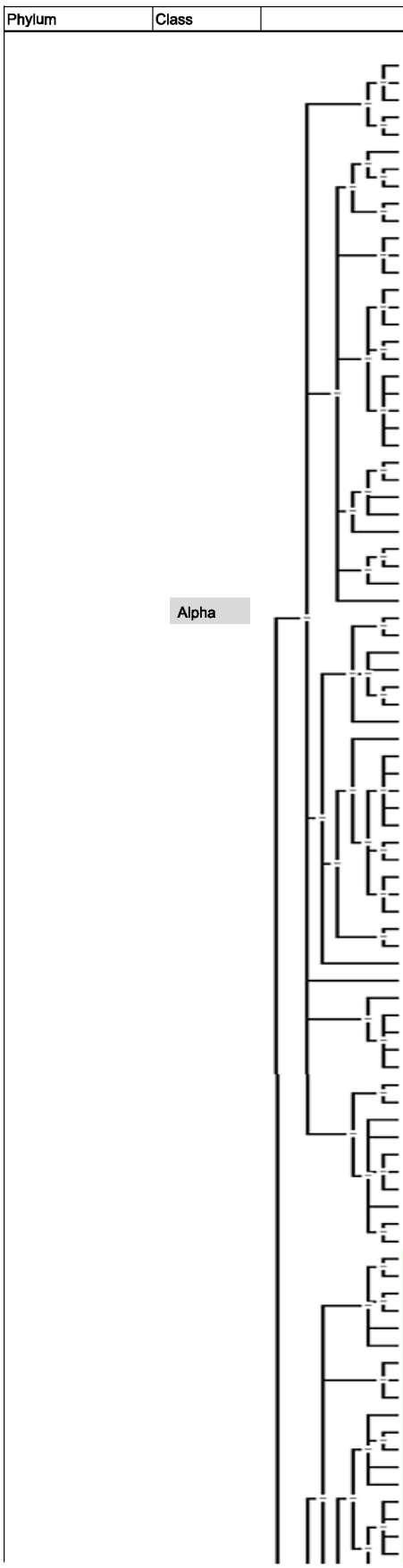
Table S1. The distribution of DsbD, CcdA, ScsB, ScsC, PprX, and PrxL from 529 bacteria. The bacteria used are based on the STRING 8.3 website (http://string83.embl.de/) and the phylogenetic tree is also adopted from the STRING website. The presence of homologous proteins is based on the STRING analysis, BLAST, and analyses using a microbewebsite (http://www.microbesonline.org/).

Note

1. Selected are ScsC homologs which have the N-terminal helical domain (see the text). PSI BLAST and SRING analysis were used for the primary selection and then the homologous sequence motif with EHPE was used for the secondary selection since this sequence motif is well conserved in the putative hinge region of the N-terminal helical domain as shown in Fig. S6A. Many ScsC variants including prototypic ScsC are found in diverse bacteria. It appears that ScsC is widely used for many kinds of redox reactions in many ways in bacteria. Because of this diversity of ScsC and the established relationships between CcScsB and CcScsC, we only included CcScsC type in Table 1 and Table S1, and its occurrence correlation with ScsB appears to be very good.
2. ScsBα domain appears to have two sub-domains (see the text). The N-terminal sub-domain is relatively well conserved while the C-terminal sub-domain is not. Related to this observation, we could find ScsBαs in some bacteria which do not have C-terminal sub-domain.
3. These organisms containing CcdA or ScsBβγ do contain separate ScsBα but not full-length ScsB in most of the cases (see the text).
4. In ScsBβ, the transmembrane segment 1 which contains the first putative redox-active cysteine appears to be highly conserved as shown in Fig. S1A. A Lys residue in the 8th position at the C-terminus of the first cysteine in ScsBβ is especially conserved and typical in ScsB (not found in DsbD and CcdA). All the tested ScsBβ has this Lys residue. So, the presence of this residue was used as one method to discriminate ScsBβ from DsbDβ and CcdA.
5. This kind of ScsBα has two conserved cysteines in the C-terminal sub-domain as well as those in the N-terminal sub-domain.
6. This kind of DsbD has additional long amino-acid sequences at the C-terminus of DsbDα, which might be a long linker or another putative sub-domain found in ScsBα.
7. This kind of DsbD or ScsB has two DsbDα domains at the N-terminus.
8. In *Salmonella*, in addition to StScsC which is not included in this table, another ScsC homolog is found which has the N-terminal helical domain like CcScsC. The gene is annotated as *bcfH*, a gene in a *bcf* operon to encode proteins for fimbria.
9. This kind of DsbD has only DsbDβγ.
10. PrxL forms a fusion protein with TlpA.
11. DsbD of *Bacteroides* in Fig. 2 forms a separate branch from the other DsbD members in the tree. Indeed, the conserved sequences appear to be very different from those of DsbD and ScsB, possibly forming another group of DsbD family (see the legend of Fig. 2).



Phylum	Class	Organism Name	DsbD	CcdA	ScsB			ScsC[1]	PprX	PrxL
					α	whole[4]	βγ[4]			
Alpha		Acidiphilium cryptum JF-5	-	-	-	+	-	-	-	-
		Gluconobacter_oxydans_621H	-	-	-	+	-	+	+	-
		Granulibacter_bethesdensis_CGDNIH1	-	-	-	+[2]	-	+	+	-
		Magnetospirillum_magneticum_AMB-1	-	-	-	+	-	+	-	-
		Rhodospirillum_rubrum_ATCC_11170	-	-	-	+	-	+	-	-
		Agrobacterium_tumefaciens_C58_UWash	-	+[3]	+	-	-	+	-	-
		Rhizobium_etli_CFN_42	-	+[3]	+	-	-	+	-	-
		Rhizobium_leguminosarum_bv_viciae_3841	-	+[3]	+	-	-	+	-	-
		Sinorhizobium_medicae WSM419	-	+[3]	+	-	-	+	-	-
		Sinorhizobium_meliloti	-	+[3]	+	-	-	+	-	-
		Bartonella_bacilliformis_KC583	-	+[3]	+	-	-	+	-	-
		Bartonella_henselae_Houston-1	-	+[3]	+	-	-	+	-	-
		Bartonella_quintana_Toulouse	-	+	-	-	-	-	-	-
		Bradyrhizobium_japonicum	-	+[3]	+	-	-	+	-	-
		Bradyrhizobium_sp._BTAi1	-	+[3]	+	+	-	+	-	-
		Bradyrhizobium_sp._ORS278	-	+[3]	+	+	-	+	-	-
		Nitrobacter_hamburgensis_X14	-	+[3]	+	-	-	+	-	-
		Nitrobacter_winogradskyi_Nb-255	-	+[3]	+	-	-	+	-	-
		Rhodopseudomonas_palustris_BisA53	-	+[3]	+	-	-	+	-	-
		Rhodopseudomonas_palustris_BisB18	+	+[3]	+	-	-	+	-	-
		Rhodopseudomonas_palustris_BisB5	+	+[3]	+	-	-	+	-	-
		Rhodopseudomonas_palustris_CGA009	-	+[3]	+	-	-	+	-	-
		Rhodopseudomonas_palustris_HaA2	+	+[3]	+	-	-	+	-	-
		Brucella_abortus_9-941	-	+[3]	+	-	-	+	-	-
		Brucella_melitensis	-	+[3]	+	-	-	+	-	-
		Brucella_melitensis_biovar_Abortus	-	+[3]	+	-	-	+	-	-
		Brucella_suis_1330	-	+[3]	+	-	-	+	-	-
		Ochrobactrum_anthropi_ATCC_49188	+	+[3]	+	-	-	+	-	-
		Mesorhizobium_BNC1	-	+[3]	+	-	-	+	-	-
		Mesorhizobium_loti	-	+[3]	+	-	-	+	-	-
		Parvibaculum_lavamentivorans_DS-1	-	+[3]	+	-	-	+	-	-
		Xanthobacter_autotrophicus_Py2	+	+[3]	+	-	-	+	-	-
		Anaplasma_marginale_St_Maries	-	-	+[2]	-	+[3]	+	-	-
		Anaplasma_phagocytophilum_HZ	-	-	+[2]	-	+[3]	+	-	-
		Ehrlichia_canis_Jake	-	-	+[2]	-	+[3]	+	-	-
		Ehrlichia_chaffeensis_Arkansas	-	-	+[2]	-	+[3]	+	-	-
		Ehrlichia_ruminantium_Gardel	-	-	+[2]	-	+[3]	+	-	-
		Ehrlichia_ruminantium_Welgevonden	-	-	+[2]	-	+[3]	+	-	-
		Neorickettsia_sennetsu_Miyayama	-	-	-	-	-	+	-	-
		Orientia_tsutsugamushi	-	-	-	-	-	+	-	-
		Rickettsia_akari_str._Hartford	-	-	-	-	-	+	-	-
		Rickettsia_conorii	-	-	-	-	-	+	-	-
		Rickettsia_felis_URRWXCal2	-	-	-	-	-	+	-	-
		Rickettsia_massiliae_MTU5	-	-	-	-	-	+	-	-
		Rickettsia_rickettsii	-	-	-	-	-	+	-	-
		Rickettsia_bellii_OSU	-	-	-	-	-	+	-	-
		Rickettsia_bellii_RML	-	-	-	-	-	+	-	-
		Rickettsia_canadensis_str._McKiel	-	-	-	-	-	+	-	-
		Rickettsia_prowazekii	-	-	-	-	-	+	-	-
		Rickettsia_typhi_wilmington	-	-	-	-	-	+	-	-
		Wolbachia_sp._Brugia	-	-	+[2]	-	-	+	-	-
		Wolbachia_sp._wMe1	-	-	-	-	-	+	-	-
		Candidatus_Pelagibacter_ubique	-	+	-	-	-	-	-	-
		Caulobacter_crescentus	-	-	-	+	-	+	+	+
		Erythrobacter_litoralis_HTCC2594	-	-	-	+	-	+	-	-
		Novosphingobium_aromaticivorans_DSM_12444	-	-	-	+	-	+	+	-
		Sphingomonas_wittichii_RW1	-	-	-	+	-	+	+	-
		Sphingopyxis_alaskensis_RB2256	-	-	-	+	-	+	+	-
		Zymomonas_mobilis_ZM4	-	-	-	+	-	+	+	-
		Hyphomonas_neptunium_ATCC_15444	-	-	-	+	-	+	-	+
		Maricaulis_maris_MCS10	-	-	-	+	-	+	+	-
		Jannaschia_sp._CCS1	-	+[3]	+[5]	-	-	+	-	-
		Paracoccus_denitrificans_PD1222	-	+[3]	+[5]	-	-	+	-	-
		Rhodobacter_sphaeroides_17025	-	+[3]	+[5]	-	-	+	-	-
		Rhodobacter_sphaeroides_17029	-	+[3]	+[5]	-	-	+	-	-
		Rhodobacter_sphaeroides_2_4_1	-	+[3]	+[5]	-	-	+	-	-
		Roseobacter_denitrificans_OCh_114	-	+[3]	+[5]	-	-	+	-	-
		Silicibacter_pomeroyi_DSS-3	-	+[3]	+[5]	-	-	+	-	-
		Silicibacter_sp._TM1040	-	+[3]	+[5]	-	-	+	-	-
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		Acidovorax_sp._JS42	+	-	-	+	-	-	-	-
		Polaromonas_naphthalenivorans_CJ2	-	+	-	+	-	-	+	-
		Polaromonas_sp._JS666	+	-	-	+	-	-	-	-
		Rhodoferax_ferrireducens_T118	-	+	-	+	-	-	-	-
		Verminephrobacter_eiseniae_EF01-2	-	-	-	+	-	-	-	-
		Bordetella_bronchiseptica	+	-	-	-	-	-	+	-
		Bordetella_parapertussis	+	-	-	-	-	-	+	-
		Bordetella_pertussis	+	-	-	-	-	-	+	-
		Burkholderia_ambifaria	+	-	-	-	-	-	+	-
		Burkholderia_cenocepacia_AU_1054	+	-	-	-	-	-	+	-
		Burkholderia_cenocepacia_HI2424	+	-	-	-	-	-	+	-
		Burkholderia_sp._383	+	-	-	-	-	-	+	-
		Burkholderia_vietnamiensis_G4	+	-	-	-	-	-	+	-
		Burkholderia_pseudomallei_1106a	+	-	-	-	-	-	+	-
		Burkholderia_pseudomallei_1710b	+	-	-	-	-	-	+	-
		Burkholderia_pseudomallei_668	+	-	-	-	-	-	+	-
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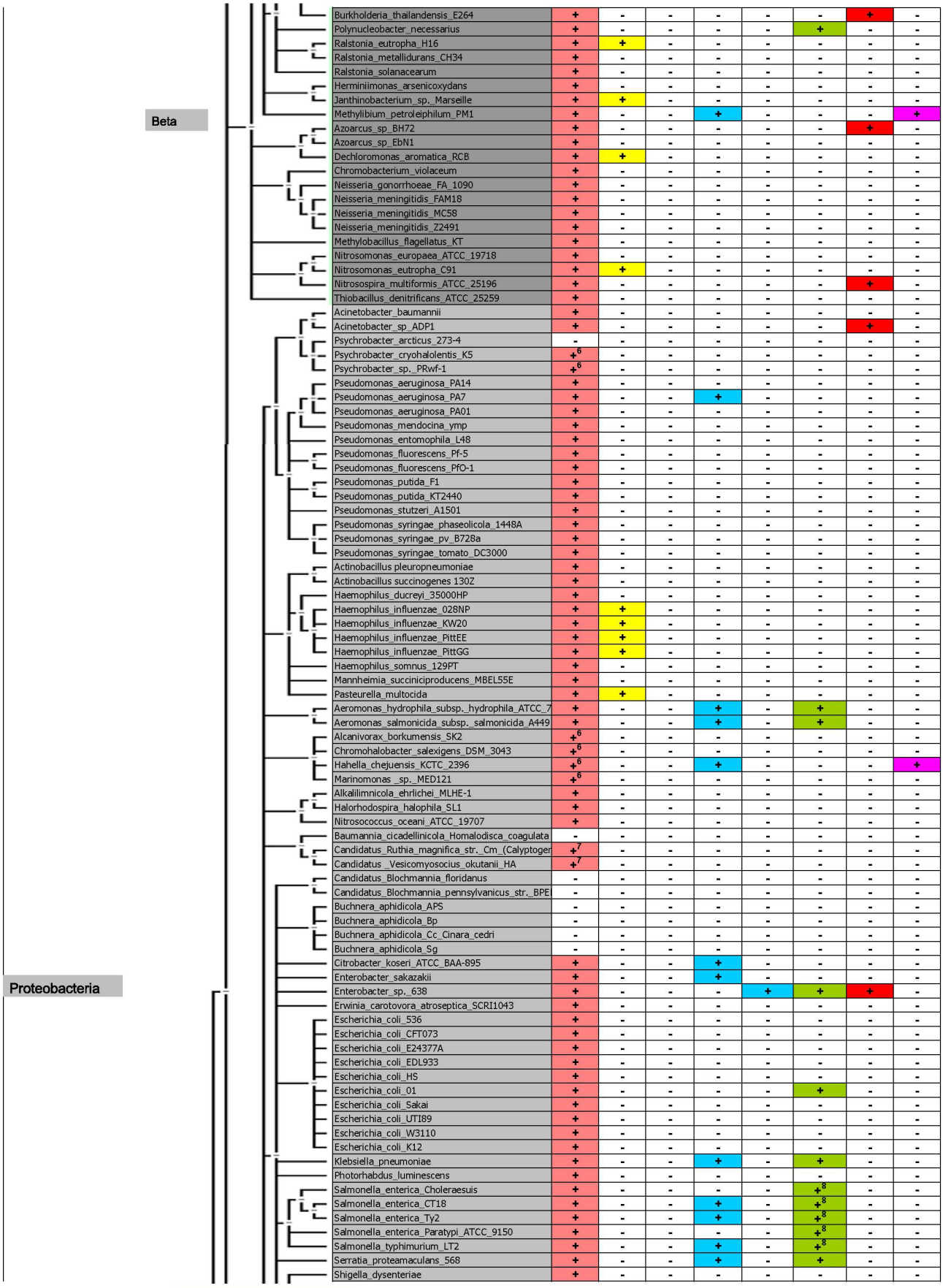

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Polynucleobacter_necessarius	+	-	-	-	-	+	-	-
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Ralstonia_solanacearum	+	-	-	-	-	-	-	-
Herminiimonas_arsenicoxydans	+	-	-	-	-	-	-	-
Janthinobacterium_sp._Marseille	+	+	-	-	-	-	-	-
Methylibium_petroleiphilum_PM1	+	-	-	+	-	-	-	+
Azoarcus_sp_BH72	+	-	-	-	-	-	+	-
Azoarcus_sp_EbN1	+	-	-	-	-	-	-	-
Dechloromonas_aromatica_RCB	+	+	-	-	-	-	-	-
Chromobacterium_violaceum	+	-	-	-	-	-	-	-
Neisseria_gonorrhoeae_FA_1090	+	-	-	-	-	-	-	-
Neisseria_meningitidis_FAM18	+	-	-	-	-	-	-	-
Neisseria_meningitidis_MC58	+	-	-	-	-	-	-	-
Neisseria_meningitidis_Z2491	+	-	-	-	-	-	-	-
Methylobacillus_flagellatus_KT	+	-	-	-	-	-	-	-
Nitrosomonas_europaea_ATCC_19718	+	-	-	-	-	-	-	-
Nitrosomonas_eutropha_C91	+	+	-	-	-	-	-	-
Nitrosospira_multiformis_ATCC_25196	+	-	-	-	-	-	+	-
Thiobacillus_denitrificans_ATCC_25259	+	-	-	-	-	-	-	-
Acinetobacter_baumannii	+	-	-	-	-	-	-	-
Acinetobacter_sp_ADP1	+	-	-	-	-	-	+	-
Psychrobacter_arcticus_273-4	-	-	-	-	-	-	-	-
Psychrobacter_cryohalolentis_K5	+[6]	-	-	-	-	-	-	-
Psychrobacter_sp._PRwf-1	+[6]	-	-	-	-	-	-	-
Pseudomonas_aeruginosa_PA14	+	-	-	-	-	-	-	-
Pseudomonas_aeruginosa_PA7	+	-	-	+	-	-	-	-
Pseudomonas_aeruginosa_PA01	+	-	-	-	-	-	-	-
Pseudomonas_mendocina_ymp	+	-	-	-	-	-	-	-
Pseudomonas_entomophila_L48	+	-	-	-	-	-	-	-
Pseudomonas_fluorescens_Pf-5	+	-	-	-	-	-	-	-
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Pseudomonas_stutzeri_A1501	+	-	-	-	-	-	-	-
Pseudomonas_syringae_phaseolicola_1448A	+	-	-	-	-	-	-	-
Pseudomonas_syringae_pv_B728a	+	-	-	-	-	-	-	-
Pseudomonas_syringae_tomato_DC3000	+	-	-	-	-	-	-	-
Actinobacillus pleuropneumoniae	+	-	-	-	-	-	-	-
Actinobacillus succinogenes 130Z	+	-	-	-	-	-	-	-
Haemophilus_ducreyi_35000HP	+	-	-	-	-	-	-	-
Haemophilus_influenzae_028NP	+	+	-	-	-	-	-	-
Haemophilus_influenzae_KW20	+	+	-	-	-	-	-	-
Haemophilus_influenzae_PittEE	+	+	-	-	-	-	-	-
Haemophilus_influenzae_PittGG	+	+	-	-	-	-	-	-
Haemophilus_somnus_129PT	+	-	-	-	-	-	-	-
Mannheimia_succiniciproducens_MBEL55E	+	-	-	-	-	-	-	-
Pasteurella_multocida	+	+	-	-	-	-	-	-
Aeromonas_hydrophila_subsp._hydrophila_ATCC_7	+	-	-	+	-	+	-	-
Aeromonas_salmonicida_subsp._salmonicida_A449	+	-	-	+	-	+	-	-
Alcanivorax_borkumensis_SK2	+[6]	-	-	-	-	-	-	-
Chromohalobacter_salexigens_DSM_3043	+[6]	-	-	-	-	-	-	-
Hahella_chejuensis_KCTC_2396	+[6]	-	-	+	-	-	-	+
Marinomonas _sp._MED121	+[6]	-	-	-	-	-	-	-
Alkalilimnicola_ehrlichei_MLHE-1	+	-	-	-	-	-	-	-
Halorhodospira_halophila_SL1	+	-	-	-	-	-	-	-
Nitrosococcus_oceani_ATCC_19707	+	-	-	-	-	-	-	-
Baumannia_cicadellinicola_Homalodisca_coagulata	-	-	-	-	-	-	-	-
Candidatus_Ruthia_magnifica_str._Cm_(Calyptoger	+[7]	-	-	-	-	-	-	-
Candidatus _Vesicomyosocius_okutanii_HA	+[7]	-	-	-	-	-	-	-
Candidatus_Blochmannia_floridanus	-	-	-	-	-	-	-	-
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Enterobacter_sakazakii	+	-	-	+	-	-	-	-
Enterobacter_sp._638	+	-	-	-	+	+	+	-
Erwinia_carotovora_atroseptica_SCRI1043	+	-	-	-	-	-	-	-
Escherichia_coli_536	+	-	-	-	-	-	-	-
Escherichia_coli_CFT073	+	-	-	-	-	-	-	-
Escherichia_coli_E24377A	+	-	-	-	-	-	-	-
Escherichia_coli_EDL933	+	-	-	-	-	-	-	-
Escherichia_coli_HS	+	-	-	-	-	-	-	-
Escherichia_coli_01	+	-	-	-	-	+	-	-
Escherichia_coli_Sakai	+	-	-	-	-	-	-	-
Escherichia_coli_UTI89	+	-	-	-	-	-	-	-
Escherichia_coli_W3110	+	-	-	-	-	-	-	-
Escherichia_coli_K12	+	-	-	-	-	-	-	-
Klebsiella_pneumoniae	+	-	-	+	-	+	-	-
Photorhabdus_luminescens	+	-	-	-	-	-	-	-
Salmonella_enterica_Choleraesuis	+	-	-	-	-	+[8]	-	-
Salmonella_enterica_CT18	+	-	-	+	-	+[8]	-	-
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Salmonella_enterica_Paratypi_ATCC_9150	+	-	-	-	-	+[8]	-	-
Salmonella_typhimurium_LT2	+	-	-	+	-	+[8]	-	-
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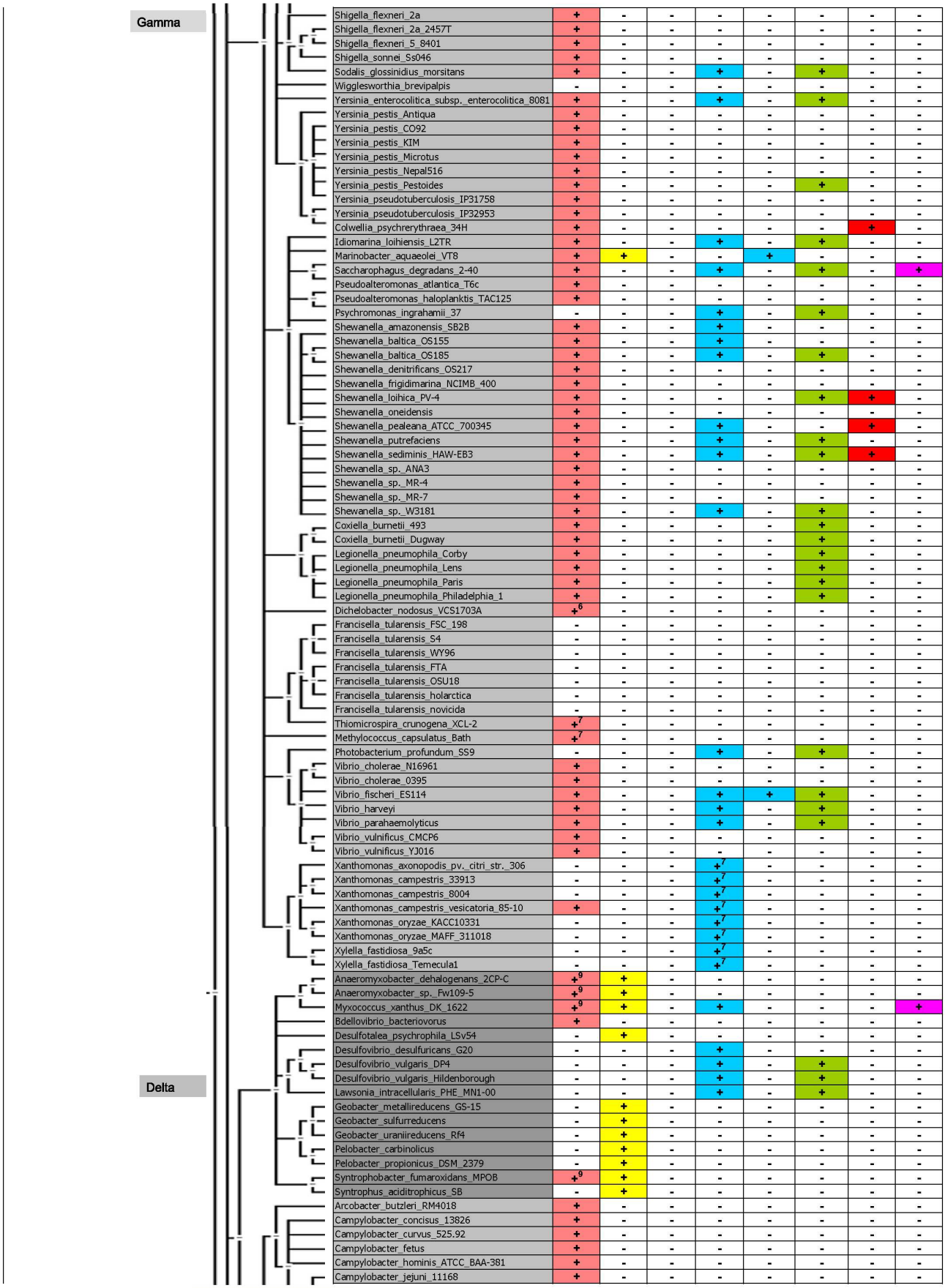
Shigella_dysenteriae	+	-	-	-	-	-	-	-



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Shigella_sonnei_Ss046	+	-	-	-	-	-	-	-
Sodalis_glossinidius_morsitans	+	-	-	+	-	+	-	-
Wigglesworthia_brevipalpis	-	-	-	-	-	-	-	-
Yersinia_enterocolitica_subsp._enterocolitica_8081	+	-	-	+	-	+	-	-
Yersinia_pestis_Antiqua	+	-	-	-	-	-	-	-
Yersinia_pestis_CO92	+	-	-	-	-	-	-	-
Yersinia_pestis_KIM	+	-	-	-	-	-	-	-
Yersinia_pestis_Microtus	+	-	-	-	-	-	-	-
Yersinia_pestis_Nepal516	+	-	-	-	-	-	-	-
Yersinia_pestis_Pestoides	+	-	-	-	-	+	-	-
Yersinia_pseudotuberculosis_IP31758	+	-	-	-	-	-	-	-
Yersinia_pseudotuberculosis_IP32953	+	-	-	-	-	-	-	-
Colwellia_psychrerythraea_34H	+	-	-	-	-	-	+	-
Idiomarina_loihiensis_L2TR	+	-	-	+	-	+	-	-
Marinobacter_aquaeolei_VT8	+	+	-	-	+	-	-	-
Saccharophagus_degradans_2-40	+	-	-	+	-	+	-	+
Pseudoalteromonas_atlantica_T6c	+	-	-	-	-	-	-	-
Pseudoalteromonas_haloplanktis_TAC125	+	-	-	-	-	-	-	-
Psychromonas_ingrahamii_37	-	-	-	+	-	+	-	-
Shewanella_amazonensis_SB2B	+	-	-	+	-	-	-	-
Shewanella_baltica_OS155	+	-	-	+	-	-	-	-
Shewanella_baltica_OS185	+	-	-	+	-	+	-	-
Shewanella_denitrificans_OS217	+	-	-	-	-	-	-	-
Shewanella_frigidimarina_NCIMB_400	+	-	-	-	-	-	-	-
Shewanella_loihica_PV-4	+	-	-	-	-	+	+	-
Shewanella_oneidensis	+	-	-	-	-	-	-	-
Shewanella_pealeana_ATCC_700345	+	-	-	+	-	-	+	-
Shewanella_putrefaciens	+	-	-	+	-	+	-	-
Shewanella_sediminis_HAW-EB3	+	-	-	+	-	+	+	-
Shewanella_sp._ANA3	+	-	-	-	-	-	-	-
Shewanella_sp._MR-4	+	-	-	-	-	-	-	-
Shewanella_sp._MR-7	+	-	-	-	-	-	-	-
Shewanella_sp._W3181	+	-	-	+	-	+	-	-
Coxiella_burnetii_493	+	-	-	-	-	+	-	-
Coxiella_burnetii_Dugway	+	-	-	-	-	+	-	-
Legionella_pneumophila_Corby	+	-	-	-	-	+	-	-
Legionella_pneumophila_Lens	+	-	-	-	-	+	-	-
Legionella_pneumophila_Paris	+	-	-	-	-	+	-	-
Legionella_pneumophila_Philadelphia_1	+	-	-	-	-	+	-	-
Dichelobacter_nodosus_VCS1703A	+[6]	-	-	-	-	-	-	-
Francisella_tularensis_FSC_198	-	-	-	-	-	-	-	-
Francisella_tularensis_S4	-	-	-	-	-	-	-	-
Francisella_tularensis_WY96	-	-	-	-	-	-	-	-
Francisella_tularensis_FTA	-	-	-	-	-	-	-	-
Francisella_tularensis_OSU18	-	-	-	-	-	-	-	-
Francisella_tularensis_holarctica	-	-	-	-	-	-	-	-
Francisella_tularensis_novicida	-	-	-	-	-	-	-	-
Thiomicrospira_crunogena_XCL-2	+[7]	-	-	-	-	-	-	-
Methylococcus_capsulatus_Bath	+[7]	-	-	-	-	-	-	-
Photobacterium_profundum_SS9	-	-	-	+	-	+	-	-
Vibrio_cholerae_N16961	+	-	-	-	-	-	-	-
Vibrio_cholerae_0395	+	-	-	-	-	-	-	-
Vibrio_fischeri_ES114	+	-	-	+	+	+	-	-
Vibrio_harveyi	+	-	-	+	-	+	-	-
Vibrio_parahaemolyticus	+	-	-	+	-	+	-	-
Vibrio_vulnificus_CMCP6	+	-	-	-	-	-	-	-
Vibrio_vulnificus_YJ016	+	-	-	-	-	-	-	-
Xanthomonas_axonopodis_pv._citri_str._306	-	-	-	+[7]	-	-	-	-
Xanthomonas_campestris_33913	-	-	-	+[7]	-	-	-	-
Xanthomonas_campestris_8004	-	-	-	+[7]	-	-	-	-
Xanthomonas_campestris_vesicatoria_85-10	+	-	-	+[7]	-	-	-	-
Xanthomonas_oryzae_KACC10331	-	-	-	+[7]	-	-	-	-
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Xylella_fastidiosa_9a5c	-	-	-	+[7]	-	-	-	-
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Myxococcus_xanthus_DK_1622	+[9]	+	-	+	-	-	-	+
Bdellovibrio_bacteriovorus	+	-	-	-	-	-	-	-
Desulfotalea_psychrophila_LSv54	-	+	-	-	-	-	-	-
Desulfovibrio_desulfuricans_G20	-	-	-	+	-	-	-	-
Desulfovibrio_vulgaris_DP4	-	-	-	+	-	+	-	-
Desulfovibrio_vulgaris_Hildenborough	-	-	-	+	-	+	-	-
Lawsonia_intracellularis_PHE_MN1-00	-	-	-	+	-	+	-	-
Geobacter_metallireducens_GS-15	-	+	-	-	-	-	-	-
Geobacter_sulfurreducens	-	+	-	-	-	-	-	-
Geobacter_uraniireducens_Rf4	-	+	-	-	-	-	-	-
Pelobacter_carbinolicus	-	+	-	-	-	-	-	-
Pelobacter_propionicus_DSM_2379	-	+	-	-	-	-	-	-
Syntrophobacter_fumaroxidans_MPOB	+[9]	+	-	-	-	-	-	-
Syntrophus_aciditrophicus_SB	-	+	-	-	-	-	-	-
Arcobacter_butzleri_RM4018	+	-	-	-	-	-	-	-
Campylobacter_concisus_13826	+	-	-	-	-	-	-	-
Campylobacter_curvus_525.92	+	-	-	-	-	-	-	-
Campylobacter_fetus	+	-	-	-	-	-	-	-
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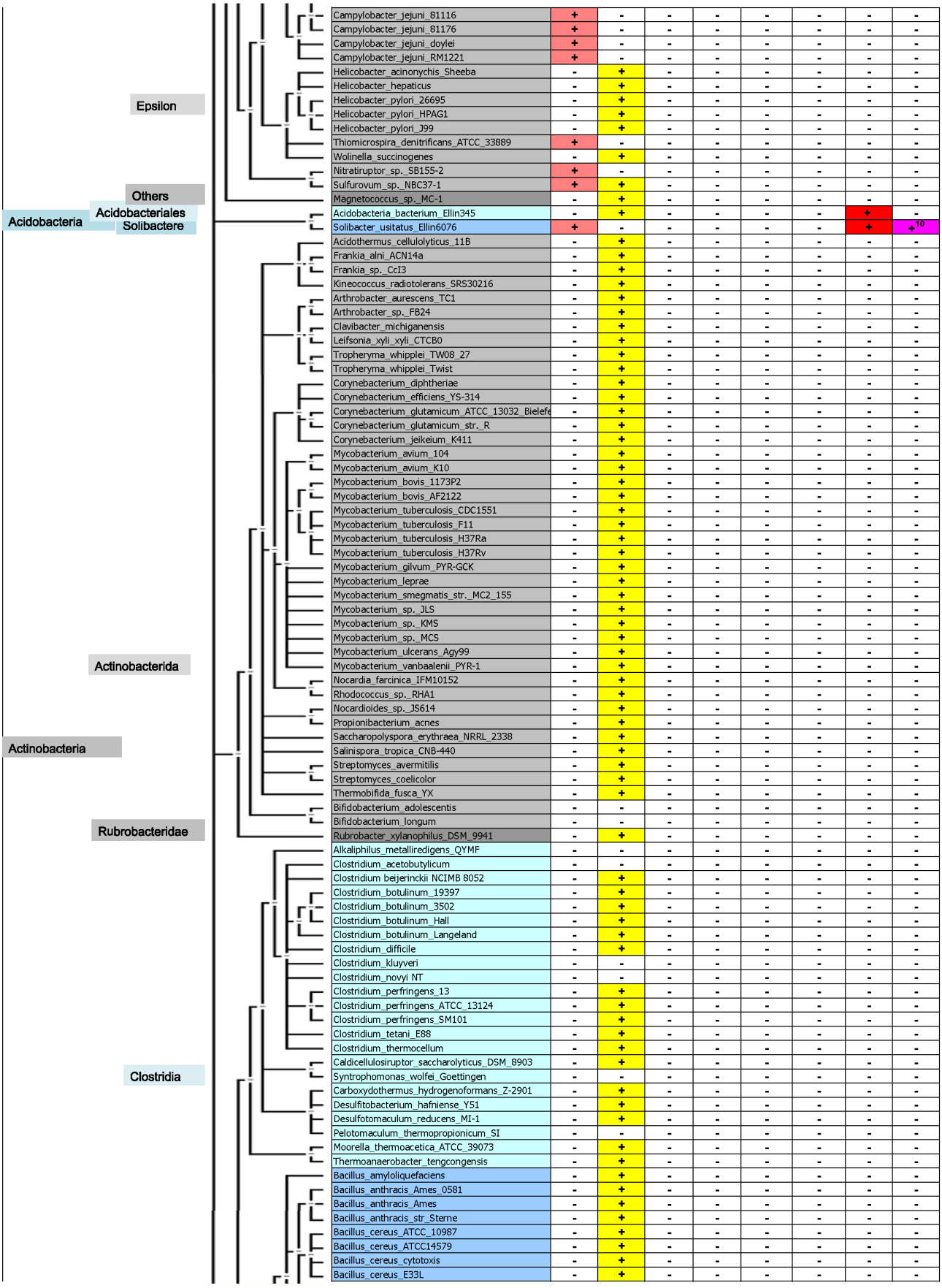
Campylobacter_jejuni_11168	+	-	-	-	-	-	-	-


Epsilon
Others
Acidobacteriales
Acidobacteria
Solibacter
Actinobacterida
Actinobacteria
Rubrobacteridae
Clostridia
Campylobacter_jejuni_81116
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Helicobacter_acinonychis_Sheeba
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Magnetococcus_sp._MC-1
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Acidothermus_cellulolyticus_11B
Frankia_alni_ACN14a
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Kineococcus_radiotolerans_SRS30216
Arthrobacter_aurescens_TC1
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Clavibacter_michiganensis
Leifsonia_xyli_xyli_CTCB0
Tropheryma_whipplei_TW08_27
Tropheryma_whipplei_Twist
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Mycobacterium_avium_104
Mycobacterium_avium_K10
Mycobacterium_bovis_1173P2
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Mycobacterium_tuberculosis_CDC1551
Mycobacterium_tuberculosis_F11
Mycobacterium_tuberculosis_H37Ra
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Mycobacterium_gilvum_PYR-GCK
Mycobacterium_leprae
Mycobacterium_smegmatis_str._MC2_155
Mycobacterium_sp._JLS
Mycobacterium_sp._KMS
Mycobacterium_sp._MCS
Mycobacterium_ulcerans_Agy99
Mycobacterium_vanbaalenii_PYR-1
Nocardia_farcinica_IFM10152
Rhodococcus_sp._RHA1
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Propionibacterium_acnes
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Streptomyces_avermitilis
Streptomyces_coelicolor
Thermobifida_fusca_YX
Bifidobacterium_adolescentis
Bifidobacterium_longum
Rubrobacter_xylanophilus_DSM_9941
Alkaliphilus_metalliredigens_QYMF
Clostridium_acetobutylicum
Clostridium_beijerinckii_NCIMB_8052
Clostridium_botulinum_19397
Clostridium_botulinum_3502
Clostridium_botulinum_Hall
Clostridium_botulinum_Langeland
Clostridium_difficile
Clostridium_kluyveri
Clostridium_novyi_NT
Clostridium_perfringens_13
Clostridium_perfringens_ATCC_13124
Clostridium_perfringens_SM101
Clostridium_tetani_E88
Clostridium_thermocellum
Caldicellulosiruptor_saccharolyticus_DSM_8903
Syntrophomonas_wolfei_Goettingen
Carboxydothermus_hydrogenoformans_Z-2901
Desulfitobacterium_hafniense_Y51
Desulfotomaculum_reducens_MI-1
Pelotomaculum_thermopropionicum_SI
Moorella_thermoacetica_ATCC_39073
Thermoanaerobacter_tengcongensis
Bacillus_amyloliquefaciens
Bacillus_anthracis_Ames_0581
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Bacillus_anthracis_str_Sterne
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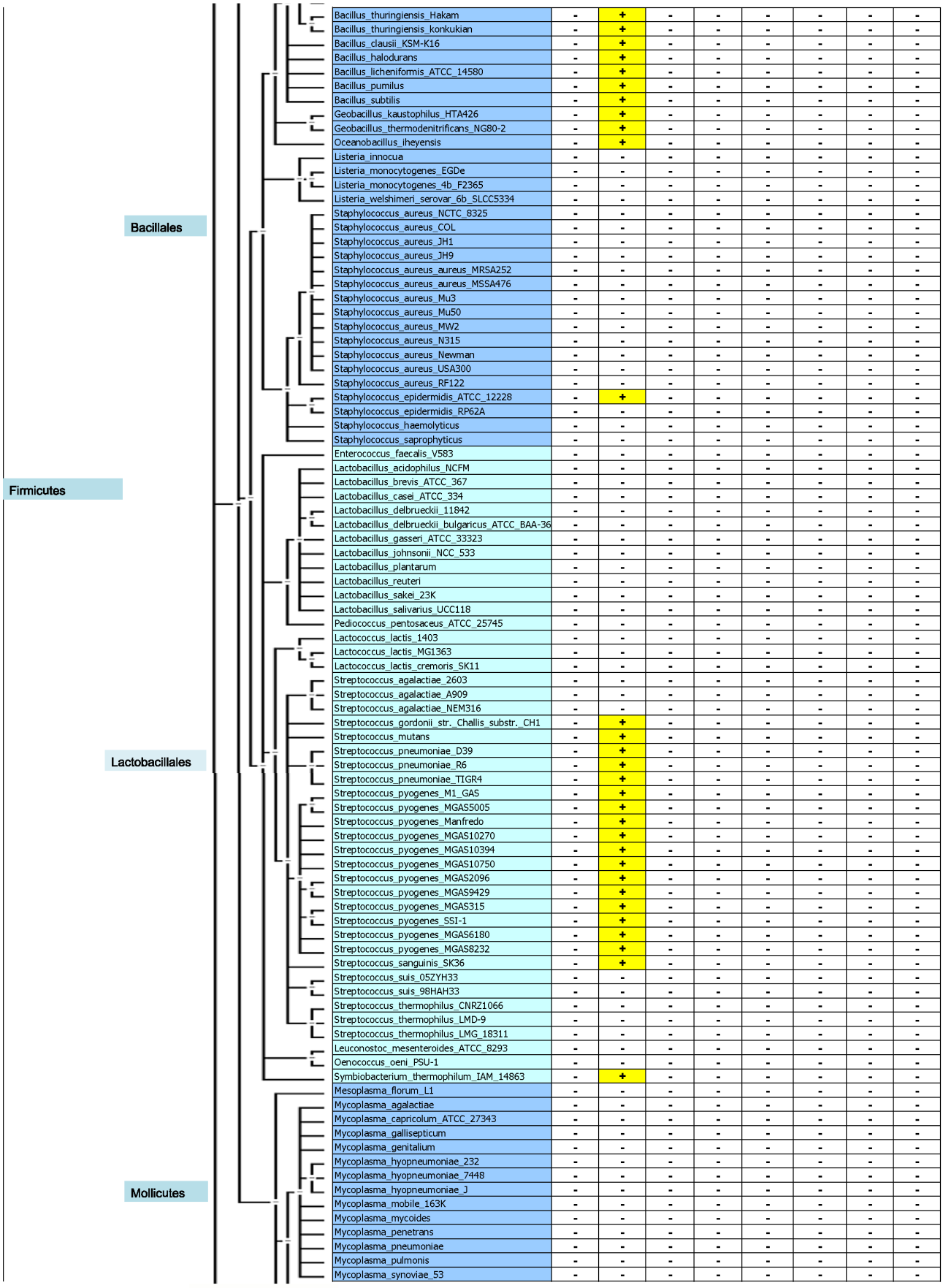
Bacillus_cereus_cytotoxis
Bacillus_cereus_E33L
10



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Bacillus_thuringiensis_konkukian	-	+	-	-	-	-	-	-
Bacillus_clausii_KSM-K16	-	+	-	-	-	-	-	-
Bacillus_halodurans	-	+	-	-	-	-	-	-
Bacillus_licheniformis_ATCC_14580	-	+	-	-	-	-	-	-
Bacillus_pumilus	-	+	-	-	-	-	-	-
Bacillus_subtilis	-	+	-	-	-	-	-	-
Geobacillus_kaustophilus_HTA426	-	+	-	-	-	-	-	-
Geobacillus_thermodenitrificans_NG80-2	-	+	-	-	-	-	-	-
Oceanobacillus_iheyensis	-	+	-	-	-	-	-	-
Listeria_innocua	-	-	-	-	-	-	-	-
Listeria_monocytogenes_EGDe	-	-	-	-	-	-	-	-
Listeria_monocytogenes_4b_F2365	-	-	-	-	-	-	-	-
Listeria_welshimeri_serovar_6b_SLCC5334	-	-	-	-	-	-	-	-
Staphylococcus_aureus_NCTC_8325	-	-	-	-	-	-	-	-
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Staphylococcus_aureus_JH1	-	-	-	-	-	-	-	-
Staphylococcus_aureus_JH9	-	-	-	-	-	-	-	-
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Staphylococcus_aureus_N315	-	-	-	-	-	-	-	-
Staphylococcus_aureus_Newman	-	-	-	-	-	-	-	-
Staphylococcus_aureus_USA300	-	-	-	-	-	-	-	-
Staphylococcus_aureus_RF122	-	-	-	-	-	-	-	-
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Staphylococcus_haemolyticus	-	-	-	-	-	-	-	-
Staphylococcus_saprophyticus	-	-	-	-	-	-	-	-
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Lactobacillus_acidophilus_NCFM	-	-	-	-	-	-	-	-
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Lactobacillus_casei_ATCC_334	-	-	-	-	-	-	-	-
Lactobacillus_delbrueckii_11842	-	-	-	-	-	-	-	-
Lactobacillus_delbrueckii_bulgaricus_ATCC_BAA-36	-	-	-	-	-	-	-	-
Lactobacillus_gasseri_ATCC_33323	-	-	-	-	-	-	-	-
Lactobacillus_johnsonii_NCC_533	-	-	-	-	-	-	-	-
Lactobacillus_plantarum	-	-	-	-	-	-	-	-
Lactobacillus_reuteri	-	-	-	-	-	-	-	-
Lactobacillus_sakei_23K	-	-	-	-	-	-	-	-
Lactobacillus_salivarius_UCC118	-	-	-	-	-	-	-	-
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Streptococcus_agalactiae_NEM316	-	-	-	-	-	-	-	-
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Streptococcus_mutans	-	+	-	-	-	-	-	-
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Streptococcus_pyogenes_MGAS6180	-	+	-	-	-	-	-	-
Streptococcus_pyogenes_MGAS8232	-	+	-	-	-	-	-	-
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Streptococcus_suis_05ZYH33	-	-	-	-	-	-	-	-
Streptococcus_suis_98HAH33	-	-	-	-	-	-	-	-
Streptococcus_thermophilus_CNRZ1066	-	-	-	-	-	-	-	-
Streptococcus_thermophilus_LMD-9	-	-	-	-	-	-	-	-
Streptococcus_thermophilus_LMG_18311	-	-	-	-	-	-	-	-
Leuconostoc_mesenteroides_ATCC_8293	-	-	-	-	-	-	-	-
Oenococcus_oeni_PSU-1	-	-	-	-	-	-	-	-
Symbiobacterium_thermophilum_IAM_14863	-	+	-	-	-	-	-	-
Mesoplasma_florum_L1	-	-	-	-	-	-	-	-
Mycoplasma_agalactiae	-	-	-	-	-	-	-	-
Mycoplasma_capricolum_ATCC_27343	-	-	-	-	-	-	-	-
Mycoplasma_gallisepticum	-	-	-	-	-	-	-	-
Mycoplasma_genitalium	-	-	-	-	-	-	-	-
Mycoplasma_hyopneumoniae_232	-	-	-	-	-	-	-	-
Mycoplasma_hyopneumoniae_7448	-	-	-	-	-	-	-	-
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Mycoplasma_mobile_163K	-	-	-	-	-	-	-	-
Mycoplasma_mycoides	-	-	-	-	-	-	-	-
Mycoplasma_penetrans	-	-	-	-	-	-	-	-
Mycoplasma_pneumoniae	-	-	-	-	-	-	-	-
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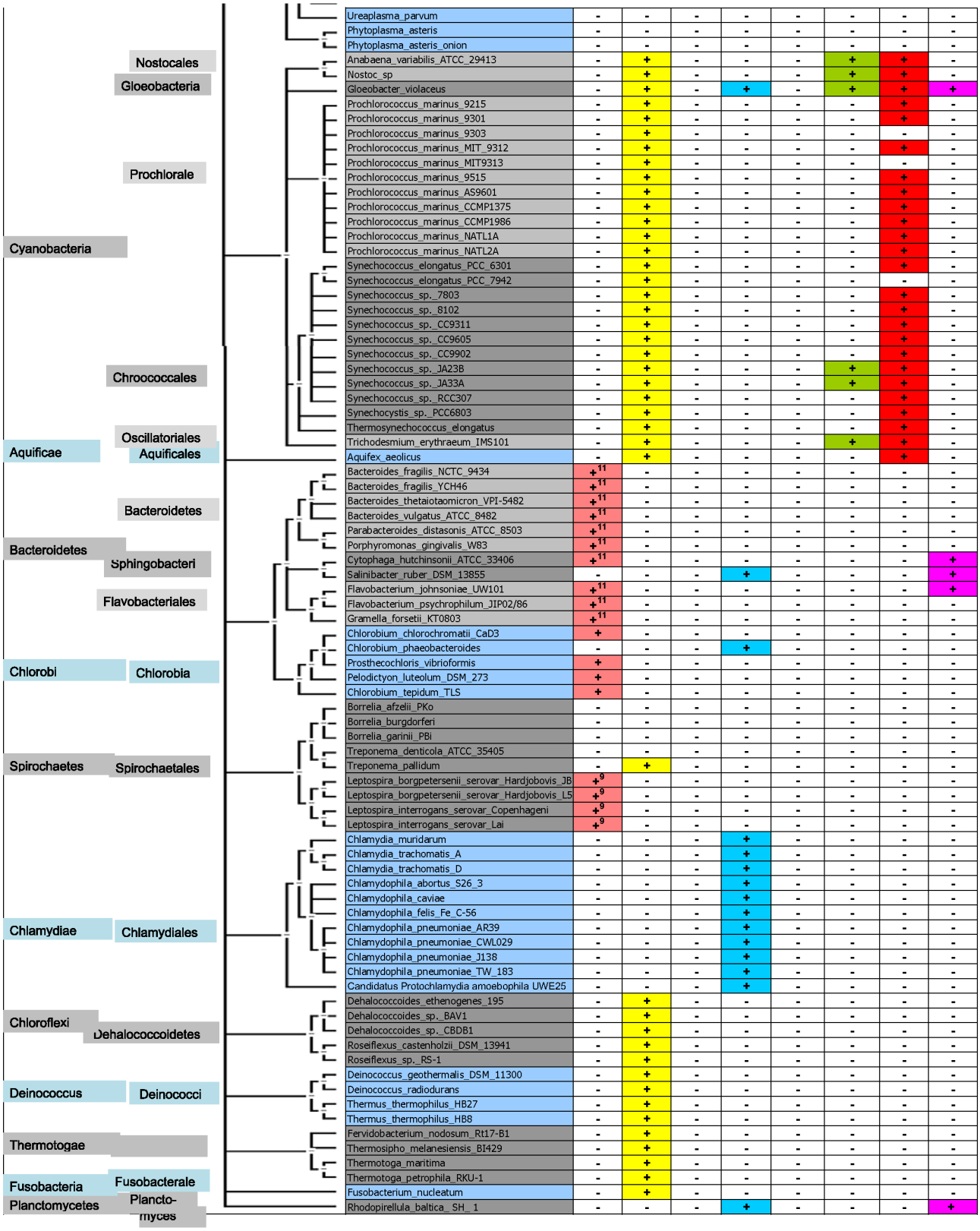

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Nostoc_sp	-	+	-	-	-	+	+	-	
Gloeobacter_violaceus	-	+	-	+	-	+	+	+	
Prochlorococcus_marinus_9215	-	+	-	-	-	-	+	-	
Prochlorococcus_marinus_9301	-	+	-	-	-	-	+	-	
Prochlorococcus_marinus_9303	-	+	-	-	-	-	-	-	
Prochlorococcus_marinus_MIT_9312	-	+	-	-	-	-	+	-	
Prochlorococcus_marinus_MIT9313	-	+	-	-	-	-	-	-	
Prochlorococcus_marinus_9515	-	+	-	-	-	-	+	-	
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Prochlorococcus_marinus_CCMP1375	-	+	-	-	-	-	+	-	
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Prochlorococcus_marinus_NATL2A	-	+	-	-	-	-	+	-	
Synechococcus_elongatus_PCC_6301	-	+	-	-	-	-	+	-	
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Synechocystis_sp._PCC6803	-	+	-	-	-	-	+	-	
Thermosynechococcus_elongatus	-	+	-	-	-	-	+	-	
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Aquifex_aeolicus	-	+	-	-	-	-	+	-	
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Parabacteroides_distasonis_ATCC_8503	+[11]	-	-	-	-	-	-	-	
Porphyromonas_gingivalis_W83	+[11]	-	-	-	-	-	-	-	
Cytophaga_hutchinsonii_ATCC_33406	+[11]	-	-	-	-	-	-	+	
Salinibacter_ruber_DSM_13855	-	-	-	+	-	-	-	+	
Flavobacterium_johnsoniae_UW101	+[11]	-	-	-	-	-	-	+	
Flavobacterium_psychrophilum_JIP02/86	+[11]	-	-	-	-	-	-	-	
Gramella_forsetii_KT0803	+[11]	-	-	-	-	-	-	-	
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Prosthecochloris_vibrioformis	+	-	-	-	-	-	-	-	
Pelodictyon_luteolum_DSM_273	+	-	-	-	-	-	-	-	
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Borrelia_afzelii_PKo	-	-	-	-	-	-	-	-	
Borrelia_burgdorferi	-	-	-	-	-	-	-	-	
Borrelia_garinii_PBi	-	-	-	-	-	-	-	-	
Treponema_denticola_ATCC_35405	-	-	-	-	-	-	-	-	
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Leptospira_borgpetersenii_serovar_Hardjobovis_JB	+[9]	-	-	-	-	-	-	-	
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Leptospira_interrogans_serovar_Copenhageni	+[9]	-	-	-	-	-	-	-	
Leptospira_interrogans_serovar_Lai	+[9]	-	-	-	-	-	-	-	
Chlamydia_muridarum	-	-	-	+	-	-	-	-	
Chlamydia_trachomatis_A	-	-	-	+	-	-	-	-	
Chlamydia_trachomatis_D	-	-	-	+	-	-	-	-	
Chlamydophila_abortus_S26_3	-	-	-	+	-	-	-	-	
Chlamydophila_caviae	-	-	-	+	-	-	-	-	
Chlamydophila_felis_Fe_C-56	-	-	-	+	-	-	-	-	
Chlamydophila_pneumoniae_AR39	-	-	-	+	-	-	-	-	
Chlamydophila_pneumoniae_CWL029	-	-	-	+	-	-	-	-	
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Candidatus Protochlamydia amoebophila UWE25	-	-	-	+	-	-	-	-	
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Deinococcus_geothermalis_DSM_11300	-	+	-	-	-	-	-	-	
Deinococcus_radiodurans	-	+	-	-	-	-	-	-	
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Thermus_thermophilus_HB8	-	+	-	-	-	-	-	-	
Fervidobacterium_nodosum_Rt17-B1	-	+	-	-	-	-	-	-	
Thermosipho_melanesiensis_BI429	-	+	-	-	-	-	-	-	
Thermotoga_maritima	-	+	-	-	-	-	-	-	
Thermotoga_petrophila_RKU-1	-	+	-	-	-	-	-	-	
Fusobacterium_nucleatum	-	+	-	-	-	-	-	-	
Rhodopirellula_baltica_SH_1	-	-	-	+	-	-	-	+	