Supplementary Table S1. Mutations distribution of 117 imported cases

seqName	Lineage	Substitutions	aaSubstitutions
SARS-CoV-2/ human/CHN/462/2021	A.23.1	A4040G, C4573T, C8240T, C8782T, C10747T, G11230T, G11266T, G11521T, A12759C, C16575T, C17745T, G21867T, C22000T, C22033A, G22661T, G23401T, C23604G, T24097C, G25855C, T28144C, G28167A, G28378C, G28878A, G29742A	N: S202N, ORF1a: I1259V, ORF1a: H2659Y, ORF1a: M3655I, ORF1a: L3667F, ORF1a: M3752I, ORF1a: D4165A, ORF3a: D155H, ORF8: L84S, ORF8: E92K, ORF9b: R32P, S: R102I, S: F157L, S: V367F, S: Q613H, S: P681R
SARS-CoV-2/ human/CHN/464/2021	B.1.2	C241T, C1059T, C3037T, C3796T, G8083A, C10319T, C14408T, C14805T, A18424G, C21304T, A23403G, G25563T, G25907T, C26212T, C27964T, C28472T, C28869T, G29402T, G29736T	N: P67S, N: P199L, N: D377Y, ORF1a: T265I, ORF1a: M2606I, ORF1a: L3352F, ORF1b: P314L, ORF1b: N1653D, ORF1b: R2613C, ORF3a: Q57H, ORF3a: G172V, ORF3a: P274S, ORF8: S24L, S: D614G
SARS-CoV-2/ human/CHN/467/2021	B.1.1	C241T, T606C, C3037T, C5806T, A6867G, C14408T, G20134A, T21640C, A23403G, C25156T, C25658T, G28881A, G28882A, G28883C	N: R203K, N: G204R, ORF1a: I114T, ORF1a: N2201S, ORF1b: P314L, ORF1b: V2223I, ORF3a: T89I, S: D614G
SARS-CoV-2/ human/CHN/469/2021	B.1.1.368	C241T, C1101T, A1982G, C3037T, G7145A, C9996T, C14408T, C20104T, C21216T, G22017T, A23403G, G27798T, G28881A, G28882A, G28883C, G29402T, T29583C	N: R203K, N: G204R, N: D377Y, ORF1a: S279F, ORF1a: I573V, ORF1a: G2294S, ORF1a: S3244L, ORF1b: P314L, ORF1b: L2213F, ORF7b: A15S, S: W152L, S: D614G
SARS-CoV-2/ human/CHN/471/2021	B.1	C241T, G529T, A1004G, C1420T, C1911T, C3037T, G3259T, G7272A, C10582T, T14073C, C14408T, C15324T, G15766T, A18919G, C23029T, A23403G, A27545C, G28899T, G29688T	N: R209I, ORF1a: K247E, ORF1a: S549F, ORF1a: Q998H, ORF1a: R2336K, ORF1b: P314L, ORF1b: V767L, ORF1b: I1818V, ORF7a: D51A, S: D614G
SARS-CoV-2/ human/CHN/475/2021	B.1.36.38	C241T, T586C, T1947C, C3037T, C7006T, A8348G, A9925G, C11109T, C14408T, C16332T, C16376T, C18877T, C22444T, G22918T, A23403G, G25563T, C26735T, C28854T	N: S194L, ORF1a: V561A, ORF1a: S2695G, ORF1a: A3615V, ORF1b: P314L, ORF1b: P970L, ORF3a: Q57H, S: D614G
SARS-CoV-2/ human/CHN/476/2021	B.1.1.228	C241T, C815T, C906T, C3037T, T4579A, C5144T, C6310T, C14408T, C15222T, A20288G, C21721T, A23403G, C23604A, G25785T, G26262T, C26894T, C28638A, G28881A, G28882A, G28883C	N: P122H, N: R203K, N: G204R, ORF1a: R184C, ORF1a: T214I, ORF1b: P314L, ORF1b: E2274G, ORF3a: W131C, S: D614G, S: P681H
SARS-CoV-2/ human/CHN/477/2021	B.1.468	C241T, G2891A, C3037T, C6449T, C7471T, A8026G, G10793T, A12498G, C14408T, A16978G, C18877T, C22444T, A23403G, G25563T, C26735T, C27219T, G28077T, G28851T	N: S193I, ORF1a: A876T, ORF1a: L2062F, ORF1a: V3510F, ORF1a: N4078S, ORF1b: P314L, ORF1b: R1171G, ORF3a: Q57H, ORF8: V62L, S: D614G
SARS-CoV-2/ human/CHN/478/2021	B.1.36.22	C241T, G488A, C3037T, A10323G, G10396T, C14408T, C18877T, G19542T, C22444T, A23403G, C23683T, G25563T, C25584T, C26735T, C28854T, G29543T	N: S194L, ORF1a: D75N, ORF1a: K3353R, ORF1b: P314L, ORF1b: M2025I, ORF3a: Q57H, S: D614G
SARS-CoV-2/ human/CHN/482/2021	B.1.1.413	C44T, C241T, G524A, A604G, C3037T, C12076T, C13684T, G13849T, C14408T, G21974T, G22992A, A23403G, G24926T, G25647T, G25690T, A26741G, C28291T, G28881A, G28882A, G28883C, C29311T	M: I73M, N: R203K, N: G204R, ORF1a: E87K, ORF1b: H73Y, ORF1b: G128C, ORF1b: P314L, ORF3a: L85F, ORF3a: G100C, ORF8: K68E, ORF9b: P3L, S: D138Y, S: S477N, S: D614G, S: V1122L
SARS-CoV-2/ human/CHN/485/2021	B.1.595	C241T, C1059T, T2343C, C3037T, C3411T, C6310T, T6394C, C8097T, C10319T, A12421T, C14408T, G19009T, C22088T, G22240T, A23403G, G25563T, C26622T, C27964T, C28887T, C29366T	M: L34F, N: T205I, N: P365S, ORF1a: T265I, ORF1a: I693T, ORF1a: A1049V, ORF1a: T2611I, ORF1a: L3352F, ORF1b: P314L, ORF1b: D1848Y, ORF3a: Q57H, ORF8: S24L, S: L176F, S: L226F, S: D614G
SARS-CoV-2/ human/CHN/486/2021	B.1.595	C241T, C1059T, T2343C, C3037T, C3411T, C6310T, T6394C, C8097T, C10319T, A12421T, C14408T, G19009T, C22088T, G22240T, A23403G, G25563T, C26622T, C27964T, C28887T, C29366T	M: L34F, N: T205I, N: P365S, ORF1a: T265I, ORF1a: I693T, ORF1a: A1049V, ORF1a: T2611I, ORF1a: L3352F, ORF1b: P314L, ORF1b: D1848Y, ORF3a: Q57H, ORF8: S24L, S: L176F, S: L226F, S: D614G
SARS-CoV-2/ human/CHN/488/2021	B.1.2	C241T, C1059T, C3037T, C3796T, G8083A, C10319T, C14408T, C14805T, A18424G, C21304T, C22450T, A23403G, G25563T, G25907T, C27964T, C28472T, C28869T, G29402T, G29736T	N: P67S, N: P199L, N: D377Y, ORF1a: T265I, ORF1a: M2606I, ORF1a: L3352F, ORF1b: P314L, ORF1b: N1653D, ORF1b: R2613C, ORF3a: Q57H, ORF3a: G172V, ORF8: S24L, S: D614G

Continued

seqName	Lineage	Substitutions	aaSubstitutions
SARS-CoV-2/ human/CHN/495/2021	B.1.36.22	C241T, G488A, C3037T, A10323G, G10396T, C14408T, C18877T, G19542T, C20132T, C22444T, A23403G, C23683T, G25563T, C25584T, C26735T, C28854T, G29543T	N: S194L, ORF1a: D75N, ORF1a: K3353R, ORF1b: P314L, ORF1b: M2025I, ORF1b: A2222V, ORF3a: Q57H, S: D614G
SARS-CoV-2/ human/CHN/496/2021	B.1.402	C241T, C478T, T519A, G524A, C875T, C2416T, C3037T, C3093T, C7735T, A11023G, G11083T, C13430T, C14408T, T14643C, C16767T, C19718T, A23403G, C24418T, A24862T, G25249T, T25301C, G25563T, G25660C, C28854T	N: S194L, ORF1a: M85K, ORF1a: E87K, ORF1a: L204F, ORF1a: P943L, ORF1a: L3606F, ORF1a: P4389S, ORF1b: P314L, ORF1b: T2084I, ORF3a: Q57H, ORF3a: V90L, S: D614G, S: M1229I, S: C1247R
SARS-CoV-2/ human/CHN/499/2021	B.1.84	C241T, T814G, G2885T, C3037T, G4300T, T6130C, C7267T, A12577G, A13951G, C14408T, C15324T, G19117T, A21131G, A23403G, G23522A, T23797C, C25624T, C28890T, T29656A, T29832C	N: S206F, ORF1a: V874F, ORF1b: I162V, ORF1b: P314L, ORF1b: A1884S, ORF1b: Q2555R, ORF3a: H78Y, S: D614G, S: E654K
SARS-CoV-2/ human/CHN/500/2021	B.1.466.2	C241T, C3037T, C3768T, C5184T, C14408T, C18877T, C20389T, C22879A, A23403G, G25563T, C26735T, C28887T	N: T205I, ORF1a: T1168I, ORF1a: P1640L, ORF1b: P314L, ORF1b: R2308C, ORF3a: Q57H, S: N439K, S: D614G
SARS-CoV-2/ human/CHN/505/2021	B.1.438.1	C241T, A1154G, C3037T, C8152T, C10702T, A12121G, C14408T, C18877T, A23403G, G23587T, G25563T, G25677T, A28272G, G28975T, G29474T	N: M234I, N: D401Y, ORF1a: M297V, ORF1b: P314L, ORF3a: Q57H, ORF3a: L95F, S: D614G, S: Q675H
SARS-CoV-2/human/CHN/507/2021	B.1.429	C241T, C1059T, C2395T, A2406G, T2597C, C3037T, A5780G, C7528T, A12878G, C14408T, G15452T, C16338T, G17014T, G21600T, G22018T, T22917G, A23403G, T24349C, G25563T, G25912A, C26681T, C27889T, G27890T, A28272T, C28887T, C29362T	N: T205I, ORF1a: T265I, ORF1a: K714R, ORF1a: I1839V, ORF1a: I4205V, ORF1b: P314L, ORF1b: G662V, ORF1b: D1183Y, ORF3a: Q57H, ORF3a: G174S, S: S13I, S: W152C, S: L452R, S: D614G
SARS-CoV-2/ human/CHN/508/2021	B.1.596	C241T, C829T, C1059T, C1627T, T1927A, C3037T, C3738T, A5852G, C10319T, C12708T, C14408T, A18424G, A23403G, G25244T, C25521T, G25563T, G25907T, T27336A, C27964T, C28472T, C28869T	N: P67S, N: P199L, ORF1a: T265I, ORF1a: P1158L, ORF1a: I1863V, ORF1a: L3352F, ORF1a: A4148V, ORF1b: P314L, ORF1b: N1653D, ORF3a: Q57H, ORF3a: G172V, ORF8: S24L, S: D614G, S: V1228L
SARS-CoV-2/ human/CHN/509/2021	B.1.170	T41C, C241T, C3037T, C5833T, C10207T, T11525C, T12811C, C14408T, C14925T, C16375A, G16741T, C18501T, C18877T, A23403G, C23533T, G25563T, A25864G, T27299C, T28229C, C28977T, T29233C	N: S235F, ORF1b: P314L, ORF1b: P970T, ORF1b: V1092F, ORF3a: Q57H, ORF3a: I158V, ORF6: I33T, S: D614G
SARS-CoV-2/ human/CHN/514/2021	B.1.468	C241T, G2891A, C3037T, C6449T, C7471T, A8026G, G10793T, A12498G, C14408T, A16978G, C18877T, C22444T, A23403G, G25563T, C26735T, C27219T, G28077T, G28851T	N: S193I, ORF1a: A876T, ORF1a: L2062F, ORF1a: V3510F, ORF1a: N4078S, ORF1b: P314L, ORF1b: R1171G, ORF3a: Q57H, ORF8: V62L, S: D614G
SARS-CoV-2/ human/CHN/516/2021	B.1.466.2	C241T, C3037T, C3768T, C5184T, C14408T, C18877T, C20389T, C22879A, A23403G, G25563T, C26735T, C28887T	N: T205I, ORF1a: T1168I, ORF1a: P1640L, ORF1b: P314L, ORF1b: R2308C, ORF3a: Q57H, S: N439K, S: D614G
SARS-CoV-2/ human/CHN/521/2021	B.1.170	T41C, C241T, C3037T, C5833T, C10207T, T11525C, T12811C, C14408T, C14925T, C16375A, G16741T, C18501T, C18877T, A23403G, C23533T, G25563T, A25864G, T27299C, T28229C, C28977T, T29233C	N: S235F, ORF1b: P314L, ORF1b: P970T, ORF1b: V1092F, ORF3a: Q57H, ORF3a: I158V, ORF6: I33T, S: D614G
SARS-CoV-2/ human/CHN/525/2021	B.1.351	G174T, C241T, C1059T, A2692T, C3037T, C3817T, C3924T, G5230T, A10323G, G11291A, T11296G, C14408T, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T, G25563T, C25904T, C26456T, C26894T, C28253T, C28887T	E: P71L, N: T205I, ORF1a: T265I, ORF1a: P1220L, ORF1a: K1655N, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF3a: Q57H, ORF3a: S171L, S: L18F, S: D80A, S: D215G, S: K417N, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/527/2021	B.1	C241T, C1059T, C3037T, C14408T, T22304A, A23403G, G25563T	ORF1a: T265I, ORF1b: P314L, ORF3a: Q57H, S: Y248N, S: D614G

Continued

seqName	Lineage	Substitutions	aaSubstitutions
SARS-CoV-2/ human/CHN/535/2021	A	A5606G, C6539T, A6610T, T8215C, C8782T, C9223T, C9226T, G11230T, A11746G, G15016T, T17136C, C17439T, C18171T, C22227T, G22319T, A23403G, T24736C, C25487T, G25563T, A26019T, G28028T, G28178T, C28292A, G28878A, C29272T, G29742A	N: Q7K, N: S202N, ORF1a: K1781E, ORF1a: H2092Y, ORF1a: R2115S, ORF1a: M3655I, ORF1b: A517S, ORF3a: T32I, ORF3a: Q57H, ORF8: W45C, ORF8: L95F, S: A222V, S: D253Y, S: D614G
SARS-CoV-2/ human/CHN/538/2021	B.1.177.81	C241T, T445C, C2638A, C3037T, C6286T, C10376T, C12119T, C14408T, A21222T, G21255C, C22227T, A23403G, C25889T, C26801G, C27944T, C28932T, G29645T	N: A220V, ORF1a: P3371S, ORF1a: P3952S, ORF1b: P314L, ORF3a: S166L, S: A222V, S: D614G
SARS-CoV-2/ human/CHN/542/2021	B.1	C241T, C3037T, C14408T, A23403G, G25563T, G25912A, C26681T, C28887T	N: T205I, ORF1b: P314L, ORF3a: Q57H, ORF3a: G174S, S: D614G
SARS-CoV-2/ human/CHN/547/2021	B.1.36.17	C241T, T1947C, C3037T, G3431T, T5653C, C5654T, G5950A, G8179T, T8593C, C11674T, C14408T, C18877T, G19891T, A20289G, C22444T, A23403G, G25563T, C26060T, C26735T, C28854T, C29555T	N: S194L, ORF1a: V561A, ORF1a: V1056L, ORF1b: P314L, ORF1b: D2142Y, ORF3a: Q57H, ORF3a: T223I, S: D614G
SARS-CoV-2/ human/CHN/558/2021	L.3	C241T, C1601T, C3037T, G4399T, C4543T, G8179T, C8481T, A9453C, C11565T, C12406T, C14408T, C19170T, C19269T, G19509A, T20376C, G21785C, T22917G, A23403G, T24850G, A25026T, G25244T, G26918T, A26927G, G28881A, G28882A, G28883C	N: R203K, N: G204R, ORF1a: L446F, ORF1a: M1378I, ORF1a: P2739L, ORF1a: Y3063S, ORF1a: P3767L, ORF1b: P314L, S: G75R, S: L452R, S: D614G, S: Y1155F, S: V1228L
SARS-CoV-2/ human/CHN/559/2021	B.1.1	C241T, G2229A, A2923G, C3037T, A4870G, C5147T, C10834T, C12400T, C14408T, A23403G, G25644T, G26063T, G28881A, G28882A, G28883C	N: R203K, N: G204R, ORF1a: C655Y, ORF1a: R1628C, ORF1b: P314L, ORF3a: G224V, S: D614G
SARS-CoV-2/ human/CHN/561/2021	B.1.36.16	C241T, C1594T, C1878T, C3037T, T7480C, T10099C, G11083T, G11596T, G12188T, A13012T, C14408T, G16377A, G18756T, C18877T, G22205C, A22396C, C22444T, A23403G, G25494T, G25563T, C25883A, C26735T, G28077T, C28854T	N: S194L, ORF1a: S538L, ORF1a: L3606F, ORF1a: Q3777H, ORF1a: V3975F, ORF1b: P314L, ORF3a: Q57H, ORF3a: T164N, ORF8: V62L, S: D215H, S: K278N, S: D614G
SARS-CoV-2/ human/CHN/564/2021	B.1.36.16	C241T, C1594T, C1878T, C3037T, T7480C, T10099C, G11083T, G11596T, G12188T, A13012T, C14408T, G16377A, G18756T, C18877T, G22205C, A22396C, C22444T, A23403G, G25494T, G25563T, C25883A, C26735T, G28077T, C28854T	N: S194L, ORF1a: S538L, ORF1a: L3606F, ORF1a: Q3777H, ORF1a: V3975F, ORF1b: P314L, ORF3a: Q57H, ORF3a: T164N, ORF8: V62L, S: D215H, S: K278N, S: D614G
SARS-CoV-2/ human/CHN/566/2021	A	A5606G, C6539T, T8215C, C8782T, C9223T, C9226T, G11230T, A11746G, G15016T, T17136C, C17439T, C18171T, C22227T, G22319T, A23403G, T24736C, C25487T, G25563T, A26019T, G28028T, G28178T, C28292A, G28878A, C29272T, G29742A	N: Q7K, N: S202N, ORF1a: K1781E, ORF1a: H2092Y, ORF1a: M3655I, ORF1b: A517S, ORF3a: T32I, ORF3a: Q57H, ORF8: W45C, ORF8: L95F, S: A222V, S: D253Y, S: D614G
SARS-CoV-2/ human/CHN/571/2021	B.1.177.81	C241T, T445C, C2638A, C3037T, C6286T, C10376T, C12119T, C14408T, A21222T, G21255C, C22227T, A23403G, C25889T, C26801G, C27944T, C28932T, G29645T	N: A220V, ORF1a: P3371S, ORF1a: P3952S, ORF1b: P314L, ORF3a: S166L, S: A222V, S: D614G
SARS-CoV-2/ human/CHN/585/2021	B.1.36.16	C241T, C1594T, C1878T, C3037T, T7480C, T10099C, G11083T, G11596T, G12188T, A13012T, C14408T, G16377A, G18756T, C18877T, G22205C, A22396C, C22444T, A23403G, G25494T, G25563T, C25883A, C26735T, G28077T, C28854T	N: S194L, ORF1a: S538L, ORF1a: L3606F, ORF1a: Q3777H, ORF1a: V3975F, ORF1b: P314L, ORF3a: Q57H, ORF3a: T164N, ORF8: V62L, S: D215H, S: K278N, S: D614G
SARS-CoV-2/ human/CHN/587/2021	B.1.427	C241T, C1059T, C3037T, C4055T, C6151A, G9738C, C9996T, G13713A, C14408T, C16394T, G17014T, G21600T, G22018T, G22468T, T22917G, A23403G, G25563T, C26681T, A28272T, C28887T, C29362T, C29509T	N: T205I, ORF1a: T265I, ORF1a: H1264Y, ORF1a: D1962E, ORF1a: S3158T, ORF1a: S3244L, ORF1b: P314L, ORF1b: P976L, ORF1b: D1183Y, ORF3a: Q57H, S: S13I, S: W152C, S: L452R, S: D614G

Continued

seqName	Lineage	Substitutions	aaSubstitutions
SARS-CoV-2/ human/CHN/593/2021	L.3	C241T, C1601T, C3037T, G4399T, C4543T, G8179T, C8481T, C8692T, A9453C, C11565T, C12406T, C14408T, C19170T, C19269T, G19509A, T22917G, A23403G, A25026T, G25244T, A26927G, G28178T, G28881A, G28882A, G28883C	N: R203K, N: G204R, ORF1a: L446F, ORF1a: M1378I, ORF1a: P2739L, ORF1a: Y3063S, ORF1a: P3767L, ORF1b: P314L, ORF8: L95F, S: L452R, S: D614G, S: Y1155F, S: V1228L
SARS-CoV-2/ human/CHN/595/2021	A.23.1	C337T, C2695T, C4573T, C8782T, C10747T, G11230T, G11266T, G11521T, C16575T, C17745T, C20325T, C21058T, C22000T, C22033A, G22661T, G23282T, G23401T, G23429T, C23604G, T24097C, T28144C, G28167A, C28278A, G28378C, G28878A, G28881A, C29200T, G29254A, G29742A	N: S2Y, N: S202N, N: R203K, ORF1a: M3655I, ORF1a: L3667F, ORF1a: M3752I, ORF1b: P2531S, ORF8: L84S, ORF8: E92K, ORF9b: R32P, S: F157L, S: V367F, S: D574Y, S: Q613H, S: A623S, S: P681R
SARS-CoV-2/ human/CHN/596/2021	B.1	T4579A, C5144T, C6310T, C16575T, C17745T, G22205C, A22396C, C22444T, A23403G, G25494T, G25563T, C25883A, C26735T, G28077T, G28881A, G28882A, G28883C	N: R203K, N: G204R, ORF3a: Q57H, ORF3a: T164N, ORF8: V62L, S: D215H, S: K278N, S: D614G
SARS-CoV-2/ human/CHN/599/2021	B.1.1.157	C241T, C3037T, C4158T, C5339T, C6145T, G6986A, T8603C, G11272A, C13378T, C14408T, A17615G, T17659G, C17678T, G22021T, A23403G, A24952G, G28881A, G28882A, G28883C	N: R203K, N: G204R, ORF1a: A1298V, ORF1a: P1692S, ORF1a: G2241S, ORF1a: F2780L, ORF1a: M3669I, ORF1b: P314L, ORF1b: K1383R, ORF1b: F1398V, ORF1b: T1404M, S: M153I, S: D614G, S: I1130M
SARS-CoV-2/ human/CHN/600/2021	B.1.351	T52C, G174T, C241T, C1059T, C3037T, G5230T, C6258T, A10323G, G11291A, T11296G, C14408T, A14463G, T18342A, C19803T, A21801C, A22206G, G22813T, G23012A, A23403G, C23664T, C25546T, G25563T, C25904T, C26456T, C27059T, C28253T, A28254C, C28887T	E: P71L, N: T205I, ORF1a: T265I, ORF1a: K1655N, ORF1a: T1998I, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF3a: L52F, ORF3a: Q57H, ORF3a: S171L, ORF8: I121L, S: D80A, S: D215G, S: K417N, S: E484K, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/608/2021	B.1.351	G174T, C241T, C1059T, A2692T, C3037T, C4276T, G5230T, A10323G, G11291A, T11296G, C14408T, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T, G25563T, C25904T, C26456T, C28253T, C28310T, C28887T	E: P71L, N: P13S, N: T205I, ORF1a: T265I, ORF1a: K1655N, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF3a: Q57H, ORF3a: S171L, S: L18F, S: D80A, S: D215G, S: K417N, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/609/2021	B.1.2	C241T, C1059T, T1927C, C2106T, C3037T, C5310T, C6312T, C10319T, C14408T, G15766T, A18424G, A18470G, G18538T, C20133T, C21219T, C21304T, A22255T, A23403G, G25563T, G25907T, T25930C, C27964T, C28472T, C28869T, A29439T	N: P67S, N: P199L, N: Q389L, ORF1a: T265I, ORF1a: T614I, ORF1a: T1682I, ORF1a: T2016I, ORF1a: L3352F, ORF1b: P314L, ORF1b: V767L, ORF1b: N1653D, ORF1b: D1668G, ORF1b: V1691L, ORF1b: R2613C, ORF3a: Q57H, ORF3a: G172V, ORF3a: S180P, ORF8: S24L, S: D614G
SARS-CoV-2/ human/CHN/610/2021	B.1.580	C241T, C1059T, T1791C, C3037T, C6997T, C8892T, A10323G, G11417T, C14408T, G18255T, G20679T, C23315T, A23403G, G25563T, A25843G, C26895T, G28842T, G29447T	M: H125Y, N: S190I, N: V392L, ORF1a: T265I, ORF1a: F509S, ORF1a: T2876I, ORF1a: K3353R, ORF1a: V3718F, ORF1b: P314L, ORF1b: M1596I, ORF3a: Q57H, ORF3a: T151A, S: L585F, S: D614G
SARS-CoV-2/ human/CHN/611/2021	B.1.524	C241T, C1188T, C1929T, C3037T, C5869T, C6312T, C8637T, A10124G, C14408T, C17518T, C21365T, C21516T, C21622A, A23403G, C23664T, A28133T, C28854T, C29272T, G29751T	N: S194L, ORF1a: S308L, ORF1a: A555V, ORF1a: T2016I, ORF1a: T2791I, ORF1a: T3287A, ORF1b: P314L, ORF1b: L1351F, ORF1b: P2633L, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/613/2021	B.1.1	C241T, C3037T, C3411T, G11083T, T11218C, G11410T, C14408T, C22879G, A23403G, C23929T, G24928T, C25976T, G26104T, C26894T, C27889T, T28251G, C28253T, A28254C, G28881A, G28882A, G28883C, G28985T	N: R203K, N: G204R, N: G238C, ORF1a: A1049V, ORF1a: L3606F, ORF1a: L3715F, ORF1b: P314L, ORF3a: S195F, ORF3a: D238Y, ORF8: F120V, ORF8: I121L, S: N439K, S: D614G
SARS-CoV-2/ human/CHN/623/2021	B.1.1.214	C241T, C313T, C3037T, C5365T, C8917T, C12049T, C14408T, C18167T, G20560T, C20703T, G21518T, A23403G, C26735T, G28881A, G28882A, G28883C, G28975T, C29679T, C29784T	N: R203K, N: G204R, N: M234I, ORF1b: P314L, ORF1b: P1567L, ORF1b: V2365F, ORF1b: R2684I, S: D614G

Continued

seqName	Lineage	Substitutions	aaSubstitutions
SARS-CoV-2/ human/CHN/625/2021	B.1.1.7	C241T, C913T, C2110T, C3037T, C3267T, C5388A, C5986T, T6954C, G7042T, G11291A, T11296G, C14120T, C14408T, C14676T, C15279T, T16176C, G22289T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: M2259I, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P218L, ORF1b: P314L, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: A243S, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/626/2021	A.23.1	C337T, C2695T, C4573T, C8782T, C10747T, G11230T, G11266T, G11521T, C16575T, C17745T, C20325T, C21058T, C22000T, C22033A, G22661T, G23282T, G23401T, G23429T, C23604G, T24097C, T28144C, G28167A, C28278A, G28378C, G28878A, G28881A, G29742A	N: S2Y, N: S202N, N: R203K, ORF1a: M3655I, ORF1a: L3667F, ORF1a: M3752I, ORF1b: P2531S, ORF8: L84S, ORF8: E92K, ORF9b: R32P, S: F157L, S: V367F, S: D574Y, S: Q613H, S: A623S, S: P681R
SARS-CoV-2/ human/CHN/627/2021	B.1.1.7	C241T, C913T, C2110T, C3037T, C3267T, C5388A, C5986T, T6954C, G7042T, G11291A, T11296G, C14120T, C14408T, C14676T, C15279T, T16176C, G22289T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: M2259I, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P218L, ORF1b: P314L, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: A243S, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/632/2021	A	G922A, C8782T, T11077C, G11230T, A16227G, A23403G, A24067G, C24149T, C26042T, G27990T, C28000T, T28144C, G28167A, G28878A, G29742A	N: S202N, ORF1a: M3655I, ORF3a: T217I, ORF8: V33F, ORF8: P36L, ORF8: L84S, ORF8: E92K, S: D614G, S: P863S
SARS-CoV-2/ human/CHN/638/2021	B.1.1.7	C241T, C913T, C2110T, C3037T, C3267T, C5388A, C5986T, T6954C, T7984C, C10747T, G11291A, T11296G, C14120T, C14408T, C14676T, C15279T, T16176C, C19390T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P218L, ORF1b: P314L, ORF1b: P1975S, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/639/2021	B.1.2	C241T, C1059T, A2726G, C3037T, C3966T, T6025C, C10319T, T11672C, C12784T, C14408T, G15349A, A18424G, C21304T, C23271T, A23403G, C23758T, G25563T, G25907T, C27964T, A28296G, C28472T, C28869T	N: N8S, N: P67S, N: P199L, ORF1a: T265I, ORF1a: T821A, ORF1a: A1234V, ORF1a: L3352F, ORF1a: Y3803H, ORF1b: P314L, ORF1b: V628I, ORF1b: N1653D, ORF1b: R2613C, ORF3a: Q57H, ORF3a: G172V, ORF8: S24L, ORF9b: I5V, S: A570V, S: D614G
SARS-CoV-2/ human/CHN/642/2021	B.1.1	C241T, C3037T, G3307T, A3336G, T5619C, A5948G, C10279T, G11417T, C12115T, C12525T, C14408T, T22925C, A23403G, G23522C, C24023T, C26060T, C26469T, G28881A, G28882A, G28883C	N: R203K, N: G204R, ORF1a: M1014I, ORF1a: E1024G, ORF1a: I1785T, ORF1a: K1895E, ORF1a: V3718F, ORF1a: T4087I, ORF1b: P314L, ORF3a: T223I, S: D614G, S: E654Q
SARS-CoV-2/ human/CHN/644/2021	B.1.1.7	C241T, C913T, C2110T, C3037T, C3267T, C5388A, C5986T, C6843T, T6954C, T7984C, G10887A, G11291A, T11296G, C14120T, C14408T, C14676T, C15279T, T16176C, C19390T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: S2193F, ORF1a: I2230T, ORF1a: G3541E, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P218L, ORF1b: P314L, ORF1b: P1975S, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H

Continued

seqName	Lineage	Substitutions	aaSubstitutions
SARS-CoV-2/ human/CHN/646/2021	B.1.351	G160T, G174T, C241T, C1059T, A2692T, C3037T, C4276T, G5230T, A10323G, G11291A, T11296G, C14408T, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T, G25563T, C25904T, C26456T, C28253T, C28310T, C28887T	E: P71L, N: P13S, N: T205I, ORF1a: T265I, ORF1a: K1655N, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF3a: Q57H, ORF3a: S171L, S: L18F, S: D80A, S: D215G, S: K417N, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/649/2021	B.1.1.7	C241T, C913T, C3037T, C3045T, C3267T, C5388A, C5986T, T6954C, C9344T, G11291A, T11296G, C14408T, C14676T, T15096C, C15279T, T16176C, A23063T, C23271A, A23403G, C23604A, C23709T, C24109T, T24506G, G24914C, C26191T, G26828A, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: P927L, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: L3027F, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF3a: P267S, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/651/2021	B.1.351	G174T, C241T, T606C, C1059T, C3037T, G5230T, C9360T, A10323G, G11291A, T11296G, C14408T, C17999T, C19803T, C21110T, A21801C, A22206G, G22813T, C22995T, G23012A, A23063T, A23403G, C23664T, C25546T, G25563T, C25904T, C26456T, C27059T, C28253T, A28254C, C28887T, C29259T	E: P71L, N: T205I, N: T329M, ORF1a: I114T, ORF1a: T265I, ORF1a: K1655N, ORF1a: T3032I, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF1b: T1511I, ORF1b: T2548I, ORF3a: L52F, ORF3a: Q57H, ORF3a: S171L, ORF8: I121L, S: D80A, S: D215G, S: K417N, S: T478I, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/652/2021	B.1.351	G174T, C241T, T606C, C1059T, C3037T, G5230T, C9360T, A10323G, G11291A, T11296G, C14408T, C17999T, C19803T, C21110T, A21801C, A22206G, G22813T, C22995T, G23012A, A23063T, A23403G, C23664T, C25546T, G25563T, C25904T, C26456T, C27059T, C28253T, A28254C, C28887T	E: P71L, N: T205I, ORF1a: I114T, ORF1a: T265I, ORF1a: K1655N, ORF1a: T3032I, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF1b: T1511I, ORF1b: T2548I, ORF3a: L52F, ORF3a: Q57H, ORF3a: S171L, ORF8: I121L, S: D80A, S: D215G, S: K417N, S: T478I, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/655/2021	B.1.351	G174T, C241T, T606C, C1059T, C3037T, G5230T, C9360T, A10323G, G11291A, T11296G, C14408T, C17999T, C19803T, C21110T, A21801C, A22206G, G22813T, C22995T, G23012A, A23063T, A23403G, C23664T, C25546T, G25563T, C25904T, C26456T, C27059T, C28253T, A28254C, C28887T, C29259T	E: P71L, N: T205I, N: T329M, ORF1a: I114T, ORF1a: T265I, ORF1a: K1655N, ORF1a: T3032I, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF1b: T1511I, ORF1b: T2548I, ORF3a: L52F, ORF3a: Q57H, ORF3a: S171L, ORF8: I121L, S: D80A, S: D215G, S: K417N, S: T478I, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/658/2021	B.1.1.222	C241T, C3037T, T3295C, C10165T, C11345T, A13498G, C14408T, C17586T, T19839C, G22331A, A23403G, A23756G, C25549T, C28253T, A28254C, G28881A, G28882A, G28883C	N: R203K, N: G204R, ORF1a: L3694F, ORF1b: T11A, ORF1b: P314L, ORF3a: L53F, ORF8: I121L, S: G257S, S: D614G, S: T732A
SARS-CoV-2/ human/CHN/659/2021	B.1.351	G174T, C241T, C1059T, A2692T, C3037T, G5230T, A10323G, G11291A, T11296G, C14408T, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T, G25563T, G25650A, C25904T, C26456T, C26645T, T28033C, C28253T, C28887T	E: P71L, N: T205I, ORF1a: T265I, ORF1a: K1655N, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF3a: Q57H, ORF3a: S171L, ORF8: I47T, S: L18F, S: D80A, S: D215G, S: K417N, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/666/2021	B.1	C241T, C3037T, A3069G, C5884T, C8964T, C10341T, G11083T, G11230T, C14408T, G15380T, G16197A, T18144C, G19388T, C21646T, A23403G, G23545T, G25621A, C26060T, T27908C, G28028T, C28227T	ORF1a: D935G, ORF1a: S2900L, ORF1a: P3359L, ORF1a: L3606F, ORF1a: M3655I, ORF1b: P314L, ORF1b: S638I, ORF1b: S1974I, ORF3a: V77I, ORF3a: T223I, ORF8: W45C, ORF8: H112Y, S: D614G, S: E661D
SARS-CoV-2/ human/CHN/671/2021	B.1.351	G174T, C241T, C1059T, A2692T, C3037T, C5100T, G5230T, A10323G, G11291A, T11296G, C14408T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T, G25563T, C25904T, C26456T, G27870T, C28253T, C28887T, C29358T	E: P71L, N: T205I, N: T362I, ORF1a: T265I, ORF1a: S1612L, ORF1a: K1655N, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF3a: Q57H, ORF3a: S171L, ORF7b: E39*, S: D80A, S: D215G, S: K417N, S: E484K, S: N501Y, S: D614G, S: A701V

Continued

seqName	Lineage	Substitutions	aaSubstitutions
SARS-CoV-2/ human/CHN/672/2021	B.1.351	G174T, C241T, T606C, C1059T, C3037T, G5230T, C9360T, A10323G, G11291A, T11296G, C14408T, G15451A, C17999T, C19803T, C21110T, A21801C, A22206G, G22813T, C22995T, G23012A, A23063T, A23403G, C23664T, C25546T, G25563T, C25904T, C26456T, C27059T, C28253T, A28254C, C28887T, C29259T	E: P71L, N: T205I, N: T329M, ORF1a: I114T, ORF1a: T265I, ORF1a: K1655N, ORF1a: T3032I, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF1b: G662S, ORF1b: T1511I, ORF1b: T2548I, ORF3a: L52F, ORF3a: Q57H, ORF3a: S171L, ORF8: I121L, S: D80A, S: D215G, S: K417N, S: T478I, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/676/2021	B.1.351	G174T, C241T, T606C, C1059T, C3037T, G5230T, C9360T, A10323G, G11291A, T11296G, C14408T, C17999T, C19803T, C21110T, A21801C, A22206G, G22813T, C22995T, G23012A, A23063T, A23403G, C23664T, C25546T, G25563T, C25904T, C26456T, C27059T, C28253T, A28254C, C28887T	E: P71L, N: T205I, ORF1a: I114T, ORF1a: T265I, ORF1a: K1655N, ORF1a: T3032I, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF1b: T1511I, ORF1b: T2548I, ORF3a: L52F, ORF3a: Q57H, ORF3a: S171L, ORF8: I121L, S: D80A, S: D215G, S: K417N, S: T478I, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/678/2021	B.1.351	G174T, C241T, C1059T, G1068A, A2692T, C3037T, G5230T, C8290T, C9195A, A10323G, G11291A, T11296G, C14408T, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T, G25563T, C25904T, C26456T, C26645T, C28253T, C28887T	E: P71L, N: T205I, ORF1a: T265I, ORF1a: G268E, ORF1a: K1655N, ORF1a: T2977K, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF3a: Q57H, ORF3a: S171L, S: L18F, S: D80A, S: D215G, S: K417N, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/681/2021	B.1.1.420	G61A, C241T, T847C, C3037T, G3994T, C5178T, C5548T, C5842T, A10258G, A11451G, C12115T, C13694T, C14408T, G16710A, C16767T, T18132C, C18138T, C19884T, C21614T, T22882G, A23403G, G23593T, A24373G, G25839T, C28310T, G28727T, T28862A, G28881A, G28882A, G28883C	N: P13S, N: A152S, N: S197T, N: R203K, N: G204R, ORF1a: T1638I, ORF1a: Q3729R, ORF1b: T76I, ORF1b: P314L, ORF3a: W149C, S: L18F, S: N440K, S: D614G, S: Q677H
SARS-CoV-2/ human/CHN/682/2021	B.1.1.7	C241T, C913T, C2110T, G2539A, C3037T, C3267T, C5388A, C5986T, T6954C, T7984C, G11291A, T11296G, C14120T, C14408T, C14676T, C15279T, T16176C, G18910T, C19390T, G23009T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P218L, ORF1b: P314L, ORF1b: D1815Y, ORF1b: P1975S, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: V483F, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/695/2021	P.2	C100T, C241T, C3037T, T10667G, C11824T, C12053T, C12488T, A12964G, C14408T, G23012A, T23255C, A23403G, G25088T, C27972T, C28253T, G28628T, G28881A, G28882A, G28883C, G28975T, C29754T	N: A119S, N: R203K, N: G204R, N: M234I, ORF1a: L3468V, ORF1a: L3930F, ORF1a: P4075S, ORF1b: P314L, ORF8: Q27*, S: E484K, S: F565L, S: D614G, S: V1176F
SARS-CoV-2/ human/CHN/712/2021	B.1.36	G174T, C241T, T1947C, C3037T, C7321G, C9163T, G11417T, G11521T, C14408T, C16111T, C18744T, C18877T, C19186T, C22444T, G23120T, A23403G, G23522A, G23593T, G25543T, G25563T, C25867T, C26735T, C27213T, A27690G, C28854T, G29179T, C29614T	N: S194L, ORF1a: V561A, ORF1a: S2352R, ORF1a: V3718F, ORF1a: M3752I, ORF1b: P314L, ORF3a: A51S, ORF3a: Q57H, ORF3a: P159S, S: A520S, S: D614G, S: E654K, S: Q677H
SARS-CoV-2/ human/CHN/715/2021	B.1.177.81	C241T, T445C, C3037T, G3971T, C6286T, C10228T, C12119T, C14408T, A21222T, G21255C, C22227T, A23403G, T23407C, C25844T, C25889T, C26801G, C27944T, C28932T, G29645T	N: A220V, ORF1a: V1236F, ORF1a: P3952S, ORF1b: P314L, ORF3a: T151I, ORF3a: S166L, S: A222V, S: D614G
SARS-CoV-2/ human/CHN/719/2021	B.1.351	G174T, C241T, C1059T, C3037T, G5230T, C6285T, A10323G, G11291A, T11296G, C13329T, C14408T, C17999T, C19803T, C21110T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T, C25546T, G25563T, C25904T, C26456T, C27059T, C27128T, C27998T, C28253T, A28254C, C28887T	E: P71L, N: T205I, ORF1a: T265I, ORF1a: K1655N, ORF1a: T2007I, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1a: T4355I, ORF1b: P314L, ORF1b: T1511I, ORF1b: T2548I, ORF3a: L52F, ORF3a: Q57H, ORF3a: S171L, ORF8: I121L, S: D80A, S: D215G, S: K417N, S: E484K, S: N501Y, S: D614G, S: A701V

Continued

seqName	Lineage	Substitutions	aaSubstitutions
SARS-CoV-2/ human/CHN/722/2021	B.1.351	G174T, A231G, C241T, C1059T, G2162A, A2692T, C3037T, A4295G, C5100T, G5230T, C5832T, A10323G, G11291A, T11296G, C14408T, G17122T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T, G25563T, C25904T, C26456T, C27476T, G28001C, C28253T, C28887T	E: P71L, N: T205I, ORF1a: T265I, ORF1a: E633K, ORF1a: T1344A, ORF1a: S1612L, ORF1a: K1655N, ORF1a: S1856F, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF1b: A1219S, ORF3a: Q57H, ORF3a: S171L, ORF7a: T28I, S: D80A, S: D215G, S: K417N, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/728/2021	B.1.1.420	G61A, C241T, T847C, C3037T, G3994T, C5178T, C5548T, C5842T, A10258G, A11451G, C12115T, C13694T, C14408T, G16710A, C16767T, T18132C, C18138T, C19884T, C21614T, T22882G, A23403G, G23593T, A24373G, G25839T, C28310T, G28727T, T28862A, G28881A, G28882A, G28883C	N: P13S, N: A152S, N: S197T, N: R203K, N: G204R, ORF1a: T1638I, ORF1a: Q3729R, ORF1b: T76I, ORF1b: P314L, ORF3a: W149C, S: L18F, S: N440K, S: D614G, S: Q677H
SARS-CoV-2/ human/CHN/729/2021	B.1.351	G174T, C241T, C1059T, C3037T, G5230T, C6285T, A10323G, G11291A, T11296G, C13329T, C14408T, C17999T, C19803T, C21110T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T, C25546T, G25563T, C25904T, C26456T, C27059T, C27128T, C27998T, C28253T, A28254C, C28887T	E: P71L, N: T205I, ORF1a: T265I, ORF1a: K1655N, ORF1a: T2007I, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1a: T4355I, ORF1b: P314L, ORF1b: T1511I, ORF1b: T2548I, ORF3a: L52F, ORF3a: Q57H, ORF3a: S171L, ORF8: I121L, S: D80A, S: D215G, S: K417N, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/731/2021	B.1.177.81	C241T, T445C, C3037T, G3971T, C6286T, C10228T, C12119T, C14408T, A21222T, G21255C, C22227T, A23403G, T23407C, C25844T, C25889T, C26801G, C27944T, C28932T, G29645T	N: A220V, ORF1a: V1236F, ORF1a: P3952S, ORF1b: P314L, ORF3a: T151I, ORF3a: S166L, S: A222V, S: D614G
SARS-CoV-2/ human/CHN/736/2021	B.1.1.7	C241T, C913T, C1825T, C3037T, C3267T, C5388A, C5986T, T6954C, G11291A, T11296G, C14408T, C14676T, T15096C, C15279T, T16176C, C17862T, A23063T, C23271A, A23403G, C23604A, C23709T, C24109T, T24506G, G24914C, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C29585T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/741/2021	B.1.429	C241T, C1059T, C2395T, T2597C, C3037T, C5907T, C6255T, C6285T, C7081T, C8947T, G10051A, C12100T, A12878G, C14408T, G17014T, G19419A, G21600T, G22018T, T22917G, A23403G, T24349C, G25563T, C26681T, C27145T, A27712G, G27890T, A28272T, C28887T, C29203T, C29218T, C29362T	M: T208I, N: T205I, ORF1a: T265I, ORF1a: T1881I, ORF1a: A1997V, ORF1a: T2007I, ORF1a: I4205V, ORF1b: P314L, ORF1b: D1183Y, ORF3a: Q57H, ORF7a: I107V, S: S13I, S: W152C, S: L452R, S: D614G
SARS-CoV-2/ human/CHN/761/2021	C.36	C241T, G569A, C936T, C1347T, C1427T, G2249A, C2841T, C3037T, C4002T, C4586T, G5180A, C7124T, G9929A, G10097A, T11337C, G12163A, C12534T, C13536T, C14408T, G17122T, G17218A, A17743T, C17766T, G18546T, C21597T, T22917G, A23329G, A23403G, G23593T, C23731T, G27882T, G28881A, G28882A, G28883C, G28908T	N: R203K, N: G204R, N: G212V, ORF1a: E102K, ORF1a: T224I, ORF1a: P361L, ORF1a: H388Y, ORF1a: G662R, ORF1a: A859V, ORF1a: K1230E, ORF1a: T1246I, ORF1a: D1639N, ORF1a: P2287S, ORF1a: D3222N, ORF1a: G3278S, ORF1a: L3691S, ORF1a: T4090I, ORF1b: P314L, ORF1b: A1219S, ORF1b: D1251N, ORF1b: N1426Y, ORF1b: M1693I, ORF7b: A43S, S: S12F, S: L452R, S: D614G, S: Q677H
SARS-CoV-2/ human/CHN/762/2021	B.1.525	C241T, C1498T, A1807G, G2659A, C3037T, C6285T, T8593C, C9565T, G11291A, T11296G, C14407T, C14408T, C18171T, A20724G, A21717G, C21762T, G23012A, A23403G, G23593C, T24224C, C24748T, C26305T, T26767C, C28308G, A28699G, C28887T, G29543T	E: L21F, M: I82T, N: S2M, N: D3Y, N: A12G, N: T205I, ORF1a: T2007I, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314F, ORF6: F2M, ORF9b: H9D, S: Q52R, S: A67V, S: E484K, S: D614G, S: Q677H, S: F888L

Continued

seqName	Lineage	Substitutions	aaSubstitutions
SARS-CoV-2/ human/CHN/767/2021	B.1.351	G174T, C241T, C1059T, A2692T, C3037T, A3222G, C5100T, G5230T, A10323G, G11291A, T11296G, C14408T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T, G25563T, C25904T, C26456T, G27870T, C28253T, C28887T, C29358T	E: P71L, N: T205I, N: T362I, ORF1a: T265I, ORF1a: Q986R, ORF1a: S1612L, ORF1a: K1655N, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF3a: Q57H, ORF3a: S171L, ORF7b: E39*, S: D80A, S: D215G, S: K417N, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/779/2021	B.1.1.7	C241T, C913T, C2110T, C3037T, C3267T, C5388A, C5986T, G6446C, T6954C, C10252T, G11291A, T11296G, C14120T, C14408T, C14676T, C15279T, T16176C, T20409C, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, G27014T, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, A29248C	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: V2061L, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P218L, ORF1b: P314L, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/782/2021	B.1.1.7	C241T, C913T, T2734C, C3037T, C3267T, C5388A, C5986T, T6954C, G11291A, T11296G, C12789T, G12911A, C14408T, C14676T, T15096C, C15279T, T16176C, C18486T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, C28846T, G28881A, G28882A, G28883C, C28977T, T29804A	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1a: T4175I, ORF1a: V4216I, ORF1b: P314L, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/786/2021	B.1.618	G105T, C241T, C853T, C1684T, C3037T, A3830G, C4809T, T5263C, G11083T, C11950T, T13114C, G14245A, C14408T, A17066G, G22131A, G23012A, A23403G, C23644T, T25084C, C25844T, C26885T, G26909T, G27163T, G27852T, A27979T, G28325A, G28628T, G28922T, G28975T	M: S214I, N: G18S, N: A119S, N: A217S, N: M234I, ORF1a: S1189G, ORF1a: S1515F, ORF1a: L3606F, ORF1b: D260N, ORF1b: P314L, ORF1b: Y1200C, ORF3a: T151I, ORF7b: E33*, ORF8: Q29L, S: R190K, S: E484K, S: D614G
SARS-CoV-2/ human/CHN/788/2021	B.1.1.7	C241T, C913T, C1825T, C3037T, C3267T, C5388A, C5986T, T6954C, G11291A, T11296G, C14408T, C14676T, T15096C, C15279T, T16176C, C17862T, A23063T, C23271A, A23403G, C23604A, C23709T, C24109T, T24506G, G24914C, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C29585T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/789/2021	B.1.1.7	C241T, C913T, C1825T, C3037T, C3267T, C5388A, C5986T, T6954C, G11291A, T11296G, C14408T, C14676T, T15096C, C15279T, T16176C, C17862T, A23063T, C23271A, A23403G, C23604A, C23709T, C24109T, T24506G, G24914C, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C29585T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/798/2021	B.1.1.7	C241T, C913T, T2734C, C3037T, C3267T, C5388A, C5497T, C5986T, T6954C, G11291A, T11296G, C12789T, G12911A, C14408T, C14676T, T15096C, C15279T, T16176C, C18486T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, C28846T, G28881A, G28882A, G28883C, C28977T, T29804A	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1a: T4175I, ORF1a: V4216I, ORF1b: P314L, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H

Continued

seqName	Lineage	Substitutions	aaSubstitutions
SARS-CoV-2/ human/CHN/803/2021	B.1.1.7	C241T, C913T, C3037T, C3267T, A4707G, C5388A, C5986T, T6954C, C9661T, G11291A, T11296G, C13458T, C14408T, C14676T, C15279T, T16176C, A17615G, C21742T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, T27531C, C27972T, G28048T, A28111G, C28253T, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: D1481G, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1a: S4398L, ORF1b: P314L, ORF1b: K1383R, ORF8: Q27*, ORF8: R52I, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/804/2021	B.1.1.7	C241T, C913T, C1825T, C3037T, C3267T, C5388A, C5986T, T6954C, G11291A, T11296G, C14408T, C14676T, T15096C, C15279T, T16176C, C17862T, A23063T, C23271A, A23403G, C23604A, C23709T, C24109T, T24506G, G24914C, G26152T, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C29585T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF3a: G254*, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/805/2021	B.1.1.7	C241T, C913T, C2453T, C3037T, C3267T, C5388A, C5986T, T6954C, G11291A, T11296G, C14408T, C14676T, C15279T, T16176C, C16726T, G19613A, T22159C, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, C27294T, C27577T, C27972T, G28048T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: L730F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF1b: H1087Y, ORF1b: R2049K, ORF7a: Q62*, ORF8: Q27*, ORF8: R52I, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/807/2021	B.1.1.7	C241T, C913T, T2734C, C3037T, C3267T, C5388A, C5986T, T6954C, G11291A, T11296G, C12789T, G12911A, C14408T, C14676T, T15096C, C15279T, T16176C, C18486T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, C28846T, G28881A, G28882A, G28883C, C28977T, T29804A	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1a: T4175I, ORF1a: V4216I, ORF1b: P314L, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/808/2021	B.1.618	G105T, C241T, C853T, C1684T, C3037T, A3830G, C4809T, T5263C, G11083T, C11950T, T13114C, G14245A, C14408T, A17066G, G22131A, G23012A, A23403G, C23644T, T25084C, C25844T, C26885T, G26909T, G27163T, G27852T, A27979T, G28325A, G28628T, G28922T, G28975T	M: S214I, N: G18S, N: A119S, N: A217S, N: M234I, ORF1a: S1189G, ORF1a: S1515F, ORF1a: L3606F, ORF1b: D260N, ORF1b: P314L, ORF1b: Y1200C, ORF3a: T151I, ORF7b: E33*, ORF8: Q29L, S: R190K, S: E484K, S: D614G
SARS-CoV-2/ human/CHN/809/2021	B.1.1.7	C241T, C913T, C3037T, C3267T, C5388A, C5986T, T6954C, C8950T, G11291A, T11296G, C14408T, C14676T, A15033T, C15279T, T16176C, C19524T, C21234T, C21575T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, C25844T, C27577T, C27972T, G28048T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, T29524C	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF3a: T151I, ORF7a: Q62*, ORF8: Q27*, ORF8: R52I, ORF8: Y73C, S: L5F, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/811/2021	B.1.1.7	C241T, C913T, C3037T, C3267T, C5388A, C5986T, T6954C, G11291A, T11296G, C14408T, C14676T, C14724T, T15096C, C15279T, T16176C, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, A29209T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H

Continued

seqName	Lineage	Substitutions	aaSubstitutions
SARS-CoV-2/ human/CHN/824/2021	B.1.1.7	C241T, C913T, C1825T, C3037T, C3267T, C5388A, C5986T, T6954C, G11291A, T11296G, C14408T, C14676T, T15096C, C15279T, T16176C, C17862T, A23063T, C23271A, A23403G, C23604A, C23709T, C24109T, T24506G, G24914C, G26152T, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C29585T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF3a: G254*, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/825/2021	B.1.1.7	C241T, C913T, T2734C, C3037T, C3267T, C5388A, C5986T, T6954C, G11291A, T11296G, C12789T, G12911A, C14408T, C14676T, T15096C, C15279T, T16176C, C18486T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, C28846T, G28881A, G28882A, G28883C, C28977T, T29804A	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1a: T4175I, ORF1a: V4216I, ORF1b: P314L, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/834/2021	B.1.525	C241T, C1498T, A1807G, G2659A, C3037T, C6285T, T8593C, C9565T, G11291A, T11296G, C14407T, C14408T, C18171T, C18457T, A20724G, A21717G, C21762T, G23012A, A23403G, G23593C, T24224C, C24370T, C24748T, C26305T, T26767C, C28308G, A28699G, C28887T, C29274G, G29543T, T29804A	E: L21F, M: I82T, N: S2M, N: D3Y, N: A12G, N: T205I, N: T334R, ORF1a: T2007I, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314F, ORF1b: P1664S, ORF6: F2M, ORF9b: H9D, S: Q52R, S: A67V, S: E484K, S: D614G, S: Q677H, S: F888L
SARS-CoV-2/ human/CHN/857/2021	B.1.1.7	C241T, C913T, C3037T, C3267T, C5388A, C5986T, T6954C, G11291A, T11296G, C14408T, C14676T, T15096C, C15279T, T16176C, C16323T, C18463T, A23063T, C23271A, A23403G, C23604A, C23709T, C24109T, T24506G, G24914C, C25427T, C27503T, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF1b: P1666S, ORF3a: T12I, ORF7a: S37F, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/859/2021	B.1	C241T, C292T, C843T, T1537C, C3037T, G11222T, C14408T, A20268G, G21123T, G21578T, A23403G, A25590T, C26060T, C26873T, C27881T, C28854T, G29449T, T29524C, C29738T	N: S194L, ORF1a: P193L, ORF1a: V3653F, ORF1b: P314L, ORF3a: K66N, ORF3a: T223I, S: V6F, S: D614G
SARS-CoV-2/ human/CHN/863/2021	B.1	C241T, C292T, C843T, T1537C, C3037T, G11222T, C14408T, A20268G, G21123T, G21578T, A23403G, A25590T, C26060T, C26873T, C27881T, C28854T, G29449T, T29524C, C29738T	N: S194L, ORF1a: P193L, ORF1a: V3653F, ORF1b: P314L, ORF3a: K66N, ORF3a: T223I, S: V6F, S: D614G
SARS-CoV-2/ human/CHN/865/2021	B.1.1.7	C241T, C913T, C2453T, C2644T, C3037T, C3267T, C5388A, C5986T, T6954C, G11291A, T11296G, C14408T, C14676T, C15279T, T16176C, C19602T, C21855T, G21974C, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, C27972T, G28048T, A28111G, G28280C, A28281T, T28282A, A28295G, C28695T, G28881A, G28882A, G28883C, C28977T	N: D3L, N: N8D, N: T141I, N: R203K, N: G204R, N: S235F, ORF1a: L730F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF8: Q27*, ORF8: R52I, ORF8: Y73C, S: S98F, S: D138H, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/872/2021	B.1.1.7	C241T, C913T, C3037T, C3177T, C3264T, C3267T, C5388A, C5986T, T6954C, C7772T, C7844T, G11291A, T11296G, C14408T, C14676T, C15279T, T16176C, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, G25691T, C27972T, G28048T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: P971L, ORF1a: T1000I, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: L2503F, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF3a: G100V, ORF7b: L6M, ORF8: Q27*, ORF8: R52I, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H

Continued

seqName	Lineage	Substitutions	aaSubstitutions
SARS-CoV-2/ human/CHN/879/2021	B.1.351	G174T, C241T, C1059T, C3037T, T4213C, G5230T, A10323G, G11291A, T11296G, C11812A, C12809T, C14408T, C15925T, T17970C, G21641T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, T23449G, C23664T, A23764T, G25563T, C25904T, C26456T, G27463T, C28253T, A28254C, T28642C, C28887T	E: P71L, N: T205I, ORF1a: T265I, ORF1a: K1655N, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1a: L4182F, ORF1b: P314L, ORF1b: L820F, ORF3a: Q57H, ORF3a: S171L, ORF7a: V24F, ORF8: I121L, S: A27S, S: D80A, S: D215G, S: K417N, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/888/2021	B.1.351.3	G174T, C241T, C1059T, A2692T, C3037T, G5230T, C6402T, T7624C, A8052G, A10323G, G10396T, C10615T, G11291A, T11296G, C14408T, A16687G, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T, G25563T, C25603T, C25904T, C26456T, C28253T, C28887T	E: P71L, N: T205I, ORF1a: T265I, ORF1a: K1655N, ORF1a: P2046L, ORF1a: N2596S, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF1b: I1074V, ORF3a: Q57H, ORF3a: S171L, S: L18F, S: D80A, S: D215G, S: K417N, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/889/2021	B.1.1.7	C241T, C913T, C3037T, C3177T, C3264T, C3267T, C5388A, C5986T, T6954C, C7772T, C7844T, G11291A, T11296G, C14408T, C14676T, C15279T, C15857T, T16176C, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, G25691T, C27972T, G28048T, A28111G, G28280C, A28281T, T28282A, G28357T, G28881A, G28882A, G28883C, C28977T	N: D3L, N: Q28H, N: R203K, N: G204R, N: S235F, ORF1a: P971L, ORF1a: T1000I, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: L2503F, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF1b: T797I, ORF3a: G100V, ORF7b: L6M, ORF8: Q27*, ORF8: R52I, ORF8: Y73C, ORF9b: R25I, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/890/2021	B.1.214.2	C241T, C1185T, C3037T, A4457G, C4891T, C5184T, C5907T, A9204G, C11224T, A11430G, C12312T, C14408T, G15181T, A15187G, C15324T, C19975A, C21811T, C22802A, T22912G, A23403G, C23709T, T27576C, C27800T, G28280C, A28281T, T28282A, C28507T, C28846T, C28887T, C29730T	N: D3L, N: T205I, ORF1a: A307V, ORF1a: I1398V, ORF1a: P1640L, ORF1a: T1881I, ORF1a: D2980G, ORF1a: Y3722C, ORF1a: A4016V, ORF1b: P314L, ORF1b: A572S, ORF1b: R574G, ORF1b: L2170I, ORF9b: A75V, S: Q414K, S: N450K, S: D614G, S: T716I
SARS-CoV-2/ human/CHN/894/2021	B.1.1.7	C241T, C913T, C1218T, G1805A, A2784G, C3037T, C3267T, C5388A, C5849T, C5986T, G6421T, T6954C, G11291A, T11296G, C14408T, C14676T, T15096C, C15279T, T16176C, A18000G, A23063T, C23271A, A23403G, C23604A, C23709T, C24237T, T24506G, G24914C, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, T29377A, G29449T, C29686T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: S318L, ORF1a: G514R, ORF1a: N840S, ORF1a: T1001I, ORF1a: A1708D, ORF1a: P1862S, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: A892V, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/895/2021	B.1.351.3	G174T, C241T, C1059T, G2246A, A2692T, C3037T, G5230T, C6402T, G6532T, T7624C, A8052G, A10323G, G10396T, C10615T, G11291A, T11296G, C12974T, C14408T, A16687G, C21411T, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T, G25563T, C25904T, C26456T, C28253T, C28887T	E: P71L, N: T205I, ORF1a: T265I, ORF1a: G661S, ORF1a: K1655N, ORF1a: P2046L, ORF1a: E2089D, ORF1a: N2596S, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF1b: I1074V, ORF3a: Q57H, ORF3a: S171L, S: L18F, S: D80A, S: D215G, S: K417N, S: E484K, S: N501Y, S: D614G, S: A701V
SARS-CoV-2/ human/CHN/901/2021	B.1.1.7	C241T, C913T, C2701T, C3037T, C3267T, C5388A, C5907T, C5944T, C5986T, T6954C, G11291A, T11296G, C14408T, C14676T, T15096C, C15279T, T16176C, G18266A, T21763C, C22482T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, C27972T, G28048T, A28095T, A28111G, G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, G28884C, C28977T	N: D3L, N: R203K, N: G204P, N: S235F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: T1881I, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF1b: R1600H, ORF8: Q27*, ORF8: R52I, ORF8: K68*, ORF8: Y73C, S: T307I, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H

Continued

seqName	Lineage	Substitutions	aaSubstitutions
SARS-CoV-2/ human/CHN/904/2021	B.1.351.3	G174T, C241T, C1059T, G2246A, A2692T, C3037T, G5230T, C6402T, T7624C, A8052G, A10323G, G10396T, C10615T, G11291A, T11296G, C14408T, A16687G, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T, G25352T, G25563T, C25904T, C26456T, C28253T, C28887T	E: P71L, N: T205I, ORF1a: T265I, ORF1a: G661S, ORF1a: K1655N, ORF1a: P2046L, ORF1a: N2596S, ORF1a: K3353R, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF1b: I1074V, ORF3a: Q57H, ORF3a: S171L, S: L18F, S: D80A, S: D215G, S: K417N, S: E484K, S: N501Y, S: D614G, S: A701V, S: V1264L
SARS-CoV-2/ human/CHN/911/2021	B.1.1.25	C106T, C241T, A1163T, A1193G, C1473T, C3037T, G3250A, A3542G, C4890T, T4974C, C5730T, A6953G, T9022C, C9693T, A10323G, C11620T, C12754T, C14408T, G15406T, C16163T, G17581A, T20407C, C21758G, G22205C, T22342A, G23012A, A23403G, C24795T, A27270G, T27722C, C28290T, G28321A, G28881A, G28882A, G28883C	N: P6L, N: R203K, N: G204R, ORF1a: I300F, ORF1a: N310D, ORF1a: T403I, ORF1a: T1093A, ORF1a: T1542I, ORF1a: V1570A, ORF1a: T1822I, ORF1a: I2230V, ORF1a: A3143V, ORF1a: K3353R, ORF1b: P314L, ORF1b: A647S, ORF1b: T899I, ORF1b: V1372I, ORF1b: F2314L, ORF7a: I110T, ORF9b: P3S, ORF9b: R13H, S: H66D, S: D215H, S: E484K, S: D614G, S: A1078V
SARS-CoV-2/ human/CHN/912/2021	B.1.1.7	C241T, C913T, C1102T, C2453T, C3037T, C3267T, T3882G, C5388A, C5986T, T6954C, G11291A, T11296G, C14408T, C14676T, C15279T, C15852T, T16176C, C21855T, G21974C, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C, T25502C, C27972T, G28048T, A28111G, G28280C, A28281T, T28282A, A28295G, G28881A, G28882A, G28883C, C28977T	N: D3L, N: N8D, N: R203K, N: G204R, N: S235F, ORF1a: L730F, ORF1a: T1001I, ORF1a: I1206S, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF3a: I37T, ORF8: Q27*, ORF8: R52I, ORF8: Y73C, S: S98F, S: D138H, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/914/2021	B.1.1.7	C241T, C274T, T582C, C913T, C2003T, C3037T, C3267T, C5388A, C5986T, T6954C, C9857T, G11291A, T11296G, C14408T, C14676T, C15279T, T16176C, A23063T, C23271A, A23403G, C23604A, C23709T, T24143C, T24506G, G24914C, A26174G, A26981C, C27972T, G28048T, A28111G, G28280C, A28281T, T28282A, C28531T, G28881A, G28882A, G28883C, C28977T	N: D3L, N: R203K, N: G204R, N: S235F, ORF1a: V106A, ORF1a: L580F, ORF1a: T1001I, ORF1a: A1708D, ORF1a: I2230T, ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314L, ORF3a: E261G, ORF8: Q27*, ORF8: R52I, ORF8: Y73C, ORF9b: T83I, S: N501Y, S: A570D, S: D614G, S: P681H, S: T716I, S: S982A, S: D1118H
SARS-CoV-2/ human/CHN/915/2021	B.1.1	C241T, G529T, C829T, C1419T, T1834C, C3037T, A3957G, C5192T, T10721G, C14340T, C14408T, G16377T, G17551A, C18877T, A19167G, C19274A, T19839C, G22017T, G23012A, A23403G, G23868T, T26076C, T26604C, C27213T, C28606T, C28833T, G28881A, G28882A, G28883C, G29422A, G29527T, G29745T	M: F28L, N: S187L, N: R203K, N: G204R, N: Q418H, ORF1a: A385V, ORF1a: K1231R, ORF1a: F3486V, ORF1b: P314L, ORF1b: G1362R, ORF1b: P1936H, S: W152L, S: E484K, S: D614G, S: G769V

Supplementary Table S2. Nonsense mutation distribution of 117 imported cases

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 462/2020	A.23.1	C4573T, C8782T, C10747T, C16575T, C17745T, C22000T, T24097C, G28378C, G29742A	C4573T, C8782T, C10747T	C16575T, C17745T	C22000T, T24097C							G28378C	
SARS-CoV-2/ human/CHN/ 464/2020	B.1.2	C241T, C3037T, C3796T, C14805T, G29736T	C3037T, C3796T	C14805T									
SARS-CoV-2/ human/CHN/ 467/2020	B.1.1	C241T, C3037T, C5806T, T21640C, C25156T	C3037T, C5806T		T21640C, C25156T								
SARS-CoV-2/ human/CHN/ 469/2020	B.1.1.368	C241T, C3037T, C21216T, T29583C	C3037T	C21216T									T29583C
SARS-CoV-2/ human/CHN/ 471/2020	B.1	C241T, G529T, C1420T, C3037T, C10582T, T14073C, C15324T, C23029T, G29688T	G529T, C1420T, C3037T, C10582T	T14073C, C15324T	C23029T								
SARS-CoV-2/ human/CHN/ 475/2020	B.1.36.38	C241T, T586C, C3037T, C7006T, A9925G, C16332T, C18877T, C22444T, G22918T, C26735T	T586C, C3037T, C7006T, A9925G	C16332T, C18877T	C22444T, G22918T			C26735T					
SARS-CoV-2/ human/CHN/ 476/2020	B.1.1.228	C241T, C3037T, T4579A, C5144T, C6310T, C15222T, C21721T, G26262T, C26894T	C3037T, T4579A, C5144T, C6310T	C15222T	C21721T		G26262T	26894T					

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 477/2020	B.1.468	C241T, C3037T, C7471T, A8026G, C18877T, C22444T, C26735T, C27219T	C3037T, C7471T, A8026G	C18877T	C22444T			C26735T	C27219T				
SARS-CoV-2/ human/CHN/ 478/2020	B.1.36.22	C241T, C3037T, G10396T, C18877T, C22444T, C23683T, C25584T, C26735T, G29543T	C3037T, G10396T	C18877T	C22444T, C23683T	C25584T		C26735T					
SARS-CoV-2/ human/CHN/ 482/2020	B.1.1.413	C44T, C241T, A604G, C3037T, C12076T, C28291T, C29311T	A604G, C3037T, C12076T									C28291T, C29311T	
SARS-CoV-2/ human/CHN/ 485/2020	B.1.595	C241T, C3037T, C6310T, T6394C, A12421T	C3037T, C6310T, T6394C, A12421T										
SARS-CoV-2/ human/CHN/ 486/2020	B.1.595	C241T, C3037T, C6310T, T6394C, A12421T	C3037T, C6310T, T6394C, A12421T										
SARS-CoV-2/ human/CHN/ 488/2020	B.1.2	C241T, C3037T, C3796T, C14805T, C22450T, G29736T	C3037T, C3796T	C14805T	C22450T								
SARS-CoV-2/ human/CHN/ 495/2020	B.1.36.22	C241T, C3037T, G10396T, C18877T, C22444T, C23683T, C25584T, C26735T, G29543T	C3037T, G10396T	C18877T	C22444T, C23683T	C25584T		C26735T					

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 496/2020	B.1.402	C241T, C478T, C2416T, C3037T, C7735T, A11023G, T14643C, C16767T, C24418T, A24862T	C478T, C2416T, C3037T, C7735T, A11023G		T14643C, C16767T, C24418T, A24862T								
SARS-CoV-2/ human/CHN/ 499/2020	B.1.84	C241T, T814G, C3037T, G4300T, T6130C, C7267T, A12577G, C15324T, T23797C, T29656A, T29832C	T814G, C3037T, G4300T, T6130C, C7267T, A12577G	C15324T	T23797C								T29656A
SARS-CoV-2/ human/CHN/ 500/2020	B.1.466.2	C241T, C3037T, C18877T, C26735T	C3037T	C18877T				C26735T					
SARS-CoV-2/ human/CHN/ 505/2020	B.1.438.1	C241T, C3037T, C8152T, C10702T, A12121G, C18877T, A28272G	C3037T, C8152T, C10702T, A12121G	C18877T									
SARS-CoV-2/ human/CHN/ 507/2020	B.1.429	C241T, C2395T, T2597C, C3037T, C7528T, C16338T, T24349C, C26681T, C27889T, G27890T, A28272T, C29362T	C3037T, C7528T	C16338T	T24349C			C26681T				C29362T	
SARS-CoV-2/ human/CHN/ 508/2020	B.1.596	C241T, C829T, C1627T, T1927A, C3037T, C25521T, T27336A	C829T, C1627T, T1927A, C3037T			C25521T			T27336A				

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 509/2020	B.1.170	T41C, C241T, C3037T, C5833T, C10207T, T11525C, T12811C, C14925T, C18501T, C18877T, C23533T, T28229C, T29233C	C3037T, C5833T, C10207T, T11525C, T12811C	C14925T, C18501T, C18877T	C23533T						T28229C	T29233C	
SARS-CoV-2/ human/CHN/ 514/2020	B.1.468	C241T, C3037T, C7471T, A8026G, C18877T, C22444T, C26735T, C27219T	C3037T, C7471T, A8026G	C18877T	C22444T			C26735T	C27219T				
SARS-CoV-2/ human/CHN/ 516/2020	B.1.466.2	C241T, C3037T, C18877T, C26735T	C3037T	C18877T				C26735T					
SARS-CoV-2/ human/CHN/ 521/2020	B.1.170	T41C, C241T, C3037T, C5833T, C10207T, T11525C, T12811C, C14925T, C18501T, C18877T, C23533T, T28229C, T29233C	C3037T, C5833T, C10207T, T11525C, T12811C	C14925T, C18501T, C18877T	C23533T						T28229C	T29233C	
SARS-CoV-2/ human/CHN/ 525/2020	B.1.351	G174T, C241T, A2692T, C3037T, C3817T, C26894T, C28253T	A2692T, C3037T, C3817T					C26894T			C28253T		
SARS-CoV-2/ human/CHN/ 527/2020	B.1	C241T, C3037T	C3037T										

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 535/2020	A	T8215C, C8782T, C9223T, C9226T, A11746G, T17136C, C17439T, C18171T, T24736C, A26019T, C29272T, G29742A	T8215C, C8782T, C9223T, C9226T, A11746G	T17136C, C17439T, C18171T	T24736C	A26019T						C29272T	
SARS-CoV-2/ human/CHN/ 538/2020	B.1.177.81	C241T, T445C, C2638A, C3037T, C6286T, A21222T, G21255C, C26801G, C27944T, G29645T	T445C, C2638A, C3037T, C6286T	A21222T, G21255C				C26801G			C27944T		G29645T
SARS-CoV-2/ human/CHN/ 542/2020	B.1	C241T, C3037T, C26681T	C3037T					C26681T					
SARS-CoV-2/ human/CHN/ 547/2020	B.1.36.17	C241T, C3037T, T5653C, C5654T, G5950A, G8179T, T8593C, C11674T, C18877T, A20289G, C22444T, C26735T, C29555T	C3037T, T5653C, C5654T, G5950A, G8179T, T8593C, C11674T	C18877T, A20289G	C22444T			C26735T					C29555T
SARS-CoV-2/ human/CHN/ 558/2020	L.3	C241T, C3037T, C4543T, G8179T, C12406T, C19170T, C19269T, G19509A, T20376C, T24850G, G26918T, A26927G	C3037T, C4543T, G8179T, C12406T	C19170T, C19269T, G19509A, T20376C	T24850G			G26918T, A26927G					

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 559/2020	B.1.1	C241T, A2923G, C3037T, A4870G, C10834T, C12400T, G25644T	A2923G, C3037T, A4870G, C10834T, C12400T			G25644T							
SARS-CoV-2/ human/CHN/ 561/2020	B.1.36.16	C241T, C1594T, C3037T, T7480C, T10099C, A13012T, G16377A, G18756T, C18877T, C22444T, G25494T, C26735T	C1594T, C3037T, T7480C, T10099C, A13012T	G16377A, G18756T, C18877T	C22444T	G25494T		C26735T					
SARS-CoV-2/ human/CHN/ 564/2020	B.1.36.16	C241T, C1594T, C3037T, T7480C, T10099C, A13012T, G16377A, G18756T, C18877T, C22444T, G25494T, C26735T	C1594T, C3037T, T7480C, T10099C, A13012T	G16377A, G18756T, C18877T	C22444T	G25494T		C26735T					
SARS-CoV-2/ human/CHN/ 566/2020	A	T8215C, C8782T, C9223T, C9226T, A11746G, T17136C, C17439T, C18171T, T24736C, A26019T, C29272T, G29742A	T8215C, C8782T, C9223T, C9226T, A11746G	T17136C, C17439T, C18171T	T24736C	A26019T						C29272T	

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 571/2020	B.1.177.81	C241T, T445C, C2638A, C3037T, C6286T, A21222T, G21255C, C26801G, C27944T, G29645T	T445C, C2638A, C3037T, C6286T	A21222T, G21255C				C26801G			C27944T		G29645T
SARS-CoV-2/ human/CHN/ 585/2020	B.1.36.16	C241T, C1594T, C3037T, T7480C, T10099C, A13012T, G16377A, G18756T, C18877T, C22444T, G25494T, C26735T	C1594T, C3037T, T7480C, T10099C, A13012T	G16377A, G18756T, C18877T	C22444T	G25494T		C26735T					
SARS-CoV-2/ human/CHN/ 587/2020	B.1.427	C241T, C3037T, G13713A, G22468T, C26681T, A28272T, C29362T, C29509T	C3037T, C5869T	G13713A	G22468T			C26681T				C29362T, C29509T	
SARS-CoV-2/ human/CHN/ 593/2020	L.3	C241T, C3037T, C4543T, G8179T, C8692T, C12406T, C19170T, C19269T, G19509A, A26927G	C3037T, C4543T, G8179T, C8692T, C12406T	C19170T, C19269T, G19509A				A26927G					

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 595/2020	A.23.1	C337T, C2695T, C4573T, C8782T, C10747T, C16575T, C17745T, C20325T, C22000T, T24097C, G28378C, C29200T, G29254A, G29742A	C337T, C2695T, C4573T, C8782T, C10747T	C16575T, C17745T, C20325T	T24097C							G28378C, C29200T, G29254A	
SARS-CoV-2/ human/CHN/ 596/2020	B.1	T4579A, C5144T, C6310T, C16575T, C17745T, C22444T, G25494T, C26735T	T4579A, C5144T, C6310T	C16575T, C17745T	C22444T	G25494T		C26735T					
SARS-CoV-2/ human/CHN/ 599/2020	B.1.1.157	C241T, C3037T, C6145T, C13378T	C3037T, C6145T	C13378T									
SARS-CoV-2/ human/CHN/ 600/2020	B.1.351	T52C, G174T, C241T, C3037T, A14463G, T18342A, C19803T, C27059T, C28253T	C3037T	A14463G, T18342A, C19803T				C27059T			C28253T		
SARS-CoV-2/ human/CHN/ 608/2020	B.1.351	G174T, C241T, A2692T, C3037T, C4276T, C28253T	A2692T, C3037T, C4276T								C28253T		
SARS-CoV-2/ human/CHN/ 609/2020	B.1.2	C241T, T1927C, C3037T, C20133T, C21219T, A22255T	T1927C, C3037T	C20133T, C21219T									
SARS-CoV-2/ human/CHN/ 610/2020	B.1.580	C241T, C3037T, C6997T, G20679T	C3037T, C6997T	G20679T									

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 611/2020	B.1.524	C241T, C3037T, C5869T, C21516T, C21622A, A28133T, C29272T, G29751T	C3037T, C5869T		C21516T, C21622A						A28133T		G29751T
SARS-CoV-2/ human/CHN/ 613/2020	B.1.1	C241T, C3037T, T11218C, C23929T, G24928T, C26894T, C27889T	C3037T, T11218C		C23929T, G24928T			C26894T					
SARS-CoV-2/ human/CHN/ 623/2020	B.1.1.214	C241T, C313T, C3037T, C5365T, C8917T, C12049T, C20703T, C26735T, C29679T, C29784T	C313T, C3037T, C5365T, C8917T, C12049T	C12049T, C20703T				C26735T					
SARS-CoV-2/ human/CHN/ 625/2020	B.1.1.7	C241T, C913T, C2110T, C3037T, C5986T, C14676T, C15279T, T16176C	C913T, C2110T, C3037T, C5986T	C14676T, C15279T, T16176C									
SARS-CoV-2/ human/CHN/ 626/2020	A.23.1	C337T, C2695T, C4573T, C8782T, C10747T, C16575T, C17745T, C20325T, C22000T, T24097C, G28378C, G29742A	C337T, C2695T, C4573T, C8782T, C10747T	C16575T, C17745T, C20325T	C22000T, T24097C							G28378C	
SARS-CoV-2/ human/CHN/ 627/2020	B.1.1.7	C241T, C913T, C2110T, C3037T, C5986T, C14676T, C15279T, T16176C	C913T, C2110T, C3037T, C5986T	C14676T, C15279T, T16176C									

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 632/2020	A	G922A, C8782T, T11077C, A16227G, A24067G, G29742A	G922A, C8782T, T11077C	A16227G	A24067G								
SARS-CoV-2/ human/CHN/ 638/2020	B.1.1.7	C241T, C913T, C2110T, C3037T, C5986T, T7984C, C10747T, C14676T, C15279T, T16176C	C913T, C2110T, C3037T, C5986T, T7984C, C10747T	C14676T, C15279T, T16176C									
SARS-CoV-2/ human/CHN/ 639/2020	B.1.2	C241T, C3037T, T6025C, C12784T, C23758T	C3037T, T6025C, C12784T		C23758T								
SARS-CoV-2/ human/CHN/ 642/2020	B.1.1	C241T, C3037T, C10279T, C12115T, T22925C, C24023T, C26469T	C3037T, C10279T, C12115T	T22925C, C24023T			C26469T						
SARS-CoV-2/ human/CHN/ 644/2020	B.1.1.7	C241T, C913T, C2110T, C3037T, C5986T, T7984C, C14676T, C15279T, T16176C	C913T, C2110T, C3037T, C5986T, T7984C	C14676T, C15279T, T16176C									
SARS-CoV-2/ human/CHN/ 646/2020	B.1.351	G160T, G174T, C241T, A2692T, C3037T, C4276T, C28253T	A2692T, C3037T, C4276T								C28253T		
SARS-CoV-2/ human/CHN/ 649/2020	B.1.1.7	C241T, C913T, C3037T, C5986T, C14676T, T15096C, C15279T, T16176C, C24109T, G26828A	C913T, C3037T, C5986T,	C14676T, T15096C, C15279T, T16176C	C24109T			G26828A					

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 651/2020	B.1.351	G174T, C241T, C3037T, C19803T, C27059T, C28253T	C3037T	C19803T				C27059T			C28253T		
SARS-CoV-2/ human/CHN/ 652/2020	B.1.351	G174T, C241T, C3037T, C19803T, C27059T, C28253T	C3037T	C19803T				C27059T			C28253T		
SARS-CoV-2/ human/CHN/ 655/2020	B.1.351	G174T, C241T, C3037T, C19803T, C27059T, C28253T	C3037T	C19803T						C27059T	C28253T		
SARS-CoV-2/ human/CHN/ 658/2020	B.1.1.222	C241T, C3037T, T3295C, C10165T, C17586T, T19839C, C28253T	C3037T, T3295C, C10165T	C17586T, T19839C							C28253T		
SARS-CoV-2/ human/CHN/ 659/2020	B.1.351	G174T, C241T, A2692T, C3037T, G25650A, C26645T, C28253T	A2692T, C3037T			G25650A		C26645T			C28253T		
SARS-CoV-2/ human/CHN/ 666/2020	B.1	C241T, C3037T, C5884T, G16197A, T18144C, C21646T, T27908C	C3037T, C5884T	G16197A, T18144C				T27908C					
SARS-CoV-2/ human/CHN/ 671/2020	B.1.351	G174T, C241T, A2692T, C3037T, C28253T	A2692T, C3037T								C28253T		
SARS-CoV-2/ human/CHN/ 671/2020 (1)	B.1.351	G174T, C241T, C3037T, C19803T, C27059T, C28253T	C3037T	C19803T				C27059T			C28253T		
SARS-CoV-2/ human/CHN/ 671/2020 (2)	B.1.351	G174T, C241T, C3037T, C19803T, C27059T, C28253T	C3037T	C19803T				C27059T			C28253T		

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 671/2020 (3)	B.1.351	G174T, C241T, A2692T, C3037T, C8290T, C26645T, C28253T	A2692T, C3037T, C8290T					C26645T			C28253T		
SARS-CoV-2/ human/CHN/ 681/2020	B.1.1.420	G61A, C241T, T847C, C3037T, G3994T, C5548T, C5842T, A10258G, C12115T, G16710A, C16767T, T18132C, C18138T, C19884T, A24373G	T847C, C3037T, G3994T, C5548T, C5842T, A10258G, C12115T	G16710A, C16767T, T18132C, C18138T, C19884T	A24373G								
SARS-CoV-2/ human/CHN/ 682/2020	B.1.1.7	C241T, C913T, C2110T, G2539A, C3037T, C5986T, T7984C, C14676T, C15279T, T16176C	C913T, C2110T, G2539A, C3037T, C5986T, T7984C	C14676T, C15279T, T16176C									
SARS-CoV-2/ human/CHN/ 695/2020	P.2	C100T, C241T, C3037T, C11824T, A12964G, C28253T, C29754T	C3037T, C11824T, A12964G								C28253T	C29754T	
SARS-CoV-2/ human/CHN/ 712/2020	B.1.36	G174T, C241T, C3037T, C9163T, C16111T, C18744T, C18877T, C19186T, C22444T, C26735T, C27213T, A27690G, G29179T, C29614T	C3037T, C9163T	C16111T, C18744T, C18877T, C19186T	C22444T			C26735T	C27213T	A27690G		G29179T	C29614T

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 715/2020	B.1.177.81	C241T, T445C, C3037T, C6286T, C10228T, A21222T, G21255C, T23407C, C26801G, C27944T, G29645T	T445C, C3037T, C6286T, C10228T	A21222T, G21255C	T23407C	C26801G					C27944T		G29645T
SARS-CoV-2/ human/CHN/ 719/2020	B.1.351	G174T, C241T, C3037T, C19803T, C27059T, C27128T, C27998T, C28253T	C3037T	C19803T				C27059T, C27128T			C27998T, C28253T		
SARS-CoV-2/ human/CHN/ 722/2020	B.1.351	G174T, A231G, C241T, A2692T, C3037T, G28001C, C28253T	A2692T, C3037T								G28001C, C28253T		
SARS-CoV-2/ human/CHN/ 728/2020	B.1.1.420	G61A, C241T, T847C, C3037T, G3994T, C5548T, C5842T, A10258G, C12115T, G16710A, C16767T, T18132C, C18138T, C19884T, A24373G	T847C, C3037T, G3994T, C5548T, C5842T, A10258G, C12115T	G16710A, C16767T, T18132C, C18138T, C19884T	A24373G								
SARS-CoV-2/ human/CHN/ 729/2020	B.1.351	G174T, C241T, C3037T, C19803T, C27059T, C27128T, C27998T, C28253T	C3037T	C19803T				C27059T, C27128T			C27998T, C28253T		

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 731/2020	B.1.177.81	C241T, T445C, C3037T, C6286T, C10228T, A21222T, G21255C, T23407C, C26801G, C27944T, G29645T	T445C, C3037T, C6286T, C10228T	A21222T, G21255C	T23407C	C26801G					C27944T		G29645T
SARS-CoV-2/ human/CHN/ 736/2020	B.1.1.7	C241T, C913T, C1825T, C3037T, C5986T, C14676T, T15096C, C15279T, T16176C, C17862T, C24109T, C29585T	C913T, C1825T, C3037T, C5986T	C14676T, T15096C, C15279T, T16176C, C17862T	C24109T								C29585T
SARS-CoV-2/ human/CHN/ 741/2020	B.1.429	C241T, C2395T, T2597C, C3037T, C7081T, C8947T, G10051A, C12100T, G19419A, T24349C, C26681T, G27890T, A28272T, C29203T, C29218T, C29362T	C3037T, C7081T, C8947T, G10051A, C12100T	G19419A	T24349C			C26681T				C29203T, C29218T, C29362T	
SARS-CoV-2/ human/CHN/ 761/2020	C.36	C241T, C3037T, C4586T, G12163A, C13536T, C17766T, A23329G, C23731T	C3037T, C4586T, G12163A	C13536T, C17766T	A23329G, C23731T								

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 762/2020	B.1.525	C241T, C1498T, A1807G, G2659A, C3037T, T8593C, C9565T, C18171T, A20724G, C24748T, A28699G, G29543T	C1498T, A1807G, G2659A, C3037T, T8593C, C9565T	C18171T, A20724G	C24748T							A28699G	
SARS-CoV-2/ human/CHN/ 767/2020	B.1.351	G174T, C241T, A2692T, C3037T, C28253T	A2692T, C3037T								C28253T		
SARS-CoV-2/ human/CHN/ 779/2020	B.1.1.7	C241T, C913T, C2110T, C3037T, C5986T, C10252T, C14676T, C15279T, T16176C, T20409C, G27014T, A29248C	C913T, C2110T, C3037T, C5986T, C10252T	C14676T, C15279T, T16176C, T20409C				G27014T				A29248C	
SARS-CoV-2/ human/CHN/ 782/2020	B.1.1.7	C241T, C913T, T2734C, C3037T, C5986T, C14676T, T15096C, C15279T, T16176C, C18486T, C28846T, T29804A	C913T, T2734C, C3037T, C5986T	C14676T, T15096C, C15279T, T16176C, C18486T								C28846T	T29804A
SARS-CoV-2/ human/CHN/ 786/2020	B.1.618	G105T, C241T, C853T, C1684T, C3037T, T5263C, C11950T, T13114C, C23644T, T25084C, C26885T, G26909T	C853T, C1684T, C3037T, T5263C, C11950T, T13114C		C23644T, T25084C			C26885T, G26909T					

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 788/2020	B.1.1.7	C241T, C913T, C1825T, C3037T, C5986T, C14676T, T15096C, C15279T, T16176C, C17862T, C24109T, C29585T	C913T, C1825T, C3037T, C5986T	C14676T, T15096C, C15279T, T16176C, C17862T	C24109T								C29585T
SARS-CoV-2/ human/CHN/ 789/2020	B.1.1.7	C241T, C913T, C1825T, C3037T, C5986T, C14676T, T15096C, C15279T, T16176C, C17862T, C24109T, C29585T	C913T, C1825T, C3037T, C5986T	C14676T, T15096C, C15279T, T16176C, C17862T	C24109T								C29585T
SARS-CoV-2/ human/CHN/ 798/2020	B.1.1.7	C241T, C913T, T2734C, C3037T, C5497T, C5986T, C14676T, T15096C, C15279T, T16176C, C18486T, C28846T, T29804A	C913T, T2734C, C3037T, C5497T, C5986T	C14676T, T15096C, C15279T, T16176C, C18486T								C28846T	T29804A
SARS-CoV-2/ human/CHN/ 803/2020	B.1.1.7	C241T, C913T, C3037T, C5986T, C9661T, C14676T, C15279T, T16176C, C21742T, T27531C, C28253T	C913T, C3037T, C5986T, C9661T	C14676T, C15279T, T16176C	C21742T					T27531C	C28253T		

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 804/2020	B.1.1.7	C241T, C913T, C1825T, C3037T, C5986T, C14676T, T15096C, C15279T, T16176C, C17862T, C24109T, C29585T	C913T, C1825T, C3037T, C5986T	C14676T, T15096C, C15279T, T16176C, C17862T	C24109T								C29585T
SARS-CoV-2/ human/CHN/ 805/2020	B.1.1.7	C241T, C913T, C3037T, C5986T, C14676T, C15279T, T16176C, T22159C, C27294T	C913T, C3037T, C5986T	C14676T, C15279T, T16176C	T22159C				C27294T				
SARS-CoV-2/ human/CHN/ 807/2020	B.1.1.7	C241T, C913T, T2734C, C3037T, C5986T, C14676T, T15096C, C15279T, T16176C, C18486T, C28846T, T29804A	C913T, T2734C, C3037T, C5986T	C14676T, T15096C, C15279T, T16176C, C18486T								C28846T	
SARS-CoV-2/ human/CHN/ 808/2020	B.1.618	G105T, C241T, C853T, C1684T, C3037T, T5263C, C11950T, T13114C, C23644T, T25084C, C26885T, G26909T	C853T, C1684T, C3037T, T5263C, C11950T, T13114C		C23644T, T25084C			C26885T, G26909T					

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 809/2020	B.1.1.7	C241T, C913T, C3037T, C5986T, C8950T, C14676T, A15033T, C15279T, T16176C, C19524T, C21234T, T29524C	C913T, C3037T, C5986T, C8950T	C14676T, A15033T, C15279T, T16176C, C19524T, C21234T								T29524C	
SARS-CoV-2/ human/CHN/ 811/2020	B.1.1.7	C241T, C913T, C3037T, C5986T, C14676T, C14724T, T15096C, C15279T, T16176C, A29209T	C913T, C3037T, C5986T	C14676T, C14724T, T15096C, C15279T, T16176C								A29209T	
SARS-CoV-2/ human/CHN/ 824/2020	B.1.1.7	C241T, C913T, C1825T, C3037T, C5986T, C14676T, T15096C, C15279T, T16176C, C17862T, C24109T, C29585T	C913T, C1825T, C3037T, C5986T	C14676T, T15096C, C15279T, T16176C, C17862T	C24109T								C29585T
SARS-CoV-2/ human/CHN/ 825/2020	B.1.1.7	C241T, C913T, T2734C, C3037T, C5986T, C14676T, T15096C, C15279T, T16176C, C18486T, C28846T, T29804A	C913T, T2734C, C3037T, C5986T	C14676T, T15096C, C15279T, T16176C, C18486T								C28846T	

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 834/2020	B.1.525	C241T, C1498T, A1807G, G2659A, C3037T, T8593C, C9565T, C18171T, A20724G, C24370T, C24748T, A28699G, G29543T, T29804A	C1498T, A1807G, G2659A, C3037T, T8593C, C9565T	C18171T, A20724G	C24370T, C24748T							A28699G	
SARS-CoV-2/ human/CHN/ 857/2020	B.1.1.7	C241T, C913T, C3037T, C5986T, C14676T, T15096C, C15279T, T16176C, C16323T, C24109T	C913T, C3037T, C5986T	C14676T, T15096C, C15279T, T16176C, C16323T	C24109T								
SARS-CoV-2/ human/CHN/ 859/2020	B.1	C241T, C292T, T1537C, C3037T, A20268G, G21123T, C26873T, C27881T, G29449T, T29524C, C29738T	C292T, T1537C, C3037T	A20268G, G21123T				C26873T				G29449T, T29524C	
SARS-CoV-2/ human/CHN/ 863/2020	B.1	C241T, C292T, T1537C, C3037T, A20268G, G21123T, C26873T, C27881T, G29449T, T29524C, C29738T	C292T, T1537C, C3037T	A20268G, G21123T				C26873T				G29449T, T29524C	
SARS-CoV-2/ human/CHN/ 865/2020	B.1.1.7	C241T, C913T, C2644T, C3037T, C5986T, C14676T, C15279T, T16176C, C19602T	C913T, C2644T, C3037T, C5986T	C14676T, C15279T, T16176C, C19602T									

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 872/2020	B.1.1.7	C241T, C913T, C3037T, C5986T, C7844T, C14676T, C15279T, T16176C	C913T, C3037T, C5986T, C7844T	C14676T, C15279T, T16176C									
SARS-CoV-2/ human/CHN/ 879/2020	B.1.351	G174T, C241T, C3037T, T4213C, C11812A, T17970C, T23449G, A23764T, C28253T, T28642C	C3037T, T4213C, C11812A	T17970C	T23449G, A23764T						C28253T	T28642C	
SARS-CoV-2/ human/CHN/ 888/2020	B.1.351.3	G174T, C241T, A2692T, C3037T, T7624C, G10396T, C10615T, C25603T, C28253T	A2692T, C3037T, T7624C, G10396T, C10615T			C25603T					C28253T		
SARS-CoV-2/ human/CHN/ 889/2020	B.1.1.7	C241T, C913T, C3037T, C5986T, C7844T, C14676T, C15279T, T16176C	C913T, C3037T, C5986T, C7844T	C14676T, C15279T, T16176C									
SARS-CoV-2/ human/CHN/ 890/2020	B.1.214.2	C241T, C3037T, C4891T, C11224T, C15324T, C21811T, T27576C, C27800T, C28507T, C28846T, C29730T	C3037T, C4891T, C11224T	, C15324T	C21811T					T27576C		C28507T, C28846T	

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 894/2020	B.1.1.7	C241T, C913T, C3037T, C5986T, G6421T, C14676T, T15096C, C15279T, T16176C, A18000G, T29377A, G29449T, C29686T	C913T, C3037T, C5986T, G6421T	C14676T, T15096C, C15279T, T16176C, A18000G									T29377A, G29449T, C29686T
SARS-CoV-2/ human/CHN/ 895/2020	B.1.351.3	G174T, C241T, A2692T, C3037T, T7624C, G10396T, C10615T, C12974T, C21411T, C28253T	A2692T, C3037T, T7624C, G10396T, C10615T, C12974T	C21411T							C28253T		
SARS-CoV-2/ human/CHN/ 901/2020	B.1.1.7	C241T, C913T, C2701T, C3037T, C5944T, C5986T, C14676T, T15096C, C15279T, T16176C, T21763C	C913T, C2701T, C3037T, C5944T, C5986T	C14676T, T15096C, C15279T, T16176C	T21763C								
SARS-CoV-2/ human/CHN/ 904/2020	B.1.351.3	G174T, C241T, A2692T, C3037T, T7624C, G10396T, C10615T, C28253T	A2692T, C3037T, T7624C, G10396T, C10615T								C28253T		
SARS-CoV-2/ human/CHN/ 911/2020	B.1.1.25	C106T, C241T, C3037T, G3250A, T9022C, C11620T, C12754T, T22342A, A27270G, G28321A	C3037T, G3250A, T9022C, C11620T, C12754T		T22342A				A27270G			G28321A	

Continued

seqName	Lineage	Nonsense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 912/2020	B.1.1.7	C241T, C913T, C1102T, C3037T, C5986T, C14676T, C15279T, C15852T, T16176C	C913T, C1102T, C3037T, C5986T	C14676T, C15279T, C15852T, T16176C									
SARS-CoV-2/ human/CHN/ 914/2020	B.1.1.7	C241T, C274T, C913T, C3037T, C5986T, C9857T, C14676T, C15279T, T16176C, T24143C, A26981C, C28531T	C274T, C913T, C3037T, C5986T, C9857T	C14676T, C15279T, T16176C	T24143C			A26981C				C28531T	
SARS-CoV-2/ human/CHN/ 915/2020	B.1.1	C241T, G529T, C829T, T1834C, C3037T, C5192T, C14340T, G16377T, C18877T, A19167G, T19839C, T26076C, C27213T, C28606T, G29422A, G29745T	G529T, C829T, T1834C, C3037T, C5192T	C14340T, G16377T, C18877T, A19167G, T19839C		T26076C			C27213T			C28606T, G29422A	

Supplementary Table S3. Missense mutation distribution of 117 imported cases

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 462/2020	A.23.1	G28878A, A4040G, C8240T, G11230T, G11266T, G11521T, A12759C, G25855C, T28144C, G28167A, G21867T, C22033A, G22661T, G23401T, C23604G	A4040G, C8240T, G11230T, G11266T, G11521T, A12759C		C22033A, G22661T, G23401T, C23604G	G25855C					T28144C, G28167A, G21867T	G28878A	
SARS-CoV-2/ human/CHN/ 464/2020	B.1.2	C28472T, C28869T, G29402T, C1059T, G8083A, C10319T, C14408T, A18424G, C21304T, G25563T, G25907T, C26212T, C27964T, A23403G	C1059T, G8083A, C10319T	C14408T, A18424G, C21304T	A23403G	G25563T, G25907T, C26212T					C27964T	C28472T, C28869T, G29402T	
SARS-CoV-2/ human/CHN/ 467/2020	B.1.1	G28881A, G28882A, G28883C, T606C, A6867G, C14408T, G20134A, C25658T, A23403G	T606C, A6867G	C14408T, G20134A	A23403G	C25658T						G28881A, G28882A, G28883C	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 469/2020	B.1.1.368	G28881A, G28882A, G28883C, G29402T, C1101T, A1982G, G7145A, C9996T, C14408T, C20104T, G27798T, G22017T, A23403G	C1101T, A1982G, G7145A, C9996T	C14408T, C20104T	G22017T, A23403G							G28881A, G28882A, G28883C, G29402T	
SARS-CoV-2/ human/CHN/ 471/2020	B.1	G28899T, A1004G, C1911T, G3259T, G7272A, C14408T, G15766T, A18919G, A27545C, A23403G	A1004G, C1911T, G3259T, G7272A	C14408T, G15766T, A18919G	A23403G					A27545C		G28899T	
SARS-CoV-2/ human/CHN/ 475/2020	B.1.36.38	C28854T, T1947C, A8348G, C11109T, C14408T, C16376T, G25563T, A23403G	T1947C, A8348G, C11109T	C14408T, C16376T	A23403G	G25563T						C28854T	
SARS-CoV-2/ human/CHN/ 476/2020	B.1.1.228	C28638A, G28881A, G28882A, G28883C, C815T, C906T, C14408T, A20288G, G25785T, A23403G, C23604A	C815T, C906T	C14408T, A20288G	A23403G, C23604A	G25785T						C28638A, G28881A, G28882A, G28883C	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 477/2020	B.1.468	G28851T, G2891A, C6449T, G10793T, A12498G, C14408T, A16978G, G25563T, G28077T, A23403G	G2891A, C6449T, G10793T, A12498G	C14408T, A16978G	A23403G	G25563T					G28077T	G28851T	
SARS-CoV-2/ human/CHN/ 478/2020	B.1.36.22	C28854T, G488A, A10323G, C14408T, G19542T, G25563T, A23403G	G488A, A10323G	C14408T, G19891T	A23403G	G25563T						C28854T	
SARS-CoV-2/ human/CHN/ 482/2020	B.1.1.413	A26741G, G28881A, G28882A, G28883C, G524A, C13684T, G13849T, C14408T, G25647T, G25690T, G21974T, G22992A, A23403G, G24926T	G524A	C13684T, G13849T, C14408T	G21974T, G22992A, A23403G, G24926T		G25647T, G25690T	A26741G				G28881A, G28882A, G28883C	
SARS-CoV-2/ human/CHN/ 485/2020	B.1.595	C26622T, C28887T, C29366T, C1059T, T2343C, C3411T, C8097T, C10319T, C14408T, G19009T, G25563T, C27964T, C22088T, G22240T, A23403G	C1059T, T2343C, C3411T, C8097T, C10319T	C14408T, G19009	C22088T, G22240T, A23403G	G25563T		C26622T			C27964T	C28887T, C29366T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 486/2020	B.1.595	C26622T, C28887T, C29366T, C1059T, T2343C, C3411T, C8097T, C10319T, C14408T, G19009T, G25563T, C27964T, C22088T, G22240T, A23403G	C1059T, T2343C, C3411T, C8097T, C10319T	C14408T, G19009	C22088T, G22240T, A23403G	G25563T		C26622T,			C27964T	C28887T, C29366T	
SARS-CoV-2/ human/CHN/ 488/2020	B.1.2	C28472T, C28869T, G29402T, C1059T, G8083A, C10319T, C14408T, A18424G, C21304T, G25563T, G25907T, C27964T, A23403G	C1059T, G8083A, C10319T	C14408T, A18424G, C21304T	A23403G	G25563T, G25907T					C27964T	C28472T, C28869T, G29402T	
SARS-CoV-2/ human/CHN/ 495/2020	B.1.36.22	C28854T, G488A, A10323G, C14408T, G19542T, C20132T, G25563T, A23403G	G488A, A10323G	C14408T, G19542T	A23403G	G25563T						C28854T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 496/2020	B.1.402	C28854T, T519A, G524A, C875T, C3093T, G11083T, C13430T, C14408T, C19718T, G25563T, G25660C, A23403G, G25249T, T25301C	T519A, G524A, C875T, C3093T, G11083T, C13430T	C14408T, C19718T	A23403G, G25249T, T25301C	G25563T, G25660C						C28854T	
SARS-CoV-2/ human/CHN/ 499/2020	B.1.84	C28890T, G2885T, A13951G, C14408T, G19117T, A21131G, C25624T, A23403G, G23522A	G2885T	A13951G, C14408T, G19117T, A21131G	A23403G, G23522A	C25624T						C28890T	
SARS-CoV-2/ human/CHN/ 500/2020	B.1.466.2	C28887T, C3768T, C5184T, C14408T, C20389T, G25563T, C22879A, A23403G	C3768T, C5184T	C14408T, C20389T	C22879A, A23403G							C28887T	
SARS-CoV-2/ human/CHN/ 505/2020	B.1.438.1	G28975T, G29474T, A1154G, C14408T, G25563T, G25677T, A23403G, G23587T	A1154G	C14408T	A23403G, G23587T	G25563T, G25677T						G28975T, G29474T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 507/2020	B.1.429	C28887T, C1059T, A2406G, A5780G, A12878G, C14408T, G15452T, G17014T, G25563T, G25912A, G21600T, G22018T, T22917G, A23403G	C1059T, A2406G, A5780G, A12878G	C14408T, G15452T, G17014T	G21600T, G22018T, T22917G, A23403G	G25563T, G25912A						C28887T	
SARS-CoV-2/ human/CHN/ 508/2020	B.1.596	C28472T, C28869T, C1059T, C3738T, A5852G, C10319T, C12708T, C14408T, A18424G, G25563T, G25907T, C27964T, A23403G, G25244T	C1059T, C3738T, A5852G, C10319T, C12708T	C14408T, A18424G	A23403G, G25244T	G25563T, G25907T					C27964T	C28472T, C28869T	
SARS-CoV-2/ human/CHN/ 509/2020	B.1.170	C28977T, C14408T, C16375A, G16741T, G25563T, A25864G, T27299C, A23403G		C14408T, C16375A, G16741	A23403G	G25563T, A25864G				T27299C		C28977T	
SARS-CoV-2/ human/CHN/ 514/2020	B.1.468	G28851T, G2891A, C6449T, G10793T, A12498G, C14408T, A16978G, G25563T, G28077T, A23403G	G2891A, C6449T, G10793T, A12498G	C14408T, A16978G	A23403G	G25563T					G28077T	G28851T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 516/2020	B.1.466.2	C28887T, C3768T, C5184T, C14408T, C20389T, G25563T, C22879A, A23403G	C3768T, C5184T	C14408T, C20389T	C22879A, A23403G							C28887T	
SARS-CoV-2/ human/CHN/ 521/2020	B.1.170	C28977T, C14408T, C16375A, G16741T, G25563T, A25864G, T27299C, A23403G		C14408T, C16375A, G16741	A23403G	G25563T, A25864G				T27299C		C28977T	
SARS-CoV-2/ human/CHN/ 525/2020	B.1.351	C26456T, C28887T, C1059T, C3924T, G5230T, A10323G, G11291A, T11296G, C14408T, G25563T, C25904T, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C1059T, C3924T, G5230T, A10323G, G11291A, T11296G	C14408T	C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	G25563T, C25904T	C26456T					C28887T	
SARS-CoV-2/ human/CHN/ 527/2020	B.1	C1059T, C14408T, G25563T, T22304A, A23403G	C1059T	C14408T	T22304A, A23403G	G25563T							

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 535/2020	A	C28292A, G28878A, A5606G, C6539T, A6610T, G11230T, G15016T, C25487T, G25563T, G28028T, G28178T, C22227T, G22319T, A23403G	A5606G, C6539T, A6610T, G11230T	G15016T	C22227T, G22319T, A23403G	C25487T, G25563T					G28028T, G28178T	C28292A, G28878A	
SARS-CoV-2/ human/CHN/ 538/2020	B.1.177.81	C28932T, C10376T, C12119T, C14408T, C25889T, C22227T, A23403G	C10376T, C12119T	C14408T	C22227T, A23403G		C25889T					C28932T	
SARS-CoV-2/ human/CHN/ 542/2020	B.1	C28887T, C14408T, G25563T, G25912A, A23403G		C14408T	A23403G	G25563T, G25912A						C28887T	
SARS-CoV-2/ human/CHN/ 547/2020	B.1.36.17	C28854T, T1947C, G3431T, C14408T, G19891T, G25563T, C26060T, A23403G	T1947C, G3431T	C14408T, G19891T	A23403G	G25563T, C26060T						C28854T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 558/2020	L.3	G28881A, G28882A, G28883C, C1601T, G4399T, C8481T, A9453C, C11565T, C14408T, G21785C, T22917G, A23403G, A25026T, G25244T	C1601T, G4399T, C8481T, A9453C, C11565T	C14408T	G21785C, T22917G, A23403G, A25026T, G25244T							G28881A, G28882A, G28883C	
SARS-CoV-2/ human/CHN/ 559/2020	B.1.1	G28881A, G28882A, G28883C, G2229A, C5147T, C14408T, G26063T, A23403G	G2229A, C5147T	C14408T	A23403G	G26063T						G28881A, G28882A, G28883C	
SARS-CoV-2/ human/CHN/ 561/2020	B.1.36.16	C28854T, C1878T, G11083T, G11596T, G12188T, C14408T, G25563T, C25883A, G28077T, G22205C, A22396C, A23403G	C1878T, G11083T, G11596T, G12188T		G22205C, A22396C, A23403G	G25563T, C25883A					G28077T	C28854T	
SARS-CoV-2/ human/CHN/ 564/2020	B.1.36.16	C28854T, C1878T, G11083T, G11596T, G12188T, C14408T, G25563T, C25883A, G28077T, G22205C, A22396C, A23403G	C1878T, G11083T, G11596T, G12188T		G22205C, A22396C, A23403G	G25563T, C25883A					G28077T	C28854T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 566/2020	A	C28292A, G28878A, A5606G, C6539T, G11230T, G15016T, C25487T, G25563T, G28028T, G28178T, C22227T, G22319T, A23403G	A5606G, C6539T, G11230T	G15016T	C22227T, G22319T, A23403G	C25487T, G25563T					G28028T, G28178T	C28292A, G28878A	
SARS-CoV-2/ human/CHN/ 571/2020	B.1.177.81	C28932T, C10376T, C12119T, C14408T, C25889T, C22227T, A23403G	C10376T, C12119T	C14408T	C22227T, A23403G		C25889T					C28932T	
SARS-CoV-2/ human/CHN/ 585/2020	B.1.36.16	C28854T, C1878T, G11083T, G11596T, G12188T, C14408T, G25563T, C25883A, G28077T, G22205C, A22396C, A23403G	C1878T, G11083T, G11596T, G12188T		G22205C, A22396C, A23403G	G25563T, C25883A					G28077T	C28854T	
SARS-CoV-2/ human/CHN/ 587/2020	B.1.427	C28887T, C1059T, C4055T, C6151A, G9738C, C9996T, C14408T, C16394T, G17014T, G25563T, G21600T, G22018T, T22917G, A23403G	C1059T, C4055T, C6151A, G9738C, C9996T	C14408T, C16394T, G17014T	G21600T, G22018T, T22917G, A23403G	G25563T						C28887T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 593/2020	L.3	G28881A, G28882A, G28883C, C1601T, G4399T, C8481T, A9453C, C11565T, C14408T, G28178T, T22917G, A23403G, A25026T, G25244T	C1601T, G4399T, C8481T, A9453C, C11565T	C14408T	T22917G, A23403G, A25026T, G25244T						G28178T	G28881A, G28882A, G28883C	
SARS-CoV-2/ human/CHN/ 595/2020	A.23.1	C28278A, G28878A, G28881A, G11230T, G11266T, G11521T, C21058T, T28144C, G28167A, C22033A, G22661T, G23282T, G23401T, G23429T, C23604G	G11230T, G11266T, G11521T	C21058T	C22033A, G22661T, G23282T, G23401T, G23429T, C23604G						T28144C, G28167A	C28278A, G28878A, G28881A	
SARS-CoV-2/ human/CHN/ 596/2020	B.1	G28881A, G28882A, G28883C, G25563T, C25883A, G28077T, G22205C, A22396C, A23403G			G22205C, A22396C, A23403G		G25563T, C25883A				G28077T	G28881A, G28882A, G28883C	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 599/2020	B.1.1.157	G28881A, G28882A, G28883C, C4158T, C5339T, G6986A, T8603C, G11272A, C14408T, A17615G, T17659G, C17678T, G22021T, A23403G, A24952G	C4158T, C5339T, G6986A, T8603C, G11272A	C14408T, A17615G, T17659G, C17678T	G22021T, A23403G, A24952G							G28881A, G28882A, G28883C	
SARS-CoV-2/ human/CHN/ 600/2020	B.1.351	C26456T, C28887T, C1059T, G5230T, C6258T, A10323G, G11291A, T11296G, C14408T, C25546T, G25563T, C25904T, A28254C, A21801C, A22206G, G22813T, G23012A, A23403G, C23664T	C1059T, G5230T, C6258T, A10323G, G11291A, T11296G	C14408T	C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C25546T, G25563T, C25904T	C26456T					C28887T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 608/2020	B.1.351	C26456T, C28310T, C28887T, C1059T, G5230T, A10323G, G11291A, T11296G, C14408T, G25563T, C25904T, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C1059T, G5230T, A10323G, G11291A, T11296G	C14408T	C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	G25563T, C25904T	C26456T					C28310T, C28887T	
SARS-CoV-2/ human/CHN/ 609/2020	B.1.2	C28472T, C28869T, A29439T, C1059T, C2106T, C5310T, C6312T, C10319T, C14408T, G15766T, A18424G, A18470G, G18538T, C21304T, G25563T, G25907T, T25930C, C27964T, A23403G	C1059T, C2106T, C5310T, C6312T, C10319T	C14408T, G15766T, A18424G, A18470G, G18538T, C21304T	A23403G	G25563T, G25907T, T25930C					C27964T	C28472T, C28869T, A29439T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 610/2020	B.1.580	C26895T, G28842T, G29447T, C1059T, T1791C, C8892T, A10323G, G11417T, C14408T, G18255T, G25563T, A25843G, C23315T, A23403G	C1059T, T1791C, C8892T, A10323G, G11417T	C14408T, G18255T	C23315T, A23403G	G25563T, A25843G		C26895T				G28842T, G29447T	
SARS-CoV-2/ human/CHN/ 611/2020	B.1.524	C28854T, C1188T, C1929T, C6312T, C8637T, A10124G, C14408T, C17518T, C21365T, A23403G, C23664T	C1188T, C1929T, C6312T, C8637T, A10124G	C14408T, C17518T, C21365T	A23403G, C23664T							C28854T	
SARS-CoV-2/ human/CHN/ 613/2020	B.1.1	G28881A, G28882A, G28883C, G28985T, C3411T, G11083T, G11410T, C14408T, C25976T, G26104T, T28251G, C28253T, A28254C, C22879G, A23403G	C3411T, G11083T, G11410T	C14408T		C25976T, G26104T					T28251G, C28253T, A28254C	G28881A, G28882A, G28883C, G28985T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 623/2020	B.1.1.214	G28881A, G28882A, G28883C, G28975T, C14408T, C18167T, G20560T, G21518T, A23403G		C14408T, C18167T, G20560T, G21518T	A23403G							G28881A, G28882A, G28883C, G28975T	
SARS-CoV-2/ human/CHN/ 625/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G7042T, G11291A, T11296G, C14120T, C14408T, C27972T, G28048T, A28095T, A28111G, G22289T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G7042T, G11291A, T11296G	C14120T, C14408T	G22289T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 626/2020	A.23.1	C28278A, G28878A, G28881A, G11230T, G11266T, G11521T, C21058T, T28144C, G28167A, C22033A, G22661T, G23282T, G23401T, G23429T, C23604G	G11230T, G11266T, G11521T	C21058T	C22033A, G22661T, G23282T, G23401T, G23429T, C23604G						T28144C, G28167A	C28278A, G28878A, G28881A	
SARS-CoV-2/ human/CHN/ 627/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G7042T, G11291A, T11296G, C14120T, C14408T, C27972T, G28048T, A28095T, A28111G, G22289T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G7042T, G11291A, T11296G	C14120T, C14408T	G22289T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 632/2020	A	G28878A, G11230T, C26042T, G27990T, C28000T, T28144C, G28167A, A23403G, C24149T	G11230T		A23403G, C24149T	C26042T					G27990T, C28000T, T28144C, G28167A	G28878A	
SARS-CoV-2/ human/CHN/ 638/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G11291A, T11296G, C14120T, C14408T, C19390T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G11291A, T11296G	C14120T, C14408T, C19390T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 639/2020	B.1.2	A28296G, C28472T, C28869T, C1059T, A2726G, C3966T, C10319T, T11672C, C14408T, G15349A, A18424G, C21304T, G25563T, G25907T, C27964T, C23271T, A23403G	C1059T, A2726G, C3966T, C10319T, T11672C	C14408T, G15349A, A18424G, C21304T	C23271T, A23403G	G25563T, G25907T					C27964T	A28296G, C28472T, C28869T	
SARS-CoV-2/ human/CHN/ 642/2020	B.1.1	G28881A, G28882A, G28883C, G3307T, A3336G, T5619C, A5948G, G11417T, C12525T, C14408T, C26060T, A23403G, G23522C	G3307T, A3336G, T5619C, A5948G, G11417T, C12525T	C14408T	A23403G, G23522C	C26060T						G28881A, G28882A, G28883C	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 644/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, C6843T, T6954C, G10887A, G11291A, T11296G, C14120T, C14408T, C19390T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, C6843T, T6954C, G10887A, G11291A, T11296G	C14120T, C14408T, C19390T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 646/2020	B.1.351	C26456T, C28310T, C28887T, C1059T, G5230T, A10323G, G11291A, T11296G, C14408T, G25563T, C25904T, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C1059T, G5230T, A10323G, G11291A, T11296G	C14408T	C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	G25563T, C25904T	C26456T					C28310T, C28887T	
SARS-CoV-2/ human/CHN/ 649/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3045T, C3267T, C5388A, T6954C, C9344T, G11291A, T11296G, C14408T, C26191T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3045T, C3267T, C5388A, T6954C, C9344T, G11291A, T11296G	C14408T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C26191T					C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 651/2020	B.1.351	C26456T, C28887T, C29259T, T606C, C1059T, G5230T, C9360T, A10323G, G11291A, T11296G, C14408T, C17999T, C21110T, C25546T, G25563T, C25904T, A28254C, A21801C, A22206G, G22813T, C22995T, G23012A, A23063T, A23403G, C23664T	T606C, C1059T, G5230T, C9360T, A10323G, G11291A, T11296G	C14408T, C17999T, C21110T	A21801C, A22206G, G22813T, C22995T, G23012A, A23063T, A23403G, C23664T	C25546T, G25563T, C25904T	C26456T				A28254C	C28887TT, C29259T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 652/2020	B.1.351	C26456T, C28887T, T606C, C1059T, G5230T, C9360T, A10323G, G11291A, T11296G, C14408T, C17999T, C21110T, C25546T, G25563T, C25904T, A28254C, A21801C, A22206G, G22813T, C22995T, G23012A, A23063T, A23403G, C23664T	T606C, C1059T, G5230T, C9360T, A10323G, G11291A, T11296G	C14408T, C17999T, C21110T	A21801C, A22206G, G22813T, C22995T, G23012A, A23063T, A23403G, C23664T	C25546T, G25563T, C25904T	C26456T				A28254C	C28887T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 655/2020	B.1.351	C26456T, C28887T, C29259T, T606C, C1059T, G5230T, C9360T, A10323G, G11291A, T11296G, C14408T, C17999T, C21110T, C25546T, G25563T, C25904T, A28254C, A21801C, A22206G, G22813T, C22995T, G23012A, A23063T, A23403G, C23664T	T606C, C1059T, G5230T, C9360T, A10323G, G11291A, T11296G	C14408T, C17999T, C21110T	A21801C, A22206G, G22813T, C22995T, G23012A, A23063T, A23403G, C23664T	C25546T, G25563T, C25904T	C26456T				A28254C	C28887T, C29259T	
SARS-CoV-2/ human/CHN/ 658/2020	B.1.1.222	G28881A, G28882A, G28883C, C11345T, A13498G, C14408T, C25549T, A28254C, G22331A, A23403G, A23756G	C11345T	A13498G, C14408T	G22331A, A23403G, A23756G	C25549T					A28254C	G28881A, G28882A, G28883C	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 659/2020	B.1.351	C26456T, C28887T, C1059T, G5230T, A10323G, G11291A, T11296G, C14408T, G25563T, C25904T, T28033C, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C1059T, G5230T, A10323G, G11291A, T11296G	C14408T	C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	G25563T, C25904T	C26456T				T28033C	C28887T	
SARS-CoV-2/ human/CHN/ 666/2020	B.1	A3069G, C8964T, C10341T, G11083T, G11230T, C14408T, G15380T, G19388T, G25621A, C26060T, G28028T, C28227T, A23403G, G23545T	A3069G, C8964T, C10341T, G11083T, G11230T	C14408T, G15380T, G19388T	A23403G, G23545T	G25621A, C26060T					G28028T, C28227T		

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 671/2020	B.1.351	C26456T, C28887T, C29358T, C1059T, C5100T, G5230T, A10323G, G11291A, T11296G, C14408T, G25563T, C25904T, G27870T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C1059T, C5100T, G5230T, A10323G, G11291A, T11296G	C14408T	A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	G25563T, C25904T	C26456T				G27870T	C28887T, C29358T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 671/2020 (1)	B.1.351	C26456T, C28887T, C29259T, T606C, C1059T, G5230T, C9360T, A10323G, G11291A, T11296G, C14408T, G15451A, C17999T, C21110T, C25546T, G25563T, C25904T, A28254C, A21801C, A22206G, G22813T, C22995T, G23012A, A23063T, A23403G, C23664T	T606C, C1059T, G5230T, C9360T, A10323G, G11291A, T11296G	C14408T, G15451A, C17999T, C21110T	A21801C, A22206G, G22813T, C22995T, G23012A, A23063T, A23403G, C23664T	C25546T, G25563T, C25904T	C26456T				A28254C	C28887T, C29259T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 671/2020 (2)	B.1.351	C26456T, C28887T, T606C, C1059T, G5230T, C9360T, A10323G, G11291A, T11296G, C14408T, C17999T, C21110T, C25546T, G25563T, C25904T, A28254C, A21801C, A22206G, G22813T, C22995T, G23012A, A23063T, A23403G, C23664T	T606C, C1059T, G5230T, C9360T, A10323G, G11291A, T11296G	C14408T, C17999T, C21110T	A21801C, A22206G, G22813T, C22995T, G23012A, A23063T, A23403G, C23664T	C25546T, G25563T, C25904T	C26456T				A28254C	C28887T	
SARS-CoV-2/ human/CHN/ 671/2020 (3)	B.1.351	C26456T, C28887T, C1059T, G1068A, G5230T, C9195A, A10323G, G11291A, T11296G, C14408T, G25563T, C25904T, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C1059T, G1068A, G5230T, C9195A, A10323G, G11291A, T11296G	C14408T	C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	G25563T, C25904T	C26456T					C28887T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 681/2020	B.1.1.420	C28310T, G28727T, T28862A, G28881A, G28882A, G28883C, C5178T, A11451G, C13694T, C14408T, G25839T, C21614T, T22882G, A23403G, G23593T	C5178T, A11451G	C13694T, C14408T	C21614T, T22882G, A23403G, G23593T		G25839T					C28310T, G28727T, T28862A, G28881A, G28882A, G28883C	
SARS-CoV-2/ human/CHN/ 682/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G11291A, T11296G, C14120T, C14408T, G18910T, C19390T, C27972T, G28048T, A28095T, A28111G, G23009T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G11291A, T11296G	C14120T, C14408T, G18910T, C19390T	G23009T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 695/2020	P.2	G28628T, G28881A, G28882A, G28883C, G28975T, T10667G, C12053T, C12488T, C14408T, C27972T, G23012A, T23255C, A23403G, G25088T	T10667G, C12053T, C12488T	C14408T	G23012A, T23255C, A23403G, G25088T						C27972T	G28628T, G28881A, G28882A, G28883C, G28975T	
SARS-CoV-2/ human/CHN/ 712/2020	B.1.36	C28854T, T1947C, C7321G, G11417T, G11521T, C14408T, G25543T, G25563T, C25867T, G23120T, A23403G, G23522A, G23593T	T1947C, C7321G, G11417T, G11521T	C14408T	G23120T, A23403G, G23522A, G23593T	G25543T, G25563T, C25867T						C28854T	
SARS-CoV-2/ human/CHN/ 715/2020	B.1.177.81	C28932T, G3971T, C12119T, C14408T, C25844T, C25889T, C22227T, A23403G	G3971T, C12119T	C14408T	C22227T, A23403G	C25844T, C25889T						C28932T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 719/2020	B.1.351	C26456T, C28887T, C1059T, G5230T, C6285T, A10323G, G11291A, T11296G, C13329T, C14408T, C17999T, C21110T, C25546T, G25563T, C25904T, A28254C, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C1059T, G5230T, C6285T, A10323G, G11291A, T11296G, C13329T	C14408T, C17999T, C21110T	A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C25546T, G25563T, C25904T	C26456T				A28254C	C28887T	
SARS-CoV-2/ human/CHN/ 722/2020	B.1.351	C26456T, C28887T, C1059T, G2162A, A4295G, C5100T, G5230T, C5832T, A10323G, G11291A, T11296G, C14408T, G17122T, G25563T, C25904T, C27476T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C1059T, G2162A, A4295G, C5100T, G5230T, C5832T, A10323G, G11291A, T11296G	C14408T, G17122T	A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	G25563T, C25904T	C26456T			C27476T		C28887T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 728/2020	B.1.1.420	C28310T, G28727T, T28862A, G28881A, G28882A, G28883C, C5178T, A11451G, C13694T, C14408T, G25839T, C21614T, T22882G, A23403G, G23593T	C5178T, A11451G	C13694T, C14408T	C21614T, T22882G, A23403G, G23593T		G25839T					C28310T, G28727T, T28862A, G28881A, G28882A, G28883C	
SARS-CoV-2/ human/CHN/ 729/2020	B.1.351	C26456T, C28887T, C1059T, G5230T, C6285T, A10323G, G11291A, T11296G, C13329T, C14408T, C17999T, C21110T, C25546T, G25563T, C25904T, A28254C, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C1059T, G5230T, C6285T, A10323G, G11291A, T11296G, C13329T	C14408T, C17999T, C21110T	A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C25546T, G25563T, C25904T	C26456T				A28254C	C28887T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 731/2020	B.1.177.81	C28932T, G3971T, C12119T, C14408T, C25844T, C25889T, C22227T, A23403G	G3971T, C12119T	C14408T	C22227T, A23403G	C25844T, C25889T						C28932T	
SARS-CoV-2/ human/CHN/ 736/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G11291A, T11296G, C14408T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G11291A, T11296G	C14408T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 741/2020	B.1.429	C27145T, C28887T, C1059T, C5907T, C6255T, C6285T, A12878G, C14408T, G17014T, G25563T, A27712G, G21600T, G22018T, T22917G, A23403G	C1059T, C5907T, C6255T, C6285T, A12878G	C14408T	G21600T, G22018T, T22917G, A23403G	G25563T		C27145T		A27712G		C28887T	
SARS-CoV-2/ human/CHN/ 761/2020	C.36	G28881A, G28882A, G28883C, G28908T, G569A, C936T, C1347T, C1427T, G2249A, C2841T, C4002T, G5180A, C7124T, G9929A, G10097A, T11337C, C12534T, C14408T, G17122T, G17218A, A17743T, G18546T, G27882T, C21597T, T22917G, A23403G, G23593T	G569A, C936T, C1347T, C1427T, G2249A, C2841T, C4002T, G5180A, C7124T, G9929A, G10097A, T11337C, C12534T	C14408T, G17122T, G17218A, A17743T, G18546T	C21597T, T22917G, A23403G, G23593T						G27882T	G28881A, G28882A, G28883C, G28908T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 762/2020	B.1.525	C26305T, T26767C, C28308G, C28887T, C6285T, G11291A, T11296G, C14407T, C14408T, A21717G, C21762T, G23012A, A23403G, G23593C, T24224C	C6285T, G11291A, T11296G	C14407T, C14408T	A21717G, C21762T, G23012A, A23403G, G23593C, T24224C		C26305T	T26767C				C28308G, C28887T,	
SARS-CoV-2/ human/CHN/ 767/2020	B.1.351	C26456T, C28887T, C29358T, C1059T, A3222G, C5100T, G5230T, A10323G, G11291A, T11296G, C14408T, G25563T, C25904T, G27870T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C1059T, A3222G, C5100T, G5230T, A10323G, G11291A, T11296G	C14408T	A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	G25563T, C25904T	C26456T					C28887T, C29358T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 779/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, G6446C, T6954C, G11291A, T11296G, C14120T, C14408T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, G6446C, T6954C, G11291A, T11296G	C14120T, C14408T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 782/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G11291A, T11296G, C12789T, G12911A, C14408T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G11291A, T11296G, C12789T, G12911A	C14408T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	
SARS-CoV-2/ human/CHN/ 786/2020	B.1.618	G27163T, G28325A, G28628T, G28922T, G28975T, A3830G, C4809T, G11083T, G14245A, C14408T, A17066G, C25844T, G27852T, A27979T, G22131A, G23012A, A23403G	A3830G, C4809T, G11083T	G14245A, C14408T, A17066G	G22131A, G23012A, A23403G	C25844T		G27163T			A27979T	G28325A, G28628T, G28922T, G28975T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 788/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G11291A, T11296G, C14408T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G11291A, T11296G	C14408T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 789/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G11291A, T11296G, C14408T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G11291A, T11296G	C14408T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 798/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G11291A, T11296G, C12789T, G12911A, C14408T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G11291A, T11296G, C12789T, G12911A	C14408T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 803/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, A4707G, C5388A, T6954C, G11291A, T11296G, C13458T, C14408T, A17615G, C27972T, G28048T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, A4707G, C5388A, T6954C, G11291A, T11296G, C13458T	C14408T, A17615G	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 804/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G11291A, T11296G, C14408T, G26152T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G11291A, T11296G	C14408T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	G26152T					C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 805/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C2453T, C3267T, C5388A, T6954C, G11291A, T11296G, C14408T, C16726T, G19613A, C27577T, C27972T, G28048T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C2453T, C3267T, C5388A, T6954C, G11291A, T11296G	C14408T, C16726T, G19613A	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C					C27577T	C27972T, G28048T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 807/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G11291A, T11296G, C12789T, G12911A, C14408T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G11291A, T11296G, C12789T, G12911A	C14408T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	
SARS-CoV-2/ human/CHN/ 808/2020	B.1.618	G27163T, G28325A, G28628T, G28922T, G28975T, A3830G, C4809T, G11083T, G14245A, C14408T, A17066G, C25844T, G27852T, A27979T, G22131A, G23012A, A23403G	A3830G, C4809T, G11083T	G14245A, C14408T, A17066G	G22131A, G23012A, A23403G	C25844T		G27163T			A27979T	G28325A, G28628T, G28922T, G28975T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 809/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G11291A, T11296G, C14408T, C25844T, C27577T, C27972T, G28048T, A28111G, C21575T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G11291A, T11296G	C14408T	C21575T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C25844T				C27577T	C27972T, G28048T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 811/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G11291A, T11296G, C14408T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G11291A, T11296G	C14408T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 824/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G11291A, T11296G, C14408T, G26152T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G11291A, T11296G	C14408T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	G26152T					C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 825/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G11291A, T11296G, C12789T, G12911A, C14408T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G11291A, T11296G, C12789T, G12911A	C14408T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	
SARS-CoV-2/ human/CHN/ 834/2020	B.1.525	C26305T, T26767C, C28308G, C28887T, C29274G, C6285T, G11291A, T11296G, C14407T, C14408T, C18457T, A21717G, C21762T, G23012A, A23403G, G23593C, T24224C	C6285T, G11291A, T11296G	C14407T, C14408T, C18457T	A21717G, C21762T, G23012A, A23403G, G23593C, T24224C		C26305T	T26767C				C28308G, C28887T, C29274G	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 857/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3267T, C5388A, T6954C, G11291A, T11296G, C14408T, C18463T, C25427T, C27503T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, T6954C, G11291A, T11296G	C14408T, C18463T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C25427T				C27503T	C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	
SARS-CoV-2/ human/CHN/ 859/2020	B.1	C28854T, C843T, G11222T, C14408T, A25590T, C26060T, G21578T, A23403G	C843T, G11222T	C14408T	G21578T, A23403G	A25590T, C26060T					C28854T		
SARS-CoV-2/ human/CHN/ 863/2020	B.1	C28854T, C843T, G11222T, C14408T, A25590T, C26060T, G21578T, A23403G	C843T, G11222T	C14408T	G21578T, A23403G	A25590T, C26060T					C28854T		

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 865/2020	B.1.1.7	G28280C, A28281T, T28282A, A28295G, C28695T, G28881A, G28882A, G28883C, C28977T, C2453T, C3267T, C5388A, T6954C, G11291A, T11296G, C14408T, C27972T, G28048T, A28111G, C21855T, G21974C, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C2453T, C3267T, C5388A, T6954C, G11291A, T11296G	C14408T	C21855T, G21974C, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28111G	G28280C, A28281T, T28282A, A28295G, C28695T, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 872/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C3177T, C3264T, C3267T, C5388A, T6954C, C7772T, G11291A, T11296G, C14408T, G25691T, C27972T, G28048T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3177T, C3264T, C3267T, C5388A, T6954C, C7772T, G11291A, T11296G	C14408T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	G25691T					C27972T, G28048T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 879/2020	B.1.351	C26456T, C28887T, C1059T, G5230T, A10323G, G11291A, T11296G, C12809T, C14408T, C15925T, G25563T, C25904T, G27463T, A28254C, G21641T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C1059T, G5230T, A10323G, G11291A, T11296G, C12809T	C14408T, C15925T	G21641T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	G25563T, C25904T	C26456T			G27463T	A28254C	C28887T	
SARS-CoV-2/ human/CHN/ 888/2020	B.1.351.3	C26456T, C28887T, C1059T, G5230T, C6402T, A8052G, A10323G, G11291A, T11296G, C14408T, A16687G, G25563T, C25904T, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C1059T, G5230T, C6402T, A8052G, A10323G, G11291A, T11296G	C14408T, A16687G	C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	G25563T, C25904T	C26456T					C28887T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 889/2020	B.1.1.7	G28280C, A28281T, T28282A, G28357T, G28881A, G28882A, G28883C, C28977T, C3177T, C3264T, C3267T, C5388A, T6954C, C7772T, G11291A, T11296G, C14408T, C15857T, G25691T, C27972T, G28048T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3177T, C3264T, C3267T, C5388A, T6954C, C7772T, G11291A, T11296G	C14408T, C15857T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	G25691T					C27972T, G28048T, A28111G	G28280C, A28281T, T28282A, G28357T, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 890/2020	B.1.214.2	G28280C, A28281T, T28282A, C28887T, C1185T, A4457G, C5184T, C5907T, A9204G, A11430G, C12312T, C14408T, G15181T, A15187G, C19975A, C22802A, T22912G, A23403G, C23709T	C1185T, A4457G, C5184T, C5907T, A9204G, A11430G, C12312T	C14408T, G15349A, A18424G, C21304T	C22802A, T22912G, A23403G, C23709T							G28280C, A28281T, T28282A, C28887T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 894/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, C1218T, G1805A, A2784G, C3267T, C5388A, C5849T, T6954C, G11291A, T11296G, C14408T, C27972T, G28048T, A28095T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, C24237T, T24506G, G24914C	C1218T, G1805A, A2784G, C3267T, C5388A, C5849T, T6954C, G11291A, T11296G	C14408T	A23063T, C23271A, A23403G, C23604A, C23709T, C24237T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 895/2020	B.1.351.3	C26456T, C28887T, C1059T, G2246A, G5230T, C6402T, G6532T, A8052G, A10323G, G11291A, T11296G, C14408T, A16687G, G25563T, C25904T, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	C1059T, G2246A, G5230T, C6402T, G6532T, A8052G, A10323G, G11291A, T11296G	C14408T, A16687G	C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T	G25563T, C25904T	C26456T					C28887T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 901/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, G28884C, C28977T, C3267T, C5388A, C5907T, T6954C, G11291A, T11296G, C14408T, G18266A, C27972T, G28048T, A28095T, A28111G, C22482T, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C3267T, C5388A, C5907T, T6954C, G11291A, T11296G	C14408T, G18266A	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C						C27972T, G28048T, A28095T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, G28884C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 904/2020	B.1.351.3	C26456T, C28887T, C1059T, G2246A, G5230T, C6402T, A8052G, A10323G, G11291A, T11296G, C14408T, A16687G, G25563T, C25904T, C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T, G25352T	C1059T, G2246A, G5230T, C6402T, A8052G, A10323G, G11291A, T11296G	C14408T, A16687G	C21614T, A21801C, A22206G, G22813T, G23012A, A23063T, A23403G, C23664T, G25352T	G25563T, C25904T	C26456T					C28887T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 911/2020	B.1.1.25	C28290T, G28881A, G28882A, G28883C, A1163T, A1193G, C1473T, A3542G, C4890T, T4974C, C5730T, A6953G, C9693T, A10323G, C14408T, G15406T, C16163T, G17581A, T20407C, T27722C, C21758G, G22205C, G23012A, A23403G, C24795T	A1163T, A1193G, C1473T, A3542G, C4890T, T4974C, C5730T, A6953G, C9693T, A10323G	C14408T, G15406T, C16163T, G17581A, T20407C	C21758G, G22205C, G23012A, A23403G, C24795T				T27722C			C28290T, G28881A, G28882A, G28883C	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 912/2020	B.1.1.7	G28280C, A28281T, T28282A, A28295G, G28881A, G28882A, G28883C, C28977T, C2453T, C3267T, T3882G, C5388A, T6954C, G11291A, T11296G, C14408T, T25502C, C27972T, G28048T, A28111G, C21855T, G21974C, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	C2453T, C3267T, T3882G, C5388A, T6954C, G11291A, T11296G	C14408T	C21855T, G21974C, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	T25502C					C27972T, G28048T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, G28884C, C28977T	

Continued

Name	Lineage	Missense mutation	ORF1a	ORF1b	S	ORF3a	E	M	OEF6	ORF7a	ORF8	N	ORF10
SARS-CoV-2/ human/CHN/ 914/2020	B.1.1.7	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T, T582C, C2003T, C3267T, C5388A, T6954C, G11291A, T11296G, C14408T, A26174G, C27972T, G28048T, A28111G, A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	T582C, C2003T, C3267T, C5388A, T6954C, G11291A, T11296G	C14408T	A23063T, C23271A, A23403G, C23604A, C23709T, T24506G, G24914C	A26174G					C27972T, G28048T, A28111G	G28280C, A28281T, T28282A, G28881A, G28882A, G28883C, C28977T	
SARS-CoV-2/ human/CHN/ 915/2020	B.1.1	T26604C, C28833T, G28881A, G28882A, G28883C, G29527T, C1419T, A3957G, T10721G, C14408T, G17551A, C19274A, G22017T, G23012A, A23403G, G23868T	C1419T, A3957G, T10721G	C14408T, G17551A, C19274A	G22017T, G23012A, A23403G, G23868T			T26604C				C28833T, G28881A, G28882A, G28883C, G29527T	

Supplementary Table S4. PMC publication of S protein specific ectopic sites in 117 patients

seqName	Lineage	S protein specific site (compare with nextstrain)		
		GISAID reported; PMC published	GISAID reported; PMC unpublished	No reports and publications
SARS-CoV-2/human/CHN/462/2020	A.23.1	S: R102I, S: F157L, S: V367F, S: Q613H		
SARS-CoV-2/human/CHN/464/2020	B.1.2			
SARS-CoV-2/human/CHN/467/2020	B.1.1			
SARS-CoV-2/human/CHN/469/2020	B.1.1.368	S: W152L		
SARS-CoV-2/human/CHN/471/2020	B.1			
SARS-CoV-2/human/CHN/475/2020	B.1.36.38			
SARS-CoV-2/human/CHN/476/2020	B.1.1.228			
SARS-CoV-2/human/CHN/477/2020	B.1.468			
SARS-CoV-2/human/CHN/478/2020	B.1.36.22			
SARS-CoV-2/human/CHN/482/2020	B.1.1.413	S: V1122L		
SARS-CoV-2/human/CHN/485/2020	B.1.595	S: L176F	S: L226F	
SARS-CoV-2/human/CHN/486/2020	B.1.595	S: L176F	S: L226F	
SARS-CoV-2/human/CHN/488/2020	B.1.2			
SARS-CoV-2/human/CHN/495/2020	B.1.36.22			
SARS-CoV-2/human/CHN/496/2020	B.1.402	S: M1229I	S: C1247R	
SARS-CoV-2/human/CHN/499/2020	B.1.84	S: E654K		
SARS-CoV-2/human/CHN/500/2020	B.1.466.2	S: N439K		
SARS-CoV-2/human/CHN/505/2020	B.1.438.1	S: Q675H		
SARS-CoV-2/human/CHN/507/2020	B.1.429			
SARS-CoV-2/human/CHN/508/2020	B.1.596	S: V1228L		
SARS-CoV-2/human/CHN/509/2020	B.1.170			
SARS-CoV-2/human/CHN/514/2020	B.1.468			
SARS-CoV-2/human/CHN/516/2020	B.1.466.2	S: N439K		
SARS-CoV-2/human/CHN/521/2020	B.1.170			
SARS-CoV-2/human/CHN/525/2020	B.1.351			
SARS-CoV-2/human/CHN/527/2020	B.1		S: Y248N	
SARS-CoV-2/human/CHN/535/2020	A	S: A222V, S: D253Y		
SARS-CoV-2/human/CHN/538/2020	B.1.177.81	S: A222V		
SARS-CoV-2/human/CHN/542/2020	B.1			
SARS-CoV-2/human/CHN/547/2020	B.1.36.17			
SARS-CoV-2/human/CHN/558/2020	L.3	S: V1228L	S: Y1155F, S: G75R	
SARS-CoV-2/human/CHN/559/2020	B.1.1			
SARS-CoV-2/human/CHN/561/2020	B.1.36.16	S: D215H, S: K278N		
SARS-CoV-2/human/CHN/564/2020	B.1.36.16	S: D215H, S: K278N		
SARS-CoV-2/human/CHN/566/2020	A	S: A222V, S: D253Y		
SARS-CoV-2/human/CHN/571/2020	B.1.177.81	S: A222V		
SARS-CoV-2/human/CHN/585/2020	B.1.36.16	S: D215H, S: K278N		
SARS-CoV-2/human/CHN/587/2020	B.1.427			
SARS-CoV-2/human/CHN/593/2020	L.3	S: V1228L	S: Y1155F	
SARS-CoV-2/human/CHN/595/2020	A.23.1	S: F157L, S: V367F, S: D574Y, S: Q613H, S: A623S		

Continued

seqName	Lineage	S protein specific site (compare with nextstrain)		
		GISAID reported; PMC published	GISAID reported; PMC unpublished	No reports and publications
SARS-CoV-2/human/CHN/596/2020	B.1	S: D215H, S: K278N		
SARS-CoV-2/human/CHN/599/2020	B.1.1.157	S: M153I, S: I1130M		
SARS-CoV-2/human/CHN/600/2020	B.1.351			
SARS-CoV-2/human/CHN/608/2020	B.1.351			
SARS-CoV-2/human/CHN/609/2020	B.1.2			
SARS-CoV-2/human/CHN/610/2020	B.1.580	S: L585F		
SARS-CoV-2/human/CHN/611/2020	B.1.524			
SARS-CoV-2/human/CHN/613/2020	B.1.1	S: N439K		
SARS-CoV-2/human/CHN/623/2020	B.1.1.214			
SARS-CoV-2/human/CHN/625/2020	B.1.1.7	S: A243S		
SARS-CoV-2/human/CHN/626/2020	A.23.1	S: F157L, S: V367F, S: D574Y, S: Q613H, S: A623S		
SARS-CoV-2/human/CHN/627/2020	B.1.1.7	S: A243S		
SARS-CoV-2/human/CHN/632/2020	A	S: P863S		
SARS-CoV-2/human/CHN/638/2020	B.1.1.7			
SARS-CoV-2/human/CHN/639/2020	B.1.2	S: A570V		
SARS-CoV-2/human/CHN/642/2020	B.1.1	S: E654Q		
SARS-CoV-2/human/CHN/644/2020	B.1.1.7			
SARS-CoV-2/human/CHN/646/2020	B.1.351			
SARS-CoV-2/human/CHN/649/2020	B.1.1.7			
SARS-CoV-2/human/CHN/651/2020	B.1.351	S: T478I		
SARS-CoV-2/human/CHN/652/2020	B.1.351	S: T478I		
SARS-CoV-2/human/CHN/655/2020	B.1.351	S: T478I		
SARS-CoV-2/human/CHN/658/2020	B.1.1.222	S: G257S, S: T732A		
SARS-CoV-2/human/CHN/659/2020	B.1.351			
SARS-CoV-2/human/CHN/666/2020	B.1	S: E661D		
SARS-CoV-2/human/CHN/671/2020	B.1.351			
SARS-CoV-2/human/CHN/671/2020 (1)	B.1.351	S: T478I		
SARS-CoV-2/human/CHN/671/2020 (2)	B.1.351	S: T478I		
SARS-CoV-2/human/CHN/671/2020 (3)	B.1.351			
SARS-CoV-2/human/CHN/681/2020	B.1.1.420	S: N440K		
SARS-CoV-2/human/CHN/682/2020	B.1.1.7	S: V483F		
SARS-CoV-2/human/CHN/695/2020	P.2	S: F565L		
SARS-CoV-2/human/CHN/712/2020	B.1.36	S: A520S, S: E654K		
SARS-CoV-2/human/CHN/715/2020	B.1.177.81	S: A222V		
SARS-CoV-2/human/CHN/719/2020	B.1.351			
SARS-CoV-2/human/CHN/722/2020	B.1.351			
SARS-CoV-2/human/CHN/728/2020	B.1.1.420	S: N440K		
SARS-CoV-2/human/CHN/729/2020	B.1.351			
SARS-CoV-2/human/CHN/731/2020	B.1.177.81	S: A222V		
SARS-CoV-2/human/CHN/736/2020	B.1.1.7			
SARS-CoV-2/human/CHN/741/2020	B.1.429			

Continued

seqName	Lineage	S protein specific site (compare with nextstrain)		
		GISAID reported; PMC published	GISAID reported; PMC unpublished	No reports and publications
SARS-CoV-2/human/CHN/761/2020	C.36	S: S12F		
SARS-CoV-2/human/CHN/762/2020	B.1.525			
SARS-CoV-2/human/CHN/767/2020	B.1.351			
SARS-CoV-2/human/CHN/779/2020	B.1.1.7			
SARS-CoV-2/human/CHN/782/2020	B.1.1.7			
SARS-CoV-2/human/CHN/786/2020	B.1.618	S: R190K		S: H145-, S: Y146-
SARS-CoV-2/human/CHN/788/2020	B.1.1.7			
SARS-CoV-2/human/CHN/789/2020	B.1.1.7			
SARS-CoV-2/human/CHN/798/2020	B.1.1.7			
SARS-CoV-2/human/CHN/803/2020	B.1.1.7			
SARS-CoV-2/human/CHN/804/2020	B.1.1.7			
SARS-CoV-2/human/CHN/805/2020	B.1.1.7			
SARS-CoV-2/human/CHN/807/2020	B.1.1.7			
SARS-CoV-2/human/CHN/808/2020	B.1.618	S: R190K		S: H146-, S: Y145-
SARS-CoV-2/human/CHN/809/2020	B.1.1.7			
SARS-CoV-2/human/CHN/811/2020	B.1.1.7			
SARS-CoV-2/human/CHN/824/2020	B.1.1.7			
SARS-CoV-2/human/CHN/825/2020	B.1.1.7			
SARS-CoV-2/human/CHN/834/2020	B.1.525			
SARS-CoV-2/human/CHN/857/2020	B.1.1.7			
SARS-CoV-2/human/CHN/859/2020	B.1	S: V6F		
SARS-CoV-2/human/CHN/863/2020	B.1	S: V6F		
SARS-CoV-2/human/CHN/865/2020	B.1.1.7	S: S98F, S: D138H		
SARS-CoV-2/human/CHN/872/2020	B.1.1.7			
SARS-CoV-2/human/CHN/879/2020	B.1.351	S: A27S		
SARS-CoV-2/human/CHN/888/2020	B.1.351.3			
SARS-CoV-2/human/CHN/889/2020	B.1.1.7			
SARS-CoV-2/human/CHN/890/2020	B.1.214.2	S: Q414K, S: N450K		
SARS-CoV-2/human/CHN/894/2020	B.1.1.7	S: A892V		
SARS-CoV-2/human/CHN/895/2020	B.1.351.3			
SARS-CoV-2/human/CHN/901/2020	B.1.1.7	S: T307I		
SARS-CoV-2/human/CHN/904/2020	B.1.351.3	S: V1264L		
SARS-CoV-2/human/CHN/911/2020	B.1.1.25	S: D215H, S: A1078V	S: H66D	
SARS-CoV-2/human/CHN/912/2020	B.1.1.7	S: S98F, S: D138H		
SARS-CoV-2/human/CHN/914/2020	B.1.1.7			
SARS-CoV-2/human/CHN/915/2020	B.1.1	S: W152L, S: G769V		

Supplementary Table S5. PMC publication of non-S protein specific ectopic sites in 117 patients

Name	Lineage	Specific mutation except S protein (compare with nextstrain)		
		GISAID reported; PMC published	GISAID reported; PMC unpublished	No reports and publications
SARS-CoV-2/ human/CHN/462/2020	A.23.1		ORF1a: I1259V, ORF1a: D4165A	
SARS-CoV-2/ human/CHN/464/2020	B.1.2		ORF3a: P274S	
SARS-CoV-2/ human/CHN/467/2020	B.1.1		ORF1a: N2201S, ORF1b: V2223I	
SARS-CoV-2/ human/CHN/469/2020	B.1.1.368		ORF1a: I573V	
SARS-CoV-2/ human/CHN/471/2020	B.1		ORF1a: K247E, ORF1a: S549F, ORF1a: R2336K, ORF7a: D51A	
SARS-CoV-2/ human/CHN/475/2020	B.1.36.38		ORF1a: S2695G	
SARS-CoV-2/ human/CHN/476/2020	B.1.1.228		ORF1a: T214I	
SARS-CoV-2/ human/CHN/477/2020	B.1.468		ORF1a: N4078S, ORF1b: R1171G	
SARS-CoV-2/ human/CHN/478/2020	B.1.36.22	ORF1a: D75N		
SARS-CoV-2/ human/CHN/482/2020	B.1.1.413		M: I73M,ORF1a: E87K, ORF1b: H73Y, ORF1b: G128C	
SARS-CoV-2/ human/CHN/485/2020	B.1.595		M: L34F,ORF1a: I693T, ORF1a: T2611I	
SARS-CoV-2/ human/CHN/486/2020	B.1.595		M: L34F,ORF1a: I693T, ORF1a: T2611I	
SARS-CoV-2/ human/CHN/488/2020	B.1.2			
SARS-CoV-2/ human/CHN/495/2020	B.1.36.22	ORF1a: D75N		
SARS-CoV-2/ human/CHN/496/2020	B.1.402		ORF1a: M85K, ORF1a: E87K, ORF1a: P943L, ORF1a: P4389S, ORF3a: V90L	
SARS-CoV-2/ human/CHN/499/2020	B.1.84		ORF1a: V874F, ORF1b: I162V	
SARS-CoV-2/ human/CHN/500/2020	B.1.466.2			
SARS-CoV-2/ human/CHN/505/2020	B.1.438.1			
SARS-CoV-2/ human/CHN/507/2020	B.1.429			
SARS-CoV-2/ human/CHN/508/2020	B.1.596		ORF1a: A4148V	
SARS-CoV-2/ human/CHN/509/2020	B.1.170		ORF1b: P970T, ORF1b: V1092F	
SARS-CoV-2/ human/CHN/514/2020	B.1.468		ORF1a: N4078S, ORF1b: R1171G	
SARS-CoV-2/ human/CHN/516/2020	B.1.466.2			
SARS-CoV-2/ human/CHN/521/2020	B.1.170		ORF1b: P970T, ORF1b: V1092F	
SARS-CoV-2/ human/CHN/525/2020	B.1.351		ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/527/2020	B.1			
SARS-CoV-2/ human/CHN/535/2020	A		ORF1a: K1781E, ORF1a: R2115S, ORF1b: A517S	
SARS-CoV-2/ human/CHN/538/2020	B.1.177.81			
SARS-CoV-2/ human/CHN/542/2020	B.1			
SARS-CoV-2/ human/CHN/547/2020	B.1.36.17			
SARS-CoV-2/ human/CHN/558/2020	L.3			

Continued

Name	Lineage	Specific mutation except S protein (compare with nextstrain)		
		GISAID reported; PMC published	GISAID reported; PMC unpublished	No reports and publications
SARS-CoV-2/ human/CHN/559/2020	B.1.1	ORF1a: R1628C		
SARS-CoV-2/ human/CHN/561/2020	B.1.36.16	ORF3a: T164N		
SARS-CoV-2/ human/CHN/564/2020	B.1.36.16	ORF3a: T164N		
SARS-CoV-2/ human/CHN/566/2020	A		ORF1a: K1781E, ORF1b: A517S	
SARS-CoV-2/ human/CHN/571/2020	B.1.177.81			
SARS-CoV-2/ human/CHN/585/2020	B.1.36.16	ORF3a: T164N		
SARS-CoV-2/ human/CHN/587/2020	B.1.427		ORF1a: H1264Y, ORF1a: D1962E	
SARS-CoV-2/ human/CHN/593/2020	L.3			
SARS-CoV-2/ human/CHN/595/2020	A.23.1			
SARS-CoV-2/ human/CHN/596/2020	B.1	ORF3a: T164N		
SARS-CoV-2/ human/CHN/599/2020	B.1.1.157		ORF1a: G2241S, ORF1b: F1398V	
SARS-CoV-2/ human/CHN/600/2020	B.1.351	ORF3a: L52F	ORF1a: T1998I, ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/608/2020	B.1.351		ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/609/2020	B.1.2		ORF1b: D1668G	
SARS-CoV-2/ human/CHN/610/2020	B.1.580		N: V392L, ORF1a: T2876I, ORF3a: T151A	
SARS-CoV-2/ human/CHN/611/2020	B.1.524		ORF1a: S308L, ORF1a: A555V, ORF1a: T2791I, ORF1a: T3287A, ORF1b: P2633L	
SARS-CoV-2/ human/CHN/613/2020	B.1.1		ORF1a: L3715F, ORF3a: S195F	
SARS-CoV-2/ human/CHN/623/2020	B.1.1.214			
SARS-CoV-2/ human/CHN/625/2020	B.1.1.7		ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/626/2020	A.23.1			
SARS-CoV-2/ human/CHN/627/2020	B.1.1.7		ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/632/2020	A	ORF3a: T217I, ORF8: P36L	ORF8: V33F	
SARS-CoV-2/ human/CHN/638/2020	B.1.1.7		ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/639/2020	B.1.2		N: N8S,ORF1a: T821A, ORF1a: Y3803H, ORF1b: V628I	ORF9b: I5V
SARS-CoV-2/ human/CHN/642/2020	B.1.1	ORF1a: M1014I	ORF1a: E1024G, ORF1a: K1895E	
SARS-CoV-2/ human/CHN/644/2020	B.1.1.7		ORF1a: G3541E, ORF1a: G3676S, ORF1a: F3677L, ORF7b: F13-	
SARS-CoV-2/ human/CHN/646/2020	B.1.351		ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/649/2020	B.1.1.7	ORF3a: P267S	ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/651/2020	B.1.351	N: T329M, ORF3a: L52F	ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/652/2020	B.1.351	ORF3a: L52F	ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/655/2020	B.1.351	N: T329M, ORF3a: L52F	ORF1a: G3676S, ORF1a: F3677L	

Continued

Name	Lineage	Specific mutation except S protein (compare with nextstrain)		
		GISAID reported; PMC published	GISAID reported; PMC unpublished	No reports and publications
SARS-CoV-2/ human/CHN/658/2020	B.1.1.222		ORF1b: T11A	
SARS-CoV-2/ human/CHN/659/2020	B.1.351		ORF1a: G3676S, ORF1a: F3677L, ORF8: I47T	
SARS-CoV-2/ human/CHN/666/2020	B.1		ORF1b: S1974I, ORF8: H112Y	
SARS-CoV-2/ human/CHN/671/2020	B.1.351		ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/671/2020	B.1.351	N: T329M, ORF3a: L52F	ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/671/2020	B.1.351	ORF3a: L52F	ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/671/2020	B.1.351		ORF1a: T2977K, ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/681/2020	B.1.1.420			
SARS-CoV-2/ human/CHN/682/2020	B.1.1.7		ORF1a: G3676S, ORF1a: F3677L, ORF1b: D1815Y	
SARS-CoV-2/ human/CHN/695/2020	P.2			
SARS-CoV-2/ human/CHN/712/2020	B.1.36	ORF3a: A51S	ORF1a: S2352R	
SARS-CoV-2/ human/CHN/715/2020	B.1.177.81		ORF1a: V1236F	
SARS-CoV-2/ human/CHN/719/2020	B.1.351	ORF3a: L52F	ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/722/2020	B.1.351		ORF1a: E633K, ORF1a: T1344A, ORF1a: S1856F, ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/728/2020	B.1.1.420			
SARS-CoV-2/ human/CHN/729/2020	B.1.351	ORF3a: L52F	ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/731/2020	B.1.177.81		ORF1a: V1236F	
SARS-CoV-2/ human/CHN/736/2020	B.1.1.7		ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/741/2020	B.1.429	M: T208I	ORF7a: I107V	
SARS-CoV-2/ human/CHN/761/2020	C.36		ORF1a: G662R, ORF1a: K1230E	
SARS-CoV-2/ human/CHN/762/2020	B.1.525	ORF6: M1-	ORF1a: G3676S, ORF1a: F3677L, ORF1b: P314F, ORF6: F2M	
SARS-CoV-2/ human/CHN/767/2020	B.1.351		ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/779/2020	B.1.1.7		ORF1a: V2061L, ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/782/2020	B.1.1.7		ORF1a: G3676S, ORF1a: F3677L	
SARS-CoV-2/ human/CHN/786/2020	B.1.618	M: S214I,N: G18S, ORF1a: S1515F	N: A217S,ORF1a: S1189G, ORF1b: D260N,ORF8: Q29L	
SARS-CoV-2/ human/CHN/788/2020	B.1.1.7		ORF1a: G3676S,ORF1a: F3677L	
SARS-CoV-2/ human/CHN/789/2020	B.1.1.7		ORF1a: G3676S,ORF1a: F3677L	
SARS-CoV-2/ human/CHN/798/2020	B.1.1.7		ORF1a: G3676S,ORF1a: F3677L	
SARS-CoV-2/ human/CHN/803/2020	B.1.1.7		ORF1a: D1481G,ORF1a: G3676S, ORF1a: F3677L	