```
#######################################
# Program: water
# Rundate: Sat  8 Apr 2023 10:22:33
# Commandline: water
#      -auto
#      -stdout
#      -asequence emboss_water-I20230408-102231-0207-96177647-p2m.asequence
#      -bsequence emboss_water-I20230408-102231-0207-96177647-p2m.bsequence
#      -datafile EBLOSUM62
#      -gapopen 10.0
#      -gapextend 0.5
#      -aformat3 pair
#      -sprotein1
#      -sprotein2
# Align_format: pair
# Report_file: stdout
#######################################

#=======================================
#
# Aligned_sequences: 2
# 1: YP_009724390.1
# 2: YP_009047204.1
# Matrix: EBLOSUM62
# Gap_penalty: 10.0
# Extend_penalty: 0.5
#
# Length: 1440
# Identity:     433/1440 (30.1%)
# Similarity:   655/1440 (45.5%)
# Gaps:         276/1440 (19.2%)
# Score: 1568.5
#
#
#=======================================

YP_009724390.      3 VFLVLLPL-------------VSSQCVNLTTRTQL-----PPAYTNSFTR     34
                     |||::..|             |.|.|:.:..:..      |.....|...
YP_009047204.      5 VFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKAD     54

YP_009724390.     35 GVYYPDKVFRSSVLHSTQDLFLPF---FSNVTWFHAIHVSGTNGTKRF--     79
                     |:.||.....|::..:.|.|| |:    .::.:.|.|.:||...|.|
YP_009047204.     55 GIIYPQGRTYSNITITYQGLF-PYQGDHGDMYVYSAGHATGTTPQKLFVA    103

YP_009724390.     80 --DNPVLPF-------------NDGVYFASTEKSNIIR--------GWIF    106
                     ...|..|             :.|....|...|..||        |...
YP_009047204.    104 NYSQDVKQFANGFVVRIGAAANSTGTVIISPSTSATIRKIYPAFMLGSSV    153

YP_009724390.    107 GTTLDSK-----TQSLLIVNNATNVVIKVCEFQFCNDPFLGVY-------    144
                     |...|.|       ..:|:::.:....::.  |.....:|..|.:
YP_009047204.    154 GNFSDGKMGRFFNHTLVLLPDGCGTLLRA--FYCILEPRSGNHCPAGNSY    201

YP_009724390.    145 ------YH---------KNNKSWMESEFRVYSSANNCTFEY---VSQPFLM    177
                     ||         ..|::..:.|:.|.:..||||.|    :::..::
YP_009047204.    202 TSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFMYTYNITEDEIL    251

YP_009724390.    178 DLEGKQGNFKNLREFVFKNIDGYFKIYSKHTPINLVRDLPQGFSALEPLV    227
                     :..|.....:.:..|..:.:|.|
YP_009047204.    252 EWFGITQTAQGVHLFSSRYVDLY--------------------------    274

YP_009724390.    228 DLPIGINITRFQTL---------LALHRSYLTPGDSSSGWTAGAAAYYVG    268
                     |.|:..:|.||       .:..|..:.......|     ||:||.
YP_009047204.    275 ----GGNMFQFATLPVYDTIKYYSIIPHSIRSIQSDRKAW----AAFYVY    316

YP_009724390.    269 YLQPRTFLLKYNENGTITDAVDCALDPLSETKCTLKSFTVEKGIYQTSNF    318
                     .||||.||||.:::.:.|...|:||...:||:..|:::||.||.|:|...|:|
YP_009047204.    317 KLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGVYSVSSF    366
```

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YP_009724390.    319 RVQPTESIVRFPNITNLCPFGEVFNATRFASVYAWNRKRISNCVADYSVL      368
                     ..:|:.|:|....... |.|..:.:.|. ..||.:.|...:||..:.:.|
YP_009047204.    367 EAKPSGSVVEQAEGVE-CDFSPLLSGTP-PQVYNFKRLVFTNCNYNLTKL      414

YP_009724390.    369 YNSASFSTFKCYGVSPTKLNDLCFTNVYADSFVIRGDEVRQIAPGQTGKI      418
                     .:..|.:.|.|..:||..:.:..|:::::.|.|..............:..|.|
YP_009047204.    415 LSLFSVNDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPI      464

YP_009724390.    419 ADYNYKLPDDFTGC-VIAWNSNNLDSKVGG-NYNYLYRLFRKSNLKPFER      466
                     :.:|||....| ::|...:||...| .|:|:..:.|.:
YP_009047204.    465 SQFNYKQSFSNPTCLILATVPHNLTTITKPLKYSYINKCSRLLS------      508

YP_009724390.    467 DISTEIYQAGS----TPCNGV------EGFNCY----FPLQSYGFQPTNG      502
                     |..||:.|..:     :||..:      |...:|    .||:..|:...:|
YP_009047204.    509 DDRTEVPQLVNANQYSPCVSIVPSTVWEDGDYYRKQLSPLEGGGWLVASG      558

YP_009724390.    503 VGYQPYRVVVLSFELLHAPAT----VCGPKKSTNLVK-----NKCVNFNF      543
                     .........:.:.|.:.....|     ||..:..|..|     ..||.::.
YP_009047204.    559 STVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQLGNCVEYSL      608

YP_009724390.    544 NGLTGTGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFG      593
                     .|::|.|||.........:.|:|         ..||.:
YP_009047204.    609 YGVSGRGVFQNCTAVGVRQQRF------VYDAYQ---------------      636

YP_009724390.    594 GVSVITPGTNTSNQVAVLYQDVN------CTEVPVAI--------HA---      626
                     .................|.|.....|.|           |..||||::                 ||
YP_009047204.    637 ------------NLVGYYSDDGNYYCLRACVSVPVSVIYDKETKTHATLF      674

YP_009724390.    627 -----DQLTPTWRVYSTGS-----------NVFQTRAGCLIGAEHVNNSY      660
                     :.::.|...||..:          ...||..||::|.   ||:|.
YP_009047204.    675 GSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGL--VNSSL      722

YP_009724390.    661 ---ECDIPIGAGICASYQT-QTNSPRRARSVASQSIIAYTMSLGAENSVA      706
                     :|.:|:|..:||...| .|.:||..|||..:..:|          |:|
YP_009047204.    723 FVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLA---------SIA      763

YP_009724390.    707 YS--------NNS---IAIPTNFTISVTTEILPVSMTKTSVDCTMYICGD      745
                     ::           |:|     ::|||||||:..||.|.:..::.:|||..|:|..
YP_009047204.    764 FNHPIQVDQLNSSYFKLSIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNG      813

YP_009724390.    746 STECSNLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIK      795
                     ..:..||..:||.|.||:::|:|||.|....:||.::.::||.||....|.|.
YP_009047204.    814 FQKCEQLLREYGQFCSKINQALHGANLRQDDSVRNLFASVKSSQSSPIIP      863

YP_009724390.    796 DFGG-FNFSQILP---DPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCL      841
                     .||| ||.:.:.|     .....|.||.|||||:|||:||.|:::.|.||:
YP_009047204.    864 GFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTIADPGYMQGYDDCM      913

YP_009724390.    842 --GDIAARDLICAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFG      889
                     |..:|||||||||...|.|..|||||:...|.|.|||:||.....||||.|
YP_009047204.    914 QQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGWTAG      963

YP_009724390.    890 AGAALQIPFAMQMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLS      939
                     ..:...|||||:.||.||:|.|||:|||.||||||||||:.|:.|:..|.:
YP_009047204.    964 LSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFT      1013

YP_009724390.    940 STASALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEA      989
                     :|..|..|.:|||.||.|||||||.|:|..:||:.|||||.:.||:.|||.:|.
YP_009047204.    1014 TTNEAFQKVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQ      1063

YP_009724390.    990 EVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKR      1039
                     :.||||||.|||.:|..:|.|||:|:::....||.||.|.|::|||..||||
YP_009047204.    1064 DAQIDRLINGRLTTLNAFVAQQLVRSESAALSAQLAKDKVNECVKAQSKR      1113

YP_009724390.    1040 VDFCGKGYHLMSFPQSAPHGVVFLHVTYVPAQEKNFTTAPAIC---HDGK      1086
                     .:|||:|.|.:::.||:.:|||..:|||.|.|.|.|.:.:|...:|     :...
YP_009047204.    1114 SGFCGQGTHIVSFVVNAPNGLYFMHVGYYPSNHIEVVSAYGLCDAANPTN      1163

YP_009724390.    1087 AHFPREGVFV-SNGT----HWFVTQRNFYEPQIITTDNT-FVSGNCDVVI      1130
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                  ...|..|.|: :|.|      .|..|..:||.|:.||:.|| :|:..
  YP_009047204.   1164 CIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSLNTKYVAPQ-----   1208

  YP_009724390.   1131 GIVNNTVYDPLQPEL------DSFKEELDKYFKNHTSPDVDLGDISGINA   1174
                  :....:...|.|.|       ..|::|||:::|||.:::...:.|.::.||.
  YP_009047204.   1209 -VTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINT   1257

  YP_009724390.   1175 SVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYIWLGFIAGL   1224
                  :::::..|:..|.:|.|.||||.|||:|||.|..|.|||||||||||||||
  YP_009047204.   1258 TLLDLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGL   1307

  YP_009724390.   1225 IAIVMVTIMLCCMTSCCSCLKGCCSCGSCC-KFDEDDSEP   1263
                  :|:.:.....:.|.|.|.:...|...|..|| :::|.|.||
  YP_009047204.   1308 VALALCVFFILCCTGCGTNCMGKLKCNRCCDRYEEYDLEP   1347


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