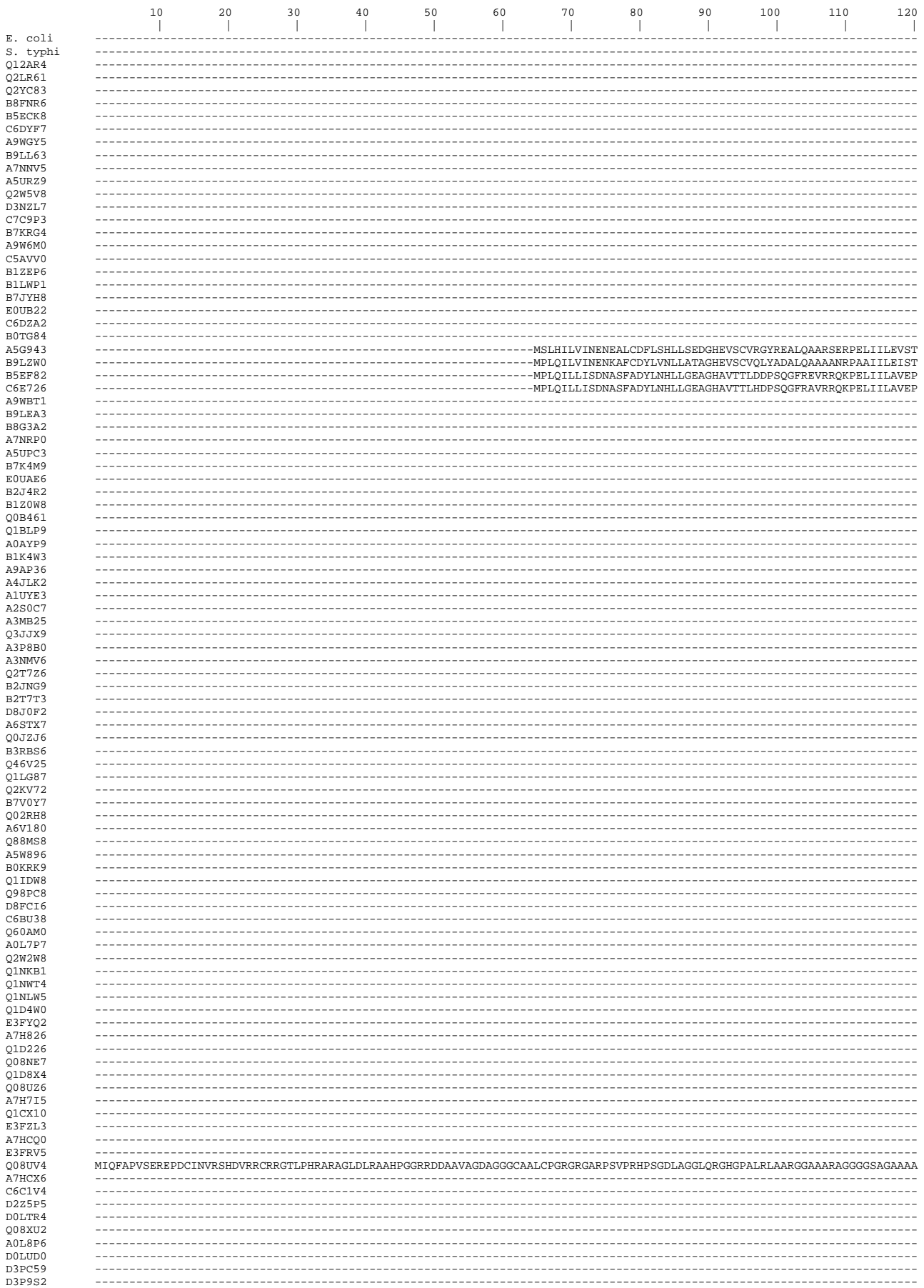


Figure S4A



130 140 150 160 170 180 190 200 210 220 230 240

E. coli -----MTSSLPCG-----QTS-----LLLQMTERLALS-----DAHFRRISQLIYQVRAGIIVLADHKRDMVYNRLVRLRLSLGLT-DF

S. typhi -----MTSSLPSG-----QTS-----VLLQMTQRLALS-----DAHFRRICQLIYQVRAGIIVLADHKRDMVYNRLVRLRALGLD-DF

Q12R4R -----MHGQVMP-----AQWSQLSELVAGTMGLHFFRERWDDLKRGLLDAAQEFQFEDAA

Q2LR61 -----MDRFISD-----EQWRRLAEWITPHMGHMPERLPLDKRRLLSAAREFHFDSEIE

Q2YC83 -----MQITLPH-----VLVSQSLDIAMKMGILYYPQKRWGLDERAIAAAPBLDMPDTE

B8FNR6 -----MAQNIK-----NLFARLSELIQNKIGLFFPFRWHDLERGVRAAALBLGFDFTT

B5ECK8 -----MSAHSN-----EAMHKFAHMVTIKLGLHFFPERLAEARKMAPLAKDAGWEELD

C6DYF7 -----MSAHSN-----AAMHKFARMVTIKLGLHFFPERLAEARKMAPLAKDAGWEELD

A9WGY5 -----MLML-----SDELYHRFATLLRQRAGLCYPERQADLTHGLQRLALHLGVE---

B9LL63 -----ML-----SDELYHRFATLLRQRAGLCYPERQADLTHGLQRLALHLGVE---

A7NNV5 -----MNTTF-----SDDLFRFRFDLLLTRSGLYFPDHRSDLLHCLTMLVPLATGYA

A5URZ9 -----MSTTL-----TSDLFRFRFDLLLTRSGLYFPDHRQNDLHCLMSVLPATGCT

Q2W5V8 -----MSLPSSGAPPAAVALL-----DDPAYSVLKALIIDTTGMFAYRDKSDLARILAERMAEIGIG

D3NZL7 -----MAGCRHRGCGCGWCRMMSSAAAGIEAIR-----RDPHPRLKAMVIDATGLAYADKDAFAERINRRLPFGRIT

C7C9P3 -----MTAPIERSRVSAT-----VDPGFPALKDRVIARTGHNYIEDKDDLLYDRLRKRMRSRGVA

B7KRG4 -----MTAPERSRVSAT-----VDPGFPALKDRVIARTGHNYIEDKDDLLYDRLRKRMRSRGVA

A9W6M0 -----MTAPERSRVSAT-----VDPGFPALKDRVIARTGHNYIEDKDDLLYDRLRKRMRSRGVA

C5AVV0 -----MTAPERSRVSAT-----VDPGFPALKDRVIARTGHNYIEDKDDLLYDRLRKRMRSRGVA

B1ZEP6 -----MTDSAERARRAAGAM-----ADPGFPALKKERVIAARTGHNYIEDKDDLLYDRLRKRMRMCGVG

B1LWP1 -----MARPGNRPDLG-----VDPAYPLKARIARTGHNYIEDKDELLIERLHRFRFAAAVA

B7JYH8 -----MAKKLGF-----TSQLREAFGLGISQKTGLEIRKQNDVLQENILARTQTLKLIH

E0UB22 -----MTTSEFL-----SSELKQEFIDLIAKQTGLEIRBQNYAGLSENIYSRLKTLKLD

C6DZA2 -----MV-----VMTLLRDFMELVATRTGLNFRDRDQAVFRNKVQERITRYRG

B0TC84 -----MACGMALQQLISERTGRFDDQSRDNLLOVQLQARMEAHGIA---

A5G943 TAIGAVETADRLHRAEESRHPVIVISDYPELEFELNLNLFDFILTPVDTARLREDIETIAQGGKRSRSPQSEPLSEQDYLIIYLLGHSGLHFERNLKIILERGLIKRMSALKID-SY

B9LZW0 SDMGAVEMISRLQRAVETRHPVIVISDYPELEFELNLNLFDFLQPQDVTARLREDIETIARQKSLPRQTTETLGGDDTYRYSYQLLQESGLHDFRRNQKLERGLLNMAALKIS-SF

B5EP82 AKIAPLAVEHRVHTP-KPRVIPVIVISECLRLEAELLVHFDPIPKPLQIKRFLDFTLSLAQR---SAPSCTPHEIDDDLCCEFSKHILSCTGLHFEQRNRALLRGLAKRMAHALRIG-SY

C6E726 AKLAPLAVEHRVHTP-EPRVIPVIVISECLRLEAELLVHFDPIPKPLQIKRFLDFTLSLAQR---NAPSCTQHEIDDELCCEVSKHILSCTGLHFEQRNRALLRGLAKRMYALRIG-SH

A9WB71 -----MT-----TEALVPLRDLARCYGLVLDLADRVTLSRAVERRAAAAAAR--TP

B9LEA3 -----MT-----TEALVPLRDLARCYGLVLDLADRVTLSRAVERRAAAAAAR--TP

B8G3A2 -----MT-----PESLGSREILAHYCGILLDDSRHLTQTAVERRALAKR--LP

A7NRP0 MRTNGMNMHADLFPV-----PPVR-----LS-----PEAFDRRLTLLADYSGVYLDTAQQRVLEAGLAQVAALGE--TL

A5UPC3 -----MR-----LS-----QEAFFDRRLNLLADYSGVYLDTAQQRVLEAGLAQVAALGEE--TL

B7K4M9 -----MNSEQTE-----IARLLKERVGLSEKIGTRQLSKAIANRQKACCGN-DL

E0UA66 -----MTPEEKQ-----IEALLKQKIIGLKKDSINARQITNANRRLACDLP-DL

B2J4R2 -----MVLSA-----IATLLNQAIIGLDPTLGSNRIRAVENRRLGKLP-DM

B1Z0W8 -----MKESSD-----R--FRGWLLRETGIDPDSLGNDFLSRALTERVHALQG--DG

Q0B461 -----MKESSD-----R--FRGWLLRETGIDPDSLGNDFLSRALTERVHALQG--DG

Q1BLP9 -----MNMSES-----R--FRGWLLRETGIDPDSLGNDFLMRALADRVHALQA--DG

A0AYP9 -----MNMSES-----R--FRGWLLRETGIDPDSLGNDFLMRALADRVHALQA--DG

B1K4W3 -----MSES-----R--FRGWLLRETGIDPDSLGNDFLMRALADRVHALQA--DG

A9AP36 -----MRDFDS-----R--FRGWLLRETGIDPDSLGNDFLIRAVTERVHALAA--DG

A4JLK2 -----MNAFAV-----L--FRDWLRRRETGIDPDSLGNDFLSRALTERVHALKS--DG

ALUYE3 -----MNVFDP-----R--FHAWLSRETGIDPDSLGNDFVARALAEARIAATQPG--AG

A2S0C7 -----MNVFDP-----R--FHAWLSRETGIDPDSLGNDFVARALAEARIAATQPG--AG

A3MB25 -----MNVFDP-----R--FHAWLSRETGIDPDSLGNDFVARALAEARIAATQPG--AG

Q3JXJ9 -----MNVFDP-----R--FHAWLSRETGIDPDSLGNDFVARALAEARIAATQPG--AG

A3PB80 -----MNVFDP-----R--FHAWLSRETGIDPDSLGNDFVARALAEARIAATQPG--AG

A3NMV6 -----MNVFDP-----R--FHAWLSRETGIDPDSLGNDFVARALAEARIAATQPG--TG

Q2T7Z6 -----MNVFDP-----R--FHAWLSRETGIDPDSLGNDFVARALAEARIAATQPG--AG

B2JNG9 -----MNAANAMP-----R--FEAWLLRETGIDASSLGVAAERAVLREVRVAVIG--AD

B2T7T3 -----MNAHNDNAP-----LYRR--FAELLHRTIGLDAASLGHSARAVDQRAAAWCA--DG

D8J0F2 -----MKSLLQA-----IADKLKAAMGLDMATVGAASLIERVVRERMAVLEME--DD

A6STX7 -----MTTLNR-----IASLLRHSMLGDVAVSGVMMLIERAVSRMLTGMGT--QD

Q0JZL6 -----MSTATH-----IEALLKARIIGLDAGACTGAVARAVRERQARQAP--DT

B3RBS6 -----MSTAHH-----IEALLKARIIGLDAGACTGAVARAVRERQARQAP--DT

Q46V25 -----MSTATH-----IEALLRARIIGLDARSIGPALARALRERQAAQAQ--DE

Q1LG87 -----MTDAPHP-----STLIEALLKERIGLDAASVGRGTIERAVEERQAMGAD--DP

Q2KV72 -----MIQPDFP-----ELLKRRIIGLDTACIGEAASRAVRLRQMAGSVD--DE

B7V0Y7 -----MN-DRFE-----R----LLKSRIIGLDASSVGSVIERAVRQRMSGLALH--DE

Q02RH8 -----MN-DRFE-----R----LLKSRIIGLDASSVGSVIERAVRQRMSGLALH--DE

A6VL80 -----MN-ERFE-----R----LLKSRIIGLDASSVGSVIERAVRQRMSGNALH--DE

Q8MS8 -----MNEQRF-----R----FLRERIIGLDVESVGPVVERALRQRCAVAGAM--DL

A5W896 -----MNEQRF-----R----FLRERIIGLDVESVGPVVERALRQRCAVAGAM--DL

B0KRK9 -----MNEQRF-----R----FLRERIIGLDVESVGPVVERALRQRCAVAGAM--DL

Q1IDW8 -----MSEQRFF-----R----FLRERIIGLDVESVGPVVERALRQRCAVAVLAT--DL

Q98PC8 -----MTGALET-----LLTETIGLDSTSVGTPVVRQAIKDRMAACRIT--NP

D8FC16 -----MKNNTVES-----LIEEKIGLDAEAIIGRKLVEKAVSARMEQCRIS--SV

C6BU38 -----MNVAPFLK-----ILNRAMGLAPDSLRSGLIELARLRMRETATT--EK

Q60AM0 -----MRLNGDVG-----WLNWDWLAAGGLEPRALGEAAVLCALRRDLAAGCT--AA

A0L7P7 -----MDHAVLHP-----LMALIQRRTGLQLD--NDSLFLKVLQQGCLAHRC--TV

Q2W2W8 -----MNAEELAP-----FKDLIRTRCGLLLEGVGEEPLVIAIRKRMAREAGVA--GL

Q1NKB1 -----MNPQLNDITR-----FKQLLLTGCGLQFDDLRETRTLEAVGRRISHRQAA--GA

Q1NWT4 -----MNPQLNDITR-----FKQLLLTGCGLQFDDLRETRTLEAVGRRISHRQAA--GA

Q1NLW5 -----MNPQLNDITR-----FKQLLLTGCGLQFDDLRETRTLEAVGRRISHRQAA--GA

Q1D4W0 -----MLTA-----SQKVLQQLAALLLERAGLKITPDPGPHSLRLALSARMPVLG--LEE

E3FYQ2 -----MLNV-----SQKALQQLAALLLERAGLKITPDPGPHSLRLALSARMPVAG--ISD

A7H8Z6 -----MRPI-----TPDDLSQLAALLKERVGLHVRQDGHSLRLAVGARLDLDELGAVPD

Q1D226 -----MT-----DGAPWSGVRAPLSARTGMALSGPQVRRRLDERLAARSQGLT--PH

Q08NE7 -----MQGP-----SSQPASLLHAFISARSGMALSQTQRRRLDERLALQGSALT--EQ

Q1D8X4 -----MSEGV-----LDDATLARVEDVLSQACVTTIARSLRSLLETALGRAARSRLGEPDA

Q08UZ6 -----MNEVVRAD-----ALDEATLSRVEDVLRASGLTLTASVRRSLSTALVRAAEARKLAPPV

A7H7I5 -----MTATG-----APSAAGVEDVERALRDACGILTTEGLRRTLAEALRAARATGLDPTD

Q1CB10 -----MNWGP-----WSHPGYAAVVALVEERAGLVPPSPP--ASAEEGIARAMERAGLKDFD

E3FZL3 -----MSLEPAP-----WSRLGYAHIFAHVQQRAGLQLPTCI--PAEEGIARAMARAGEEDLG

A7HCQ0 -----MTLRP-----AQAPATERLRALVREQAQLDLSGVGTLLAALTRAHAHGSLDPE

E3FRV5 -----MEWPKAVNR-----FATFVERRLGLAPVVPNGGRELEALLAEBKARSQ---

Q08UV4 GRARAGHAAAAAGGGRGGQPGGARHAGWAIAGGAGHLAAVDRSGLGPVGGGGGVMWPKAVNR-----FATFVERRLGLAPVVPNGGRELEALLAEBKARSQ---

A7HCX6 -----MTADRTEQLER-----FRRAVARGRLGEPFDDKLELLEAEVAEVEATGAR--S

C6C1V4 -----MINFLTDDR-----VSELDAMVNRNRFGLNFSERWDLRSAVRFRQEDSSFKTP

D2Z5P5 -----MSEAFGR-----LSDPDLDTVVSLLSRFRGLVWGWDEIKARDKAASLIGELSRKLGET

D0L7R4 -----MSEPPVP-----LESELRGAFATLLEQFGLVFPSSRQPLIDDGVRALRLRDESAPR

Q08XU2 -----MTVPCG-----LDPLLAFARQLVSERTGRFRDAIAPESLIERVVRVARGRT---

A0L8P6 -----MATALAD-----DERALAQLVRQRLGITVRDHQILPFRFGIQOTLDRFGLS---

D0LUD0 -----MHDP-----LWHTLAALFHGWTGMVDPDMTRATAVYELTRMAAQGRRE---

D3PC59 -----MNSNFN-----MLCEKIEKTSGRFVYGLYEDLNKINIVSNYAKQMLN---

D3P9S2 -----MTINYSN-----IKSLVKSFSGLNLTGSIIEEFNETLSKWLQHYKTP---

250 260 270 280 290 300 310 320 330 340 350 360  
E. coli GHYLN-----LLESNQHS---GEWQAFINSLTNTLTAFFREAHHPFLADHAR-----RRSGE---YRVWSAASTGEEPYSIAMTLADTLGT-APGR-W  
S. typhi GRYLS-----MLEANQNS---AEWQAFINALTNTLTAFFREAHHPFLAEHAR-----RRHGE---YRVWSAASTGEEPYSIATLADLGM-APGR-W  
Q12AR4 A-----CIDWLLSAPPTRA---QLQVLAAGHLTVGTYFFRDRQTLVETESILPELIRARRGG-----EQRLRIWSAGCCSGEYPYSLAILLHEALPDFG-NWQV  
Q2LR61 P-----FVSWLLSTKLTRQ---Q1ETLVAHLTVGTYFFRBTASLEALEKYILPELIESRRS-----TRSLRVWSAGCATGEEPYSLIAMLRLIPDIS-KWQV  
Q2YCR3 T-----AARHLSTSLTRR---Q1EILACRLTVGTYFFRQKQCLNVQSSILPELIRCKES-----NRQLRIWSAGCCSGEYPYSLAILLDRLFKHEGEWNA  
B5FNK6 S-----SQGLLGSPTVKV---QLDITLGVGTYFFRLDESHFALQHQILPDIPEKCAK-----GKPPRFWSAACCTGEEPYTMAMVDRKPPYWT-AKDF  
B5ECK8 G-----YLHMLSQPLSLE---QTKALALALTIGTYFFRLDPKSYRAFQOHLPLKLLAAKGS-----DKSLKIWSAGCCSGEYPYSLIALLTRALADLA-DKWV  
C6DYF7 G-----YLHMLMSQPLSQE---QTKALALALTIGTYFFRLDPKSYRAFQOHLPLKLLVAAGKS-----DKTLRIWSAGCCSGEYPYSLIALLTRALADLA-DKWV  
A9WGY5 G-----SFAQLLAMVE---SRPSAWDELIAELTIGTYFFRNAQAQFALRDIILPDLMQORRA-----TMYRLRLWSAGCATGEEPYSLAITLHEVLPA-NPPWQV  
B9LL63 P-----SFAQLLAMVE---SRPSAWDELIAELTIGTYFFRNAQAQFALRDIILPDLMQORRA-----TMYRLRLWSAGCATGEEPYSLAITLHEVLPA-NPPWQV  
A7NNV5 T-----LEALYAAAV---VDDKTLHTVIEGTVGTYFFRNTSQFTALRDRILPDLIARRE-----VIRSLRFWSAGCATGEEPYSLAILLHEALPD-PAWQI  
A5UR29 S-----SLEALYTAAV---ASERVLHTIIESTVTVGTYFFRNASQFALRDIILPDLIARRE-----AIRSLRFWSAGCATGEEPYSLAILLHEALPD-PAWQI  
Q2W5V8 D-----DCAGYLDRLHC---LGQCKAEMDALIAELTIGTYFFRHKEQFDALRDLILPEALERNR-----TVRRLRIWSAGCATGEEPYSAAMLLDFERFGRGIAWGHV  
D3NZL7 T-----TVGGLYALKA---EGPGGAEYQGLINELAVGETTYFFRYIEQFDALRAVAIPECLRRNQ-----GSRLLRIWSAGCCSGEYSAVIEILKQFQVAFLEGWQV  
C7CP93 G-----DCAAYSSLLD---GAAGREEWAALEAEITIGTYFFRYAEQFALRKTILPELIEARS-----EIRRLRIWSAGCCSGEYPYSLAILLVHDDLGEALADSV  
B7KRG4 D-----DCAAYSSLLD---GAAGREEWAALEAEITIGTYFFRYAEQFALRKTILPELIEARS-----EIRRLRIWSAGCCSGEYPYSLAILLVHDDLGEALADSV  
A9W6M0 D-----DCAAYSSLLD---GAAGREEWAALEAEITIGTYFFRYAEQFALRKTILPELIEARS-----EIRRLRIWSAGCCSGEYPYSLAILLVHDDLGEALADSV  
C5AVV0 D-----DCAAYSSLLD---GAAGREEWAALEAEITIGTYFFRYAEQFALRKTILPELIEARS-----EIRRLRIWSAGCCSGEYPYSLAILLVHDDLGEALADSV  
B1ZEP6 D-----DCTAYRVLLD---GAAGREEWAALEAEITIGTYFFRYAEQFALRKTILPELIEARS-----EIRRLRIWSAGCCSGEYPYSLAILLVHDDLGEALAEWSV  
B1LW41 D-----DCAAYALLSS---GAEGEAERWALAEITIGTYFFRYAEQFALRKTILPELIEARS-----SERVRLIWSAGCCSGEYPYSLAILLVHDDLGEALADSV  
B7JYH8 T-----TVEDYHLLTSETVQSKWKQKQVLLTNNESYFFRDLGQFLLRNTILPELIERNQ-----RTKILRICAGCCSGEYPYSLAILLKLKLIQP-WQOHLN  
E0UB22 P-----SPQAYYYLLATPNHNSDQEQEIVFLMTNKESYFFRDKGQFILLRNLKILPELIERKQ-----KSQHLRIWSAGCCSGEYPYSLAILLKLKLIQP-WQOHLN  
C6DZA2 D-----SEWDYELLQDTPESARENCVLAALLTGESYFFRDKGQFALLRNLKILPELIERKQ-----RQRRLRIWSAGCCSGEYPYSLAMVVLVLP-LDNQWI  
B0TG84 D-----DHEAYHRLLLDKPGAPTEBWRRLIDAVTVGTYFFRDGQFALLRERILPDLIAERR-----DKKALRIWSAGCCSGEYSAIYLKDELVLA-APGWTI  
A5G943 REYYD-----YLILHQERR---QELKLLPFLTIGTYFFRYAHFAALRKLLED-ELAT-----KKPGKIKRLWSAGCCSGEYPYSAAMTIMETVPG-WQDMDI  
B9LZW0 DEYYH-----YLVLHQESR---QELKLLPFLTIGTYFFRYAHFAALRKLLED-ELAT-----LAQGERIKRLWSAGCCSGEYPYSLAITVMEIAD-WKHKDI  
B5EP82 RQYLA-----HELQKLLQFLTIGTYFFRYAHFAALRERFIP-PPV-----DRP-----IRIWSAGCCSGEYPYSLAITLMEALPD-WRRDI  
C6ET26 RDYLA-----YLKLDGEDR---HELQKLLQFLTIGTYFFRYAHFAALRERFIP-PPV-----DRP-----IRIWSAGCCSGEYPYSLAITLMEALPD-WRRDI  
A9WB71 ARYLA-----DLVLDADR---TELQQLAELLNHETIFFRNPHPMDALRKTLLP-SLHA-----TLPDGM-PKIWSAGCCSGEYPYSLAITLMEALPD-PLPRPV  
B9LEA3 ARYLA-----DLVLDADR---TELQQLAELLNHETIFFRNPHPMDALRKTLLP-SLHA-----TLPDGM-PKIWSAGCCSGEYPYSLAITLMEALPD-PLPRPV  
B8G3A2 DQYLA-----DLTNRDR---TELQQLAELFPNLETIFFRNPHPMDALRKTLLP-SLHA-----TLPDGM-PKIWSAGCCSGEYPYSLAITLMEALPD-PLPRPV  
A7NRP0 ESYER-----HISAPAGR---NELHRLAEMVNHETIFFRNPAPQMRALRETLFF-ELHR-----RKPGE-PRIWSAGCCSGEYSAIYLKDELVLA-ALIRPV  
A5UPC3 EAYER-----RITAPAGR---DELQRLTELVVNHETCFFRNAPHPMDALRKTLLP-EMHR-----RKPAGE-PIRIWSAGCCSGEYSAIYLKDELVLA-TMIRPV  
B7K4M9 P-----PSYLKHLERSQ---REFQLEVEEIVSETWFFRYAEFNLRRKYVRS-EWL-----NHPQEKRLVSLPCTGEEPYSIAMTLVPEVPLS-PHQ-F  
E0UA6E K-----KSYVQLETS---QEWELIDQIVVPTWFFRHRFAFKLHKYVKT-EWLKPKCRTRSAPOVSLIQLVSLPCTGEEPYSIAMTLVPEVPLS-PHQ-F  
B2J4R2 E-----ESYVRLQST---LELELEILLIVPTWFFRHRFAFKLHKYVKT-EWLKPKCRTRSAPOVSLIQLVSLPCTGEEPYSIAMTLVPEVPLS-PHQ-F  
B1Z0W8 ERLPSAARTP---VTPEALDAYWQHLNLSA---DERRALIELFVVPETWFFRDREAFATLARLAE-RLAA-----T-PGRVIRVLSAPCTGEEPYSAAMLLDAGL-PAS-F  
Q0B461 ERLPSAARPA---VTPEALDAYWQHLNLSA---DERRALIELFVVPETWFFRDREAFATLARLAE-RLAA-----T-PGRVIRVLSAPCTGEEPYSAAMLLDAGL-PAS-F  
Q1BLP9 ERVPSAARPP---VTPEALDAYWQHLNLSA---DERRALIELFVVPETWFFRDREAFATLARLAE-RLAA-----M-PGRVIRVLSAPCTGEEPYSAAMLLDAGL-PAS-F  
A0AYP9 ERVPSAARPP---VTPEALDAYWQHLNLSA---DERRALIELFVVPETWFFRDREAFATLARLAE-RLAA-----M-PGRVIRVLSAPCTGEEPYSAAMLLDAGL-PAS-F  
B1K4W3 ERVPSAARPP---VTPEALDAYWQHLNLSA---DERRALIELFVVPETWFFRDREAFATLARLAE-RLAA-----M-PGRVIRVLSAPCTGEEPYSAAMLLDAGL-PAS-F  
A9AP36 ERLPSSVRPP---VTPEALDAYWQHLNLSA---DERRALIELFVVPETWFFRDREAFATLARLAE-RLAA-----S-PSRVIRVLSAPCTGEEPYSAAMLLDAGL-PDD-F  
A4JLK2 DERRALIELFVVPETWFFRDREAFATLARLAE-RLAA-----A-PGRVIRVLSAPCTGEEPYSAAMLLDAGL-PAS-F  
ALUYE3 -----GEAAQAGRPQPAITDEAVDAYWQHLNLSA---DERRALIELFVVPETWFFRERFAFALARLGAO-RLFA-----E-PARALRILSAPCTGEEPYSAAMLLDAGL-PSR-F  
A2S0C7 -----DERRALIELFVVPETWFFRERFAFALARLGAO-RLFA-----E-PARALRILSAPCTGEEPYSAAMLLDAGL-PSR-F  
A3MB25 -----GEAAQAGRPQPAITDEAVDAYWQHLNLSA---DERRALIELFVVPETWFFRERFAFALARLGAO-RLFA-----E-PARALRILSAPCTGEEPYSAAMLLDAGL-PSR-F  
Q3JXJ9 -----DERRALIELFVVPETWFFRERFAFALARLGAO-RLFA-----E-PARALRILSAPCTGEEPYSAAMLLDAGL-PSR-F  
A3PB80 -----GEAAQAGRPQPAITDEAVDAYWQHLNLSA---DERRALIELFVVPETWFFRERFAFALARLGAO-RLFA-----E-PARALRILSAPCTGEEPYSAAMLLDAGL-PSR-F  
A3NMV6 -----GEAAQAGRPQPAITDEAVDAYWQHLNLSA---DERRALIELFVVPETWFFRERFAFALARLGAO-RLFA-----E-PARALRILSAPCTGEEPYSAAMLLDAGL-PSR-F  
Q2T726 DGAAAAPAGRPQOSITDEALDAYWQHLNLSA---DERRALIELFVVPETWFFRERFAFALARLGAO-RLFA-----Q-PARVIRVLSAPCTGEEPYSAAMLLDAGL-PAR-F  
B2JNG9 AHDTSVCDVP-----ADIDAYWQHLNLSA---DERQALIELVVPETWFFRDREAYVALARLANE-RLVR-----E-PARLRLVSLPCTGEEPYSAAMLLDAGL-ENR-F  
B2T73 T-----HAETALADYWEAAQCSF---SMVQALIELVVPETWFFRDREAYVALARLANE-RLVR-----E-PARLRLVSLPCTGEEPYSAAMLLDAGL-ENR-F  
D8J0F2 AL-----YLSLLSSA---AELQALIELVVPETWFFRDREAYVALARLANE-RLVR-----E-PARLRLVSLPCTGEEPYSAAMLLDAGL-ENR-F  
A6STX7 A-----YLLALQSAP---GELQLEILLVVPETWFFRDREAYVALARLANE-RLVR-----E-PARLRLVSLPCTGEEPYSAAMLLDAGL-ENR-F  
Q0JZL6 Q-----QAYWDLHGTA---DEFOALIEAVVVPETWFFRHRREALLARLGAO-RAFA-----D-GRTRLRSLPCTGEEPYSIAMLLDAGV-AGR-F  
B3RS6 D-----EAYWQLQCTA---DEFOALIEAVVVPETWFFRHRREALLARLGAO-RAFA-----D-GKTRLRSLPCTGEEPYSIAMLLDAGV-PGR-F  
Q46V25 Q46YVNLHSQP---DEFQALIEAVVVPETWFFRHRREALLARLGAO-RAFA-----D-HARHLRSLPCTGEEPYSIAMLLDAGV-AAR-F  
Q1L672 ATYWNLLHAVP---DEQALIELVVPETWFFRHRREALLARLGAO-RAFA-----A-GEMPLRILSAPCTGEEPYSIAMLLDAGL-GDR-F  
Q2G87 ASYWTLLSSE---EEMQQLIEAVVVPETWFFRYPESFTLALSLAHK-RLAK-----HRGELRILSAPCTGEEPYSIAMLLDAGL-PEA-F  
B7V0Y7 DEYWMRLNGSP---GEVQALIEAVVVPETWFFRYPESFTLALSLAHK-RLAK-----LGGGRALRILSAPCTGEEPYSIAMLLDAGL-BYL-F  
Q02RH8 DEYWMRLNGSP---GEVQALIEAVVVPETWFFRYPESFTLALSLAHK-RLAK-----LGGGRALRILSAPCTGEEPYSIAMLLDAGL-BYL-F  
A6V180 DEYWMRLNGSP---GEVQALIEAVVVPETWFFRYPESFTLALSLAHK-RLAK-----LGGGRALRILSAPCTGEEPYSIAMLLDAGL-BYL-F  
Q8MS8 D-----DDYWLRLQSA---DEQALIEAVVVPETWFFRYPESFTLALSLAHK-RLAK-----LAGARPLRLLSLPCTGEEPYSLAMLLDAGL-PGA-F  
A5W896 D-----DDYWLRLQSA---DEQALIEAVVVPETWFFRYPESFTLALSLAHK-RLAK-----LAGARPLRLLSLPCTGEEPYSLAMLLDAGL-PGA-F  
B0KRK9 D-----DDYWLRLQSA---DEQALIEAVVVPETWFFRYPESFTLALSLAHK-RLAK-----LAGARPLRLLSLPCTGEEPYSLAMLLDAGL-PGA-F  
Q1IDW8 DEYWLHLQSA---DEQALIEAVVVPETWFFRYPESFTLALSLAHK-RLAK-----LAGTRPLRLLSLPCTGEEPYSIAMLLDAGL-PAA-F  
Q98FC QAYREHLTGS---QELQLEINAVVVPETWFFRDREAFATLARLAE-HKR-----AQSKVLVSLPCTGEEYSAVAMMADGAGL-AHE-F  
R-----AYABALENSD---DEWKRLIEMVVPETWFFRDEAFHYLVRFTD-DWLP-----RGSGRPLSVSLPCTGEEPYSIAMLLDAGL-BYR-F  
C6BU38 S-----YVLSVRASD---EELRALVEEIVVPETWFFRDNKPFELLPETVAG-----CSDFRVLVSLPCTGEEPYSIAMLLDAGL-N-F  
Q06AM0 -----APARLAADA---EERARLLDAVLVVPETWFFRDEPAFALAESAAAR-HRLQ-----R-RSVPVHVLSCCTGEEPWSIVTALRAGMR-KGD-F  
A0L7P7 -----PAFLRLRQDR---EIPYELINRLTINETYFFRESEHLQLLIEHLLP-PLLNQQRSS-----EPILRILSVGCSGEEPYSIAMALTERFGP-DQAHLF  
Q2W2W8 -----AGYLARLVAE---DEFQEVTLTINETYFFREPEQLMLVDRIMP-RLLADESAG-----LPITLISAGCCSGEYPYSLIATLLEKFG-AAAARMV  
Q1NKB1 -----GEMQALVELVTINETYFFRREPEYKLLDLRILIP-ELLAASGG-----DGLKIFCAGCCSGEYPYSLIATLLEKFG-AAAARMV  
Q1NWT4 -----EDYRLLAADA---GEMQALVELVTINETYFFRREPEYKLLDLRILIP-ELLAASGG-----DGLKIFCAGCCSGEYPYSLIATLLEKFG-AAAARMV  
Q1NLW5 -----EDYRLLAADA---GEMQALVELVTINETYFFRREPEYKLLDLRILIP-ELLAASGG-----DGLKIFCAGCCSGEYPYSLIATLLEKFG-AAAARMV  
Q1D4W0 PE-----HYIQLRTG-AGGE---EELRSLPLVTVGHTFFRDKAQFALRKLKSVLP-DLVSRRSR-----E-MRKVINSAGCATGEEPYSLAMVVAELGAL-G-LEV  
E3FYQ2 PE-----VVYQLRDR-IGGE---QELRSLPLVTVGHTFFRDKAQFALRKLKSVLP-DLVSRRSR-----E-MRKVINSAGCATGEEPYSLAMVVAELGAL-G-LEV  
A7H826 AR-----AYLALLRSPAEGD---EELRSLPLVTVGHTFFRDKAQFALRKLKSVLP-DLVSRRSR-----E-MRKVINSAGCATGEEPYSLAMVVAELGAL-G-LEV  
Q1D226 QYLMFLQS-PSGV---TDLEDLIAAVVNMKTDLFRDEVQLAFAQVLS-PLVARN-----RPLRVWSAGCATGEEVATLILLVLAEGAN-----SDS  
Q08NE7 QYLLHLQS-PSGA---GDLASLISVIAVHKTDLFRDEVQLAFAQVLS-PLVARN-----RPLRVWSAGCATGEEVATLILLVLAEGAN-----SDS  
Q1D8X4 -----FLKLLVREA---AAVECFIEHAVIGETTYFFRHPEHLRLARLAQT-HPAPC-----FQVWSAGCAGSEYPYSLIAMLLAEGLE-P-E-GRF  
Q08U26 -----FLKALLARDP---VVVEFIEHAVIGETTYFFRHPEHLRLARLAE-HGEP-----VHIWSAGCATGEEPYSLIAMLLAAGV-P-ENI  
A7H7I5 -----FRARLRARDA---RCVADLVEAAVVGETTYFFRHPEHLRLARLAE-HGEP-----P-----LRIWSAGCATGEEPYSLIAMLLAAGV-P-ENI  
Q1CB10 -----AYRVRLAEEP---LQDALLIELTVGHTFFRDPKQFALRKLKSVLP-E-LRER-----HGDHTARMWSAACCSGEEPYSLIALLGEGWD-----EHM  
E3FLZ3 -----LYLGRLASDP---GAFDLLNELTIGTYFFRDEHFDLRHQALP-E-LRRL-----RGPEHTVRVWSAGCAGSEYPYSLIALLGEGWD-----EHM  
A7HCQ0 -----AVARALLEGA---RPLAPFIEELTVGHTFFRDEHFDLRHQALP-E-LRRL-----EGGVERFRWSAGCCSGEYPYSLIALLGEGWD-----EHM  
E3FRV5 -----LEAYLAKLEAGNQD---AELRLLAERLTVGTYFFRHLAQQLVAEVLV-RVQREG-----RPARVLCAGCCSGEYSAVAILLRENALV-EPER-L  
Q08U74 -----LEAYLAKLEAGNQD---AELRLLAERLTVGTYFFRHLAQQLVAEVLV-RVQREG-----RPARVLCAGCCSGEYSAVAILLRENALV-EPER-L  
A7HCX6 -----LDAYVARLSEAGRD---EIRPLAARLTVGTYFFRNANDEAFSLGVLP-ERVRARGA-----DRRLRILSAGCAGSEYPYSLIAMLLAAGV-P-ENI  
C6CLV4 -----AECELYLSPVTVG-TDDELFQINRLTIGTYFFRDNALRVLVEYELIRKISGRGS-----GLNGAARINWSTACTGEEPYSLIAMLLAAGV-P-ENI  
D2Z5P5 P-----BEVRLIRKRSD---KAFMDMISPHITIGTYFFRDKALDAGREIVRPLASR-----AKRPNVWSAGCATGEEPYSLIAMLLAAGV-P-ENI  
D0L7R4 -----ALLERMERDD---EAEMAMATAMTIGTYFFRDPHFHDLRLLMRG-APR-----NRRMRLNSACANGAEEPYSLIAMLLAAGV-P-ENI  
Q08XU2 -----LVLDLTDLQNPB---TPFAQTVRAASLVGTYFFRHPEHLRVRDGVGVLR-----NPSRLRWSAGCATGEEYSAVAILLRENALV-EPER-L  
A0L8P6 -----SYAALTDLIRHAGNDPIMESLVAGTVGTYFFRDPQLQISLENRFLTPLLKQK-----ALGHPALRIWSAGCCSGEYLYTLMILLRDLIPK-HETWQV  
D0LUD0 -----PLALLAALDGDG---EARQELRLDGLGTWFFRDEQSIQIALVAKLAPMAQR-----RPLRVWSAGCCSGEYPYSLIAMLLAAGV-P-ENI  
D3P559 -----PEEIDLAISDS---KILDKIIEALLINETYFFRHEFQFDMIRKHLDPDIKS-----KEAIRIWSAGCCSGEYPYSLIAMLLAAGV-P-ENI  
D3P9S2 -----QTVFDLLKNDR---TALFDLAEITINESFFRDNKSOFTLKEIIDH--IP-----SKTKILSVGCSGEEPYTAMEILEQFGKTDN--I

370 380 390 400 410 420 430 440 450 460 470 480

E. coli KVFASDIDTEVLEKARSGIYRHEELKN-LTPQQLQRYFMRGTGP---HEGLVVRVQELANLYVDFAPLNLAK-QYTVPG---PFDAIFCRNVMIYDQTTQOELIRRVFVPL-LKPDGL
S. typhi KVFASDIDTEVLEKARSGIYRHEELKN-LTPQQLQRYFMRGTGP---HEGLVVRVQELANLYVDFAPLNLAK-QYTVPG---PFDAIFCRNVMIYDQTTQOELIRRVFVPL-LKPDGL
Q12AR4 TITATDINRFLQKAVAGVYGEWSFRN-APAGLKHQYFHRTEDEG---YTIIVPQIRKLVNFPAHLNLAED-AYPSLETDNTAMDVIFCRNVMIYFPDQTRKVIIRNLHHA-LVEGGW
Q2LR61 TLLATDINARSLERASQGIYREWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
Q2YC83 AILATDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
B8FN66 SILATDINSRFLERARKGIYTNWSLRN-APNMMVEKYFVTHGNNR---FEVEKGLKKAIRFTNLNLVDP-VYPSAVTHTEDVNVVFCRNVMIYFNQKLRDVTIERAWA-LADNGW
B5ECK8 TLLGTDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
C6DYF7 TLLGTDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
A9GY55 SILATDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
B9L63 SILATDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
A7NNV5 TLLATDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
A5UR29 TLLATDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
Q2W5V8 TVLGTDLINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
HIVGTDLINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
C7C9P3 TILGTDLINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
B7KRG4 TILGTDLINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
A9W6M0 TILGTDLINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
C5AVU0 TILGTDLINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
B1ZEP6 TILGTDLINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
B1LWP1 SILGTDLINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
B7JYH8 KILGTDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
E0UB22 KILGTDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
C6DZA2 QIIGTDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
B0TG84 DVIIGTDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
A5G943 KILGTDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
B9LZW0 SILATDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
B5EP82 RIIATDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
C6E726 RIVATDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
A9WB11 SILATDLINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
B9LEA3 SILATDLINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
B8G3A2 EILATDLINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
A7NRP0 EIWATDLINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
A5UPC3 EIWATDLINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
B7K4M9 EIDGMDISREALAKKQGIYGSNSFRF-HDFPEDKSFPTIGN---DLYEVPVSRVNRVQVFRQNLNLT-WL-LQE---PYQIIFCRNLIYFDNWSNRNRAINILEKI-LCDRGL
E0UA66 QIDALDISRHALAKKAVYGENSFRF-DLTLKPNHYFQIQ---ESYQLSBLRETVQVFKGNLLG-HLP-VHK---PYQIIFCRNLIYFDNWSNRNRAINILEKI-LCDRGL
B2J4R2 AIDALDISRHALAKKAVYGENSFRF-DLTLKPNHYFQIQ---ESYQLSBLRETVQVFKGNLLG-HLP-VHK---PYQIIFCRNLIYFDNWSNRNRAINILEKI-LCDRGL
B1Z0W8 MIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
Q0B461 MIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
Q1BLP9 TIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
A0AYP9 TIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
B1K4W3 TIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
A9AP36 AIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
A4JLK2 AIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
A1UYE3 EIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
A2S0C7 EIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
A3MB25 EIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
Q3JXJ9 EIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
A3PB80 EIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
A3NMV6 EIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
Q2T7Z6 EIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
B2JN9G TVEAFDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
B2T7T3 RIDAMDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
D8J0F2 VIDAYDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
A6STX7 HIDAIIDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
Q0JZ76 AIDAVDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
B3R856 YIDAVDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
Q46V25 RIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
R1D1A1 RIDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
Q2K7V7 RIDGVDSRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
B7V0Y7 EVDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
Q02RH8 EVDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
A6V180 EVDALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
Q8MS88 LVDGMDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
A5W896 LVDGMDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
B0KRK9 LIDAMDIPSPSSVAKAVAGVYGRNFRG-SELGFRERYFDALD---EGHRLHERVQQVSLRVGNVLDP-ALASRDG---LYDFVFCRNVLIYFDVPTQQRVFEVLKRL-LHPQGV
Q1IDW8 RIDGMDIPSPSSVAKAVAGVYGRNFRG-SELGFRERYFDALD---EGHRLHERVQQVSLRVGNVLDP-ALASRDG---LYDFVFCRNVLIYFDVPTQQRVFEVLKRL-LHPQGV
Q98PC8 KIDGVDSRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
D8FC16 SIAGIDISSEKALEARLGCYGRNFRG-KDLSFRDHYFRKKE---DYYRLLEDPKRGVVFVKGNVNER-HFATG-L---TYDVFICRNVLIYDPSAARNQTLKTSRLL-LDDKGI
R5G3U8 RVDGMDIPSPSSVAKAVAGVYGRNFRG-SELGFRERYFDALD---EGHRLHERVQQVSLRVGNVLDP-ALASRDG---LYDFVFCRNVLIYFDVPTQQRVFEVLKRL-LHPQGV
Q6QAM0 RVEALDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
A0L7P7 RLQCGDITDITVLRARQCGYGSFRFL-LDPQLKRYFPELPE---GQYQKIQVGLQVSNVLLNLMDA-NYPSMLH---GQDIIFFRNVSIYFDQHQRRVIEQSKRL-LNFGGA
Q2W2W8 RILGDDIDHHALARARAGRYTAFSFRS-LAPELRRRYFQAPGR---DAMVVDERVKAMVSPHLLNLAE-TFPALG---ALDVVFRNVSIYFDVLTTRTIQAFRRV-MTPRGH
Q1NKB1 RIVAADIDGQAIAAARRGIYGDGAPFRG-PSESWRHRYFQAPK---GGWQLAREIRQRVEFVFRNLLTP-GSPILLE---PPEIILYRNVSIIYFPFPVQREIFQSQATR-LAPGGC
Q1NWT4 RIVAADIDGQAIAAARRGIYGDGAPFRG-PSESWRHRYFQAPK---GGWQLAREIRQRVEFVFRNLLTP-GSPILLE---PPEIILYRNVSIIYFPFPVQREIFQSQATR-LAPGGC
Q1NLW5 RIVAADIDGQAIAAARRGIYGDGAPFRG-PSESWRHRYFQAPK---GGWQLAREIRQRVEFVFRNLLTP-GSPILLE---PPEIILYRNVSIIYFPFPVQREIFQSQATR-LAPGGC
Q1D4W0 DLWATDLNLAAVEARQGRFTSRRRAIS-INQARLRTFRFKP---VEEGYEAALPALREYIRFDQGNLAVP-VFDKVA-LSSLDLILCRNVIIYFDLPTIRGLMDRFLAA-LRPGGL
E3FYQ2 DLWATDLNLAAVEARQGRFTSRRRAIS-INQARLRTFRFKP---VEEGYEAALPALREYIRFDQGNLAVP-VFDKVA-LSSLDLILCRNVIIYFDLPTIRGLMDRFLAA-LRPGGL
A7H826 ELLATDLNLAAVEARQGRFTSRRRAIS-INQARLRTFRFKP---VEEGYEAALPALREYIRFDQGNLAVP-VFDKVA-LSSLDLILCRNVIIYFDLPTIRGLMDRFLAA-LRPGGL
Q1D226 TVLGTDLINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
Q08NE7 SVLGTDISSEKALEARLGCYGRNFRG-KDLSFRDHYFRKKE---DYYRLLEDPKRGVVFVKGNVNER-HFATG-L---TYDVFICRNVLIYDPSAARNQTLKTSRLL-LDDKGI
Q1D8X4 RILATDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
Q08U26 HVLATDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
A7H715 RILATDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
Q1CX10 AVHATDVSRRALAKARQGYGWSLRG-GWADRMRALHRAEG---RRYVLSPEVQRVRFVSNLNLAD-TWPSADSGIWKLDVIFCRNVMIYFNRPTEIAAVARRLHSA-LDEGGY
E3FLZ3 EVHATDISRVAIEARLGCYGRNFRG-TATEFRARYFTPA---DGWLLDERVACVRFQANLLD-LGCAG-E---PYDFVFCRNVLIYFDRAQDRVRRIVEEQ-LDARGI
A7HCQ0 HLVTGDLNLTALARARQGYGWSLRG-GWADRMRALHRAEG---RRYVLSPEVQRVRFVSNLNLAD-TWPSADSGIWKLDVIFCRNVMIYFNRPTEIAAVARRLHSA-LDEGGY
E3FRV5 SITGVDPNPAIEARARQGYGWSLRG-GWADRMRALHRAEG---RRYVLSPEVQRVRFVSNLNLAD-TWPSADSGIWKLDVIFCRNVMIYFNRPTEIAAVARRLHSA-LDEGGY
Q08UV4 SITGVDPNPAIEARARQGYGWSLRG-GWADRMRALHRAEG---RRYVLSPEVQRVRFVSNLNLAD-TWPSADSGIWKLDVIFCRNVMIYFNRPTEIAAVARRLHSA-LDEGGY
A7HCX6 RVLGTDINRFLQKAVAGVYGEWSFRG-DFQWLKDYFTRTLDRG---YRISSEIKRMVTFNYLNLATD-TYPSLYNNTNAMDIIFCRNVMIYFLEPSLAKRVVGRFYRA-LIDEGW
C6C1VA EIPGTDISKALIKAREGQYKRSFRS-EDTGFRLDIFPRKVG---SNFGLDSSIKRMVNSRLNLMDA-SVPVALQ---DMVDILCRNVMIYFSAGVNSVLDKLDW-LTPGGW
D2Z5P5 RYVGTDLNLESSLKKARQGYGWSLRG-MSDIEISRYFDIVG---DDRFKALQYRVSRSVSNLNLAD-TWPSADSGIWKLDVIFCRNVMIYFNRPTEIAAVARRLHSA-LDEGGY
D0L7R4 EILGTDLNLESSLKKARQGYGWSLRG-MSDIEISRYFDIVG---DDRFKALQYRVSRSVSNLNLAD-TWPSADSGIWKLDVIFCRNVMIYFNRPTEIAAVARRLHSA-LDEGGY
Q08XU2 EVLGTDLNLESSLKKARQGYGWSLRG-MSDIEISRYFDIVG---DDRFKALQYRVSRSVSNLNLAD-TWPSADSGIWKLDVIFCRNVMIYFNRPTEIAAVARRLHSA-LDEGGY
A0L8P6 HALGTDLNLESSLKKARQGYGWSLRG-MSDIEISRYFDIVG---DDRFKALQYRVSRSVSNLNLAD-TWPSADSGIWKLDVIFCRNVMIYFNRPTEIAAVARRLHSA-LDEGGY
D0LUD0 RILATDLNRRALRHARDARYSRAIAR-LPDAWQTRVFDYLD---DETARVIEALREVRVSFARHNLRSDETLPPGWR---ELDAVVCNVMIYFQRYEAVEMVHKLVAH-CRVGGY
D3PC59 SIIGTDLNINQAIETARRGIYKSWHLRN-LDKSYLSKYFLIDD---NKFLIKEDIRLDRVFKHNLKDDYFLN---CDIVFCRNVMIYFNQNIKIVKVERIDBSJENY
D3P9S2 KIVGDISDINQAIETARRGIYKSWHLRN-LDKSYLSKYFLIDD---NKFLIKEDIRLDRVFKHNLKDDYFLN---EYDVIKVCNMIYFDKDKDTKTKIDEL-TNEYGT

	490	500	510	520	530	540	550	560	570	580	590	600
E. coli	LFAGHSENF	SLRRRFTLR	GQTVYAL									
S. typhi	LFAGHSENF	NLVREFSLR	GQTVYAL									
Q12AR4	LVMSPEDESS	SLFPNFVFN	PSAIIYQK									
Q2LR61	VLPSVTEGFH	LLFTRFVA	VTFPGVTLY	QKRMDQRTLE			I					
Q2YC83	LIVSPVEMSR	ASFPQFRL	HTVSGTGLYQK									
B8FNR6	FFVGPSEAAF	VEHPNLAH	IRYPGAI	IFQKQAAR								
B5ECK8	LFLGTEVDH	QALEGFTC	LHCDGTLVLQK									
C6DYF7	LFLGTEVDH	QALEGFTC	LHCDGTLVLQK									
A9WGY5	LIVGHAEPNV	VLYRFETH	NAPGTILYRK									
B9LL63	LIVGHAEPNV	VLYRFETH	NAPGTILYRK									
A7NNV5	LIVGHAEARS	DFFAQFV	VNCPGTVIYRK									
A5URZ9	LIVGHAEARS	DFFAQFV	VNCPGTVIYRK									
Q2W5V8	LIMGHAEPNQ	RLFADFR	TVNTPGAVLYQR									
D3NZL7	LIVGHAEAGP	QMNELFI	PVSVPGATLYRK									
C7C9P3	LLIGHAEPNP	TFSQWLQ	PVALPGTVAYRP									
B7KRG4	LLIGHAEPNP	TFSQWLQ	PVALPGTVAYRP									
A9W6M0	LLIGHAEPNP	TFSQWLQ	PVALPGTVAYRP									
C5AVV0	LLIGHAEPNP	TFSQWLQ	PVALPGTVAYRP									
B1ZEP6	LLIGHAEPNP	TFSQWLQ	PVALPGTVAYRP									
B1LWP1	LLIGHAEPSP	APASFLD	AVSLPGLTVAYRPRADAPP									
B7JYH8	LMTGHAETSN	DTIKKFQ	SQKLFPPESVIYQKVK	NKVGSEL			SIN					
E0UB22	LLTGHAELSP	EQVRGFQ	VHLFPESVIYQKREK	WVS								
C6DZA2	LLTGHEHLHL	QALYRLK	SRMIDQMILQKGTDLTS									
B0TG84	LLTGHELLGLE	PQALFS	FHEHLFPEGHINQKPV	IPPP								
A5G943	LFLGHSETLS	HISSRFE	ROTQDGGFYLLK	VFPVVA								VS
B9LZW0	LFLGHAETMA	QISSRFE	RQSHDGSFYR	KKTKANGI								PT
B5EF82	LFLGHAETLL	QDSGLE	IRRQKTF	FFYLKTA	PRTSQ							TP
C6E726	LFLGHAETLL	QDSGLE	IRRQKTF	FFYLKSG	PRTPQ							TP
A9WBT1	LCLGFSETLW	NIFDRLT	PVAVDGAFLYR	KDPPPAR								
B9LEA3	LCLGFSETLW	NIFDRLT	PVAVDGAFLYR	KDPPPAR								
B8G3A2	LCLGFSETLW	NIFDRLT	PVAVDGAFLYR	KDPPPAR								
A7NRP0	LFLGFSETLW	NVFDGFR	SREVS	GAVVYQK	VNPPDRP							TQ
A5UPC3	LFLGFSETLW	NVFDGFR	SREVS	GAVVYQK	VERPPSP							LQ
B7K4M9	LFVGAVETTL	LNSPPFR	YMPHP	SFAFYQK								
E0UAE6	LFVGSPEIAL	LPSPRFQ	VIDYPAFYQK	NE								K-R
B2J4R2	LFVGASETAK	IVADQYT	STRKPF	FAYRK								
B1Z0W8	LFVGAETGV	AMRHGMR	SARVPLA	FAFHR		DHGGAAV						AADASA
Q0B461	LFVGAETGV	AMRHGMR	SARVPLA	FAFHR		DGGAAVGA						AADASA
Q1BLP9	LFVGAETGV	AMRHGMR	SARVPLA	FAFHR		EPAGAAA						DACA
A0AYP9	LFVGAETGV	AMRHGMR	SARVPLA	FAFHR		EPAGAAA						DACA
B1K4W3	LFVGAETGV	AMRHGMR	SARVPLA	FAFHR		EPAGAAA						DACA
A9AP36	LFVGAETGV	AMRHGMR	SARVPLA	FAFHR		ERSGAAA						DGCA
A4JLK2	LFVGAETGV	AMRCGMR	SARVPLA	FAFQR		ADDDAAA						DECV
ALUYE3	LFVGAETGV	VMRQGLA	SAQIPLAF	AFRKP	AVEAAAR	PGAGVG	ARRGGAAP	GGAAAN	VVNAANA	ANAGAA	AGDRV	TFGGTLRAIAHEWFFDAGWPTPEPIVRAIDGARS
A2S0C7	LFVGAETGV	VMRQGLA	SAQIPLAF	AFRKP	AVEAAAR	PGAGVG	ARRGGAAP	GGAAAN	VVNAANA	ANAGAA	AGDRV	TFGGTLRAIAHEWFFDAGWPTPEPIVRAIDGARS
A3MB25	LFVGAETGV	VMRQGLA	SAQIPLAF	AFRKP	AVEAAAR	PGAGVG	ARRGGAAP	GGAAAN	VVNAANA	ANAGAA	AGDRV	TFGGTLRAIAHEWFFDAGWPTPEPIVRAIDGARS
Q3JXJ9	LFVGAETGV	VMRQGLA	SAQIPLAF	AFRKP	AVEAAAR	PGAGVG	ARRGGAAP	GGAAAN	VVNAANA	ANAGAA	AGDRV	TFGGTLRAIAHEWFFDAGWPTPEPIVRAIDGARS
A3P8B0	LFVGAETGV	VMRQGLA	SAQIPLAF	AFRKP	AVEAAAR	PGAGVG	ARRGGAAP	GGAAAN	VVNAANA	ANAGAA	AGDRV	TFGGTLRAIAHEWFFDAGWPTPEPIVRAIDGARS
A3NMV6	LFVGAETGV	VMRQGLA	SAQIPLAF	AFRKP	AVEAAAR	PGAGVG	ARRGGAAP	GGAAAN	VVNAANA	ANAGAA	AGDRV	TFGGTLRAIAHEWFFDAGWPTPEPIVRAIDGARS
Q2T7Z6	LFVGAETGV	VMRQGLA	SAQIPLAF	AFRKP	AVEAAAR	PGAGVG	ARRGGAAP	GGAAAN	VVNAANA	ANAGAA	AGDRV	TFGGTLRAIAHEWFFDAGWPTPEPIVRAIDGARS
B2JNG9	IFVGAETGL	MLRHMTS	ARIP	LAFARFR		STRE						ERDT
B2T7T3	LFVGAETGL	LMRYGMS	AKIPLA	FAFH		GAPEET						QWNSWH
D8J0F2	IFVGAEGGI	LLGPTME	SAGIAL	AFGRK								RVA
A6STX7	IFVGAEGGV	MLRPNLV	SAGIPLA	FAFRK								RNG
Q0JZT6	LFVGAEASV	LSAQGLE	PVGLPL	FAFRKPS								AVP
B3RBS6	LFVGAEASV	LSAQGLE	PVGLPL	FAFRKPS								AAP
Q46V25	IFVGAEASL	LSAQGLP	SAGVPLA	FAFRKAT								
Q1LQ87	IFVGAEASL	LTRGLAG	AGVPLG	FAFHAQP								
Q2KV72	IFVGAEASL	LTARGYP	ALAGAGAF	SARSAP								
B7V0Y7	MFVGAEASL	LSQHGMQ	I	GVPLSFVFRRTS								E
Q02RH8	MFVGAEASL	LSQHGMQ	I	GVPLSFVFRRTS								E
A6V180	MFVGAEASL	LSQHGMQ	I	GVPLSFVFRRAA								E
Q88MS8	LFVGAEGSL	LARMGMR	PLGIAQ	SFAYVRHE								G
A5W896	LFVGAEGSL	LARMGMR	PLGIAQ	SFAYVRHD								G
B0KRK9	LFVGAEGSL	LARLGMR	PLGIPQ	SFAYVRQE								G
Q1IDW8	LFVGAEGSL	LARLGMR	PLGIAQ	SFAYVRQE								P
Q98PC8	LLVGAETAL	PRLHGF	I	PADWPLAF	FLKSE							
D8FCI6	FFCGHAERQT	ALDRGF	E	INETGV	FACRKIR							R-E
C6BU38	LFVGHAEILP	VFNDWFT	PVRKQGT	FALRKGK								RKVA
Q60AM0	LVLGHADGIG	GPDRGFR	RHGVCA	FSWIR-R								
A0L7P7	LIVAGSAETLP	NDFGLLT	LEQWGC	CFFRKKGKS								QAABEAVE
Q2W2W8	LIVGSAETLA	NDLGVFR	LVEDEG	FAYFVQG								DRAGPPVP
Q1NKB1	LLVGASETLH	HDLAIL	SLEERD	NLYFFR	PKPK							LVP
Q1NWT4	LLVGASETLH	HDLAIL	SLEERD	NLYFFR	PKPK							LVP
Q1NLW5	LLVGASETLH	HDLAIL	SLEERD	NLYFFR	PKPK							LVP
Q1D4W0	LFLGYSSESLF	KVYDRF	FEMIEVD	GA	FVYRRPLNDKSM							RAP
E3FYQ2	LFLGYSSESLF	KVYDRF	FEMIEVD	GA	FVYRRPLLG							VA
A7H826	LFLGYSSESLF	RIFDGF	ELTEVAG	AFLYRRPETVR								
Q1D226	LVLGASEPELL	RVPPTLR	VRVREGEQ	AFVYRPEEG								
Q08NE7	LVLGASEPELL	HAPPSLR	I	IRCEHAF	FVYRTFD							
Q1D8X4	LFVSPAIEVPL	TNGLGLE	TVDAEGS	VVLRV	PVPGA							
Q08UZ6	LFVSPAIEVPL	ANGLGLE	VLDVEGT	PVLR	RPVT							
A7H7I5	LLLGPEVEPL	AERLEA	E	IEVGGT	TLRRMAEG							
Q1CX10	LFTGSPDPL	GGLAPLE	SILTEW	GVLYRRPL	PGATLSL							
E3FZL3	LITGSPDPTL	AGLAPLE	PLLTGW	GVAVQRL	PPGA							
A7HCQ0	LLTGAADPPL	GALTGFT	VRAGP	FGVAY	QRPVAPS							
E3FRV5	LLLGPSETPR	GFSEF	FEVLQV	GEAFYHR								
Q08UV4	LLLGPSETPR	GFSEF	FEVLQV	GEAFYHR								
A7HCX6	LFLGHAETLR	GVSTEF	HLRQSH	GTFFYQSR	GEEEAG							E
C6C1V4	LVATPSESG	LSSHGR	FEPVNVGG	LVLLYR	KNENYVPC	CRMDFDG						
D2Z5P5	LVVAACEPTI	LDGSP	FHPVNV	GEQTF	FTTVE							
D0LTR4	LIPGSDPLL	ACAGLS	I	DASPG	IAYRRR							
Q08XU2	LFLGTVEVDR	VPEGLV	R	GVGPEL	QAFHR							
A0L8P6	LITGADYVP	NHPIGL	VYRHEG	VFFPEK	VEATGALN							
D0LUD0	LLLSAVEQPL	FWMS	ELAPQ	RETD	QLMQVS	PGVSVG						
D3PC59	LFLAPGEFHF	LNQLGY	KTIF	IENN	IVFK	KN						
D3P9S2	IIFGTSIDILT	IPNTN	FERYE	INGVT	VFR	KKK						



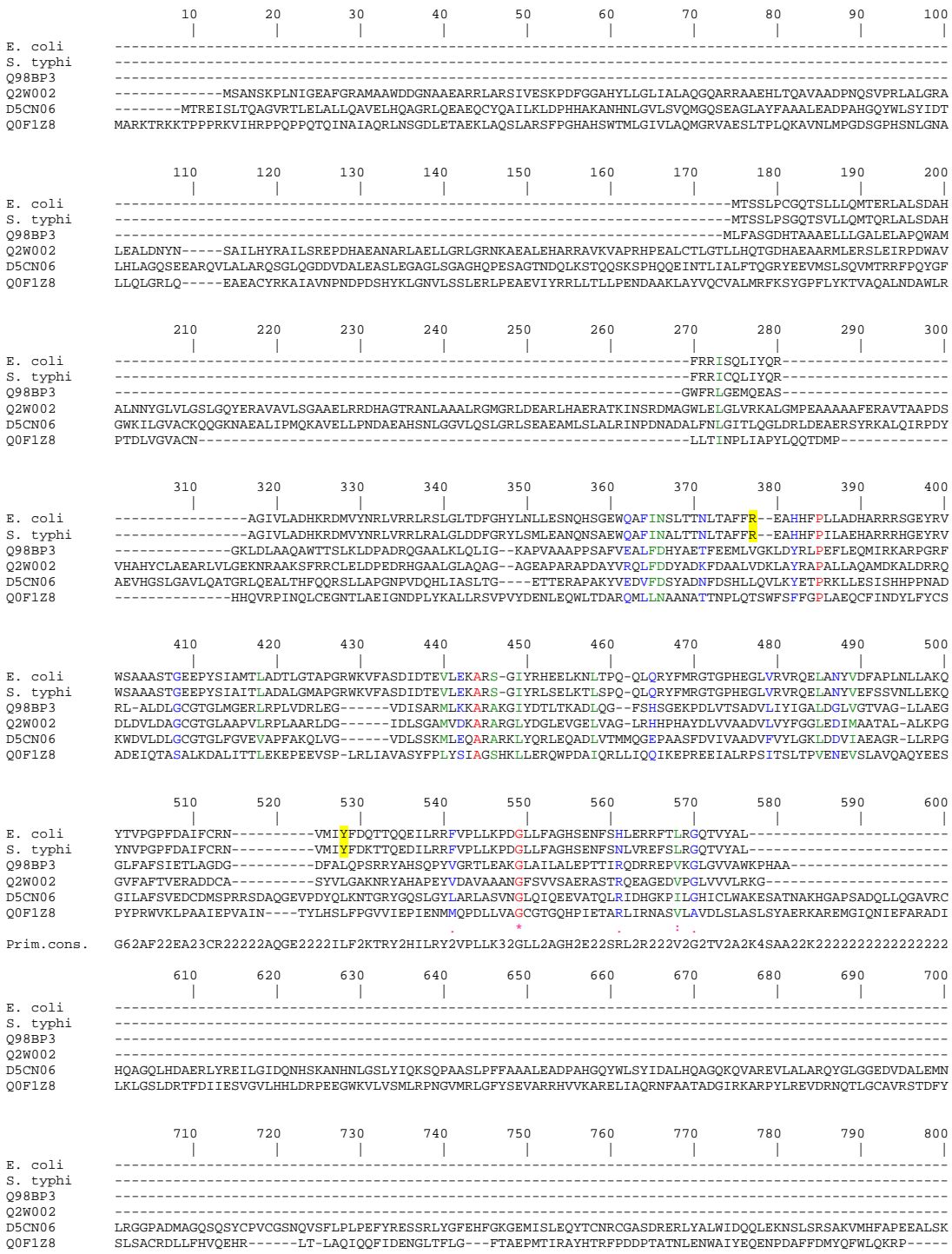






	970	980	990	1000	1010	1020	1030
E. coli							
S. typhi							
Q12AR4	FVLANFALGNLARRRGKTGEAGKHFANTLHLLQGYQPDDLPESDGLTAGRLAQTLASLTD - EIAP						
Q2LR61	FVLAHFTLGNLVRBEGRKLSSKHFHALLLQNYQPEILPESDGVTAGRLKDIILMADLGRSNAPGA						
Q2YCB3	LVLAHFALGSLCLTQGKSREAKRHFNDLSSLLNGYSSNDILPDSGGTAGDLAHTITSIRICDSIGNKE						
B8FNR6	FILAHTPLGNTMKQKANEARRHFKNALSLLLDLDSDAIVPHSGGTMAGRLTIEIVRSMILGD						
B5ECK8	FLLGWFPALGNLCRQGELEAEQSFANALRLLQRRDPHEVLPPEAGMTAGRLMQLISDIA						
C6DYF7	FLLAWFALGNLCRQGELEAEQSFANALRLLQRRDPHEVLPPEAGMTAGRLMQLISDIA						
A9WGY5	LIVGYIGMAHVYVTLQOPDAARRTLR SAQTLGALADSQVVDATGSTAELRNY -- VRLMEKVDLR						
B9LL63	LIVGYIGMAHVYVTLQOPDAARRTLR SAQTLGALADSQVVDATGSTAELRNY -- VRLMEKVDLR						
A7NNV5	LYLALLAMAGILHRTGHVDEAYRRLRRLRATLPPHAPVPSFDNATAAELQMF -- IQRQMEALRR						
A5URZ9	LYLASLAMAGILQRTGHTDDARRAYQRLLRSLATLQPDAPVPSLNGATAAELQMF -- IRRNMAALGS						
Q2W5V8	LVLPHYHLGLFLARKDDSTGAERSFRNAQALLAGLADQPVNPGKIAVQOMREA -- VAMHLKLLGGA						
D3NZL7	FVLADYHLALAYWRRGRLLVPAQRHFRNAREALADRPDGETVTEGAGLTVQELRCM -- LDLWLTGEEG						
C7C9P3	FVMAHFQGLLLARVGRGGEAARALDNALRLAQLPPELILPEGDGVSAAARLAES -- ARRALAGITGRDA						
B7KR64	FVMAHFQGLLLARVGRGGEAARALDNALRLAQLPPELILPEGDGVSAAARLAES -- ARRALAGITGRDA						
A9W6M0	FVMAHFQGLLLARVGRGGEAARALDNALRLAQLPPELILPEGDGVSAAARLAES -- ARRALAGITGRDA						
C5AVV0	FVMAHFQGLLLARVGRGGEAARALDNALRLAQLPPELILPEGDGVSAAARLAES -- ARRALAGITGRDA						
B1ZEP6	FVMAHFQGLLLARVGRGGEAARALDNALRLAQLPPELILPEGDGVSAAARLAES -- ARRALAGITVSEA						
B1LWP1	FVMAHYHLGLLLIALQRPSEAVRALDNALVALSQAALPPELILPEGDGVSAAARLAES -- ARRALAGITVSEA						
B7JYH8	SVAAYLNLANIYQQTNHQEQKTRKNALKVQLKSPDITIPELGNKTVDQCIIEITNLTN						
E0UB22	SVSAYLNLANIYQEQDKRSEKMQQTALTILKLLPNDTQVPELGNITVQELLTQLE						
C6DZA2	LIAPHLELGMVYSEKKYLAELAKSIRSAEELKVMPPGKFIALYSETTALELLRHADDLGLNKKEKTSDR						
B0TG84	HGPARIEMAHVRLLEKENDQ						
A5G943	FVMPHYQLSWLYARMGKDKERQELNNTLNLAKLGNK -- STIPYSGGLSREAFIEQLKRELEMA						
B9LZW0	FVMAHYQLAQLYARLGRKKERLENNSLRIVAGLKAK -- AAIYPSGGLTRELMDQLNKEKAD						
B5EP82	FVMPHYHMGRLHLRGRQAEAAAREIRNSIRILARHDDN -- DTVFSGGLTRAVCMMLQNALAQVA						
C6E726	FVMPHYHMGRLHLRGRQAEAAAREIRNSIRILARHDDN -- DTVFSGGLTRAVCMMLQNALAQVA						
A9WB1T	HPLVAPHLAEQYRQNRQITTEAIREYRNAERLLNLPDP -- QLEGVAVQWLIESCRRWIGRLEGER						
B9LEA3	HPLVAPHLAEQYRQNRQITTEAIREYRNAERLLNLPDP -- QLEGVAVQWLIESCRRWIGRLEGER						
B8G3A2	SPLVAPHLAEQYRQNRQITTEAIREYRNAERLLNLPDP -- HLEGVAVVWLAESCRRWIRRFEGE						
A7NRP0	AALVSYHLALAYRQAGRQEQAMREFRSALSCLARHSE -- DLIEGVVWVWLAESCRRWIRRFEGE						
A5UPC3	AALVSYHLALAYRQAGRQEQAMREFRSALSCLARHSE -- DLIEGVVWVWLAESCRRWIRRFEGE						
B7K4M9	YQEALMHLALLRESQGDGAKGAAVLKNRIQRLQNP						
E0UAE6	CEEALIHALLKESRGDLSGATLRQRIRQLRFLKRDNP -- L						
B2J4R2	SYQALVHLALLKEHQGDTVGAQIKQRIRQLRQSSLRTE -- A						
B1Z0W8	HHEALTHLATLLDVGDDGAGAQLWLLERARRAAG						
Q0B461	HHEALTHLATLLDVGDDGAGAQLWLLERARRAAG						
Q1BLP9	HHEALTHLATLLDVGDDRAGAQLWLLERARRSAG						
A0AYP9	HHEALTHLATLLDVGDDRAGAQLWLLERARRSAG						
B1K4W3	HHEALTHLATLLDVGDDRAGAQLWLLERARRSAG						
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A4JLK2	HHEALTHLATLLDVGDDGAGARWLLERARRAVG						
A1UYE3	HYEALTHLATLLDIAGDRDGAQWLMQARRAAQYESAA -- SVTDDTDDGEPRTGHTGTRR						
A2S0C7	HYEALTHLATLLDIAGDRDGAQWLMQARRAAQYESAA -- SVTDDTDDGEPRTGHTGTRR						
A3MB25	HYEALTHLATLLDIAGDRDGAQWLMQARRAAQYESAA -- SVTDDTDDGEPRTGHTGTRR						
Q3JXJ9	HYEALTHLATLLDIAGDRDGAQWLMQARRAAQYESAA -- SVTDDTDDGEPRTGHTGTRR						
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B2JNG9	HYEALTHLAVLLDIGGDRAGAQLWLMQARRAAQYESAA -- TDASADEAQRSGRFHASRRA						
B2T7T3	HAEALAHLATLLELEGGDRDAARLLMQRAAQAQRCG						
D8J0F2	HQAALLQLAALLAQGDGASGQRMRQRAERMAKPEGEGA -- HG						
A6STX7	HYEALTHLAAALLAQGDGASGQRMRQRAERMAKPEGEGA -- QEQPHA						
Q0JZT6	HQESLYHLAALLDTEGDHAGAMHLRQRAQRHTRKHHG						
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Q1LG87	HHEALYHLAALLDSAGDAGAHRLRERARQRHARMSHG						
Q2KV72	HRQAMLQALAAHLHAEKQBEASERLSARARLLGP						
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A6V180	HAEALQALAAALLAARGDHAGARRLQRAARGVKNKDG						
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Q1IDW8	HPEALVHLAALLAAQGDLAGARRLQRAARAGRESER						
Q98PC8	HREALVHLALLLRKQDHTGAEALAGRLGRVQKRSQS						
D8FCI6	HVEALNHMAFMELHRGNKAGAEERLRKRAQIRGMGVER -- RSTENQSSGRYQK						
C6BU38	HMSLVHLALLLENRGLRKAEMRNARRAEKRENEAG						
Q60AM0	HNESLHLAALYERRGDEERARHFNRNSAAAEQEP						
A0L7P7	HWLAHYFLAELYATEQSSLAQREYRLVRLQRLDERRPV -- EGTLLALLALAVPPKQISFLCQKQKLAHAVHS						
Q2W2W8	CWPAHYFLAELYSADSPDLSRRSYRVALQQLSGQPEP -- DGLLALPLGLPVA -- EVFLFCERQAGTARSQR						
Q1NKB1	CWPAHYFLAETAALGDADRARRAYHNALEVLQHGE -- EARRRSFFPLSCNPAHFVNI CRHKLARLAN						
Q1NMT4	CWPAHYFLAETAALGDADRARRAYHNALEVLQHGE -- EARRRSFFPLSCNPAHFVNI CRHKLARLAN						
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Q1D4W0	LALGHYLLAQVHERTDQDEAARRSYRNAI - AQLRFPQ -- REPLAGHYPEMPDSADAI SRAARYALAALEEQPLR						
E3FYQ2	LALGHYLLAQVHERTDQDEAARRSYRNAI - AQLRFPQ -- REPLAGHYPDIPDSADAI SRAARYALAALEEQPLR						
A7H826	LALAHYWLGRCEEAQRDPERARLAYRNALTAHARWPEGKRQAFGLGYYPDVPEDGAAVRAAQYALAAAL						
Q1D226	HAAARYLLGLLQCRRTAEATEYRRALQALESGRS -- RPVAFPLNDRRLRVACAHAAERLEFSIQKR						
Q08NE7	LAAARYLLGMLELREFFPEAAGEYRRALRSLEEKA -- RATPFFLNPRLQVACARAVRMEVQKSR						
Q1D8X4	LALGHATLVALYGRMDPEDAERARQNALRALDGLDDEHPLRGVETMTAGGLRQALAPVEQAGWLGVR						
Q08UZ6	LALGHATLVTLYTRLEEREDAERARQNALRALDGLDDEHPLRGVETMTAGGLRQALAPVEQAGWLGVR						
A7H7I5	LAMAHAAVLPLYARVGRHDEAARRNALAEVGLDDTAPLRGVEPI TVGALRSALGAVHRPQAGGRSEA						
Q1CX10	LVAWALILGRVLRRHGDTSGALKAWREAEQLCNALPDPAPVPHADGENASRLAEVARGERSRMEALAAAGEELS						
E3FZL3	LAVAHALGHVLRRRDLAGALRAFRAAEELCAALPDPAPVPLSEGERAGSLARVAHNEVRLETMTMTRER						
A7HCQ0	QPFVHFVTGLRLRRRGTAGASRALRTAASLAQRMPAAAPVRLSHGMTAGALVEGARFHL SRLAGDGPSRP						
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Q08UV4	FALGHLRLGILARRAQEATPARVALRLATLLAHEQPLHLTLFGGFGFRHLMQVCOQELRACAEVP						
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D0LTR4	LAFAHVVAATSFQAQDERAQARRALRNARVILASMPASDMVRAQITAAELHAACRQORALLGERPSPAPGAKS						
Q08XU2	YLPGLLELALERNRAGAAAYPLMRAVHARAALKLPDQLVEGPECLPARFYKASADAYLNQGAEE						
A0L8P6	HLMSPHMGFLKIQGRAEAGERLLRRALELANRHAQS -- QTLDPVAGLTLIDVRAQLAGYLDERVPL						
D0LUD0	SWLAPYQLAMCLEARGELKAEAGEYRHALAVIDAGGGPSPRSQAALAHLATTAAEVCRRQVGRKRAHNE						
D3PC59	NFVYNLFLAPALVSKNDLKNAYPFPMALTLVEKES -- FESLVDRVAKKIIVKVLNIL						
D3P9S2	SSASWYFYGLTLLKLNKMEAKRAFEKALMFDNNVDN - SLFYISELSEGEGLKNIINYLSQL						

Figure S4B



	810	820	830	840	850	860	870	880	890	900
E. coli	-----									
S. typhi	-----									
Q98BP3	-----									
Q2W002	-----									
D5CN06	RLRQLFANYETADFGMGQVDHKVLDLQNLPPFADESYEFFICSHVLEHVESDDRAIRELYRITRTGGCGILVAPIIVGLERTIVEDPSVKDAAGRWRLYGQDD									
Q0F1Z8	-----									

	910	920	930	940	950
E. coli	-----				
S. typhi	-----				
Q98BP3	-----				
Q2W002	-----				
D5CN06	HVRLYAHDDYVVKIRSHGPHVAELGEEYFGEEIFHSLGLTHTSILYVVK				
Q0F1Z8	-----				