

## Supplementary Data 1: List of sequences used for constructing Phylogenetic analysis of SARS-CoV-2 spike protein

>RBD

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYADSFVIRGDEVRQIAPGQTGKI  
ADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGSTPCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFE  
LLHAPATVCGPKKSTNLVKNKCVNF

>6XDG\_E:1-223 Chain E, Spike glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>6W41\_C:1-223 Chain C, Spike protein S1 [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>6M0J\_E:1-223 Chain E, Spike receptor binding domain [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>6M17\_E:1-223 Chain E, SARS-coV-2 Receptor Binding Domain [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>6XE1\_E:1-223 Chain E, Spike protein S1 [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKK14051.1:319-541 surface glycoprotein, partial [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJD23474.1:173-395 surface glycoprotein, partial [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJD25214.1:176-398 surface glycoprotein, partial [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>7BYR\_A:319-541 Chain A, SARS-CoV-2 Spike glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>6X2C\_A:304-526 Chain A, Spike glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>6X2A\_A:304-526 Chain A, Spike glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>6ZGE\_A:350-572 Chain A, Spike glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKV25429.1:279-501 surface glycoprotein, partial [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKU53385.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>6X6P\_A:305-527 Chain A, SARS-CoV-2 spike glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKV38148.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>6ZGG\_A:350-572 Chain A, Spike glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>6VXX\_A:338-560 Chain A, SARS-CoV-2 spike glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>6VYB\_A:338-560 Chain A, Spike glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QLC47776.1:279-501 surface glycoprotein, partial [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>6XCM\_A:319-541 Chain A, Spike glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QIS30595.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKU37489.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKG90062.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKG88454.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJF75467.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QLC47908.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKG90206.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGNT  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJA16640.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKISDYN YKLPDDFTGCVIA WNSNNLDSKVG GN YNYLYRLFRKSNL KP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJU70545.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYN YKLPDDFTGCVIA WNSNNLDSKVG GN YNYLYRLFRKSNL KP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHSPATVCGPKKSTNLVKNKCVNF  
>QKU32465.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFSSVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYN YKLPDDFTGCVIA WNSNNLDSKVG GN YNYLYRLFRKSNL KP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJD24377.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYN YKLPDDFTGCVIA WNSNNLDSKVG GN YNYLYRLFRKSNL KP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPSTVCGPKKSTNLVKNKCVNF  
>QIS60489.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYN YKLPDDFTGCVIA WNSNNLDSKVG GN YNYLYRLFRKSNL KP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHSPATVCGPKKSTNLVKNKCVNF  
>QIQ50102.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNSTRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYN YKLPDDFTGCVIA WNSNNLDSKVG GN YNYLYRLFRKSNL KP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKV39455.1:319-541 surface glycoprotein [SARS-CoV-2]  
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SFVIRGDEVRQIAPGQTGKIADYN YKLPDDFTGCVIA WNSNNLDSKVG GN YNYLYRLFRKSNL KP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QLA47775.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIKGDEVRQIAPGQTGKIADYN YKLPDDFTGCVIA WNSNNLDSKVG GN YNYLYRLFRKSNL KP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJC20043.1:319-541 surface glycoprotein [SARS-CoV-2]  
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SFVIRGDEVRQIAPGQTGKIADYN YKLPDDFTGCVIA WNSNNLDSKVG GN YNYLYRLFRKSNL KP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKESTNLVKNKCVNF  
>QJX44562.1:319-541 surface glycoprotein [SARS-CoV-2]  
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SFVIRGDEVRQIAPGQTGKIADYN YKLPDDFTGCVIA WNSNNLDSKVG GN YNYLYRLFRKSNL KP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJS39543.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYL FRLFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJS39579.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYL FRLFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>6X29\_A:304-526 Chain A, Spike glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVCPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYL YRLFRLFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJS57147.1:319-541 surface glycoprotein [SARS-CoV-2]  
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SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYL YRLFRLFRKSNL KPFERDISTE IYQAGST  
PCNGAEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>BCG44664.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYL YRLFRLFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QIS30165.1:319-541 surface glycoprotein [SARS-CoV-2]  
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SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYL YRLFRLFRKSNL KPFERDISTE IYQAGST  
PCNGAEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKV38725.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVXPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYL YRLFRLFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKG90350.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKXADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYL YRLFRLFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKU28906.1:319-541 surface glycoprotein [SARS-CoV-2]  
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SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYL YRLFRLFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPVTVCGPKKSTNLVKNKCVNF  
>QKE50930.1:319-541 surface glycoprotein [SARS-CoV-2]  
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SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNXNNLDSKVG GNYNYL YRLFRLFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJQ84364.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QIS30335.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QIZ13131.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGAEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR95505.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPXTVCGPKKSTNLVKNKCVNF

>QJF76774.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNXLD SKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QIV65022.1:319-541 surface glycoprotein [SARS-CoV-2]

RXQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJS39507.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTTG VGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QLC46901.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGNT  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QLC48016.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKU54477.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSTL KP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKU54477.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSTLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR87957.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPXTVCGPKKSTNLVKNKCVNF

>QJS39567.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGLNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJF75779.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGXGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR85569.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKXG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV06079.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPIESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR88737.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSXNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKR84961.1:319-541 surface glycoprotein [SARS-CoV-2]

RXQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR88437.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSXNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKU37429.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFEXLHAPATVCGPKKSTNLVKNKCVNF

>QKU32297.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNXYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKS89843.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVXYNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKG87818.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKXGGNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR89337.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSXNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJQ39032.1:319-541 surface glycoprotein [SARS-CoV-2]

RXQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJD25193.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPIESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJD25193.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPIESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJF75335.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQPYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QIU78719.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QIQ08810.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV37908.1:319-541 surface glycoprotein [SARS-CoV-2]



RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHXPATVCGPKKSTNLVKNKCVNF

>QJR90345.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLXKNKCVNF

>QJR93417.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPAXVCGPKKSTNLVKNKCVNF

>QKU53313.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNXDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV40583.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQXAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJC20487.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQASST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QIS30425.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQASST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKF95522.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSFL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKG87146.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNXLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV49386.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSFL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR91737.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSXSFSSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJS39627.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSFLYNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJC20993.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSFLYNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKS89831.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSFLYNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKS67443.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSFLYNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJT72806.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGESPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV35256.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTXLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QIQ49882.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQASST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV38532.1:319-541 surface glycoprotein [SARS-CoV-2]

RVXPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR93825.1:311-533 surface glycoprotein, partial [SARS-CoV-2]

RVXPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJS54106.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFPNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR93441.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVXPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJZ28347.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVXQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKV09199.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVXQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKE49074.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTXKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJD47358.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKE45824.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKX65076.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SXVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKU32765.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGXGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QIS30115.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPXDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QIS30115.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV42946.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKR85081.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLQAPATVCGPKKSTNLVKNKCVNF

>QKR85081.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLQAPATVCGPKKSTNLVKNKCVNF

>QIS61422.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLQAPATVCGPKKSTNLVKNKCVNF

>QKV38761.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLF XKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV37031.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFSNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJG65949.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVERFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKR84613.1:319-541 surface glycoprotein [SARS-CoV-2]

RVXPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QIU81213.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIAXYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QHS34546.1:318-540 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVIQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKU32057.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEV RQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNL KXFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJY78056.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVIQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJQ38624.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEV RQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAXATVCGPKKSTNLVKNKCVNF  
>QKR85609.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEV RQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVERFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKN20763.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEV RQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTE IYQAGST  
LCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKO24139.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVS LTKLN DL CFTNVYAD  
SFVIRGDEV RQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKU53301.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEV RQIAPGXXGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJQ84280.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEV RQIAPGQTGKIADYNYKLPDDFTGCVIA WNXN LDSKVGGNYNLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKS91031.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLXPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEV RQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJI54229.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WXXNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKU54045.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNXXNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKU31973.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJT72386.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QIZ13371.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFXIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQASST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR90753.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSXNLD SKVXGNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKM76402.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FXRDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKX65088.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATXFASXYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR91617.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVXPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSXNLD SKVGGNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKR85429.1:319-541 surface glycoprotein [SARS-CoV-2]  
RXXPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR89229.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSXNLDSKVXGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR88425.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSXNLDSKVXGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR94029.1:321-541 surface glycoprotein [SARS-CoV-2]  
ZPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYADSF  
VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGSTPC  
NGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR89457.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSXNLDSKVXGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJC19863.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYXXKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJC19863.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYXXKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKR84637.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVXGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLXKNKCVNF  
>QJR89361.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSXNLDSKVXGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKV25801.1:320-541 surface glycoprotein [SARS-CoV-2]  
VXPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYADS  
FVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGSTP  
CNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKE45668.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA XNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJI54323.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVXYNSASFSTFKCYGVSPTKLNLDLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKG89690.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVLVNSASFSTFKCYGVSPTKLNLDLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNXXSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV38833.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVLVNSASFSTFKCYGVSPTKLNLDLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLXPFERXISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJY40085.1:320-541 surface glycoprotein [SARS-CoV-2]

VQXTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVLVNSASFSTFKCYGVSPTKLNLDLCFTNVYADS  
FVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGSTP  
CNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR87321.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVLVNSASFSTFKCYGVSPTKLNLDLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVVXXNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR87693.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVLVNSASFSTFKCYGVSPTKLNLDLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVVXXNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR90717.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVLVNSASFSTFKCYGVSPTKLNLDLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSXNLDKVVXGNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJF77290.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVLVNSASFSTFKCYGVSPTKLNLDLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKXXXNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKG88022.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVLVNSASFSTFKCYGVSPTKLNLDLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTXXVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKG89846.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVLVNSASFSTFKCYGVSPTKLNLDLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPXXXYGFPQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV38857.1:319-541 surface glycoprotein [SARS-CoV-2]



RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTXXVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKR84420.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CXXNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPXTVCGPKKSTNLVKNKCVNF  
>QJA17432.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR91281.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSXNLDSKVXGN YNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLXKNKCVNF  
>QJR89313.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSXNLDSKVXGN YNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLXKNKCVNF  
>QJR90297.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSXNLDSKVXGN YNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLXKNKCVNF  
>QJR89397.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVXGN YNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLXKNKCVNF  
>QKU53553.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVXGN YNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR86997.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVXGN YNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAXXXVCGPKKSTNLVKNKCVNF  
>QKV37368.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVXGN YNYLYRLFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAXXXVCGPKKSTNLVKNKCVNF  
>QJR89277.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSXNLDSKVXGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLXKNKCVNF

>QJ154383.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGXX  
XCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR89157.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSXNLDSKVXGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLXKNKCVNF

>QJR86577.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKXXXNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR95529.1:321-541 surface glycoprotein [SARS-CoV-2]

QPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYADSF  
VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGSTPC  
NGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAXATVCGPKKSTNLVKNKCVNF

>QKV67308.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGXXXA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QJD48483.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVXAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFXXSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR86289.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVXXNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVXGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR93561.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVXXNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPAXVCGPKKSTNLVKNKCVNF

>QJR93561.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVXXNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPAXVCGPKKSTNLVKNKCVNF

>QKV37464.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVXXXNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJQ84220.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJD47118.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPXXXXVRFNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR89445.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRXVLSFELLHAPATVCGPKKSTNLXKNKCVNF  
>QKV37392.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHXXXXVCGPKKSTNLVKNKCVNF  
>QKV38941.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGXXXXWNSNNLDSKVGGNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKV25105.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKPXXRDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYXVVLSFELLHAPATVCGPXXKSTNLVKNKCVNF  
>QIS30135.1:320-541 surface glycoprotein [SARS-CoV-2]  
VQPTXXXXRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYADS  
FVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKP FERDISTEIQAGSTP  
CNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKV39252.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLXDL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLXXXXCVNF  
>QJD48759.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIXGDEVRQIAPGQTGKIAXXXYKLPDDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKX65100.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTXXNDLCXXNVYAD  
SFVXRGDVEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJF76462.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLNLCFTNVYAD  
SFVIRGDEVRQIAPGXXXXADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKV39443.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITXXXXFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLNLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKU28450.1:319-541 surface glycoprotein, partial [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLNLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKXXXXDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR90561.1:319-541 surface glycoprotein [SARS-CoV-2]  
RXXPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLNLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAXXXVCGPKKSTNLVKNKCVNF  
>QKR86449.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPXGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLNLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVERFNCYFPLQSYGFQPTNGVGYQPYRVVVL XXELLHXPATVCGPKKSTNLVKNKCVNF  
>QKG89990.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNXXXXPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLNLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR89181.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLNLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAXXXXGPKKSTNLVKNKCVNF  
>QJR85989.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLNLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVVXXNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAXXXVCGPKKSTNLVKNKCVNF  
>QKE49364.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLNLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR92109.1:321-541 surface glycoprotein [SARS-CoV-2]

QPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYADSF  
VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNL KPFERDISTEIQAGSTPC  
NGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHXXXXXVCGPKKSTNLVKNKCVNF  
>QKE12198.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSXXXXXNYLYRLFRKSNL KPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKG88598.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNL KPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYXXXXXXFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJZ28359.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTXKCYGVSPTKXNDLXXXNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNL KPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QLB39141.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGXXXXRXXXPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNL KPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKE49172.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASF SXXXXXGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNL KPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKS89951.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG XXXXXLYRLFRKSNL KPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR84849.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFXXXXXXS VYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNL KPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJE39157.1:319-541 surface glycoprotein, partial [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRXXXXXNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNL KPFERDISTXXXQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR85497.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKXXXNYNYLYRLFRKSNL KPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHXXXXVCGPKKSTNLVKNKCVNF  
>QJI54086.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTXXXXXXXXYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJA16973.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNIXXXCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNXXLXXDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJI54122.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIXXNSNNLDSKVGXXXXYLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKV07483.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPXXXXXXVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKE45025.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFXXXXXXYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR94617.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVXXXXXXXPATVCGPKKSTNLVKNKCVNF  
>QJF77050.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIXXXXITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKXXYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR87945.1:319-541 surface glycoprotein SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKXXXXXXXXYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJS54862.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CXXXXXXXX  
XXVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJA17024.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRXIXXXXGKXXDYNXXLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKS89867.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIXXXXXXXXXXAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJF77110.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIAXXXXXXXXXX DFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJC20475.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQXXXGQTGKXXXXXXXXXKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJD47142.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPXXXXXXXXXXXTNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKO24221.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFXXXTNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV XXXXXXXX HAPATVCGPKKSTNLVKNKCVNF

>QJF76055.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKXADYNXXXXXXXXX GCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV38785.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRXXXXXXXXXX YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QIZ14394.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEXXVRFNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIXXXXXXXXXX SKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR85677.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV LXXXXXXXXXX VCGPKKSTNLVKNKCVNF

>QKS91043.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDXXXXXXXXXXGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJD48507.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVXXXXXXXXXXIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJ154253.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNXXPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGXXXXXXXXNDLXXTNVYAD  
SFVIRGDEV RQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJD47058.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEV RQIAPGQTGKXXXXXXXXXXDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKG89894.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEV RQXXXXXXXXXXYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJD47454.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNXXXXXXXXXXFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEV RQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR85905.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEV RQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVXXXXXXXXXXXXXVCGPKKSTNLVKNKCVNF

>QJR87645.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEV RQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVXXXXXXXXXXXXXVCGPKKSTNLVKNKCVNF

>QJ154288.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPXXXXXXXXFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLXXXXXXXXTNVYAD  
SFVIRGDEV RQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJQ38456.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSAXXXXXXXXXCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEV RQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPAXXXXXXXXXKSTNLVKNKCVNF

>QJR86733.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEV RQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYXXXXXXXXXQPTNGVGYQPYRVVLSFELLHXXXXXXXXVCGPKKSTNLVKNKCVNF

>QKE12178.1:279-501 surface glycoprotein, partial [SARS-CoV-2]



RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNXRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQXXXXXXXXXXDYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR87081.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVXXXXXXXXXXXXXXXXXVCGPKKSTNLVKNKCVNF  
>QKV39551.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRXXXXXXXXXXXXXXXXXDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR84549.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESXXXXXXXXXXFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR84705.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPXXXXXXXXXXXXPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR87489.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYXPYRVXXXXXXXXXXXXXXXXXVCGPKKSTNLVKNKCVNF  
>QKV06403.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITXXXXXXXXXXXXFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKU52845.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGXXXXXXXXXXXXTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR87777.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKXXXNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVXXXXXXXXXXXXXXXXXVCGPKKSTNLVKNKCVNF  
>QJR85977.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKXXXNYNLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVXXXXXXXXXXXXXXXXXVCGPKKSTNLVKNKCVNF  
>QJI54335.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGXX  
XXXXXXXXXXXXFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR86625.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTXGVGYQPYRVXXXXXXXXXXXXXXXXXCGPKKSTNLVKNKCVNF

>QJR87633.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVXXXXXXXXXXXXXXXXXGPKKSTNLVKNKCVNF

>QKV05983.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DLXXXXXXXX  
XXXXRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRXXXXSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR86829.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKXXXNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVXXXXXXXXXXXXXXXXXVCGPKKSTNLVKNKCVNF

>QJS54766.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNXXXXXXXXXXXXXXXXXCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJC20007.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKXXXXXXXXXXAX  
SFVXXXDEVRQIAPGQTGKXXDYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV39012.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASXYA WNXKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAXGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPAXXXXXXXXXXXXXXXXXXKCVNF

>QJR84405.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFXXXXXXXXXYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTXGXXXXXXXXXRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR84405.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFXXXXXXXXXYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTXGXXXXXXXXXRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJC19887.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIXRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRXXAPGQXXXXXXXXXXXXXXXXFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QJE39062.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVS PXXXXXXXXCFXXXXXX  
XXXXXXXXDEV RQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QJE39097.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGXXXXXXXXNXL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIA XXXXKLPDDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLXXXXXXXXCGPKKSTNLVKNKCVNF

>QKG88502.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEXXXXXXXXTNLCPFGEVFNATRFASVYA XXXXXXXXXXXXVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR86937.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKPFERDISTEIQAGST  
XXXXXXXXXXXXXXXXXSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QJF77146.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIXRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVXXIAPXXXXXXXXXXXXXXXXXDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QJC20499.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRXXXXXXXXXXGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRXXXXXXXXAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QKE12003.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQXXXXXXXXXXXXXXXXXXXXXXXXLLHAPATVCGPKKSTNLVKNKCVNF

>QKV06355.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA XXXXXXXXXXXXXXXXXXXXSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QJD48819.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTXXXXXXXXXXXXXXXXXXXXXXXXYNYLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR87249.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRXXXXXXXXXXXXXXXXXXXXXXXXXKSTNLVKNKCVNF

>QKS89903.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGXXXXXXXXXXXXXXXXXXXX  
XXXIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR86589.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNXYXXLQSYGFQPTNGVGYQPXXXXXXXXXXXXXXXXXXXXCGPKKSTNLVKNKCVNF

>QKU53721.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPXGEVFNATXFAXVXAWXXXXXXXXXXXXXXXXXXXXXSA SFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJI54146.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSXXGGNYNYLXXXXXXXXXXXXXXXXXXXXXISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVXXX YRXV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJI54146.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSXXGGNYNYLXXXXXXXXXXXXXXXXXXXXXISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVXXX YRXV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJD23249.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFLXXXXXXXXXXXXXXXXXXXXXVV VLSFELLQAPATVCGPKKSTNLVKNKCVNF

>QKV42179.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNXXXXXXXXVXDYVXXXXXXXXXXXXXXXXXYGVSPTKLN DL CFXVXAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV08047.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV37380.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNXXXXXXXXXXXXXSA SFSTFKCYXVSPTKLN DL CFTNVYAD  
SFVIRGXXXXXXXXXXXXXGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR87177.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVXXXXXXXXX YRLF RKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYXXXXXXXXXXXXXXXXX CGPKKSTNLVKNKCVNF

>QKG90746.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFXTRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGXXXXXXXXNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYL YRLF RKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYXXXXXXXXFELLHAPATVCGPKKSTNLVKNKCVNF

>QKG87314.1:308-530 surface glycoprotein, partial [SARS-CoV-2]

RVXXXXSIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYXX  
XXXXXXXXXXXXXXXXXXXXXGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYL YRLF RKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR88449.1:302-524 surface glycoprotein, partial [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSXXXXXXXXXNYNYL YRLF RKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYXXXXXXXXXXXXXXXXX VCGPKKSTNLVKNKCVNF

>QJR89385.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVXXNYNYL YRLF RKSNLKP FERDISTE IYQAGST  
PCNGXXXXNCFPXXXXXXXXQPTNGVGYQPYRVVXXXXXXXXXXXXXXXXX VCGPKKSTNLVKNKCVNF

>QKY77928.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
XFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYL YRLF RKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QKE53887.1:284-506 surface glycoprotein, partial [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNXXXXXXXXXXXXXXXXVLXNSXSFSTFKXYGX SPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYL YRLF RKSNLKP FERDISTE IYQXGST  
PCNGVEGFNCYFPLQXYGXXPTNXVGYQPYRVVVL SFELINEPATVCGPKKSTNLVKNKCVNF

>QKE49688.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISXXXXXXXXXXXXXXXXXXXXXXXXXXXXTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYL YRLF RKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QJQ38684.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNXXXXXXXXXXXXXXXXRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNYL YRLF RKSNLKP FERDISTE IYQAGSX  
XXXXXXXXXXYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QJF76391.1:319-541 surface glycoprotein [SARS-CoV-2]

RVXXXXXXXXXPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVXXIAPGQXXKIADYNYKLXXXXXXXXVIA WNSNNLDSKVGGNYNYXXXXFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF

>QKE49280.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDXXXXXXXXXXXXXXXXXXXXXXXXX TGCVIAWNSNNLDSKVG GNYNYLYR LFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJE39121.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVLXXXXXXXXXXXXXXXXXXXXXXXXX VYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYR LFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKV25129.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYR LFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGXXXXXXXXXXXXXXXXXXXXXXXXX KSTNLVKNKCVNF  
>QKU53229.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTXXXXXXXXXXXXXXXXXXXXXXXXX RKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR86721.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKXXXXXXXX NYLYR LFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGXXXXXXXXXXXXXXXXXXXXXXXXX CGPKKSTNLVKNKCVNF  
>QJR89205.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSK VXXXXXXXX YR XFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVXXXXXXXXXXXXXXXXXXXXXXXXX VCGPKKSTNLVKNKCVNF  
>QJR84357.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFXXXXXXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXX E VRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYR LFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKY60189.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKXXXXXXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXX E VRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYR LFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQHNRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKY60177.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKXXXXXXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXX E VRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYLYR LFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYHSNRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJR86109.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTEIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKXXX NYNYLYR LFRKSNL KPFERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFXXXXXXXXXXXXXXXXXXXXXXXXX VCGPKKSTNLVKNKCVNF  
>QJR93873.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYR LFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQ SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX VCGPKKSTNLVKNKCVNF

>QJ154311.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVXXXXXXXXXXXXXXXXXISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WXXXXXXXXXXXXXXXXX YLRLFRKSNLKP FERDISTE IYQXGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKS89855.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVS PXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYR LFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJ154371.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYR LFRKSNLKP FERDISTE IYQAGSX  
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX PYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKG87494.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLC PXXXXXXXXXXXXXXXXXNRKRIXXXXXXXXXX YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGXXXXXXXXYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYR LFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV08263.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYR LFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX KSTNLVKNKCVNF

>QJ154276.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSXXYNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYXXXXXXXXXXXXA WNSNNLDSXXXXXXXXX YR LFRKSNLKP FERDISTE IYQAGSX  
PCNGVEGFNCYFPLQSYXXXXXNGVGYQPXXXX VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR88929.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKXXXNYNYLYR LFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPXXXXXXXXQXXXXXXXXXXXXXXXXXXXXXXXXXXXXX CCGPKKSTNLVKNKCVNF

>QJR86601.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKXXXXXXXXXXXXXXXXX SNLKP FERDISTE IYQAGST  
XCNGVEGFNCYFPXXSYGFZPTNGVXXXXXXXXXXXXXXXXXXXXXXXXX VCGPKKSTNLVKNKCVNF

>QJS54670.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNXXXFASVYXXXNDL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVG GNYNYLYR LFRKSNLKP FERDISTE IYQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR86877.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKXXXXXXXXXXLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGXXXTXXXXXXXXXXXXXXXXXXXXXXXXXXCGPKKSTNLVKNKCVNF  
>QKU28474.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSXXXXXDLXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKU53733.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXRXXXXXXXXXGKIADYNYKLPXXXXXCIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGAEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJE39169.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSAXXXXFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXN LDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVXXXXKSTNLVKNKCVNF  
>QJR86661.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKXXXXXNYLYRLFRKSNLKP FERDISTZIQAGST  
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXGYQXXXVXVLSFEXXXXPATVCGPKKSTNLVKNKCVNF  
>QJR95445.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIXQAGXX  
XXXXXXXXXXYFPLQSYGXXXXXXXXXXXXXXXXXXXXXXXXXXVCGPKKSTNLVKNKCVNF  
>QJE39133.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJE39145.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLXXXGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKVGGNYNLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QJI54015.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASXXXXXXXXXXSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIAXXXXXXXXXXXXXXXXXXXXXXXXXSKVGGNXXLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQXXXXXXXXXXVVVLSFELLHXPATVCGPKKSTNLVKNKCVNF  
>QKG88106.1:319-541 surface glycoprotein [SARS-CoV-2]  
RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVXXX  
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXTGCVIA WNSNNXXXXXXXXXXLYRLFRKSNLKP FERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVL SFELLHAPATVCGPKKSTNLVKNKCVNF  
>QKG89978.1:265-487 surface glycoprotein, partial [SARS-CoV-2]





RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLNLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKXXXXXXXXL YRLFRKSNLKPFERDISTEIQAGSX  
PCNXXCGPKKSTNLVKNKCVNF

>QKK14088.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLNLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXVCGPKKSTNLVKNKCVNF

>QKU28918.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLXXL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYL YRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV36755.1:319-541 surface glycoprotein [SARS-CoV-2]

RVXPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADXSVL YNSASFSTFKCYGXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXTXXVXAWNSNNLDSKVG GNYNYL YRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR89433.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLNLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXXXXXXXXXTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QLA48015.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPXXXVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLNLCFTXXXXX  
XXXXXXXXXRQIAXXLYRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJQ83176.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNXX  
XXXXXXXXXXXXXXXXXXXXXGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYL YRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QIZ64746.1:284-506 surface glycoprotein, partial [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNXX  
XXXXXXXXXXXXXXXXXXXXXGKIADYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYL YRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKV37163.1:285-507 surface glycoprotein, partial [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRXX  
XXXXXXXXXXXXXXXXXXXXXDYNYKLPDDFTGCVIAWNSNNLDSKVG GNYNYL YRLFRKSNLKPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR87141.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLNLCFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKXXXXXXXXXXXXXXXXXXXXPFERDISTEIQAGSX  
XCXXXXXXXXNCYFXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXGPKKSTNLVKNKCVNF

>QJR87141.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKXXXXXXXXXXXXXXXXXXXXXXXXX PFERDISTEIQAGSX  
XCXXXXXXXXNCFXXX GPKKSTNLVKNKCVNF

>QKG87890.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESXXXXXXXXITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CXXXXXXXX  
XXX NYLYRLFRKSNL KPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR86205.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKXXXXXXXXXXXXXXXXXXXXXXXXX LKPFERDISTEIXQAGSX  
XXX VCGPKKSTNLVKNKCVNF

>QJE39181.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSAXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
XXX TGXXXXXXXXNLD SKVGGNYNYLYRLFRKSNL KPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QKE11685.1:279-501 surface glycoprotein, partial [SARS-CoV-2]

RVQPTXXXVRFNITNLCPFGEVFNATRFASVYA WNRXXX  
XXXXXXXXXXXXXXXXXXXXXXXXXXXX DYNKLPDDFTGCVIA WNSNNLDSK VGGNYNYLYRLFRKSNL KPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJI54265.1:319-539 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGXXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXQIAPGQXXXXXXXXX YKLPDDFTGCVIA WNSNNLDSK VGGNYNXXXXXXXXX KSNL KPFERDISTEIQAGSX  
XXXXXXXXXXXXXXXXXXXXXXXXXXXX TNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCV

>QJR93945.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXX ST  
PCNGXXX VCGPKKSTNLVKNKCVNF

>QJR86709.1:319-541 surface glycoprotein [SARS-CoV-2]

RVXPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLXXX  
XXXXXXXXXXXXXXXXXXXXXXXXXXXX QPTXXXGYQPYRVV VXXXXXXXXXXXXXXXXXXXXXXXXX GPKKSTNLVKNKCVNF

>QKG90878.1:318-540 surface glycoprotein, partial [SARS-CoV-2]

RVQXXXSIVRFPNITNLCPFGEVFNATRXXX TKNL DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIAXXX YRLFRKSNL KPFERDISTEIQAGST  
PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVV VLSFELLHAPATVCGPKKSTNLVKNKCVNF

>QJR87117.1:319-541 surface glycoprotein [SARS-CoV-2]

RVQPTESIVRFPNITNLCPFGEVFNATRFASVYA WNRKRISNCVADYSVL YNSASFSTFKCYGVSPTKLN DL CFTNVYAD  
SFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIA WNSNNLDSKXXXXXXXXXXXXXXXXXXXXXXXXXXXX DISTEIXXXXXX  
XXX VCGPKKSTNLVKNKCVNF

>QJR89073.1:319-541 surface glycoprotein [SARS-CoV-2]

