

## A. Alignment of amino acid sequences of CapC and CapD variants in *C. jejuni* and *C. coli*

```

CapC1_jejuni  MKKNASSKILLSLGVATLLYS---GAFAAEITFNGDSDLDKYFDINEKDNVATFKNENYK
CapC2_coli    MKKNASSKILLSLGVATLLYS---GAFAAEITFNSDSLNTDFINEKDNVATFKNENYK
CapC3_jejuni  MKKNASSKILLSLGVATLLYS---SAFAQEINLTQSSDVGNYFEENGKD-INLKNPDKYK
CapC4_coli    MKKNASSKILLSLGVATLLYS---GAFAQEINLAGSSDIGKYFEENGKD-INLKNPDQYK
CapD1_jejuni  --MIYHNKLVLSAIAASFIVSAGGGLYAQDISNDAAKL-----TQDKDNKSHYTYEFSK
CapD2_jejuni  --MRHHKSIMLSAIAASFIVAHGGGLYAQDISNDT--KL-----TQNKDNKSHYTYEFNT
CapD3_coli    --MKYHKKIMLSAIAASFVLAQ--GLYSANIDNKL-----IQDSNDKSKYIYEFST
CapD4_jejuni  MRNSHNKKVTLVSLGAVKLLSA--TIFASFANAATTPDATSI--QLDDSKLTHLNGDYQ
               ..: ** .*.:: :      ::      ..

CapC1_jejuni  -----NKQDVTFN--ISTSAFDDAPEDTKI-----NIDLGNNS---LTLKNQMDY
CapC2_coli    -----N-QDLTFK--INTLAFDDAPEDAKI-----NIDLGNNS---LTLENTRNS
CapC3_jejuni  -----G-QDLNIK--MGVWDLPNDDYDSADYRL-----NIDIGKNNT--LSFTHNNG-
CapC4_coli    -----G-QDLSIK--MGIGDLPDGDYDSADYRF-----NIDIGKNNT--LSFTHNNN-
CapD1_jejuni  -----G-DIVKTE--LGKTKLTND--ENRIKHL-----TIKAGTGAT-ALAFEGNTG-
CapD2_jejuni  -----G-DVVKTE--LGKTKLSGE--DPIK-HL-----TIKAGKQSGGLEFTGTTS-
CapD3_coli    -----N-EIVKDD--LGSTKLTED--ENRIKYL-----DIRAGNKQTGGLTFFQGM---
CapD4_jejuni  FVISKPMG-EIIYINNTLGENEVLDEKGSIAIKTVLPMVPKNITINAKGDTVINGGQMLN
               . : : . : . . . . * . :

CapC1_jejuni  QGKTAALVKNFNVDAKDFKTTDIGLSY---FNAGIINANF-----
CapC2_coli    GGETAALVRNFNVDKDFKTTDIGLSY---FNAGIINANF-----
CapC3_jejuni  --QNPAYVTNLNATAKEVKTTDIVLQA---FAPSVINGNL-----
CapC4_coli    --QEPAYVTNLNATAKEVKTTDIVLQA---FAPSVINGNL-----
CapD1_jejuni  ---TRASIGGDISNGYSFDLTADSVSF---KGTNSGDTT-----
CapD2_jejuni  ---QKASLG---DGYSFNLTADSLSK---TGDAIGSANI-----
CapD3_coli    -----YLGGNLNGFSFNLTADKVQ-----FNKDDKYLNA-----
CapD4_jejuni  GDRTWAGIGGAESN-YNFTINADTVKLIQTEYNDDDLNDFVGVQVLPDGLWQPDYNNPY
               :      . . . : . .

CapC1_jejuni  -----TMEGSGKDFDLG-NIDKNKASSLLIFNGSRENTNDTVNGSLTVNGDFSTT
CapC2_coli    -----TMVGSGEDFDLD-NIDKNKASSLLIFNGSRENTNDTVNGSLTVNGDFSAT
CapC3_jejuni  -----TMTSSGAGTITE---DEKKGSGIILYNGAVEGKS--ANGSLTINGNFTAD
CapC4_coli    -----TMTSSGKEAITQ---DEEKGSGIILYNGAVEGKS--ANGSLTINGNFTAD
CapD1_jejuni  -----INVSGHSTINAKNGVTLEKTSIDLANGNYFNKN--FNGSLTINGDLKLT
CapD2_jejuni  -----IATNGASTIDAK-NGVELNKGHIQVNGTFFNQS--FNGSLTINGDLKLT
CapD3_coli    -----IYVGSGDSIITAKGGVELNDTFINIATGDYFNHS--YNGSLTINGNLKLV
CapD4_jejuni  NSLLDTHDNTFMNVFKTGVIN-GNLETTAASVAIVNGNLFGRN--YNGNLTVNGNLI SN
               . : : . * . . **.**:***:

CapC1_jejuni  NSAIVSMKSDTFKVNQTATLKEAGLGFLSQSYSNLDVNDVFIALRA-KDIKTDTLNEDTNA
CapC2_coli    NSAIVSMKSDTFKVNQTATIEKSGLGFLSQSYSNLDANDVFIVLRA-KDIKTDKLNDETNA
CapC3_jejuni  KTLFATYGNF-VKVNQTANLTSNFGLMKRSYTDLEANNVVMVQA-KDFNENILKANNNA
CapC4_coli    KTLFATYGNF-VKVNQTANLTSNFGLMKRSYTDLEANNVIVQA-KDFNKDILEEKSNN
CapD1_jejuni  DSSVINNGQAGFNVNGKVTANNTFVAGVGDVLRVTNNGFFIMSATKGFENGIEKDKSFT
CapD2_jevuni  DSSVTNFGQANFNVNGKVSQNTTFETEALDLSRVTNNGFYIMSATKGFENAASSDKSFT
CapD3_coli    DSSILNQGGAKFHVNGKVIADFDTQFSVSVDDFDRVTNNGIVIMTASEGFES-LDKDKTFT
CapD4_jevuni  DTKFTFFGNHQFNVSQTAIRDSEFSLVNFN-NPVTENGIYLLSSGKGLNKDITETNTRV
               . : . . : * . * . : : : : : . .

CapC1_jejuni  -----GAL-----ILKTASSYINENLLNGDDYAA--LDVT-DDKKYGG--AFVDYKL
CapC2_coli    -----GAL-----ILKSGSSYIDESLLNGDDYVAS--LDVTAEDNKYGG--VFVDYKL
CapC3_jejuni  -----GAL-----LLKFASDYISTDVQGGKDPLEAGTIIDISDEDKYGDGEKGLVDYKL
CapC4_coli    -----NAGAL-----LLKFASDYISTNVQGGKDPLEAGTVLDIT--DDKYSG--GLVDYKL
CapD1_jejuni  DVSSHNTGALVFHNSLVNIISSNLLDSKYAGGFGTITEANFATIAPERDLS---ALYDTRL
CapD2_jevuni  DVSSGNKALVFHNPVNISSNLMNQNYAGGVGTITD--FDQIAPTDLDS---SLYATEL
CapD3_coli    DIDSGNFGVIYVHNKLVNISSNLMDSKYAKDIGTITEADFKKIAPTHDLSDRDSLJETEL
CapD4_jevuni  NVLLIPDGKLV-----LGLKGDKFAEYEGELTEIILDKDN-----KLFNTNKL
               * : . . . : : : . *

CapC1_jejuni  SLKNCGGDKCLV-----INGGATAAAKNLTN
CapC2_coli    SLKNCGGDKCLV-----INGGATAAAKLTN
CapC3_jejuni  SVQNCGGNKCLV-----INGGATAAAKDKLV
CapC4_coli    SVQNCGGNKCLV-----VNGGATAAAKDKLV
CapD1_jevuni  DIK---GNSLYVVDLKGFDANTIKNFKTAK---DWENAFKTLSTNIQTQFTAQKTDLEK
CapD2_jevuni  VQK---GNSLYVNG-----NFATIK---NGRVDFDALNAAIKTEFTKQKTELEK

```





**B. Alignment of amino acid sequence of CapC and CapD variants in *Campylobacter* species**

```

CapC1_jejuni      ---MKKN-ASSKILLSLGVATLLYSGA---FAAEITFN-GSDLDLKYFDINEKD-----N
CapC3_jejuni      ---MKKN-ASSKILLSLGVATLLYSSA---FAQEINLT-QSSDVGNYFE-ENGK-----D
CapD1_jejuni      ---MI---YHNKLVLSAIAASFIVSAGGGLYAQDISND-----TAAKLTQDK-----D
CapD3_coli        ---MK---YHKKIMLSAIAASFVLAQG---LYSANIID-----NKLIQDS-----N
CapC4_coli        ---MKKN-ASSKILLSLGVATLLYSGA---FAQEINLA-GSSDIGKYFE-ENGK-----D
CapC2_coli        ---MKKN-ASSKILLSLGVATLLYSGA---FAAEITFN-SDSDLNTHFDINEKD-----N
CapC_upsaliensis ---MKLSYHASKVLVGVVISALLSSVA---LVQDISIN--TGNAKNYFDTNDGQ-----H
CapC1_lari        ---MKLSYHTSKVLMGVVISALLSSAT---LAQEINYI---NLSDFYNYKDKGI-----
CapC2_lari        ---MKLSYHTSKVLMGSVISALLSSAA---LTQEITITDGDGSMQHFETNDGQ-----H
CapC_subantarcticus ---MKLSYHTSKVLMGVVISALLSGAA---LAQEINYI---NLSDFYNYKDKGI-----
CapD_subantarcticus ---MK---NSRKFFLSACVATMVASSA---HAVTKKKG-GGGSFSDTNLKDINK-----N
CapC_peloridis    ---MKLSYHTSKVLMGVVISALLSSAV---LAQEITIN--DSTMNQYFETS DGR-----N
CapC_ornithocola ---MKLSYHTSKVLMGVVISALLSSAA---LAQEITIIY--DSNMDQYFETS DGR-----N
CapD_ornithocola ---MRN---SRKIFLSTCVATMVASSA---HAVI---GGGGISFTDSNLK DENK-----N
CapD_volucris     ---MKN---LNRKIFLSTCVATMVASSA---HA---VTGGGNPFSDTNLKD ENK-----N
CapC_insulaenigrae ---MKLSYFASKVLI GFISGALLSSNA---LASKITIKDGDGSMQHFETNDGQ-----H
CapC_cuniculorum  MIKTKLSSTTKVLLGMSLA--LSASN---LYAAKNVD-SNATIKENFE-KKGN-----S
CapD4_jejuni      ---MRNS-HNKKVTLSTGVAKVLLSAT---IFASFANA-ATTPDATSIQLDDSKLTHLGN
CapD2_jejuni      ---MR---HHKSIMLSAIAASFIVAHGGGLYAQDISND-----TKLTQNK-----D

```

.. : . . :

```

CapC1_jejuni      VATFKNENYKKNQDVTF-----NISTSAFDDA-PEDTK-----INIDLG
CapC3_jejuni      INLKNPDKYKG-QDLNI-----KMGVWDLPNDDYDSADYR-----LNIDIG
CapD1_jejuni      NKSHYTYEFSK-GDIVKT-----ELGKTKLTND-ENRIKH-----LTIKAG
CapD3_coli        DKSKYIYEFST-NEIVKD-----DLGSTKLTED-ENRIKY-----LDIRAG
CapC4_coli        INLKNPDQYKG-QDLSI-----KMGIGDLPSDGYDSADYR-----FNIDIG
CapC2_coli        VATFKNENYKKN-QDLTF-----KINTLAFDDA-PEDAK-----INIDLG
CapC_upsaliensis FALKK--EHAN-SDLNI-----KMSMDLSND-IAKDGIEDRA-T-VGIDLG
CapC1_lari        WSLD-----SK-ENIEL-----KITPSDIQSY-YGGENH-DKP-I-KEFNIK
CapC2_lari        FTLKN--DYTN-GNLTI-----NINDTDL PNS-IAKEGYEDLA-T-VNINLG
CapC_subantarcticus WSLD-----SK-ENIEL-----KITPSDIQSY-YGGENH-DKP-I-KEFNIK
CapD_subantarcticus GNYSFVVEKDT-GSI-----YNISSVIGES-FDG ENNKHIK-H-LNIDAA
CapC_peloridis    FNLKK--DYTN-GDLTL-----NLFHTDLANS-IVNDKYKDLS-R-VNINLN
CapC_ornithocola FNLKK--DHTN-SDLTL-----NLYHTDLANA-IAKDEYKDLS-R-VNINLG
CapD_ornithocola GNYSFIVDKDT-GSI-----YNISSVIGSS-FDGKTNKFTN-H-LNIDAA
CapD_volucris     GNYSFIDKNTG-STYNI-----TSIIGST-FDGKTNKYIN-H-LNIDAA
CapC_insulaenigrae FALKK--EHTN-SDLTI-----EINDTDL PNS-IAKEGYEDLA-T-VSIDLG
CapC_cuniculorum  FSYKGTDYDIALGNISTQGWDDDDTKAPTEETSLFDEKGT-TKFKFNNAKDEK-ISIDAG
CapD4_jejuni      GDYQFVISKPM-GEIIYINN-----TLGENEVLDE-KGSAIKTVLPMVPKNITIN
CapD2_jejuni      NKSHYTYEFNT-GDVVKT-----ELGKTKLSGE--DPIKH-----LTIKAG

```

:

```

CapC1_jejuni      NNS-LTLKNQMDY---QGKTAALVKNF-NVDAKDFKTTD IGL-----
CapC3_jejuni      KNNTLSFTHNN-----GQNPAY-VTNL-NATAKEVKTTDIVL-----
CapD1_jejuni      TGA-TALAFEGN---TGTRASIGGDISNGYSFDLTADSVSF-----
CapD3_coli        NKQTGGLTFQGM-----YLGGNLNNGF SFNLTADKVQF-----
CapC4_coli        KNNTLSFTHNN-----QEPAY-VTNL-NATAKEVKTTDIVL-----
CapC2_coli        NNS-LTLENTRNS---GGETAALVRNF-NVDAKDFKTTD IGL-----
CapC_upsaliensis AHN-LSFENGNS---GNKASY-VTNY-TITAKKQKLLMVIF-----
CapC1_lari        TNGILTIGDGNWIDVGSTSTN-EAKY-DLYSVNLEAKEI I L-----
CapC2_lari        SNE-LTIKNISH---GDISTY-VTNY-TINAKKTEAIDVIF-----
CapC_subantarcticus TSGILTIGDEDNWIDVGSTSTN-EAKY-DLYSVNLEAKEI I L-----
CapD_subantarcticus KST-LKVGANDQD---AKIGHYHDGKKDKFY SFDIKAKEI I F-----
CapC_peloridis    SNN-LTFKNT-----SESASY-VTNY-TINAKKTEATDVIF-----
CapC_ornithocola SNN-LTFKNT-----SEGANY-VTNY-TINAKKTEATDVIF-----
CapD_ornithocola KST-FNVGANGQD---AEIGHYFDGEKDKFY SFNIAKAKEI I F-----
CapD_volucris     KST-FNISVKDKD---AEIGHYFDGEKDKFY SFNIAKAKEI I F-----
CapC_insulaenigrae SND-LTIKNISS---GNLSTA-VSNY-TITANKTEATNVIF-----
CapC_cuniculorum  EKK-LTLSTTGA---DTLNNFTLTST-EASADA I KATGINF-----
CapD4_jejuni      AKGDTV IINGGQLMN-GDRTWAGIGGAESNYNFTINADTVKLI GTEYNDDDLNDFGVQV
CapD2_jejuni      KDQSGGLEFTGT-----TSQKASLGDGY SFNLTADSLKF-----

```

: :

```

CapC1_jejuni      -----SYFN-AGIINANFTMEGS---GKDFDLGNI---DKNKASSLLIFNGSREN
CapC3_jejuni      -----Qafa-PSVINGNLTMTSS---GAGTITE-----DEKKGSGI ILYNGAVEG
CapD1_jejuni      -----KGTT--NSGDTTINVGS---HSTINAKNG---VTLEKTSIDLANGNYFN

```

CapD3\_coli -----NKDD--KYLNAIYVGS GD-----SIIITAKGG---VELNDTFINIATGDYFN  
CapC4\_coli -----QAFA-PSVINGNLTMTSS----GKEAITQ-----DEEKGSGIILYNGAVEG  
CapC2\_coli -----SYFN-AGIINANFTMVGS----GEDFDLDNI---DKNKASSLLIFNGSREN  
CapC\_upsaliensis -----QSPDGKSIVNEDFNKIGS-----SNPTEDAL---DDIKASAILIGDGHGV-  
CapC1\_lari -----NSDRATLEANKAFNIKGNVTLNGSSPITGDNINDWELDRPSLDVWNGYGE-  
CapC2\_lari -----QSTNGKSI VNGDFS I KGS-----SSPTEGVL---DDIKSAILIGDGHGL-  
CapC\_subantarcticus -----NKDQASLKANKAFNIKGNLTLNGSSPITNDNIHNEELDRPGLYVWNGYGE-  
CapD\_subantarcticus -----DGIN-----SALEVGN-----TGVIEGNL---HIINGANL SVSNGTLGS  
CapC\_peloridis -----QSLDGKSI VNGDFS I KGS-----SNPVEGVL---DDVKSSAILIADGHGL-  
CapC\_ornithocola -----QSLDGKSI VNGDFS I KGS-----SNPVEGVL---DDVKSSAILIADGHGL-  
CapD\_ornithocola -----DGTN-NTLQGQETSLNVGN-----TGVIEGDL---ALRNGADL F I SNGTLGS  
CapD\_volucris -----NGAS-DGMGKETS LN VGN-----TGVIEGNL---ALLNSADL F I SNGTLGS  
CapC\_insulaenigrae -----QSMNGKSI VNGDFS I KGS-----SEPTGEVF---DYMKSSAIF IADGHGL-  
CapC\_cuniculorum -----RATSGSSVFNGNTSLSGG-----TLIVDG-----  
CapD4\_jejuni LPDGLWQP DYNNPYNLSLDTYHDNTFMNVFKTGVINGNL----ETTAASVAIVGNLFG  
CapD2\_jejuni -----TGDAIGSANI IATNG----ASTIDAKNG---VELNKGHIQVNGTFFN

: \*

CapC1\_jejuni TNDTVNGSLTVNGDFSTNSAIVSMKSD----TFKVNGTATLKEAGLG-FLSQSYSNLDV  
CapC3\_jejuni KS--ANGSLTINGNFTADKTLFATYGN-----FVKVNGTANL TNSNFG-IMKRSYTDLEA  
CapD1\_jejuni KN--FNGSLTINGDLKLT DSSVINNGQA----GFNVNGKVTANNTFV-AGVGD LNRVTN  
CapD3\_coli HS--YNGSLTINGNLKLV DSSILNQGGA----KFHVNGKVI AFDTQFS-VSVD DFDRTN  
CapC4\_coli KS--ANGSLTINGNFTADKTLFATYGN-----FVKVNGTANL TNSNFG-IMKRSYTDLEA  
CapC2\_coli TNDTVNGSLTVNGDFSATNSAIVSMKSD----TFKVNGTATIEKSGLG-FLSQSYSNLDA  
CapC\_upsaliensis -----QGS LDVNGNFTADKSTLFTIGGNKSNHIQVNGKANITNSNFS-IGTTSFGDLAL  
CapC1\_lari ----K DGYMNIQGNLNVNNSF I G I YDANKKGLISVDGDVNIKDSAIG-ISTNSVSNLGI  
CapC2\_lari ----QGSLEVNGNFTADQSTLFTIGGNKSNHIQVNGKANITNSNFS-IGTTSFGGLAL  
CapC\_subantarcticus ----K DGYMSIQGNLNVNNSF I G I F DANKKGLISVDGDVNIKDSAIG-ISTNSVSNLGI  
CapD\_subantarcticus QS--AYGSLLVKGDFAAEDAKDFDFYGNH----NFHVTGKANI INSTFK----TSNAPVSE  
CapC\_peloridis -----QGSLEVNGNFTADKSTLFTIGGNKSNHIQVNGKANITNSNFS-IGTTSFGDLAL  
CapC\_ornithocola -----QGSLEVNGNFTADQSTLFTIGGNKSNHIQVNGKANITNSNFS-IGTTSFGDLAL  
CapD\_ornithocola QS--ANGSLLVKGNFSATNANLDFYGNH----SFHITGKANITNSTFS----ATNAPVSE  
CapD\_volucris QS--ANGSLLVKGDFLATDANLDFYGNH----NFHVTGTAFIRNSNFS----ATNAPISE  
CapC\_insulaenigrae -----QGSLEINGNFTADKSI L ATIGGNKSNHIQVNGKANITNSNFS-IGTTSFGDLAL  
CapC\_cuniculorum -----GSIN VNGALALANTK LAFNADRLS--AIQVKGNANLGTLAGSVLLS KSIQS F  
CapD4\_jejuni RN--YNGNLT VNGNLISNDTKFTFFGNH----QFNVSGTAIIRDSEF--LVNFSNPVTE  
CapD2\_jejuni QS--FNGSLTINGDLKLT DSSVTNFGQA----NFNVNGKVS AQNTTTFE-TEALDL SRVTS

\* : ::\* : . : . . : \*

CapC1\_jejuni NDFIALRAKDI-----KTDTL---NEDTNAGALI-----LKTASSYIN--ENLLNGDD  
CapC3\_jejuni NNVVMVQAKD-----FNENIL--KANNAGALL-----LKFASDYIS--TDVQ GKDP  
CapD1\_jejuni NGFFIMSATKG-----FENGI--EKDKSFTDVSSHNTGALVFHNSLVNI--SSNLLDSK  
CapD3\_coli NGIVIMTASEG-----F-ESL---DKDKTFTDIDSGNFGVIYVHNKLVNI--SSNLMDSK  
CapC4\_coli NNVVIVQAKD-----FNKDI LEEKSN NNAGALL-----LKFASDYIS--TNVQ GKDP  
CapC2\_coli NDFIVLRAKDI-----KTDKL---NDETNAGALI-----LKS GSSYID--ESLLNGDD  
CapC\_upsaliensis NNYVFMSASGG-----FNENI---TSSNKASANI-----SKSFESIVGM-SNKDLGLD  
CapC1\_lari NNYVAIKTTGN-----FNQDI----DKNMVTALY-----TKDITSMLET-SNLLPKNV  
CapC2\_lari NNYVFMSASEG-----FNEDI---TDSNKASANI-----SKSFESIVGM-SNKDLGLD  
CapC\_subantarcticus NNYVAIKTTGN-----FNQDI----DKNIVTALY-----TKDITSMLET-SNLLPKNV  
CapD\_subantarcticus NGIFLLSANGG-----FNKNI---TTSNTAGVYK--EFYLDK DENI F I S I L T G K T P G Y I  
CapC\_peloridis NNYVFMSASEG-----FNEDI---TSSNKASANI-----SKNFESIVGM-SSKDLGLD  
CapC\_ornithocola NNYVFMSASEG-----FNEDI---TSSNKASANM-----SKNFESIVGM-SSKDLGLS  
CapD\_ornithocola NGIFLLSADGG-----FNKNL---TTSNTAGVYT-----IISTADALGL-SAE EAKKY  
CapD\_volucris NGIFLLSADKG-----FNKDI---ELTNTAGVYT-----AISTAQALGL-SAE EAKKY  
CapC\_insulaenigrae NNYVFMSASEG-----FNKDI---TSSNKASANI-----SKSLESIVGM-STKDLGLD  
CapC\_cuniculorum NNAVLVNVVTGQDEKGV PFTLQVTGLDTANVVGAKL-----QVDDR TYITD-NVNLNTLS  
CapD4\_jejuni NGIYLLSSGKG-----LNKDI---TETNTVRNVL-----LIPDGKLLG-----LKGDK  
CapD2\_jejuni NGFYIMSATKG-----FENAA---SSDKSFTDVSSGNK GALVFHNPLVNI--STNLMNQN

\*. : . :

CapC1\_jejuni YAA-----YLDVT-DDK KYG---AFVDYKLSLKNC---  
CapC3\_jejuni LEAGT-----I DIS-DEDKYGDGEKGLVDYKLSVQNC---  
CapD1\_jejuni YAGGFGTITEANFATIAP-----ERDLS-----ALYDTRLDIKGN---  
CapD3\_coli YAKDIGTITEADFKKIAP-----THDLS DRD-----SLYETELVQOQN---  
CapC4\_coli LEAGT-----VLDIT-D-DKYSG---GLVDYKLSVQNC---  
CapC2\_coli YVA-----SLDVT AEDNKYGG---VFVDYKLSLKNC---  
CapC\_upsaliensis YEVR-----AMAVK-----DFVDYKLS TKDN---  
CapC1\_lari FFE-----ATDLA-----KFTDYKLSVSNND---  
CapC2\_lari YEVR-----AMDVK-----DFVDYKLS TKDN---  
CapC\_subantarcticus FFE-----DTDLA-----QFTDYKLSVSNND---  
CapD\_subantarcticus AAAGLVPSEG-----TIEIEI-----EGLNYKLATIGN---

CapC\_peloridis YEVR-----AIDVK-----DFVKYELSTKDN---  
CapC\_ornithocola YEVR-----AMDVK-----DFVDYELSTKDN---  
CapD\_ornithocola NESFD-----SIKVNI-----KDVNHEIKVVGN---  
CapD\_volucris EENID-----SIKVDI-----KGVDPKIKVVGN---  
CapC\_insulaenigrae YEDTK-----AMDVK-----EFVDYKLSSTKDN---  
CapC\_cuniculorum GVAGKGATGGVKEGDRVSFADYVKNFNSVVDLG-----NLVEYTLNTNETKDP  
CapD4\_jejuni FAEYEGELTEI-----ILDKN-----KLFNTKLVVSGN---  
CapD2\_jejuni YAGGVGTITDFDQIAP-----TTDLS-----SLYATELVQKGN---

:

CapC1\_jejuni -GGDKCLVING-----GATAAAKNLTNQI-----  
CapC3\_jejuni -GGNKCLVING-----GATAAAKDKLVQL-----  
CapD1\_jejuni -----SLYVVGDLKGFANTIKNFKTAK---DWENAFKTLSTNI-----  
CapD3\_coli -----NLYVSG-----NFDKAKFYTDGRLDFDKLNTAL-----  
CapC4\_coli -GGNKCLVING-----GATAAAKDKLVQL-----  
CapC2\_coli -GGDKCLVING-----GATAAAKLTNQI-----  
CapC\_upsaliensis -----KLLING-----GANENVLDNKKVL-----  
CapC1\_lari ---GKSLISG-----GANKNVRDLAMIL-----  
CapC2\_lari -----KLLISG-----GANENVNNNMIL-----  
CapC\_subantarcticus ---GKSLISG-----GANENVRLSKIL-----  
CapD\_subantarcticus -----SLYLQ-----ADTSAWKDYKPS-----  
CapC\_peloridis -----KLLISG-----GANKNVMNNKMIL-----  
CapC\_ornithocola -----KLLISG-----GANENVNNNMVIL-----  
CapD\_ornithocola -----SLYISANVDTK-----AWNNNIKTNGLAK-----  
CapD\_volucris -----SLYISAQVDTK-----SWQNSIKTDGLAK-----  
CapC\_insulaenigrae -----KLLISG-----GANKNVLNKKVL-----  
CapC\_cuniculorum VKAATQLRISG-----GASTNALDSKNLVAI IQGTLDRYINDAGN  
CapD4\_jejuni -----TLYVKN-----SLTAEAKKMSIGE-----  
CapD2\_jejuni -----SLYVNG-----NFATIK---NGRVDFDALNAAI-----  
\* :

CapC1\_jejuni -----AVD-----L-----EAITRII-----  
CapC3\_jejuni -----QVD-----I-----DAIDKLL-----  
CapD1\_jejuni -----QTQFTAQKTDLKLYKYDSSSKAESGIFKNNRDTVKNKIDEYNKEKTGI  
CapD3\_coli -----KKEYAAQKSDLEILYKNN--AGNESGFFLDKRQRVDAEIKAHAIE----  
CapC4\_coli -----QVD-----I-----DTINKLL-----  
CapC2\_coli -----AVD-----L-----EAITRII-----  
CapC\_upsaliensis -----ESD-----KKYL-----EFVKQDL-----  
CapC1\_lari -----ESEIDIRKEVLDTF-----ENIKKNIKYDEEYNKNS  
CapC2\_lari -----ESD-----KKYL-----ELIKTDL-----  
CapC\_subantarcticus -----KSEIDIRKEALDTF-----EGIKKDI---EYNKNS  
CapD\_subantarcticus -----EISKNLIIAKKEVL-----TQLNNYL-----  
CapC\_peloridis -----ESD-----KKYL-----ELIKTDL-----  
CapC\_ornithocola -----ESD-----KKYL-----ELIKIDL-----  
CapD\_ornithocola -----SLKEAQKLALQSMI-----DEYTRLM-----  
CapD\_volucris -----SLREAQKLALQSMI-----EEYTKLM-----  
CapC\_insulaenigrae -----ESD-----KKYL-----ELIKKDL-----  
CapC\_cuniculorum TGLLSFADDNKEIFDLTKTDEAKM-----NEVEKAAKAIQAQRAAL  
CapD4\_jejuni -----FLKETRTQILDQLI-----AHFTEQY-----  
CapD2\_jejuni -----KTEFTKQKTELEKLYKVD--GKKESGTFFTNKGLIEKEITKYNTEKTGT

:

CapC1\_jejuni -----DGL---DNEQA--KKALQEQKTELEKLQEQEAMQNGGKID-----DEKYID  
CapC3\_jejuni ---KNEFDSSQD--EEWTKA--KEALEKQKTELEQLKQEAQKNGGKID-----DEKYID  
CapD1\_jejuni IAKSQQAVDTTKAALDKANQEGKQETIKTAQKNYDTAVKQLENDKKTLSLNNRLAEYNA  
CapD3\_coli ISSSEAKVSSAKLTLDLTKGNDFKRIEAAQKAYDDAKKLDSDKKILDELKNRLAEYDR  
CapC4\_coli ---ENEFDSSQD--EEWTKA--KETLKKQQAELQTMLEEAKKNGGKID-----DEKYID  
CapC2\_coli -----DGL---DNEQA--KETLKKQQAELQTMLEEAKKNGGKID-----DEKYID  
CapC\_upsaliensis ---ENDKNYGDK--AKIEEA--IAKLDKQIQIDEMIASA--SSGAIS-----NDSYVK  
CapC1\_lari YQKPGYIGDDAML--EATAQA--EKELQEQIKKLEQQIKDIEANGGKPD-----GSDLVE  
CapC2\_lari ---EDAKDDEGVNIEKIDEA--IAKIDEQIKQIQDMISNA--GDKIS-----DDDYIK  
CapD\_subantarcticus YQKPGYIGDDAML--EATAQA--EKELQEQIQKLEQQIQDIDKNDGGKFD-----GGDLVE  
CapD\_subantarcticus -----RTEARL---PIPLN--QNQQEDPNAELKKIKKIDAEIDRL-----  
CapC\_peloridis ---EDAKDDEGVNIEKIDEA--IAKIEEQIKQIQEMISNA--GDGEIS-----NDDYIK  
CapC\_ornithocola ---EDAKDDEGANKEKIDEA--IAKIDEQVQIQDMISNA--GSGEIS-----NDDYIK  
CapD\_ornithocola -----SEAPGI--QPKTDA--KQDFTK--ADYQQIIRDLTGKMNAD-----  
CapD\_volucris -----NEAPGV--EPKAAN--KQEFTK--ADYKQIIRDLTGKMNAIN-----  
CapC\_insulaenigrae ---KKEEENGKN--DKIDEA--IAKLDKQIQIDEMIKNT--SGGIIS-----NDDYIK  
CapC\_cuniculorum ANITAGKYTENRVVNGRNTFF--EVTLLADRAAYEALSKNNAAGVDKAALKYTRNDVQVQ  
CapD4\_jejuni ---NDSITGSGI--QPRAAT--TVGATAQATQYKKIIEQLTQYKNDIE-----  
CapD2\_jejuni IATSQADVDSKKTALDKANQEGKQEEIKKAQEAAYDTAVKKLEDDKKTLSLNNRLAEYNT

CapC1\_jejuni LVNKN-----SNLNLSANDKAS-----ILV  
CapC3\_jejuni LVNKN-----SNLNLSANDKAS-----ILA  
CapD1\_jejuni LIEDI-----KNKTANLNKKIN---DTNFNIAAGQ  
CapD3\_coli LIEEV-----KNKTADLDKKITGFADGGSSVQMGQ  
CapC4\_coli LVNKN-----SNLNLSANDKAS-----ILA  
CapC2\_coli LVNKN-----LNLNLSANDKAS-----ILA  
CapC\_upsaliensis ---ND-----SSVSASNKNFVS-----  
CapC1\_lari ---NM-----KDISLENKNLAV-----  
CapC2\_lari ---ND-----SSVSASNKDFVS-----  
CapC\_subantarcticus ---NM-----KDVLENKNLAV-----  
CapD\_subantarcticus -----NKSNTAFNSQID-----  
CapC\_peloridis ---ND-----SSVSASNKDFVS-----  
CapC\_ornithocola ---ND-----SSVSASNKDFVS-----  
CapD\_ornithocola ---V-----NDKSPVFNSQID-----  
CapD\_volucris ---I-----DSKSPVFNSQID-----  
CapC\_insulaenigrae ---ND-----SSVSASNKNFVS-----  
CapC\_cuniculorum NIGNIQRGNQAI VARYLDGLEMSLRQRTN NAGQTYNNADLHTQD VGN-----VAR  
CapD4\_jejuni ---A-----NKKVVSYGKNVD-----  
CapD2\_jejuni LIEDI-----KNKTANLNKIN---NAKFDIRAGQ

CapC1\_jejuni LRSITE----QL--GSIGADLASREGVKLALQ-----IKKDTDNTGKSVSNFNSASSAV  
CapC3\_jejuni LRSITE----QL--GSIGADLASREGVKLALQ-----IKKDTDNTGKSVSNLNSASSAV  
CapD1\_jejuni KGQIFA----SLATSSVGGKLAGTADYIFANGK-----VINDVERAAQSNAG-NSALNAP  
CapD3\_coli KGQIFA----SLAESNVGGKVSATAGYIFSNK-----AIDDIKAGRSNAG-NSALNSP  
CapC4\_coli LRSITE----QL--GSIGADLASREGVKLALD-----IKKDTDNTGKSVSNLNSASSAV  
CapC2\_coli LRSITE----QL--GSIGADLASREGVKLALD-----IKKDTDNTGKSVSNLNSASSAV  
CapC\_upsaliensis --KILD----GL---ALGKDFNAIGSIKFDKVGEG---VANDIKASAKSISNVNQASSGI  
CapC1\_lari --NMLN----SILDSKLSND--AIAALTLDTTGKNLNTLTNTKASAKAIVN-NAQNSSV  
CapC2\_lari --KILD----GL---KIGGDLNAIGSIKFDKVGEG---VANDIKDSAKSISNVNQASSGI  
CapC\_subantarcticus --NMLN----SILDSKLSND--AVAALTLDTTGKNLNTLTNTKASAKAIVN-NAQNSSV  
CapD\_subantarcticus --AVLA----SL--LRSNREQAAGSALTDAMVGNQ--QAKNVVNSARESANSNSRQGA  
CapC\_peloridis --KILD----GL---KLGDFNAIGSIKFDKAGEQ---VANDIKDSAKSISNVNQASSGI  
CapC\_ornithocola --KILD----GL---ALGKDFNAIGSIKFDKVGEG---VANDIKDSAKSISNVNQASSGI  
CapD\_ornithocola --AVLG----SI--LTSNRQAAGSALTDAMIGNTQ--QAKNVVNSARESANSNSRQGA  
CapD\_volucris --AVLG----SL--LTSNRQAAGSALTDAMIGKAQ--QAKNVINSARESANSNSRQGA  
CapC\_insulaenigrae --KILD----GL---TLGKDFNAIGNIKFDKVGEG---VANDIKDSAKSISNVNQASSGI  
CapC\_cuniculorum QGDILDKDGNKIGTYDNGATLDAIARIKENLNGNT---LANEFRESAKSIANTNSAVSTV  
CapD4\_jejuni --NILA----SL--KNSNREVAASSALLNAIKGNVN--QAKTIEAASAKESAD-NSNRQGA  
CapD2\_jejuni KGQIFA----SLAESNVGGKLAGTADYIFANGK-----VINDVERAAQSNAG-NSALNAP  
: : . \* .

CapC1\_jejuni NTTMNISNDVSI GSRVAMLNPNPFGTYA--SKMNGLKFAA---LDSDMRPSYVN-EYTNSV  
CapC3\_jejuni NTTMNISNDVSI GSRVAMLNPNPFGTYA--SKMNGLKFAA---LDSDMRPSYVN-EYTNSV  
CapD1\_jejuni IGA INMSNDMAISNRLAKFSNPYSTVN-VASLEGLKFAAGNGIASDSQYAYGARSYDNNV  
CapD3\_coli VNAINISNEMTISNRLAKFSNPYSTIK-LASLAWEKFAAGEG IASDSTFYSYGARAYENNI  
CapC4\_coli NTTMNISNDVSI GSRVAMLNPNPFGTYA--SKMNGLKFAA---LDSDMRPSYVN-EYTNSV  
CapC2\_coli NTTMNISNDVSI GSRVAMLNPNPFGTYA--SKMNGLKFAA---LDSDMRPSYVN-EYTNSV  
CapC\_upsaliensis NSTINVSNDVSI GSRVAMLNPNPYGNIA--MKLSQIRFAA-----NDYMGTYLD-NYKNSI  
CapC1\_lari NSSIGVANDLAIGTRVAKLSNPYQDKALVEKFATTHIAA---LASDVYNYGNSSFNNSF  
CapC2\_lari NSTINVSNDVSI GSRVAMLNPNPYGNIA--TKLSQIRFAT-----NDYRGNVVD-NYNNNSI  
CapC\_subantarcticus NSSIGVANDLAIGTRIAKLSNPYQDKALVEKFATTHIAA---LASDVYNYGNSSFNNSF  
CapD\_subantarcticus IQVINLANEMAI STRMLQDRN-----QCENSF  
CapC\_peloridis NSTINVSNDVSI GSRVAMLNPNPYGNIA--TKLSQIRFAA-----NDYMGNYVD-NYKNSI  
CapC\_ornithocola NSTINVSNDVSI GSRVAMLNPNPYGNIA--MKLSQIRFAA-----NDYRGNVVD-NYKNSI  
CapD\_ornithocola IQVINLANEMAI STRMMQDRN-----QGENSV  
CapD\_volucris IQVINLANEMAI STRMIQSRN-----QGENSI  
CapC\_insulaenigrae NSTINVSNDVSI GSRVAMLNPNPYGNIA--TKLSQIRFAT-----NDYGGNYVD-NYNNNSI  
CapC\_cuniculorum NSVINTANDVAIGSRIAMLNPNPGSYA--SKMSELKFAA---VASDMGANVVD-SYNGI  
CapD4\_jejuni IQVINLANEMAI SNRMAQLSNSTTN-----DLNNGF  
CapD2\_jejuni IGA INMSNDMAISNRLAKFSNPYSTVN-VASLEGLKFAAGNGIASDSQYAYGARSYDNNV  
.. : \* : : \* . \* : \*

CapC1\_jejuni WANAFGGANI IDGDSGAMYGATVGVKQANDNVLWGAYFTYANAKIKDNNLEQKSDNFQL  
CapC3\_jejuni WANAFGGANI IDGDSGAMYGATVGVKQANDNVLWGAYFTYANAKIKDNNLEQKSDNFQL  
CapD1\_jejuni WANVIGGANI IDSKSGALYGVSVGYDRLVGEDTILGAYLTYADSKIKTSMVNQESDNLQL  
CapD3\_coli WANVIGGANI IDSNSGSLYGVSVGYDRLIGEETILGAYLTYANSETKTSTIEQKSDNLQL  
CapC4\_coli WANAFGGANI IDGDSGAMYGATVGVKQANDNVLWGAYFTYANAKIKDNNLEQKSDNFQL  
CapC2\_coli WANAFGGANI IDGDSGAMYGATVGVKQANDNVLWGAYFTYANAKIKDNNLEQKSDNFQL





CapD\_volucris TPKIEQFFATSGNDFKGRFAGSDMNYH-VSGAEKDKTFGKLLIGSNIGITENLSVDLSLG  
 CapC\_insulaenigrae TPKIEQYVINNGDDFVASLNG-VTLPS-VKGNDDKKTYGQIIVGGNVDISEQFSLNAGIG  
 CapC\_cuniculorum TPKVEQYVLNNGDDFEAALAG-IALPS-VDGADKNKTYGQVIIGGNFNLSKQFSANIGLG  
 CapD4\_jejuni TPKIEQFFVVDGDVFRSGFTGSNLKYS-IHGDESNKTYGQIILGSDISVSKNFSINVSAG  
 CapD2\_jejuni TPKIEQYIITSGDDYTARFLGSPTSFT-INGSDKKKTYGSFIVGGDVNIKNQWAFTFSAG  
 \*\*\*:\*\*: . \*. : . : : : . . . \*\*:\*..... : . \*

CapC1\_jejuni AKQILAGKVDNKNETYLSGQVGLKYKF  
 CapC3\_jejuni AKQILAGKVDNKNETYLSGQVGLKYKF  
 CapD1\_jejuni VKHLLSGKVNDESETYLSGNIGLKYQF  
 CapD3\_coli IKHLLSGKANNESETYLSGNIGLKYQF  
 CapC4\_coli AKQILAGKVDNKNETYLSGQVGLKYKF  
 CapC2\_coli AKQILAGKVDNKNETYLSGQVGLKYKF  
 CapC\_upsaliensis AKQILAGKTDIKNETYLSGQVGFKYKF  
 CapC1\_lari AKQILAGKTDGKNETYVSGQVGFKYKF  
 CapC2\_lari AKQILAGKTDGKNETYVSGQVGFKYKF  
 CapC\_subantarcticus AKQILAGKTDGKNETYVSGQVGFKYKF  
 CapD\_subantarcticus AKQILGNKDDNTDETYLTGNIGLKYSF  
 CapC\_peloridis AKQILAGKTDNKNETYVSGQVGFKYKF  
 CapC\_ornithocola AKQILAGKTDGKNETYVSGQVGFKYKF  
 CapD\_ornithocola AKQILGNKDDNTDETYITGNIGVKYSF  
 CapD\_volucris AKQILGNKDDNTDETYFTGNIGFKYSF  
 CapC\_insulaenigrae AKQILAGKTDGKNETYISGQVGFKYKF  
 CapC\_cuniculorum VKQILAGKVDSKNETYATGQLGFKYKF  
 CapD4\_jejuni IKQILGNKDSNTDETYVSGNLGATYKF  
 CapD2\_jejuni VKHLLSGKVNDESETYLSGNIGLKYQF  
 \*:\*..\* . .\*\*\* :\*:\* .\*. \*