

other	
Omicron_BA.2+212SGR	[T19I,G142D,+212SGR,V213G,G339D,S371F,S373P,S375F,T376A,D405N,R408S,K417N,N440K,L452L,S477N,T478K,E484A,Q493R,Q498R,N501Y,Y505H,D614G,H655Y,N679K,P681H,N764K,D796Y,Q954H,N969K]
Omicron_BA.4andBA.5	[T19I,H69-,V70-,G142-,V213G,G339D,S371F,S373P,S375F,T376A,D405N,R408S,K417N,N440K,L452R,S477N,T478K,E484A,F486V,Q493Q,Q498R,N501Y,Y505H,D614G,H655Y,N679K,P681H,N764K,D796Y,Q954H,N969K]
Omicron_BA.2+L452Q+S704L_BA.2.12.1	[T19I,G142D,V213G,G339D,S371F,S373P,S375F,T376A,D405N,R408S,K417N,N440K,L452Q,S477N,T478K,E484A,Q493R,Q498R,N501Y,Y505H,D614G,H655Y,N679K,P681H,S704L,N764K,D796Y,Q954H,N969K]
Omicron_BA.2+P25_,P26_	[T19I,L24-,P25P,P26P,A27-,G142D,+212,V213G,G339D,S371F,S373P,S375F,T376A,D405N,R408S,K417N,N440K,L452L,S477N,T478K,E484A,Q493R,Q498R,N501Y,Y505H,D614G,H655Y,N679K,P681H,N764K,D796Y,Q954H,N969K]
Omicron_BA.2+L452M	[T19I,L24-,P25-,P26-,A27-,G142D,+212,V213G,G339D,S371F,S373P,S375F,T376A,D405N,R408S,K417N,N440-,L452M,S477N,T478K,E484A,Q493R,Q498R,N501Y,Y505H,D614G,H655Y,N679K,P681H,N764K,D796Y,Q954H,N969K]
Omicron_BA.2+K417T	[T19I,G142D,V213G,G339D,S371F,S373P,S375F,T376A,D405N,R408S,K417T,N440K,S477N,T478K,E484A,Q493R,Q498R,N501Y,Y505H,D614G,H655Y,N679K,P681H,N764K,D796Y,Q954H,N969K]
Omicron_BA.2	[T19I,L24-,P25-,P26-,A27-,G142D,+212,V213G,G339D,S371F,S373P,S375F,T376A,D405N,R408S,K417N,N440-,L452L,S477N,T478K,E484A,Q493R,Q498R,N501Y,Y505H,D614G,H655Y,N679K,P681H,N764K,D796Y,Q954H,N969K]
Omicron_BA.1.1	[A67V,H69-,V70-,T95I,G142-,V143-,Y144-,Y145-,N211-,L212-,G339D,R346K,S371L,S373P,S375F,K417-,N440-,G446-,S477-,T478-,E484A,Q493R,G496-,Q498R,N501Y,Y505H,T547-,D614G,H655Y,N679K,P681H,N764K,D796Y,N856-,Q954H,N969K,L981-]
Omicron_BA.1	[A67V,H69-,V70-,T95I,G142-,V143-,Y144-,Y145-,N211-,L212-,+214,G339D,R346R,S371-,S373P,S375F,T376T,D405D,R408R,K417-,N440-,G446-,L452L,S477-,T478-,E484A,Q493R,G496-,Q498R,N501Y,Y505H,T547K,D614G,H655Y,N679K,P681H,N764K,D796Y,N856K,Q954H,N969K,L981F]
Omicron_BA.1	[A67V,H69-,V70-,T95I,G142-,V143-,Y144-,Y145-,N211-,L212-,+214EPE,G339D,R346R,S371-,S373P,S375F,K417-,N440-,G446-,L452L,S477-,T478-,E484A,Q493R,G496-,Q498R,N501Y,Y505H,T547-,D614G,H655Y,N679K,P681H,N764K,D796Y,N856-,Q954H,N969K,L981-]
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+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]
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]