

other	
Omicron_BA.2+212SGR	[T19I, L24-, P25-, P26-, A27S, G142D, +212SGR, 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.2+L452M	[T19I, L24-, P25-, P26-, A27S, 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.4andBA.5	[T19I, L24-, P25-, P26-, A27S, H69-, V70-, G142D, V213G, G339D, S371F, S373P, S375F, T376A, D405N, R408S, K417N, N440K, L452R, S477N, T478K, E484A, F486V, Q498R, N501Y, Y505H, D614G, H655Y, N679K, P681H, N764K, D796Y, Q954H, N969K]
Omicron_BA.2+L452Q+S704L_BA.2.12.1	[T19I, L24-, P25-, P26-, A27S, 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, 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.2	[T19I, L24-, P25-, P26-, A27S, 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	[A67V, H69-, V70-, T95I, G142D, V143-, Y144-, Y145-, N211-, L212I, +214EPE, G339D, R346K, S371L, S373P, S375F, K417N, N440K, G446S, S477N, T478K, E484A, Q493R, G496S, Q498R, N501Y, Y505H, T547K, D614G, H655Y, N679K, P681H, N764K, D796Y, N856K, Q954H, N969K, L981F]
Omicron_BA.1	[A67V, H69-, V70-, T95I, G142D, V143-, Y144-, Y145-, N211-, L212I, G339D, S371L, S373P, S375F, K417N, N440K, G446S, S477N, T478K, E484A, Q493R, G496S, Q498R, N501Y, Y505H, T547K, D614G, H655Y, N679K, P681H, N764K, D796Y, N856K, Q954H, N969K, L981F]
Omicron_BA.1	[A67V, H69-, V70-, T95I, G142D, V143-, Y144-, Y145-, N211-, L212I, +214EPE, G339D, S371L, S373P, S375F, K417N, N440K, G446S, S477N, T478K, E484A, Q493R, G496S, Q498R, N501Y, Y505H, T547K, D614G, H655Y, N679K, P681H, N764K, D796Y, N856K, Q954H, N969K, L981F]
Delta+FurinRelated	[T19R, T95I, G142D, E156-, F157-, R158G, L452R, T478K, D614G, N679S, P681R, D950N]
Delta+FurinRelated	[T19R, T95I, G142D, E156-, F157-, R158G, L452R, T478K, D614G, Q677H, P681R, D950N]
Delta+FurinRelated	[T19R, T95I, G142D, E156-, F157-, R158G, L452R, T478K, D614G, Q675H, P681R, D950N]
Delta+FurinRelated	[T19R, G142D, E156-, F157-, R158G, L452R, T478K, D614G, P681H, D950N]
Delta+FurinRelated	[T19R, T95I, G142D, E156-, F157-, R158G, L452R, T478K, D614G, H655Y, P681R, D950N]
Delta+Y145H, A222V	[T19R, T95I, G142D, Y145H, E156-, F157-, R158G, A222V, L452R, T478K, D614G, P681R, D950N]
Delta+T95_, A222V	[T19R, G142D, E156-, F157-, R158G, A222V, L452R, T478K, D614G, P681R, D950N]
Delta	[T19R, G142D, E156G, +156D, F157-, R158-, V159-, L452R, T478K, D614G, P681R, D950N]
Delta	[T19R, G142D, E156-, F157-, R158G, L452R, T478K, D614G, P681R, D950N]
Gamma+FurinRelated	[L18F, T20N, P26S, D138Y, R190S, K417T, E484K, N501Y, D614G, H655Y, P681H, T1027I, V1176F]
Gamma+FurinRelated	[L18F, T20N, P26S, D138Y, R190S, K417T, E484K, N501Y, D614G, H655Y, N679K, T1027I, V1176F]
Gamma+FurinRelated	[L18F, T20N, P26S, D138Y, R190S, K417T, E484K, N501Y, D614G, H655Y, Q677H, T1027I, V1176F]
Gamma+FurinRelated	[L18F, T20N, P26S, D138Y, R190S, K417T, E484K, N501Y, D614G, H655Y, Q675H, T1027I, V1176F]
Gamma	[L18F, T20N, P26S, D138Y, R190S, K417T, E484K, N501Y, D614G, H655Y, T1027I, V1176F]
Mu	[T95I, +143T, Y144S, Y145N, R346K, E484K, N501Y, D614G, P681H, D950N]
Lambda	[G75V, T76I, R246N, S247-, Y248-, L249-, T250-, P251-, G252-, D253-, L452Q, F490S, D614G, T859N]
Beta	[L18F, D80A, D215G, L242-, A243-, L244-, K417N, E484K, N501Y, D614G, A701V]
Alpha	[H69-, V70-, Y144-, Y449S, N501Y, A570D, D614G, P681H, S982A, D1118H, P1162S, V1264L]
Alpha	[H69-, V70-, Y144-, N501Y, A570D, D614G, P681R, T716I, S982A, D1118H]
Alpha	[H69-, V70-, N501Y, A570D, D614G, P681H, T716I, S982A, D1118H]
Alpha	[H69-, V70-, Y144-, N501Y, A570D, D614G, P681H, T716I, S982A, D1118H]