

BLOCKS		* 10	* 20	* 30	* 40	* 50	* 60	* 70	* 80	* 90											
FEATURES		BBBBBBBBBBBBBBBBBBBBBBBBBBB										BBBBBBBBBBBBBBBBBBBBBBBBBBB									
CLADE_A		<N-TERM>	-XXX-	HHHHHHHHHHHHHHHHHHH	-<GAP>			HHXHHHHHHHHHHHHHXH													
1VF5_A-B Mastigocladus_lamosus		FYCLGGITLTCFLICFATGFAMTFYYKP	AASVQY	IMNEVSFGWLI	RSIHRWSASMMVLMMILHVFRVYLTTGGFKRP																
7525063-64 Arabidopsis_thaliana		FYCLGGITLTCFLVQVATGFAMTFYYRP	AASVQY	IMTEANFGWLI	RSVHRWSASMMVLMMILHVFRVYLTTGGFKRP																
11467221-22 Zea_mays		FYCLGGITLTCFLVQVATGFAMTFYYRP	AASVQY	IMTEANFGWLI	RSVHRWSASMMVLMMILHVFRVYLTTGGFKRP																
257060385-86 Cyanotheca_sp._PCC_8802		FYCLGGITLVCFIIICFATGFAMTFYYKP	AASVQY	IMNEVNFGWLI	RSIHRWSASMMVLMMILHVFRVYLTTGGFKRP																
56751780-79 Synechococcus_elongatus_PCC_6301		FYCLGGITLTCFLICFATGFAMTFYYKP	AASVQY	IMNQNVFGWLI	RSIHRWSASMMVLMMILHVFRVYLTTGGFKRP																
CLADE_B																					
167629366-67 Heliobacterium_modesticaldum_Ice1		FYCLGGITLLCFIIICLTIVFLAFYYKP	AASVQM	ITNEVRFGSVI	RSMHHWSCQLMILLVFLHLMLRVYTTCAFKKR																
219666275-76 Desulfotomaculum_hafniense_DCB-2		IFCFGGISFLFLVQVVTCIVLAYYYNP	AOSVM	INDEVPFGKAL	RSVHTAANLMIMVVLHFLRVFTGAYKKP																
334340096-97 Desulfotomaculum_ruminis_DSM_2154		YFCFGGITLFTFVIQVLTGILLAVYYNP	AYSVKF	IDIEVALAVV	RSVHRCSNLMMVVLHMLRLVIYTGSYKRK																
CLADE_C																					
206890468-206890179 Thermodesulfovibrio_yellowston		FYCFGGIAFTFLICLVSLFLSHFYIP	AOSILR	IHEEVFLKLL	RGIHKWSANVLIVSIISIHFVFTSYRPP																
226312077-78 Brevibacillus_brevis_NBRC_100599		VYCFGGITFFITVTIQILSCMFLMYYP	AYSVKY	LQNEVAFGVIV	RGMHWGASLVIVMMLHTLTVFFTGAYKKP																
23099230-29 Oceanobacillus_iheyensis_HTE831		VYCFGGITFFVVVITQILSCMFLMYYP	AKSVYY	LQTEVAFGQIV	RGMHWGASVVIVMMLHTLTVFFTGAYKKP																
16079312-11 Bacillus_subtilis		VYCFGGITFFVTIQTQVLSMFLMYYP	AVSVYY	LQNEVAFGQIV	RGMHWGASLVIVMMLHTLTVFFTGAYKKP																
CLADE_D																					
87312209 Blastopirellula_marina_DSM_3645		MYYFGSMITLLMLQIVTGVCLAMIYQP	AASLE Y	LNVEAPFGWLI	RAIHYSATSMMVLMVMHTIQVFLMAFKYR																
225874021 Acidobacterium_capsulatum_ATCC_51196		WYVFGSAATLLMLQVMTGILLALIYP	AWOSLNF	INHDLTGWFV	RAVHNWGNSFMVAIVLHMVQVFLFGAYKRF																
374311795 Granulicella_mallensis_MP5ACTX8		WYVFGSAATVILLQVMTGILLALIYP	AWNSLF	LHNVLTLGFW	RAVHNGWSDFMVAIVLHMVQVFLFGAYKRF																
320106951 Terriglobus_saanensis_SP1PR4		WYVFGSAATVLLIMQVMTGILLALIYP	AWGSLQF	LHNVALGWYV	RAHNGWSDFMIAIVLHMVQVFLFGAYKRF																
182415355 Opitutus_terrae_PB90-1		WYVFGSATLAFFIVQITGVALAIFYP	AYESLRF	ITDGAELGFSFM	RGLHYFGASAMVLMIAHMACTFLFGAYKYR																
149175601 Planctomyces_maris_DSM_8797		WYVFGSATLCAFFVQVLTGISLAMSYF	ITYESLY	INTATLGLSLV	RGMHYFGASAMVLAIVHMVQVMTATKYR																
159901864 uncultured_planctomycete_6N14		WYVFGSATLCAFAVOVISIALATTYP	AYESLLY	ITNEEALGNLL	RGMHYFGATAMVVLAIHMTQVFLAAKYR																
320106445 Terriglobus_saanensis_SP1PR4		RAYFGSALLFLFMSOVITGVFLALYYF	AHTVVS	IVKVSSAFFI	RSIAHGSSIIILLIHSOTVFLGYKGR																
283781609 Pirellula_staley DSM_6068		RYITGSMILVAFSQAITGTFLMAYSP	AYESVYY	IDHEMTGGWL	RGIHFMAGSMVVLLALHLLQVIVLGAYRAR																
91200800 Candidatus_Kuenenia_stuttgartiensis		TYYFGSGLITLFLMLQAITGIVMASFYSP	AWGSVYY	IDQTSFGWV	RGVHFGSSAMIIATVHFFQVFIIGAYKKR																
296120695 Planctomyces_limnophilus_DSM_3776		RYAYGSQLVVLFITOLVGCLAMASTYP	SWESTYY	IDHQVLGWLV	RGIHYYAAQAMVVALLAOVLIVSRWYLAB																
149178012 Planctomyces_maris_DSM_8797		OYINGGALLVLMMLVMTGALLNYTSP	AWGSHY	ITQTLGLSLV	RGLHYTAHMMIVAVIWHFLVIVSAYRKR																
87308057 Blastopirellula_marina_DSM_3645		RYVWGSTLVFAFVQMITGTFLMAYSA	AWESVYY	IDYEMOGGWL	RGLHFMACAMIVLLALHFLQVVIIGAYKAR																
226226102 Gemmatimonas_aurantiaca_T-27		RYVWGSTL SFFFVQVITGTFLMYSFP	AWESVYF	IDQHMGGWFL	RGLHFMVAQAMTVLLVLHLMQVIIIGAYKAR																
CLADE_E																					
170290779 Candidatus_Korarchaeum_cryptofilum_OPF8		LYSLGGITLLMFATLGITGILLMFYVP	AYDSIVR	IMEEVAFGSVI	RSLNHYAANLMILLAMLHFLRVYFMHAYKRR																
118575215 Cenarchaeum_symbiosum_A		FGFLGMLTIVFVILGVSGALLMFYEP	AWDSVEF	INDEVPFGFH	RNIHYHGSNAMVLLAILHMYQYFSGRYKI																
161529051 Nitrosopumilus_maritimus_SCM1		FGFLGMLTIVFVILGISALLMFYEQP	AWDSVQF	INDEVPFGFH	RNIHYHGSNAMVLLAILHMYQYFSGRYKI																
14601587 Aeropyrum_pernix_K1		DIILGAI VASSFWLALTGLLLL FYYRP	ELESSKA	ITEERPFGALLT	SHLAAHFMILSVAAHARNLFKQYKRR																
16082234 Thermoplasma_acidophilum_DSM_1728		WYWTGALTMFAFITGVITGLIMLYFQF	AYTSTEN	FLHSPVFGIILT	THLGAYIMIGLLIHLLRNVEFVAYKRR																
327311953 Thermoproterous_uzoniensis_768-20		EHULGGVAASALAQITGLLLLLLYQF	AYDTMAI	ITINVPGSILSSH	LGAYIMILVHLGLIMIISGGYKRR																
307595352 Vulcanisaeta_distributa_DSM_14429		EYULGGISASALAOVLTLGLLLLYEP	AYNSTMS	ITINVPGSIISSH	LGAYIMIFAVMHGLVVMLKGQYKRR																
15899680 Sulfolobus_solfataricus_P2		DYMLGGVLVSFILVITGALVALTYTP	PYSTTTY	LITSKVPYGAFL	FLSHSGAYAMVFLLLVHMTIRNFVGVAYROF																
18312575 Pyrobaculum_aerophilum_str._IM2		LYWFGDAVASFFLLALTGTFLALLTYTP	SYSVS	ITITKVPFGVLR	FOHLLAAYLIMFAALVHFEAKVFLGSYKRR																

330823486|Alicyclophilus_denitrificans_K601
319761620|Alicyclophilus_denitrificans_BC
59802338|Neisseria_gonorrhoeae_FA_1090
56476070|Aromatoleum_aromaticum_EbN1
257091960|Candidatus_Accumulibacter_phosphatis
260752587|Zymomonas_mobilis
1NTM_C|Bos_taurus
117923672|Magnetococcus_marinus_MC-1
16124728|Caulobacter_crescentus_CB15
110634514|Chelativorans_sp._BNC1
229586521|Rickettsia_africae_ESF-5
83313188|Magnetospirillum_magneticum_AMB-1
CLADE_J
193214192|Chloroherpeton_thalassium_ATCC_35110
189500908|Chlorobium_phaeobacteroides_BS1
193213373|Chlorobaculum_parvum_NCIB_8327
21673142|Chlorobium_tepidum_TLS
145220304|Chlorobium_phaeovibrioides_DSM_265
194335616|Pelodictyon_phaeoclathratiforme_BU-1
194334579|Prosthecochloris_aestuarii_DSM_271
OTHER
292655005-04|Haloferax_volcanii_DS2
222479082-83|Halorubrum_lacusprofundi_ATCC_49239
91204467|Candidatus_Kuenenia_stuttgartiensis

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: -----WYIFGSLALLVLVIIVTGI FLVMNYKP-----AFESV EY-IMRVPWGLIRYMNSTGASAFFIVVYLHMFRELLYGSYRKP-  
: -----WYIFGSLALLVLVIIVTGI FLVMNYKP-----AFESV EY-IMRVPWGLIRYMNSTGASAFFIVVYLHMFRELLYGSYRKP-  
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: -----WYFFGSLALLVLVIIVTGI FLVMNYKP-----AFASV EY-IMRVP GGWLIIRYMNSTGASAFFIVVYLHMFRELLYGSYRKP-  
: -----WYFFGSLAMLVLVIIVTGI FLVMNYKP-----AFASV EY-IMRVN WGLIRYMNSTGASAFFVVVYLHMFREMLYGSYROP-  
: -----LWNFGVLAIALTIITGLALAMHYVA-----AFNSIA-IMRYVGFGLIRYGHMVASLFFAALYIMFRGVYYSYKAP-  
: -----WVNFGSLLITCLILILTLFLAMHYTS-----AFSSVTH-ICRVNYGWIIIRYMHANGASMFFICLYMHVGRLLYGSYTFL-  
: -----WVNFGSALLVLIIQLATGI FLVMNYKP-----AFDSV EY-IMRVN WGLIRYMHANGATFFFVVIITILRGMYYGSYRAP-  
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: -----AYTFGGILSLMLAAQILTGVVLAMHYAA-----AFGSV EY-IMRVN SGWLLIRYMHANGASFFFVAVYVHIFRGLYGSYKAP-  
: -----LWNLGSIALIALVIITGVILAMHYTP-----AFDSV EY-IMRVN YGWLIRYTHAVASGMFFAAVYLHIA RGLLYGSYKAP-  
: -----WVNFGS LAAVMLIIMILTLFLAMHYSS-----AFDSV EY-IMRVN YGWLIRYTHANGASMFFILVYIIFRGLLYGSYKAP-  
: -----WYFFGGTLITLFFFVIIVTGLLLLLLYYKP-----AFSSFLY-IOKVVPYGLIRQIHSAW SANLMVLMFLIMFSTFFMKAYRKP-  
: -----WYFFGGLAMFFFMIIITGLLLLLLYYKP-----AFARFVY-IOKVVPFGWLIRQVHAW SANLMVLMFLIMFSTFFMKAYRKP-  
: -----WYFFGGTLITLFFFIIITGLLLLLLYYKP-----AFASFLY-IOGVVPFGWLIRQVHAW SANLMILMFLIMFSTFFMKSYRKP-  
: -----WYFFGGTLITLFFFIIITGLLLLLLYYKP-----AFSSFLY-IOGVVPFGWLIRQVHAW SANLMILMFLIMFSTFFMKSYRKP-  
: -----WYFFGGTLITLFFFIIIVVTGLLLLLLYYKP-----AFASV EY-IOKVVPFGWLIRQVHAW SANLMVLMFLIMFSTFFMKSYRKP-  
: -----WYFFGGTLITLFFFIIITGLLLLLLYYKP-----AFTSFVY-IOGVVPFGWLIRQVHAW SANAMVMMAFLIMFSTFFMKSYRKP-  
: -----WYFFGGTLITLFFFIIITGLLLLLLYYKP-----AFARFVY-IOKVVPYGLIRQVHAW SANLMALMAFLIMFSTFFMKSYRKP-  
: -----LYTILGLFSTLAVVAAISGALLGFYYS-----AYNSIEY-IMRVLQFGFMLRSVHRWAAQVMVAAVFLHMLRVYFTGSYKEP-  
: -----LYSLGSLSIAYLVAAVTGALLGFYYS-----AYDSVVM-IMRVLQFGFMLRSLSWAAQVMVAAVFLHMLRVYFTGSYKEP-  
: -----LGCMLGSLLAFLITGLGTI FLMFYFI-----AAASFOR-VSLVPGWLIQVHAW SANLMALMAFLIMFSTFFMKSYRKP-
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[illegible]

117928169|Acidothermus_cellulolyticus_11B

CLADE_G

390564583-82|Nitrolancetus_hollandicus_Lb

51894283-82|Symbiobacterium_thermophilum_IAM_14863

159900765|Herpetosiphon_aurantiacus_DSM_785

317052754-55|Desulfurispirillum_indicum_S5

317121174-73|Thermaerobacter_marianensis_DSM_12885

282891858|Parachlamydia_acanthamoebae_str._Hall's_

297622169|Waddlia_chondrophila_WSU_86-1044

298244100-099|Ktedonobacter_racemifer_DSM_44963

78223326-27|Geobacter_metallireducens_GS-15

116622607|Candidatus_Solibacter_usitatus_Ellin6076

251771842-43|Leptospirillum_ferrodiazotrophum

301165569-70|Bacteriovorax_marinus_SJ

87308976-77|Blastopirellula_marina_DSM_3645

283780706-05|Pirellula_staley_i_DSM_6068

158520215-16|Desulfococcus_oleovorans_Hxd3

91202273-74|Candidatus_Kuenenia_stuttgartiensis

392374727-26|Candidatus_Methylomirabilis_oxifera

91202587-90|Candidatus_Kuenenia_stuttgartiensis

CLADE_H

330826436|F1|Alicyclophilus_denitrificans_K601

319764281|F1|Alicyclophilus_denitrificans_BC

257092936|F1|Candidatus_Accumulibacter_phosphatis

257092939|F2|Candidatus_Accumulibacter_phosphatis

330826439|F2|Alicyclophilus_denitrificans_K601

319764278|F2|Alicyclophilus_denitrificans_BC

110347101|F2|Mesorhizobium_sp._BNC1

83311324|F2|Magnetospirillum_magneticum_AMB-1

163783460|F2|Hydrogenivirga_sp._128-5-R1-1

288817477|F2|Hydrogenobacter_thermophilus_TK-6

CLADE_I

154175187|Campylobacter_curvus_525.92

34558432|Wolinella_succinogenes_DSM_1740

15605644|Aquifex_aeolicus_VF5

288818638|Hydrogenobacter_thermophilus_TK-6

163782721|Hydrogenivirga_sp._128-5-R1-1

218665797|Acidithiobacillus_ferroxidans_ATCC_2327

218666252|Acidithiobacillus_ferroxidans_ATCC_2327

121998887|Halorhodospira_halophila_SL1

148358559|Legionella_pneumophila_str._Corby

15640596|Vibrio_cholerae_01

117618000|Aeromonas_hydrophila

24372200|Shewanella_oneidensis_MR-1

53724249|Burkholderia_mallei_ATCC_23344

330823486|Alicyclophilus_denitrificans_K601

319761620|Alicyclophilus_denitrificans_BC

59802338|Neisseria_gonorrhoeae_FA_1090

56476070|Aromatoleum_aromaticum_EbN1

257091960|Candidatus_Accumulibacter_phosphatis

260752587|Zymomonas_mobilis

1NTM_C|Bos_taurus

117923672|Magnetococcus_marinus_MC-1

16124728|Caulobacter_crescentus_CB15

110634514|Chelativorans_sp._BNC1

229586521|Rickettsia_africae_ESF-5

83313188|Magnetospirillum_magneticum_AMB-1

CLADE_J

193214192|Chloroherpeton_thalassium_ATCC_35110

189500908|Chlorobiumphaeobacteroides_B51

193213373|Chlorobaculum_parvum_NCIB_8327

21673142|Chlorobium_tepidum_TLS

145220304|Chlorobiumphaeovibrioides_DSM_265

194335616|Pelodictyonphaeocathratiforme_BU-1

R	E	T	N	W	L	I	F	T	L	M	T	L	A	L	L	G	F	A	G	S	L	P	D	L	S	S	T	G	L	F	I	A	-	Y	G	V	A	S	I	P	---	L	I	P	R	L	Y	V	---	V	H	I	L	L	I	P	G	L	L	L	A	L	I	S	A	H	M	M	I	M	H	G	-	K	H	T	G			
R	E	F	N	W	V	I	V	L	L	V	L	T	L	L	S	F	T	G	Y	L	L	P	W	Q	L	A	L	A	I	T	V	-	T	N	M	A	K	A	A	-	S	L	I	R	F	Y	T	---	L	H	V	I	L	L	P	L	A	A	A	T	L	M	A	V	H	F	W	R	I	R	K	D	G	G	I	S	G			
R	E	F	N	W	V	I	V	A	L	I	T	V	L	L	S	F	T	G	Y	L	L	P	W	Q	L	A	L	A	I	T	V	-	S	N	M	A	K	V	T	P	---	T	L	V	R	W	Y	T	---	L	H	V	I	L	L	P	L	A	C	I	A	L	M	A	V	H	F	W	R	I	R	K	D	G	G	I	S	T		
R	O	F	I	W	F	T	G	M	I	L	L	T	L	L	S	F	S	G	Y	L	L	P	W	Q	L	A	L	A	I	T	V	-	S	S	M	A	K	A	A	-	A	L	L	F	Y	L	---	L	H	I	T	M	L	P	M	L	I	I	F	S	I	H	Y	A	V	R	K	D	-	I	S	P								
R	O	M	N	W	L	I	F	A	L	L	Q	A	L	A	A	Y	T	L	L	M	Q	L	A	L	A	I	T	V	-	M	E	L	V	A	I	V	-	S	I	L	R	F	Y	A	---	L	H	I	V	V	L	P	V	L	M	I	L	C	A	L	H	F	Y	R	I	R	K	D	G	L	L	P								
R	O	F	N	W	V	I	V	L	L	V	L	T	L	L	S	F	T	G	Y	L	L	P	W	Q	L	A	L	A	I	T	V	-	T	N	M	A	K	A	T	P	---	T	L	I	R	W	Y	T	---	L	H	V	I	L	L	P	L	V	A	A	V	F	M	C	H	F	W	R	V	R	K	D	-	G	F	S	R			
R	R	F	N	W	V	I	V	L	M	V	L	T	L	L	S	F	T	G	Y	L	L	P	W	Q	L	A	L	A	I	T	V	-	S	N	I	A	G	Y	V	-	A	L	I	R	F	Y	V	---	L	H	V	A	L	L	P	L	L	A	G	T	L	C	H	F	W	R	I	R	K	D	G	G	L	S	R					
R	K	F	N	W	V	I	V	L	L	M	V	L	T	L	L	S	F	T	G	Y	L	L	P	W	Q	L	A	L	A	I	T	V	-	S	N	I	A	G	Y	V	-	A	L	I	R	F	Y	V	---	L	H	V	A	L	P	L	I	T	G	L	C	H	F	W	R	I	R	K	D	G	G	L	S	R						
R	E	F	N	W	V	I	V	L	L	F	F	V	T	L	L	S	F	T	G	Y	L	L	P	W	Q	L	A	L	A	I	T	V	-	T	N	L	A	P	Y	T	P	---	T	L	I	R	F	Y	V	---	G	H	V	I	L	L	P	L	A	G	A	L	M	A	V	H	F	W	R	I	R	K	D	G	G	I	S	A		
R	E	F	N	W	V	I	V	L	L	L	L	V	T	L	L	S	F	T	G	Y	L	L	P	W	Q	L	A	L	A	I	T	V	-	S	N	I	A	G	Y	M	P	---	A	L	L	R	F	Y	V	---	L	H	V	V	A	L	L	P	L	A	A	T	L	L	C	H	F	W	R	I	R	K	D	G	G	L	S	R		
R	E	F	N	W	V	I	V	L	L	L	L	L	L	L	S	F	T	G	Y	L	L	P	W	Q	L	A	L	A	I	T	V	-	T	S	I	A	G	Y	A	P	---	A	L	L	R	F	Y	V	---	L	H	V	A	V	L	P	A	V	L	T	L	L	I	A	I	H	F	W	R	I	R	K	D	G	G	L	S	R		
R	E	F	N	W	V	I	V	L	L	V	L	L	L	L	S	F	T	G	Y	L	L	P	W	Q	L	A	L	A	I	T	V	-	A	K	M	A	S	Y	T	P	---	A	L	I	R	F	Y	V	---	L	H	C	V	V	L	P	L	V	V	T	V	F	L	A	V	H	F	W	R	I	R	K	D	-	G	F	S	G		
R	E	F	N	W	V	I	V	L	L	L	L	L	L	L	S	F	T	G	Y	L	L	P	W	Q	L	A	L	A	I	T	V	-	A	N	M	A	K	A	T	P	---	A	L	L	R	F	Y	I	---	L	H	C	I	A	I	P	L	A	V	S	L	L	L	A	I	H	F	W	R	V	R	K	D	G	G	I	S	A		
R	E	F	N	W	V	I	V	L	L	L	L	L	L	L	S	F	T	G	Y	L	L	P	W	Q	L	A	L	A	I	T	V	-	S	N	M	A	K	A	H	P	---	T	L	N	R	F	Y	I	---	L	H	C	I	A	I	P	L	A	V	S	L	L	L	A	I	H	F	W	R	V	R	K	D	G	G	I	S	A		
R	E	F	N	W	V	I	V	L	L	L	L	L	L	L	S	F	T	G	Y	L	L	P	W	Q	L	A	L	A	I	T	V	-	S	N	M	A	K	A	T	P	---	T	L	N	R	F	Y	V	---	L	H	C	V	A	I	P	L	A	V	S	L	L	L	A	I	H	F	W	R	V	R	K	D	G	G	I	S	A		
R	E	F	N	W	V	I	V	L	L	L	L	L	L	L	S	F	T	G	Y	L	L	P	W	Q	L	A	L	A	I	T	V	-	T	K	M	A	G	A	T	P	---	A	L	L	R	F	Y	V	---	L	H	C	V	L	L	P	L	A	C	V	V	L	M	A	V	H	F	W	R	I	R	K	D	G	G	I	S	R		
R	O	F	N	W	V	I	V	L	L	V	L	T	L	L	S	F	T	G	Y	L	L	P	W	Q	L	A	L	A	I	T	V	-	T	N	M	A	R	A	T	P	---	A	L	L	R	A	V	---	M	H	C	I	P	V	I	A	S	A	L	M	M	V	H	F	W	R	V	R	K	D	G	G	I	S	A					
R	E	F	N	W	V	I	V	L	L	T	I	T	L	L	S	F	T	G	Y	L	L	P	W	Q	L	S	T	A	I	T	V	-	T	N	M	A	R	A	T	P	---	A	L	L	R	F	Y	V	---	L	H	C	I	P	L	I	L	M	I	V	H	F	W	R	V	R	K	D	G	G	I	S	A							
R	E	F	N	W	V	I	V	L	L	V	L	L	L	L	S	F	T	G	Y	L	L	T	W	Q	L	G	F	W	A	I	T	V	-	T	N	M	A	R	S	T	P	---	A	L	L	R	A	V	---	M	H	C	I	P	L	I	I	S	I	F	M	M	V	H	F	W	R	I	R	K	D	G	G	I	S	A				
R	W	F	S	W	I	T	G	V	M	L	I	T	M	V	Y	A	S	G	V	N	G	Y	M	L	P	W	H	L	A	D	V	I	T	S	-	F	E	W	L	W	L	P	---	V	G	A	R	F	F	T	L	L	S	F	M	H	L	-	L	P	L	V	V	L	M	M	V	I	H	V	R	V	P	K	A	-	R	T	T	P
R	W	F	S	W	I	T	G	V	M	L	I	T	M	V	Y	A	S	G	V	N	G	Y	M	L	P	W	H	L	A	D	V	I	T	S	-	F	E	W	L	W	L	P	---	V	G	A	R	F	F	T	L	L	S	F	M	H	L	-	L	P	L	V	V	L	M	M	V	I	H	V	R	V	P	K	A	-	R	T	T	P
R	S	F	S	W	L	T	G	V	A	L	L	L	V	Y	A	G	V	N	G	F	M	L	P	W	K	L	A	O	F	V	I	A	T	-	A	E	W	F	I	L	P	---	V	N	S	R	L	F	T	L	L	A	I	H	-	A	P	L	I	V	A	I	M	V	H	V	R	V	P	K	A	-	H	I	N	P				
R	L	Y	S	W	M	T	G	P	L	L	T	L	L	V	Y	A	G	I	G	G	Y	I	V	N	D																																																							

: R E L M V S G F I L L A L T L G F G F T G Y L L P W N E L A F F A T Q V G - T E V P K V M P - - - - - T L T R M F A - - - - M F V V L L P G L V M L V L S A H L M L V Q V - L G T S A

: **RE**LN**W**LL**G**IVLI**S**LT**M**V**F**GY**T**GYLL**P**W**D**Q**L**AW**G**Q**I**G-V**E**MA**L**S**V**P-----**T**L**O**R**M**Y**I**---**I**V**F**EL**L****P**F**V**W**T**IL**I**A**I**H**I**G**I**V**W**Q-**G**I**A**E

: **RE**VN**W**IL**G**VILI**GL**TLL**FG**FS**G**YVL**PWK**QL**S**FWAA**CI****G**-V**MA**LAT**P**-----TLV**R**MYI-----L**H**V**F**VL**P**F**W**T**GL**I**AL****H**V**G**IV**W**V**G**-**G**IA

: **RELH**HWVSGANLLILTL**LMYYTGSF**LK-----ANTAA**EL**-----QL**TCFY**T----L**HIAGI**PLAMML**FMCMHFF**MV**RKT**-GI**YE**

390564583-82|Nitrolancetus_hollandicus_Lb
51894283-82|Symbiobacterium_thermophilum_IAM_14863
159900765|Herpetosiphon_aurantiacus_DSM_785
317052754-55|Desulfurispirillum_indicum_S5
317121174-73|Thermaerobacter_marianensis_DSM_12885
282891858|Parachlamydia_acanthamoebae_str._Hall's_
297622169|Waddlia_chondrophila_WSU_86-1044
298244100-099|Ktedonobacter_racemifer_DSM_44963
78223326-27|Geobacter_metallireducens_GS-15
116622607|Candidatus_Solibacter_usitatus_Ellin6076
251771842-43|Leptospirillum_ferrodiastrophum
301165569-70|Bacteriovorax_marinus_SJ
87308976-77|Blastopirellula_marina_DSM_3645
283780706-05|Pirellula_staleyii_DSM_6068
158520215-16|Desulfococcus_oleovorans_Hxd3
91202273-74|Candidatus_Kuenenia_stuttgartiensis
392374727-26|Candidatus_Methylopirabilis_oxfera
91202587-90|Candidatus_Kuenenia_stuttgartiensis

330826436	F1	Alicyclophilus_denitrificans_K601
319764281	F1	Alicyclophilus_denitrificans_BC
257092931	F1	Candidatus_Accumulibacter_phosphatis
257092939	F2	Candidatus_Accumulibacter_phosphatis
330826439	F2	Alicyclophilus_denitrificans_K601
319764278	F2	Alicyclophilus_denitrificans_BC
110347101	F2	Mesorhizobium_sp._BNC1
833111324	F2	Magnetospirillum_magneticum_AMB-1
163783460	F2	Hydrogenovirga_sp._128-5-R1-1
288817477	F2	Hydrogenobacter_thermophilus_TK-6

154175187|Campylobacter_curvus_525.92
34558432|Wolinella_succinogenes_DSM_1740
15605644|Aquifex_aeolicus_VF5
288818638|Hydrogenobacter_thermophilus_TK-6
163782721|Hydrogenovirga_sp._128-5-R1-1
218665797|Acidithiobacillus_ferroxidans_ATCC_2327
218666252|Acidithiobacillus_ferroxidans_ATCC_2327
212998887|Halorhodospira_halophila_SL1
148358559|Legionella_pneumophila_str._Corby
15640596|Vibrio_cholerae_01
117618000|Aeromonas_hydrophila
24372200|Shewanella_oneidensis_MR-1
53724249|Burkholderia_mallei_ATCC_23344
330823486|Alicyclophilus_denitrificans_K601
319761620|Alicyclophilus_denitrificans_BC
59802338|Neisseria_gonorrhoeae_FA_1090
56476070|Aromatoleum_aromaticum_EBN1
257091960|Candidatus_Accumulibacter_phosphatis
260752587|Zymomonas_mobilis
1NTM_C|Bos_taurus
117923672|Magnetococcus_marinus_MC-1
16124728|Caulobacter_crescentus_CB15
110634514|Chelativorans_sp._BNC1
229586521|Rickettsia_africae_ESF-5
83313188|Magnetospirillum_magnetium_AMB-1

193214192|Chloroherpeton_thalassium_ATCC_35110
198500908|Chlorobium_phaeobacterioides_BS1
193213373|Chlorobaculum_parvum_NCIB_8327
21673142|Chlorobium_tepidum_TLS
145220304|Chlorobium_phaeovibrioides_DSM_265
194335616|Pelodictyon_phaeocolatratriforme_BU-1
194334579|Prosthecochloris_aestuarii_DSM_271

[illegible]

OTHER
292655005-04|Haloferax_volcanii_DS2
222479082-83|Halorubrum_lacusprofundi_ATCC_49239
91204467|Candidatus_Kuenenia_stuttgartiensis

