```
                                    1         10        20        30        40        50
sp|P0DTC2|SPIKE_SARS2_Spike_gl   MFV.......FLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHSTQD
sp|P59594|SPIKE_CVHSA            MFI..FLL.FLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQD
tr|D2E1E7|D2E1E7_CVHSA           MFI..FLL.FLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQD
tr|D2E1D2|D2E1D2_CVHSA           MFI..FLL.FLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQD
tr|A0A166ZL64|A0A166ZL64_9NIDO  MFIVFLISYTTFLIPYTATTTC..FSGPTIENKLNISSGSRGVYYPDDIFRSNVSVLVTG
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  MFIVFLISYTTFLIPYTATTTC..FKGPTTENKLNISSGSRGVYYPDDIFRSNVSVLVTG
tr|R9QTA0|R9QTA0_CVHSA          ..MILL...LLFLSSAKAQEGCGVISNKPQRTFDQYSSTFRGVYYNDDIFRSDVLHLTQD
tr|A0A0K1Z074|A0A0K1Z074_CVHSA  MKILIF...AFLVTLVKAQEGCGVINLRTQPKLSQVSSSRRGVYYNDDIFRSDVLHLTQD
sp|Q3LZX1|SPIKE_BCHK3           MKILIF...AFLANLAKAQEGCGIISRKPQPKMAQVSSSRRGVYYNDDIFRSDVLHLTQD
sp|Q3I5J5|SPIKE_BCRP3           MKILIL...AFLASLAKAQEGCGIISRKPQPKMAQVSSSRRGVYYNDDIFRSNVLHLTQD
sp|Q0Q475|SPIKE_BC279           MKVLIF...ALLFSLAKAQEGCGIISRKPQPKMEKVSSSRRGVYYNDDIFRSDVLHLTQD
tr|Q0QDX9|Q0QDX9_CVHSA          MKVLIF...ALLFSLAKAQEGCGIISRKPQPKMEKVSSSRRGVYYNDDIFRSDVLHLTQD
tr|A0A2I4AL96|A0A2I4AL96_9TELE  ..........................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  ..........................................................
tr|H0UY28|H0UY28_CAVPO          ..........................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  ..........................................................
tr|F6UG70|F6UG70_CALJA          ..........................................................

                                         60        70        80        90        100       110
sp|P0DTC2|SPIKE_SARS2_Spike_gl   LFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNIIRGWIFGTTLDSK
sp|P59594|SPIKE_CVHSA            LFLPFYSNVTGFHTINH.......TFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNK
tr|D2E1E7|D2E1E7_CVHSA           LFLPFYSNVTGFHTINH.......TFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNK
tr|D2E1D2|D2E1D2_CVHSA           LFLPFYSNVTGFHTINH.......TFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNK
tr|A0A166ZL64|A0A166ZL64_9NIDO  RFLRFNTTLTWYNSWNQ.......AYSSPVLPFGHGVYFSTIDKSNVVRGWIFGTTLDNT
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  RFLRFNTTLTWYNSWNQ.......AYSSPVLPFGHGVYFSTIDKSNVVRGWIFGTTLDNT
tr|R9QTA0|R9QTA0_CVHSA          YFLPFNTNVTRYLSLNAAQ.NTIVYFDNHVIPFYDGIYFAATERSNVIRGWVFGSTFDNR
tr|A0A0K1Z074|A0A0K1Z074_CVHSA  YFLPFHSNLTQYFSLSIQS.DKIVYFDNPILKFGDGIYFAATEKSNVIRGWVFGSTFDNT
sp|Q3LZX1|SPIKE_BCHK3           YFLPFDSNLTQYFSLNVDS.DRYTYFDNPILDFGDGVYFAATEKSNVIRGWIFGSSFDNT
sp|Q3I5J5|SPIKE_BCRP3           YFLPFDSNLTQYFSLNVDS.DRFTYFDNPILDFGDGVYFAATEKSNVIRGWIFGSTFDNT
sp|Q0Q475|SPIKE_BC279           YFLPFDSNLTQYFSLNIDS.NKYTYFDNPILDFGDGVYFAATEKSNVIRGWIFGSSFDNT
tr|Q0QDX9|Q0QDX9_CVHSA          YFLPFDSNLTQYFSLNIDS.NKYTYFDNPILDFGDGVYFAATEKSNVIRGWIFGSSFDNT
tr|A0A2I4AL96|A0A2I4AL96_9TELE  ..........................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  ..........................................................
tr|H0UY28|H0UY28_CAVPO          ..........................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  ..........................................................
tr|F6UG70|F6UG70_CALJA          ..........................................................

                                     120       130       140       150       160       170
sp|P0DTC2|SPIKE_SARS2_Spike_gl   TQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNKSWMESEFRVYSSANNCTFEYVSQ
sp|P59594|SPIKE_CVHSA            SQSVIINNSTNVVIRACNFELCDNPFFAVSKPMGT....QTHTMIFDNAFNCTFEYISD
tr|D2E1E7|D2E1E7_CVHSA           SQSVIINNSTNVVIRACNFELCDNPFFAVSKPMGT....QTHTMIFDNAFNCTFEYISD
tr|D2E1D2|D2E1D2_CVHSA           SQSVIINNSTNVVIRACNFELCDNPFFAVSKPMGT....QTHTMIFDNAFNCTFEYISD
tr|A0A166ZL64|A0A166ZL64_9NIDO  TQSALLVNNGSAITIEVCYFQFCDNPAFIISG..GA....QTNTAIYINLRNCTYVDTLR
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  TQSALLVNNGSAITIEVCYFQFCDNPAFIIRD..GA....QINTAIYINLRNCTYVDTLR
tr|R9QTA0|R9QTA0_CVHSA          SQSAIVNNSTHILVKVCNFVLCTEPMFTVSR..NQ....HYKSWVYQHARNCTYDVAYP
tr|A0A0K1Z074|A0A0K1Z074_CVHSA  TQSAIIVNNSTHIIIRVCYFNLCKDPMYTVSA..GT....QISSWVYQNAFNCTYDRVEK
sp|Q3LZX1|SPIKE_BCHK3           TQSAVIVNNSTHILIRVCNFNLCKEPMYTVSR..GT....QQNAWVYQSAFNCTYDRVEK
sp|Q3I5J5|SPIKE_BCRP3           TQSVIVNNSTHIIIRVCNFNLCKEPMYTVSR..GA....QQSSWVYQSAFNCTYDRVEK
sp|Q0Q475|SPIKE_BC279           TQSAIVNNSTHIIIRVCNFNLCKEPMYTVSK..GT....QQSSWVYQSAFNCTYDRVEK
tr|Q0QDX9|Q0QDX9_CVHSA          TQSAIIVNNSTHIIIRVCNFNLCKEPMYTVSK..GT....QQSSWVYQSAFNCTYDRVEK
tr|A0A2I4AL96|A0A2I4AL96_9TELE  ..........................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  ..........................................................
tr|H0UY28|H0UY28_CAVPO          ..........................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  ..........................................................
tr|F6UG70|F6UG70_CALJA          ..........................................................

                                     180       190       200       210       220
sp|P0DTC2|SPIKE_SARS2_Spike_gl   PFLMDLEGK.QGNFKNLREFVFKNIDGYFKIYSKHTPINLVR....DLPQGFSALEPLVD
sp|P59594|SPIKE_CVHSA            AFSLDVSEK.SGNFKHLREFVFKNKDGFLYVYKGYQPIDVVR....DLPSGFNTLKPIFK
tr|D2E1E7|D2E1E7_CVHSA           AFSLDVSEK.SGNFKHLREFVFKNKDGFLYVYKGYQPIDVVR....DLPSGFNTLKPIFK
tr|D2E1D2|D2E1D2_CVHSA           AFSLDVSEK.SGNFKHLREFVFKNKDGFLYVYKGYQPIDVVR....DLPSGFNTLKPIFK
tr|A0A166ZL64|A0A166ZL64_9NIDO  DLPLSFED.VDGGFKHLREFVFKNSDGFLHIYGAYQPYDLAIGATAALPAQFLPLKPLWK
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  DLPLSFAE.VDGGFKHLREFVFKNSDGFLHIYGAYQPYDLAIGATAALPAQFLPLKPLWK
tr|R9QTA0|R9QTA0_CVHSA          SFQLDVSLKNNVNFQHLREFIFKNVDGFLKIYSSYEPINVVS....GIPSGFSVLKPVMS
tr|A0A0K1Z074|A0A0K1Z074_CVHSA  SFQLDTAPK.SGNFIALREFVFKNRDGFFTVYQDYTPVNLLR....GLPAGLSVLKPILK
sp|Q3LZX1|SPIKE_BCHK3           SFQLDTTPK.TGNFKDLREFVFKNRDGFLSVYQTYTAVNLPR....GLPTGFSVLKPILK
sp|Q3I5J5|SPIKE_BCRP3           SFQLDTAPK.TGNFKDLREYVFKNRDGFLSVYQTYTAVNLPR....GLPIGFSVLRPILK
sp|Q0Q475|SPIKE_BC279           SFQLDTAPK.TGNFKDLREYVFKNRDGFLSVYQTYTAVNLPR....GFPAGFSVLRPILK
tr|Q0QDX9|Q0QDX9_CVHSA          SFQLDTAPK.TGNFKDLREYVFKNKGGFLRVYQTYTAVNLPR....GFPAGFSVLRPILK
tr|A0A2I4AL96|A0A2I4AL96_9TELE  ..........................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  ..........................................................
tr|H0UY28|H0UY28_CAVPO          ..........................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  ..........................................................
tr|F6UG70|F6UG70_CALJA          ..........................................................
```

```
                                         230       240       250       260       270       280
                                         .         .         .         .         .         .
sp|P0DTC2|SPIKE_SARS2_Spike_gl   LPIGINITRFQTLLALHRSYLTPGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDA
sp|P59594|SPIKE_CVHSA            LPLGINITNFRAILTAFS......PAQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDA
tr|D2E1E7|D2E1E7_CVHSA           LPLGINITNFRAILTAFS......PAQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDA
tr|D2E1D2|D2E1D2_CVHSA           LPLGINITNFRAILTAFS......PAQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDA
tr|A0A166ZL64|A0A166ZL64_9NIDO   LPLGLNITNYKVVTTLKP......TNQ....AFQAAYIVGNLKHTTMMLSFNENGTMSNA
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA   LPLGLNITNYKVVTTLKP......TNQ....AFQAAYIVGNLKHTTMMLSFNENGTMSNA
tr|R9QTA0|R9QTA0_CVHSA           LPLGINITGMRVVMTMFS......NTQANFLTENAAYYVGYLKPRTFMLQFNTNGTIVNA
tr|A0A0K1Z074|A0A0K1Z074_CVHSA   LPFGINITSFRVVMAMFS......KTTSNYVPESAAYYVGNLKQSTFMLSFNQNGTITDA
sp|Q3LZX1|SPIKE_BCHK3            LPFGINITSYRVVMAMFS......QTTSNFLPESAAYYVGNLKYSTFMLRFNENGTITDA
sp|Q3I5J5|SPIKE_BCRP3            LPFGINITSYRVVMAMFS......QTTSNFLPESAAYYVGNLKYTTFMLSFNENGTITNA
sp|Q0Q475|SPIKE_BC279            LPFGINITSYRVVMTMFS......QFNSNFLPESAAYYVGNLKYTTFMLSFNENGTITDA
tr|Q0QDX9|Q0QDX9_CVHSA           LPFGINITSYRVVMTMFS......QFNSNFLPESAAYYVGNLKYTTFMLSFNENGTITDA
tr|A0A2I4AL96|A0A2I4AL96_9TELE   ............................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU   ............................................................
tr|H0UY28|H0UY28_CAVPO           ............................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA   ............................................................
tr|F6UG70|F6UG70_CALJA           ............................................................


                                         290       300       310       320       330       340
                                         .         .         .         .         .         .
sp|P0DTC2|SPIKE_SARS2_Spike_gl   VDCALDPLSETKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFA
sp|P59594|SPIKE_CVHSA            VDCSQNPLAELKCSVKSFEIDKGIYQTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFP
tr|D2E1E7|D2E1E7_CVHSA           VDCSQNPLAELKCSVKSFEIDKGIYQTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFP
tr|D2E1D2|D2E1D2_CVHSA           VDCSQNPLAELKCSVKSFEIDKGIYQTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFP
tr|A0A166ZL64|A0A166ZL64_9NIDO   IDCSQDPLAELKCTLKQFDVGKGIYQTSNFRVQPTVDVARFPNITNVCPFDKVFNATRFP
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA   IDCSQDPLAELKCTLKQFDVGKGIYQTSNFRVQPTVDVARFPNITNVCPFDKVFNATRFP
tr|R9QTA0|R9QTA0_CVHSA           VDCSQDPLSELKCTLKNFNITKGIYQTSNFRVSPTQEVVRFPNITNRCPFDKVFNATRFP
tr|A0A0K1Z074|A0A0K1Z074_CVHSA   VDCSQNPLAELKCTTKSFNVSKGIYQTSNFRVAPVTEVVRFPNITNLCPFGEVFNATRFP
sp|Q3LZX1|SPIKE_BCHK3            VDCSQNPLAELKCTTKSFNVDKGIYQTSNFRVSPTQEVIRFPNITNRCPFGEVFNATRFP
sp|Q3I5J5|SPIKE_BCRP3            IDCAQNPLAELKCTIKNFNVSKGIYQTSNFRVSPTQEVVRFPNITNRCPFDKVFNATRFP
sp|Q0Q475|SPIKE_BC279            VDCSQNPLAELKCTIKNFNVSKGIYQTSNFRVTPTQEVVRFPNITNRCPFDKVFNASRFP
tr|Q0QDX9|Q0QDX9_CVHSA           VDCSQNPLAELKCTIKNFNVSKGIYQTSNFRVTPTQEVVRFPNITNRCPFDKVFNASRFP
tr|A0A2I4AL96|A0A2I4AL96_9TELE   ............................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU   ............................................................
tr|H0UY28|H0UY28_CAVPO           ............................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA   ............................................................
tr|F6UG70|F6UG70_CALJA           ............................................................


                                         350       360       370       380       390       400
                                         .         .         .         .         .         .
sp|P0DTC2|SPIKE_SARS2_Spike_gl   SVYAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSFVIRGDEVR
sp|P59594|SPIKE_CVHSA            SVYAWERKKISNCVADYSVLYNSTFFSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVR
tr|D2E1E7|D2E1E7_CVHSA           SVYAWERKKISNCVADYSVLYNSTFFSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVR
tr|D2E1D2|D2E1D2_CVHSA           SVYAWERKKISNCVADYSVLYNSTFFSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVR
tr|A0A166ZL64|A0A166ZL64_9NIDO   SVYAWERTKISDCVADYTVFYNSTSFSTFNCYGVSPSKLIDLCFTSVYADTFLIRFSEVR
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA   SVYAWERTKISDCVADYTVFYNSTSFSTFNCYGVSPSKLIDLCFTSVYADTFLIRFSEVR
tr|R9QTA0|R9QTA0_CVHSA           SVYAWERTKISDCVADYTVFYNSTSFSTFKCYGVSPSKLIDLCFTSVYADTFLIRSSEVR
tr|A0A0K1Z074|A0A0K1Z074_CVHSA   SVYAWERTKISDCVADYTVFYNSTSFSTFNCYGVSPSKLIDLCFTSVYADTFLIRFSEVR
sp|Q3LZX1|SPIKE_BCHK3            NVYAWERTKISDCVADYTVLYNSTSFSTFKCYGVSPSKLIDLCFTSVYADTFLIRSSEVR
sp|Q3I5J5|SPIKE_BCRP3            NVYAWERTKISDCVADYTVLYNSTSFSTFKCYGVSPSKLIDLCFTSVYADTFLIRSSEVR
sp|Q0Q475|SPIKE_BC279            NVYAWERTKISDCVADYTVLYNSTSFSTFKCYGVSPSKLIDLCFTSVYADTFLIRSSEVR
tr|Q0QDX9|Q0QDX9_CVHSA           NVYAWERTKISDCVADYTVLYNSTSFSTFKCYGVSPSKLIDLCFTSVYADTFLIRSSEVR
tr|A0A2I4AL96|A0A2I4AL96_9TELE   ............................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU   ............................................................
tr|H0UY28|H0UY28_CAVPO           ............................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA   ............................................................
tr|F6UG70|F6UG70_CALJA           ............................................................


                                         410       420       430       440       450       460
                                         .         .         .         .         .         .
sp|P0DTC2|SPIKE_SARS2_Spike_gl   QIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNYLYRLFRKSNLKPFERDI
sp|P59594|SPIKE_CVHSA            QIAPGQTGVIADYNYKLPDDFMGCVLAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDI
tr|D2E1E7|D2E1E7_CVHSA           QIAPGQTGVIADYNYKLPDDFMGCVLAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDI
tr|D2E1D2|D2E1D2_CVHSA           QIAPGQTGVIADYNYKLPDDFMGCVLAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDI
tr|A0A166ZL64|A0A166ZL64_9NIDO   QVAPGQTGVIADYNYKLPDDFIGCVIAWNTAKQDVG.....SYFYRSHRSSKLKPFERDL
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA   QVAPGQTGVIADYNYKLPDDFIGCVIAWNTAKQDVG.....SYFYRSHRSSKLKPFERDL
tr|R9QTA0|R9QTA0_CVHSA           QVAPGETGVIADYNYKLPDDFTGCVIAWNTANQDQG.....QYYYRSSRKEKLKPFERDL
tr|A0A0K1Z074|A0A0K1Z074_CVHSA   QVAPGQTGVIADYNYKLPDDFTGCVIAWNTAKYDVG.....SYFYRSHRSSKLKPFERDL
sp|Q3LZX1|SPIKE_BCHK3            QVAPGETGVIADYNYKLPDDFTGCVIAWNTAKHDTG.....NYYYRSHRKTKLKPFERDL
sp|Q3I5J5|SPIKE_BCRP3            QVAPGETGVIADYNYKLPDDFTGCVIAWNTAKQDQG.....QYYYRSHRKTKLKPFERDL
sp|Q0Q475|SPIKE_BC279            QVAPGETGVIADYNYKLPDDFTGCVIAWNTAQQDQG.....QYYYRSYRKEKLKPFERDL
tr|Q0QDX9|Q0QDX9_CVHSA           QVAPGETGVIADYNYKLPDDFTGCVIAWNTAQQDQG.....QYYYRSYRKEKLKPFERDL
tr|A0A2I4AL96|A0A2I4AL96_9TELE   ............................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU   ............................................................
tr|H0UY28|H0UY28_CAVPO           ............................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA   ............................................................
tr|F6UG70|F6UG70_CALJA           ............................................................
```

```
                                        470        480        490        500        510        520
                                         .          .          .          .          .          .
sp|P0DTC2|SPIKE_SARS2_Spike_gl  STEIYQAGSTPCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVLSFELLHAPATVCGPK
sp|P59594|SPIKE_CVHSA           SNVPFSPDGKPCTPP.ALNCYWPLNDYGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPK
tr|D2E1E7|D2E1E7_CVHSA          SNVPFSPDGKPCTPP.ALNCYWPLNDYGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPK
tr|D2E1D2|D2E1D2_CVHSA          SNVPFSPDGKPCTPP.ALNCYWPLNDYGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPK
tr|A0A166ZL64|A0A166ZL64_9NIDO  SSE.............ENGVLTLSTYDFNQNVPLEYQATRVVVLSFELLNAPATVCGPK
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  SSE.............ENGVLTLSTYDFNQNVPLEYQATRVVVLSFELLNAPATVCGPK
tr|R9QTA0|R9QTA0_CVHSA          SSD.............ENGVYTLSTYDFYPSVPLDYQATRVVVLSFELLNAPATVCGPK
tr|A0A0K1Z074|A0A0K1Z074_CVHSA  SSE.............ENGARTLSTYDFNQNVPLEYQATRVVVLSFELLNAPATVCGPK
sp|Q3LZX1|SPIKE_BCHK3           SSDD..........GNGVYTLSTYDFNPNVPVAYQATRVVVLSFELLNAPATVCGPK
sp|Q3I5J5|SPIKE_BCRP3           SSE.............ENGVRTLSTYDFYPSVPVAYQATRVVVLSFELLNAPATVCGPK
sp|Q0Q475|SPIKE_BC279           SSD.............ENGVYTLSTYDFYPSIPVEYQATRVVVLSFELLNAPATVCGPK
tr|Q0QDX9|Q0QDX9_CVHSA          SSD.............ENGVYTLSTYDFYPSIPVEYQATRVVVLSFELLNAPATVCGPK
tr|A0A2I4AL96|A0A2I4AL96_9TELE  ............................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  ............................................................
tr|H0UY28|H0UY28_CAVPO          ............................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  ............................................................
tr|F6UG70|F6UG70_CALJA          ............................................................


                                        530        540        550        560        570        580
                                         .          .          .          .          .          .
sp|P0DTC2|SPIKE_SARS2_Spike_gl  KSTNLVKNKCVNFNFNGLTGTGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDIT
sp|P59594|SPIKE_CVHSA           LSTDLIKNQCVNFNFNGLTGTGVLTPSSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDIS
tr|D2E1E7|D2E1E7_CVHSA          LSTDLIKNQCVNFNFNGLTGTGVLTPSSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDIS
tr|D2E1D2|D2E1D2_CVHSA          LSTDLIKNQCVNFNFNGLTGTGVLTPSSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDIS
tr|A0A166ZL64|A0A166ZL64_9NIDO  LSTPLVKNQCVNFNFNGLKGTGVLTPSSKTFQSFQQFGRDASDFTDSVRDPQTLQILDIS
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  LSTPLVKNQCVNFNFNGLKGTGVLTDSSKTFQSFQQFGRDASDFTDSVRDPQTLQILDIS
tr|R9QTA0|R9QTA0_CVHSA          LSTTLVKNQCVNFNFNGLKGTGVLTASSKKFQSFQQFGRDASDFTDSVRDPQTLEILDIS
tr|A0A0K1Z074|A0A0K1Z074_CVHSA  LSTSLVKNQCVNFNFNGFKGTGVLTDSSKTFQSFQQFGRDASDFTDSVRDPKTLQILDIS
sp|Q3LZX1|SPIKE_BCHK3           LSTELVKNQCVNFNFNGLKGTGVLTSSSKRFQSFQQFGRDTSDFTDSVRDPQTLEILDIS
sp|Q3I5J5|SPIKE_BCRP3           LSTQLVKNQCVNFNFNGLKGTGVLTSSSKRFQSFQQFGRDTSDFTDSVRDPQTLEILDIS
sp|Q0Q475|SPIKE_BC279           LSTQLVKNQCVNFNFNGLRGTGVLTTSSKRFQSFQQFGRDTSDFTDSVRDPQTLEILDIS
tr|Q0QDX9|Q0QDX9_CVHSA          LSTQLVKNQCVNFNFNGLRGTGVLTTSSKRFQSFQQFGRDTSDFTDSVRDPQTLEILDIS
tr|A0A2I4AL96|A0A2I4AL96_9TELE  ............................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  ............................................................
tr|H0UY28|H0UY28_CAVPO          ............................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  ............................................................
tr|F6UG70|F6UG70_CALJA          ............................................................


                                        590        600        610        620        630        640
                                         .          .          .          .          .          .
sp|P0DTC2|SPIKE_SARS2_Spike_gl  PCSFGGVSVITPGTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAG
sp|P59594|SPIKE_CVHSA           PCSFGGVSVITPGTNASSEVAVLYQDVNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAG
tr|D2E1E7|D2E1E7_CVHSA          PCSFGGVSVITPGTNASSEVAVLYQDVNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAG
tr|D2E1D2|D2E1D2_CVHSA          PCSFGGVSVITPGTNASSEVAVLYQDVNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAG
tr|A0A166ZL64|A0A166ZL64_9NIDO  PCSFGGVSVITPGTNTSSAVAVLYQDVNCTDVPTTIHADHLTHSWRVYTTGPYVFQTQAG
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  PCSFGGVSVITPGTNTSSAVAVLYQDVNCTDVPTTIHADHLTHSWRVYTTGPYVFQTQAG
tr|R9QTA0|R9QTA0_CVHSA          PCSFGGVSVITPGTNASTEVAVLYQDVNCTDVPTAINADQLTPAWRVYSTGINVFQTQAG
tr|A0A0K1Z074|A0A0K1Z074_CVHSA  PCSFGGVSVITPGTNTSSAVAVLYQDVNCTDVPKTIHADQLAPSWRVYSGPFVFQTQAG
sp|Q3LZX1|SPIKE_BCHK3           PCSFGGVSVITPGTNASSEVAVLYQDVNCTDVPTAIHADQLTPAWRVYSTGVNVFQTQAG
sp|Q3I5J5|SPIKE_BCRP3           PCSFGGVSVITPGTNASSEVAVLYQDVNCTDVPAAIHADQLTPAWRVYSTGTNVFQTQAG
sp|Q0Q475|SPIKE_BC279           PCSFGGVSVITPGTNASSEVAVLYQDVNCTDVPTSIHADQLTPAWRVYSTGVNVFQTQAG
tr|Q0QDX9|Q0QDX9_CVHSA          PCSFGGVSVITPGTNASSEVAVLYQDVNCTDVPTSIHADQLTPAWRVYSTGVNVFQTQAG
tr|A0A2I4AL96|A0A2I4AL96_9TELE  ............................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  ............................................................
tr|H0UY28|H0UY28_CAVPO          ............................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  ............................................................
tr|F6UG70|F6UG70_CALJA          ............................................................


                                        650        660        670        680        690        700
                                         .          .          .          .          .          .
sp|P0DTC2|SPIKE_SARS2_Spike_gl  CLIGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLGAENSVAYS
sp|P59594|SPIKE_CVHSA           CLIGAEHVDTSYECDIPIGAGICASYHTVS....LLRSTSQKSIVAYTMSLGADSSIAYS
tr|D2E1E7|D2E1E7_CVHSA          CLIGAEHVDTSYECDIPIGAGICASYHTVS....LLRSTSQKSIVAYTMSLGADSSIAYS
tr|D2E1D2|D2E1D2_CVHSA          CLIGAEHVDTSYECDIPIGAGICASYHTVS....LLRSTSQKSIVAYTMSLGADSSIAYS
tr|A0A166ZL64|A0A166ZL64_9NIDO  CLIGAEHVNASYQCDIPIGAGICASYHTAS....LLRSTGQKSIVAYTMSLGAENSVAYA
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  CLIGAEHVNASYQCDIPIGAGICASYHTAS....LLRSTGQKSIVAYTMSLGAENSVAYA
tr|R9QTA0|R9QTA0_CVHSA          CLIGAEHVNASYECDIPIGAGICASYHTAS....VLRSTGQKSIVAYTMSLGAENSVAYA
tr|A0A0K1Z074|A0A0K1Z074_CVHSA  CLIGAEHVNSSYECDIPIGAGICASYHTAS....VLRSTGQKSIVAYTMSLGAENSVAYA
sp|Q3LZX1|SPIKE_BCHK3           CLIGAEHVNASYECDIPIGAGICASYHTAS....VLRSTGQKSIVAYTMSLGAENSIAYA
sp|Q3I5J5|SPIKE_BCRP3           CLIGAEHVNASYECDIPIGAGICASYHTAS....TLRSVGQKSIVAYTMSLGAENSIAYA
sp|Q0Q475|SPIKE_BC279           CLIGAEHVNASYECDIPIGAGICASYHTAS....VLRSTGQKSIVAYTMSLGAENSIAYA
tr|Q0QDX9|Q0QDX9_CVHSA          CLIGAEHVNASYECDIPIGAGICASYHTAS....VLRSTGQKSIVAYTMSLGAENSIAYA
tr|A0A2I4AL96|A0A2I4AL96_9TELE  ............................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  ............................................................
tr|H0UY28|H0UY28_CAVPO          ............................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  ............................................................
tr|F6UG70|F6UG70_CALJA          ............................................................
```

```
                                        710       720       730       740       750       760
                                        .         .         .         .         .         .
sp|P0DTC2|SPIKE_SARS2_Spike_gl   NNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECSNLLLQYGSFCTQLNRALT
sp|P59594|SPIKE_CVHSA            NNTIAIPTNFSISITTEVMPVSMAKTSVDCNMYICGDSTECANLLLQYGSFCTQLNRALS
tr|D2E1E7|D2E1E7_CVHSA           NNTIAIPTNFSISITTEVMPVSMAKTSVDCNMYICGDSTECANLLLQYGSFCTQLNRALS
tr|D2E1D2|D2E1D2_CVHSA           NNTIAIPTNFSISITTEVMPVSMAKTSVDCNMYICGDSTECANLLLQYGSFCTQLNRALS
tr|A0A166ZL64|A0A166ZL64_9NIDO  NNSIAIPTNFSISVTTEVMPVSMAKTSVDCTMYICGDSLECSNLLLQYGSFCTQLNRALS
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  NNSIAIPTNFSISVTTEVMPVSMAKTSVDCTMYICGDSLECSNLLLQYGSFCTQLNRALS
tr|R9QTA0|R9QTA0_CVHSA           NNSIAIPTNFSISVTTEVMPVSMAKTSVDCTMYICGDSLECSNLLLQYGSFCTQLNRALT
tr|A0A0K1Z074|A0A0K1Z074_CVHSA  NNSIAIPTNFSISVTTEVMPVSMAKTSVDCTMYICGDSAECSNLLLQYGSFCTQLNRALS
sp|Q3LZX1|SPIKE_BCHK3            NNSIAIPTNFSISVTTEVMPVSMAKTAVDCTMYICGDSLECSNLLLQYGSFCTQLNRALS
sp|Q3I5J5|SPIKE_BCRP3            NNSIAIPTNFSISVTTEVMPVSMAKTSVDCTMYICGDSLECSNLLLQYGSFCTQLNRALS
sp|Q0Q475|SPIKE_BC279            NNSIAIPTNFSISVTTEVMPVSIAKTSVDCTMYICGDSLECSNLLLQYGSFCTQLNRALT
tr|Q0QDX9|Q0QDX9_CVHSA           NNSIAIPTNFSISVTTEVMPVSIAKTSVDCTMYICGDSLECSNLLLQYGSFCTQLNRALT
tr|A0A2I4AL96|A0A2I4AL96_9TELE  ............................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  ............................................................
tr|H0UY28|H0UY28_CAVPO           ............................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  ............................................................
tr|F6UG70|F6UG70_CALJA           ............................................................

                                        770       780       790       800       810       820
                                        .         .         .         .         .         .
sp|P0DTC2|SPIKE_SARS2_Spike_gl   GIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGFNFSQILPDPSKPSKRSFIEDLLFNKVTL
sp|P59594|SPIKE_CVHSA            GIAAEQDRNTREVFAQVKQMYKTPTLKYFGGFNFSQILPDPLKPTKRSFIEDLLFNKVTL
tr|D2E1E7|D2E1E7_CVHSA           GIAAEQDRNTREVFAQVKQMYKTPTLKYFGGFNFSQILPDPLKPTKRSFIEDLLFNKVTL
tr|D2E1D2|D2E1D2_CVHSA           GIAAEQDRNTREVFAQVKQMYKTPTLKYFGGFNFSQILPDPLKPTKRSFIEDLLFNKVTL
tr|A0A166ZL64|A0A166ZL64_9NIDO  GIAVEQDKNTQEVFAQVKQMYKTPTIRDFGGFNFSQILPDPLKPTKRSFIEDLLYNKVTL
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  GIAVEQDKNTQEVFAQVKQMYKTPTIRDFGGFNFSQILPDPLKPTKRSFIEDLLYNKVTL
tr|R9QTA0|R9QTA0_CVHSA           GIAIEQDKNTQEVFAQVKQMYKTPAIKDFGGFNFSQILPDPSKPTKRSFIEDLLFNKVTL
tr|A0A0K1Z074|A0A0K1Z074_CVHSA  GIAVEQDKNTQEVFAQVKQMYKTPTLRDFGGFNFSQILPDPLKPTKRSFIEDLLYNKVTL
sp|Q3LZX1|SPIKE_BCHK3            GIAIEQDKNTQEVFAQVKQMYKTPAIKDFGGFNFSQILPDPSKPTKRSFIEDLLFNKVTL
sp|Q3I5J5|SPIKE_BCRP3            GIAIEQDKNTQEVFAQVKQMYKTPAIKDFGGFNFSQILPDPSKPTKRSFIEDLLFNKVTL
sp|Q0Q475|SPIKE_BC279            GIAIEQDKNTQEVFAQVKQMYKTPAIKDFGGFNFSQILPDPSKPTKRSFIEDLLFNKVTL
tr|Q0QDX9|Q0QDX9_CVHSA           GIAIEQDKNTQEVFAQVKQMYKTPAIKDFGGFNFSQILPDPSKPTKRSFIEDLLFNKVTL
tr|A0A2I4AL96|A0A2I4AL96_9TELE  ............................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  ............................................................
tr|H0UY28|H0UY28_CAVPO           ............................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  ............................................................
tr|F6UG70|F6UG70_CALJA           ............................................................

                                        830       840       850       860       870       880
                                        .         .         .         .         .         .
sp|P0DTC2|SPIKE_SARS2_Spike_gl   ADAGFIKQYGDCLGDIAARDLICAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTF
sp|P59594|SPIKE_CVHSA            ADAGFMKQYGECLGDINARDLICAQKFNGLTVLPPLLTDDMIAAYTAALVSGTATAGWTF
tr|D2E1E7|D2E1E7_CVHSA           ADAGFMKQYGECLGDINARDLICAQKFNGLTVLPPLLTDDMIAAYTAALVSGTATAGWTF
tr|D2E1D2|D2E1D2_CVHSA           ADAGFMKQYGECLGDINARDLICAQKFNGLTVLPPLLTDDMIAAYTAALVSGTATAGWTF
tr|A0A166ZL64|A0A166ZL64_9NIDO  ADAGFMKQYADCLGGINARDLICAQKFNGLTVLPPLLTDDMIAAYTAALISGTATAGWTF
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  ADAGFMKQYADCLGGINARDLICAQKFNGLTVLPPLLTDDMIAAYTAALISGTATAGWTF
tr|R9QTA0|R9QTA0_CVHSA           ADAGFMKQYGECLGDISARDLICAQKFNGLTVLPPLLTDEMIAAYTAALVSGTATAGWTF
tr|A0A0K1Z074|A0A0K1Z074_CVHSA  ADAGFMKQYADCLGGINARDLICAQKFNGLTVLPPLLTDDMIAAYTAALISGTATAGWTF
sp|Q3LZX1|SPIKE_BCHK3            ADAGFMKQYGDCLGDVSARDLICAQKFNGLTVLPPLLTDEMVAAYTAALVSGTATAGWTF
sp|Q3I5J5|SPIKE_BCRP3            ADAGFMKQYGECLGDISARDLICAQKFNGLTVLPPLLTDEMIAAYTAALVSGTATAGWTF
sp|Q0Q475|SPIKE_BC279            ADAGFMKQYGECLGDISARDLICAQKFNGLTVLPPLLTDEMIAAYTAALVSGTATAGWTF
tr|Q0QDX9|Q0QDX9_CVHSA           ADAGFMKQYGECLGDISARDLICAQKFNGLTVLPPLLTDEMIAAYTAALVSGTATAGWTF
tr|A0A2I4AL96|A0A2I4AL96_9TELE  ............................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  ............................................................
tr|H0UY28|H0UY28_CAVPO           ............................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  ............................................................
tr|F6UG70|F6UG70_CALJA           ............................................................

                                        890       900       910       920       930       940
                                        .         .         .         .         .         .
sp|P0DTC2|SPIKE_SARS2_Spike_gl   GAGAALQIPFAMQMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKL
sp|P59594|SPIKE_CVHSA            GAGAALQIPFAMQMAYRFNGIGVTQNVLYENQKQIANQFNKAISQIQESLTTTSTALGKL
tr|D2E1E7|D2E1E7_CVHSA           GAGAALQIPFAMQMAYRFNGIGVTQNVLYENQKQIANQFNKAISQIQESLTTTSTALGKL
tr|D2E1D2|D2E1D2_CVHSA           GAGAALQIPFAMQMAYRFNGIGVTQNVLYENQKQIANQFNKAISQIQESLTTTSTALGKL
tr|A0A166ZL64|A0A166ZL64_9NIDO  GAGAALQIPFAMQMAYRFNGIGVTQNVLYENQKQIANQFNKAITQIQESLTTTATALGKL
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  GAGAALQIPFAMQMAYRFNGIGVTQNVLYENQKQIANQFNKAITQIQESLTTTATALGKL
tr|R9QTA0|R9QTA0_CVHSA           GAGAALQIPFAMQMAYRFNGIGVTQNVLYENQKQIANQFNKAISQIQESLTTTSTALGKL
tr|A0A0K1Z074|A0A0K1Z074_CVHSA  GAGAALQIPFAMQMAYRFNGIGVTQNVLYENQKQIANQFNKAITQIQESLTTTSTALGKL
sp|Q3LZX1|SPIKE_BCHK3            GAGAALQIPFAMQMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQESLSSTASALGKL
sp|Q3I5J5|SPIKE_BCRP3            GAGSALQIPFAMQMAYRFNGIGVTQNVLYENQKQIANQFNKAISQIQESLTTTSTALGKL
sp|Q0Q475|SPIKE_BC279            GAGSALQIPFAMQMAYRFNGIGVTQNVLYENQKQIANQFNKAISQIQESLTTTSTALGKL
tr|Q0QDX9|Q0QDX9_CVHSA           GAGSALQIPFAMQMAYRFNGIGVTQNVLYENQKQIANQFNKAISQIQESLTTTSTALGKL
tr|A0A2I4AL96|A0A2I4AL96_9TELE  ............................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  ............................................................
tr|H0UY28|H0UY28_CAVPO           ............................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  ............................................................
tr|F6UG70|F6UG70_CALJA           ............................................................
```

```
                                      950        960        970        980        990        1000
sp|P0DTC2|SPIKE_SARS2_Spike_gl   QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGRLQSLQTYV
sp|P59594|SPIKE_CVHSA            QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGRLQSLQTYV
tr|D2E1E7|D2E1E7_CVHSA           QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGRLQSLQTYV
tr|D2E1D2|D2E1D2_CVHSA           QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGRLQSLQTYV
tr|A0A166ZL64|A0A166ZL64_9NIDO  QDVVNQNAQALNTLVKQLSSNFGAISSALNDILSRLDKVEAEVQIDRLITGRLQSLQTYV
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  QDVVNQNAQALNTLVKQLSSNFGAISSALNDILSRLDKVEAEVQIDRLITGRLQSLQTYV
tr|R9QTA0|R9QTA0_CVHSA          QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGRLQSLQTYV
tr|A0A0K1Z074|A0A0K1Z074_CVHSA QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGRLQSLQTYV
sp|Q3LZX1|SPIKE_BCHK3           QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGRLQSLQTYV
sp|Q3I5J5|SPIKE_BCRP3           QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGRLQSLQTYV
sp|Q0Q475|SPIKE_BC279           QDVVNDNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGRLQSLQTYV
tr|Q0QDX9|Q0QDX9_CVHSA          QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGRLQSLQTYV
tr|A0A2I4AL96|A0A2I4AL96_9TELE  ......................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  ......................................................
tr|H0UY28|H0UY28_CAVPO          ......................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  ......................................................
tr|F6UG70|F6UG70_CALJA          ......................................................


                                     1010       1020       1030       1040       1050       1060
sp|P0DTC2|SPIKE_SARS2_Spike_gl   TQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYV
sp|P59594|SPIKE_CVHSA            TQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQAAPHGVVFLHVTYV
tr|D2E1E7|D2E1E7_CVHSA           TQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQAAPHGVVFLHVTYV
tr|D2E1D2|D2E1D2_CVHSA           TQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQAAPHGVVFLHVTYV
tr|A0A166ZL64|A0A166ZL64_9NIDO  TQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYV
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  TQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYV
tr|R9QTA0|R9QTA0_CVHSA          TQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYV
tr|A0A0K1Z074|A0A0K1Z074_CVHSA TQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQAAPHGVVFLHVTYV
sp|Q3LZX1|SPIKE_BCHK3           TQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYV
sp|Q3I5J5|SPIKE_BCRP3           TQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQAAPHGVVFLHVTYV
sp|Q0Q475|SPIKE_BC279           TQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQAAPHGVVFLHVTYV
tr|Q0QDX9|Q0QDX9_CVHSA          TQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQAAPHGVVFLHVTYV
tr|A0A2I4AL96|A0A2I4AL96_9TELE  ............................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  ............................................................
tr|H0UY28|H0UY28_CAVPO          ............................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  ............................................................
tr|F6UG70|F6UG70_CALJA          ............................................................


                                     1070       1080       1090       1100       1110       1120
sp|P0DTC2|SPIKE_SARS2_Spike_gl   PAQEKNFTTAPAICHDGKAHFPREGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDV
sp|P59594|SPIKE_CVHSA            PSQERNFTTAPAICHEGKAYFPREGVFVFNGTSWFITQRNFFSPQIITTDNTFVSGNCDV
tr|D2E1E7|D2E1E7_CVHSA           PSQERNFTTAPAICHEGKAYFPREGVFVFNGTSWFITQRNFFSPQIITTDNTFVSGNCDV
tr|D2E1D2|D2E1D2_CVHSA           PSQERNFTTAPAICHEGKAYFPREGVFVFNGTSWFITQRNFFSPQIITTDNTFVSGNCDV
tr|A0A166ZL64|A0A166ZL64_9NIDO  PAQEKNFTTAPAICHEGKAYFPREGVFVSNGSSWFITQRNFYSPQIITTDNTFVAGSCDV
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  PAQEKNFTTAPAICHEGKAYFPREGVFVSNGSSWFITQRNFYSPQIITTDNTFVAGSCDV
tr|R9QTA0|R9QTA0_CVHSA          PSQERNFTTAPAICHEGKAYFPREGVFVSNGTSWFITQRNFYSPQIITTDNTFVAGSCNV
tr|A0A0K1Z074|A0A0K1Z074_CVHSA PSQEKNFTTAPAICHEGKAYFPREGVFVFNGTSWFITQRNFYSPQTITTDNTFVAGNCDV
sp|Q3LZX1|SPIKE_BCHK3           PSQEKNFTTAPAICHEGKAYFPREGVFVSNGTSWFITQRNFYSPQLITTDNTFVSGNCDV
sp|Q3I5J5|SPIKE_BCRP3           PSQERNFTTAPAICHEGKAYFPREGVFVSNGTSWFITQRNFYSPQIITTDNTFVAGSCDV
sp|Q0Q475|SPIKE_BC279           PSQERNFTTAPAICHEGKAYFPREGVFVSNGTSWFITQRNFYSPQIITTDNTFVAGNCDV
tr|Q0QDX9|Q0QDX9_CVHSA          PSQERNFTTAPAICHEGKAYFPREGVFVSNGTSWFITQRNFYSPQIITTDNTFVAGNCDV
tr|A0A2I4AL96|A0A2I4AL96_9TELE  .......................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  .......................................................
tr|H0UY28|H0UY28_CAVPO          .......................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  .......................................................
tr|F6UG70|F6UG70_CALJA          .......................................................


                                     1130       1140       1150       1160       1170       1180
sp|P0DTC2|SPIKE_SARS2_Spike_gl   VIGIVNNTVYDPLQPELDSFKEELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNE
sp|P59594|SPIKE_CVHSA            VIGIINNTVYDPLQPELDSFKEELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNE
tr|D2E1E7|D2E1E7_CVHSA           VIGIINNTVYDPLQPELDSFKEELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNE
tr|D2E1D2|D2E1D2_CVHSA           VIGIINNTVYDPLQPELDSFKEELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNE
tr|A0A166ZL64|A0A166ZL64_9NIDO  VIGIINNTVYDPLQPELDSFKQELDKYFKNHTSPDVDLGDISGINASVVDIQKEIDRLNE
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA  VIGIINNTVYDPLQPELDSFKQELDKYFKNHTSPDVDLGDISGINASVVDIQKEIDRLNE
tr|R9QTA0|R9QTA0_CVHSA          VIGIINNTVYDPLQPELDSFKEELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNE
tr|A0A0K1Z074|A0A0K1Z074_CVHSA VIGIINNTVYDPLQPELDSFKEELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNE
sp|Q3LZX1|SPIKE_BCHK3           VIGIINNTVYDPLQPELDSFKEELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNE
sp|Q3I5J5|SPIKE_BCRP3           VIGIINNTVYDPLQPELDSFKEELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNE
sp|Q0Q475|SPIKE_BC279           VIGIINNTVYDPLQPELDSFKEELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNE
tr|Q0QDX9|Q0QDX9_CVHSA          VIGIINNTVYDPLQPELDSFKEELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNE
tr|A0A2I4AL96|A0A2I4AL96_9TELE  .........................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU  .........................................................
tr|H0UY28|H0UY28_CAVPO          .........................................................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA  ...............................................A
tr|F6UG70|F6UG70_CALJA          .........................................................
```

```
                                       1190      1200      1210           1220      1230
                                       .         .         .              .         .
sp|P0DTC2|SPIKE_SARS2_Spike_gl    VAKNLNESLIDLQELGKYEQYIK..............WPWYIWLGFIAGLIAIVMVTIML
sp|P59594|SPIKE_CVHSA             VAKNLNESLIDLQELGKYEQYIK..............WPWYVWLGFIAGLIAIVMVTILL
tr|D2E1E7|D2E1E7_CVHSA            VAKNLNESLIDLQELGKYEQYIK..............WPWYVWLGFIAGLIAIVMVTILL
tr|D2E1D2|D2E1D2_CVHSA            VAKNLNESLIDLQELGKYEQYIK..............WPWYVWLGFIAGLIAIVMVTILL
tr|A0A166ZL64|A0A166ZL64_9NIDO   VAKNLNESLIDLQELGKYEQYIK..............WPWYVWLGFIAGLVGLFMAIILL
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA   VAKNLNESLIDLQELGKYEQYIK..............WPWYVWLGFIAGLVGLFMAIILL
tr|R9QTA0|R9QTA0_CVHSA            VAKNLNESLIDLQELGKYEQYIK..............WPWYVWLGFIAGLIAIVMVTILL
tr|A0A0K1Z074|A0A0K1Z074_CVHSA   VAKNLNDSLIDLQELGKYEQYIK..............WPWYVWLGFIAGLVGLFMAIILL
sp|Q3LZX1|SPIKE_BCHK3             VAKNLNESLIDLQELGKYEQYIK..............WPWYVWLGFIAGLIAIVMVTILL
sp|Q3I5J5|SPIKE_BCRP3             VAKNLNESLIDLQELGKYEQYIK..............WPWYVWLGFIAGLIAIVMVTILL
sp|Q0Q475|SPIKE_BC279             VAKNLNESLIDLQELGKYEQYIK..............WPWYVWLGFIAGLIAIVMVTILL
tr|Q0QDX9|Q0QDX9_CVHSA            VAKNLNESLIDLQELGKYEQYIK..............WPWYVWLGFIAGLIAIVMVTILL
tr|A0A2I4AL96|A0A2I4AL96_9TELE   .............................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU   .................................MGCCPGDCL...........
tr|H0UY28|H0UY28_CAVPO           ....MTCCGCSGGCGSSCG.............GCGSS.....CCCVPV
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA   VA..APEAVAXCGSCGGCGS.......GCGGCG.SCGGCGSSCGGCGSGCYVPMCCCKPV
tr|F6UG70|F6UG70_CALJA           ........MGCCGCSGGCGSSCGGCGSSCGGCGSGCGGCGSSCGGCGSSCCVPVCCCKPV


                                    1240          1250      1260      1270
                                    .             .         .         .
sp|P0DTC2|SPIKE_SARS2_Spike_gl    C.CMT..SCCSCLKGCC.................SCGSCCKFDEDDSEPVLKGV..KLH
sp|P59594|SPIKE_CVHSA             C.CMT..SCCSCLKGAC.................SCGSCCKFDEDDSEPVLKGV..KLH
tr|D2E1E7|D2E1E7_CVHSA            C.CMT..SCCSCLKGAC.................SCGSCCKFDEDDSEPVLKGV..KLH
tr|D2E1D2|D2E1D2_CVHSA            C.CMT..SCCSCLKGAC.................SCGSCCKFDEDDSEPVLKGV..KLH
tr|A0A166ZL64|A0A166ZL64_9NIDO   C.YFT..SCCSCCKGMC.................SCGSCCRFDEDDSEPVLKGV..KLH
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA   C.YFT..SCCSCCKGMC.................SCGSCCRFDEDDSEPVLKGV..KLH
tr|R9QTA0|R9QTA0_CVHSA            C.CMT..SCCSCLKGAC.................SCGSCCKFDEDDSEPVLKGV..KLH
tr|A0A0K1Z074|A0A0K1Z074_CVHSA   C.YFT..SCCSCCKGMC.................SCGSCCRFDEDDSEPVLKGV..KLH
sp|Q3LZX1|SPIKE_BCHK3             C.CMT..SCCSCLKGAC.................SCGSCCKFDEDDSEPVLKGV..KLH
sp|Q3I5J5|SPIKE_BCRP3             C.CMT..SCCSCLKGAC.................SCGSCCKFDEDDSEPVLKGV..KLH
sp|Q0Q475|SPIKE_BC279             C.CMT..SCCSCLKGAC.................SCGSCCKFDEDDSEPVLKGV..KLH
tr|Q0QDX9|Q0QDX9_CVHSA            C.CMT..SCCSCLKGAC.................SCGSCCKFDEDDSEPVLKGV..KLH
tr|A0A2I4AL96|A0A2I4AL96_9TELE   .............................................................
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU   .......NCCSQEQDCCEECCCQQGCCSCCGSCCGCCGSCCGCGGSGCGSGCCGSGCGSS
tr|H0UY28|H0UY28_CAVPO           CCCVPACSCSSCGKGGCGSCGCSKGGCSSCGGCKGSCGSC...GGYKGGCGSCGG.CKGG
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA   CCCVPACSCTSCG...................SC...GGSKGGCGSCGG.SKGG
tr|F6UG70|F6UG70_CALJA           CCCVPACSCSSCG...................SC...GGSKGGCGSCGC.CQSS


sp|P0DTC2|SPIKE_SARS2_Spike_gl    YT..........................................................
sp|P59594|SPIKE_CVHSA             YT..........................................................
tr|D2E1E7|D2E1E7_CVHSA            YT..........................................................
tr|D2E1D2|D2E1D2_CVHSA            YT..........................................................
tr|A0A166ZL64|A0A166ZL64_9NIDO   YT..........................................................
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA   YT..........................................................
tr|R9QTA0|R9QTA0_CVHSA            YT..........................................................
tr|A0A0K1Z074|A0A0K1Z074_CVHSA   YT..........................................................
sp|Q3LZX1|SPIKE_BCHK3             YT..........................................................
sp|Q3I5J5|SPIKE_BCRP3             YT..........................................................
sp|Q0Q475|SPIKE_BC279             YT..........................................................
tr|Q0QDX9|Q0QDX9_CVHSA            YT..........................................................
tr|A0A2I4AL96|A0A2I4AL96_9TELE   ..................SCLKSCCLQSCCLKSCCLQSCCLQSCCLKSCCLQSCC
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU   CCGGSGCGGCGGGCGGGCGGCGGGCCGSSCCGSGC.CGPVCCQPTPVCETK..........
tr|H0UY28|H0UY28_CAVPO           C..GSCGGCKGGCGSCGGCGSCGSCKTSCCQSSC.CKPCCCQSSCCQSSCCKPCCCQASC
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA   CGCGSCGGSKGDCGSCG......CCQSSCC..NC.CKPC.....CSQSSCCKPCCSQSSC
tr|F6UG70|F6UG70_CALJA           CCKPCC..CSSGCGSSS......CCQSSCC..NC.CKPC.....CSQSSCCKPCCSQSSC


sp|P0DTC2|SPIKE_SARS2_Spike_gl    ..............................................................
sp|P59594|SPIKE_CVHSA             ..............................................................
tr|D2E1E7|D2E1E7_CVHSA            ..............................................................
tr|D2E1D2|D2E1D2_CVHSA            ..............................................................
tr|A0A166ZL64|A0A166ZL64_9NIDO   ..............................................................
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA   ..............................................................
tr|R9QTA0|R9QTA0_CVHSA            ..............................................................
tr|A0A0K1Z074|A0A0K1Z074_CVHSA   ..............................................................
sp|Q3LZX1|SPIKE_BCHK3             ..............................................................
sp|Q3I5J5|SPIKE_BCRP3             ..............................................................
sp|Q0Q475|SPIKE_BC279             ..............................................................
tr|Q0QDX9|Q0QDX9_CVHSA            ..............................................................
tr|A0A2I4AL96|A0A2I4AL96_9TELE   LQSCCLQSCLKSCCLETCVLESCLQSCCLKSCCLKSCCLQSCCLQSCCLQSCCLKSCLKS
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU   ..............................................................
tr|H0UY28|H0UY28_CAVPO           CKPCCCQSSCCNCC.......................KPCCCQSSCCKPCCCQSSCCNCCVPI
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA   C...........................KPCCSQSSCCKPCSSQSS...CCVPL
tr|F6UG70|F6UG70_CALJA           CKPCCSQSS....CC....................KPCCSQSSCCKPCCSQSS...CCVPV
```

```
sp|P0DTC2|SPIKE_SARS2_Spike_gl    ........................
sp|P59594|SPIKE_CVHSA             ........................
tr|D2E1E7|D2E1E7_CVHSA            ........................
tr|D2E1D2|D2E1D2_CVHSA            ........................
tr|A0A166ZL64|A0A166ZL64_9NIDO    ........................
tr|A0A0U1UYX4|A0A0U1UYX4_CVHSA    ........................
tr|R9QTA0|R9QTA0_CVHSA            ........................
tr|A0A0K1Z074|A0A0K1Z074_CVHSA    ........................
sp|Q3LZX1|SPIKE_BCHK3             ........................
sp|Q3I5J5|SPIKE_BCRP3             ........................
sp|Q0Q475|SPIKE_BC279            ........................
tr|Q0QDX9|Q0QDX9_CVHSA            ........................
tr|A0A2I4AL96|A0A2I4AL96_9TELE    CCSCCLQSCCLQSCCLQSCCLQS
tr|A0A1U7RHG6|A0A1U7RHG6_MESAU    ........................
tr|H0UY28|H0UY28_CAVPO            CCQCKI..................
tr|A0A2K5QWK6|A0A2K5QWK6_CEBCA    CCQCKI..................
tr|F6UG70|F6UG70_CALJA            CCQCKI..................
```