

Table S1. Taxonomic distribution of the *trmA* and *trmFO* (*gid*) genes coding for putative tRNA:m⁵U-54 methyltransferases in 355 bacterial and archaeal complete genomes. Asterisks indicate the presence and the number of putative genes found.

Genomes	Taxonomic position	TrmA	Gid
Archaea			
Crenarchaea			
	<i>Aeropyrum pernix_K1</i>		
	<i>Cenarchaeum symbiosum</i>		
	<i>Pyrobaculum aerophilum_str_IM2</i>		
	<i>Sulfolobus acidocaldarius_DSM_639</i>		
	<i>Sulfolobus solfataricus</i>		
	<i>Sulfolobus tokodaii</i>		
Euryarchaea			
	<i>Archaeoglobus fulgidus</i>		
	<i>Haloarcula marismortui_ATCC_43049</i>		
	<i>Halobacterium sp</i>		
	<i>Haloquadratum walsbyi</i>		
	<i>Methanobacterium thermoautotrophicum</i>		
	<i>Methanococcoides burtonii_DSM_6242</i>		
	<i>Methanococcus jannaschii</i>		
	<i>Methanococcus maripaludis_S2</i>		
	<i>Methanopyrus kandleri</i>		
	<i>Methanosarcina acetivorans</i>		
	<i>Methanosarcina barkeri_fusaro</i>		
	<i>Methanosarcina mazei</i>		
	<i>Methanosphaera stadtmanae</i>		
	<i>Methanospirillum hungatei_JF_1</i>		
	<i>Natronomonas pharaonis</i>		
	<i>Picrophilus torridus_DSM_9790</i>		
	<i>Pyrococcus abyssi</i>		
	<i>Pyrococcus furiosus</i>		
	<i>Pyrococcus horikoshii</i>		
	<i>Thermococcus kodakaraensis_KOD1</i>		
	<i>Thermoplasma acidophilum</i>		
	<i>Thermoplasma volcanium</i>		
Nanoarchaea			
	<i>Nanoarchaeum equitans</i>		
Bacteria			
Acidobacteria			
	<i>Acidobacteria bacterium_Ellin345</i>		*
Actinobacteria			
	<i>Bifidobacterium longum</i>		
	<i>Corynebacterium diphtheriae</i>		
	<i>Corynebacterium efficiens_YS_314</i>		
	<i>Corynebacterium glutamicum_ATCC_13032_K</i>		
	<i>Corynebacterium glutamicum_ATCC_13032_K</i>		
	<i>Corynebacterium jeikeium_K411</i>		
	<i>Frankia Cc13</i>		
	<i>Leifsonia xyli_xyli_CTCB0</i>		
	<i>Mycobacterium avium</i>		
	<i>Mycobacterium bovis</i>		
	<i>Mycobacterium leprae</i>		
	<i>Crenarchaeota; Thermoprotei; Desulfurococcales; Desulfurococcaceae</i>		
	<i>Crenarchaeota; Thermoprotei; Cenarchaeales; Cenarchaeaceae</i>		
	<i>Crenarchaeota; Thermoprotei; Thermoproteales; Thermoproteaceae</i>		
	<i>Crenarchaeota; Thermoprotei; Sulfolobales; Sulfolobaceae</i>		
	<i>Crenarchaeota; Thermoprotei; Sulfolobales; Sulfolobaceae</i>		
	<i>Crenarchaeota; Thermoprotei; Sulfolobales; Sulfolobaceae</i>		
	<i>Euryarchaeota; Archaeoglobi; Archaeoglobales; Archaeoglobaceae</i>		
	<i>Euryarchaeota; Halobacteria; Halobacteriales; Halobacteriaceae; Haloarcula</i>		
	<i>Euryarchaeota; Halobacteria; Halobacteriales; Halobacteriaceae; Haloarcula</i>		
	<i>Euryarchaeota; Halobacteria; Halobacteriales; Halobacteriaceae; Haloquadra</i>		
	<i>Euryarchaeota; Methanobacteria; Methanobacteriales; Methanobacteriaceae</i>		
	<i>Euryarchaeota; Methanomicrobia; Methanosarcinales; Methanosarcinaceae</i>		
	<i>Euryarchaeota; Methanococci; Methanococcales; Methanococcaceae</i>		
	<i>Euryarchaeota; Methanococci; Methanococcales; Methanococcaceae</i>		
	<i>Euryarchaeota; Methanopyri; Methanopyrales; Methanopyraceae</i>		
	<i>Euryarchaeota; Methanomicrobia; Methanosarcinales; Methanosarcinaceae</i>		
	<i>Euryarchaeota; Methanomicrobia; Methanosarcinales; Methanosarcinaceae</i>		
	<i>Euryarchaeota; Methanomicrobia; Methanosarcinales; Methanosarcinaceae</i>		
	<i>Euryarchaeota; Methanobacteria; Methanobacteriales; Methanobacteriaceae</i>		
	<i>Euryarchaeota; Methanomicrobia; Methanomicrobiales; Methanospirillaceae</i>		
	<i>Euryarchaeota; Halobacteria; Halobacteriales; Halobacteriaceae; Natronomonas</i>		
	<i>Euryarchaeota; Thermoplasmata; Thermoplasmatales; Picrophilaceae</i>		
	<i>Euryarchaeota; Thermococci; Thermococcales; Thermococcaceae</i>		
	<i>Euryarchaeota; Thermococci; Thermococcales; Thermococcaceae</i>		
	<i>Euryarchaeota; Thermococci; Thermococcales; Thermococcaceae</i>		
	<i>Euryarchaeota; Thermococci; Thermococcales; Thermococcaceae</i>		
	<i>Euryarchaeota; Thermoplasmata; Thermoplasmatales; Thermoplasmataceae</i>		
	<i>Euryarchaeota; Thermoplasmata; Thermoplasmatales; Thermoplasmataceae</i>		
	<i>Nanoarchaeota</i>		
	<i>Fibrobacteres/Acidobacteria group</i>		
	<i>Actinobacteria; Actinobacteria (class); Actinobacteridae; Bifidobacteriales; Bifidobacteriaceae</i>		
	<i>Actinobacteria; Actinobacteria (class); Actinobacteridae; Actinomycetales; Corynebacterineae; Corynebacteriaceae</i>		
	<i>Actinobacteria; Actinobacteria (class); Actinobacteridae; Actinomycetales; Corynebacterineae; Corynebacteriaceae</i>		
	<i>Actinobacteria; Actinobacteria (class); Actinobacteridae; Actinomycetales; Corynebacterineae; Corynebacteriaceae</i>		
	<i>Actinobacteria; Actinobacteria (class); Actinobacteridae; Actinomycetales; Corynebacterineae; Corynebacteriaceae</i>		
	<i>Actinobacteria; Actinobacteria (class); Actinobacteridae; Actinomycetales; Corynebacterineae; Corynebacteriaceae</i>		
	<i>Actinobacteria; Actinobacteria (class); Actinobacteridae; Actinomycetales; Frankineae; Frankiaceae</i>		
	<i>Actinobacteria; Actinobacteria (class); Actinobacteridae; Actinomycetales; Micrococccineae; Microbacteriaceae</i>		
	<i>Actinobacteria; Actinobacteria (class); Actinobacteridae; Actinomycetales; Corynebacterineae; Mycobacteriaceae</i>		
	<i>Actinobacteria; Actinobacteria (class); Actinobacteridae; Actinomycetales; Corynebacterineae; Mycobacteriaceae</i>		
	<i>Actinobacteria; Actinobacteria (class); Actinobacteridae; Actinomycetales; Corynebacterineae; Mycobacteriaceae</i>		

Mycobacterium MCS
*Mycobacterium tuberculosis*_CDC1551
*Mycobacterium tuberculosis*_H37Rv
*Nocardia farcinica*_JFM10152
*Propionibacterium acnes*_KPA171202
*Rubrobacter xylanophilus*_DSM_9941
Streptomyces avermitilis
Streptomyces coelicolor
*Thermobifida fusca*_YX
*Tropheryma whippelii*_TW08_27
*Tropheryma whippelii*_Twist

Aquificae

Bacteroidetes

PVC group

Chloroflexi

Cyanobacteria

Aquifex aeolicus

*Bacteroides fragilis*_NCTC_9434
*Bacteroides fragilis*_YCH46
*Bacteroides thetaiotaomicron*_VPI_5482
*Chlorobium chlorochromatii*_CaD3
*Chlorobium tepidum*_TLS
*Pelodictyon luteolum*_DSM_273
*Porphyromonas gingivalis*_WB3
*Salinibacter ruber*_DSM_13855

Chlamydia muridarum
Chlamydia trachomatis
*Chlamydia trachomatis*_A_HAR_13
*Chlamydogydia abortus*_S26_3
Chlamydogydia caviae
*Chlamydogydia felis*_Fe_C_56
*Chlamydogydia pneumoniae*_AR39
*Chlamydogydia pneumoniae*_CWL029
*Chlamydogydia pneumoniae*_J138
*Chlamydogydia pneumoniae*_TW_183
*Protochlamydia amoebophila*_UWE25
*Rhodopirellula baltica*_SH1

*Dehalococcoides*_CBDB1
*Dehalococcoides ethenogenes*_195

*Anabaena variabilis*_ATCC_29413
Gloeobacter violaceus
Nostoc sp
*Prochlorococcus marinus*_CCMP1375
*Prochlorococcus marinus*_MED4
*Prochlorococcus marinus*_MIT_9312
*Prochlorococcus marinus*_MIT9313
*Prochlorococcus marinus*_NATL2A
*Synechococcus*_CC9605
*Synechococcus*_CC9902
*Synechococcus elongatus*_PCC_6301
*Synechococcus elongatus*_PCC_7942

Actinobacteria; *Actinobacteria* (class); *Actinobacteridae*; *Actinomycetales*; *Corynebacterineae*; *Mycobacteriaceae*
Actinobacteria; *Actinobacteria* (class); *Actinobacteridae*; *Actinomycetales*; *Corynebacterineae*; *Mycobacteriaceae*
Actinobacteria; *Actinobacteria* (class); *Actinobacteridae*; *Actinomycetales*; *Corynebacterineae*; *Mycobacteriaceae*
Actinobacteria; *Actinobacteria* (class); *Actinobacteridae*; *Actinomycetales*; *Corynebacterineae*; *Nocardiaceae*
Actinobacteria; *Actinobacteria* (class); *Actinobacteridae*; *Actinomycetales*; *Propionibacterineae*; *Propionibacteriaceae*
Actinobacteria; *Actinobacteria* (class); *Rubrobacteridae*; *Rubrobacterales*; *Rubrobacterineae*; *Rubrobacteraceae*
Actinobacteria; *Actinobacteria* (class); *Actinobacteridae*; *Actinomycetales*; *Streptomycineae*; *Streptomycetaceae*
Actinobacteria; *Actinobacteria* (class); *Actinobacteridae*; *Actinomycetales*; *Streptomycineae*; *Streptomycetaceae*
Actinobacteria; *Actinobacteria* (class); *Actinobacteridae*; *Actinomycetales*; *Streptosporangineae*; *Nocardiopsaceae*
Actinobacteria; *Actinobacteria* (class); *Actinobacteridae*; *Actinomycetales*; *Micrococcineae*; *Cellulomonadaceae*
Actinobacteria; *Actinobacteria* (class); *Actinobacteridae*; *Actinomycetales*; *Micrococcineae*; *Cellulomonadaceae*

Aquificae; *Aquificae* (class); *Aquificales*; *Aquificaceae*

Bacteroidetes/*Chlorobi* group; *Bacteroidetes*; *Bacteroidetes* (class); *Bacteroidales*; *Bacteroidaceae*
Bacteroidetes/*Chlorobi* group; *Bacteroidetes*; *Bacteroidetes* (class); *Bacteroidales*; *Bacteroidaceae*
Bacteroidetes/*Chlorobi* group; *Bacteroidetes*; *Bacteroidetes* (class); *Bacteroidales*; *Bacteroidaceae*
Bacteroidetes/*Chlorobi* group; *Chlorobi*; *Chlorobia*; *Chlorobiales*; *Chlorobiaceae*; *Chlorobium*/*Pelodictyon* group
Bacteroidetes/*Chlorobi* group; *Chlorobi*; *Chlorobia*; *Chlorobiales*; *Chlorobiaceae*; *Chlorobium*/*Pelodictyon* group
Bacteroidetes/*Chlorobi* group; *Chlorobi*; *Chlorobia*; *Chlorobiales*; *Chlorobiaceae*; *Chlorobium*/*Pelodictyon* group
Bacteroidetes/*Chlorobi* group; *Bacteroidetes*; *Bacteroidetes* (class); *Bacteroidales*; *Porphyromonadaceae*
Bacteroidetes/*Chlorobi* group; *Bacteroidetes*; *Sphingobacteria*; *Sphingobacteriales*; *Crenotrichaceae*

Chlamydiae/*Verrucomicrobia* group; *Chlamydiae*; *Chlamydiae* (class); *Chlamydiales*; *Chlamydiaceae*
Chlamydiae/*Verrucomicrobia* group; *Chlamydiae*; *Chlamydiae* (class); *Chlamydiales*; *Chlamydiaceae*
Chlamydiae/*Verrucomicrobia* group; *Chlamydiae*; *Chlamydiae* (class); *Chlamydiales*; *Chlamydiaceae*
Chlamydiae/*Verrucomicrobia* group; *Chlamydiae*; *Chlamydiae* (class); *Chlamydiales*; *Chlamydiaceae*
Chlamydiae/*Verrucomicrobia* group; *Chlamydiae*; *Chlamydiae* (class); *Chlamydiales*; *Chlamydiaceae*
Chlamydiae/*Verrucomicrobia* group; *Chlamydiae*; *Chlamydiae* (class); *Chlamydiales*; *Chlamydiaceae*
Chlamydiae/*Verrucomicrobia* group; *Chlamydiae*; *Chlamydiae* (class); *Chlamydiales*; *Chlamydiaceae*
Chlamydiae/*Verrucomicrobia* group; *Chlamydiae*; *Chlamydiae* (class); *Chlamydiales*; *Chlamydiaceae*
Chlamydiae/*Verrucomicrobia* group; *Chlamydiae*; *Chlamydiae* (class); *Chlamydiales*; *Chlamydiaceae*
Chlamydiae/*Verrucomicrobia* group; *Chlamydiae*; *Chlamydiae* (class); *Chlamydiales*; *Parachlamydiaceae*
Planctomycetes; *Planctomycetacia*; *Planctomycetales*; *Planctomycetaceae*; *Rhodopirellula*

Chloroflexi; *Dehalococcoidetes*
Chloroflexi; *Dehalococcoidetes*

Cyanobacteria; *Nostocales*; *Nostocaceae*
Cyanobacteria; *Gloeobacteria*; *Gloeobacteriales*
Cyanobacteria; *Nostocales*; *Nostocaceae*
Cyanobacteria; *Prochlorales*; *Prochlorococcaceae*
Cyanobacteria; *Prochlorales*; *Prochlorococcaceae*
Cyanobacteria; *Prochlorales*; *Prochlorococcaceae*
Cyanobacteria; *Prochlorales*; *Prochlorococcaceae*
Cyanobacteria; *Prochlorales*; *Prochlorococcaceae*
Cyanobacteria; *Chroococcales*
Cyanobacteria; *Chroococcales*
Cyanobacteria; *Chroococcales*
Cyanobacteria; *Chroococcales*

Synechococcus sp. JA-2-3B'a (Cyanobacteria Yellowstone B-Prime)
Synechococcus sp. JA-3-3Ab (Cyanobacteria Yellowstone A-Prime)
Synechococcus sp. WH8102
Synechocystis PCC6803
Thermosynechococcus elongatus

Deinococci

*Deinococcus geothermalis*_DSM_11300
Deinococcus radiodurans
*Thermus thermophilus*_HB27
*Thermus thermophilus*_HB8

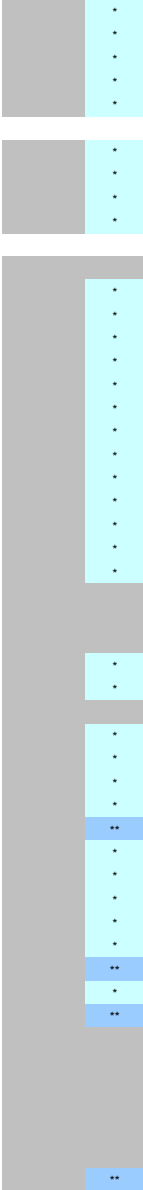
Firmicutes

Aster yellows_witches_broom_phytoplasma
*Bacillus anthracis*_Ames
*Bacillus anthracis*_str.'Ames Ancestor'
*Bacillus anthracis*_str.'Sterne'
*Bacillus cereus*_ATCC10987
*Bacillus cereus*_ATCC14579
*Bacillus cereus*_E33L
*Bacillus clausii*_KSM_K16
Bacillus halodurans
*Bacillus licheniformis*_ATCC_14580
*Bacillus licheniformis*_DSM_13
Bacillus subtilis
Bacillus thuringiensis_konkukian
*Carboxythermus hydrogenoformans*_Z_290
Clostridium acetobutylicum
Clostridium perfringens
*Clostridium tetani*_E88
*Desulfotobacterium hafniense*_Y51
*Enterococcus faecalis*_V583
*Geobacillus kaustophilus*_HTA426
*Lactobacillus acidophilus*_NCFM
Lactobacillus delbrueckii_bulgaricus
*Lactobacillus johnsonii*_NCC_533
Lactobacillus plantarum
*Lactobacillus sakei*_23K
*Lactobacillus salivarius*_UCC118
Lactococcus lactis
Listeria innocua
Listeria monocytogenes
*Listeria monocytogenes*_4b_F2365
*Mesoplasma florum*_L1
*Moorella thermoacetica*_ATCC_39073
*Mycoplasma capricolum*_ATCC_27343
Mycoplasma gallisepticum
Mycoplasma genitalium
*Mycoplasma hyopneumoniae*_232
*Mycoplasma hyopneumoniae*_7448
*Mycoplasma hyopneumoniae*_J
*Mycoplasma mobile*_163K
Mycoplasma mycoides

Cyanobacteria; Chroococcales
Cyanobacteria; Chroococcales
Cyanobacteria; Chroococcales
Cyanobacteria; Chroococcales
Cyanobacteria; Chroococcales

Deinococcus-Thermus; Deinococci; Deinococcales; Deinococcaceae
Deinococcus-Thermus; Deinococci; Deinococcales; Deinococcaceae
Deinococcus-Thermus; Deinococci; Thermales; Thermaceae
Deinococcus-Thermus; Deinococci; Thermales; Thermaceae

Firmicutes; Mollicutes; Achleplasmatales; Achleplasmataceae
Firmicutes; Bacilli; Bacillales; Bacillaceae
Firmicutes; Bacilli; Bacillales; Bacillaceae
Firmicutes; Bacilli; Bacillales; Bacillaceae
Firmicutes; Bacilli; Bacillales; Bacillaceae
Firmicutes; Bacilli; Bacillales; Bacillaceae
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Firmicutes; Bacilli; Bacillales; Bacillaceae
Firmicutes; Bacilli; Bacillales; Bacillaceae
Firmicutes; Clostridia; Clostridiales; Peptococcaceae
Firmicutes; Clostridia; Clostridiales; Clostridiaceae
Firmicutes; Clostridia; Clostridiales; Clostridiaceae
Firmicutes; Clostridia; Clostridiales; Clostridiaceae
Firmicutes; Clostridia; Clostridiales; Peptococcaceae
Firmicutes; Bacilli; Lactobacillales; Enterococcaceae
Firmicutes; Bacilli; Bacillales; Bacillaceae
Firmicutes; Bacilli; Lactobacillales; Lactobacillaceae
Firmicutes; Bacilli; Lactobacillales; Lactobacillaceae
Firmicutes; Bacilli; Lactobacillales; Lactobacillaceae
Firmicutes; Bacilli; Lactobacillales; Lactobacillaceae
Firmicutes; Bacilli; Lactobacillales; Lactobacillaceae
Firmicutes; Bacilli; Lactobacillales; Lactobacillaceae
Firmicutes; Bacilli; Bacillales; Listeriaceae
Firmicutes; Bacilli; Bacillales; Listeriaceae
Firmicutes; Bacilli; Bacillales; Listeriaceae
Firmicutes; Mollicutes; Entomoplasmatales; Entomoplasmataceae
Firmicutes; Clostridia; Thermoanaerobacteriales; Thermoanaerobacteriaceae; Moorella group
Firmicutes; Mollicutes; Mycoplasmatales; Mycoplasmataceae
Firmicutes; Mollicutes; Mycoplasmatales; Mycoplasmataceae
Firmicutes; Mollicutes; Mycoplasmatales; Mycoplasmataceae
Firmicutes; Mollicutes; Mycoplasmatales; Mycoplasmataceae
Firmicutes; Mollicutes; Mycoplasmatales; Mycoplasmataceae
Firmicutes; Mollicutes; Mycoplasmatales; Mycoplasmataceae
Firmicutes; Mollicutes; Mycoplasmatales; Mycoplasmataceae
Firmicutes; Mollicutes; Mycoplasmatales; Mycoplasmataceae



<i>Brucella abortus_9_941</i>	<i>Proteobacteria; Alphaproteobacteria; Rhizobiales; Brucellaceae</i>
<i>Brucella melitensis</i>	<i>Proteobacteria; Alphaproteobacteria; Rhizobiales; Brucellaceae</i>
<i>Brucella melitensis_biovar_Abortus</i>	<i>Proteobacteria; Alphaproteobacteria; Rhizobiales; Brucellaceae</i>
<i>Brucella suis_1330</i>	<i>Proteobacteria; Alphaproteobacteria; Rhizobiales; Brucellaceae</i>
<i>Candidatus Pelagibacter ubique_HTCC1062</i>	<i>Proteobacteria; Alphaproteobacteria; Rickettsiales; SAR11 cluster</i>
<i>Caulobacter crescentus</i>	<i>Proteobacteria; Alphaproteobacteria; Caulobacterales; Caulobacteraceae</i>
<i>Ehrlichia canis_Jake</i>	<i>Proteobacteria; Alphaproteobacteria; Rickettsiales; Anaplasmataceae; Ehrlichia</i>
<i>Ehrlichia chaffeensis_Arkansas</i>	<i>Proteobacteria; Alphaproteobacteria; Rickettsiales; Anaplasmataceae; Ehrlichia</i>
<i>Ehrlichia ruminantium_GardeI</i>	<i>Proteobacteria; Alphaproteobacteria; Rickettsiales; Anaplasmataceae; Ehrlichia</i>
<i>Ehrlichia ruminantium_str_Welgevonden</i>	<i>Proteobacteria; Alphaproteobacteria; Rickettsiales; Anaplasmataceae; Ehrlichia</i>
<i>Ehrlichia ruminantium_Welgevonden</i>	<i>Proteobacteria; Alphaproteobacteria; Rickettsiales; Anaplasmataceae; Ehrlichia</i>
<i>Erythrobacter litoralis_HTCC2594</i>	<i>Proteobacteria; Alphaproteobacteria; Sphingomonadales; Erythrobacteraceae</i>
<i>Gluconobacter oxydans_621H</i>	<i>Proteobacteria; Alphaproteobacteria; Rhodospirillales; Acetobacteraceae</i>
<i>Jannaschia CCS1</i>	<i>Proteobacteria; Alphaproteobacteria; Rhodobacteriales; Rhodobacteraceae</i>
<i>Magnetspirillum magneticum_AMB_1</i>	<i>Proteobacteria; Alphaproteobacteria; Rhodospirillales; Rhodospirillaceae</i>
<i>Mesorhizobium loti</i>	<i>Proteobacteria; Alphaproteobacteria; Rhizobiales; Phyllobacteriaceae</i>
<i>Neorickettsia sennetsu_Miyayama</i>	<i>Proteobacteria; Alphaproteobacteria; Rickettsiales; Anaplasmataceae</i>
<i>Nitrobacter hamburgensis_X14</i>	<i>Proteobacteria; Alphaproteobacteria; Rhizobiales; Bradyrhizobiaceae</i>
<i>Nitrobacter winogradskyi_Nb_255</i>	<i>Proteobacteria; Alphaproteobacteria; Rhizobiales; Bradyrhizobiaceae</i>
<i>Novosphingobium aromaticivorans_DSM_124</i>	<i>Proteobacteria; Alphaproteobacteria; Sphingomonadales; Sphingomonadaceae</i>
<i>Rhizobium etli_CFN_42</i>	<i>Proteobacteria; Alphaproteobacteria; Rhizobiales; Rhizobiaceae; Rhizobium/Agrobacterium group</i>
<i>Rhodobacter sphaeroides_2_4_1</i>	<i>Proteobacteria; Alphaproteobacteria; Rhodobacteriales; Rhodobacteraceae</i>
<i>Rhodopseudomonas palustris_BisB18</i>	<i>Proteobacteria; Alphaproteobacteria; Rhizobiales; Bradyrhizobiaceae</i>
<i>Rhodopseudomonas palustris_BisB5</i>	<i>Proteobacteria; Alphaproteobacteria; Rhizobiales; Bradyrhizobiaceae</i>
<i>Rhodopseudomonas palustris_CGA009</i>	<i>Proteobacteria; Alphaproteobacteria; Rhizobiales; Bradyrhizobiaceae</i>
<i>Rhodopseudomonas palustris_HaA2</i>	<i>Proteobacteria; Alphaproteobacteria; Rhizobiales; Bradyrhizobiaceae</i>
<i>Rhodospirillum rubrum_ATCC_11170</i>	<i>Proteobacteria; Alphaproteobacteria; Rhodospirillales; Rhodospirillaceae</i>
<i>Rickettsia bellii_RML369_C</i>	<i>Proteobacteria; Alphaproteobacteria; Rickettsiales; Rickettsiaceae; Rickettsiae; Rickettsia</i>
<i>Rickettsia conorii</i>	<i>Proteobacteria; Alphaproteobacteria; Rickettsiales; Rickettsiaceae; Rickettsiae; Rickettsia</i>
<i>Rickettsia felis_URRWXCa2</i>	<i>Proteobacteria; Alphaproteobacteria; Rickettsiales; Rickettsiaceae; Rickettsiae; Rickettsia</i>
<i>Rickettsia prowazekii</i>	<i>Proteobacteria; Alphaproteobacteria; Rickettsiales; Rickettsiaceae; Rickettsiae; Rickettsia</i>
<i>Rickettsia typhi_wilmington</i>	<i>Proteobacteria; Alphaproteobacteria; Rickettsiales; Rickettsiaceae; Rickettsiae; Rickettsia</i>
<i>Silicibacter pomeroyi_DSS3</i>	<i>Proteobacteria; Alphaproteobacteria; Rhodobacteriales; Rhodobacteraceae</i>
<i>Silicibacter TM1040</i>	<i>Proteobacteria; Alphaproteobacteria; Rhodobacteriales; Rhodobacteraceae</i>
<i>Sinorhizobium melloti</i>	<i>Proteobacteria; Alphaproteobacteria; Rhizobiales; Rhizobiaceae; Sinorhizobium/Ensifer group</i>
<i>Sphingopyxis alaskensis_RB2256</i>	<i>Proteobacteria; Alphaproteobacteria; Sphingomonadales; Sphingomonadaceae</i>
<i>Wolbachia endosymbiont_of_Brugia_malayi</i>	<i>Proteobacteria; Alphaproteobacteria; Rickettsiales; Rickettsiaceae; Wolbachiae</i>
<i>Wolbachia endosymbiont_of_Drosophila_me</i>	<i>Proteobacteria; Alphaproteobacteria; Rickettsiales; Rickettsiaceae; Wolbachiae</i>
<i>Zymomonas mobilis_ZM4</i>	<i>Proteobacteria; Alphaproteobacteria; Sphingomonadales; Sphingomonadaceae; Zymomonas</i>
Betaproteobacteria	
<i>Azoarcus sp_EbN1</i>	<i>Proteobacteria; Betaproteobacteria; Rhodocyclales; Rhodocyclaceae</i>
<i>Bordetella bronchiseptica</i>	<i>Proteobacteria; Betaproteobacteria; Burkholderiales; Alcaligenaceae</i>
<i>Bordetella parapertussis</i>	<i>Proteobacteria; Betaproteobacteria; Burkholderiales; Alcaligenaceae</i>
<i>Bordetella pertussis</i>	<i>Proteobacteria; Betaproteobacteria; Burkholderiales; Alcaligenaceae</i>
<i>Burkholderia 3B3</i>	<i>Proteobacteria; Betaproteobacteria; Burkholderiales; Burkholderiaceae</i>
<i>Burkholderia cenocepacia_AU_1054</i>	<i>Proteobacteria; Betaproteobacteria; Burkholderiales; Burkholderiaceae</i>
<i>Burkholderia mallei_ATCC_23344</i>	<i>Proteobacteria; Betaproteobacteria; Burkholderiales; Burkholderiaceae</i>
<i>Burkholderia pseudomallei_1710b</i>	<i>Proteobacteria; Betaproteobacteria; Burkholderiales; Burkholderiaceae</i>
<i>Burkholderia pseudomallei_K96243</i>	<i>Proteobacteria; Betaproteobacteria; Burkholderiales; Burkholderiaceae</i>
<i>Burkholderia thailandensis_E264</i>	<i>Proteobacteria; Betaproteobacteria; Burkholderiales; Burkholderiaceae</i>
<i>Burkholderia xenovorans_LB400</i>	<i>Proteobacteria; Betaproteobacteria; Burkholderiales; Burkholderiaceae</i>



	<i>Chromobacterium violaceum</i>	Proteobacteria; Betaproteobacteria; Neisseriales; Neisseriaceae; Chromobacterium group	
	<i>Dechloromonas aromatica_RCB</i>	Proteobacteria; Betaproteobacteria; Rhodocyclales; Rhodocyclaceae	*
	<i>Methylobacillus flagellatus_KT</i>	Proteobacteria; Betaproteobacteria; Methylophilales; Methylophilaceae	
	<i>Neisseria gonorrhoeae_FA_1090</i>	Proteobacteria; Betaproteobacteria; Neisseriales; Neisseriaceae; Neisseria	*
	<i>Neisseria meningitidis_MC58</i>	Proteobacteria; Betaproteobacteria; Neisseriales; Neisseriaceae; Neisseria	*
	<i>Neisseria meningitidis_ZZ491</i>	Proteobacteria; Betaproteobacteria; Neisseriales; Neisseriaceae; Neisseria	*
	<i>Nitrosomonas europaea</i>	Proteobacteria; Betaproteobacteria; Nitrosomonadales; Nitrosomonadaceae	
	<i>Nitrospira multiformis_ATCC_25196</i>	Proteobacteria; Betaproteobacteria; Nitrosomonadales; Nitrosomonadaceae	
	<i>Polaromonas JS666</i>	Proteobacteria; Betaproteobacteria; Burkholderiales; Comamonadaceae	
	<i>Ralstonia eutropha_JMP134</i>	Proteobacteria; Betaproteobacteria; Burkholderiales; Burkholderiaceae	
	<i>Ralstonia metallidurans_CH34</i>	Proteobacteria; Betaproteobacteria; Burkholderiales; Burkholderiaceae	
	<i>Ralstonia solanacearum</i>	Proteobacteria; Betaproteobacteria; Burkholderiales; Burkholderiaceae	
	<i>Rhodospirillum rubrum_T118</i>	Proteobacteria; Betaproteobacteria; Burkholderiales; Comamonadaceae	
	<i>Thiobacillus denitrificans_ATCC_25259</i>	Proteobacteria; Betaproteobacteria; Hydrogenophilales; Hydrogenophilaceae	
Deltaproteobacteria			
	<i>Anaeromyxobacter dehalogenans_2CP_C</i>	Proteobacteria; delta/epsilon subdivisions; Deltaproteobacteria; Myxococcales; Cystobacterineae; Myxococcaceae	*
	<i>Bdellovibrio bacteriovorus</i>	Proteobacteria; delta/epsilon subdivisions; Deltaproteobacteria; Bdellovibrionales; Bdellovibrionaceae	*
	<i>Desulfotalea psychrophila_LSv54</i>	Proteobacteria; delta/epsilon subdivisions; Deltaproteobacteria; Desulfobacterales; Desulfobulbaceae	*
	<i>Desulfovibrio desulfuricans_G20</i>	Proteobacteria; delta/epsilon subdivisions; Deltaproteobacteria; Desulfovibrionales; Desulfovibrionaceae	*
	<i>Desulfovibrio vulgaris_Hildenborough</i>	Proteobacteria; delta/epsilon subdivisions; Deltaproteobacteria; Desulfovibrionales; Desulfovibrionaceae	*
	<i>Geobacter metallireducens_GS_15</i>	Proteobacteria; delta/epsilon subdivisions; Deltaproteobacteria; Desulfuromonadales; Geobacteraceae	*
	<i>Geobacter sulfurreducens</i>	Proteobacteria; delta/epsilon subdivisions; Deltaproteobacteria; Desulfuromonadales; Geobacteraceae	*
	<i>Lawsonia intracellularis_PHE_MN1_00</i>	Proteobacteria; delta/epsilon subdivisions; Deltaproteobacteria; Desulfovibrionales; Desulfovibrionaceae	*
	<i>Myxococcus xanthus_DK_1622</i>	Proteobacteria; delta/epsilon subdivisions; Deltaproteobacteria; Myxococcales; Cystobacterineae; Myxococcaceae	*
	<i>Pelobacter carbinolicus</i>	Proteobacteria; delta/epsilon subdivisions; Deltaproteobacteria; Desulfuromonadales; Pelobacteraceae	*
	<i>Syntrophus aciditrophicus_SB</i>	Proteobacteria; delta/epsilon subdivisions; Deltaproteobacteria; Syntrophobacterales; Syntrophaceae	*
Epsilonproteobacteria			
	<i>Campylobacter jejuni</i>	Proteobacteria; delta/epsilon subdivisions; Epsilonproteobacteria; Campylobacterales; Campylobacteraceae	*
	<i>Campylobacter jejuni_RM1221</i>	Proteobacteria; delta/epsilon subdivisions; Epsilonproteobacteria; Campylobacterales; Campylobacteraceae	*
	<i>Helicobacter acinonychis_Sheeba</i>	Proteobacteria; delta/epsilon subdivisions; Epsilonproteobacteria; Campylobacterales; Helicobacteraceae	
	<i>Helicobacter hepaticus</i>	Proteobacteria; delta/epsilon subdivisions; Epsilonproteobacteria; Campylobacterales; Helicobacteraceae	*
	<i>Helicobacter pylori_26695</i>	Proteobacteria; delta/epsilon subdivisions; Epsilonproteobacteria; Campylobacterales; Helicobacteraceae	
	<i>Helicobacter pylori_HPAG1</i>	Proteobacteria; delta/epsilon subdivisions; Epsilonproteobacteria; Campylobacterales; Helicobacteraceae	
	<i>Helicobacter pylori_J99</i>	Proteobacteria; delta/epsilon subdivisions; Epsilonproteobacteria; Campylobacterales; Helicobacteraceae	
	<i>Thiomicrospira denitrificans_ATCC_33889</i>	Proteobacteria; delta/epsilon subdivisions; Epsilonproteobacteria; Campylobacterales; Helicobacteraceae	*
	<i>Wolinella succinogenes</i>	Proteobacteria; delta/epsilon subdivisions; Epsilonproteobacteria; Campylobacterales; Helicobacteraceae	*
Gammaproteobacteria			
	<i>Acinetobacter sp_AD1</i>	Proteobacteria; Gammaproteobacteria; Pseudomonadales; Moraxellaceae	*
	<i>Baumannia cicadellinicola_Homalodisca_c</i>	Proteobacteria; Gammaproteobacteria; unclassified Gammaproteobacteria	
	<i>Buchnera aphidicola str. APS (Acyrtosiphon pisum)</i>	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	
	<i>Buchnera aphidicola str. Bp (Baizongia pistaciae)</i>	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	
	<i>Buchnera aphidicola str. Sg (Schizaphis graminum)</i>	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	
	<i>Candidatus Blochmannia_floridanus</i>	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae; unclassified Enterobacteriaceae; ant, tsetse, mealybug, aphid, etc. endosymbionts; ant endosymbionts	
	<i>Candidatus Blochmannia_pennsylvanicus_B</i>	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae; unclassified Enterobacteriaceae; ant, tsetse, mealybug, aphid, etc. endosymbionts; ant endosymbionts	
	<i>Chromohalobacter salexigens_DSM_3043</i>	Proteobacteria; Gammaproteobacteria; Oceanospirillales; Halomonadaceae	*
	<i>Colwellia psychrerythraea_34H</i>	Proteobacteria; Gammaproteobacteria; Alteromonadales; Colwelliaceae	*
	<i>Coxiella burnetii</i>	Proteobacteria; Gammaproteobacteria; Legionellales; Coxiellaceae	
	<i>Erwinia carotovora_atroseptica_SCR11043</i>	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
	<i>Escherichia coli_CFT073</i>	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
	<i>Escherichia coli_K12</i>	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
	<i>Escherichia coli_O157H7</i>	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*

<i>Escherichia coli</i> _O157H7_EDL933	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
<i>Escherichia coli</i> _UT189	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
<i>Francisella tularensis</i> _holarctica	Proteobacteria; Gammaproteobacteria; Thiotrichales; Francisellaceae	
<i>Francisella tularensis</i> _tularensis	Proteobacteria; Gammaproteobacteria; Thiotrichales; Francisellaceae	
<i>Haemophilus ducreyi</i> _35000HP	Proteobacteria; Gammaproteobacteria; Pasteurellales; Pasteurellaceae	*
<i>Haemophilus influenzae</i>	Proteobacteria; Gammaproteobacteria; Pasteurellales; Pasteurellaceae	*
<i>Haemophilus influenzae</i> _86_028NP	Proteobacteria; Gammaproteobacteria; Pasteurellales; Pasteurellaceae	*
<i>Hahella chejuensis</i> _KCTC_2396	Proteobacteria; Gammaproteobacteria; Oceanospirillales; Hahellaceae; Hahella	
<i>Idiomarina loihiensis</i> _L2TR	Proteobacteria; Gammaproteobacteria; Alteromonadales; Idiomarinaceae; Idiomarina	*
<i>Legionella pneumophila</i> _Lens	Proteobacteria; Gammaproteobacteria; Legionellales; Legionellaceae	
<i>Legionella pneumophila</i> _Paris	Proteobacteria; Gammaproteobacteria; Legionellales; Legionellaceae	
<i>Legionella pneumophila</i> _Philadelphia_1	Proteobacteria; Gammaproteobacteria; Legionellales; Legionellaceae	
<i>Mannheimia succiniciproducens</i> _MBEL55E	Proteobacteria; Gammaproteobacteria; Pasteurellales; Pasteurellaceae	*
<i>Methylococcus capsulatus</i> _Bath	Proteobacteria; Gammaproteobacteria; Methylococcales; Methylococcaceae	
<i>Nitrosococcus oceani</i> _ATCC_19707	Proteobacteria; Gammaproteobacteria; Chromatiales; Chromatiaceae	
<i>Pasteurella multocida</i>	Proteobacteria; Gammaproteobacteria; Pasteurellales; Pasteurellaceae	*
<i>Photobacterium profundum</i> _SS9	Proteobacteria; Gammaproteobacteria; Vibrionales; Vibrionaceae	*
<i>Photorhabdus luminescens</i>	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
<i>Pseudoalteromonas atlantica</i> _T6C	Proteobacteria; Gammaproteobacteria; Alteromonadales; Pseudoalteromonadales; Pseudoalteromonadales; Pseudoalteromonadales; Pseudoalteromonadales; Pseudoalteromonadales; Pseudoalteromonadales	*
<i>Pseudoalteromonas haloplanktis</i> _TAC125	Proteobacteria; Gammaproteobacteria; Alteromonadales; Pseudoalteromonadales; Pseudoalteromonadales; Pseudoalteromonadales; Pseudoalteromonadales; Pseudoalteromonadales; Pseudoalteromonadales; Pseudoalteromonadales	*
<i>Pseudomonas aeruginosa</i>	Proteobacteria; Gammaproteobacteria; Pseudomonadales; Pseudomonadaceae	*
<i>Pseudomonas entomophila</i> _L48	Proteobacteria; Gammaproteobacteria; Pseudomonadales; Pseudomonadaceae	*
<i>Pseudomonas fluorescens</i> _Pf_5	Proteobacteria; Gammaproteobacteria; Pseudomonadales; Pseudomonadaceae	*
<i>Pseudomonas fluorescens</i> _PFO_1	Proteobacteria; Gammaproteobacteria; Pseudomonadales; Pseudomonadaceae	*
<i>Pseudomonas putida</i> _KT2440	Proteobacteria; Gammaproteobacteria; Pseudomonadales; Pseudomonadaceae	*
<i>Pseudomonas syringae</i> _phaseolicola_1448A	Proteobacteria; Gammaproteobacteria; Pseudomonadales; Pseudomonadaceae	*
<i>Pseudomonas syringae</i> _pv_B728a	Proteobacteria; Gammaproteobacteria; Pseudomonadales; Pseudomonadaceae	*
<i>Pseudomonas syringae</i> _tomato_DC3000	Proteobacteria; Gammaproteobacteria; Pseudomonadales; Pseudomonadaceae	*
<i>Psychrobacter arcticum</i> _273_4	Proteobacteria; Gammaproteobacteria; Pseudomonadales; Moraxellaceae	
<i>Psychrobacter cryohalolentis</i> _K5	Proteobacteria; Gammaproteobacteria; Pseudomonadales; Moraxellaceae	
<i>Saccharophagus degradans</i> _2_40	Proteobacteria; Gammaproteobacteria; Alteromonadales; Alteromonadaceae; Saccharophagus	*
<i>Salmonella enterica</i> _Choleraesuis	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
<i>Salmonella enterica</i> _Paratyphi_ATCC_9150	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
<i>Salmonella typhi</i>	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
<i>Salmonella typhi</i> _Ty2	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
<i>Salmonella typhimurium</i> _LT2	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
<i>Shewanella denitrificans</i> _OS217	Proteobacteria; Gammaproteobacteria; Alteromonadales; Shewanellaceae	*
<i>Shewanella oneidensis</i>	Proteobacteria; Gammaproteobacteria; Alteromonadales; Shewanellaceae	*
<i>Shigella boydii</i> _Sb227	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
<i>Shigella dysenteriae</i>	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
<i>Shigella flexneri</i> _2a	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
<i>Shigella flexneri</i> _2a_2457T	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
<i>Shigella sonnei</i> _Ss046	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
<i>Sodalis glossinidius</i> _morsitans	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*
<i>Thiomicrospira crunogena</i> _XCL_2	Proteobacteria; Gammaproteobacteria; Thiotrichales; Piscirickettsiaceae	*
<i>Vibrio cholerae</i>	Proteobacteria; Gammaproteobacteria; Vibrionales; Vibrionaceae	*
<i>Vibrio fischeri</i> _ES114	Proteobacteria; Gammaproteobacteria; Vibrionales; Vibrionaceae	*
<i>Vibrio parahaemolyticus</i>	Proteobacteria; Gammaproteobacteria; Vibrionales; Vibrionaceae	*
<i>Vibrio vulnificus</i> _CMCP6	Proteobacteria; Gammaproteobacteria; Vibrionales; Vibrionaceae	*
<i>Vibrio vulnificus</i> _YJ016	Proteobacteria; Gammaproteobacteria; Vibrionales; Vibrionaceae	*
<i>Wigglesworthia brevipalpis</i>	Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae	*

	<p><i>Xanthomonas axonopodis</i> pv <i>citri</i> <i>Xanthomonas campestris</i> pv. <i>campestris</i> str. ATCC 33913 <i>Xanthomonas campestris</i>_8004 <i>Xanthomonas campestris</i>_vesicatoria_851 <i>Xanthomonas oryzae</i>_KACC10331 <i>Xanthomonas oryzae</i>_MAFF_311018 <i>Xylella fastidiosa</i> <i>Xylella fastidiosa</i>_Temecula1 <i>Yersinia pestis</i>_Antiqua <i>Yersinia pestis</i>_biovar_Mediaevails <i>Yersinia pestis</i>_CO92 <i>Yersinia pestis</i>_KIM <i>Yersinia pestis</i>_Nepal516 <i>Yersinia pseudotuberculosis</i>_IP32953</p>	<p><i>Proteobacteria</i>; <i>Gammaproteobacteria</i>; <i>Xanthomonadales</i>; <i>Xanthomonadaceae</i>; <i>Xanthomonas</i> <i>Proteobacteria</i>; <i>Gammaproteobacteria</i>; <i>Xanthomonadales</i>; <i>Xanthomonadaceae</i>; <i>Xanthomonas</i> <i>Proteobacteria</i>; <i>Gammaproteobacteria</i>; <i>Xanthomonadales</i>; <i>Xanthomonadaceae</i>; <i>Xanthomonas</i> <i>Proteobacteria</i>; <i>Gammaproteobacteria</i>; <i>Xanthomonadales</i>; <i>Xanthomonadaceae</i>; <i>Xanthomonas</i> <i>Proteobacteria</i>; <i>Gammaproteobacteria</i>; <i>Xanthomonadales</i>; <i>Xanthomonadaceae</i>; <i>Xanthomonas</i> <i>Proteobacteria</i>; <i>Gammaproteobacteria</i>; <i>Xanthomonadales</i>; <i>Xanthomonadaceae</i>; <i>Xanthomonas</i> <i>Proteobacteria</i>; <i>Gammaproteobacteria</i>; <i>Xanthomonadales</i>; <i>Xanthomonadaceae</i> <i>Proteobacteria</i>; <i>Gammaproteobacteria</i>; <i>Xanthomonadales</i>; <i>Xanthomonadaceae</i> <i>Proteobacteria</i>; <i>Gammaproteobacteria</i>; <i>Enterobacteriales</i>; <i>Enterobacteriaceae</i> <i>Proteobacteria</i>; <i>Gammaproteobacteria</i>; <i>Enterobacteriales</i>; <i>Enterobacteriaceae</i> <i>Proteobacteria</i>; <i>Gammaproteobacteria</i>; <i>Enterobacteriales</i>; <i>Enterobacteriaceae</i> <i>Proteobacteria</i>; <i>Gammaproteobacteria</i>; <i>Enterobacteriales</i>; <i>Enterobacteriaceae</i> <i>Proteobacteria</i>; <i>Gammaproteobacteria</i>; <i>Enterobacteriales</i>; <i>Enterobacteriaceae</i> <i>Proteobacteria</i>; <i>Gammaproteobacteria</i>; <i>Enterobacteriales</i>; <i>Enterobacteriaceae</i></p>
Spirochaetes	<p><i>Borrelia burgdorferi</i> <i>Borrelia garinii</i>_PBi <i>Leptospira interrogans</i>_serovar_Copenhagen <i>Leptospira interrogans</i>_serovar_Lai <i>Treponema denticola</i>_ATCC_35405 <i>Treponema pallidum</i></p>	<p><i>Spirochaetes</i>; <i>Spirochaetes</i> (class); <i>Spirochaetales</i>; <i>Spirochaetaceae</i> <i>Spirochaetes</i>; <i>Spirochaetes</i> (class); <i>Spirochaetales</i>; <i>Spirochaetaceae</i> <i>Spirochaetes</i>; <i>Spirochaetes</i> (class); <i>Spirochaetales</i>; <i>Leptospiraceae</i> <i>Spirochaetes</i>; <i>Spirochaetes</i> (class); <i>Spirochaetales</i>; <i>Leptospiraceae</i> <i>Spirochaetes</i>; <i>Spirochaetes</i> (class); <i>Spirochaetales</i>; <i>Spirochaetaceae</i> <i>Spirochaetes</i>; <i>Spirochaetes</i> (class); <i>Spirochaetales</i>; <i>Spirochaetaceae</i></p>
Thermotogae	<p><i>Thermotoga maritima</i></p>	<p><i>Thermotogae</i>; <i>Thermotogae</i> (class); <i>Thermotogales</i>; <i>Thermotogaceae</i></p>

