

	10	20	30	40	50	60	70	80	90
K2044	MATNYHRTRSNANASLI	SMAQRFS	SDVVIIIFLGLYLVCVMNS	VSFEYRHALMSLLSLVIFQ	MIGGITDFYRS	SWRGVAFST	EYILLIKNWTLS		
<i>E. coli</i> K12	MTNLKXRERAKTNASLI	SMVQRFSDITIMFAGLWLVCEVSG	LSFLYMHELLVALITLVVFQ	MIGGITDFYRS	SWRGVRAATEF	FALLLQNWTL			
<i>E. canceroge</i>	MTNLKXRDRARTNASLI	SMVQRFSDITIMVGGGLWVVCQISG	QSFLYMHELLMALIALVVFQ	MIGGMTDFYRS	SWRGVKITTELM	LLQLQNWTL			
<i>S. flexneri</i>	MTNLKXRERAKTNASLI	SMVQRFSDITIMFAGLWLVCEVSG	LSFLYMHELLVALITLVVFQ	MIGGITDFYRS	SWRGVRAATEF	FALLLQNWTL			
<i>P. syringae</i>	-MRPSVRGILHAHQSA	LSLAHRLDLIIIVLIGYQOTGLQ	VTDSTEAWSHIILAVLVF	HWVSEYHQLYG	SWRGERILRELTK	VFSYWAIT			
<i>S. enterica</i>	MTNLKXRERAKTNASLI	SMVQRFSDITIMFAGLWLVCEVSG	LSFLYMHELLVALITLVVFQ	MIGGMTDFYRS	SWRGVKMSTELT	LLQLQNWTL			
<i>S. typhi</i>	MTNLKXRERAKTNASLI	SMVQRFSDITIMFAGLWLVCEVSG	LSFLYMHELLVALITLVVFQ	MIGGMTDFYRS	SWRGVKMSTELT	LLQLQNWTL			
<i>S. typhimuri</i>	MTNLKXRERAKTNASLI	SMVQRFSDITIMFAGLWLVCEVSG	LSFLYMHELLVALITLVVFQ	MIGGITDFYRS	SWRGVKMSTELT	LLQLQNWTL			
<i>S. proteamac</i>	MALNHHRTHSKTNASLI	SMAQRFS	SDIFIIIFLGLYVIVFLNS	QPFNYRHLLVFLIVLVVYQ	MIGGMTDFYRS	SWRGGKISTELI	LLIQNWTL		
<i>S. frigidima</i>	---MDAQKALDVEKDS	YTFLYRLIDILIIICFN	SALILYG	EDFSKDYLI	VLIFTLVYSYLS	SEFQLYRS	SWRVGKFSRMIG	SLCLVKLFC	
<i>S. boydii</i>	MTNLKXRERAKTNASLI	SMVQRFSDITIMFAGLWLVCEVSG	LSFLYMHELLVALITLVVFQ	MIGGITDFYRS	SWRGVRAATEF	FALLLQNWTL			
<i>V. cholerae</i>	--MKRKSRRIRITNY	HGKFFYRLIDSIFILV	IMYISIKSNQ	HVVMTMSYIS	VALLGVLFYSYIA	ESLDIYSGWRTAK	LRSLSLHTAF	CWAAT	
<i>V. harveyi</i>	---MKRGLIRSHEVE	FAPFLYRLTDLAVIVS	FMLFLILNDV	TSIEKDYVILS	FVSVVTF	FIIAESGKLYRS	SWRTSSFKDQ	VEIVCVSWLVT	

	100	110	120	130	140	150	160	170	180	
K2044	LLIALGLLSLDS	SIDTRFF	FFFFQWYLLVDIGFLVCR	SIIRLISGLLRKFGYNTR	RVAVVGS	SLPAGINLL	LKSFIEEP	PWLG	FVVKG	VYD
<i>E. coli</i> K12	VIFSAGLVAFNN	DFDTQLKIWLAWYALTS	SIGLVVCRSCIRIGAGW	LRNHGYNKRM	VAVAGDLAAG	QMLMES	SFRNQ	PWLG	FVVGVYHD	
<i>E. canceroge</i>	LIFSAGLVAFSQ	DFDNRLVTYLAWYLLTS	SVGMVVCRLIRFGAGW	LRNHGYNTRY	VAVAGDLPV	GOVLLNS	SFRKEP	PWLG	FVVGIYHD	
<i>S. flexneri</i>	VIFSAGLVAFNN	DFDTQLKIWLAWYGLTS	SIGLVVCRSCIRIGAGW	LRNHGYNKRM	VAVAGDLAAG	QMLMES	SFRNQ	PWLG	FVVGVYHD	
<i>P. syringae</i>	FITLLSLNSLLL	NQTQLPDNGQMSWFALT	LAVLCGYRLIRLALHT	LRRHGFNTR	RVAVVGTG	QVGERL	LARSISL	LAPMM	GLNLLG	FYDS
<i>S. enterica</i>	LIFSAGLVAFND	DFDNRLATWLAWYALSSL	GLVLCRSFIRFGAGW	LRNHGYNTRR	VAVAGDLP	AGALLDS	SFRNEP	PWLG	FVVGVYHD	
<i>S. typhi</i>	LIFSAGLVAFND	DFDNRLATWLAWYALSSL	GLVLCRSFIRFGAGW	LRNHGYNTRR	VAVAGDLP	AGALLDS	SFRNEP	PWLG	FVVGVYHD	
<i>S. typhimuri</i>	LIFSAGLVAFND	DFDNRLATWLAWYALSSL	GLVLCRSFIRFGAGW	LRNHGYNTRR	VAVAGDLP	AGALLDS	SFRNEP	PWLG	FVVGVYHD	
<i>S. proteamac</i>	FIFTIGLVSFLP	EFDFSLKIFFQWYLLV	SLGLVGCRIAIRFLAG	FVRNLGYNTR	RVAVAGSMP	VGLSLLR	GFKAD	SWLGF	MVVG	VYDD
<i>S. frigidima</i>	FFIVASSFLFLKE	SESYSRIIIVGWFLS	IIISLMTWRYLAKW	VKSIRRRSGL	GFQDAIVGLT	STGINLY	REIKNY	ELGF	NFVGF	FDD
<i>S. boydii</i>	VIFSAGLVAFNN	DFDTQLKIWLAWYGLTS	SIGLVVCRSCIRIGAGW	LRNHGYNKRM	VAVAGDLAAG	QMLMES	SFRNQ	PWLG	FVVGVYHD	
<i>V. cholerae</i>	IASLTLLAYFSKT	GIEFSRMVMGAWFV	GSFIGHLGWRVLA	FATHYMHKK	GLHTKKV	VIIIGMTT	QOELSN	NLLKN	PELGI	VMOGFYDD
<i>V. harveyi</i>	CAPLFMVLYFS	HVHTLFFERYILAT	WLLVTPILLAWRS	VFRIALAYMR	KLGYNTR	TATIIIGQ	TPHGLTL	LANELE	SRT	TEHGVLPDGFYDE

	190	200	210	220	230	240	250	260	270													
K2044	IQLDTS	---YDNV	PYAGNIDKLIQ	EAR	DGKIDRIYIAMS	MHDESKIK	DIVRQLT	DTTCSV	LLIPD	I	FTFNIL	QSRTE	EEING	V	PV	VPLFI						
<i>E. coli</i> K12	PKPGG	-----	VSNDWAGN	LQQLVEDAKAG	KIHN	VYIAMQ	MDGARV	VKLVH	QLADTTCS	VLLIPD	VFTFNIL	HSRLE	EMNG	V	PV	VPLYI						
<i>E. canceroge</i>	AKPGG	-----	VSSDWAGN	YEQQLVEDAKAG	KIHN	VYIAMQ	MDESCIK	TLVRDL	ADTTCS	VILIPD	VFTFNIL	HSRLE	EMNG	V	PV	VPLYI						
<i>S. flexneri</i>	PKPGG	-----	VSNDWAGN	LQQLVEDAKAG	KIHN	VYIAMQ	MDGARV	VKLVH	QLADTTCS	VLLIPD	VFTFNIL	HSRLE	EMNG	V	PV	VPLYI						
<i>P. syringae</i>	HPQOMNLQAE	KRRLPVLGDL	DQIEDARAGRL	DKVYITLAF	SAEPQL	RELITGLSD	TASVYL	LIPDV	FMFDLL	HARSE	SINGL	ASISIFI										
<i>S. enterica</i>	PKPGG	-----	VSADWAGN	FQQLIDDAKAS	RIHN	VYIAMSM	SDGSMV	VKLV	RELADTTCS	VILIPD	VFTFNIL	HSRVE	EMSG	V	PV	VPLYI						
<i>S. typhi</i>	PKPGG	-----	VSADWAGN	FQQLIDDAKAS	RIHN	VYIAMSM	SDGAMV	VKLV	RELADTTCS	VILIPD	VFTFNIL	HSRVE	EMSG	V	PV	VPLYI						
<i>S. typhimuri</i>	PKPGG	-----	VSADWAGN	FQQLIDDAKAS	RIHN	VYIAMSM	SDGAMV	VKLV	RELADTTCS	VILIPD	VFTFNIL	HSRVE	EMSG	V	PV	VPLYI						
<i>S. proteamac</i>	TPISE	-----	EGIEYV	VGDFSKLIED	AREGLDRI	YIAMSM	GDEV	NIKLV	VKKLTD	TTCSV	MLIPD	LFTFNIL	QSRTE	E	VNG	V	PV	VPLFI				
<i>S. frigidima</i>	REPKRLG	--GMQ	TNLIBGDVNEA	VALAKSGKI	QKLYIC	LEPMAEK	RIADIE	QLGNTT	V	DLITP	DFLLKN	LMQARIG	SVGD	V	DTIS	V	VFE					
<i>S. boydii</i>	PKPGG	-----	VSNDWAGN	LQQLVEDAKAG	KIHN	VYIAMQ	MDGARV	VKLVH	QLADTTCS	VLLIPD	VFTFNIL	HSRLE	EMNG	V	PV	VPLYI						
<i>V. cholerae</i>	RAPER	---L	RKG-APV	LGNINDALS	LAKTGQ	VQNVYIA	LEMQAQR	RINQIL	DAFSD	STVNTY	I	VPDEF	FTFNIL	HSR	MYTIG	D	VNA	F	SIFI			
<i>V. harveyi</i>	RSQDR	---L	BSDYPI	KGNVGLAL	ERAKR	GEVDY	VYIAM	P	HANERIAL	F	LNQFSD	TTANTY	LIPD	F	FTY	NLL	HSR	MDQIG	QV	Q	T	LSVFI

	280	290	300	310	320	330	340	350	360
K2044	SPLNGINMVFKRLEDIIVSSLILILLIISPILLVIATAVKTTSKGPVIFRQVRYGMDGKPIKVKFRSMTVMENDDKVVTQATKNDIRVTKVVGK								
<i>E. coli</i> K12	TPLSGVNRLLKRAEDIVLATLILLIISPVLCCIALAVKLS SPGPVIFRQTRYGMDGKPIKVKFRSMKVMENDKVVVTQATQNDERVTKVGN								
<i>E. cancerogea</i>	TPLSGINRVLKRAEDIVLSSLILLIISPVLCCIALAVKLS SPGPVIFRQTRYGMDGKPIKVKFRSMKVMENDSVVVTQATQNDERVTRVGN								
<i>S. flexneri</i>	TPLSGVNRLLKRAEDIVLATLILLIISPVLCCIALAVKLS SPGPVIFRQTRYGMDGKPIKVKFRSMKVMENDKVVVTQATQNDERVTKVGN								
<i>P. syringae</i>	SPMDGAWSLVKRAEDIVLSSLILLIALLPLLAIAAAIKLTSAGPVLFRQRRYGLDGRSIMVKFRSMSVQENADVVLQATRNDARVTPIGA								
<i>S. enterica</i>	TPLSGINRLLKRAEDIVLASLILLIISPVLCCIALAVKLS SPGPVIFRQTRYGMDGKPIKVKFRSMKVMENDKVVVTQATQNDERVTRVGN								
<i>S. typhi</i>	TPLSGINRLLKRAEDIVLASLILLIISPVLCCIALAVKLS SPGPVIFRQTRYGMDGKPKSVWRFRSMKVMENDKVVVTQATQNDERVTRVGN								
<i>S. typhimurium</i>	TPLSGINRLLKRAEDIVLASLILLIISPVLCCIALAVKLS SPGPVIFRQTRYGMDGKPIKVKFRSMKVMENDKVVVTQATQNDERVTRVGN								
<i>S. proteamaculae</i>	THLNGINKVFKRLEDITLSMMILAFISPVLLIISLFFVKFTSPGPVIFRQTRYGMDGKPIKVKFRSMSVMENDNTVVQAKKHDARITKVVGK								
<i>S. frigidimarum</i>	SPVNGMRRFYKRTFDVLFSTAILALTPIFLVIGAAIKLNSPGAVIFKQDRYGLDGRKIKVKFRSMSVTENS DVVTQATKGDARITTVGA								
<i>S. boydii</i>	TPLSGVNRLLKRAEDIVLATLILLIISPVLCCIALAVKLS SPGPVIFRQTRYGMDGKPIKVKFRSMKVMENDKVVVTQATQNDERVTKVGN								
<i>V. cholerae</i>	TPFNGLLNWVKRFEDLVLSSLILLIISPVLLAIAIGVKLS SPGPITFKQRYGLDGRKIQVKFRSMRVMDNGSHVQOATKGDPRVTRFGA								
<i>V. harveyi</i>	TPFAGISSWVKRLEDIVLSSIILLIISPVLLAISLGIKLTSKGPVIFKQRYGLDGRKIEVVKFRSMTTMEQGN DVKQATKNDERITPFGG								

	370	380	390	400	410	420	430	440	450
K2044	FLRSTSLDELPOFFNVLFQMSVVGPRPHAVSHNEQYRSLIQGYMLRHKKVKGPGITGLAQINGWRGETDTLEKMEKRIEYDLLYIRGWSIWT								
<i>E. coli</i> K12	FLRRTSLDELPOFFINVLTTGMSIVGPRPHAVAHNEQYRQLIEGYMLRHKKVKGPGITGWAQINGWRGETDTLEKMEKRVEFDLEYIREWSVWT								
<i>E. cancerogea</i>	FLRRTSLDELPOFFINVFTGGMSIVGPRPHAVAHNEQYRTLIEGYMLRHKKVKGPGITGWAQINGWRGETDTLEKMEKRIEFDLEYIREWSVWT								
<i>S. flexneri</i>	FLRRTSLDELPOFFINVLTTGMSIVGPRPHAVAHNEQYRQLIEGYMLRHKKVKGPGITGWAQINGWRGETDTLEKMEKRVEFDLEYIREWSVWT								
<i>P. syringae</i>	FLRRTSLDELPOFFINVLHGDMSIVGPRPHAVAHNEQYRQVSGYMLRHKKVKGPGITGWAQINGWRGETDTLDKMRMRVEFDLEYIEHWSIWT								
<i>S. enterica</i>	FLRRTSLDELPOFFINVLTTGMSIVGPRPHAVAHNEQYRQLIEGYMLRHKKVKGPGITGWAQINGWRGETDTLEKMEKRVEFDLEYIREWSIWT								
<i>S. typhi</i>	FLRRTSLDELPOFFINVLTTGMSIVGPRPHAVAHNEQYRQLIEGYMLRHKKVKGPGITGWAQINGWRGETDTLEKMEKRVEFDLEYIREWSIWT								
<i>S. typhimurium</i>	FLRRTSLDELPOFFINVLTTGMSIVGPRPHAVAHNEQYRQLIEGYMLRHKKVKGPGITGWAQINGWRGETDTLEKMEKRVEFDLEYIREWSIWT								
<i>S. proteamaculae</i>	FLRRTSLDELPOFFNVLFQMSVVGPRPHAVSHNEQYRSLIEGYMLRHKKVKGPGITGWAQINGWRGETDTLDKMQRVEYDLEYIREWSVWT								
<i>S. frigidimarum</i>	FLRRTSLDELPOFFNVLFQDMSVVGPRPHAVAHNEEYRKLVTYYMLRHKKVLPGITGWAQVNGWRGETDTLDKMEKRIEYDLAYIRNWTTLWT								
<i>S. boydii</i>	FLRRTSLDELPOFFINVLTTGMSIVGPRPHAVAHNEQYRQLIEGYMLRHKKVKGPGITGWAQINGWRGETDTLEKMEKRVEFDLEYIREWSVWT								
<i>V. cholerae</i>	FIRRTSLDELPOFFNVLQGSMSIVGPRPHAVAHNEQYRTIVNRYMLRHKKVKGPGITGWAQINGWRGETDTLDKMEKRVEFDLDYIHRWSLWT								
<i>V. harveyi</i>	FLRRTSLDELPOFFINVLQGTMSIVGPRPHAVSHNEEYRQIVDRYMLRHKKVKGPGITGWAQINGWRGETDTLDKMEKRVEFDLDYIHHWSVWT								

	460	470
K2044	LDLKIIFLTVFKGFINKSAY	
<i>E. coli</i> K12	FDIKIVFLTVFKGFVNKAAY	
<i>E. cancerogea</i>	FDIKIVFLTIFKGFVNKAAY	
<i>S. flexneri</i>	FDIKIVFLTVFKGFVNKAAY	
<i>P. syringae</i>	LDLKIILLTLFKGFVNKNAP	
<i>S. enterica</i>	FDIKIVFLTIFKGFVNKAAY	
<i>S. typhi</i>	FDIKIVFLTIFKGFVNKAAY	
<i>S. typhimurium</i>	FDIKIVFLTIFKGFVNKAAY	
<i>S. proteamaculae</i>	FDIKIILLTVFKGFMHKSAY	
<i>S. frigidimarum</i>	WDVKIVFMTIFKGFVGNVY	
<i>S. boydii</i>	FDIKIVFLTVFKGFVNKAAY	
<i>V. cholerae</i>	FDLKIVFLTIFKGFVGNAY	
<i>V. harveyi</i>	MDIKIIFLTVFKGFTGSNAY	