

	10	20	30	40	50	60	70	80	90	100
Enterococcus	MA	-----LSK-----	LDNLYRQVILDHSSHPHH	-HGT	LD	SSQTIELNN	--PTCGDV	IELDVAIE	-DGV-	IKDIAFQSGSGCSISTASASMMTDAV
Carnobacterium	MA	-----LTK-----	LDQLYRQVILDHSSHPHH	-HGK	LEQ	-STTQIELLN	--PTCGDVL	QLQLVVK	-DQV-	IKDIRFDGSGCTISQASASMMTDAV
Lactococcus	MA	-----LSK-----	LDNLYRAVILDHSSNPRH	-AGEL	QT	-G-CMVDLNN	--PTCGDV	IRLTVEFE	-NDV-	ISNIAFSGHGCTISTASASMMTVAV
Streptococcus	MA	-----LSK-----	LNHLYMAVVADHSKRPHH	-HGQ	LDG	-V-EAVQLNN	--PTCGDVI	SLTVKFD	-EDK-	IEDIAFAGNGCTISTASSSMMTDAV
Lactobacillus	MG	-----LSK-----	LNGLYREVILDYADHPHN	-KGEL	AT	-TTNAMTLHN	--PTCGDT	INLQVEVE	-DNK-	IKNIAYTGDGCTISQASASMMTDAV
Leuconostoc	MS	-----LHN-----	LDLLYRQTVMEYAQHPHH	YKPM	LGT	-ETYHVRKYN	--PTCGDI	IDLAFEMT	-DDK-	VTDIYFYGDGCAISKASASMMTDLV
Lysinibacillus	MS	-----FNN-----	LDQLYRSVIMDHYKNPRN	-KGS	LEG	-EAVTIDMNN	--PTCGDRI	HLTLKVT	-DGV-	VEDAKFEGEGCSISMSSASMMTQLI
Geobacillus	MS	-----SNHP-----	LDQLYRQVIMDHYKNPRN	-RGV	LEG	-TNVDVNMNN	--PTCGDRI	HLTMKVE	-DGK-	VVDVKFEGEGCSISMSSASMMTQAI
Bacillus	MS	-----FNN-----	LDQLYRQVIMDHYKNPRN	-KGS	LED	-GSLTVDMMN	--PTCGDRI	HLTMKVE	-DGK-	VTDAKFDGEGCSISMASASMMTQIV
Exiguobacterium	MD	-----FNN-----	LDHLYRQVIMDHYKTPRN	-RGA	IDG	-G-VTIDMNN	--PTCGDT	IRLQLAIE	-DDI-	VKDAKFDGEGCSISMASASMMTQAV
Staphylococcus	MN	-----FNN-----	LDQLYRSVIMDHYKNPRN	-KGV	LDN	-GSMTVDMNN	--PTCGDRI	RLLTFDIE	-DGI-	IKDAKFEFEGEGCSISMASASMMTQAV
Paenibacillus	MQ	-----LDD-----	LYRRVIMDHYKNPRN	-RGT	LNT	-DAVTINLNN	--PTCGDRI	SLQLQVE	-DGK-	VIDAKFSGEGCSISLSSASMMTEAV
Symbiobacterium	MN	-----LSA-----	LYQQVILDHYKKPRN	-KGA	VER	-AVLKKHLHN	--PTCGDDI	EVQVSLGEDGR	-IDD	VKWNRGCSISMASASMMSVAL
Acholeplasma	MD	-----LKT-----	LYRSVIMDHYKNPKN	-KGL	IND	SYLTVHLNN	--PTCGDD	LIVQLLIK	-DSK-	IIDLKQQKGCSICCASASVASELL
Oenococcus	MG	-----LEG-----	LNQLYRQVILDAAVDQRY	-RGQ	LLN	-PTAVQLAHN	--PNCGDV	LELQIKVS	-DRH-	ITAIAFQGGCTISQASASILADLA
Pediococcus	MSN	-----IQ-----	ELYQKIIVNHAKYPIG	-VG	VLQ	-YNYHAKLKN	--PDCGDDI	EVYLVKV	-DQH-	LEQISFTGQGGCIISQASASMMVDAL
Peptostreptococcus	MD	-----IR-----	EIYTEIITEESRNTKN	-KRY	LEH	-PTHEEKGN	--PSCGDE	ITLQLDIE	-DGI-	IKDASYVGVGCAISQASTSLMIDLI
Finegoldia	ME	-----LG-----	SLYTELILEKSRDKSN	-RRE	LEH	-PTHCELGHN	--PSCGDE	ITLQLKVQ	-DDT-	IEDIAYTGMGCAISQASTSIMCDVI
Clostridium	MD	-----LN-----	AIYTELIMEHSTSKHN	-KRNL	DN	-PDIKEKGN	--PSCGDDI	TLTKLKN	-NGV-	IEDLAFTGQGCASQASTSIMIDLI
Thermoanaerobacter	MSD	-----LN-----	QLYSEVIMEHYENSPH	-RREL	KD	-ATHKERGN	--PLCGDDI	TLYLKMN	-GDI-	IEDASFTGHGCAISQASTSMMIDLI
Coprococcus	MQN	-----NIQ-----	NRNFYNEILTEHNMREPF	-KYD	LPA	-ANVVLEGVN	--PNCGDDI	IWLKLKVE	-NGV-	IEDGSFVGDGCAISQASADIMLGMI
Nitrococcus	MSD	-----	LRDLYQEVILDHNKHPRN	-FRS	VEP	-HSHQADGYN	--PLCGDRV	TIQLSVEDG	--MI	ASIGFQGDGCAISTASASIMTEVL
Nitrosococcus	MSE	-----	LLDLYQEVILDHRKRPRN	-FHS	MEN	-ADFQADGHN	--PLCGDRV	TVFLKMNG	--II	EDVSFQEGGCAISIASASLMTESL
Polaromonas	MSD	-----	LRDLYQELIVDHYRHPHN	-FGP	LAG	-ANRRAEFGN	--PLCGDR	LTLYLQVVDG	--VI	ENARFEGSGCAISTASASLMTDAL
Coxiella	MSD	-----	LNDLYHQLIIDHGRNPRH	-FGR	LEM	-PTHTHEGYN	--PLCGDR	LTVFFQEKNG	--VI	TARFEGSGCAISMASASLMMEAL
Myxococcus	MSASD	-----	D-LKDLYQEVVLEHSKRPRN	-YRV	VEG	-ATAEAAGHN	--PLCGDQ	LVLVTLKVEGG	--VI	KDVAFQGGGCAISKASASLMTGAV
Stigmatella	MSS	-----	E-LKDLYQEVVLDHGKRPRN	-FRA	VEG	-ANHRAEGFN	--PLCGDQ	LSVALKVEDG	--VI	RDIGFQGGGCAISRASASLMTGAV
Anaeromyxobacter	MSE	-----	LTDLYQEVVLDHGKRPRN	-YGP	LEG	-ATHRAEGLN	--PLCGDR	ITVAARLEGG	--VV	RDVRFEGSGCAISKASASVMTGVA
Thauera	MSGMQ	-----	DSLRELYQEVIFDHNRP	NRN	YRLL	PA-ANHHADGHN	--PLCGDR	LTVYLQVEDG	--IV	RDAFVGHGCAISTASASLMTGAV
Rickettsiella	MMS	-----	HLRELYQEMILDHGRNPRH	-HHT	MP	L-ANRLAHGFN	--QICGDR	LTVYLKIDHG	--KI	KAISFQSGCAIAIASASLMSLIL
Methylococcus	-----	-----MED-----	-----	-----	-----	ANRTVEGFN	--PLCGDR	ITLYVKIDDAG	--VI	RDVSFQSGGCAISTASASLMTGAV
Legionella	MSM	-----	ELRELYQEIIDHNRP	NRN	HHAM	ED-ATTEAKGFN	--PLCGDK	LTVYLKLQGD	--LI	RDVSFIGGCAISQASASLMTDAL
Dichelobacter	MND	-----	LSDLYQELILDHSKNPRN	-FHA	LTP	-CTHSATGHN	--PLCGDN	LKVFLVRLNEG	--VI	ADLSFVGDGCAISKASASMMTELA
Mariprofundus	MFE	-----	LRDLYQQVIVDHNKSPRN	-FGK	LAS	-FNHEADGYN	--PLCGDK	LHIYLVNSDDG	--II	EDVSFEGEGCAISVASASLMTDAL
Psychromonas	MND	-----	ELRALYQEVIIDHGRNPRN	-SKK	LEH	-PSCTQEGYN	--PLCGDR	LTLYLRIIDN	--RI	IDASFEFEGGCAISMAASSLMTERI
Nitrosospira	MTT	-----	KSLYQEVILDHNRP	NRN	YGKL	DK-ASHHAVGHN	--PLCGDH	LIDIDLNVGK	--HI	EGIAFHGESCAICKASASMMTTVV
Rhodoferrax	MSADP	-----	KALYQEVILDHNRP	NRN	YGEL	DH-PSHHAEGVN	--PLCGDH	IHVALDLKGD	--SV	ERIAFHGESCAICKASASMMTVAV
Nitrosomonas	MSL	-----	KSIYQEVILDHNRP	NRN	YGAL	RS-PTHHATGHN	--PLCGDR	IELDINMLDG	--HI	EEIAFQGESCAICKASSSMMTNAV
Acidovorax	MTGFTGNA	-----	ENELYQEVVLEHKRAPRN	-FGH	LPQ	-PTHQARGHN	--PSCGDR	IAYELQLQGG	--RV	QDIRFTGQGCACMASTSMTEAV
Burkholderia	MNPAASHTVPDDA	-----	QSTLYQELVVEHKRAPRH	-FGR	LAE	-PTHEARGHN	--PSCGDD	LKVQLRIEGG	--RI	GDIRFDHGCAICIASASMMTEAV
Acidiphilium	MSGAAD	-----	VGDLYQRLIMERARAPLH	-AGR	PAR	-FDAEAEAGDN	--PMCGDR	VHLRLSC	-AGG-	AIGEVWHETRGAICVASADLMADAV
Gluconacetobacter	MD	-----	QDGLYQORQVIERARAPVH	-AGP	LDG	-ATHQOEGTN	--PMCGDR	VRLGVTLDAAG	--RV	VVRHQTRGAICVASADMMADLA
Thermosinus	-----	-----	MYTEKVMDFHTNPRN	-VGE	IEDAN	---	GIGEVGN	AKCGDIMRIY	LKIE	-NDI- IKDVKFKTFGCGAAIATSSMVTEMV
Desulfitobacterium	-----	-----	MYTEKVMDFHTNPRN	-VGE	IEDAN	---	GVGEVGN	AKCGDIMRIY	LDVE	-GDI- IKDVKFKTFGCGAAVATSSMVTEMV
Hellobacterium	-----	-----	MYTDKVMDFHTNPRN	-VGE	IENAS	---	GVGEVGN	ASCSDIMRIY	LDVE	-DNI- IKDVKFKTFGCGAAIATSSMVTELI
Desulfotomaculum	-----	-----	MYTEKVMDFHTNPRN	-VGE	IENAD	---	GIGQVGN	PSCGDIMKIT	LKVE	-DNI- IKDIKFKTFGCGAAVATSSMVTEMA
Moorella	-----	-----	MYSEKVMDFHTNPRN	-VGE	IENAD	---	GVGQVGN	PVCGDIMRLY	IKVE	-DGI- IKDVKFKTFGCGAAIATSSMVTEMV
Carboxydotherrhus	-----	-----	MMYSEKVMDFHTNPRN	-VGE	IPDAD	---	GVGEVGN	PSCGDIMRIY	IKVD	-GDK- ITDVKFKTFGCGAAIATSSMVTEMV
Halothermothrix	-----	-----	MYSEKVMDFHTNPRN	-VGE	IKDAD	---	AVGEVGN	PVCGDI	IKLYLIK	-DDT- IEDIKFKTFGCGAAVATSSMVTELV
Pelotomaculum	-----	-----	MYSEKVIHFHTNPRN	-VGE	IPDAD	---	GVGEVGN	QVCGDI	IKLYLIK	-DNI- IKDIKFKTFGCGAAIASGSMTEMA
Natranaerobius	-----	-----	MYNEKVMDFHTNPRN	-VGE	ESPD	---	GVGEVGN	VTCDIMRIS	IKVN	-NNEEIEDIKFKTFGCGAAIATSSIVTEMA
Anaerofustis	-----	-----	MYNDIVLDFHTNPRN	-VGE	IEDAT	---	VVAKEAS	PSCGDTTEFF	LKID	-DNDVITDIKFRTFGCAAIAASASMSTELI
Desulfuromonas	-----	-----	MYTDKVMDFHTNPRN	-VGE	QIENPN	---	VVVKVGD	PSCGDAVL	IFL	LKID-DN-VITDVKYKVYCGAAIATSSMASTMV
Pelobacter	-----	-----	MSFAHYSPKVFDFHTNPRN	-NGV	LEDAN	---	GIGEI	GDPECGDHLKV	VVKIE	-DD-IVKDIKFQIKGCPAAIACASAMTELV
Geobacter	-----	-----	MAEIYSKAVVDHVRNPRN	-VGS	LEDAN	---	VVVQAGD	PTCGDAVLY	FLRIE	-ED-IVRDIKFFLIKGCGAAIATSSVATELV
Desulfococcus	-----	-----	MIYSKTVMDHFRNPRN	-VGE	VIENAA	---	GVGEVGN	PICGDMMTIY	LDIQ	-DD-RIADIKFQTFGCGSAIAVSSMLTELA
Anaerotruncus	-----	-----	MLYSKTVMDHFRNPRN	-VGE	VIENAD	---	GIGEVGN	AKCGDIMKMY	LKI	-KDGVIEDAKFRTFGCGAAIATSSMATDMI
Faecalibacterium	-----	-----	MASMYSAKVMDFHTNPRN	-VGE	LPDAN	---	GVGEVGN	PVCGDIMRMY	LKI	-ENNVIIVDVKFLTFGCGAAIATSSMATDLI
Anaerostipes	-----	-----	MYSEKVMDFHTNPRN	-VGE	IEGAS	---	GVGTVGN	AKCGDIMRIY	FDID	-DNQIIQDVKFKTFGCGAAVATSSMATELV

	10	20	30	40	50	60	70	80	90	100
									
Dorea	-----		MYS	AKVMDHFEHPRN-VGE	IEDAS---	G	VGTVGN	AKCGDIMRIYLDID-ENQ	IKDV	KFTFGCGAAVATSSMATEMV
Ruminococcus	-----		MYTEK	VMDHFQHPRN-VGE	LENAS---	G	VGTVGN	AKCGDIMRIYLDID-ENQ	IIRD	VKFTFGCGAAVATSSMATELV
Alkaliphilus	-----		MYSEK	VMDHFMNPRN-VGE	IEKAQ---	A	VGEVGN	AKCGDIMKMYLQI--END	VIVD	VKFTFGCGSAIATSSMATEMI
Ehrlichia	-----		MSYSE	SLLH	HYKNPKN-VGTL	PKEDYNVGTGLVGAPSCGDVMKLQIKVD-DNG	KIID	AKFKTFGCGAAIAASSLATELI		
Cowdria	-----		MSYSE	SLLH	HYKNPKN-VGTL	PKEDYNVGTGLVGAPSCGDVMKLQIKVD-DNG	KIID	AKFKTFGCGAAIAASSLATELI		
Anaplasma	-----		MSYSD	AVLDRCKNPQN-VGSL	PKDDLNVGTGLVGAPSCGDVMKLQIKVD-ENG	TIVDA	KFKTFGCGAAIAASSLATERI			
Wolbachia	-----		MSYNE	KILDHYENPRN-VGSL	DKNDPNVGTGLVGAPSCGDVMKLQIKVN-DK	GVI	EDAKFKTFGCGSAIASSSLTEMI			
Plesiocystis	-----		MAYSD	KVIDHYENPRN-VGSL	DKSDEAVGTGIVGAPACGDVMKLQIKV--EDD	VITE	AKFKTYGCGSAIASSSLTEWV			
Sorangium	-----		MAYSD	KVIEHYENPHN-VGTL	DKNDERVGTGLVGAPACGDVMRLQIKVG-EGG	VIE	AKFKTFGCGSAIASSSLATEWL			
Oceanospirillum	-----		MAYSD	KVIDHYENPRN-VGKM	NDKDSNVGTGMVGAPACGDVMRLQIKVS-DEG	IIE	AKFKTYGCGSAIASSSLTEWV			
marine_proteobac.	-----		MAYSE	KVIDHYENPRN-VGKL	DDSSKNVGTGMVGAPACGDVMRLQIQVS-SDG	IIE	AKFKTYGCGSAIASSSLTEWV			
Pseudomonas	-----		MAYSE	KVIDHYENPRN-VGKL	DAADPNVGTGMVGAPACGDVMRLQIKVN-EQ	GVI	EDAKFKTYGCGSAIASSSLATEWM			
Azotobacter	-----		MAYSD	KVIDHYENPRN-VGKL	DAQDPDVGTMVGAPACGDVMRLQIKVN-EQ	GII	EDAKFKTYGCGSAIASSSLATEWM			
Colwellia	-----		MAYSE	KVLDHYENPRN-VGSM	DKNDPSVATGMVGAPACGDVMKLQIKIS-DDG	IIE	AKFKTYGCGSAIASSSLTEWV			
Moritella	-----		MAYSE	KVIDHYENPRN-VGSF	DKNDPSIATGMVGAPACGDVMKLQIKIN-DDG	IIE	AKFKTYGCGSAIASSSLTEWV			
Shewanella	-----		MAYSE	KVLDHYENPRN-VGSF	DKNDPSVVTGMVGAPACGDVMKLQIKRID-ADG	VIE	AKFKTYGCGSAIASSSLTEWV			
Aeromonas	-----		MAYSE	KVIDHYENPRN-VGGF	DKNDPSIATGMVGAPACGDVMKLQIKIS-DDG	IIE	AKFKTYGCGSAIASSSLTEWV			
Pseudoalteromonas	-----		MAYSD	KVIDHYENPRN-VGVL	DKNDPSVATGMVGAPACGDVMKLQIKVS-ADG	IIE	AKFKTYGCGSAIASSSLTEWV			
Alteromonadales	-----		MAYSD	KVIDHYENPRN-VGAL	DKNDPSVATGMVGAPACGDVMKLQIKVS-DT	GVI	EDAKFKTYGCGSAIASSSLTEWV			
alpha_proteobac.	-----		MAYSE	KVIDHYENPRN-VGGF	DKDDKNIATGMVGAPACGDVMKLQIKVG-ENG	VIE	AKFKTYGCGSAIASSSLTEWV			
Haemophilus	-----	MAFTRIE	KRKVKMAYSE	KVIDHYENPRN-VGSL	DKKDSNVGTGMVGAPACGDVMQLQIKVD-DNG	IIE	AKFKTYGCGSAIASSSLITEWV			
Pasteurella	-----		MAYS	NKVIDHYENPRN-VGSL	DKKANVGTGMVGAPACGDVMQLQIKVS-EEG	IIE	AKFKTYGCGSAIASSSLITEWV			
Actinobacillus	-----		MAYSE	KVIDHYENPRN-VGTF	DKEAADIGTMVGAPACGDILRLQIKVN-DQ	GII	EDARFKAYGCGSAIASSSLITEWV			
Mannheimia	-----		MAYSE	KVIDHYENPRN-VGTF	DKEASDTGTMVGAPACGDILRLQIKVN-DQ	GII	EDARFKAYGCGSAIASSSLITEWV			
Neisseria	-----		MAYSD	KVIDHYENPRN-VGTF	DKNDESVGTGMVGAPACGDVMRLQIKVN-DEG	IIE	AKFKTYGCGSAIASSSLITEWV			
Vibrio_cholerae	-----		MAYSE	KVIDHYENPRN-VGSF	DKEDPSVGS	GMVGAPACGDVMRLQIKVS-PEG	IIE	AKFKTYGCGSAIASSSLTEWV		
Vibrionales	-----		MAYSE	KVIDHYENPRN-VGSF	DKEDPSVGS	GMVGAPACGDVMKLQIKVT-PEG	IIE	AKFKTYGCGSAIASSSLTEWV		
Photobacterium	-----		MAYSE	KVIDHYENPRN-VGSF	DKDDQNVGSGMVGAPACGDVMKLQIKVT-EEG	IIE	AKFKTYGCGSAIASSSLITEWV			
Shigella	-----		MAYSE	KVIDHYENPRN-VGSF	DNNDENVSG	GMVGAPACGDVMKLQIKVN-DEG	IIE	ARFKTYGCGSAIASSSLTEWV		
Escherichia_coli	-----		MAYSE	KVIDHYENPRN-VGSF	DNNDENVSG	GMVGAPACGDVMKLQIKVN-DEG	IIE	ARFKTYGCGSAIASSSLTEWV		
Salmonella	-----		MAYSE	KVIDHYENPRN-VGSF	DNDDNVGSG	GMVGAPACGDVMKLQIKVN-DEG	IIE	ARFKTYGCGSAIASSSLTEWV		
Enterobacter	-----		MAYSE	KVIDHYENPRN-VGSF	DNSDES	VSGSGMVGAPACGDVMKLQIKVN-NEG	IIE	ARFKTYGCGSAIASSSLTEWV		
Klebsiella	-----		MAYSE	KVIDHYENPRN-VGSF	DNSDEN	VSGSGMVGAPACGDVMKLQIKVN-NEG	IIE	ARFKTYGCGSAIASSSLTEWV		
Photorhabdus	-----		MAYSE	KVIDHYENPRN-VGSF	DSEDP	VMVSGMVGAPACGDVMKLQIKVN-NEG	IIE	ARFKTYGCGSAIASSSLTEWM		
Xenorhabdus	-----		MAYSD	KVIDHYENPRN-VGSF	DSEDP	SVSGSGMVGAPACGDVMRLQIKVN-NEG	IIE	ARFKTYGCGSAIASSSLTEWM		
Serratia	-----		MAYSE	KVIDHYENPRN-VGSF	DNEDPS	VSGSGMVGAPACGDVMKLQIKVN-NEG	IIE	ARFKTYGCGSAIASSSLTEWM		
Yersinia	-----		MAYSE	KVIDHYENPRN-VGSF	DSQDPTIGS	GMVGAPACGDVMKLQIKVN-EAG	IIE	ARFKTYGCGSAIASSSLTEWM		
Erwinia	-----		MAYSE	KVIDHYENPRN-VGSF	DNADPSIGS	GMVGAPACGDVMKLQIKVN-NEG	IIE	ARFKTYGCGSAIASSSLTEWV		
Providencia	-----		MAYSE	KVIDHYENPRN-VGSF	DNNDPS	VSGSGMVGAPACGDVMKLQIKVN-DNG	IIE	ARFKTYGCGSAIASSSLTEWM		
Buchnera	-----		MAYS	KKVMDHYENPRN-VGSF	SNSDSNVGSG	LVGAPACGDVMKLQIKVN-EQG	IIE	ACFKTYGCGSAIASSSLTEWI		
Janthinobacterium	-----		MAYSD	KVLDHYENPRN-VGAF	DKGDETIGTMVGAPACGDVMKLQIKVG-ADG	VIQ	DAKFKTYGCGSAIASSSLTEWV			
Herminiimonas	-----		MAYSD	KVLDHYENPRN-VGAF	DKGDETIGTMVGAPACGDVMKLQIKVG-ADG	VIE	DAKFKTYGCGSAIASSSLTEWV			
Azoarcus	-----		MAYSE	KVLDHYENPRN-VGAF	GKEDEG	VGTGMVGAPACGDVMKLQIKVG-KDG	VIE	DAKFKTYGCGSAIASSSLTEWV		
Thiobacillus	-----		MSYSD	KVLDHYENPRN-VGAF	NKEDEG	VGTGMVGAPACGDVMKLQIKVG-KDGL	IE	DAKFKTYGCGSAIASSSLTEWV		
Ralstonia	-----		MSYS	NKVLDHYENPRN-VGSF	DKGDGT	VGTGMVGAPACGDVMKLQIKVN-EQG	VIE	DAKFKTYGCGSAIASSSLTEWV		
Dechloromonas	-----		MSYS	VKVLDHYENPRN-VGSF	AKEDDG	VGTGMVGAPACGDVMKLQIKVN-KSG	VIE	DAKFKTYGCGSAIASSSLTEWV		
Chromobacterium	-----		MAYSE	KVLDHYENPRN-VGSF	DKGDDSIGT	GMVGAPACGDVMKLQIKVG-ADG	VIE	DAKFKTYGCGSAIASSSLTEWV		
Limnobacter	-----		MAYSE	KVLDHYENPRN-VGSF	EKGDE	VGTGMVGAPACGDVMKLQIKVG-EDG	VIT	DAKFKTYGCGSAIASSSLTEWV		
Bordetella	-----		MAYSS	KVLDHYENPRN-VGSF	DKGDES	VGTGMVGAPACGDVMKLQIKVS-ESG	VIE	ARFKTYGCGSAIASSSLTEWV		
Polynucleobacter	-----		MAYSE	KVIDHYENPRN-VGSF	EKGDDSVGT	GMVGAPACGDVMKLQIRVN-DQG	VIE	DAKFKTYGCGSAIASSSLTEWV		
Methylibium	-----		MAYSE	KVVEHYENPRN-VGSF	EKGDDT	VGTGMVGAPACGDVMKLQIKVNPATGL	IE	DAKFKTYGCGSAIASSSLTEWV		
Leptothrix	-----		MAYSD	KVIDHYEHPRN-VGAF	EKGDES	VGTGMVGAPACGDVMKLQIKVDPATG	KIADARFKTYGCGSAIASSSLTEWV			
Delftia	-----		MAYSD	KVV	DHYENPRN-VGSF	DKNDESVGTGMVGAPACGDVMKLQIKVNPETG	VIE	ARFKTYGCGSAIASSSLTEWV		
Comamonas	-----		MAYSE	KVV	DHYENPRN-VGSF	DKSDDSVGTGMVGAPACGDVMKLQIKVNPATG	VIE	ARFKTYGCGSAIASSSLTEWV		
Verminephrobacter	-----		MAYSE	KVV	DHYENPRN-VGSF	DKGDDSVGTGMVGAPACGDVMKLQIKVNPQTG	VIE	ARFKTYGCGSAIASSSLTEWV		
Methylobacillus	-----		MAYSD	KVLDHYENPRN-VGSL	DKNDPS	VGTGMVGAPACGDVMKLQIKVN-DQG	IIE	DAKFKTYGCGSAIASSSLTELI		
Methylophilales	-----		MAYSD	KVLDHYENPRN-VGSF	DKNDPS	VGTGMVGAPACGDVMKLQIKIS-DNG	MI	EDAKFKTYGCGSAIASSSLTEWL		
Acinetobacter	-----		MAYSE	KVIDHYENPRN-VGVL	DKNSEN	VGTGMVGAPACGDVMRLQIQVN-DNG	VIE	EARFKTYGCGSAIASSSLTEWL		

	10	20	30	40	50	60	70	80	90	100
									

	110	120	130	140	150	160	170	180	190	200
Enterococcus	LGKTTIAEATALAEDFSQIVQGN	---	EVAED	-EKLGDAA	MLSGVA	-KFPARIKCATLAWKALEQAVA	-----	NNGQGEAGHLHCEK	-----	
Carnobacterium	MGKTVSEALALADQFSLLVQVK	---	DAPKL	-EELGDAALL	NGVA	-KFPARIKCATLSWKALEKALV	-----	EK	-----	
Lactococcus	LGKTKEEAKELATIFSAMVTGE	---	TDERQ	-EKLGDAQFLAGVS	-KFPARVKCSTLAWNALKKAID	-----	VGEAQET	-VIHGE	-----	
Streptococcus	IGKSKEEALALADIFSEMVQGG	---	ENPAQ	-KELGEAE	LLAGVA	-KFPQRIKCSSTLAWNALKKAID	-----	RSANAQH	LTLDQNVKEGKNV	
Lactobacillus	KGKTTTEEALAMAKTFSDMAIGKE	-HSEADL	-DQLGDARILTSIM	-EFPARIKCATLSWWALQ	RALL	-----	KDSEEEENNE	-----		
Leuconostoc	LGQRREAVATLLEEF	SKLTRG	---	EVADT	-KLLGEAQILAGVT	-KFPTRIKCATLAWHALDEL	LS	-----	VEK	-----
Lysinibacillus	KGKKVDEALELADIFSKMMGE	---	EYSDK	-YDLEDVEALQ	QVS	-QFPARIKCATLAWKAMEKG	-----	VK	-----	
Geobacillus	KGKTVEEALRLAHIFSDMIQGG	---	EYDDS	-VDLGDIEALQ	QVS	-KFPARIKCATLAWKALEKG	-----	LHNHEHEGR	-----	
Bacillus	KGKDVESALKLSEVFSNM	QGG	---	EYDED	-IDLGDIEALQ	QVA	-KFPARIKCATLAWKAMEKG	-----	VKEGQ	-----
Exiguobacterium	KGKTVEEALQLANVFSEMVQVK	---	DYDEK	FDLGDIEALSGVT	-KFPARIKCATLAWKAL	ERG	-----	VEEGK	-----	
Staphylococcus	KGHSLGEAMQMSQEF	TKMMLGE	---	DYVIT	-EEMGDIEALQ	QVS	-QFPARIKCATLAWKALEKGT	V	-----	AKEGKAEGTTEEE
Paenibacillus	KGKTYEEALGLAERFSGLMKGE	---	DVDFE	-ENEDIEALSGVN	-KFPARIKCATLAWNALRKG	-----	IEQKQV	-----		
Symbiobacterium	KGKTLAEAQELMQSFYRMIQGE	---	QGNKY	-ALGEIQALSGVS	-KFPVRIKCATLAWHCL	EEGIR	-----	EYEGGDANG	-----	
Acholeplasma	KNKDIFEAKELIQTFYDMLTGE	---	EIKDKS	-VLEDALAFEGVG	-QFPARIKCATLAWKAYEKGLN	-----	PLEGEQ	NNE	-----	
Oenococcus	LHQSLQSMQTRISQFQKMITGK	---	ESVEI	-DQLGDASVFSKIS	-QFPTRVKCAGLVWDAL	EQMLK	-----	NN	-QFD	-----
Pediococcus	SGKRILEAQQLMQNFQNLILG	---	KDYDE	-SQLGDLIAFATLN	-QFPTRVRCGMLAWHAMADGLN	-----	QGGISFGK	-----		
Peptostreptococcus	KGKTLDEAKELCETFLAMIT	-E	-GLEGDEL	-KKLKDAIALQ	NIS	-TMPARVKCAVLAWHTLKNILE	-----	AN	-----	
Finegoldia	KGKSVNEAIDLCKNFISMIGKE	-ITDRKEL	-KVLKDAVCFQ	SIS	-TLPARVKCAVLWSYTLKDMLE	-----	NDKSEGS	FIPD	-----	
Clostridium	KGKNIEEALKLTETFIGMIKRE	-IKDDEEL	-YAL	EDAMAFKNIS	-NMPARVKCAVLAWHTLKEALE	-----	K	-----		
Thermoanaerobacter	KGKDKKEALRLVQEFIDMIH	---	KKDVNL	-DELGDAQVLH	GV	-DFPARVKCALLAWKTLQ	EIL	-----		
Coprococcus	IGKTKKEALKLGQLFLKMIQG	---	EATDEEI	-DQLEEASALKDIA	-HMPARVKCAVLGWHTL	EEALK	-----	NIS	-----	
Nitrococcus	EGKTVDEAQALFDQFHD	LVTRDEACPEA	---	ALGKIAVL	AGVR	-DYPMRVKCATLAWHTLHAALT	-----	EKDEV	TTE	-----
Nitrosococcus	KGKSSQEAEGFLGKFHDLVT	DESTHREEG	---	LSLGLGLV	LAGVK	-AFPMPRVKCATLAWHTLHAALA	-----	HENK	MATTE	-----
Polaromonas	KGKTETEEVENLFASFHALVAGGSDSPS	-T	---	VALGKLEV	LAGVR	-EFPVRVKCATLAWHTLRAALR	-----	EVSQ	PVSTE	-----
Coxiella	KGKSIQAAEILFSQFHD	LVTG	---	TKRE	-T	-AQLGKLAVLAGVA	-EYPARVKCATLCWHTALAALH	-----	HNTTTLVKTE	-----
Myxococcus	KDRTRAEEADLFE	RVHKLVT	TEGPESVD	-V	---	DALGKLAVLSGVS	-EFPARVKCASLAWHTLRAALE	-----	GRGEAVSTE	-----
Stigmatella	KDKTCEEAEMLFARVHQLVT	TEGPAEVD	-T	---	EALGKLT	TVLSGVS	-EFPARVKCASLAWHTLRAALH	-----	EEPEPVSTE	-----
Anaeromyxobacter	KGRTPAEIDAVFERFHR	LVTEGPGAVD	-A	---	GQLGKLAVFGGVH	-EYPTRVKCASLAWHALRQALR	-----	GGGEAVSTE	-----	
Thauera	KGKPVAEVEALFRDVHALLTEGREATDPA	---	RDFGKLEV	LSGVK	-EFPARVKCATLAWHTLHNA	LV	-----	GEHETA	HT	-----
Rickettsiella	SGKTCKEAETCFERFHQLLTRELT	TAEQL	---	QDLEKLA	VFAGVK	-AYPARVKCATLAWHTLLAALK	-----	QNQSLVSTE	SSSLLSYDHTLSAE	-----
Methylococcus	RNMHESEAHALFETFHRIATGK	-DDAVNL	---	EELGKLAV	LAGVR	-AYPARVKCATLAWHSLEAALE	-----	NQETT	VTTE	-----
Legionella	KGKSIKEAHELFHRVHRMLTQE	---	EEDSL	-VSMDKLT	TVLAGVK	-AFPARVKCATLAWHTLEAALN	-----	KETE	VVKTE	-----
Dichelobacter	MGKTTLEEFQKLYDLFHYIATTQNP	PIQE	---	VGKLQAL	AGVR	-QYPARVKCATLAWHTLDAALH	-----	HKNL	VKTE	-----
Mariprofundus	KGTELAAFQQRFE	GFQHMVTADIDE	EPDT	---	DVLGKLAVLSGVR	-EFPSRIKCASLCWHTMKA	AIE	-----	DSGKAAKTE	-----
Psychromonas	KNMTVTEARQLFTAFQNLVTQ	---	AEPPDNIREYL	GKLSVLGGVR	-DFPVRIKCATLPWHALNACLN	NI	-----	NTKQ	IVSTE	-----
Nitrospira	KGKSLGDAEMLIKEFRDMATGALDLAH	-P	---	HHLGRLT	TVFAGVR	-DLPTRVKCAILPWHHTLHAALN	-----	SVSTT	STEAEDDPMHAAIGDA	-----
Rhodoferrax	KGKSAIEAKTLIHEFVDMATGRIAAKD	-S	---	PHIGRLAV	FSGIS	-ELPMRVKCAILPWHHTLQAAFN	-----	AEPSASTEAEADPMHTPLGDA	-----	
Nitrosomonas	KGKSHQEAELIQEFREMLVSGEDKS	---	F	---	DHLGRLKVL	AGVR	-DLPTRVKCAILPWHHTLHAAMN	-----	STD	SATTEADHASKLVANNH
Acidovorax	KGKEVAAAQALQQHFR	-AVLTGEEAPED	---	APLGKLV	SLAGVR	-QYPSRIKCALLGWHALHHAIA	-----	DNGNGQSVSTE	EEPA	-----
Burkholderia	IGRDVEAAARELQQRFR	-AVLTGQAVHDE	---	ASLGKLE	SLVAVQ	-RYPRIKCALLGWHALAHALD	-----	TR	-VAAPSEAEPRAS	-----
Acidiphilium	AGRSRAAAEELADAFEAMVATG	-AVPDRED	---	FSELRAL	SGVH	-EYRSRHRCATLPWQALRAALT	-----	KTME	TGHGG	-----
Gluconacetobacter	PGRSVAELGVLSRAFTDMLRTGGDAPN	-----	PELATFAGLH	-RHRSRIRCATLPWSALDDALN	-----	ESKEG	-----			
Thermosinus	KGKTIDEALKIS	-----	NQAVAEALGGLPPAKMHCSNLAADALHEAIKDYL	NKKGK	-----					
Desulfitobacterium	KGKTIEEALKIT	-----	NAAVAEALDGLPPAKMHCSNLAADALHEAIKNYHEKTLKV	-----						
Hellobacterium	KGKTIDEALGLT	-----	NRAVADALGGLPPQKMHCNLAADALHKAIAIDYKAKQ	EAKR	-----					
Desulfotomaculum	MGKTIDEALTIT	-----	NKAVAEALEGLPPAKMHCSNLAADALKVAIEDYLKKQNV	-----						
Moorella	KGKTVEEALKIS	-----	NAAVAEALDGLPPQKMHCNLAADALHKAIEDYQNRNKKAS	-----						
Carboxydotherrhus	KGKTIEEAMKIT	-----	NKAVADALDGLPPQKMHCNLAADALKVAIEDYLKKKGQK	-----						
Halothermothrix	KGKKIDEALKVS	-----	KETVAEALDGLPSNKMHCNLAADALHKAIKSYNKKD	NSD	NSD	NSD	NSD	NSD	NSD	NSD
Pelotomaculum	KGKTIEEALQIT	-----	NKHVADMLGGLPPQKMHCNLAADALYKAIEDYKSRQAG	-----						
Natranaerobius	KGKHINEARDIK	-----	NKDVADEL	DGLPKNKLHCNLAADALT	KAIKNYLGEEDDEEQEHEDESNETQ	-----				
Anaerofustis	KGKTVEEARKIT	-----	NKMVVD	SLGGLPAPKVHCSVLAEGVINKALDEYVANKNNN	-----					
Desulfuromonas	EGKTLEEALVT	-----	DEKVAEALGGLPDSKMHCNLAATAIRAAVTRYLTPPEEGAAS	-----						
Pelobacter	MGKPVGEAMLVS	-----	DDQIIEYIDGLPEFKVHCSALGASGFRVAVMDYSIKSKLFGATEG	-----						
Geobacter	MGKGLDEV	MGLS	-----	DQIIAQALDGLPEEKMHCSNMAASALHAAVEQY	-RATVAGETKPL	-----				
Desulfococcus	KGKTLEEAKKIT	-----	NKDVAEALEGLPKNKLHCNLAADALQMAIKDYEDRKAGKVRPELKRKESHDELHRVGDKCYCPY	-----						
Anaerotruncus	KGSTIEDALKLS	-----	NKAVVEALDGLPASKIHCSVLAEOAVKAALADYYRKN	GVDP	TP	TP	TP	TP	TP	TP

	110	120	130	140	150	160	170	180	190	200
									
Faecalibacterium	KGKTVDEALKLT	-----	-----	NKAVVEALEGLPPVKVHCSVLAEQAVKAALSDYYRRQGITDPEPIVGKLEEDCEHCESC	GH	-----	-----	-----	-----	-----
Anaerostipes	KGKSVQEALVET	-----	-----	NKAVMEALDGLPPVKVHCSLLAEFAIHAALWDYAQKNGIKIEGLEKPKSDIGEEVE	--EY	-----	-----	-----	-----	-----
Dorea	KGKTVQEAMEVT	-----	-----	NKAVMEALDGLPPVKVHCSLLAEFAIHAALWDYAQKNGITIEGLQPKSDIHGEEDEAE	EY	-----	-----	-----	-----	-----
Ruminococcus	KGKNIQEAMKVT	-----	-----	NKAVMEALDGLPPVKVHCSLLAEFAIHAALWDYAQKNGIKIEGLEKPKTDIHEDEE	--EY	-----	-----	-----	-----	-----
Alkaliphilus	KGKTVKEALQLT	-----	-----	NKAVAEALDGLPPVKMHCSVLAEQAVKAAIYNYAKENNVHYEELEGFVPDEDHHDHDEE	EE	-----	-----	-----	-----	-----
Ehrlichia	KGKTIIDEAHQLK	-----	-----	NTVLAKELS-LPPVKIHCSLLAEDAVKAAIKDYNMKQATKKDKLSSSNE	-----	-----	-----	-----	-----	-----
Cowdria	KGKTVDEAHELK	-----	-----	NTVLAKELS-LPPVKIHCSLLAEDAVKAAINDYHMKQANKKNATKDPNE	-----	-----	-----	-----	-----	-----
Anaplasma	KGKTIIEEACMLK	-----	-----	NTVLAKELS-LPPVKIHCSLLAEDAVKAAVHDYKSKQQIAKGDKC	-----	-----	-----	-----	-----	-----
Wolbachia	KGRTISDVTQIK	-----	-----	NTQIVEELS-LPPVKIHCSVLAEDAIIKAAIHDIYQSKQKN	-----	-----	-----	-----	-----	-----
Plesiocystis	KGMKIDEAEQIK	-----	-----	NSQIAEELS-LPPVKIHCSVLAEDAIIKAAIADYRDKKKG	-----	-----	-----	-----	-----	-----
Sorangium	KGKTIIDEAETIK	-----	-----	NSMIAEELH-LPPVKIHCSVLAEDAIIKSAIADFRAKQQA	KRELAGAAPSVPA	AAAAATASAE	-----	-----	-----	-----
Oceanospirillum	KGMSLDEAAELK	-----	-----	NTSIAEELA-LPPVKIHCSVLAEDAIIKAAVADYKEKQDK	-----	-----	-----	-----	-----	-----
marine_proteobac.	KGKHIDDAAEIK	-----	-----	NTEIAEELA-LPPVKIHCSVLAEDAIIKAAVRDIREKQGS	-----	-----	-----	-----	-----	-----
Pseudomonas	KGKTLDEAETIK	-----	-----	NTTIAEELA-LPPVKIHCSVLAEDAIIKAAVRDYKQKKGLL	-----	-----	-----	-----	-----	-----
Azotobacter	KGRTLLEEAETIK	-----	-----	NTQIAEELA-LPPVKIHCSVLAEDAIIKAAVRDYKHKKGLV	-----	-----	-----	-----	-----	-----
Colwellia	KGKSIEEAGEIK	-----	-----	NTAIAEELA-LPPVKIHCSILAEDAIIKAAIEDYKSKQSK	-----	-----	-----	-----	-----	-----
Moritella	KGKSIEQAGEIT	-----	-----	NMTIAEELA-LPPVKIHCSILAEDAIIKAAIDDYKKKKAS	-----	-----	-----	-----	-----	-----
Shewanella	KGKTIIEEAAAIK	-----	-----	NTDIAEELA-LPPVKIHCSILAEDAIIKAAIDDYKSKQDK	-----	-----	-----	-----	-----	-----
Aeromonas	KGKTLDEAAGIK	-----	-----	NTDIAEELA-LPPVKIHCSILAEDAIIKAAIADYKQKKGL	-----	-----	-----	-----	-----	-----
Pseudoalteromonas	KGKTLLEQAATIK	-----	-----	NTDISAELE-LPPVKIHCSILAEDAIIQAAIANYKSKQAK	-----	-----	-----	-----	-----	-----
Alteromonadales	KGKTLDEAATIK	-----	-----	NTDISAELE-LPPVKIHCSILAEDAIIQAAIADYKSKQAK	-----	-----	-----	-----	-----	-----
alpha_proteobac.	KGKTLDEATTIK	-----	-----	NTDIAEELA-LPPVKIHCSILAEDAIIKAAVADYKAKNA	-----	-----	-----	-----	-----	-----
Haemophilus	KGKSLEEAGAIK	-----	-----	NSQIAEELA-LPPVKVHCSILAEDAIIKAAIADYKAKQG	-----	-----	-----	-----	-----	-----
Pasteurella	KGKSLDEAQAIK	-----	-----	NSQIAEELA-LPPVKVHCSILAEDAIIKAAIADYKAKKEAK	-----	-----	-----	-----	-----	-----
Actinobacillus	KGKSLEEAGAIK	-----	-----	NSDIAEELA-LPPVKVHCSILAEDAIIKAAIADYKEKQAK	-----	-----	-----	-----	-----	-----
Mannheimia	KGKSLEEAGAIK	-----	-----	NSDIAEELA-LPPVKVHCSILAEDAIIKAAIADYKEKQAK	-----	-----	-----	-----	-----	-----
Neisseria	KGKSLDDALAIK	-----	-----	NSEIAEELA-LPPVKIHCSILAEDAVKAAVADYRKRQENR	-----	-----	-----	-----	-----	-----
Vibrio_cholerae	KGKSIDEAAAIK	-----	-----	NSEIAEELA-LPPVKIHCSILAEDAIIKAAVADYKKKHQH	-----	-----	-----	-----	-----	-----
Vibrionales	KGKSIDEAAAIK	-----	-----	NSEIAEELA-LPPVKVHCSILAEDAIIKAAVADYKKKR	-----	-----	-----	-----	-----	-----
Photobacterium	KGKTLDEAASIK	-----	-----	NSAIAEELA-LPPVKVHCSILAEDAIIKAAVSDYKKKHEQK	-----	-----	-----	-----	-----	-----
Shigella	KGKSLVEAQAIK	-----	-----	NTDIAEELA-LPPVKIHCSILAEDAIIKAAIADYKSKREAK	-----	-----	-----	-----	-----	-----
Escherichia_coli	KGKSLDEAQAIK	-----	-----	NTDIAEELA-LPPVKIHCSILAEDAIIKAAIADYKSKREAK	-----	-----	-----	-----	-----	-----
Salmonella	KGKSLDEAQAIK	-----	-----	NTDIAELE-LPPVKIHCSILAEDAIIKAAIADYKSKREAK	-----	-----	-----	-----	-----	-----
Enterobacter	KGKSLDEAQAIK	-----	-----	NTDIAELE-LPPVKIHCSILAEDAIIKAAIADYKSKREAK	-----	-----	-----	-----	-----	-----
Klebsiella	KGKSLDEAQAIK	-----	-----	NTDIAELE-LPPVKIHCSILAEDAIIKAAIADYKSKREAK	-----	-----	-----	-----	-----	-----
Photorhabdus	KGKSLEQAEAIK	-----	-----	NTEIAELE-LPPVKIHCSILAEDAIIKAAIADYKSKRQGR	-----	-----	-----	-----	-----	-----
Xenorhabdus	KGKSLEQAEAIK	-----	-----	NTQIAELE-LPPVKIHCSILAEDAIIKAAIADYKSKRQAK	-----	-----	-----	-----	-----	-----
Serratia	KGKSLDQAEAIK	-----	-----	NTQIAEELA-LPPVKIHCSILAEDAIIKAAIADYKSKHSAK	-----	-----	-----	-----	-----	-----
Yersinia	KGKSLEQAEAIK	-----	-----	NTQIAEELA-LPPVKIHCSILAEDAIIKAAIADYKSKHTAK	-----	-----	-----	-----	-----	-----
Erwinia	KGKSLNEAEAIK	-----	-----	NTQIAEELA-LPPVKIHCSILAEDAIIKAAIADYKSKRDAQ	-----	-----	-----	-----	-----	-----
Providencia	KGKSLDEAEAIK	-----	-----	NTAIAEELA-LPPVKIHCSILAEDAIIKAAIADYKSKRQGK	-----	-----	-----	-----	-----	-----
Buchnera	KGKSITEAEAIK	-----	-----	NTSIVEELA-LPPVKIHCSILAEDAIIKAAISDYKSKKNKN	-----	-----	-----	-----	-----	-----
Janthinobacterium	KGKTLDQAMSIK	-----	-----	NTQIAEELA-LPPVKIHCSILAEDAIIKAAVLDYKTKHGVAESKEAA	-----	-----	-----	-----	-----	-----
Herminiimonas	KGKTLDQALSIK	-----	-----	NTQIAEELA-LPPVKIHCSILAEDAIIKAAVLDYKTKHGVAEAEKAV	-----	-----	-----	-----	-----	-----
Azoarcus	KGKTVDQALEIK	-----	-----	NTQIAEELA-LPPVKIHCSILAEDAIIKAAVADYKKKQG	-----	-----	-----	-----	-----	-----
Thiobacillus	KGKTLDQAMEIK	-----	-----	NTAIAEELA-LPPVKIHCSILAEDAIIKAAVADYKQKKGLE	-----	-----	-----	-----	-----	-----
Ralstonia	KGKTLDQALEIR	-----	-----	NTQIAEELA-LPPVKIHCSILAEDAIIKAAVADYKEKHGTAEQKAA	-----	-----	-----	-----	-----	-----
Dechloromonas	KGKTVDQALSIK	-----	-----	NTEIAEELA-LPPVKIHCSILAEDAIIKAAVADYKKKHGE	-----	-----	-----	-----	-----	-----
Chromobacterium	KGKSLDEALAIK	-----	-----	NTAIAEELA-LPPVKIHCSILAEDAIIKAAVEDYKQKHGK	-----	-----	-----	-----	-----	-----
Limnobacter	KGKTLDQALEIK	-----	-----	NTAIAEELA-LPPVKIHCSILAEDAIIKAAVEDYKKKHA	-----	-----	-----	-----	-----	-----
Bordetella	KGKTLDEALDIR	-----	-----	NTQIAEELA-LPPVKIHCSILAEDAIIKAAVKDYKDKHAAPADAQGETAAAAVAN	-----	-----	-----	-----	-----	-----
Polynucleobacter	KGKTLDQALEIK	-----	-----	NSLIAEELA-LPPVKIHCSILAEDAIIKAAVADYKEKHHPAQ	-----	-----	-----	-----	-----	-----
Methylibium	KGKSLDEALTIK	-----	-----	NTQIAEELA-LPPVKIHCSILAEDAIIKAAVSDYKAKHGNAQPAAATATH	-----	-----	-----	-----	-----	-----
Leptothrix	KGKTLDEALTIK	-----	-----	NTHIAEELA-LPPVKIHCSILAEDAIIKAAVDDYKAKH	--AQ	-----	-----	-----	-----	-----
Delftia	KGKTLDEAAALK	-----	-----	NSQIAEELA-LPPVKVHCSILAEDAIIKAAVDDYRAKRTAVVAA	-----	-----	-----	-----	-----	-----
Comamonas	KGKTLDEAAALK	-----	-----	NSQIAEELA-LPPVKVHCSILAEDAIIKAAVNDYRAKRTATEA	-----	-----	-----	-----	-----	-----
Verminephrobacter	KGKTLDEAAAVK	-----	-----	NSEIAQELA-LPPVKIHCSILAEDAIIKAAVLDYKTKRMAAAAVA	-----	-----	-----	-----	-----	-----
Methylobacillus	KGKSLDQAMEIK	-----	-----	NSDIAQELA-LPPVKIHCSVLAEDAIIKAAVADLAKQGA	KDQQVA	-----	-----	-----	-----	-----
Methylophilales	KGKTLDQASEIK	-----	-----	NSAIAEELA-LPPVKIHCSVLAEDAIIKAAVADLKSQ	--K	-----	-----	-----	-----	-----

110 120 130 140 150 160 170 180 190 200
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Acinetobacter KGKTLDEAQAIK-----NIDIAATELA-LPPVKVHCSVLAEDAIIKAIEDYRSKKSKA-----
Psychrobacter KGKTLDQASEIK-----NKHIAEELA-LPPVKVHCSVLAEDAIIKAIEDYRAKSQTVEA-----
Candidatus KGKTLNEAAEIK-----NSDIAEELS-LPPVKIHCSVLAEDAIIKAINDIKSKA-----
Endoriftia KGKTLDEAQQIK-----NSEIAEELA-LPPVKVHCSVLAEDAIIKAIIKDYYTDKNAG-----
Magnetococcus KGKTIDEALTIK-----NKDVAEELA-LPPVKVHCSVLAEDAIIKAIVKYREKQQKKGA-----
Magnetospirillum KGKTLDEAASIK-----NTDIAQELA-LPPVKIHCSVLAEDAIIKAIIADYKKKSG-----
Rickettsia KGRSVDAETIK-----NTEIAKELS-LPPVKLHCSSLAEIDAIIKAIIADYKQKKESKKDS-----
Neorickettsia IGSIEEAEEKIK-----NTEIASTLC-LPPIKMHCMSMLAEIDAIIKAIIKDFREKQVTSSSTEEAGNENTENKS-----