

Supplementary Material II. List of mutation motifs detected in association with different SARS-CoV-2 haplotypes and their corresponding sample numbers in this study

Haplotype specific mutation motifs

Hap_1 CTCTTGCTAGACTGAAGGCTTCGAGGGCCCCGCGCGGACTGGAGAAGACACTGGACCGAGTCCCTGTGAAGG-CCTTCGCTACGCAAGCCAAGCCCTGGTACCTTACGCAACCTCCGGCCCCAGCCCCAGGCGACTTAACCGGCGCCCCGACTC-CCCGCAATCGGCTCCCCGTCGTCGCACCCCTCCACCGACACCCACCCCTTTAGTCCGGTCTCTCTTCGACCGGGCCCCG-CCACATCGCGACGCCCCCCTCGCGCCCTATCCAACCCACCCCTAGGCGTGTCTCGGTATGCTCCGCAAAGTGAACCG-CAATCCGCGCCCGCGCGAGGCGTAGCCGGGTCTCCGACTTCTGCATGGGCGTCAGTCGCCGATTTTTGGCTGGCAGCGGC-CGTACCTGACGGGCCACCAAATCACCGCCGGATTGAGGCGTGCGCCAGCCGAGGGCTGCCTCTGCCCCCGCACCA-CACAAAACCTTGCGACAAGTGTGGCCGAACCACCGGGTCGGGCGCCTCCCCGTCTACTCGTGAAGAGGGGGGCACCGAC-CGGGAGGGCGCGGATCACGGGTCGCGTAGCCGCCCTGTTAATGCTCCTCCGTGGGCGTGGCTGTGTACGTTGACCCACTGC-GTTCTCTA

Hap_2C.....
.....G.....

Hap_3T.....
.....T.....G.....T.....

Hap_4T.....T.....T.....
.....T.....G.T.....T.....

Hap_5
.....T.....G.....T.....T.....

Hap_6T.....
.....G.....

Hap_7T.....
.....T.....G.....T.....

Hap_8
.....G.....

Hap_9C.....T.....

Hap_10T.....T.....
.....T.....G.....A.....T.....

Hap_11

.....T.....
.....T.....G.....T.....

Hap_12
.....T.....
.....G.....

Hap_13
.....T.....G.....T.....

Hap_14T.....
.....T.....

Hap_15
.....C.....G.....
.....T.....

Hap_16
.....G.....
.....T.....G.....T.....

Hap_17
.....T.T.....G.....T.....

Hap_18T.....T.....
.....A.....
.....G.....

Hap_19
.....T.....

Hap_20T.....
.....T.....G.....T.....T.....

Hap_21T.....
.....T.....
.....G.....

Hap_22A.....

Hap_23
.....T.....T.....G.C.....T.....

Hap_24T.....
.....T.....
.....

Hap_25G.....
.....G.....T.....
.....G.....

Hap_26
.....C.....G.....T.....

Hap_27
.....G.....T.....

Hap_28
.....T.....G.....T.....C.....A.....

Hap_29
.....T...T.....G.....T.....

Hap_30T.....
.....T.....G.T.....T.....T.....

Hap_31T...T.....
.....G.....

Hap_32T.....
.....G.....

Hap_33T.....T.....
.....T.....G.....

Hap_34
.....T.....A.....G.....T.....

Hap_35T.....
.....T.....G.....T.....

Hap_36
.....T.....
.....G.....

Hap_37
.....
.....T.....G.....T.....T.....

Hap_38C.....A.....
.....T.....A.....
.....T.....G.....T.....

Hap_39C.....T.....
.....T.....T.....G.....T.....

Hap_40
.....G.....T.....

Hap_41C.....
.....T.....G.....

Hap_42T.....T.....
.....T.....
.....G.....T.T.....

Hap_43
.....G.....G.....AGTAGACTTGAC.....A.....
.....C.....

Hap_44C.....T.....
.....T.....T.....T.....
.....T.....T.....
.....G.....

Hap_45 ACTACCCTCGTG.G.....AG.....T.....
.....G.....AGAAT.T.T.....C.....
.....G.....A.....
.....T.....

Hap_46C.....
.....G.....

Hap_47T.....
.....T.....G.T.....

Hap_48T.....
.....C.....
.....G.....

Hap_49
.....T.....
.....T.....T.....G.....T.....

Hap_50
.....T.....
.....T.....G.....T.....

Hap_51
.....T.....
.....G.....

Hap_52
.....T.....T.....
.....T.....G.....T.....

Hap_53
.....T.....T.....
.....G.....T.....

Hap_54
.....C.....
.....T.....G.....T.....T.....

Hap_55
.....T.....
.....T.....G.....T.....T.....T.....G.....

Hap_56
.....A.....
.....G.....

Hap_57
.....G.....
.....T.....T.....G.....T.....

Hap_58
.....T.....T.....G.....T.....T.....T.....

Hap_59
.....G.....T.....

Hap_60
.....T.....G.....T.....T.....

Hap_61
.....T.....
.....G.....G.....C.....T.....T.....
.....G.....G.....A.....

Hap_62
.....C.....
.....T.....G.....T.....A.....

Hap_63TT.....
GCAGTCTACACTCAAGAA.....T.....
.....G.....

Hap_64C.....T.....
.....A.....
.....T.....G.....G.....T.....T.....

Hap_65
.....T.....T.....G.....T.....T.....

Hap_66T.....
.....G.....T.....T.....

Hap_67C.....
.....T.....G.....G.....T.....

Hap_68C.....
.....G.....T.....

Hap_69T.....
.....T.....G.....T.....

Hap_70T.....
.....T.....G.....T.....

Hap_71T.....T.....
.....G.....

Hap_72T.....T.....T.....
.....T.....G.....T.....

Hap_73T.....C.....
.....T.....G.....T.....

Hap_74
.....T.....G.....C.....G.T.....

Hap_75T.....
.....
.....T.....G.....T.....

Hap_76C.....
.....T.....T.....
.....T.....G.....
.....G.....

Hap_77
.....T.....G.....T.....

Hap_78
.....T.....G.....T.....T.....T.....

Hap_79T.....
.....T.....G.....G.T.....

Hap_80
.....T.....G.....T.....

Hap_81T.....
.....T.....G.....T.....

Hap_82T.....G.....
.....G.....T.....

Hap_83
.....G.....CATATCC.....

Hap_84
.....T.....G.....T.....T.....

Hap_85T.....A.....
.....C.....
.....G.....

Hap_86
.....T.....G.....T.....T.....

Hap_87T.....
.....T.....
.....G.....

Hap_88T.....
.....T.....
.....T.....G.....T.....

Hap_89T.....
.....T.....T.....
.....G.....
.....T.....

Hap_90T.....
.....T.....T.....
.....T.....G.....T.....

Hap_91T.....
.....G.....T.....T.....

Hap_92
.....T.....
.....T.....T.....T.....G.....
.....T.....T.....T.....

Hap_93G.....TT.....
.....G.....

Hap_94
.....C.....
.....C.....G.....

Hap_95T.....C.....G.....
.....T.....T.....T.....
.....T.....G.....T.....

Hap_96T.....T.....
.....T.....G.....T.....

Hap_97T.....
.....T.....G.....C.....T.....

Hap_98T.....
.....C.....
.....G.....

Hap_99C.....
.....T.....T.....
.....T.....G.....T.....T.....

Hap_100
.....
.....T.....T.....G.....T.....

Hap_101T.....
.....T.....G.....T.....C.....

Hap_102
.....T.....G.....T.....

Hap_103A.....T.....
.....G.....

Hap_104T.....
.....T.....G.....C.....T.....

Hap_105
.....T.....G.....G.....

Hap_106T.....
.....T.....G.....T.....T.....T.....

Hap_107T.....T.....
.....G.....T.....

Hap_108C.....T.....
.....C.....T.....G.....T.....

Hap_109T.....
.....T.....T.....G.....T.....

Hap_110
.....T.....G.....
.....T.....T.....G.....
T.....T.....

Hap_111T.....
.....T.....G.....

Hap_112T.....
.....G.....G.....
.....G.....

Hap_113
..... C
..... T G T

Hap_114 T
..... G T

Hap_115 T
..... G T

Hap_116 T
..... T G T

Hap_117 T
..... C
..... G

Hap_118 T G
..... A C
..... G T

Hap_119 TT
..... G

Hap_120 T
..... G T

Hap_121
..... G A

Hap_122 T T
..... T G G.T

Hap_123 T T
..... G
..... G

Hap_124 A
..... C T
..... T G T

Hap_125 A T
..... G

Hap_126
.....
.....T.....T.....G.....T.....T.....T.....A.....

Hap_127T.....
.....
.....T.....G.....T.....T.....T.....T.....

Hap_128
.....
.....T.....C.....G.....C.....T.....

Hap_129A.....
.....T.....C.....
.....T.....G.....TG.T.....
.....

Hap_130T.....G.T.....
.....T.....
.....G.....

Hap_131T.....
.....
.....G.....

Hap_132C.....
.....
.....T.....T.....T.....G.....G.....T.....

Hap_133
.....
.....T.....T.....G.....T.....

Hap_134C.....
.....
.....T.....G.....T.....

Hap_135T.T.....
.....
.....G.....G.....

Hap_136C.....A.....
.....
.....T.....G.....T.....T.....

Hap_137T.....
.....
.....T.....G.....T.....T.....C.....

Hap_138
.....
.....T.....G.A.....T.....T.....T.....

Hap_139 T.....
..... A.....
..... G..... C.....

Hap_140 T.....
..... G..... A..... T.....

Hap_141
..... T..... T.G..... T.....

Hap_142 T..... C.....
..... G.....

Hap_143 A.....
..... T..... T..... G..... T.....

Hap_144 G... T..... T..... T.....
..... T..... T..... G..... T.....
....

Hap_145 A.....
..... T..... G..... T.....

Hap_146 G.....
..... T..... G..... T..... T.....

Hap_147 G.....
..... G..... A..... T.....

Hap_148
..... T..... G.....

Hap_149 G..... C.....
..... T..... G..... T..... T.....

Hap_150 T..... T.....
..... T..... G..... T.....

Hap_151 C..... G.....
..... TT..... G..... G..... A..... T.....
.....

Hap_152
.....
..... G..... G..... T.....
.....

Hap_153
.....
..... T..... T..... G..... T..... T.....
.....

Hap_154 T..... G.....
.....
..... G.....
.....

Hap_155
.....
..... T..... G..... T..... T.....
.....

Hap_156 T.....
.....
..... T..... A..... G..... T.....
.....

Hap_157
.....
..... T..... G..... T..... G.T.....
.....

Hap_158
.....
..... T.....
.....

Hap_159
.....
..... A.....
.....

Hap_160 T.....
.....
..... T..... G.....
.....

Hap_161
.....
..... G..... A..... T.....
.....

Hap_162
.....
..... T..... T..... G..... T.....
.....

Hap_163 T.....
.....
..... T..... T..... G..... T.T.....
.....

Hap_164
.....
..... T..... T..... G..... T..... T.....
.....

Hap_165T.....
.....T.....
.....T.....T.....G.....A.....T.....A.....
.....

Hap_166T.....
.....T.....
.....T.....T.....G.....TA.....T.....
.....A.....

Hap_167T.....
.....T.....
.....T.....G.....T.....

Hap_168G.....
.....T.....G.....T.....

Hap_169A.....

Hap_170T.....
.....G.....

Hap_171
.....T.....T.....C.TG.....A.....T.....

Hap_172C.....T.....
.....G.....

Hap_173T.....
.....T.....G.....T.....

Hap_174T.....A.....
.....G.....T.....

Hap_175T.....C.....
.....T.....G.....T.....

Hap_176T.....T.....
.....T.....G.....T.....

Hap_177
.....T.....T.....
.....T.....G.....

Hap_178T.....T.....
.....G.....

Hap_179T.....
.....G.....G.....

Hap_180T.....
.....G.....

Hap_181AGTG.....AG.....A.....
.....T.....T.....G.....C.....
.....G.....

Hap_182T.....T.....
.....T.....G.....T.....

Hap_183
.....T.....G.....T.....T.....

Hap_184G.....
.....T.....G.....

Hap_185T.....
.....T.....G.....

Hap_186T.....
.....G.....A.....

Hap_187T.....
.....G.....

Hap_188T.....C.....
.....T.....G.....T.....T.....

Hap_189
.....T.....C...
.T.....G.....
.....

Hap_190T.....C.....
.....T.....T.....
.....T.....G.....T.....T.....

Hap_191T.....
.....T.....G.....C.....T...T.....

Hap_192
.....C.....
.....G...G.....

Hap_193T.....G.....
.....C.....
.....T.....G.....C.....T.....

Hap_194T.....T.....
.....A.....T.....
.....T.....G.....C.....T.....C.....
.....

Hap_195
.....G.....T.....

Hap_196T.....A.....
.....C.....
.....G.....T.....

Hap_197
.....T.....G.....
.....T.....
.G.....

Hap_198
.....T.....
.....G.....

Hap_199C.....
.....G.....A.....T.....

Hap_200C.....
.....G.....A.....T.....T.....

Hap_201C.....
.....G.....A.....T.....

Hap_202T.....
.....G.....T.....
.....C.....T.....G.....T.....
.....T.....

Hap_203C.....
.....G.....G.....T.....

Hap_204
.....G.....C.....T.....

Hap_205T.....

Hap_206T.....A.....T.....
.....C.....
.....G.....T.....

Hap_207G.....
.....T.....
.....A.....T.....G.....

Hap_208T.....T.....
.....T.....
.....G.....G.....T.....GA.....T.....
.....A.....

Hap_209T.....TT.....T.....
.....T.....A.....
.....T.....T.....G.....GA.....

Hap_210A.....A.....T.....TT.....
.....T.....A.....
.....T.....T.....G.....G.....
.....C.....

Hap_211T.....TT.....T.....
.....T.....T.....T.....A.....
.....T.....T.....G.....G.....
.....A.....

Hap_212T.....T.....TT.....
.....T.....A.....
.....T.....T.....G.....
.....G.....

Hap_213T.....T.....
.....T.....
.....G.....C.....G.....T.....GA.....T.....
.....A.....

Hap_214T.....T.....TT.....AT.....
.....A.....T.....
.....T.....G.....G.....T.....
.....

Hap_215G.....T.....A.....TT.....
.....T.....A.....T.....
.....A.....T.....G.....G.....T.....
.....T.....

Hap_216A.....T.....TT.....
.....T.....A.....T.....
.....T.....T.....G.....G.....
.....

Hap_217G.....A.....T.....
.....C.....
.....G.....G.....T.....GA.....T.....
.....A.....

Hap_218
.....C.....A.....
.....T.....G.....G.....T.....
.....C.....

Hap_219T.....T.....
.....T.....
.....G.....T.....G.....T.....GA.....T.....
.....A.....

Hap_220T.....TT.....
.....T.....A.....
.....T.....T.....T.....G.....C.....
.....G.....T.....

Hap_221T.....TT.....
.....T.....
.....G.....G.....T.....GA.....T.....
.....A.....

Hap_222C.....
.....A.....
.....T.....G.....G.....T.....

Hap_223
.....T.....T.....GT.....T.....

Hap_224T.....
.....G.....A.....T.....T.....T.....

Hap_225
.....T.....G.....G.T.....

Hap_226G.....
.....G.....T.....

Hap_227T.....T.....G.....
.....TA.....T.....G.....T.....G.T.....

Hap_228
.....T.....G.....T.....

Hap_229
.....TCT.....G.....

Hap_230T.....
.....T.....T.....G.....G.....T.....T.....G.....

Hap_231
.....G.....G.....T.....

Hap_232T.....T.....G.....
.....T.....G.....G.....T.....

Hap_233
.....G.....G.....

Hap_234G.....
.....T.....G.....A.....

Hap_235C.....
.....T.....T.....G.....A.....
.....G.....

Hap_236
.....C.....
.....G.....A.....C.....

Hap_237
.....T.....
.....T.....G.....A.....T.....

Hap_238
.....A.....
.....T.....G.....
.....G.....

Hap_239
.....T.....T.T.....
.....T.....A.....
.....T.....T.....G.....
.....G.....

Hap_240
.....T.....G.....T.....G.T.....

Hap_241
.....T.....G.....
.....G.....G.....

Hap_242
.....G.....
.....G.....G.....

Hap_243
.....A.....T.....T.....
.....G.....G.....G.....

Hap_244
.....G.....
.....G.....A.....T.....

Hap_245
.....T.....G.....
.....G.....G.....G.....

Hap_246
.....G.....
.....G.....A.....T.....T.....

Hap_247
.....A.....T.....
.....T.....G.....G.....
.....

Hap_248
.....A.
.....T.....G.....G.....
.....G.....

Hap_249T.....TTT.....
.....T.....A.
.....T.....T.....G.....
.....G.....

Hap_250C.....
.....T.....
.....T.....G.....

Hap_251
.....C..G.....A.....T.....T.....

Hap_252T.....
.....T.....
.....G.....G.....T.....T.....

Hap_253G.....
.....G.....G.....A.....T.....T.....

Hap_254
.....T.....T.....A.....A.....
.....T.....G.....A.....T.....

Hap_255
.....T.....T.....T.....T.....
.....G.....G.....T.....T.....T.....

Hap_256
.....T.....
.....A.....T.....G.....
.....G.....

Hap_257T.....T.....TT.....
.....T.....A.
.....T.....T.....G.....
.....G.....

Hap_258
.....T.....T.....G.....T.....T.....

Hap_259T.....T.....TT.....T.....
.....T.....A.....T.....
.....C.....T.....G.....G.....

Hap_260T.....
.....A.
.....T.....G.....
.....G.....

Hap_261
.....T.....A.....
.....G.....T.....G.....

Hap_262T.....T.T.....
.....T.....A.....
.....T.....T.....G.....G.....
.....T.....

Hap_263
.....A.
.....T.....G.....T.....
.....G.....T.....

Hap_264T.....
.....C.....G.....
.....T.....G.....G.....

Hap_265
.....G.....
.....A.....G.....G.....

Hap_266C.....
.....A.
.....T.....T.....G.....
.....G.....

Hap_267T.....T.T.....T
.....T.....A.....
.....T.....T.....G.....G.....
.....T.....

Hap_268T.....
.....T.....
.....G.....G.....T.....

Hap_269
.....T.....
.....G.....G.....

Hap_270
.....A.
.....T.....T.....G.....
.....G.....

Hap_271T.T.....T.T.....
.....T.....A.....
.....T.....T.....G.....
.....G.....

Hap_272T.....TT.....
.....T.....T.....
...A...T.....T...G.....
.G.....

Hap_273
.....A...T.....
.T.....G...G.....G.....
.....

Hap_274T.....
.....T.....
A.....T.....G.....
.G.....

Hap_275
.....A.....
.T.....G.....G.....
.C.....

Hap_276T.....
.....C.....A.....
.....T.....G.....
.G.....

Hap_277T.....TT.....
.....T.....T.....
...A...T.....T...G...T...T...
.G.....

Hap_278T.....T.....TT.....
...T.....A.....
.....T.....T...G.....
.G.....

Hap_279TT.....T.....TT.....
...T.....A.....
.....T.....T...G.....
.G.....

Hap_280T.....TT.....
...T.....A.....
.....T.....T...T...G.....
.G.....

Hap_281T.....
.....T.....A.....
.....T.....T...G.....
.G.....

Hap_282
.....G.....
.....T...G...G.....

Hap_283T.....T.....TT.....
...T.....A.....A.
.....T.....T.....G.....
.G.....

Hap_284G.....
...T.....A.
.....T.....G.....
.G.....

Hap_285T.....TT.....
.T.....A.....
.T.....T.....G.....G.....
...T.....

Hap_286T.....TT.....
...T.....T.....A.
.....T.....T.....G.....
.G.....

Hap_287C.....T.....TT.....
.T.....A.....T.....
.....T.....T.....G.....G.....
.....

Hap_288T.....
.....
.....G.....G.....T.....

Hap_289
.....A...C.....
.T.....G.....G.....
.....G.....

Hap_290T.....
.....A.....T.....T.....
.C.....G.....G.....

Hap_291T.....
.....G.....
.....G.....

Hap_292T.....TT.....T
.T.....A.....
.T.....T.....G.....G.....
.G.....

Hap_293T.....
.....A.
.....T.....G.....
.G.....

Hap_294
.....T.....A.....
.....G.....G.....

Hap_295A.....
.....G.....G.....

Hap_296G.....
.....A.....A.....
.....T.....G.....
.G.....

Hap_297T.....T.T.....
.....T.....A.....
.....T.....T.....G.....
.G.....T.....

Hap_298
.....A.....
.....T.....G.....
.G.....T.....

Hap_299G.....T.....
.....T.....
.....A.....T.....G.....
.G.....

Hap_300
.....A.....A.....
.....A.C.....T.....G.....
.G.....

Hap_301T.....T.T.....T.....
.....G.....T.....A.....
.....T.....T.....G.....G.....
.....T.....

Hap_302T.....T.T.....
.....T.....A.....
.....T.....T.....T...G.....
.G.....

Hap_303T.....T.....
.....T.....
.....G.....A.....T.....

Hap_304
.....A.....
.....T.....T.G.....
.G.....

Hap_305T.....T.....TT.....
.....T.....A.....
.....T.....T.....G.....
.....G.....T.....

Hap_306
.....A.....T.....T.....
.....T.....G.....G.....
.....T.....

Hap_307T.....TT.....
.....T.....A.....T.....
.....T.....T.....G.....G.....
.....

Hap_308T.....TTT.....
.....T.....T.....
.....A.....T.....T.....G.....
.....G.....

Hap_309T.....TT.....
.....T.....T.....A.....
.....A.....T.....T.....G.....
.....G.....

Hap_310
.....T.....G.....G.....T.....G.....
.....

Hap_311
.....T.....T.....A.....
.....G.....
.....G.....A.....

Hap_312
.....T.....TG.....G.....A.....
.....C.....

Hap_313
.....G.....A.....T.....
.....T.....G.....G.....
.....

Hap_314T.....TT.....T.....
.....C.....A.....
.....T.....T.....G.....G.....
.....T.....

Hap_315T.....
.....G.....G.....G.....

Hap_316T.....TTG.....
.....T.....A.
.....T.....T.....G.....
.G.....

Hap_317T.....TT.....
.T.....A.....
.T.....T.....G.....G.....
.....T.....

Hap_318T.....
.....A.....T.....
.T.....G.....TG.....TT.....
.....

Hap_319C.....T.....TT.....C.
.T.....T.....T.....A.....
.....T.....T.....G.....
.G.....

Hap_320T.....TT.....T.....
.....T.....A.....T.....
.....T.....T.....G.....G.....
.....

Hap_321T.....TT.....
.....T.....G.....
.A.....T.....T.....G.....
.G.....

Hap_322T.....TT.....
.....T.....A.....
.....T..T.....CT.....G.....
.G.....

Hap_323T.....TT.....
.T.....A.....
.T.....T.....G.....G.....
.T.....C.....

Hap_324T.....
.....C.....
.....A.....T.....G.....
.G.....

Hap_325T.....TT.....
.T.....A.....
.T.....T.....G.....G.....
.....T.....T.....

Hap_326T.....TT.....
.....T.....A.....
.....T.....T.....G.C.....
.G.....

Hap_327
.....A.
.....T.....C.....G..T.....
.G.....T.....

Hap_328
.....A.
.....T.....G.....G.....
.T.....

Hap_329
.....T.....
.....G.....

Hap_330T.....TT.....
..T.....T.....A.
.....T.....C.....C..T.....G.....
.G.....

Hap_331
.....T.....A.....T.....
.T.....G.....G.....
.....

Hap_332
.....A.....T.....T.....T.....T.....
.T.....G.....G.....A.....
.....

Hap_333T.....TT.....
.T.....A.....
.T.....T.....G.....G.....T.....
.....T.....

Hap_334T.....TT.....
.T.....A.....T.....C.....
.A.....T.....G.....G.....T.....
.....

Hap_335
.....T.....A.....T.....
.T.....G.....G.....
.....

Hap_336TT.....T...TT.....
..T.....A.
.....T.....T.....G.....
.G.....

Hap_337T.....
.....T.....T.....T.....
.G.....G.....G.....
.....

Hap_338T.....TT.....
...T.....T.....A.
.....T.....T.....G.....
.G.....

Hap_339T..G.....TT.....
...T.....A.
.....T.....T.....TG.....
.G.....

Hap_340T.....T.....TT.....
...T.....A.
.....T.....T.....T.....G.....
.G.....

Hap_341G.....T.....T..TT.....
...T.....T.....T.....T.....
...A.....T.....T.....G.....
.G.....

Hap_342T.....T.....T.....
.....A.
.....T.....G.....
.G.....

Hap_343T.....TT.....
...T.....C.....A.
.....T.....T.....G.....
.G.....

Hap_344G.....T.....TT.....
...T.....A.
.....T.....T.....G.....
.G.....

Hap_345T.....T.....
.....T.....
.....G.....A.....

Hap_346G.....
.....
.....G.....A.....T.....T.....

Hap_347T.....G.....
.....
.....G.....T.....T.....

Hap_348A.....
.....
.....G.....A.....T.....

Hap_349T.....T.....
.....G.....A.....

Hap_350A.....
.....T.....G.....
.....G.....C.....

Hap_351C.....
.....T.....
.....A.....T.....G.....
.....G.....

Hap_352T.....T.....T.T.....
.....T.....A.....
.....T.....T.....G.....
.....G.....

Hap_353
.....G.....G.....A.....T.....
.....

Hap_354T.....T.T.....
.....T.....A.....
.....T.....T.....G.....G.....
.....T.....

Hap_355T.....T.T.....
.....T.....T.....
.....A.....T.....T.....T.....G.....
.....G.....

Hap_356C...T.....T.T.....
.....T.....A.....
.....T.....T.....G.....
.....G.....

Hap_357T.....T.T.....
.....T.....A.....
.....T.....T.....G.....G.....
.....C.....C.....

Hap_358T.....T.T.....T.....
.....T.....G.....T.....G.....A.....T.....
.....C.....T.....G.....G.....T.....
.....

Hap_359T.....T.T.....
.....T.....T.....A.....
.....T.....T.....G.....
.....G.....

Hap_360T.....T.T.....T
.....C.....A.....
.T.....T.....G.....G.....
.....T.....

Hap_361A.....T.....T.T.....T
.....T.....T.....A.....
.T.....T.....G.....T.....G.....
.....T.....C.....

Hap_362T.....T.....T.T.....
.T.....A.....
.T.....T.....G.....G.....
.T.....T.....T.....

Hap_363T.....T.T...T....
.....T.....A.....
.....T...T.....T.....G.....
.G.....

Hap_364T.....
.....A.....
.....T.....G.....
.G.....

Hap_365T.....T.T.....
.T.....A.....T.....
.....G.....T.....G.....G.....T.....T.....
.....

Hap_366T.....T.T.....T.....
.....T.....A.....G.C.T.....
.....T.....T.....G.....G.....
.....

Hap_367T.T...G.....T...T.T.....
.....T.....A.....
.....T.....T.....G.....
.G.....

Hap_368T.T...G.....T...T.T.....
.....T.....A.....
.....T.....T.....G.....
.G.....

Hap_369T.....G...T.T.....
.T.....A.....
.T.....T.....G.....G.....
.T.....A.....

Hap_370T...A.....T.T.....
.T.....A.....
.T.....T...T.....G.....G.....
.....T.....

Hap_371T.....TT.....
...T.....A.
...T.....T.....G.....T..
.G.....

Hap_372T.....TT.....
.T.....A..T.....
.T.....T.....G.....G.....
...T.....

Hap_373T.....TT.....
...T.....T.....A.
...T.....T.....G.....
.G.....

Hap_374T.....
.....A.
...T.....G.....
.G.....

Hap_375T.....T.....T.....TT.....
...T.....A.
...T.....T.....T.....G.....
.G.....T.....

Hap_376T.....TTT.....
...T.....T.....A.
...T.....T.....G.....
.G.....

Hap_377T.....TT.....T
...T.....A.....
.T.....T.....G.....G.....
.T.....T.....

Hap_378T.....T.....TT..T.....
...T.....A.
...T.....T.....G.....
.G.....

Hap_379
.....A.....T.....
.T.....G.....G.....
....

Hap_380T.....T.....TT.....
...T.....A.
...T.....T.....G.....
.G.....

Hap_381
.....T.....A.....T.....
.T.....G.....G.....
....

Hap_382T.....G.....TT.....
..T.....A.....T.....
.....T.....T.....G.....G.....
.....A..T.....

Hap_383T.....C.....TT.....
..T.....A.....T.....
.....C.....T.....G.....G.....
.....

Hap_384T.....TT.....T
.....T.....A.....
..T.....T.....G.....G.....
..T.....T.....

Hap_385T.....T.....TT.....
..T.....A.....
.....T.....T.....G.....
..G.....

Hap_386C.T.T.....TT.....
..T.....A.....
.....T.....T.....G.....
..G.....

Hap_387T.....TT.....
..T.....T.....A.....
.....T.....T.....G.....
..G.....

Hap_388T.....T.....TT.....
..T.....A.....
.....T.....T.....T.....G.....
..G.....

Hap_389T.....G.....G.....TT.....T.....
.....C.....A.....
..G.....T.....G.....T.....GA.....
.....

Hap_390T.....TT.....T
.....T.....A.....
..T.....T.....G.....G.....
..A.....C.....

Hap_391T.....TT.....T
.....T.....T.....A.....T.....
.....T.....G.....G.....
.....

Hap_392T.....TT.....T
.....G.....A.....T.....
..T.....T.....G.....G.....T.....
.....

Hap_393T.T.....T.T.....
.T.....A.....
.T.....T.T.....G.T.G.....
.....T.T.....T.....

Hap_394T.....T.....T.T.....T.....
.....G.....C.....A.....
.T.....T.....G.....G.....
.....T.....

Hap_395T.....T.T.....
.....T.....G.....T.....
A.....T.....T.....G.....G.....
.T.....

Hap_396T.....T.T.....
.T.....A.T.....
.T.....T.....G.....G.....
.T.....

Hap_397T.....T.....T.T.....
.....T.....A.....
.....T.....T.....G.....
.G.....

Hap_398T.....
.....G.....A.T.....
.T.....G.G.....
.....

Hap_399T.....T.T.....
.T.....A.T.A.....
.....T.....T.....G.G.....
.....

Hap_400T.....T.T.T.....
.....T.....T.....A.....
.....T.....T.....G.....
.G.....

Hap_401T.....T.T.....
T.T.....T.....A.....
.....T.....T.....G.....
.G.....T.....

Hap_402T.....T.....T.T.....
.....T.....T.....T.....
.....A.....T.....T.....G.....
.G.....

Hap_403T.T.....T.T.....
.T.....A.T.....
.....G.....T.....G.....G.....
.....

Hap_404A...T.....T.....T.....
.T.....A.....T.....
.....G.....T.....G.....T...GA.....T...
.A.....

Hap_405T.....T.....
.....T.....
.....G.....G.....T...GA.....T...
.A.....

Hap_406T.....T.....TT.....
...T.....T.....A.....
.....T.....T.....G.....
.G.....

Hap_407T.....TT.....TGT.....
.....A.....T.....
.....T.....G.....G.....
.....

Hap_408A...T.....T.....TT.....T.....
.G.....A.....T.....T.....
.....G.....T.....G.....T...GA.....T...
.A.....

Hap_409A.....T.....GTA.....A.....TG
.T.....A.....T.....
.....T.....G.....GG.G.....
.A.....

Hap_410A...G.....T.....A.....TG.T.....
.....C.....A.....T.....
.....G.....T.....G.....T...GA.....T...
.A.....

Hap_411C.....T.....TT.....
.T.....A.....
.T.....T.....A...G.....G.....
.T.....

Hap_412A.....T.....
.....C.....
.....G.....T.....T...GA.....T...
.A.....

Hap_413C.T.....T.....T.....TT.....TT.....
.....A.....A.....T.....
.....T.....G.....G.....T.....
.....

Hap_414T.....TT.....
...T.....A.....
.....T.....T.....T...G.....
.G.....

Hap_415T.....T.T.....
 .T.....A.....T.....
T.....T.....G.....G.....

Hap_416A.....T.....T.T.....
T.....A.....
T.....T.....G.....
 .G.....

Hap_417T.....T.T.....C.....T.T.....T.....
T.....A.....T.....T.....
T.....T.....G.....G.....A.....C.....

Hap_418T.T.....T.....
G.....G.....T.....GA.....T.....
 .A.....

Hap_419T..T.....T.T.....
 .T.....A.....
T.....T.....G.....G.....
 ...T.....

Hap_420G.....A.....T.....
C.....
G.....G.....T.....GA.....A.....T.....
 .A.....

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Correspondence of the 420 haplotypes as mentioned above to the sequence strains

[Hap# Freq. Sequences]

[Hap_1: 14 NC_045512_Wuhan-Hu-1 ICMR-3814/EPI_ISL_1201098/B.4.7/O/2020-03/KL ICMR-5411/EPI_ISL_1201121/B.4.7/O/2020-03/KL ICMR-4762/EPI_ISL_1201117/B.4.7/O/2020-03/KL ICMR-3586/EPI_ISL_1201093/B.4.7/O/2020-03/KL ICMR-3581/EPI_ISL_1201092/A/S/2020-03/KL ICMR-4432/EPI_ISL_1201111/B.4.7/O/2020-03/KL ICMR-5157/EPI_ISL_1201120/B.4.7/O/2020-03/KL ICMR-3101/EPI_ISL_1231295/B.6.6/O/2020-07/UP ICMR-4653/EPI_ISL_1129255/B.6.6/O/2020-05/MH SEQ-3717/NA/B.1.1/GR/2020-04/MP SEQ-3663/NA/B.1.1/GR/2020-05/CH NIV-6315/EPI_ISL_454542/B.6/O/2020-03/MH NIV-7786/EPI_ISL_452209/B.6.6/O/2020-04/MH]

[Hap_2: 1 ICMR-41/EPI_ISL_1180167/B.1.1.216/GR/2020-06/RJ]

[Hap_3: 1 ICMR-50/EPI_ISL_1231357/B.1.36/GH/2020-08/HR]

[Hap_4: 1 ICMR-338436/EPI_ISL_1165129/B.1.36/GH/2020-08/PB]

[Hap_5: 2 ICMR-47/EPI_ISL_1180170/B.1.36/GH/2020-06/RJ SEQ-1911/NA/B.1.36/GH/2020-12/UT]

[Hap_6: 16 ICMR-317289/EPI_ISL_1231417/B.1.1/GR/2020-08/TN ICMR-56071/EPI_ISL_1231396/B.1.1/GR/2020-05/TN ICMR-108049/EPI_ISL_1231407/B.1.1/GR/2020-06/TN ICMR-25126/EPI_ISL_1231389/B.1.1/GR/2020-04/TN ICMR-44771/EPI_ISL_1789813/B.1.1/GR/2020-06/AS ICMR-20487/EPI_ISL_1192102/B.1.1/GR/2020-06/AP SEQ-172/NA/B.1.1/GR/2020-12/OR SEQ-2735/NA/B.1.1/GR/2020-09/AN SEQ-3473/NA/B.1.1/GR/2020-10/AP SEQ-2090/NA/B.1.1.46/GR/2020-09/HP SEQ-968/NA/B.1.1/GR/2020-12/TN SEQ-2182/NA/B.1.1/GR/2020-09/KA SEQ-3849/NA/B.1.36/GH/2020-07/TN SEQ-3817/NA/B.1.1/GR/2020-04/TN SEQ-3822/NA/B.1/GR/2020-05/TN EPI_ISL_7215528/B.1.560/G/2021-01/KL]

[Hap_7: 1 ICMR-50685/EPI_ISL_1761636/B.1.36/GH/2020-08/CH]

[Hap_8: 24 ICMR-68/EPI_ISL_1231308/B.1/G/2020-05/UP ICMR-1252/EPI_ISL_1129277/B.1.1.306/GR/2020-05/MH ICMR-293/EPI_ISL_1231420/B.1.527/G/2020-03/MP ICMR-75048/EPI_ISL_1231317/B.1.143/G/2020-07/TR ICMR-161800/EPI_IS-

L_1180179/B.1/G/2020-06/RJ ICMR-1334/EPI_ISL_1201048/B.1/G/2020-03/KL ICMR-196353/EPI_ISL_1165123/B.1.1/GR/2020-07/PB SEQ-2686/NA/B.1/G/2020-10/HR SEQ-1589/NA/B.1.1.306/GR/2020-12/AS SEQ-3163/NA/B.1.1.306/GR/2020-09/MP SEQ-1004/NA/B.1.1.216/GR/2020-10/OR SEQ-2570/NA/B.1.1.216/GR/2020-09/JH 2019nCov_Seq-798/NA/B.1.1.306/GR/2020-11/PB SEQ-3669/NA/B.1/G/2020-06/CH SEQ-3705/NA/B.1.1.354/GR/2020-03/MP SEQ-3664/NA/B.1.36/GH/2020-05/CH NIV-20134/EPI_ISL_479513/B.1.1.306/GR/2020-05/MH NIV-40837/EPI_ISL_479543/B.1.1.306/GR/2020-05/MH NIV-150596/EPI_ISL_541702/B.1.1.306/GR/2020-08/MH NIV-57774/EPI_ISL_541727/B.1.1.306/GR/2020-06/MH NIV-59437/EPI_ISL_541729/B.1.1.306/GR/2020-06/MH NIV-47470/EPI_ISL_479553/B.1.1.306/GR/2020-05/MH NIV-64850/EPI_ISL_479556/B.1.1.306/GR/2020-06/MH NIV-10418/EPI_ISL_541682/B.1/GR/2020-04/MH]

[Hap_9: 1 ICMR-4753/EPI_ISL_1201115/B.4.7/O/2020-03/KL]

[Hap_10: 1 ICMR-36/EPI_ISL_1164942/B.1/GH/2020-06/GJ]

[Hap_11: 1 ICMR-19/EPI_ISL_1231339/B.1.36/GH/2020-05/HR]

[Hap_12: 1 ICMR-13156/EPI_ISL_1231427/B.1/G/2020-05/MP]

[Hap_13: 24 ICMR-25651/EPI_ISL_1260839/B.1.36/GH/2020-07/UT ICMR-C22657/EPI_ISL_1129219/B.1.36.8/GH/2020-07/MH ICMR-114083/EPI_ISL_1139138/B.1.36/GH/2020-08/AS ICMR-10/EPI_ISL_1231335/B.1.36/GH/2020-04/HR ICMR-8660/EPI_ISL_1173172/B.1.36/GH/2020-07/CT ICMR-37443/EPI_ISL_1192145/B.1.36/GH/2020-08/HP ICMR-109353/EPI_ISL_1180176/B.1.36/GH/2020-06/RJ SEQ-1755/NA/B.1.36/GH/2020-12/AS SEQ-1552/NA/B.1.36/GH/2020-10/AS SEQ-3110/NA/B.1.36/GH/2020-11/MN SEQ-1390/NA/B.1.36/GH/2020-09/TR SEQ-2255/NA/B.1.36/GH/2020-09/UT SEQ-2445/NA/B.1.36/GH/2020-10/ML SEQ-2092/NA/B.1.36/GH/2020-09/HP SEQ-1386/NA/B.1.36/GH/2020-09/TR SEQ-77/NA/B.1.36/GH/2020-11/DL SEQ-2091/NA/B.1.36/GH/2020-09/HP SEQ-2900/NA/B.1.36/GH/2020-09/HP SEQ-2096/NA/B.1.36/GH/2020-09/HP SEQ-2025/NA/B.1.36.8/GH/2020-09/RJ SEQ-570/NA/B.1.36/GH/2020-12/JK SEQ-1851/NA/B.1.36/GH/2020-08/UT SEQ-509/NA/B.1.36/GH/2020-09/JK SEQ-3733/NA/B.6/Other/2020-06/MP]

[Hap_14: 1 ICMR-4198/EPI_ISL_1201099/B.4.7/O/2020-03/KL]

[Hap_15: 1 ICMR-19102/EPI_ISL_1180197/A/S/2020-06/UT]

[Hap_16: 1 ICMR-48/EPI_ISL_1180171/B.1/GH/2020-06/RJ]

[Hap_17: 1 ICMR-15264/EPI_ISL_1761630/B.1.36/GH/2020-06/CH]

[Hap_18: 1 ICMR-196084/EPI_ISL_1165113/B.1.398/G/2020-07/PB]

[Hap_19: 1 ICMR-3073/EPI_ISL_1201076/B.4.7/O/2020-03/KL]

[Hap_20: 1 ICMR-42052/EPI_ISL_1138880/B.1.36/GH/2020-06/OR]

[Hap_21: 1 ICMR-21756/EPI_ISL_1231373/B.1/G/2020-05/WB]

[Hap_22: 1 ICMR-14887/EPI_ISL_1180183/B.6.6/O/2020-05/RJ]

[Hap_23: 1 ICMR-35568/EPI_ISL_1192090/B.1.36.29/GH/2020-09/TG]

[Hap_24: 1 ICMR-52551/EPI_ISL_1073017/B.6/O/2020-05/JK]

[Hap_25: 1 ICMR-13647/EPI_ISL_1173159/B.1.1.306/GR/2020-09/CT]

[Hap_26: 1 ICMR-13690/EPI_ISL_1173165/B.1/G/2020-09/CT]

[Hap_27: 1 ICMR-12912/EPI_ISL_1231311/B.1.1/GR/2020-05/TR]

[Hap_28: 1 ICMR-13008/EPI_ISL_1260838/B.1.36/GH/2020-06/UT]

[Hap_29: 1 ICMR-141814/EPI_ISL_1139145/B.1.36/GH/2020-08/AS]

[Hap_30: 2 ICMR-53929/EPI_ISL_1071223/B.1.36/GH/2020-08/CH ICMR-53854/EPI_ISL_1070020/B.1.36/GH/2020-08/CH]

[Hap_31: 1 ICMR-3644/EPI_ISL_1192109/B.1.1/GR/2020-06/AP]

[Hap_32: 2 ICMR-52578/EPI_ISL_1192155/B.1.1.431/GR/2020-08/HP ICMR-52599/EPI_ISL_1192154/B.1.1.431/GR/2020-08/HP]

[Hap_33: 2 ICMR-67/EPI_ISL_1176352/B.1.1/GR/2020-07/MN ICMR-22/EPI_ISL_1176337/B.1.1/GR/2020-07/MN]

[Hap_34: 1 ICMR-25299/EPI_ISL_1192144/B.1.36/GH/2020-07/HP]

[Hap_35: 1 ICMR-43/EPI_ISL_1176345/B.1.36/GH/2020-08/MN]

[Hap_36: 1 ICMR-114420/EPI_ISL_1139139/B.1.1.216/GR/2020-08/AS]

[Hap_37: 1 ICMR-71387/EPI_ISL_1139130/B.1.36/GH/2020-07/AS]

[Hap_38: 1 ICMR-15229/EPI_ISL_1789814/B.1.36/GH/2020-05/JH]

[Hap_39: 1 ICMR-44587/EPI_ISL_1201075/B.1.1.201/GR/2020-08/KL]

[Hap_40: 1 ICMR-197/EPI_ISL_1231419/B.1.1.306/GR/2020-03/MP]

[Hap_41: 1 ICMR-103310/EPI_ISL_1165094/B.1.1.216/GR/2020-06/PB]

[Hap_42: 1 SEQ-1288/NA/B.1.1/GR/2020-12/WB]
[Hap_43: 1 SEQ-447/NA/AM.3/GR/2020-08/JK]
[Hap_44: 1 SEQ-286/NA/B.1.1.437/GR/2020-10/KL]
[Hap_45: 1 SEQ-2618/NA/B.1.459/G/2020-12/JH]
[Hap_46: 2 SEQ-2089/NA/B.1.1/GR/2020-09/HP SEQ-2592/NA/B.1.1.216/GR/2020-10/JH]
[Hap_47: 1 SEQ-2767/NA/B.1.1.46/G/2020-10/AN]
[Hap_48: 1 SEQ-376/NA/B.1/G/2020-10/HR]
[Hap_49: 1 SEQ-1959/NA/B.1.36/GH/2020-10/AP]
[Hap_50: 1 SEQ-1728/NA/B.1.36/GH/2020-10/AS]
[Hap_51: 1 SEQ-1467/NA/B.1.1.216/GR/2020-09/CT]
[Hap_52: 1 SEQ-2824/NA/B.1.36/GH/2020-09/UP]
[Hap_53: 1 SEQ-3037/NA/B.1.1.306/GR/2020-12/MP]
[Hap_54: 4 SEQ-2707/NA/B.1.36/GH/2020-11/HR SEQ-1396/NA/B.1.36/GH/2020-09/TR GSEQ-320/EPI_ISL_1703907/B.1.36/
GH/2020-11/GJ GSEQ-103/EPI_ISL_1704107/B.1.36/GH/2020-12/GJ]
[Hap_55: 1 SEQ-3223/NA/B.1.36/GH/2020-12/MP]
[Hap_56: 1 SEQ-2388/NA/B.1.1.216/GR/2020-11/MN]
[Hap_57: 2 SEQ-543/NA/B.1.36.22/GH/2020-11/JK SEQ-549/NA/B.1.36.22/GH/2020-11/JK]
[Hap_58: 1 SEQ-1793/NA/B.1.36/GH/2020-09/GJ]
[Hap_59: 1 SEQ-214609-TCM/NA/B.1/G/2020-08/MH]
[Hap_60: 1 SEQ-561/NA/B.1.36/GH/2020-12/JK]
[Hap_61: 1 SEQ-3476/NA/B.1.1.48/GR/2020-10/AP]
[Hap_62: 1 SEQ-3020/NA/B.1.36/GH/2020-11/MP]
[Hap_63: 1 SEQ-106/NA/B.1.1.267/GR/2020-09/OR]
[Hap_64: 1 SEQ-2115/NA/B.1.36/GH/2020-10/HP]
[Hap_65: 1 SEQ-214/NA/B.1.36/GH/2020-10/MH]
[Hap_66: 1 SEQ-1929/NA/B.1.1.326/GR/2020-09/AP]
[Hap_67: 1 SEQ-2887/NA/B.1/G/2020-12/UP]
[Hap_68: 1 SEQ-1460/NA/B.1.1.216/GR/2020-09/CT]
[Hap_69: 1 SEQ-2379/NA/B.1.36.36/GH/2020-11/MN]
[Hap_70: 1 SEQ-366/NA/B.1.36/GH/2020-10/HR]
[Hap_71: 1 SEQ-3324/NA/B.1.1.216/GR/2020-10/CH]
[Hap_72: 1 SEQ-2250/NA/B.1.36/GH/2020-09/UT]
[Hap_73: 1 SEQ-3120/NA/B.1.36/GH/2020-12/MN]
[Hap_74: 1 SEQ-2868/NA/B.1.36/GH/2020-12/UP]
[Hap_75: 2 SEQ-2727/NA/B.1.468/GH/2020-12/HR SEQ-3693/NA/B.1.36/GH/2020-07/CH]
[Hap_76: 1 SEQ-2684/NA/B.1.36.8/G/2020-10/HR]
[Hap_77: 1 SEQ-2505/NA/B.1.36/GH/2020-09/AS]
[Hap_78: 1 SEQ-2305/NA/B.1.36.16/GH/2020-11/UT]
[Hap_79: 1 SEQ-2729/NA/B.1.36/GH/2020-09/AN]
[Hap_80: 1 SEQ-2299/NA/B.1.36/GH/2020-11/UT]
[Hap_81: 1 SEQ-2994/NA/B.1.1/GR/2020-10/MP]
[Hap_82: 1 SEQ-2101/NA/B.1.1/GR/2020-09/HP]
[Hap_83: 1 SEQ-2725/NA/B.1.1.216/GR/2020-12/HR]
[Hap_84: 2 SEQ-530/NA/B.1.36/GH/2020-10/JK SEQ-44/NA/B.1.36/GH/2020-10/DL]
[Hap_85: 1 SEQ-2605/NA/B.1/GR/2020-12/JH]
[Hap_86: 1 SEQ-1761/NA/B.1.36/GH/2020-12/AS]
[Hap_87: 1 SEQ-961/NA/B.1.1.272/GR/2020-12/TN]

[Hap_88: 1 SEQ-1240/NA/B.1.36/GH/2020-10/WB]
[Hap_89: 1 SEQ-3200/NA/B.1.390/G/2020-11/MP]
[Hap_90: 1 SEQ-532/NA/B.1.36/GH/2020-10/JK]
[Hap_91: 1 SEQ-1931/NA/B.1.1.326/GR/2020-09/AP]
[Hap_92: 1 SEQ-2325/NA/B.1.36/GH/2020-12/UT]
[Hap_93: 1 SEQ-1005/NA/B.1.1/GR/2020-10/OR]
[Hap_94: 1 SEQ-2008/NA/B.1.1.216/GR/2020-09/RJ]
[Hap_95: 1 SEQ-1718/NA/B.1.36.22/GH/2020-10/AS]
[Hap_96: 1 SEQ-1465/NA/B.1.36/GH/2020-09/CT]
[Hap_97: 1 SEQ-496/NA/B.1.36/GH/2020-12/JK]
[Hap_98: 1 SEQ-1841/NA/B.1.1.216/GR/2020-12/GJ]
[Hap_99: 1 SEQ-2064/NA/B.1.36/GH/2020-11/RJ]
[Hap_100: 7 SEQ-2858/NA/B.1.36.29/GH/2020-11/UP SEQ-3458/NA/B.1.36.29/GH/2020-09/AP SEQ-3357/NA/B.1.36.29/GH/2020-12/CH NIV-282387/EPI_ISL_1703796/B.1.36/GH/2020-12/MH EPI_ISL_3060410/B.1.36.29/GH/2021-06/AP EPI_ISL_7217735/B.1.36/GH/2021-02/KL EPI_ISL_7218743/B.1.36.29/GH/2021-02/KL]
[Hap_101: 1 SEQ-2050/NA/B.1.36.8/GH/2020-11/RJ]
[Hap_102: 3 SEQ-2478/NA/B.1.36/GH/2020-12/ML SEQ-2488/NA/B.1.36/GH/2020-12/ML SEQ-2421/NA/B.1.36/GH/2020-09/ML]
[Hap_103: 1 SEQ-1865/NA/B.1.1.216/GR/2020-09/UT]
[Hap_104: 2 SEQ-2611/NA/B.1.36/GH/2020-11/JH SEQ-2572/NA/B.1.36/GH/2020-09/JH]
[Hap_105: 1 SEQ-PTBR13/NA/B.1.210/G/2020-12/AN]
[Hap_106: 1 SEQ-2742/NA/B.1.36/GH/2020-09/AN]
[Hap_107: 1 SEQ-973/NA/B.1.1/GR/2020-12/TN]
[Hap_108: 1 SEQ-3071/NA/B.1.36/GH/2020-10/MN]
[Hap_109: 1 SEQ-1956/NA/B.1.36.29/GH/2020-10/AP]
[Hap_110: 1 SEQ-1932/NA/B.1.36.29/GH/2020-09/AP]
[Hap_111: 1 SEQ-1352/NA/B.1.1/GR/2020-11/TG]
[Hap_112: 1 SEQ-2218/NA/B.1.1.46/GR/2020-11/KA]
[Hap_113: 1 SEQ-1752/NA/B.1.36/GH/2020-12/AS]
[Hap_114: 1 SEQ-3516/NA/B.1.1/GR/2020-12/AP]
[Hap_115: 2 SEQ-1500/NA/B.1.1/GR/2020-11/CT SEQ-1463/NA/B.1.1/GR/2020-09/CT]
[Hap_116: 1 SEQ-230/NA/B.1.36/GH/2020-11/MH]
[Hap_117: 1 SEQ-2943/NA/B.1.1.216/GR/2020-11/HP]
[Hap_118: 1 SEQ-607/NA/B.1/G/2020-10/RJ]
[Hap_119: 1 SEQ-1007/NA/B.1.1/GR/2020-10/OR]
[Hap_120: 2 SEQ-2545/NA/B.1.1/GR/2020-11/AS SEQ-2544/NA/B.1.1/GR/2020-11/AS]
[Hap_121: 4 SEQ-3000/NA/B.1.1.306/GR/2020-10/MP NIV-229656/EPI_ISL_577694/B.1.1.306/GR/2020-09/MH NIV-226708/EPI_ISL_577719/B.1.1.306/GR/2020-09/MH NIV-1379/EPI_ISL_577725/B.1.1.306/GR/2020-07/MH]
[Hap_122: 1 SEQ-2441/NA/B.1.36/GH/2020-10/ML]
[Hap_123: 1 SEQ-1771/NA/B.1/G/2020-08/GJ]
[Hap_124: 1 SEQ-577/NA/B.1.36/GH/2020-12/JK]
[Hap_125: 1 SEQ-2405/NA/B.1.1.216/GR/2020-12/MN]
[Hap_126: 1 SEQ-3126/NA/B.1.36/GH/2020-12/MN]
[Hap_127: 1 SEQ-1605/NA/B.1.36/GH/2020-12/AS]
[Hap_128: 1 SEQ-2484/NA/B.1.36/GH/2020-12/ML]
[Hap_129: 1 SEQ-2833/NA/B.1.36/GH/2020-10/UP]
[Hap_130: 1 SEQ-79/NA/B.1.1/GR/2020-11/DL]
[Hap_131: 1 SEQ-996/NA/B.1/G/2020-09/OR]
[Hap_132: 1 SEQ-3187/NA/B.1.36.8/GH/2020-10/MP]

[Hap_133: 1 SEQ-491/NA/B.1.36/GH/2020-12/JK]
[Hap_134: 1 SEQ-2559/NA/B.1.36/GH/2020-12/AS]
[Hap_135: 1 SEQ-3180/NA/B.1/G/2020-10/MP]
[Hap_136: 1 SEQ-2944/NA/B.1.36.8/GH/2020-11/HP]
[Hap_137: 1 SEQ-2774/NA/B.1.36/GH/2020-11/AN]
[Hap_138: 1 SEQ-2052/NA/B.1.36.10/GH/2020-11/RJ]
[Hap_139: 1 SEQ-2070/NA/B.1.1.46/GR/2020-12/RJ]
[Hap_140: 1 SEQ-1951/NA/B.1.1/GR/2020-10/AP]
[Hap_141: 1 SEQ-523/NA/B.1.36/GH/2020-10/JK]
[Hap_142: 1 SEQ-1208/NA/B.1.1.46/GR/2020-12/JH]
[Hap_143: 1 SEQ-1346/NA/B.1.36.29/GH/2020-10/TG]
[Hap_144: 1 SEQ-881/NA/B.1.36/GH/2020-12/UP]
[Hap_145: 1 SEQ-1056/NA/B.1.36/GH/2020-12/OR]
[Hap_146: 1 SEQ-2062/NA/B.1.36/GH/2020-11/RJ]
[Hap_147: 1 SEQ-1958/NA/B.1.369/GH/2020-10/AP]
[Hap_148: 1 SEQ-2125/NA/B.1.1/GR/2020-10/HP]
[Hap_149: 1 2019nCov_Seq-820/NA/B.1.36/GH/2020-12/PB]
[Hap_150: 1 SEQ-3570/NA/B.1.1.354/GR/2020-12/KA]
[Hap_151: 1 SEQ-4051/NA/B.1.429/G/2020-10/TN]
[Hap_152: 1 SEQ-3700/NA/B.1.36.29/GH/2020-07/CH]
[Hap_153: 1 SEQ-3444/NA/B.1.617.1/G/2020-12/KA]
[Hap_154: 1 SEQ-4049/NA/B.1.36.29/GH/2020-10/TN]
[Hap_155: 1 SEQ-3737/NA/B.6.2/Other/2020-06/MP]
[Hap_156: 1 SEQ-3736/NA/B.1.1/GR/2020-06/MP]
[Hap_157: 1 SEQ-3432/NA/B.1.36/GH/2020-12/KA]
[Hap_158: 1 SEQ-3662/NA/B.6/Other/2020-05/CH]
[Hap_159: 1 NIV-6614/EPI_ISL_454544/B.6/O/2020-04/MH]
[Hap_160: 1 NIV-9127/EPI_ISL_454556/B.1.1.306/O/2020-04/MH]
[Hap_161: 8 VOC-6/EPI_ISL_1703920/B.1.1.7/GR/2020-12/OR VOC-176/EPI_ISL_1034186/B.1.1.7/GR/2020-12/GJ EPI_ISL_1663331/None/G/2021-03/OR EPI_ISL_1703960/B.1.1.7/GR/2021-03/MH EPI_ISL_2001176/B.1.1.7/GRY/2021-02/GJ EPI_ISL_2881242/B.1.1.7/GR/2021-04/HR EPI_ISL_3432287/B.1.1.7/G/2021-05/JK EPI_ISL_7220545/B.1.1.7/GR/2021-03/KL]
[Hap_162: 1 GSEQ-502/EPI_ISL_1703966/B.1.36/GH/2020-11/GJ]
[Hap_163: 1 GSEQ-958/EPI_ISL_1704040/B.1.36.29/GH/2020-11/MH]
[Hap_164: 1 VOC-41/EPI_ISL_1704048/B.1.36.29/GH/2020-12/MH]
[Hap_165: 1 VOC-111/EPI_ISL_1704053/B.1.36.29/GH/2020-12/MH]
[Hap_166: 1 VOC-58/EPI_ISL_1704056/B.1.36.29/GH/2020-12/PB]
[Hap_167: 1 VOC-253/EPI_ISL_1704063/B.1.36.8/GH/2020-12/GJ]
[Hap_168: 1 GSEQ-543/EPI_ISL_1704065/B.1.36/GH/2020-11/GJ]
[Hap_169: 1 NIV-3472/EPI_ISL_454528/B.4/O/2020-03/MH]
[Hap_170: 1 NIV-276959/EPI_ISL_1704326/B.1.1.216/GR/2020-12/MH]
[Hap_171: 2 GSEQ-964/EPI_ISL_1841303/B.1.36.29/GH/2020-11/MH GSEQ-961/EPI_ISL_1928388/B.1.36.29/GH/2020-11/MH]
[Hap_172: 1 NIV-22048/EPI_ISL_479518/B.1.1/GR/2020-05/MH]
[Hap_173: 1 VOC-196/EPI_ISL_1703803/B.1.36/GH/2020-12/MH]
[Hap_174: 1 VOC-37/EPI_ISL_1703806/B.1.177.81/GV/2020-12/MH]
[Hap_175: 1 VOC-285/EPI_ISL_1703852/B.1.36/GH/2020-12/GJ]
[Hap_176: 1 VOC-661/EPI_ISL_1703865/B.1.36/GH/2020-12/GJ]
[Hap_177: 1 GSEQ-1351/EPI_ISL_1704226/B.1.1.306/GR/2020-12/GJ]
[Hap_178: 2 VOC-132/EPI_ISL_1704670/B.1.1/GR/2020-12/TN VOC-131/EPI_ISL_1704669/B.1.1/GR/2020-12/TN]

[Hap_179: 1 VOC-136/EPI_ISL_1704672/B.1.1/GR/2020-12/TN]
[Hap_180: 1 NIV-15115/EPI_ISL_479500/B.1.1.306/GR/2020-04/MH]
[Hap_181: 1 NIV-64880/EPI_ISL_479660/B.1/G/2020-06/MH]
[Hap_182: 1 NIV-282393/EPI_ISL_1703751/B.1.36/GH/2020-12/MH]
[Hap_183: 1 VOC-719/EPI_ISL_1703754/B.1.36/GH/2020-12/GJ]
[Hap_184: 1 VOC-662/EPI_ISL_1704294/B.1/G/2020-12/GJ]
[Hap_185: 1 NIV-11683/EPI_ISL_452196/B.1/G/2020-04/MH]
[Hap_186: 1 NIV-192922/EPI_ISL_541724/B.1.1.306/GR/2020-09/MH]
[Hap_187: 1 NIV-229545/EPI_ISL_577686/B.1.1.306/GR/2020-09/MH]
[Hap_188: 1 NIV-229555/EPI_ISL_577687/B.1.36.8/GH/2020-09/MH]
[Hap_189: 1 GSEQ-506/EPI_ISL_1704165/B.1.1.216/GR/2020-12/GJ]
[Hap_190: 1 GSEQ-513/EPI_ISL_1704168/B.1.36/GH/2020-12/GJ]
[Hap_191: 1 GSEQ-522/EPI_ISL_1704175/B.1.36/GH/2020-12/GJ]
[Hap_192: 1 GSEQ-552/EPI_ISL_1704188/B.1.1.216/GR/2020-11/GJ]
[Hap_193: 1 VOC-75/EPI_ISL_1704643/B.1.1.306/GR/2020-12/MH]
[Hap_194: 1 VOC-92/EPI_ISL_1704645/B.1.1.306/GR/2020-12/MH]
[Hap_195: 1 VOC-106/EPI_ISL_1704646/B.1.177.16/GV/2020-12/MH]
[Hap_196: 2 VOC-137/EPI_ISL_1704652/B.1.1.216/GR/2020-12/MH VOC-138/EPI_ISL_1704653/B.1.1.216/GR/2020-12/MH]
[Hap_197: 1 NIV-45936/EPI_ISL_479548/B.1.1.306/GR/2020-05/MH]
[Hap_198: 1 NIV-65417/EPI_ISL_479563/B.1.1.306/GR/2020-06/MH]
[Hap_199: 1 VOC-22/EPI_ISL_1034163/B.1.1.7/GR/2020-12/GJ]
[Hap_200: 2 VOC-54/EPI_ISL_1034166/B.1.1.7/GR/2020-12/OR VOC-218/EPI_ISL_1034188/B.1.1.7/GR/2020-12/KL]
[Hap_201: 3 VOC-172/EPI_ISL_1034184/B.1.1.7/GR/2020-12/MH VOC-173/EPI_ISL_1034185/B.1.1.7/GR/2020-12/MH GSEQ-555/
EPI_ISL_1703655/B.1.1.7/GR/2020-12/GJ]
[Hap_202: 1 VOC-231/EPI_ISL_1703656/B.1.351/GH/2020-12/MH]
[Hap_203: 1 NIV-280822/EPI_ISL_1703680/B.1.1.306/GR/2020-12/MH]
[Hap_204: 1 GSEQ-499/EPI_ISL_1704163/B.1.153/G/2020-11/GJ]
[Hap_205: 1 NIV-4367/EPI_ISL_452203/A/S/2020-03/MH]
[Hap_206: 1 NIV-114444/EPI_ISL_541686/B.1.1.306/GR/2020-07/MH]
[Hap_207: 1 NIV-206926/EPI_ISL_577667/B.1.1.306/GR/2020-09/MH]
[Hap_208: 23 EPI_ISL_10045218/BA.2/GRA/2022-02/TG EPI_ISL_10431980/BA.2/GRA/2022-01/HR EPI_ISL_10433767/BA.2/
GRA/2022-01/OR EPI_ISL_10436615/BA.2/GRA/2022-01/OR EPI_ISL_10523158/BA.2/GRA/2022-02/MH EPI_ISL_10523185/BA.2/
GRA/2022-02/MH EPI_ISL_10524696/BA.2/GRA/2022-02/KA EPI_ISL_10638469/BA.2/GRA/2022-01/HR EPI_ISL_10801592/BA.2/
GRA/2022-02/AN EPI_ISL_10879681/BA.2/GRA/2022-01/MH EPI_ISL_10924552/BA.2/GRA/2022-02/RJ EPI_ISL_10944052/BA.2/
GRA/2022-02/RJ EPI_ISL_10944074/BA.2/GRA/2022-02/RJ EPI_ISL_10989481/None/GRA/2022-02/AP EPI_ISL_8881820/BA.2/
GRA/2022-01/DL EPI_ISL_9336266/BA.2/GRA/2022-01/MH EPI_ISL_9352378/BA.2/GRA/2022-01/MH EPI_ISL_9418937/BA.2/
GRA/2021-12/MH EPI_ISL_9419351/BA.2/GRA/2022-01/MH EPI_ISL_9466622/None/GRA/2021-12/WB EPI_ISL_9494754/BA.2/
GRA/2021-12/MH EPI_ISL_9721647/BA.2/GRA/2022-01/AS EPI_ISL_9969175/BA.2/GRA/2022-01/MH]
[Hap_209: 1 EPI_ISL_10080714/None/GRA/2022-01/KA]
[Hap_210: 1 EPI_ISL_10123111/AY.125/GK/2021-12/TN]
[Hap_211: 1 EPI_ISL_10123889/B.1.617.2/GK/2021-12/MZ]
[Hap_212: 1 EPI_ISL_10123947/B.1.617.2/GK/2022-01/MZ]
[Hap_213: 1 EPI_ISL_10306142/BA.2/GRA/2022-02/KA]
[Hap_214: 1 EPI_ISL_10339850/B.1.617.2/GK/2021-11/KA]
[Hap_215: 1 EPI_ISL_10397424/B.1.617.2/GK/2021-09/KA]
[Hap_216: 1 EPI_ISL_10397507/AY.122/GK/2021-12/KA]
[Hap_217: 6 EPI_ISL_10401870/BA.1/GRA/2021-12/CT EPI_ISL_10944458/BA.1/GRA/2021-12/TN EPI_ISL_9232437/BA.1.1/
GRA/2022-01/TG EPI_ISL_9419169/BA.1/GRA/2022-01/MH EPI_ISL_9494725/BA.1.1/GRA/2021-12/MH EPI_ISL_9503966/BA.1/

GRA/2021-12/MH]

[Hap_218: 1 EPI_ISL_10501473/B.1.617.2/GK/2021-12/TG]

[Hap_219: 1 EPI_ISL_10746250/BA.2/GRA/2022-02/KA]

[Hap_220: 1 EPI_ISL_10944402/AY.100/GK/2021-09/TN]

[Hap_221: 1 EPI_ISL_10989728/BA.2/GRA/2022-01/AP]

[Hap_222: 1 EPI_ISL_1415202/B.1.36/GH/2021-02/GJ]

[Hap_223: 1 EPI_ISL_1415237/B.1.36.29/GH/2021-02/MH]

[Hap_224: 2 EPI_ISL_1419467/B.1.1.526/GR/2021-01/WB EPI_ISL_1419710/B.1.1.526/GR/2021-01/WB]

[Hap_225: 1 EPI_ISL_1419704/B.1.36/GH/2021-01/WB]

[Hap_226: 1 EPI_ISL_1589929/B.1.1.294/GR/2021-03/WB]

[Hap_227: 1 EPI_ISL_1662315/B.1.36.17/GH/2021-02/CT]

[Hap_228: 1 EPI_ISL_1662393/B.1/G/2021-02/CT]

[Hap_229: 1 EPI_ISL_1662461/B.1/G/2021-03/OR]

[Hap_230: 1 EPI_ISL_1663303/B.1.36.17/GH/2021-03/CT]

[Hap_231: 5 EPI_ISL_1663387/B.1.617.1/G/2021-03/MH EPI_ISL_1818590/B.1.617.1/G/2021-03/KA EPI_ISL_2342894/B.1.617.1/G/2021-03/MH EPI_ISL_2546079/B.1.617.1/G/2021-03/MH EPI_ISL_4743458/B.1.617.1/G/2021-04/MH]

[Hap_232: 1 EPI_ISL_1677768/B.1.617.1/G/2021-04/GJ]

[Hap_233: 5 EPI_ISL_1704443/B.1.617.1/G/2021-02/MH EPI_ISL_2341967/B.1.617.1/G/2021-03/MH EPI_ISL_2878681/B.1.617.1/G/2021-02/MH EPI_ISL_5052954/B.1.617.1/G/2021-04/TG EPI_ISL_6575132/B.1.617.1/G/2021-03/MH]

[Hap_234: 1 EPI_ISL_1704478/B.1.1.306/GR/2021-02/MH]

[Hap_235: 1 EPI_ISL_1704620/B.1.617.2/GK/2021-03/MH]

[Hap_236: 1 EPI_ISL_1939875/B.1.1.306/GR/2021-03/MH]

[Hap_237: 1 EPI_ISL_1970264/B.1.1.7/GRY/2021-04/CH]

[Hap_238: 15 EPI_ISL_1970439/B.1.617.2/GK/2021-04/MH EPI_ISL_2549004/B.1.617.2/GK/2021-04/WB EPI_ISL_2880222/AY.67/G/2021-04/UP EPI_ISL_2881171/AY.14/GK/2021-05/UP EPI_ISL_2897660/AY.71/GK/2021-04/MH EPI_ISL_3066405/B.1.617.2/GK/2021-06/GJ EPI_ISL_3277047/AY.61/GK/2021-04/DL EPI_ISL_3473443/AY.67/GK/2021-05/UP EPI_ISL_5815374/AY.48/GK/2021-09/TG EPI_ISL_6025295/B.1.617.2/GK/2021-05/DL EPI_ISL_7210854/AY.100/GK/2021-04/WB EPI_ISL_7211002/B.1.617.2/GK/2021-05/WB EPI_ISL_7211039/B.1.617.2/GK/2021-05/WB EPI_ISL_7222024/AY.67/GK/2021-04/KL EPI_ISL_7222890/AY.10/GK/2021-04/KL]

[Hap_239: 20 EPI_ISL_2100679/B.1.617.2/GK/2021-04/DL EPI_ISL_2373409/AY.112/GK/2021-05/TG EPI_ISL_2547069/B.1.617.2/GK/2021-06/MH EPI_ISL_2878574/AY.127/G/2021-02/HR EPI_ISL_3189062/AY.102/GK/2021-06/AS EPI_ISL_3243376/AY.129/GK/2021-06/TG EPI_ISL_3267252/AY.112/GK/2021-06/UP EPI_ISL_3689887/AY.112/GK/2021-07/AP EPI_ISL_4058121/AY.129/GK/2021-08/TG EPI_ISL_4463239/AY.102/GK/2021-06/HP EPI_ISL_4473728/AY.102/GK/2021-05/DL EPI_ISL_4492944/AY.1/GK/2021-05/CH EPI_ISL_4749399/AY.127/GK/2021-08/KL EPI_ISL_6033503/B.1.617.2/GK/2021-08/TN EPI_ISL_7018763/AY.46/GK/2021-10/GJ EPI_ISL_7221672/AY.107/GK/2021-04/KL EPI_ISL_7229565/AY.112/GK/2021-08/KL EPI_ISL_7964323/B.1.617.2/GK/2021-10/KA EPI_ISL_8700635/AY.106/GK/2021-11/MZ EPI_ISL_8700930/AY.122/GK/2021-08/MZ]

[Hap_240: 1 EPI_ISL_2151089/B.1.36/GH/2021-03/SK]

[Hap_241: 1 EPI_ISL_2156944/B.1.617.2/GK/2021-04/TG]

[Hap_242: 6 EPI_ISL_2157036/B.1.617.2/GK/2021-04/TG EPI_ISL_2231656/B.1.617.2/GK/2021-04/AP EPI_ISL_2775246/B.1.617.2/GK/2021-05/TG EPI_ISL_2924224/B.1.617.2/GK/2021-05/TG EPI_ISL_7223599/B.1.617.2/GK/2021-05/KL EPI_ISL_7225183/AY.127/GK/2021-05/KL]

[Hap_243: 1 EPI_ISL_2332758/AY.16/GK/2021-04/MH]

[Hap_244: 1 EPI_ISL_2373171/B.1.1.7/GR/2021-05/AP]

[Hap_245: 1 EPI_ISL_2373413/B.1.617.2/GK/2021-05/TG]

[Hap_246: 1 EPI_ISL_2379574/B.1.1.7/G/2021-04/TN]

[Hap_247: 6 EPI_ISL_2441157/B.1.617.2/GK/2021-05/AP EPI_ISL_3009650/B.1.617.2/GK/2021-03/CT EPI_ISL_3189402/B.1.617.2/GK/2021-06/MZ EPI_ISL_7220641/B.1.617.2/GK/2021-03/KL EPI_ISL_7225187/B.1.617.2/GK/2021-05/KL EPI_ISL_9389706/B.1.617.2/GK/2021-10/MZ]

[Hap_248: 1 EPI_ISL_2441540/B.1.617.2/GK/2021-05/TG]

[Hap_249: 1 EPI_ISL_2441615/AY.100/GK/2021-05/TG]

[Hap_250: 1 EPI_ISL_2448187/L.3/GR/2021-01/DL]

[Hap_251: 1 EPI_ISL_2460333/B.1.1.7/GRY/2021-03/PB]
[Hap_252: 1 EPI_ISL_2461012/B.1.617.1/G/2021-04/DL]
[Hap_253: 1 EPI_ISL_2461855/B.1.1.7/GRY/2021-04/PB]
[Hap_254: 1 EPI_ISL_2461903/B.1.1.7/GRY/2021-04/PB]
[Hap_255: 1 EPI_ISL_2546251/B.1.1.306/GR/2021-02/GJ]
[Hap_256: 1 EPI_ISL_2546783/AY.127/GK/2021-05/GJ]
[Hap_257: 1 EPI_ISL_2548582/AY.111/GK/2021-05/WB]
[Hap_258: 1 EPI_ISL_2660981/B.1.36.29/GH/2021-01/TG]
[Hap_259: 1 EPI_ISL_2661336/AY.122/GK/2021-05/TG]
[Hap_260: 1 EPI_ISL_2675311/B.1.617.2/GK/2021-05/NL]
[Hap_261: 1 EPI_ISL_2714696/B.1.617.1/G/2021-03/MH]
[Hap_262: 1 EPI_ISL_2728247/B.1.617.2/GK/2021-06/KA]
[Hap_263: 1 EPI_ISL_2728332/B.1.617.2/GK/2021-06/KA]
[Hap_264: 1 EPI_ISL_2774933/B.1.617.2/GK/2021-05/TG]
[Hap_265: 1 EPI_ISL_2775054/AY.127/GK/2021-06/TG]
[Hap_266: 1 EPI_ISL_2775075/AY.61/GK/2021-06/TG]
[Hap_267: 1 EPI_ISL_2775361/AY.127/GK/2021-05/AP]
[Hap_268: 1 EPI_ISL_2879364/B.1.617.1/G/2021-04/GA]
[Hap_269: 1 EPI_ISL_2879623/B.1.617.1/G/2021-04/MH]
[Hap_270: 1 EPI_ISL_2881275/AY.75/GK/2021-05/RJ]
[Hap_271: 1 EPI_ISL_2881698/AY.120/GK/2021-05/UP]
[Hap_272: 1 EPI_ISL_2966145/B.1.617.2/GK/2021-06/GJ]
[Hap_273: 1 EPI_ISL_3015363/B.1.617.2/GK/2021-04/CT]
[Hap_274: 1 EPI_ISL_3019024/B.1.617.2/GK/2021-05/SK]
[Hap_275: 1 EPI_ISL_3019029/B.1.617.2/GK/2021-05/SK]
[Hap_276: 1 EPI_ISL_3019250/AY.61/GK/2021-06/WB]
[Hap_277: 1 EPI_ISL_3066433/AY.25.1/GK/2021-05/GJ]
[Hap_278: 2 EPI_ISL_3119621/AY.122/GK/2021-05/GJ EPI_ISL_9366459/B.1.617.2/GK/2021-10/TN]
[Hap_279: 1 EPI_ISL_3119673/AY.122/GK/2021-05/MH]
[Hap_280: 1 EPI_ISL_3189064/B.1.617.2/GK/2021-06/AS]
[Hap_281: 1 EPI_ISL_3189103/AY.75/GK/2021-06/AS]
[Hap_282: 1 EPI_ISL_3243210/B.1.617.2/GK/2021-06/TG]
[Hap_283: 1 EPI_ISL_3277082/AY.122/GK/2021-04/DL]
[Hap_284: 1 EPI_ISL_3277138/AY.61/GK/2021-06/DL]
[Hap_285: 1 EPI_ISL_3453716/AY.127/GK/2021-07/AP]
[Hap_286: 1 EPI_ISL_3614531/B.1.617.2/GK/2021-07/MN]
[Hap_287: 1 EPI_ISL_3689550/AY.25.1/GK/2021-07/AP]
[Hap_288: 1 EPI_ISL_3843750/B.1.617.1/G/2021-03/GJ]
[Hap_289: 1 EPI_ISL_3844141/AY.61/GK/2021-04/GJ]
[Hap_290: 1 EPI_ISL_3934958/B.1.617.2/GK/2021-07/AP]
[Hap_291: 1 EPI_ISL_3934966/B.1.617.2/GK/2021-07/AP]
[Hap_292: 1 EPI_ISL_3935062/AY.112/GK/2021-07/AP]
[Hap_293: 1 EPI_ISL_3982906/B.1.617.2/GK/2021-07/TR]
[Hap_294: 1 EPI_ISL_4128726/B.1.617.1/G/2021-03/MH]
[Hap_295: 2 EPI_ISL_4129503/B.1.617.3/G/2021-04/MH EPI_ISL_6151613/B.1.617.3/G/2021-03/MH]
[Hap_296: 1 EPI_ISL_4129839/AY.67/GK/2021-04/MH]

[Hap_297: 1 EPI_ISL_4192958/B.1.617.2/GK/2021-06/MN]
[Hap_298: 1 EPI_ISL_4193021/B.1.617.2/GK/2021-07/WB]
[Hap_299: 1 EPI_ISL_4193083/B.1.617.2/GK/2021-07/WB]
[Hap_300: 1 EPI_ISL_4312007/B.1.617.2/GK/2021-07/MZ]
[Hap_301: 1 EPI_ISL_4415431/B.1.617.2/GK/2021-02/MH]
[Hap_302: 1 EPI_ISL_4415511/AY.102/GK/2021-08/MH]
[Hap_303: 1 EPI_ISL_4435784/B.1.1.7/GR/2021-04/PB]
[Hap_304: 1 EPI_ISL_4436002/AY.55/GK/2021-04/PB]
[Hap_305: 1 EPI_ISL_4473799/AY.129/GK/2021-05/JK]
[Hap_306: 1 EPI_ISL_4474088/AY.13/GK/2021-06/PB]
[Hap_307: 1 EPI_ISL_4533954/AY.25.1/GK/2021-08/GJ]
[Hap_308: 1 EPI_ISL_4546517/AY.112/GK/2021-08/AP]
[Hap_309: 1 EPI_ISL_4578381/AY.78/GK/2021-07/KA]
[Hap_310: 1 EPI_ISL_4738661/AY.53/GK/2021-08/MN]
[Hap_311: 1 EPI_ISL_4738666/B.1.617.2/GK/2021-09/WB]
[Hap_312: 1 EPI_ISL_4748560/AY.67/GK/2021-07/KL]
[Hap_313: 1 EPI_ISL_4986531/AY.4.2.4/GK/2021-08/MH]
[Hap_314: 1 EPI_ISL_4989341/AY.25.1/GK/2021-07/GJ]
[Hap_315: 1 EPI_ISL_4989559/B.1.617.2/GK/2021-06/KA]
[Hap_316: 1 EPI_ISL_5003172/AY.102/GK/2021-08/TG]
[Hap_317: 1 EPI_ISL_5003728/AY.125/GK/2021-08/TG]
[Hap_318: 1 EPI_ISL_5003745/AY.127/GK/2021-08/TG]
[Hap_319: 1 EPI_ISL_5064514/AY.42/GK/2021-07/AR]
[Hap_320: 1 EPI_ISL_5066123/AY.106/GK/2021-09/GJ]
[Hap_321: 1 EPI_ISL_5603032/AY.102/GK/2021-09/GJ]
[Hap_322: 1 EPI_ISL_5726210/AY.121/GK/2021-08/KA]
[Hap_323: 1 EPI_ISL_5726578/B.1.617.2/GK/2021-06/KA]
[Hap_324: 1 EPI_ISL_5806932/AY.61/GK/2021-07/PY]
[Hap_325: 1 EPI_ISL_5815993/AY.127/GK/2021-09/TG]
[Hap_326: 1 EPI_ISL_5886362/AY.112/GK/2021-06/TN]
[Hap_327: 1 EPI_ISL_6151020/B.1.617.2/GK/2021-08/MH]
[Hap_328: 1 EPI_ISL_6151183/AY.67/GK/2021-08/MH]
[Hap_329: 1 EPI_ISL_6151917/B.1.538/G/2021-02/MH]
[Hap_330: 1 EPI_ISL_6394721/AY.102/GK/2021-08/MZ]
[Hap_331: 1 EPI_ISL_6395080/B.1.617.2/GK/2021-09/MZ]
[Hap_332: 1 EPI_ISL_6395412/B.1.617.2/GK/2021-08/TR]
[Hap_333: 1 EPI_ISL_6395735/B.1.617.2/GK/2021-09/WB]
[Hap_334: 1 EPI_ISL_6684843/AY.127/GK/2021-10/MH]
[Hap_335: 1 EPI_ISL_6690049/AY.61/GK/2021-08/MH]
[Hap_336: 1 EPI_ISL_6691273/AY.120/GK/2021-08/MH]
[Hap_337: 1 EPI_ISL_6691665/B.1.617.2/GK/2021-08/MH]
[Hap_338: 1 EPI_ISL_6691856/AY.112/GK/2021-08/MH]
[Hap_339: 1 EPI_ISL_6877472/AY.112/GK/2021-10/AP]
[Hap_340: 1 EPI_ISL_6903143/AY.102/GK/2021-11/TG]
[Hap_341: 1 EPI_ISL_6930020/AY.112/GK/2021-07/MH]
[Hap_342: 1 EPI_ISL_6930038/AY.67/GK/2021-07/MH]
[Hap_343: 1 EPI_ISL_7133363/B.1.617.2/GK/2021-09/PB]

[Hap_344: 1 EPI_ISL_7174225/AY.4.3/GK/2021-09/UP]
[Hap_345: 1 EPI_ISL_7220183/B.1/G/2021-03/KL]
[Hap_346: 1 EPI_ISL_7220268/B.1.1.7/GR/2021-03/KL]
[Hap_347: 1 EPI_ISL_7220518/B.1.351/GH/2021-03/KL]
[Hap_348: 1 EPI_ISL_7220841/B.1.1.7/G/2021-04/KL]
[Hap_349: 1 EPI_ISL_7221211/B.1/G/2021-04/KL]
[Hap_350: 1 EPI_ISL_7223535/B.1.617.2/GK/2021-05/KL]
[Hap_351: 1 EPI_ISL_7225316/B.1.617.2/GK/2021-05/KL]
[Hap_352: 1 EPI_ISL_7226031/AY.112/GK/2021-06/KL]
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[Hap_357: 1 EPI_ISL_7227937/B.1.617.2/GK/2021-09/KL]
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[Hap_361: 1 EPI_ISL_7379307/B.1.617.2/GK/2021-11/DL]
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[Hap_365: 1 EPI_ISL_7964312/AY.127/GK/2021-10/KA]
[Hap_366: 1 EPI_ISL_7968611/B.1.617.2/GK/2021-12/KA]
[Hap_367: 1 EPI_ISL_7986471/AY.120/GK/2021-11/MH]
[Hap_368: 1 EPI_ISL_8050187/AY.120/GK/2021-11/MH]
[Hap_369: 1 EPI_ISL_8051317/AY.112/GK/2021-12/GJ]
[Hap_370: 1 EPI_ISL_8051328/AY.127/GK/2021-12/GJ]
[Hap_371: 1 EPI_ISL_8145797/B.1.617.2/GK/2021-11/PB]
[Hap_372: 1 EPI_ISL_8145800/AY.46/GK/2021-11/PB]
[Hap_373: 1 EPI_ISL_8163912/B.1.617.2/GK/2021-08/TN]
[Hap_374: 1 EPI_ISL_8164126/B.1.617.2/GK/2021-07/MH]
[Hap_375: 1 EPI_ISL_8164174/AY.100/GK/2021-09/MH]
[Hap_376: 1 EPI_ISL_8164192/B.1.617.2/GK/2021-08/MH]
[Hap_377: 1 EPI_ISL_8172907/AY.112/GK/2021-12/TG]
[Hap_378: 1 EPI_ISL_8329018/AY.122/GK/2021-12/MH]
[Hap_379: 1 EPI_ISL_8660900/AY.53/GK/2021-11/WB]
[Hap_380: 1 EPI_ISL_8661030/B.1.617.2/GK/2021-11/SK]
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[Hap_382: 1 EPI_ISL_8693406/AY.112/GK/2021-11/MH]
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[Hap_384: 1 EPI_ISL_8712971/AY.112/GK/2021-12/MH]
[Hap_385: 1 EPI_ISL_8859070/AY.93/GK/2021-12/AS]
[Hap_386: 1 EPI_ISL_8884413/B.1.617.2/GK/2021-06/PB]
[Hap_387: 1 EPI_ISL_9056288/AY.102/GK/2021-10/WB]
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[Hap_393: 1 EPI_ISL_9232142/AY.127/GK/2021-12/AP]
[Hap_394: 1 EPI_ISL_9274263/AY.127/GK/2021-11/TG]
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[Hap_397: 1 EPI_ISL_9323707/B.1.617.2/GK/2021-10/MZ]
[Hap_398: 1 EPI_ISL_9323810/AY.122/GK/2021-10/MZ]
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[Hap_407: 1 EPI_ISL_9429825/B.1.617.2/GK/2021-11/TN]
[Hap_408: 1 EPI_ISL_9429894/None/GRA/2022-01/KA]
[Hap_409: 1 EPI_ISL_9429975/None/G/2021-12/KA]
[Hap_410: 1 EPI_ISL_9430066/BA.1/GRA/2021-12/KA]
[Hap_411: 1 EPI_ISL_9430185/B.1.617.2/GK/2021-10/TN]
[Hap_412: 1 EPI_ISL_9503451/None/GRA/2021-11/MH]
[Hap_413: 1 EPI_ISL_9503524/AY.128/GK/2021-10/MH]
[Hap_414: 1 EPI_ISL_9503832/B.1.617.2/GK/2021-12/MH]
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[Hap_416: 1 EPI_ISL_9550686/AY.102/GK/2021-12/WB]
[Hap_417: 1 EPI_ISL_9686097/AY.120/GK/2021-12/TG]
[Hap_418: 1 EPI_ISL_9926203/BA.2/GRA/2022-01/TG]
[Hap_419: 1 EPI_ISL_9926287/AY.112/GK/2022-01/AP]
[Hap_420: 1 EPI_ISL_9973142/BA.1.1/GRA/2022-02/MH]