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| --- | --- | --- | --- | --- | --- |
| Genomic position in  the  reference genome | Nucleotide in the reference genome  hCoV-  19/Wuhan/WIV04  /2019|EPI\_ISL\_40 2124 | Nucleotide in the  samples from  Jeddah | Genomic Region | Amino Acid Substitution | Frequency in the  sample population |
| 241 | C | T | ORF1a | None | 94 |
| 508 | T | C | ORF1a | None | 1 |
| 529 | G | T | ORF1a | None | 1 |
| 556 | C | T | ORF1a | None | 1 |
| 670 | T | G | ORF1a | 135 S>R | 68 |
| 691 | A | G | ORF1a | None | 1 |
| 808 | A | G | ORF1a | None | 1 |
| 874 | C | T | ORF1a | None | 1 |
| 981 | C | T | ORF1a | 239 A>V | 2 |
| 1279 | A | G | ORF1a | None | 1 |
| 1554 | A | C | ORF1a | 430 N>T | 1 |
| 1590 | G | A | ORF1a | 442 G>D | 1 |
| 1681 | G | T | ORF1a | 472 E>D | 1 |
| 1710 | C | T | ORF1a | 482 A>V | 1 |
| 1968 | C | T | ORF1a | 568 T>I | 2 |
| 2026 | A | G | ORF1a | None | 1 |
| 2083 | G | T | ORF1a | 607 Q>H | 1 |
| 2143 | C | T | ORF1a | None | 1 |
| 2151 | A | G | ORF1a | 629 D>G | 1 |
| 2455 | C | T | ORF1a | None | 1 |
| 2470 | C | T | ORF1a | None | 17 |
| 2790 | C | T | ORF1a | 842 T>I | 68 |
| 2832 | A | G | ORF1a | 856 K>R | 24 |
| 3037 | C | T | ORF1a | None | 94 |
| 3045 | C | T | ORF1a | 927 P>L | 1 |
| 3096 | C | T | ORF1a | 944 S>L | 1 |
| 3256 | T | C | ORF1a | None | 1 |
| 3478 | T | C | ORF1a | None | 1 |
| 3896 | G | T | ORF1a | 1211 V>F | 1 |
| 3961 | C | T | ORF1a | None | 2 |
| 4140 | A | G | ORF1a | 1292 Q>R | 1 |
| 4184 | G | A | ORF1a | 1307 G>S | 69 |
| 4285 | G | T | ORF1a | 1340 E>D | 1 |

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| --- | --- | --- | --- | --- | --- |
| 4321 | C | T | ORF1a | None | 69 |
| 4720 | G | T | ORF1a | None | 1 |
| 4795 | C | T | ORF1a | None | 1 |
| 4893 | C | T | ORF1a | 1543 T>I | 1 |
| 4949 | T | A | ORF1a | 1562 L>M | 3 |
| 5129 | C | T | ORF1a | 1622 P>S | 1 |
| 5152 | T | A | ORF1a | None | 1 |
| 5339 | C | T | ORF1a | 1692 P>S | 1 |
| 5386 | T | G | ORF1a | None | 25 |
| 5724 | C | T | ORF1a | 1820 T>I | 2 |
| 5746 | C | T | ORF1a | None | 1 |
| 5920 | T | C | ORF1a | None | 1 |
| 6024 | A | G | ORF1a | 1920 Y>C | 1 |
| 6196 | C | T | ORF1a | None | 1 |
| 6199 | T | C | ORF1a | None | 1 |
| 6317 | C | T | ORF1a | 2018 P>S | 1 |
| 6538 | C | T | ORF1a | None | 1 |
| 6548 | C | T | ORF1a | None | 2 |
| 6570 | A | G | ORF1a | 2102 N>S | 1 |
| 6701 | C | T | ORF1a | 2146 L>F | 1 |
| 6869 | A | T | ORF1a | None | 1 |
| 6872 | G | C | ORF1a | None | 1 |
| 7164 | C | T | ORF1a | 2300 T>I | 1 |
| 7351 | T | A | ORF1a | None | 1 |
| 7390 | C | T | ORF1a | None | 1 |
| 7417 | C | T | ORF1a | None | 1 |
| 7633 | T | C | ORF1a | None | 1 |
| 7840 | C | T | ORF1a | None | 1 |
| 7984 | T | C | ORF1a | None | 1 |
| 8290 | C | T | ORF1a | None | 1 |
| 8308 | A | G | ORF1a | None | 1 |
| 8318 | C | A | ORF1a | 2685 P>T | 1 |
| 8386 | C | T | ORF1a | None | 1 |
| 8389 | C | T | ORF1a | None | 1 |
| 8393 | G | A | ORF1a | 2710 A>T | 25 |
| 8480 | C | T | ORF1a | 2739 P>S | 2 |
| 8647 | T | C | ORF1a | None | 1 |
| 8683 | C | T | ORF1a | None | 1 |
| 8748 | C | T | ORF1a | 2828 A>V | 1 |
| 8809 | C | T | ORF1a | None | 2 |
| 8837 | A | G | ORF1a | 2858 I>V | 1 |
| 8991 | C | T | ORF1a | 2909 A>V | 5 |
| 9034 | A | G | ORF1a | None | 1 |

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| 9344 | C | T | ORF1a | 3027 L>F | 68 |
| 9424 | A | G | ORF1a | None | 68 |
| 9534 | C | T | ORF1a | 3090 T>I | 69 |
| 9866 | C | T | ORF1a | 3201 L>F | 65 |
| 9893 | C | T | ORF1a | 3210 L>F | 1 |
| 9936 | C | T | ORF1a | 3224 T>I | 3 |
| 9994 | C | T | ORF1a | None | 1 |
| 10000 | T | C | ORF1a | None | 1 |
| 10029 | C | T | ORF1a | 3255 T>I | 93 |
| 10155 | A | G | ORF1a | 3297 D>G | 1 |
| 10191 | C | T | ORF1a | None | 1 |
| 10198 | C | T | ORF1a | None | 63 |
| 10323 | A | G | ORF1a | 3353 K>R | 1 |
| 10447 | G | A | ORF1a | None | 68 |
| 10449 | C | A | ORF1a | 3395 P>H | 92 |
| 10507 | C | T | ORF1a | None | 6 |
| 10561 | T | C | ORF1a | None | 1 |
| 10624 | A | G | ORF1a | None | 1 |
| 10775 | C | T | ORF1a | 3504 P>S | 1 |
| 11094 | C | T | ORF1a | 3610 A>V | 1 |
| 11152 | C | T | ORF1a | None | 1 |
| 11199 | C | T | ORF1a | 3645 A>V | 1 |
| 11218 | T | C | ORF1a | None | 1 |
| 11224 | C | T | ORF1a | None | 1 |
| 11266 | G | T | ORF1a | None | 1 |
| 11365 | G | T | ORF1a | None | 1 |
| 11442 | C | T | ORF1a | 3726 A>V | 1 |
| 11479 | C | T | ORF1a | None | 3 |
| 11537 | A | G | ORF1a | 3758 I>V | 25 |
| 11620 | C | T | ORF1a | None | 1 |
| 11704 | C | T | ORF1a | None | 1 |
| 11747 | C | T | ORF1a | None | 3 |
| 12153 | C | T | ORF1a | 3963 A>V | 2 |
| 12357 | C | T | ORF1a | 4031 T>I | 1 |
| 12733 | C | T | ORF1a | None | 2 |
| 12786 | C | T | ORF1a | 4174 T>I | 1 |
| 12789 | C | T | ORF1a | 4175 T>I | 1 |
| 12796 | A | G | ORF1a | None | 1 |
| 12801 | G | A | ORF1a | 4179 R>K | 1 |
| 12817 | G | A | ORF1a | None | 1 |
| 12880 | C | T | ORF1a | None | 68 |
| 13119 | C | T | ORF1a | 4285 A>V | 1 |
| 13195 | T | C | ORF1a | None | 25 |

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| --- | --- | --- | --- | --- | --- |
| 13424 | C | T | ORF1a | 4387 R>C | 1 |
| 13625 | A | G | ORF1b | 53 D>G | 1 |
| 13677 | C | T | ORF1b | None | 1 |
| 13721 | C | T | ORF1b | 85 P>L | 2 |
| 13806 | C | T | ORF1b | None | 1 |
| 14352 | C | T | ORF1b | None | 1 |
| 14408 | C | T | ORF1b | 314 P>L | 93 |
| 14937 | C | T | ORF1b | None | 1 |
| 15240 | C | T | ORF1b | None | 24 |
| 15352 | C | T | ORF1b | 629 L>F | 1 |
| 15366 | T | C | ORF1b | None | 1 |
| 15714 | C | T | ORF1b | None | 68 |
| 15720 | C | T | ORF1b | None | 1 |
| 16056 | T | C | ORF1b | None | 1 |
| 16342 | T | C | ORF1b | 959 S>P | 1 |
| 16744 | G | A | ORF1b | 1093 G>S | 2 |
| 16887 | C | T | ORF1b | None | 2 |
| 16950 | T | C | ORF1b | None | 1 |
| 17036 | C | T | ORF1b | 1190 A>V | 1 |
| 17073 | A | C | ORF1b | None | 2 |
| 17135 | C | T | ORF1b | 1223 P>L | 1 |
| 17242 | G | T | ORF1b | 1259 A>S | 2 |
| 17410 | C | T | ORF1b | 1315 R>C | 69 |
| 17949 | C | T | ORF1b | None | 1 |
| 17977 | C | T | ORF1b | 1504 L>F | 3 |
| 18028 | G | T | ORF1b | 1521 A>S | 1 |
| 18060 | C | T | ORF1b | None | 2 |
| 18163 | A | G | ORF1b | 1566 I>V | 94 |
| 18312 | C | T | ORF1b | None | 1 |
| 18366 | A | G | ORF1b | None | 1 |
| 18568 | C | T | ORF1b | 1701 L>F | 1 |
| 18816 | G | T | ORF1b | None | 1 |
| 18828 | C | T | ORF1b | None | 1 |
| 19677 | G | T | ORF1b | 2070 Q>H | 2 |
| 19735 | G | T | ORF1b | 2090 D>Y | 1 |
| 19884 | C | T | ORF1b | None | 1 |
| 19955 | C | T | ORF1b | 2163 T>I | 68 |
| 20014 | G | T | ORF1b | 2183 D>Y | 1 |
| 20055 | A | G | ORF1b | None | 68 |
| 20445 | T | C | ORF1b | None | 1 |
| 20758 | G | A | ORF1b | 2431 A>T | 1 |
| 20759 | C | T | ORF1b | 2431 A>V | 1 |
| 21137 | A | G | ORF1b | 2557 K>R | 1 |

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| --- | --- | --- | --- | --- | --- |
| 21304 | C | A | ORF1b | 2613 R>N | 1 |
| 21305 | G | A | ORF1b | 2613 R>N | 1 |
| 21306 | C | T | ORF1b | None | 2 |
| 21595 | C | T | S | None | 1 |
| 21618 | C | T | S | None | 66 |
| 21646 | C | T | S | None | 1 |
| 21704 | T | G | S | 48 L>V | 1 |
| 21707 | C | T | S | 48 H>Y | 1 |
| 21762 | C | T | S | None | 25 |
| 21812 | C | T | S | None | 1 |
| 21846 | C | T | S | 95 T>I | 25 |
| 21910 | C | T | S | None | 1 |
| 21987 | G | A | S | 142 G>D | 68 |
| 22094 | G | A | S | None | 1 |
| 22200 | T | G | S | 213 V>G | 66 |
| 22578 | G | A | S | 339 G>D | 93 |
| 22599 | G | A | S | 346 R>K | 21 |
| 22624 | C | T | S | None | 1 |
| 22645 | T | C | S | None | 1 |
| 22673 | T | C | S | None | 17 |
| 22674 | C | T | S | None | 88 |
| 22679 | T | C | S | None | 87 |
| 22686 | C | T | S | 375 S>F | 87 |
| 22688 | A | G | S | 376 T>A | 71 |
| 22775 | G | A | S | 405 D>N | 73 |
| 22786 | A | C | S | 408 R>S | 73 |
| 22792 | C | T | S | None | 6 |
| 22812 | A | C | S | 417 K>N | 2 |
| 22813 | G | T | S | 417 K>N | 83 |
| 22882 | T | G | S | 440 N>K | 66 |
| 22898 | G | A | S | 446 G>S | 20 |
| 22992 | G | A | S | 477 S>N | 89 |
| 22993 | C | T | S | None | 1 |
| 22995 | C | A | S | 478 T>K | 89 |
| 23013 | A | C | S | 484 E>A | 89 |
| 23040 | A | G | S | 493 Q>R | 89 |
| 23048 | G | A | S | 496 G>S | 20 |
| 23055 | A | G | S | 498 Q>R | 90 |
| 23063 | A | T | S | 501 N>Y | 90 |
| 23075 | T | C | S | 505 Y>H | 89 |
| 23202 | C | A | S | 547 T>K | 25 |
| 23403 | A | G | S | 614 D>G | 93 |
| 23416 | A | T | S | None | 1 |

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| --- | --- | --- | --- | --- | --- |
| 23525 | C | T | S | 655 H>Y | 94 |
| 23599 | T | G | S | 679 N>K | 94 |
| 23604 | C | A | S | 681 P>H | 94 |
| 23612 | G | A | S | 684 A>T | 4 |
| 23767 | A | G | S | None | 1 |
| 23854 | C | A | S | 764 N>K | 91 |
| 23896 | C | T | S | None | 5 |
| 23948 | G | T | S | 796 D>Y | 92 |
| 24130 | C | A | S | 856 N>K | 25 |
| 24136 | T | C | S | None | 1 |
| 24237 | C | T | S | 892 A>V | 1 |
| 24314 | G | A | S | 918 E>K | 2 |
| 24424 | A | T | S | 954 Q>H | 94 |
| 24469 | T | A | S | 969 N>K | 94 |
| 24503 | C | T | S | 981 L>F | 25 |
| 24517 | C | T | S | None | 1 |
| 24892 | T | C | S | None | 2 |
| 24919 | C | T | S | None | 1 |
| 25000 | C | T | S | None | 89 |
| 25276 | C | T | S | None | 1 |
| 25348 | G | C | S | None | 1 |
| 25413 | C | A | ORF3a | None | 2 |
| 25416 | C | T | ORF3a | None | 7 |
| 25427 | C | T | ORF3a | 12 T>I | 1 |
| 25534 | G | T | ORF3a | 48 V>F | 1 |
| 25584 | C | T | ORF3a | None | 94 |
| 25714 | C | T | ORF3a | 108 L>F | 1 |
| 25810 | C | T | ORF3a | 140 L>F | 6 |
| 26010 | C | T | ORF3a | None | 1 |
| 26022 | C | T | ORF3a | None | 1 |
| 26029 | C | A | ORF3a | 213 Q>K | 1 |
| 26060 | C | T | ORF3a | 223 T>I | 69 |
| 26176 | C | T | ORF3a | 262 P>S | 2 |
| 26270 | C | T | E | 9 T>I | 94 |
| 26416 | G | A | E | 58 V>I | 1 |
| 26522 | C | T | M | None | 14 |
| 26530 | A | G | M | 3 D>G | 13 |
| 26577 | C | G | M | 19 Q>E | 86 |
| 26600 | C | T | M | None | 5 |
| 26606 | C | T | M | None | 1 |
| 26709 | G | A | M | 63 A>T | 93 |
| 26728 | C | T | M | 69 A>V | 1 |
| 26773 | T | C | M | 84 M>T | 2 |
| 26858 | C | T | M | None | 68 |
| 26907 | C | T | M | None | 1 |
| 27077 | G | A | M | None | 2 |
| 27259 | A | C | ORF6 | None | 94 |
| 27321 | A | G | ORF6 | None | 1 |
| 27382 | G | C | ORF6 | 61 D>L | 68 |
| 27383 | A | T | ORF6 | 61 D>L | 68 |
| 27384 | T | C | ORF6 | 61 D>L | 68 |
| 27532 | C | A | ORF7a | 48 H>N | 1 |
| 27589 | G | T | ORF7a | 66 A>S | 1 |
| 27635 | C | T | ORF7a | 81 S>L | 1 |
| 27637 | G | T | ORF7a | 82 V>F | 1 |
| 27669 | A | C | ORF7a | 92 E>D | 1 |
| 27807 | C | T | ORF7b | None | 93 |
| 27818 | T | C | ORF7b | None | 1 |
| 27942 | C | T | ORF8 | 17 H>Y | 1 |
| 28079 | G | T | OFR8 | None | 1 |
| 28271 | A | T | ORF9b | None | 92 |
| 28292 | C | A | N | 7 Q>K | 1 |
| 28311 | C | T | ORF9b | 10 P>S | 91 |
| N | 13 P>L | 91 |
| 28651 | C | T | N | None | 1 |
| 28678 | T | C | N | None | 1 |
| 28681 | G | A | N | None | 1 |
| 28825 | T | G | N | None | 1 |
| 28877 | A | T | N | None | 1 |
| 28878 | G | C | N | None | 1 |
| 28881 | G | A | N | 203 R>K | 93 |
| 28882 | G | A | N | 203 R>K | 93 |
| 28883 | G | C | N | 204 G>R | 93 |
| 28995 | A | C | N | 241 Q>P | 1 |
| 29101 | A | G | N | None | 1 |
| 29114 | C | A | N | 281 Q>K | 1 |
| 29140 | G | T | N | 289 Q>H | 1 |
| 29249 | C | T | N | 326 P>S | 1 |
| 29510 | A | C | N | 413 S>R | 67 |
| 29614 | C | T | N | None | 1 |