|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | **Amino acid position in Spike protein of SARS-COV-2** | | | | | | | | | | | | | | | | | | | | | |
|  |  |  | **RBD region** | | | | | | | | | | | | | | | | | | |  |  |  |
| **Sl. No.** | **WHO Name** | **PANGO Name** |  | **346** | **408** | **417** | **440** | **446** | **449** | **450** | **452** | **477** | **478** | **484** | **486** | **490** | **493** | **496** | **498** | **501** | **505** | **547** | **570** | **614** |
| 1 | **Alpha** | B.1.1.7 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **N>Y** |  |  | **A>D** | **D>G** |
| 2 | **Beta** | B.1.351 |  |  |  | **K>N** |  |  |  |  |  |  |  | **E>K** |  |  |  |  |  | **N>Y** |  |  |  | **D>G** |
| 3 | **Gamma** | P.1 |  |  |  | **K>T** |  |  |  |  |  |  |  | **E>K** |  |  |  |  |  | **N>Y** |  |  |  | **D>G** |
| 4 | **Delta** | B.1.617.2 |  |  |  |  |  |  |  |  | **L>R** |  | **T>K** |  |  |  |  |  |  |  |  |  |  | **D>G** |
| 5 | **Epsilon** | B.1.427, B1.429 |  |  |  |  |  |  |  |  | **L>R** |  |  |  |  |  |  |  |  |  |  |  |  | **D>G** |
| 6 | **Zeta** | P.2 |  |  |  |  |  |  |  |  |  |  |  | **E>K** |  |  |  |  |  |  |  |  |  | **D>G** |
| 7 | **Eta** | B.1.525 |  |  |  |  |  |  |  |  |  |  |  | **E>K** |  |  |  |  |  |  |  |  |  | **D>G** |
| 8 | **Theta** | P.3 |  |  |  |  |  |  |  |  |  |  |  | **E>K** |  |  |  |  |  | **N>Y** |  |  |  | **D>G** |
| 9 | **Iota** | B.1.526 |  |  |  |  |  |  |  |  |  | **(S>N)** |  | **(E>K)** |  |  |  |  |  |  |  |  |  | **D>G** |
| 10 | **Kappa** | B.1.617.1 |  |  |  |  |  |  |  |  | **L>R** |  |  | **E>Q** |  |  |  |  |  |  |  |  |  | **D>G** |
| 11 | **Lambda** | C37 |  |  |  |  |  |  |  |  | **L>Q** |  |  |  |  | **F>S** |  |  |  |  |  |  |  | **D>G** |
| 12 | **Mu** | B.1.621 |  | **R>K** |  |  |  |  |  |  |  |  |  | **E>K** |  |  |  |  |  | **N>Y** |  |  |  | **D>G** |
| 13 |  | C.1.2. |  |  |  |  |  |  | **Y>H** |  |  |  |  | **E>K** |  |  |  |  |  | **N>Y** |  |  |  | **D>G** |
| 14 | **Omicron** | B.1.1.529 | **G339D, S371L, S371F, S373P, S375F, T376A** |  | **R>S** | **K>N** | **N>K** | **G>S** |  |  | **L>R** | **S>N** | **T>K** | **E>A** | **F>V** |  | **Q>R** | **G>S** | **Q>R** | **N>Y** | **Y>H** | **T>K** |  | **D>G** |

**Supplementary table 1**: Variants were classified by the presence of the signature amino acid changes resulting from mutations. The number shows the position of the amino acid and changes were denoted by ‘>’ symbol. The amino acid changes which appear additionally than usual changes are shown in parentheses.