

other	
Omicron_BA.2	[T19I,L24.,P25-,P26-,A27.,G142D,V213G,G339D,S371F,S373P,S375F,T376A,D405N,R408S,K417N,N440K,S477N,T478K,E484A,Q493R,Q498R,N501Y,Y505H,D614G,H655Y,N679K,P681H,N764K,D796Y,Q954H,N969K]
Omicron_BA.1.1+214GAR	[A67V,H69-,V70-,T95I,G142.,V143.,Y144.,Y145.,N211.,L212.,+214GAR,G339D,R346K,S371L,S373P,S375F,K417.,N440.,G446.,S477.,T478.,E484A,Q493R,G496S,Q498R,N501Y,Y505H,T547K,D614G,H655Y,N679K,P681H,A701A,N764K,D796Y,N856K,Q954H,N969K,L981F]
Omicron_BA.1+214GAR	[A67V,H69-,V70-,T95I,G142.,V143.,Y144.,Y145.,N211.,L212.,+214GAR,G339D,R346R,S371L,S373P,S375F,K417.,N440.,G446.,L452L,S477.,T478.,E484A,Q493R,G496S,Q498R,N501Y,Y505H,T547K,D614G,H655Y,N679K,P681H,A701A,N764K,D796Y,N856K,Q954H,N969K,L981F]
Omicron+A701V	[A67V,H69-,V70-,T95I,G142.,V143.,Y144.,Y145.,N211.,L212.,G339D,R346R,S371L,S373P,S375F,K417.,N440.,G446.,S477.,T478.,E484A,Q493R,G496S,Q498R,N501Y,Y505H,T547K,D614G,H655Y,N679K,P681H,A701V,N764K,D796Y,N856K,Q954H,N969K,L981F]
Omicron_BA.1.1	[A67V,H69-,V70-,T95I,G142.,V143.,Y144.,Y145.,N211.,L212.,+214EPE,G339D,R346K,S371L,S373P,S375F,K417.,N440.,G446.,S477.,T478.,E484A,Q493R,G496S,Q498R,N501Y,Y505H,T547K,D614G,H655Y,N679K,P681H,A701A,N764K,D796Y,N856K,Q954H,N969K,L981F]
Omicron_BA.1	[A67V,H69-,V70-,T95I,G142.,V143.,Y144.,Y145.,N211.,L212.,+214EPE,G339D,R346R,S371L,S373P,S375F,K417.,N440.,G446.,L452L,S477.,T478.,E484A,Q493R,G496S,Q498R,N501Y,Y505H,T547K,D614G,H655Y,N679K,P681H,A701A,N764K,D796Y,N856K,Q954H,N969K,L981F]
Delta+FurinRelated	[T19R,V70V,T95.,G142.,E156-,F157-,R158G,A222.,W258W,K417K,L452R,T478K,D614G,N679*,D950N]
Delta+FurinRelated	[T19R,V70V,T95.,G142.,E156-,F157-,R158G,A222.,W258W,K417K,L452R,T478K,D614G,Q677*,D950N]
Delta+FurinRelated	[T19R,V70V,T95.,G142.,E156-,F157-,R158G,A222.,W258W,K417K,L452R,T478K,D614G,Q675*,D950N]
Delta+FurinRelated	[T19R,V70V,T95.,G142.,E156-,F157-,R158G,A222.,W258W,K417K,L452R,T478K,D614G,P681H,D950N]
Delta+FurinRelated	[T19R,V70V,T95.,G142.,E156-,F157-,R158G,A222.,W258W,K417K,L452R,T478K,D614G,H655Y,D950N]
Delta+FurinRelated	[T19R,V70V,T95.,G142.,E156G,F157-,R158-,A222.,W258W,K417K,L452R,T478K,D614G,N679*,D950N]
Delta+FurinRelated	[T19R,V70V,T95.,G142.,E156G,F157-,R158-,A222.,W258W,K417K,L452R,T478K,D614G,Q677*,D950N]
Delta+FurinRelated	[T19R,V70V,T95.,G142.,E156G,F157-,R158-,A222.,W258W,K417K,L452R,T478K,D614G,Q675*,D950N]
Delta+FurinRelated	[T19R,V70V,T95.,G142.,E156G,F157-,R158-,A222.,W258W,K417K,L452R,T478K,D614G,P681H,D950N]
Delta+FurinRelated	[T19R,V70V,T95.,G142.,E156G,F157-,R158-,A222.,W258W,K417K,L452R,T478K,D614G,H655Y,D950N]
Delta+Y145H,A222V	[T19R,V70V,T95I,G142.,Y145H,E156G,F157-,R158-,A222V,W258W,K417K,L452R,T478K,D614G,H655H,Q675Q,Q677Q,N679N,P681R,D950N]
Delta+Y145H,A222V	[T19R,V70V,T95I,G142.,Y145H,E156-,F157-,R158G,A222V,W258W,K417K,L452R,T478K,D614G,H655H,Q675Q,Q677Q,N679N,P681R,D950N]
Delta+S112L	[T19R,V70.,T95.,S112L,G142.,E156G,F157-,R158-,A222A,W258W,K417K,L452R,T478K,E484E,D614G,H655H,Q675Q,Q677Q,N679N,P681R,D950N,V1264V]
Delta+S112L	[T19R,V70.,T95.,S112L,G142.,E156-,F157-,R158G,A222A,W258W,K417K,L452R,T478K,E484E,D614G,H655H,Q675Q,Q677Q,N679N,P681R,D950N,V1264V]
Delta+V1264L	[T19R,V70V,T95.,G142.,Y145Y,E156G,F157-,R158-,A222.,W258W,K417K,L452R,T478K,D614G,H655H,Q675Q,Q677Q,N679N,P681R,D950N,V1264L]
Delta+V1264L	[T19R,V70V,T95.,G142.,Y145Y,E156-,F157-,R158G,A222.,W258W,K417K,L452R,T478K,D614G,H655H,Q675Q,Q677Q,N679N,P681R,D950N,V1264L]
Delta+T95_,A222V	[T19R,V70V,T95T,G142.,E156G,F157-,R158-,A222V,W258W,V289V,K417K,L452R,T478K,D614G,H655H,Q675Q,Q677Q,N679N,P681R,D950N,V1264V]
Delta+T95_,A222V	[T19R,V70V,T95T,G142.,E156-,F157-,R158G,A222V,W258W,V289V,K417K,L452R,T478K,D614G,H655H,Q675Q,Q677Q,N679N,P681R,D950N,V1264V]
Delta	[T19R,T29T,V70V,T95.,S112S,G142.,E156G,F157-,R158-,A222A,T250T,P251P,W258W,T299T,K417K,L452R,T478K,E484E,Q613Q,D614G,H655H,Q675Q,Q677Q,N679N,P681R,D950N,V1264V]
Delta	[T19R,T29T,V70V,T95.,S112S,G142.,E156-,F157-,R158G,A222A,T250T,P251P,W258W,T299T,K417K,L452R,T478K,E484E,Q613Q,D614G,H655H,Q675Q,Q677Q,N679N,P681R,D950N,V1264V]
B.1.640.2	[L5F,P9L,E96Q,C136-,N137-,D138-,P139-,F140-,L141-,G142-,V143-,Y144-,R190S,D215H,R346S,N394S,Y449N,E484K,F490S,N501Y,D614G,P681H,T859N,D1139H]
B.1.640.1	[P9L,E96Q,C136-,N137-,D138-,P139-,F140-,L141-,G142-,V143-,Y144-,R190S,I210T,R346S,N394S,Y449N,F490R,N501Y,D614G,P681H,T859N,D936H]
Gamma+FurinRelated	[L18.,T20.,P26.,D138.,R190S,K417.,E484K,N501Y,D614G,H655Y,P681*,T1027.,V1176F]
Gamma+FurinRelated	[L18.,T20.,P26.,D138.,R190S,K417.,E484K,N501Y,D614G,H655Y,N679*,T1027.,V1176F]
Gamma+FurinRelated	[L18.,T20.,P26.,D138.,R190S,K417.,E484K,N501Y,D614G,H655Y,Q677*,T1027.,V1176F]
Gamma+FurinRelated	[L18.,T20.,P26.,D138.,R190S,K417.,E484K,N501Y,D614G,H655Y,Q675*,T1027.,V1176F]
Gamma	[L18.,T20.,P26.,D138.,R190S,K417.,E484K,N501Y,D614G,H655Y,Q675Q,Q677Q,N679N,P681P,T1027.,V1176F]
Mu	[T95I,Y144S,Y145N,R346K,E484K,N501Y,D614G,P681H,D950N]
Lambda	[G75V,T76I,R246.,S247-,Y248-,L249-,T250-,P251-,G252-,D253-,L452Q,F490S,D614G,T859N]
Beta	[L18.,D80A,D215G,L242-,A243-,L244-,K417N,E484K,N501Y,D614G,A701V]
Alpha	[T20T,H69-,V70-,Y144-,W152W,E484.,N501Y,A570D,D614G,P681H,T716T,S982A,D1118H]
Alpha	[T20T,H69-,V70-,Y144-,W152W,E484.,N501Y,A570D,D614G,P681R,T716I,S982A,D1118H]
Alpha	[T20T,H69-,V70-,Y144Y,W152W,E484.,N501Y,A570D,D614G,P681H,T716I,S982A,D1118H]
Alpha	[T20T,H69-,V70-,Y144-,W152W,E484.,N501Y,A570D,D614G,P681H,T716I,S982A,D1118H]