GAGGTCTAATTTCTCTTTCACTGTGGCTTCATCTGG spacer
	length:	36	repeater length: 30
37737	1004005	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TAATGCGAGGCTCACGGCTTTGACTTTGGCGTTGA spacer
	length:	35	repeater length: 30
37738	1004070	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CAGCGACCCCACAATCATACTAGAACCCCGATCATGGC spacer
	length:	38	repeater length: 30
37739	1004138	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GAATTTTTAGGGATACCTAAACTTATTGTGTTCAG spacer
	length:	35	repeater length: 30
37740	1004203	GTTTCAATCCCATTTTGGTCTGATTTTAAC	ACGGTTCAGTCCAGTTCTCCCCGTGACTGCATACCT spacer
	length:	37	repeater length: 30
37741	1004270	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CGGACCGCCC
37742			
37743			
37744	crispr 5		
37745	1004402	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TTGATACGTGTGCAAAGTGTTTCATTATTTTTGTAA spacer
	length:	35	repeater length: 30
37746	1004467	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CTACACATTTATATAATTCAAGTGTAGTGAATTGGA spacer
	length:	37	repeater length: 30
37747	1004534	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CCAGTTGAACATCTTAACACCCAGCTTAACCTTCAA spacer
	length:	36	repeater length: 30
37748	1004600	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GCTAACCTTTTACTCCTATCTTGTGTATCAAAAAAGTC spacer
	length:	38	repeater length: 30
37749	1004668	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TCACTGAGGGGATGTTGGGTACGCCGGTGGTTCCGC spacer
	length:	36	repeater length: 30
37750	1004734	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CCTTAAATGATTTGCTGAGTTTCCCCACTTCCTTTG spacer
	length:	36	repeater length: 30
37751	1004800	GTTTCAATCCCATTTTGGTCTGATTTTAAC	ACTACTTACAGGGTCTTGTATCTGAATATGCACTAAA spacer
	length:	37	repeater length: 30
37752	1004867	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TTATGTGGGACGCTGCTGATCACCCAATAGAAGAAG spacer
	length:	36	repeater length: 30
37753	1004933	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GAGCCTGCCCAGGACTCGAATACCATCACACGAA spacer
	length:	34	repeater length: 30
37754	1004997	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CCGGTCTCATTGGAGCGGCCGGGGCCTCACGCAGA spacer
	length:	36	repeater length: 30
37755	1005063	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CCTTAAATGATTTGCTGAGTTTCCCCACTTCCTTTG spacer
	length:	36	repeater length: 30
37756	1005129	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TATCGCTGGATTTCGGTACTCTTGAAATGGCGAGCAT spacer
	length:	36	repeater length: 30
37757	1005195	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TATAAATAAACCCATTTACATTATTACAAAAAAT spacer
	length:	35	repeater length: 30
37758	1005260	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GTGAAAACGAGCTGCAGGTGCCGCTAATATTAGT spacer
	length:	36	repeater length: 30
37759	1005326	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TGTAAACGAAAATACAGTTGTGACCGGTGATAAAA spacer
	length:	36	repeater length: 30
37760	1005392	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GAACTAGTCATAGAAGCCCCAGATGAGACGGTGAA spacer
	length:	36	repeater length: 30
37761	1005458	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CAGGTTTGATATAGATGAATTCCTTGAGTTGAAG spacer
	length:	34	repeater length: 30
37762	1005522	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CTTTATGATGAATAAGCTATTTCCAGGCGTTTTA spacer
	length:	34	repeater length: 30
37763	1005586	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CTTTTCAAGTCTCCTTGTCCACTCACCGCCTTTTTT spacer
	length:	36	repeater length: 30
37764	1005652	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TAAATTTGTATCTACCAAAAAAATGGGTGATAAATA spacer
	length:	36	repeater length: 30
37765	1005718	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TCTATCTACACTGCTATCTGGATGTATATACTTCCAA spacer
	length:	37	repeater length: 30
37766	1005785	GTTTCAATCCCATTTTGGTCTGATTTTAAC	ACGATTTTCTAGGATATTCACTAGAGAATCAGGAT spacer
	length:	35	repeater length: 30
37767	1005850	GTTTCAATCCCATTTTGGTCTGATTTTAAC	ACATGATTAAATACATATCATGTATATAGTCTAATTG spacer
	length:	37	repeater length: 30
37768	1005917	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TAAAACCTTTGATACTACTGCATTTTACGATGGATA spacer
	length:	36	repeater length: 30
37769	1005983	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TATGCAGTTTTACGATTAGTATTTATACCTTACCAC spacer
	length:	37	repeater length: 30
37770	1006050	GTTTCAATCCCATTTTGGTCTGATTTTAAC	AAAGAAATAAAGAATTTTCATGATACCACTCAATGGT spacer

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length: 36 repeater length: 30
37771 1006116 GTTTCAATCCCATTTTGGTCTGATTTTAAC TTTGTTTGGTGGTAAAAAACTACAACACTACAGCTAA spacer
length: 36 repeater length: 30
37772 1006182 GTTTCAATCCCATTTTGGTCTGATTTTAAC TATTATTCCGAATAATTGTACTGTGTATGTCCAGCG spacer
length: 36 repeater length: 30
37773 1006248 GTTTCAATCCCATTTTGGTCTGATTTTAAC GATTTTAGTAGCATACCGTCTAATGCTACTATAAC spacer
length: 35 repeater length: 30
37774 1006313 GTTTCAATCCCATTTTGGTCTGATTTTAAC GTTTTCCGGTTTAACCTTCTTCTAATTGGTTATTCTTC spacer
length: 37 repeater length: 30
37775 1006380 GTTTCAATCCCATTTTGGTCTGATTTTAAC AAGTTGACTATATTTTGTTTACCTTTTCTATCTAAT spacer
length: 36 repeater length: 30
37776 1006446 GTTTCAATCCCATTTTGGTCTGATTTTAAC AAGGCATACC
37777
37778
37779 GCA_009917665.1_ASM991766v1_genomic.fna(PilerCR):
37780 START REPEAT
SPACER
37781 crispr 1
37782 390591 GAGACATGCATTTCAAGTGTA AATTTCCCGGCAGTCTGCTGGATGTGAAGGA spacer length: 32
repeater length: 22
37783 390645 GAGACATGCATTTCAAGTGTA CACTTATTTGTCCACTCAGTCGTGAATGG spacer length: 29
repeater length: 22
37784 390696 GAGACATGCATTTCAAGTGTA TGATTCCCTGAAATGTTGGATATTGTAAGG spacer length: 29
repeater length: 22
37785 390747 GAGACATGCATTTCAAGTGTA CGGACGTGTT
37786
37787
37788 crispr 2
37789 678654 GCTTTAACTAGACGAAATCGTATGGAAAT GTGGTGGTTTTTGGAGGATTAAATTATGAAAGAGG spacer
length: 35 repeater length: 30
37790 678719 GCTTTAACTAGACGAAATCGTATGGAAAT CACTGCAGGGCGGGGTGTTCAAGAGGAATGGTTTGAGG spacer
length: 39 repeater length: 30
37791 678788 GCTTTAACTAGACGAAATCGTATGGAAAT GTGTCTATCTCCTCCCTCGCAACCACCCCGGTTATA spacer
length: 36 repeater length: 30
37792 678854 GCTTTAACTAGACGAAATCGTATGGAAAT ATTATACTGTCCCTTTCCAATTGGCTGGTGTTCCT spacer
length: 36 repeater length: 30
37793 678920 GCTTTAACTAGACGAAATCGTATGGAAAT ATGTTGAGATTGTGCTCAGGGCGGTGGATCGTGCCTCC spacer
length: 38 repeater length: 30
37794 678988 GCTTTAACTAGACGAAATCGTATGGAAAT AGTGTTTATTTATGTTTTTAGTTGTTATTTTTGTTTTA spacer
length: 38 repeater length: 30
37795 679056 GCTTTAACTAGACGAAATCGTATGGAAAT TTTGTGTGATTTTGTGGTTGTTTTCTTGGTCTTGTG spacer
length: 37 repeater length: 30
37796 679123 GCTTTAACTAGACGAAATCGTATGGAAAT TATACATGTCTTTTTTATATTCATTTGGTATGTCAAC spacer
length: 37 repeater length: 30
37797 679190 GCTTTAACTAGACGAAATCGTATGGAAAT ATTTGTTTATTTGTTTTATTAATTCTTTATTCATATTT spacer
length: 38 repeater length: 30
37798 679258 GCTTTAACTAGACGAAATCGTATGGAAAT ATTGTGTATTTGTCGTTGTTTACAATTAGATTCAATAT spacer
length: 38 repeater length: 30
37799 679326 GCTTTAACTAGACGAAATCGTATGGAAAT TCTGTATTTTCTATAGAATAATCTTTTTTTATAAAT spacer
length: 36 repeater length: 30
37800 679392 GCTTTAACTAGACGAAATCGTATGGAAAT TTATATATTTGTCAAGTTCGTTGAAATTAGGTATGT spacer
length: 36 repeater length: 30
37801 679458 GCTTTAACTAGACGAAATCGTATGGAAAT ATGTTAGGCTTGTTAAGGGAGACAAAACATGTGG spacer
length: 35 repeater length: 30
37802 679523 GCTTTAACTAGACGAAATCGTATGGAAAT CGGGTAAGTGGTGATAGAGATGAACATAGCGAAAGTA spacer
length: 37 repeater length: 30
37803 679590 GCTTTAACTAGACGAAATCGTATGGAAAT ATAACAGTTTGTGGACTATATCCGCTGGTGTACACT spacer
length: 37 repeater length: 30
37804 679657 GCTTTAACTAGACGAAATCGTATGGAAAT TGAGACCAAGACACTCACATTCCCCAGTGGGGCCAC spacer
length: 36 repeater length: 30
37805 679723 GCTTTAACTAGACGAAATCGTATGGAAAT CTTGCATTCCCCACCGCGGGGTGCATGATGACCAGG spacer
length: 37 repeater length: 30
37806 679790 GCTTTAACTAGACGAAATCGTATGGAAAT ACAGGTGATCCTCCTGTGTTTGTGACTGTGAATGATG spacer
length: 37 repeater length: 30
37807 679857 GCTTTAACTAGACGAAATCGTATGGAAAT TTGGTTCGGCTATTAGTAGGGAGGAGCGATATTATGG spacer
length: 37 repeater length: 30
37808 679924 GCTTTAACTAGACGAAATCGTATGGAAAT TCTGGTTCATGAGGCACGGGTATTGGGGACCCTTCAG spacer
length: 38 repeater length: 30
37809 679992 GCTTTAACTAGACGAAATCGTATGGAAAT ACCGCCCCGGGAGATGGAAGTCTTCTACGGCGGAGGCCGA spacer
length: 39 repeater length: 30
37810 680061 GCTTTAACTAGACGAAATCGTATGGAAAT TGTATCGCCACAGGCCCCCTCCCCTCGTCTGAGCCT spacer

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	length: 36	repeater length: 30	
37811	680127	GCTTTAAACTAGACGAAATCGTATGGAAAT	CATCCAATCATATAATGGGAAGCTCAGGATCCAATA spacer
	length: 36	repeater length: 30	
37812	680193	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACAGCTGCTACTCCTTCTTGTCTGTCAATATTTTAC spacer
	length: 37	repeater length: 30	
37813	680260	GCTTTAAACTAGACGAAATCGTATGGAAAT	CTCGCGAATAAGATCAGCATTCCACCCGAGGATGATA spacer
	length: 38	repeater length: 30	
37814	680328	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCATTGTATTTGATGAACTCGAAGAACGCGTCCCCACG spacer
	length: 38	repeater length: 30	
37815	680396	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGGTATCTGAACAGTTTAAAAGGTTCTGGGGAATAT spacer
	length: 37	repeater length: 30	
37816	680463	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGGATGGCATCGCTATCAGACTTGATTCGCTACTGA spacer
	length: 36	repeater length: 30	
37817	680529	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGGATGGCATCGCTATCAGACTTGATTCGCTACTGA spacer
	length: 36	repeater length: 30	
37818	680595	GCTTTAAACTAGACGAAATCGTATGGAAAT	CCGTGTGTGTTAGAGTCCCATCCAGGCCCTGACCCA spacer
	length: 36	repeater length: 30	
37819	680661	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATTGAAGAGGAGAGGTGAAAGGAATGGTAGTGAATGA spacer
	length: 37	repeater length: 30	
37820	680728	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCCTCTTTGAAGACTCATACTACTTAGATAGTTTTGA spacer
	length: 37	repeater length: 30	
37821	680795	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTCATGTGTGGAGATCATGAACTACGGAATGGTATAA spacer
	length: 38	repeater length: 30	
37822	680863	GCTTTAAACTAGACGAAATCGTATGGAAAT	TAACCAAGCACAAGGAGGGCATGGAAAAAATGGATA spacer
	length: 36	repeater length: 30	
37823	680929	GCTTTAAACTAGACGAAATCGTATGGAAAT	TACCATTCCGTAGTTTTATGTGTGGAGATCATGAA spacer
	length: 35	repeater length: 30	
37824	680994	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATGGACTCCACAGAGCATATCATGAACCGGGTGAGGG spacer
	length: 37	repeater length: 30	
37825	681061	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCATTGTATTTGATGAACTCGAAGAACGCGTCCCCACG spacer
	length: 38	repeater length: 30	
37826	681129	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGGTATCTGAACAGTTTAAAAGGTTCTGGGGAATAT spacer
	length: 37	repeater length: 30	
37827	681196	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGGATGGCATCGCTATCAGACTTGATTCGCTACTGA spacer
	length: 36	repeater length: 30	
37828	681262	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGGATGGCATCGCTATCAGACTTGATTCGCTACTGA spacer
	length: 36	repeater length: 30	
37829	681328	GCTTTAAACTAGACGAAATCGTATGGAAAT	CCGTGTGTGTTAGAGTCCCATCCAGGCCCTGACCCA spacer
	length: 36	repeater length: 30	
37830	681394	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATTGAAGAGGAGAGGTGAAAGGAATGGTAGTGAATGA spacer
	length: 37	repeater length: 30	
37831	681461	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCCTCTTTGAAGACTCATACTACTTAGATAGTTTTGA spacer
	length: 37	repeater length: 30	
37832	681528	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTCATGTGTGGAGATCATGAACTACGGAATGGTATAA spacer
	length: 38	repeater length: 30	
37833	681596	GCTTTAAACTAGACGAAATCGTATGGAAAT	TAACCAAGCACAAGGAGGGCATGGAAAAAATGGATA spacer
	length: 36	repeater length: 30	
37834	681662	GCTTTAAACTAGACGAAATCGTATGGAAAT	TACCATTCCGTAGTTTTATGTGTGGAGATCATGAA spacer
	length: 35	repeater length: 30	
37835	681727	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATGGACTCCACAGAGCATATCATGAACCGGGTGAGGG spacer
	length: 37	repeater length: 30	
37836	681794	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCATTGTATTTGATGAACTCGAAGAACGCGTCCCCACG spacer
	length: 38	repeater length: 30	
37837	681862	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGGTATCTGAACAGTTTAAAAGGTTCTGGGGAATAT spacer
	length: 37	repeater length: 30	
37838	681929	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGGATGGCATCGCTATCAGACTTGATTCGCTACTGA spacer
	length: 36	repeater length: 30	
37839	681995	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGGATGGCATCGCTATCAGACTTGATTCGCTACTGA spacer
	length: 36	repeater length: 30	
37840	682061	GCTTTAAACTAGACGAAATCGTATGGAAAT	CCGTGTGTGTTAGAGTCCCATCCAGGCCCTGACCCA spacer
	length: 36	repeater length: 30	
37841	682127	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATTGAAGAGGAGAGGTGAAAGGAATGGTAGTGAATGA spacer
	length: 37	repeater length: 30	
37842	682194	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCCTCTTTGAAGACTCATACTACTTAGATAGTTTTGA spacer
	length: 37	repeater length: 30	
37843	682261	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTCATGTGTGGAGATCATGAACTACGGAATGGTATAA spacer
	length: 38	repeater length: 30	
37844	682329	GCTTTAAACTAGACGAAATCGTATGGAAAT	TAACCAAGCACAAGGAGGGCATGGAAAAAATGGATA spacer
	length: 36	repeater length: 30	
37845	682395	GCTTTAAACTAGACGAAATCGTATGGAAAT	TACCATTCCGTAGTTTTATGTGTGGAGATCATGAA spacer
	length: 35	repeater length: 30	

37846	682460	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATGGACTCCACAGAGCATATCATGAACCGGGTGAGGG	spacer
		length: 37	repeater length: 30	
37847	682527	GCTTTAAACTAGACGAAATCGTATGGAAAT	CCAGTCCTGCTGTCCTGTGATATGCTCCTTGAACCAGTA	spacer
		length: 39	repeater length: 30	
37848	682596	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGGACATGAAGGATGAGGATATGGATGAGGCCCCATCAG	spacer
		length: 39	repeater length: 30	
37849	682665	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGATGCATACATACTTTTAAGTCTCAATGATGAGGTT	spacer
		length: 37	repeater length: 30	
37850	682732	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATCAGGATGGAGAATATGGGTGTGCGGTAGTACCTTG	spacer
		length: 37	repeater length: 30	
37851	682799	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCCCTTCAATCATCTCATTACCTCCTATCCAGTTTCT	spacer
		length: 38	repeater length: 30	
37852	682867	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCTGTTGGAGTGTCTCTGTGAGGCTCCGGGTGGTTTC	spacer
		length: 37	repeater length: 30	
37853	682934	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGCTGCTCTGCTTCATATCCACATGATCATAGATCTC	spacer
		length: 37	repeater length: 30	
37854	683001	GCTTTAAACTAGACGAAATCGTATGGAAAT	CATCCCCATCCCCTCAGGGGAGAAATTCATGGTCTCAG	spacer
		length: 38	repeater length: 30	
37855	683069	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATTCTAGGCGTATAATCCTATCCTCATCCTCCTCCAC	spacer
		length: 37	repeater length: 30	
37856	683136	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCTGGAGGTTATACGGCAGGGAAACAAGTTATGGTGG	spacer
		length: 37	repeater length: 30	
37857	683203	GCTTTAAACTAGACGAAATCGTATGGAAAT	GCCTTGGCCAGGGCACTGGCCTCCCCGGCTACCGC	spacer
		length: 35	repeater length: 30	
37858	683268	GCTTTAAACTAGACGAAATCGTATGGAAAT	CCCTGTATCATCTGATTCCCCAGGGCCGAACCGAACAG	spacer
		length: 38	repeater length: 30	
37859	683336	GCTTTAAACTAGACGAAATCGTATGGAAAT	GCCTTGGCCAGGGCACTGGCCTCCCCGGCTACCGCCT	spacer
		length: 37	repeater length: 30	
37860	683403	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGAGGCCTCAGGGAGAATCTGAGCAAGGAATCAGAGG	spacer
		length: 37	repeater length: 30	
37861	683470	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATGGTCCCGTAGGCTTCTGGGCCTCCGTGATGTACT	spacer
		length: 36	repeater length: 30	
37862	683536	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGGAGGATTTTCAAGCCTCTAAACTCCCAGGGATGCTT	spacer
		length: 38	repeater length: 30	
37863	683604	GCTTTAAACTAGACGAAATCGTATGGAAAT	GCATGTGAAACTCGGGCCCCTGATACTTCTCCACGTCCG	spacer
		length: 39	repeater length: 30	
37864	683673	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCCGATTGACCGAACAGGAGGGTTCCGAGGAAGAAA	spacer
		length: 36	repeater length: 30	
37865	683739	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCTGTTGGAGTGTCTCTGTGAGGCTCCGGGTGGTTTC	spacer
		length: 37	repeater length: 30	
37866	683806	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGCTGCTCTGCTTCATATCCACATGATCATAGATCTC	spacer
		length: 37	repeater length: 30	
37867	683873	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGAGGCCTCAGGGAGAATCTGAGCAAGGAATCAGAGG	spacer
		length: 37	repeater length: 30	
37868	683940	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATGGTCCCGTAGGCTTCTGGGCCTCCGTGATGTACT	spacer
		length: 36	repeater length: 30	
37869	684006	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGGAGGATTTTCAAGCCTCTAAACTCCCAGGGATGCTT	spacer
		length: 38	repeater length: 30	
37870	684074	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCGCCCCGTAGGGGGCCTCCTTTATGTCTCATGGCCTT	spacer
		length: 37	repeater length: 30	
37871	684141	GCTTTAAACTAGACGAAATCGTATGGAAAT	TAACACATTCTCCTCCCTCTACGATGACTTCAAAGTCT	spacer
		length: 38	repeater length: 30	
37872	684209	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATTGTGGCCTCTAAGGCGATTAGAAGCGCTTCCAA	spacer
		length: 35	repeater length: 30	
37873	684274	GCTTTAAACTAGACGAAATCGTATGGAAAT	CTTCTGATCAACCCCACTGCAAGTGAAAGTGAGGGGA	spacer
		length: 37	repeater length: 30	
37874	684341	GCTTTAAACTAGACGAAATCGTATGGAAAT	CTGGTGAGTAGGAGGGTCTGCTGGTAGAAAGGGACATG	spacer
		length: 38	repeater length: 30	
37875	684409	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTGGCTTCCACCCCATATTTGCCGAGGAGTATCTGGTT	spacer
		length: 38	repeater length: 30	
37876	684477	GCTTTAAACTAGACGAAATCGTATGGAAAT	CCAGTTGCTCCTGAGCCCCTGCTGGTTTCCAGTACACA	spacer
		length: 38	repeater length: 30	
37877	684545	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCATCCGCAGTGTACCCAGGGAGTGATTCCAATCGTTT	spacer
		length: 38	repeater length: 30	
37878	684613	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTGCATGCACCCTCCTGGACCCGCAGAACGGGCACACCA	spacer
		length: 39	repeater length: 30	
37879	684682	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTGAGCTCTTAAAACAAAAAGAGGATTTTAGACAGCCC	spacer
		length: 39	repeater length: 30	
37880	684751	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACCGTCGACTGCAGACGCAGACGAGTCTACGATTCCA	spacer
		length: 37	repeater length: 30	
37881	684818	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACATGTCCTTGAACCCTTTCAGATCCACCTTATCCT	spacer

	length: 36	repeater length: 30	
37882	684884	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCTGTCACCCCTGATCACCACCCCTCTCTTCTTTC spacer
	length: 36	repeater length: 30	
37883	684950	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGGTTGAAGATGACTGGGACCTCCGGTCTCGGGTATC spacer
	length: 37	repeater length: 30	
37884	685017	GCTTTAAACTAGACGAAATCGTATGGAAAT	GGGGATGTCACTTGGTGGGCGCCAAAAGAACTTCCTT spacer
	length: 37	repeater length: 30	
37885	685084	GCTTTAAACTAGACGAAATCGTATGGAAAT	TAATACAAGGTAATGACACAACAGCGGATTACCGCAC spacer
	length: 37	repeater length: 30	
37886	685151	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCGAATCGTTTCTGACTCCCCGCCTCCACGATCTCGGAGTGC
	spacer length: 42	repeater length: 30	
37887	685223	GCTTTAAACTAGACGAAATCGTATGGAAAT	TACACGCAGGGGGCTCCAGAGAGAAATCATCGACCAT spacer
	length: 37	repeater length: 30	
37888	685290	GCTTTAAACTAGACGAAATCGTATGGAAAT	CTCCTTCAATGGCTTCGGAGTAGGCTTCAGGGTCCT spacer
	length: 36	repeater length: 30	
37889	685356	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGGTGCGAGCGTCAAATTCAGTTATACAAGCACACAG spacer
	length: 37	repeater length: 30	
37890	685423	GCTTTAAACTAGACGAAATCGTATGGAAAT	GATGACGGCACC CGCAGCCACAAGAAGTGGGATCCGC spacer
	length: 38	repeater length: 30	
37891	685491	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGAGCCTCCCTGATCTCATCCACAGGGACACCACAC spacer
	length: 36	repeater length: 30	
37892	685557	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGTAGTCGGGGTCGTTTCATGGTTCTGCCTCGCGGAT spacer
	length: 36	repeater length: 30	
37893	685623	GCTTTAAACTAGACGAAATCGTATGGAAAT	CAAGGAGGTTT CAGAGGAACGAGGCCACGCCAGAAA spacer
	length: 37	repeater length: 30	
37894	685690	GCTTTAAACTAGACGAAATCGTATGGAAAT	CCCTGTATCATCTGATTCCCCAGGGCCGAACCGAACA spacer
	length: 37	repeater length: 30	
37895	685757	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACTGTAGGTGTTGTTTTTAAGGGCTCTGATGACTGGTA spacer
	length: 38	repeater length: 30	
37896	685825	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATGTATGAGTAACCAGGAAATATTTGAGGAACTACTG spacer
	length: 37	repeater length: 30	
37897	685892	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGCGCGAGGAATTCCTCAAGACCCTTGAGGAGAGGGTG spacer
	length: 38	repeater length: 30	
37898	685960	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGAGCATGTGGAATTCGGGGCCCTGGTACTTCTCCACATCAG
	spacer length: 42	repeater length: 30	
37899	686032	GCTTTAAACTAGACGAAATCGTATGGAAAT	GGTGAAATGTTCTGCAAGGCCACAGGCACCCAAC spacer
	length: 34	repeater length: 30	
37900	686096	GCTTTAAACTAGACGAAATCGTATGGAAAT	CTACACGGATAAAGCAGACTCCATAATCGCCACAGT spacer
	length: 36	repeater length: 30	
37901	686162	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTCCTTGAGAACCTTCGCACTGCAAGGAGGGGGATC spacer
	length: 36	repeater length: 30	
37902	686228	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACCTGCAGCAGGTGTGGGGCGGATTACTGTGGAGTC spacer
	length: 36	repeater length: 30	
37903	686294	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACATACCCTGAACTCTCACTCCCAGGGGCTATAATGG spacer
	length: 37	repeater length: 30	
37904	686361	GCTTTAAACTAGACGAAATCGTATGGAAAT	CCTCCCAGTTACAGTCATTGATAAGCCGATTGATGAGA spacer
	length: 38	repeater length: 30	
37905	686429	GCTTTAAACTAGACGAAATCGTATGGAAAT	TACGACTCTCCCAGGGAGTAATGTGCATGGGACAAAC spacer
	length: 37	repeater length: 30	
37906	686496	GCTTTAAACTAGACGAAATCGTATGGAAAT	GAGTATCCTCCCATAAGGGTAGTCTAGTTGTTTTCT spacer
	length: 37	repeater length: 30	
37907	686563	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATCATCCAGTTTTTTAAATCTGCCAGAGCCAAGATTAT spacer
	length: 37	repeater length: 30	
37908	686630	GCTTTAAACTAGACGAAATCGTATGGAAAT	CTGGTAGAATGGGACGTGGGGTATGTAGGGGTTGAGG spacer
	length: 37	repeater length: 30	
37909	686697	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTTGTAACAATATATGACCATACATCCATCCATGTCAA spacer
	length: 39	repeater length: 30	
37910	686766	GCTTTAAACTAGACGAAATCGTATGGAAAT	AATGATGAAGAGGTGATGAATCCTCCCCCTGAGGATT spacer
	length: 37	repeater length: 30	
37911	686833	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACGGTGAAGTGGAAGTGAAGTGTGTATGCGCGTTGATGA spacer
	length: 38	repeater length: 30	
37912	686901	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATGGGAGTGTGATATGTTGTGACTTGGAATTGTATA spacer
	length: 37	repeater length: 30	
37913	686968	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCGTGGAGAACCATCTGTCTAAGACTTCGTTCTCAGG spacer
	length: 37	repeater length: 30	
37914	687035	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTGTTATCACAGCCAATCTATGGGGCCAGTGTTGTATC spacer
	length: 38	repeater length: 30	
37915	687103	GCTTTAAACTAGACGAAATCGTATGGAAAT	AACTAGTCTCTTTAGTATGTCAATATTACTCATCCAA spacer
	length: 37	repeater length: 30	
37916	687170	GCTTTAAACTAGACGAAATCGTATGGAAAT	CCGCCAATGTAGGGGCGCTCCCTCCAGAGGTTGAGGG spacer
	length: 37	repeater length: 30	

37917	687237	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTGTGACGGCGGATCCGGTGAGGGCGTTCTGCATACC	spacer
	length:	37	repeater length:	30
37918	687304	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACTCGTAGTCGAGTAGGTTCGAGGAAATCCTGCATCAA	spacer
	length:	37	repeater length:	30
37919	687371	GCTTTAAACTAGACGAAATCGTATGGAAAT	CTACCCTCAAAGAAGATCAAGAGCAAAAATTCCTCGCG	spacer
	length:	37	repeater length:	30
37920	687438	GCTTTAAACTAGACGAAATCGTATGGAAAT	CTGAACCGTCCATCCAGTCTGATGAGTTCCTCTGTAA	spacer
	length:	37	repeater length:	30
37921	687505	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTTCCCTGATCTGGTTTTTCTCATAGTTTCTTTCCTG	spacer
	length:	37	repeater length:	30
37922	687572	GCTTTAAACTAGACGAAATCGTATGGAAAT	CGAAATATGAGAAAAACCCATACCAGAGAGCCTTATG	spacer
	length:	37	repeater length:	30
37923	687639	GCTTTAAACTAGACGAAATCGTATGGAAAT	AATATAAATAAACAAATACTTAATGTATTAGAATATAT	spacer
	length:	38	repeater length:	30
37924	687707	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACTGTCCGTGGTGAGGGTGTCCGGTCTGAGGATGTTGT	spacer
	length:	38	repeater length:	30
37925	687775	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTTTCGTATCGTATCAATTTTATGTTTTTATATGTGT	spacer
	length:	37	repeater length:	30
37926	687842	GCTTTAAACTAGACGAAATCGTATGGAAAT	AAGTTCGCCTTCCAGCAGTTGAAGATGGCATGGGATC	spacer
	length:	37	repeater length:	30
37927	687909	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACAGTGAACCTCAAATTCGGTGAAGGAATTGCTTTAAAGTAGATGAAATCGTATGGAAATACAGTGAACCTCAAATTCGGTGAAGGAATT	spacer length: 100 repeater length: 30
37928	688039	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCGACGAGGA	
37929				
37930				
37931	crispr 3			
37932	1123739	GTTAAAAATCAGACCAAAATGGGATTGAAAT	CGATCCTCCTCATCTCTGGGATCCATGAGGCCGCTAT	spacer
	length:	37	repeater length:	30
37933	1123806	GTTAAAAATCAGACCAAAATGGGATTGAAAT	TATGAGGAGTTCAGGGAGGAGTTCAAAGACTATTTGA	spacer
	length:	37	repeater length:	30
37934	1123873	GTTAAAAATCAGACCAAAATGGGATTGAAAT	GATCAGCCCCAGCGTCGCTATAAACACATCAGAAC	spacer
	length:	36	repeater length:	30
37935	1123939	GTTAAAAATCAGACCAAAATGGGATTGAAAT	AAGTAGGGATTATATAGGGAATGAAGTAATACAAA	spacer
	length:	35	repeater length:	30
37936	1124004	GTTAAAAATCAGACCAAAATGGGATTGAAAT	TCTTATGACGGTTTTCTGCCCTTTTTTGGGGCATTATGC	spacer
	length:	38	repeater length:	30
37937	1124072	GTTAAAAATCAGACCAAAATGGGATTGAAAT	TTTCTGCAAAAAAATTCACAAAAAATTTTATAGTTTAT	spacer
	length:	38	repeater length:	30
37938	1124140	GTTAAAAATCAGACCAAAATGGGATTGAAAT	TAAATAACGACAAATACACATTAACTAATTTAAATGT	spacer
	length:	38	repeater length:	30
37939	1124208	GTTAAAAATCAGACCAAAATGGGATTGAAAT	ATTTATTTTTTTAAGTGGGTAGGTAGTAGGTAGG	spacer
	length:	34	repeater length:	30
37940	1124272	GTTAAAAATCAGACCAAAATGGGATTGAAAT	TTAAATATATCATATGATTCTTTATCTTTTAAGTTAC	spacer
	length:	37	repeater length:	30
37941	1124339	GTTAAAAATCAGACCAAAATGGGATTGAAAT	GGTGTATGCCCTTTTCTCGTACTTTATGGATGCTATTG	spacer
	length:	38	repeater length:	30
37942	1124407	GTTAAAAATCAGACCAAAATGGGATTGAAAT	GGTTCATTTTTGAGAATATGTAAAATTTGTATATAA	spacer
	length:	36	repeater length:	30
37943	1124473	GTTAAAAATCAGACCAAAATGGGATTGAAAT	TGATAAATCATGATAAATAGTAACCCGGAATTAAAA	spacer
	length:	36	repeater length:	30
37944	1124539	GTTAAAAATCAGACCAAAATGGGATTGAAAT	TGGCTGTTCTGGCGCCTTTTTTGAGCTCCCCGCTGA	spacer
	length:	36	repeater length:	30
37945	1124605	GTTAAAAATCAGACCAAAATGGGATTGAAAT	TAAAAATTTTGAAACCGTGCTTAACCTTTTGTGACC	spacer
	length:	35	repeater length:	30
37946	1124670	GTTAAAAATCAGACCAAAATGGGATTGAAAT	TCGATTAACTGCTTAATATCGTCAAGACGGTCATTT	spacer
	length:	36	repeater length:	30
37947	1124736	GTTAAAAATCAGACCAAAATGGGATTGAAAT	GTCAGAGAATGGGGAATACCTTGTCACAGTACTGG	spacer
	length:	35	repeater length:	30
37948	1124801	GTTAAAAATCAGACCAAAATGGGATTGAAAT	TAGTGAGATACATCAGGACGTTCTGCAAGTGATGA	spacer
	length:	36	repeater length:	30
37949	1124867	GTTAAAAATCAGACCAAAATGGGATTGAAAT	TCGGGGTTCCCTCAGCCGCTTAACGTCCAGGATGT	spacer
	length:	36	repeater length:	30
37950	1124933	GTTAAAAATCAGACCAAAATGGGATTGAAAT	TGAAGGAGCCTCACAATTACCGAGACCATGGAACT	spacer
	length:	36	repeater length:	30
37951	1124999	GTTAAAAATCAGACCAAAATGGGATTGAAAT	GAACACAATAAGTTTAGGTATTCCTAAAAATTCTT	spacer
	length:	35	repeater length:	30
37952	1125064	GTTAAAAATCAGACCAAAATGGGATTGAAAT	CTTATTTTTTACAACGTTCATTTGGCAAATTTTGG	spacer
	length:	36	repeater length:	30
37953	1125130	GTTAAAAATCAGACCAAAATGGGATTGAAAT	CGATATCGCAAACCATATTCCTATATTCATATCGG	spacer
	length:	36	repeater length:	30

37954	1125196	GTTAAAATCAGACCAAAATGGGATTGAAAT	GGGTAAGAAAATAAAAAATGTTCAAAATTTGGGTCT	spacer
	length:	36	repeater length:	30
37955	1125262	GTTAAAATCAGACCAAAATGGGATTGAAAT	ATAGATATAGATATGTGGTTGGAAACAACCATAAA	spacer
	length:	35	repeater length:	30
37956	1125327	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCTTTCTTTCTAATTTTTTCTTCATCTATTTTGTCT	spacer
	length:	36	repeater length:	30
37957	1125393	GTTAAAATCAGACCAAAATGGGATTGAAAT	TTGAAGTTCAACCACATGAATTAACCATATTACAG	spacer
	length:	35	repeater length:	30
37958	1125458	GTTAAAATCAGACCAAAATGGGATTGAAAT	GAGAGATAATATTATTGTATGAGGCCCATGGTTCCTC	spacer
	length:	37	repeater length:	30
37959	1125525	GTTAAAATCAGACCAAAATGGGATTGAAAT	GGTCTAAATCGATCTCACTACTCCTATCCTTCAAGT	spacer
	length:	36	repeater length:	30
37960	1125591	GTTAAAATCAGACCAAAATGGGATTGAAAT	TTTAGGTATAAAGCCACATTTGGGTTTCCATATTGGG	spacer
	length:	37	repeater length:	30
37961	1125658	GTTAAAATCAGACCAAAATGGGATTGAAAT	CGAGGCAGGCGGTGGCGACGCTGCAAGGATGCAGGT	spacer
	length:	36	repeater length:	30
37962	1125724	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCAGATAAGGATTCTAAGTCCCCCTCTACATCAGA	spacer
	length:	35	repeater length:	30
37963	1125789	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTTCGATGTGGCGGCTGCGACACTCGGGGCATTTCAT	spacer
	length:	36	repeater length:	30
37964	1125855	GTTAAAATCAGACCAAAATGGGATTGAAAT	TACACCCGATCCCCAGGGCCCATCATCTTGATATG	spacer
	length:	35	repeater length:	30
37965	1125920	GTTAAAATCAGACCAAAATGGGATTGAAAT	GTTTTGAGGTCGTGGAGGGTGTCTCCACGATCCTCC	spacer
	length:	37	repeater length:	30
37966	1125987	GTTAAAATCAGACCAAAATGGGATTGAAAT	AATACAGTGTCCGCGAAGACAAGGATGCAGTGGAGG	spacer
	length:	36	repeater length:	30
37967	1126053	GTTAAAATCAGACCAAAATGGGATTGAAAT	GGAGGGCCTCCGCGGTCTTCCAGTACATATTGTATTTCAT	spacer length: 39 repeater length: 30
37968	1126122	GTTAAAATCAGACCAAAATGGGATTGAAAT	ATAAATGATTTTATGCGGTTTTGTGAACATATTAG	spacer
	length:	35	repeater length:	30
37969	1126187	GTTAAAATCAGACCAAAATGGGATTGAAAT	TGATTTTCTCTACGACTTTTCCCATCTTCATGTTTATTC	spacer length: 39 repeater length: 30
37970	1126256	GTTAAAATCAGACCAAAATGGGATTGAAAT	AAAACGAAGTCATCGACATGCTCCGCCAGCATGTCTG	spacer
	length:	36	repeater length:	30
37971	1126322	GTTAAAATCAGACCAAAATGGGATTGAAAT	CCATCATGTACCTCATGCCCCAAAACGTCTTTTCCAC	spacer
	length:	38	repeater length:	30
37972	1126390	GTTAAAATCAGACCAAAATGGGATTGAAAT	CAGGCTCTGCATGCACCTACAGGGCATGCAGGAAGG	spacer
	length:	36	repeater length:	30
37973	1126456	GTTAAAATCAGACCAAAATGGGATTGAAAT	CATGGTCGTCGGGGATGTCTCCGATGACCTCCTCCAG	spacer
	length:	37	repeater length:	30
37974	1126523	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCATTTCTGGAGGTAGTGGAGGACACCCTCCACGATCC	spacer
	length:	38	repeater length:	30
37975	1126591	GTTAAAATCAGACCAAAATGGGATTGAAAT	TGTCTGTCAACATGACTGCGGTGCCGTAACCTACCCC	spacer
	length:	37	repeater length:	30
37976	1126658	GTTAAAATCAGACCAAAATGGGATTGAAAT	AATGGTAGATCAATCCTCATCCCAGCCACATAAGG	spacer
	length:	35	repeater length:	30
37977	1126723	GTTAAAATCAGACCAAAATGGGATTGAAAT	TATTCTCTGAGTAATTGTTTTATAGCCTTCTGGAGA	spacer
	length:	36	repeater length:	30
37978	1126789	GTTAAAATCAGACCAAAATGGGATTGAAAT	CCACTTCTCCTATCACCTCGAGAACTTCTCG	spacer
	length:	32	repeater length:	30
37979	1126851	GTTAAAATCAGACCAAAATGGGATTGAAAT	CGAAGGAGCAGAAGAACTCCCCGACGGCCGGATGA	spacer
	length:	35	repeater length:	30
37980	1126916	GTTAAAATCAGACCAAAATGGGATTGAAAT	CACCCCTTGCGAGAACAAATGATACTCCTTATCAACC	spacer
	length:	36	repeater length:	30
37981	1126982	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTCAGCATCAGTACTGTGGAGCCACTGGCAGCGCGG	spacer
	length:	37	repeater length:	30
37982	1127049	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCGATTAAATGGAGGACCTTTAAAAGAGACTCAGCCTC	spacer
	length:	38	repeater length:	30
37983	1127117	GTTAAAATCAGACCAAAATGGGATTGAAAT	TATTGTAGAACTCCTCAAATCTCTTCTTCATATCAAG	spacer
	length:	37	repeater length:	30
37984	1127184	GTTAAAATCAGACCAAAATGGGATTGAAAT	ATGAAAACAGATTCAAAGGAGTAATAACCGGGGAAACAC	spacer length: 40 repeater length: 30
37985	1127254	GTTAAAATCAGACCAAAATGGGATTGAAAT	TGCCCTGGACTTCCTTAATATCGGAGCCTAGGATGT	spacer
	length:	36	repeater length:	30
37986	1127320	GTTAAAATCAGACCAAAATGGGATTGAAAT	ACGCATGCGAGGTTCTCATAGATGCTGCGTGTTTCA	spacer
	length:	36	repeater length:	30
37987	1127386	GTTAAAATCAGACCAAAATGGGATTGAAAT	AGGAGATAAAAGGCCTCCTTGAGGAGGCCATAACAAA	spacer
	length:	37	repeater length:	30
37988	1127453	GTTAAAATCAGACCAAAATGGGATTGAAAT	ACGTGCAGAGCTTCAGCCTAGAGTACGATAA	spacer
	length:	31	repeater length:	30
37989	1127514	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCGGAGATGTATGCACACACAAAAAACTGTGCGCA	spacer

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length: 35 repeater length: 30
37990 1127579 GTTAAATCAGACCAAAATGGGATTGAAAT TCGGCCTATCCAGGAGTAACCGGTGACCTCAATA spacer
length: 35 repeater length: 30
37991 1127644 GTTAAATCAGACCAAAATGGGATTGAAAT TTAGGGGATGGTTTCTTGGTGGGCATGAATTATCTGT spacer
length: 37 repeater length: 30
37992 1127711 GTTAAATCAGACCAAAATGGGATTGAAAT GCGGTTTGTGGTTTCTTGTGCGGGAGGGGATGTAGT spacer
length: 37 repeater length: 30
37993 1127778 GTTAAATCAGACCAAAATGGGATTGAAAT CCTTGATGGTGGCAGGGCGGGAATGGTCTTCACAGA spacer
length: 36 repeater length: 30
37994 1127844 GTTAAATCAGACCAAAATGGGATTGAAAT TGTATAGGACTTACGATTTGAGGGTCTATGATGAGA spacer
length: 36 repeater length: 30
37995 1127910 GTTAAATCAGACCAAAATGGGATTGAAAT AGGAGGTCAGTGACCTCTTCGAGAGGAAGTACTTGT spacer
length: 36 repeater length: 30
37996 1127976 GTTAAATCAGACCAAAATGGGATTGAAAT CAGATAGTCTTTTATTTGTGCTTGAAAGCACCTACCTC spacer
length: 38 repeater length: 30
37997 1128044 GTTAAATCAGACCAAAATGGGATTGAAAT CGTACACGTTCTTCGCTGATCGTGTCCGCGCAGCGAG spacer
length: 37 repeater length: 30
37998 1128111 GTTAAATCAGACCAAAATGGGATTGAAAT CAGTTACACAGTGAAGGTGAAAAGACTCAATCAAACCACA
spacer length: 40 repeater length: 30
37999 1128181 GTTAAATCAGACCAAAATGGGATTGAAAT TGTTGAGTTGTTACATGAACGACTCGACAATTTTCG spacer
length: 35 repeater length: 30
38000 1128246 GTTAAATCAGACCAAAATGGGATTGAAAT GACACAATATAAACCCAGCGCACAAACACCGAAACA spacer
length: 36 repeater length: 30
38001 1128312 GTTAAATCAGACCAAAATGGGATTGAAAT GGGAAGGATC
38002
38003
38004 GCA_010692885.1_ASM1069288v1_genomic.fna (PilerCR) :
38005 START REPEAT
SPACER
38006 crispr 1
38007 762586 GTTTCAGACGAACCCCTTGTGGGATTGAAGC GGCCTTGCCGGACGCTCCGGCGACCGTGCAACCC spacer
length: 34 repeater length: 30
38008 762650 GTTTCAGACGAACCCCTTGTGGGATTGAAGC TAGGTCATCGTCCCGCAACGCTGGCACTCGAACG spacer
length: 34 repeater length: 30
38009 762714 GTTTCAGACGAACCCCTTGTGGGATTGAAGC ACGTATCAGGTGGCGAACTCCCCGAACCGCACGAAT spacer
length: 36 repeater length: 30
38010 762780 GTTTCAGACGAACCCCTTGTGGGATTGAAGC GTCCATCCCGAGGAGAGTGCCTGCTCAGCGACGTTG spacer
length: 36 repeater length: 30
38011 762846 GTTTCAGACGAACCCCTTGTGGGATTGAAGC TCATTGGACACATCGATCCCGCGCGGGTCGCCGGCA spacer
length: 37 repeater length: 30
38012 762913 GTTTCAGACGAACCCCTTGTGGGATTGAAGC ACAGGTTGCTTGCGACGCTCATGGTTGACGATATCAGT spacer
length: 38 repeater length: 30
38013 762981 GTTTCAGACGAACCCCTTGTGGGATTGAAGC GTCAGCGTGAGCACGCCGTCCACAACGGCAAGATAG spacer
length: 36 repeater length: 30
38014 763047 GTTTCAGACGAACCCCTTGTGGGATTGAAGC AGCGAGTGTCTGCGTTTCGTGGAACCGCGCGTAAA spacer
length: 35 repeater length: 30
38015 763112 GTTTCAGACGAACCCCTTGTGGGATTGAAGC AACTGCCGACGCTAAAGCGTTGGCAAGGACGATTT spacer
length: 35 repeater length: 30
38016 763177 GTTTCAGACGAACCCCTTGTGGGATTGAAGC GTGCAAAAACCTCAGAAAATGCTCAAGAAGGTGCGACC spacer
length: 38 repeater length: 30
38017 763245 GTTTCAGACGAACCCCTTGTGGGATTGAAGC AGTTGTTTACAAGACAGTCGTCCCCAAAGGTTTCCAC spacer
length: 37 repeater length: 30
38018 763312 GTTTCAGACGAACCCCTTGTGGGATTGAAGC GAACGAATCATCCGGCGCGGCTCGAAGAACTAGAA spacer
length: 36 repeater length: 30
38019 763378 GTTTCAGACGAACCCCTTGTGGGATTGAAGC ATCCGGGACATCAGACGTACCTCCTGCTCAGGATG spacer
length: 35 repeater length: 30
38020 763443 GTTTCAGACGAACCCCTTGTGGGATTGAAGC CAGTAGCTCATGGGTCGGTGATAGGGTGACAGAGT spacer
length: 35 repeater length: 30
38021 763508 GTTTCAGACGAACCCCTTGTGGGATTGAAGC TGCCATCGCTGCTGGTCAGGGGGCTATCCAGAAGCTC spacer
length: 37 repeater length: 30
38022 763575 GTTTCAGACGAACCCCTTGTGGGATTGAAGC AGTGGCGCGGGGCGAGTGAGTTTCGAGATTTCGCG spacer
length: 34 repeater length: 30
38023 763639 GTTTCAGACGAACCCCTTGTGGGATTGAAGC AGGTGAACGGGAACGGCGAACCGCTGAAAGGCTGG spacer
length: 35 repeater length: 30
38024 763704 GTTTCAGACGAACCCCTTGTGGGATTGAAGC ATCGGCTCACCAACCCTTGACGACATCTTCAATCCTGA spacer
length: 38 repeater length: 30
38025 763772 GTTTCAGACGAACCCCTTGTGGGATTGAAGC ACGGTCACGTTGACCGCAGTCAACGACGGGACGGG spacer
length: 35 repeater length: 30
38026 763837 GTTTCAGACGAACCCCTTGTGGGATTGAAGC TTGAGTCTGCATCATCGATGAGTTCTGTATCAACAA spacer
length: 36 repeater length: 30
38027 763903 GTTTCAGACGAACCCCTTGTGGGATTGAAGC AGCTTCTCTCCACAAATCGCGCACTAGTTTAGCAT spacer

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length: 35 repeater length: 30
38028 763968 GTTTCAGACGAACCCCTTGTGGGATTGAAGC GAATCCGTCATCTGTGATAGGCATTAGTCAAACCTC spacer
length: 36 repeater length: 30
38029 764034 GTTTCAGACGAACCCCTTGTGGGATTGAAGC GACCGAGATGATCAATGCGAGGTTGCCACGATATTAGA spacer
length: 38 repeater length: 30
38030 764102 GTTTCAGACGAACCCCTTGTGGGATTGAAGC GGCGGGAGTGGCCTCGACGATAACGTGACTGCGTT spacer
length: 35 repeater length: 30
38031 764167 GTTTCAGACGAACCCCTTGTGGGATTGAAGC ATCCGTCGCTCTATCTGTTGCCCCGATTCCGCCAGG spacer
length: 37 repeater length: 30
38032 764234 GTTTCAGACGAACCCCTTGTGGGATTGAAGC ATGGAAGCCAGCGAGGCATTCCGAGATACGCCTCGTT spacer
length: 37 repeater length: 30
38033 764301 GTTTCAGACGAACCCCTTGTGGGATTGAAGC TCAAACCTCTCGCTTTTCAACAGCACCTTGATTTC spacer
length: 35 repeater length: 30
38034 764366 GTTTCAGACGAACCCCTTGTGGGATTGAAGC CTCAAAGCCCCGAGGTGTGTGCGGGAGTTCTTAGAAC spacer
length: 37 repeater length: 30
38035 764433 GTTTCAGACGAACCCCTTGTGGGATTGAAGC AACCAAGTCGTTGTCAAAGGGGCAGTGCAGAGTGATG spacer
length: 37 repeater length: 30
38036 764500 GTTTCAGACGAACCCCTTGTGGGATTGAAGC TCGCGACGGT
38037
38038
38039 crispr 2
38040 774643 GGTTCAGACGAACCCCTTGTGGGATTGAAGC AGCGATAAGGAAC TATTAGACGCGCTAAGAGACCTCG spacer
length: 37 repeater length: 31
38041 774711 GGTTCAGACGAACCCCTTGTGGGATTGAAGC CTGCTTAGACGGCGGTATGAGTGTGTCCCGAGAC spacer
length: 34 repeater length: 31
38042 774776 GGTTCAGACGAACCCCTTGTGGGATTGAAGC ACTCGTGAAGAATCCGTTGCCTCACAAATCGGAGTGG spacer
length: 37 repeater length: 31
38043 774844 GGTTCAGACGAACCCCTTGTGGGATTGAAGC CTCTCGCGGGAGGGGATTGAGCGATGAAAGCGCCC spacer
length: 35 repeater length: 31
38044 774910 GGTTCAGACGAACCCCTTGTGGGATTGAAGC AAACAAGTGC
38045
38046
38047 crispr 3
38048 775042 GTTTCAGACGAACCCCTTGTGGGATTGAAGC GAGCAACAAACCGACTCAACAAACGATGGTGCGGCAG spacer
length: 37 repeater length: 30
38049 775109 GTTTCAGACGAACCCCTTGTGGGATTGAAGC GTTAGTGAACAAGAGGGATGCTGGATCGAATCGA spacer
length: 34 repeater length: 30
38050 775173 GTTTCAGACGAACCCCTTGTGGGATTGAAGC ACACAGCCGTTGCAACGCAGGACAACATTCTGC spacer
length: 34 repeater length: 30
38051 775237 GTTTCAGACGAACCCCTTGTGGGATTGAAGC AGTTCACCGCCGTTCTCCTCGGCCACCACCTCACCCA spacer
length: 37 repeater length: 30
38052 775304 GTTTCAGACGAACCCCTTGTGGGATTGAAGC ACCTGTTCTGCGGTGGTGGCGGCTTCTCGACGGCACT spacer
length: 37 repeater length: 30
38053 775371 GTTTCAGACGAACCCCTTGTGGGATTGAAGC GAGTGTGGCTGTGATGCATCTCTCACGTACCTCGTGTCTG
spacer length: 40 repeater length: 30
38054 775441 GTTTCAGACGAACCCCTTGTGGGATTGAAGC CCCATCACGTGACCCACCAGGCAGCCCCAACGACG spacer
length: 35 repeater length: 30
38055 775506 GTTTCAGACGAACCCCTTGTGGGATTGAAGC GAAGACAGCGGTTTGAGCTATGTTATCCCGTGCATC spacer
length: 36 repeater length: 30
38056 775572 GTTTCAGACGAACCCCTTGTGGGATTGAAGC CCGTACGTCTG
38057
38058
38059 crispr 4
38060 2633178 GTTACAGACGAACCCCTTGTGGGGTTGAAGC CTCACCCGACGCGAGTTGCCGCGCACGGTTCCATCC spacer
length: 36 repeater length: 30
38061 2633244 GTTACAGACGAACCCCTTGTGGGGTTGAAGC GTTCTTTAACTCCTCGATGGCAATCAGGCCAACAC spacer
length: 35 repeater length: 30
38062 2633309 GTTACAGACGAACCCCTTGTGGGGTTGAAGC TGCTGGTCAATCCAAGGCTCCGAACCGCATCACG spacer
length: 35 repeater length: 30
38063 2633374 GTTACAGACGAACCCCTTGTGGGGTTGAAGC AAAGATGCGGCAAACA ACTACTGCGAGCGACAATGA spacer
length: 36 repeater length: 30
38064 2633440 GTTACAGACGAACCCCTTGTGGGGTTGAAGC CTCCTCTCGACGAAGCGCCGGCGCCAGTCTACGGCA spacer
length: 36 repeater length: 30
38065 2633506 GTTACAGACGAACCCCTTGTGGGGTTGAAGC GGATTGAGTCGTGAGTCATTGTCGTCCTCCATGTTT spacer
length: 36 repeater length: 30
38066 2633572 GTTACAGACGAACCCCTTGTGGGGTTGAAGC
38067
38068
38069 GCA_010692905.1_ASM1069290v1_genomic.fna (PilerCR) :
38070 START REPEAT
SPACER

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38071 crispr 1
38072 962370 GCTTCAACCCAACAAGGGTTCGTCTGAAAC AACAGTCCGCACACCGCCCCGAACCTCGATTAC spacer
length: 34 repeater length: 30
38073 962434 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GTGTGCCGGCCGCGAGAGCCGCGGCGTCGGTGAGC spacer
length: 35 repeater length: 30
38074 962499 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TGTTGACCGATAGCTCGTCTGCACTTACCGATTTGCCGTT
spacer length: 40 repeater length: 30
38075 962569 GCTTCAACCCAACAAGGGTTCGTCTGAAAC ACCGACCGAACGCCCCACTTCGTTGCGAGGCGGTCGAG spacer
length: 38 repeater length: 30
38076 962637 GCTTCAACCCAACAAGGGTTCGTCTGAAAC CTTCTTGGAGATGCGGCCCCGCGGCGTCGAGTAGTC spacer
length: 37 repeater length: 30
38077 962704 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TGACGAGCATGTTGCTGACCTCGATAGAGACCGACT spacer
length: 36 repeater length: 30
38078 962770 GCTTCAACCCAACAAGGGTTCGTCTGAAAC CGCACGAGTACTTCCCCTCTCTGTGCCTGTCTGGGT spacer
length: 36 repeater length: 30
38079 962836 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TCTTCGATGGTGGGGCAGCCGGGGCACTCGTAGGTGCC spacer
length: 38 repeater length: 30
38080 962904 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GTGCGAAGCTGTCGTGGGGTGGTGAATGATGAGTTC spacer
length: 36 repeater length: 30
38081 962970 GCTTCAACCCAACAAGGGTTCGTCTGAAAC AACAGAATCGGATAGTTGGCGAGGAACCTATTGAT spacer
length: 35 repeater length: 30
38082 963035 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GCCACCACCACCAGTCACCGATGCGGGGAGAGTCC spacer
length: 35 repeater length: 30
38083 963100 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TCTGACGAGAGCGACCCGGTCGCGGTGACCGACGGCG spacer
length: 37 repeater length: 30
38084 963167 GCTTCAACCCAACAAGGGTTCGTCTGAAAC CTTCGGTATCATTCGCTCTGCGGTCCACACCTCGGT spacer
length: 36 repeater length: 30
38085 963233 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GACCGCGGACGCGGCCCGCCGAGCACGCGGCCGCC spacer
length: 34 repeater length: 30
38086 963297 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GCATCGAATTTCGACCAGTCGACGTTTCATCGACGGGCA spacer
length: 37 repeater length: 30
38087 963364 GCTTCAACCCAACAAGGGTTCGTCTGAAAC AGCCATAGAC
38088
38089
38090 crispr 2
38091 972994 GCTTCAATCCCACAAGGGTTCGTCTGAAAC TTCATGGTATTACTCGGCCCCGCTACACTTCGCGGGA spacer
length: 36 repeater length: 30
38092 973060 GCTTCAATCCCACAAGGGTTCGTCTGAAAC CATCCGTGAGGCGTGGCGAGTCGGGGAGACCGGCGAG spacer
length: 37 repeater length: 30
38093 973127 GCTTCAATCCCACAAGGGTTCGTCTGAAAC CGACGTAGACCAAGCCCCAGAGGTCGCTACTCTGGAA spacer
length: 37 repeater length: 30
38094 973194 GCTTCAATCCCACAAGGGTTCGTCTGAAAC AGGACGCGAGCGACGAGCACCGCGCGCTCCTGGAGGG spacer
length: 37 repeater length: 30
38095 973261 GCTTCAATCCCACAAGGGTTCGTCTGAAAC GGTTCGAGACGAGTGGGTCCATCGTCCAGTCTCGAA spacer
length: 37 repeater length: 30
38096 973328 GCTTCAATCCCACAAGGGTTCGTCTGAAAC GACGGTCGTCGACGGCGACACGTTCCAGTTGGTCGC spacer
length: 36 repeater length: 30
38097 973394 GCTTCAATCCCACAAGGGTTCGTCTGAAAC GTTCGTGGAC
38098
38099
38100 crispr 3
38101 1256972 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GATAATGGCTGACAACGACGACAAACGATTTCGAATC spacer
length: 37 repeater length: 30
38102 1257039 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GAGCGTCCGATAGTCTCCGTCTCGAGGACCACG spacer
length: 34 repeater length: 30
38103 1257103 GCTTCAACCCAACAAGGGTTCGTCTGAAAC ACGAAGAAGACTTCACCCTCAACGTGGCCTAACCAT spacer
length: 36 repeater length: 30
38104 1257169 GCTTCAACCCAACAAGGGTTCGTCTGAAAC AACTCATCCAATAATGGTACTTGCAAGCGACCTCAGT spacer
length: 37 repeater length: 30
38105 1257236 GCTTCAACCCAACAAGGGTTCGTCTGAAAC ATTTTCGATATTCCTCCGACGAGAAAATCACGTCCGT spacer
length: 35 repeater length: 30
38106 1257301 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TTTGATTGTGATTGACCCAACGGGGCCTGTGCGCT spacer
length: 35 repeater length: 30
38107 1257366 GCTTCAACCCAACAAGGGTTCGTCTGAAAC CTCTAGGGCGTCGACGTACGGACCCTCGTATGAGTCC spacer
length: 37 repeater length: 30
38108 1257433 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TGTCTGGGAGCGAGCGCTCGTCCTCAAGCGGCT spacer
length: 33 repeater length: 30
38109 1257496 GCTTCAACCCAACAAGGGTTCGTCTGAAAC AGCGTCCACGTGAAAGCGTCCCTGCCGGCTGGTC spacer
length: 35 repeater length: 30
38110 1257561 GCTTCAACCCAACAAGGGTTCGTCTGAAAC CCGCGGAGATTTCGTGATGCAGACACCTCAACGTG spacer
length: 34 repeater length: 30

38111	1257625	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	AGTTTTGTTGCGTTTAGTCATGCTTCTTCCCCACAGT	spacer
	length:	37	repeater length:	30
38112	1257692	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TCCCGTTAACAACCAGTTCGGCCAGTAAGTCAACTAA	spacer
	length:	37	repeater length:	30
38113	1257759	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TCGCGAAGCTCGCCAGTGCCCCGTACAGACTACCGGCC	spacer
	length:	38	repeater length:	30
38114	1257827	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	CCCCTGTCGCGGATGTAACGCCGTCCGCAACGGTTC	spacer
	length:	36	repeater length:	30
38115	1257893	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GTGACCGACTCCAACGACCTCGGCAAAATCGACTCA	spacer
	length:	36	repeater length:	30
38116	1257959	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TCGTGGAGTCCCCGGCGGCTACGTCTGTTTTTCGAG	spacer
	length:	37	repeater length:	30
38117	1258026	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	CATCTTCCCAAACGAGTGGGTGCGGACTGTCCAGAC	spacer
	length:	36	repeater length:	30
38118	1258092	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GCCGCGCACCGTGTCTGCTGCGCTTCTCGGCAACGG	spacer
	length:	35	repeater length:	30
38119	1258157	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	CATCATAATG	
38120				
38121				
38122	crispr 4			
38123	3193400	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TGCTGAAGTACCACGAGCGTTTGGTGTGTGTACG	spacer
	length:	34	repeater length:	30
38124	3193464	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GTGTCGTATAGATATTGGAGGTAGTCTTTATCCTC	spacer
	length:	35	repeater length:	30
38125	3193529	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	AATAGGCTGGTCGCGGATGGGGTCAGTTACGTCTTC	spacer
	length:	36	repeater length:	30
38126	3193595	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GTGTCGTATAGATATTGGAGGTAGTCTTTATCCTC	spacer
	length:	35	repeater length:	30
38127	3193660	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	AATAGGCTGGTCGCGGATGGGGTCAGTTACGTCTTC	spacer
	length:	36	repeater length:	30
38128	3193726	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GGGGCCGTCGCGGCAATCAGAACCCTCAGAGACAT	spacer
	length:	36	repeater length:	30
38129	3193792	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GCGAGCGACAACGGCGCGCGAGCCGATGGCGGGCCGGG	spacer
	length:	38	repeater length:	30
38130	3193860	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	CGCCTCGGTTCATCGGGTTGACAGCACCGACGGGGAC	spacer
	length:	36	repeater length:	30
38131	3193926	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	CCCTCGTGGTGGTGTTCGGATGATGGCTGCCTCGAAG	spacer
	length:	37	repeater length:	30
38132	3193993	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC		
38133				
38134				
38135	crispr 5			
38136	3202079	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TATACCACGACCTTGGACAAAGCGACGGTTCAGAA	spacer
	length:	35	repeater length:	30
38137	3202144	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	CAGATCGAGGAAGTCTGAACGAGGTCGTCAACGT	spacer
	length:	35	repeater length:	30
38138	3202209	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GCGGGTCGCGGTTCGACGACGGCGAGGTCGAGAGAGT	spacer
	length:	36	repeater length:	30
38139	3202275	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TACTGCGCGACCGACGGCTGCGACGCCGCAATGTCC	spacer
	length:	36	repeater length:	30
38140	3202341	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GAAGTCCCACTCACGCCACTGGCCGGCATCGTCGAA	spacer
	length:	36	repeater length:	30
38141	3202407	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	ATGTGCTATCGACAGTCCCCGCACGATAGCTATTG	spacer
	length:	35	repeater length:	30
38142	3202472	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TGCCTGTAAGATTACTTGCAATGGAAGACTACCAAAC	spacer
	length:	37	repeater length:	30
38143	3202539	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	CGCCGCGCCAGAGCCGTTCCCGGACGCGACCAAGTCCGC	spacer
	length:	39	repeater length:	30
38144	3202608	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TGGCGACGGCTCCGACGGCTGGATCGACAACGGCGT	spacer
	length:	36	repeater length:	30
38145	3202674	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	CTATACCCAGTGTCTGGGTCTTCATATATATCGGCA	spacer
	length:	36	repeater length:	30
38146	3202740	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TAAGCATGACAGTCGCGTCGATTAAGACGTCAGAA	spacer
	length:	35	repeater length:	30
38147	3202805	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TTCCGGTTGATGGCTTGCGTGCCGTCGATTTTCGTCAAC	spacer
	length:	38	repeater length:	30
38148	3202873	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GGGCCGTCCTGCGTCCGCTGATGGAGTTCTTCGA	spacer
	length:	34	repeater length:	30
38149	3202937	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GAGAGACCGCGCGCTTGAGCTCGCCGACGCGCTCG	spacer
	length:	36	repeater length:	30
38150	3203003	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	CGCCCCACGTGACGGCATCGCTTTTCGAGGTCTG	spacer

	length: 34	repeater length: 30	
38151	3203067	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GCGCTCGCGGTGGGCTATCAGCTCCGGCAACCACTCGG spacer
	length: 38	repeater length: 30	
38152	3203135	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	AAGGCGGTTTTTACTGCGGTTCTATCAGCATATTCA spacer
	length: 36	repeater length: 30	
38153	3203201	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TCATTGGCCATATCGACGGCACGCCTGCGATTAACAA spacer
	length: 37	repeater length: 30	
38154	3203268	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TTGTTGGAGTTGGTTGACGTTTCGTGCGGACGCGTA spacer
	length: 35	repeater length: 30	
38155	3203333	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	
38156			
38157			
38158	crispr 6		
38159	3236147	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GCCAACAGTTTGCCACGACCCATCAAGTTTCTCAAGCCG
	spacer length: 39	repeater length: 30	
38160	3236216	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	ACCGGGATTTGAGCGTGGCGTTAATCCCGGCTTTT spacer
	length: 35	repeater length: 30	
38161	3236281	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GCGGTCTTACGCTTCGTTGCGAGGTGCCATCTCCCAA spacer
	length: 37	repeater length: 30	
38162	3236348	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	ACCCTCAATGTCGCCTCGGACCACGGACTCGGCGCTC spacer
	length: 37	repeater length: 30	
38163	3236415	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TCGCCGGCTGGTGGATGATAACCTGAGTCGTAAACTT spacer
	length: 38	repeater length: 30	
38164	3236483	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GGTATGCAGTGTCTTCCGAAGTCGAGTGTCCAGACGGA spacer
	length: 38	repeater length: 30	
38165	3236551	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TACCGTTTACGTCGCGTCCCAAGGCGGCGCTGGCGGGTCGG
	spacer length: 41	repeater length: 30	
38166	3236622	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GCTGACGCGCTTATCGCTTGATAAAACCATGAGGAA spacer
	length: 36	repeater length: 30	
38167	3236688	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	ACATGCACTGCTCAGGATAACTGCCCTTAGGTG spacer
	length: 33	repeater length: 30	
38168	3236751	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TGTCCATCGCGATGATGCACGTGCTGACCGCCGCGTC spacer
	length: 37	repeater length: 30	
38169	3236818	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	AAGTTTCTCTCCCGACGGGCGAATCCATCTCCGAGGT spacer
	length: 36	repeater length: 30	
38170	3236884	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GCGGCAGAGTATGTTGAGACAATCGCGTTTGCATTA spacer
	length: 36	repeater length: 30	
38171	3236950	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	ATTGTTGGGTTTGTCTCGACGTTGCTAACCCAGATG spacer
	length: 36	repeater length: 30	
38172	3237016	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TAATCGTCGAGCGTCCCCGCTGGGATTTGTGACATAT spacer
	length: 37	repeater length: 30	
38173	3237083	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GCTGCTGCGCCTGCCGCGCGAGTTCGCCCCGGTCGTC spacer
	length: 37	repeater length: 30	
38174	3237150	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	AGTTGCAGGCGACGACCTCGCGGGTGAGCATCTGGGT spacer
	length: 37	repeater length: 30	
38175	3237217	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GCAATCAGTCGGTCTTGAGTCCCAGACCGATGCTGCC spacer
	length: 37	repeater length: 30	
38176	3237284	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	ATTTTGCCGTTTTTGGGGCGTGACATTCGTGATG spacer
	length: 33	repeater length: 30	
38177	3237347	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	CATGACGCCGGGAGGTCTTGCCGCCCCTGGGCGCGG spacer
	length: 37	repeater length: 30	
38178	3237414	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	AACCCAGACGCGCTCGACGACGTGAAATTCTCGCCAG
	spacer length: 39	repeater length: 30	
38179	3237483	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TCCGGATCAGGTCTGGGTGCGGGTCCGGCGTCAGCC spacer
	length: 37	repeater length: 30	
38180	3237550	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	CCTCACGCCGTGGCTCGCAGACTCGGCGTCTCGAGCC spacer
	length: 37	repeater length: 30	
38181	3237617	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GCTGTACCTCCGCGAGGACGTTGACAAGCACGCAAT spacer
	length: 37	repeater length: 30	
38182	3237684	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TCGAGCTCGTCGACGCACGCCAGGCCCTTGTGGGCGT spacer
	length: 37	repeater length: 30	
38183	3237751	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TCTTGTATAGAGCGCAATCCCATCGCTATACGG spacer
	length: 33	repeater length: 30	
38184	3237814	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GATTGGCTTTTGGATGTTGACGACGGTCTCACTCCC spacer
	length: 36	repeater length: 30	
38185	3237880	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TCTCTTTGCTCTGGTCCTCGACGGCGAACGCGGGCA spacer
	length: 36	repeater length: 30	
38186	3237946	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	GGTTTCGGATGTACTCATTGGGACCCTCCGAGCGGATT spacer
	length: 38	repeater length: 30	
38187	3238014	GCTTCAACCCCAACAAGGGTTCGTCTGAAAC	TCTCTTTGCTCTGGTCCTCGACGGCGAACGCGGGCA spacer
	length: 36	repeater length: 30	

38188 3238080 GCTTCAACCCCAAGGGTTCGTCTGAAAC GGTTCGGATGTACTCATTGGGACCCTCCGAGCGGATT spacer
length: 38 repeater length: 30

38189 3238148 GCTTCAACCCCAAGGGTTCGTCTGAAAC GATAGAGGGCCTCGGCCTTGTCCATGTCGGCGTCTTCC spacer
length: 38 repeater length: 30

38190 3238216 GCTTCAACCCCAAGGGTTCGTCTGAAAC ACCGTATTCTGAACCTTTTGCCGTTTTTCGGCTTTGACGAT
spacer length: 39 repeater length: 30

38191 3238285 GCTTCAACCCCAAGGGTTCGTCTGAAAC ACACGGTCCACCACCGCTCCGGCGTGGCAGTGTTC spacer
length: 36 repeater length: 30

38192 3238351 GCTTCAACCCCAAGGGTTCGTCTGAAAC

38193

38194

38195 GCA_900012635.1_Pyrococcus_chitonophagus_genome_sequence_genomic.fna (PilerCR):

38196 START REPEAT
SPACER

38197 crispr 1

38198 144343 CTTTCAATTCTCTTCTAGTCTTATTGGAAC GTTTAATGCGAGGTATGCTAAATTATCGAGATATCAA spacer
length: 37 repeater length: 30

38199 144410 CTTTCAATTCTCTTCTAGTCTTATTGGAAC AAGCAGTAGGGGAGCGATACTTACCCCAAGCCGTCATTT
spacer length: 40 repeater length: 30

38200 144480 CTTTCAATTCTCTTCTAGTCTTATTGGAAC TTCAAACCTCCGATCGACGTTAAAGCATTCGTTGAGAA spacer
length: 38 repeater length: 30

38201 144548 CTTTCAATTCTCTTCTAGTCTTATTGGAAC ATGGTGAACGACGACAGGGCGTTCAAGGCAGGCTACCGT spacer
length: 39 repeater length: 30

38202 144617 CTTTCAATTCTCTTCTAGTCTTATTGGAAC CAAACTTTGTTAATACCCTGAAGAACAACCTTCTTAGG spacer
length: 37 repeater length: 30

38203 144684 CTTTCAATTCTCTTCTAGTCTTATTGGAAC TTGGGGACTGCAGCAGGAGCTGGATGTTTTGCCA spacer
length: 34 repeater length: 30

38204 144748 CTTTCAATTCTCTTCTAGTCTTATTGGAAC TGAGATGGGAAATGTTGACGTGTCGATTATAGAAGT spacer
length: 36 repeater length: 30

38205 144814 CTTTCAATTCTCTTCTAGTCTTATTGGAAC GTGCTCGCCGCAATAATAGCCGTCGCCGCAGTCTCGT spacer
length: 37 repeater length: 30

38206 144881 CTTTCAATTCTCTTCTAGTCTTATTGGAAC AGCGTAAGGGTGGAGGTCTGGCTGAACAACACGAAACT spacer
length: 38 repeater length: 30

38207 144949 CTTTCAATTCTCTTCTAGTCTTATTGGAAC TGGCGCCCGGCCGAGCTGGGCCGTCGGAATGAAGCT spacer
length: 38 repeater length: 30

38208 145017 CTTTCAATTCTCTTCTAGTCTTATTGGAAC AAAGATAACTTTTGCCCTAACCTTCTCGGGGTCAAA spacer
length: 36 repeater length: 30

38209 145083 CTTTCAATTCTCTTCTAGTCTTATTGGAAC GTCTCGACAT

38210

38211

38212 crispr 2

38213 166942 GTTTCCGTAGAACTCAATAGTGTGGAAAC ATCGCCTTCTTGGCACCCCTCCTTGATCCATCCTGGGA spacer
length: 37 repeater length: 29

38214 167008 GTTTCCGTAGAACTCAATAGTGTGGAAAC TCAATAAGCCAGCCTATGGCTCCTCCAACGAGTTTTCC spacer
length: 38 repeater length: 29

38215 167075 GTTTCCGTAGAACTCAATAGTGTGGAAAC ATGGCCTTGACAACGATATCCCCAATGCGGGGAAAGC spacer
length: 38 repeater length: 29

38216 167142 GTTTCCGTAGAACTCAATAGTGTGGAAAC ACTACAAACTTGCTCAATCCATGACTCCTTGCAAATTC spacer
length: 38 repeater length: 29

38217 167209 GTTTCCGTAGAACTCAATAGTGTGGAAAC CCCAACTCGG

38218

38219

38220 crispr 3

38221 167368 GTTTCCGTAGAACTCAATAGTGTGGAAAG CTAAGTCGTCCGTATGAATTGTACCTGCCGCACTTG spacer
length: 36 repeater length: 29

38222 167433 GTTTCCGTAGAACTCAATAGTGTGGAAAG GGGCCTGTTTACCGGGGCTAAGAAATACGGCTGGCTGG spacer
length: 38 repeater length: 29

38223 167500 GTTTCCGTAGAACTCAATAGTGTGGAAAG ATCTCAAGAACCCTAAGCCTGCTACCCTAGCAGTTGT spacer
length: 37 repeater length: 29

38224 167566 GTTTCCGTAGAACTCAATAGTGTGGAAAG TTTTCTGGGTGGGTCTAACGTAGGTGGTTACTTGGGGTAGTAT
spacer length: 45 repeater length: 29

38225 167640 GTTTCCGTAGAACTCAATAGTGTGGAAAG TGGATCCTCCTAAAGCGCCATTCGGCCATCCTGCTGGCCCTTCTGAA
spacer length: 47 repeater length: 29

38226 167716 GTTTCCGTAGAACTCAATAGTGTGGAAAG
AAGGCTTTCTGGAGTGATGGCCCGCTGTTCTGCCTGTCTTTGTTTGT spacer length: 48 repeater length: 29

38227 167793 GTTTCCGTAGAACTCAATAGTGTGGAAAG AACTAACTTCTGCTCCTCAAATCCCAATTTTATAA spacer
length: 37 repeater length: 29

38228 167859 GTTTCCGTAGAACTCAATAGTGTGGAAAG
GTCAAGTTGCGGACGATCTTGGCGTGGGCCCTGTCGAGGGCCTCGAAG spacer length: 48 repeater length: 29

38229 167936 GTTTCCGTAGAACTCAATAGTGTGGAAAG AGGGATTCTTGATCCATCAAATGTGTACCAAAATCA spacer
length: 37 repeater length: 29

38230 168002 GTTCCGCTAGAACTCAATAGTGTGGAAAG ATTATCTTCTGTACCAACTGCTCTGCGTTTTCAACAC spacer
length: 37 repeater length: 29

38231 168068 GTTCCGCTAGAACTCAATAGTGTGGAAAG CCGATGCTCTTTATTCCGCTCTCCTTGATTCCCCCTATG spacer
length: 39 repeater length: 29

38232 168136 GTTCCGCTAGAACTCAATAGTGTGGAAAG TCCATATTTGATCTTGCGGATCCTACTCCTGATATTCGGAGCCATA
spacer length: 46 repeater length: 29

38233 168211 GTTCCGCTAGAACTCAATAGTGTGGAAAG GGAAGTCCCG

38234

38235

38236 crispr 4

38237 701101 GTTACAATAAGACTAGAAAGAGAATTGAAAG TTGGGAGACAATAAGACCGTTCCCACCGGGCTTCT spacer
length: 36 repeater length: 30

38238 701167 GTTACAATAAGACTAGAAAGAGAATTGAAAG TGGGAGTTTGAACATACCGATTCTGAATACATACTC spacer
length: 36 repeater length: 30

38239 701233 GTTACAATAAGACTAGAAAGAGAATTGAAAG TGTTGCTGACCCAACCACCGACGATAATTAGGTTCTTATC
spacer length: 40 repeater length: 30

38240 701303 GTTACAATAAGACTAGAAAGAGAATTGAAAG CGATGTAAATCGATGGCTCGGCCCAGTAGAGCCTGC spacer
length: 36 repeater length: 30

38241 701369 GTTACAATAAGACTAGAAAGAGAATTGAAAG ACACGGAGCTTGAGGGACATTGGATTAGATAGTGGGC spacer
length: 37 repeater length: 30

38242 701436 GTTACAATAAGACTAGAAAGAGAATTGAAAG CCAAGATGTACAGCCCAAAGTGTCTCTCTTGACTGTCTG spacer
length: 38 repeater length: 30

38243 701504 GTTACAATAAGACTAGAAAGAGAATTGAAAG CCGGGACTGAG

38244

38245

38246 crispr 5

38247 949044 GTTCCAATAAGACTAAAAGAGAATTGAAAT TCGTTCTGAAGAAGTCTTGAGGCTGCCAAACAAC spacer
length: 35 repeater length: 30

38248 949109 GTTCCAATAAGACTAAAAGAGAATTGAAAT TGTTGATCTCATAATCAACTTTGATCTCAATCCTTGG spacer
length: 37 repeater length: 30

38249 949176 GTTCCAATAAGACTAAAAGAGAATTGAAAT TTATGATCTCAAGGGCTGTTGCTTGTGGATTTGATG spacer
length: 36 repeater length: 30

38250 949242 GTTCCAATAAGACTAAAAGAGAATTGAAAT GGGGACCACTGACTTATTGGCGTGGTAACTAATATATCA spacer
length: 39 repeater length: 30

38251 949311 GTTCCAATAAGACTAAAAGAGAATTGAAAT ACTATTATCAGGAATTCTTCAAGCATGTGTCTTAGGA spacer
length: 37 repeater length: 30

38252 949378 GTTCCAATAAGACTAAAAGAGAATTGAAAT TACAATGTATCCATTATCCTTTCCAAAACCTTGGC spacer
length: 36 repeater length: 30

38253 949444 GTTCCAATAAGACTAAAAGAGAATTGAAAT GCAGTCTTTCTGCACCACCTCGTCAATGTGCTGAAG spacer
length: 36 repeater length: 30

38254 949510 GTTCCAATAAGACTAAAAGAGAATTGAAAT GAAATACAAGCGCTACACAGTAACATTCTACGCATACG spacer
length: 38 repeater length: 30

38255 949578 GTTCCAATAAGACTAAAAGAGAATTGAAAT TGGCTTCCTCTTTAAAGCGAGAAGTTAGGACACCGTCAA spacer
length: 39 repeater length: 30

38256 949647 GTTCCAATAAGACTAAAAGAGAATTGAAAT CGATCTTGA

38257

38258

38259 crispr 6

38260 984666 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTATTGGAACCTGAAGTTCTTCCAGCTTCATCTTCTCGACTTCGAG
spacer length: 46 repeater length: 30

38261 984742 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTCACCTCCTCAGAATTGCTATTATTCCTCCCACAATG spacer
length: 38 repeater length: 30

38262 984810 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGCTATTTCGCGAGCCTTGATGATACTCTTATTGCCCT spacer
length: 37 repeater length: 30

38263 984877 CTTTCAATTCTATTTTAGTCTTATTGGAAC GAGGTATGACTTTCGCAAGAGCGCTTTCTCTCATCA spacer
length: 36 repeater length: 30

38264 984943 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCACAGGCGTCCAGAAGACTACTGCGACCTTCTCCT spacer
length: 36 repeater length: 30

38265 985009 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTTTAAAGAC

38266

38267

38268 crispr 7

38269 1180960 CTTTCCACACTATTTAGTTCTACGGAAAC
GAGGGGCGACGGTAAGCCTGAAGCCGGGCGAGGAGCGCAGTCAAGATACCGG spacer length: 51 repeater
length: 29

38270 1181040 CTTTCCACACTATTTAGTTCTACGGAAAC
GGAAACGAGGTGGCAGCAAGGGGACGAAACAGCAATAGACGAGTTCCT spacer length: 48 repeater length: 29

38271 1181117 CTTTCCACACTATTTAGTTCTACGGAAAC
GGAAACAAACAGTTGATCGCGGAGGCGCTGAGGAGCGGTTGGAAGGT spacer length: 47 repeater length: 29

38272 1181193 CTTTCCACACTATTTAGTTCTACGGAAAC CGGCTTATGCCTACTCTCCCCAAGTCCCCTTTGCC spacer
length: 36 repeater length: 29

38273 1181258 CTTTCCACACTATTTAGTTCTACGGAAAC GGCCATCGAGGCGAAGATAAAGGCCAAGCAGGAGGC spacer
length: 36 repeater length: 29
38274 1181323 CTTTCCACACTATTTAGTTCTACGGAAAC
GAGAACGAGATATGGAATTGCGGTGTTATGGGCGGCAATCCCGACAAAAGA spacer length: 51 repeater
length: 29
38275 1181403 CTTTCCACACTATTTAGTTCTACGGAAAC AGGTAGTTCTCGACAGTCTTCTCTGCACCCACGAGCT spacer
length: 37 repeater length: 29
38276 1181469 CTTTCCACACTATTTAGTTCTACGGAAAC CAGGGTGTGCAATACTCCCGAGGGTCGTTGTTCCAGTGTC
spacer length: 41 repeater length: 29
38277 1181539 CTTTCCACACTATTTAGTTCTACGGAAAC ACACGCCAACATTTGCTAGGATACTGCAGGAGGGGTTCTTGGT
spacer length: 43 repeater length: 29
38278 1181611 CTTTCCACACTATTTAGTTCTACGGAAAC CTGAGACTGTGGGGTCTGCATACGCTTCCACGTCCA spacer
length: 36 repeater length: 29
38279 1181676 CTTTCCACACTATTTAGTTCTACGGAAAC CCTTTAATTCGCCACCTCATCTTTACTTGCAAACCTTG spacer
length: 38 repeater length: 29
38280 1181743 CTTTCCACACTATTTAGTTCTACGGAAAC GAAACTGGCAAACCTATTTCGATTACTTATTACTACGATT
spacer length: 40 repeater length: 29
38281 1181812 CTTTCCACACTATTTAGTTCTACGGAAAC ATAATCTTCAAAGACGGCGACTACGTGATTGCAAAGAACGGC
spacer length: 42 repeater length: 29
38282 1181883 CTTTCCACACTATTTAGTTCTACGGAAAC GTGAACAAGGAGTGGTACTAGAGTTCTGGACAAACAT spacer
length: 37 repeater length: 29
38283 1181949 CTTTCCACACTATTTAGTTCTACGGAAAC GAGGTTTCGCAAATGGGTCAACAGACGTAACATTCG spacer
length: 35 repeater length: 29
38284 1182013 CTTTCCACACTATTTAGTTCTACGGAAAC TAGTCACCAAATCACATACAAGATATATGAGGACGGGGTAGAA
spacer length: 43 repeater length: 29
38285 1182085 CTTTCCACACTATTTAGTTCTACGGAAAC TTCCCCCTGG
38286
38287
38288 crispr 8
38289 1182235 CTTTCCACACTATTTAGTTCTACGGAAAC TTGCTCTCGCTCTTGTATGTCTCTGGGTCGATGTTGA spacer
length: 37 repeater length: 29
38290 1182301 CTTTCCACACTATTTAGTTCTACGGAAAC AGTTTACGGCCGCAAGTGTTGAGGCGAGGAGGGAAG spacer
length: 36 repeater length: 29
38291 1182366 CTTTCCACACTATTTAGTTCTACGGAAAC AAAGTGGCAAAAACAACAATGAGATCAAGAGGCTAAT spacer
length: 37 repeater length: 29
38292 1182432 CTTTCCACACTATTTAGTTCTACGGAAAC ACGATAGGAGCTTAGGCTTAGCAACCTACCTTTACGGCCTAAGAT
spacer length: 45 repeater length: 29
38293 1182506 CTTTCCACACTATTTAGTTCTACGGAAAC GTGAGCGATTTAGAGGCTGAGCTACACAAGTACGAAGT spacer
length: 39 repeater length: 29
38294 1182574 CTTTCCACACTATTTAGTTCTACGGAAAC ACAGTTAGCTGAGTCCCAACATCTGCAATTTTTTCCAAACCT
spacer length: 42 repeater length: 29
38295 1182645 CTTTCCACACTATTTAGTTCTACGGAAAC
ATGGGTGTGGAGGACGTGCTTAGTTATTTGGAGAAGAGAAAGGAAGA spacer length: 47 repeater length: 29
38296 1182721 CTTTCCACACTATTTAGTTCTACGGAAAC ATGGTGGAACGTGAGCGCTAAAATCCTATCTCGCCAG spacer
length: 38 repeater length: 29
38297 1182788 CTTTCCACACTATTTAGTTCTACGGAAAC AAACGGCGCACCCCCAAAGAAAAGGGAAAGGGCTAAAAAGG
spacer length: 41 repeater length: 29
38298 1182858 CTTTCCACACTATTTAGTTCTACGGAAAC GTCGCTCTCAGATACTCAATTGACCTTACTAGGGACTCACT
spacer length: 41 repeater length: 29
38299 1182928 CTTTCCACACTATTTAGTTCTACGGAAAC TACCCAGCGC
38300
38301
38302 crispr 9
38303 1642827 GTTCCAATAAGACTAGAAAGAGAATTGAAAG GCTGACGTGTTGACGTGGAGCTAATTCACCTTTATT spacer
length: 35 repeater length: 30
38304 1642892 GTTCCAATAAGACTAGAAAGAGAATTGAAAG TTTATCAATGCCCCGTACTCCACGTTGGCCTGTTGGT spacer
length: 37 repeater length: 30
38305 1642959 GTTCCAATAAGACTAGAAAGAGAATTGAAAG GTTTGGGTTGATAGCGGTCTTGGAATAATTGCGG spacer
length: 35 repeater length: 30
38306 1643024 GTTCCAATAAGACTAGAAAGAGAATTGAAAG TATGTGAAAGTCTCAACTACAGGTCTAACACTTAAT spacer
length: 36 repeater length: 30
38307 1643090 GTTCCAATAAGACTAGAAAGAGAATTGAAAG GAGCTTGTGGTTGTTGTTGGGGTTGGGGCCGGGGTT spacer
length: 36 repeater length: 30
38308 1643156 GTTCCAATAAGACTAGAAAGAGAATTGAAAG GAAGATGCCCTTGAACCTCAGTACCTTGCCACTCTC spacer
length: 36 repeater length: 30
38309 1643222 GTTCCAATAAGACTAGAAAGAGAATTGAAAG CAGGGTTCAACGATTGATTCTGCTGATTGGAAGGCT spacer
length: 36 repeater length: 30
38310 1643288 GTTCCAATAAGACTAGAAAGAGAATTGAAAG CAGTTAGATTTTCGATTGGAGGAAGTATACTGATTGT spacer
length: 37 repeater length: 30
38311 1643355 GTTCCAATAAGACTAGAAAGAGAATTGAAAG GCATCCGTTGAGGACGCGGAAAGAGTCGAGGAGCTGATCGC
spacer length: 41 repeater length: 30

38312 1643426 GTTCCAATAAGACTAGAAAGAGAATTGAAAG GATTTCTCTTTTCTTTGGGGGTGTCACTATGGTGGAG spacer
length: 37 repeater length: 30
38313 1643493 GTTCCAATAAGACTAGAAAGAGAATTGAAAG AGCACACCCCGGTGTAGCGCTGGTAGATCTCGGTAC spacer
length: 37 repeater length: 30
38314 1643560 GTTCCAATAAGACTAGAAAGAGAATTGAAAG GACGGGTGAGATAGTAGAACAGATGGCCATACCAGTT spacer
length: 37 repeater length: 30
38315 1643627 GTTCCAATAAGACTAGAAAGAGAATTGAAAG ACGTTTGGTTCAGTCTTCACACTGAAGGATGGTAGT spacer
length: 36 repeater length: 30
38316 1643693 GTTCCAATAAGACTAGAAAGAGAATTGAAAG CCGCGTCCTC
38317
38318
38319 crispr 10
38320 1746190 CTTTCCACACTATTTAGTTCTACGGAAAC TAACTTCTTCAAGTCTTCAAGCATCTTTGCCCTGTCC spacer
length: 37 repeater length: 29
38321 1746256 CTTTCCACACTATTTAGTTCTACGGAAAC CTAGGGACATTTACTTCAAGAGGAGGCAGCAGATCAGGGAGTTCGG
spacer length: 46 repeater length: 29
38322 1746331 CTTTCCACACTATTTAGTTCTACGGAAAC ATGTACTAATGATTTTGTGAAACTCATTCCCTCTC spacer
length: 36 repeater length: 29
38323 1746396 CTTTCCACACTATTTAGTTCTACGGAAAC
ACTTCATAATACCAAAGCAAAAAGTAAGCTACGCATCAGTGGACTACAC spacer length: 49 repeater length:
29
38324 1746474 CTTTCCACACTATTTAGTTCTACGGAAAC
CTGGGGTAGCCCGGCTCAGGCCCGGGGCTGAGAAGTGGGGGTGGAA spacer length: 47 repeater length: 29
38325 1746550 CTTTCCACACTATTTAGTTCTACGGAAAC TACACCCTCCTCATGGCTGCACCCCCAAAGAAAAG spacer
length: 35 repeater length: 29
38326 1746614 CTTTCCACACTATTTAGTTCTACGGAAAC GGTTCGGCCCGGTGGGCGAAAACCCCGGGCTAGACAT spacer
length: 38 repeater length: 29
38327 1746681 CTTTCCACACTATTTAGTTCTACGGAAAC
TCTACGAAACTTATCACGATTTTCGTTGGGCTTTTCGATTGTGAGTG spacer length: 47 repeater length: 29
38328 1746757 CTTTCCACACTATTTAGTTCTACGGAAAC GCGGGAAGGGTGGTGCGGGCTGTCGGGATGGGTGAGGTG spacer
length: 39 repeater length: 29
38329 1746825 CTTTCCACACTATTTAGTTCTACGGAAAC TGGGGCACGAGGGGACCAGAACTCCACATTGACAGGCTTCCAGCAA
spacer length: 46 repeater length: 29
38330 1746900 CTTTCCACACTATTTAGTTCTACGGAAAC TGTTGTCGAGAAGAAATTGACAAGGATGGTGTATTCT spacer
length: 39 repeater length: 29
38331 1746968 CTTTCCACACTATTTAGTTCTACGGAAAC GGCCTAGTTCTTGACTACAAGCTTGCCAAGAGACGA spacer
length: 36 repeater length: 29
38332 1747033 CTTTCCACACTATTTAGTTCTACGGAAAC CGGGAGCTACATGTGCCCGGAGAAGCCACCGTACATATTAGCGT
spacer length: 44 repeater length: 29
38333 1747106 CTTTCCACACTATTTAGTTCTACGGAAAC
38334
38335
38336 GCA_900036045.1_Methanoculleus_sp_MAB1_genomic.fna(PilerCR):
38337 START REPEAT
SPACER
38338 crispr 1
38339 2679551 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC
CTGGAGTTCCCTCGCGACCGCTCCCCGGGCGACATCCTGAT spacer length: 41 repeater length: 36
38340 2679628 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ATTCTCTGTAAGATGCTGTGTAATCTCGTAAAGAATC
spacer length: 37 repeater length: 36
38341 2679701 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AAACCGTTCCTATCTTTGACTCTGATAACTATGTAA
spacer length: 37 repeater length: 36
38342 2679774 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CAAAGCGAGCGATGCTAACACCGGGGGTTCGGGAATAT
spacer length: 37 repeater length: 36
38343 2679847 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC
TATTGTAACAAGCCTTATGTGGAGTAGTGCATGTGATACTC spacer length: 41 repeater length: 36
38344 2679924 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CAGGGATGGTTGCTACACGCGCTACATCTCCATAA
spacer length: 36 repeater length: 36
38345 2679996 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TTTCATTCTTTGCATCAAGAACTGTTACATAACAACCG
spacer length: 38 repeater length: 36
38346 2680070 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TATTGCAGTGAGTATGCTTTGCTGCCCATTCTGTCACCA
spacer length: 38 repeater length: 36
38347 2680144 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TCGTTGAGGGCGTCCCGCTCCCGGGGCATCCGAGTAT
spacer length: 37 repeater length: 36
38348 2680217 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CTTTTGACATCTGGATCATGGCAGCGTATGACTGT
spacer length: 35 repeater length: 36
38349 2680288 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TCTTACAACACGCATCTCGGATGGTTCTGCCGCAAAAAT
spacer length: 39 repeater length: 36
38350 2680363 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GTGAACGGACGAGGGGTGCACCGGGTTCGGGGACGCA
spacer length: 36 repeater length: 36
38351 2680435 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGCTCGGCAATCACTTCGTCGAGGCGGCGTTTCGGGAC

spacer length: 38 repeater length: 36
 38352 2680509 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GCATTATAAAACGGTGAAACGCTGATATGCCTTGAAT
 spacer length: 37 repeater length: 36
 38353 2680582 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CAGTTTCCAGCACCATCAGACTGTAACCCTACACCGAT
 spacer length: 38 repeater length: 36
 38354 2680656 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GCAAGTGGATTGGAAACATCCATAGAGGTATACAA
 spacer length: 35 repeater length: 36
 38355 2680727 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CTCGCATGATGATATGATTGCCTACACTGAATTTGG
 spacer length: 36 repeater length: 36
 38356 2680799 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GGCACCTGTTGCCCCAGGACCGGCACCTGCCCCCTCA
 spacer length: 36 repeater length: 36
 38357 2680871 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GCTAATGAAAGGTTTTATTTTCGGTTCTCATCCAGATTG
 spacer length: 38 repeater length: 36
 38358 2680945 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGGTGATATTTCAATGGTAGAGGCACAGGAAATCATG
 spacer length: 37 repeater length: 36
 38359 2681018 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TTATCCATTAAATTTGATTACATATGCAGCACTTATTC
 spacer length: 38 repeater length: 36
 38360 2681092 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AGATATCAGTCTGTGCTCCGCCCAGAACGATTTGA
 spacer length: 35 repeater length: 36
 38361 2681163 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CCTCAATGATTTTTTAATTCCAACACAATCATTTGTTGAG
 spacer length: 39 repeater length: 36
 38362 2681238 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ACATCGCCGCCAAGAACATCCTTACACTGTTGGAAAAT
 spacer length: 38 repeater length: 36
 38363 2681312 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GCGATAGGTCCCGGTCTTGTACGGGGTTCTGCCGCCCT
 spacer length: 37 repeater length: 36
 38364 2681385 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TTTTCGGATTCTTCTTTAACTCTTCAATCTCATCTTC
 spacer length: 37 repeater length: 36
 38365 2681458 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CAAACGTCATACACATAACCGCAAATGACCAGGAAGA
 spacer length: 37 repeater length: 36
 38366 2681531 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TTCTGTAACCCTTCGAGCACCCTAACCTATCTGCCTCA
 spacer length: 39 repeater length: 36
 38367 2681606 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GTTTTAACCTTGAAAATTGTTAATGGATTAGCATTAA
 spacer length: 37 repeater length: 36
 38368 2681679 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ATCGAGTATAACATCAAAGATGTCTACCTTATGGTGAAG
 spacer length: 39 repeater length: 36
 38369 2681754 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGTGGAATATACTTCTGATAAATATATAGTTGAGGT
 spacer length: 37 repeater length: 36
 38370 2681827 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CAAACGTGCGACGTCGCCGGGTCCCTCTCCACCTCCGCC
 spacer length: 39 repeater length: 36
 38371 2681902 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AATGATAACGGGAAAGTGTTGCACCTGTCTGATTCT
 spacer length: 36 repeater length: 36
 38372 2681974 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGGCAGGTCTCATCCCGCTCCCACCGCGAGCCGGACC
 spacer length: 37 repeater length: 36
 38373 2682047 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AATTATCCACTCATAATTATGCGTGAGATAATCCTC
 spacer length: 36 repeater length: 36
 38374 2682119 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TTGCCTATGTCGTACCTATCTGTATTCTGTAGGTAGGT
 spacer length: 38 repeater length: 36
 38375 2682193 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AATCCGTCTGATGAGTGGAACAATGTGTTAAGGAAG
 spacer length: 37 repeater length: 36
 38376 2682266 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AGGATATCCTCATTCGTCCCGGTCCATTCCGTTGCCCC
 spacer length: 38 repeater length: 36
 38377 2682340 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AAGTCTCCCACACCATGAACAACTCTATCCCACACGAT
 spacer length: 38 repeater length: 36
 38378 2682414 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGGGCGCACCGGGCCGTCTTCATGCGCGAGTTGAG
 spacer length: 36 repeater length: 36
 38379 2682486 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CCGGTATCCTCGATAGATGCGAATGTCGAGATATGG
 spacer length: 36 repeater length: 36
 38380 2682558 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ACCGGCCCTGAAGGCGATACTGTGTGCTATGTTTAAAT
 spacer length: 37 repeater length: 36
 38381 2682631 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CCGTCATACGGGCGAGGATGTGCGCCGGGAGATGGATC
 spacer length: 38 repeater length: 36
 38382 2682705 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GCCGCGGAGATCGAGGCGGAGATCAAGAGCCGGGCTCCG
 spacer length: 39 repeater length: 36
 38383 2682780 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GGGTTCCGGCCGGCGCTGATCAGGGCATATTTGGTGCT
 spacer length: 38 repeater length: 36
 38384 2682854 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AACACCGCGTTTCGGCGTGGACTGGGTGGCCATCGCCC
 spacer length: 37 repeater length: 36
 38385 2682927 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GTATTTTTAATGTCTTCATCCTCGCATCCTCCCTGCCA
 spacer length: 38 repeater length: 36
 38386 2683001 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGTCGATGTAGAAAGTGATTGTTGACCCGGATCTGAC
 spacer length: 37 repeater length: 36

38387	2683074 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ATGCGGACTCCCCCGCGGTCTCTCGATCACGAGAC
	spacer length: 37 repeater length: 36	
38388	2683147 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CTTCTATAATTATCCAAATAGGATAAGTTTTAGTCC
	spacer length: 36 repeater length: 36	
38389	2683219 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GTTCTAAGGGTAACATGATTACTTCTACTGATAACCGT
	spacer length: 38 repeater length: 36	
38390	2683293 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CCCGGCCCGGCGGAAACGTGCCGCCAGTGCTTCGGGAG
	spacer length: 38 repeater length: 36	
38391	2683367 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GGCCCGCCGCGAGTACTGCTGGAGCACGACCGACGGG
	spacer length: 36 repeater length: 36	
38392	2683439 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ACACGGGGCAGGTGGCATGTCGTCGTGATGGCAGATG
	spacer length: 37 repeater length: 36	
38393	2683512 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CCGAAACTCTCTTCTGCTGCCATTTCGCATCTCCCGC
	spacer length: 36 repeater length: 36	
38394	2683584 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GAGTGAGTCGGTATCACAATAGACGGCGGTTTCAGC
	spacer length: 36 repeater length: 36	
38395	2683656 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ACCCAGCCTATCAGGTGCGGGTGCTGGAAATCCTCCCG
	spacer length: 38 repeater length: 36	
38396	2683730 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ATGTGGGTGTTCTTCCGGCTTGATGGTCGAATCCAG
	spacer length: 36 repeater length: 36	
38397	2683802 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CCGGCGTGTGGTGCGCCATCTTGACCGGCGCAAACC
	spacer length: 38 repeater length: 36	
38398	2683876 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AAGGGTTGTCGTCTCCCCGACTTCGGCCAACTTCTC
	spacer length: 36 repeater length: 36	
38399	2683948 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GACTCGCCCCACACGTAGTGGGAAAGCCCGATGTAC
	spacer length: 36 repeater length: 36	
38400	2684020 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TCTTTCCGCATCGCCCGGACCAGGCTGACCAGATCC
	spacer length: 36 repeater length: 36	
38401	2684092 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GGGGGCGATGCGGCATACGTGCAGGGGTTCCAGATGC
	spacer length: 37 repeater length: 36	
38402	2684165 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TGTTTCGGGCGCTTGATCTCCCGGCCCTTGAGCGGC
	spacer length: 36 repeater length: 36	
38403	2684237 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ACCCACGAAAACCCTTCGATACACCAAACCTACCTCAA
	spacer length: 37 repeater length: 36	
38404	2684310 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AGGGGTATCCCGTAGATCTTGCCGTCCGGCCCCAAGAA
	spacer length: 37 repeater length: 36	
38405	2684383 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AACAAAAACGCTTACTCACCTTCTCCGGTCCTGGAA
	spacer length: 36 repeater length: 36	
38406	2684455 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TGGAGCATGACGTAGGGCATCCGCTGCCATGCGTCC
	spacer length: 36 repeater length: 36	
38407	2684527 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CCCGAGGACGTCGAGGAGCATCCGGGTCAGGTGCTT
	spacer length: 36 repeater length: 36	
38408	2684599 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GTCGGACATGATGCAACTCACCCCCACCCCCGC
	spacer length: 35 repeater length: 36	
38409	2684670 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CATTGCGGGTCATGTGAGGCCGAACGGGATTTGCAC
	spacer length: 37 repeater length: 36	
38410	2684743 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TACCCACCGGGATTACGCCCTTAGCCAAATCTGCAGCC
	spacer length: 38 repeater length: 36	
38411	2684817 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CGCTCCCCCGGGCGCATGGCCGTTATCGACGACTGGCAC
	spacer length: 39 repeater length: 36	
38412	2684892 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CGGGCCGTGGACTGCATCGTCCCGCCCGACTCGGCA
	spacer length: 36 repeater length: 36	
38413	2684964 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TACTTGGGGGGAGGCGACGATGAGTGATGATCTCATCCTC
	spacer length: 40 repeater length: 36	
38414	2685040 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TCGGCCGCGCATCGCACTTTCGCCCACGCAAACCGCCC
	spacer length: 38 repeater length: 36	
38415	2685114 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GGTCTGTAAGGGTTGCCCGGCGCGTATTGAGGGGCGT
	spacer length: 37 repeater length: 36	
38416	2685187 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CGAGGTCATCCTCGGGGCGACGCTACCGTTGGAAAA
	spacer length: 36 repeater length: 36	
38417	2685259 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TCGTCTGCGCTGCCTCTCGAGATTCGAGACTTGCAGG
	spacer length: 37 repeater length: 36	
38418	2685332 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AGTTATTGCACGGTCTGTACAGTTGGTAGACTGTAGT
	spacer length: 37 repeater length: 36	
38419	2685405 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TTGCATTTCTTAAATTCATTAGTAGGAATATAACCGT
	spacer length: 38 repeater length: 36	
38420	2685479 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GACGGCATCGAGCTGAAAAACCCGGCCCCGTTCAACCT
	spacer length: 38 repeater length: 36	
38421	2685553 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AACCTGGAGGTGTCCGACCTCGCCACGTCTCTGAC
	spacer length: 36 repeater length: 36	
38422	2685625 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TGCCATCGGTGATCGTCACCGCTGCGGAGGTGGTCGCGG

spacer length: 39 repeater length: 36
 38423 2685700 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGGTTCCGGCTCCGCGACACCTCTCCCTGGGCGCCGA
 spacer length: 37 repeater length: 36
 38424 2685773 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGCGAGGTGCGACGGGTGCTCAGGGATGACGGCGTGCTC
 spacer length: 39 repeater length: 36
 38425 2685848 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC
 AATAATCTGGATTTTATCATAATCATCGAGACACCCCAT spacer length: 40 repeater length: 36
 38426 2685924 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CAGAAGGAGGTTATCAGGCTCAATGCAGAAGCATTTCG
 spacer length: 37 repeater length: 36
 38427 2685997 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ACAAATCACAACGCGCGCTCGCTCGTAACGCTGAGTAT
 spacer length: 38 repeater length: 36
 38428 2686071 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CTTCTGTGCCGCACCGACCGCTTCTGGGTAGCGGACG
 spacer length: 37 repeater length: 36
 38429 2686144 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CAACGTAAAGCGCTGCCTCTCGCATCTTTTTTCATCG
 spacer length: 36 repeater length: 36
 38430 2686216 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TGGTTCCCGTCGAGGAGGATAAATAGATAGTAGCCTC
 spacer length: 37 repeater length: 36
 38431 2686289 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GGTGATACCGGAGTCGTCGCACCTATCGATACCAACG
 spacer length: 37 repeater length: 36
 38432 2686362 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CCGTTTCCGCGCAAGGCGTGGTTGCCCTATTGTGC
 spacer length: 36 repeater length: 36
 38433 2686434 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC
 CGGAGAGTAAATCTGCAACTGTTTGGGCTTCTAGAAGCAC spacer length: 40 repeater length: 36
 38434 2686510 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TTAGCGGTAATACCTTTGGGCGCTTTTCCTGCCAGGTA
 spacer length: 38 repeater length: 36
 38435 2686584 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CAAGGAAAGTTTACGACGTGGCATAACCCAGAATACTTG
 spacer length: 39 repeater length: 36
 38436 2686659 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AAAGGGAGTGTTAACTTATTGATAAGTTGGTCC
 spacer length: 34 repeater length: 36
 38437 2686729 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGACCCCATCTGCTTGTAGTTGGTCGGTACGATGAC
 spacer length: 37 repeater length: 36
 38438 2686802 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ATCACCGGTGGGAAAACCTCGCAAACGGACTCACAG
 spacer length: 36 repeater length: 36
 38439 2686874 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CTGGTGGACTTCGGCGAGACCCCTCATCCCCGATGC
 spacer length: 37 repeater length: 36
 38440 2686947 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TACAGAATGCGATCAGGTCTCTCACGAACGGTAACCTCT
 spacer length: 38 repeater length: 36
 38441 2687021 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGGAGCGATTTCATCGACACCGAACTCTTCCAGCAAC
 spacer length: 36 repeater length: 36
 38442 2687093 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GGGTTCGACGTATCGTAAGGTAGGATAAGCGTGGCA
 spacer length: 36 repeater length: 36
 38443 2687165 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CTCTCGAGCCGACAGAGCAACCGACTGGGTGGCCGAGC
 spacer length: 38 repeater length: 36
 38444 2687239 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GGATCTGGTGTCTTCATTGAAATTTCTCCGTGCATCGT
 spacer length: 39 repeater length: 36
 38445 2687314 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AACTATCTTCTATCGACGCTGAACGGTTTTTCCCCCA
 spacer length: 36 repeater length: 36
 38446 2687388 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TAGGGGGTTTCGGTCGGCCACCCGGTCGGTTGCTCTGT
 spacer length: 37 repeater length: 36
 38447 2687461 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ATTGGCTATCTGGACGCAAAACGCGGGCGTCGGGTATC
 spacer length: 39 repeater length: 36
 38448 2687536 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC
 ACAGATACCGTATCGCACCTGCATTTTGGCCGGTTTATCCA spacer length: 42 repeater length: 36
 38449 2687614 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AGCCGTCGAAAATCCTACTCCGAATGCCAGGCCAATGC
 spacer length: 38 repeater length: 36
 38450 2687688 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GTCGGTGGGCGCGGAGCGAAATGATATTTTTCGTGAG
 spacer length: 37 repeater length: 36
 38451 2687761 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC
 CCCGCCGAGGATTGTGTCGATATCGATGCCTCGCAGGGCCG spacer length: 41 repeater length: 36
 38452 2687838 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GAGGTCGCCGCCCCCGACCCGGCTCCCACCTGCTCC
 spacer length: 37 repeater length: 36
 38453 2687911 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ATGAGTAAGGCGATCGCCTGCAGGTCTCGAACTCT
 spacer length: 36 repeater length: 36
 38454 2687983 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TTCCGAAGTTTTTCGAGATTCATCTTCATTTCTCCAG
 spacer length: 37 repeater length: 36
 38455 2688056 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TACTCCTCCTCGTAGTAGGGTTGTATATCGGTAATCG
 spacer length: 37 repeater length: 36
 38456 2688129 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ACGAGACGGACGACGAGAGCGACGATTTTCGCGATCG
 spacer length: 36 repeater length: 36
 38457 2688201 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CTCGATGAGGACGAGCGGGAGAATGCGGACCTGCTC
 spacer length: 36 repeater length: 36

38458 2688273 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CACCAGACCGAGCGGATCAAGGTCATCTACTCCGGCC
spacer length: 37 repeater length: 36

38459 2688346 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ATCCCAGGTCATGATGCGATCCTCTGGCGGCTGCTCG
spacer length: 37 repeater length: 36

38460 2688419 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GCGAGATACTCGGCCTCGCTCTTGACAGTGGCCTC
spacer length: 35 repeater length: 36

38461 2688490 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AGGAGTTTATCGACCGAGGCTATCTCGTGCCGCTCCT
spacer length: 37 repeater length: 36

38462 2688563 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CCGGGCTCGGCGCTCCTGGTCGGTCGGATAGGGGAT
spacer length: 36 repeater length: 36

38463 2688635 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CAGTAGTTGCGGATTTAGCGCTAATTGTCCCAGTTTGC
spacer length: 38 repeater length: 36

38464 2688709 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC
TCCTCGCGTATTACATACATAAGGGGGAGGGGGGGACAT spacer length: 40 repeater length: 36

38465 2688785 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TAGCCGAGGAGGAGGCCGACCGTCCAATCAGGATCTT
spacer length: 37 repeater length: 36

38466 2688858 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GCGAACCCGTCGCTTCCCGTGCGGCTGCGCCCTGC
spacer length: 36 repeater length: 36

38467 2688930 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GGTGACCGGCAGATCGGCTGCGTCGCGGTACTCCCT
spacer length: 36 repeater length: 36

38468 2689002 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GACTGGAACAACAACCCCCCGGAGCGTCGCACAG
spacer length: 36 repeater length: 36

38469 2689074 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ACGACCTCGTAGCGCCCCCGGAGGGATGGATGGAA
spacer length: 36 repeater length: 36

38470 2689146 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GACGCCTGATCATAGGCGGTCTTCGCTCCATCGGC
spacer length: 35 repeater length: 36

38471 2689217 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AGATGCAGAACTGATGCAGCGATACGTCCCGGCCGG
spacer length: 37 repeater length: 36

38472 2689290 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CTGTATTGCCCCACTGGAGGCGATGGAGCGACGCGGAC
spacer length: 38 repeater length: 36

38473 2689364 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TTGGTCGCATTTCGCTCTTCTCCCGACGGGGAGAACCT
spacer length: 37 repeater length: 36

38474 2689437 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ATCAGGCTGCCGAGTTCTCGCTCTATCGTCGGGGCGTC
spacer length: 38 repeater length: 36

38475 2689511 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GGTGACGACGGTCTGGGCCTGGAGCGCTTCGATGTT
spacer length: 36 repeater length: 36

38476 2689583 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ATATGTATGTGGCTCGGTATCCTTTGGGTGACCGA
spacer length: 36 repeater length: 36

38477 2689655 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CTACTGCTCCTGATTGCGCCTAATCCGGATTACGC
spacer length: 35 repeater length: 36

38478 2689726 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ACCGGTGAGGTAGCCGCTTTCAGCGGTTACCAGGATATC
spacer length: 39 repeater length: 36

38479 2689801 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GCGACCGTGCCGGTCACGTGCCACCCGCTCCGGCG
spacer length: 35 repeater length: 36

38480 2689872 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AGGGAGAGTGCGATGATGCCTCGATCGGCCACTCT
spacer length: 36 repeater length: 36

38481 2689944 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC

38482

38483

38484 GCA_900079115.1_SSOP1_genomic.fna (PilerCR):

38485 START REPEAT

38486 SPACER

38486 crispr 1

38487 1321596 GATTAATCCCAAAAGGAATTGAAAG GCAGATATTTAGTAGATATTCTGCTAAGTGTTACTCCTC spacer
length: 40 repeater length: 25

38488 1321661 GATTAATCCCAAAAGGAATTGAAAG ATTTATATTTCAATTGCTTTCTCAGTGTGCGAACCTAACTT spacer
length: 41 repeater length: 25

38489 1321727 GATTAATCCCAAAAGGAATTGAAAG TTTTGTATACCCTAAATCAAATAATATTAATGCAGTT spacer
length: 38 repeater length: 25

38490 1321790 GATTAATCCCAAAAGGAATTGAAAG TTTGCAAAATTAAGCGCTTTCTCTATCAGCTCAGTTGG spacer
length: 38 repeater length: 25

38491 1321853 GATTAATCCCAAAAGGAATTGAAAG ATCTTCTGGCGCATCGCCAAGCTTAGGCAGAGCTAGA spacer
length: 37 repeater length: 25

38492 1321915 GATTAATCCCAAAAGGAATTGAAAG CCCAATCTTTCAATTGCATTTGGCAAAATCCTAGCC spacer
length: 36 repeater length: 25

38493 1321976 GATTAATCCCAAAAGGAATTGAAAG ATAATGAGTATAGTTAATGAGCGCATCAAGAACAATTATAG spacer
length: 41 repeater length: 25

38494 1322042 GATTAATCCCAAAAGGAATTGAAAG ATTTATAACAAAAATTATTGATAAAGGATGATCTCTC spacer
length: 38 repeater length: 25

38495 1322105 GATTAATCCCAAAAGGAATTGAAAG TTAGTTTGTGATCATTATTATTTTGTGATTGTTTGTGCG spacer
length: 39 repeater length: 25

38496	1322169	GATTAATCCCAAAAGGAATTGAAAG	TTCATTTTCGAGCAACTTCAATAGTTATTGAAGGACAT	spacer
	length:	38	repeater length:	25
38497	1322232	GATTAATCCCAAAAGGAATTGAAAG	TTCATCTACCAAGAGGCGGTGCTTATGAGTTAGAGGTTC	spacer
	length:	39	repeater length:	25
38498	1322296	GATTAATCCCAAAAGGAATTGAAAG	GCCTTTTCCAATAAACACCGCATTCTGTTTTAACTTATT	spacer
	length:	39	repeater length:	25
38499	1322360	GATTAATCCCAAAAGGAATTGAAAG	GTTATAGAACATGGCGAAATGCACAACTGCATTACCA	spacer
	length:	38	repeater length:	25
38500	1322423	GATTAATCCCAAAAGGAATTGAAAG	TTCAATATATCATCAGGATTCATTTTTACAATTTTA	spacer
	length:	36	repeater length:	25
38501	1322484	GATTAATCCCAAAAGGAATTGAAAG	GAAGAAGAGAATAATTATCAAACCTCTTGCAAACAATATAA	spacer
	length:	40	repeater length:	25
38502	1322549	GATTAATCCCAAAAGGAATTGAAAG	TAATATATTGATGCTATATGTCCAAGTTAAAAATAGC	spacer
	length:	37	repeater length:	25
38503	1322611	GATTAATCCCAAAAGGAATTGAAAG	ATTCTGCTCACCCGCCAGAGGTACACCATTTTTCTA	spacer
	length:	36	repeater length:	25
38504	1322672	GATTAATCCCAAAAGGAATTGAAAG	AATAGGTCTTGAATCCAGACTTTTCCATTTTCATATAAG	spacer
	length:	39	repeater length:	25
38505	1322736	GATTAATCCCAAAAGGAATTGAAAG	TACACTACTATCCTGCCTTGCTTAGATACTGCTAT	spacer length:
	length:	35	repeater length:	25
38506	1322796	GATTAATCCCAAAAGGAATTGAAAG	AGTGTGGAGGAAACCAACAATCGACATCAGAGGT	spacer
	length:	36	repeater length:	25
38507	1322857	GATTAATCCCAAAAGGAATTGAAAG	AACCTTACTGGGCAGTTATATGCGTATGAACAGCTGTTT	spacer
	length:	39	repeater length:	25
38508	1322921	GATTAATCCCAAAAGGAATTGAAAG	TTAATAGATCAAGTGCTCTATATTCATAATATTTGCC	spacer
	length:	37	repeater length:	25
38509	1322983	GATTAATCCCAAAAGGAATTGAAAG	ATCAATTATTGCATTTTCAATTATTGAATAATCAATTGA	spacer
	length:	39	repeater length:	25
38510	1323047	GATTAATCCCAAAAGGAATTGAAAG	TTAACTAGATTTTCTATTGCTCTCCTTATGGCTTCACTTCTG	spacer
	length:	42	repeater length:	25
38511	1323114	GATTAATCCCAAAAGGAATTGAAAG	CATCTTTTTCCGTCGCTTTATATCACCTATGGACTCTTCA	spacer
	length:	40	repeater length:	25
38512	1323179	GATTAATCCCAAAAGGAATTGAAAG	ACCATACCCAACCTTCTAACAACGTCGTTCTTAACAACG	spacer
	length:	38	repeater length:	25
38513	1323242	GATTAATCCCAAAAGGAATTGAAAG	AGTAAATCAAAAAGCAAATAAGTCAGGGGTGGAGAATTC	spacer
	length:	39	repeater length:	25
38514	1323306	GATTAATCCCAAAAGGAATTGAAAG	CGACCGAGAC	
38515				
38516				
38517	crispr 2			
38518	1323365	GATTAATCCCAAAAGGAATTGAAAG	TTGTAGTTTGAATGCGAAACCATTTGCTAAGATATTGATAATG	spacer
	length:	43	repeater length:	25
38519	1323433	GATTAATCCCAAAAGGAATTGAAAG	CGTTATCACAGTTATATTTCTTCTTTAAAATATCATAT	spacer
	length:	38	repeater length:	25
38520	1323496	GATTAATCCCAAAAGGAATTGAAAG	TTATCCAGACATTAAGCATGTTGTCGTAGAGGTAGCTG	spacer
	length:	38	repeater length:	25
38521	1323559	GATTAATCCCAAAAGGAATTGAAAG	TACTTTTCCATCTTGAGGTATTGCGTTTAGTTGCACT	spacer
	length:	37	repeater length:	25
38522	1323621	GATTAATCCCAAAAGGAATTGAAAG	TCTGTCAGTAGCACAAATAATTTTGTTCTCATAAATAGT	spacer
	length:	39	repeater length:	25
38523	1323685	GATTAATCCCAAAAGGAATTGAAAG	CGCCCATAGGACGGGATTTAGATTTCTTGTAGGATTTGTTT	spacer
	length:	41	repeater length:	25
38524	1323751	GATTAATCCCAAAAGGAATTGAAAG	GTAAGGGGGCTATCCATCCCCGCCCGTGAGGCTTTCCGCCC	spacer
	length:	41	repeater length:	25
38525	1323817	GATTAATCCCAAAAGGAATTGAAAG	TGAATCGTTATGGGCTTAGTTAATTCCGTAGTTAAACC	spacer
	length:	38	repeater length:	25
38526	1323880	GATTAATCCCAAAAGGAATTGAAAG	AACTTAAAGTTGTTATACGTCATTGGAATAACATTCATT	spacer
	length:	39	repeater length:	25
38527	1323944	GATTAATCCCAAAAGGAATTGAAAG	TTTACGATATTCACGTCGACAGATACCCTTACTGCTGATC	spacer
	length:	40	repeater length:	25
38528	1324009	GATTAATCCCAAAAGGAATTGAAAG	ATAGAATTGCATCAGACAGCTTTCATACCTCCGCATCT	spacer
	length:	38	repeater length:	25
38529	1324072	GATTAATCCCAAAAGGAATTGAAAG	ATATCCAACGCTTGAAGTAATATTTGAATGTCAATACTTT	spacer
	length:	40	repeater length:	25
38530	1324137	GATTAATCCCAAAAGGAATTGAAAG	ATGCATTCCACCTCTGTTTCTTCTCTTTACGCATTTCT	spacer
	length:	39	repeater length:	25
38531	1324201	GATTAATCCCAAAAGGAATTGAAAG	CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGCG	spacer
	length:	36	repeater length:	25
38532	1324262	GATTAATCCCAAAAGGAATTGAAAG	ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACAT	spacer
	length:	39	repeater length:	25
38533	1324326	GATTAATCCCAAAAGGAATTGAAAG	TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTATG	spacer

length: 41 repeater length: 25

38534 1324392 GATTAATCCCAAAAAGGAATTGAAAG ATAATTATTCAAGATGCGATATTGTTTCAAATTTT spacer length: 35 repeater length: 25

38535 1324452 GATTAATCCCAAAAAGGAATTGAAAG AAACAACGCAGCAAAAACGAAGAAGATAACGACATAA spacer length: 37 repeater length: 25

38536 1324514 GATTAATCCCAAAAAGGAATTGAAAG GCAAGGGGTAGACCCGCGACCTGTGGGGCACGCACCC spacer length: 37 repeater length: 25

38537 1324576 GATTAATCCCAAAAAGGAATTGAAAG ATGTGTCCGTTCTGGTGCATGTATATTTGTACGTCTTTT spacer length: 39 repeater length: 25

38538 1324640 GATTAATCCCAAAAAGGAATTGAAAG TTATATTACGATAAAAAGTGCCAGATATGGTTGTTGGCATT spacer length: 40 repeater length: 25

38539 1324705 GATTAATCCCAAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCGG spacer length: 40 repeater length: 25

38540 1324770 GATTAATCCCAAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTCTG spacer length: 40 repeater length: 25

38541 1324835 GATTAATCCCAAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTGC spacer length: 39 repeater length: 25

38542 1324899 GATTAATCCCAAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCATT spacer length: 40 repeater length: 25

38543 1324964 GATTAATCCCAAAAAGGAATTGAAAG CCCCCTGGAATGCACCATTTCTTGCAAGTAATACATTT spacer length: 39 repeater length: 25

38544 1325028 GATTAATCCCAAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTGC spacer length: 40 repeater length: 25

38545 1325093 GATTAATCCCAAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATACT spacer length: 38 repeater length: 25

38546 1325156 GATTAATCCCAAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCAG spacer length: 39 repeater length: 25

38547 1325220 GATTAATCCCAAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCTT spacer length: 37 repeater length: 25

38548 1325282 GATTAATCCCAAAAAGGAATTGAAAG TATATTGATGAGTCGAAGAATCTGATGAAGAACTTCCTTG spacer length: 40 repeater length: 25

38549 1325347 GATTAATCCCAAAAAGGAATTGAAAG TTTTTATTTAAGAACACTGATGGAAGATCTATAG spacer length: 35 repeater length: 25

38550 1325407 GATTAATCCCAAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCTA spacer length: 37 repeater length: 25

38551 1325469 GATTAATCCCAAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTAG spacer length: 39 repeater length: 25

38552 1325533 GATTAATCCCAAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGATG spacer length: 39 repeater length: 25

38553 1325597 GATTAATCCCAAAAAGGAATTGAAAG CTCAGCAGATTTAAACTAACGATATTAATTGTACACACTG spacer length: 40 repeater length: 25

38554 1325662 GATTAATCCCAAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCAA spacer length: 39 repeater length: 25

38555 1325726 GATTAATCCCAAAAAGGAATTGAAAG CAAGTGCAATAGCAAACACTACTAAATATAACATATAT spacer length: 39 repeater length: 25

38556 1325790 GATTAATCCCAAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAATAAATCGTGGCTTTA spacer length: 38 repeater length: 25

38557 1325853 GATTAATCCCAAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAGT spacer length: 39 repeater length: 25

38558 1325917 GATTAATCCCAAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAATAAGAGAAAATTGTTTCAA spacer length: 41 repeater length: 25

38559 1325983 GATTAATCCCAAAAAGGAATTGAAAG TCTAACAATGAATCTGTCTATAAAGTGCCCGCAACTCTT spacer length: 38 repeater length: 25

38560 1326046 GATTAATCCCAAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTTT spacer length: 36 repeater length: 25

38561 1326107 GATTAATCCCAAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATGT spacer length: 39 repeater length: 25

38562 1326171 GATTAATCCCAAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTTT spacer length: 39 repeater length: 25

38563 1326235 GATTAATCCCAAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTTGGAGTAGGC spacer length: 36 repeater length: 25

38564 1326296 GATTAATCCCAAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCTC spacer length: 39 repeater length: 25

38565 1326360 GATTAATCCCAAAAAGGAATTGAAAG TCGTAAACTTGAAACTGACCCGTATATCCGAATTTAC spacer length: 37 repeater length: 25

38566 1326422 GATTAATCCCAAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCTA spacer length: 39 repeater length: 25

38567 1326486 GATTAATCCCAAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATATT spacer length: 37 repeater length: 25

38568 1326548 GATTAATCCCAAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCTA spacer length: 39 repeater length: 25

38569	1326612	GATTAATCCCAAAAGGAATTGAAAG	GTCAGTTATACGCTACATATGAAAAGATAAATGAAG	spacer
	length:	36	repeater length:	25
38570	1326673	GATTAATCCCAAAAGGAATTGAAAG	ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCCT	spacer
	length:	38	repeater length:	25
38571	1326736	GATTAATCCCAAAAGGAATTGAAAG	TCTATCTTTATTGTTACAACCTTTGCATACGACATAATTT	spacer
	length:	40	repeater length:	25
38572	1326801	GATTAATCCCAAAAGGAATTGAAAG	TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACTT	spacer
	length:	39	repeater length:	25
38573	1326865	GATTAATCCCAAAAGGAATTGAAAG	TAATACTGCAGTAACGGTACAAGTCATTGACAGCGCT	spacer
	length:	37	repeater length:	25
38574	1326927	GATTAATCCCAAAAGGAATTGAAAG	TATACTCCCT	
38575				
38576				
38577	crispr 3			
38578	1343786	CTTCAATTCCTTTTGGGATTAATC	TTGAAGATAGAGTTAAATGAACCTTTTGATGACACAAAA	spacer
	length:	38	repeater length:	25
38579	1343849	CTTCAATTCCTTTTGGGATTAATC	GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCAA	spacer
	length:	41	repeater length:	25
38580	1343915	CTTCAATTCCTTTTGGGATTAATC	AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTGA	spacer
	length:	39	repeater length:	25
38581	1343979	CTTCAATTCCTTTTGGGATTAATC	ACCAAGTGAAACTTGGGAATATATAACCAAAAAGATAT	spacer
	length:	37	repeater length:	25
38582	1344041	CTTCAATTCCTTTTGGGATTAATC	GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAAT	spacer
	length:	38	repeater length:	25
38583	1344104	CTTCAATTCCTTTTGGGATTAATC	AGTAATAGAACTCATTGAGAGTCTCTTCCAACCCGTACA	spacer
	length:	40	repeater length:	25
38584	1344169	CTTCAATTCCTTTTGGGATTAATC	CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGCG	spacer length:
	length:	35	repeater length:	25
38585	1344229	CTTCAATTCCTTTTGGGATTAATC	TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG	spacer
	length:	39	repeater length:	25
38586	1344293	CTTCAATTCCTTTTGGGATTAATC	TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATGG	spacer
	length:	39	repeater length:	25
38587	1344357	CTTCAATTCCTTTTGGGATTAATC	AAAATGTTTAATATTGGTGGAGTAGTTGATTTGATAATAT	spacer
	length:	41	repeater length:	25
38588	1344423	CTTCAATTCCTTTTGGGATTAATC	AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTAA	spacer
	length:	39	repeater length:	25
38589	1344487	CTTCAATTCCTTTTGGGATTAATC	GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGATA	spacer
	length:	39	repeater length:	25
38590	1344551	CTTCAATTCCTTTTGGGATTAATC	CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGAA	spacer
	length:	37	repeater length:	25
38591	1344613	CTTCAATTCCTTTTGGGATTAATC	CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGAT	spacer
	length:	37	repeater length:	25
38592	1344675	CTTCAATTCCTTTTGGGATTAATC	CAAATCCATTGAGGAAGTGTTAGAAGAGGTGTATGGTGA	spacer
	length:	40	repeater length:	25
38593	1344740	CTTCAATTCCTTTTGGGATTAATC	CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTACA	spacer
	length:	38	repeater length:	25
38594	1344803	CTTCAATTCCTTTTGGGATTAATC	CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAAA	spacer
	length:	40	repeater length:	25
38595	1344868	CTTCAATTCCTTTTGGGATTAATC	GAGTGAGACCATGATCATTAACACTGATATTACGGTAAG	spacer
	length:	39	repeater length:	25
38596	1344932	CTTCAATTCCTTTTGGGATTAATC	AACAAAACCTTACCAGTGATGGAACATTTGAATGTAA	spacer
	length:	37	repeater length:	25
38597	1344994	CTTCAATTCCTTTTGGGATTAATC	TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTCT	spacer
	length:	41	repeater length:	25
38598	1345060	CTTCAATTCCTTTTGGGATTAATC	GGTAATGGTCTGTATATTGTCTTTAAGTATTTAT	spacer length:
	length:	34	repeater length:	25
38599	1345119	CTTCAATTCCTTTTGGGATTAATC	AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTAA	spacer
	length:	39	repeater length:	25
38600	1345183	CTTCAATTCCTTTTGGGATTAATC	CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAAG	spacer
	length:	40	repeater length:	25
38601	1345248	CTTCAATTCCTTTTGGGATTAATC	ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCATT	spacer
	length:	40	repeater length:	25
38602	1345313	CTTCAATTCCTTTTGGGATTAATC	ATTAGCTAAACCATTTCAAAGGCTAACATCTTCTATGT	spacer
	length:	38	repeater length:	25
38603	1345376	CTTCAATTCCTTTTGGGATTAATC	ATAAATCCACAAAGTGGCCGTTCAAAGCAAAGAGTTTATT	spacer
	length:	40	repeater length:	25
38604	1345441	CTTCAATTCCTTTTGGGATTAATC	TGATATTTATTTTCTCGTGAAAAGTGGAGGGCCTAGAAC	spacer
	length:	39	repeater length:	25
38605	1345505	CTTCAATTCCTTTTGGGATTAATC	ATTATATCATGGAGACCCAGGTGCTGTGACTATCAA	spacer
	length:	36	repeater length:	25
38606	1345566	CTTCAATTCCTTTTGGGATTAATC	AATTAGCCAGCGTGCCATCTGGGTAAACGTGTATTTTGGTTAA	spacer

length: 43 repeater length: 25
38607 1345634 CTTTCAATTCCTTTTGGGATTAATC ATAATATATTTTCGTTCCAACTACACCTAATGGATTCGGG spacer
length: 39 repeater length: 25
38608 1345698 CTTTCAATTCCTTTTGGGATTAATC TAATTGTCTGCCCTTGAGTTCCACTGAGAGAAACGC spacer
length: 36 repeater length: 25
38609 1345759 CTTTCAATTCCTTTTGGGATTAATC AAAAGACGTACAAATATACATCGCACCGAACGGACACAT spacer
length: 39 repeater length: 25
38610 1345823 CTTTCAATTCCTTTTGGGATTAATC GGGTGCGTGCCCCACAGGTCGCGGGTCTACCCCTTGC spacer
length: 37 repeater length: 25
38611 1345885 CTTTCAATTCCTTTTGGGATTAATC TTATGTCGTTATCTTCTTCGTTTTTGTGCGTTGTTT spacer
length: 37 repeater length: 25
38612 1345947 CTTTCAATTCCTTTTGGGATTAATC AAAATTTGAAACAATATCGCATCTTGAATAATTAT spacer length:
35 repeater length: 25
38613 1346007 CTTTCAATTCCTTTTGGGATTAATC CAAGATATATAATGGAGGTGGAAGATGAGTGGAGAAAT spacer
length: 40 repeater length: 25
38614 1346072 CTTTCAATTCCTTTTGGGATTAATC GGAAATTGAAAATTATGATGCCATTTGATGAATATTG spacer
length: 37 repeater length: 25
38615 1346134 CTTTCAATTCCTTTTGGGATTAATC GAAGATCTATTAGAACTGTTAGACAGCTATGCAATGA spacer
length: 37 repeater length: 25
38616 1346196 CTTTCAATTCCTTTTGGGATTAATC CTCTGCATCTTATCTAAATCGTGGTACATCTTTAGTAGTC spacer
length: 40 repeater length: 25
38617 1346261 CTTTCAATTCCTTTTGGGATTAATC GGAAGAATGTAAAATTGTGGAATTAGAAGATAAAAG spacer
length: 36 repeater length: 25
38618 1346322 CTTTCAATTCCTTTTGGGATTAATC TGTGCATCACTTCACCACTAACTTCTCATAGAAGG spacer
length: 36 repeater length: 25
38619 1346383 CTTTCAATTCCTTTTGGGATTAATC CTTAAGACAATTGCAATTGCGCTATCTCCAGGTTTGAAATATAC
spacer length: 44 repeater length: 25
38620 1346452 CTTTCAATTCCTTTTGGGATTAATC ATGATGTAACATGATGGTGACAGTAGAAGAAGAAGTGTT spacer
length: 39 repeater length: 25
38621 1346516 CTTTCAATTCCTTTTGGGATTAATC AAGGATCTGTATAGTACAGTCACAAAGGAAGAAAT spacer length:
35 repeater length: 25
38622 1346576 CTTTCAATTCCTTTTGGGATTAATC AATTAGGAAATTTGTGGATCAACTGCCAGAATCTGA spacer
length: 36 repeater length: 25
38623 1346637 CTTTCAATTCCTTTTGGGATTAATC CAGAAATTCTATACAATTTGACGATATCATCAAAT spacer length:
35 repeater length: 25
38624 1346697 CTTTCAATTCCTTTTGGGATTAATC TTTGGCAAGGAGAATTCAACATATAAAAAATGTTGCAAA spacer
length: 39 repeater length: 25
38625 1346761 CTTTCAATTCCTTTTGGGATTAATC AATAGAGAAATATACAAGGGGAGATCTTTATGATAAAAT spacer
length: 39 repeater length: 25
38626 1346825 CTTTCAATTCCTTTTGGGATTAATC CCAATATCGTGGACGCTGGATAGATTTGCATCCCCTGATGT spacer
length: 41 repeater length: 25
38627 1346891 CTTTCAATTCCTTTTGGGATTAATC CATGAAAGAGATCTCTGATGAAATGATGTCTACTTTGAA spacer
length: 39 repeater length: 25
38628 1346955 CTTTCAATTCCTTTTGGGATTAATC AAAGAAGAAATTAAAGTAAATCAACTTCAAATAGAAA spacer
length: 37 repeater length: 25
38629 1347017 CTTTCAATTCCTTTTGGGATTAATC TTCATCAGTGATTTGTTGGTGAAGTATAGTTGAAAATC spacer
length: 38 repeater length: 25
38630 1347080 CTTTCAATTCCTTTTGGGATTAATC CATCTGGACTCGAGGGGCAGGGACAGAAAGCAAATCGG spacer
length: 38 repeater length: 25
38631 1347143 CTTTCAATTCCTTTTGGGATTAATC GTGCGTCCGGGTCACCGATTTTGTTCATCCATATGCT spacer
length: 38 repeater length: 25
38632 1347206 CTTTCAATTCCTTTTGGGATTAATC AACGCATTTATCAATAAGAACCGAGCGGTGGTGAAAAG spacer
length: 38 repeater length: 25
38633 1347269 CTTTCAATTCCTTTTGGGATTAATC TTGAGCTGAAAATCAACACTACTACCAGGATATGATGTG spacer
length: 39 repeater length: 25
38634 1347333 CTTTCAATTCCTTTTGGGATTAATC GAAACTGCGCCTGGAGATTACCTAGTCGAATTTTT spacer
length: 36 repeater length: 25
38635 1347394 CTTTCAATTCCTTTTGGGATTAATC AAGTATGCATTTCCAGGATTTGTTACTCCACACCAGCC spacer
length: 38 repeater length: 25
38636 1347457 CTTTCAATTCCTTTTGGGATTAATC CTAATGTATCACTCACATCTTTTGATATAATGATACT spacer
length: 37 repeater length: 25
38637 1347519 CTTTCAATTCCTTTTGGGATTAATC CTTGACAACTTGGCTATGGAACCTGCAACCGTAGATGA spacer
length: 38 repeater length: 25
38638 1347582 CTTTCAATTCCTTTTGGGATTAATC CGAATAAAGATACGCAACGCCAAGAGGAAGACTAA spacer length:
35 repeater length: 25
38639 1347642 CTTTCAATTCCTTTTGGGATTAATC AATGTCCATATGGTGGCCCCCAATTTCTCTAGAGTAG spacer
length: 38 repeater length: 25
38640 1347705 CTTTCAATTCCTTTTGGGATTAATC GAGCAGGTGT
38641
38642
38643 crispr 4

38644	1384435	CTTTCAATTCTATAAGAGATTATC	TGAGGATATACTTTAATCGGATTGTGTTAGGTGGAGAGATGTT	spacer
	length:	43	repeater length:	24
38645	1384502	CTTTCAATTCTATAAGAGATTATC	CCATCTACCACACCGCGGACACTGGTATAAACATGCACCGG	spacer
	length:	41	repeater length:	24
38646	1384567	CTTTCAATTCTATAAGAGATTATC	TCAGTCTTATTGTCTGAGGAGTAGTGGTAGGAGTGATAC	spacer
	length:	38	repeater length:	24
38647	1384629	CTTTCAATTCTATAAGAGATTATC	GGAAGAGACAAGACTCTACAGTACAATATGCCCCAGATG	spacer
	length:	39	repeater length:	24
38648	1384692	CTTTCAATTCTATAAGAGATTATC	AACCGGAAGTACGAACATGTTGCTGAGATTGTGGTCTATGT	spacer
	length:	42	repeater length:	24
38649	1384758	CTTTCAATTCTATAAGAGATTATC	TTTGTGGTACTTGTAGTTGTGATGCTGACGTTCCACTACT	spacer
	length:	40	repeater length:	24
38650	1384822	CTTTCAATTCTATAAGAGATTATC	TCAAATCAACAAGTTACAGTAACCAACGGTACTTCAAACCC	spacer
	length:	41	repeater length:	24
38651	1384887	CTTTCAATTCTATAAGAGATTATC	TATGTTGTTGTTTGTGAGTTGTGGTCTGCTGTGTAGTTG	spacer
	length:	40	repeater length:	24
38652	1384951	CTTTCAATTCTATAAGAGATTATC	ATCCAGACGAAGTGGGGGCAATCATGCAGCCCCCTCA	spacer
	length:	38	repeater length:	24
38653	1385013	CTTTCAATTCTATAAGAGATTATC	AAAGATAATGGATAATAACTTAACATTACAGAATTTAATG	spacer
	length:	40	repeater length:	24
38654	1385077	CTTTCAATTCTATAAGAGATTATC	TAAACTCATGTAGCGTTAGTTGGAGCGGATCTGCACAAGTA	spacer
	length:	41	repeater length:	24
38655	1385142	CTTTCAATTCTATAAGAGATTATC	CCAGTGTTTTACTTAAATCAGTACAAGGATCAAAACC	spacer
	length:	38	repeater length:	24
38656	1385204	CTTTCAATTCTATAAGAGATTATC	AAGAGTTCGATCGGATTAAAGAGGAGATTGAGCAAAA	spacer
	length:	37	repeater length:	24
38657	1385265	CTTTCAATTCTATAAGAGATTATC	AGTGACTCAATACCGGTCACAATATCTTCAGGTGCTCCCATT	spacer
	length:	42	repeater length:	24
38658	1385331	CTTTCAATTCTATAAGAGATTATC	CGTCCCCATCGAATACGTAAGAGTCTGGAGGGGAATTTA	spacer
	length:	39	repeater length:	24
38659	1385394	CTTTCAATTCTATAAGAGATTATC	TAAAGGTTACGTTAGAACTAGAAAAGAATGGAAATCTGAA	spacer
	length:	40	repeater length:	24
38660	1385458	CTTTCAATTCTATAAGAGATTATC	TGGAGTTTTTCAGATATTTTGTAAAGTACGTTTCAGTTT	spacer
	length:	37	repeater length:	24
38661	1385519	CTTTCAATTCTATAAGAGATTATC	AATAGGCTATGGTGTGTGGATGGACCTGTATCGTAAATA	spacer
	length:	39	repeater length:	24
38662	1385582	CTTTCAATTCTATAAGAGATTATC	CACGCAAAAGGATAAAACAATATGGTGCATTTCGAATGGA	spacer
	length:	39	repeater length:	24
38663	1385645	CTTTCAATTCTATAAGAGATTATC	ACAAACAGTGTGTGTTACATTATCCTTCGATTACAACGAA	spacer
	length:	40	repeater length:	24
38664	1385709	CTTTCAATTCTATAAGAGATTATC	CTTCTGTTCTGAAATTATAAAGGACATGCTGATAAAATTT	spacer
	length:	40	repeater length:	24
38665	1385773	CTTTCAATTCTATAAGAGATTATC	CTAACTGAAGAAGACCCAATTTATATTGCAGGATTTGT	spacer
	length:	38	repeater length:	24
38666	1385835	CTTTCAATTCTATAAGAGATTATC	TGCAGAACCATTAGCTGGTACAGTAACTGTTTGCCAA	spacer
	length:	37	repeater length:	24
38667	1385896	CTTTCAATTCTATAAGAGATTATC	ACCATAGTCCCTGATTTTCGGTATTCTTTACCCTGTAACCCCT	spacer
	length:	42	repeater length:	24
38668	1385962	CTTTCAATTCTATAAGAGATTATC	GCTTATCTCTCTCATGCGCCATTTCTTCTTTCCTTCTTTC	spacer
	length:	40	repeater length:	24
38669	1386026	CTTTCAATTCTATAAGAGATTATC	TATATCCCCAAAAATCTCAGACATTAGAGAGCATTTTTGT	spacer
	length:	40	repeater length:	24
38670	1386090	CTTTCAATTCTATAAGAGATTATC	AATAGATCCAGAAAATGAATATGTCAAATTAGCTGACATTT	spacer
	length:	41	repeater length:	24
38671	1386155	CTTTCAATTCTATAAGAGATTATC	TTTATTTTCTTTCGATATTTTCATTACCGAGACTTTTGCCT	spacer
	length:	40	repeater length:	24
38672	1386219	CTTTCAATTCTATAAGAGATTATC	GTTGGCTGTTGGCTGTTGGCTGTTGTGCGGTCGATGGCCCA	spacer
	length:	40	repeater length:	24
38673	1386283	CTTTCAATTCTATAAGAGATTATC	AAAGAATATCTTGACGCGTTAGCCGAATTTGACCGAAC	spacer
	length:	38	repeater length:	24
38674	1386345	CTTTCAATTCTATAAGAGATTATC	TTGCTTAGTCTTGATAAGTATACTAAAAGTTCGTTCTTG	spacer
	length:	39	repeater length:	24
38675	1386408	CTTTCAATTCTATAAGAGATTATC	TACCCAACATAAATCATAACCTCTTTGTTGCAGAATTGTT	spacer
	length:	39	repeater length:	24
38676	1386471	CTTTCAATTCTATAAGAGATTATC	AAGAAGAACCCCCAACTTGTTACGAGATCTTGCAAAAAGCT	spacer
	length:	41	repeater length:	24
38677	1386536	CTTTCAATTCTATAAGAGATTATC	CGTCGACGGA	
38678				
38679				
38680	crispr 5			
38681	1393045	GATAATCTCTTATAGAATTGAAAG	ATGCCAGTATGGTATCTGCACTATACCCTTGTAAGTTG	spacer

length: 38 repeater length: 24
38682 1393107 GATAATCTCTTATAGAATTGAAAG GATCTACGGGATTGTGACCTATACAACATGTTTGCCC spacer
length: 38 repeater length: 24
38683 1393169 GATAATCTCTTATAGAATTGAAAG ATCGCTGATTTGATGAAAGAGATCTCTGATGAGATGATGTC spacer
length: 41 repeater length: 24
38684 1393234 GATAATCTCTTATAGAATTGAAAG TCAGTACCGCCCCGCTTTCCTCTGTTCTGTGCACACCCAC spacer
length: 38 repeater length: 24
38685 1393296 GATAATCTCTTATAGAATTGAAAG GCATACTACTATGGCCTAGCAAAAAGCCTATCTGCAAAATTT spacer
length: 42 repeater length: 24
38686 1393362 GATAATCTCTTATAGAATTGAAAG TAGCACGATTACAAAGTTGAGTTTCTGCCACGCCCCCAA spacer
length: 39 repeater length: 24
38687 1393425 GATAATCTCTTATAGAATTGAAAG GTACGATACCAAGCGCCTTACCTCTTTCCTCTAAATAT spacer
length: 38 repeater length: 24
38688 1393487 GATAATCTCTTATAGAATTGAAAG CAACACAGCCACGACACGCCCGGTACTTACACACAAACC spacer
length: 39 repeater length: 24
38689 1393550 GATAATCTCTTATAGAATTGAAAG ATCGTTATTAACGAGGCGAATGACGTGTTTACGGTATACC spacer
length: 39 repeater length: 24
38690 1393613 GATAATCTCTTATAGAATTGAAAG GTTTTCCCCTGGGCTATCCATTCGGTGATCTCCCCGTTTAC spacer
length: 41 repeater length: 24
38691 1393678 GATAATCTCTTATAGAATTGAAAG TCAACTTCTCCTACAATTCTATCTTAGCATTAAAGAATT spacer
length: 39 repeater length: 24
38692 1393741 GATAATCTCTTATAGAATTGAAAG TTCCTCCAGCTGAAGAGTCCAGAAGACGTAAGGAG spacer
length: 40 repeater length: 24
38693 1393805 GATAATCTCTTATAGAATTGAAAG AAAGATATAATTCTGCATAGATTTTCTGTGACAGAAAGAGGG spacer
length: 42 repeater length: 24
38694 1393871 GATAATCTCTTATAGAATTGAAAG CATGTTTACGCCTTTAGAAGAAAGAGAATCAGTGGGCG spacer
length: 38 repeater length: 24
38695 1393933 GATAATCTCTTATAGAATTGAAAG ACTGCTCCCCTGTTCTGTCCACAATCACGATACGCC spacer length:
36 repeater length: 24
38696 1393993 GATAATCTCTTATAGAATTGAAAG ATATGTGCCA
38697
38698
38699 crispr 6
38700 1394918 GATAATCTCTTATAGAATTGAAAG ACATTGTACCAGTGAAGGAATATTTTCGATGCTATTATGA spacer
length: 39 repeater length: 24
38701 1394981 GATAATCTCTTATAGAATTGAAAG TCTTTCTATCGAAGTACTTTGCCAATGCTTCCTTGAGG spacer
length: 38 repeater length: 24
38702 1395043 GATAATCTCTTATAGAATTGAAAG AGTTTATTTCTAGTAACTCACGCCACGTTCTTTCAATTGT spacer
length: 40 repeater length: 24
38703 1395107 GATAATCTCTTATAGAATTGAAAG GATGTTGAAGCGGAAGATAGTATAATCACACCTTGAC spacer
length: 38 repeater length: 24
38704 1395169 GATAATCTCTTATAGAATTGAAAG TCGGGTCATCTGCATCCAATGTCACGTATAACAGCTGTG spacer
length: 39 repeater length: 24
38705 1395232 GATAATCTCTTATAGAATTGAAAG TACAACGAGTTTCATCTTCTTTATTTTCATGCCACCGTTTTG spacer
length: 41 repeater length: 24
38706 1395297 GATAATCTCTTATAGAATTGAAAG AAATGGGATGATGAGGGTGTTCACAGATACAACACC spacer
length: 37 repeater length: 24
38707 1395358 GATAATCTCTTATAGAATTGAAAG CAGGATTACCTCTAGAATATAACGTACGTAGGGTGCATTT spacer
length: 40 repeater length: 24
38708 1395422 GATAATCTCTTATAGAATTGAAAG TACAAATAACTAAGAACGCTGACGATTTCTGTAAGACCGC spacer
length: 40 repeater length: 24
38709 1395486 GATAATCTCTTATAGAATTGAAAG CTTCATATGTTAAACCATAACAGATTGCACGTGCCACTA spacer
length: 39 repeater length: 24
38710 1395549 GATAATCTCTTATAGAATTGAAAG AGGACAGCATCAAGGAGTTCTGGTTGTAATTGTTTCTCGTAT spacer
length: 42 repeater length: 24
38711 1395615 GATAATCTCTTATAGAATTGAAAG ATCTCTCATTTCTTGGCTTACCCTCACACGAATTTGGGCTT spacer
length: 41 repeater length: 24
38712 1395680 GATAATCTCTTATAGAATTGAAAG ACAGTAATGAGGTGTAACCCCTGAGACCTCAGGAGAA spacer
length: 37 repeater length: 24
38713 1395741 GATAATCTCTTATAGAATTGAAAG TGGAATACGTCTATGACTTACTAATGCCAGCGAAAGAGA spacer
length: 40 repeater length: 24
38714 1395805 GATAATCTCTTATAGAATTGAAAG CCGTGCTTCACGCCCTGTTTCTCCAAAACAAGAAAGGA spacer
length: 38 repeater length: 24
38715 1395867 GATAATCTCTTATAGAATTGAAAG ATGTACCCATATGGGTGAACTTGAAGAAAAATGGTTAA spacer
length: 39 repeater length: 24
38716 1395930 GATAATCTCTTATAGAATTGAAAG ATGCTGTACAGTTCTGCAGTTATCTTTTGGCTTAGAAATAGT spacer
length: 42 repeater length: 24
38717 1395996 GATAATCTCTTATAGAATTGAAAG TTCAGAAGAGGAAGAGGAAGCAGACAGAGCGGTGGGGCT spacer
length: 39 repeater length: 24
38718 1396059 GATAATCTCTTATAGAATTGAAAG TTCAGTTTGCTAACGCCTGGGCTATTGATCCTTTTGCC spacer
length: 38 repeater length: 24

38719	1396121	GATAATCTCTTATAGAATTGAAAG	TTATTTTCGCAATGATAGCTGGATCGATACCGTTCTTTGCC	spacer
	length:	41	repeater length:	24
38720	1396186	GATAATCTCTTATAGAATTGAAAG	GCCACATAGTATTGACTACGTGACGGGAATAATAACTGATA	spacer
	length:	41	repeater length:	24
38721	1396251	GATAATCTCTTATAGAATTGAAAG	CTTCTATGGCCATGATTCTTGCCATTGGACGAAGTCCTC	spacer
	length:	39	repeater length:	24
38722	1396314	GATAATCTCTTATAGAATTGAAAG	ATCATCGAGTACGGAAGATTCCTAGGGTGGAGATCATT	spacer
	length:	39	repeater length:	24
38723	1396377	GATAATCTCTTATAGAATTGAAAG	TTCGTTGCGTTTACCATGTTTCATGTAAATTAATACTTGG	spacer
	length:	39	repeater length:	24
38724	1396440	GATAATCTCTTATAGAATTGAAAG	TCTTCGTCATAGCCTGGTCTTCCTGCACGTCCGCAA	spacer
	length:	37	repeater length:	24
38725	1396501	GATAATCTCTTATAGAATTGAAAG	ATTATCTTCACATTAAACCCCACTCCTAGAGTTGAATTTGA	spacer
	length:	41	repeater length:	24
38726	1396566	GATAATCTCTTATAGAATTGAAAG	GTATCAGCAGTGAACCATTTCATACTGGATGTTGCGAATC	spacer
	length:	39	repeater length:	24
38727	1396629	GATAATCTCTTATAGAATTGAAAG	GATAATAATCAACGAGGCAAACCTCCATGTTCTACAAAC	spacer
	length:	38	repeater length:	24
38728	1396691	GATAATCTCTTATAGAATTGAAAG	TTTCAAAGGGAAAATCTGAATAAATACGTCTGGAAATTG	spacer
	length:	39	repeater length:	24
38729	1396754	GATAATCTCTTATAGAATTGAAAG	AGTTGCTTTTTTATAGTTTCTCTGACTGTGCACTGTCATG	spacer
	length:	39	repeater length:	24
38730	1396817	GATAATCTCTTATAGAATTGAAAG	AGCTCTTCTCATGAAAGTTTATAAATTTGTAGTTACATACT	spacer
	length:	42	repeater length:	24
38731	1396883	GATAATCTCTTATAGAATTGAAAG	ACAAAATAATTTCTAGTCCAAGCTTTCACGGCTGCTTCT	spacer
	length:	39	repeater length:	24
38732	1396946	GATAATCTCTTATAGAATTGAAAG	TACTGCAATGCGCGTTTCAATGCTAACAATGCTCCGAT	spacer
	length:	38	repeater length:	24
38733	1397008	GATAATCTCTTATAGAATTGAAAG	CTTCAAGAATGAGCAAACCGCAAGCACTTAAAAAGATT	spacer
	length:	38	repeater length:	24
38734	1397070	GATAATCTCTTATAGAATTGAAAG	TAACACTGCAGTAGTATTTTTTTCGTTAGCTACAATGT	spacer
	length:	39	repeater length:	24
38735	1397133	GATAATCTCTTATAGAATTGAAAG	TAATTTCTGCATAAATATCTTCCACAACACGTTTGCTTACG	spacer
	length:	41	repeater length:	24
38736	1397198	GATAATCTCTTATAGAATTGAAAG	TCTTCAAGGCTTAATTCGCCTTGTTGTGTCCCACCTCTA	spacer
	length:	40	repeater length:	24
38737	1397262	GATAATCTCTTATAGAATTGAAAG	AAAGTACTTAGTCGTATAACAGTCTTCTTGGGCGAGG	spacer
	length:	37	repeater length:	24
38738	1397323	GATAATCTCTTATAGAATTGAAAG	ACTCAAAAAGAGTTTGAAAATTTTGTGTAATTTGTAAA	spacer
	length:	38	repeater length:	24
38739	1397385	GATAATCTCTTATAGAATTGAAAG	GTAAC TGGGTCGTGGACTGTGTACAACGACGGCGATAAT	spacer
	length:	39	repeater length:	24
38740	1397448	GATAATCTCTTATAGAATTGAAAG	GAAACTCGTGCCAATTTGTTGAGTCAAACTTAAATAGAAT	spacer
	length:	41	repeater length:	24
38741	1397513	GATAATCTCTTATAGAATTGAAAG	CATGGTGGGGGGCGTCAAAAATTCAGAAATATTTTGCAT	spacer
	length:	40	repeater length:	24
38742	1397577	GATAATCTCTTATAGAATTGAAAG	AAC TCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA	spacer
	length:	38	repeater length:	24
38743	1397639	GATAATCTCTTATAGAATTGAAAG	CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA	spacer
	length:	37	repeater length:	24
38744	1397700	GATAATCTCTTATAGAATTGAAAG	AATTTGAACATAATTCGCCTCGTCAGTTTTCCACAGATA	spacer
	length:	40	repeater length:	24
38745	1397764	GATAATCTCTTATAGAATTGAAAG	TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT	spacer
	length:	39	repeater length:	24
38746	1397827	GATAATCTCTTATAGAATTGAAAG	TTTACTGACAACGCCATCATACTTACTAGCCCACTAA	spacer
	length:	38	repeater length:	24
38747	1397889	GATAATCTCTTATAGAATTGAAAG	GTCCATTCTCCATTTATCTCAACCTTATCACAATTTGGA	spacer
	length:	40	repeater length:	24
38748	1397953	GATAATCTCTTATAGAATTGAAAG	TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT	spacer
	length:	41	repeater length:	24
38749	1398018	GATAATCTCTTATAGAATTGAAAG	CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG	spacer
	length:	37	repeater length:	24
38750	1398079	GATAATCTCTTATAGAATTGAAAG	ATCTGAATTTCTCAGCTTCCATTGCATAATTTATTCTA	spacer
	length:	39	repeater length:	24
38751	1398142	GATAATCTCTTATAGAATTGAAAG	TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT	spacer
	length:	40	repeater length:	24
38752	1398206	GATAATCTCTTATAGAATTGAAAG	ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTC	spacer
	length:	38	repeater length:	24
38753	1398268	GATAATCTCTTATAGAATTGAAAG	TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAGC	spacer
	length:	38	repeater length:	24
38754	1398330	GATAATCTCTTATAGAATTGAAAG	GTCAAAATTGCCCAACCGAACGTTAGCAAAAATGCAGCAC	spacer

length: 40 repeater length: 24
38755 1398394 GATAATCTCTTATAGAATTGAAAG TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA spacer
length: 41 repeater length: 24
38756 1398459 GATAATCTCTTATAGAATTGAAAG GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAACC spacer
length: 39 repeater length: 24
38757 1398522 GATAATCTCTTATAGAATTGAAAG GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGTT spacer
length: 39 repeater length: 24
38758 1398585 GATAATCTCTTATAGAATTGAAAG TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT spacer
length: 40 repeater length: 24
38759 1398649 GATAATCTCTTATAGAATTGAAAG GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT spacer length:
35 repeater length: 24
38760 1398708 GATAATCTCTTATAGAATTGAAAG GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC spacer
length: 39 repeater length: 24
38761 1398771 GATAATCTCTTATAGAATTGAAAG CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAAT spacer length:
36 repeater length: 24
38762 1398831 GATAATCTCTTATAGAATTGAAAG AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTTG spacer
length: 38 repeater length: 24
38763 1398893 GATAATCTCTTATAGAATTGAAAG ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATTA spacer
length: 38 repeater length: 24
38764 1398955 GATAATCTCTTATAGAATTGAAAG GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAAG spacer
length: 38 repeater length: 24
38765 1399017 GATAATCTCTTATAGAATTGAAAG AATCACGAAAGCGATACTAAGGGCAATACAATACAAACATG spacer
length: 41 repeater length: 24
38766 1399082 GATAATCTCTTATAGAATTGAAAG CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTGC spacer
length: 39 repeater length: 24
38767 1399145 GATAATCTCTTATAGAATTGAAAG AGATTGTTTTATTAATACCAAGTAGACAATTATATATTTT spacer
length: 40 repeater length: 24
38768 1399209 GATAATCTCTTATAGAATTGAAAG CCAAAACATGTCACATGTGCCGATATTGATATTTACAAA spacer
length: 39 repeater length: 24
38769 1399272 GATAATCTCTTATAGAATTGAAAG AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGAA spacer
length: 38 repeater length: 24
38770 1399334 GATAATCTCTTATAGAATTGAAAG GGGAGTTCCCATTCGATTTTGGGAACCCTCAAGCACAGTCTGTG spacer
length: 44 repeater length: 24
38771 1399402 GATAATCTCTTATAGAATTGAAAG TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCAT spacer
length: 41 repeater length: 24
38772 1399467 GATAATCTCTTATAGAATTGAAAG CTAACCTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTGT spacer
length: 38 repeater length: 24
38773 1399529 GATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTCTGCAGTCTTTGTT spacer length:
36 repeater length: 24
38774 1399589 GATAATCTCTTATAGAATTGAAAG AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTAT spacer
length: 39 repeater length: 24
38775 1399652 GATAATCTCTTATAGAATTGAAAG ATCCGTTCTCCGTCCCGATCCGTACCGTTCTCTGTACT spacer
length: 38 repeater length: 24
38776 1399714 GATAATCTCTTATAGAATTGAAAG AGCATAACTTCATCTTCTTCTACAACCTTCGACAGCTT spacer
length: 37 repeater length: 24
38777 1399775 GATAATCTCTTATAGAATTGAAAG TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATTA spacer
length: 42 repeater length: 24
38778 1399841 GATAATCTCTTATAGAATTGAAAG ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCAT spacer
length: 39 repeater length: 24
38779 1399904 GATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGGT spacer
length: 40 repeater length: 24
38780 1399968 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATA spacer
length: 37 repeater length: 24
38781 1400029 GATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCCC spacer
length: 38 repeater length: 24
38782 1400091 GATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATACA spacer
length: 39 repeater length: 24
38783 1400154 GATAATCTCTTATAGAATTGAAAG ACGAACACACCCCTTAAACTCTTTTTCCAACATTACCT spacer
length: 40 repeater length: 24
38784 1400218 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGAG spacer
length: 40 repeater length: 24
38785 1400282 GATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATCCGACCAAAGCTAATA spacer
length: 39 repeater length: 24
38786 1400345 GATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGGT spacer
length: 40 repeater length: 24
38787 1400409 GATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTAG spacer
length: 43 repeater length: 24
38788 1400476 GATAATCTCTTATAGAATTGAAAG ATACAGATTTGTTATCCATATCCTACATGACTTTCC spacer
length: 37 repeater length: 24
38789 1400537 GATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAATTAGATATCCATTGACTGTTAT spacer
length: 39 repeater length: 24

38790	1400600	GATAATCTCTTATAGAATTGAAAG	ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTATT	spacer
	length:	40	repeater length:	24
38791	1400664	GATAATCTCTTATAGAATTGAAAG	TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAACG	spacer
	length:	40	repeater length:	24
38792	1400728	GATAATCTCTTATAGAATTGAAAG	CGTTTCTATTGCAAGGTCTGAGATTTTTGGCCTGAGTA	spacer
	length:	38	repeater length:	24
38793	1400790	GATAATCTCTTATAGAATTGAAAG	GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGAT	spacer
	length:	40	repeater length:	24
38794	1400854	GATAATCTCTTATAGAATTGAAAG	ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATATA	spacer
	length:	44	repeater length:	24
38795	1400922	GATAATCTCTTATAGAATTGAAAG	CTAAGCAGTGA CTACAGTTTAGACATTCACAAGTATC	spacer
	length:	38	repeater length:	24
38796	1400984	GATAATCTCTTATAGAATTGAAAG	TTCTAAGCGTGTAAGATCTATCTGACAACACGAAACTATG	spacer
	length:	41	repeater length:	24
38797	1401049	GATAATCTCTTATAGAATTGAAAG	TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGAC	spacer
	length:	40	repeater length:	24
38798	1401113	GATAATCTCTTATAGAATTGAAAG	CAATCCCATTCGTTTTACTCACTTCTAAGAACCTCGC	spacer
	length:	37	repeater length:	24
38799	1401174	GATAATCTCTTATAGAATTGAAAG	AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTCT	spacer
	length:	40	repeater length:	24
38800	1401238	GATAATCTCTTATAGAATTGAAAG	ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCTG	spacer
	length:	40	repeater length:	24
38801	1401302	GATAATCTCTTATAGAATTGAAAG	GTCTTTATGGCCCTCTGGGTCTTTCACCATTGAGAGGA	spacer
	length:	39	repeater length:	24
38802	1401365	GATAATCTCTTATAGAATTGAAAG	TTATCCTCATTCATCTATCGGTGAGTGGAAACAAATTGGGTAGC	spacer
	length:	40	repeater length:	24
38803	1401429	GATAATCTCTTATAGAATTGAAAG	ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTTT	spacer
	length:	40	repeater length:	24
38804	1401493	GATAATCTCTTATAGAATTGAAAG	AGTTACAATACTTTATTGTCAAAGAAGCAAGGATATGCG	spacer
	length:	40	repeater length:	24
38805	1401557	GATAATCTCTTATAGAATTGAAAG	TTCAAAC TAGATCTAGAAGATTTCTATCGGCATCTTTACAT	spacer
	length:	41	repeater length:	24
38806	1401622	GATAATCTCTTATAGAATTGAAAG	ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTTC	spacer
	length:	40	repeater length:	24
38807	1401686	GATAATCTCTTATAGAATTGAAAG	GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTATT	spacer
	length:	39	repeater length:	24
38808	1401749	GATAATCTCTTATAGAATTGAAAG	TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT	spacer
	length:	37	repeater length:	24
38809	1401810	GATAATCTCTTATAGAATTGAAAG	CTACTACATCATCCTCTACCACGCCAAGCCAACAACC	spacer
	length:	37	repeater length:	24
38810	1401871	GATAATCTCTTATAGAATTGAAAG	ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT	spacer
	length:	38	repeater length:	24
38811	1401933	GATAATCTCTTATAGAATTGAAAG	ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACTA	spacer
	length:	41	repeater length:	24
38812	1401998	GATAATCTCTTATAGAATTGAAAG	ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTCT	spacer
	length:	39	repeater length:	24
38813	1402061	GATAATCTCTTATAGAATTGAAAG	AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT	spacer
	length:	37	repeater length:	24
38814	1402122	GATAATCTCTTATAGAATTGAAAG	ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT	spacer
	length:	39	repeater length:	24
38815	1402185	GATAATCTCTTATAGAATTGAAAG	ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTGC	spacer
	length:	41	repeater length:	24
38816	1402250	GATAATCTCTTATAGAATTGAAAG	AAGCCTACACAGGATAGGATACTCAAATTATATGAAAT	spacer
	length:	39	repeater length:	24
38817	1402313	GATAATCTCTTATAGAATTGAAAG	TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCAT	spacer
	length:	42	repeater length:	24
38818	1402379	GATAATCTCTTATAGAATTGAAAG	CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA	spacer
	length:	37	repeater length:	24
38819	1402440	GATAATCTCTTATAGAATTGAAAG	TGTTCTGTCGTTACTGTCGTAAAGCACGTCCTATTAT	spacer
	length:	37	repeater length:	24
38820	1402501	GATAATCTCTTATAGAATTGAAAG	ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC	spacer
	length:	38	repeater length:	24
38821	1402563	GATAATCTCTTATAGAATTGAAAG	TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGAA	spacer
	length:	39	repeater length:	24
38822	1402626	GATAATCTCTTATAGAATTGAAAG	GCACAATTCGCCAACGATTTCGGTTTCGCTTTATACCTT	spacer
	length:	38	repeater length:	24
38823	1402688	GATAATCTCTTATAGAATTGAAAG	CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTGG	spacer
	length:	41	repeater length:	24
38824	1402753	GATAATCTCTTATAGAATTGAAAG	AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG	spacer
	length:	40	repeater length:	24
38825	1402817	GATAATCTCTTATAGAATTGAAAG	ATTAGAAAAGTTTAAGATTACGCATGCAATATGTTTTTGAT	spacer

length: 42 repeater length: 24
38826 1402883 GATAATCTCTTATAGAATTGAAAG TTCTGTTTTCGAAGAAAACCCGCCTCAGATTTCATTATGGG spacer
length: 39 repeater length: 24
38827 1402946 GATAATCTCTTATAGAATTGAAAG AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAAA spacer
length: 39 repeater length: 24
38828 1403009 GATAATCTCTTATAGAATTGAAAG CCTCATCGTAAACATGCAATCTTGCATATTCAGTGTA spacer
length: 37 repeater length: 24
38829 1403070 GATAATCTCTTATAGAATTGAAAG GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCT spacer
length: 39 repeater length: 24
38830 1403133 GATAATCTCTTATAGAATTGAAAG ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT spacer
length: 41 repeater length: 24
38831 1403198 GATAATCTCTTATAGAATTGAAAG GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCGT spacer
length: 38 repeater length: 24
38832 1403260 GATAATCTCTTATAGAATTGAAAG ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA spacer
length: 39 repeater length: 24
38833 1403323 GATAATCTCTTATAGAATTGAAAG AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA spacer
length: 37 repeater length: 24
38834 1403384 GATAATCTCTTATAGAATTGAAAG CGTTCCTAGAGCTAAACGATGCATACGCGGTGGTACAACATA spacer
length: 40 repeater length: 24
38835 1403448 GATAATCTCTTATAGAATTGAAAG ATTTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATTT spacer
length: 41 repeater length: 24
38836 1403513 GATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACCTCTGGGTAAGCCCACAATACGCAA spacer
length: 40 repeater length: 24
38837 1403577 GATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAAC spacer
length: 38 repeater length: 24
38838 1403639 GATAATCTCTTATAGAATTGAAAG TAACTAGATCCTTATATTTTACGTAAATGTAAAGGGG spacer
length: 38 repeater length: 24
38839 1403701 GATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTGCAATA spacer
length: 38 repeater length: 24
38840 1403763 GATAATCTCTTATAGAATTGAAAG GTTCATCAGTTCTACCTTTTGGTCCAAAGGCTGATCCAA spacer
length: 39 repeater length: 24
38841 1403826 GATAATCTCTTATAGAATTGAAAG TCTTGTTTCAT
38842
38843
38844 crispr 7
38845 1817462 AGATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGT spacer
length: 38 repeater length: 25
38846 1817525 AGATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAACCAAAT spacer
length: 41 repeater length: 25
38847 1817591 AGATAATCTACTATAGAATTGAAAG CCCATTTCATCTCTTTCTTTGCAGCTTTGTTCTAACATT spacer
length: 38 repeater length: 25
38848 1817654 AGATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTG spacer
length: 40 repeater length: 25
38849 1817719 AGATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTCCTCTGCGTATCATTATGGATA spacer
length: 43 repeater length: 25
38850 1817787 AGATAATCTACTATAGAATTGAAAG TTAGCCCAACAATTAATAAGATCCTGAAGCAGTCA spacer
length: 37 repeater length: 25
38851 1817849 AGATAATCTACTATAGAATTGAAAG
38852
38853
38854 crispr 8
38855 1883228 CTTTCAATTCTATAGTAGATTAGC AACACATTGCTCATATAACTACACCATTCACTATTGCCTC spacer
length: 40 repeater length: 24
38856 1883292 CTTTCAATTCTATAGTAGATTAGC ACAATGTATGACTATGGATATCAATGGAGCGTCGGCTTAA spacer
length: 40 repeater length: 24
38857 1883356 CTTTCAATTCTATAGTAGATTAGC CAAATAATCTAGCATTTTCTTCATAAAGTTCATTACATAC spacer
length: 40 repeater length: 24
38858 1883420 CTTTCAATTCTATAGTAGATTAGC CTTAAAAGTGTTGGAGTTTGTGCAGTTAGTTGAATTTCACT spacer
length: 41 repeater length: 24
38859 1883485 CTTTCAATTCTATAGTAGATTAGC GTTATTCCTAATTGTTTTTCGGAAATTATTTTGAGAATGAA spacer
length: 40 repeater length: 24
38860 1883549 CTTTCAATTCTATAGTAGATTAGC GCCGTACTGACTTCTCCCCTGCCAGCGAGGGTTCTCCTCAT spacer
length: 41 repeater length: 24
38861 1883614 CTTTCAATTCTATAGTAGATTAGC TTCCCCACCATTATGTACCACTATTATGCTTCCATTTATT spacer
length: 40 repeater length: 24
38862 1883678 CTTTCAATTCTATAGTAGATTAGC ATGTTCTTTTTCCAGAACTGTAACATAATTTTGTTGATA spacer
length: 40 repeater length: 24
38863 1883742 CTTTCAATTCTATAGTAGATTAGC TATTTTTGCGTATTTACACGATTTATTTATTTTCGCAGAATT spacer
length: 41 repeater length: 24
38864 1883807 CTTTCAATTCTATAGTAGATTAGC AGTGATGCGTACTACGACCGTGAAAATGAGTTGAAAAAA spacer
length: 39 repeater length: 24

38865	1883870	CTTTCAATTCTATAGTAGATTAGC	CATCACGCAGAATAATGGTTCAGGTAACTTTTTAAGG spacer
		length: 37 repeater length: 24	
38866	1883931	CTTTCAATTCTATAGTAGATTAGC	TGATTATATTCAAGGACAATATGTTGAAACGCCGATTTTAT spacer
		length: 41 repeater length: 24	
38867	1883996	CTTTCAATTCTATAGTAGATTAGC	AGATGCTATTGGAGGATTTACCAGGTTGGGTTATAATGTCAAATA
		spacer length: 46 repeater length: 24	
38868	1884066	CTTTCAATTCTATAGTAGATTAGC	TCAGAGTTTTTTTTATTTTTTCTATTTGAAATTAAGCACG spacer
		length: 39 repeater length: 24	
38869	1884129	CTTTCAATTCTATAGTAGATTAGC	TTGGGTGTTTTGTTTAGGTTTGAAAAGATTATCTTATTTTCT spacer
		length: 43 repeater length: 24	
38870	1884196	CTTTCAATTCTATAGTAGATTAGC	CCAACGGCTCTTACGCCCTCCTCGGCATGTACAACGGGACG spacer
		length: 41 repeater length: 24	
38871	1884261	CTTTCAATTCTATAGTAGATTAGC	AAGATACCACAACACTTGGAGTTAATGCATTATTGAATATGGATACAT
		spacer length: 48 repeater length: 24	
38872	1884333	CTTTCAATTCTATAGTAGATTAGC	GGAAAGGCTAATGGAGACAAAAAGAAGTCTAAAAAGCAG spacer
		length: 39 repeater length: 24	
38873	1884396	CTTTCAATTCTATAGTAGATTAGC	TTCTTCAGCTTCTTCCCAACGCTATATGTGCTATTAGGTGTAAC spacer
		length: 44 repeater length: 24	
38874	1884464	CTTTCAATTCTATAGTAGATTAGC	CGGCACAGTACTACTATCTGAAAGTGTTCATCTCCAAATA spacer
		length: 41 repeater length: 24	
38875	1884529	CTTTCAATTCTATAGTAGATTAGC	AACACGTCCTTTTTTCATTTGTAATATCTGAACCTGGAA spacer
		length: 38 repeater length: 24	
38876	1884591	CTTTCAATTCTATAGTAGATTAGC	
38877			
38878			
38879	crispr 9		
38880	1884785	CTTTCAATTCTATAGTAGATTAGC	ATATTTAAAGTTTTTGCTCAACCAGTTAGGTAACAAGTATTCT spacer
		length: 43 repeater length: 24	
38881	1884852	CTTTCAATTCTATAGTAGATTAGC	AAAGCGGTTGTTTTCCAGTTCCAGAACTGGAATTCTTAT spacer
		length: 40 repeater length: 24	
38882	1884916	CTTTCAATTCTATAGTAGATTAGC	GGATTTTTTAAATGGAGTGAATTGATAAAATGATAAAGC spacer
		length: 38 repeater length: 24	
38883	1884978	CTTTCAATTCTATAGTAGATTAGC	TTGGTGGGGCGATGAACGGCAACGATATGTTGGACGTCAT spacer
		length: 40 repeater length: 24	
38884	1885042	CTTTCAATTCTATAGTAGATTAGC	CTGGAAAACAAATTGAAGAAAGTAAAAAATTGAAATTTTAA spacer
		length: 42 repeater length: 24	
38885	1885108	CTTTCAATTCTATAGTAGATTAGC	GATAGAGAAAAGTTTATAAAGGAGAGTGAAGATATGTATAT spacer
		length: 41 repeater length: 24	
38886	1885173	CTTTCAATTCTATAGTAGATTAGC	TCTAACACTTTTATGATTTCAAGAACTTTGCAAGAAATAA spacer
		length: 39 repeater length: 24	
38887	1885236	CTTTCAATTCTATAGTAGATTAGC	TTAGCATGCGAAACAAATGAAGAATTCAGAAGAGAGTTAG spacer
		length: 40 repeater length: 24	
38888	1885300	CTTTCAATTCTATAGTAGATTAGC	AAAGAATGAGGAAAGAGGCATTGGAAGGCATTGAAGAAGGTA spacer
		length: 42 repeater length: 24	
38889	1885366	CTTTCAATTCTATAGTAGATTAGC	TGGAGATTTAATTAGATATCATCACTTCGTTCTTTCTCTC spacer
		length: 41 repeater length: 24	
38890	1885431	CTTTCAATTCTATAGTAGATTAGC	CTGTTACGCCGGTGCTGGAGGGTAAGTTAGTTGGAGAGCT spacer
		length: 40 repeater length: 24	
38891	1885495	CTTTCAATTCTATAGTAGATTAGC	TTTCCCAGACTTAGTAAAGGACATTTGGAAGGTTCTAAT spacer
		length: 39 repeater length: 24	
38892	1885558	CTTTCAATTCTATAGTAGATTAGC	ATGAAACAGAAAAAGTTAACATTTTAGACCACCAATTAAA spacer
		length: 40 repeater length: 24	
38893	1885622	CTTTCAATTCTATAGTAGATTAGC	AAGACCCCGACTTTTTTAAGGTTTACAGATCCCGCAGAAAA spacer
		length: 40 repeater length: 24	
38894	1885686	CTTTCAATTCTATAGTAGATTAGC	ATGAGGTTTCGTCTGTAGGGATTAATCCCGTGTCTAAAG spacer
		length: 39 repeater length: 24	
38895	1885749	CTTTCAATTCTATAGTAGATTAGC	TAATTATCAATGGCAAACCGCATATAATTGGATGAGATTA spacer
		length: 40 repeater length: 24	
38896	1885813	CTTTCAATTCTATAGTAGATTAGC	TTTACTACACATGTAATAAGTATGTTGATTATGGAATAGAAT spacer
		length: 42 repeater length: 24	
38897	1885879	CTTTCAATTCTATAGTAGATTAGC	TTGAACACGTGATATAGAACCAGTTGTTCTAATACGTT spacer
		length: 38 repeater length: 24	
38898	1885941	CTTTCAATTCTATAGTAGATTAGC	AACAATAGCAATAGCTTTGCTTATAGTCGGTGTAATAAT spacer
		length: 39 repeater length: 24	
38899	1886004	CTTTCAATTCTATAGTAGATTAGC	TTGTAAAGACTAGGTAAAACCTTTGTTATCATAATAGCAGTA spacer
		length: 41 repeater length: 24	
38900	1886069	CTTTCAATTCTATAGTAGATTAGC	AGGAGGGGCTATACGTACGATCACGAATGTAACATTATCGTGA spacer
		length: 43 repeater length: 24	
38901	1886136	CTTTCAATTCTATAGTAGATTAGC	AGTATCTGGCTTTTCGACACAAAACCTCCTTTACCAAC spacer
		length: 38 repeater length: 24	
38902	1886198	CTTTCAATTCTATAGTAGATTAGC	ACGACGATGCTATGTGTTGCACTGTATTTGATCACGGTTAT spacer

length: 41 repeater length: 24
38903 1886263 CTTTCAATTCTATAGTAGATTAGC TACGGTTAAAAGTTGGCAAAAAGCTTAAATTTTTGCAT spacer
length: 38 repeater length: 24
38904 1886325 CTTTCAATTCTATAGTAGATTAGC CTTATGAGCCTCTTTGAGATGTGTCTCTGACTTCTGA spacer
length: 37 repeater length: 24
38905 1886386 CTTTCAATTCTATAGTAGATTAGC ATAAATAAACTAGGTTTGTATTTATCACCTCCAACAATTCA spacer
length: 41 repeater length: 24
38906 1886451 CTTTCAATTCTATAGTAGATTAGC AAACGATAAATTAGCACTATATTATAACTATGATTCTACACA spacer
length: 42 repeater length: 24
38907 1886517 CTTTCAATTCTATAGTAGATTAGC AACTGTAAGTGGTAGCCTTGGTCAGGTGTTACTGACAGTGTGCGATG
spacer length: 46 repeater length: 24
38908 1886587 CTTTCAATTCTATAGTAGATTAGC CAAAATGATATACATATAGTACCATCACCTAGCGCAAGAC spacer
length: 40 repeater length: 24
38909 1886651 CTTTCAATTCTATAGTAGATTAGC GGATATCCAGCAATTGCAACAGGTGGGTCGGGGATATCATTGC spacer
length: 43 repeater length: 24
38910 1886718 CTTTCAATTCTATAGTAGATTAGC TTAACTATGACTTTTTCAGAATACAACAATTTGCGCAATT spacer
length: 40 repeater length: 24
38911 1886782 CTTTCAATTCTATAGTAGATTAGC ATGTATACAATAGATCATATGTTATATATAGAGAATGTACCAAT spacer
length: 44 repeater length: 24
38912 1886850 CTTTCAATTCTATAGTAGATTAGC TCTTGTACAACTCTCATAACGTTTCATTGCAAAACAGTTCAT spacer
length: 43 repeater length: 24
38913 1886917 CTTTCAATTCTATAGTAGATTAGC TACACTGTTGCTTTCTTAACGCTCTACATCGCGTTGT spacer
length: 37 repeater length: 24
38914 1886978 CTTTCAATTCTATAGTAGATTAGC TGCAGGAGGGCGAGGAAGAATGATAAAGATGGAGGAAAA spacer
length: 39 repeater length: 24
38915 1887041 CTTTCAATTCTATAGTAGATTAGC TTGTCCCTTCCATGGGCATTTGTCACTTTCACAAAACCTA spacer
length: 40 repeater length: 24
38916 1887105 CTTTCAATTCTATAGTAGATTAGC ATAAAAAAGAATTATAACTTATTCATCATTCTTTTAATA spacer
length: 40 repeater length: 24
38917 1887169 CTTTCAATTCTATAGTAGATTAGC TTATAATCCCCGTGACACAGAAAGAATTTTAAATATCATAAT spacer
length: 42 repeater length: 24
38918 1887235 CTTTCAATTCTATAGTAGATTAGC TAAACTAACAAGTAAAATTATAACTCCTAACGGAATTGC spacer
length: 39 repeater length: 24
38919 1887298 CTTTCAATTCTATAGTAGATTAGC TGACGATTATAACACTGAACATGAGTATGCAGTAAGTGAAGT spacer
length: 42 repeater length: 24
38920 1887364 CTTTCAATTCTATAGTAGATTAGC AGAATAATCAGTGATGAACAGTGTGAGAACTTGTCCAAGTTTT spacer
length: 44 repeater length: 24
38921 1887432 CTTTCAATTCTATAGTAGATTAGC ATGATGTTGAAAATGGACTAAAACCTTTTAGATGAAAACT spacer
length: 40 repeater length: 24
38922 1887496 CTTTCAATTCTATAGTAGATTAGC TGAACGGAACATCTATTTTTACTCCTAACATCATTCAATCA spacer
length: 41 repeater length: 24
38923 1887561 CTTTCAATTCTATAGTAGATTAGC AAATAATGATAAATAAGGATGAGGTGATAGTACAATGAAATT spacer
length: 42 repeater length: 24
38924 1887627 CTTTCAATTCTATAGTAGATTAGC AGCCCTCCAAAATCGTAAAACCTTGAATATATGAAGTTAAATTTA
spacer length: 45 repeater length: 24
38925 1887696 CTTTCAATTCTATAGTAGATTAGC GTGCTGTAGGCTGTAGGACTGTGCGAGGTAGCGTTTGAAG spacer
length: 39 repeater length: 24
38926 1887759 CTTTCAATTCTATAGTAGATTAGC AGAGTTAATAAACATTTTGAATCCCCACGCTAACGAAAAG spacer
length: 40 repeater length: 24
38927 1887823 CTTTCAATTCTATAGTAGATTAGC ACAAATAACGAAACGAATAAATATAATAAATTATGAATA spacer
length: 39 repeater length: 24
38928 1887886 CTTTCAATTCTATAGTAGATTAGC TTGGTGAACCGGTGATAATATTCGTTACGGCGTCCAATACTGT spacer
length: 43 repeater length: 24
38929 1887953 CTTTCAATTCTATAGTAGATTAGC CCTTACCCTTCAGGAAGCTGCAGAAGATGGTGGAGTACA spacer
length: 39 repeater length: 24
38930 1888016 CTTTCAATTCTATAGTAGATTAGC CATCCGTTACGCTGAGCATACTAAGATCTGTCCTATTTGCCATA spacer
length: 44 repeater length: 24
38931 1888084 CTTTCAATTCTATAGTAGATTAGC TATGGGGGTCAGTGACACTTATTCACCGTTCAGTATTT spacer
length: 39 repeater length: 24
38932 1888147 CTTTCAATTCTATAGTAGATTAGC TGGAATTTTGAATTTTTTGCACCGCTCCAATTATTATTTGG spacer
length: 41 repeater length: 24
38933 1888212 CTTTCAATTCTATAGTAGATTAGC TTGTCTGTCGGTGAAGCAGTAGTATTTCTAAGAGGCCGTCC spacer
length: 41 repeater length: 24
38934 1888277 CTTTCAATTCTATAGTAGATTAGC TCTACTTCTGTCTTCTTAGCCATTTCAGCTCACCTTTG spacer
length: 37 repeater length: 24
38935 1888338 CTTTCAATTCTATAGTAGATTAGC GTAAGAATAATTTTACAAAATCTTAGTAATTATATAGTTTATAT spacer
length: 44 repeater length: 24
38936 1888406 CTTTCAATTCTATAGTAGATTAGC CCTCGCTTTAACCGAGGTGTCTCGGTGACGCTTGCTCCGT spacer
length: 40 repeater length: 24
38937 1888470 CTTTCAATTCTATAGTAGATTAGC AGATTGGTGTATAGTAACAGAAAAGCAGACAACGAAAGGA spacer
length: 40 repeater length: 24

38938 1888534 CTTTCAATTCTATAGTAGATTAGC ATGTTAGTTATCGGCGTTATAATGGGTATCGGAATCGGTGTAG spacer
length: 43 repeater length: 24

38939 1888601 CTTTCAATTCTATAGTAGATTAGC CTATTTTTGTCAATAATTTTTTTATTTTTGCATTTTTTCGAAAT spacer
length: 43 repeater length: 24

38940 1888668 CTTTCAATTCTATAGTAGATTAGC GTAATCTTATTTCTGCGGTAAATTGAGATTATAGATGGTAC spacer
length: 41 repeater length: 24

38941 1888733 CTTTCAATTCTATAGTAGATTAGC ATCATTATGCACATTTCAACTCCATTTCCAATATGAAT spacer
length: 39 repeater length: 24

38942 1888796 CTTTCAATTCTATAGTAGATTAGC CCACGTTTTTTGTCTTAACTTTAATTGATTTATTAGAAT spacer
length: 39 repeater length: 24

38943 1888859 CTTTCAATTCTATAGTAGATTAGC AAGGTCAATCCATTCTGGGGGCGTTAAACCCGCATCCCTGT spacer
length: 41 repeater length: 24

38944 1888924 CTTTCAATTCTATAGTAGATTAGC GGCAGTGTTAGAATACTAACGGGCGAAGAAGAATGGGTTTATT spacer
length: 43 repeater length: 24

38945 1888991 CTTTCAATTCTATAGTAGATTAGC

38946

38947

38948 GCA_900079125.1_MBBA_genomic.fna (PilerCR):

38949 START REPEAT SPACER

38950 crispr 1

38951 648767 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CTATCGTGGCGGCGATCGTCGAGGCTTGATACGCG
spacer length: 35 repeater length: 37

38952 648839 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC TCAAGTAGGGCCTGAATGTGAATCTTCTTATGATCAAG
spacer length: 38 repeater length: 37

38953 648914 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CCCAGGACGATGACGGCGACGATGAGCGCGACGACTG
spacer length: 37 repeater length: 37

38954 648988 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC AGTTCATGCGCCCATCGCCCTACATATTCTTTGG
spacer length: 34 repeater length: 37

38955 649059 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CCGGGAGGCGGGTATTATACGACACATCCGTACT
spacer length: 34 repeater length: 37

38956 649130 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC TAAAATCCTTCTCAAGGCGGCAGAAGACCGGCTGG
spacer length: 35 repeater length: 37

38957 649202 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC GACTATTGACGCCACCGACCCGAGGCCCTGACA
spacer length: 36 repeater length: 37

38958 649275 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC ATCAGAGTCTTGACGAGATACGTGCTCTCGACGCTCTC
spacer length: 38 repeater length: 37

38959 649350 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CGGCATACCGGAATACTTCGACGCACCGAGAGGG
spacer length: 35 repeater length: 37

38960 649422 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC AGGAGTGGATGATAAGGAGAGCGTTCCGCGTGATTCT
spacer length: 37 repeater length: 37

38961 649496 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC GACAGAGGCCGAACCGCCTGATCCGACCACACTCC
spacer length: 35 repeater length: 37

38962 649568 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC ACGCAATGATAGTATGGCATCACGCCGCCCCCTTTC
spacer length: 36 repeater length: 37

38963 649641 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC TGGGGTTGATCGTCGTCGCGGTCCACTCCCGBAAGTAG
spacer length: 38 repeater length: 37

38964 649716 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CCGTGCTCCAGCCCTTCGGCCGCACCATTACGACCGC
spacer length: 37 repeater length: 37

38965 649790 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC AGATGAAGAACCCACACCTGTATCATCACTACAATA
spacer length: 37 repeater length: 37

38966 649864 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC TCATTGACGTACTTGACGTACTCCGCCAGTTCGCC
spacer length: 36 repeater length: 37

38967 649937 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC ATCCCGGAGGGCGAGATAACGTGAGCAACCCCTACCCG
spacer length: 38 repeater length: 37

38968 650012 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC
GTTAAAGGTTTTATTGACGGAATAATGGGTAAAGGCACCAG spacer length: 40 repeater length: 37

38969 650089 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CAGTAAATGGATATTCCCCGCAATTACGCAGAGAT
spacer length: 35 repeater length: 37

38970 650161 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CGAACGAGCGCGACCTTTCGCGCTCGACGAGCG
spacer length: 34 repeater length: 37

38971 650232 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC ATCTCTGCTTGGATCTCAGGTTTTTCCAAGAGTTCAA
spacer length: 37 repeater length: 37

38972 650306 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CCAACACCGCGATCGCTCTGCAGGGGCACTACGACGA
spacer length: 37 repeater length: 37

38973 650380 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CACAGTTGGACGGCACGGGCATGTCAAGGTGTCGT
spacer length: 37 repeater length: 37

38974 650454 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC GGTAAGCCGGGAAACGTACGATAAAGTGAAGGCATT
spacer length: 36 repeater length: 37

38975 650527 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CCAGGAGTACCTATTTTCGAGCGAATCCGGGTCTTC
spacer length: 35 repeater length: 37

38976	650599	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ATACAAATCTATTGTATCTATGCGTATCCAATGCGCA
		spacer length: 37 repeater length: 37	
38977	650673	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CCACCGGATGATAACGTATCTGAACCAGCCTCCTGG
		spacer length: 36 repeater length: 37	
38978	650746	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CGGGAGGCCGGGGTGTTCGCGGTCACGCGCTCG
		spacer length: 33 repeater length: 37	
38979	650816	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ACGAGCAGCCGCAAGAGGTCAAGTCGCACTGACAAC
		spacer length: 36 repeater length: 37	
38980	650889	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GACTCATACGGTATTTTCAGAACGATTGTGCCACTCAA
		spacer length: 38 repeater length: 37	
38981	650964	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ATTTTCCGGATCGTTGCAACGAACGGCATGTGGTCT
		spacer length: 36 repeater length: 37	
38982	651037	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCTGGCTCTTGTCGATCTGCTCGATCGTCTTGATCCA
		spacer length: 37 repeater length: 37	
38983	651111	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ACGCTGACGTGGTAGATCGGGGTGTCCGCCCCGACCG
		spacer length: 37 repeater length: 37	
38984	651185	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CACGGTACATCGGCGTGCCGGTCCGTCCAGGTCTTGACC
		spacer length: 39 repeater length: 37	
38985	651261	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AGGTGGTCCCATCATCCACCTCGACCCGGGCAACCG
		spacer length: 36 repeater length: 37	
38986	651334	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CAAAGGTAATCAACATTCCCACGCAGGGATCAACACC
		spacer length: 37 repeater length: 37	
38987	651408	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TTGAGTACATCACCAACACCCCCTTCTTACCATCAA
		spacer length: 37 repeater length: 37	
38988	651482	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CTGAAATGCGTCAACTCGTCGAACGCAATCAGGCA
		spacer length: 35 repeater length: 37	
38989	651554	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CGCTTTATCGCGTTCCTCGTCCGGAGTACTGCCT
		spacer length: 36 repeater length: 37	
38990	651627	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ACCAGGCCATCCACTGCTCGTGCTCCAGGGCCGCTA
		spacer length: 36 repeater length: 37	
38991	651700	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CTCCTGCAACCCGAGCATATCACTGTAGTACTTCGC
		spacer length: 36 repeater length: 37	
38992	651773	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCAAACCAGGCGACGATCTCTTTTGCCGAGTGGTTGG
		spacer length: 37 repeater length: 37	
38993	651847	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ATCGGGCCGACGGTCGTGAACTCGTTCTTCGCCTCG
		spacer length: 36 repeater length: 37	
38994	651920	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCCATCATCGGCCCCCTGCCCCCTCCAGGGCGTCGAT
		spacer length: 36 repeater length: 37	
38995	651993	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CACGATCCGAGCCGGATCGCGTCTTCTCTCTTGACT
		spacer length: 36 repeater length: 37	
38996	652066	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	
		TTTAGTTCACATCTGTAATAATCCTTTTCTTCAAACAGTC	spacer length: 40 repeater length: 37
38997	652143	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CCTCCGGCCAGGGGGGTGCTGGCGGCCACGAAGAGACC
		spacer length: 38 repeater length: 37	
38998	652218	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GCGGTTCTGCGACAAAGAAGTAGCCCAGGGACCCGGC
		spacer length: 38 repeater length: 37	
38999	652293	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CGGACCTGCTCTCATCGATGCATGGGGCATTGGTCGC
		spacer length: 37 repeater length: 37	
39000	652367	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CCATTAATATAGTCATCTATTTGTATCTCACGTGGT
		spacer length: 36 repeater length: 37	
39001	652440	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ATCACCCCGTTCTTCCCCGGGGCACTGGGCAGGAAC
		spacer length: 36 repeater length: 37	
39002	652513	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AGGTCGGCGAGGATCTCTTCTGGCGAAACTCTCCA
		spacer length: 36 repeater length: 37	
39003	652586	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AGTATTTTCCCCCGAACATTGTTCCCGTGAAGCT
		spacer length: 36 repeater length: 37	
39004	652659	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TGCGGGCAGAACGTCGCCCCACCCATCCCGCCAGGCC
		spacer length: 36 repeater length: 37	
39005	652732	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CTCGCGTCGAACTGACAGGCGAGATACTTGTCGA
		spacer length: 34 repeater length: 37	
39006	652803	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GATGAACAGCACGGACGCCACCTGGATACCGTTCCGG
		spacer length: 37 repeater length: 37	
39007	652877	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ATGACTCTCCTACATCATAACGCGCGGTTCTTGAAA
		spacer length: 36 repeater length: 37	
39008	652950	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCCAGCATCAGGCCTCCTCCTCCTCTTCGACCTCGT
		spacer length: 36 repeater length: 37	
39009	653023	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GCCCCACTCAGGTTGGCCCCACCCAGGTCGGCCCCACC
		spacer length: 38 repeater length: 37	
39010	653098	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CCGTAGCGCTGCGCCCCCATGATCTCTGTCCGGGCG
		spacer length: 36 repeater length: 37	
39011	653171	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CTCTGGAAGAGCATCGAGAGTTTCGCCTGACTCACC

	spacer length: 36	repeater length: 37	
39012	653244	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TGCGGGCAGATCGTCACCCACCCGTCCCGCCAGGCG
	spacer length: 36	repeater length: 37	
39013	653317	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CAAAACCGATCCAGCCCGAACTTATCCGCAAAC
	spacer length: 33	repeater length: 37	
39014	653387	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CGGCAGAGGAAGTCCAGGTGGCGGGCCGGCTTCCA
	spacer length: 35	repeater length: 37	
39015	653459	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TGAGTCAGGGCGATCGTCATCGCACCATGCCACCACCT
	spacer length: 38	repeater length: 37	
39016	653534	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AGGACGGCGTTTCATCGTGCAGAACGTGAAGGCCCCG
	spacer length: 35	repeater length: 37	
39017	653606	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CAAATCTGAAAATCTACCAGAAGGCCCGGGACCTGGC
	spacer length: 37	repeater length: 37	
39018	653680	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GCTCCATGACCGCATCAGCCGAGGCCCATGCATC
	spacer length: 35	repeater length: 37	
39019	653752	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CTAACCGGTATGACTGACCCATCCCCGACGCTCGGG
	spacer length: 36	repeater length: 37	
39020	653825	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AGGTACTCGTCTGGCTGGCGCTCGAACCTACAGAGTC
	spacer length: 37	repeater length: 37	
39021	653899	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TGATTACAGATTATCGGATTGTCGTACCGACAAAAG
	spacer length: 36	repeater length: 37	
39022	653972	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCAATGAGCGTTACGCCGATATCCTCCCAGACATCG
	spacer length: 36	repeater length: 37	
39023	654045	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AAAAAGTCGGTCCAACCTCGTCCATCGATGGGCGCAA
	spacer length: 36	repeater length: 37	
39024	654118	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ATCTCGGCGTCGGTCATCTCGTCCCGAATCGCCCCG
	spacer length: 36	repeater length: 37	
39025	654191	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CAAGGCGCGGCCATTCTTTCCGCAGCAGCCGACCAAG
	spacer length: 37	repeater length: 37	
39026	654265	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TTCTTGAGCATCCACTCCCGGGTTCGTGTGGCC
	spacer length: 34	repeater length: 37	
39027	654336	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCGTACGCGTTTCAGACCCCCGATCCCGACCGAAT
	spacer length: 35	repeater length: 37	
39028	654408	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CCTTCGAGCTAGAAGCAGCCTATGTCTATACCTC
	spacer length: 35	repeater length: 37	
39029	654480	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCCGCGTCACCCTGAATGGATGCGAGCGCCTGGTCG
	spacer length: 36	repeater length: 37	
39030	654553	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TTTTTCATCATCGGTCAACCGTTTTCCAGTCGCT
	spacer length: 34	repeater length: 37	
39031	654624	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GAAAGGGGGATTTCGAACTTGGAGTCCTGATGCGCCG
	spacer length: 36	repeater length: 37	
39032	654697	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CAGAACTCGGCGAGGACCGACGGCGGCAGGTCACGGA
	spacer length: 37	repeater length: 37	
39033	654771	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AGTACAGTAACTCACTAACTCACTAAGGAAAATG
	spacer length: 35	repeater length: 37	
39034	654843	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCCGCGTACGTCTCGTCGGCAGAAGGGGTCAGTCTTG
	spacer length: 37	repeater length: 37	
39035	654917	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CCGTGTACTCCTGCACAGAGCACCTGGATTGTATC
	spacer length: 35	repeater length: 37	
39036	654989	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ACGTCGATTTCAAATAACGCTGATGCTCCTCTAGAC
	spacer length: 36	repeater length: 37	
39037	655062	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AAAGTCTCCCCGACCACAATATACGCTTTGCCGTCGTG
	spacer length: 38	repeater length: 37	
39038	655137	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GAGATCCCGCCGGTCAAGAAACCGTTCCTCCAGTTC
	spacer length: 36	repeater length: 37	
39039	655210	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CGAACCAGACCGTTCTCGCCGGCAGCGCGGCATCTT
	spacer length: 36	repeater length: 37	
39040	655283	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CCAGTCGAACCCTTCGCAGAGGCAATCGATGACTG
	spacer length: 35	repeater length: 37	
39041	655355	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TAGAACTCGGTCTGGATCAGGGTCGTGCCCTCAATC
	spacer length: 36	repeater length: 37	
39042	655428	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCCAACTACCAGGAGCAGGACGGCGGGCTGCTCATC
	spacer length: 36	repeater length: 37	
39043	655501	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CTCTACCGGGAGGCATTCCCGGCTTCGGGGAGGTCT
	spacer length: 36	repeater length: 37	
39044	655574	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ACTGACCAGGAGATCGCCGATCATCTCGGAGTCGCG
	spacer length: 36	repeater length: 37	
39045	655647	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ACATGATCCTGACCTACAACTCCGGCACAACCGTGA
	spacer length: 37	repeater length: 37	
39046	655721	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCAGGAGATAAAGGGGTGGCTTGCCAGGTGCTGCCG
	spacer length: 37	repeater length: 37	

39047	655795	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCAGGGACGGGTCCAGACGTGGAACCAGATGTTT
	spacer length: 34	repeater length: 37	
39048	655866	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TTCGCCACGGTCTCCCTCCTGCAGGGCTTGTGCGATCG
	spacer length: 38	repeater length: 37	
39049	655941	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ACCAGGCACCAGACCAGGAGTCCGCCTCCGATAACGT
	spacer length: 37	repeater length: 37	
39050	656015	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CCTCGGGTACGGCGGGTGGCGCTACGGTCAGTATG
	spacer length: 35	repeater length: 37	
39051	656087	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CAACGCCAACCAGGGCTATGGTCATGGACATCCCCTA
	spacer length: 36	repeater length: 37	
39052	656160	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GACATCGCGGTCATAGGATCGTCCGCCATGCAGAAAG
	spacer length: 37	repeater length: 37	
39053	656234	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCCGCCTCCTCGATCTTCAGAGCCAGCCCCCTCGATC
	spacer length: 36	repeater length: 37	
39054	656307	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AGGTAGAATGTCTTGTTTCGGCCCCATATGCATGCC
	spacer length: 35	repeater length: 37	
39055	656379	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GTATCGGCTCCCATGACATCAGAAGGAATGAAGGA
	spacer length: 35	repeater length: 37	
39056	656451	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CGGGTGCAGGGGCCTTCTGCGGGGTGGGGTTCGGT
	spacer length: 36	repeater length: 37	
39057	656524	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CATCGCCCGGGCGGTCTATACGCAGGTCCTCGATGG
	spacer length: 36	repeater length: 37	
39058	656597	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CTCGTCCTGAGTTCTCCAAGGAGTGCTCTAGCGTC
	spacer length: 35	repeater length: 37	
39059	656669	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CAACGCGATACCATGCCCTCCAGTAGCGCCGTGCG
	spacer length: 36	repeater length: 37	
39060	656742	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GGGTAAAAAT
39061			
39062			
39063	GCA_900083515.1_ASM90008351v1_genomic.fna (PilerCR):		
39064	START	REPEAT	
	SPACER		
39065	crispr 1		
39066	1559960	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	TAGTGGGCACTCTCGATATATGAAAGGATGGATTGCAT
	spacer length: 38	repeater length: 36	
39067	1560034	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	CAAGAAGTGGAGGGACATGTCGCCGCAGCAAAGAAAG
	spacer length: 37	repeater length: 36	
39068	1560107	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	TCTTTAACTTTTCAGGCTTCAAGTACGGGATACAACG
	spacer length: 37	repeater length: 36	
39069	1560180	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	CACCAGTAGCATTCTTTGTTACTGTTGAAGGGAAATC
	spacer length: 37	repeater length: 36	
39070	1560253	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	CTTCACTCAGGGAGGGGACATTAAGGTCTCTGTCT
	spacer length: 36	repeater length: 36	
39071	1560325	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	ACCCAGACCTCTTCGCTTTCTTTCTGTGAGAGATT
	spacer length: 36	repeater length: 36	
39072	1560397	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	GGCGTCAGATTCATCCAATGCCATCACCAGATCTGTG
	spacer length: 37	repeater length: 36	
39073	1560470	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	TTTCTCCACCAACCTGCAACCAGAAGGAGGAATTTGT
	spacer length: 37	repeater length: 36	
39074	1560543	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	AAGTCATTGTTATTGTTTCTATCCCAGAACTCCTCC
	spacer length: 37	repeater length: 36	
39075	1560616	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	GTTGTTTTTACCGGCTTTTGAGAAAAATCCAGACATGGG
	spacer length: 38	repeater length: 36	
39076	1560690	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	TATAGTTTTTTTTTCAAATATTTTAGTAGTAGTAGT
	spacer length: 36	repeater length: 36	
39077	1560762	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	TCATATCACTGATGACAAAATATGTCAATCGAATGAC
	spacer length: 37	repeater length: 36	
39078	1560835	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	AATGGAAATTTGATGGTGATTTTTGTTGTAAACAGTTT
	spacer length: 38	repeater length: 36	
39079	1560909	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	AAAGAGGACTATGCCAAATACTATTATCCAGTTTGCAGC
	spacer length: 39	repeater length: 36	
39080	1560984	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	ATAAAGGAATTCTTCCTTGAAGATGGTTGGATTGTTAA
	spacer length: 38	repeater length: 36	
39081	1561058	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	GTGAATTTTCTTTTATTTTCAGGATATCGATGTATT
	spacer length: 35	repeater length: 36	
39082	1561129	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	GGTTGCTGCACATTGAGGTATGTATGAAGACCTTGT
	spacer length: 36	repeater length: 36	
39083	1561201	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	TCTTATCATGTGAGCATCAGCCATACTGTAAGATTGA
	spacer length: 37	repeater length: 36	
39084	1561274	GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	ATAGTTGATATTTACCAAATGTAAGGGGATTGAAAAC
	spacer length: 38	repeater length: 36	

39085	1561348 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 35 repeater length: 36	TTTGTAAATGAAGTCATGCCATCGTATCAGGTAAGG
39086	1561419 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	AACATAGGGGAAAACAAGCGATTCTATTGATTTATATA
39087	1561492 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	TTGGGCTCTATGGAAACACTGGCACAATGCATATAAT
39088	1561565 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	CCGGACTAAGTACCACATACAAAGACCCAATAACCGT
39089	1561638 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 38 repeater length: 36	TAAGGAATTATCTTGAGTATTTTATCCAGATTTTCTTC
39090	1561712 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	CACCTCCAAGGTTTTCTGGGTGGCTCCCTTTTACTG
39091	1561785 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	ATCGTGAATGATTACATACACTGAATCTGTACCAGAT
39092	1561858 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 36 repeater length: 36	CCTGTATCGGCAGGATTTACTGAGGATGATACTGAA
39093	1561930 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 36 repeater length: 36	AGTTACTGGTAAGAATGTCAATGCAATCGTCAATTC
39094	1562002 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	TTGTTTCAGCTCTGCCACCGTCATGTTCTGTCTCGACAT
39095	1562075 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	CCCAGTACTGAGGACGAGAACTGCACGCTCAGGGGAC
39096	1562148 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	TACGAGATTGCATAAGGTTCTGAAAGGTGTGATCAC
39097	1562221 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 38 repeater length: 36	AGATCTATGAACTAAATGGACTTCCGGTGCCTGATCCA
39098	1562295 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 38 repeater length: 36	GTTCTTCCCCTGATGAGAAAGTCAGGAGAGCTGTGGAG
39099	1562369 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	AGTATGGGATAGGGTGCACAGCCATGATATCATGCC
39100	1562442 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	CCTCCGTGGAAAGTCTTGCAAGTTTTTAACGCAATCAT
39101	1562515 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 39 repeater length: 36	TGCCACACCAATTTCTGTGTCGTACAGATGAAATTTCTTC
39102	1562590 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 36 repeater length: 36	GTTACCATAAGAGCATTGACAAAGTATGGGTGAGT
39103	1562662 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 35 repeater length: 36	TTCTATAGATGAAGCATGTTTTTCAACACCATTAG
39104	1562733 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	AAGTTATCCGAGTAAGCCTGTTCCACCGTTTACAGCA
39105	1562806 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	GTGTGATACAAGTCGGAGTGCTAATGAAAATGTGGCA
39106	1562879 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	GATCTGGAATATGAATGTTGTAAACTGGAAAAGCTGG
39107	1562952 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 36 repeater length: 36	TTTTTAAAATGAATAGTAGATATAATAGTTTTGAGA
39108	1563024 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 35 repeater length: 36	AATCATTCAAAAAATAAGGAGGAATTGAAGAAATG
39109	1563095 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 36 repeater length: 36	AAGATAACAGTAAAGTCATTTATCCAGACTATAAAC
39110	1563167 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	CATCGACAATAAGCAACAGCCATGCGATATACACCCA
39111	1563240 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	CATTCCAGAAATGCCTTTAAGGGAAACAAACATCAAA
39112	1563313 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 38 repeater length: 36	AATAAAGGAGTTTAAAGGCATGGATACCAGAACCATAA
39113	1563387 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 36 repeater length: 36	TCCTCAAAAACATACTAGACCGGGAAATGACAGAAA
39114	1563459 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	AGAAAACCTCGCAGAGGAACTCCACAGGAAGAGGAAT
39115	1563532 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	CAGATTGTGAATTCACAGCTCCACATTGAGGGCATT
39116	1563605 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 36 repeater length: 36	ACCATACTGGGCCGTTGTTACGGGATTTCTTCTGT
39117	1563677 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	AGCAGACCTGATAATAGAAAATAAAAAAATCGAACTG
39118	1563750 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 38 repeater length: 36	AACACTCCTACGGAAAATAGAAGATACCTTCAATCCCA
39119	1563824 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC spacer length: 37 repeater length: 36	ATAAAGGAGATCGAACAAACAAGGAAGGCGAAACAAT
39120	1563897 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC	TCGATGGTACTGGAAGTTCAATACACAGCAAACCAATG

spacer length: 38 repeater length: 36
 39121 1563971 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TGGACAGATGCAGATCATCCAGATCAGGGCCTAGAT
 spacer length: 36 repeater length: 36
 39122 1564043 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC CAGATCTCCCATGAGTTTGTCTGACTGTTTCAGGTGC
 spacer length: 36 repeater length: 36
 39123 1564115 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC GCCTGTATCC
 39124
 39125
 39126 GCA_900090055.1_C.divulgatum_PM4_genomic.fna(PilerCR):
 39127 START REPEAT
 SPACER
 39128 crispr 1
 39129 1529345 ATTGTTAGAATACCTATAAGGACTTGAAAC TGGTATCGTGGACATAGTTGTTGAAGAGGGTTATGT spacer
 length: 36 repeater length: 30
 39130 1529411 ATTGTTAGAATACCTATAAGGACTTGAAAC TGGTTGCATTTATATTATCTTCGATGTAATTCTGTAG spacer
 length: 37 repeater length: 30
 39131 1529478 ATTGTTAGAATACCTATAAGGACTTGAAAC CTTTCATGACGATCCCTGGAGAATAGGAATTGACCTGA spacer
 length: 37 repeater length: 30
 39132 1529545 ATTGTTAGAATACCTATAAGGACTTGAAAC TGGTTTTTCAGTATTATTTTTTAAAAGGTAGTATAGAA spacer
 length: 37 repeater length: 30
 39133 1529612 ATTGTTAGAATACCTATAAGGACTTGAAAC TCAAAATTAAAAAGGTGAAATAATAATGACTATTGAA spacer
 length: 37 repeater length: 30
 39134 1529679 ATTGTTAGAATACCTATAAGGACTTGAAAC TTTTAAATGACGAATTTATGACATATATAGATTCCCTA spacer
 length: 37 repeater length: 30
 39135 1529746 ATTGTTAGAATACCTATAAGGACTTGAAAC TAATCAAATAATAAATAACACCGCTTTAACCGATACC spacer
 length: 37 repeater length: 30
 39136 1529813 ATTGTTAGAATACCTATAAGGACTTGAAAC AAATTTCTCCTAAATGATCTATCCTTCCTTCTACCTAC spacer
 length: 38 repeater length: 30
 39137 1529881 ATTGTTAGAATACCTATAAGGACTTGAAAC ATTTTCCCCTGCTCTAAAGTGAGTCCTGTCTTCTTC spacer
 length: 36 repeater length: 30
 39138 1529947 ATTGTTAGAATACCTATAAGGACTTGAAAC TTCGATATATTCAACTAATAATACAAATGTATTAATT spacer
 length: 37 repeater length: 30
 39139 1530014 ATTGTTAGAATACCTATAAGGACTTGAAAC ACTGAATATGAATTAGAACATTTAGACTTAATGGAA spacer
 length: 36 repeater length: 30
 39140 1530080 ATTGTTAGAATACCTATAAGGACTTGAAAC AAGGTTTATTTTCAGTTTTATTCTAATACGGGATTAG spacer
 length: 36 repeater length: 30
 39141 1530146 ATTGTTAGAATACCTATAAGGACTTGAAAC GAGAAAAATTCTACATGCTGATTTGCATCAACCTTT spacer
 length: 36 repeater length: 30
 39142 1530212 ATTGTTAGAATACCTATAAGGACTTGAAAC TTTGAAGAACATGAAATTTAATCCTGATCTTATGAG spacer
 length: 36 repeater length: 30
 39143 1530278 ATTGTTAGAATACCTATAAGGACTTGAAAC AATAATATATATGTTGAAGATATTATTAATAATGAA spacer
 length: 36 repeater length: 30
 39144 1530344 ATTGTTAGAATACCTATAAGGACTTGAAAC AATCGTATTTTATTGAAGGTCAAAGAAAATACGGTT spacer
 length: 36 repeater length: 30
 39145 1530410 ATTGTTAGAATACCTATAAGGACTTGAAAC TTGAAAAAATATCAAACAAATATCCTAAAAATAAA spacer
 length: 36 repeater length: 30
 39146 1530476 ATTGTTAGAATACCTATAAGGACTTGAAAC GACGATATCATTTTCGATCAGGTAGTCAAGATATCA spacer
 length: 36 repeater length: 30
 39147 1530542 ATTGTTAGAATACCTATAAGGACTTGAAAC ACAAAGTTCTATGTCAGAAAGGATCTGTCAGATGCG spacer
 length: 36 repeater length: 30
 39148 1530608 ATTGTTAGAATACCTATAAGGACTTGAAAC TTTGCAATTGGATACAGTGCAAGAATATGGGAAGAAA spacer
 length: 37 repeater length: 30
 39149 1530675 ATTGTTAGAATACCTATAAGGACTTGAAAC GTGATATCTATTTTGGGATGAGTGTAGAAAGGATA spacer
 length: 36 repeater length: 30
 39150 1530741 ATTGTTAGAATACCTATAAGGACTTGAAAC TTATGAAATCTTATCATATGGCTATCAGCCATACTA spacer
 length: 36 repeater length: 30
 39151 1530807 ATTGTTAGAATACCTATAAGGACTTGAAAC AAAAGCCAAAGGTGAAGAAGTGAACGTAACATTTCTGT spacer
 length: 37 repeater length: 30
 39152 1530874 ATTGTTAGAATACCTATAAGGACTTGAAAC GAGTTATAAACAAATCCGATATTGCCTATTTGGAAAG spacer
 length: 37 repeater length: 30
 39153 1530941 ATTGTTAGAATACCTATAAGGACTTGAAAC TCCTCTATATACTTGGATTCTTTGATCTTGCAGCACT spacer
 length: 37 repeater length: 30
 39154 1531008 ATTGTTAGAATACCTATAAGGACTTGAAAC GAATATTCAGGATCTTCAAACGGTAGCTTCATCTTCA spacer
 length: 37 repeater length: 30
 39155 1531075 ATTGTTAGAATACCTATAAGGACTTGAAAC CCATATTTGGTATTTGGTGTATAGAGAAATATATTC spacer
 length: 37 repeater length: 30
 39156 1531142 ATTGTTAGAATACCTATAAGGACTTGAAAC AAGACAATGAGCCTATTATCAAAAAGGTGAAATAATAA spacer
 length: 38 repeater length: 30
 39157 1531210 ATTGTTAGAATACCTATAAGGACTTGAAAC TTCGATATATTCAACTAATAATACAAATATAATTATT spacer
 length: 37 repeater length: 30
 39158 1531277 ATTGTTAGAATACCTATAAGGACTTGAAAC CGGTAATTTAGGATCAGGTAAATCCTTTAGTATTT spacer

	length: 35	repeater length: 30	
39159	1531342	ATTGTTAGAATACCTATAAGGACTTGAAAC	TAATTATATCGTTAATGTTGAATATTGGAAAAATTCA spacer
	length: 37	repeater length: 30	
39160	1531409	ATTGTTAGAATACCTATAAGGACTTGAAAC	AAAAAATTCCTAATGATAAGAATGAGATTGTGATTG spacer
	length: 36	repeater length: 30	
39161	1531475	ATTGTTAGAATACCTATAAGGACTTGAAAC	CGACACTATAGGATATGCTAATAACCATAATTTATA spacer
	length: 36	repeater length: 30	
39162	1531541	ATTGTTAGAATACCTATAAGGACTTGAAAC	CATCATCAGTAATAATTTACAATCTACAAATAATA spacer
	length: 36	repeater length: 30	
39163	1531607	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTTTCAATCCTTCTTTACTGGGGCATTGGTTTCATAAT spacer
	length: 38	repeater length: 30	
39164	1531675	ATTGTTAGAATACCTATAAGGACTTGAAAC	TATCTCCATGAAACAATCTTTAGTTAAGCGGGAAAAA spacer
	length: 37	repeater length: 30	
39165	1531742	ATTGTTAGAATACCTATAAGGACTTGAAAC	AAGTAGCTATGGCTTTGATATTGGCTTTAGTAGTGA spacer
	length: 36	repeater length: 30	
39166	1531808	ATTGTTAGAATACCTATAAGGACTTGAAAC	TAACATCGATAACATATTCAAATGGAAATTTAATAAT spacer
	length: 37	repeater length: 30	
39167	1531875	ATTGTTAGAATACCTATAAGGACTTGAAAC	CCGTTTCAGGACATTTTCGACGTAACGAAATCTAATA spacer
	length: 36	repeater length: 30	
39168	1531941	ATTGTTAGAATACCTATAAGGACTTGAAAC	ACAAAAAAGGTAAAGGAAAGAAAATAACACGAGCCAAA spacer
	length: 38	repeater length: 30	
39169	1532009	ATTGTTAGAATACCTATAAGGACTTGAAAC	CTATAACGGTGATCTTACAATAACAAATACAACAAC spacer
	length: 36	repeater length: 30	
39170	1532075	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTGTGTCAAAAATAAAAACGATTTAAAGAAATATT spacer
	length: 36	repeater length: 30	
39171	1532141	ATTGTTAGAATACCTATAAGGACTTGAAAC	ATATGTTTCATAACCAATCTAATAATAATAGGATTGAA spacer
	length: 37	repeater length: 30	
39172	1532208	ATTGTTAGAATACCTATAAGGACTTGAAAC	TACCTCCCCTGGATACTCCCAACCGGATATATATG spacer
	length: 36	repeater length: 30	
39173	1532274	ATTGTTAGAATACCTATAAGGACTTGAAAC	TGTTTCCCGCTACCGCCGTTCCCTCTAATACCCCGAC spacer
	length: 37	repeater length: 30	
39174	1532341	ATTGTTAGAATACCTATAAGGACTTGAAAC	AAATGAGTGAAGAAGTAAACATGAGTGAAGAAGTTAA spacer
	length: 37	repeater length: 30	
39175	1532408	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTAGAATAATAATTACCAAACCCTAAGTTTTGAACCG spacer
	length: 37	repeater length: 30	
39176	1532475	ATTGTTAGAATACCTATAAGGACTTGAAAC	AAGGTGATAAAATATGACTATGTTAGACGAATTAGTAA spacer
	length: 38	repeater length: 30	
39177	1532543	ATTGTTAGAATACCTATAAGGACTTGAAAC	TGACGAATTGGTTTTAGAAATGCAGGACGGGGAAATT spacer
	length: 37	repeater length: 30	
39178	1532610	ATTGTTAGAATACCTATAAGGACTTGAAAC	ATATTATTATGTAACGAATTAGAATTATTACTTACA spacer
	length: 36	repeater length: 30	
39179	1532676	ATTGTTAGAATACCTATAAGGACTTGAAAC	AGACCATAAGAGATCAACTGCAAAGACAACTCGTTAT spacer
	length: 37	repeater length: 30	
39180	1532743	ATTGTTAGAATACCTATAAGGACTTGAAAC	TCCTGACCTGTAACTGAATCTCTAAGGGATAATCT spacer
	length: 36	repeater length: 30	
39181	1532809	ATTGTTAGAATACCTATAAGGACTTGAAAC	ATTACAACATAAATCTGTATCCATAATAAATCACTC spacer
	length: 35	repeater length: 30	
39182	1532874	ATTGTTAGAATACCTATAAGGACTTGAAAC	CATTGCAGGGCTAACAGGACCCACAATGTCAGGAG spacer
	length: 35	repeater length: 30	
39183	1532939	ATTGTTAGAATACCTATAAGGACTTGAAAC	CATATACAATCCAAACAAAACAGCACAAATCCAAT spacer
	length: 36	repeater length: 30	
39184	1533005	ATTGTTAGAATACCTATAAGGACTTGAAAC	TGTACCGATTCTTCTTTAGCAAGGACCTTTCCACCCT spacer
	length: 37	repeater length: 30	
39185	1533072	ATTGTTAGAATACCTATAAGGACTTGAAAC	CTAATACATTCCCCCTAATAAACTGTTGCTATACATT spacer
	length: 37	repeater length: 30	
39186	1533139	ATTGTTAGAATACCTATAAGGACTTGAAAC	TGAGTTGCTGATAGTATCCAGTGCCTGTGGGAGGGCT spacer
	length: 37	repeater length: 30	
39187	1533206	ATTGTTAGAATACCTATAAGGACTTGAAAC	CATTTACAACCCGCACAGGAACGCCACTGTTCCGG spacer
	length: 35	repeater length: 30	
39188	1533271	ATTGTTAGAATACCTATAAGGACTTGAAAC	TGGTTCGGCGACTGAGATGAAAAGAAAACCTCAGATCCG spacer
	length: 38	repeater length: 30	
39189	1533339	ATTGTTAGAATACCTATAAGGACTTGAAAC	ATAATCCTTCCGACAAGCGGCCCCGACACAGATAACC spacer
	length: 36	repeater length: 30	
39190	1533405	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTTTTGAACAAACAAAGAAAATATACTGTGAGATT spacer
	length: 35	repeater length: 30	
39191	1533470	ATTGTTAGAATACCTATAAGGACTTGAAAC	CGATCTAACAGGGCAAGACTGGGCAATCTGGCTATT spacer
	length: 36	repeater length: 30	
39192	1533536	ATTGTTAGAATACCTATAAGGACTTGAAAC	AAAATAGATAGCCAACCTAACTTGCCAGAAACAAGC spacer
	length: 36	repeater length: 30	
39193	1533602	ATTGTTAGAATACCTATAAGGACTTGAAAC	ACTCCAGAAACCTAGAAAAACCTAGAAGATTCTGGA spacer
	length: 36	repeater length: 30	

39194	1533668	ATTGTTAGAATACCTATAAGGACTTGAAAC	CAATTAGGTTGTTTCCAGTACAATGATCTATGGTTAG	spacer
	length:	37	repeater length:	30
39195	1533735	ATTGTTAGAATACCTATAAGGACTTGAAAC	ATGTGAAACAACCTTTCTTTTTCAAAGAAACAAAAGA	spacer
	length:	37	repeater length:	30
39196	1533802	ATTGTTAGAATACCTATAAGGACTTGAAAC	CAGGGAGAAAAGATTTTGGGCGAAAACCTGGACATCAA	spacer
	length:	37	repeater length:	30
39197	1533869	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTGAGATAATGTCCTTCAGATAATCTGTATATATAC	spacer
	length:	36	repeater length:	30
39198	1533935	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTGTCGGTGTGGCAGGAATCATTCTAACTGTAAGGT	spacer
	length:	36	repeater length:	30
39199	1534001	ATTGTTAGAATACCTATAAGGACTTGAAAC	CCGTGTTACCTGCATCGGTGGGGTTCTGGGATGAAG	spacer
	length:	36	repeater length:	30
39200	1534067	ATTGTTAGAATACCTATAAGGACTTGAAAC	AATGGTGAAATTCGCGCTGAAATATTCACAGAGAGA	spacer
	length:	36	repeater length:	30
39201	1534133	ATTGTTAGAATACCTATAAGGACTTGAAAC	AGGGATATTTTATCTTGAGTGCGTGGAGACGGAAATA	spacer
	length:	37	repeater length:	30
39202	1534200	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTGAATATGAATATGAGTATGCGTAGGTGTAGTAGT	spacer
	length:	36	repeater length:	30
39203	1534266	ATTGTTAGAATACCTATAAGGACTTGAAAC	CTCATTCACCTTCACAGTCATTTTTTCATTCACCCAT	spacer
	length:	36	repeater length:	30
39204	1534332	ATTGTTAGAATACCTATAAGGACTTGAAAC	TGAGGTCCATGTGCTGACCTATTCTCTCGTCGTGCTG	spacer
	length:	37	repeater length:	30
39205	1534399	ATTGTTAGAATACCTATAAGGACTTGAAAC	TAATGATTTTTCTCTAATCCTCTTCCGGTGGGAG	spacer
	length:	35	repeater length:	30
39206	1534464	ATTGTTAGAATACCTATAAGGACTTGAAAC	AACAGTATTCGCCTAAGTCATATAAATTAATTTCTTC	spacer
	length:	37	repeater length:	30
39207	1534531	ATTGTTAGAATACCTATAAGGACTTGAAAC	GAGTGTTACTCTATATTCTCTTTGAATATTAGATAAC	spacer
	length:	37	repeater length:	30
39208	1534598	ATTGTTAGAATACCTATAAGGACTTGAAAC	ACATATAATGGAACACTGAAAATGGTTCAAGTGGAA	spacer
	length:	37	repeater length:	30
39209	1534665	ATTGTTAGAATACCTATAAGGACTTGAAAC	TACAAAAACAACAAATATATACCACTG	spacer length: 27
	repeater length:	30		
39210	1534722	ATTGTTAGAATACCTATAAGGACTTGAAAC	TAGTCAAATTCTTTTTTAAGTATATTTCTTAATTTTA	spacer
	length:	37	repeater length:	30
39211	1534789	ATTGTTAGAATACCTATAAGGACTTGAAAC	CCAATGATGGCAGAGATTTCTCAAAGAAATAGCGAC	spacer
	length:	37	repeater length:	30
39212	1534856	ATTGTTAGAATACCTATAAGGACTTGAAAC	GCATTTTCAGTTGAAATATAATTTAAACCAATACCATC	spacer
	length:	37	repeater length:	30
39213	1534923	ATTGTTAGAATACCTATAAGGACTTGAAAC	AGATGTAGTTTGACATTCAACGGATTTTTTACAACCTT	spacer
	length:	37	repeater length:	30
39214	1534990	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTTTGATTGACTGATTATAACCACCGGAAAGGACTA	spacer
	length:	36	repeater length:	30
39215	1535056	ATTGTTAGAATACCTATAAGGACTTGAAAC	TATCTTTAGACTCGTTATGTTATCGAGGTGTTAAAC	spacer
	length:	37	repeater length:	30
39216	1535123	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTCATTTAATAAACCTCCCAATCAGTTAATAGTTTAA	spacer
	length:	37	repeater length:	30
39217	1535190	ATTGTTAGAATACCTATAAGGACTTGAAAC	GTGGTAAAGTTCAAGCTTTAAAAAGACTTAATAAAAAG	spacer
	length:	38	repeater length:	30
39218	1535258	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTTTGAGTAAATTACAATTCATAATTTAGCCATTGC	spacer
	length:	37	repeater length:	30
39219	1535325	ATTGTTAGAATACCTATAAGGACTTGAAAC	AGATTTCTTTTTCTGGACAGAATGTCATGTACTGTA	spacer
	length:	36	repeater length:	30
39220	1535391	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTGTTTCAGTGGTTTTTTATGTTTTACAACACATTT	spacer
	length:	36	repeater length:	30
39221	1535457	ATTGTTAGAATACCTATAAGGACTTGAAAC	ACTTGTTCA	
39222				
39223				
39224	GCA_900095815.1_SIV6_genomic.fna (PilerCR) :			
39225	START	REPEAT		
	SPACER			
39226	crispr 1			
39227	617940	TTTCAATCCCATTTTGGTCTGATTTTAAAC	TGTCTTGTTTTGGAGAGGAGGGTGGGTGTGCGTGTTCA	spacer
	length:	38	repeater length:	29
39228	618007	TTTCAATCCCATTTTGGTCTGATTTTAAAC	TGTCTTGTTTTGGAGAGGAGGGTGGGTGTGCGTGTTCA	spacer
	length:	38	repeater length:	29
39229	618074	TTTCAATCCCATTTTGGTCTGATTTTAAAC	GTGGCTTCCGGAATACCGGGGAAGCCACCGTGATAAA	spacer
	length:	37	repeater length:	29
39230	618140	TTTCAATCCCATTTTGGTCTGATTTTAAAC	TATCCTGCTTGATAAACCCATATCCAACCTCATCATAA	spacer
	length:	37	repeater length:	29
39231	618206	TTTCAATCCCATTTTGGTCTGATTTTAAAC	ACTCAAAAAACGAGGAGGAAAGAGAACGGATAAGAA	spacer
	length:	37	repeater length:	29

39232 618272 TTTCAATCCCATTTTGGTCTGATTTTAAC CCAGAGAGCCCTGGAGGAATCCGGGGCCATCAAAAAGA spacer
length: 38 repeater length: 29

39233 618339 TTTCAATCCCATTTTGGTCTGATTTTAAC CTGGTGGTGTGTGCATCTGTATGACCTCCTCTGA spacer
length: 34 repeater length: 29

39234 618402 TTTCAATCCCATTTTGGTCTGATTTTAAC CTTCTCGCAGATCCTCCTGAAGATGTCTTTA spacer length:
32 repeater length: 29

39235 618463 TTTCAATCCCATTTTGGTCTGATTTTAAC GCCCTTTTGGGGGGTGGGGGGTGTGCCCCACCTACA spacer
length: 37 repeater length: 29

39236 618529 TTTCAATCCCATTTTGGTCTGATTTTAAC ACAGCCTCCCTGGTCCAGTACTCCGCCCTCCTCTA spacer
length: 35 repeater length: 29

39237 618593 TTTCAATCCCATTTTGGTCTGATTTTAAC TGGTTTAGGGGCTTACGCGCCGCTTATCCTGAGTTTAGA spacer
length: 39 repeater length: 29

39238 618661 TTTCAATCCCATTTTGGTCTGATTTTAAC TTTTAGGGTGATTGGAAGCCCCCATGGCCCTTGTTCTCGA
spacer length: 41 repeater length: 29

39239 618731 TTTCAATCCCATTTTGGTCTGATTTTAAC TTTTGTCTTTTCGTATTCTTCTTTTGATTGTTTTTTTCATA
spacer length: 41 repeater length: 29

39240 618801 TTTCAATCCCATTTTGGTCTGATTTTAAC ATTGCCTTCGTCTCCAAGACGTCGGTTATTATCTCCTA spacer
length: 38 repeater length: 29

39241 618868 TTTCAATCCCATTTTGGTCTGATTTTAAC TGAAGGACACGGACACAACCCAGTAGGGTGAAAAAAA spacer
length: 38 repeater length: 29

39242 618935 TTTCAATCCCATTTTGGTCTGATTTTAAC TGTGTGTGGAGTGTTCGCGATCGGGTTGTTA spacer
length: 33 repeater length: 29

39243 618997 TTTCAATCCCATTTTGGTCTGATTTTAAC GAACATACAAGAAAGCAGGGAACAAAACCCCAAAAAA spacer
length: 38 repeater length: 29

39244 619064 TTTCAATCCCATTTTGGTCTGATTTTAAC GCCTGCAACCGTCCAGGATCATCAGTTTCCAGCTGCA spacer
length: 38 repeater length: 29

39245 619131 TTTCAATCCCATTTTGGTCTGATTTTAAC TGGTACAGAAGTACCACGACGATTGGAATGGAAAAAAA
spacer length: 41 repeater length: 29

39246 619201 TTTCAATCCCATTTTGGTCTGATTTTAAC GGCTTCTGAGCCAAACGTACTTTCCTTTTGAAATCCAG spacer
length: 38 repeater length: 29

39247 619268 TTTCAATCCCATTTTGGTCTGATTTTAAC CGTTTTTGCTTTTCATTTTTTATCACCTCTTTTTTTTCG spacer
length: 37 repeater length: 29

39248 619334 TTTCAATCCCATTTTGGTCTGATTTTAAC GAAATCGCCAACCTCCTACGCGAACACACCAAAAAG spacer
length: 36 repeater length: 29

39249 619399 TTTCAATCCCATTTTGGTCTGATTTTAAC TGTTCTCATTCCTTTACCAGTTCGGTCAGGCATTATG spacer
length: 37 repeater length: 29

39250 619465 TTTCAATCCCATTTTGGTCTGATTTTAAC GCCCTCTGGGGAGCCTTCATAGATGCACTCCCCAGAG spacer
length: 37 repeater length: 29

39251 619531 TTTCAATCCCATTTTGGTCTGATTTTAAC TCATCAAGGAACCTGCAGACACTCTCCCCTTTCTCCG spacer
length: 37 repeater length: 29

39252 619597 TTTCAATCCCATTTTGGTCTGATTTTAAC CGGGGGCTGTGGAGGTTAACTGCCGCCAGAAATAG spacer
length: 37 repeater length: 29

39253 619663 TTTCAATCCCATTTTGGTCTGATTTTAAC ATCACCAATTTAACCTCGCCTCCATAATGCTTTTCG spacer
length: 35 repeater length: 29

39254 619727 TTTCAATCCCATTTTGGTCTGATTTTAAC GGGGGTTCTGTGGGGGGTTCCTGTGGGGGGTTCCTGG spacer
length: 37 repeater length: 29

39255 619793 TTTCAATCCCATTTTGGTCTGATTTTAAC CCATGCATGGCATATACTTATGAGTGTTCTGAGCG spacer
length: 35 repeater length: 29

39256 619857 TTTCAATCCCATTTTGGTCTGATTTTAAC TCTTCTTTGAGACGAGCATGCGCCTAGCTCTTCTCTG spacer
length: 37 repeater length: 29

39257 619923 TTTCAATCCCATTTTGGTCTGATTTTAAC TTGAATGTTAGTTATGGTTTACTCGAAGATGGTAG spacer
length: 35 repeater length: 29

39258 619987 TTTCAATCCCATTTTGGTCTGATTTTAAC CAGGAATATTAGTGC GCGTGAAAACGCGTGCAGGTAGG spacer
length: 39 repeater length: 29

39259 620055 TTTCAATCCCATTTTGGTCTGATTTTAAC TGGAGTCGTG

39260

39261

39262 crispr 2

39263 1014114 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTATGAAAATTGGATCACAAGAATAGAAAAACCCA spacer
length: 36 repeater length: 30

39264 1014180 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAATCGGAGCACACGCAGAACAACCTCATACTCACAGACC
spacer length: 39 repeater length: 30

39265 1014249 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTTCTGTATCCTTACCTGGCGCCCGTTCAAGCTGC spacer
length: 35 repeater length: 30

39266 1014314 ATTTCAATCCCATTTTGGTCTGATTTTAAC GCCAAGGAAAGGACACGAACACGAACACAGACACAC spacer
length: 36 repeater length: 30

39267 1014380 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGTCACTAGAGTCCGTTTCAAAGTCCGTATCTA spacer
length: 35 repeater length: 30

39268 1014445 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGGACAAGTACCATTCTTCATACATTTGGGAAGTAAA spacer
length: 37 repeater length: 30

39269 1014512 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGGAGTATGCGGCTGCTGAGTGTCCTTGTGAAGAAA spacer

length: 37 repeater length: 30
39270 1014579 ATTTCAATCCCATTTTGGTCTGATTTTAAC GTCTACGTCTGCCTCTGGAAATCCGGGGCAGGATG spacer
length: 35 repeater length: 30
39271 1014644 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGGTAGGAAACGTAGGATGACAATGGAGAGACTCAGGGT
spacer length: 39 repeater length: 30
39272 1014713 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTGTTCTTGCACGTGCAGATCCCCGATAGTCTTGG spacer
length: 36 repeater length: 30
39273 1014779 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGAACTCAATCCAGAAGACTTCCCTATAAAAGGTGTAATAAA
spacer length: 42 repeater length: 30
39274 1014851 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGGTTCACGCTTGTCTCTTTCTTGAATAGGTCGTAT spacer
length: 37 repeater length: 30
39275 1014918 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAAACATAAGGGAAC TTTGTGGGGACCCTATAGAAAA spacer
length: 37 repeater length: 30
39276 1014985 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGGTGT TTCGTGCATGTTTCCCCACTGCATCA spacer
length: 34 repeater length: 30
39277 1015049 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAAGGATGCGAAGGCCCGGGCGGCGTACTGGACTG spacer
length: 35 repeater length: 30
39278 1015114 ATTTCAATCCCATTTTGGTCTGATTTTAAC TATATGACCTTACGGCAAGAGAATTAGATTACTTAA spacer
length: 36 repeater length: 30
39279 1015180 ATTTCAATCCCATTTTGGTCTGATTTTAAC TAAAAACTTACCCCCTATTCTCCTTTTCGTATGCTGA spacer
length: 37 repeater length: 30
39280 1015247 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCCCTCCCATGGAGGAACCCCTGGAGGTAGAACTCGAGGACC
spacer length: 42 repeater length: 30
39281 1015319 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGAAGGAAGGATTCAGGATGTGGGGACTATCTCATA spacer
length: 36 repeater length: 30
39282 1015385 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAACCCTATTTTTTTTTTAGTTGTAAATTGTGGAGT spacer
length: 36 repeater length: 30
39283 1015451 ATTTCAATCCCATTTTGGTCTGATTTTAAC GCAGATAAAGACGATAATAGAGTTCTAACAGTAAACC spacer
length: 37 repeater length: 30
39284 1015518 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGCCCTGGAAGCCATCATCAAAGAAAAAAGAAAC spacer
length: 37 repeater length: 30
39285 1015585 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTCCTTGTGTTCTTCACTAGTTTTTCGCCGTGTCGC spacer
length: 36 repeater length: 30
39286 1015651 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATATACCACCCACCCACACAGAAGTACAGGTGCAAGT spacer
length: 37 repeater length: 30
39287 1015718 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGAGGGAAGGATACGACGCACTAAACACCGTCATCCA spacer
length: 37 repeater length: 30
39288 1015785 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTCTGACAGTATAAAAAAGAGGTGATATGAATGAAA spacer
length: 36 repeater length: 30
39289 1015851 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTTCAAACCAAAGTTGTAGAAGCTGAAAGAAAGAT spacer
length: 36 repeater length: 30
39290 1015917 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTTTTCATCCCCCCTGCAGGATCATCCTCATCTG spacer
length: 36 repeater length: 30
39291 1015983 ATTTCAATCCCATTTTGGTCTGATTTTAAC TATGATGAAGAACTATATATTTTTTCCGTTACCTG spacer
length: 36 repeater length: 30
39292 1016049 ATTTCAATCCCATTTTGGTCTGATTTTAAC TAGTAGCCTGGTTCGTGGACTTCCCTGGTCTGTATGC spacer
length: 37 repeater length: 30
39293 1016116 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCACGTGCGTGAAAATGCGCACGGAATAGAATACA spacer
length: 35 repeater length: 30
39294 1016181 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTGAAGCGCTTCACGGATGAGGTGAAGAACTCCC spacer
length: 36 repeater length: 30
39295 1016247 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCTCCTAGGTCGTTTGGGTGGATCCCTGTCTCCCTG spacer
length: 36 repeater length: 30
39296 1016313 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGAGGTGGAATGATGAGTGAAC TTGAGATAATTATA spacer
length: 36 repeater length: 30
39297 1016379 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGATCCATGAGGAATCATAGCCCCCTATGAAGTCCTC spacer
length: 37 repeater length: 30
39298 1016446 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGATCCATGAGGAATCATAGCCCCCTATGAAGTCCTC spacer
length: 37 repeater length: 30
39299 1016513 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGAAATAACAAAAAAGAATACGATAAATATAGTAAA spacer
length: 37 repeater length: 30
39300 1016580 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAATGGATGAAAAACAATTGACCGAATGATAGATGA spacer
length: 37 repeater length: 30
39301 1016647 ATTTCAATCCCATTTTGGTCTGATTTTAAC AACCGTCTTGGGCAGAGCATCATGTCCACGCTTGG spacer
length: 35 repeater length: 30
39302 1016712 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTCATGGTATGACAATGAATTAGATACTTTGTCATGG spacer
length: 37 repeater length: 30
39303 1016779 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGGCTCCCCAGATGAGGGCCTCCCCATCCTC spacer
length: 32 repeater length: 30
39304 1016841 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGGTACGAAGAAGATACACAGCTCCTTCGATATGATGAGGA
spacer length: 41 repeater length: 30

39305	1016912	ATTTCAATCCCATTTTGGTCTGATTTTAAC	ACGTTACACCCGATCTCCATCCAGAGTTCCACGATGTTA
		spacer length: 39	repeater length: 30
39306	1016981	ATTTCAATCCCATTTTGGTCTGATTTTAAC	AAAATGAATGTGGACGAATACCAGGGCCTTCTCGAG
		length: 36	repeater length: 30
39307	1017047	ATTTCAATCCCATTTTGGTCTGATTTTAAC	TGGCGGCCCTCATGGATCCCTGATCTGAGGTGGATCG
		length: 36	repeater length: 30
39308	1017113	ATTTCAATCCCATTTTGGTCTGATTTTAAC	TCATAGACCACAGACACAGCAAAAAAGCCCTAAACG
		length: 36	repeater length: 30
39309	1017179	ATTTCAATCCCATTTTGGTCTGATTTTAAC	TGTTTCCTTTGACGCGGATGAGTGTTCCTCTCGT
		length: 36	repeater length: 30
39310	1017245	ATTTCAATCCCATTTTGGTCTGATTTTAAC	CCCCAAGGGCGATGAACAGGAAAGAATGGATAGGCCC
		length: 37	repeater length: 30
39311	1017312	ATTTCAATCCCATTTTGGTCTGATTTTAAC	CCCTGTGTCTCATATGTTTCATGTGCGGTGTTTAC
		length: 35	repeater length: 30
39312	1017377	ATTTCAATCCCATTTTGGTCTGATTTTAAC	TGGCAGCATCCGTCCCTTTGTGCATGATCATAAGGGA
		length: 37	repeater length: 30
39313	1017444	ATTTCAATCCCATTTTGGTCTGATTTTAAC	CAGCAGCTTTAGCCATAGCGCTCCGGAAGAGTTCTGA
		length: 36	repeater length: 30
39314	1017510	ATTTCAATCCCATTTTGGTCTGATTTTAAC	CCATATAGTCCACTGTGAGGGGTTCGTTGACTTGTTT
		length: 37	repeater length: 30
39315	1017577	ATTTCAATCCCATTTTGGTCTGATTTTAAC	TCTATTAATATAGCCTCTGCTGTCTTGCTTCCATTAT
		length: 37	repeater length: 30
39316	1017644	ATTTCAATCCCATTTTGGTCTGATTTTAAC	CAGTTTTATTCAACAACGATAAACTGATGACTTACCAGG
		length: 38	repeater length: 30
39317	1017712	ATTTCAATCCCATTTTGGTCTGATTTTAAC	AAGTAAACGGAAAAGAATACTTGAAATTACAAGAGA
		length: 36	repeater length: 30
39318	1017778	ATTTCAATCCCATTTTGGTCTGATTTTAAC	TATACTATAGACGATATAGAATACTCCACAACACAG
		length: 36	repeater length: 30
39319	1017844	ATTTCAATCCCATTTTGGTCTGATTTTAAC	GGGGAGTTAGAAGAAATTGCAGAACAAGGATTAGAC
		length: 36	repeater length: 30
39320	1017910	ATTTCAATCCCATTTTGGTCTGATTTTAAC	GAGTCCACTCAGTGATGATCCTATCAGGTGCCACCT
		length: 36	repeater length: 30
39321	1017976	ATTTCAATCCCATTTTGGTCTGATTTTAAC	TTTCAGAATATTTATTATTTTATAAACAGACGA
		length: 33	repeater length: 30
39322	1018039	ATTTCAATCCCATTTTGGTCTGATTTTAAC	ATGAATCTGATATGGACTTTAGAAACGGACTACGATA
		length: 37	repeater length: 30
39323	1018106	ATTTCAATCCCATTTTGGTCTGATTTTAAC	CTCCGGGTCCAGGGCCGACTACGTCCTATCAGATGTGG
		length: 38	repeater length: 30
39324	1018174	ATTTCAATCCCATTTTGGTCTGATTTTAAC	CATCTTCCAGAGCCGGGTTTTTATTGAATTGCTCT
		length: 35	repeater length: 30
39325	1018239	ATTTCAATCCCATTTTGGTCTGATTTTAAC	TTATCCATATCAAGTCCGTATCCAGAAGTCTGTTTC
		length: 36	repeater length: 30
39326	1018305	ATTTCAATCCCATTTTGGTCTGATTTTAAC	GTTAATATGGTCGTGGATTGGAGAAAGGTGAATGAC
		length: 36	repeater length: 30
39327	1018371	ATTTCAATCCCATTTTGGTCTGATTTTAAC	TCTTGCAACAAGAGTATATTCTGTGTCTGTTTGTAGT
		length: 37	repeater length: 30
39328	1018438	ATTTCAATCCCATTTTGGTCTGATTTTAAC	CCTACTCGCTGGTAGATGAATAATCCGTGCTTGCTG
		length: 36	repeater length: 30
39329	1018504	ATTTCAATCCCATTTTGGTCTGATTTTAAC	CCATGAAGCAAACCACCCCAACGGAACATCCTAG
		length: 34	repeater length: 30
39330	1018568	ATTTCAATCCCATTTTGGTCTGATTTTAAC	TCGTGTTTCTGCAGAGGTGCCAGGGCGGAGACA
		length: 34	repeater length: 30
39331	1018632	ATTTCAATCCCATTTTGGTCTGATTTTAAC	ACCGTAAGAGGTGATAAAATGAAACGATATACACAT
		length: 36	repeater length: 30
39332	1018698	ATTTCAATCCCATTTTGGTCTGATTTTAAC	CGTGGCCTCAGCCAGCAGCAGAGAGCCCTCATCTAC
		length: 36	repeater length: 30
39333	1018764	ATTTCAATCCCATTTTGGTCTGATTTTAAC	GCGGCTCTCAGGGCAGGGGCTTTCAACTGTTTTGAT
		length: 36	repeater length: 30
39334	1018830	ATTTCAATCCCATTTTGGTCTGATTTTAAC	TCGGAAATGATAAAAGGGATTATGATTGTTTTGATG
		length: 36	repeater length: 30
39335	1018896	ATTTCAATCCCATTTTGGTCTGATTTTAAC	TAGACGTTAAGGTAAACAGGTGATCCTCCTGTGTTTT
		length: 37	repeater length: 30
39336	1018963	ATTTCAATCCCATTTTGGTCTGATTTTAAC	TCTGTGCCTC
39337			
39338			
39339	GCA_900177045.1_Candidatus_Nitrosotalea_koreensis_CS_whole_genome_genomic.fna(PilerCR)		
	:		
39340	START	REPEAT	
	SPACER		
39341	GCA_900198835.1_chr_EXT12c_genomic.fna(PilerCR) :		
39342	START	REPEAT	

SPACER

crispr 1

39343 814098 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AGATTATCAACACTAACCGAAACAACACATACAGTCGT spacer
length: 38 repeater length: 30

39345 814166 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCGGCTACTATGCCAGGACCTGGGCTATACCTCGGG spacer
length: 37 repeater length: 30

39346 814233 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GGATGAAGATGAGTGACACGACAGAAGGCCCGGAAATC spacer
length: 38 repeater length: 30

39347 814301 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GGCCTGAAAGCCGAGGCAACCCTAATTAGGCTCCCGT spacer
length: 37 repeater length: 30

39348 814368 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GGCCTCGGCTAATCCAATGCCTCTAATGATTTTAAAT spacer
length: 37 repeater length: 30

39349 814435 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GGTGGTGAGCTAATGCCTTCTACGATTTTCCGTTC spacer
length: 37 repeater length: 30

39350 814502 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CGTCCAGCTCCTCCGCGAGCGGGATTGTTGGGAATAT spacer
length: 37 repeater length: 30

39351 814569 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AATATGGCCCGTCGTCTGGGTATAAACTCGCTTCTCC spacer
length: 38 repeater length: 30

39352 814637 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GATTGTGATTACTTCGATATTGCAGAGACCAGGAG spacer
length: 35 repeater length: 30

39353 814702 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TGATGCCCCACCCTGTTGATGTCCACCCCGTCGCCGT spacer
length: 36 repeater length: 30

39354 814768 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CAGAAAACGGTTACGGGATTGAAGGCCAATACTACC spacer
length: 36 repeater length: 30

39355 814834 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TTCTTGAGAATTGCCATCTCCTTAGCGATTCTCTTTA spacer
length: 37 repeater length: 30

39356 814901 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CGGAATTCTGGGTTAGCACGTCCACAAATACGTCTAA spacer
length: 37 repeater length: 30

39357 814968 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GCGGGAGTATAGAAAACCTCGGAGCGTAGACAATCAG spacer
length: 38 repeater length: 30

39358 815036 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CACAGGAGAGGTTTCTACTACGTTCTCGTGGACAAG spacer
length: 37 repeater length: 30

39359 815103 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCGAAACCTTTATAAAACCTGAAATCCAACAAAATTT spacer
length: 37 repeater length: 30

39360 815170 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TGAATACGG

crispr 2

39361

39362

39363

39364 1243844 GTTGCAATAAGACTCGAGGAGAATTGAAAG TACCAGTTGGCTACACGCTCAACAGGGGCACCCTT spacer
length: 35 repeater length: 30

39365 1243909 GTTGCAATAAGACTCGAGGAGAATTGAAAG GAGATTCTTAATCCTCCTCCCATACACCGTGGCCTTTT spacer
length: 38 repeater length: 30

39366 1243977 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTGAAGTCCTCGGCGGTTATGTAGAAAGCGAGGTAGT spacer
length: 37 repeater length: 30

39367 1244044 GTTGCAATAAGACTCGAGGAGAATTGAAAG ATGCCCAAAGGTCTTTGGCTTCGTCCACCGCGCTT spacer
length: 36 repeater length: 30

39368 1244110 GTTGCAATAAGACTCGAGGAGAATTGAAAG TCGTCAAGGAGTCTAACAATATCCTCCAGCTTCTCAAG spacer
length: 38 repeater length: 30

39369 1244178 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTTATTGCTTGGGCTGAGCGTATTATTGCTGATTAGG spacer
length: 37 repeater length: 30

39370 1244245 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTGAAGAAGGGACGGGAACCTTAGAGATGATTAGGC spacer
length: 37 repeater length: 30

39371 1244312 GTTGCAATAAGACTCGAGGAGAATTGAAAG TCCGCCGGTTCATTACTCCCCGCCACTCACGGACGGG spacer
length: 37 repeater length: 30

39372 1244379 GTTGCAATAAGACTCGAGGAGAATTGAAAG GTGGGCATATGCCGGCCACAACGCTGGTCTGGAGTAATACTTAG
spacer length: 45 repeater length: 30

39373 1244454 GTTGCAATAAGACTCGAGGAGAATTGAAAG AACGCTGTGAGTGAAAGCGACCCCAACAAGGTGTTCT spacer
length: 37 repeater length: 30

39374 1244521 GTTGCAATAAGACTCGAGGAGAATTGAAAG CACCTCCTCGTCCCCCAAGAGATCCCCCAAGAGAGAC spacer
length: 37 repeater length: 30

39375 1244588 GTTGCAATAAGACTCGAGGAGAATTGAAAG AAAGCGGGATAACCTCATTAACCACCGCACGCGGGAAG spacer
length: 38 repeater length: 30

39376 1244656 GTTGCAATAAGACTCGAGGAGAATTGAAAG CGCTCTTCGTTATGCCTTCATCTCCCACCTGACCAAA spacer
length: 37 repeater length: 30

39377 1244723 GTTGCAATAAGACTCGAGGAGAATTGAAAG AGGCCATTGCGCAGGCGCAGCAGACTCATCAGAACGT spacer
length: 37 repeater length: 30

39378 1244790 GTTGCAATAAGACTCGAGGAGAATTGAAAG GCGGTTACGTGGTTCAGGAAGCCATACCAGTTGGCT spacer
length: 36 repeater length: 30

39379 1244856 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTTTTTTGTGTAGTTCTGGTTGAGGAAACCGTTTCCTGT
spacer length: 39 repeater length: 30

39380 1244925 GTTGCAATAAGACTCGAGGAGAATTGAAAG GGGTGGGACGTCTACTATTACTCCTCTCGCAATCGAACAA

spacer length: 40 repeater length: 30
 39381 1244995 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTCTGGGTAAGGTAATCTTTTGTTCCTCGAGAAGTGTGG spacer
 length: 38 repeater length: 30
 39382 1245063 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTTTTGGACCCTCGCGAGCCTCCTCGAAGGTGCTCC spacer
 length: 36 repeater length: 30
 39383 1245129 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTTACACACGGGAACCCGTAGTTTACATAGTAGAAGAGAG
 spacer length: 39 repeater length: 30
 39384 1245198 GTTGCAATAAGACTCGAGGAGAATTGAAAG AAAGAAAACCGACGACATCACGAAAGCCGTCCGCTTAAAG
 spacer length: 40 repeater length: 30
 39385 1245268 GTTGCAATAAGACTCGAGGAGAATTGAAAG GAGAAATCTGAGGTAATGCTAATGACCGCAGTCTTAA spacer
 length: 37 repeater length: 30
 39386 1245335 GTTGCAATAAGACTCGAGGAGAATTGAAAG AGGTGAGTGCCGTTCTGAGAGTAAAAATTGAAAGTCAG spacer
 length: 38 repeater length: 30
 39387 1245403 GTTGCAATAAGACTCGAGGAGAATTGAAAG ATCCCTGATACGTGCGGCAAGTTCCAGCGAAGGCCGG spacer
 length: 38 repeater length: 30
 39388 1245471 GTTGCAATAAGACTCGAGGAGAATTGAAAG TCGTCATAGAAGACTTTGACCTTGTAGTAGACGGTA spacer
 length: 36 repeater length: 30
 39389 1245537 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTCCAAGGTC
 39390
 39391
 39392 crispr 3
 39393 1363971 GTTTCAGAACTAGCGTAGCTTTGGAAACC AGGTCTTTCTTTATCTCTTCGAGGTTTTCTTTAG spacer
 length: 35 repeater length: 29
 39394 1364035 GTTTCAGAACTAGCGTAGCTTTGGAAACC
 TTTATTACCGTTTCTATCATACAGCAACACCTCCAAATAGTTTTTCACA spacer length: 49 repeater length:
 29
 39395 1364113 GTTTCAGAACTAGCGTAGCTTTGGAAACC GGCCTCCT
 39396
 39397
 39398 crispr 4
 39399 1498626 GTTTCCTAGAACAGTGTGTGTGGAAAG ACGCTCTTGGGTGTATTGTTGCCAGGCGTCGGGG spacer
 length: 35 repeater length: 29
 39400 1498690 GTTTCCTAGAACAGTGTGTGTGGAAAG
 CGTGGCTCTCTACAAGCTCCCGGGCGAGTCTGCTCCTCTTTACGTCAC spacer length: 48 repeater length: 29
 39401 1498767 GTTTCCTAGAACAGTGTGTGTGGAAAG ATAGCCCGTACTGGTTCCCTGATAAGACCTACACGTAT spacer
 length: 38 repeater length: 29
 39402 1498834 GTTTCCTAGAACAGTGTGTGTGGAAAG AGTAAGTCCGCTCGCGTCGTCTATGCTGGCGATTTTC spacer
 length: 37 repeater length: 29
 39403 1498900 GTTTCCTAGAACAGTGTGTGTGGAAAG TGAGATGGCACGGCAGAGGGGACTTAAGACAGTCA spacer
 length: 35 repeater length: 29
 39404 1498964 GTTTCCTAGAACAGTGTGTGTGGAAAG AGGAGATGCTTGAGCGCCTTCTCGTCTCTATCGTCAG spacer
 length: 38 repeater length: 29
 39405 1499031 GTTTCCTAGAACAGTGTGTGTGGAAAG TTGAGGTAACCCTTTTGGAAACGTGGGTAGGGGCTC spacer
 length: 37 repeater length: 29
 39406 1499097 GTTTCCTAGAACAGTGTGTGTGGAAAG TAGTCGTGCCCCGGCGTATCCTTCGGCGCAACTTTGGACGCG
 spacer length: 41 repeater length: 29
 39407 1499167 GTTTCCTAGAACAGTGTGTGTGGAAAG ACGCTCAACGCGTTTAAGGTCATCGCGTCCACCATAC spacer
 length: 37 repeater length: 29
 39408 1499233 GTTTCCTAGAACAGTGTGTGTGGAAAG AGGAGAAACTACCCGAAGCGAACGTTACGCTAATAAA spacer
 length: 37 repeater length: 29
 39409 1499299 GTTTCCTAGAACAGTGTGTGTGGAAAG ACTTTGCGGTTTTTTTCTGGAGTGTGAGCTCGGGGACTTCTT
 spacer length: 42 repeater length: 29
 39410 1499370 GTTTCCTAGAACAGTGTGTGTGGAAAG GAGTCGCCCCAGCGCGGAGCGTCGAAAGGCGACCCCGCA spacer
 length: 39 repeater length: 29
 39411 1499438 GTTTCCTAGAACAGTGTGTGTGGAAAG CAGGCTATTCTTCTCAGCACGTCCTGAGGAGTGGAGAGACGAA
 spacer length: 43 repeater length: 29
 39412 1499510 GTTTCCTAGAACAGTGTGTGTGGAAAG CAGTGTCCATTCCCAGCTTCTGGAGGCCAACGTCGCGTT
 spacer length: 40 repeater length: 29
 39413 1499579 GTTTCCTAGAACAGTGTGTGTGGAAAG TGGAGTAGTCAGGCCATTAGTACACAAACATGAGAA spacer
 length: 36 repeater length: 29
 39414 1499644 GTTTCCTAGAACAGTGTGTGTGGAAAG ACTTGACGGCTCAGCAGTGGGCGGTCGCGGTTGCGTTGACGAG
 spacer length: 43 repeater length: 29
 39415 1499716 GTTTCCTAGAACAGTGTGTGTGGAAAG GCAACCGCCCCGGCGAGGAGCTTCACTTTTTTTTCGAA spacer
 length: 36 repeater length: 29
 39416 1499781 GTTTCCTAGAACAGTGTGTGTGGAAAG AAAGCGGGCCGGAGCGGGCCGTTTTTCACTCAGCGCCTTCTA
 spacer length: 42 repeater length: 29
 39417 1499852 GTTTCCTAGAACAGTGTGTGTGGAAAG CCGTTTGGCCGACGCGATAGAGGAAAAATTAAGTAG spacer
 length: 36 repeater length: 29
 39418 1499917 GTTTCCTAGAACAGTGTGTGTGGAAAG CCGTTTGGCCGACGCGATAGAGGAAAAATTAAGTAG spacer
 length: 36 repeater length: 29
 39419 1499982 GTTTCCTAGAACAGTGTGTGTGGAAAG TCATCACGGCAAAGGACAACGCTACCAGCGCGATTAACT

spacer length: 40 repeater length: 29
 39420 1500051 GTTTCCGTAGAACAGTGTGTGTGGAAAG TGGAGACAACACCCTGTTCATGGCCTGATGAATATT spacer
 length: 37 repeater length: 29
 39421 1500117 GTTTCCGTAGAACAGTGTGTGTGGAAAG CAATGTTCCCTCGTCGGCGTGCAGAAGTTCATGGAAAA spacer
 length: 37 repeater length: 29
 39422 1500183 GTTTCCGTAGAACAGTGTGTGTGGAAAG ATTGGGTTGTCTTTGTTGAAGCGAACTACTCTGTAGTTTT
 spacer length: 40 repeater length: 29
 39423 1500252 GTTTCCGTAGAACAGTGTGTGTGGAAAG TCGCGCCAAGGTGGTGTGCGAGGGGAGGATAGATCCGGACA
 39424
 39425
 39426 crispr 5
 39427 1504755 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG CAAAAGGGCCGGGGTTGAGTTGTGGTTATATCCCGAAG spacer
 length: 38 repeater length: 29
 39428 1504822 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG CGAAGATACTCCAAAGGAGACAATTGCCCGTAAACTGT spacer
 length: 38 repeater length: 29
 39429 1504889 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG GGGTTCATCTCGCTAATTTTGTGCGGTGGGTAGTAGG spacer
 length: 37 repeater length: 29
 39430 1504955 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG ACATAGAAGCCGAGCCAGCGCCTGTCCTTGCGCTTCGTG spacer
 length: 39 repeater length: 29
 39431 1505023 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG TGTTTCATGTCAAGTTCGATCACATAATCGCCATTTTCAT spacer
 length: 39 repeater length: 29
 39432 1505091 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG TGCGGAGGACTTGTACGCGTTGATTCCGCTTGATGATGCAAT
 spacer length: 42 repeater length: 29
 39433 1505162 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG CTTTTTCCCCGTCTTCGCTTTGCTCTTTGACGTGAATAGCCAA
 spacer length: 43 repeater length: 29
 39434 1505234 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG GCATTCTGAGAACACTATCTATGAGCTCACCTTCAC spacer
 length: 37 repeater length: 29
 39435 1505300 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG ATCCTCCTCGAGGGCGACGATGGAAAGCACTACGTCG spacer
 length: 37 repeater length: 29
 39436 1505366 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG CGTTTCTAACCTTCGGCGCGTGGTTCTGCGCGCTTTGAAG
 spacer length: 40 repeater length: 29
 39437 1505435 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG AGGAAGTGACATCTATGAAGGTAGGCGCTGGTGGACTTA
 spacer length: 40 repeater length: 29
 39438 1505504 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG CGGGATTTGCTTACGGCGCTGGAGAGGTTGAAAGCGTCC spacer
 length: 39 repeater length: 29
 39439 1505572 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG TGTGGCCAATGATCTTTTGTGCCATTTCTGCTTCTTTT spacer
 length: 38 repeater length: 29
 39440 1505639 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG TTTAACTCCCTCTGGAAGCTTCTTCCACAGTATCTCCCT spacer
 length: 39 repeater length: 29
 39441 1505707 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG GGCTCTTCAGCAAAACCGAACCAATCAGGCGCTCCTTTTTTCGC
 spacer length: 43 repeater length: 29
 39442 1505779 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG GCCTTATGCCTTCCCGGTTTCGGGCTTCGGGCATGAACGT
 spacer length: 40 repeater length: 29
 39443 1505848 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG ATGGTGATGTAGCCCTTTCCGTTGAAGCCAATGAAA spacer
 length: 36 repeater length: 29
 39444 1505913 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG CGCTTGGGCGCTGGTTTGTGAGGGTCCTCATGGGTGCCTCT
 spacer length: 41 repeater length: 29
 39445 1505983 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG TCAGTGGGAGTATTGCGACTGCTTCAGCGGCTTCAGTGCT
 spacer length: 40 repeater length: 29
 39446 1506052 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG TACTTCTGAAGTCCATTCTTCTCACCCCAAGATTCCCT spacer
 length: 38 repeater length: 29
 39447 1506119 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG GAAACGCTGAGATTGACTATCATGTGCAGACTACCTC spacer
 length: 37 repeater length: 29
 39448 1506185 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG GCCAGGAGCTGGAATATTTTCATGTATGGGGCCAGCT spacer
 length: 37 repeater length: 29
 39449 1506251 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG AGCGGGCTGGTCTCGTTGTAAAGCATGGCCCTGTTACCGCC
 spacer length: 41 repeater length: 29
 39450 1506321 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG TCGCGGTATTTTGGTTCAAGATAGCGTGGCCTATCAT spacer
 length: 37 repeater length: 29
 39451 1506387 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG GAGTCAGGCCAAAAGGTAGCTGTAGGCCCCCATTTAA spacer
 length: 37 repeater length: 29
 39452 1506453 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG TCAGTCCCCGCAACGAACTCCTTAGAATAAACCGACTCG spacer
 length: 39 repeater length: 29
 39453 1506521 GTTTCTGTAGAACAGAGTTGTGTGTGGAAAG TCCAAGACCG
 39454
 39455
 39456 crispr 6
 39457 1627101 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GGCCTTGCTGAGTTTGATAATCTACAGGCCATCATCG spacer
 length: 37 repeater length: 30
 39458 1627168 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TGACACGGTGGGCTTTAGGGTCCTATACGTAGTTTCG spacer
 length: 36 repeater length: 30

39459 1627234 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TCACCCTCACCCTGAACGTGAAAAACGAGACAATA spacer
length: 35 repeater length: 30

39460 1627299 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TGAAGTGCATTGCTTCAGGCGTGTCTTTGGCATCTAT spacer
length: 37 repeater length: 30

39461 1627366 CTTTCAATTCTCCTCGAGTCTTATTGCAAC AGGACCTGGA

39462

39463

39464 crispr 7

39465 1800238 GTTTCCACTCTTCTAGAGGTTTCGGAAAC
TAATAAGTTGATAAAACACCCGGTAGGGGATACGGAGATGGCCCGACG spacer length: 48 repeater length: 28

39466 1800314 GTTTCCACTCTTCTAGAGGTTTCGGAAAC
ACGAGGTGCTTGCTCGCCAGAGAACAGGGAAATACTGAAGTACGTCCTCAA spacer length: 52 repeater
length: 28

39467 1800394 GTTTCCACTCTTCTAGAGGTTTCGGAAAC TTGGCTCCGCATTGAAAGCGCGGATAGAGGGGTCTTCGATTTTCTCC
spacer length: 47 repeater length: 28

39468 1800469 GTTTCCACTCTTCTAGAGGTTTCGGAAAC AGTGACTCCCTACCCCACTTTTCTTGGTACAGTTCTATTTTCGGGT
spacer length: 45 repeater length: 28

39469 1800542 GTTTCCACTCTTCTAGAGGTTTCGGAAAC
GGTTTGTAACCAATATATCTTGAGTGATTTTTCTCTTTTACTTCCAA spacer length: 49 repeater length:
28

39470 1800619 GTTTCCACTCTTCTAGAGGTTTCGGAAAC
TGGTGCAGCGTTTCGGAATAATTGACAATGTCTTCATGAAGAGCACGGCACCCGGTGA spacer length: 57 repeater
length: 28

39471 1800704 GTTTCCACTCTTCTAGAGGTTTCGGAAAC CGAACTCCTGAAGACCGGGTACGCCCTTACGAACAAGACATTG
spacer length: 43 repeater length: 28

39472 1800775 GTTTCCACTCTTCTAGAGGTTTCGGAAAC
ATCTCATCCATATTGTCCGTTGAAACGGCGGACATAAAGGCTTCGTGAAT spacer length: 50 repeater
length: 28

39473 1800853 GTTTCCACTCTTCTAGAGGTTTCGGAAAC TTAGCGTGAACAAGACACAATTACCGAGGATTGTTGCAT spacer
length: 39 repeater length: 28

39474 1800920 GTTTCCACTCTTCTAGAGGTTTCGGAAAC
CTCGACGCCACAGACTTCCCGATAAGTAAGATACTCTCCCTCGTGAACAAC spacer length: 51 repeater
length: 28

39475 1800999 GTTTCCACTCTTCTAGAGGTTTCGGAAAC GCAGATGGTTTTTACGCTGACAACCTCGGCGATGGT spacer
length: 36 repeater length: 28

39476 1801063 GTTTCCACTCTTCTAGAGGTTTCGGAAAC TTTGAGGAAGGAGAATTGACTGGGAACCTCCTCAGTGTGGATTACAA
spacer length: 47 repeater length: 28

39477 1801138 GTTTCCACTCTTCTAGAGGTTTCGGAAAC GGGCTACAAAATCCACTTCGACCCACGTGGACGCGTTTCCGAACCT
spacer length: 46 repeater length: 28

39478 1801212 GTTTCCACTCTTCTAGAGGTTTCGGAAAC
CATCCGCAAGTATAATCATCTCAATTATACACATAATTTTGGCCCTGGTTTTTGT spacer length: 54 repeater
length: 28

39479 1801294 GTTTCCACTCTTCTAGAGGTTTCGGAAAC
CGAAGAGAACTATAACCACATCCGTGCTGTCTATGCCAGCATAACATATTCCTT spacer length: 55 repeater
length: 28

39480 1801377 GTTTCCACTCTTCTAGAGGTTTCGGAAAC

39481

39482

39483 crispr 8

39484 1819198 GTTTCCGAACCTCTAGAAGAGTGGAAC CCCGAAAGCCTTTCCCGATAGTGGCACCCGTGATCTCATTC
spacer length: 42 repeater length: 28

39485 1819268 GTTTCCGAACCTCTAGAAGAGTGGAAC GTCTTTGTCCCTCGGGTGGGGCGGAAATTCATCTATAAGCCACTG
spacer length: 45 repeater length: 28

39486 1819341 GTTTCCGAACCTCTAGAAGAGTGGAAC
CCCGTCTCTATTTCTGCAACATCGTTTTGATGCGGATTATATCTCCATCG spacer length: 51 repeater
length: 28

39487 1819420 GTTTCCGAACCTCTAGAAGAGTGGAAC ACACCCAATAAATTTCTCCATCTGTTGAATTTACATATTGTCCA
spacer length: 44 repeater length: 28

39488 1819492 GTTTCCGAACCTCTAGAAGAGTGGAAC
CTTGTAAGTCTTTCGGACTTCCTGACAAGCTCATCGAGTGGGATTAT spacer length: 48 repeater length: 28

39489 1819568 GTTTCCGAACCTCTAGAAGAGTGGAAC CTCGGGGCGCTCGAAGGCGGCCCTTTTCTTACGGCCGCCACCACA
spacer length: 46 repeater length: 28

39490 1819642 GTTTCCGAACCTCTAGAAGAGTGGAAC
GCTCTTTGAATCATTGAAAAACCTCTCGTACAGGGGTGCGGCTGAA spacer length: 49 repeater length:
28

39491 1819719 GTTTCCGAACCTCTAGAAGAGTGGAAC ATGGGAGGAACAATCCCAGCGGGTCGGGCGGCAGTTCGCAAATCAA
spacer length: 46 repeater length: 28

39492 1819793 GTTTCCGAACCTCTAGAAGAGTGGAAC
CTGGTCCGCAGCCTTTTGTAGCGGCAGACCAGATTGAGGCCGCGCCCTTCGCCT spacer length: 53 repeater
length: 28

39493 1819874 GTTTCCGAACCTCTAGAAGAGTGGAAC

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39494
39495
39496 crispr 9
39497 1823854 GTTTCCTACTCTTCTAGAGGTTTCGGAAAC TTGACATATTTCTGGAGAAGTTCAGGAAGAAAAATCCAAGTGTCTAG
spacer length: 46 repeater length: 28
39498 1823928 GTTTCCTACTCTTCTAGAGGTTTCGGAAAC
CCTGTCATCACCATCAAGGGAGGAAGGTACATCATCGGCAACGAGGAGCTCT spacer length: 52 repeater
length: 28
39499 1824008 GTTTCCTACTCTTCTAGAGGTTTCGGAAAC TCCAAATTCATCACTACCACCATAATAGTTATTCTTTTGTGCACTT
spacer length: 46 repeater length: 28
39500 1824082 GTTTCCTACTCTTCTAGAGGTTTCGGAAAC
CTGGAACGTATTGAACTATCTTGTCAATCCACTTATTCACGCCCTTTACCAGT spacer length: 54 repeater
length: 28
39501 1824164 GTTTCCTACTCTTCTAGAGGTTTCGGAAAC GGCCATAAAGAACGGGGGTCTCATTCTGGAGACCCACAGGGTA
spacer length: 44 repeater length: 28
39502 1824236 GTTTCCTACTCTTCTAGAGGTTTCGGAAAC
TCATACCTCTCTCCATAAACCGCCCCCTCAACACAAAACGAAAACCTCTTA spacer length: 50 repeater
length: 28
39503 1824314 GTTTCCTACTCTTCTAGAGGTTTCGGAAAC
39504
39505
39506 crispr 10
39507 2105764 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TTTGATGTTTCGCAGTTTGGGGCTCAGTATGACACTG spacer
length: 37 repeater length: 30
39508 2105831 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TTTCGTTCTGCTCGTCATCTATGCATCGAAGCTCAT spacer
length: 36 repeater length: 30
39509 2105897 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCAAAGAGAACGGCTTATGTCTCTGAAAAGATTAAAG spacer
length: 37 repeater length: 30
39510 2105964 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AGCCACGCTCAAACCCGAGACCAAACACGAACAGAAAA spacer
length: 38 repeater length: 30
39511 2106032 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GTGGAAAAGTTGGGTGCTGTGGGGCTGGAACCTGGCT spacer
length: 37 repeater length: 30
39512 2106099 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GTGAACGCCAACCAGAAGGCGAACGTTACCGTTACAG spacer
length: 37 repeater length: 30
39513 2106166 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AGCGTTAGAGAAATCGCCGACGTTAAAGAGCCTCTCA spacer
length: 37 repeater length: 30
39514 2106233 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCAAAGAGAAAAGAGTCAAACCTATTCTCCGTAAGGG spacer
length: 37 repeater length: 30
39515 2106300 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTCCCGAGGAAAGACCTCAAAATTTACGAGAGAGTCG spacer
length: 37 repeater length: 30
39516 2106367 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TTTGGGTGAGCCGTGTGGAGCTAAGGCCAATATCAACC spacer
length: 38 repeater length: 30
39517 2106435 CTTTCAATTCTCCTAGAGTCTTATTGCAAC
39518
39519
39520 GCA_900248165.1_Nitrosocaldus_cavascurensis_SCU2_chromosome_genomic.fna(PilerCR):
39521 START REPEAT
SPACER
39522 crispr 1
39523 925830 CTTTCAATCCTACTATAGTTCGATTCAAAC ACTTCGGTAGTGTGATAATAACTTGATATGAAGAAT spacer
length: 36 repeater length: 30
39524 925896 CTTTCAATCCTACTATAGTTCGATTCAAAC GGAAGGCACAGACAGGCTTAGGTCTCAGATAAACCT spacer
length: 36 repeater length: 30
39525 925962 CTTTCAATCCTACTATAGTTCGATTCAAAC CAATTATATTAAAATTACGTTATGTTGGAAATTTGA spacer
length: 36 repeater length: 30
39526 926028 CTTTCAATCCTACTATAGTTCGATTCAAAC AATGCTATAGATGCAATTTGAAGTTTAGGTTACCTAA spacer
length: 37 repeater length: 30
39527 926095 CTTTCAATCCTACTATAGTTCGATTCAAAC TATGCTAAGATGCAAGGAATGCGATAAGATGTATAACA spacer
length: 38 repeater length: 30
39528 926163 CTTTCAATCCTACTATAGTTCGATTCAAAC TAATCTTCTACATAGCCAAAACATGTATTATCTCCTCTTAA
spacer length: 41 repeater length: 30
39529 926234 CTTTCAATCCTACTATAGTTCGATTCAAAC TAATCTTCTACATAGCCAAAACATGTATTATCTCCTCTTAA
spacer length: 41 repeater length: 30
39530 926305 CTTTCAATCCTACTATAGTTCGATTCAAAC CATAAGGTGAAATATATTCACCTACAGCACCTAC spacer
length: 37 repeater length: 30
39531 926372 CTTTCAATCCTACTATAGTTCGATTCAAAC TCGCTCGTTCAATTTACGGTATAACTGTTACCGAAA spacer
length: 36 repeater length: 30
39532 926438 CTTTCAATCCTACTATAGTTCGATTCAAAC CTTGATTTGCCTAATTCTTCGATTTTATCGAGGAATC spacer
length: 37 repeater length: 30
39533 926505 CTTTCAATCCTACTATAGTTCGATTCAAAC CATGTGCTAGAGATCTAAGTGCAAGTGTAGAATTTGA spacer
length: 37 repeater length: 30

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39534	926572	CTTTC AATCCTACTATAGTTCGATTCAAAC	TATTACTGCATGCGATGCGCATACAAACTATACCCTAA	spacer
		length: 38	repeater length: 30	
39535	926640	CTTTC AATCCTACTATAGTTCGATTCAAAC	CAGAGAGTAGCAACACGTTATGGCATAGGTAGAGCA	spacer
		length: 36	repeater length: 30	
39536	926706	CTTTC AATCCTACTATAGTTCGATTCAAAC	ATAGGGGTGGTATGAAAAATGGGGTATGGTTATGCTAT	spacer
		length: 38	repeater length: 30	
39537	926774	CTTTC AATCCTACTATAGTTCGATTCAAAC	AATTTTGTGATGATGACTATTATATACAGTTATTCAAC	spacer
		length: 39	repeater length: 30	
39538	926843	CTTTC AATCCTACTATAGTTCGATTCAAAC	AGAGTTTAGCAATAGAATGTATGAAAGTAATGAAAGA	spacer
		length: 37	repeater length: 30	
39539	926910	CTTTC AATCCTACTATAGTTCGATTCAAAC	TCAATTGAGCACCCCTTCAACTGTATTGTTGAACCTGC	spacer
		length: 37	repeater length: 30	
39540	926977	CTTTC AATCCTACTATAGTTCGATTCAAAC	GTTCAACCCTCCTCTAGCACTATTACCTCATCTCCTAT	spacer
		length: 37	repeater length: 30	
39541	927044	CTTTC AATCCTACTATAGTTCGATTCAAAC	ATACTTCCCTTCTAATCGTTTAGGCTTATGCTCTAA	spacer
		length: 36	repeater length: 30	
39542	927110	CTTTC AATCCTACTATAGTTCGATTCAAAC	GCGCCACAATCACTTCTTCAACTGATTCAGCAATTTCT	spacer
		length: 38	repeater length: 30	
39543	927178	CTTTC AATCCTACTATAGTTCGATTCAAAC	CTTCACCTCCTGCAGAGATCAAAGAGTTCATCAAACAA	spacer
		length: 38	repeater length: 30	
39544	927246	CTTTC AATCCTACTATAGTTCGATTCAAAC	AATGTGCTATAATCTTTTTAAGCAATTTTATAATTGA	spacer
		length: 37	repeater length: 30	
39545	927313	CTTTC AATCCTACTATAGTTCGATTCAAAC	TATTAGAAAATAAAAAATAAATACAAAACATAATACAAACAT	
		spacer length: 40	repeater length: 30	
39546	927383	CTTTC AATCCTACTATAGTTCGATTCAAAC	AGAAGCGAGATAGAAAGATAGAGAAGAGGATGGTGTT	spacer
		length: 37	repeater length: 30	
39547	927450	CTTTC AATCCTACTATAGTTCGATTCAAAC	TAAGGTAGTGATAGGTATAGTAACATCATTCATAGCAT	spacer
		length: 38	repeater length: 30	
39548	927518	CTTTC AATCCTACTATAGTTCGATTCAAAC	AGCTTTGAGATAGATACCAGTAGCAGGTTCAACAGG	spacer
		length: 36	repeater length: 30	
39549	927584	CTTTC AATCCTACTATAGTTCGATTCAAAC	GAGCAATTAGGTTGCGCTAATTTCGATCAAGTTGGGAA	spacer
		length: 37	repeater length: 30	
39550	927651	CTTTC AATCCTACTATAGTTCGATTCAAAC	GATCGTTTTTCAAAAAGACACCATAAATTTGTAGCGA	spacer
		length: 37	repeater length: 30	
39551	927718	CTTTC AATCCTACTATAGTTCGATTCAAAC	GATAATAGAAGTCCTGAAAAGGGAGGTTTTTAGGAA	spacer
		length: 36	repeater length: 30	
39552	927784	CTTTC AATCCTACTATAGTTCGATTCAAAC	CTGAGTCGTAAAGGGAGTATGAAAGGCGAACGAGAT	spacer
		length: 36	repeater length: 30	
39553	927850	CTTTC AATCCTACTATAGTTCGATTCAAAC	TTCATTAGAAATTTGCGAATTGATCCTGCAAATGAG	spacer
		length: 36	repeater length: 30	
39554	927916	CTTTC AATCCTACTATAGTTCGATTCAAAC	AATATTATGAACGCAATTAAGGAGGCACGATCCTATACA	spacer
		length: 39	repeater length: 30	
39555	927985	CTTTC AATCCTACTATAGTTCGATTCAAAC	GCAAATATTAAATTTTGCCTTGTCCTCAATATGGACA	spacer
		length: 36	repeater length: 30	
39556	928051	CTTTC AATCCTACTATAGTTCGATTCAAAC	ATCCCTAACCCTCCTCATTACCTCTGCTTGTCGAA	spacer
		length: 37	repeater length: 30	
39557	928118	CTTTC AATCCTACTATAGTTCGATTCAAAC	GAATAGGTAGGATTGCATCTGGGGCTGAGGCATCTA	spacer
		length: 36	repeater length: 30	
39558	928184	CTTTC AATCCTACTATAGTTCGATTCAAAC	TTTGCATCGATCCTTTTCAGGAACATGGAAATTGTAT	spacer
		length: 37	repeater length: 30	
39559	928251	CTTTC AATCCTACTATAGTTCGATTCAAAC	AATAGGGATTTCATATTATTCGGGGGCATGCATCCGCT	spacer
		length: 37	repeater length: 30	
39560	928318	CTTTC AATCCTACTATAGTTCGATTCAAAC	TTTATTTTACGTTACGCATATTTGACGCTAGGACAT	spacer
		length: 36	repeater length: 30	
39561	928384	CTTTC AATCCTACTATAGTTCGATTCAAAC	TTTTATTTGGCGACATAAAATAAAATTTTGTTCGAA	spacer
		length: 36	repeater length: 30	
39562	928450	CTTTC AATCCTACTATAGTTCGATTCAAAC	GTATGAAATGGAGGAGGAAGAGCGCAACGCCTATAACA	spacer
		length: 38	repeater length: 30	
39563	928518	CTTTC AATCCTACTATAGTTCGATTCAAAC	CCTCTTTTGGAGAGGCGTAAAATACGCCTCTCTATT	spacer
		length: 36	repeater length: 30	
39564	928584	CTTTC AATCCTACTATAGTTCGATTCAAAC	GACTAAGAAAGAGATGGCATTTAGAGAATGGTTAAG	spacer
		length: 36	repeater length: 30	
39565	928650	CTTTC AATCCTACTATAGTTCGATTCAAAC	TTAATTTATTAAGATTATGCCTTATCTCTCTACTTAA	spacer
		length: 37	repeater length: 30	
39566	928717	CTTTC AATCCTACTATAGTTCGATTCAAAC	CAGAGATGAAATCAGAAGCCAACCTCTCAGCATTGTA	spacer
		length: 36	repeater length: 30	
39567	928783	CTTTC AATCCTACTATAGTTCGATTCAAAC	CACTGTTATGTTTGAAGAACTCTGCCACATGAATAA	spacer
		length: 36	repeater length: 30	
39568	928849	CTTTC AATCCTACTATAGTTCGATTCAAAC	ATGAAATGAATCTTGAGTATCTTAGAAAGGTGGTTA	spacer
		length: 36	repeater length: 30	
39569	928915	CTTTC AATCCTACTATAGTTCGATTCAAAC	TACAGTTGCAGTACGGTGATGAAGTAATAGCAACCTCTC	spacer

length: 39 repeater length: 30
39570 928984 CTTTCAATCCTACTATAGTTCGATTCAAAC ATAGATAAAGAAATAAGATGTTATTGGTCAGATTGC spacer
length: 36 repeater length: 30
39571 929050 CTTTCAATCCTACTATAGTTCGATTCAAAC TGTGCACATACTACCCATACGGGCGGTAAGGGTCTGC spacer
length: 37 repeater length: 30
39572 929117 CTTTCAATCCTACTATAGTTCGATTCAAAC TATATGGATAATGAAAGAGACGCCAACTAAACCAAATA spacer
length: 39 repeater length: 30
39573 929186 CTTTCAATCCTACTATAGTTCGATTCAAAC GCTGAATCAAAGTTCTGTGAGCCTATAAGCACGTAC spacer
length: 36 repeater length: 30
39574 929252 CTTTCAATCCTACTATAGTTCGATTCAAAC GCAACAGCAACAACAACAACAGATCATAACAAGCA spacer
length: 37 repeater length: 30
39575 929319 CTTTCAATCCTACTATAGTTCGATTCAAAC GATGATGATATCGTGAATGACATAATATCCGAATCTC spacer
length: 37 repeater length: 30
39576 929386 CTTTCAATCCTACTATAGTTCGATTCAAAC ATGAAATCAACGACGTCGAGGACAGCGTAAAGGATTACTT
spacer length: 40 repeater length: 30
39577 929456 CTTTCAATCCTACTATAGTTCGATTCAAAC CAACAACTTCTCTTTCTTTGCAACTGCCTTCTCAGA spacer
length: 37 repeater length: 30
39578 929523 CTTTCAATCCTACTATAGTTCGATTCAAAC CATAAAGTTACTATATTTTCATAAGAAATGAAGATAT spacer
length: 36 repeater length: 30
39579 929589 CTTTCAATCCTACTATAGTTCGATTCAAAC ATAATTGGGGTGGTTTAATGGGATACGGTTATGGAA spacer
length: 36 repeater length: 30
39580 929655 CTTTCAATCCTACTATAGTTCGATTCAAAC AAAAATGCATTTACCGATTTTACGAATAAAATTTATAA spacer
length: 38 repeater length: 30
39581 929723 CTTTCAATCCTACTATAGTTCGATTCAAAC CAGAGTGTCAACTTTTATTTCAGTGTTACAGATGTTGCA spacer
length: 38 repeater length: 30
39582 929791 CTTTCAATCCTACTATAGTTCGATTCAAAC CTTGCTGGATCAGGAGCTGCATTCTTCTGATTTACAT spacer
length: 37 repeater length: 30
39583 929858 CTTTCAATCCTACTATAGTTCGATTCAAAC AGAGCATCAGACTAGGTAGAGGAGCAAACGAATCGCTT spacer
length: 38 repeater length: 30
39584 929926 CTTTCAATCCTACTATAGTTCGATTCAAAC TTGACTGATTTCTTTTGCAATGAATATCTTAAACATTAA spacer
length: 39 repeater length: 30
39585 929995 CTTTCAATCCTACTATAGTTCGATTCAAAC TCTTCTCTGCGCTTGGTGCAAACAATCTTGCAGTACT spacer
length: 37 repeater length: 30
39586 930062 CTTTCAATCCTACTATAGTTCGATTCAAAC GAAGAAATAAAACGTATGATACGTGTTATGGAAAAGG spacer
length: 37 repeater length: 30
39587 930129 CTTTCAATCCTACTATAGTTCGATTCAAAC GATTAGCAGAAAGAGTATATAGCGGTATAACAAAAA spacer
length: 36 repeater length: 30
39588 930195 CTTTCAATCCTACTATAGTTCGATTCAAAC CTCTACCTTTGAACCTTCAAGAGAATCCTTCTTTGC spacer
length: 36 repeater length: 30
39589 930261 CTTTCAATCCTACTATAGTTCGATTCAAAC CATTGATGCAATTAACTTGAATTAGATTCATATAG spacer
length: 36 repeater length: 30
39590 930327 CTTTCAATCCTACTATAGTTCGATTCAAAC TGTATTATTGCGATACTGATAGTTTAATTGTTAATG spacer
length: 36 repeater length: 30
39591 930393 CTTTCAATCCTACTATAGTTCGATTCAAAC CAACAACTTCTCCTTCTTTGCAACAGCCTTCTCCGC spacer
length: 37 repeater length: 30
39592 930460 CTTTCAATCCTACTATAGTTCGATTCAAAC CATTATCAAGGTTAGTTAATATGCCAGGACACTATTTTC spacer
length: 38 repeater length: 30
39593 930528 CTTTCAATCCTACTATAGTTCGATTCAAAC TTGACTTTAAAGTACTATCGTTTGAAGGGGGCACCA spacer
length: 36 repeater length: 30
39594 930594 CTTTCAATCCTACTATAGTTCGATTCAAAC TCTACATATTAAAAATTGCAAGGGTGAGTTAGCTCAA spacer
length: 37 repeater length: 30
39595 930661 CTTTCAATCCTACTATAGTTCGATTCAAAC GCCAACACGAGTCGATCTTGAAGAATGTATCGTAT spacer
length: 36 repeater length: 30
39596 930727 CTTTCAATCCTACTATAGTTCGATTCAAAC TCTTGTTAATTATACACTGAGTGTAAGTTAAGCAG spacer
length: 37 repeater length: 30
39597 930794 CTTTCAATCCTACTATAGTTCGATTCAAAC AGGCATGCTATCTGCTTTCTTTGCAACCTCCTCCGCATA spacer
length: 39 repeater length: 30
39598 930863 CTTTCAATCCTACTATAGTTCGATTCAAAC TAGCCTCATCTAGGTTGCTGGGGTATTCCCTACCTTAT spacer
length: 38 repeater length: 30
39599 930931 CTTTCAATCCTACTATAGTTCGATTCAAAC TCAAGTTATCGAACATTTTGCTGAGGGGTAGGAAAAA spacer
length: 38 repeater length: 30
39600 930999 CTTTCAATCCTACTATAGTTCGATTCAAAC ATAATATTGACGATCTTGCGCGGAGGGAATTAAGC spacer
length: 36 repeater length: 30
39601 931065 CTTTCAATCCTACTATAGTTCGATTCAAAC ACTTGTGTGTTTTTGCTTATCTATTACTAAGTAATA spacer
length: 36 repeater length: 30
39602 931131 CTTTCAATCCTACTATAGTTCGATTCAAAC AGTTTTATACATAGCGGTTATGAGTTCGATGAGACAG spacer
length: 37 repeater length: 30
39603 931198 CTTTCAATCCTACTATAGTTCGATTCAAAC TTAGTAATAGATAAGCAAAAACACACAAGTCAATGCA spacer
length: 37 repeater length: 30
39604 931265 CTTTCAATCCTACTATAGTTCGATTCAAAC TCTACAAGCTGCTGCTAACTCGCTATACGGCAAGTT spacer
length: 37 repeater length: 30

39605 931332 CTTTCAATCCTACTATAGTTCGATTCAAAC TAGCTTTGTAGGAAAGATGTTATTCTTCATAACAAA spacer
length: 36 repeater length: 30
39606 931398 CTTTCAATCCTACTATAGTTCGATTCAAAC TATACTTTTATAACAAGAGACTTGAAGCTAAAGAAAA spacer
length: 37 repeater length: 30
39607 931465 CTTTCAATCCTACTATAGTTCGATTCAAAC TAACAAACTTCTCCTTCTTTGCAACAGCTCGCTCGGA spacer
length: 37 repeater length: 30
39608 931532 CTTTCAATCCTACTATAGTTCGATTCAAAC ATAAAAATGGTTGAGGATAGCGTGATAATTCAAGTACG spacer
length: 37 repeater length: 30
39609 931599 CTTTCAATCCTACTATAGTTCGATTCAAAC TAAGAGCTACAGGATCAACAACCTTGGACTGCTAACAAA spacer
length: 38 repeater length: 30
39610 931667 CTTTCAATCCTACTATAGTTCGATTCAAAC GTTCTTAACAGTTTTTAAAGTAGAACTAACAAACGCGTT spacer
length: 39 repeater length: 30
39611 931736 CTTTCAATCCTACTATAGTTCGATTCAAAC TTGATAGTGAAGGTAACATAAAGAATGATTCTGGTAA spacer
length: 37 repeater length: 30
39612 931803 CTTTCAATCCTACTATAGTTCGATTCAAAC GCTATATAAATGTTACTATTAAGAAATGAGGGGCCT spacer
length: 36 repeater length: 30
39613 931869 CTTTCAATCCTACTATAGTTCGATTCAAAC ACACAACTTAATGAAAGAGTGGTACAAATTTACAGA spacer
length: 36 repeater length: 30
39614 931935 CTTTCAATCCTACTATAGTTCGATTCAAAC GATATAAAGAATTATTGACTAAAGTTGTAACAAATA spacer
length: 36 repeater length: 30
39615 932001 CTTTCAATCCTACTATAGTTCGATTCAAAC ATATTATAATAAATACAGGAACCTTAGTGCTTTTGCAGA spacer
length: 38 repeater length: 30
39616 932069 CTTTCAATCCTACTATAGTTCGATTCAAAC CATAAAATTACTATATTTTATAAGAAATGAAAGTTT spacer
length: 36 repeater length: 30
39617 932135 CTTTCAATCCTACTATAGTTCGATTCAAAC CAGAACTATATCTTATATCATTTCTGTATATGCACA spacer
length: 37 repeater length: 30
39618 932202 CTTTCAATCCTACTATAGTTCGATTCAAAC AAAGATTAGTTCAGTTCAGTTCAGTTCAGTTCCTGAAT spacer
length: 38 repeater length: 30
39619 932270 CTTTCAATCCTACTATAGTTCGATTCAAAC CGGACTCGTT
39620
39621
39622 crispr 2
39623 1093285 AGGTTTGAGGAGGCTATAGCATGCTTTGATAAGGCTATAGAGATGGAT
GGGAGGGATAGCATGGTATGGAACCTTAAAGGGTTTGCTTTATATGGGCTAGGA spacer length: 54 repeater
length: 48
39624 1093387 AGGTTTGAGGAGGCTATAGCATGCTTTGATAAGGCTATAGAGATGGAT
TGGGGGAATGCAAAGGCATGGTACAACAAAGGTGTTGTATTACTTGAGATGAAG spacer length: 54 repeater
length: 48
39625 1093489 AGGTTTGAGGAGGCTATAGCATGCTTTGATAAGGCTATAGAGATGGAT
GGTTTGAAGATGTTTAGAAAAGAAGGATTTTACTCCTTCAGTTCGAAATTGCT
39626
39627
39628 crispr 3
39629 1548626 ATTTCAATCCTACTATAGTTCGATTCAAAC ATTTTCAATGAATGCTTGCCTTTCAGGTTCAAGTTT spacer
length: 36 repeater length: 30
39630 1548692 ATTTCAATCCTACTATAGTTCGATTCAAAC TTAATACTTACTTTTGCCTTAGTCTTACCAGCAACA spacer
length: 36 repeater length: 30
39631 1548758 ATTTCAATCCTACTATAGTTCGATTCAAAC TGCCATAGTATAGAATTATGGGTTATATAAATCTTG spacer
length: 36 repeater length: 30
39632 1548824 ATTTCAATCCTACTATAGTTCGATTCAAAC TATCTATATCTACACTTGAGCCTATAAATCACAAGTAT spacer
length: 38 repeater length: 30
39633 1548892 ATTTCAATCCTACTATAGTTCGATTCAAAC CTAGAACTGCATCATTAGATGCAGGTCTATTTAAATC spacer
length: 37 repeater length: 30
39634 1548959 ATTTCAATCCTACTATAGTTCGATTCAAAC CTGATAGCCTTCTTACCCACTTATTACTTATTTCACT spacer
length: 37 repeater length: 30
39635 1549026 ATTTCAATCCTACTATAGTTCGATTCAAAC TCAAGCATCTCTTCTCTATTATCTCAGTTAACTTAT spacer
length: 37 repeater length: 30
39636 1549093 ATTTCAATCCTACTATAGTTCGATTCAAAC CAAAGAGTAAAGAATATAAGGTAATGTTACTAGAGGA spacer
length: 38 repeater length: 30
39637 1549161 ATTTCAATCCTACTATAGTTCGATTCAAAC TGCAGATATTGGCATTATATACTGCATCTAGGTATG spacer
length: 36 repeater length: 30
39638 1549227 ATTTCAATCCTACTATAGTTCGATTCAAAC ATTGAACACATGGATTGCCCTAACAGTTATCAAAAC spacer
length: 36 repeater length: 30
39639 1549293 ATTTCAATCCTACTATAGTTCGATTCAAAC TTAAACCGCACGCACTTTTTTCAACTCTTTCAAATT spacer
length: 37 repeater length: 30
39640 1549360 ATTTCAATCCTACTATAGTTCGATTCAAAC ACTTAGTTACATATTGTTATAGAGATGTTGAAATAG spacer
length: 36 repeater length: 30
39641 1549426 ATTTCAATCCTACTATAGTTCGATTCAAAC GTAAGTTAGAGTAAGCAATCTCAAGAAGTATATCTTT spacer
length: 37 repeater length: 30
39642 1549493 ATTTCAATCCTACTATAGTTCGATTCAAAC TCTTATTACCTTTATCATCCTCTGCTTCAAGACTATCTT
spacer length: 39 repeater length: 30

39643	1549562	ATTTCAATCCTACTATAGTTCGATTCAAAC	CAGCATAGAACAGGTGAGCAAGAATAACATCCAGCTTA	spacer
	length:	38	repeater length:	30
39644	1549630	ATTTCAATCCTACTATAGTTCGATTCAAAC	ACCATTATTATCCTTTCTTGGCCTTAGGTACTTTTC	spacer
	length:	36	repeater length:	30
39645	1549696	ATTTCAATCCTACTATAGTTCGATTCAAAC	ACACCTCTCTGCTTTGCACTTATCATCTCCTGAACT	spacer
	length:	36	repeater length:	30
39646	1549762	ATTTCAATCCTACTATAGTTCGATTCAAAC	CTTGGTACTACATCTTTGCAGGAGGTCTGGTTGAGAT	spacer
	length:	37	repeater length:	30
39647	1549829	ATTTCAATCCTACTATAGTTCGATTCAAAC	TATTGTTTTGTTTATTTGCCTTGATATTTCCCTATTAAT	
	spacer length:	39	repeater length:	30
39648	1549898	ATTTCAATCCTACTATAGTTCGATTCAAAC	ATCACCTAATTTCTTTATAAATGAAATTGTATCTAA	spacer
	length:	36	repeater length:	30
39649	1549964	ATTTCAATCCTACTATAGTTCGATTCAAAC	ATTCAACCCAATTGGCACTGTAAACCTCTTTGTATT	spacer
	length:	36	repeater length:	30
39650	1550030	ATTTCAATCCTACTATAGTTCGATTCAAAC	GGGCACTTGAAATACCCATATCTCCTAAGCTTGCCA	spacer
	length:	36	repeater length:	30
39651	1550096	ATTTCAATCCTACTATAGTTCGATTCAAAC	CTACTTTATCAGATTTAGTTAGATTTGCAGTTAGAG	spacer
	length:	36	repeater length:	30
39652	1550162	ATTTCAATCCTACTATAGTTCGATTCAAAC	GGTAAGAAAATAGAAATAAAGAGAGTGAGACATATTA	spacer
	length:	37	repeater length:	30
39653	1550229	ATTTCAATCCTACTATAGTTCGATTCAAAC	ACTACCCATATCTGAAGCAATAGAGTCTTATCATAA	spacer
	length:	36	repeater length:	30
39654	1550295	ATTTCAATCCTACTATAGTTCGATTCAAAC	CGACACATCGAGATATTACTTGATCTGCATAATATAA	spacer
	length:	37	repeater length:	30
39655	1550362	ATTTCAATCCTACTATAGTTCGATTCAAAC	ACATGCTATCTGCTTTCTTTGCTACCTCTTCTACGAA	spacer
	length:	37	repeater length:	30
39656	1550429	ATTTCAATCCTACTATAGTTCGATTCAAAC	TTAGGTATTGACTTAGATGCAGATGATGAACTAGGAG	spacer
	length:	37	repeater length:	30
39657	1550496	ATTTCAATCCTACTATAGTTCGATTCAAAC	AGGACTGCACCAATCATAACAATTCTAATGATGTGAG	spacer
	length:	38	repeater length:	30
39658	1550564	ATTTCAATCCTACTATAGTTCGATTCAAAC	CATGATTGGTAATGGTTGGAAGATCAAAGAAATAAACAAA	
	spacer length:	40	repeater length:	30
39659	1550634	ATTTCAATCCTACTATAGTTCGATTCAAAC	GGTTTATTGGGTATTGAGAATTCCAGCCGGGAAATTTGT	
	spacer length:	39	repeater length:	30
39660	1550703	ATTTCAATCCTACTATAGTTCGATTCAAAC	ATCAAATATGATTCAAAGTATTAATAATGTCGTAA	spacer
	length:	36	repeater length:	30
39661	1550769	ATTTCAATCCTACTATAGTTCGATTCAAAC	ATATAAATACATAGATAAAGAATATAAAGAAGTCGAT	spacer
	length:	37	repeater length:	30
39662	1550836	ATTTCAATCCTACTATAGTTCGATTCAAAC	CACAATTGCTCTTGC GGCTATACAGCTTTCACTGTA	spacer
	length:	36	repeater length:	30
39663	1550902	ATTTCAATCCTACTATAGTTCGATTCAAAC	CCTTGCCCTTGGCTATATAAATGTTACTATTTAGATAT	spacer
	length:	38	repeater length:	30
39664	1550970	ATTTCAATCCTACTATAGTTCGATTCAAAC	CTTGCCCGGGCTATATAAATGTTACTATTTAGATAA	spacer
	length:	37	repeater length:	30
39665	1551037	ATTTCAATCCTACTATAGTTCGATTCAAAC	TCTACAAGCTGCTATTAAATTCGCTTTACGGCAAATT	spacer
	length:	37	repeater length:	30
39666	1551104	ATTTCAATCCTACTATAGTTCGATTCAAAC	CAACAATTTTTGTAGTATTATTTGAGGTGTAGTAAAAATA	
	spacer length:	40	repeater length:	30
39667	1551174	ATTTCAATCCTACTATAGTTCGATTCAAAC	AATATCTGTCTCTATCTCTGTCTGTACATGTTTGCAC	spacer
	length:	37	repeater length:	30
39668	1551241	ATTTCAATCCTACTATAGTTCGATTCAAAC	ATGAGAATGAGAATGAGAATGAGAATGAGAATGAGA	spacer
	length:	36	repeater length:	30
39669	1551307	ATTTCAATCCTACTATAGTTCGATTCAAAC	TTACTATTACTTGATATGCCTGCAAGTGCTTTTCTC	spacer
	length:	36	repeater length:	30
39670	1551373	ATTTCAATCCTACTATAGTTCGATTCAAAC	TCTTCTATGAACGATTTAAGTAATGATGCTGAAGGTCG	spacer
	length:	38	repeater length:	30
39671	1551441	ATTTCAATCCTACTATAGTTCGATTCAAAC	TGCAAGGTCAGCCTTACCGTGCAGGCGTATTGGGATTGAA	
	spacer length:	40	repeater length:	30
39672	1551511	ATTTCAATCCTACTATAGTTCGATTCAAAC	AGGATTTATAGTGTCTGGTAATACCCCTGAATTTCGT	spacer
	length:	36	repeater length:	30
39673	1551577	ATTTCAATCCTACTATAGTTCGATTCAAAC	TTAGATCGTTATTGAGAATTCAAGTTTTACGATCTGA	spacer
	length:	37	repeater length:	30
39674	1551644	ATTTCAATCCTACTATAGTTCGATTCAAAC	AAAGAGATAGAAGAAATAAAACGCATGATACGTGTCA	spacer
	length:	37	repeater length:	30
39675	1551711	ATTTCAATCCTACTATAGTTCGATTCAAAC	TATATCGTAAGCTGAGTGCAGAAGTCAGCGAGCTGA	spacer
	length:	36	repeater length:	30
39676	1551777	ATTTCAATCCTACTATAGTTCGATTCAAAC	GAGCATCAAGCTAGGTAGAGGAGCAAACGAGTCGCTC	spacer
	length:	37	repeater length:	30
39677	1551844	ATTTCAATCCTACTATAGTTCGATTCAAAC	TCAACATATTA AAAATTGCAAGGGTGAGTTGGCTCAA	spacer
	length:	37	repeater length:	30
39678	1551911	ATTTCAATCCTACTATAGTTCGATTCAAAC	TGTTTTGTTTATTTGCCTTGATATTTCCCTATTTAG	spacer

length: 36 repeater length: 30
39679 1551977 ATTTCAATCCTACTATAGTTCGATTCAAAC GATGTTAAAGATGCGATAATTGTGGGGGTGGTGTAA spacer
length: 36 repeater length: 30
39680 1552043 ATTTCAATCCTACTATAGTTCGATTCAAAC GAATTACAAAAGAGGTTGATTTCAAATGTTAGCGCT spacer
length: 36 repeater length: 30
39681 1552109 ATTTCAATCCTACTATAGTTCGATTCAAAC TTGGTTTGCTCACTGGGAATTACCGAGTATATCTTT spacer
length: 36 repeater length: 30
39682 1552175 ATTTCAATCCTACTATAGTTCGATTCAAAC ACTTTCATGTATACTATCTGTGATGTATCTGCAGAAT spacer
length: 37 repeater length: 30
39683 1552242 ATTTCAATCCTACTATAGTTCGATTCAAAC TGCAACCATTCTTATGATTGCACCTTTTACATCTGC spacer
length: 36 repeater length: 30
39684 1552308 ATTTCAATCCTACTATAGTTCGATTCAAAC CTCAATTTGAGTTCTTAGCCGGCAGTGGTGATACGAGTC
spacer length: 39 repeater length: 30
39685 1552377 ATTTCAATCCTACTATAGTTCGATTCAAAC AGAAGTTAGCGAGCTCTTAGGAATGTATAAGCCCGTA spacer
length: 37 repeater length: 30
39686 1552444 ATTTCAATCCTACTATAGTTCGATTCAAAC GGTGAGGATAGCGTGATAATTCAATATGTGATAAA spacer
length: 36 repeater length: 30
39687 1552510 ATTTCAATCCTACTATAGTTCGATTCAAAC AGATAATACACCAACGACTCTCTGTGCACTTGTACGTC
spacer length: 39 repeater length: 30
39688 1552579 ATTTCAATCCTACTATAGTTCGATTCAAAC TCTCTCATTACAAATATTGCCTTGTTGATCCTGTCTCTCA
spacer length: 40 repeater length: 30
39689 1552649 ATTTCAATCCTACTATAGTTCGATTCAAAC CATTACTTAAATCGTTCATAGAAGAAAGCATCAAGT spacer
length: 36 repeater length: 30
39690 1552715 ATTTCAATCCTACTATAGTTCGATTCAAAC AGCACTTACTGAAGTTAATGTTGATGCACTCGTAAACA spacer
length: 38 repeater length: 30
39691 1552783 ATTTCAATCCTACTATAGTTCGATTCAAAC ATGTTCCCGCATATATATTTGTATTTATCTTTAAAGTA spacer
length: 38 repeater length: 30
39692 1552851 ATTTCAATCCTACTATAGTTCGATTCAAAC TAATGCACGATCGAAATCAACATATTAAAAATTGCAA spacer
length: 37 repeater length: 30
39693 1552918 ATTTCAATCCTACTATAGTTCGATTCAAAC GAGGGGATCTAAAGTAAATACTGCCAAAACGGGATTATT
spacer length: 39 repeater length: 30
39694 1552987 ATTTCAATCCTACTATAGTTCGATTCAAAC TAGCGAGGTGTAGAAAATTATGGTATTTATAAGAAA spacer
length: 36 repeater length: 30
39695 1553053 ATTTCAATCCTACTATAGTTCGATTCAAAC TAGTAATGCAATTAAGGGATTAGCAGAAAGGCTTTATG spacer
length: 38 repeater length: 30
39696 1553121 ATTTCAATCCTACTATAGTTCGATTCAAAC AACTTTTATAAAACATCGATCGAAGAGCTGGGAAAAA spacer
length: 37 repeater length: 30
39697 1553188 ATTTCAATCCTACTATAGTTCGATTCAAAC TTTGCTGTGCGATAGAAACGCATCTCTCTTTCTTTCCA spacer
length: 36 repeater length: 30
39698 1553254 ATTTCAATCCTACTATAGTTCGATTCAAAC GAGGAGCAAACGAATCGCTAAGGAACTACAAGAAA spacer
length: 36 repeater length: 30
39699 1553320 ATTTCAATCCTACTATAGTTCGATTCAAAC AGGTAAGAAATATTTTAAGAATATTACCAACGAATTC spacer
length: 37 repeater length: 30
39700 1553387 ATTTCAATCCTACTATAGTTCGATTCAAAC AGTGGGAGCAAGCACTTAGAGCGTACGGACTAGATGAG spacer
length: 38 repeater length: 30
39701 1553455 ATTTCAATCCTACTATAGTTCGATTCAAAC GAAGTTTAGGAGAAAGTAAATAATATAGTTATAAAAA spacer
length: 37 repeater length: 30
39702 1553522 ATTTCAATCCTACTATAGTTCGATTCAAAC TGTTAATGCTGTTAATTTTACAATTAGCTTTGTTTTGTC
spacer length: 39 repeater length: 30
39703 1553591 ATTTCAATCCTACTATAGTTCGATTCAAAC ATATCAATGGATTCTATTAGAGCTTATGATCTTAAATT spacer
length: 38 repeater length: 30
39704 1553659 ATTTCAATCCTACTATAGTTCGATTCAAAC TGACGATATGCGTTTATAATGTCAGCAACACTAATAA spacer
length: 37 repeater length: 30
39705 1553726 ATTTCAATCCTACTATAGTTCGATTCAAAC GATTCAAGTAATAACAATGCCCAACAACAAGCGTTTTA spacer
length: 37 repeater length: 30
39706 1553793 ATTTCAATCCTACTATAGTTCGATTCAAAC GTTTCATCCCCCTAACTGCTTTATAAACGAAATCGCATCGA
spacer length: 40 repeater length: 30
39707 1553863 ATTTCAATCCTACTATAGTTCGATTCAAAC TTTTCATCTCCTAACGCTTTTATAAATGTAATCACATCG spacer
length: 38 repeater length: 30
39708 1553931 ATTTCAATCCTACTATAGTTCGATTCAAAC CTTGCGCGTGAGGGAATTAGACTTGTGTTGTCGGT spacer
length: 35 repeater length: 30
39709 1553996 ATTTCAATCCTACTATAGTTCGATTCAAAC ATGCATCACAGGTCGTATACATGAAGGTTGTAAAGCTG spacer
length: 38 repeater length: 30
39710 1554064 ATTTCAATCCTACTATAGTTCGATTCAAAC TGCAACAACTTCTCCTTCTTTGAGACCGCCTTCTCGC spacer
length: 38 repeater length: 30
39711 1554132 ATTTCAATCCTACTATAGTTCGATTCAAAC AAGGTCAGCCCTACAGGGCAGGCGTGTGGGACTAAG spacer
length: 37 repeater length: 30
39712 1554199 ATTTCAATCCTACTATAGTTCGATTCAAAC GATGAGACAGAAGATATATCTTTCAGAGTAACCTATCC spacer
length: 38 repeater length: 30
39713 1554267 ATTTCAATCCTACTATAGTTCGATTCAAAC GTGTATTATTGCGATACTGATAGTTTAAATTGTTAACG spacer
length: 37 repeater length: 30

39714 1554334 ATTTCAATCCTACTATAGTTCGATTCAAAC ATTTAAGTATGCTGAAGATATGCCCCGCGAGTTTATAG spacer
length: 38 repeater length: 30

39715 1554402 ATTTCAATCCTACTATAGTTCGATTCAAAC AGATCATTGACGAGCAAGAGTTAATTGAGTACTTAGCG spacer
length: 38 repeater length: 30

39716 1554470 ATTTCAATCCTACTATAGTTCGATTCAAAC ATAGTTAGAGAGACGATGCATAAATGTGACATATTTTAT
spacer length: 39 repeater length: 30

39717 1554539 ATTTCAATCCTACTATAGTTCGATTCAAAC AAGAGTAAAGGATATAATTGATAAACGCTTACCTGACG spacer
length: 38 repeater length: 30

39718 1554607 ATTTCAATCCTACTATAGTTCGATTCAAAC TGTAGAATATTAAAACATCTACACCAAATTCACCTG spacer
length: 38 repeater length: 30

39719 1554675 ATTTCAATCCTACTATAGTTCGATTCAAAC TCGCCCTTAGCTCGTTGACATACTCGCTGAACGTCTT spacer
length: 37 repeater length: 30

39720 1554742 ATTTCAATCCTACTATAGTTCGATTCAAAC TTATTTGTGCATCAGCATAAGGGCAAAAATCTATAAAA spacer
length: 38 repeater length: 30

39721 1554810 ATTTCAATCCTACTATAGTTCGATTCAAAC AGTTAGAGAACTATGCAAAAATGTGAAATATATTAC spacer
length: 37 repeater length: 30

39722 1554877 ATTTCAATCCTACTATAGTTCGATTCAAAC TTCTAAGAGATACATATATAGATGTTTTGACTTGTAC spacer
length: 37 repeater length: 30

39723 1554944 ATTTCAATCCTACTATAGTTCGATTCAAAC TTGGGGGGTAGGATGCAGACTGGCAGACAGATAGACTA spacer
length: 38 repeater length: 30

39724 1555012 ATTTCAATCCTACTATAGTTCGATTCAAAC AAGTACGCCAACAACTCTCTCTGCGCTTTGTACATC spacer
length: 36 repeater length: 30

39725 1555078 ATTTCAATCCTACTATAGTTCGATTCAAAC AAACCTCTTTAATGAAGGATAGGAGTCTTGTGCATATG spacer
length: 38 repeater length: 30

39726 1555146 ATTTCAATCCTACTATAGTTCGATTCAAAC CGATGCACTCGTAAACATGGTGCAAGAATTACAAAAG spacer
length: 37 repeater length: 30

39727 1555213 ATTTCAATCCTACTATAGTTCGATTCAAAC ACCAATACGATACATTCTTCTCAAATCGACCCTCGT spacer
length: 36 repeater length: 30

39728 1555279 ATTTCAATCCTACTATAGTTCGATTCAAAC ATATATTGTTTTATAGAGTTATAAAGTACATGTGCAA spacer
length: 37 repeater length: 30

39729 1555346 ATTTCAATCCTACTATAGTTCGATTCAAAC GGCAAACTAATAGTGAGTGTGATAAGAAGGGAGAAG spacer
length: 37 repeater length: 30

39730 1555413 ATTTCAATCCTACTATAGTTCGATTCAAAC CCCGGCCTTC

39731

39732

39733 GCA_900696045.1_Nitrosocosmicus_franklandus_C13_genomic.fna (PilerCR) :

39734 START REPEAT
SPACER

39735 GCA_902383905.1_UHGG_MGYG-HGUT-02160_genomic.fna (PilerCR) :

39736 START REPEAT
SPACER

39737 crispr 1

39738 930279 GTTAGAAATCCATCTAACTAGAATGTAAAT GCGGCTCGAGCTGAACGAATCCAAAGAGATATAGTA spacer
length: 36 repeater length: 31

39739 930346 GTTAGAAATCCATCTAACTAGAATGTAAAT GAGGTAGCTGAATTAATACTACTGGGATTATTACATCA spacer
length: 36 repeater length: 31

39740 930413 GTTAGAAATCCATCTAACTAGAATGTAAAT ATTGCCGTGAAGTGCATCGTTGCCATACGCATCCCTT spacer
length: 36 repeater length: 31

39741 930480 GTTAGAAATCCATCTAACTAGAATGTAAAT GTTATTAGATACACTCCCTGCGAAGGGGGTTATATCG spacer
length: 37 repeater length: 31

39742 930548 GTTAGAAATCCATCTAACTAGAATGTAAAT TTGAACAGTCGGTAGGCTTGAACACTTCAGCGGTAG spacer
length: 36 repeater length: 31

39743 930615 GTTAGAAATCCATCTAACTAGAATGTAAAT AGGACGTGTATAGGCGAAATGCCGCTTCGCGGAATGA spacer
length: 37 repeater length: 31

39744 930683 GTTAGAAATCCATCTAACTAGAATGTAAAT ATACAAAGGGACAGCATCACGTCTAAAACCATCCTG spacer
length: 36 repeater length: 31

39745 930750 GTTAGAAATCCATCTAACTAGAATGTAAAT AGAGATATAGCAGCATCAAGAGTACCACGAGCAGCA spacer
length: 36 repeater length: 31

39746 930817 GTTAGAAATCCATCTAACTAGAATGTAAAT TAACGAAACAGAGCAAGAGCGTGTGGAGCGCTATCGA spacer
length: 37 repeater length: 31

39747 930885 GTTAGAAATCCATCTAACTAGAATGTAAAT AAAGTTATCATATAGCGTCTTACAGTTTCATAGATA spacer
length: 37 repeater length: 31

39748 930953 GTTAGAAATCCATCTAACTAGAATGTAAAT TCTTTGAGCATGCATTGCATATACGTTTATAACTATT spacer
length: 37 repeater length: 31

39749 931021 GTTAGAAATCCATCTAACTAGAATGTAAAT AAGTGGTACGATATAACAGCATCTAAGGAGAACTAC spacer
length: 37 repeater length: 31

39750 931089 GTTAGAAATCCATCTAACTAGAATGTAAAT GCCTTCTTTTCTTCAAGCTCCGCCCCAATGAAAAAT spacer
length: 36 repeater length: 31

39751 931156 GTTAGAAATCCATCTAACTAGAATGTAAAT GTAGTAGCCCACGATACCTCACCATCCATACTGTTA spacer
length: 36 repeater length: 31

39752 931223 GTTAGAAATCCATCTAACTAGAATGTAAAT TATCTACTTCTCCTTCCCTTAGTCGATAATCTTCATC spacer

length: 37 repeater length: 31

39753 931291 GTTAGAAATCCATCTAAACTAGAATGTAAAT GATTATTATACAGATGGCGATAAAGGCAGAGTTAA spacer
length: 35 repeater length: 31

39754 931357 GTTAGAAATCCATCTAAACTAGAATGTAAAT CTTTCGAGGCTAAATAATCCGCCTTCATTAAATGTTCA spacer
length: 37 repeater length: 31

39755 931425 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTAAATAGTGATAGAGATATCTCGTATCAAACCACA spacer
length: 36 repeater length: 31

39756 931492 GTTAGAAATCCATCTAAACTAGAATGTAAAT GCCTCATAACTGAGTCCAGTGGGATCGACGGGCAG spacer
length: 35 repeater length: 31

39757 931558 GTTAGAAATCCATCTAAACTAGAATGTAAAT ACACATGTAAGAAATTTTGACTATGTTCTAAAGGAAG spacer
length: 37 repeater length: 31

39758 931626 GTTAGAAATCCATCTAAACTAGAATGTAAAT GCAGATATAACAGTATCGAGAGTAGAACGAGCAATA spacer
length: 36 repeater length: 31

39759 931693 GTTAGAAATCCATCTAAACTAGAATGTAAAT CTGTCGACTGATACGGTCTGATTAAACCCTTTTCC spacer
length: 36 repeater length: 31

39760 931760 GTTAGAAATCCATCTAAACTAGAATGTAAAT AGAGTGTGTTGTTTTTACAAATGAGTATCCAAAGTACG spacer
length: 37 repeater length: 31

39761 931828 GTTAGAAATCCATCTAAACTAGAATGTAAAT GAGACCAATTTAACCCAGGACTTGTTAGAATCACCAA spacer
length: 37 repeater length: 31

39762 931896 GTTAGAAATCCATCTAAACTAGAATGTAAAT AAATGCTCAGTTAAGACCCTGGCAACAGCACTTAGT spacer
length: 36 repeater length: 31

39763 931963 GTTAGAAATCCATCTAAACTAGAATGTAAAT ACTCAATAGGAAGAAAAGCCGAAGAAGGAACTCCAT spacer
length: 36 repeater length: 31

39764 932030 GTTAGAAATCCATCTAAACTAGAATGTAAAT CCCGAAGTTGATCTTGTTACTGTAGTTCTACCTGCTG spacer
length: 37 repeater length: 31

39765 932098 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTAGGGTATCACGTCACAGATACTCATATCAACAAG spacer
length: 36 repeater length: 31

39766 932165 GTTAGAAATCCATCTAAACTAGAATGTAAAT GCTGGTTGAGCGTCTGCTGATTAAGCAGGAACCGC spacer
length: 35 repeater length: 31

39767 932231 GTTAGAAATCCATCTAAACTAGAATGTAAAT AAAGTGGCAGTAAACGGATTAAGCCAATTGTGAGTAG spacer
length: 37 repeater length: 31

39768 932299 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTAAGAACTAGATACTATTACGATTTTATTCAAAC spacer
length: 36 repeater length: 31

39769 932366 GTTAGAAATCCATCTAAACTAGAATGTAAAT CATTGTTCCAAATAGGCACGCACTCGTCTAATGTCAGC spacer
length: 38 repeater length: 31

39770 932435 GTTAGAAATCCATCTAAACTAGAATGTAAAT GAGGAAATTAATACCCCTCTGCCAGCTAGTGACCA spacer
length: 36 repeater length: 31

39771 932502 GTTAGAAATCCATCTAAACTAGAATGTAAAT GAACTAGGAAGCGAGCCTAAGGTTGATTATGTTGCC spacer
length: 36 repeater length: 31

39772 932569 GTTAGAAATCCATCTAAACTAGAATGTAAAT CTTTAGGATATGTATTTGACATTACCAATATTTTTA spacer
length: 36 repeater length: 31

39773 932636 GTTAGAAATCCATCTAAACTAGAATGTAAAT TGAGCGTGTATTACAACGGACGTGAGCTTGTTGAAA spacer
length: 36 repeater length: 31

39774 932703 GTTAGAAATCCATCTAAACTAGAATGTAAAT TGCTTGAAGATATTAATGTATCTTCATTTATGTATT spacer
length: 36 repeater length: 31

39775 932770 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTGGAACAAAATTAACAGGAAGCCAGTATCTCCGG spacer
length: 36 repeater length: 31

39776 932837 GTTAGAAATCCATCTAAACTAGAATGTAAAT GTGGATACTTGTTAAAAGAGACAACGTATAAGATCAAA spacer
length: 38 repeater length: 31

39777 932906 GTTAGAAATCCATCTAAACTAGAATGTAAAT TGTAGAAAGCTTGATTGACGGTCACGGGCAGTTTTA spacer
length: 36 repeater length: 31

39778 932973 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTATACTGGAGAATTGGTCAGTTACATCAGGATAAT spacer
length: 36 repeater length: 31

39779 933040 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTTTGCCTGACAGTCAGTATAACAATCAGTGGAACA spacer
length: 37 repeater length: 31

39780 933108 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTTATTCTTGTCATCTCAATGTTAACGGTTGACTGGTCAG
spacer length: 40 repeater length: 31

39781 933179 GTTAGAAATCCATCTAAACTAGAATGTAAAT ACCTCAAGAGGGATTTCAATCCTCACACGGATCTAT spacer
length: 36 repeater length: 31

39782 933246 GTTAGAAATCCATCTAAACTAGAATGTAAAT GGCGGTACGCTGGTGATCCTATAACCATATCGCTTG spacer
length: 36 repeater length: 31

39783 933313 GTTAGAAATCCATCTAAACTAGAATGTAAAT CTGCCCATGCCAGACTCTTACCCTACCCTCAACTC spacer
length: 36 repeater length: 31

39784 933380 GTTAGAAATCCATCTAAACTAGAATGTAAAT TAATGCGAACTGTGTGACTGTTAACCTCTTAAGCCA spacer
length: 37 repeater length: 31

39785 933448 GTTAGAAATCCATCTAAACTAGAATGTAAAT TGAGTCTGTTGCTTCTTCTACATGAGCTTCAGGTAT spacer
length: 36 repeater length: 31

39786 933515 GTTAGAAATCCATCTAAACTAGAATGTAAAT CCATGGTATCAATACAGGCAACATAATCAACCTTAG spacer
length: 36 repeater length: 31

39787 933582 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTCGAATGAAGAATACATCTATAAGTGTGAGATGCC spacer
length: 36 repeater length: 31

39788	933649	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CTTGACATTGATATGCCGATCCGGCGGTAATAGTCA	spacer
		length: 37 repeater length: 31		
39789	933717	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CTACCTCGAAATCATCAAGAACTAACTAATGGAGT	spacer
		length: 36 repeater length: 31		
39790	933784	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTGTAGTACCTACATAAGAACCATCAGCAAAGTAC	spacer
		length: 36 repeater length: 31		
39791	933851	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTGTTAGTATCAATGTTATCCCTAATTGCACATTAGG	spacer
		length: 37 repeater length: 31		
39792	933919	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TAAGCTCGGTCCGAGATTAACATTAGACGAATGCGT	spacer
		length: 36 repeater length: 31		
39793	933986	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	AAAGAAATCATACAATGGGTTTCATAGCAGTTATAAAAT	
		spacer length: 39 repeater length: 31		
39794	934056	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CTAAATTAGCTAGGAGGCTGGCGGGGGATGAAATCAG	spacer
		length: 37 repeater length: 31		
39795	934124	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	ACGACTCGCTAAAAAATGGAGCATGCGTCTCTGCTC	spacer
		length: 36 repeater length: 31		
39796	934191	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GTGGGTGGCAGGCGCTTGTATATACCACACGCATCGG	spacer
		length: 37 repeater length: 31		
39797	934259	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TGGCATGGAAGTAAAGTAAGGAAGTCGTGGTATAAATG	
		spacer length: 39 repeater length: 31		
39798	934329	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	ACAATATTGTTTAACTTACTGGACTTCCCCAGTCT	spacer
		length: 36 repeater length: 31		
39799	934396	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CTGCTGATGGGTTACAGACCTCTCAATCGTGAAGTTA	spacer
		length: 37 repeater length: 31		
39800	934464	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TGGGTGGCAGGCGCTTGTATATATCACACGCATCGG	spacer
		length: 36 repeater length: 31		
39801	934531	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTTGAGGGCTGCAAGCCCTCTTAATCTTGTCTAATAC	spacer
		length: 37 repeater length: 31		
39802	934599	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TCTTATATGGTGGTGACGGCATTGTATCCGGCCCTA	spacer
		length: 36 repeater length: 31		
39803	934666	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GATACGATTTCGCCATGGGTAAGTATTTGAATGATA	spacer
		length: 36 repeater length: 31		
39804	934733	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTCGTTATGCGAACAAGACCAGGGTTGAACATGTCAC	spacer
		length: 37 repeater length: 31		
39805	934801	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TGTATAACAAGGGGTATTCCTTAGGAAGTCCAC	spacer
		length: 35 repeater length: 31		
39806	934867	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GAAAGCAACAATGAACAAACAATATATAAAGACTAA	spacer
		length: 37 repeater length: 31		
39807	934935	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TCTACGCGATATTGCATTTCTACTGTTGTCTCAAAA	spacer
		length: 36 repeater length: 31		
39808	935002	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TACCAAAGTCTGCATCATTTGTATGTGTCAGCTCAA	spacer
		length: 36 repeater length: 31		
39809	935069	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TCTTTCCTTTCATATTCCCAAGAGTCTGTTGCTTCT	spacer
		length: 36 repeater length: 31		
39810	935136	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTCAAAAACTTATCATTGCTTGTCTGTAGTCTTAC	spacer
		length: 36 repeater length: 31		
39811	935203	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TCGTCTACTCTGCCTGTAGATCCTACTGGTTTGAGT	spacer
		length: 36 repeater length: 31		
39812	935270	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	ACACAATGGGCACAGAAATAGAAGATAATGATGTCTGA	spacer
		length: 37 repeater length: 31		
39813	935338	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TCTAAGTGGGAATACATCGGTAGAGAGACATTCACA	spacer
		length: 36 repeater length: 31		
39814	935405	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GCATACAGTTTACATCACTAAAGCAGAAAAACGCCTA	spacer
		length: 37 repeater length: 31		
39815	935473	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GCGCGAACATGCGCCTAATGTCTACGCGCGTGTAGG	spacer
		length: 36 repeater length: 31		
39816	935540	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CCCAATATTGCGCGCGAAGTGTCCGACAGGCCAG	spacer
		length: 36 repeater length: 31		
39817	935607	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GATTCATACGTTGTTTATCCAGCTCTACAAATGCCG	spacer
		length: 36 repeater length: 31		
39818	935674	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CAACCAAAGAACCTTTACATGCAACCTTAAAGAAGC	spacer
		length: 36 repeater length: 31		
39819	935741	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	ATTTAACCAGCTGGCAGACCTCGGAATTTTGGTAAA	spacer
		length: 36 repeater length: 31		
39820	935808	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GCATATACGGGTATCTAAATACAAGCCGCTGCATGG	spacer
		length: 36 repeater length: 31		
39821	935875	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CAGGGTAGCGGTGAGTGCATCATAGACGCTGAGAAT	spacer
		length: 36 repeater length: 31		
39822	935942	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CTGACTGTCTCTAACAGCCGGTTGAGTCTATAGTAG	spacer
		length: 36 repeater length: 31		
39823	936009	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GCTGGTGGAAGCATACCAATCTAAAAACATTTACATA	spacer

length: 38 repeater length: 31

39824 936078 GTTAGAAATCCATCTAAACTAGAATGTAAAT ATGTCAAGATAAGAACGATAAACACCGTCCCTATCAA spacer
length: 37 repeater length: 31

39825 936146 GTTAGAAATCCATCTAAACTAGAATGTAAAT TGATGCCGATCTGCGGTTACAGACGGAGTGCAGTA spacer
length: 36 repeater length: 31

39826 936213 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTGGTGTTCCTGAGCCGGTTGTTAACTGCTCCAATCA spacer
length: 37 repeater length: 31

39827 936281 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTCTGTGAGGTGGGTGATATTCTGTGAATCGTCGT spacer
length: 35 repeater length: 31

39828 936347 GTTAGAAATCCATCTAAACTAGAATGTAAAT CGAACTATGGGAATGTATGGGCGTATGATCTAGCAAA spacer
length: 37 repeater length: 31

39829 936415 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTCAGTGCTCCTGAAATTGTGGAGGTGATCGTATTA spacer
length: 36 repeater length: 31

39830 936482 GTTAGAAATCCATCTAAACTAGAATGTAAAT CAGGCTGATTACTGTCAAATAACGGTGTATTGGCGGA spacer
length: 37 repeater length: 31

39831 936550 GTTAGAAATCCATCTAAACTAGAATGTAAAT ATAACAATCGTCATTGGCGCGTTTCTGGTTAACGTC spacer
length: 36 repeater length: 31

39832 936617 GTTAGAAATCCATCTAAACTAGAATGTAAAT CTTGGCAGAACAATAAGATCTTACCGTGTGG spacer
length: 35 repeater length: 31

39833 936683 GTTAGAAATCCATCTAAACTAGAATGTAAAT GCACCTGGCTATAAACCTGATGAGGAATTGATAGACG spacer
length: 37 repeater length: 31

39834 936751 GTTAGAAATCCATCTAAACTAGAATGTAAAT GAAAGAAGGGGCAGTCCCCTGGATTTCATTACAAGAA spacer
length: 36 repeater length: 31

39835 936818 GTTAGAAATCCATCTAAACTAGAATGTAAAT TAGGAATGGCTAACATTGCATCCGGCATTATAGACAG spacer
length: 37 repeater length: 31

39836 936886 GTTAGAAATCCATCTAAACTAGAATGTAAAT ACGTTTTATACACAAGATGGAACGATTAGTTGACTT spacer
length: 37 repeater length: 31

39837 936954 GTTAGAAATCCATCTAAACTAGAATGTAAAT GAAATCAATCGGCTTTTTGTTCATCCATGTTTCACTC spacer
length: 36 repeater length: 31

39838 937021 GTTAGAAATCCATCTAAACTAGAATGTAAAT CAAGATCTTAATCAAAGGCCCTTGGAGAAGGAGTTGA spacer
length: 36 repeater length: 31

39839 937088 GTTAGAAATCCATCTAAACTAGAATGTAAAT ACAAGCACCTGGTGTGACGCCCGATGTGATCAATTA spacer
length: 36 repeater length: 31

39840 937155 GTTAGAAATCCATCTAAACTAGAATGTAAAT TATAACGTTGCGTACGAAGGAGCGAGATTAAAGCGA spacer
length: 36 repeater length: 31

39841 937222 GTTAGAAATCCATCTAAACTAGAATGTAAAT TACATATATCGAGAGCCTTCTAATCTGGTGCTGATAG spacer
length: 37 repeater length: 31

39842 937290 GTTAGAAATCCATCTAAACTAGAATGTAAAT CCAGTAACTTAAGAACTCCGCACTCTTCGAAGCTTC spacer
length: 37 repeater length: 31

39843 937358 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTTTGAGGTGTGTTTATGCAAGTAAATAATGTTAAAT spacer
length: 37 repeater length: 31

39844 937426 GTTAGAAATCCATCTAAACTAGAATGTAAAT GGCATCTTCGATCTTAAGCAAGATCTTCATACTAAAA spacer
length: 37 repeater length: 31

39845 937494 GTTAGAAATCCATCTAAACTAGAATGTAAAT CACTAAGCAAGCGGCAAAAGCGTTTGACGATTTAG spacer
length: 35 repeater length: 31

39846 937560 GTTAGAAATCCATCTAAACTAGAATGTAAAT GGCACCTACAGAAAAGGAAATAAGAGCAGTAAGCAA spacer
length: 36 repeater length: 31

39847 937627 GTTAGAAATCCATCTAAACTAGAATGTAAAT CATCTTCAGAAAAAAGGGATCTTCTCAGAACATACG spacer
length: 36 repeater length: 31

39848 937694 GTTAGAAATCCATCTAAACTAGAATGTAAAT GACATCAGGAGGATCGCCGACATCGCCCACCGGCATG

39849

39850

39851 GCA_902384015.1_UHGG_MGYG-HGUT-02164_genomic.fna (PilerCR) :

39852 START REPEAT

SPACER

39853 crispr 1

39854 490168 GTTTAAAATAGACTTAATAGTATGAAAAC CGGATTTGATTAAAACGTATTACCCAATCATATATTTTC spacer
length: 38 repeater length: 29

39855 490235 GTTTAAAATAGACTTAATAGTATGAAAAC TAGATATTTCAAATTTACAATTACCATTTAAAAAAC spacer
length: 37 repeater length: 29

39856 490301 GTTTAAAATAGACTTAATAGTATGAAAAC AAGAACGTTTTGCTTCTAATTCAGAGTATAATACTTTT spacer
length: 38 repeater length: 29

39857 490368 GTTTAAAATAGACTTAATAGTATGAAAAC CCAATGAGGAAGAATATCTCGGTCTAGAAAAGGAG spacer
length: 36 repeater length: 29

39858 490433 GTTTAAAATAGACTTAATAGTATGAAAAC AAGGAAATTATAATTATACTCACCAGTATGATATTAA spacer
length: 37 repeater length: 29

39859 490499 GTTTAAAATAGACTTAATAGTATGAAAAC CAATAGAGGAATAAAAAACAATGTCAAGTATAATAAAA spacer
length: 37 repeater length: 29

39860 490565 GTTTAAAATAGACTTAATAGTATGAAAAC TTGAGGTAGAAATTGATAATGAGTTCATTAATGAAC spacer
length: 36 repeater length: 29

39861 490630 GTTTAAAATAGACTTAATAGTATGAAAAC TATATATGGAATAATATTGAAACAGTGTTTAAATAA spacer

length: 37 repeater length: 29

39862 490696 GTTAAAAATAGACTTAATAGTATGAAAAC AACAAATAATATGTGTCATTATACTTATAGATTTTAC spacer
length: 37 repeater length: 29

39863 490762 GTTAAAAATAGACTTAATAGTATGAAAAC CTGGATAATCAATCCCTTTAAAACTAGCCGGACTAA spacer
length: 36 repeater length: 29

39864 490827 GTTAAAAATAGACTTAATAGTATGAAAAC TTCGTAGAGGTGGTGAGTCCAACAATTTTATTTTTTC spacer
length: 37 repeater length: 29

39865 490893 GTTAAAAATAGACTTAATAGTATGAAAAC CATCTTCCCATTCATAGTCTTGTTTAAATTCTCCATT spacer
length: 37 repeater length: 29

39866 490959 GTTAAAAATAGACTTAATAGTATGAAAAC TGATAACATTCAAAAAGATATGTGGAAAACAATCAAT spacer
length: 37 repeater length: 29

39867 491025 GTTAAAAATAGACTTAATAGTATGAAAAC CACTTGAAATAAAACACATAGTACAATTTCAACTGT spacer
length: 36 repeater length: 29

39868 491090 GTTAAAAATAGACTTAATAGTATGAAAAC AGGTCATCAATATCATATTCTTTTACAAGTGTATTTTC spacer
length: 37 repeater length: 29

39869 491156 GTTAAAAATAGACTTAATAGTATGAAAAC TTATGAAAACAAGTGATGGAACAAATAAAACAATAAT spacer
length: 37 repeater length: 29

39870 491222 GTTAAAAATAGACTTAATAGTATGAAAAC GATGCTTTTAAATTAATATATTTTAAATTAATTCA spacer
length: 36 repeater length: 29

39871 491287 GTTAAAAATAGACTTAATAGTATGAAAAC ATAGTGAATATACAGACCCCCTTAAAAAGCCAACAATA spacer
length: 38 repeater length: 29

39872 491354 GTTAAAAATAGACTTAATAGTATGAAAAC TGAAAATTGATTATAAAAAAGTAGGAGATGTATTTGAA spacer
length: 38 repeater length: 29

39873 491421 GTTAAAAATAGACTTAATAGTATGAAAAC TATGGAATCACGTAAAAGAGCAACGTTGGGTATCA spacer
length: 36 repeater length: 29

39874 491486 GTTAAAAATAGACTTAATAGTATGAAAAC TAACAAAACACTACTCAAAACAAAAATAACAGAAACAGA spacer
length: 37 repeater length: 29

39875 491552 GTTAAAAATAGACTTAATAGTATGAAAAC AAAATGGAGATAAAACAGATTATAAAATGGAAC TTATA spacer
length: 38 repeater length: 29

39876 491619 GTTAAAAATAGACTTAATAGTATGAAAAC CTTAGATGCAGTAGAAATGAAAATCTGTTATACTAA spacer
length: 36 repeater length: 29

39877 491684 GTTAAAAATAGACTTAATAGTATGAAAAC CATCTTCTGTATTTGGTGGAGTAATATATTTTTTCAC spacer
length: 36 repeater length: 29

39878 491749 GTTAAAAATAGACTTAATAGTATGAAAAC AACTCTTTTTTCACTATTTATTCCTATTTTCAAATAA spacer
length: 36 repeater length: 29

39879 491814 GTTAAAAATAGACTTAATAGTATGAAAAC GGTTTATTAATTCATCTTCAATATGTTTCATGTAATC spacer
length: 37 repeater length: 29

39880 491880 GTTAAAAATAGACTTAATAGTATGAAAAC TACCAATAAAATAGTCTTGATTTGTACTTTTAAGCTGGA spacer
length: 39 repeater length: 29

39881 491948 GTTAAAAATAGACTTAATAGTATGAAAAC AAATTATTGCTACAACAAAAGATACAATTACAATTACA spacer
length: 38 repeater length: 29

39882 492015 GTTAAAAATAGACTTAATAGTATGAAAAC TTTCATTATTTTGTGTCTTTGTGTGTGTAGTGTA spacer
length: 36 repeater length: 29

39883 492080 GTTAAAAATAGACTTAATAGTATGAAAAC AATGGATTTTGAGCATCATTATCAGGAGTAATACTTGG spacer
length: 38 repeater length: 29

39884 492147 GTTAAAAATAGACTTAATAGTATGAAAAC CAAATACTATAGATTACATAATACTTTTAACAGAAAAT spacer
length: 38 repeater length: 29

39885 492214 GTTAAAAATAGACTTAATAGTATGAAAAC TTTGTTTGAGGTGGAATTACTTGTGTATACATTGTATT spacer
length: 38 repeater length: 29

39886 492281 GTTAAAAATAGACTTAATAGTATGAAAAC TTATTTAAATGAAAGTGATATACCTAATACAACCTCC spacer
length: 36 repeater length: 29

39887 492346 GTTAAAAATAGACTTAATAGTATGAAAAC GTAATGATTTCTACAGTGAAATTGAAGAATTTATAG spacer
length: 36 repeater length: 29

39888 492411 GTTAAAAATAGACTTAATAGTATGAAAAC TAATAGTGGACGTTTATATGTAAAGAATATTAAATTA spacer
length: 37 repeater length: 29

39889 492477 GTTAAAAATAGACTTAATAGTATGAAAAC CTAGACGAGGATAAAACAATTCCAAGTGATACATGG spacer
length: 36 repeater length: 29

39890 492542 GTTAAAAATAGACTTAATAGTATGAAAAC TAATGTTGCAAGACAAATAAAAGAAGTAATTAAGAAC spacer
length: 37 repeater length: 29

39891 492608 GTTAAAAATAGACTTAATAGTATGAAAAC TGATTATATTACTGAATCAGAAGCTTTTGACTACATA spacer
length: 37 repeater length: 29

39892 492674 GTTAAAAATAGACTTAATAGTATGAAAAC TACTTCCTCTACTGCAACAATTCTATAAAAAAATC spacer
length: 36 repeater length: 29

39893 492739 GTTAAAAATAGACTTAATAGTATGAAAAC TTTAATCTTCTAAAACATAAATAATCATACAAAAAG spacer
length: 36 repeater length: 29

39894 492804 GTTAAAAATAGACTTAATAGTATGAAAAC GCAAATGGTGTTGATACAAATAATATTCGGGAAATGT spacer
length: 37 repeater length: 29

39895 492870 GTTAAAAATAGACTTAATAGTATGAAAAC CACCTATATGTACTAGAATTTACGCCCATTTTCATAGG spacer
length: 37 repeater length: 29

39896 492936 GTTAAAAATAGACTTAATAGTATGAAAAC GCAAATGGTGTTGATACAAATAATATTCGGGAAATGT spacer
length: 37 repeater length: 29

39897 493002 GTTAAAAATAGACTTAATAGTATGAAAAC CACCTATATGTACTAGAAATTTACGCCCATTTTCATAGG spacer
length: 37 repeater length: 29
39898 493068 GTTAAAAATAGACTTAATAGTATGAAAAC CCAAAGTGGGTAGAAGCAAATACTACTGCAAACAAT spacer
length: 36 repeater length: 29
39899 493133 GTTAAAAATAGACTTAATAGTATGAAAAC CATGAAAAATACATCACAAAAATAAAACAAGTTACC spacer
length: 37 repeater length: 29
39900 493199 GTTAAAAATAGACTTAATAGTATGAAAAC TCTATTCTGTATATATTCAATTTAGGATAGAATTTTC spacer
length: 36 repeater length: 29
39901 493264 GTTAAAAATAGACTTAATAGTATGAAAAC TAGTTTAGTGCCCTTAGTATTTAAAGGTTTGTTCATA spacer
length: 37 repeater length: 29
39902 493330 GTTAAAAATAGACTTAATAGTATGAAAAC GAATACAACACTTTAAATACTAGAAATGACAAATAA spacer
length: 36 repeater length: 29
39903 493395 GTTAAAAATAGACTTAATAGTATGAAAAC ATCTATATTGGGAAAAAGAAGGCACTTCTTTTAGA spacer
length: 36 repeater length: 29
39904 493460 GTTAAAAATAGACTTAATAGTATGAAAAC CAGCGAAACG
39905
39906
39907 crispr 2
39908 493527 GTTAAAAATAGACTTAATAGTATGAAAAC TGGATATAATATGACTGAAATAGGTCGTAATAGTAAAGCTG
spacer length: 41 repeater length: 29
39909 493597 GTTAAAAATAGACTTAATAGTATGAAAAC CGGAGATATGTGCCAATTAATTCATCACCTACCTCTTCAT spacer
length: 40 repeater length: 29
39910 493666 GTTAAAAATAGACTTAATAGTATGAAAAC CAAAATTGGATGTGGACTATAAACAGCTACTTTTTTAAAC spacer
length: 40 repeater length: 29
39911 493735 GTTAAAAATAGACTTAATAGTATGAAAAC ACAAATAAAACACTAACAGAGTATAGTATTGATAAT spacer
length: 36 repeater length: 29
39912 493800 GTTAAAAATAGACTTAATAGTATGAAAAC TTGAACACCATGAAAAGAAATGCCCCGTGTTTTTATTTTT spacer
length: 39 repeater length: 29
39913 493868 GTTAAAAATAGACTTAATAGTATGAAAAC CACTCTCACAATCCTTATGATGAATGTATCTACTTC spacer
length: 36 repeater length: 29
39914 493933 GTTAAAAATAGACTTAATAGTATGAAAAC GTCTTATCATCAGAATTTTCATCAACAACATCTATTT spacer
length: 37 repeater length: 29
39915 493999 GTTAAAAATAGACTTAATAGTATGAAAAC CTTATGAAGGAGAAAAAGAAGTCGAATATAAAAGACAC spacer
length: 38 repeater length: 29
39916 494066 GTTAAAAATAGACTTAATAGTATGAAAAC CACTTGTAAGTGTACCACCACCAGTATAACATAATAC spacer
length: 37 repeater length: 29
39917 494132 GTTAAAAATAGACTTAATAGTATGAAAAC TGTCCGCACCATTCCGGTACTGCCGCACCCTCGATA
39918
39919
39920 crispr 3
39921 1091283 AATAGAATAAGATCATAATGAAATTGAAAT ACGACACAAATGAATACAGATGCAACTCAAATTACAA spacer
length: 37 repeater length: 30
39922 1091350 AATAGAATAAGATCATAATGAAATTGAAAT GGAAGAGACCATAAAAAATGTATTTACGGAATATATT spacer
length: 36 repeater length: 30
39923 1091416 AATAGAATAAGATCATAATGAAATTGAAAT TTTAAGTAACTCATCTGATAATTCAGTTAATGTTAC spacer
length: 36 repeater length: 30
39924 1091482 AATAGAATAAGATCATAATGAAATTGAAAT ACTAATATCAACAAACGGAATTTACAGCACTATTTGGG spacer
length: 37 repeater length: 30
39925 1091549 AATAGAATAAGATCATAATGAAATTGAAAT TAAGCATTACCATTAACAAATTTACAGTTTTCTACA spacer
length: 36 repeater length: 30
39926 1091615 AATAGAATAAGATCATAATGAAATTGAAAT AAAGAACGTTTAATGATTAATTCATCTTCAGAGTCAA spacer
length: 37 repeater length: 30
39927 1091682 AATAGAATAAGATCATAATGAAATTGAAAT TGATTTAGAAACATATCAATATCCATTGAAATAGA spacer
length: 36 repeater length: 30
39928 1091748 AATAGAATAAGATCATAATGAAATTGAAAT TATTTTCTAATAAATAGAGTAATGCTTCATCATTATC spacer
length: 37 repeater length: 30
39929 1091815 AATAGAATAAGATCATAATGAAATTGAAAT TCAGCATCATTTACACTAGCAACAAGGGTAGGAGTT spacer
length: 36 repeater length: 30
39930 1091881 AATAGAATAAGATCATAATGAAATTGAAAT AAGTAAAAAAAAAATCAAAAATAATAGAAAAAAAAA spacer
length: 37 repeater length: 30
39931 1091948 AATAGAATAAGATCATAATGAAATTGAAAT CTAAACTACACGTGTAGTAACAATACGTGTATCAT spacer
length: 36 repeater length: 30
39932 1092014 AATAGAATAAGATCATAATGAAATTGAAAT GCAATTTATCCAGACCCTGTTTCATCGTTACTTCAAA spacer
length: 37 repeater length: 30
39933 1092081 AATAGAATAAGATCATAATGAAATTGAAAT CACGTATATCCTGTGTCTTGTGCGTCATAATAGATT spacer
length: 36 repeater length: 30
39934 1092147 AATAGAATAAGATCATAATGAAATTGAAAT ACAGGAAATAATTTATTTAAAGTAAAAGAATTTGAA spacer
length: 36 repeater length: 30
39935 1092213 AATAGAATAAGATCATAATGAAATTGAAAT TATGTTGTTAATACTAATTCTTCTATTATCTTCTCATA spacer
length: 38 repeater length: 30
39936 1092281 AATAGAATAAGATCATAATGAAATTGAAAT ACATCTTCAGCTTTATCTAATTTTTGAACATATCTT spacer

	length: 36	repeater length: 30	
39937	1092347	AATAGAATAAGATCATAATGAAATTGAAAT	AATTGTGAAATAAAAAAGAAGATCTTTTAAACAAA spacer
	length: 36	repeater length: 30	
39938	1092413	AATAGAATAAGATCATAATGAAATTGAAAT	AATTTAATTACATCAGAACTATTGATTCTGATGGTT spacer
	length: 37	repeater length: 30	
39939	1092480	AATAGAATAAGATCATAATGAAATTGAAAT	AATAAAGATGTAGCTGAACGTACTTCTAAACGGTTA spacer
	length: 36	repeater length: 30	
39940	1092546	AATAGAATAAGATCATAATGAAATTGAAAT	AGTACTAAGAAATGATTCCTCCATTAATATAACATTA spacer
	length: 37	repeater length: 30	
39941	1092613	AATAGAATAAGATCATAATGAAATTGAAAT	TTTTCTTTACGTGTAGACCAGGAGATATATCTCC spacer
	length: 35	repeater length: 30	
39942	1092678	AATAGAATAAGATCATAATGAAATTGAAAT	GAAACTGGTAAATTACTTTATTATGGACGTTTTAAA spacer
	length: 36	repeater length: 30	
39943	1092744	AATAGAATAAGATCATAATGAAATTGAAAT	ATTGATATTGGAACAAGAGGATACACAAAATGGTCAT spacer
	length: 37	repeater length: 30	
39944	1092811	AATAGAATAAGATCATAATGAAATTGAAAT	GCAAATGTATTTAAAGAACTTGTTACTAACTTAAA spacer
	length: 36	repeater length: 30	
39945	1092877	AATAGAATAAGATCATAATGAAATTGAAAT	TAAGAACTATCAAGCAATCCCTTATAATAACCTTTAT spacer
	length: 37	repeater length: 30	
39946	1092944	AATAGAATAAGATCATAATGAAATTGAAAT	GTTGCATCACTAGGAAGAATAGTTTGAAGTAAATTG spacer
	length: 37	repeater length: 30	
39947	1093011	AATAGAATAAGATCATAATGAAATTGAAAT	TCTAGTTTAGATGATGGTTCTACTTTATCTTTACCT spacer
	length: 36	repeater length: 30	
39948	1093077	AATAGAATAAGATCATAATGAAATTGAAAT	GGTTTTAATCCACGGGTGATTAGTGATGAAGAGTTTG spacer
	length: 37	repeater length: 30	
39949	1093144	AATAGAATAAGATCATAATGAAATTGAAAT	ACAGGCTGGTAAAAACATTTTTGGAGGAAATAAA spacer
	length: 35	repeater length: 30	
39950	1093209	AATAGAATAAGATCATAATGAAATTGAAAT	TCTACGCTTGGTCTTGATTCATGTTTATATGTAATT spacer
	length: 36	repeater length: 30	
39951	1093275	AATAGAATAAGATCATAATGAAATTGAAAT	GAAGCAAAACAAAAGGAGATACTGCAAGAATACTTAT spacer
	length: 37	repeater length: 30	
39952	1093342	AATAGAATAAGATCATAATGAAATTGAAAT	AGATTATCAACGCCTAGAATTTGTTGTATATCTTTT spacer
	length: 36	repeater length: 30	
39953	1093408	AATAGAATAAGATCATAATGAAATTGAAAT	ATAGAAATCATAATGTATATTTCTGAATACATTTTC spacer
	length: 36	repeater length: 30	
39954	1093474	AATAGAATAAGATCATAATGAAATTGAAAT	ATTACTGAAGAAGAGATTAATAATAAATTACCTGCAA spacer
	length: 37	repeater length: 30	
39955	1093541	AATAGAATAAGATCATAATGAAATTGAAAT	GATACTATTGCAATTATTATATCTTGATTATACTTC spacer
	length: 36	repeater length: 30	
39956	1093607	AATAGAATAAGATCATAATGAAATTGAAAT	AAATGAATTGCACATACAACAAGAATCATAGTACAAAA spacer
	length: 38	repeater length: 30	
39957	1093675	AATAGAATAAGATCATAATGAAATTGAAAT	AGAGCATTGATTGCAATATAATTGATTGTTTTCCA spacer
	length: 35	repeater length: 30	
39958	1093740	AATAGAATAAGATCATAATGAAATTGAAAT	AAAATTAATAGGTGTTGGATTATCATAAGCAATAGTA spacer
	length: 37	repeater length: 30	
39959	1093807	AATAGAATAAGATCATAATGAAATTGAAAT	AATCAGTTAATAGGAGAACCTAATAATGCATAAAGAT spacer
	length: 37	repeater length: 30	
39960	1093874	AATAGAATAAGATCATAATGAAATTGAAAT	CTTTCAGGCACAAGTATAGCTGTATCTACTATTTTTT spacer
	length: 37	repeater length: 30	
39961	1093941	AATAGAATAAGATCATAATGAAATTGAAAT	TAGTATACACATCTTTTGGTTTATTGGAGTTTTTCT spacer
	length: 36	repeater length: 30	
39962	1094007	AATAGAATAAGATCATAATGAAATTGAAAT	AGAGTAAAAAAGAAGTATTTTTTAGTTTCTTTTTATT spacer
	length: 38	repeater length: 30	
39963	1094075	AATAGAATAAGATCATAATGAAATTGAAAT	ATGGTTACTGTATTACTAATCCAATCACCAACTTTATA spacer
	length: 38	repeater length: 30	
39964	1094143	AATAGAATAAGATCATAATGAAATTGAAAT	GATATGAAATCTACACAACCTACAAAAGATATGCAA spacer
	length: 36	repeater length: 30	
39965	1094209	AATAGAATAAGATCATAATGAAATTGAAAT	TCTCTTGAAAATCCTGATAATAATACTTGATAGA spacer
	length: 36	repeater length: 30	
39966	1094275	AATAGAATAAGATCATAATGAAATTGAAAT	CGTATAAGTTATGGTACATTTAAAACAATGGCTGAA spacer
	length: 36	repeater length: 30	
39967	1094341	AATAGAATAAGATCATAATGAAATTGAAAT	GAAGCAAACCATGAAAAACCAACTGAAAGATGTAAA spacer
	length: 36	repeater length: 30	
39968	1094407	AATAGAATAAGATCATAATGAAATTGAAAT	GGTGTTAGTACAGGTATGGACGGATTACTCCATGAAA spacer
	length: 37	repeater length: 30	
39969	1094474	AATAGAATAAGATCATAATGAAATTGAAAT	ATAAAAATAACAAATGGAACAACAACAAAAACAGTA spacer
	length: 36	repeater length: 30	
39970	1094540	AATAGAATAAGATCATAATGAAATTGAAAT	GTCGTTGAACAAGAAATAAGAATTATAGAAAATAAT spacer
	length: 36	repeater length: 30	
39971	1094606	AATAGAATAAGATCATAATGAAATTGAAAT	TTAACATCTACAAGGTCATGAAGAAGTTTTGTTTCAT spacer
	length: 37	repeater length: 30	

39972 1094673 AATAGAATAAGATCATAATGAAATTGAAAT CGATACATTTTTTAAATTACTTGTATCAGTAGTAATA spacer
length: 36 repeater length: 30
39973 1094739 AATAGAATAAGATCATAATGAAATTGAAAT ACTCTTACCCGATTTAATTATGAATATCTTCAAGCAT spacer
length: 37 repeater length: 30
39974 1094806 AATAGAATAAGATCATAATGAAATTGAAAT GATGTAGAAGATGAAGTTGATGAATTTCTTGAAGAG spacer
length: 36 repeater length: 30
39975 1094872 AATAGAATAAGATCATAATGAAATTGAAAT GATATCTTTCATATATTATCATTTCATATTTTTT spacer
length: 37 repeater length: 30
39976 1094939 AATAGAATAAGATCATAATGAAATTGAAAT TTGGTAAAAGAAATAGCGGAAGACAATGAATACTCTG spacer
length: 37 repeater length: 30
39977 1095006 AATAGAATAAGATCATAATGAAATTGAAAT ACCCAAGGCC
39978
39979
39980 crispr 4
39981 1517318 AATGGAGGAGCAATATATA ATGATGGACAAATAAATATTAAAAAATCAACATTCCAATCAAACAAAGCTACAAAA
spacer length: 56 repeater length: 19
39982 1517393 AATGGAGGAGCAATATATA ATAAAAATATATACAACAGCAGAAATTCAAAATACATTCAAAACACTGCTAAAATC
spacer length: 56 repeater length: 19
39983 1517468 AATGGAGGAGCAATATATA CCACGAACAATCTATACATTAATTCTAATACATTTACTTCAAATAATGCAACAGGT
spacer length: 56 repeater length: 19
39984 1517543 AATGGAGGAGCAATATATA GTTGAGGG
39985
39986
39987 GCA_902387285.1_UHGG_MGYG-HGUT-02456_genomic.fna (PilerCR):
39988 START REPEAT
SPACER
39989 crispr 1
39990 867780 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC TGCGGAGTCCGTTGCCTTTGTTATTGA spacer
length: 27 repeater length: 36
39991 867843 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC AAACGGTAGCCCAGGAAGGCTGGCCA spacer
length: 26 repeater length: 36
39992 867905 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC GACGGAAGTGATAGGGTAACCGCACCTC spacer
length: 28 repeater length: 36
39993 867969 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC GATGCATCCGCAATGTGTGCCTGCTC spacer
length: 26 repeater length: 36
39994 868031 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC GTACCTTGACCGCAAAAAGTGAACCGA spacer
length: 27 repeater length: 36
39995 868094 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC TAACATGACAGGAAATCCACCCGAT spacer length:
25 repeater length: 36
39996 868155 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC CCTCGGCGGCAGATGTGGAGACAGAA spacer
length: 26 repeater length: 36
39997 868217 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC ACATCAAGCCCCTCCAGTCATCCGTCC spacer
length: 27 repeater length: 36
39998 868280 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC ATTAAAAGGGGCAGTGCCGAACCGA spacer length:
25 repeater length: 36
39999 868341 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC CCACTTCACAGCCAAAAGCGTATCTTT spacer
length: 27 repeater length: 36
40000 868404 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC CAACCAAATATGGCCCGTTGTTGTTTGC spacer
length: 28 repeater length: 36
40001 868468 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC CAACCAAATATGGCCCGTTGTTGTTTGC spacer
length: 28 repeater length: 36
40002 868532 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC ACTTATGACGACATTTTTAGGGCATAAC spacer
length: 27 repeater length: 36
40003 868595 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC CCCTGCCGCCTGAATATCTTTGCACCT spacer
length: 27 repeater length: 36
40004 868658 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC GCCGGAGGCGTGGCGGGATGGTTCCT spacer
length: 26 repeater length: 36
40005 868720 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC GTTTCGCCCTCTCTCGGTTTCATCAA spacer length:
25 repeater length: 36
40006 868781 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC TCGCCTTGTCTCGAGGCGGTCCTTGT spacer
length: 26 repeater length: 36
40007 868843 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC CTTCAGATCTTCAGGATCATCCTCAA spacer
length: 26 repeater length: 36
40008 868905 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC GGTGACGCAGCTGACCGCCGAACGCGA spacer
length: 27 repeater length: 36
40009 868968 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC TCTCTCCTTCATCTGGCCTGTCCGTT spacer
length: 26 repeater length: 36
40010 869030 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC GAACGCCCGGAGGTCTGAAGCCGCAAG spacer
length: 27 repeater length: 36
40011 869093 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC TGTGCGGCTCGTCGCTTTCCCGTGGTA spacer
length: 28 repeater length: 36

40012	869157 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	TACCCCTTCCTCCGTACGTAGTCTTT spacer
	length: 26 repeater length: 36	
40013	869219 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	CACAGCCGACTTCATCAGGAAGAGAC spacer
	length: 26 repeater length: 36	
40014	869281 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	CCACGAAAGCCTTACGCTCCGCTTTGA spacer
	length: 27 repeater length: 36	
40015	869344 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	ATGCGCTCCGCGATCAACTCCATCGA spacer
	length: 26 repeater length: 36	
40016	869406 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	CAGGCGGACATGGAAAGCGCGATAGC spacer
	length: 26 repeater length: 36	
40017	869468 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	ACGCTGAAGATAGACGACGTGAGCTTT spacer
	length: 27 repeater length: 36	
40018	869531 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	TAACCTTCCGTAAGTAACACGTTTATATC spacer
	length: 29 repeater length: 36	
40019	869596 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	CGATCATCGCAGACGAGGTAGATTCAT spacer
	length: 27 repeater length: 36	
40020	869659 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	AACAGTGTCTGTTACGTGTGGTATTCTT spacer
	length: 29 repeater length: 36	
40021	869724 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	CCGGTCTGCGTCCTTGGCGAAGCTCT spacer
	length: 26 repeater length: 36	
40022	869786 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	AAGAAGGCCGTTGGTGGTCACCGCCACT spacer
	length: 27 repeater length: 36	
40023	869849 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	GCACCACGTGGGCGACCCTCATCAG spacer length:
	25 repeater length: 36	
40024	869910 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	AGACGTTGAATCTCTGGCGGTTGCT spacer length:
	25 repeater length: 36	
40025	869971 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	CAGGTCGAACTTGAGAACGGAAGACTT spacer
	length: 27 repeater length: 36	
40026	870034 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	CTGCAGCGCACTGTTCCCAATTTTAA spacer
	length: 26 repeater length: 36	
40027	870096 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	CGCCCGAAGAAGCCCAGGAATTCTAC spacer
	length: 26 repeater length: 36	
40028	870158 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	GTTACGGCACCGTGGGGAATATCGTT spacer
	length: 27 repeater length: 36	
40029	870221 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	TCCGGTCTTGGAGTAGTGAGCCACTT spacer
	length: 26 repeater length: 36	
40030	870283 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	GGGAGTTCGACCAGTTCATAACCTGGAA spacer
	length: 28 repeater length: 36	
40031	870347 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	GGAGCAGTATTAGACTTAATCGTCTG spacer
	length: 26 repeater length: 36	
40032	870409 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	GGCGCGGCCCGCAGCTTCCTGACCGA spacer
	length: 26 repeater length: 36	
40033	870471 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	GAGTTTTAGACGGGAGTTCGACCAGTTCATAACCTGGAA
	spacer length: 39 repeater length: 36	
40034	870546 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	GGAGCAGTATTAGACTTAATCGTCTG spacer
	length: 26 repeater length: 36	
40035	870608 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	GAAATCTACA
40036		
40037		
40038	crispr 2	
40039	873169 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	CGGATTATGGGTCCGCAGAATGAGGGT spacer
	length: 27 repeater length: 36	
40040	873232 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	AACATGTAACACAATGCCCAAGTTGGA spacer
	length: 27 repeater length: 36	
40041	873295 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	TTACAGGAGGCAGATAAATGCGTATTC spacer
	length: 27 repeater length: 36	
40042	873358 ATCTACACTAGTAGAAATTCTGAATGAGTTTTAGAC	TTGGAATCTA
40043		
40044		
40045		