

```
#####
# Program: needle
# Rundate: Wed 11 Jan 2023 08:38:40
# Commandline: needle
#   -auto
#   -stdout
#   -asequence emboss_needle-I20230111-084136-0084-12866431-p1m.asequence
#   -bsequence emboss_needle-I20230111-084136-0084-12866431-p1m.bsequence
#   -datafile EBLOSUM62
#   -gapopen 10.0
#   -gapextend 0.5
#   -endopen 10.0
#   -endextend 0.5
#   -aformat3 pair
#   -sprotein1
#   -sprotein2
# Align_format: pair
# Report_file: stdout
#####

#=====
#
# Aligned_sequences: 2
# 1: SARS-CoV-2
# 2: SARS-CoV
# Matrix: EBLOSUM62
# Gap_penalty: 10.0
# Extend_penalty: 0.5
#
# Length: 692
# Identity:      449/692 (64.9%)
# Similarity:    544/692 (78.6%)
# Gaps:          38/692 ( 5.5%)
# Score: 2470.0
#
#
#=====

SARS-CoV-2      1  -----VNLTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHSTQDL      39
                  |.....|      :|:. |||||:|:|..|:|
SARS-CoV        1  SLDLRCCTTFDDVQAPNYTQ---HTSSM-RGVYYPDEIFRSDTLYLTDL      45

SARS-CoV-2     40  FLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNIIRGW      89
                  |||:||||.||. |. | |||:|. |:|:|:|:|:|
SARS-CoV       46  FLFPYSNVTGFHTI-----NHT--FDNPVIPFKDGIYFAATEKSNVVRGW      88

SARS-CoV-2     90  IFGTTLDSTQSLLLIVNNATNVVIVKCEQFCNDPFLGVYYHKNNKSWME     139
                  :|:|:|:|:|:|:|:|:|:|:|:|.|. |:|:|:|..|      :.....:
SARS-CoV      89  VFGSTMNNKSQSVIIINNSTNVVIRACNFECDNPFFAV----SKPMGTQ     134

SARS-CoV-2    140  SEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGYFKIY     189
                  :...:|. | |||:|. |. |:|:|. | |||:| |||||. |:|:|
SARS-CoV     135  THTMIFDNAFNCTFEYISDAFSLDVSEKSGNFKHLREFVFKNKDGFYVY     184

SARS-CoV-2    190  SKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLALHRSYLTGDS      239
                  ...:|:|:| |||. |:|. |:|:|:|:|:| |||. |:|:|      :...|...
SARS-CoV     185  KGYQPIDVVRDLPSPGFNTLKPFIKPLGINITNFRAIL----TAFSPAQD      230

SARS-CoV-2    240  SSGWTAGAAAYVGYLQPRFTLLKYNENGTITDAVDCALDPLSETKCTLK      289
                  : |...| |||:| |||:|. |:|:|:| ||||| |||||:|:|:|. |:|:|
SARS-CoV     231  T--WGTSAAYFVGYLKPTTFMLKYDENGITDAVDCSQNPLAELKCSVK      278

SARS-CoV-2    290  SFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASVYAWN     339
                  ||.:|:| ||||| |||. |:|:|:| ||||| |||||:|:| |||||.
SARS-CoV     279  SFEIDKGIYQTSNFRVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAW     328

SARS-CoV-2    340  RKRISNCVADYSVLVNSASFSTFKCYGVSPTKLNDLCFTNVYADSFVIRG     389
                  |:| ||||| ||||| |||. |:| ||||| |||. |:| |||||:|:|
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11/01/23, 09:42	<a href="https://www.ebi.ac.uk/Tools/services/rest/emboss_needle/result/emboss_needle-l20230111-084136-0084-12866431-p1m/aln">https://www.ebi.ac.uk/Tools/services/rest/emboss_needle/result/emboss_needle-l20230111-084136-0084-12866431-p1m/aln</a>		
SARS-CoV	329	RKKISNCVADYSVLYNSTFFSTFKCYGVSATKLNDLCFSNVYADSFVVKG	378
SARS-CoV-2	390	DEV RQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNLYR	439
SARS-CoV	379	DDVRQIAPGQTGVIADYNYKLPDDFMGCVLAWNTRNIDATSTGNYNKYR	428
SARS-CoV-2	440	LFRKSNLKPFERDISTEIQAGSTPCNGVEGFNCYFPLQSYGFQPTNGVG	489
SARS-CoV	429	YLRHGKLRPFERDISNVPFSPDGK PCT-PPALNCYWPLNDYGFYTTTGIG	477
SARS-CoV-2	490	YQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTGVLTE	539
SARS-CoV	478	YQPYRVVLSFELLNAPATVCGPKLSTDLIKNCVNFNFNGLTGTGVLTP	527
SARS-CoV-2	540	SNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITPGTNT	589
SARS-CoV	528	SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNA	577
SARS-CoV-2	590	SNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCLIGAE	639
SARS-CoV	578	SSEVAVLYQDVNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAE	627
SARS-CoV-2	640	HVNNSYECDIPIGAGICASYQTQTNSPRRARAHAAAAAAAAAAAA	681
SARS-CoV	628	HVDTSYECDIPIGAGICASYHTVS----LLRAAAAAAAAAAAAA	665

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