Technical Appendix Table 1: *Changes in the amino acids of the SARS-CoV-2 sequences retrieved from the clinical samples of Sant Kabir Nagar, UP along with the representative sequences from different GISAID clade with respect to the SARS-CoV-2 isolate Wuhan-Hu-1 (Accession number NC\_045512.2). GISAID Clades are depicted in different colours: Orange- L; Light Green- S; Dark Green- V; Light Blue-G; Dark Blue-GH; Light Red –GR; Grey-O. Purple- A3i*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **NC 045512.2 SARS-CoV-2 isolate Wuhan-Hu-1** | **ORF1ab** | **S**  | **ORF3a**  | **ORF8**  | **N**  | **Pangolin Lineage** |
| **207** **(nsp2)** | **378** **(nsp2)** | **519** **(nsp2)** | **1010 (nsp3)** | **1515 (nsp3)** | **2015 (nsp3)** | **2016 (nsp3)** | **2767 (nsp4)** | **2796 (nsp4)** | **3606 (nsp6)** | **4489 (nsp12)** | **4532** **(nsp12)** | **4715** **(nsp12)** | **5411 (nsp13)** | **7711** | **8428** | **8622** | **9214** | **9265** | **9446** | **9455** | **9456** |
| **R** | **V** | G | P | **S** | S | **T** | N | **M** | **L** | **A** | D | **P** | G | **D** | **Q** | **G** | **L** | **P** | S | **R** | **G** |
| hCoV-19/India/GMC-RK100/2020|EPI ISL 431101| | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | B.53 |
| hCoV-19/India/1-27/2020|EPI ISL 413522| | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | B |
| hCoV-19/India/1-31/2020|EPI ISL 413523| | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | S | . | . | . | . | B |
| hCoV-19/India/NCDC-01457/2020|EPI ISL 435108| | . | . | . | . | . | . | . | . | . | F | . | . | . | . | . | . | V | . | . | . | . | . | B.40 |
| hCoV-19/India/GBRC9/2020|EPI ISL 435056| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | . | . | . | . | . | . | . | B.1.145 |
| hCoV-19/India/GBRC113/2020|EPI ISL 451158| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | . | . | . | . | . | . | . | B.1.143 |
| hCoV-19/India/GBRC21/2020|EPI ISL 437450| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | . | . | . | . | . | . | . | B.1 |
| hCoV-19/India/781/2020|EPI ISL 420553| | . | . | . | . | F | . | . | . | . | . | . | . | L | . | G | . | . | . | . | . | . | . | B.1 |
| hCoV-19/India/777/2020|EPI ISL 420551| | . | . | . | . | F | . | . | . | . | . | . | . | L | . | G | . | . | . | . | . | . | . | B.1 |
| hCoV-19/India/773/2020|EPI ISL 420549| | . | . | . | . | F | . | . | . | . | . | . | . | L | . | G | . | . | . | . | . | . | . | B.1 |
| hCoV-19/India/772/2020|EPI ISL 420547| | . | . | . | . | F | . | . | . | . | . | . | . | L | . | G | . | . | . | . | . | . | . | B.1 |
| hCoV-19/India/770/2020|EPI ISL 420545| | . | . | . | . | F | . | . | . | . | . | . | . | L | . | G | . | . | . | . | . | . | . | B.1 |
| hCoV-19/India/1135/2020|EPI ISL 424362| | . | . | . | . | F | . | . | . | . | . | . | . | L | . | G | . | . | . | . | . | . | . | B.1 |
| hCoV-19/India/763/2020|EPI ISL 420543| | . | . | . | . | F | . | . | . | . | . | . | . | L | . | G | . | . | . | . | . | . | . | B.1 |
| hCoV-19/India/3239/2020|EPI ISL 424365| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | . | . | . | . | . | . | . | B.1 |
| hCoV-19/India/3118/2020|EPI ISL 424364| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | . | . | . | . | . | . | . | B.1 |
| hCoV-19/India/NCDC-4874/2020|EPI ISL 436459| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | H | . | . | . | . | . | . | B.1 |
| hCoV-19/India/GMC-KP1125/2020|EPI ISL 437626| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | H | . | . | . | . | . | . | B.1 |
| hCoV-19/India/GBRC90/2020|EPI ISL 447552| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | H | . | . | . | . | . | . | B.1 |
| hCoV-19/India/GBRC49/2020|EPI ISL 444480| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | H | . | . | . | . | . | . | B.1 |
| hCoV-19/India/GBRC25/2020|EPI ISL 444456| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | H | . | . | . | . | . | . | B.1 |
| hCoV-19/India/GBRC254b/2020|EPI ISL 483841| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | H | . | . | . | L | . | . | B.1.113 |
| hCoV-19/India/GBRC254a/2020|EPI ISL 483840| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | H | . | . | . | L | . | . | B.1.36.8 |
| hCoV-19/India/GBRC91/2020|EPI ISL 447553| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | H | . | . | . | L | . | . | B.1.36.8 |
| hCoV-19/India/c32/2020|EPI ISL 420555| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | . | . | . | . | . | K | R | B.1.1 |
| hCoV-19/India/GMC-TC469/2020|EPI ISL 431117| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | . | . | . | . | . | K | R | B.1.1 |
| hCoV-19/India/NIV-QA-710/2020|EPI ISL 454565| | . | . | . | . | . | . | . | . | . | . | . | . | L | . | G | . | . | . | . | . | K | R | B.1.1.101 |
| hCoV-19/India/NIV-65813/2020|EPI ISL 479565| | . | . | . | . | . | . | . | . | . | - | . | . | L | . | G | . | . | . | . | . | K | R | B.1.1.306 |
| hCoV-19/India/NIV-64478/2020|EPI ISL 479555| | . | . | . | . | . | . | . | . | . | - | . | . | L | . | G | . | . | . | . | . | K | R | B.1.1.306 |
| hCoV-19/India/NIV-20134/2020|EPI ISL 479513| | . | . | . | . | . | . | . | . | . | ? | . | . | L | . | G | . | . | . | . | . | K | R | B.1.1.306 |
| hCoV-19/India/1111/2020|EPI ISL 421666| | . | I | . | . | . | . | . | . | . | F | . | . | . | . | . | . | . | . | . | . | . | . | B.4 |
| hCoV-19/India/1125/2020|EPI ISL 421668| | . | I | . | . | . | . | . | . | . | F | . | . | . | . | . | . | . | . | . | . | . | . | B.4 |
| hCoV-19/India/NCDC-01604/2020|EPI ISL 435103| | C | I | . | . | . | . | . | . | I | F | . | . | . | . | . | . | . | . | . | . | . | . | B.4 |
| hCoV-19/India/NCDC-01444/2020|EPI ISL 435102| | C | I | . | . | . | . | . | . | I | F | . | . | . | . | . | . | . | . | . | . | . | . | B.4 |
| hCoV-19/India/1652/2020|EPI ISL 424363| | C | I | . | . | . | . | . | . | I | F | . | . | . | . | . | . | . | . | . | . | . | . | B.4 |
| hCoV-19/India/1644/2020|EPI ISL 421672| | C | I | . | . | . | . | . | . | I | F | . | . | . | . | . | . | . | . | . | . | . | . | B.4 |
| hCoV-19/India/1621/2020|EPI ISL 421671| | C | I | . | . | . | . | . | . | I | F | . | . | . | . | . | . | . | . | . | . | . | . | B.4 |
| hCoV-19/India/1617/2020|EPI ISL 421670| | C | I | . | . | . | . | . | . | I | F | . | . | . | . | . | . | . | . | . | . | . | . | B.4 |
| hCoV-19/India/1616/2020|EPI ISL 421669| | C | I | . | . | . | . | . | . | I | F | . | . | . | . | . | . | . | . | . | . | . | . | B.4 |
| hCoV-19/India/1063/2020|EPI ISL 424361| | C | I | . | . | . | . | . | . | I | F | . | . | . | . | . | . | . | . | . | . | . | . | B.4 |
| hCoV-19/India/1115/2020|EPI ISL 421667| | C | I | . | . | . | . | . | . | I | F | . | . | . | . | . | . | . | . | . | . | . | . | B.4 |
| hCoV-19/India/1104/2020|EPI ISL 421665| | C | I | . | . | . | . | . | . | I | F | . | . | . | . | . | . | . | . | . | . | . | . | B.4 |
| hCoV-19/India/1100/2020|EPI ISL 421664| | C | I | . | . | . | . | . | . | I | F | . | . | . | . | . | . | . | . | . | . | . | . | B.4 |
| hCoV-19/India/1093/2020|EPI ISL 421663| | C | I | . | . | . | . | . | . | I | F | . | . | . | . | . | . | . | . | . | . | . | . | B.4 |
| hCoV-19/India/1073/2020|EPI ISL 421662| | C | I | . | . | . | . | . | . | I | F | . | . | . | . | . | . | . | . | . | . | . | . | B.4 |
| hCoV-19/India/GBRC24a/2020|EPI ISL 437453| | . | . | . | . | . | . | K | . | . | . | V | . | . | . | . | . | . | . | L | . | . | . | B.6 |
| hCoV-19/India/GBRC24b/2020|EPI ISL 437454| | . | . | . | . | . | . | K | . | . | F | V | G | L | . | . | H | . | . | L | . | . | . | B.6 |
| hCoV-19/India/NCDC-3264/2020|EPI ISL 436432| | . | . | . | . | . | . | K | . | . | F | V | . | . | . | . | . | . | . | L | . | . | . | B.6 |
| hCoV-19/India/NCDC-02252/2020|EPI ISL 435097| | . | . | . | . | . | . | K | . | . | F | V | . | . | . | . | . | . | . | L | . | . | . | B.6 |
| hCoV-19/India/GMC-RR1191/2020|EPI ISL 438138| | . | . | . | . | . | . | K | . | . | F | V | . | . | . | . | . | . | . | L | . | . | . | B.6 |
| hCoV-19/India/GMC-RK1090/2020|EPI ISL 438139| | . | . | . | . | . | . | K | . | . | F | V | . | . | . | . | . | . | . | L | . | . | . | B.6 |
| MCL-20-H-2349 F1.4 RNA 2137 | . | . | S | S | . | R | K | T | . | F | V | . | . | V | . | . | . | . | L | . | . | . | B.6.6 |
| MCL-20-H-2347 F2.2 RNA 2135 | . | . | S | S | . | R | K | T | . | F | V | . | . | V | . | . | . | . | L | . | . | . | B.6.6 |
| MCL-20-H-2345 F3.1 RNA 2133 | . | . | S | S | . | R | K | T | . | F | V | . | . | V | . | . | . | . | L | . | . | . | B.6.6 |
| MCL-20-H-2340 F4W RNA 2128 | . | . | S | S | . | R | K | T | . | F | V | . | . | V | . | . | . | . | L | . | . | . | B.6.6 |
| MCL-20-H-2339\_F2 RNA 2127 | . | . | S | S | . | R | K | T | . | F | V | . | . | V | . | . | . | . | L | . | . | . | B.6.6 |
| MCL-20-H-2346\_F3\_RNA 2134 | . | . | S | S | . | R | K | T | . | F | V | . | . | V | . | . | . | . | L | . | . | . | B.6.6 |
| MCL-20-H-2343\_F4.1 RNA 2131 | . | . | S | S | . | R | K | T | . | F | V | . | . | V | . | . | . | . | L | . | . | . | B.6.6 |
| MCL-20-H-2337\_F2W\_RNA 2125 | . | . | S | S | . | R | K | T | . | F | V | . | . | V | . | . | . | . | L | . | . | . | B.6.6 |