

## The All-Species Living Tree (Release LTPs111):

February 2013

16S rRNA-based phylogenetic tree harboring all type strains of all species with validly published names up to August 2012.

Type species are highlighted in red. Incorrectly affiliated and ungrouped species are indicated by their valid family.

For suggestions please contact:

[living-tree@arb-silva.de](mailto:living-tree@arb-silva.de)

For further information and downloads:

[www.elsevier.de/syapm](http://www.elsevier.de/syapm)

[www.arb-silva.de/projects/living-tree](http://www.arb-silva.de/projects/living-tree)

[www.arb-home.de](http://www.arb-home.de)

[www.bacterio.cict.fr](http://www.bacterio.cict.fr)

### References:

R. Munoz, P. Yarza, W. Ludwig, J. Euzéby, R. Amann, K.H. Schleifer, F.O. Glöckner, R. Rosselló-Móra. *Release LTPs104 of the All-Species Living Tree*. Syst. Appl. Microbiol. 34 (2011) 169-170.

<http://www.dx.doi.org/10.1016/j.syapm.2011.03.001>

P. Yarza, W. Ludwig, J. Euzéby, R. Amann, K.-H. Schleifer, F.O. Glöckner, R. Rosselló-Móra. *Update of the All-Species Living Tree Project based on 16S and 23S rRNA sequence analyses*. Syst. Appl. Microbiol. 33 (2010) 291-299.

<http://www.dx.doi.org/10.1016/j.syapm.2010.08.001>

P. Yarza, M. Richter, J. Peplies, J. Euzéby, R. Amann, K.-H. Schleifer, W. Ludwig, F.O. Glöckner, R. Rosselló-Móra. *The All-Species Living Tree Project: a 16S rRNA-based phylogenetic tree of all sequenced type strains*. Syst. Appl. Microbiol. 31 (2008) 241-250.

<http://www.dx.doi.org/10.1016/j.syapm.2008.07.001>

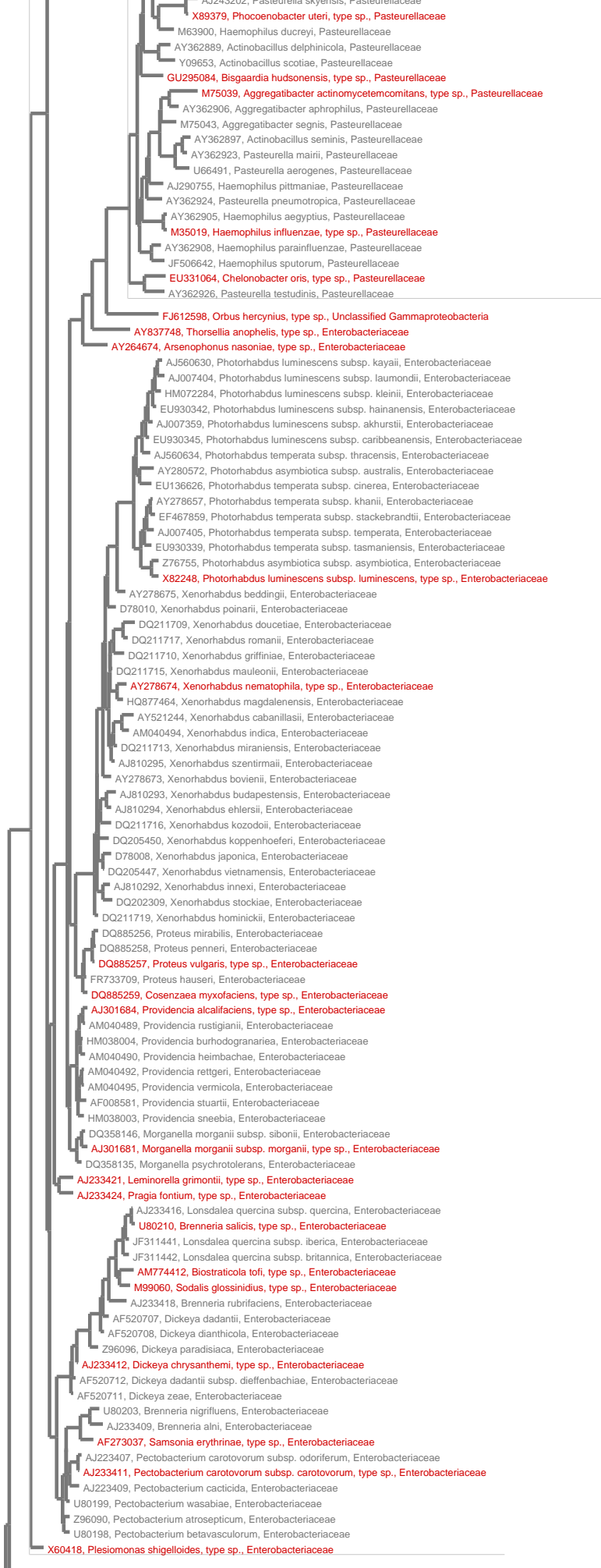
## Enterobacteriaceae and Pasteurellaceae (316)



EU014685, *Salmonella enterica* subsp. *salamae*, Enterobacteriaceae  
 EU014688, *Salmonella enterica* subsp. *diarizonae*, Enterobacteriaceae  
 EF643377, *Mangrovibacter plantisponsor*, type sp., Enterobacteriaceae  
 AF029227, *Salmonella bongori*, Enterobacteriaceae  
 AE006468, *Salmonella enterica* subsp. *enterica*, type sp., Enterobacteriaceae  
 Z96079, *Enterobacter cloacae* subsp. *dissolvens*, Enterobacteriaceae  
 AJ251469, *Enterobacter cloacae* subsp. *cloacae*, type sp., Enterobacteriaceae  
 AF250285, *Klebsiella singaporensis*, Enterobacteriaceae  
 AJ783916, *Klebsiella variicola*, Enterobacteriaceae  
 X87276, *Klebsiella pneumoniae* subsp. *pneumoniae*, type sp., Enterobacteriaceae  
 Y17657, *Klebsiella pneumoniae* subsp. *rhinoscleromatis*, Enterobacteriaceae  
 AF130982, *Klebsiella pneumoniae* subsp. *ozaenae*, Enterobacteriaceae  
 AJ854062, *Serratia ureilytica*, Enterobacteriaceae  
 GU814270, *Enterobacter soli*, Enterobacteriaceae  
 AF493976, *Cedecea davisae*, type sp., Enterobacteriaceae  
 AB086230, *Cedecea neteri*, Enterobacteriaceae  
 AB050826, *Edwardsiella ictaluri*, Enterobacteriaceae  
 AB050827, *Edwardsiella tarda*, type sp., Enterobacteriaceae  
 AB050825, *Edwardsiella hoshinae*, Enterobacteriaceae  
 GU562337, *Gibbsiella quercinecans*, type sp., Enterobacteriaceae  
 AB004751, *Serratia rubidaea*, Enterobacteriaceae  
 AB061685, *Serratia marcescens* subsp. *sakuensis*, Enterobacteriaceae  
 EU036987, *Serratia nematodiphila*, Enterobacteriaceae  
 AJ233431, *Serratia marcescens* subsp. *marcescens*, type sp., Enterobacteriaceae  
 AJ233432, *Serratia odorifera*, Enterobacteriaceae  
 AJ233427, *Serratia entomophila*, Enterobacteriaceae  
 AJ233428, *Serratia ficaria*, Enterobacteriaceae  
 AF366383, *Yersinia pestis*, type sp., Enterobacteriaceae  
 AF366375, *Yersinia pseudotuberculosis*, Enterobacteriaceae  
 AM182404, *Yersinia similis*, Enterobacteriaceae  
 AF366385, *Yersinia ruckeri*, Enterobacteriaceae  
 AJ233407, *Budvicia aquatica*, type sp., Enterobacteriaceae  
 EF179119, *Yersinia massiliensis*, Enterobacteriaceae  
 AF366377, *Yersinia bercovieri*, Enterobacteriaceae  
 AJ627597, *Yersinia aleksiciae*, Enterobacteriaceae  
 AF366376, *Yersinia aldovae*, Enterobacteriaceae  
 AF366382, *Yersinia mollaretii*, Enterobacteriaceae  
 GQ451990, *Yersinia pekkanenii*, Enterobacteriaceae  
 AF366384, *Yersinia rohdei*, Enterobacteriaceae  
 AF366379, *Yersinia frederiksenii*, Enterobacteriaceae  
 AF366381, *Yersinia kristensenii*, Enterobacteriaceae  
 AF366380, *Yersinia intermedia*, Enterobacteriaceae  
 FJ717338, *Yersinia numii*, Enterobacteriaceae  
 DQ400782, *Yersinia entomophaga*, Enterobacteriaceae  
 FR729477, *Yersinia enterocolitica* subsp. *palaearctica*, Enterobacteriaceae  
 AF366378, *Yersinia enterocolitica* subsp. *enterocolitica*, Enterobacteriaceae  
 AJ233426, *Rahnella aquatilis*, type sp., Enterobacteriaceae  
 M59155, *Hafnia alvei*, type sp., Enterobacteriaceae  
 AJ233422, *Obesumbacterium proteus*, type sp., Enterobacteriaceae  
 FM179943, *Hafnia paralvei*, Enterobacteriaceae  
 AJ233429, *Serratia fonticola*, Enterobacteriaceae  
 FJ790328, *Serratia glossinae*, Enterobacteriaceae  
 AJ233434, *Serratia proteamaculans*, Enterobacteriaceae  
 AJ233435, *Serratia quinivorans*, Enterobacteriaceae  
 AJ233430, *Serratia grimesii*, Enterobacteriaceae  
 AJ306725, *Serratia liquefaciens*, Enterobacteriaceae  
 AJ233433, *Serratia plymuthica*, Enterobacteriaceae  
 GU394001, *Serratia symbiotica*, Enterobacteriaceae

*Pasteurellaceae* (73)

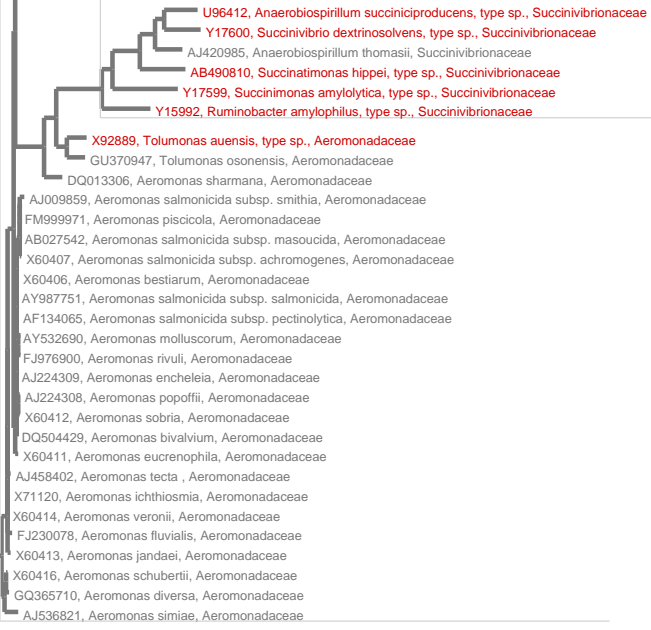
AF228001, *Gallibacterium anatis*, type sp., Pasteurellaceae  
 L06078, *Gallibacterium salpingitidis*, Pasteurellaceae  
 EU423985, *Gallibacterium melopsittaci*, Pasteurellaceae  
 EU339199, *Gallibacterium trehalosifermentans*, Pasteurellaceae  
 AY216869, *Volucribacter amazonae*, Pasteurellaceae  
 AY216868, *Volucribacter psittacidia*, type sp., Pasteurellaceae  
 AY362921, *Avibacterium gallinarum*, type sp., Pasteurellaceae  
 M75070, *Avibacterium volantium*, Pasteurellaceae  
 AY498868, *Avibacterium paragallinarum*, Pasteurellaceae  
 M75058, *Avibacterium avium*, Pasteurellaceae  
 AF024525, *Actinobacillus succinogenes*, Pasteurellaceae  
 AF549387, *Histophilus somni*, type sp., Pasteurellaceae  
 AY362907, *Haemophilus haemoglobinophilus*, Pasteurellaceae  
 AY362891, *Actinobacillus indolicus*, Pasteurellaceae  
 AY362909, *Haemophilus parasuis*, Pasteurellaceae  
 AY362886, *Actinobacillus capsulatus*, Pasteurellaceae  
 M75061, *Haemophilus paracuniculus*, Pasteurellaceae  
 AY362919, *Pasteurella canis*, Pasteurellaceae  
 M75052, *Pasteurella oralis*, Pasteurellaceae  
 AY362920, *Pasteurella dagmatis*, Pasteurellaceae  
 AY362925, *Pasteurella stomatis*, Pasteurellaceae  
 AF294412, *Pasteurella multocida* subsp. *gallicida*, Pasteurellaceae  
 AF294410, *Pasteurella multocida* subsp. *multocida*, type sp., Pasteurellaceae  
 AF294411, *Pasteurella multocida* subsp. *septica*, Pasteurellaceae  
 AF224292, *Haemophilus felis*, Pasteurellaceae  
 AY508816, *Nicoletella semolina*, type sp., Pasteurellaceae  
 HM439607, *Mannheimia caviae*, Pasteurellaceae  
 AF053893, *Mannheimia varigena*, Pasteurellaceae  
 AF053902, *Mannheimia granulomatis*, Pasteurellaceae  
 AF053889, *Mannheimia glucosida*, Pasteurellaceae  
 M75080, *Mannheimia haemolytica*, type sp., Pasteurellaceae  
 AF053900, *Mannheimia ruminalis*, Pasteurellaceae  
 FJ463881, *Basfia succiniciproducens*, type sp., Pasteurellaceae  
 AY362927, *Bibersteinia trehalosi*, type sp., Pasteurellaceae  
 AY362917, *Pasteurella bettyae*, Pasteurellaceae  
 AY362893, *Actinobacillus minor*, Pasteurellaceae  
 M75076, *Haemophilus paraphrohaemolyticus*, Pasteurellaceae  
 AY172727, *Actinobacillus anseriformium*, Pasteurellaceae  
 AY362892, *Actinobacillus lignieresii*, type sp., Pasteurellaceae  
 M75074, *Actinobacillus pleuropneumoniae*, Pasteurellaceae  
 AY362900, *Actinobacillus ureae*, Pasteurellaceae  
 AF247716, *Actinobacillus equuli* subsp. *haemolyticus*, Pasteurellaceae  
 AF381186, *Actinobacillus equuli* subsp. *equuli*, Pasteurellaceae  
 AY362890, *Actinobacillus hominis*, Pasteurellaceae  
 AY362899, *Actinobacillus suis*, Pasteurellaceae  
 L06084, *Actinobacillus arthritis*, Pasteurellaceae  
 AY362918, *Pasteurella caballi*, Pasteurellaceae  
 AY362894, *Actinobacillus muris*, Pasteurellaceae  
 GU966652, *Necropsobacter rosorum*, type sp., Pasteurellaceae  
 AY362895, *Actinobacillus rossii*, Pasteurellaceae  
 AY362922, *Pasteurella langaaensis*, Pasteurellaceae  
 U65583, *Actinobacillus porcinus*, Pasteurellaceae  
 Y17189, *Lonepinella koalarum*, type sp., Pasteurellaceae



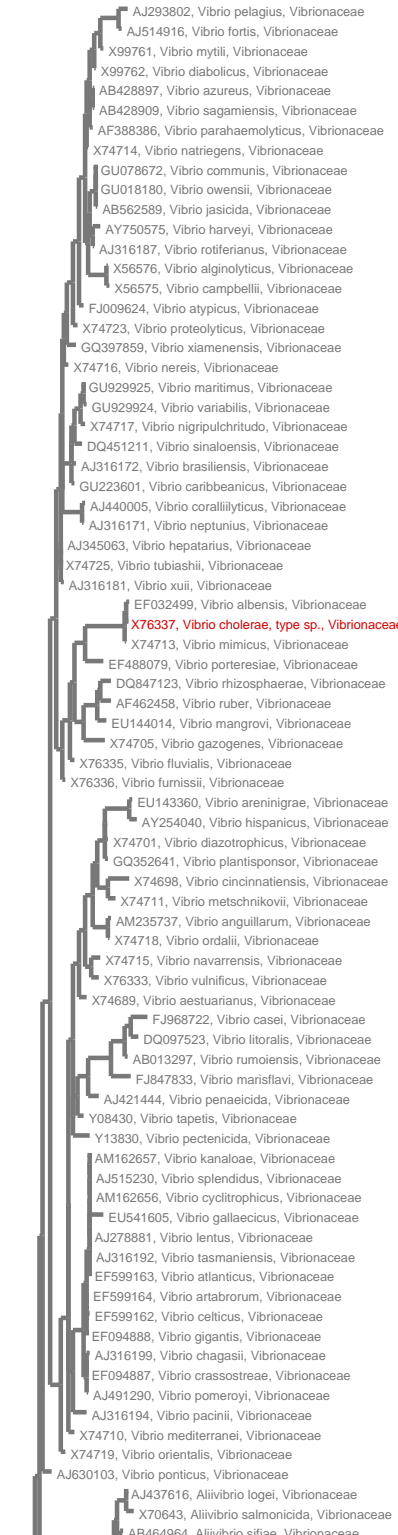
*Aeromonadaceae and Succinivibrionaceae (42)*

- FJ230076, *Aeromonas sanarellii*, Aeromonadaceae
- FJ230077, *Aeromonas taiwanensis*, Aeromonadaceae
- X71121, *Aeromonas enteropelogenes*, Aeromonadaceae
- X60408, *Aeromonas punctata* subsp. *punctata*, Aeromonadaceae
- AJ508765, *Aeromonas hydrophila* subsp. *dhakensis*, Aeromonadaceae
- EU085557, *Aeromonas aquariorum*, Aeromonadaceae
- X74674, *Aeromonas punctata* subsp. *caviae*, Aeromonadaceae
- AM262151, *Aeromonas hydrophila* subsp. *ranae*, Aeromonadaceae
- X60410, *Aeromonas media*, Aeromonadaceae
- DQ207728, *Aeromonas hydrophila* subsp. *hydrophila*, type sp., Aeromonadaceae

**Succinivibrionaceae (6)**



**Vibrionaceae (128)**



AJ132227, *Allivibrio wodanis*, Vibrionaceae  
 EU541604, *Allivibrio finisterrensis*, Vibrionaceae  
**X74702, *Allivibrio fischeri*, type sp., Vibrionaceae**  
 AY257972, *Vibrio gallicus*, Vibrionaceae  
 AY155585, *Vibrio superstes*, Vibrionaceae  
 DQ922915, *Vibrio comitans*, Vibrionaceae  
 DQ922920, *Vibrio inusitatus*, Vibrionaceae  
 DQ914239, *Vibrio rarus*, Vibrionaceae  
 EF599161, *Vibrio breoganii*, Vibrionaceae  
 AY426980, *Vibrio ezurae*, Vibrionaceae  
 AY426979, *Vibrio neonatus*, Vibrionaceae  
 AB000390, *Vibrio halioticoli*, Vibrionaceae  
 AJ310647, *Vibrio agarivorans*, Vibrionaceae  
 EU082035, *Vibrio hangzhouensis*, Vibrionaceae  
 AJ421445, *Vibrio ichthyenteri*, Vibrionaceae  
 U46579, *Vibrio scophthalmi*, Vibrionaceae  
 FN421434, *Vibrio hippocampi*, Vibrionaceae  
 GQ281380, *Vibrio stylophorae*, Vibrionaceae  
**X74699, *Salinivibrio costicola* subsp. *costicola*, type sp., Vibrionaceae**  
 AJ640132, *Salinivibrio costicola* subsp. *alcaliphilus*, Vibrionaceae  
 AM279734, *Salinivibrio sharmensis*, Vibrionaceae  
 AB285018, *Salinivibrio siamensis*, Vibrionaceae  
 AF057016, *Salinivibrio costicola* subsp. *vallismortis*, Vibrionaceae  
 DQ092443, *Salinivibrio proteolyticus*, Vibrionaceae  
 AF118021, *Enterovibrio calviensis*, Vibrionaceae  
 AM942722, *Enterovibrio nigricans*, Vibrionaceae  
 AJ842343, *Enterovibrio coralii*, Vibrionaceae  
**AJ514909, *Grimontia hollisiae*, type sp., Vibrionaceae**  
**AJ316208, *Enterovibrio norvegicus*, type sp., Vibrionaceae**  
 AY551089, *Photobacterium halotolerans*, Vibrionaceae  
 FN796493, *Photobacterium aphoticum*, Vibrionaceae  
 AY960847, *Photobacterium ganghwense*, Vibrionaceae  
**D25307, *Photobacterium angustum*, Vibrionaceae**  
**D25310, *Photobacterium phosphoreum*, type sp., Vibrionaceae**  
 AB428873, *Photobacterium aquimaris*, Vibrionaceae  
 AY643710, *Photobacterium illopicarium*, Vibrionaceae  
 AY341439, *Photobacterium kishitanii*, Vibrionaceae  
 AY781193, *Photobacterium aplysiae*, Vibrionaceae  
 AY554009, *Photobacterium lipolyticum*, Vibrionaceae  
 D21226, *Photobacterium profundum*, Vibrionaceae  
 AB016982, *Photobacterium indicum*, Vibrionaceae  
 AY538749, *Photobacterium frigidophilum*, Vibrionaceae  
 GQ386822, *Photobacterium swingsii*, Vibrionaceae  
 GU065210, *Photobacterium jeanii*, Vibrionaceae  
 DQ534014, *Photobacterium lutimaris*, Vibrionaceae  
 AJ842344, *Photobacterium rosenbergii*, Vibrionaceae  
 GQ260188, *Photobacterium gaetbulicola*, Vibrionaceae  
 X78105, *Photobacterium damsela* subsp. *piscicida*, Vibrionaceae  
 AB032015, *Photobacterium damsela* subsp. *damsela*, Vibrionaceae  
 X74686, *Photobacterium leiognathi*, Vibrionaceae

AF168367, *Oceanimonas baumannii*, Aeromonadaceae  
 AY538714, *Oceanimonas smirnovii*, Aeromonadaceae  
**AB019390, *Oceanimonas doudoroffii*, type sp., Aeromonadaceae**  
**DQ195675, *Zobellella denitrificans*, type sp., Aeromonadaceae**  
 HM475140, *Zobellella aereophila*, Aeromonadaceae  
 DQ195676, *Zobellella taiwanensis*, Aeromonadaceae  
 DQ190441, *Oceanisphaera donghaensis*, Aeromonadaceae  
 HQ171441, *Oceanisphaera sediminis*, Aeromonadaceae  
 FN377705, *Oceanisphaera arctica*, Aeromonadaceae  
**AJ550470, *Oceanisphaera litoralis*, type sp., Aeromonadaceae**  
 HQ340607, *Oceanisphaera ostreae*, Aeromonadaceae  
**FM955224, *Gallaecimonas pentaromativorans*, type sp., Unclassified Gammaproteobacteria**

#### Colwelliaceae (17)

U85846, *Colwellia psychrotropica*, Colwelliaceae  
 U14581, *Colwellia rossensis*, Colwelliaceae  
 AB002630, *Colwellia maris*, Colwelliaceae  
 AB094412, *Colwellia piezophila*, Colwelliaceae  
**AB011364, *Colwellia psychrerythraea*, type sp., Colwelliaceae**  
 DQ055844, *Colwellia aestuarii*, Colwelliaceae  
 FJ889599, *Colwellia chukchiensis*, Colwelliaceae  
 DQ007434, *Colwellia polaris*, Colwelliaceae  
 EU599214, *Colwellia asteriadis*, Colwelliaceae  
 U85845, *Colwellia demingiae*, Colwelliaceae  
 AB369380, *Thalassomonas actiniarum*, Colwelliaceae  
**AJ294747, *Thalassomonas viridans*, type sp., Colwelliaceae**  
 AB369381, *Thalassomonas haliotis*, Colwelliaceae  
 AY194066, *Thalassomonas ganghwensis*, Colwelliaceae  
 DQ212914, *Thalassomonas agarivorans*, Colwelliaceae  
 AY643537, *Thalassomonas loyana*, Colwelliaceae  
 HM237288, *Thalassomonas agariperforans*, Colwelliaceae  
**AB076561, *Agarivorans albus*, type sp., Alteromonadaceae**  
 GQ200591, *Agarivorans gilvus*, Alteromonadaceae  
**FJ167390, *Aliagarivorans marinus*, type sp., Alteromonadaceae**  
 FJ167391, *Aliagarivorans taiwanensis*, Alteromonadaceae  
**DQ913890, *Celerinatantimonas diazotrophica*, type sp., Celerinatantimonadaceae**

#### Idiomarinaceae (21)

EU723884, *Idiomarina maris*, Idiomarinaceae  
**HQ537484, *Alidiomarina taiwanensis*, type sp., Idiomarinaceae**  
 GU471247, *Idiomarina xiamenensis*, Idiomarinaceae  
 FJ768737, *Idiomarina aestuarii*, Idiomarinaceae  
 EF212001, *Idiomarina sediminum*, Idiomarinaceae  
 DQ118948, *Idiomarina taiwanensis*, Idiomarinaceae  
 EF486355, *Pseudidiomarina salinarum*, Idiomarinaceae  
 EU600204, *Idiomarina donghaiensis*, Idiomarinaceae  
 EU423908, *Idiomarina marina*, Idiomarinaceae  
 EU423907, *Idiomarina tainanensis*, Idiomarinaceae  
 EU600203, *Idiomarina maritima*, Idiomarinaceae  
 DQ342238, *Pseudidiomarina homiensis*, Idiomarinaceae  
 FJ906745, *Idiomarina aquimaris*, Idiomarinaceae  
 FM877003, *Idiomarina insulsalsae*, Idiomarinaceae  
 AJ440214, *Idiomarina baltica*, Idiomarinaceae  
 AY526861, *Idiomarina fontislapidosi*, Idiomarinaceae  
 AY635468, *Idiomarina seosinensis*, Idiomarinaceae  
 AF052741, *Idiomarina zobellii*, Idiomarinaceae  
 AF288370, *Idiomarina loihensis*, Idiomarinaceae  
 AY526862, *Idiomarina ramblicola*, Idiomarinaceae  
**AF052740, *Idiomarina abyssalis*, type sp., Idiomarinaceae**

#### Psychromonadaceae (14)

AB374544, *Psychromonas agarivorans*, Psychromonadaceae  
 AB365253, *Psychromonas halitensis*, Psychromonadaceae

AB300332, Psychromonas heterotris, Psychromonadaceae  
AB094413, Psychromonas profunda, Psychromonadaceae  
AB052160, Psychromonas kaikoe, Psychromonadaceae  
AB023376, Psychromonas marina, Psychromonadaceae  
AF374385, Psychromonas arctica, Psychromonadaceae  
AB304805, Psychromonas aquimarina, Psychromonadaceae  
AB304806, Psychromonas macrocephali, Psychromonadaceae  
AB304808, Psychromonas ossibalaenae, Psychromonadaceae  
AB304804, Psychromonas japonica, Psychromonadaceae  
FJ822615, Psychromonas boydii, Psychromonadaceae  
U73721, Psychromonas ingrahamii, Psychromonadaceae  
**Y14697, Psychromonas antarctica, type sp., Psychromonadaceae**

#### Pseudoalteromonadaceae (37)

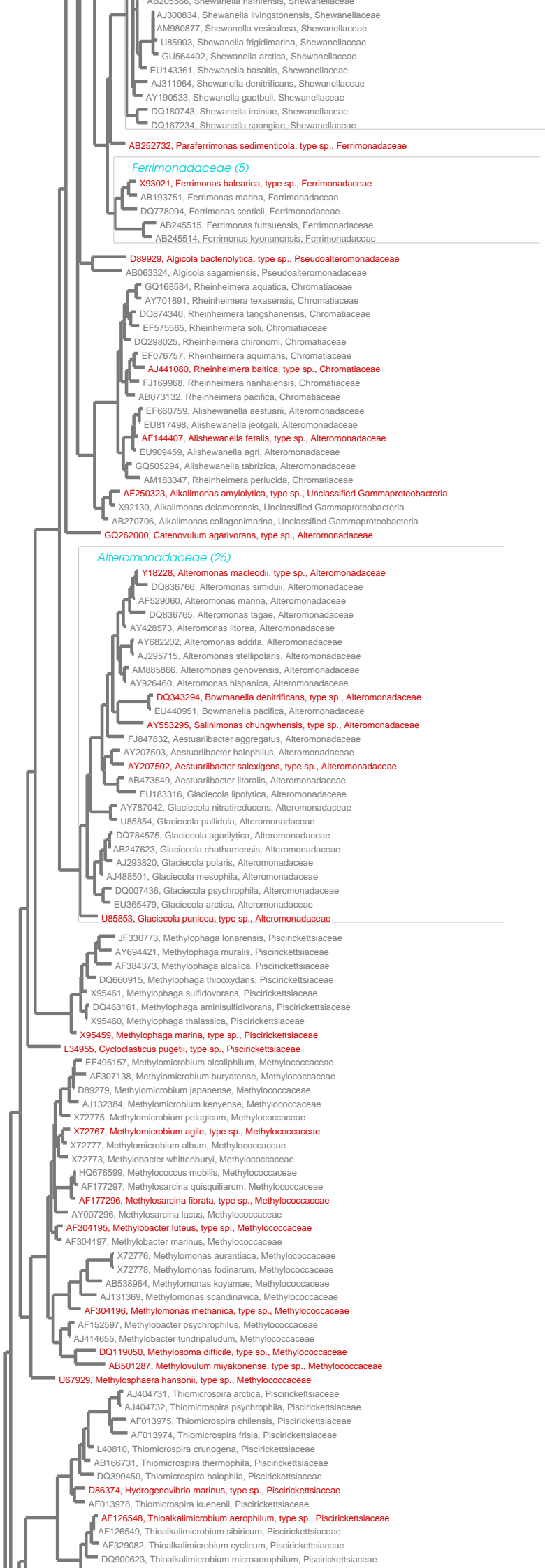
X98336, Pseudoalteromonas antarctica, Pseudoalteromonadaceae  
AY040230, Pseudoalteromonas translucida, Pseudoalteromonadaceae  
AY387858, Pseudoalteromonas aliena, Pseudoalteromonadaceae  
AY563031, Pseudoalteromonas marina, Pseudoalteromonadaceae  
X82140, Pseudoalteromonas undina, Pseudoalteromonadaceae  
**X67024, Pseudoalteromonas haloplanktis, type sp., Pseudoalteromonadaceae**  
X82146, Pseudoalteromonas nigrifaciens, Pseudoalteromonadaceae  
DQ787199, Pseudoalteromonas arctica, Pseudoalteromonadaceae  
AF082562, Pseudoalteromonas elyakovii, Pseudoalteromonadaceae  
AY040229, Pseudoalteromonas paragorgicola, Pseudoalteromonadaceae  
AF082564, Pseudoalteromonas distincta, Pseudoalteromonadaceae  
AJ417594, Pseudoalteromonas agarivorans, Pseudoalteromonadaceae  
X82134, Pseudoalteromonas atlantica, Pseudoalteromonadaceae  
X82143, Pseudoalteromonas espejiana, Pseudoalteromonadaceae  
X82136, Pseudoalteromonas carrageenovora, Pseudoalteromonadaceae  
AF316144, Pseudoalteromonas issachenkonii, Pseudoalteromonadaceae  
AF214730, Pseudoalteromonas tetradonis, Pseudoalteromonadaceae  
AJ507251, Pseudoalteromonas mariniglutinosa, Pseudoalteromonadaceae  
U85855, Pseudoalteromonas prydzensis, Pseudoalteromonadaceae  
FJ754319, Pseudoalteromonas donghaensis, Pseudoalteromonadaceae  
FJ404721, Pseudoalteromonas lipolytica, Pseudoalteromonadaceae  
AF297958, Pseudoalteromonas flavipulchra, Pseudoalteromonadaceae  
AF144036, Pseudoalteromonas maricaloris, Pseudoalteromonadaceae  
Z25522, Pseudoalteromonas tunicata, Pseudoalteromonadaceae  
AF172987, Pseudoalteromonas ulvae, Pseudoalteromonadaceae  
AB090232, Pseudoalteromonas piscicida, Pseudoalteromonadaceae  
AF007286, Pseudoalteromonas peptidolytica, Pseudoalteromonadaceae  
X82147, Pseudoalteromonas rubra, Pseudoalteromonadaceae  
X82135, Pseudoalteromonas aurantia, Pseudoalteromonadaceae  
X82137, Pseudoalteromonas citrea, Pseudoalteromonadaceae  
X82138, Pseudoalteromonas denitrificans, Pseudoalteromonadaceae  
AF332880, Pseudoalteromonas phenolica, Pseudoalteromonadaceae  
AY769918, Pseudoalteromonas spongiae, Pseudoalteromonadaceae  
X82144, Pseudoalteromonas luteoviolacea, Pseudoalteromonadaceae  
DQ011289, Pseudoalteromonas byunsanensis, Pseudoalteromonadaceae  
AF316891, Pseudoalteromonas ruthenica, Pseudoalteromonadaceae  
**AB545807, Psychrosphaera saromensis, type sp., Pseudoalteromonadaceae**

#### Moritellaceae (8)

AJ252022, Moritella abyssi, Moritellaceae  
EF192283, Moritella dasanensis, Moritellaceae  
AJ252023, Moritella profunda, Moritellaceae  
AJ132226, Moritella viscosa, Moritellaceae  
AB008797, Moritella yayanosii, Moritellaceae  
D21224, Moritella japonica, Moritellaceae  
**AB038033, Moritella marina, type sp., Moritellaceae**  
**AB364966, Paramoritella alkaliphila, type sp., Moritellaceae**

#### Shewanellaceae (59)

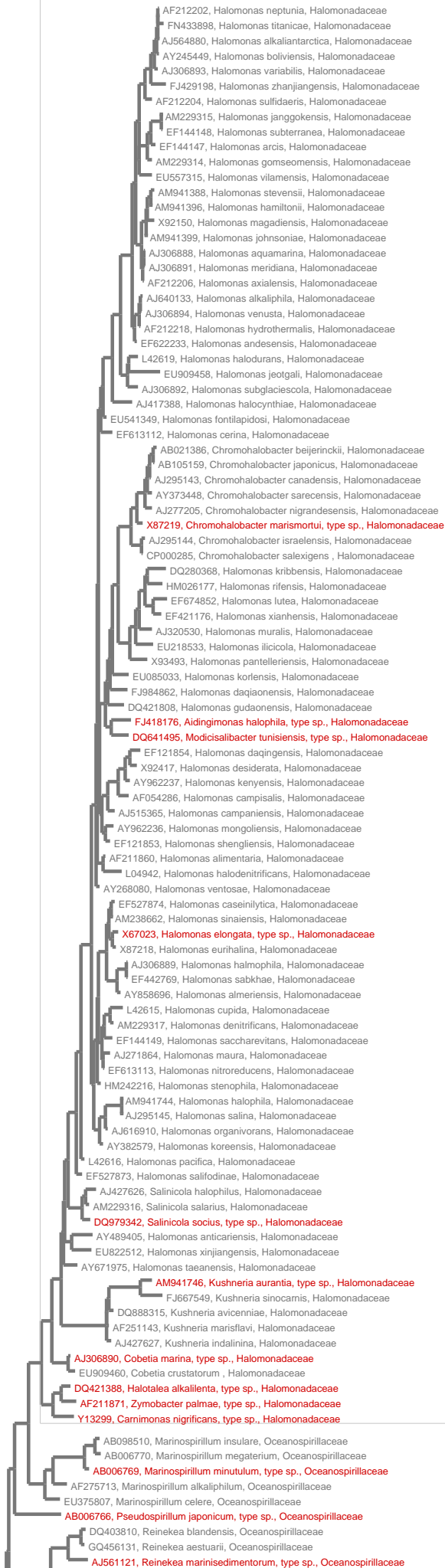
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CP000851, Shewanella pealeana, Shewanellaceae  
AB081757, Shewanella marinintestina, Shewanellaceae  
AB081762, Shewanella sairae, Shewanellaceae  
AB204519, Shewanella pneumatophori, Shewanellaceae  
AF420312, Shewanella fidelis, Shewanellaceae  
AB081760, Shewanella schlegeliana, Shewanellaceae  
AB094598, Shewanella kaireitica, Shewanellaceae  
AJ551089, Shewanella psychrophila, Shewanellaceae  
AJ551090, Shewanella piezotolerans, Shewanellaceae  
D21225, Shewanella violacea, Shewanellaceae  
X82131, Shewanella benthica, Shewanellaceae  
AB201475, Shewanella abyssi, Shewanellaceae  
U85907, Shewanella gelidimarina, Shewanellaceae  
AB094597, Shewanella surugensis, Shewanellaceae  
AY579749, Shewanella canadensis, Shewanellaceae  
FR733715, Shewanella sediminis, Shewanellaceae  
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X82132, Shewanella hanedai, Shewanellaceae  
CP000961, Shewanella woodyi, Shewanellaceae  
AY579752, Shewanella atlantica, Shewanellaceae  
AY485225, Shewanella aquimarina, Shewanellaceae  
DQ286387, Shewanella lohica, Shewanellaceae  
AY485224, Shewanella marisflavi, Shewanellaceae  
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AY653177, Shewanella colwelliana, Shewanellaceae  
AY170366, Shewanella waksmanii, Shewanellaceae  
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GQ245918, Shewanella dokdonensis, Shewanellaceae  
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EF178282, Shewanella haliotis, Shewanellaceae  
FJ041083, Shewanella corallii, Shewanellaceae  
AF005248, Shewanella amazonensis, Shewanellaceae  
EU290154, Shewanella marina, Shewanellaceae  
AY326275, Shewanella donghaensis, Shewanellaceae  
AF295592, Shewanella olleyana, Shewanellaceae  
AF500075, Shewanella pacifica, Shewanellaceae  
AF145921, Shewanella japonica, Shewanellaceae  
AB205571, Shewanella glacialipiscicola, Shewanellaceae  
AB205576, Shewanella morhuae, Shewanellaceae  
AJ000214, Shewanella baltica, Shewanellaceae  
AF005251, Shewanella oneidensis, Shewanellaceae  
FR733713, Shewanella profunda, Shewanellaceae  
**X81623, Shewanella putrefaciens, type sp., Shewanellaceae**  
FJ589031, Shewanella xiamenensis, Shewanellaceae  
AJ609571, Shewanella decolorationis, Shewanellaceae  
DQ005566, Shewanella belfraginis, Shewanellaceae





L40809, *Thiomicrospira pelophila*, type sp., Piscirickettsiaceae  
AF016046, *Thiomicrospira thyasirae*, Piscirickettsiaceae  
AB495251, *Cocleimonas flava*, type sp., Thiotrichaceae  
X87277, *Leucothrix mucor*, type sp., Thiotrichaceae  
AF432145, *Sedimenticola selenatireducens*, type sp., Unclassified Gammaproteobacteria

### Halomonadaceae (94)



### Saccharospirillaceae (3)

EF177670, *Saccharospirillum salsuginis*, Saccharospirillaceae  
GQ250189, *Saccharospirillum aestuarii*, Saccharospirillaceae

AJ315983, *Saccharospirillum impians*, type sp., *Saccharospirillaceae*

*Litoricolaceae* (2)

EF176580, *Litoricola lipolytica*, type sp., *Litoricolaceae*  
FJ943234, *Litoricola marina*, *Litoricolaceae*

*Oceanospirillaceae* (38)

DQ492749, *Marinomonas arctica*, *Oceanospirillaceae*  
AJ833000, *Marinomonas polaris*, *Oceanospirillaceae*  
AB074193, *Marinomonas primoryensis*, *Oceanospirillaceae*  
AJ627909, *Marinomonas ushuaiensis*, *Oceanospirillaceae*  
EU188444, *Marinomonas foliarum*, *Oceanospirillaceae*  
AY539835, *Marinomonas pontica*, *Oceanospirillaceae*  
EU188442, *Marinomonas alcarazii*, *Oceanospirillaceae*  
EU188443, *Marinomonas rhizomae*, *Oceanospirillaceae*  
EU188447, *Marinomonas aquiplantarum*, *Oceanospirillaceae*  
EU188445, *Marinomonas posidonica*, *Oceanospirillaceae*  
DQ011526, *Marinomonas dokdonensis*, *Oceanospirillaceae*  
AB467281, *Marinomonas arenicola*, *Oceanospirillaceae*  
EU188441, *Marinomonas pollencensis*, *Oceanospirillaceae*  
DQ011528, *Marinomonas communis*, type sp., *Oceanospirillaceae*  
AB242868, *Marinomonas ostreistagni*, *Oceanospirillaceae*  
AJ843077, *Marinomonas aquimarina*, *Oceanospirillaceae*  
X67025, *Marinomonas vaga*, *Oceanospirillaceae*  
GU929940, *Marinomonas brasiliensis*, *Oceanospirillaceae*  
AF063027, *Marinomonas mediterranea*, *Oceanospirillaceae*  
EU188448, *Marinomonas balearica*, *Oceanospirillaceae*  
AM747817, *Oceaniserpentilla haliotis*, *Oceanospirillaceae*  
AM117931, *Spongiispira norvegica*, type sp., *Unclassified Oceanospirillales*  
AY136131, *Bermanella marisrubri*, *Oceanospirillaceae*  
AJ426420, *Oleispira antarctica*, type sp., *Oceanospirillaceae*  
AB006767, *Oceanobacter kriegii*, type sp., *Oceanospirillaceae*  
AB435649, *Oleibacter marinus*, type sp., *Oceanospirillaceae*  
AJ431699, *Thalassolituus oleivorans*, type sp., *Oceanospirillaceae*  
AB288092, *Neptunomonas japonica*, *Oceanospirillaceae*  
AF053734, *Neptunomonas naphthovorans*, type sp., *Oceanospirillaceae*  
FJ713802, *Neptunomonas antarctica*, *Oceanospirillaceae*  
AB006760, *Oceanospirillum bejerinckii*, *Oceanospirillaceae*  
AB006763, *Oceanospirillum maris*, *Oceanospirillaceae*  
AB006764, *Oceanospirillum multiglobuliferum*, *Oceanospirillaceae*  
AM156910, *Amphritea atlantica*, type sp., *Oceanospirillaceae*  
AB330883, *Amphritea balenae*, *Oceanospirillaceae*  
AB330881, *Amphritea japonica*, *Oceanospirillaceae*  
AY136116, *Neptuniibacter caesariensis*, type sp., *Oceanospirillaceae*  
GQ131677, *Neptuniibacter halophilus*, *Oceanospirillaceae*

U58339, *Marinobacterium georgiense*, type sp., *Alteromonadaceae*  
AY563030, *Marinobacterium halophilum*, *Alteromonadaceae*  
EU399548, *Marinobacterium maritimum*, *Alteromonadaceae*  
AB021367, *Marinobacterium stanieri*, *Alteromonadaceae*  
EU573966, *Marinobacterium sediminicola*, *Alteromonadaceae*  
GU183820, *Marinobacterium coralli*, *Alteromonadaceae*  
AB006765, *Marinobacterium jannaschii*, *Alteromonadaceae*  
EF192391, *Marinobacterium rhizophilum*, *Alteromonadaceae*  
AY567473, *Nitrincola lacinisaponensis*, type sp., *Oceanospirillaceae*  
DQ917760, *Marinobacterium litorale*, *Alteromonadaceae*  
FJ230839, *Marinobacterium lutimaris*, *Alteromonadaceae*  
EU573965, *Marinobacterium nitratireducens*, *Alteromonadaceae*

Y17112, *Balneatrix alpica*, type sp., *Oceanospirillaceae*

AJ295154, *Oleiphilus messinensis*, type sp., *Oleiphilaceae*

DQ060402, *Marinobacter psychrophilus*, *Alteromonadaceae*  
FJ196022, *Marinobacter antarcticus*, *Alteromonadaceae*  
AJ704395, *Marinobacter maritimus*, *Alteromonadaceae*  
EF660754, *Marinobacter goseongensis*, *Alteromonadaceae*  
AY147906, *Marinobacter lipolyticus*, *Alteromonadaceae*  
AM503093, *Marinobacter guineae*, *Alteromonadaceae*  
AY241552, *Marinobacter adhaerens*, *Alteromonadaceae*  
AY517632, *Marinobacter flavimaris*, *Alteromonadaceae*  
AY258110, *Marinobacter algicola*, *Alteromonadaceae*  
EF028328, *Marinobacter salsuginis*, *Alteromonadaceae*  
AJ609270, *Marinobacter sediminum*, *Alteromonadaceae*  
AJ609271, *Marinobacter bryozoorum*, *Alteromonadaceae*  
EF157832, *Marinobacter segnicrescens*, *Alteromonadaceae*  
EU047505, *Marinobacter lacinisalsi*, *Alteromonadaceae*  
EF486354, *Marinobacter salicampi*, *Alteromonadaceae*  
FJ984869, *Marinobacter daqiaonensis*, *Alteromonadaceae*  
DQ414419, *Marinobacter gudaonensis*, *Alteromonadaceae*  
AY180101, *Marinobacter excellens*, *Alteromonadaceae*  
AF479689, *Marinobacter litoralis*, *Alteromonadaceae*  
DQ235263, *Marinobacter vinifirmus*, *Alteromonadaceae*  
AY517633, *Marinobacter daepoensis*, *Alteromonadaceae*  
X67022, *Marinobacter hydrocarbonoclasticus*, type sp., *Alteromonadaceae*  
FJ897726, *Marinobacter oulmenensis*, *Alteromonadaceae*  
DQ325514, *Marinobacter korensis*, *Alteromonadaceae*  
EU496088, *Marinobacter santoriniensis*, *Alteromonadaceae*  
DQ458821, *Marinobacter pelagius*, *Alteromonadaceae*  
EU164778, *Marinobacter szutsaonensis*, *Alteromonadaceae*  
EU293412, *Marinobacter mobilis*, *Alteromonadaceae*  
EU293413, *Marinobacter zhejiangensis*, *Alteromonadaceae*  
HQ203044, *Marinobacter xestospongiae*, *Alteromonadaceae*  
AF288157, *Marinobacter lutaensis*, *Alteromonadaceae*  
DQ072719, *Halospina denitrificans*, type sp., *Hahellaceae*  
DQ072718, *Halovibrio denitrificans*, *Halomonadaceae*  
AB021383, *Pseudomonas halophila*, *Pseudomonadaceae*  
DQ019934, *Salicola marasensis*, type sp., *Unclassified Oceanospirillales*  
DQ129689, *Salicola salis*, *Unclassified Oceanospirillales*

*Hahellaceae* (4)

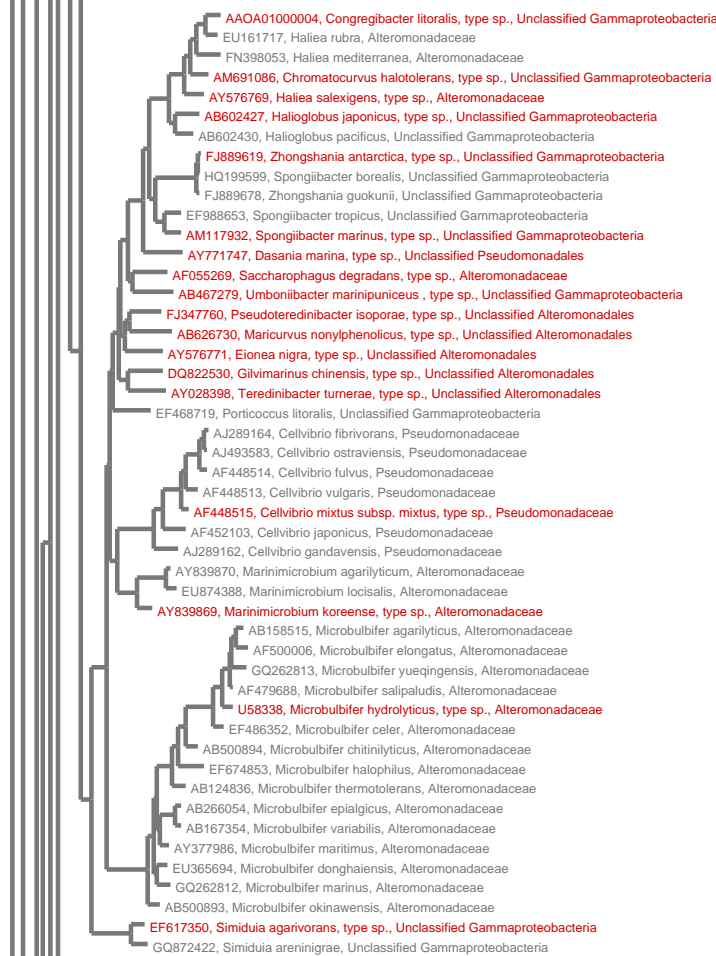
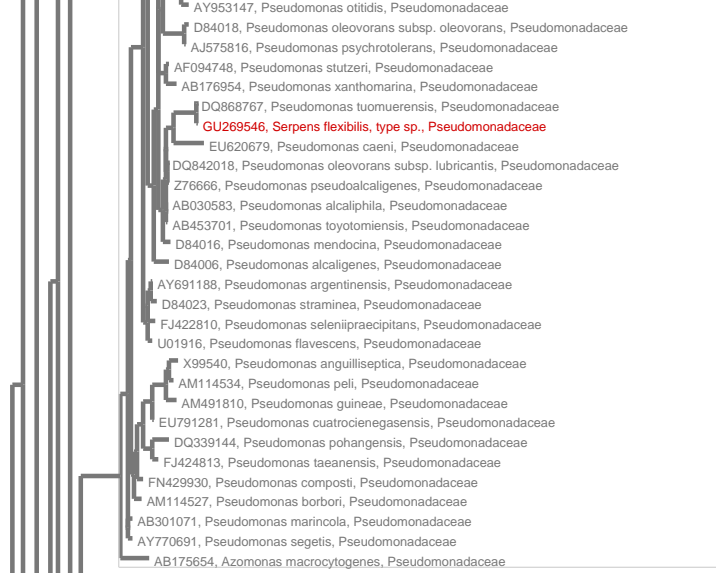
CP000155, *Hahella chejuensis*, type sp., *Hahellaceae*  
AY676463, *Hahella ganghwensis*, *Hahellaceae*  
EF495227, *Hahella antarctica*, *Hahellaceae*  
AY130994, *Zooshikella ganghwensis*, type sp., *Hahellaceae*

AB196667, *Endozoicomonas elysicola*, type sp., *Hahellaceae*  
FJ347758, *Endozoicomonas montiporae*, *Hahellaceae*  
EU599216, *Kistimonas asteriae*, type sp., *Hahellaceae*

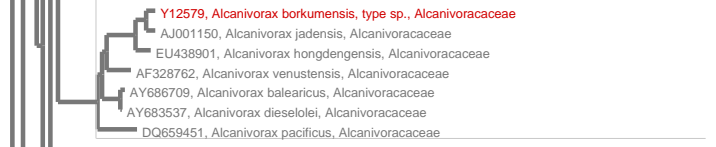
*Pseudomonadaceae* (149)

D84009, *Pseudomonas azotoformans*, *Pseudomonadaceae*  
AJ936933, *Pseudomonas simiae*, *Pseudomonadaceae*  
AF374472, *Pseudomonas costantini*, *Pseudomonadaceae*  
AJ581999, *Pseudomonas lurida*, *Pseudomonadaceae*  
AJ492829, *Pseudomonas poae*, *Pseudomonadaceae*  
AJ492831, *Pseudomonas trivialis*, *Pseudomonadaceae*  
AF406238, *Pseudomonas extremotolerans*, *Pseudomonadaceae*

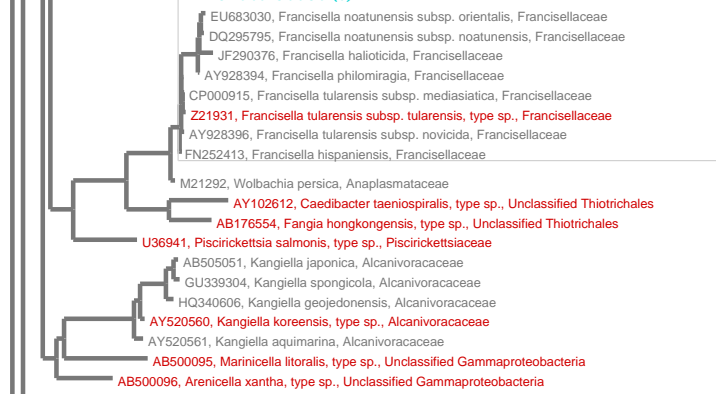
AF405326, *Pseudomonas extremorientalis*, Pseudomonadaceae  
AF255336, *Pseudomonas tolaasii*, Pseudomonadaceae  
AY091527, *Pseudomonas palleroniana*, Pseudomonadaceae  
AY091528, *Pseudomonas salomonii*, Pseudomonadaceae  
AJ492830, *Pseudomonas cedrina* subsp. *fulgida*, Pseudomonadaceae  
AF064461, *Pseudomonas cedrina* subsp. *cedrina*, Pseudomonadaceae  
AF064457, *Pseudomonas orientalis*, Pseudomonadaceae  
D84013, *Pseudomonas fluorescens*, Pseudomonadaceae  
AJ537601, *Pseudomonas antarctica*, Pseudomonadaceae  
AJ537602, *Pseudomonas meridiana*, Pseudomonadaceae  
AJ583501, *Pseudomonas extremaustralis*, Pseudomonadaceae  
AF268029, *Pseudomonas grimontii*, Pseudomonadaceae  
AF268968, *Pseudomonas brenneri*, Pseudomonadaceae  
AJ537603, *Pseudomonas proteolytica*, Pseudomonadaceae  
AF074384, *Pseudomonas gessardii*, Pseudomonadaceae  
AF064459, *Pseudomonas rhodesiae*, Pseudomonadaceae  
D84017, *Pseudomonas mucidolens*, Pseudomonadaceae  
D84025, *Pseudomonas synxantha*, Pseudomonadaceae  
HQ223108, *Thermoleophilum minutum*, Thermoleophilaceae  
AF057645, *Pseudomonas libanensis*, Pseudomonadaceae  
Z76663, *Pseudomonas marginalis*, Pseudomonadaceae  
AY787208, *Pseudomonas panacis*, Pseudomonadaceae  
AF064460, *Pseudomonas veronii*, Pseudomonadaceae  
Z76654, *Pseudomonas amygdali*, Pseudomonadaceae  
AY180972, *Pseudomonas viridiflava*, Pseudomonadaceae  
AB021378, *Pseudomonas fuscirectae*, Pseudomonadaceae  
DQ318866, *Pseudomonas syringae*, Pseudomonadaceae  
AJ492828, *Pseudomonas congelans*, Pseudomonadaceae  
AJ492827, *Pseudomonas cannabina*, Pseudomonadaceae  
AJ278812, *Pseudomonas protegens*, Pseudomonadaceae  
FM208264, *Pseudomonas saponiphila*, Pseudomonadaceae  
Z76658, *Pseudomonas cichorii*, Pseudomonadaceae  
D84010, *Pseudomonas caricapapayae*, Pseudomonadaceae  
AB021402, *Pseudomonas savastanoi*, Pseudomonadaceae  
AJ492826, *Pseudomonas tremæ*, Pseudomonadaceae  
AJ249382, *Pseudomonas frederiksbergensis*, Pseudomonadaceae  
AF058286, *Pseudomonas mandelii*, Pseudomonadaceae  
D84012, *Pseudomonas corrugata*, Pseudomonadaceae  
AJ292426, *Pseudomonas kilonensis*, Pseudomonadaceae  
AF100321, *Pseudomonas brassicacearum* subsp. *brassicacearum*, Pseudomonadaceae  
EU391388, *Pseudomonas brassicacearum* subsp. *neaurantiaca*, Pseudomonadaceae  
AF386080, *Pseudomonas mediterranea*, Pseudomonadaceae  
AF100323, *Pseudomonas thivervalensis*, Pseudomonadaceae  
AY035996, *Pseudomonas lini*, Pseudomonadaceae  
AF074383, *Pseudomonas migulae*, Pseudomonadaceae  
FN645213, *Pseudomonas arsenicoxydans*, Pseudomonadaceae  
AF094733, *Pseudomonas fragi*, Pseudomonadaceae  
AB041885, *Pseudomonas psychrophila*, Pseudomonadaceae  
GU936597, *Pseudomonas deceptionensis*, Pseudomonadaceae  
D84027, *Pseudomonas taetloensis*, Pseudomonadaceae  
AB021395, *Pseudomonas lundensis*, Pseudomonadaceae  
FJ168539, *Pseudomonas chlororaphis* subsp. *piscium*, Pseudomonadaceae  
Z76673, *Pseudomonas chlororaphis* subsp. *chlororaphis*, Pseudomonadaceae  
AY509898, *Pseudomonas chlororaphis* subsp. *aureofaciens*, Pseudomonadaceae  
DQ682655, *Pseudomonas chlororaphis* subsp. *aurantiaca*, Pseudomonadaceae  
AF468450, *Pseudomonas umsongensis*, Pseudomonadaceae  
AM293566, *Pseudomonas moorei*, Pseudomonadaceae  
AJ011507, *Pseudomonas vancouverensis*, Pseudomonadaceae  
AM293567, *Pseudomonas mohnii*, Pseudomonadaceae  
AF068259, *Pseudomonas jessenii*, Pseudomonadaceae  
AM293565, *Pseudomonas reinkei*, Pseudomonadaceae  
FM201274, *Pseudomonas baetica*, Pseudomonadaceae  
Z76652, *Pseudomonas agarici*, Pseudomonadaceae  
AY970952, *Pseudomonas moraviensis*, Pseudomonadaceae  
AF468452, *Pseudomonas korensis*, Pseudomonadaceae  
Y11150, *Pseudomonas graminis*, Pseudomonadaceae  
AY364537, *Pseudomonas lutea*, Pseudomonadaceae  
AJ011504, *Pseudomonas abietaniphila*, Pseudomonadaceae  
AY152673, *Pseudomonas rhizosphaerae*, Pseudomonadaceae  
AB126621, *Pseudomonas japonica*, Pseudomonadaceae  
AY970951, *Pseudomonas vranovensis*, Pseudomonadaceae  
AB021397, *Pseudomonas asplenii*, Pseudomonadaceae  
FJ483519, *Pseudomonas fuscovaginae*, Pseudomonadaceae  
AF064458, *Pseudomonas montelii*, Pseudomonadaceae  
AB009457, *Pseudomonas plecoglossida*, Pseudomonadaceae  
EU103629, *Pseudomonas taiwanensis*, Pseudomonadaceae  
AY907566, *Pseudomonas entomophila*, Pseudomonadaceae  
AF072688, *Pseudomonas mosselii*, Pseudomonadaceae  
D84004, *Pseudomonas oryzae*, Pseudomonadaceae  
D84020, *Pseudomonas putida*, Pseudomonadaceae  
AB060137, *Pseudomonas cremoricolorata*, Pseudomonadaceae  
AB046999, *Pseudomonas parafulva*, Pseudomonadaceae  
AB046996, *Pseudomonas fulva*, Pseudomonadaceae  
AB021380, *Pseudomonas pertucinogena*, Pseudomonadaceae  
DQ088664, *Pseudomonas xiamenensis*, Pseudomonadaceae  
GQ161991, *Pseudomonas bauzanensis*, Pseudomonadaceae  
FN908483, *Pseudomonas litoralis*, Pseudomonadaceae  
EU888911, *Pseudomonas pelagia*, Pseudomonadaceae  
EU143352, *Pseudomonas sabulinigri*, Pseudomonadaceae  
EU286805, *Pseudomonas xinjiangensis*, Pseudomonadaceae  
AB125366, *Pseudomonas pachastrellae*, Pseudomonadaceae  
EU046271, *Pseudomonas duriflava*, Pseudomonadaceae  
D84002, *Pseudomonas luteola*, Pseudomonadaceae  
AB175652, *Azomonas agilis*, type sp., Pseudomonadaceae  
FM208263, *Pseudomonas benzenivorans*, Pseudomonadaceae  
AB175655, *Azotobacter ameriacus*, Pseudomonadaceae  
AB175656, *Azotobacter salinestrans*, Pseudomonadaceae  
AB175657, *Azotobacter vinelandii*, Pseudomonadaceae  
AJ308318, *Azorhizophilus paspali*, type sp., Pseudomonadaceae  
AB175651, *Azotobacter nigricans* subsp. *nigricans*, Pseudomonadaceae  
AB189452, *Pseudomonas azotifigens*, Pseudomonadaceae  
AF302795, *Pseudomonas indica*, Pseudomonadaceae  
U26418, *Pseudomonas balearica*, Pseudomonadaceae  
AJ311980, *Pseudomonas thermotolerans*, Pseudomonadaceae  
AJ308319, *Azotobacter beijerinckii*, Pseudomonadaceae  
AB175653, *Azotobacter chroococcum*, type sp., Pseudomonadaceae  
Z76659, *Pseudomonas citronellolis*, Pseudomonadaceae  
DQ339153, *Pseudomonas delhiensis*, Pseudomonadaceae  
AF468448, *Pseudomonas jinjuensis*, Pseudomonadaceae  
AF039489, *Pseudomonas knackmussii*, Pseudomonadaceae  
AM088473, *Pseudomonas nitroreducens*, Pseudomonadaceae  
EF424401, *Pseudomonas panipatensis*, Pseudomonadaceae  
X06684, *Pseudomonas aeruginosa*, type sp., Pseudomonadaceae  
Z76668, *Pseudomonas resinovorans*, Pseudomonadaceae



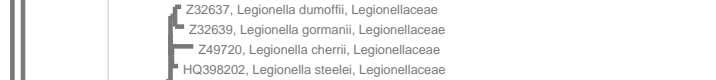
*Alcanivoracaceae (7)*

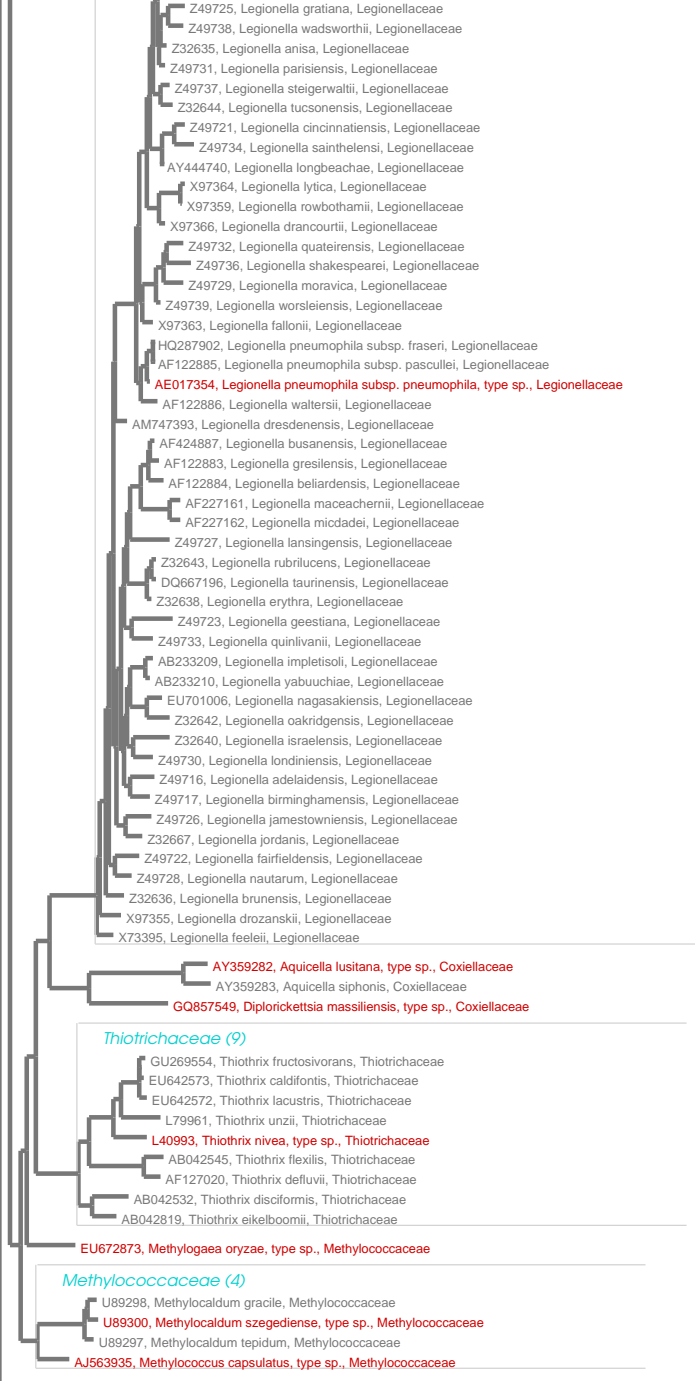


*Francisellaceae (8)*



*Legionellaceae (52)*

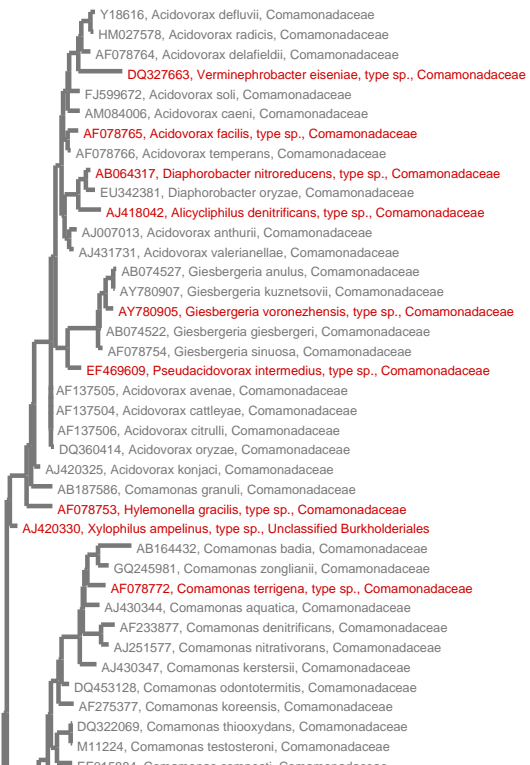


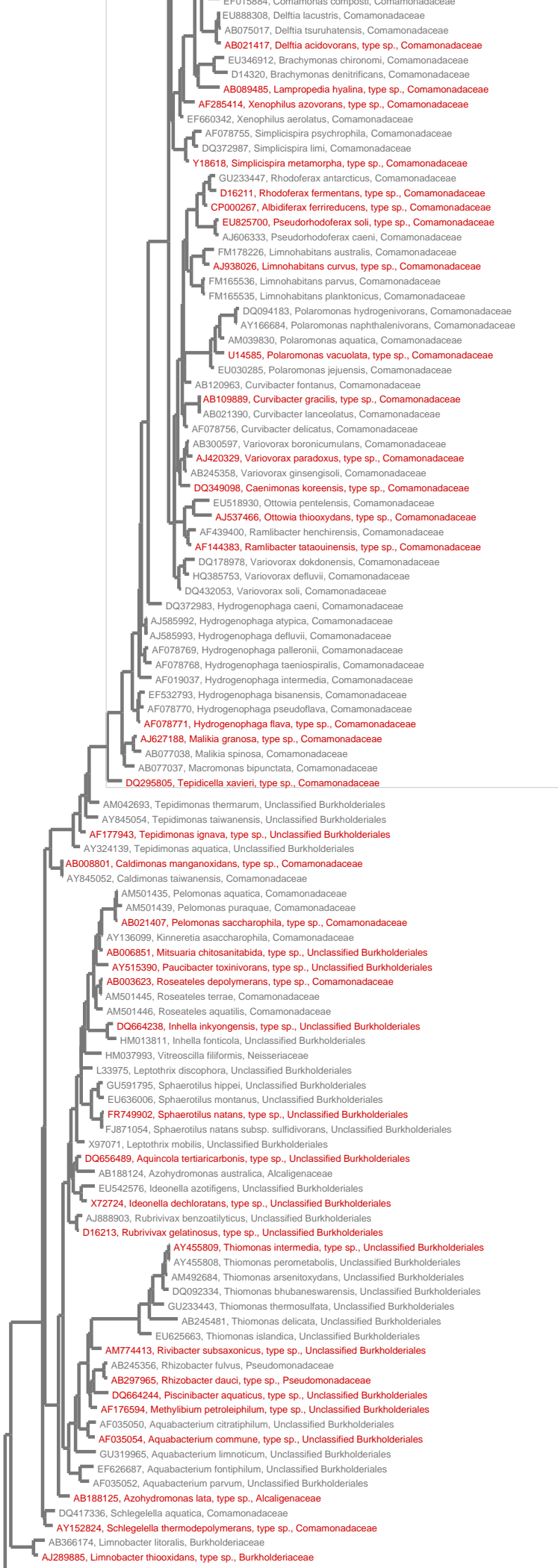


**Betaproteobacteria (491)**

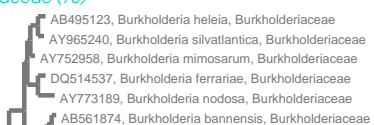
**Burkholderiales (348)**

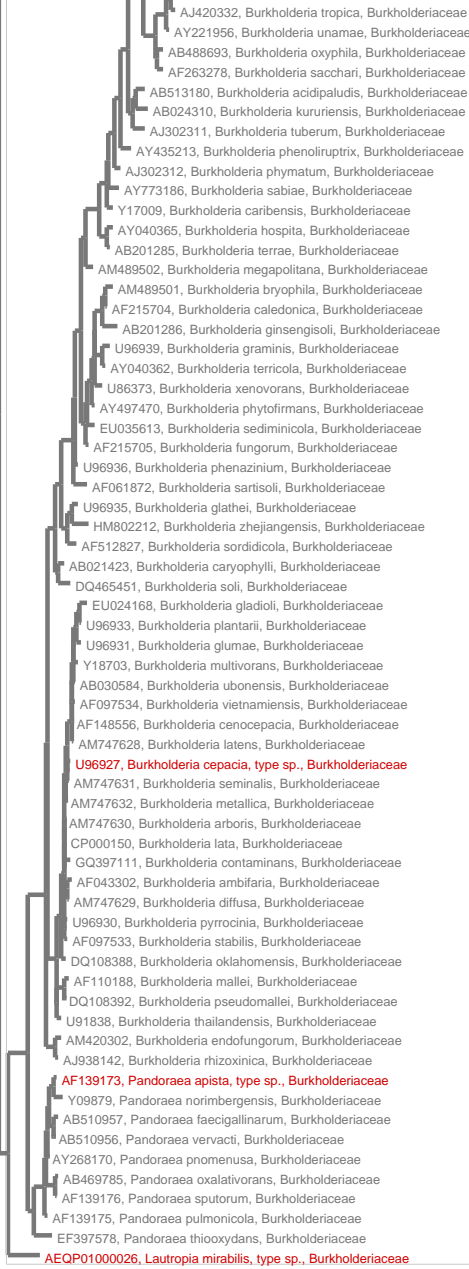
**Comamonadaceae (92)**



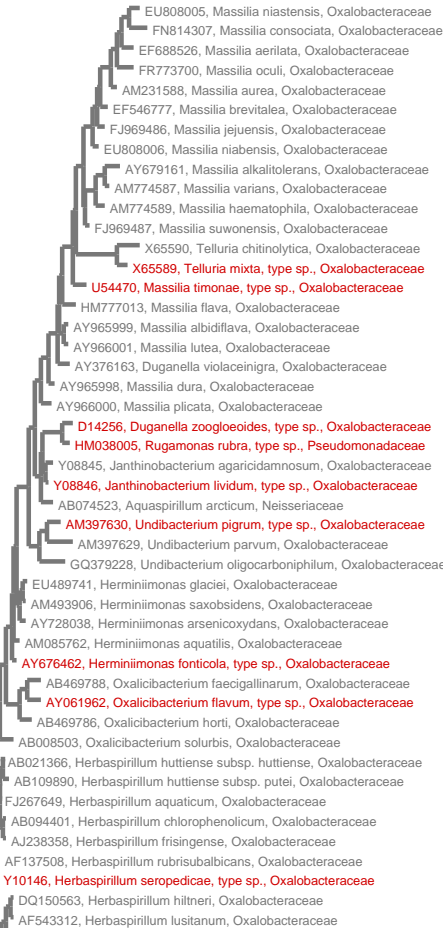


Burkholderiaceae (70)





Oxalobacteraceae (57)



DQ188986, Herbaspirillum zizosphaerae, Oxalobacteraceae  
AB074524, Herbaspirillum autotrophicum, Oxalobacteraceae  
AY281146, Collimonas arenae, Oxalobacteraceae  
AY281137, Collimonas pratensis, Oxalobacteraceae  
**AJ310394, Collimonas fungivorans, type sp., Oxalobacteraceae**  
HQ830497, Herbaspirillum aurantiacum, Oxalobacteraceae  
HQ830498, Herbaspirillum soli, Oxalobacteraceae  
HQ830496, Herbaspirillum canariense, Oxalobacteraceae  
**U49757, Oxalobacter formigenes, type sp., Oxalobacteraceae**  
FR733700, Oxalobacter vibriiformis, Oxalobacteraceae

**GU441679, Glacimonas immobilis, type sp., Oxalobacteraceae**

**X92555, Paucimonas lemoignei, type sp., Burkholderiaceae**

AF155567, Cupriavidus oxalaticus, Burkholderiaceae  
AF300324, Cupriavidus taiwanensis, Burkholderiaceae  
AB054961, Cupriavidus laharis, Burkholderiaceae  
AB121221, Cupriavidus pinatubonensis, Burkholderiaceae  
AF312022, Cupriavidus basiliensis, Burkholderiaceae  
AF312020, Cupriavidus campinensis, Burkholderiaceae  
**AF191737, Cupriavidus necator, type sp., Burkholderiaceae**  
AB104447, Wautersia numazuensis, Burkholderiaceae  
AF500583, Cupriavidus respiraculi, Burkholderiaceae  
D87999, Cupriavidus metallidurans, Burkholderiaceae  
AF085226, Cupriavidus pauculus, Burkholderiaceae  
AF076645, Cupriavidus gilardii, Burkholderiaceae  
FN430567, Cupriavidus pampae, Burkholderiaceae  
EF016361, Ralstonia solanacearum, Burkholderiaceae  
AB021403, Ralstonia syzygii, Burkholderiaceae  
AF488779, Ralstonia insidiosa, Burkholderiaceae  
AJ270258, Ralstonia mannitolilytica, Burkholderiaceae  
**AY741342, Ralstonia pickettii, type sp., Burkholderiaceae**  
FM208180, Polynucleobacter acidiphobus, Burkholderiaceae  
FM208181, Polynucleobacter difficilis, Burkholderiaceae  
**AM397067, Polynucleobacter necessarius subsp. necessarius, type sp., Burkholderiaceae**  
AJ879783, Polynucleobacter necessarius subsp. asymbioticus, Burkholderiaceae  
AJ550672, Polynucleobacter cosmopolitanus, Burkholderiaceae  
FM208182, Polynucleobacter rarus, Burkholderiaceae

#### Alcaligenaceae (45)

**AM944734, Advenella incenata, type sp., Alcaligenaceae**  
AJ864470, Advenella kashmirensis, Alcaligenaceae  
AY880023, Advenella mimigardefordensis, Alcaligenaceae  
AJ251912, Oligella ureolytica, Alcaligenaceae  
**AF133538, Oligella urethralis, type sp., Alcaligenaceae**  
**AJ277742, Brackiella oedipodis, type sp., Alcaligenaceae**  
AF067729, Taylorella asinigenitalis, Alcaligenaceae  
**X68645, Taylorella equigenitalis, type sp., Alcaligenaceae**  
**Y11890, Pelistega europaea, type sp., Alcaligenaceae**  
**FN556191, Candidimonas nitroreducens, type sp., Alcaligenaceae**  
FN556192, Candidimonas humi, Alcaligenaceae  
**DQ466075, Parapusillimonas granuli, type sp., Alcaligenaceae**  
GQ232740, Pusillimonas harenae, Alcaligenaceae  
EF672088, Pusillimonas ginsengisoli, Alcaligenaceae  
GQ241322, Pusillimonas soli, Alcaligenaceae  
**AY695828, Pusillimonas noertemannii, type sp., Alcaligenaceae**  
**FJ793551, Paracaligenes urelyticus, type sp., Alcaligenaceae**  
AB166879, Castellaniella caeni, Alcaligenaceae  
EU873313, Castellaniella ginsengisoli, Alcaligenaceae  
U82826, Castellaniella denitrificans, Alcaligenaceae  
**AJ005447, Castellaniella defragrans, type sp., Alcaligenaceae**  
GQ241321, Castellaniella daejeonensis, Alcaligenaceae  
AY296718, Alcaligenes faecalis subsp. phenolicus, Alcaligenaceae  
**D88008, Alcaligenes faecalis subsp. faecalis, type sp., Alcaligenaceae**  
AJ242986, Alcaligenes faecalis subsp. parafaecalis, Alcaligenaceae  
**FN391024, Paenacaligenes hominis, type sp., Alcaligenaceae**  
AJ278451, Achromobacter denitrificans, Alcaligenaceae  
AB010840, Achromobacter ruhlandii, Alcaligenaceae  
**Y14908, Achromobacter xylooxidans subsp. xylooxidans, type sp., Alcaligenaceae**  
AY170847, Achromobacter insolitus, Alcaligenaceae  
AY170848, Achromobacter spanius, Alcaligenaceae  
AB010841, Achromobacter piechaudi, Alcaligenaceae  
EU150134, Achromobacter marplatensis, Alcaligenaceae  
AF177666, Bordetella avium, Alcaligenaceae  
AJ277798, Bordetella trematum, Alcaligenaceae  
AF177667, Bordetella hinzii, Alcaligenaceae  
U04948, Bordetella bronchiseptica, Alcaligenaceae  
U04949, Bordetella parapertussis, Alcaligenaceae  
U04820, Bordetella holmesii, Alcaligenaceae  
**U04950, Bordetella pertussis, type sp., Alcaligenaceae**  
AJ249861, Bordetella petrii, Alcaligenaceae  
**AY131213, Kerstersia gyorum, type sp., Alcaligenaceae**  
EF100696, Pigmentiphaga daeguensis, Alcaligenaceae  
**AF282916, Pigmentiphaga kullae, type sp., Alcaligenaceae**  
EU583723, Pigmentiphaga litoralis, Alcaligenaceae

#### Sutterellaceae (5)

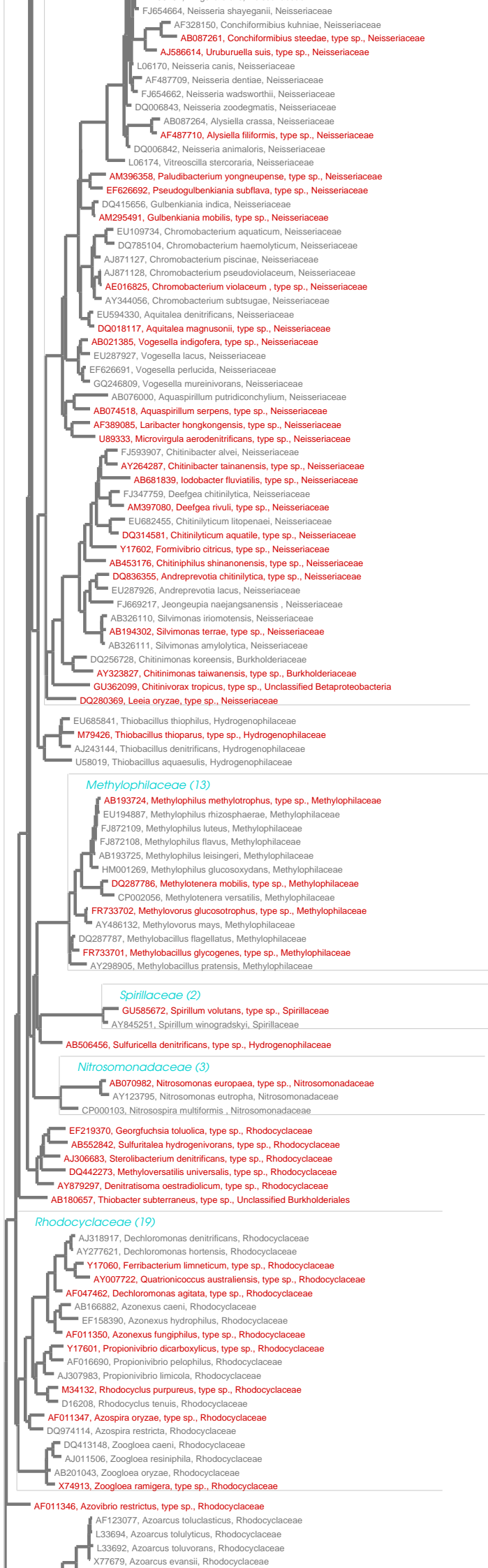
AJ566849, Sutterella stercoricanis, Sutterellaceae  
**GU585669, Sutterella wadsworthensis, type sp., Sutterellaceae**  
AB300989, Sutterella parvirubra, Sutterellaceae  
AB491209, Parasutterella secunda, Sutterellaceae  
**AB370250, Parasutterella excrementihominis, type sp., Sutterellaceae**

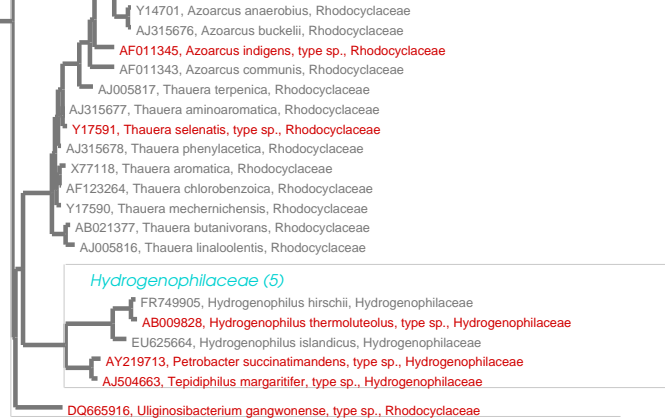
**AB089482, Derrxia gummosa, type sp., Alcaligenaceae**

#### Neisseriaceae (71)

**AB525415, Eikenella corrodens, type sp., Neisseriaceae**  
EF212897, Stenoxobacter acetivorans, Neisseriaceae  
**AF328147, Simonsiella muelleri, type sp., Neisseriaceae**  
**AB087265, Bergeriella denitrificans, type sp., Neisseriaceae**  
**AY551999, Kingella kingae, type sp., Neisseriaceae**  
ADBF01000003, Neisseria elongata subsp. glycolytica, Neisseriaceae  
L06171, Neisseria elongata subsp. elongata, Neisseriaceae  
M22516, Kingella denitrificans, Neisseriaceae  
AJ239288, Neisseria animalis, Neisseriaceae  
**X07714, Neisseria gonorrhoeae, type sp., Neisseriaceae**  
AJ239289, Neisseria polysacchara, Neisseriaceae  
ACDY02000019, Neisseria cinerea, Neisseriaceae  
GU233442, Neisseria iguanae, Neisseriaceae  
AJ239286, Neisseria lactamica, Neisseriaceae  
ACKO02000016, Neisseria sicca, Neisseriaceae  
L06168, Neisseria flavescens, Neisseriaceae  
AJ239291, Neisseria subflava, Neisseriaceae  
AJ629192, Kingella potus, Neisseriaceae  
AY560519, Neisseria bacilliformis, Neisseriaceae  
L06164, Kingella oralis, Neisseriaceae

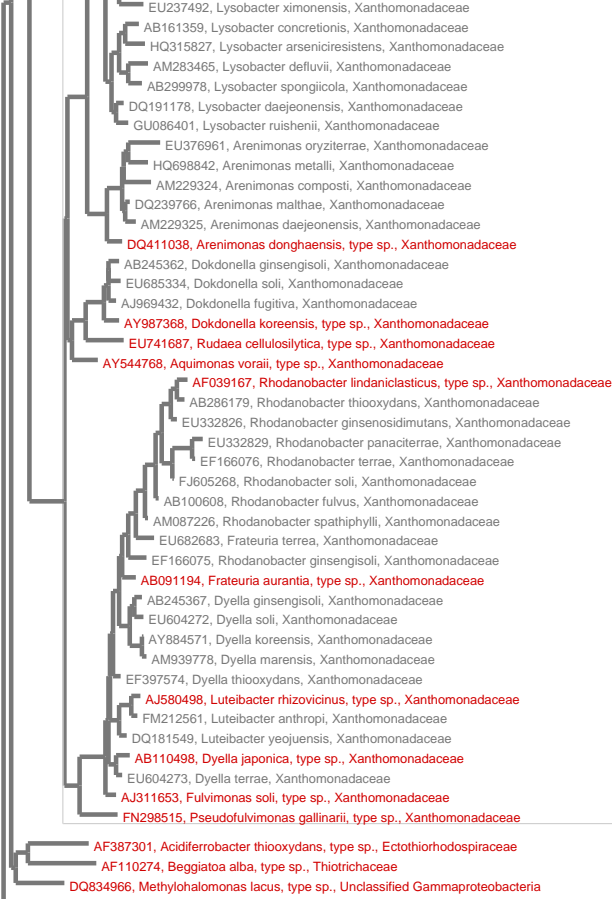






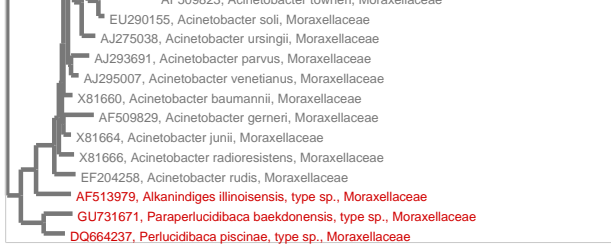
**Xanthomonadaceae (132)**





**Moraxellaceae (79)**

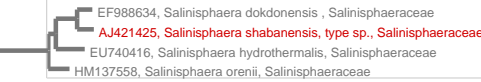




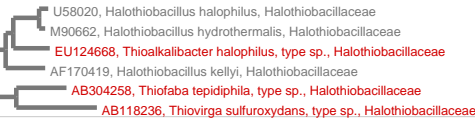
#### Sinobacteraceae (12)



#### Salinisphaeraceae (4)



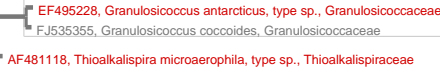
#### Halothiobacillaceae (6)



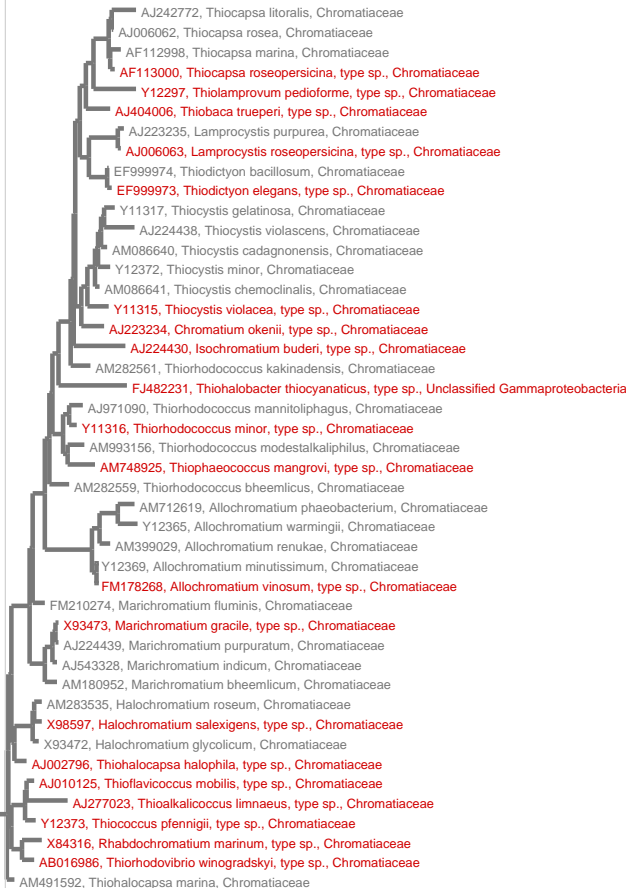
#### Cardiobacteriaceae (4)



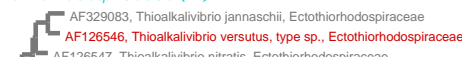
#### Granulosicoccaceae (2)

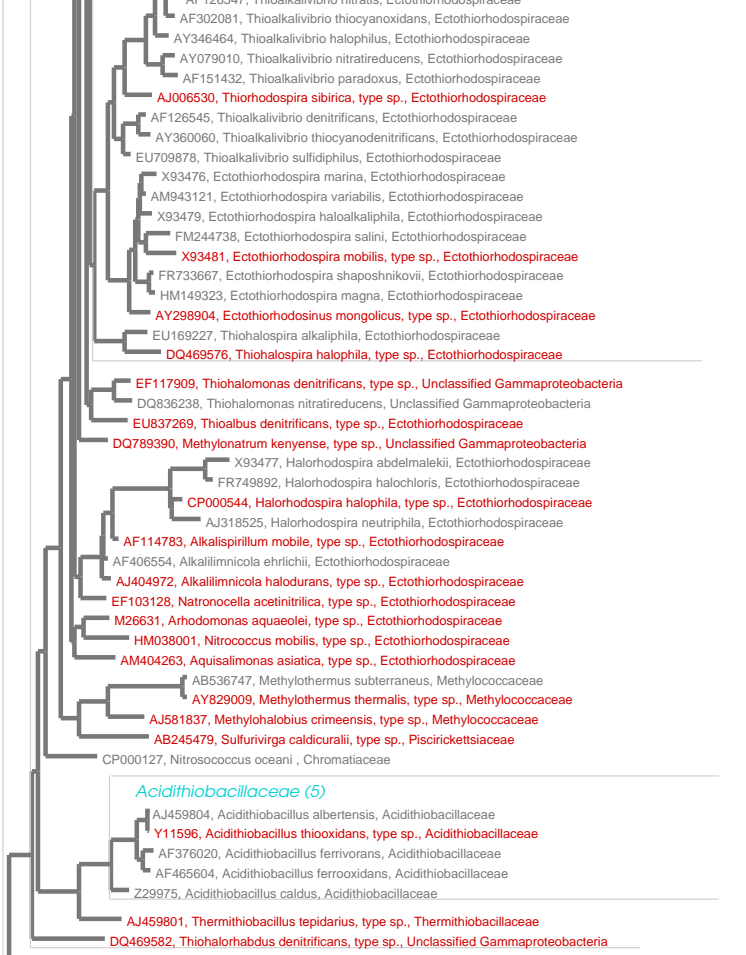


#### Chromatiaceae (45)



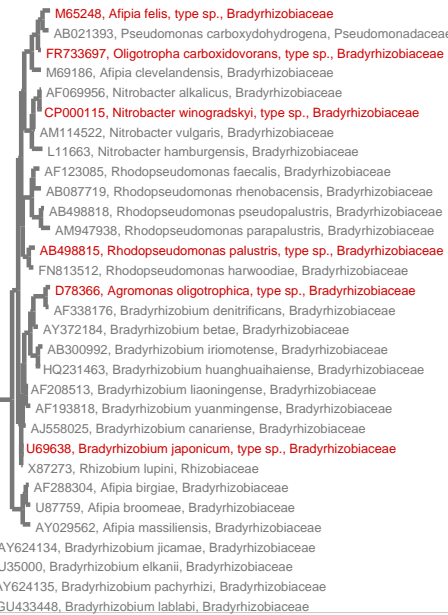
#### Ectothiorhodospiraceae (21)



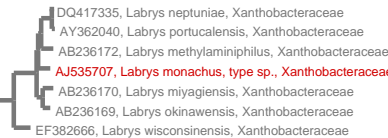


**Alphaproteobacteria (1101)**

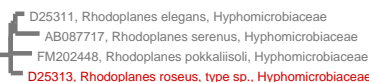
**Bradyrhizobiaceae (31)**



**DQ062742, Pseudolabrys taiwanensis, type sp., Xanthobacteraceae**



**Beijerinckiaceae (16)**



AM502287, Blastochloris gulmargensis, Hyphomicrobiaceae  
AF084495, Blastochloris virdis, type sp., Hyphomicrobiaceae  
D86514, Blastochloris sulfoviridis, Hyphomicrobiaceae

**Methylocystaceae (7)**

Y18946, Methylosinus sporium, Methylocystaceae  
Y18947, Methylosinus trichosporium, type sp., Methylocystaceae  
Y18945, Methylocystis parvus, type sp., Methylocystaceae  
AJ458473, Methylocystis echinoides, Methylocystaceae  
DQ364433, Methylocystis hirsuta, Methylocystaceae  
AJ414656, Methylocystis rosea, Methylocystaceae  
AM283543, Methylocystis heyeri, Methylocystaceae

**Methylobacteriaceae (37)**

AJ250801, Methylobacterium fujisawaense, Methylobacteriaceae  
AY683045, Methylobacterium oryzae, Methylobacteriaceae  
EF126746, Methylobacterium phyllosphaerae, Methylobacteriaceae  
FN868949, Methylobacterium longum, Methylobacteriaceae  
AB252208, Methylobacterium tardum, Methylobacteriaceae  
D32227, Methylobacterium radiotolerans, Methylobacteriaceae  
EF174498, Methylobacterium aerolatum, Methylobacteriaceae  
AB252202, Methylobacterium persicinum, Methylobacteriaceae  
AB252201, Methylobacterium komagatae, Methylobacteriaceae  
AB175649, Methylobacterium brachiatum, Methylobacteriaceae  
AB175636, Methylobacterium mesophilicum, Methylobacteriaceae  
AB252200, Methylobacterium gregans, Methylobacteriaceae  
AJ635304, Methylobacterium hispanicum, Methylobacteriaceae  
AM040156, Methylobacterium adhaesivum, Methylobacteriaceae  
EU912445, Methylobacterium gossipicola, Methylobacteriaceae  
EF174497, Methylobacterium iners, Methylobacteriaceae  
AB607860, Methylobacterium oxalidis, Methylobacteriaceae  
FJ268657, Methylobacterium bullatum, Methylobacteriaceae  
FJ159796, Methylobacterium marchantiae, Methylobacteriaceae  
DQ471331, Methylobacterium jeotgali, Methylobacteriaceae  
FR733885, Methylobacterium cerastii, Methylobacteriaceae  
AF514774, Methylobacterium podarium, Methylobacteriaceae  
AB175642, Methylobacterium rhodesianum, Methylobacteriaceae  
AY251818, Methylobacterium populi, Methylobacteriaceae  
U58018, Methylobacterium thiocyanatum, Methylobacteriaceae  
AB175647, Methylobacterium zatmanii, Methylobacteriaceae  
AB175629, Methylobacterium aminovorans, Methylobacteriaceae  
D32224, Methylobacterium extorquens, Methylobacteriaceae  
AB175645, Methylobacterium suomiense, Methylobacteriaceae  
EF015478, Methylobacterium salsuginis, Methylobacteriaceae  
AB175644, Methylobacterium rhodinum, Methylobacteriaceae  
AJ635303, Methylobacterium aquaticum, Methylobacteriaceae  
EF426729, Methylobacterium platani, Methylobacteriaceae  
AJ851087, Methylobacterium variable, Methylobacteriaceae  
AJ888239, Methylobacterium isbiliense, Methylobacteriaceae  
AF220763, Methylobacterium nodulans, Methylobacteriaceae  
AB175638, Methylobacterium organophilum, type sp., Methylobacteriaceae

AF288300, Bosea enea, Bradyrhizobiaceae  
AF288306, Bosea vestrisii, Bradyrhizobiaceae  
AJ250796, Bosea thiooxidans, type sp., Bradyrhizobiaceae  
AF273081, Bosea minatitanensis, Bradyrhizobiaceae  
AF288309, Bosea massiliensis, Bradyrhizobiaceae  
EF584507, Chelatococcus daeguensis, Beijerinckiaceae  
DQ322070, Chelatococcus sambhunathii, Beijerinckiaceae  
AJ294349, Chelatococcus asacharovorans, type sp., Beijerinckiaceae  
AB098515, Microvirga flocculans, type sp., Methylobacteriaceae  
GQ421849, Microvirga aerolata, Methylobacteriaceae  
FR733708, Microvirga subterranea, type sp., Methylobacteriaceae  
EU727176, Microvirga guangxiensis, Methylobacteriaceae  
GQ421848, Microvirga aerophila, Methylobacteriaceae  
FN430422, Camelimonas lactis, type sp., Beijerinckiaceae  
FR851926, Camelimonas abortus, Beijerinckiaceae  
EU878006, Salinarimonas rosea, type sp., Bradyrhizobiaceae  
GU125653, Salinarimonas ramus, Bradyrhizobiaceae

DQ404188, Hansschlegelia plantiphila, type sp., Methylocystaceae  
DQ916067, Hansschlegelia zhihuaiae, Methylocystaceae  
FR733694, Albibacter methylovorans, type sp., Methylocystaceae  
AF004844, Methylophila capsulata, type sp., Methylocystaceae  
FJ502233, Methylophila jiangsuensis, Methylocystaceae

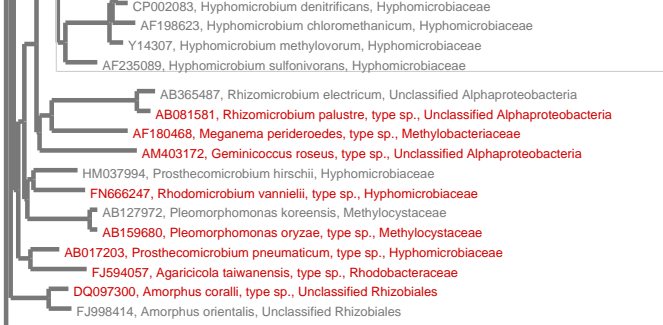
AJ535709, Angulomicrobium amanitiforme, Hyphomicrobiaceae  
AJ535708, Angulomicrobium tetraedrale, type sp., Hyphomicrobiaceae  
AF004845, Methylophobus multivorans, type sp., Hyphomicrobiaceae  
AB166877, Starkeya koreensis, Xanthobacteraceae  
D32247, Starkeya novella, type sp., Xanthobacteraceae  
AM778407, Ancylobacter oerskovii, Xanthobacteraceae  
AY056830, Ancylobacter rudongensis, Xanthobacteraceae  
EU589386, Ancylobacter dichloromethanicus, Xanthobacteraceae  
M62790, Ancylobacter aquaticus, type sp., Xanthobacteraceae  
AY211515, Ancylobacter vacuolatus, Xanthobacteraceae  
AY211516, Ancylobacter polymorphus, Xanthobacteraceae

FR733686, Aquabacter spiritensis, type sp., Hyphomicrobiaceae  
X99469, Xanthobacter tagetidis, Xanthobacteraceae  
AF399969, Xanthobacter aminoxidans, Xanthobacteraceae  
X94199, Xanthobacter flavus, Xanthobacteraceae  
X94201, Xanthobacter autotrophicus, type sp., Xanthobacteraceae  
AF399970, Xanthobacter viscosus, Xanthobacteraceae  
AF391130, Azorhizobium doebereineriae, Xanthobacteraceae  
D11342, Azorhizobium caulinodans, type sp., Xanthobacteraceae  
X94198, Xanthobacter agilis, Xanthobacteraceae  
AY039817, Kaistia adipata, type sp., Rhizobiaceae

AB244762, Kaistia granulii, Rhizobiaceae  
EU723082, Kaistia terrae, Rhizobiaceae  
AM409363, Kaistia geumhonensis, Rhizobiaceae  
EF592609, Kaistia soli, Rhizobiaceae  
AM409364, Kaistia dalseonensis, Rhizobiaceae

**Hyphomicrobiaceae (16)**

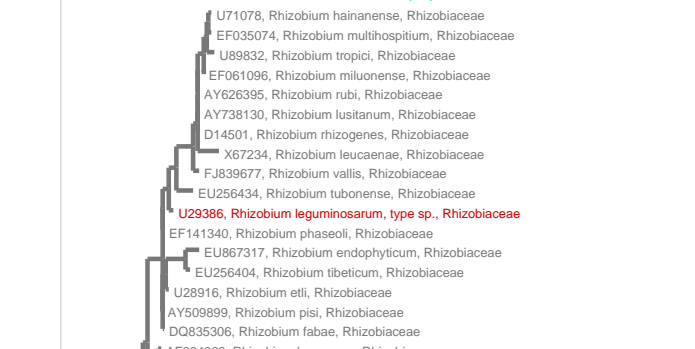
HM037996, Pedomicrobium americanum, Hyphomicrobiaceae  
X97693, Pedomicrobium australicum, Hyphomicrobiaceae  
GU269548, Pedomicrobium ferrugineum, type sp., Hyphomicrobiaceae  
GU269549, Pedomicrobium manganicum, Hyphomicrobiaceae  
Y14313, Filomicrobium fusiforme, type sp., Hyphomicrobiaceae  
EF117253, Filomicrobium insigne, Hyphomicrobiaceae  
AB543807, Hyphomicrobium vulgare, type sp., Hyphomicrobiaceae  
Y14305, Hyphomicrobium zavarzinii, Hyphomicrobiaceae  
Y14303, Hyphomicrobium hollandicum, Hyphomicrobiaceae  
Y14311, Hyphomicrobium facile subsp. tolerans, Hyphomicrobiaceae  
Y14310, Hyphomicrobium facile subsp. ureaphilum, Hyphomicrobiaceae  
Y14309, Hyphomicrobium facile subsp. facile, Hyphomicrobiaceae



**Caulobacteraceae (41)**



**Rhizobiaceae and Aurantimonadaceae (73)**



AF364069, Rhizobium loessense, Rhizobiaceae  
U89817, Rhizobium mongolense, Rhizobiaceae  
AF003375, Rhizobium yanglingense, Rhizobiaceae  
U86343, Rhizobium gallicum, Rhizobiaceae  
AF364068, Rhizobium indigoferae, Rhizobiaceae  
Y10170, Rhizobium sullae, Rhizobiaceae  
AJ639832, Arthrobacter viscosus, Micrococcaceae  
AM931436, Rhizobium alamii, Rhizobiaceae  
DQ100063, Rhizobium mesosinicum, Rhizobiaceae  
EF125187, Rhizobium borbori, Rhizobiaceae  
EU056823, Rhizobium oryzae, Rhizobiaceae  
DQ454123, Rhizobium pseudoryzae, Rhizobiaceae  
EU556969, Rhizobium petrolearium, Rhizobiaceae  
EF363715, Rhizobium soli, Rhizobiaceae  
D11343, Rhizobium galegae, Rhizobiaceae  
GU128881, Rhizobium vignae, Rhizobiaceae  
EU074168, Rhizobium alkalisoli, Rhizobiaceae  
DQ855276, Rhizobium cellulolyticum, Rhizobiaceae  
AF025852, Rhizobium huautlense, Rhizobiaceae

#### Aurantimonadaceae (7)

DQ372921, *Aureimonas altamirensis*, type sp., Aurantimonadaceae  
EF373540, *Aureimonas frigidaquae*, Aurantimonadaceae  
AJ786361, *Aurantimonas coralicida*, type sp., Aurantimonadaceae  
U53824, *Aurantimonas manganoxydans*, Aurantimonadaceae  
DQ883810, *Aureimonas ureilytica*, Aurantimonadaceae  
AY178860, *Fulvimarina pelagi*, type sp., Aurantimonadaceae  
AY649762, *Marteilella mediterranea*, type sp., Aurantimonadaceae

Y17047, *Rhizobium undicola*, Rhizobiaceae  
HM776997, *Rhizobium taibaishanense*, Rhizobiaceae  
U45329, *Rhizobium vitis*, Rhizobiaceae  
Z30542, *Rhizobium larrymoorei*, Rhizobiaceae  
FJ969841, *Rhizobium pusense*, Rhizobiaceae  
EU401907, *Beijerinckia fluminensis*, Beijerinckiaceae  
AB247615, *Rhizobium radiobacter*, Rhizobiaceae  
HQ823551, *Rhizobium skierniewicense*, Rhizobiaceae  
X73041, *Rhizobium aggregatum*, Rhizobiaceae  
X73042, *Blastobacter capsulatus*, Bradyrhizobiaceae  
GU322905, *Rhizobium halophytocola*, Rhizobiaceae  
EU781656, *Rhizobium rosettiformans*, Rhizobiaceae  
EF440185, *Rhizobium selenitireducens*, Rhizobiaceae  
AY341343, *Rhizobium daejeonense*, Rhizobiaceae  
U86344, *Rhizobium giardinii*, Rhizobiaceae  
GU655534, *Rhizobium herbae*, Rhizobiaceae  
X68390, *Ensifer sahari*, Rhizobiaceae  
GU593061, *Ensifer sojae*, Rhizobiaceae  
AY034028, *Ensifer kummerowiae*, Rhizobiaceae  
AM181747, *Ensifer kostiensis*, Rhizobiaceae  
X67231, *Ensifer fredii*, Rhizobiaceae  
AF506513, *Sinorhizobium americanum*, Rhizobiaceae  
D14509, *Ensifer meliloti*, Rhizobiaceae  
AY500254, *Ensifer numidicus*, Rhizobiaceae  
L39882, *Ensifer medicae*, Rhizobiaceae  
Z78204, *Ensifer arboris*, Rhizobiaceae  
X68388, *Ensifer terangae*, Rhizobiaceae  
AY500255, *Ensifer garamanticus*, Rhizobiaceae  
DQ411930, *Ensifer mexicanus*, Rhizobiaceae

AM181733, *Ensifer adhaerens*, type sp., Rhizobiaceae

GQ241319, *Shinella daejeonensis*, Rhizobiaceae  
AB285481, *Shinella yambaruensis*, Rhizobiaceae  
FM177879, *Shinella fusca*, Rhizobiaceae  
AB187585, *Shinella granulii*, type sp., Rhizobiaceae  
AB238789, *Shinella zoogloeoides*, Rhizobiaceae  
EF070131, *Shinella kummerowiae*, Rhizobiaceae

#### Phyllobacteriaceae (52)

AY636000, *Phyllobacterium catacumbae*, Phyllobacteriaceae  
AY785325, *Phyllobacterium ifriqiense*, Phyllobacteriaceae  
AY786080, *Phyllobacterium trifolii*, Phyllobacteriaceae  
AY785320, *Phyllobacterium bourgognense*, Phyllobacteriaceae  
AY785319, *Phyllobacterium brassicacearum*, Phyllobacteriaceae  
AY785315, *Phyllobacterium myrsinacearum*, type sp., Phyllobacteriaceae  
AJ968695, *Phyllobacterium leguminum*, Phyllobacteriaceae  
U07934, *Mesorhizobium ciceri*, Phyllobacteriaceae  
X67229, *Mesorhizobium loti*, type sp., Phyllobacteriaceae  
EU074203, *Mesorhizobium shangrilense*, Phyllobacteriaceae  
AY601516, *Mesorhizobium australicum*, Phyllobacteriaceae  
AJ011760, *Aminobacter aganoensis*, Phyllobacteriaceae  
AJ011761, *Aminobacter niigataensis*, Phyllobacteriaceae  
AF034798, *Aminobacter ciceronei*, Phyllobacteriaceae  
AJ011759, *Aminobacter aminovorans*, type sp., Phyllobacteriaceae  
AF107722, *Aminobacter lissarensis*, Phyllobacteriaceae  
D88524, *Ahrensia kielensis*, type sp., Rhodobacteriaceae  
ABIA02000018, *Hoeflea phototrophica*, Phyllobacteriaceae  
AY598817, *Hoeflea marina*, type sp., Phyllobacteriaceae  
DQ364238, *Hoeflea anabaenae*, Phyllobacteriaceae  
AJ786600, *Hoeflea alexandrii*, Phyllobacteriaceae  
AF534573, *Nitratireductor aquibiodomus*, type sp., Phyllobacteriaceae  
AM498744, *Nitratireductor kimnyeongensis*, Phyllobacteriaceae  
HQ176467, *Nitratireductor aquimarinus*, Phyllobacteriaceae  
EU143347, *Nitratireductor basaltis*, Phyllobacteriaceae  
DQ659453, *Nitratireductor pacificus*, Phyllobacteriaceae  
GU447302, *Nitratireductor indicus*, Phyllobacteriaceae  
EF457243, *Chelativorans multitrophicus*, type sp., Phyllobacteriaceae  
EF457242, *Chelativorans oligotrophicus*, Phyllobacteriaceae  
EU169578, *Mesorhizobium alhagi*, Phyllobacteriaceae  
EU169581, *Mesorhizobium camelthorni*, Phyllobacteriaceae  
D32248, *Pseudaminobacter defluvi*, Phyllobacteriaceae  
AF072542, *Pseudaminobacter salicylatoxidans*, type sp., Phyllobacteriaceae  
Y15403, *Aquamicrobium defluvi*, type sp., Phyllobacteriaceae  
AJ132378, *Aquamicrobium lusatense*, Phyllobacteriaceae  
FM210786, *Aquamicrobium aerolatum*, Phyllobacteriaceae  
AJ278249, *Mesorhizobium chacoense*, Phyllobacteriaceae  
DQ100066, *Mesorhizobium albiziae*, Phyllobacteriaceae  
EF149003, *Mesorhizobium caraganae*, Phyllobacteriaceae  
EF035058, *Mesorhizobium tarimense*, Phyllobacteriaceae  
EF035064, *Mesorhizobium gobiense*, Phyllobacteriaceae  
AM930381, *Mesorhizobium metallidurans*, Phyllobacteriaceae  
AF041447, *Mesorhizobium tianshanense*, Phyllobacteriaceae  
AM181745, *Mesorhizobium mediterraneum*, Phyllobacteriaceae  
AF508208, *Mesorhizobium temperatum*, Phyllobacteriaceae  
EU849582, *Mesorhizobium robiniae*, Phyllobacteriaceae  
AY601515, *Mesorhizobium opportunistum*, Phyllobacteriaceae  
D12421, *Mesorhizobium burskii*, Phyllobacteriaceae



D13944, *Mycoplana dimorpha*, type sp., Brucellaceae  
AF041442, *Mesorhizobium amorphae*, Phyllobacteriaceae  
AF508207, *Mesorhizobium septentrionale*, Phyllobacteriaceae  
Y14158, *Mesorhizobium plurifarium*, Phyllobacteriaceae  
AJ864462, *Mesorhizobium thioanganeticum*, Phyllobacteriaceae

D12786, *Mycoplana dimorpha*, type sp., Brucellaceae

D13944, *Mycoplana ramosa*, Brucellaceae

#### Brucellaceae (33)

AM180484, *Pseudochrobactrum saccharolyticum*, Brucellaceae  
FM209496, *Pseudochrobactrum lubricantis*, Brucellaceae  
AM180485, *Pseudochrobactrum asaccharolyticum*, type sp., Brucellaceae  
AM263420, *Pseudochrobactrum kiredjianiae*, Brucellaceae  
AB369864, *Paenochrobactrum glaciei*, Brucellaceae  
FN391023, *Paenochrobactrum gallinarii*, type sp., Brucellaceae  
AJ519939, *Ochrobactrum gallinifacis*, Brucellaceae  
AM041247, *Ochrobactrum oryzae*, Brucellaceae  
DQ365921, *Ochrobactrum pseudintermedium*, Brucellaceae  
DQ647056, *Ochrobactrum ciceri*, Brucellaceae  
HQ171203, *Ochrobactrum daejeonense*, Brucellaceae  
U70978, *Ochrobactrum intermedium*, Brucellaceae  
EU053207, *Brucella inopinata*, Brucellaceae  
AM392286, *Brucella microti*, Brucellaceae  
AY594216, *Brucella neotomae*, Brucellaceae  
AY594215, *Brucella melitensis*, type sp., Brucellaceae  
L26168, *Brucella ovis*, Brucellaceae  
AM158979, *Brucella abortus*, Brucellaceae  
AM158982, *Brucella ceti*, Brucellaceae  
L37584, *Brucella canis*, Brucellaceae  
AM158980, *Brucella suis*, Brucellaceae  
AM158981, *Brucella pinnipedialis*, Brucellaceae  
AY776289, *Ochrobactrum cytisi*, Brucellaceae  
AY457038, *Ochrobactrum lupini*, Brucellaceae  
AJ242584, *Ochrobactrum tritici*, Brucellaceae  
CP000758, *Ochrobactrum anthropi*, type sp., Brucellaceae  
AM490609, *Ochrobactrum pituitosum*, Brucellaceae  
AM490632, *Ochrobactrum rhizosphaerae*, Brucellaceae  
AM490617, *Ochrobactrum thiophenivorans*, Brucellaceae  
AJ242581, *Ochrobactrum grignonense*, Brucellaceae  
AM422371, *Ochrobactrum pseudogrignonense*, Brucellaceae  
AM422370, *Ochrobactrum haematophilum*, Brucellaceae  
FR668302, *Ochrobactrum pecoris*, Brucellaceae

#### Bartonellaceae (24)

AY254309, *Bartonella chomelii*, Bartonellaceae  
AJ278187, *Bartonella schoenbuchensis*, Bartonellaceae  
AF293391, *Bartonella bovis*, Bartonellaceae  
AF293389, *Bartonella capreoli*, Bartonellaceae  
BX897699, *Bartonella henselae*, Bartonellaceae  
AF076237, *Bartonella koehlerae*, Bartonellaceae  
M65249, *Bartonella bacilliformis*, type sp., Bartonellaceae  
M73228, *Bartonella quintana*, Bartonellaceae  
Z31351, *Bartonella doshaie*, Bartonellaceae  
EU111754, *Bartonella queenslandensis*, Bartonellaceae  
EU111749, *Bartonella rattaustriani*, Bartonellaceae  
L01259, *Bartonella vinsonii* subsp. *vinsonii*, Bartonellaceae  
EU111759, *Bartonella coopersplainsensis*, Bartonellaceae  
AB440632, *Bartonella japonica*, Bartonellaceae  
AB440636, *Bartonella silvatica*, Bartonellaceae  
L35052, *Bartonella vinsonii* subsp. *berkhoffii*, Bartonellaceae  
Z31349, *Bartonella grahamii*, Bartonellaceae  
L01260, *Bartonella elizabethae*, Bartonellaceae  
AJ003070, *Bartonella tribocorum*, Bartonellaceae  
AJ002139, *Bartonella alsatica*, Bartonellaceae  
AF204274, *Bartonella birtlesii*, Bartonellaceae  
Z31350, *Bartonella taylorii*, Bartonellaceae  
X89208, *Bartonella clarridgeae*, Bartonellaceae  
DQ683196, *Bartonella rochalimae*, Bartonellaceae

EF532794, *Daeguia caeni*, type sp., Brucellaceae

#### Cohaesibacteraceae (2)

DQ386307, *Cohaesibacter gelatinilyticus*, type sp., Cohaesibacteraceae  
GQ200200, *Cohaesibacter marisflavi*, Cohaesibacteraceae

GQ272328, *Breoghania corrubedonensis*, type sp., Unclassified Alphaproteobacteria

#### Rhodobiaceae (9)

D30790, *Affella marina*, type sp., Rhodobiaceae  
AB087720, *Rhodopseudomonas julia*, Bradyrhizobiaceae  
EU445271, *Affella pfennigii*, Rhodobiaceae  
FR733679, *Dichotomicrobium thermohalophilum*, type sp., Hyphomicrobiaceae  
AM712634, *Andersenella baltica*, type sp., Rhodobiaceae  
AM180706, *Rhodobium gokamense*, Rhodobiaceae  
D30792, *Rhodobium orientis*, type sp., Rhodobiaceae  
GU187912, *Tepidamorphus gemmatus*, type sp., Rhodobiaceae  
FN297835, *Lutibaculum baratangense*, type sp., Rhodobiaceae  
FJ560750, *Bauldia consociata*, Unclassified Rhizobiales  
GQ221764, *Bauldia litoralis*, type sp., Unclassified Rhizobiales

#### Rhodobacteraceae (229)

AB601471, *Roseibacterium elongatum*, type sp., Rhodobacteraceae  
AB302386, *Tranquillimonas alkanivorans*, type sp., Rhodobacteraceae  
AJ534211, *Dinoroseobacter shibae*, type sp., Rhodobacteraceae  
DQ514326, *Maribius pelagius*, Rhodobacteraceae  
AY906863, *Maribius salinus*, type sp., Rhodobacteraceae  
FJ230842, *Hwanghaeicola aestuarii*, type sp., Rhodobacteraceae  
DQ915443, *Maritimibacter alkaliphilus*, type sp., Rhodobacteraceae  
HM997022, *Celeribacter baekdonensis*, Rhodobacteraceae  
FJ436725, *Huaishuia halophila*, type sp., Rhodobacteraceae  
FJ535354, *Celeribacter neptunius*, type sp., Rhodobacteraceae  
AB564595, *Vadicella arenosi*, type sp., Rhodobacteraceae  
DQ675021, *Pseudoruegeria aquimaris*, type sp., Rhodobacteraceae  
FJ374173, *Pseudoruegeria lutimaris*, Rhodobacteraceae  
AB558927, *Pacificibacter maritimus*, type sp., Rhodobacteraceae  
GQ243422, *Roseovarius marinus*, Rhodobacteraceae  
FJ882052, *Planktotalea frisia*, type sp., Rhodobacteraceae  
JN021667, *Litoreibacter meonggei*, Rhodobacteraceae  
AB518881, *Litoreibacter albidus*, type sp., Rhodobacteraceae  
AB518880, *Litoreibacter janthinus*, Rhodobacteraceae  
EU342372, *Litoreibacter arenae*, Rhodobacteraceae  
AJ631302, *Thalassobacter stenotrophicus*, type sp., Rhodobacteraceae  
AF114484, *Roseovarius crassostreae*, Rhodobacteraceae  
HQ852039, *Roseovarius halocynthiae*, Rhodobacteraceae  
AJ438157, *Jannaschia helgolandensis*, type sp., Rhodobacteraceae

AJ748747, Jannaschia rubra, Rhodobacteraceae  
EU156067, Jannaschia seohaensis, Rhodobacteraceae  
AY906862, Jannaschia seosinensis, Rhodobacteraceae  
DQ643999, Jannaschia pohangensis, Rhodobacteraceae  
EF202612, Jannaschia donghaensis, Rhodobacteraceae  
**FJ638616, Haslibacter halocynthiae, type sp., Rhodobacteraceae**  
EU156066, Roseovarius aestuarii, Rhodobacteraceae  
AF098495, Roseovarius nubinhibens, Rhodobacteraceae  
AJ534215, Roseovarius mucosus, Rhodobacteraceae  
**Y11551, Roseovarius tolerans, type sp., Rhodobacteraceae**  
**EF192392, Pelagicola litoralis, type sp., Rhodobacteraceae**  
FJ403243, Roseovarius nanhaiticus, Rhodobacteraceae  
EF202613, Loktanella maricola, Rhodobacteraceae  
AY682199, Loktanella rosea, Rhodobacteraceae  
DQ533556, Loktanella tamensis, Rhodobacteraceae  
AB576006, Poseidonocella sedimentorum, Rhodobacteraceae  
DQ344498, Loktanella koreensis, Rhodobacteraceae  
**Y13155, Sulfitobacter pontiacus, type sp., Rhodobacteraceae**  
DQ097527, Sulfitobacter litoralis, Rhodobacteraceae  
DQ683726, Sulfitobacter marinus, Rhodobacteraceae  
Y16425, Sulfitobacter brevis, Rhodobacteraceae  
Y17387, Sulfitobacter mediterraneus, Rhodobacteraceae  
AY180103, Sulfitobacter delicatus, Rhodobacteraceae  
AY180102, Sulfitobacter dubius, Rhodobacteraceae  
**AJ550939, Oceanibulbus indolifex, type sp., Rhodobacteraceae**  
EF202614, Sulfitobacter donghicola, Rhodobacteraceae  
Y16427, Sulfitobacter guttiformis, Rhodobacteraceae  
L01784, Roseobacter denitrificans, Rhodobacteraceae  
**X78312, Roseobacter litoralis, type sp., Rhodobacteraceae**  
FJ436732, Lentibacter algarum, type sp., Rhodobacteraceae  
AJ748748, Nereida ignava, type sp., Rhodobacteraceae  
AB193438, Tateyamaria omphalii, type sp., Rhodobacteraceae  
AJ968651, Tateyamaria pelophila, Rhodobacteraceae  
**EU734592, Marmeliella alba, type sp., Rhodobacteraceae**  
U58356, Sagittula stellata, type sp., Rhodobacteraceae  
Y11552, Antarctic bacter heliothermus, type sp., Rhodobacteraceae  
**EF211829, Ponticoccus litoralis, type sp., Rhodobacteraceae**  
**AB302370, Tropicobacter naphthalenivorans, type sp., Rhodobacteraceae**  
FR727679, Tropicobacter multivorans, Rhodobacteraceae  
U14583, Octadecabacter antarcticus, Rhodobacteraceae  
**U73725, Octadecabacter arcticus, type sp., Rhodobacteraceae**  
HM748766, Thalassobius maritimus, Rhodobacteraceae  
AB246747, Loktanella atrilutea, Rhodobacteraceae  
AJ582225, Loktanella fryxellensis, Rhodobacteraceae  
**AJ440997, Loktanella salsilacus, type sp., Rhodobacteraceae**  
AY600300, Loktanella hongkongensis, Rhodobacteraceae  
AM983542, Loktanella pyoseonensis, Rhodobacteraceae  
AY682198, Loktanella agnita, Rhodobacteraceae  
AJ582226, Loktanella vestfoldensis, Rhodobacteraceae  
**EU221274, Seohaecicola saemankumensis, type sp., Rhodobacteraceae**  
**GQ232737, Litorimicrobium taeanense, type sp., Rhodobacteraceae**  
FJ232451, Leisingera nanhaiensis, Rhodobacteraceae  
DQ514304, Phaeobacter arcticus, Rhodobacteraceae  
AY177712, Phaeobacter inhibens, Rhodobacteraceae  
**Y13244, Phaeobacter gallaeciensis, type sp., Rhodobacteraceae**  
**D88526, Ruegeria atlantica, type sp., Rhodobacteraceae**  
**U77644, Silicibacter lacuscaerulensis, type sp., Rhodobacteraceae**  
AF098491, Silicibacter pomeroyi, Rhodobacteraceae  
AB255401, Ruegeria mobilis, Rhodobacteraceae  
AM905330, Ruegeria scottomollicae, Rhodobacteraceae  
GU057915, Ruegeria faecimaris, Rhodobacteraceae  
HQ852038, Ruegeria halocynthiae, Rhodobacteraceae  
**FJ265707, Salinibacter flavidus, type sp., Rhodobacteraceae**  
**EU878003, Sediminimonas qiaohouensis, type sp., Rhodobacteraceae**  
**AY962292, Shimia marina, type sp., Rhodobacteraceae**  
FJ976449, Shimia isopora, Rhodobacteraceae  
**AM904562, Nautella italica, type sp., Rhodobacteraceae**  
AM900415, Leisingera aquimarinum, Rhodobacteraceae  
**AY005463, Leisingera methylohalidivorans, type sp., Rhodobacteraceae**  
AM943630, Phaeobacter caeruleus, Rhodobacteraceae  
DQ981486, Phaeobacter daeponensis, Rhodobacteraceae  
**X78315, Marinovum algicola, type sp., Rhodobacteraceae**  
AY442178, Thalassobius aestuarii, Rhodobacteraceae  
**AJ878874, Thalassobius mediterraneus, type sp., Rhodobacteraceae**  
D88523, Thalassobius gelatinovorans, Rhodobacteraceae  
**DQ397336, Thalassococcus halodurans, type sp., Rhodobacteraceae**  
EU928765, Citreicella marina, Rhodobacteraceae  
**AY639887, Citreicella thiooxidans, type sp., Rhodobacteraceae**  
FJ230833, Citreicella aestuarii, Rhodobacteraceae  
**AY926462, Palleronia marisminoris, type sp., Rhodobacteraceae**  
**AY527274, Salipiger mucosus, type sp., Rhodobacteraceae**  
**DQ178660, Pelagibaca bermudensis, type sp., Rhodobacteraceae**  
**AB550558, Primorskyibacter sedentarius, type sp., Rhodobacteraceae**  
**EU512919, Marivita cryptomonadis, type sp., Rhodobacteraceae**  
JF260872, Marivita hallyeonensis, Rhodobacteraceae  
EU512918, Marivita litorea, Rhodobacteraceae  
**FJ467624, Marivita byunsanensis, type sp., Rhodobacteraceae**  
AY424898, Oceanicola batsensis, Rhodobacteraceae  
DQ414420, Oceanicola nanhaiensis, Rhodobacteraceae  
EU581832, Oceanicola nitratireducens, Rhodobacteraceae  
DQ822569, Oceanicola marinus, Rhodobacteraceae  
**AJ505788, Pontibaca methylaminivorans, type sp., Rhodobacteraceae**  
**DQ667965, Donghicola eburneus, type sp., Rhodobacteraceae**  
**AB302379, Tropicimonas isoalkanivorans, type sp., Rhodobacteraceae**  
HQ340608, Tropicimonas aquimaris, Rhodobacteraceae  
**EU336981, Lutimaribacter saemankumensis, type sp., Rhodobacteraceae**  
DQ659449, Oceanicola pacificus, Rhodobacteraceae  
FJ872535, Ruegeria marina, Rhodobacteraceae  
**AY962295, Citreimonas salinaria, type sp., Rhodobacteraceae**  
DQ120728, Donghicola xiamenensis, Rhodobacteraceae  
EU431217, Roseovarius halotolerans, Rhodobacteraceae  
DQ120726, Roseovarius pacificus, Rhodobacteraceae  
EU742628, Roseovarius indicus, Rhodobacteraceae  
**D85829, Roseivivax halodurans, type sp., Rhodobacteraceae**  
D85831, Roseivivax halotolerans, Rhodobacteraceae  
FJ593905, Roseivivax isopora, Rhodobacteraceae  
HQ615878, Roseivivax sediminis, Rhodobacteraceae  
FJ875966, Roseivivax lentus, Rhodobacteraceae  
**AJ877265, Yangia pacifica, type sp., Rhodobacteraceae**  
**AB576005, Poseidonocella pacifica, type sp., Rhodobacteraceae**  
AF136850, Ketogulonigenium robustum, Rhodobacteraceae  
**AF136849, Ketogulonigenium vulgare, type sp., Rhodobacteraceae**  
AY424896, Oceanicola granulatus, type sp., Rhodobacteraceae  
**AJ605747, Roseisalinus antarcticus, type sp., Rhodobacteraceae**



AJ227804, *Maricaulis washingtonensis*, Hyphomonadaceae

AJ227808, *Maricaulis parjimensis*, Hyphomonadaceae

AJ301667, *Maricaulis virginensis*, Hyphomonadaceae

AJ309862, *Oceanicaulis alexandrii*, type sp., Hyphomonadaceae

AJ578476, *Woodsholea maritima*, type sp., Hyphomonadaceae

*Parvularculales* (2)

AF544015, *Parvularcula bermudensis*, type sp., Parvularculaceae

EU346850, *Parvularcula lutaonensis*, Parvularculaceae

AB617575, *Rhodoglotrophos appendicifer*, type sp., Rhodobiaceae

*Sphingomonadales* (160)

*Sphingomonadaceae* (134)

EU707560, *Sphingomonas oryzae*, Sphingomonadaceae

EU564841, *Sphingomicrobium lutaense*, type sp., Sphingomonadaceae

AB264131, *Sphingomonas jaspis*, Sphingomonadaceae

AB277583, *Sphingomonas astaxanthinifaciens*, Sphingomonadaceae

AY769083, *Sphingomonas kaistensis*, Sphingomonadaceae

Y10678, *Sandaracinobacter sibiricus*, type sp., Sphingomonadaceae

AY902680, *Sandarakinorhabdus limnophila*, type sp., Sphingomonadaceae

EU682685, *Sphingomonas changbaiensis*, Sphingomonadaceae

HQ224549, *Sphingomonas jejuensis*, Sphingomonadaceae

AB018439, *Sphingomonas oligophenolica*, Sphingomonadaceae

AB021370, *Sphingomonas echinoides*, Sphingomonadaceae

GQ253122, *Sphingomonas glacialis*, Sphingomonadaceae

GQ161989, *Sphingomonas alpina*, Sphingomonadaceae

AJ575817, *Sphingomonas abaci*, Sphingomonadaceae

EU707561, *Sphingomonas jinjuensis*, Sphingomonadaceae

AJ227812, *Sphingomonas leidyi*, Caulobacteraceae

AF131295, *Sphingomonas aquatilis*, Sphingomonadaceae

AB055863, *Sphingomonas melonis*, Sphingomonadaceae

AJ429236, *Sphingomonas aurantiaca*, Sphingomonadaceae

AJ429239, *Sphingomonas faeni*, Sphingomonadaceae

AJ429240, *Sphingomonas aerolata*, Sphingomonadaceae

FJ834325, *Sphingomonas rubra*, Sphingomonadaceae

EF363714, *Sphingomonas insulae*, Sphingomonadaceae

Y09637, *Sphingomonas pruni*, Sphingomonadaceae

Y09638, *Sphingomonas mali*, Sphingomonadaceae

EF660755, *Sphingomonas aestuarii*, Sphingomonadaceae

AB166883, *Sphingomonas soli*, Sphingomonadaceae

Y09639, *Sphingomonas asaccharolytica*, Sphingomonadaceae

DQ178975, *Sphingomonas dokdonensis*, Sphingomonadaceae

AM229669, *Sphingomonas mucosissima*, Sphingomonadaceae

AF131296, *Sphingomonas koreensis*, Sphingomonadaceae

AB033947, *Sphingomonas azotifigens*, Sphingomonadaceae

X97776, *Sphingomonas trueperi*, Sphingomonadaceae

AJ243751, *Sphingomonas pituitosa*, Sphingomonadaceae

AB428568, *Sphingomonas japonica*, Sphingomonadaceae

FJ754464, *Sphingomonas xinjiangensis*, Sphingomonadaceae

AY453855, *Sphingomonas phyllosphaerae*, Sphingomonadaceae

HM629444, *Sphingomonas endophytica*, Sphingomonadaceae

AY894691, *Sphingomonas yunnanensis*, Sphingomonadaceae

HM204925, *Sphingomonas ginsenosidimutans*, Sphingomonadaceae

EF467848, *Sphingomonas polyaromaticivorans*, Sphingomonadaceae

U37337, *Sphingomonas paucimobilis*, type sp., Sphingomonadaceae

D84529, *Sphingomonas sanguinis*, Sphingomonadaceae

AM412238, *Sphingomonas pseudosanguinis*, Sphingomonadaceae

D84520, *Sphingomonas roseiflava*, Sphingomonadaceae

AB071955, *Sphingomonas yabuuchiae*, Sphingomonadaceae

D13724, *Sphingomonas parapaucimobilis*, Sphingomonadaceae

AJ871435, *Sphingomonas desiccabilis*, Sphingomonadaceae

AB248285, *Sphingomonas molluscorum*, Sphingomonadaceae

AJ575818, *Sphingomonas panni*, Sphingomonadaceae

FJ194436, *Sphingomonas hankookensis*, Sphingomonadaceae

DQ789172, *Sphingomonas sanxanigenens*, Sphingomonadaceae

AJ009706, *Sphingomonas fennica*, Sphingomonadaceae

HM193517, *Sphingomonas formosensis*, Sphingomonadaceae

EF530202, *Sphingomonas histidinilytica*, Sphingomonadaceae

AB021492, *Sphingomonas wittichii*, Sphingomonadaceae

X94101, *Sphingomonas haloaromaticamans*, Sphingomonadaceae

AF281032, *Zymomonas mobilis* subsp. *pomaceae*, Sphingomonadaceae

AF281031, *Zymomonas mobilis* subsp. *mobilis*, type sp., Sphingomonadaceae

EU581829, *Stakelama pacifica*, type sp., Sphingomonadaceae

AB084247, *Sphingosinella microcystinivorans*, type sp., Sphingomonadaceae

AY950663, *Sphingosinella xenopeptidilytica*, Sphingomonadaceae

DQ087403, *Sphingosinella soli*, Sphingomonadaceae

FJ442859, *Sphingosinella vermicomposti*, Sphingomonadaceae

EF465534, *Sphingobium rhizovicinum*, Sphingomonadaceae

EF534725, *Sphingobium lucknowense*, Sphingomonadaceae

AY519129, *Sphingobium indicum*, Sphingomonadaceae

EF190507, *Sphingobium chinhatense*, Sphingomonadaceae

AY519130, *Sphingobium francense*, Sphingomonadaceae

AF039168, *Sphingobium japonicum*, Sphingomonadaceae

AF159257, *Sphingobium chungbukense*, Sphingomonadaceae

X87161, *Sphingomonas chlorophenolica*, Sphingomonadaceae

AM998824, *Sphingobium vermicomposti*, Sphingomonadaceae

DQ092757, *Sphingobium fuliginis*, Sphingomonadaceae

AB022428, *Sphingomonas herbicidovorans*, Sphingomonadaceae

EU781657, *Sphingobium quisquiliarum*, Sphingomonadaceae

AB047364, *Sphingobium amiense*, Sphingomonadaceae

EU009209, *Sphingobium scionense*, Sphingomonadaceae

D13728, *Sphingomonas yanoikuyae*, Sphingomonadaceae

AB040739, *Sphingobium cloacae*, Sphingomonadaceae

EF207155, *Sphingobium ummariense*, Sphingomonadaceae

FJ373058, *Sphingobium faniae*, Sphingomonadaceae

FJ686047, *Sphingobium wenxiniae*, Sphingomonadaceae

AB021416, *Sphingobium abikonense*, Sphingomonadaceae

EU675846, *Sphingobium lactosutens*, Sphingomonadaceae

AM489507, *Sphingobium olei*, Sphingomonadaceae

AM181012, *Sphingobium aromaticiconvertens*, Sphingomonadaceae

X94098, *Sphingobium xenophagum*, Sphingomonadaceae

EU095328, *Sphingobium qiguonii*, Sphingomonadaceae

HM748834, *Sphingobium jiangsuense*, Sphingomonadaceae

FJ177535, *Sphingobium vulgare*, Sphingomonadaceae

D13737, *Sphingomonas suberifaciens*, Sphingomonadaceae

AB024288, *Blastomonas natarioria*, type sp., Sphingomonadaceae

AB024289, *Sphingomonas ursincola*, Sphingomonadaceae

AJ303009, *Novosphingobium lentum*, Sphingomonadaceae

AB070237, *Novosphingobium tardaugens*, Sphingomonadaceae

AJ416411, *Novosphingobium hassiacum*, Sphingomonadaceae

DQ448852, *Novosphingobium nitrogenifigens*, Sphingomonadaceae

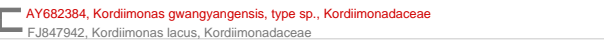
AB025043, *Sphingomonas*, Sphingomonadaceae



**Erythrobacteraceae (24)**

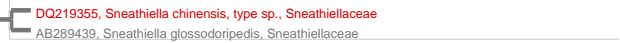


**Kordiimonadales (2)**



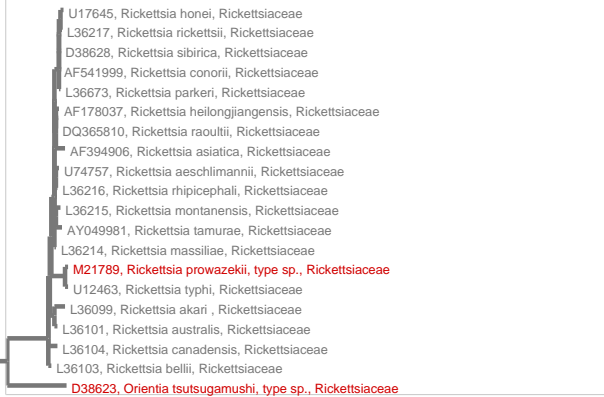
**D14431, Rhodothalassium salexigens, type sp., Rhodobacteraceae**

**Sneathiellales (2)**

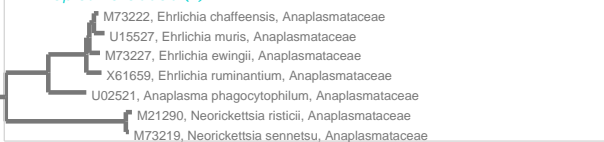


**Rickettsiales (27)**

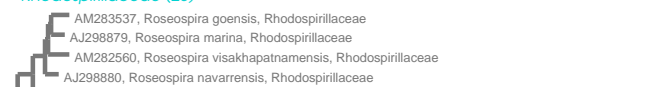
**Rickettsiaceae (20)**



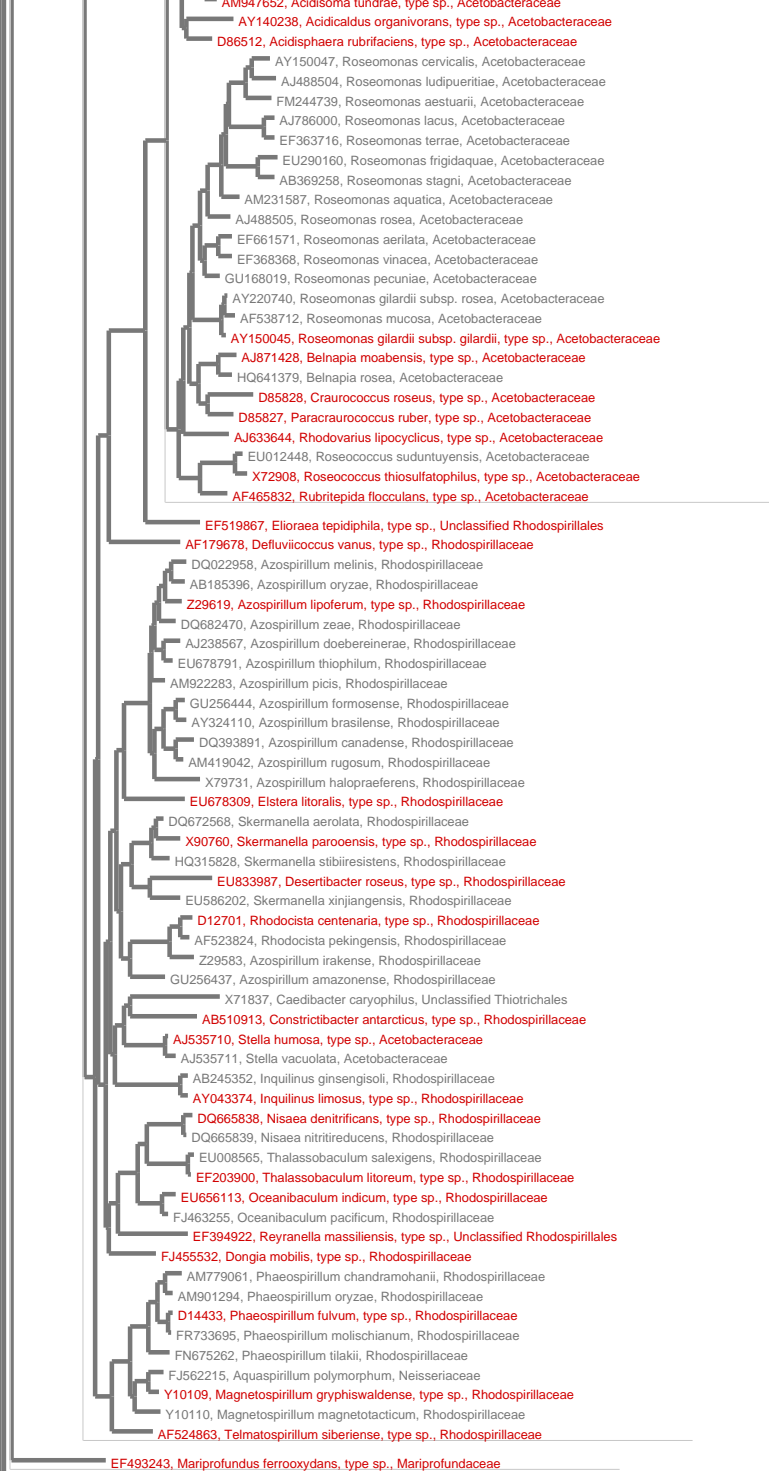
**Anaplasmataceae (7)**



**Rhodospirillaceae (23)**

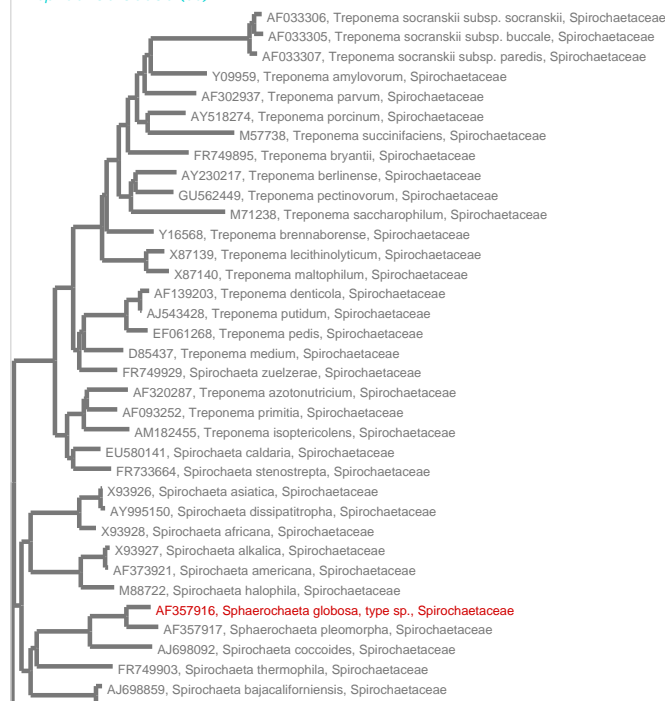


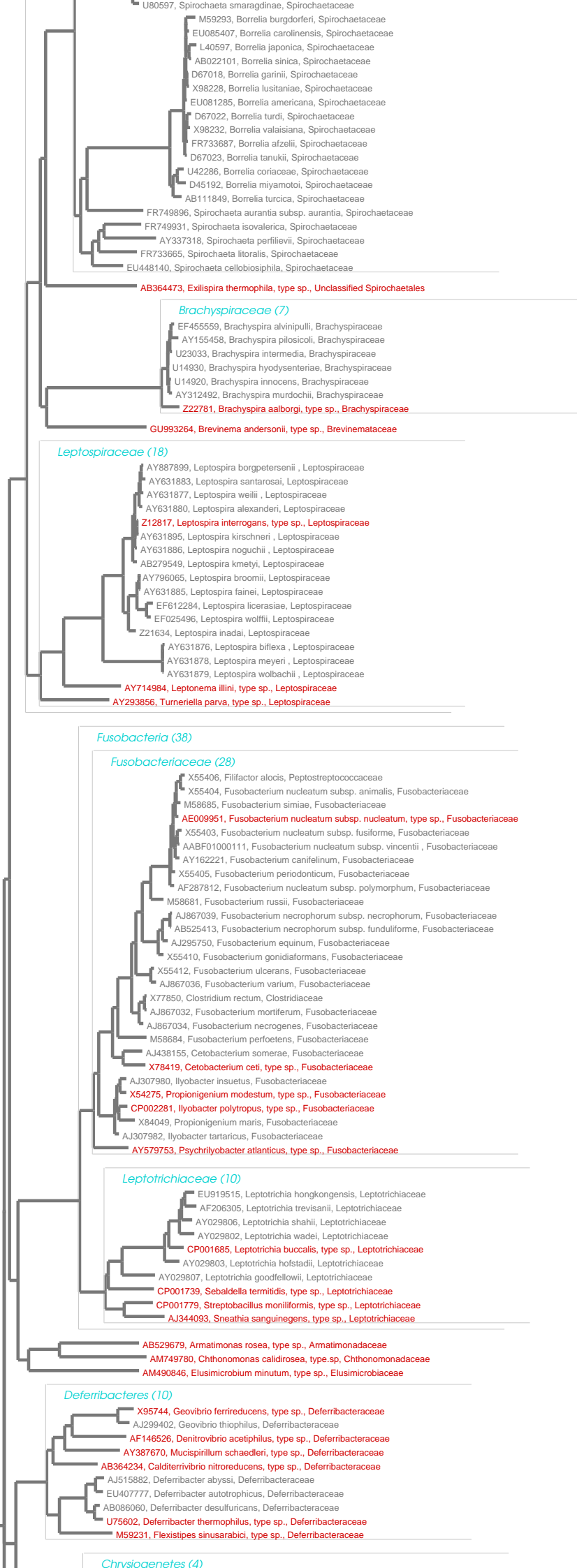




*Spirochaetes* (82)

*Spirochaetaceae* (55)







- DQ991965, *Desulfurispirillum* indicum, Chrysiogenaceae
- DQ666683, *Desulfurispirillum* alkaliphilum, type sp., Chrysiogenaceae
- GQ922842, *Desulfurispirilla* natronophila, type sp., Chrysiogenaceae
- X81319, *Chrysiogenes* arsenatis, type sp., Chrysiogenaceae

### Acidobacteria (17)

- AM887756, *Granulicella* aggregans, Acidobacteriaceae
- AM887759, *Granulicella* rosea, Acidobacteriaceae
- AM887757, *Granulicella* pectinovorans, Acidobacteriaceae
- AM887758, *Granulicella* paludicola, type sp., Acidobacteriaceae
- DQ660892, *Terriglobus* roseus, type sp., Acidobacteriaceae
- HM214537, *Terriglobus* saanensis, Acidobacteriaceae
- DQ528761, *Edaphobacter* aggregans, Acidobacteriaceae
- DQ528760, *Edaphobacter* modestus, type sp., Acidobacteriaceae
- FR666706, *Bryocella* elongata, type sp., Acidobacteriaceae
- FR774763, *Acidicapsa* borealis, type sp., Acidobacteriaceae
- EU780204, *Acidicapsa* ligni, Acidobacteriaceae
- AM887760, *Telmatobacter* bradus, type sp., Acidobacteriaceae
- CP001472, *Acidobacterium* capsulatum, type sp., Acidobacteriaceae
- AM162405, *Bryobacter* aggregatus, type sp., Unclassified Acidobacteria
- U41563, *Geothrix* fermentans, type sp., Holophagaceae
- X77215, *Holophaga* foetida, type sp., Holophagaceae
- AB303221, *Acanthopleuribacter* pedis, type sp., Acanthopleuribacteraceae

### Epsilonproteobacteria (97)

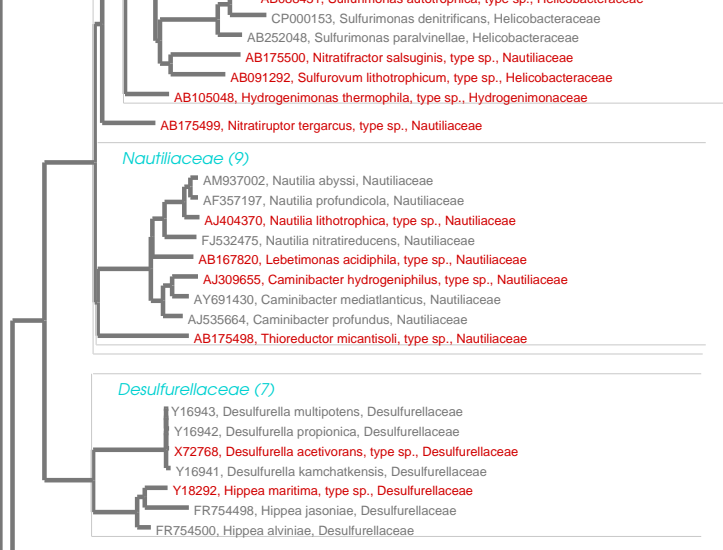
#### Campylobacterales (87)

##### Campylobacteraceae (48)

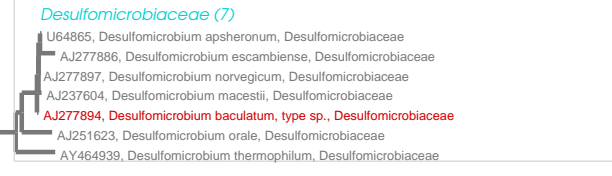
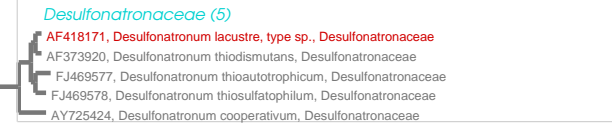
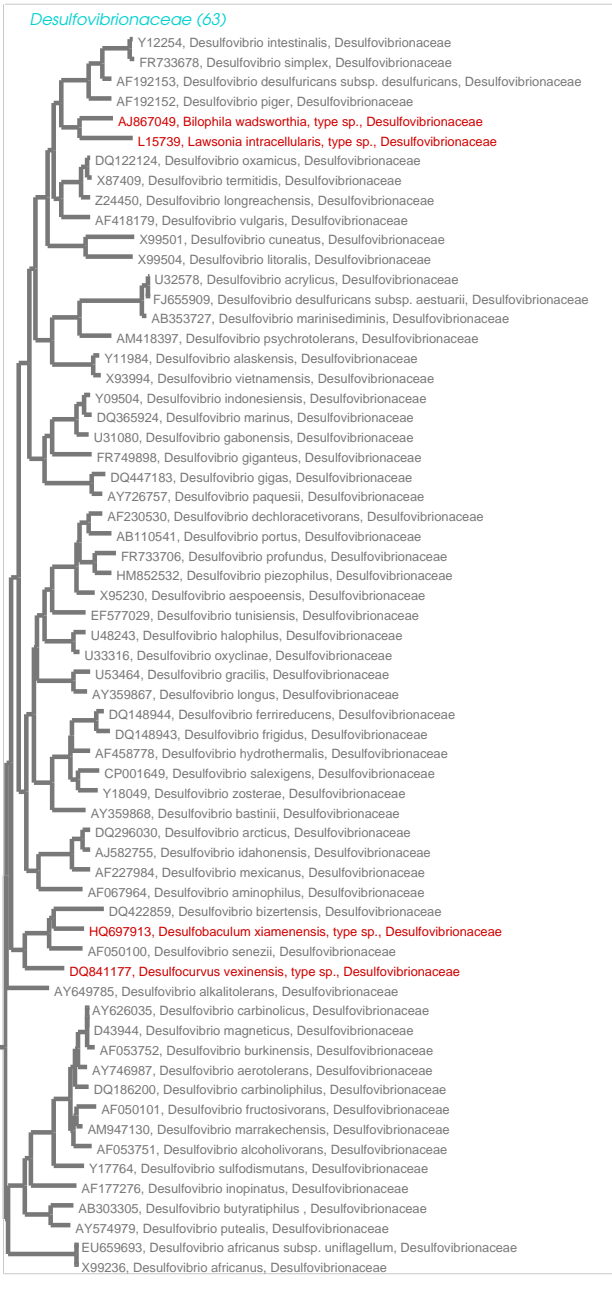
- U03022, *Campylobacter* helveticus, Campylobacteraceae
- DQ174157, *Campylobacter* upsaliensis, Campylobacteraceae
- EU623473, *Campylobacter* avium, Campylobacteraceae
- DQ400345, *Campylobacter* cuniculorum, Campylobacteraceae
- EF621894, *Campylobacter* canadensis, Campylobacteraceae
- AM922331, *Campylobacter* peloridis, Campylobacteraceae
- AY622114, *Campylobacter* lari subsp. lari, Campylobacteraceae
- FM883694, *Campylobacter* volucris, Campylobacteraceae
- AM933371, *Campylobacter* subantarcticus, Campylobacteraceae
- AM922330, *Campylobacter* lari subsp. concheus, Campylobacteraceae
- DQ174183, *Campylobacter* insulaenigrae, Campylobacteraceae
- DQ174144, *Campylobacter* jejuni subsp. doylei, Campylobacteraceae
- AF372091, *Campylobacter* jejuni subsp. jejuni, Campylobacteraceae
- AF372092, *Campylobacter* coli, Campylobacteraceae
- AF097685, *Campylobacter* hyointestinalis subsp. lawsonii, Campylobacteraceae
- AF043425, *Campylobacter* lanienae, Campylobacteraceae
- AF097689, *Campylobacter* hyointestinalis subsp. hyointestinalis, Campylobacteraceae
- DQ174131, *Campylobacter* fetus subsp. venerealis, Campylobacteraceae
- DQ174127, *Campylobacter* fetus subsp. fetus, type sp., Campylobacteraceae
- DQ174173, *Campylobacter* mucosalis, Campylobacteraceae
- L04321, *Campylobacter* ureolyticus, Campylobacteraceae
- AJ251584, *Campylobacter* hominis, Campylobacteraceae
- DQ174168, *Campylobacter* gracilis, Campylobacteraceae
- X67775, *Campylobacter* sputorum subsp. sputorum, Campylobacteraceae
- DQ174151, *Campylobacter* sputorum subsp. bubulus, Campylobacteraceae
- DQ174169, *Campylobacter* rectus, Campylobacteraceae
- DQ174155, *Campylobacter* showae, Campylobacteraceae
- DQ174165, *Campylobacter* curvus, Campylobacteraceae
- DQ174166, *Campylobacter* concisus, Campylobacteraceae
- U85964, *Sulfurospirillum* arsenophilum, Campylobacteraceae
- AF218076, *Sulfurospirillum* halorespirans, Campylobacteraceae
- X82931, *Sulfurospirillum* multivorans, Campylobacteraceae
- AF038843, *Sulfurospirillum* barnesii, Campylobacteraceae
- Y13671, *Sulfurospirillum* deleyianum, type sp., Campylobacteraceae
- AB246781, *Sulfurospirillum* cavolei, Campylobacteraceae
- Y11561, *Sulfurospirillum* arcachonense, Campylobacteraceae
- AY314753, *Arcobacter* thereius, Campylobacteraceae
- FN650333, *Arcobacter* trophiarum, Campylobacteraceae
- L14625, *Arcobacter* skirrowii, Campylobacteraceae
- L14624, *Arcobacter* cryaerophilus, Campylobacteraceae
- AJ607391, *Arcobacter* cibarius, Campylobacteraceae
- AY621116, *Arcobacter* butzleri, Campylobacteraceae
- HQ115595, *Arcobacter* defluvi, Campylobacteraceae
- L14627, *Arcobacter* nitrofigilis, type sp., Campylobacteraceae
- EU512920, *Arcobacter* marinus, Campylobacteraceae
- FR675874, *Arcobacter* molluscorum, Campylobacteraceae
- AF513455, *Arcobacter* halophilus, Campylobacteraceae
- EU669904, *Arcobacter* mytili, Campylobacteraceae

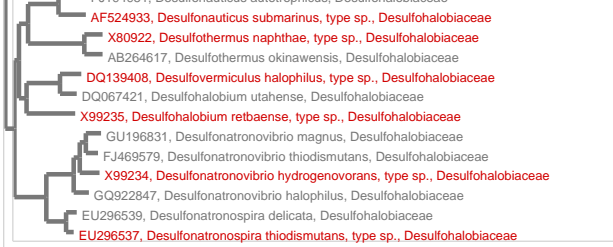
##### Helicobacteraceae (33)

- Y09404, *Helicobacter* bizzozeronii, Helicobacteraceae
- DQ004689, *Helicobacter* cynogastricus, Helicobacteraceae
- U89351, *Helicobacter* salomonis, Helicobacteraceae
- M57398, *Helicobacter* felis, Helicobacteraceae
- EF070342, *Helicobacter* baculiformis, Helicobacteraceae
- HM625820, *Helicobacter* heilmannii, Helicobacteraceae
- EF204589, *Helicobacter* suis, Helicobacteraceae
- M88148, *Helicobacter* acinonychis, Helicobacteraceae
- U01330, *Helicobacter* pylori, type sp., Helicobacteraceae
- AF292378, *Helicobacter* cetorum, Helicobacteraceae
- DQ415545, *Helicobacter* anseris, Helicobacteraceae
- M35048, *Helicobacter* mustelae, Helicobacteraceae
- DQ415546, *Helicobacter* brantiae, Helicobacteraceae
- AY686606, *Helicobacter* cholecystus, Helicobacteraceae
- M88147, *Helicobacter* pametensis, Helicobacteraceae
- M88154, *Helicobacter* fennelliae, Helicobacteraceae
- U65103, *Helicobacter* trogonum, Helicobacteraceae
- AF333341, *Helicobacter* marmotae, Helicobacteraceae
- AY742307, *Helicobacter* mastomyrinus, Helicobacteraceae
- AF297868, *Helicobacter* aurati, Helicobacteraceae
- M80205, *Helicobacter* muridarum, Helicobacteraceae
- AF127912, *Helicobacter* typhlonius, Helicobacteraceae
- U07574, *Helicobacter* hepaticus, Helicobacteraceae
- DQ307735, *Helicobacter* equorum, Helicobacteraceae
- AY631956, *Helicobacter* pullorum, Helicobacteraceae
- AF262037, *Helicobacter* canadensis, Helicobacteraceae
- U18766, *Helicobacter* bilis, Helicobacteraceae
- M88150, *Helicobacter* cinaedi, Helicobacteraceae
- AY631945, *Helicobacter* canis, Helicobacteraceae
- AF000221, *Helicobacter* ganmani, Helicobacteraceae
- AF072471, *Helicobacter* mesocricetorum, Helicobacteraceae
- U96296, *Helicobacter* rodentium, Helicobacteraceae
- M88159, *Wolinella* succinogenes, type sp., Helicobacteraceae
- AP088431, *Sulfurimonas* autotrophica, type sp., Helicobacteraceae



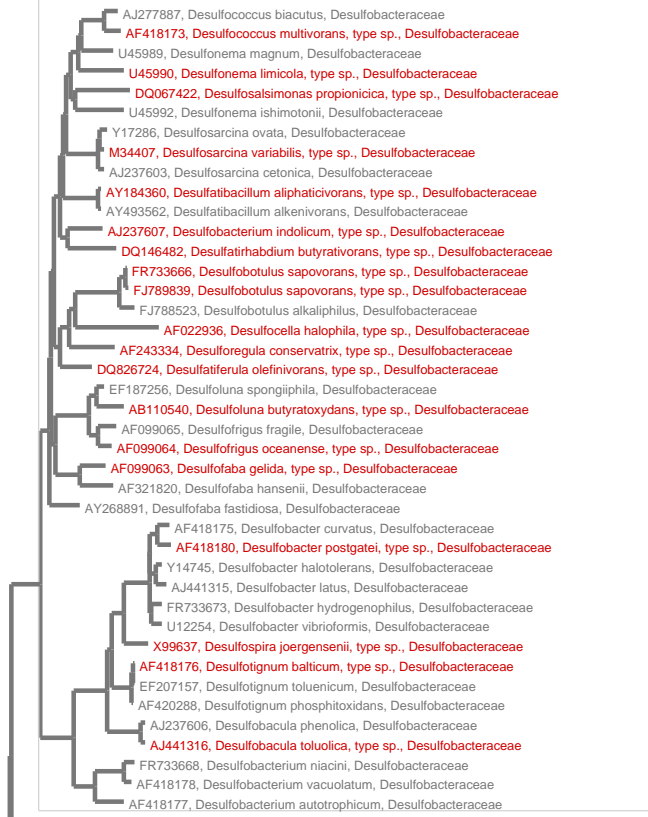
**Desulfovibrionales (88)**



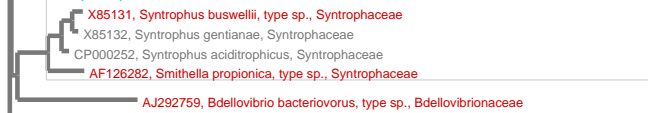


### Deltaproteobacteria (152)

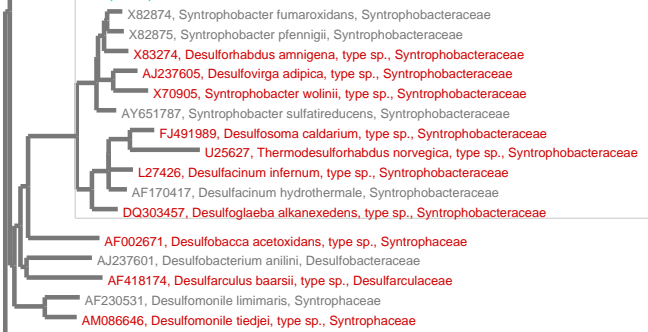
#### Desulfobacteraceae (41)



#### Syntrophaceae (4)



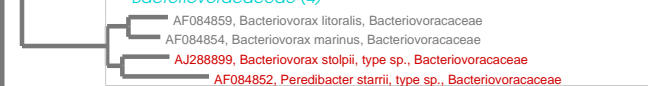
#### Syntrophobacteraceae (11)



#### Desulfobulbaceae (16)

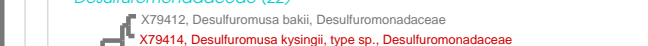


#### Bacteriovoracaceae (4)



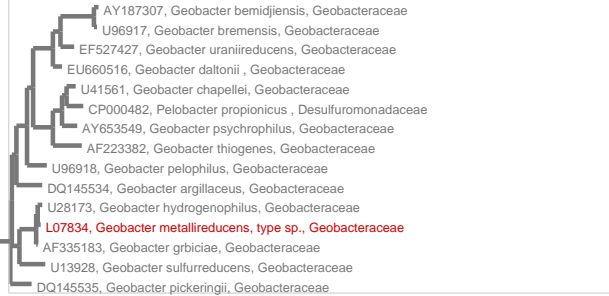
### Desulfuromonadales (37)

#### Desulfuromonadaceae (22)



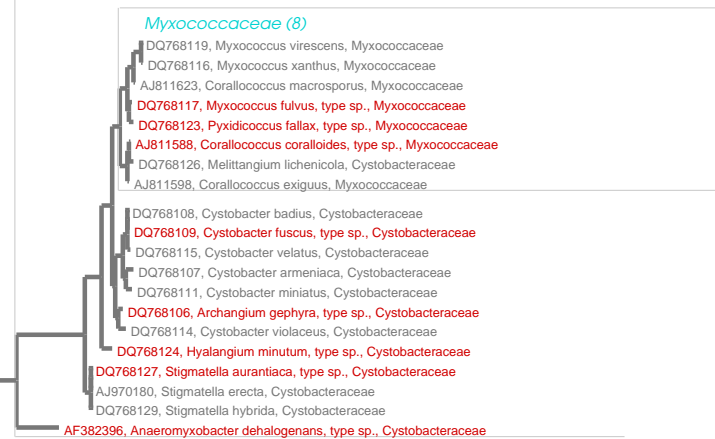


### Geobacteraceae (15)

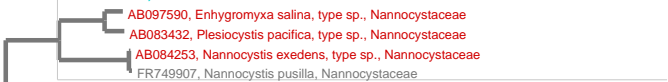


### Myxococcales (33)

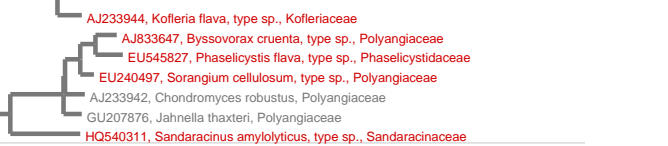
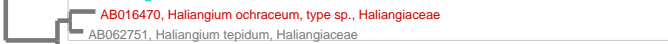
#### Cystobacteraceae and Myxococcaceae (20)



#### Nannocystaceae (4)



#### Haliangiaceae (2)



#### AB212873, Syntrophorhabdus aromativorans, type sp., Syntrophorhabdaceae

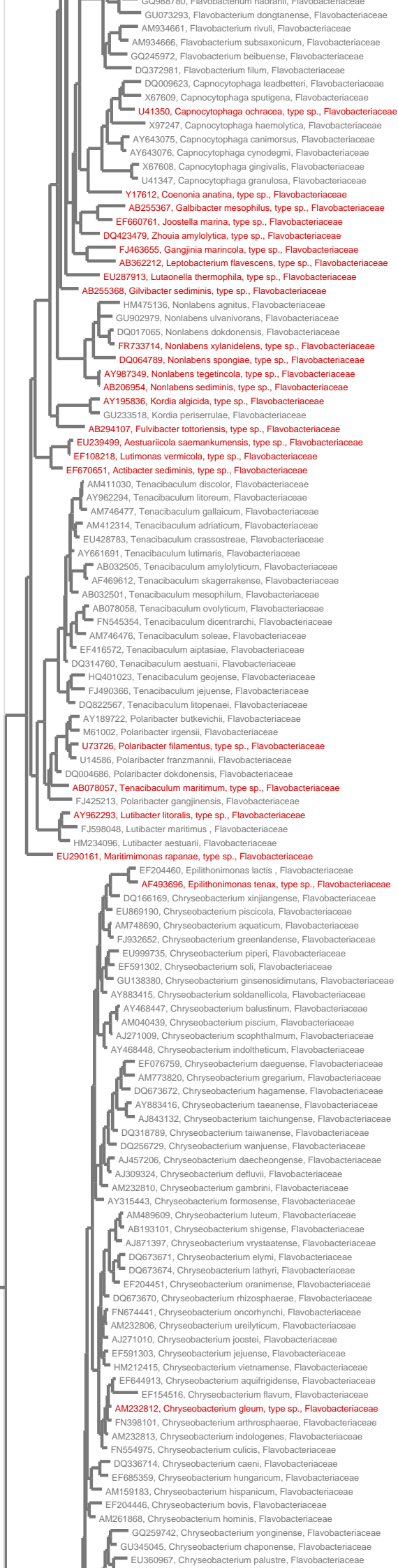
### Bacteroidetes (835)

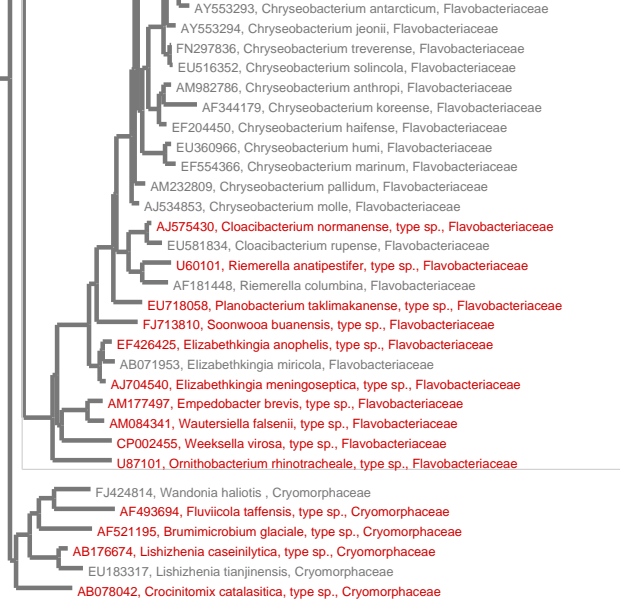
#### Flavobacteriaceae (391)



EU021217, *Bizionia argentinensis*, Flavobacteriaceae  
AY694002, *Bizionia myxarumor*, Flavobacteriaceae  
AY694003, *Bizionia algorithergicola*, Flavobacteriaceae  
AY693998, *Subsaximicrobium saxinquilinus*, Flavobacteriaceae  
**AY693997, *Subsaximicrobium wynwilliamsii*, type sp., Flavobacteriaceae**  
FJ716799, *Bizionia echini*, Flavobacteriaceae  
AY694004, *Bizionia gelidalsuginis*, Flavobacteriaceae  
AY694005, *Bizionia saleffrena*, Flavobacteriaceae  
**AY651070, *Bizionia parargorgiae*, type sp., Flavobacteriaceae**  
AY187688, *Formosa agariphila*, Flavobacteriaceae  
**AY228461, *Formosa algae*, type sp., Flavobacteriaceae**  
FJ348469, *Formosa spongicola*, Flavobacteriaceae  
**HQ257254, *Corallibacter vietnamensis*, type sp., Flavobacteriaceae**  
**FJ360684, *Meridianimaribacter flavus*, type sp., Flavobacteriaceae**  
U64013, *Winogradskyella rapida*, Flavobacteriaceae  
AB438962, *Winogradskyella arenosi*, Flavobacteriaceae  
GQ181061, *Winogradskyella pacifica*, Flavobacteriaceae  
**AY521223, *Winogradskyella thalassocola*, type sp., Flavobacteriaceae**  
AY521224, *Winogradskyella epiphytica*, Flavobacteriaceae  
AY521225, *Winogradskyella eximia*, Flavobacteriaceae  
FJ919968, *Winogradskyella lutea*, Flavobacteriaceae  
EU727254, *Winogradskyella echinorum*, Flavobacteriaceae  
HQ456127, *Winogradskyella ulvae*, Flavobacteriaceae  
AY848823, *Winogradskyella poriferorum*, Flavobacteriaceae  
HM368527, *Winogradskyella aquimaris*, Flavobacteriaceae  
FJ595484, *Winogradskyella exilis*, Flavobacteriaceae  
**U62914, *Gelidibacter algens*, type sp., Flavobacteriaceae**  
AF001369, *Gelidibacter gilvus*, Flavobacteriaceae  
AJ344133, *Gelidibacter mesophilus*, Flavobacteriaceae  
AY694009, *Gelidibacter salicanalis*, Flavobacteriaceae  
**AY693999, *Subsaxibacter broadyi*, type sp., Flavobacteriaceae**  
**AB255369, *Sediminibacter furfurosus*, type sp., Flavobacteriaceae**  
AJ278780, *Leeuwenhoekella aequorea*, Flavobacteriaceae  
**AF203475, *Leeuwenhoekella marinoflava*, type sp., Flavobacteriaceae**  
FJ405187, *Leeuwenhoekella palythoae*, Flavobacteriaceae  
DQ294291, *Leeuwenhoekella blandensis*, Flavobacteriaceae  
**CP002046, *Croceibacter atlanticus*, type sp., Flavobacteriaceae**  
AY445073, *Muricauda flavescens*, Flavobacteriaceae  
**AF218782, *Muricauda ruestringensis*, type sp., Flavobacteriaceae**  
EU156065, *Muricauda lutimaris*, Flavobacteriaceae  
AY445075, *Muricauda aquimarina*, Flavobacteriaceae  
EU888117, *Muricauda olearia*, Flavobacteriaceae  
EU564844, *Muricauda lutaonensis*, Flavobacteriaceae  
HM355805, *Muricauda beolgyonensis*, Flavobacteriaceae  
DQ191182, *Croceitalea dokdonensis*, Flavobacteriaceae  
**DQ191183, *Croceitalea eckloniae*, type sp., Flavobacteriaceae**  
**FJ348473, *Spongiibacterium flavum*, type sp., Flavobacteriaceae**  
**DQ191180, *Flagellimonas eckloniae*, type sp., Flavobacteriaceae**  
**DQ167246, *Costertonia aggregata*, type sp., Flavobacteriaceae**  
AB121974, *Zobellia amurskyensis*, Flavobacteriaceae  
AB121975, *Zobellia laminariae*, Flavobacteriaceae  
AB121976, *Zobellia russellii*, Flavobacteriaceae  
M62799, *Zobellia uliginosa*, Flavobacteriaceae  
**AF208293, *Zobellia galactanivorans*, type sp., Flavobacteriaceae**  
**AB084262, *Kriegella aquimaris*, type sp., Flavobacteriaceae**  
**FN554868, *Euzebyella saccharophila*, type sp., Flavobacteriaceae**  
**AB084261, *Pseudozobellia thermophila*, type sp., Flavobacteriaceae**  
**EU443206, *Muricola jejuensis*, type sp., Flavobacteriaceae**  
**AB264057, *Zeaxanthinibacter enoshimensis*, type sp., Flavobacteriaceae**  
**AM745437, *Eudoraea adriatica*, type sp., Flavobacteriaceae**  
**CP001712, *Robiginitalea biformata*, type sp., Flavobacteriaceae**  
AB270585, *Robiginitalea myxolifaciens*, Flavobacteriaceae  
AY960749, *Maribacter dokdonensis*, Flavobacteriaceae  
**AY271623, *Maribacter sedimenticola*, type sp., Flavobacteriaceae**  
EU246691, *Maribacter stanieri*, Flavobacteriaceae  
AM712900, *Maribacter forsetii*, Flavobacteriaceae  
AY271626, *Maribacter ulvicola*, Flavobacteriaceae  
AY271624, *Maribacter orientalis*, Flavobacteriaceae  
AY271625, *Maribacter aquivivus*, Flavobacteriaceae  
**AY576654, *Pibocella ponti*, type sp., Flavobacteriaceae**  
EU512921, *Maribacter antarcticus*, Flavobacteriaceae  
AY771762, *Maribacter arcticus*, Flavobacteriaceae  
AM497875, *Maribacter polysiphoniae*, Flavobacteriaceae  
AJ575643, *Arenibacter palladensis*, Flavobacteriaceae  
AB080771, *Arenibacter troitsensis*, Flavobacteriaceae  
EF536748, *Arenibacter echinorum*, Flavobacteriaceae  
AY271622, *Arenibacter certesi*, Flavobacteriaceae  
**AF052742, *Arenibacter latericius*, type sp., Flavobacteriaceae**  
EU999955, *Arenibacter nanhaiticus*, Flavobacteriaceae  
AF001366, *Cellulophaga algicola*, Flavobacteriaceae  
AJ005972, *Cellulophaga baltica*, Flavobacteriaceae  
AB100840, *Cellulophaga pacifica*, Flavobacteriaceae  
EU443205, *Cellulophaga tyrosinoydans*, Flavobacteriaceae  
**AB206957, *Sediminicola luteus*, type sp., Flavobacteriaceae**  
**CP002534, *Cellulophaga lytica*, type sp., Flavobacteriaceae**  
HQ596527, *Cellulophaga geojensis*, Flavobacteriaceae  
AJ005973, *Cellulophaga fucicola*, Flavobacteriaceae  
AY027806, *Aequorivita crocea*, Flavobacteriaceae  
AY027805, *Aequorivita lipolytica*, Flavobacteriaceae  
**AY027802, *Aequorivita antarctica*, type sp., Flavobacteriaceae**  
EU290153, *Aequorivita capsosiphonis*, Flavobacteriaceae  
AF170749, *Aequorivita sublithicola*, Flavobacteriaceae  
EU642844, *Vitellibacter aestuarii*, Flavobacteriaceae  
**AB071382, *Vitellibacter vladivostkensis*, type sp., Flavobacteriaceae**  
**AB261012, *Marixanthomonas ophiuriae*, type sp., Flavobacteriaceae**  
EF554364, *Ulvibacter antarcticus*, Flavobacteriaceae  
**AY243096, *Ulvibacter litoralis*, type sp., Flavobacteriaceae**  
**AB602429, *Aureitalea marina*, type sp., Flavobacteriaceae**  
**AY608409, *Gramella echinicola*, type sp., Flavobacteriaceae**  
GQ857650, *Gramella gaetbulicola*, Flavobacteriaceae  
DQ002871, *Gramella portivictoriae*, Flavobacteriaceae  
AY753911, *Gramella marina*, Flavobacteriaceae  
**AF536383, *Mesonia algae*, type sp., Flavobacteriaceae**  
HM234095, *Mesonia ostreae*, Flavobacteriaceae  
DQ367409, *Mesonia mobilis*, Flavobacteriaceae  
FM882228, *Mesonia phycicola*, Flavobacteriaceae  
DQ191176, *Salegentibacter agarivorans*, Flavobacteriaceae  
AB116148, *Salegentibacter holothuriorum*, Flavobacteriaceae  
**M92279, *Salegentibacter salegens*, type sp., Flavobacteriaceae**  
EF486353, *Salegentibacter salarius*, Flavobacteriaceae  
AY576653, *Salegentibacter mishustinae*, Flavobacteriaceae  
EF612764, *Salegentibacter salinarum*, Flavobacteriaceae  
AY682200, *Salegentibacter flavus*, Flavobacteriaceae  
FR849911, *Psychroflexus qondwanensis*, Flavobacteriaceae



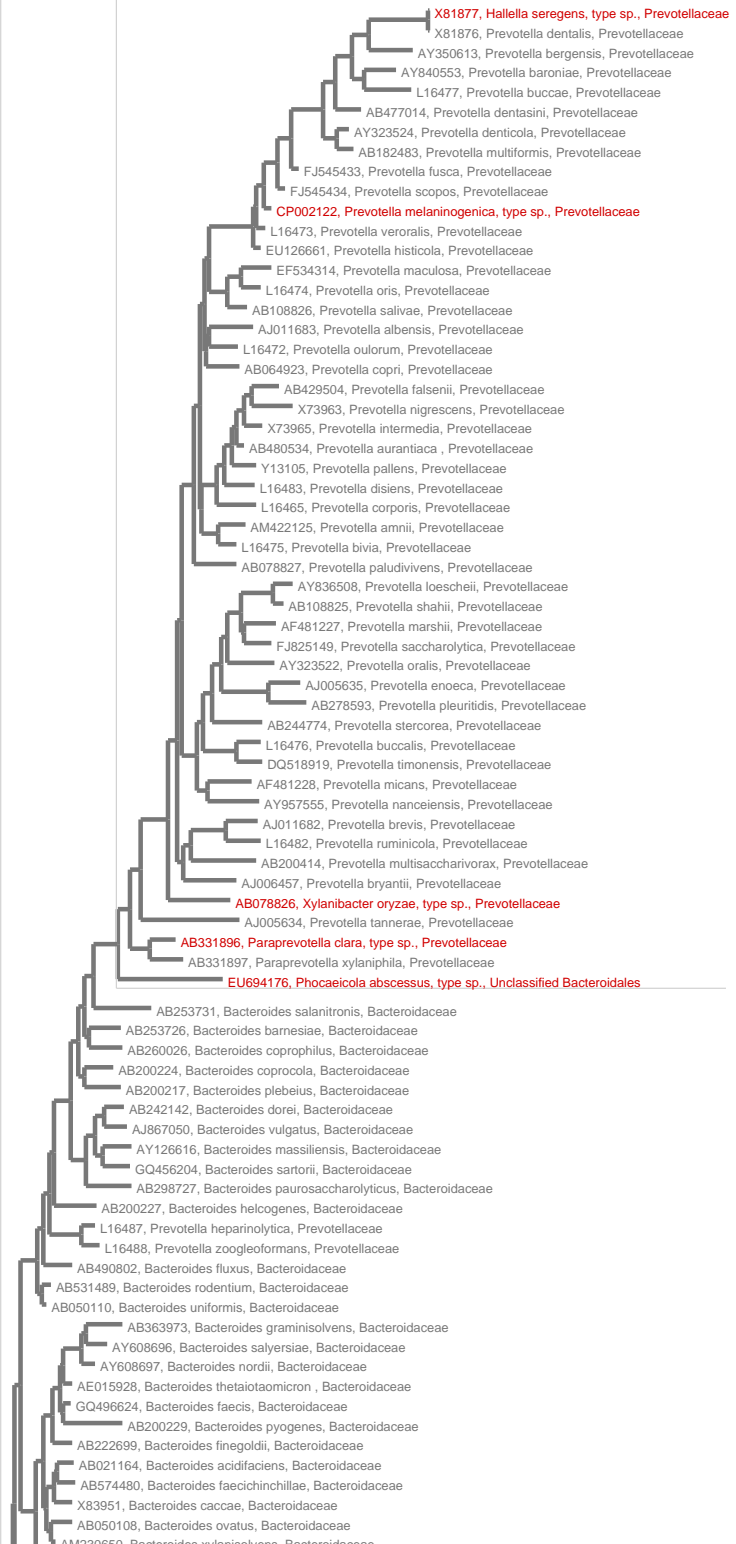




Bacteroidales (143)

Bacteroidaceae and Prevotellaceae (89)

Prevotellaceae (50)





- CR626927, *Bacteroides fragilis*, type sp., Bacteroidaceae
- AB490803, *Bacteroides oleiciplenus*, Bacteroidaceae
- AB574481, *Bacteroides stercorioris*, Bacteroidaceae
- AJ583243, *Bacteroides cellulosityticus*, Bacteroidaceae
- AB214328, *Bacteroides intestinalis*, Bacteroidaceae
- AB490801, *Bacteroides clarus*, Bacteroidaceae
- AB253732, *Bacteroides gallinarum*, Bacteroidaceae
- X83953, *Bacteroides stercoris*, Bacteroidaceae
- AB050107, *Bacteroides eggerthii*, Bacteroidaceae
- AF319778, *Bacteroides coprosus*, Bacteroidaceae
- AB264625, *Bacteroides propionificiens*, Bacteroidaceae

**Porphyromonadaceae (31)**

- L26102, *Porphyromonas circumdentaria*, Porphyromonadaceae
- GU233445, *Porphyromonas gingivicanis*, Porphyromonadaceae
- AY253728, *Porphyromonas endodontalis*, Porphyromonadaceae
- L16490, *Porphyromonas asaccharolytica*, type sp., Porphyromonadaceae
- AY570514, *Porphyromonas uenonis*, Porphyromonadaceae
- L16494, *Porphyromonas macacae*, Porphyromonadaceae
- L16493, *Porphyromonas levii*, Porphyromonadaceae
- AY968205, *Porphyromonas somerae*, Porphyromonadaceae
- EU414673, *Porphyromonas bennonis*, Porphyromonadaceae
- X76259, *Porphyromonas cangingivalis*, Porphyromonadaceae
- AB525416, *Porphyromonas canoris*, Porphyromonadaceae
- X76260, *Porphyromonas cansulci*, Porphyromonadaceae
- GU233446, *Porphyromonas crevioricanis*, Porphyromonadaceae
- AB035459, *Porphyromonas gingivalis*, Porphyromonadaceae
- AF208290, *Porphyromonas gulae*, Porphyromonadaceae
- X82823, *Porphyromonas catoriae*, Porphyromonadaceae
- AB035460, *Tannerella forsythia*, type sp., Porphyromonadaceae
- AB261128, *Parabacteroides johnsonii*, Porphyromonadaceae
- AB238928, *Parabacteroides merdae*, Porphyromonadaceae
- AB238922, *Parabacteroides distansoni*, type sp., Porphyromonadaceae
- AY974070, *Parabacteroides goldsteinii*, Porphyromonadaceae
- AB470343, *Parabacteroides gordonii*, Porphyromonadaceae
- Y18530, *Dysgonomonas gadei*, type sp., Porphyromonadaceae
- FN356023, *Dysgonomonas hofstadii*, Porphyromonadaceae
- AJ319867, *Dysgonomonas mossii*, Porphyromonadaceae
- AY570690, *Petrimonas sulfuriphila*, type sp., Porphyromonadaceae
- AY742226, *Proteiniphilum acetatigenes*, type sp., Porphyromonadaceae
- U41355, *Dysgonomonas capnocytophagoides*, Porphyromonadaceae
- AB078842, *Paludibacter propionicigenes*, type sp., Porphyromonadaceae
- AB370251, *Barnesiella intestinalis*, Porphyromonadaceae
- AB267809, *Barnesiella viscericola*, type sp., Porphyromonadaceae

- AB443948, *Butyricimonas synergistica*, type sp., Porphyromonadaceae
- AB443949, *Butyricimonas virosa*, Porphyromonadaceae
- AY560020, *Odoribacter denticanis*, Porphyromonadaceae
- AB490805, *Odoribacter laneus*, Porphyromonadaceae
- L16496, *Odoribacter splanchnicus*, type sp., Porphyromonadaceae
- HQ697914, *Mangroviiflexus xiamenensis*, type sp., Marinilabiliaceae
- AB362265, *Geofilum rubicundum*, type sp., Marinilabiliaceae
- GQ922844, *Natronoflexus pectinivorans*, type sp., Marinilabiliaceae
- FR733683, *Cytophaga xylanolytica*, Cytophagaceae
- AJ418048, *Anaerophaga thermohalophila*, type sp., Marinilabiliaceae
- AB517713, *Marinilabilia salmonicolor*, type sp., Marinilabiliaceae
- AJ784993, *Alkaliflexus imshenetskii*, type sp., Marinilabiliaceae
- GU269545, *Menicus glaucopsis*, type sp., Cytophagaceae
- AY918928, *Prolixibacter bellariivorans*, type sp., Unclassified Bacteroidetes
- GQ200190, *Sunxiuqinia elliptica*, type sp., Unclassified Bacteroidales
- FJ394546, *Marinifilum fragile*, type sp., Unclassified Bacteroidetes
- M58766, *Cytophaga fermentans*, Cytophagaceae

**Rikenellaceae (6)**

- AY643083, *Alistipes finegoldii*, Rikenellaceae
- AY974072, *Alistipes shahii*, Rikenellaceae
- L16497, *Alistipes putredinis*, type sp., Rikenellaceae
- AY974071, *Alistipes onderdonkii*, Rikenellaceae
- AB490804, *Alistipes indistinctus*, Rikenellaceae
- L16498, *Rikenella microfusus*, type sp., Rikenellaceae

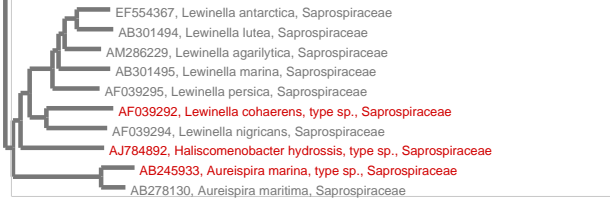
**Cryomorphaceae (3)**

- AB125062, *Owenweeksia hongkongensis*, type sp., Cryomorphaceae
- HQ172900, *Schleiferia thermophila*, Schleiferiaceae
- AF170738, *Cryomorpha ignava*, type sp., Cryomorphaceae

**Chitinophagaceae (37)**

- FJ177532, *Ferruginibacter lapsinanis*, Chitinophagaceae
- FJ177530, *Ferruginibacter alkalientus*, type sp., Chitinophagaceae
- EU521690, *Lacibacter cauensis*, type sp., Chitinophagaceae
- HM130561, *Flavitalea populi*, type sp., Chitinophagaceae
- AB267476, *Flavisolibacter ginsengiterrae*, type sp., Chitinophagaceae
- AB267477, *Flavisolibacter ginsengisoli*, Chitinophagaceae
- DQ244077, *Niastella korensis*, type sp., Chitinophagaceae
- DQ244076, *Niastella yeongjuensis*, Chitinophagaceae
- EU877262, *Niastella populi*, Chitinophagaceae
- DQ457019, *Niabella aurantiaca*, type sp., Chitinophagaceae
- GU291295, *Niabella tibetensis*, Chitinophagaceae
- EF592608, *Niabella soli*, Chitinophagaceae
- EU616816, *Niabella ginsengisoli*, Chitinophagaceae
- FJ457040, *Niabella yanshanensis*, Chitinophagaceae
- AM230484, *Terrimonas ferruginea*, type sp., Chitinophagaceae
- FJ347757, *Terrimonas aquatica*, Chitinophagaceae
- AB192292, *Terrimonas lutea*, Chitinophagaceae
- AB267478, *Segetibacter korensis*, type sp., Chitinophagaceae
- GQ421847, *Segetibacter aerophilus*, Chitinophagaceae
- FN665659, *Hydrotalea flava*, type sp., Chitinophagaceae
- EF407879, *Sediminibacterium salmoneum*, type sp., Chitinophagaceae
- AB362776, *Filimonas lacunae*, type sp., Chitinophagaceae
- EU877263, *Parasegetibacter luojienensis*, type sp., Chitinophagaceae
- EU854577, *Flaviumibacter petaseus*, type sp., Chitinophagaceae
- AM237311, *Chitinophaga arvensicola*, Chitinophagaceae
- AB264798, *Chitinophaga ginsengisegetis*, Chitinophagaceae
- EU714260, *Chitinophaga niastensis*, Chitinophagaceae
- FJ750951, *Chitinophaga eiseniae*, Chitinophagaceae
- AB278570, *Chitinophaga terrae*, Chitinophagaceae
- AB078055, *Chitinophaga japonensis*, Chitinophagaceae
- FM865977, *Chitinophaga rupis*, Chitinophagaceae
- AB078049, *Chitinophaga filiformis*, Chitinophagaceae
- AB245374, *Chitinophaga ginsengisoli*, Chitinophagaceae
- AF078775, *Chitinophaga pinensis*, type sp., Chitinophagaceae
- DQ062743, *Chitinophaga skermanii*, Chitinophagaceae
- AB078066, *Chitinophaga sancti*, Chitinophagaceae

**Saprospiraceae (10)**

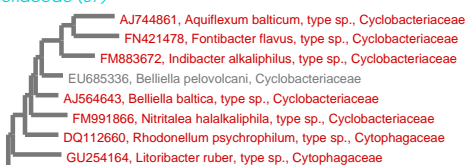


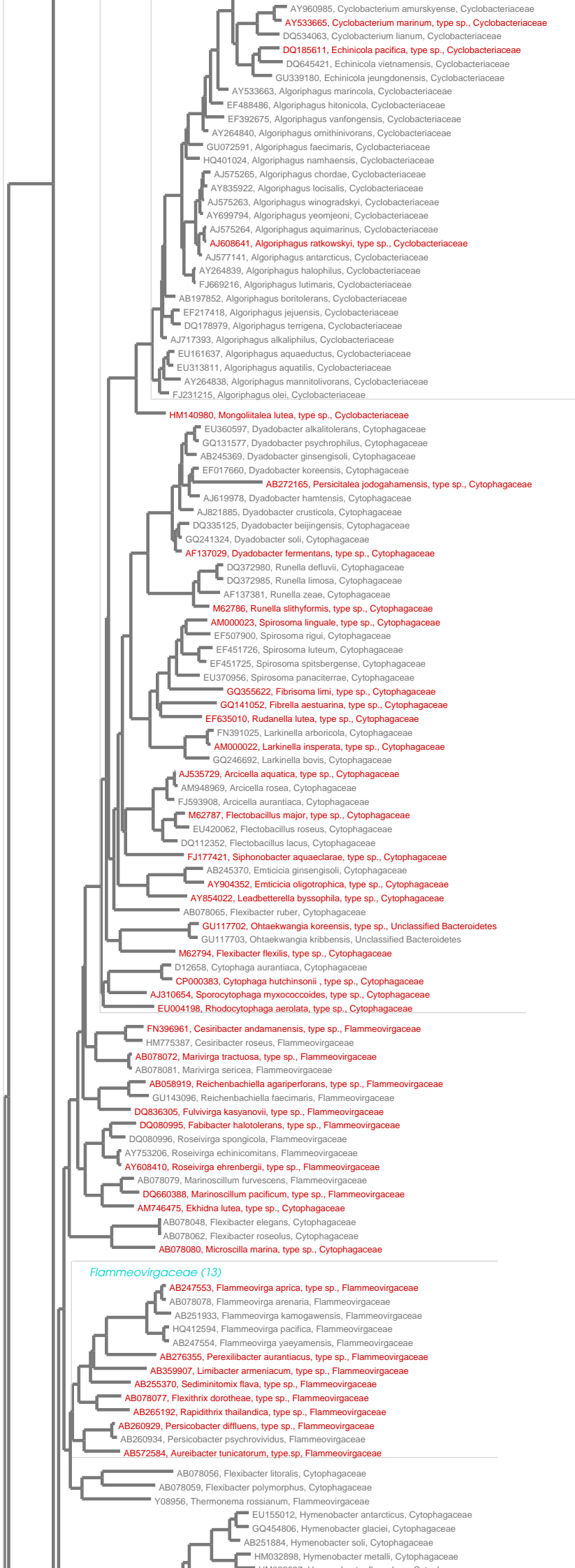
**Sphingobacteriaceae (86)**

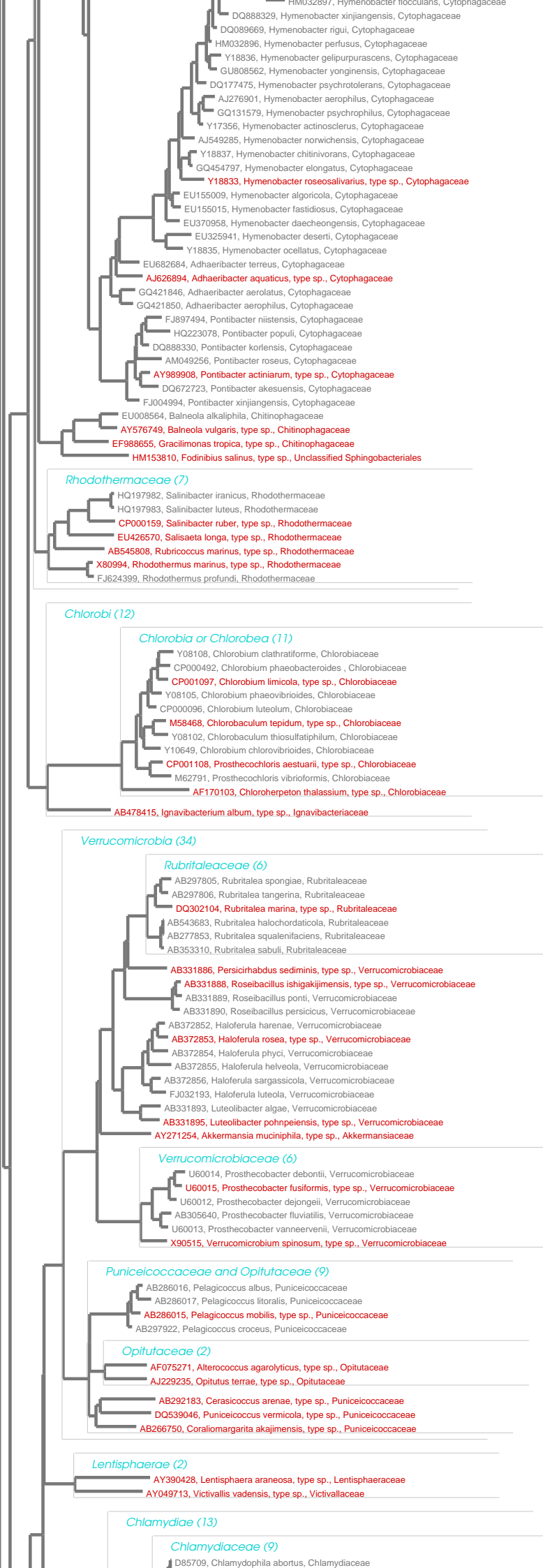


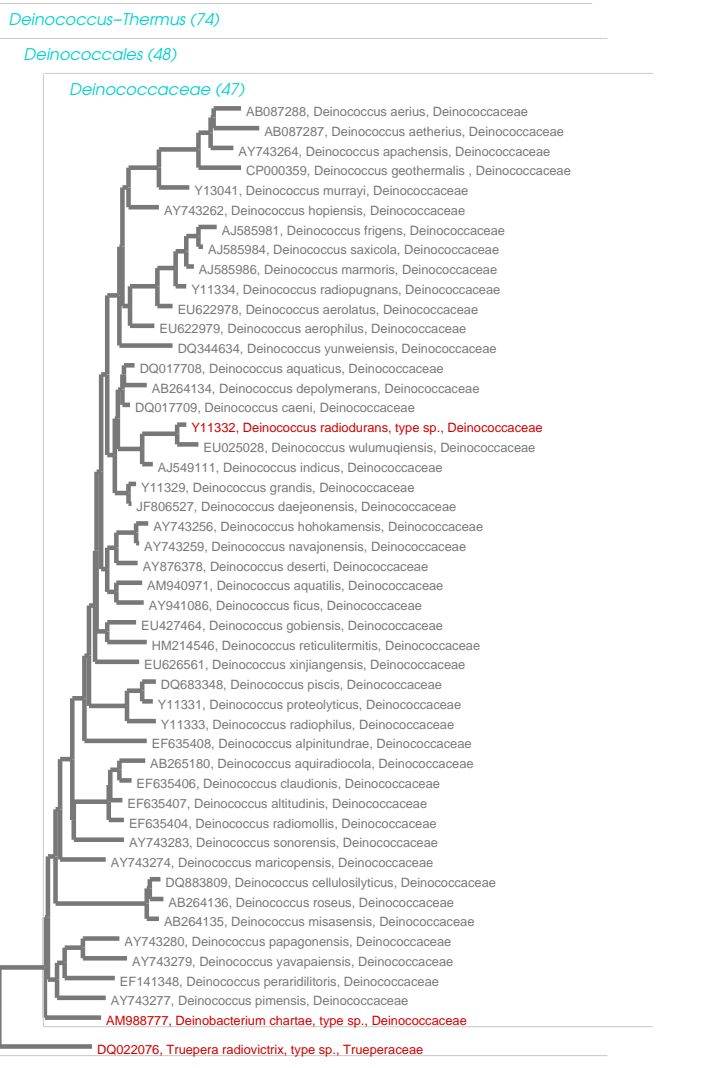
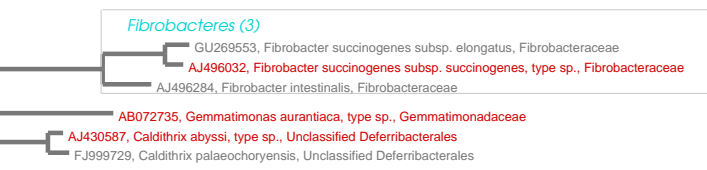
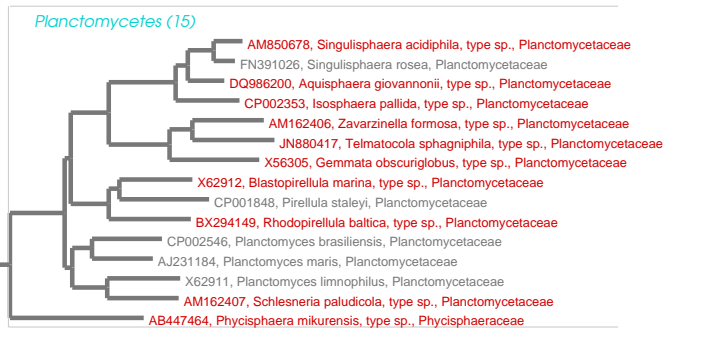
**Cytophagaceae and Cyclobacteriaceae (81)**

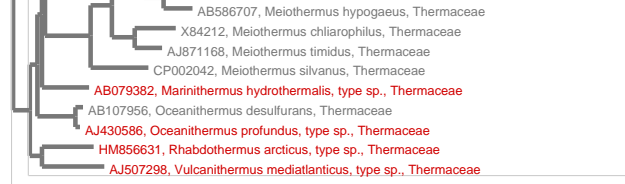
**Cyclobacteriaceae (37)**



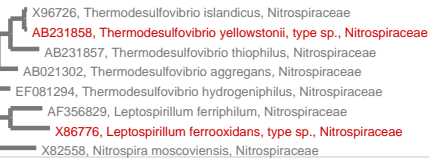








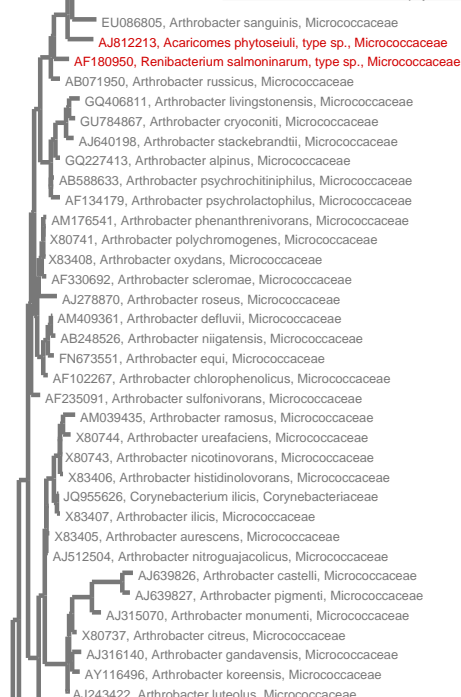
*Nitrospira* (8)



Actinobacteria (2449)

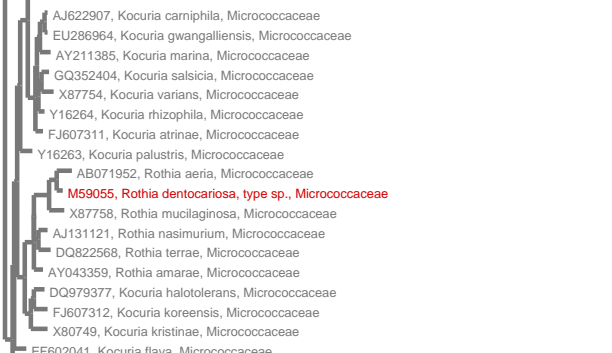
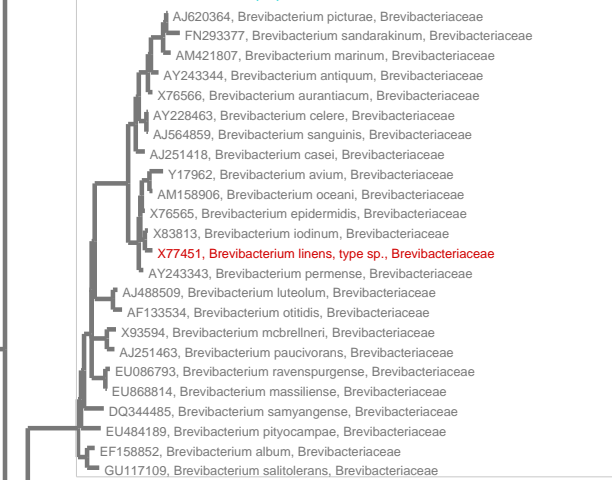
Micrococcaceae and Bifidobacteriaceae (157)

Bifidobacteriaceae (53)





*Brevibacteriaceae* (24)



AJ278868, *Kocuria polaris*, Micrococcaceae  
**X87756, *Kocuria rosea*, type sp., Micrococcaceae**  
AY987383, *Kocuria himachalensis*, Micrococcaceae  
DQ059617, *Kocuria aegyptia*, Micrococcaceae  
DQ531634, *Kocuria turfaniensis*, Micrococcaceae

#### Dermabacteraceae (17)

AB537169, *Brachybacterium conglomeratum*, Dermabacteraceae  
AJ415377, *Brachybacterium paraconglomeratum*, Dermabacteraceae  
**X83810, *Brachybacterium faecium*, type sp., Dermabacteraceae**  
EU937750, *Brachybacterium saurashtrense*, Dermabacteraceae  
AJ415384, *Brachybacterium sacelli*, Dermabacteraceae  
X91031, *Brachybacterium alimentarium*, Dermabacteraceae  
X91657, *Brachybacterium tyrofermentans*, Dermabacteraceae  
AJ415378, *Brachybacterium fresconis*, Dermabacteraceae  
**X91034, *Dermabacter hominis*, type sp., Dermabacteraceae**  
**EU477050, *Helcobacillus massiliensis*, type sp., Dermabacteraceae**  
**EU009865, *Devriesea agamarum*, type sp., Dermabacteraceae**  
DQ822566, *Brachybacterium phenoliresistens*, Dermabacteraceae  
EF125186, *Brachybacterium zhongshanense*, Dermabacteraceae  
GQ339911, *Brachybacterium squillarum*, Dermabacteraceae  
AJ537574, *Brachybacterium muris*, Dermabacteraceae  
AJ415376, *Brachybacterium rhamnosum*, Dermabacteraceae  
X91033, *Brachybacterium nesterenkovi*, Dermabacteraceae

#### Demequinaceae (7)

AB471559, *Demequina salsinemoris*, Demequinaceae  
AB522643, *Demequina globuliformis*, Demequinaceae  
AB522641, *Demequina aurantiaca*, Demequinaceae  
AB522640, *Demequina oxidasica*, Demequinaceae  
EF451745, *Demequina lutea*, Demequinaceae  
**DQ010160, *Demequina aestuarii*, type sp., Demequinaceae**  
**AB639012, *Lysinimicrobium mangrovi*, type sp., Demequinaceae**

#### Actinomycetaceae (59)

X80414, *Actinomyces gerenceriae*, Actinomycetaceae  
X82450, *Actinomyces israelii*, Actinomycetaceae  
EF558367, *Actinomyces massiliensis*, Actinomycetaceae  
AJ697609, *Actinomyces dentalis*, Actinomycetaceae  
DQ072005, *Actinomyces ruminicola*, Actinomycetaceae  
AJ507295, *Actinomyces oricola*, Actinomycetaceae  
X80411, *Actinomyces howellii*, Actinomycetaceae  
AB545935, *Actinomyces oris*, Actinomycetaceae  
X82453, *Actinomyces viscosus*, Actinomycetaceae  
X81062, *Actinomyces naeslundii*, Actinomycetaceae  
AB545933, *Actinomyces johnsonii*, Actinomycetaceae  
AJ234039, *Actinomyces bowdenii*, Actinomycetaceae  
AJ234066, *Actinomyces slackii*, Actinomycetaceae  
X80412, *Actinomyces denticolens*, Actinomycetaceae  
EU484334, *Actinomyces timonensis*, Actinomycetaceae  
**X81061, *Actinomyces bovis*, type sp., Actinomycetaceae**  
FN552454, *Actinomyces weissii*, Actinomycetaceae  
AJ243791, *Actinomyces urogenitalis*, Actinomycetaceae  
AJ276805, *Actinomyces catuli*, Actinomycetaceae  
AJ251986, *Actinomyces radidentis*, Actinomycetaceae  
AJ540309, *Actinomyces graevenitzi*, Actinomycetaceae  
Y08828, *Actinomyces europaeus*, Actinomycetaceae  
FJ617539, *Actinomyces hominis*, Actinomycetaceae  
AJ249326, *Actinomyces coleocanis*, Actinomycetaceae  
AM084228, *Actinomyces neuii* subsp. *neuii*, Actinomycetaceae  
AM084229, *Actinomyces neuii* subsp. *anitratus*, Actinomycetaceae  
**AJ428402, *Varibaculum cambriense*, type sp., Actinomycetaceae**  
AJ427624, *Mobiluncus curtisii* subsp. *holmesii*, Actinomycetaceae  
**AJ318408, *Mobiluncus curtisii* subsp. *curtisii*, type sp., Actinomycetaceae**  
AJ318410, *Mobiluncus mulieris*, Actinomycetaceae  
FJ234421, *Actinomyces naturae*, Actinomycetaceae  
X78719, *Actinomyces radingae*, Actinomycetaceae  
X69616, *Actinomyces hyovaginalis*, Actinomycetaceae  
AJ277385, *Actinomyces suimastitidis*, Actinomycetaceae  
AJ404889, *Actinomyces funkei*, Actinomycetaceae  
X80413, *Actinomyces georgiae*, Actinomycetaceae  
X82451, *Actinomyces meyeri*, Actinomycetaceae  
AJ234040, *Actinomyces odontolyticus*, Actinomycetaceae  
AJ421779, *Actinomyces cardiffensis*, Actinomycetaceae  
AJ427451, *Actinomyces vacciniaellae*, Actinomycetaceae  
X78720, *Actinomyces turicensis*, Actinomycetaceae  
AJ243891, *Actinomyces caris*, Actinomycetaceae  
AF433168, *Actinomyces hongkongensis*, Actinomycetaceae  
AJ276405, *Actinomyces marimammalium*, Actinomycetaceae  
X82448, *Actinomyces hordeovulneris*, Actinomycetaceae  
AJ508455, *Actinomyces nasicola*, Actinomycetaceae  
AB305159, *Trueperella abortusuis*, Actinomycetaceae  
X79224, *Trueperella bernardiae*, Actinomycetaceae  
**X79225, *Trueperella pyogenes*, type sp., Actinomycetaceae**  
AJ879696, *Trueperella bialowiezense*, Actinomycetaceae  
AJ879697, *Trueperella bonasi*, Actinomycetaceae  
AF487679, *Actinobaculum massiliense*, Actinomycetaceae  
**S83623, *Actinobaculum suis*, type sp., Actinomycetaceae**  
Y12329, *Actinobaculum schaalii*, Actinomycetaceae  
AJ439453, *Actinobaculum urinale*, Actinomycetaceae  
FR749960, *Arcanobacterium phocae*, Actinomycetaceae  
AJ250959, *Arcanobacterium pluranimalium*, Actinomycetaceae  
**AJ234059, *Arcanobacterium haemolyticum*, type sp., Actinomycetaceae**  
AJ300767, *Arcanobacterium hippocoleae*, Actinomycetaceae

FJ969847, *Haloactinobacterium album*, type sp., Ruaniaceae  
DQ343153, *Ruania albidiflava*, type sp., Ruaniaceae

#### Beutenbergiaceae (4)

Y18378, *Beutenbergia cavernae*, type sp., Beutenbergiaceae  
AB522642, *Miniimonas arenae*, type sp., Beutenbergiaceae  
AB455532, *Serinibacter salmonis*, type sp., Beutenbergiaceae  
AJ400627, *Salana multivorans*, type sp., Beutenbergiaceae

#### Bogoriellaceae (7)

FN356976, *Georgenia soli*, Bogoriellaceae  
HQ246163, *Georgenia daeguensis*, Bogoriellaceae  
**X94155, *Georgenia muralis*, type sp., Bogoriellaceae**  
DQ203185, *Georgenia ruanii*, Bogoriellaceae  
AB436534, *Georgenia thermotolerans*, Bogoriellaceae  
FJ717681, *Georgenia halophila*, Bogoriellaceae  
**Y09911, *Bogoriella caselytica*, type sp., Bogoriellaceae**

#### Inaciaceae (2)



**Jonesiaceae (2)**

X78420, *Jonesia denitrificans*, type sp., Jonesiaceae  
AJ626896, *Jonesia quinghaiensis*, Jonesiaceae

**Rarobacteraceae (2)**

Y17870, *Rarobacter faecitabidus*, type sp., Rarobacteraceae

AB056129, *Rarobacter incanus*, Rarobacteraceae

X79451, *Sanguibacter inulinus*, Sanguibacteraceae

X79452, *Sanguibacter suarezii*, Sanguibacteraceae

X79450, *Sanguibacter keddiei*, type sp., Sanguibacteraceae

EF211071, *Sanguibacter antarcticus*, Sanguibacteraceae

AJ783958, *Sanguibacter marinus*, Sanguibacteraceae

EF547937, *Sanguibacter soli*, Sanguibacteraceae

FM995611, *Koreibacter algae*, type sp., Unclassified Suborder Micrococciaceae

AB445007, *Paraorskovia marina*, type sp., Cellulomonadaceae

AJ314851, *Oerskovia paurometabola*, Cellulomonadaceae

X79454, *Oerskovia turbata*, type sp., Cellulomonadaceae

AJ314848, *Oerskovia jenensis*, Cellulomonadaceae

X83807, *Oerskovia enterophila*, Cellulomonadaceae

**Promicromonosporaceae (25)**

EU910872, *Myceligenans halotolerans*, Promicromonosporaceae

AY354285, *Myceligenans xiligouense*, type sp., Promicromonosporaceae

FR733716, *Myceligenans crystallogenes*, Promicromonosporaceae

AY789835, *Isopterocola halotolerans*, Promicromonosporaceae

FJ469988, *Isopterocola chiyiensis*, Promicromonosporaceae

DQ387860, *Isopterocola dokdonensis*, Promicromonosporaceae

EU852101, *Isopterocola jiangsuensis*, Promicromonosporaceae

AF105422, *Xylanimicrobium pachnodae*, type sp., Promicromonosporaceae

AY273185, *Xylanibacterium ulmi*, type sp., Promicromonosporaceae

AF403541, *Xylanimonas cellulositytica*, type sp., Promicromonosporaceae

AJ854061, *Isopterocola hypogaeus*, Promicromonosporaceae

HQ222356, *Isopterocola nanjingensis*, Promicromonosporaceae

AJ298873, *Isopterocola variabilis*, type sp., Promicromonosporaceae

FJ214352, *Promicromonospora xylanilytica*, Promicromonosporaceae

GU434253, *Promicromonospora endophytica*, Promicromonosporaceae

AJ487303, *Promicromonospora aerolata*, Promicromonosporaceae

AJ487302, *Promicromonospora vindobonensis*, Promicromonosporaceae

AM709608, *Promicromonospora kroppenstedtii*, Promicromonosporaceae

FN293378, *Promicromonospora umidemergens*, Promicromonosporaceae

AB023375, *Promicromonospora sukumoe*, Promicromonosporaceae

X83808, *Promicromonospora citrea*, type sp., Promicromonosporaceae

AM992980, *Promicromonospora flava*, Promicromonosporaceae

EF076760, *Cellulosimicrobium terreum*, Promicromonosporaceae

X83809, *Cellulosimicrobium cellulans*, type sp., Promicromonosporaceae

AY501364, *Cellulosimicrobium funkei*, Promicromonosporaceae

AB489904, *Luteimicrobium subarcticum*, Unclassified Suborder Micrococciaceae

**Cellulomonadaceae (17)**

EU560979, *Cellulomonas aerilata*, Cellulomonadaceae

X83804, *Cellulomonas cellasea*, Cellulomonadaceae

X83802, *Cellulomonas biazotea*, Cellulomonadaceae

X83803, *Cellulomonas fimi*, Cellulomonadaceae

AB268586, *Cellulomonas chitinilytica*, Cellulomonadaceae

AB166887, *Cellulomonas composti*, Cellulomonadaceae

X79461, *Cellulomonas gelida*, Cellulomonadaceae

AF064701, *Cellulomonas persica*, Cellulomonadaceae

X83801, *Cellulomonas uda*, Cellulomonadaceae

AF064702, *Cellulomonas iranensis*, Cellulomonadaceae

X79463, *Cellulomonas flavigena*, type sp., Cellulomonadaceae

AM902253, *Cellulomonas phragmiteti*, Cellulomonadaceae

X82449, *Cellulomonas humilata*, Cellulomonadaceae

AY303668, *Cellulomonas xylanilytica*, Cellulomonadaceae

AY884570, *Cellulomonas terrae*, Cellulomonadaceae

AY501362, *Cellulomonas denverensis*, Cellulomonadaceae

X82598, *Cellulomonas hominis*, Cellulomonadaceae

**Microbacteriaceae (209)**

X77441, *Microbacterium lacticum*, type sp., Microbacteriaceae

Y17237, *Microbacterium schleiferi*, Microbacteriaceae

AB286029, *Microbacterium flavum*, Microbacteriaceae

AY962574, *Microbacterium koreense*, Microbacteriaceae

AB234028, *Microbacterium aoyamense*, Microbacteriaceae

AB274908, *Microbacterium hatanonis*, Microbacteriaceae

AM949677, *Microbacterium invictum*, Microbacteriaceae

AB286030, *Microbacterium lacus*, Microbacteriaceae

Y17229, *Microbacterium aurum*, Microbacteriaceae

AB004721, *Microbacterium terregens*, Microbacteriaceae

AB234025, *Microbacterium terricola*, Microbacteriaceae

AB248875, *Microbacterium pygmaeum*, Microbacteriaceae

AB234027, *Microbacterium pumilum*, Microbacteriaceae

AB234026, *Microbacterium deminutum*, Microbacteriaceae

AB286028, *Microbacterium fluvii*, Microbacteriaceae

AB286027, *Microbacterium awajense*, Microbacteriaceae

Y17230, *Microbacterium dextranolyticum*, Microbacteriaceae

Y17234, *Microbacterium laevaniformans*, Microbacteriaceae

GQ351351, *Microbacterium mitrae*, Microbacteriaceae

AB004726, *Microbacterium aurantiacum*, Microbacteriaceae

AB013907, *Microbacterium kitamiense*, Microbacteriaceae

AB004725, *Microbacterium chocolatum*, Microbacteriaceae

AB004724, *Microbacterium ketosireducens*, Microbacteriaceae

AB004720, *Microbacterium terrae*, Microbacteriaceae

AM181507, *Microbacterium thalassium*, Microbacteriaceae

EF567306, *Microbacterium binotii*, Microbacteriaceae

AY376165, *Microbacterium halotolerans*, Microbacteriaceae

FN547412, *Microbacterium yannicii*, Microbacteriaceae

FN870023, *Microbacterium arthrosphaerae*, Microbacteriaceae

AM181504, *Microbacterium hominis*, Microbacteriaceae

GQ246683, *Microbacterium suwonense*, Microbacteriaceae

EF593038, *Microbacterium soli*, Microbacteriaceae

AJ853908, *Microbacterium xylanilyticum*, Microbacteriaceae

AB004714, *Microbacterium halophilum*, Microbacteriaceae

EU239498, *Microbacterium insulae*, Microbacteriaceae

Y17240, *Microbacterium trichothecenolyticum*, Microbacteriaceae

Y17232, *Microbacterium flavescens*, Microbacteriaceae

X77443, *Microbacterium arborescens*, Microbacteriaceae

AB271048, *Microbacterium ginsengisoli*, Microbacteriaceae

X77442, *Microbacterium imperiale*, Microbacteriaceae

GQ329713, *Microbacterium radiodurans*, Microbacteriaceae

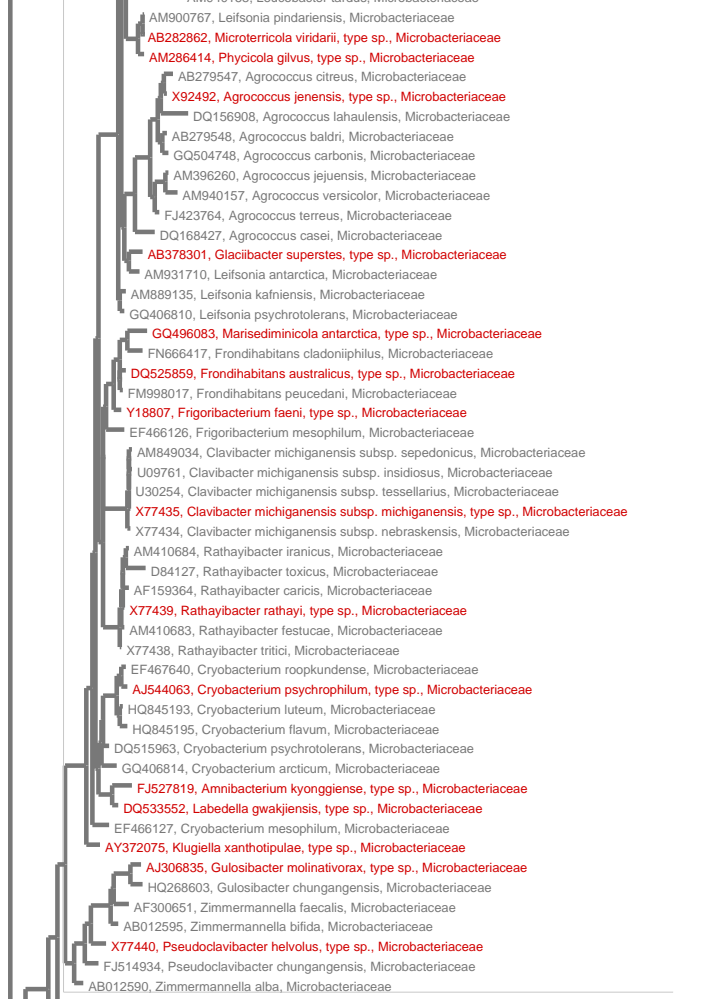
AY062021, *Microbacterium ulmi*, Microbacteriaceae

AB286020, *Microbacterium marinilacus*, Microbacteriaceae

AJ853909, *Microbacterium paludicola*, Microbacteriaceae

AB286021, *Microbacterium sediminicola*, Microbacteriaceae

EF466125, Microbacterium kribbense, Microbacteriaceae  
AF263563, Microbacterium gubbeenense, Microbacteriaceae  
AM158907, Microbacterium indicum, Microbacteriaceae  
X77446, Microbacterium barkeri, Microbacteriaceae  
AM747814, Microbacterium luticocti, Microbacteriaceae  
X77445, Microbacterium testaceum, Microbacteriaceae  
AM778449, Microbacterium aquimaris, Microbacteriaceae  
FJ865214, Microbacterium pseudoresistens, Microbacteriaceae  
Y14699, Microbacterium resistens, Microbacteriaceae  
AJ698726, Microbacterium hydrocarbonoxydans, Microbacteriaceae  
AJ277840, Microbacterium phyllosphaerae, Microbacteriaceae  
AJ249780, Microbacterium foliorum, Microbacteriaceae  
AJ853910, Microbacterium maritipicum, Microbacteriaceae  
Y17227, Microbacterium oxydans, Microbacteriaceae  
X77444, Microbacterium liquefaciens, Microbacteriaceae  
AB004718, Microbacterium luteolum, Microbacteriaceae  
AB004719, Microbacterium saperdae, Microbacteriaceae  
AB004717, Microbacterium keratanolyticum, Microbacteriaceae  
EF623999, Microbacterium profundum, Microbacteriaceae  
AJ698725, Microbacterium oleivorans, Microbacteriaceae  
AY566291, Microbacterium natorense, Microbacteriaceae  
AJ309929, Microbacterium aerolatum, Microbacteriaceae  
EU873314, Microbacterium ginsengiterrae, Microbacteriaceae  
AJ491806, Microbacterium paraoxydans, Microbacteriaceae  
EU912487, Microbacterium azadirachtae, Microbacteriaceae  
Y17228, Microbacterium arabinogalactanolyticum, Microbacteriaceae  
Y17231, Microbacterium esteraromaticum, Microbacteriaceae  
EU873539, Microbacterium lindanitolerans, Microbacteriaceae  
FJ807673, Microbacterium agarici, Microbacteriaceae  
FJ865215, Microbacterium humi, Microbacteriaceae  
AB012648, Mycetocola lacteus, Microbacteriaceae  
**AB012647, Mycetocola saphrophilus, type sp., Microbacteriaceae**  
AB012646, Mycetocola tolaasinivorans, Microbacteriaceae  
DQ062097, Mycetocola reblochoni, Microbacteriaceae  
AB177868, Plantibacter auratus, Microbacteriaceae  
**AJ310417, Plantibacter flavus, type sp., Microbacteriaceae**  
**AB042094, Okibacterium fritillariae, type sp., Microbacteriaceae**  
X77449, Agromyces mediolanus, Microbacteriaceae  
GQ241325, Agromyces soli, Microbacteriaceae  
AF389342, Agromyces aurantiacus, Microbacteriaceae  
FJ529717, Agromyces flavus, Microbacteriaceae  
AB454378, Agromyces tropicus, Microbacteriaceae  
AB023359, Agromyces brachium, Microbacteriaceae  
AB023356, Agromyces luteolus, Microbacteriaceae  
AY427830, Agromyces ulmi, Microbacteriaceae  
AY618215, Agromyces italicus, Microbacteriaceae  
AY618217, Agromyces lapidis, Microbacteriaceae  
DQ673873, Agromyces allii, Microbacteriaceae  
AY507129, Agromyces salentinus, Microbacteriaceae  
EF363711, Agromyces terreus, Microbacteriaceae  
AY618216, Agromyces humatus, Microbacteriaceae  
AY507128, Agromyces neolithicus, Microbacteriaceae  
FJ972171, Agromyces bauzanensis, Microbacteriaceae  
AY737778, Agromyces subbeticus, Microbacteriaceae  
**X77447, Agromyces ramosus, type sp., Microbacteriaceae**  
AF503917, Agromyces albus, Microbacteriaceae  
AY277619, Agromyces cerinus subsp. nitratum, Microbacteriaceae  
D45061, Agromyces hippuratus, Microbacteriaceae  
D45060, Agromyces cerinus subsp. cerinus, Microbacteriaceae  
FJ607310, Agromyces atrinae, Microbacteriaceae  
AB023357, Agromyces rhizosphaerae, Microbacteriaceae  
**D45057, Leifsonia aquatica, type sp., Microbacteriaceae**  
DQ232612, Leifsonia naganoensis, Microbacteriaceae  
DQ232614, Leifsonia shinshuensis, Microbacteriaceae  
AB016985, Leifsonia xylis subsp. cynodontis, Microbacteriaceae  
EU912483, Leifsonia soli, Microbacteriaceae  
AB278552, Leifsonia lichenia, Microbacteriaceae  
AF116342, Leifsonia poae, Microbacteriaceae  
AB046363, Curtobacterium albidum, Microbacteriaceae  
**X77436, Curtobacterium citreum, type sp., Microbacteriaceae**  
AB266597, Curtobacterium ammonigenes, Microbacteriaceae  
AJ312209, Curtobacterium flaccumfaciens, Microbacteriaceae  
AJ310413, Curtobacterium herbarum, Microbacteriaceae  
GU269547, Flavobacterium oceanosedimentum, Flavobacteriaceae  
AJ784400, Curtobacterium pusillum, Microbacteriaceae  
X77437, Curtobacterium luteum, Microbacteriaceae  
EF587758, Curtobacterium ginsengisoli, Microbacteriaceae  
**AM494541, Humibacter albus, type sp., Microbacteriaceae**  
**AB362159, Schumannella luteola, type sp., Microbacteriaceae**  
AJ438585, Leifsonia rubra, Microbacteriaceae  
**AJ459101, Rhodoglobus vestalis, type sp., Microbacteriaceae**  
AJ438586, Rhodoglobus aureus, Microbacteriaceae  
**AF539697, Salinibacterium amurskyense, type sp., Microbacteriaceae**  
DQ515964, Salinibacterium xinjiangense, Microbacteriaceae  
EF466124, Leifsonia bigeumensis, Microbacteriaceae  
**AF159363, Agreia bicolorata, type sp., Microbacteriaceae**  
AJ310412, Agreia pratensis, Microbacteriaceae  
**AF224722, Subtercola boreus, type sp., Microbacteriaceae**  
AF224723, Subtercola frigoramans, Microbacteriaceae  
AJ717385, Microcella alkaliphila, Microbacteriaceae  
**AJ717388, Microcella putealis, type sp., Microbacteriaceae**  
DQ256087, Yonghaparkia alkaliphila, type sp., Microbacteriaceae  
**EF373534, Chryseoglobus frigidiquae, type sp., Microbacteriaceae**  
EF466129, Leifsonia kribbensis, Microbacteriaceae  
**DQ473536, Herbiconiux ginsengi, type sp., Microbacteriaceae**  
FN432340, Herbiconiux solani, Microbacteriaceae  
AB583921, Herbiconiux flava, Microbacteriaceae  
FJ828659, Herbiconiux moechotipicola, Microbacteriaceae  
AM072820, Leucobacter alluvii, Microbacteriaceae  
GU390657, Leucobacter chromiirestans, Microbacteriaceae  
EU346911, Leucobacter chironomi, Microbacteriaceae  
GQ504012, Leucobacter celer, Microbacteriaceae  
AB012594, Leucobacter albus, Microbacteriaceae  
**D45063, Leucobacter komagatae, type sp., Microbacteriaceae**  
AJ781047, Leucobacter aridicollis, Microbacteriaceae  
AM040493, Leucobacter iarius, Microbacteriaceae  
GQ246672, Leucobacter denitrificans, Microbacteriaceae  
DQ845457, Leucobacter chromiireducens subsp. solipictus, Microbacteriaceae  
AJ781046, Leucobacter chromiireducens subsp. chromiireducens, Microbacteriaceae  
AM072819, Leucobacter luti, Microbacteriaceae  
FN597581, Leucobacter aerolatus, Microbacteriaceae  
GQ352403, Leucobacter salsicus, Microbacteriaceae  
AB514037, Leucobacter exalbidus, Microbacteriaceae  
AM940158, Leucobacter tardus, Microbacteriaceae

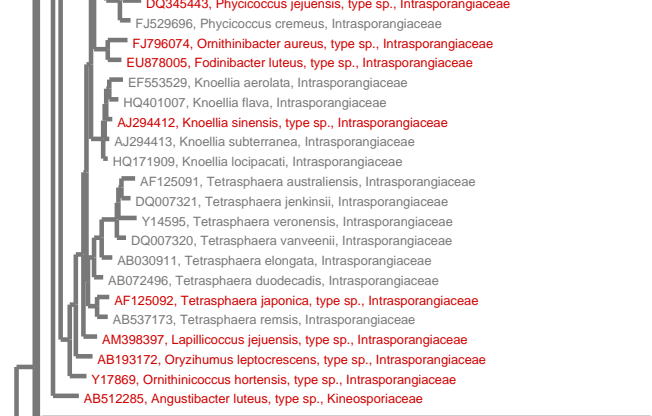


- AY894328, *Dermacoccus barathri*, *Dermacoccaceae*
- AY894329, *Dermacoccus profundus*, *Dermacoccaceae*
- AY894323, *Dermacoccus abyssus*, *Dermacoccaceae*
- X87757, *Dermacoccus nishinomiyaensis*, type sp., *Dermacoccaceae*
- AB468971, *Luteipulveratus mongoliensis*, type sp., *Dermacoccaceae*
- AB539735, *Flexivirga alba*, type sp., *Dermacoccaceae*
- EF187228, *Calidifontibacter indicus*, type sp., *Dermacoccaceae*
- FJ528304, *Yimella lutea*, type sp., *Dermacoccaceae*

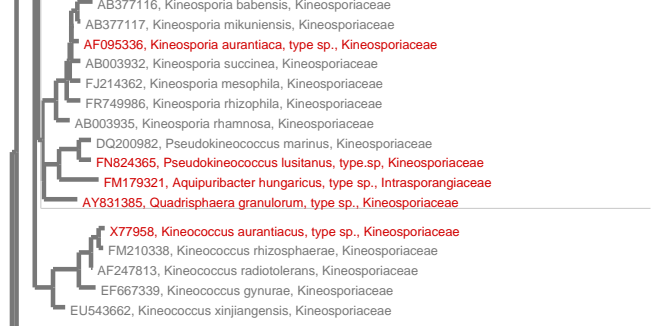
*Dermatophilaceae* (7)

- AJ558133, *Arsenicococcus bolidensis*, type sp., *Intrasporangiaceae*
- AB521998, *Arsenicococcus piscis*, *Intrasporangiaceae*
- AJ243919, *Austwickia cheloniae*, type sp., *Dermatophilaceae*
- AF109792, *Kineosphaera limosa*, type sp., *Dermatophilaceae*
- AB550799, *Piscicoccus intestinalis*, type sp., *Dermatophilaceae*
- AB550798, *Mobilicoccus pelagius*, type sp., *Dermatophilaceae*
- AJ243918, *Dermatophilus congolensis*, type sp., *Dermatophilaceae*

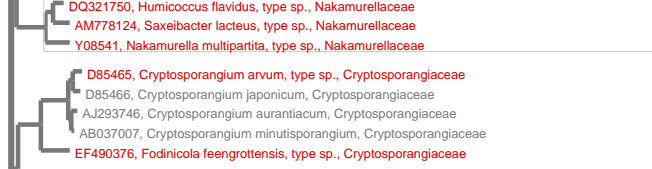
- FJ487951, *Intrasporangium chromatireducens*, *Intrasporangiaceae*
- Y08539, *Janibacter limosus*, type sp., *Intrasporangiaceae*
- AF178948, *Janibacter terrae*, *Intrasporangiaceae*
- FR749912, *Janibacter hoylei*, *Intrasporangiaceae*
- AY837752, *Janibacter anophelis*, *Intrasporangiaceae*
- AB286023, *Janibacter corallicola*, *Intrasporangiaceae*
- AJ297722, *Kytococcus schroeteri*, *Dermacoccaceae*
- FM992368, *Kytococcus aerolatus*, *Dermacoccaceae*
- X87755, *Kytococcus sedentarius*, type sp., *Dermacoccaceae*
- AB286025, *Marihabitan asiaticum*, type sp., *Intrasporangiaceae*
- AY522568, *Janibacter melonis*, *Intrasporangiaceae*
- DQ372707, *Knibbia dieselivorans*, type sp., *Intrasporangiaceae*
- AJ566282, *Intrasporangium calvum*, type sp., *Intrasporangiaceae*
- HQ204221, *Intrasporangium mesophilum*, *Intrasporangiaceae*
- AB282887, *Intrasporangium oryzae*, type sp., *Intrasporangiaceae*
- Y11928, *Terracoccus luteus*, type sp., *Intrasporangiaceae*
- EU573947, *Terrabacter aerophilus*, *Intrasporangiaceae*
- AB282888, *Humibacillus xanthopallidus*, type sp., *Intrasporangiaceae*
- AF005023, *Terrabacter tumescens*, type sp., *Intrasporangiaceae*
- EU332827, *Terrabacter ginsenosidimitans*, *Intrasporangiaceae*
- FJ717334, *Terrabacter carboxydivorans*, *Intrasporangiaceae*
- AM690744, *Terrabacter lapilli*, *Intrasporangiaceae*
- EF212039, *Terrabacter aerolatus*, *Intrasporangiaceae*
- FJ423552, *Terrabacter terrigena*, *Intrasporangiaceae*
- AY944176, *Terrabacter terrae*, *Intrasporangiaceae*
- EF493847, *Phycococcus aerophilus*, *Intrasporangiaceae*
- EU332824, *Phycococcus ginsenosidimitans*, *Intrasporangiaceae*
- EF555583, *Phycococcus dokdonensis*, *Intrasporangiaceae*
- EF466128, *Phycococcus bigeumensis*, *Intrasporangiaceae*



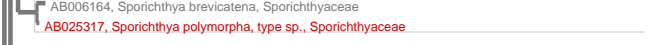
**Kineosporiaceae (11)**



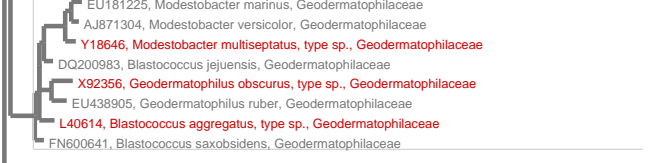
**Nakamurellaceae (3)**



**Sporichthyaceae (2)**



**Geodermatophilaceae (8)**



**Streptomycetaceae (563)**



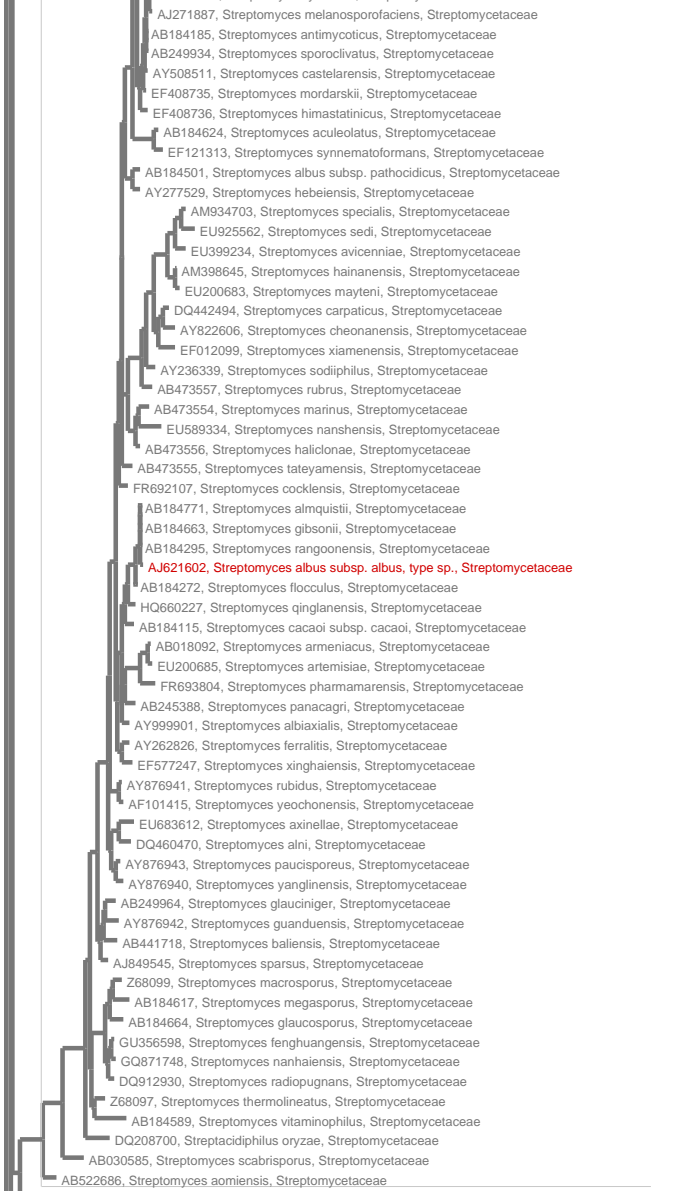
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AB184670, Streptomyces levis, Streptomycesetaceae  
AB184847, Streptomyces afghaniensis, Streptomycesetaceae  
AY208912, Streptomyces africanus, Streptomycesetaceae  
AB184690, Streptomyces tuius, Streptomycesetaceae  
AB184255, Streptomyces albidoflavus, Streptomycesetaceae  
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AB184868, Streptomyces hydrogenans, Streptomycesetaceae  
AJ399491, Streptomyces griseochromogenes, Streptomycesetaceae  
AY999737, Streptomyces violascens, Streptomycesetaceae  
AJ399472, Streptomyces resistomyces, Streptomycesetaceae  
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AB184316, Streptomyces violarus, Streptomycesetaceae  
AB184143, Streptomyces hawaiiensis, Streptomycesetaceae  
AB184152, Streptomyces massaporeus, Streptomycesetaceae  
AB184379, Streptomyces luteo-griseus, Streptomycesetaceae  
AB184651, Streptomyces janthinus, Streptomycesetaceae  
AB184315, Streptomyces violaceus, Streptomycesetaceae  
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AJ399484, Streptomyces roseoviolaceus, Streptomycesetaceae  
AB184842, Streptomyces flavoviridis, Streptomycesetaceae  
AB184161, Streptomyces pilosus, Streptomycesetaceae  
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AB184507, Streptomyces cinerochromogenes, Streptomycesetaceae  
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AY189976, Kitasatospora putterlickiae, Streptomycetaceae  
AY260167, Kitasatospora sampliensis, Streptomycetaceae  
AB184645, Streptomyces chrysomallus subsp. fumigatus, Streptomycetaceae  
AJ781324, Streptomyces purpureus, Streptomycetaceae  
AY999858, Streptomyces xanthocidicus, Streptomycetaceae  
AY999886, Streptomyces aburaviensis, Streptomycetaceae  
AB278569, Kitasatospora kazusensis, Streptomycetaceae  
U93324, Kitasatospora mediocidica, Streptomycetaceae  
AY442265, Kitasatospora gansuensis, Streptomycetaceae  
DQ026645, Kitasatospora atroaurantiaca, Streptomycetaceae  
AJ781364, Streptomyces purpeofuscus, Streptomycetaceae  
AB184801, Streptomyces herbaricolor, Streptomycetaceae  
AB184214, Streptomyces indigoferus, Streptomycetaceae  
U93312, Kitasatospora azatica, Streptomycetaceae  
AY442263, Kitasatospora nipponensis, Streptomycetaceae  
U93322, Kitasatospora kifunensis, Streptomycetaceae  
AB022875, Kitasatospora cineracea, Streptomycetaceae  
AB249960, Kitasatospora niigatensis, Streptomycetaceae  
U93316, Kitasatospora cochleata, Streptomycetaceae  
U93328, Kitasatospora paracochleata, Streptomycetaceae  
AY999887, Kitasatospora cystarginea, Streptomycetaceae  
U93320, Kitasatospora griseola, Streptomycetaceae

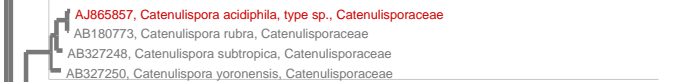
AF060493, Kitasatospora cheerisanensis, Streptomycetaceae  
AB022869, Kitasatospora phosalacinae, Streptomycetaceae  
AY442267, Kitasatospora arboriphila, Streptomycetaceae  
AY613990, Kitasatospora viridis, Streptomycetaceae  
AB278568, Kitasatospora saccharophila, Streptomycetaceae  
AY442266, Kitasatospora terrestris, Streptomycetaceae  
AY442268, Kitasatospora paranensis, Streptomycetaceae  
DQ904546, Streptacidiphilus anmyonensis, Streptomycetaceae  
AB249948, Streptacidiphilus jiangxiensis, Streptomycetaceae  
DQ994689, Streptacidiphilus melanogenes, Streptomycetaceae  
DQ904547, Streptacidiphilus rugosus, Streptomycetaceae  
AB249949, Streptacidiphilus neutrinimicus, Streptomycetaceae  
**AF074415, Streptacidiphilus albus, type sp., Streptomycetaceae**  
AF074412, Streptacidiphilus carbonis, Streptomycetaceae  
EF657884, Streptomyces scopuliridis, Streptomycetaceae  
AB184579, Streptomyces sannanensis, Streptomycetaceae  
AB184153, Streptomyces michiganensis, Streptomycetaceae  
DQ442559, Streptomyces xanthochromogenes, Streptomycetaceae  
AB184532, Streptomyces mauvecolor, Streptomycetaceae  
DQ141528, Streptomyces polyantibioticus, Streptomycetaceae  
AB184222, Streptomyces melanogenes, Streptomycetaceae  
AB184287, Streptomyces noboritoensis, Streptomycetaceae  
AY999781, Streptomyces amakusaensis, Streptomycetaceae  
AB184445, Streptomyces inusitatus, Streptomycetaceae  
DQ442523, Streptomyces luridus, Streptomycetaceae  
AB184167, Streptomyces roseolilacinus, Streptomycetaceae  
AB184666, Streptomyces gobitricini, Streptomycetaceae  
AJ781336, Streptomyces lavendofoliae, Streptomycetaceae  
DQ442558, Streptomyces werraensis, Streptomycetaceae  
AY999790, Streptomyces eurocidicus, Streptomycetaceae  
EF178671, Streptomyces netropsis, Streptomycetaceae  
AB184720, Streptomyces stramineus, Streptomycetaceae  
AB184636, Streptomyces olivoverticillatus, Streptomycetaceae  
AB184866, Streptomyces orinoci, Streptomycetaceae  
AJ781349, Streptomyces morookaense, Streptomycetaceae  
GQ184344, Streptomyces lacticiproducens, Streptomycetaceae  
DQ442515, Streptomyces lavenduligriseus, Streptomycetaceae  
AB184850, Streptomyces cinnamomeus, Streptomycetaceae  
AB184100, Streptomyces pseudochinosporus, Streptomycetaceae  
AB184819, Streptomyces lilacinus, Streptomycetaceae  
DQ442525, Streptomyces luteosporus, Streptomycetaceae  
AB184864, Streptomyces arduus, Streptomycetaceae  
AY999802, Streptomyces blastmyceticus, Streptomycetaceae  
AB184789, Streptomyces hiroshimensis, Streptomycetaceae  
EF178675, Streptomyces caeruleus, Streptomycetaceae  
X99943, Streptomyces griseocameus, Streptomycetaceae  
DQ442509, Streptomyces angustmyceticus, Streptomycetaceae  
AY999834, Streptomyces abikoensis, Streptomycetaceae  
DQ026653, Streptomyces varsoviensis, Streptomycetaceae  
AB249969, Streptomyces luteireticuli, Streptomycetaceae  
AB184753, Streptomyces thioluteus, Streptomycetaceae  
X79323, Streptomyces mashuensis, Streptomycetaceae  
DQ442528, Streptomyces mobaraensis, Streptomycetaceae  
AB184094, Streptomyces ochraceiscleroticus, Streptomycetaceae  
AJ621604, Streptomyces purpurogeneiscleroticus, Streptomycetaceae  
AJ621605, Streptomyces violens, Streptomycetaceae  
AJ621607, Streptomyces niger, Streptomycetaceae  
AJ621606, Streptomyces olivaceiscleroticus, Streptomycetaceae  
DQ445790, Streptomyces monomycini, Streptomycetaceae  
AB184640, Streptomyces caniferus, Streptomycetaceae  
AY999883, Streptomyces hygrosopicus subsp. decoyicus, Streptomycetaceae  
AJ781351, Streptomyces libani subsp. rufus, Streptomycetaceae  
AB184479, Streptomyces hygrosopicus subsp. glibosus, Streptomycetaceae  
AB045882, Streptomyces platensis, Streptomycetaceae  
Y15507, Streptomyces lydicus, Streptomycetaceae  
AB184414, Streptomyces libani subsp. libani, Streptomycetaceae  
AJ621612, Streptomyces tubercidicus, Streptomycetaceae  
DQ026662, Streptomyces ramulosus, Streptomycetaceae  
AJ621608, Streptomyces sclerotialii, Streptomycetaceae  
AB045883, Streptomyces rimosus subsp. rimosus, Streptomycetaceae  
AB045880, Streptomyces albofaciens, Streptomycetaceae  
AJ621609, Streptomyces chrestomyceticus, Streptomycetaceae  
AJ621610, Streptomyces rimosus subsp. paromomycinus, Streptomycetaceae  
AJ621613, Streptomyces catenulae, Streptomycetaceae  
AB217605, Streptomyces misakiensis, Streptomycetaceae  
DQ094838, Streptomyces lunalinharesii, Streptomycetaceae  
AJ391816, Streptomyces auratus, Streptomycetaceae  
FR692111, Streptomyces staurosporininus, Streptomycetaceae  
DQ442530, Streptomyces nigrescens, Streptomycetaceae  
DQ026654, Streptomyces sioyaensis, Streptomycetaceae  
AY999753, Streptomyces albospinus, Streptomycetaceae  
AB024440, Streptomyces albulus, Streptomycetaceae  
AB184678, Streptomyces noursei, Streptomycetaceae  
AF346818, Streptomyces yunnanensis, Streptomycetaceae  
AB184476, Streptomyces celluloflavus, Streptomycetaceae  
AB024441, Streptomyces kasugaensis, Streptomycetaceae  
FN421338, Streptomyces yousoufiensis, Streptomycetaceae  
DQ442546, Streptomyces sulphureus, Streptomycetaceae  
AB184090, Streptomyces cuspidosporus, Streptomycetaceae  
AB184301, Streptomyces sparsogenes, Streptomycetaceae  
EU170123, Streptomyces aldersoniae, Streptomycetaceae  
EU170126, Streptomyces milbemycinicus, Streptomycetaceae  
EU170124, Streptomyces wellingtoniae, Streptomycetaceae  
EU170121, Streptomyces ascomycinicus, Streptomycetaceae  
AB249974, Streptomyces sulfonofaciens, Streptomycetaceae  
EF408733, Streptomyces rapamycinicus, Streptomycetaceae  
AB249918, Streptomyces malaysiensis, Streptomycetaceae  
EU077190, Streptomyces samsunensis, Streptomycetaceae  
FJ472862, Streptomyces iranensis, Streptomycetaceae  
AB184428, Streptomyces hygrosopicus subsp. hygrosopicus, Streptomycetaceae  
AB249933, Streptomyces sporocinereus, Streptomycetaceae  
AY999911, Streptomyces endus, Streptomycetaceae  
DQ334782, Streptomyces demainii, Streptomycetaceae  
AJ391812, Streptomyces albiflaviniger, Streptomycetaceae  
AB184420, Streptomyces violaceusniger, Streptomycetaceae  
AB249942, Streptomyces yogyakartensis, Streptomycetaceae  
AJ391818, Streptomyces griseiniger, Streptomycetaceae  
AJ391833, Streptomyces javensis, Streptomycetaceae  
AJ391831, Streptomyces cangkringensis, Streptomycetaceae  
DQ334783, Streptomyces indonesiensis, Streptomycetaceae  
AB249947, Streptomyces asiaticus, Streptomycetaceae  
AB249941, Streptomyces rhizosphaericus, Streptomycetaceae  
DQ334781, Streptomyces geldanamycininus, Streptomycetaceae  
AB249962, Streptomyces valensis, Streptomycetaceae



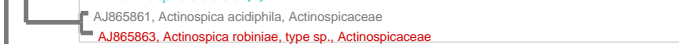


FM998003, *Motilobacter peucedani*, type sp., Unclassified suborder Frankineae

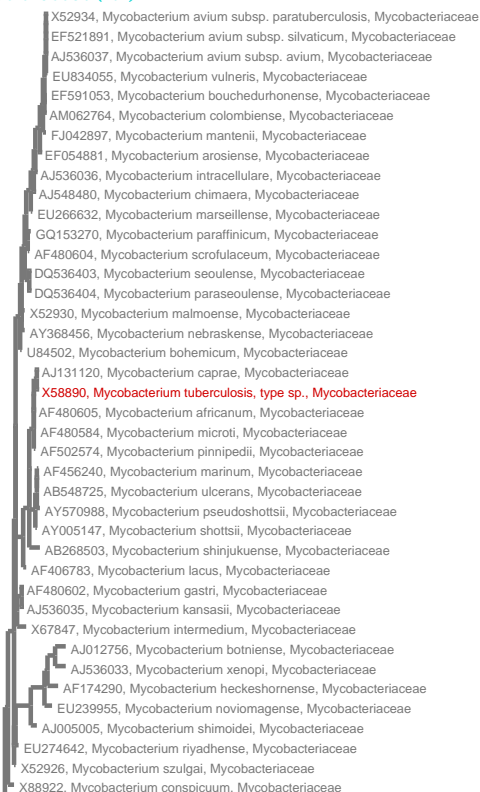
**Catenulisporaceae (4)**



**Actinospicaceae (2)**



**Mycobacteriaceae (151)**



AJ616230, Mycobacterium florentinum, Mycobacteriaceae  
 AM884331, Mycobacterium stomatopae, Mycobacteriaceae  
 AF330038, Mycobacterium montefiorensis, Mycobacteriaceae  
 X60070, Mycobacterium genavense, Mycobacteriaceae  
 U57632, Mycobacterium triplex, Mycobacteriaceae  
 AF466821, Mycobacterium parmense, Mycobacteriaceae  
 AJ000684, Mycobacterium heidelbergense, Mycobacteriaceae  
 AF480583, Mycobacterium lentiflavum, Mycobacteriaceae  
 X52931, Mycobacterium simiae, Mycobacteriaceae  
 AY353699, Mycobacterium sherrisii, Mycobacteriaceae  
 HM022196, Mycobacterium europaeum, Mycobacteriaceae  
 AY337273, Mycobacterium parascrofulaceum, Mycobacteriaceae  
 AF133902, Mycobacterium kubicae, Mycobacteriaceae  
 AJ308603, Mycobacterium palustre, Mycobacteriaceae  
 HM037998, Mycobacterium interjectum, Mycobacteriaceae  
 AY208856, Mycobacterium saskatchewanense, Mycobacteriaceae  
 X52923, Mycobacterium gordonae, Mycobacteriaceae  
 AF480595, Mycobacterium asiaticum, Mycobacteriaceae  
 AF480574, Mycobacterium branderi, Mycobacteriaceae  
 AB370111, Mycobacterium kyorinense, Mycobacteriaceae  
 L08169, Mycobacterium celatum, Mycobacteriaceae  
 X53896, Mycobacterium cookii, Mycobacteriaceae  
 DQ157760, Mycobacterium arupense, Mycobacteriaceae  
 X52928, Mycobacterium nonchromogenicum, Mycobacteriaceae  
 X67096, Mycobacterium hiberniae, Mycobacteriaceae  
 DQ536408, Mycobacterium senuense, Mycobacteriaceae  
 AB239925, Mycobacterium kumamotoense, Mycobacteriaceae  
 GU564404, Mycobacterium algericum, Mycobacteriaceae  
 M29568, Mycobacterium terrae, Mycobacteriaceae  
 X55603, Mycobacterium chitae, Mycobacteriaceae  
 AF480600, Mycobacterium fallax, Mycobacteriaceae  
 JF271826, Mycobacterium koreense, Mycobacteriaceae  
 DQ058405, Mycobacterium triviale, Mycobacteriaceae  
 AF480576, Mycobacterium brumae, Mycobacteriaceae  
 AJ010747, Mycobacterium elephantis, Mycobacteriaceae  
 AJ310467, Mycobacterium holsaticum, Mycobacteriaceae  
 AJ429046, Mycobacterium pulveris, Mycobacteriaceae  
 AJ634379, Mycobacterium confluens, Mycobacteriaceae  
 AB537170, Mycobacterium madagascariense, Mycobacteriaceae  
 U49401, Mycobacterium hassiacum, Mycobacteriaceae  
 X55602, Mycobacterium thermoresistibile, Mycobacteriaceae  
 AJ429044, Mycobacterium morioakaense, Mycobacteriaceae  
 AB537171, Mycobacterium murale, Mycobacteriaceae  
 AF480590, Mycobacterium tokaiense, Mycobacteriaceae  
 X55594, Mycobacterium gadium, Mycobacteriaceae  
 Y12872, Mycobacterium goodii, Mycobacteriaceae  
 AJ131761, Mycobacterium smegmatis, Mycobacteriaceae  
 AJ699399, Mycobacterium mageritense, Mycobacteriaceae  
 AY457083, Mycobacterium wolinskyi, Mycobacteriaceae  
 U94745, Mycobacterium duvalii, Mycobacteriaceae  
 AJ429045, Mycobacterium agri, Mycobacteriaceae  
 X52932, Mycobacterium flavescens, Mycobacteriaceae  
 DQ370011, Mycobacterium rutilum, Mycobacteriaceae  
 X55595, Mycobacterium aurum, Mycobacteriaceae  
 AJ431371, Mycobacterium pyrenivorans, Mycobacteriaceae  
 X93182, Mycobacterium austroafricanum, Mycobacteriaceae  
 X84977, Mycobacterium vanbaalenii, Mycobacteriaceae  
 AF480591, Mycobacterium vaccae, Mycobacteriaceae  
 AF264700, Mycobacterium doricum, Mycobacteriaceae  
 AF107039, Mycobacterium monacense, Mycobacteriaceae  
 GU997640, Mycobacterium litorale, Mycobacteriaceae  
 U96747, Mycobacterium novocastrense, Mycobacteriaceae  
 AF058299, Mycobacterium tusciae, Mycobacteriaceae  
 AF480597, Mycobacterium chubuense, Mycobacteriaceae  
 AY943385, Mycobacterium rufum, Mycobacteriaceae  
 X79292, Mycobacterium chlorophenicum, Mycobacteriaceae  
 AF480589, Mycobacterium poriferae, Mycobacteriaceae  
 AJ534886, Mycobacterium psychrotolerans, Mycobacteriaceae  
 X55597, Mycobacterium obuense, Mycobacteriaceae  
 X93183, Mycobacterium parafortuitum, Mycobacteriaceae  
 X81996, Mycobacterium gilvum, Mycobacteriaceae  
 X55598, Mycobacterium aichiense, Mycobacteriaceae  
 AY943386, Mycobacterium aromaticivorans, Mycobacteriaceae  
 AJ429047, Mycobacterium rhodesiae, Mycobacteriaceae  
 AF023664, Mycobacterium alvei, Mycobacteriaceae  
 AY457069, Mycobacterium peregrinum, Mycobacteriaceae  
 AY457070, Mycobacterium septicum, Mycobacteriaceae  
 AY457077, Mycobacterium porcinum, Mycobacteriaceae  
 AY457068, Mycobacterium neworleansense, Mycobacteriaceae  
 AY859684, Mycobacterium conceptionense, Mycobacteriaceae  
 X55591, Mycobacterium komossense, Mycobacteriaceae  
 AY012573, Mycobacterium boenickei, Mycobacteriaceae  
 FR733720, Mycobacterium fortuitum subsp. acetamidolyticum, Mycobacteriaceae  
 AY457066, Mycobacterium fortuitum subsp. fortuitum, Mycobacteriaceae  
 EF138818, Mycobacterium setense, Mycobacteriaceae  
 AY457067, Mycobacterium houstonense, Mycobacteriaceae  
 AY457081, Mycobacterium senegalense, Mycobacteriaceae  
 AY457084, Mycobacterium farcinogenes, Mycobacteriaceae  
 AJ617741, Mycobacterium fluoranthenvorans, Mycobacteriaceae  
 AJ276274, Mycobacterium frederiksbergense, Mycobacteriaceae  
 AF480599, Mycobacterium diemhoferi, Mycobacteriaceae  
 X93184, Mycobacterium hodleri, Mycobacteriaceae  
 AY012577, Mycobacterium brisbanense, Mycobacteriaceae  
 AY255478, Mycobacterium canariense, Mycobacteriaceae  
 AY449728, Mycobacterium cosmeticum, Mycobacteriaceae  
 AF480593, Mycobacterium neoaurum, Mycobacteriaceae  
 AY457071, Mycobacterium abscessus subsp. abscessus, Mycobacteriaceae  
 AY859681, Mycobacterium abscessus subsp. bolletii, Mycobacteriaceae  
 AY457072, Mycobacterium chelonae, Mycobacteriaceae  
 DQ866768, Mycobacterium salmoniphilum, Mycobacteriaceae  
 AY859683, Mycobacterium aubagnense, Mycobacteriaceae  
 AJ746070, Mycobacterium ilatzerense, Mycobacteriaceae  
 AY457074, Mycobacterium mucogenicum, Mycobacteriaceae  
 AY859682, Mycobacterium phocaicum, Mycobacteriaceae  
 DQ534008, Mycobacterium crocinum, Mycobacteriaceae  
 DQ370008, Mycobacterium pallens, Mycobacteriaceae  
 EU605695, Mycobacterium insubricum, Mycobacteriaceae  
 AF480603, Mycobacterium phlei, Mycobacteriaceae  
 FR733719, Mycobacterium sphagni, Mycobacteriaceae  
 EF564379, Mycolicoccus subflavus, Mycobacteriaceae  
 FJ179485, *Hoyosella altamirensis*, type sp., Unclassified suborder Corynebacterineae  
 AB491283, *Tomitella biformata*, type sp., Unclassified suborder Corynebacterineae

### Tsukamurellaceae (11)

- AY238513, Tsukamurella pseudospumae, Tsukamurellaceae
- AF150494, Tsukamurella sunchonensis, Tsukamurellaceae
- X92981, Tsukamurella pulmonis, Tsukamurellaceae
- AY714239, Tsukamurella spongiae, Tsukamurellaceae
- EU521689, Tsukamurella carboxydivorans, Tsukamurellaceae
- AY238514, Tsukamurella tyrosinosolvans, Tsukamurellaceae
- AF283263, Tsukamurella strandjordii, Tsukamurellaceae
- Z37150, Tsukamurella spumae, Tsukamurellaceae
- AF283281, Tsukamurella inchonensis, Tsukamurellaceae
- AF283280, Tsukamurella paurometabola, type sp., Tsukamurellaceae**
- FJ917743, Tsukamurella soli, Tsukamurellaceae

### Corynebacteriaceae (88)

- X96497, Corynebacterium coyleae, Corynebacteriaceae
- FN295667, Corynebacterium pilbarensis, Corynebacteriaceae
- AM397636, Corynebacterium ureicelovorans, Corynebacteriaceae
- X82055, Corynebacterium afermentans subsp. lipophilum, Corynebacteriaceae
- X82054, Corynebacterium afermentans subsp. afermentans, Corynebacteriaceae
- Y11200, Corynebacterium mucifaciens, Corynebacteriaceae
- X86688, Corynebacterium glucuronolyticum, Corynebacteriaceae
- FJ185225, Corynebacterium pyruviciproducens, Corynebacteriaceae
- X84252, Corynebacterium cystitidis, Corynebacteriaceae
- AJ297402, Corynebacterium captovis, Corynebacteriaceae
- X84241, Corynebacterium mycetoides, Corynebacteriaceae
- Y09045, Corynebacterium lipophiloflavum, Corynebacteriaceae
- X81873, Corynebacterium auris, Corynebacteriaceae
- EF217055, Corynebacterium timonense, Corynebacteriaceae
- Y09655, Corynebacterium sundsvallense, Corynebacteriaceae
- AF010474, Corynebacterium thomsseni, Corynebacteriaceae
- Y09044, Corynebacterium imitans, Corynebacteriaceae
- Y14651, Corynebacterium riegelii, Corynebacteriaceae
- AJ431634, Corynebacterium glaucum, Corynebacteriaceae
- AJ314919, Corynebacterium appendicis, Corynebacteriaceae
- AY677186, Corynebacterium tuscaniense, Corynebacteriaceae
- Y09569, Corynebacterium camporealensis, Corynebacteriaceae
- AJ555193, Corynebacterium ciconiae, Corynebacteriaceae
- EF217056, Corynebacterium massiliense, Corynebacteriaceae
- AJ438050, Corynebacterium tuberculostearicum, Corynebacteriaceae
- AJ439346, Corynebacterium accolens, Corynebacteriaceae
- AJ439345, Corynebacterium macginleyi, Corynebacteriaceae
- X84438, Corynebacterium propinquum, Corynebacteriaceae
- AJ439343, Corynebacterium pseudodiphtheriticum, Corynebacteriaceae
- Y15886, Corynebacterium confusum, Corynebacteriaceae
- X84678, Corynebacterium minutissimum, Corynebacteriaceae
- Y10999, Corynebacterium singulare, Corynebacteriaceae
- AJ309207, Corynebacterium aurimucosum, Corynebacteriaceae
- AJ012837, Corynebacterium simulans, Corynebacteriaceae
- X84442, Corynebacterium striatum, Corynebacteriaceae
- AF267152, Corynebacterium casei, Corynebacteriaceae
- FJ172667, Corynebacterium stationis, Corynebacteriaceae
- X84440, Corynebacterium ammoniagenes, Corynebacteriaceae
- Y10076, Corynebacterium phocae, Corynebacteriaceae
- X84441, Corynebacterium flavescens, Corynebacteriaceae
- AJ441057, Corynebacterium atypicum, Corynebacteriaceae
- X73976, Turicella otitidis, type sp., Corynebacteriaceae**
- Z97069, Corynebacterium durum, Corynebacteriaceae
- Y09806, Corynebacterium mastitidis, Corynebacteriaceae
- AJ566641, Corynebacterium caspium, Corynebacteriaceae
- X81909, Corynebacterium renale, Corynebacteriaceae
- FJ157329, Corynebacterium freiburgense, Corynebacteriaceae
- GQ871934, Corynebacterium canis, Corynebacteriaceae
- AJ429234, Corynebacterium spheniscorum, Corynebacteriaceae
- EU998655, Corynebacterium doosanense, Corynebacteriaceae
- AY226509, Corynebacterium halotolerans, Corynebacteriaceae
- FJ423600, Corynebacterium maris, Corynebacteriaceae
- FM173119, Corynebacterium lubricantis, Corynebacteriaceae
- X81908, Corynebacterium pilosum, Corynebacteriaceae
- X81916, Corynebacterium pseudotuberculosis, Corynebacteriaceae
- X84256, Corynebacterium ulcerans, Corynebacteriaceae
- X81871, Corynebacterium kutscheri, Corynebacteriaceae
- X82065, Corynebacterium matruchotii, Corynebacteriaceae
- FJ374773, Corynebacterium mustelae, Corynebacteriaceae
- X84248, Corynebacterium diphtheriae, type sp., Corynebacteriaceae**
- AJ401282, Corynebacterium felinum, Corynebacteriaceae
- AJ295841, Corynebacterium testudinoris, Corynebacteriaceae
- AJ496733, Corynebacterium aquilae, Corynebacteriaceae
- X83955, Corynebacterium argentoratense, Corynebacteriaceae
- DQ219354, Corynebacterium marinum, Corynebacteriaceae
- GQ421281, Corynebacterium humireducens, Corynebacteriaceae
- AF314192, Corynebacterium glutamicum, Corynebacteriaceae
- HQ612241, Corynebacterium deserti, Corynebacteriaceae
- X84251, Corynebacterium callunae, Corynebacteriaceae
- AB055963, Corynebacterium efficiens, Corynebacteriaceae
- AJ243819, Corynebacterium auriscanis, Corynebacteriaceae
- AB128981, Corynebacterium resistens, Corynebacteriaceae
- AJ504424, Corynebacterium suicordis, Corynebacteriaceae
- X84250, Corynebacterium jeikeium, Corynebacteriaceae
- X81913, Corynebacterium urealyticum, Corynebacteriaceae
- Y13024, Corynebacterium falseni, Corynebacteriaceae
- X84444, Corynebacterium bovis, Corynebacteriaceae
- HM165487, Corynebacterium nuruki, Corynebacteriaceae
- AJ222815, Corynebacterium variabile, Corynebacteriaceae
- AB004730, Corynebacterium terpenotabidum, Corynebacteriaceae
- Y10077, Corynebacterium kroppenstedtii, Corynebacteriaceae
- AJ292762, Corynebacterium frenyi, Corynebacteriaceae
- X81914, Corynebacterium xerosis, Corynebacteriaceae
- AM946639, Corynebacterium hanseni, Corynebacteriaceae
- X82057, Corynebacterium amycolatum, Corynebacteriaceae
- AM930556, Corynebacterium sputi, Corynebacteriaceae
- AJ440964, Corynebacterium sphenisci, Corynebacteriaceae
- AM922112, Corynebacterium ulcenisbovis, Corynebacteriaceae

### Dietziaceae (13)

- EU375846, Dietzia cercidiphylli, Dietziaceae
- X92157, Dietzia natronolimnaea, Dietziaceae
- AB049630, Dietzia psychralcaliphila, Dietziaceae
- EU821598, Dietzia lutea, Dietziaceae
- X79290, Dietzia maris, type sp., Dietziaceae**
- EU375845, Dietzia schimae, Dietziaceae
- AY972480, Dietzia kunjamensis, Dietziaceae
- GQ368824, Dietzia alimentaria, Dietziaceae
- FR821260, Dietzia aurantiaca, Dietziaceae

- FM995533, Dietzia aerolata, Dietziaceae
- AJ920289, Dietzia chinae, Dietziaceae
- AY643401, Dietzia papillomatosis, Dietziaceae
- AB377289, Dietzia timorensis, Dietziaceae

### Nocardiaceae 2 (41)

- X80635, Gordonia amarae, Nocardiaceae
- AB162799, Gordonia effusa, Nocardiaceae
- X87340, Gordonia hydrophobica, Nocardiaceae
- AM406674, Gordonia malaquae, Nocardiaceae
- FN561544, Gordonia humi, Nocardiaceae
- FJ938167, Gordonia neofellfaecis, Nocardiaceae
- EU244645, Gordonia cholesterolivorans, Nocardiaceae
- AJ416151, Gordonia sihwensis, Nocardiaceae
- X93485, Gordonia hirsuta, Nocardiaceae
- DQ420167, Gordonia shandongensis, Nocardiaceae
- AF101418, Gordonia amicalis, Nocardiaceae
- AF101416, Gordonia desulfuricans, Nocardiaceae
- AF432348, Gordonia paraffinivorans, Nocardiaceae
- AY995557, Gordonia rubripertincta, Nocardiaceae
- Y18054, Gordonia alkanivorans, Nocardiaceae
- AJ312907, Gordonia westfalica, Nocardiaceae
- AF380930, Gordonia namibiensis, Nocardiaceae
- EF151959, Gordonia lacunae, Nocardiaceae
- X79286, Gordonia terrae, Nocardiaceae
- AB162800, Gordonia aarii, Nocardiaceae
- AY650265, Gordonia defluvii, Nocardiaceae
- AM883151, Gordonia kroppenstedtii, Nocardiaceae
- AB122026, Gordonia otitidis, Nocardiaceae
- X80634, Gordonia sputi, Nocardiaceae
- X80633, Gordonia aichiensis, Nocardiaceae
- AB004729, Gordonia rhizosphera, Nocardiaceae
- X79287, Gordonia bronchialis, type sp., Nocardiaceae**
- AF380834, Gordonia sinisedis, Nocardiaceae
- AY894336, Williamsia marianensis, Nocardiaceae
- Y17384, Williamsia muralis, type sp., Nocardiaceae**
- HQ157192, Williamsia limnetica, Nocardiaceae
- DQ157929, Williamsia faeni, Nocardiaceae
- AB010909, Williamsia maris, Nocardiaceae
- FR691321, Williamsia phyllosphaerae, Nocardiaceae
- AJ920290, Williamsia deligens, Nocardiaceae
- AM283464, Williamsia serinedens, Nocardiaceae
- FJ572038, Gordonia hankookensis, Nocardiaceae
- AY995560, Gordonia soli, Nocardiaceae
- Y18310, Gordonia polyisoprenivorans, Nocardiaceae
- AY534742, Millisia brevis, type sp., Nocardiaceae**
- Z35435, Skermania piniformis, type sp., Nocardiaceae**

- AY233201, Rhodococcus gordoniae, Nocardiaceae
- AF173005, Rhodococcus pyridinivorans, Nocardiaceae
- GU367155, Rhodococcus artemisiae, Nocardiaceae
- X79288, Rhodococcus rhodochrous, type sp., Nocardiaceae**
- U93340, Rhodococcus coprophilus, Nocardiaceae
- AF447391, Rhodococcus aetherivorans, Nocardiaceae
- X80625, Rhodococcus ruber, Nocardiaceae
- AF191343, Rhodococcus zopfii, Nocardiaceae
- AY533293, Rhodococcus phenolicus, Nocardiaceae
- AF430066, Rhodococcus corynebacterioides, Nocardiaceae
- AY726605, Rhodococcus kroppenstedtii, Nocardiaceae
- AY525785, Rhodococcus imtechensis, Nocardiaceae
- AF124342, Rhodococcus koreensis, Nocardiaceae
- Z37138, Rhodococcus wratislaviensis, Nocardiaceae
- X80630, Rhodococcus opacus, Nocardiaceae
- X92114, Rhodococcus percolatus, Nocardiaceae
- X80617, Rhodococcus marinonascens, Nocardiaceae
- AB046357, Rhodococcus jostii, Nocardiaceae
- AF416566, Rhodococcus maanshanensis, Nocardiaceae
- AB067734, Rhodococcus tukisamuensis, Nocardiaceae
- DQ090961, Rhodococcus qingshengii, Nocardiaceae
- DQ185597, Rhodococcus jialingiae, Nocardiaceae
- AB071951, Rhodococcus baikourensis, Nocardiaceae
- FR733721, Nocardia coeliaca, Nocardiaceae
- X79289, Rhodococcus erythropolis, Nocardiaceae
- FR749915, Nocardia globerula, Nocardiaceae
- X80619, Rhodococcus globerulus, Nocardiaceae
- AB269261, Rhodococcus kyotonensis, Nocardiaceae
- AY602219, Rhodococcus yunnanensis, Nocardiaceae
- X79186, Rhodococcus fascians, Nocardiaceae
- X80621, Rhodococcus rhodii, Nocardiaceae
- AJ854055, Rhodococcus triatoniae, Nocardiaceae

### Nocardiaceae 1 (87)

- AB126880, Nocardia concava, Nocardiaceae
- AF430039, Nocardia seriola, Nocardiaceae
- AF430067, Nocardia otitidiscaviarum, Nocardiaceae
- AF430044, Nocardia uniformis, Nocardiaceae
- AB092560, Nocardia inohanensis, Nocardiaceae
- AB092561, Nocardia yamanashiensis, Nocardiaceae
- DQ659910, Nocardia niigatensis, Nocardiaceae
- AM402972, Nocardia acidivorans, Nocardiaceae
- AF430049, Nocardia crassostreae, Nocardiaceae
- AF430028, Nocardia nova, Nocardiaceae
- FR733723, Nocardia mexicana, Nocardiaceae
- HQ157184, Nocardia thraciensis, Nocardiaceae
- GU367157, Nocardia artemisiae, Nocardiaceae
- AB201298, Nocardia terpenica, Nocardiaceae
- AF430042, Nocardia pseudobrasiliensis, Nocardiaceae
- AY639902, Nocardia jiangxiensis, Nocardiaceae
- AY639901, Nocardia miyunensis, Nocardiaceae
- AY779043, Nocardia lijiangensis, Nocardiaceae
- AY626158, Nocardia polyresistens, Nocardiaceae
- AY333115, Nocardia xishanensis, Nocardiaceae
- AB158277, Nocardia takedensis, Nocardiaceae
- AB187522, Nocardia exalbida, Nocardiaceae
- DQ235272, Nocardia gamkensis, Nocardiaceae
- EU006090, Nocardia altamirensis, Nocardiaceae
- AF430038, Nocardia brasiliensis, Nocardiaceae
- DQ925490, Nocardia iowensis, Nocardiaceae
- AJ556157, Nocardia tenerifensis, Nocardiaceae
- AF430052, Nocardia cummidelens, Nocardiaceae
- AF430051, Nocardia soli, Nocardiaceae
- AF277204, Nocardia fluminea, Nocardiaceae
- AF430050, Nocardia salmonicida, Nocardiaceae
- DQ235688, Nocardia coqueleae, Nocardiaceae
- AJ920298, Nocardia incerta, Nocardiaceae

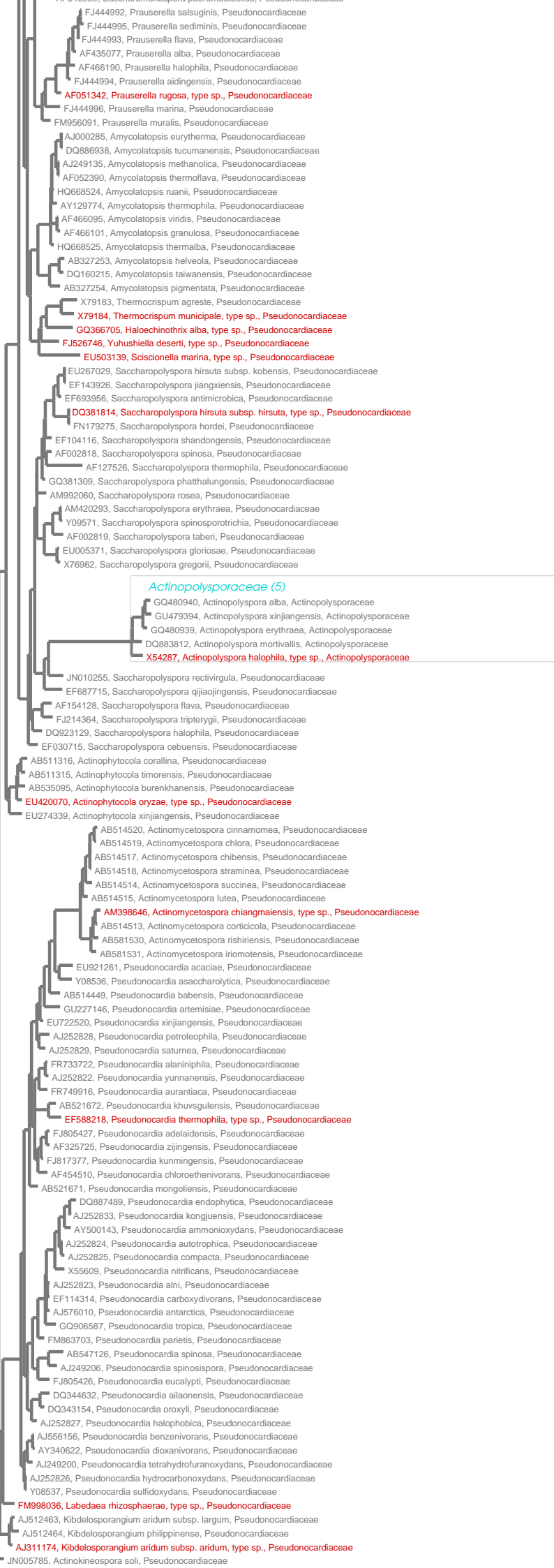
AY964666, *Nocardia jejuensis*, Nocardiaceae  
DQ235687, *Nocardia ninae*, Nocardiaceae  
AY223231, *Nocardia alba*, Nocardiaceae  
AF430046, *Nocardia pseudovaccinii*, Nocardiaceae  
AB024312, *Nocardia vinacea*, Nocardiaceae  
AB162801, *Nocardia anaemiae*, Nocardiaceae  
AF459443, *Nocardia caishijiensis*, Nocardiaceae  
HO157183, *Nocardia goodfellowii*, Nocardiaceae  
AY282603, *Nocardia neocaledoniensis*, Nocardiaceae  
**AF430019, *Nocardia asteroides*, type sp., Nocardiaceae**  
AF430035, *Nocardia carnea*, Nocardiaceae  
EF418604, *Nocardia rhamnosiphila*, Nocardiaceae  
AB121770, *Nocardia sienata*, Nocardiaceae  
AB192415, *Nocardia testacea*, Nocardiaceae  
AF219974, *Nocardia pigrifrangens*, Nocardiaceae  
Z46754, *Nocardia flavorosea*, Nocardiaceae  
DQ462650, *Nocardia jinanensis*, Nocardiaceae  
AM422449, *Nocardia speluncae*, Nocardiaceae  
FR729900, *Nocardia grenadensis*, Nocardiaceae  
FJ805428, *Nocardia callitridis*, Nocardiaceae  
HM153801, *Nocardia endophytica*, Nocardiaceae  
DQ282122, *Nocardia harenae*, Nocardiaceae  
AF430040, *Nocardia brevicatena*, Nocardiaceae  
AF430041, *Nocardia paucivorans*, Nocardiaceae  
AF430027, *Nocardia cyriacigeorgica*, Nocardiaceae  
AF218292, *Nocardia abscessus*, Nocardiaceae  
AB126876, *Nocardia aobensis*, Nocardiaceae  
AF060790, *Nocardia cerradoensis*, Nocardiaceae  
EU484388, *Nocardia mikamii*, Nocardiaceae  
AY441974, *Nocardia kruzakiae*, Nocardiaceae  
AF430055, *Nocardia veterana*, Nocardiaceae  
AF430054, *Nocardia africana*, Nocardiaceae  
AJ854057, *Nocardia elegans*, Nocardiaceae  
AB126873, *Nocardia vermiculata*, Nocardiaceae  
AF430045, *Nocardia vaccinii*, Nocardiaceae  
AB126874, *Nocardia thailandica*, Nocardiaceae  
AB108775, *Nocardia shimofusensis*, Nocardiaceae  
AB108778, *Nocardia higopensis*, Nocardiaceae  
AJ508748, *Nocardia puris*, Nocardiaceae  
AB108779, *Nocardia araoensis*, Nocardiaceae  
FJ765056, *Nocardia niwae*, Nocardiaceae  
AB108781, *Nocardia arthritis*, Nocardiaceae  
AB275164, *Nocardia amamiensis*, Nocardiaceae  
AB108780, *Nocardia pneumoniae*, Nocardiaceae  
AB184754, *Streptomyces gardneri*, Streptomycetaceae  
AF154129, *Nocardia beijiangensis*, Nocardiaceae  
AB092566, *Nocardia asiatica*, Nocardiaceae  
EU099360, *Nocardia blacklockiae*, Nocardiaceae  
AF430047, *Nocardia transvalensis*, Nocardiaceae  
EU099357, *Nocardia wallacei*, Nocardiaceae  
Z36936, *Nocardia farcinica*, Nocardiaceae  
DQ997045, *Rhodococcus kunmingensis*, Nocardiaceae  
AF490539, *Rhodococcus equi*, Nocardiaceae  
**AB243007, *Smaragdicooccus niigatensis*, type sp., Nocardiaceae**

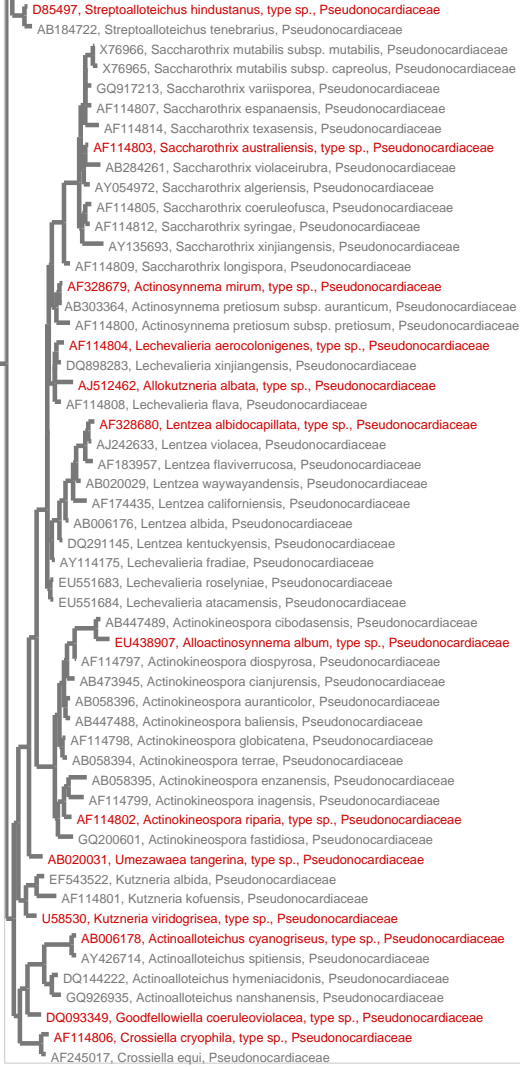
#### Segniliparaceae (2)

**AY608918, *Segniliparus rotundus*, type sp., Segniliparaceae**  
AY608920, *Segniliparus rugosus*, Segniliparaceae

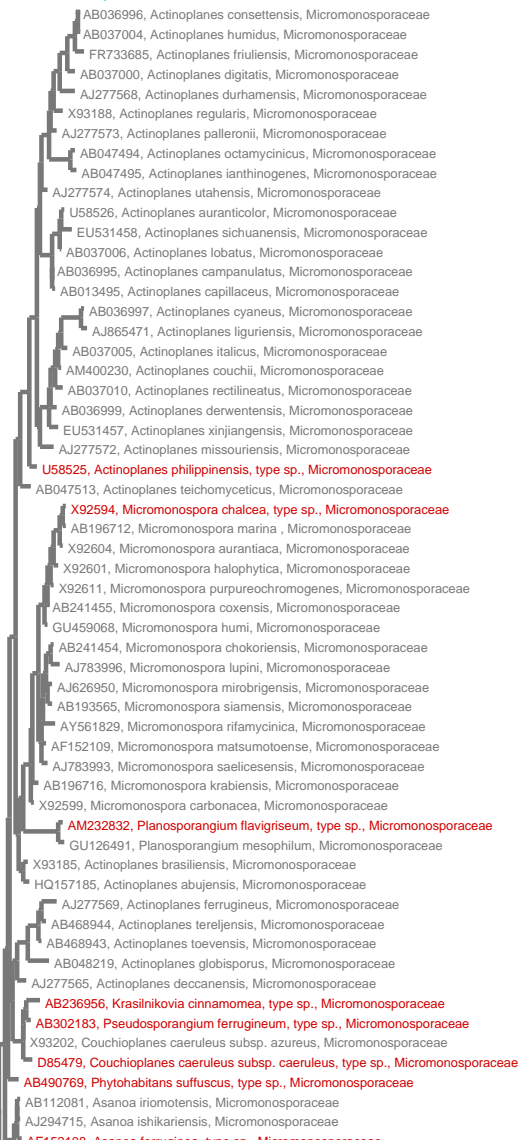
#### Pseudonocardiaceae (218)

AY957506, *Amycolatopsis benzoatilytica*, Pseudonocardiaceae  
AB248537, *Amycolatopsis niigatensis*, Pseudonocardiaceae  
AB248535, *Amycolatopsis echigonensis*, Pseudonocardiaceae  
AJ252832, *Amycolatopsis albidoflavus*, Pseudonocardiaceae  
DQ000196, *Amycolatopsis halotolerans*, Pseudonocardiaceae  
HQ021204, *Amycolatopsis equina*, Pseudonocardiaceae  
HQ021203, *Amycolatopsis hippodromi*, Pseudonocardiaceae  
HQ021202, *Amycolatopsis circi*, Pseudonocardiaceae  
AF222022, *Amycolatopsis rubida*, Pseudonocardiaceae  
AJ508240, *Amycolatopsis vancoresmycina*, Pseudonocardiaceae  
AJ293757, *Amycolatopsis tolypomycina*, Pseudonocardiaceae  
AY262825, *Amycolatopsis plumensis*, Pseudonocardiaceae  
AY183358, *Amycolatopsis lexingtonensis*, Pseudonocardiaceae  
AY183356, *Amycolatopsis pretoriensis*, Pseudonocardiaceae  
AY083603, *Amycolatopsis rifamycinica*, Pseudonocardiaceae  
AY183357, *Amycolatopsis kentuckyensis*, Pseudonocardiaceae  
AJ508239, *Amycolatopsis balhimycina*, Pseudonocardiaceae  
AJ293754, *Amycolatopsis mediterranei*, Pseudonocardiaceae  
AY129753, *Amycolatopsis australiensis*, Pseudonocardiaceae  
AJ293753, *Amycolatopsis coloradensis*, Pseudonocardiaceae  
AF051340, *Amycolatopsis alba*, Pseudonocardiaceae  
FJ581021, *Amycolatopsis thailandensis*, Pseudonocardiaceae  
**AJ400711, *Amycolatopsis orientalis*, type sp., Pseudonocardiaceae**  
AY129760, *Amycolatopsis regiffaucium*, Pseudonocardiaceae  
AJ508238, *Amycolatopsis keratiniphila* subsp. *nogabecina*, Pseudonocardiaceae  
AJ278496, *Amycolatopsis keratiniphila* subsp. *keratiniphila*, Pseudonocardiaceae  
AJ508237, *Amycolatopsis decaplanina*, Pseudonocardiaceae  
AJ508236, *Amycolatopsis japonica*, Pseudonocardiaceae  
AJ293755, *Amycolatopsis lurida*, Pseudonocardiaceae  
AJ400709, *Amycolatopsis azurea*, Pseudonocardiaceae  
DQ076482, *Amycolatopsis minnesotensis*, Pseudonocardiaceae  
DQ486888, *Amycolatopsis nigrescens*, Pseudonocardiaceae  
GQ381310, *Amycolatopsis samanaeae*, Pseudonocardiaceae  
DQ792500, *Amycolatopsis saalfeldensis*, Pseudonocardiaceae  
FJ529702, *Amycolatopsis xylanica*, Pseudonocardiaceae  
DQ000200, *Amycolatopsis jejuensis*, Pseudonocardiaceae  
AJ293756, *Amycolatopsis sulphurea*, Pseudonocardiaceae  
FM177516, *Amycolatopsis ultimotia*, Pseudonocardiaceae  
EU329845, *Amycolatopsis marina*, Pseudonocardiaceae  
AF479268, *Amycolatopsis palatopharyngis*, Pseudonocardiaceae  
FJ606836, *Amycolatopsis halophila*, Pseudonocardiaceae  
HQ436534, *Amycolatopsis salitolerans*, Pseudonocardiaceae  
AF223354, *Amycolatopsis sacchari*, Pseudonocardiaceae  
AB588632, *Micropolyspora internatus*, Nocardiaceae  
**Z38007, *Saccharomonospora viridis*, type sp., Pseudonocardiaceae**  
Z38003, *Saccharomonospora glauca*, Pseudonocardiaceae  
Z38018, *Saccharomonospora cyanea*, Pseudonocardiaceae  
AJ306300, *Saccharomonospora xinjiangensis*, Pseudonocardiaceae  
Z38017, *Saccharomonospora azurea*, Pseudonocardiaceae  
DQ367416, *Saccharomonospora saliphila*, Pseudonocardiaceae  
FJ812357, *Saccharomonospora marina*, Pseudonocardiaceae  
AJ278497, *Saccharomonospora halophila*, Pseudonocardiaceae  
AF540959, *Saccharomonospora naurometabolica*, Pseudonocardiaceae



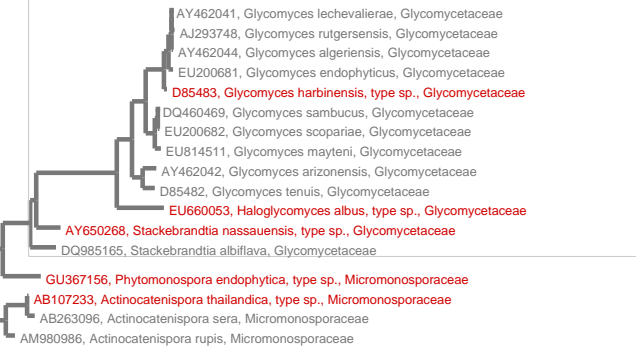


### Micromonosporaceae (136)

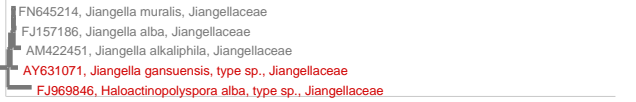




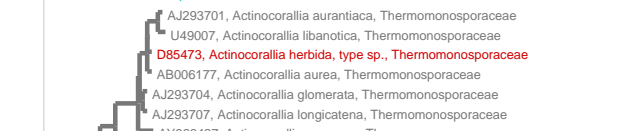
**Glycomycetaceae (13)**



**Jiangellaceae (5)**



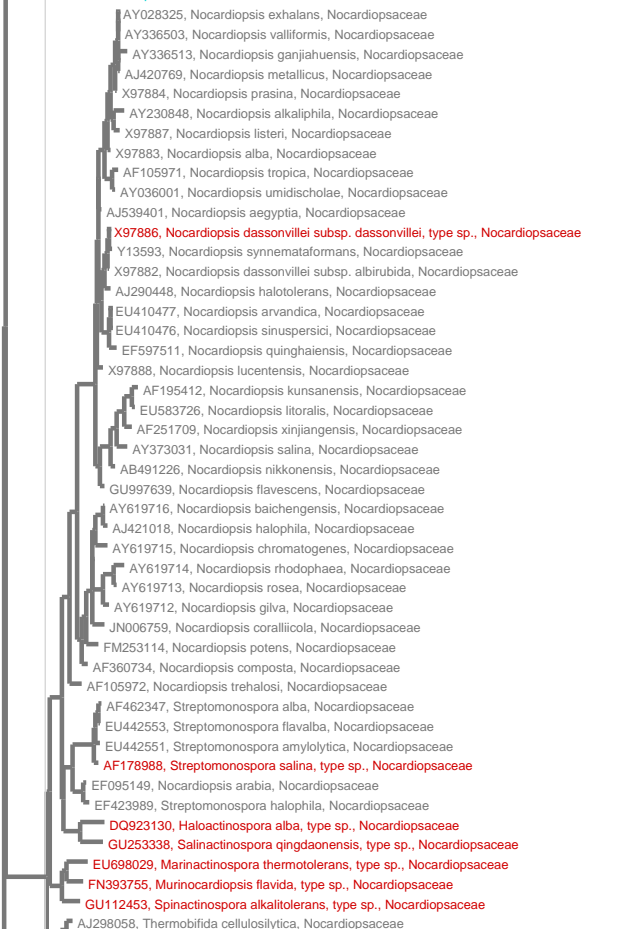
**Thermomonosporaceae (71)**







**Nocardiopsaceae (50)**



AF028245, *Thermobifida fusca*, Nocardioleaceae  
AF002260, *Thermobifida alba*, type sp., Nocardioleaceae  
EU250489, *Thermobifida halotolerans*, Nocardioleaceae

### Streptosporangiaceae (83)

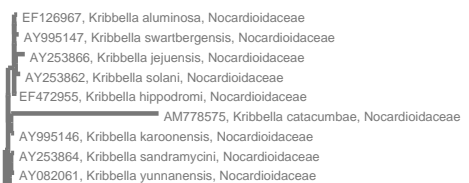
AB039961, *Nonomuraea roseoviolacea* subsp. *carminata*, Streptosporangiaceae  
AB039959, *Nonomuraea roseoviolacea* subsp. *roseoviolacea*, Streptosporangiaceae  
GU002054, *Nonomuraea maritima*, Streptosporangiaceae  
FJ418910, *Nonomuraea jiangxiensis*, Streptosporangiaceae  
FJ157184, *Nonomuraea antimicrobica*, Streptosporangiaceae  
AF277200, *Nonomuraea rubra*, Streptosporangiaceae  
U48843, *Nonomuraea angiospora*, Streptosporangiaceae  
U48983, *Nonomuraea spiralis*, Streptosporangiaceae  
U48975, *Nonomuraea helvata*, Streptosporangiaceae  
U48845, *Nonomuraea ferruginea*, Streptosporangiaceae  
U48977, *Nonomuraea polychroma*, Streptosporangiaceae  
AB274967, *Nonomuraea coxensis*, Streptosporangiaceae  
U48844, *Nonomuraea fastidiosa*, Streptosporangiaceae  
AB274966, *Nonomuraea bangladeshensis*, Streptosporangiaceae  
FJ261959, *Nonomuraea wenchangensis*, Streptosporangiaceae  
AJ746362, *Nonomuraea kuesteri*, Streptosporangiaceae  
AB290014, *Nonomuraea maheshkhaliensis*, Streptosporangiaceae  
AB018787, *Nonomuraea longicatena*, Streptosporangiaceae  
GU367158, *Nonomuraea endophytica*, Streptosporangiaceae  
X97892, *Nonomuraea salmonea*, Streptosporangiaceae  
DQ285421, *Nonomuraea candida*, Streptosporangiaceae  
AF277201, *Nonomuraea turkmeniaca*, Streptosporangiaceae  
AB018046, *Microbispora corallina*, Streptosporangiaceae  
FJ199993, *Microbispora siamensis*, Streptosporangiaceae  
D86936, *Microbispora rosea* subsp. *rosea*, type sp., Streptosporangiaceae  
U48984, *Microbispora rosea* subsp. *aerata*, Streptosporangiaceae  
AF002266, *Microbispora mesophila*, Streptosporangiaceae  
AB370244, *Planotetraspora thailandica*, Streptosporangiaceae  
AB112082, *Planotetraspora silvatica*, Streptosporangiaceae  
D85496, *Planotetraspora mira*, type sp., Streptosporangiaceae  
FJ426333, *Planotetraspora kaengkrahanensis*, Streptosporangiaceae  
AB025318, *Acrocarpospora macrocephala*, Streptosporangiaceae  
AB006174, *Acrocarpospora pleiomorpha*, type sp., Streptosporangiaceae  
AB188150, *Acrocarpospora corrugata*, Streptosporangiaceae  
D85485, *Herbidospira cretacea*, type sp., Streptosporangiaceae  
FJ214356, *Herbidospira osyris*, Streptosporangiaceae  
AY749433, *Herbidospira daliensis*, Streptosporangiaceae  
DQ246623, *Herbidospira yilanensis*, Streptosporangiaceae  
FJ199995, *Herbidospira sakaeratensis*, Streptosporangiaceae  
U48973, *Microtetraspora fusca*, Streptosporangiaceae  
U48976, *Microtetraspora niveoalba*, Streptosporangiaceae  
X97891, *Microtetraspora glauca*, type sp., Streptosporangiaceae  
AB062383, *Microtetraspora malaysiensis*, Streptosporangiaceae  
D85491, *Nonomuraea pusilla*, type sp., Streptosporangiaceae  
X89953, *Sphaerisporangium viridialbum*, Streptosporangiaceae  
AB208714, *Sphaerisporangium melleum*, Streptosporangiaceae  
HM043727, *Sphaerisporangium siamense*, Streptosporangiaceae  
HM037365, *Sphaerisporangium krabiense*, Streptosporangiaceae  
EU499344, *Sphaerisporangium album*, Streptosporangiaceae  
EU499338, *Sphaerisporangium flaviroseum*, Streptosporangiaceae  
AB208718, *Sphaerisporangium rubeum*, Streptosporangiaceae  
X89939, *Sphaerisporangium cinnabarinum*, Streptosporangiaceae  
AB028653, *Planomonospora parontospora* subsp. *antibiotica*, Streptosporangiaceae  
AB062382, *Planomonospora sphaerica*, Streptosporangiaceae  
D85495, *Planomonospora parontospora* subsp. *parontospora*, type sp., Streptosporangiaceae  
AB062381, *Planomonospora alba*, Streptosporangiaceae  
D85494, *Planobispora longispora*, type sp., Streptosporangiaceae  
AB028654, *Planobispora rosea*, Streptosporangiaceae  
AB028655, *Planomonospora venezuelensis*, Streptosporangiaceae  
JF742631, *Nonomuraea soli*, Streptosporangiaceae  
AY039253, *Thermopolyspora flexuosa*, type sp., Streptosporangiaceae  
AF191735, *Streptosporangium purpuratum*, Streptosporangiaceae  
AF191733, *Streptosporangium yunnanense*, Streptosporangiaceae  
U48999, *Streptosporangium vulgare*, Streptosporangiaceae  
X89944, *Streptosporangium longisporum*, Streptosporangiaceae  
AB537172, *Streptosporangium amethystogenes* subsp. *fukuense*, Streptosporangiaceae  
X89935, *Streptosporangium amethystogenes* subsp. *amethystogenes*, Streptosporangiaceae  
AB594818, *Streptosporangium oxazolanicum*, Streptosporangiaceae  
X89934, *Streptosporangium album*, Streptosporangiaceae  
X89947, *Streptosporangium roseum*, type sp., Streptosporangiaceae  
AY996844, *Streptosporangium canum*, Streptosporangiaceae  
AF191734, *Streptosporangium subroseum*, Streptosporangiaceae  
X89945, *Streptosporangium nondiastaticum*, Streptosporangiaceae  
X89946, *Streptosporangium pseudovulgare*, Streptosporangiaceae  
U48992, *Streptosporangium fragile*, Streptosporangiaceae  
X89938, *Streptosporangium cameum*, Streptosporangiaceae  
U48997, *Streptosporangium violaceochromogenes*, Streptosporangiaceae  
U48842, *Nonomuraea africana*, Streptosporangiaceae  
U48979, *Nonomuraea recticatena*, Streptosporangiaceae  
AJ278221, *Nonomuraea roseola*, Streptosporangiaceae  
AB006156, *Nonomuraea dietziae*, Streptosporangiaceae  
FN356742, *Nonomuraea rosea*, Streptosporangiaceae  
HM755723, *Nonomuraea rhizophila*, Streptosporangiaceae  
EU438912, *Sinosporangium album*, type sp., Unclassified Suborder Streptosporangineae  
AF116558, *Thermomonospora chromogena*, Thermomonosporaceae  
U58523, *Thermobispora bispora*, type sp., Pseudonocardioleaceae  
EF601829, *Actinopolymorpha rutila*, Nocardioleaceae  
EU438909, *Actinopolymorpha cephalotaxi*, Nocardioleaceae  
AF237815, *Actinopolymorpha singaporensis*, type sp., Nocardioleaceae  
FJ805429, *Actinopolymorpha pittoispori*, Nocardioleaceae  
EU706350, *Actinopolymorpha alba*, Nocardioleaceae  
AB535715, *Thermosporomyces compositi*, type sp., Nocardioleaceae  
FJ805430, *Flindersiella endophytica*, type sp., Nocardioleaceae

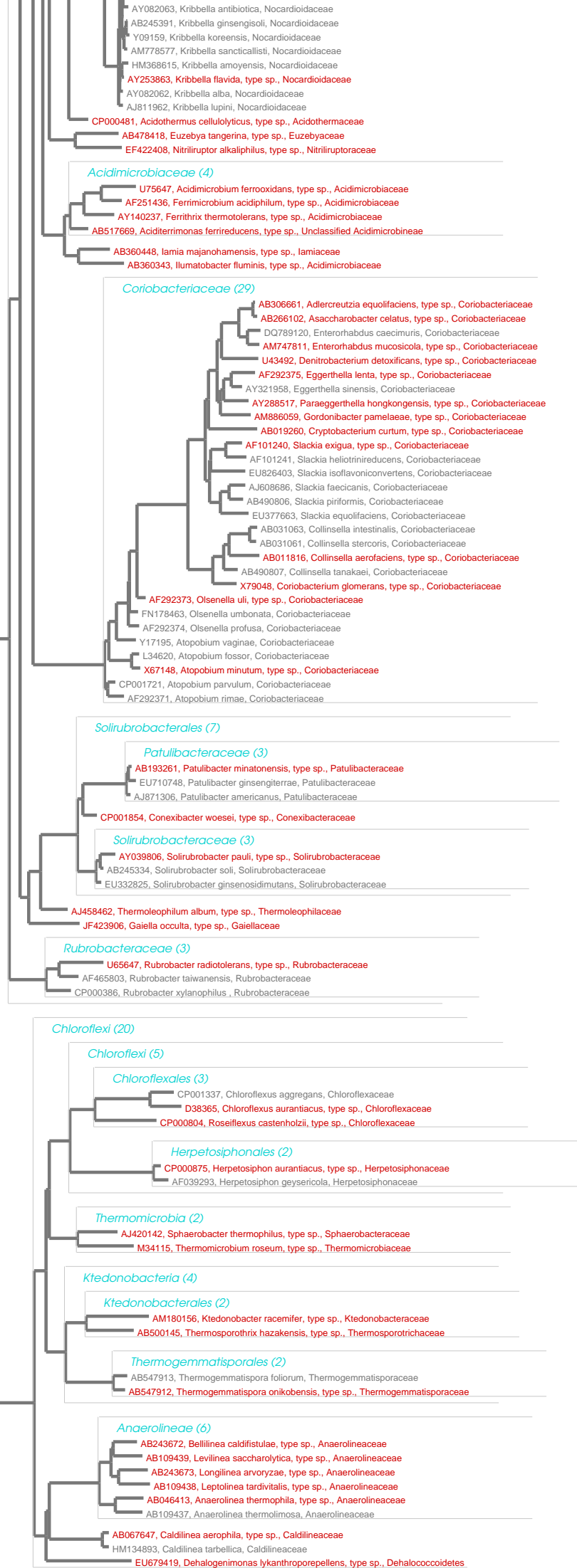
### Nocardioleaceae (71)

AB245396, *Nocardioleaceae* ginsengisoli, Nocardioleaceae  
AF005009, *Pimelobacter simplex*, type sp., Nocardioleaceae  
AF005024, *Nocardioleaceae* nitrophenolicus, Nocardioleaceae  
AB087721, *Nocardioleaceae* aromaticivorans, Nocardioleaceae  
DQ218275, *Nocardioleaceae* kongjuensis, Nocardioleaceae  
FJ423551, *Nocardioleaceae* caeni, Nocardioleaceae  
FM997998, *Nocardioleaceae* ultimimeridianus, Nocardioleaceae  
FM998000, *Nocardioleaceae* maradonensis, Nocardioleaceae  
EF623863, *Nocardioleaceae* humi, Nocardioleaceae  
EF466107, *Nocardioleaceae* tritolerans, Nocardioleaceae  
EF466113, *Nocardioleaceae* agariphilus, Nocardioleaceae  
EF466123, *Nocardioleaceae* islandensis, Nocardioleaceae  
AF004988, *Nocardioleaceae* albus, type sp., Nocardioleaceae



*Propionibacteriaceae* (44)

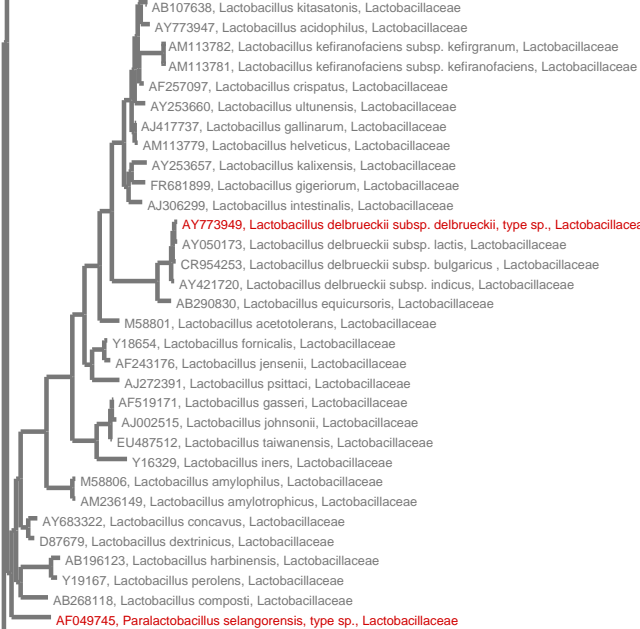




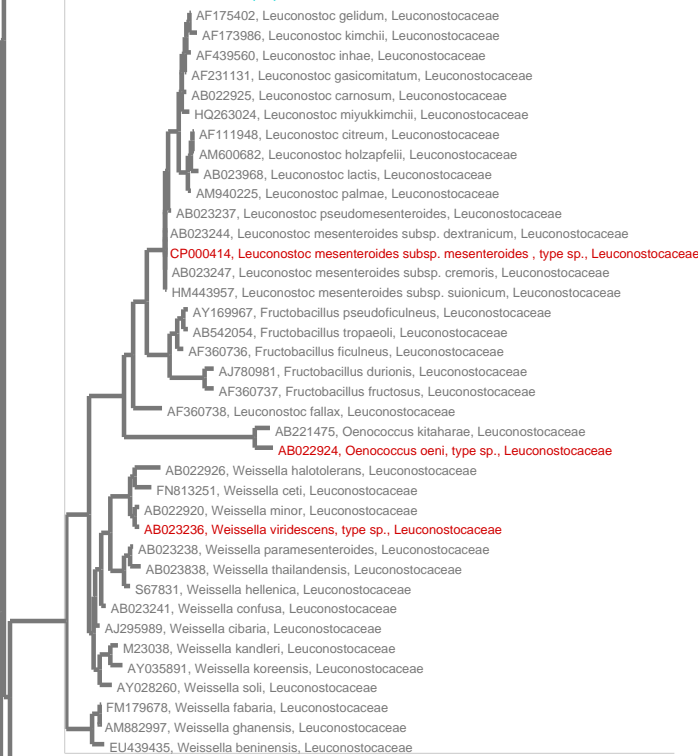
Lactobacillales (407)

Lactobacillaceae and Leuconostocaceae (205)

- AB366386, *Lactobacillus otakiensis*, Lactobacillaceae
- AB366385, *Lactobacillus sunkii*, Lactobacillaceae
- AJ621553, *Lactobacillus kefirii*, Lactobacillaceae
- AB205056, *Lactobacillus parabuchneri*, Lactobacillaceae
- AY026750, *Lactobacillus parakefirii*, Lactobacillaceae
- AB205055, *Lactobacillus buchneri*, Lactobacillaceae
- AB366388, *Lactobacillus kisonensis*, Lactobacillaceae
- AB366389, *Lactobacillus rapi*, Lactobacillaceae
- AF264701, *Lactobacillus diolivorans*, Lactobacillaceae
- AB262734, *Lactobacillus parafarraginis*, Lactobacillaceae
- AB262731, *Lactobacillus farraginis*, Lactobacillaceae
- M58821, *Lactobacillus hilgardii*, Lactobacillaceae
- AB602570, *Lactobacillus senioris*, Lactobacillaceae
- X95421, *Lactobacillus lindneri*, Lactobacillaceae
- AB498045, *Lactobacillus florum*, Lactobacillaceae
- X76327, *Lactobacillus sanfranciscensis*, Lactobacillaceae
- X76330, *Lactobacillus fructivorans*, Lactobacillaceae
- AJ621552, *Lactobacillus homohiochii*, Lactobacillaceae
- Y11374, *Lactobacillus kunkeei*, Lactobacillaceae
- AB572588, *Lactobacillus ozensis*, Lactobacillaceae
- FJ904277, *Lactobacillus koreensis*, Lactobacillaceae
- FN185731, *Lactobacillus paucivorans*, Lactobacillaceae
- AM158249, *Lactobacillus parabrevis*, Lactobacillaceae
- AJ632219, *Lactobacillus hammersii*, Lactobacillaceae
- AB297927, *Lactobacillus senmaizukei*, Lactobacillaceae
- M58810, *Lactobacillus brevis*, Lactobacillaceae
- AJ534844, *Lactobacillus spicheri*, Lactobacillaceae
- AJ632158, *Lactobacillus acidifarinae*, Lactobacillaceae
- AJ632157, *Lactobacillus zymae*, Lactobacillaceae
- AM259118, *Lactobacillus namurensis*, Lactobacillaceae
- AB005893, *Lactobacillus collinoides*, Lactobacillaceae
- AJ786665, *Lactobacillus paracollinoides*, Lactobacillaceae
- AB365975, *Lactobacillus odoratitofui*, Lactobacillaceae
- AB282889, *Lactobacillus similis*, Lactobacillaceae
- EU678893, *Lactobacillus kimchicus*, Lactobacillaceae
- AM113783, *Lactobacillus malefermentans*, Lactobacillaceae
- D79211, *Lactobacillus pentosus*, Lactobacillaceae
- AJ965482, *Lactobacillus plantarum* subsp. *plantarum*, Lactobacillaceae
- AJ640078, *Lactobacillus plantarum* subsp. *argentoratensis*, Lactobacillaceae
- AJ306297, *Lactobacillus paraplanarum*, Lactobacillaceae
- HM443954, *Lactobacillus xiangfangensis*, Lactobacillaceae
- AM905388, *Lactobacillus fabifermentans*, Lactobacillaceae
- AY253659, *Lactobacillus antri*, Lactobacillaceae
- X94229, *Lactobacillus oris*, Lactobacillaceae
- X94230, *Lactobacillus panis*, Lactobacillaceae
- X76329, *Lactobacillus pontis*, Lactobacillaceae
- AF243177, *Lactobacillus vaginalis*, Lactobacillaceae
- AJ250074, *Lactobacillus frumenti*, Lactobacillaceae
- L23507, *Lactobacillus reuteri*, Lactobacillaceae
- AM113776, *Lactobacillus coleohominis*, Lactobacillaceae
- AM279150, *Lactobacillus secaliphilus*, Lactobacillaceae
- AF333975, *Lactobacillus ingluvielii*, Lactobacillaceae
- AB288050, *Lactobacillus equigenerosi*, Lactobacillaceae
- AY253658, *Lactobacillus gastricus*, Lactobacillaceae
- ACGI01000130, *Lactobacillus fermentum*, Lactobacillaceae
- AF126738, *Lactobacillus mucosae*, Lactobacillaceae
- AJ564009, *Lactobacillus rossiae*, Lactobacillaceae
- AB370882, *Lactobacillus siliginis*, Lactobacillaceae
- AY733084, *Lactobacillus oligofermentans*, Lactobacillaceae
- AJ575744, *Lactobacillus suebicus*, Lactobacillaceae
- AJ621556, *Lactobacillus vaccinofermentans*, Lactobacillaceae
- AF469172, *Lactobacillus casei*, Lactobacillaceae
- D86516, *Lactobacillus zeae*, Lactobacillaceae
- AB181950, *Lactobacillus paracasei* subsp. *tolerans*, Lactobacillaceae
- D79212, *Lactobacillus paracasei* subsp. *paracasei*, Lactobacillaceae
- D16552, *Lactobacillus rhamnosus*, Lactobacillaceae
- AB257864, *Lactobacillus camelliae*, Lactobacillaceae
- AF000162, *Lactobacillus manihotivorans*, Lactobacillaceae
- AB608051, *Lactobacillus nasuensis*, Lactobacillaceae
- AF413523, *Lactobacillus pantheris*, Lactobacillaceae
- AB257863, *Lactobacillus thailandensis*, Lactobacillaceae
- M58831, *Lactobacillus sharpeae*, Lactobacillaceae
- AJ305320, *Pediococcus acidilactici*, Lactobacillaceae
- AB362985, *Pediococcus lolii*, Lactobacillaceae
- AJ305321, *Pediococcus pentosaceus*, Lactobacillaceae
- AJ621555, *Pediococcus claussenii*, Lactobacillaceae
- AJ973157, *Pediococcus stilesii*, Lactobacillaceae
- AM709786, *Pediococcus argentinicus*, Lactobacillaceae
- AY956788, *Pediococcus cellicola*, Lactobacillaceae
- AB258357, *Pediococcus siamensis*, Lactobacillaceae
- AY956789, *Pediococcus ethanolivorans*, Lactobacillaceae
- AJ318414, *Pediococcus damnosus*, type sp., Lactobacillaceae**
- AJ271383, *Pediococcus inopinatus*, Lactobacillaceae
- D88528, *Pediococcus parvulus*, Lactobacillaceae
- AB602569, *Lactobacillus saniviri*, Lactobacillaceae
- AF183558, *Lactobacillus kimchii*, Lactobacillaceae
- AB018528, *Lactobacillus paralimentarius*, Lactobacillaceae
- AY681134, *Lactobacillus bobalius*, Lactobacillaceae
- M58804, *Lactobacillus alimentarius*, Lactobacillaceae
- M58817, *Lactobacillus farciminis*, Lactobacillaceae
- HQ322270, *Lactobacillus futsaii*, Lactobacillaceae
- AM285450, *Lactobacillus crustorum*, Lactobacillaceae
- AJ313530, *Lactobacillus mindensis*, Lactobacillaceae
- AY690834, *Lactobacillus nantensis*, Lactobacillaceae
- AJ496791, *Lactobacillus versmoldensis*, Lactobacillaceae
- AB332024, *Lactobacillus nodensis*, Lactobacillaceae
- AJ576006, *Lactobacillus tuccei*, Lactobacillaceae
- AJ575741, *Lactobacillus coryniformis* subsp. *torquens*, Lactobacillaceae
- M58813, *Lactobacillus coryniformis* subsp. *coryniformis*, Lactobacillaceae
- AJ576007, *Lactobacillus rennini*, Lactobacillaceae
- AM113777, *Lactobacillus curvatus*, Lactobacillaceae
- AM113784, *Lactobacillus sakei* subsp. *sakei*, Lactobacillaceae
- AY204889, *Lactobacillus sakei* subsp. *carnosus*, Lactobacillaceae
- AM113778, *Lactobacillus graminis*, Lactobacillaceae
- AB370875, *Lactobacillus fuchuensis*, Lactobacillaceae
- Y17361, *Lactobacillus amyolyticus*, Lactobacillaceae
- AJ306298, *Lactobacillus hamsteri*, Lactobacillaceae
- AY944408, *Lactobacillus amylovorus*, Lactobacillaceae

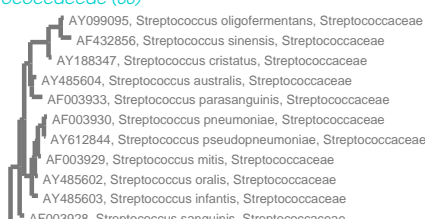


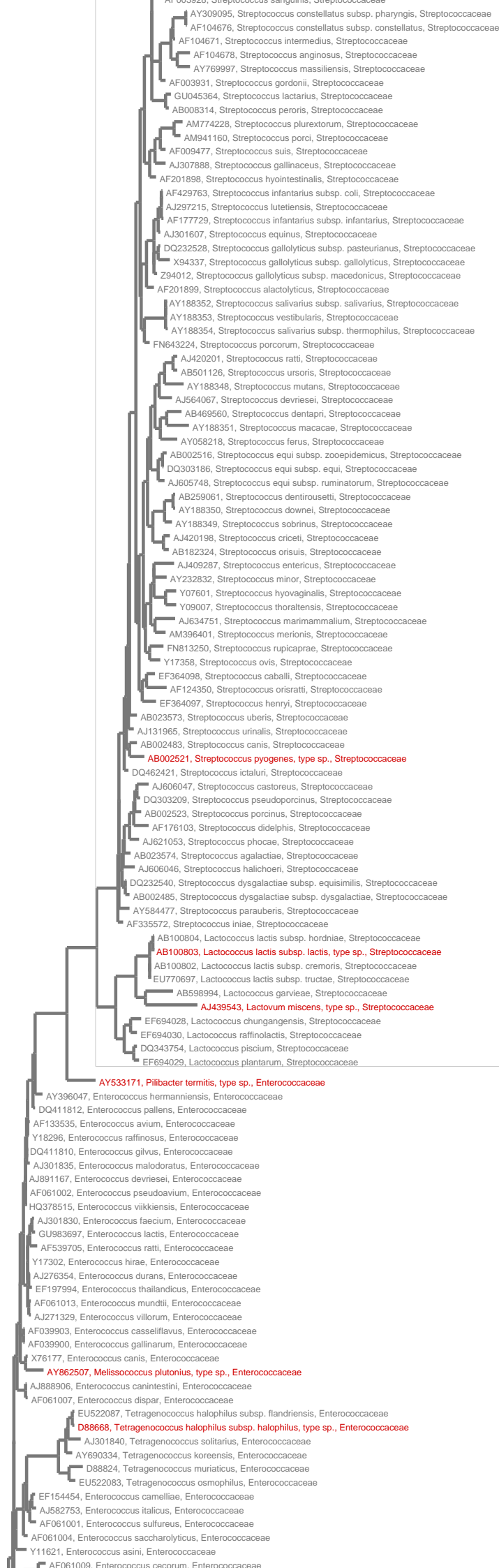
**Leuconostocaceae (38)**



**Enterococcaceae and Streptococcaceae (145)**

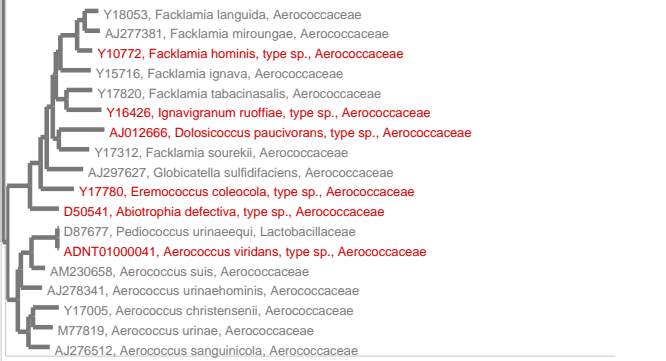
**Streptococcaceae (88)**







**Aerococcaceae (18)**



**Tenericutes (186)**

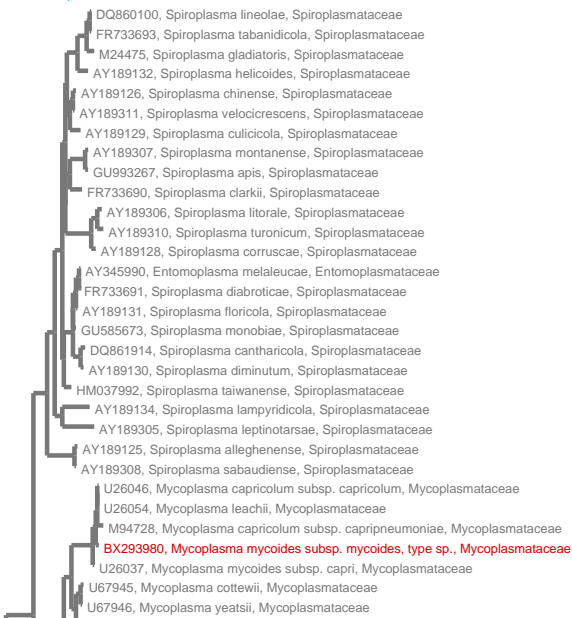
**Mycoplasmatales (109)**







Entomoplasmatales (59)



- U26055, *Mycoplasma putrefaciens*, Mycoplasmataceae
- AF305693, *Mesoplasma entomophilum*, Entomoplasmataceae
- AY174170, *Mesoplasma grammopterae*, Entomoplasmataceae
- AF300327, *Mesoplasma florum*, type sp., Entomoplasmataceae**
- AY187288, *Mesoplasma tabanidae*, Entomoplasmataceae
- DQ514605, *Mesoplasma coleopterae*, Entomoplasmataceae
- AY166704, *Mesoplasma chauliocola*, Entomoplasmataceae
- AY168929, *Mesoplasma corruscae*, Entomoplasmataceae
- AY351331, *Mesoplasma seiffertii*, Entomoplasmataceae
- AY231458, *Mesoplasma syrphidae*, Entomoplasmataceae
- AY177627, *Mesoplasma photuris*, Entomoplasmataceae
- AF036954, *Entomoplasma freundtii*, Entomoplasmataceae
- AY157871, *Entomoplasma somnilux*, Entomoplasmataceae
- AF547212, *Entomoplasma lucivorax*, Entomoplasmataceae
- AY155670, *Entomoplasma luminosum*, Entomoplasmataceae
- AF303132, *Mesoplasma lactucae*, Entomoplasmataceae

**Spiroplasmataceae (10)**

- X63781, *Spiroplasma citri*, type sp., Spiroplasmataceae**
- AY325304, *Spiroplasma melliferum*, Spiroplasmataceae
- GU562447, *Spiroplasma kunkellii*, Spiroplasmataceae
- AY772395, *Spiroplasma phoeniceum*, Spiroplasmataceae
- AY189133, *Spiroplasma insolitum*, Spiroplasmataceae
- AY771927, *Spiroplasma penaei*, Spiroplasmataceae
- M24483, *Spiroplasma poulsonii*, Spiroplasmataceae
- DQ917753, *Spiroplasma eriocheiris*, Spiroplasmataceae
- AY189127, *Spiroplasma chrysopicala*, Spiroplasmataceae
- AY189309, *Spiroplasma syrphidicola*, Spiroplasmataceae

- GU585671, *Spiroplasma ixodetis*, Spiroplasmataceae
- GU993266, *Spiroplasma platyhelix*, Spiroplasmataceae

**Acholeplasmataceae (15)**

- U14905, *Acholeplasma laidlawii*, type sp., Acholeplasmataceae**
- AY257485, *Acholeplasma pleciae*, Acholeplasmataceae
- AY538166, *Acholeplasma granularum*, Acholeplasmataceae
- U14904, *Acholeplasma oculi*, Acholeplasmataceae
- AY538165, *Acholeplasma equifetale*, Acholeplasmataceae
- AY538167, *Acholeplasma hippikon*, Acholeplasmataceae
- AY538164, *Acholeplasma cavigenitalium*, Acholeplasmataceae
- M23933, *Acholeplasma modicum*, Acholeplasmataceae
- AF412968, *Acholeplasma axanthum*, Acholeplasmataceae
- L33734, *Acholeplasma palmae*, Acholeplasmataceae
- AY538170, *Acholeplasma parvum*, Acholeplasmataceae
- U16758, *Mycoplasma feliminutum*, Mycoplasmataceae
- AY538168, *Acholeplasma morum*, Acholeplasmataceae
- AF031479, *Acholeplasma vituli*, Acholeplasmataceae
- AY538163, *Acholeplasma brassicae*, Acholeplasmataceae

**Anaeroplasmataceae (3)**

- M25049, *Anaeroplasma bactoclasticum*, Anaeroplasmataceae
- M23934, *Anaeroplasma variium*, Anaeroplasmataceae
- M25050, *Anaeroplasma abactoclasticum*, type sp., Anaeroplasmataceae**

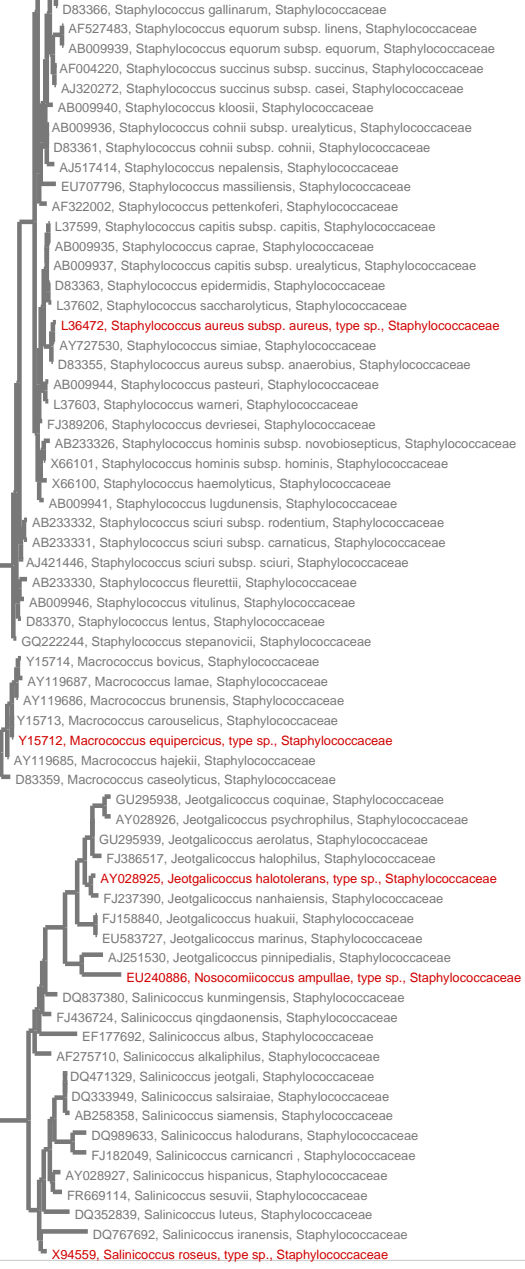
- AJ417075, *Allobaculum stercoricans*, type sp., Erysipelotrichaceae**
- M59230, *Eubacterium bifforme*, Eubacteriaceae
- L34617, *Eubacterium cylindroides*, Eubacteriaceae
- M23730, *Streptococcus pleomorphus*, Streptococcaceae
- M23732, *Clostridium innocuum*, Clostridiaceae
- L34683, *Eubacterium tortuosum*, Eubacteriaceae
- L34682, *Eubacterium dolichum*, Eubacteriaceae
- AF220064, *Bulleidia extracta*, type sp., Erysipelotrichaceae**
- AB031056, *Solobacterium moorei*, type sp., Erysipelotrichaceae**
- GU585668, *Anaerorhabdus furcosa*, type sp., Bacteroidaceae**
- Y11466, *Holdemania filiformis*, type sp., Erysipelotrichaceae**
- AB034200, *Erysipelothrix rhusiopathiae*, type sp., Erysipelotrichaceae**
- AB055906, *Erysipelothrix tonsillarum*, Erysipelotrichaceae
- AJ550617, *Erysipelothrix inopinata*, Erysipelotrichaceae
- AJ621549, *Eggerthia cateniformis*, type sp., Erysipelotrichaceae**
- AB210824, *Sharpea azabuensis*, type sp., Lactobacillaceae**
- AB210825, *Kandleria vitulina*, type sp., Erysipelotrichaceae**
- AB030224, *Catenibacterium mitsuokai*, type sp., Erysipelotrichaceae**
- AB030219, *Coprobacillus cateniformis*, type sp., Erysipelotrichaceae**
- Y18188, *Clostridium cocleatum*, Clostridiaceae
- X75908, *Clostridium spiroforme*, Clostridiaceae
- DQ100445, *Clostridium saccharogumia*, Clostridiaceae
- X73440, *Clostridium ramosum*, Clostridiaceae
- M22351, *Asteroleplasma anaerobium*, type sp., Anaeroplasmataceae**
- AF349724, *Turicibacter sanguinis*, type sp., Erysipelotrichaceae**
- EF999972, *Haloplasma contractile*, type sp., Haloplasmataceae**

**Incertae Sedis XI (7)**

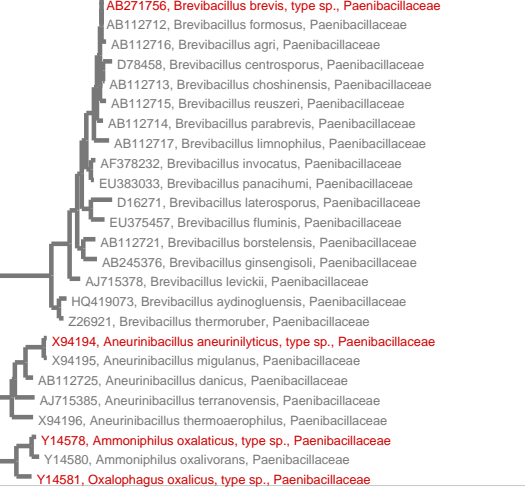
- Y13365, *Gemella bergeri*, Unclassified Bacillales
- AJ251987, *Gemella curiculi*, Unclassified Bacillales
- Y17280, *Gemella palaticanis*, Unclassified Bacillales
- EU427463, *Gemella asaccharolytica*, Unclassified Bacillales
- L14327, *Gemella morbillorum*, Unclassified Bacillales
- L14326, *Gemella haemolysans*, type sp., Unclassified Bacillales**
- Y13364, *Gemella sanguinis*, Unclassified Bacillales

**Staphylococcaceae (87)**

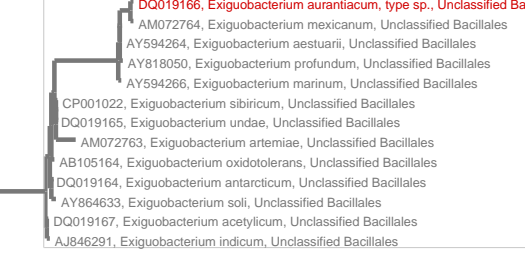
- AB009938, *Staphylococcus delphini*, Staphylococcaceae
- D83369, *Staphylococcus intermedius*, Staphylococcaceae
- AJ780976, *Staphylococcus pseudintermedius*, Staphylococcaceae
- S83568, *Staphylococcus schleiferi* subsp. *schleiferi*, Staphylococcaceae
- AB009945, *Staphylococcus schleiferi* subsp. *coagulans*, Staphylococcaceae
- HM484980, *Staphylococcus agnetis*, Staphylococcaceae
- D83368, *Staphylococcus hyicus*, Staphylococcaceae
- D83360, *Staphylococcus chromogenes*, Staphylococcaceae
- D83364, *Staphylococcus felis*, Staphylococcaceae
- X84731, *Staphylococcus lutrae*, Staphylococcaceae
- EU888120, *Staphylococcus microti*, Staphylococcaceae
- FM242137, *Staphylococcus rostri*, Staphylococcaceae
- FR733703, *Staphylococcus muscae*, Staphylococcaceae
- Y15750, *Staphylococcus condimenti*, Staphylococcaceae
- Y15754, *Staphylococcus piscifermentans*, Staphylococcaceae
- AB233329, *Staphylococcus carnosus* subsp. *utilis*, Staphylococcaceae
- D83373, *Staphylococcus simulans*, Staphylococcaceae
- AB009934, *Staphylococcus carnosus* subsp. *carnosus*, Staphylococcaceae
- D83358, *Staphylococcus auricularis*, Staphylococcaceae
- AP008934, *Staphylococcus saprophyticus* subsp. *saprophyticus*, Staphylococcaceae
- AB233327, *Staphylococcus saprophyticus* subsp. *bovis*, Staphylococcaceae
- D83374, *Staphylococcus xylosus*, Staphylococcaceae
- AB009933, *Staphylococcus arlettae*, Staphylococcaceae



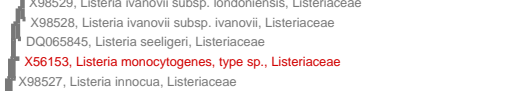
**Paenibacillaceae 2 (25)**



**Incertae Sedis XII (13)**



**Listeriaceae (11)**





*Planococcaceae* (75)



AB10194, *Ureibacillus thermospaerius*, type sp., Planococcaceae  
AY677116, *Bacillus massiliensis*, Bacillaceae  
DQ465405, *Bacillus decisifrons*, Bacillaceae  
AJ277983, *Psychrobacillus psychrotolerans*, Bacillaceae  
AJ277984, *Psychrobacillus psychrodurans*, Bacillaceae  
AM980508, *Psychrobacillus insolitus*, type sp., Bacillaceae  
GQ927308, *Chryseomicrobium imtechense*, type sp., Planococcaceae  
AB271738, *Kurthia gibsonii*, Planococcaceae  
AB271740, *Kurthia zopfii*, type sp., Planococcaceae  
AJ605774, *Kurthia sibirica*, Planococcaceae  
AJ627212, *Viridibacillus arenosi*, Bacillaceae  
AJ627211, *Viridibacillus arvi*, type sp., Bacillaceae  
AF169520, *Viridibacillus neidei*, Bacillaceae  
AB271739, *Rummeliibacillus pycnus*, Unclassified Bacillales  
DQ870754, *Rummeliibacillus stabekisii*, type sp., Unclassified Bacillales  
AJ514408, *Paenisporosarcina macmurdoensis*, Planococcaceae  
EF154512, *Sporosarcina antarctica*, Planococcaceae  
DQ333897, *Paenisporosarcina quisquiliarum*, type sp., Planococcaceae  
AY190535, *Jeotgalibacillus campisalis*, Planococcaceae  
AJ237708, *Jeotgalibacillus marinus*, Planococcaceae  
FR693626, *Jeotgalibacillus soli*, Planococcaceae  
AF281158, *Jeotgalibacillus alimentarius*, type sp., Planococcaceae  
EU874389, *Jeotgalibacillus salarius*, Planococcaceae

AB021192, *Bacillus mycoides*, Bacillaceae  
AB021199, *Bacillus weihenstephanensis*, Bacillaceae  
D16281, *Bacillus thuringiensis*, Bacillaceae  
AE016877, *Bacillus cereus*, Bacillaceae  
AB190217, *Bacillus anthracis*, Bacillaceae  
AF013121, *Bacillus pseudomycoloides*, Bacillaceae  
AF483625, *Bacillus aquimaris*, Bacillaceae  
AB099708, *Bacillus vietnamensis*, Bacillaceae  
AF483624, *Bacillus marisflavi*, Bacillaceae  
AY667495, *Bacillus seohaeanensis*, Bacillaceae  
EF014452, *Bacillus coahuilensis*, Bacillaceae  
EU861362, *Bacillus horneckiae*, Bacillaceae  
FN995265, *Bacillus kochii*, Bacillaceae  
FR666703, *Bacillus purgationiresistans*, Bacillaceae  
X76447, *Bacillus halmapatul*, Bacillaceae  
AB043865, *Bacillus horikoshii*, Bacillaceae  
X76437, *Bacillus cohnii*, Bacillaceae  
DQ374637, *Bacillus acidiceles*, Bacillaceae  
AJ419629, *Bacillus luciferensis*, Bacillaceae  
GU434676, *Bacillus endoradicis*, Bacillaceae  
AB021185, *Bacillus flexus*, Bacillaceae  
D16273, *Bacillus megaterium*, Bacillaceae  
AB049195, *Bacillus funiculus*, Bacillaceae  
AB245380, *Bacillus panaciterrae*, Bacillaceae  
AB363732, *Bacillus azotoformans*, Bacillaceae  
AJ316309, *Bacillus muralis*, Bacillaceae  
AM747813, *Brevibacterium frigoritolerans*, Brevibacteriaceae  
AJ439078, *Bacillus simplex*, Bacillaceae  
EF206294, *Bacillus butanolivorans*, Bacillaceae  
AB021195, *Bacillus psychrosaccharolyticus*, Bacillaceae  
AB109209, *Bacillus asahii*, Bacillaceae  
AJ542512, *Bacillus novalis*, Bacillaceae  
AJ542509, *Bacillus vireti*, Bacillaceae  
AJ542506, *Bacillus drementensis*, Bacillaceae  
AJ542508, *Bacillus bataviensis*, Bacillaceae  
AJ542513, *Bacillus soli*, Bacillaceae  
AJ250056, *Bacillus fumaroli*, Bacillaceae  
AB021194, *Bacillus niacini*, Bacillaceae  
AB245377, *Bacillus pocheonensis*, Bacillaceae  
X60615, *Bacillus fastidiosus*, Bacillaceae  
AY608605, *Bacillus litoralis*, Bacillaceae  
AY998119, *Bacillus niabensis*, Bacillaceae  
AJ583158, *Bacillus indicus*, Bacillaceae  
AY550276, *Bacillus cibi*, Bacillaceae  
AY904033, *Bacillus idriensis*, Bacillaceae  
AJ781029, *Bacillus herbersteinensis*, Bacillaceae  
FM162181, *Bacillus galliciensis*, Bacillaceae  
GQ925365, *Bacillus luteolus*, Bacillaceae  
AJ627210, *Bacillus humi*, Bacillaceae  
AY829448, *Bacillus alkalitelluris*, Bacillaceae  
AB198719, *Bacillus boroniphilus*, Bacillaceae  
AB262082, *Bacillus selenatarsenatis*, Bacillaceae  
AF221061, *Bacillus jeotgali*, Bacillaceae  
FR733689, *Bacillus subterraneus*, Bacillaceae  
DQ371431, *Bacillus thioparans*, Bacillaceae  
AJ717382, *Bacillus foraminis*, Bacillaceae  
AY043084, *Bacillus circulans*, Bacillaceae  
EU656111, *Bacillus nealsonii*, Bacillaceae  
EU603328, *Bacillus korlensis*, Bacillaceae  
AF071856, *Bacillus siralis*, Bacillaceae  
X60611, *Bacillus benzoovorans*, Bacillaceae  
D16268, *Bacillus firmus*, Bacillaceae  
AY904032, *Bacillus infantis*, Bacillaceae  
GQ292772, *Bacillus oceanisediminis*, Bacillaceae  
EU364818, *Falsibacillus pallidus*, type sp., Bacillaceae  
DQ280367, *Bacillus kribbensis*, Bacillaceae

#### Bacillaceae 1 (21)

AB255669, *Bacillus amyloliquefaciens*, Bacillaceae  
GQ281299, *Bacillus siamensis*, Bacillaceae  
EU194897, *Bacillus methylotrophicus*, Bacillaceae  
AJ276351, *Bacillus subtilis* subsp. *subtilis*, type sp., Bacillaceae  
EU138467, *Bacillus subtilis* subsp. *inaquosorum*, Bacillaceae  
AB021191, *Bacillus mojavensis*, Bacillaceae  
AM747812, *Brevibacterium halotolerans*, Brevibacteriaceae  
AF074970, *Bacillus subtilis* subsp. *spizizenii*, Bacillaceae  
HQ223107, *Bacillus tequilensis*, Bacillaceae  
AB021198, *Bacillus vallismortis*, Bacillaceae  
AJ831844, *Bacillus aerophilus*, Bacillaceae  
AJ831841, *Bacillus stratosphericus*, Bacillaceae  
AJ831842, *Bacillus altitudinis*, Bacillaceae  
AY876289, *Bacillus pumilus*, Bacillaceae  
AF234854, *Bacillus safensis*, Bacillaceae  
AB021181, *Bacillus atrophaeus*, Bacillaceae  
CP000560, *Bacillus amyloliquefaciens* subsp. *plantarum*, Bacillaceae  
FN597644, *Bacillus amyloliquefaciens* subsp. *amyloliquefaciens*, Bacillaceae  
AJ831843, *Bacillus aerius*, Bacillaceae  
CP000002, *Bacillus licheniformis*, Bacillaceae  
AF302118, *Bacillus sonorensis*, Bacillaceae

AB021182, *Bacillus carboniphilus*, Bacillaceae

AF295302, *Bacillus endophyticus*, Bacillaceae  
FJ514932, *Bacillus chungangensis*, Bacillaceae  
AM503357, *Bacillus isabelliae*, Bacillaceae  
AB271752, *Bacillus coagulans*, Bacillaceae  
EF379274, *Bacillus acidiproducens*, Bacillaceae  
AY988598, *Bacillus oleronius*, Bacillaceae  
U49078, *Bacillus sporothermodurans*, Bacillaceae  
AF547209, *Bacillus acidicola*, Bacillaceae  
AB245378, *Bacillus ginsengihumi*, Bacillaceae  
AJ250318, *Bacillus shackletonii*, Bacillaceae  
AY793550, *Bacillus lehensis*, Bacillaceae  
AB188090, *Bacillus oshimensis*, Bacillaceae  
AY258614, *Bacillus patagoniensis*, Bacillaceae  
HM054474, *Bacillus xiaoxiensis*, Bacillaceae  
X76440, *Bacillus clausii*, Bacillaceae  
X76446, *Bacillus gibsonii*, Bacillaceae  
AJ880003, *Bacillus plakortidis*, Bacillaceae  
AJ316316, *Bacillus murimartini*, Bacillaceae  
X76449, *Bacillus pseudocaliphilus*, Bacillaceae  
AB434284, *Bacillus tyroxylicola*, Bacillaceae  
X76436, *Bacillus alcalophilus*, Bacillaceae  
AY376312, *Bacillus bogoriensis*, Bacillaceae  
AB043858, *Bacillus akibai*, Bacillaceae  
AJ060037, *Bacillus alkalisediminis*, Bacillaceae  
AB086897, *Bacillus krulwichiae*, Bacillaceae  
DQ026060, *Bacillus okhensis*, Bacillaceae  
AB043851, *Bacillus wakoensis*, Bacillaceae  
AB043846, *Bacillus hemicellulosilyticus*, Bacillaceae  
GQ292773, *Bacillus nanhaiisediminis*, Bacillaceae  
DQ675454, *Anaerobacillus alkalilacustris*, Bacillaceae  
AY032601, *Bacillus macyae*, Bacillaceae  
AF064705, *Anaerobacillus arseniciselenatis*, type sp., Bacillaceae  
EU143680, *Anaerobacillus alkalidiazotrophicus*, Bacillaceae  
EF422411, *Bacillus alkalinitrilicus*, Bacillaceae  
X76439, *Bacillus pseudofirmus*, Bacillaceae  
EU621902, *Bacillus marmarensis*, Bacillaceae  
AJ302709, *Bacillus halodurans*, Bacillaceae  
AB047684, *Bacillus okuhidensis*, Bacillaceae

#### *Sporolactobacillaceae* (8)

AB101595, *Sporolactobacillus inulinus*, type sp., Sporolactobacillaceae  
AJ634662, *Sporolactobacillus terrae*, Sporolactobacillaceae  
AB374522, *Sporolactobacillus putidus*, Sporolactobacillaceae  
EF581819, *Sporolactobacillus vineae*, Sporolactobacillaceae  
AJ698860, *Sporolactobacillus nakayamae* subsp. racemicus, Sporolactobacillaceae  
AJ634663, *Sporolactobacillus nakayamae* subsp. nakayamae, Sporolactobacillaceae  
D16270, *Sporolactobacillus laevolacticus*, Sporolactobacillaceae  
AB374517, *Sporolactobacillus kofuensis*, Sporolactobacillaceae

AJ551329, *Bacillus gelatini*, Bacillaceae  
EU046268, *Bacillus solisalsi*, Bacillaceae  
AY373018, *Bacillus macauensis*, Bacillaceae  
EU939689, *Bacillus rigui*, Bacillaceae  
AJ422145, *Bacillus barbaricus*, Bacillaceae  
GU477780, *Bacillus nanhaiensis*, Bacillaceae  
AJ606700, *Bacillus arsenicus*, Bacillaceae  
AJ315075, *Bacillus decolorationis*, Bacillaceae  
JN187498, *Bacillus berkeleyi*, Bacillaceae  
AF541966, *Bacillus hwajinpoensis*, Bacillaceae  
HM460885, *Bacillus hemiscentroti*, Bacillaceae  
AY228462, *Bacillus algicola*, Bacillaceae  
AY603978, *Bacillus taeanensis*, Bacillaceae

#### *Bacillaceae* 2 (129)

EF486356, *Halobacillus campisalis*, Bacillaceae  
EF612763, *Halobacillus seohaensis*, Bacillaceae  
AF500003, *Halobacillus salinus*, Bacillaceae  
FJ456889, *Halobacillus salsuginis*, Bacillaceae  
AM295006, *Halobacillus alkaliphilus*, Bacillaceae  
HE717023, *Halobacillus halophilus*, type sp., Bacillaceae  
X94558, *Halobacillus litoralis*, Bacillaceae  
AY881246, *Halobacillus yeomjeoni*, Bacillaceae  
AY190534, *Halobacillus locisalis*, Bacillaceae  
AB243865, *Halobacillus faecis*, Bacillaceae  
AJ310149, *Halobacillus trueperi*, Bacillaceae  
AY351389, *Halobacillus aidingensis*, Bacillaceae  
AB195680, *Halobacillus kuroshimensis*, Bacillaceae  
AB021188, *Salimicrobium halophilum*, Bacillaceae  
DQ227305, *Salimicrobium luteum*, Bacillaceae  
FJ357160, *Salimicrobium flavidum*, Bacillaceae  
FR714935, *Salimicrobium salexigens*, Bacillaceae  
X90834, *Salimicrobium album*, type sp., Bacillaceae  
AB189298, *Halobacillus profundi*, Bacillaceae  
AJ486874, *Halobacillus karajensis*, Bacillaceae  
AY351395, *Halobacillus dabanensis*, Bacillaceae  
DQ888316, *Halobacillus mangrovi*, Bacillaceae  
AY553296, *Pontibacillus chungwhensis*, type sp., Bacillaceae  
AY603977, *Pontibacillus marinus*, Bacillaceae  
EU583724, *Pontibacillus litoralis*, Bacillaceae  
EF533969, *Pontibacillus yanchengensis*, Bacillaceae  
EU583728, *Pontibacillus halophilus*, Bacillaceae  
AJ717299, *Thalassobacillus devorans*, type sp., Bacillaceae  
FM864226, *Thalassobacillus cyri*, Bacillaceae  
EU817571, *Thalassobacillus hwangdonensis*, Bacillaceae  
FN690978, *Thalassobacillus pellis*, Bacillaceae  
DQ989634, *Sediminibacillus albus*, Bacillaceae  
AM905297, *Sediminibacillus halophilus*, type sp., Bacillaceae  
AY616012, *Virgibacillus koreensis*, Bacillaceae  
AB196783, *Halolactibacillus halophilus*, type sp., Bacillaceae  
AB196784, *Halolactibacillus miurensis*, Bacillaceae  
EF554593, *Halolactibacillus alkaliphilus*, Bacillaceae  
FJ746578, *Streptohalobacillus salinus*, type sp., Bacillaceae  
AF418603, *Amphibacillus fermentum*, Bacillaceae  
EU135728, *Paraliobacillus quinghaiensis*, Bacillaceae  
AB243866, *Amphibacillus sediminis*, Bacillaceae  
FJ169626, *Amphibacillus jilinensis*, Bacillaceae  
EU143681, *Natronobacillus azotifigens*, type sp., Bacillaceae  
D82065, *Amphibacillus xylanus*, type sp., Bacillaceae  
AF418602, *Amphibacillus tropicus*, Bacillaceae  
AB087828, *Paraliobacillus ryukyensis*, type sp., Bacillaceae  
DQ664540, *Gracilibacillus lacisalsi*, Bacillaceae  
FJ182214, *Gracilibacillus thailandensis*, Bacillaceae  
EU784646, *Gracilibacillus saliphilus*, Bacillaceae  
AM040716, *Gracilibacillus orientalis*, Bacillaceae  
AB197126, *Gracilibacillus boracitolerans*, Bacillaceae

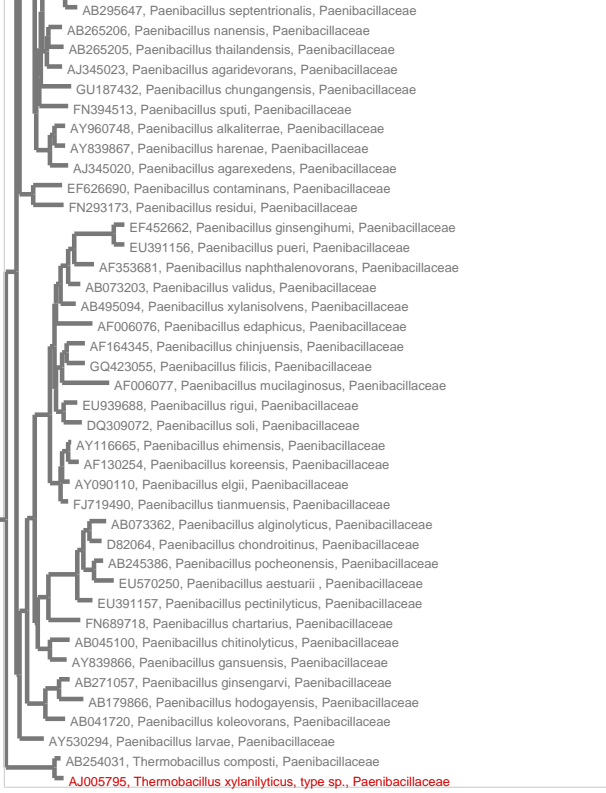


*Paenibacillaceae* 1 (155)

D85396, *Paenibacillus amylolyticus*, Paenibacillaceae

EU558281, Paenibacillus xylanexedens, Paenibacillaceae  
EU179327, Paenibacillus taichungensis, Paenibacillaceae  
AB045094, Paenibacillus pabuli, Paenibacillaceae  
AY427832, Paenibacillus xylanilyticus, Paenibacillaceae  
AJ716019, Paenibacillus barcinonensis, Paenibacillaceae  
AB073192, Paenibacillus illinoisensis, Paenibacillaceae  
AY323608, Paenibacillus massiliensis, Paenibacillaceae  
AB245384, Paenibacillus panacisoli, Paenibacillaceae  
EF212893, Paenibacillus provencensis, Paenibacillaceae  
EF212892, Paenibacillus urinialis, Paenibacillaceae  
AF273740, Paenibacillus brasiliensis, Paenibacillaceae  
AF391124, Paenibacillus terrae, Paenibacillaceae  
**D16276, Paenibacillus polymyxa, type sp., Paenibacillaceae**  
AF391123, Paenibacillus kribbensis, Paenibacillaceae  
AJ320494, Paenibacillus peoriae, Paenibacillaceae  
AJ271157, Paenibacillus jamilae, Paenibacillaceae  
EU741036, Paenibacillus hunanensis, Paenibacillaceae  
AB073189, Paenibacillus glucanolyticus, Paenibacillaceae  
AB073188, Paenibacillus lautus, Paenibacillaceae  
AY257868, Paenibacillus lactis, Paenibacillaceae  
AF021924, Paenibacillus campinasensis, Paenibacillaceae  
EU888513, Paenibacillus purispatii, Paenibacillaceae  
FN556467, Paenibacillus uliginis, Paenibacillaceae  
AJ318909, Paenibacillus anaericanus, Paenibacillaceae  
GQ355277, Paenibacillus sediminis, Paenibacillaceae  
AB248087, Paenibacillus terrigena, Paenibacillaceae  
GQ423056, Paenibacillus pini, Paenibacillaceae  
AF378694, Paenibacillus turicensis, Paenibacillaceae  
AJ575658, Paenibacillus cineris, Paenibacillaceae  
AY751754, Paenibacillus rhizosphaerae, Paenibacillaceae  
AY208751, Paenibacillus favisporus, Paenibacillaceae  
FJ178001, Paenibacillus cellulotrophicus, Paenibacillaceae  
AJ272249, Paenibacillus azoreducens, Paenibacillaceae  
AB073194, Paenibacillus chibensis, Paenibacillaceae  
AJ250317, Paenibacillus cookii, Paenibacillaceae  
AY741810, Paenibacillus motobuensis, Paenibacillaceae  
AY167814, Paenibacillus barengoltzii, Paenibacillaceae  
EU977789, Paenibacillus phoenicis, Paenibacillaceae  
AY323612, Paenibacillus timonensis, Paenibacillaceae  
AY323609, Paenibacillus sanguinis, Paenibacillaceae  
GU187433, Paenibacillus puldeungensis, Paenibacillaceae  
AB073196, Paenibacillus macerans, Paenibacillaceae  
EU081509, Paenibacillus konsidensis, Paenibacillaceae  
GQ303568, Fontibacillus panacisegetis, Paenibacillaceae  
**DQ023221, Fontibacillus aquaticus, type sp., Paenibacillaceae**  
DQ453131, Paenibacillus fonticola, Paenibacillaceae  
AY847463, Paenibacillus woosongensis, Paenibacillaceae  
AF480935, Paenibacillus nematophilus, Paenibacillaceae  
GQ214052, Cohnella luojiensis, Paenibacillaceae  
HQ315787, Cohnella arctica, Paenibacillaceae  
GU181267, Cohnella suwonensis, Paenibacillaceae  
GU181266, Cohnella soli, Paenibacillaceae  
EU014872, Cohnella phaseoli, Paenibacillaceae  
HQ704069, Cohnella cellulositytica, Paenibacillaceae  
AF433165, Cohnella hongkongensis, Paenibacillaceae  
FJ001842, Cohnella terrae, Paenibacillaceae  
FJ001841, Cohnella xylanilytica, Paenibacillaceae  
**AJ971483, Cohnella thermotolerans, type sp., Paenibacillaceae**  
EU912527, Cohnella damuensis, Paenibacillaceae  
FJ001840, Cohnella thailandensis, Paenibacillaceae  
AB271056, Cohnella panacarvi, Paenibacillaceae  
EF368008, Cohnella yongneupensis, Paenibacillaceae  
DQ459874, Cohnella laeviribosi, Paenibacillaceae  
AB362828, Cohnella fontinalis, Paenibacillaceae  
EU046270, Saccharibacillus kuertensis, Paenibacillaceae  
**EU014873, Saccharibacillus sacchari, type sp., Paenibacillaceae**  
X60625, Paenibacillus macquariensis subsp. macquariensis, Paenibacillaceae  
AB360546, Paenibacillus macquariensis subsp. defensor, Paenibacillaceae  
AJ605292, Paenibacillus antarcticus, Paenibacillaceae  
EU815294, Paenibacillus glacialis, Paenibacillaceae  
AJ633647, Paenibacillus wynnii, Paenibacillaceae  
AJ223990, Paenibacillus odorifer, Paenibacillaceae  
AJ011322, Paenibacillus borealis, Paenibacillaceae  
DQ338443, Paenibacillus forsythiae, Paenibacillaceae  
DQ338444, Paenibacillus sabiniae, Paenibacillaceae  
DQ471303, Paenibacillus zanthoxyli, Paenibacillaceae  
X77846, Paenibacillus durus, Paenibacillaceae  
GQ985395, Paenibacillus sophorae, Paenibacillaceae  
AJ316013, Paenibacillus stellifer, Paenibacillaceae  
EU257201, Paenibacillus riograndensis, Paenibacillaceae  
DQ358736, Paenibacillus sonchii, Paenibacillaceae  
AJ223987, Paenibacillus graminis, Paenibacillaceae  
GQ985393, Paenibacillus jilunii, Paenibacillaceae  
AB073199, Paenibacillus lentimorbus, Paenibacillaceae  
AB073198, Paenibacillus popilliae, Paenibacillaceae  
AB073197, Paenibacillus thiaminolyticus, Paenibacillaceae  
AY359885, Paenibacillus dendritiformis, Paenibacillaceae  
AJ320491, Paenibacillus alvei, Paenibacillaceae  
AB073201, Paenibacillus apiarius, Paenibacillaceae  
AY884046, Paenibacillus assamensis, Paenibacillaceae  
DQ890521, Paenibacillus taiwanensis, Paenibacillaceae  
AM411528, Paenibacillus humicus, Paenibacillaceae  
AY167820, Paenibacillus pasadenensis, Paenibacillaceae  
EU939687, Paenibacillus wooonensis, Paenibacillaceae  
GQ423057, Paenibacillus pinihumi, Paenibacillaceae  
EF125184, Paenibacillus tarimensis, Paenibacillaceae  
AF290916, Paenibacillus daejeonensis, Paenibacillaceae  
AB042938, Paenibacillus glycanilyticus, Paenibacillaceae  
FJ820995, Paenibacillus prosopidis, Paenibacillaceae  
GQ383922, Paenibacillus algorfonticola, Paenibacillaceae  
AY839868, Paenibacillus xinjiangensis, Paenibacillaceae  
EU099594, Paenibacillus castaneae, Paenibacillaceae  
DQ407282, Paenibacillus cellulosityticus, Paenibacillaceae  
AB073202, Paenibacillus curdianolyticus, Paenibacillaceae  
AB073363, Paenibacillus kobensis, Paenibacillaceae  
AY598818, Paenibacillus phyllosphaerae, Paenibacillaceae  
GU124597, Paenibacillus sacheonensis, Paenibacillaceae  
AF537343, Paenibacillus mendelii, Paenibacillaceae  
DQ291142, Paenibacillus sepulcri, Paenibacillaceae  
AB295646, Paenibacillus montaniterrae, Paenibacillaceae  
AB295645, Paenibacillus siamensis, Paenibacillaceae  
AF237682, Paenibacillus granivorans, Paenibacillaceae  
EU400621, Paenibacillus camelliae, Paenibacillaceae

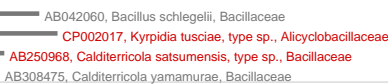




*Alicyclobacillaceae* (20)

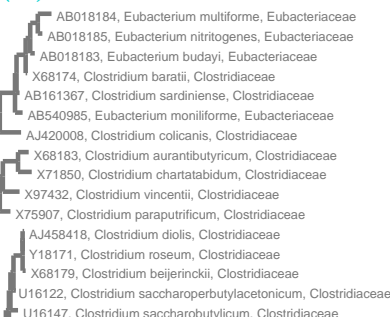


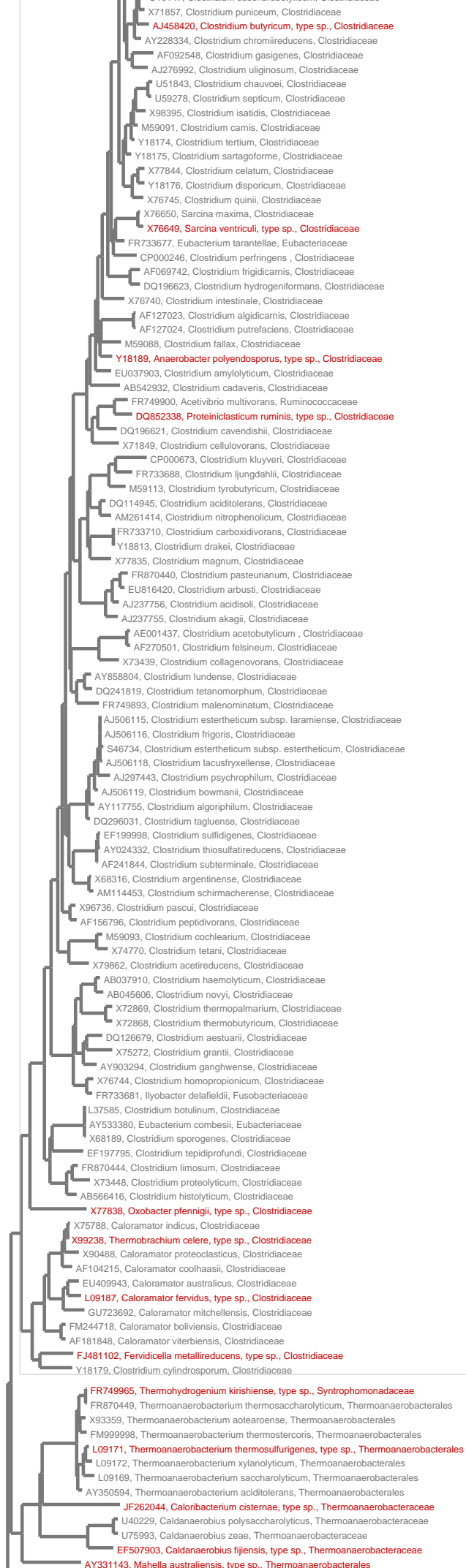
*Thermoactinomycetaceae* (18)



*Clostridia* (609)

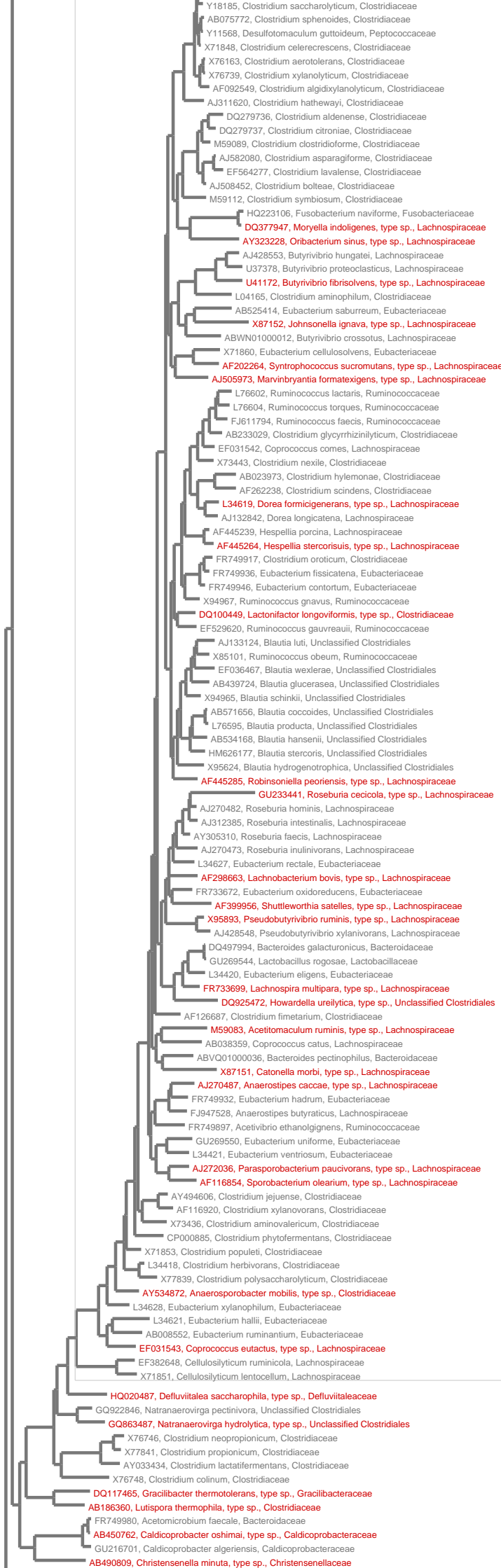
*Clostridiaceae* 1 (111)



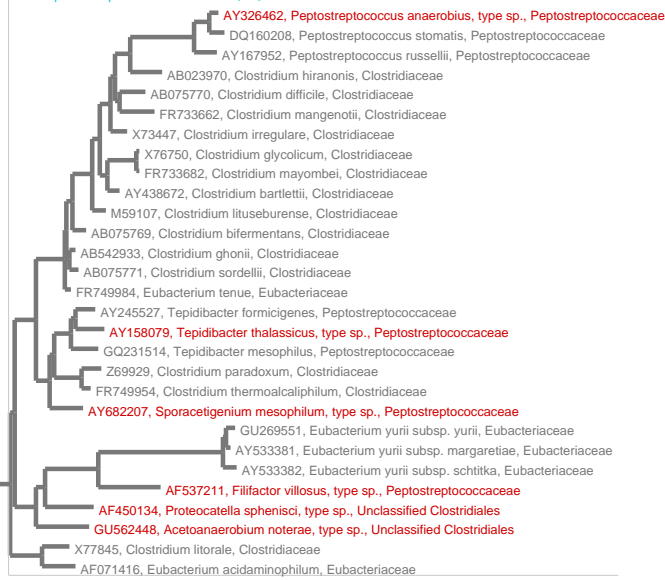


**Lachnospiraceae (103)**

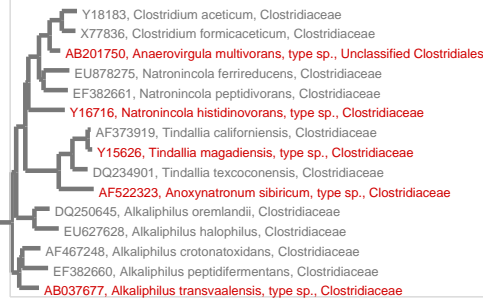
- Y18184, Clostridium indolis, Clostridiaceae
- AF067965, Clostridium methoxybenzovorans, Clostridiaceae
- AY353957, Clostridium amygdalinum, Clostridiaceae



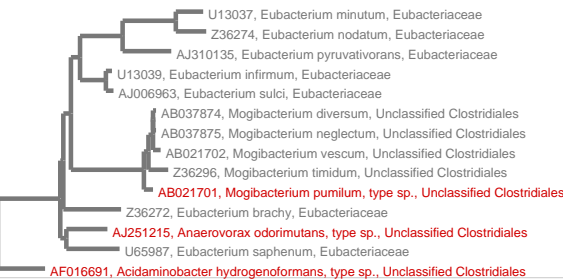
Peptostreptococcaceae (29)



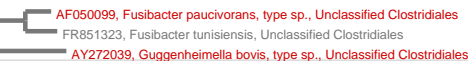
Clostridiaceae 2 (15)



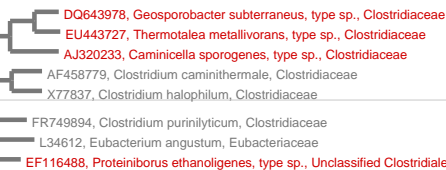
Incertae Sedis XIII (14)



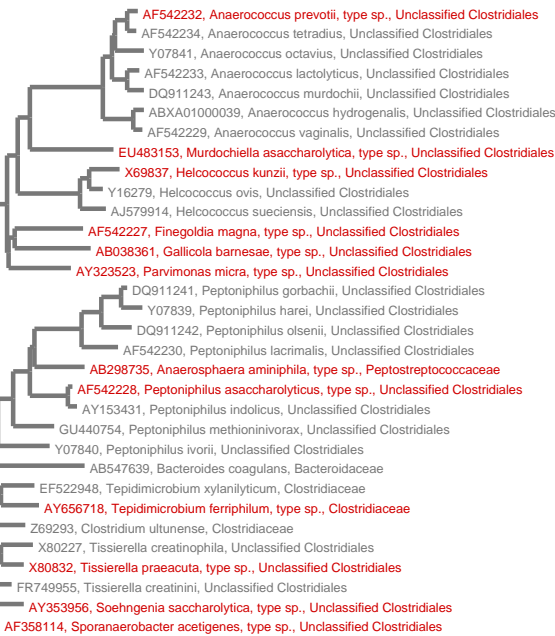
Incertae Sedis XII (3)

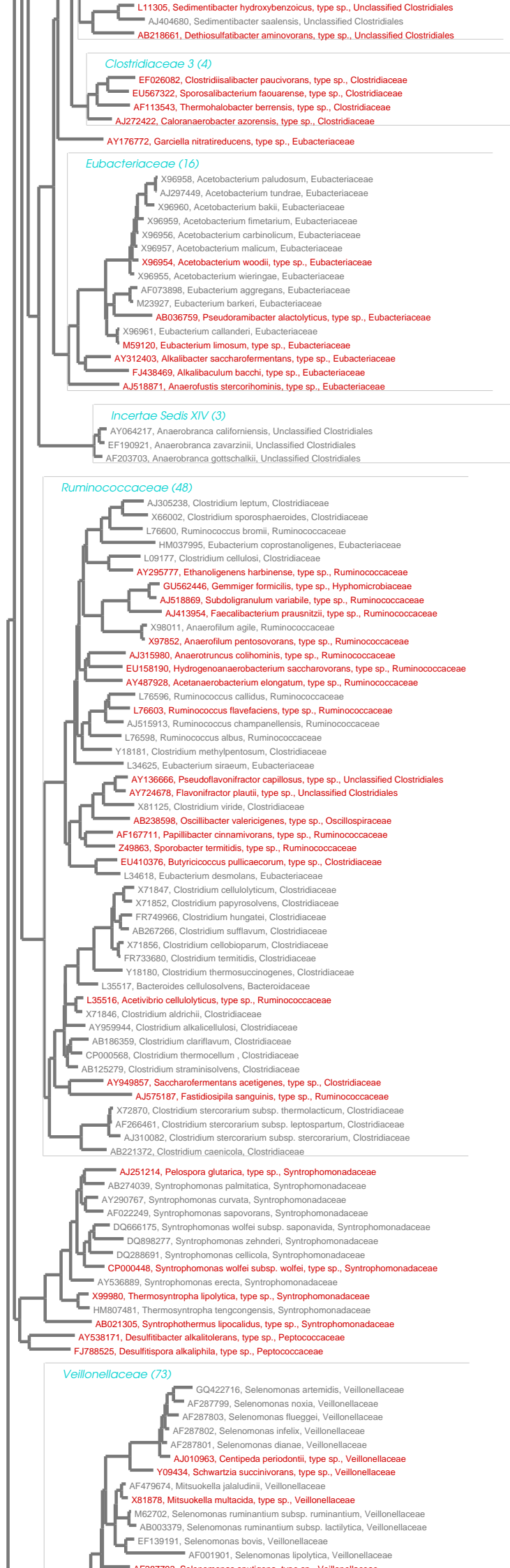


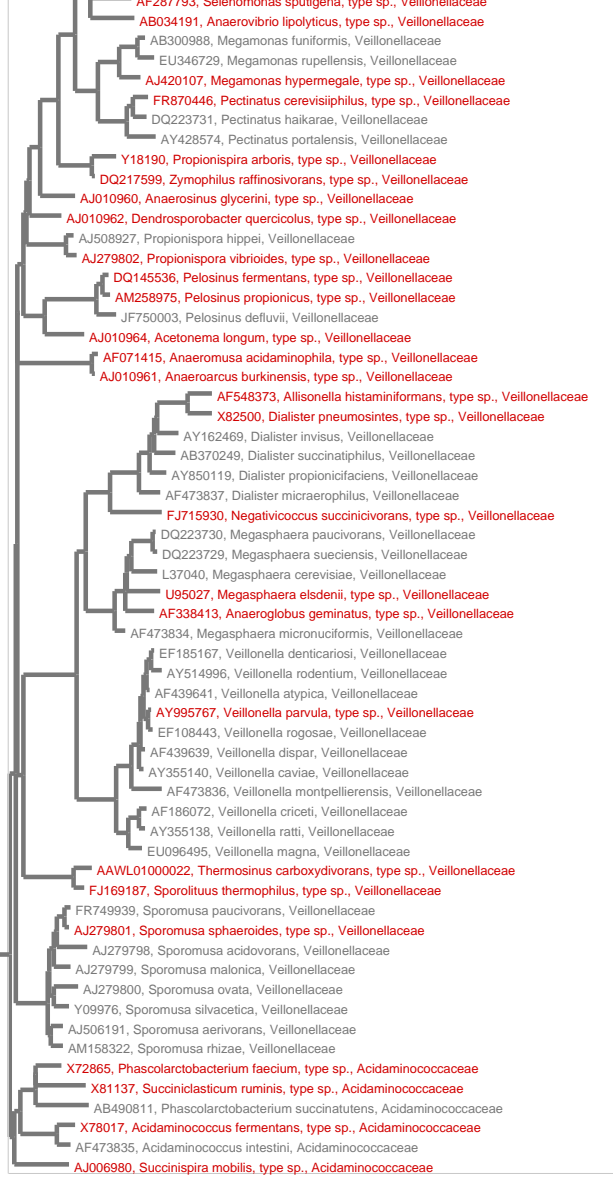
Clostridiaceae 4 (5)



Incertae Sedis XI (35)



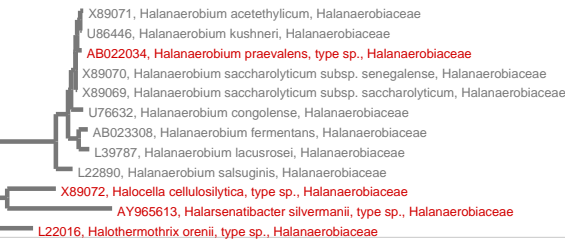




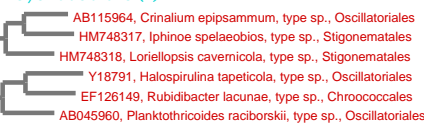
#### Halobacteroidaceae (15)



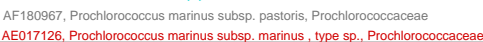
#### Halanaerobiaceae (12)



#### Cyanobacteria (9)



#### Prochlorococcaceae (2)



#### AM709625, Prochlorothrix hollandica, type sp., Prochlorothricaceae

#### HM038000, Vampirovibrio chlorellavorus, type sp., Bdellovibrionaceae

#### AY603000, Thermocola carboxydiphila, type sp., Peptococcaceae

#### AY631277, Thermocola ferriacetica, Peptococcaceae

#### Y11571, Desulfosporosinus hippei, Peptococcaceae

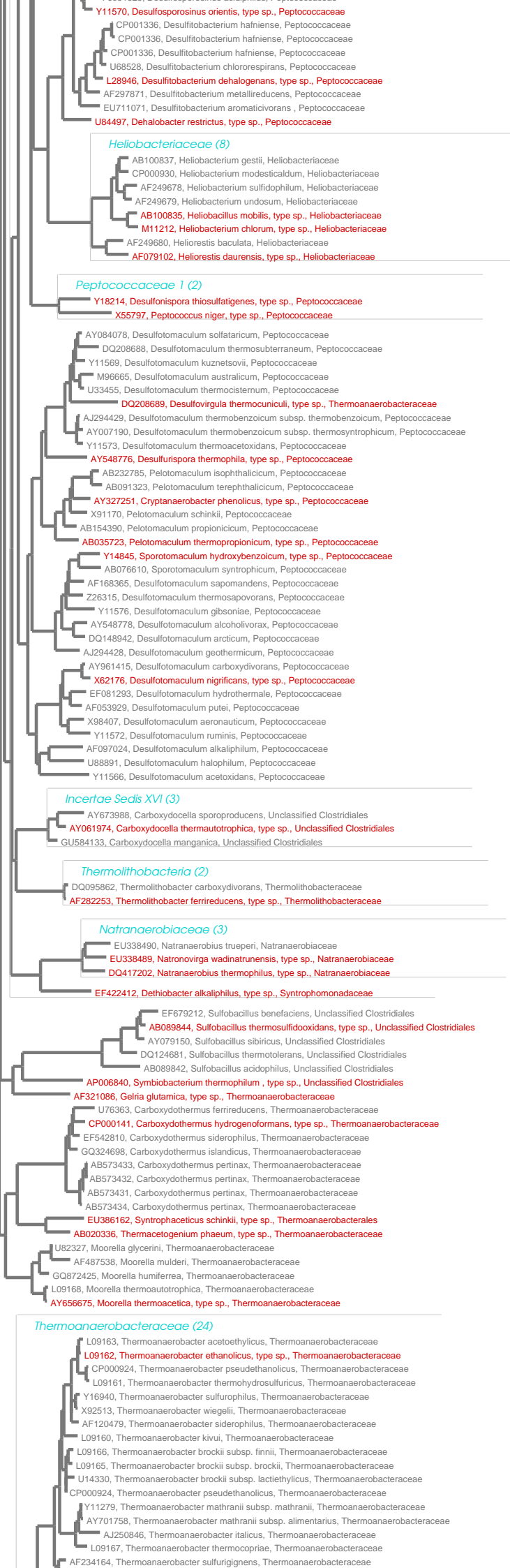
#### AF076527, Desulfosporosinus meridiei, Peptococcaceae

#### AJ493051, Desulfosporosinus auripigmenti, Peptococcaceae

#### AJ582757, Desulfosporosinus lacus, Peptococcaceae

#### DQ117470, Desulfosporosinus youngiae, Peptococcaceae

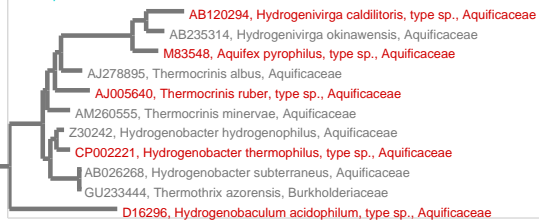
#### FJ951625, Desulfosporosinus acidiphilus, Peptococcaceae



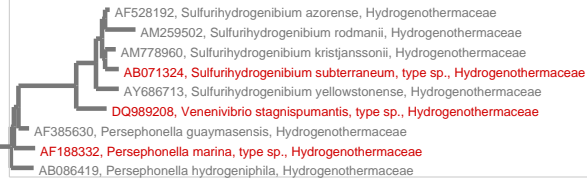


### Aquificae (28)

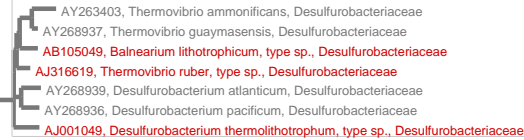
#### Aquificaceae (11)



#### Hydrogenothermaceae (9)

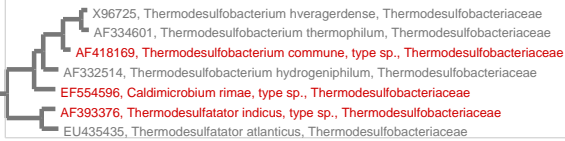


#### Desulfurobacteriaceae (7)



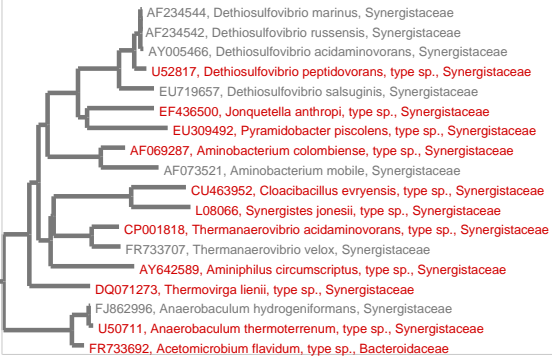
AB282756, Thermosulfidibacter takaii, type sp., Unclassified Aquificales

#### Thermodesulfobacteria (7)



AB428365, Caldisericum exile, type sp., Caldiseriaceae

### Synergistetes (18)



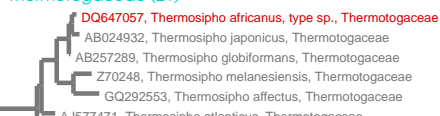
Y08935, Coprothermobacter platensis, Thermodesulfobiaceae

X69335, Coprothermobacter proteolyticus, type sp., Thermodesulfobiaceae

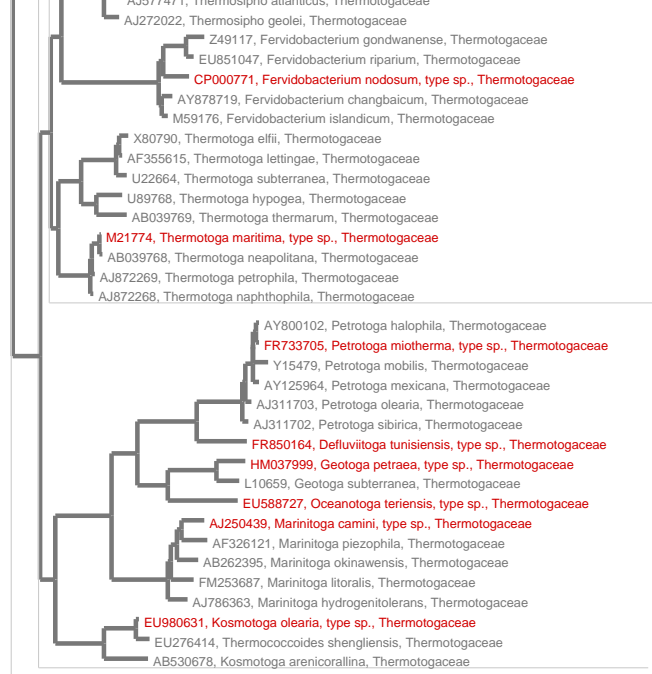
AB077817, Thermodesulfobium narugense, type sp., Thermodesulfobiaceae

### Thermotogae (39)

#### Thermotogaceae (21)





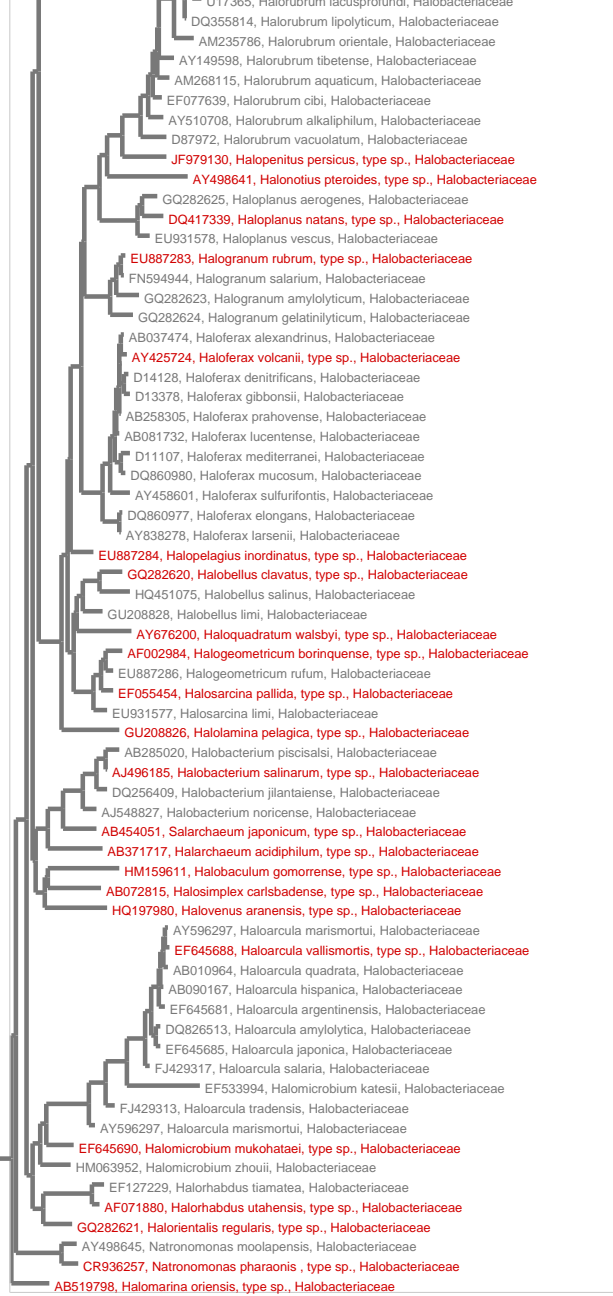


Archaea (361)

Euryarchaeota (313)

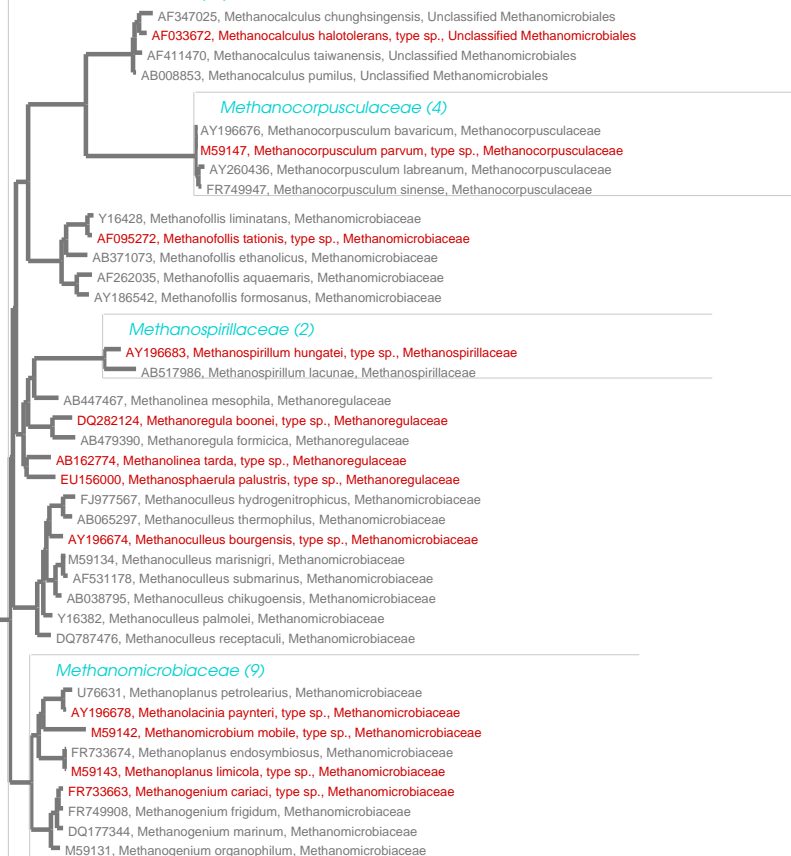
Halobacteria (139)





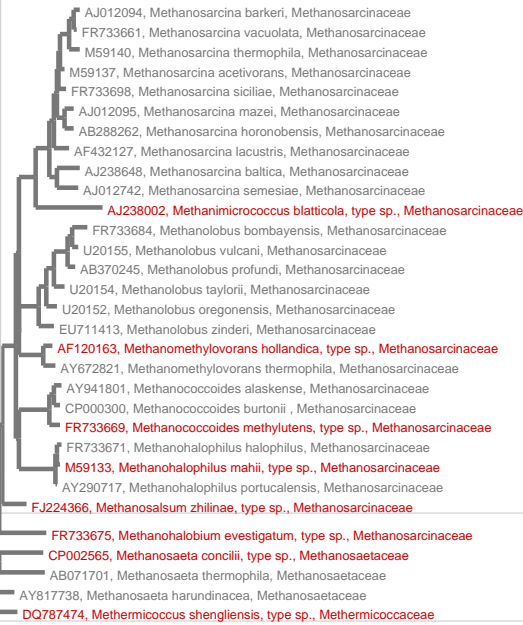
*Methanomicrobia* (71)

*Methanomicrobiales* (37)



Methanosarcinales (31)

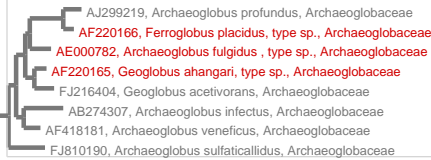
Methanosarcinaceae (26)



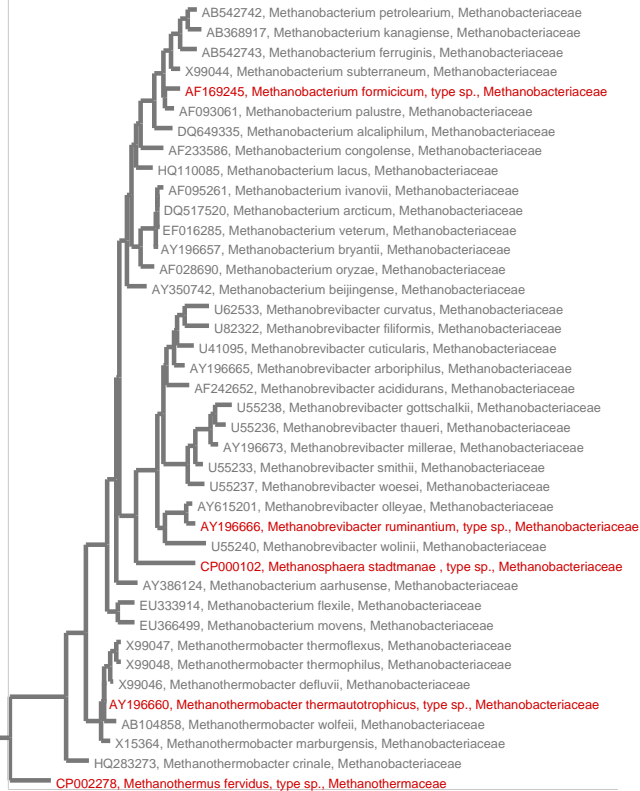
Methanocellales (3)



Archaeoglobi (8)



Methanobacteria (40)



Thermococci (33)



AY099177, Thermococcus gorgonarius, Thermococcaceae  
AY099178, Thermococcus guaymasensis, Thermococcaceae  
**AE009950, Pyrococcus furiosus, type sp., Thermococcaceae**  
AY099169, Pyrococcus horikoshii, Thermococcaceae  
AY099168, Pyrococcus glycovorans, Thermococcaceae  
AY099175, Thermococcus chitonophagus, Thermococcaceae  
EU682399, Pyrococcus yayanosii, Thermococcaceae  
AY099172, Thermococcus barophilus, Thermococcaceae  
Y08384, Thermococcus aggregans, Thermococcaceae  
AY099171, Thermococcus aegaeus, Thermococcaceae  
AJ238992, Thermococcus sibiricus, Thermococcaceae  
FR749899, Thermococcus litoralis, Thermococcaceae  
AB055121, Thermococcus alcaliphilus, Thermococcaceae  
**AB019239, Palaeococcus ferrophilus, type sp., Thermococcaceae**  
AY134472, Palaeococcus helgesonii, Thermococcaceae

**Thermoplasmata (8)**

**Ferroplasmaceae (3)**

**AM94390, Acidiplasma aeolicum, type sp., Ferroplasmaceae**  
AY907888, Acidiplasma cupricumularis, Ferroplasmaceae  
**AJ224936, Ferroplasma acidiphilum, type sp., Ferroplasmaceae**

**Picrophilaceae (2)**

**X84901, Picrophilus oshimae, type sp., Picrophilaceae**  
AE017261, Picrophilus torridus, Picrophilaceae

**Thermoplasmataceae (2)**

**M38637, Thermoplasma acidophilum, type sp., Thermoplasmataceae**  
AJ299215, Thermoplasma volcanium, Thermoplasmataceae

**AB269873, Thermogymnomonas acidicola, type sp., Unclassified Thermoplasmatales**

**HQ896499, Methanomassiliococcus luminyensis, type sp., Unclassified Methanomicrobia**

**Methanococci (12)**

DQ195164, Methanococcus aeolicus, Methanococcaceae  
AB057722, Methanothermococcus okinawensis, Methanococcaceae  
AY196675, Methanococcus vannielii, Methanococcaceae  
**M59128, Methanothermococcus thermolithotrophicus, type sp., Methanococcaceae**  
AB100884, Methanoterris formicicus, Methanocaldococcaceae  
CP002737, Methanoterris igneus, Methanocaldococcaceae

**Methanocaldococcaceae (6)**

AF547621, Methanocaldococcus indicus, Methanocaldococcaceae  
AF025822, Methanocaldococcus infernus, Methanocaldococcaceae  
FJ766848, Methanocaldococcus villosus, Methanocaldococcaceae  
AF051404, Methanocaldococcus vulcanius, Methanocaldococcaceae  
**L77117, Methanocaldococcus jannaschii, type sp., Methanocaldococcaceae**  
AF056938, Methanocaldococcus fervens, Methanocaldococcaceae

**AE009439, Methanopyrus kandleri, type sp., Methanopyraceae**

**Crenarchaeota (48)**

**Sulfolobaceae (16)**

X90482, Metallosphaera prunae, Sulfolobaceae  
**D26491, Metallosphaera sedula, type sp., Sulfolobaceae**  
D86414, Metallosphaera hakonensis, Sulfolobaceae  
FN796482, Metallosphaera cuprina, Sulfolobaceae  
D26489, Acidianus brierleyi, Sulfolobaceae  
D85506, Acidianus ambivalens, Sulfolobaceae  
**D85505, Acidianus infernus, type sp., Sulfolobaceae**  
AY907891, Acidianus sulfidivorans, Sulfolobaceae  
AB022438, Sulfolobus tokodaii, Sulfolobaceae  
**D85507, Sulfurisphaera ohwakuensis, type sp., Sulfolobaceae**  
AB010957, Sulfolobus yangmingensis, Sulfolobaceae  
**D14876, Sulfolobus acidocaldarius, type sp., Sulfolobaceae**  
**D85520, Stygiolobus azoricus, type sp., Sulfolobaceae**  
D85519, Sulfolobus metallicus, Sulfolobaceae  
M32504, Sulfolobus shibatae, Sulfolobaceae  
D26490, Sulfolobus solfataricus, Sulfolobaceae

**Thermoproteales (11)**

**Thermoproteaceae (10)**

AJ277124, Pyrobaculum arsenaticum, Thermoproteaceae  
AB087402, Pyrobaculum oguniense, Thermoproteaceae  
CP001014, Thermoproteus neutrophilus, Thermoproteaceae  
L07510, Pyrobaculum aerophilum, Thermoproteaceae  
AB078332, Pyrobaculum caldifontis, Thermoproteaceae  
**M35966, Thermoproteus tenax, type sp., Thermoproteaceae**  
**AB063630, Vulcanisaeta distributa, type sp., Thermoproteaceae**  
AB063645, Vulcanisaeta souniana, Thermoproteaceae  
**AB013926, Calddivirga maquilungensis, type sp., Thermoproteaceae**  
**AB005296, Thermocladium modestius, type sp., Thermoproteaceae**

**X14835, Thermofilum pendens, type sp., Thermofilaceae**

**Desulfurococcales and Feravidococcales (11)**

AY264344, Desulfurococcus fermentans, Desulfurococcaceae  
EU167539, Desulfurococcus kamchatkensis, Desulfurococcaceae  
**CP002363, Desulfurococcus mucosus, type sp., Desulfurococcaceae**  
X99556, Thermosphaera aggregans, type sp., Desulfurococcaceae  
**X98064, Sulfophobococcus zilligii, type sp., Desulfurococcaceae**  
AJ012645, Staphylothermus hellenicus, Desulfurococcaceae  
**X99560, Staphylothermus marinus, type sp., Desulfurococcaceae**  
EF552404, Feravidococcus fontis, type sp., Feravidococcaceae  
**X99562, Ignicoccus islandicus, type sp., Desulfurococcaceae**  
AJ271794, Ignicoccus pacificus, Desulfurococcaceae  
AJ318042, Ignicoccus hospitalis, Desulfurococcaceae  
AB109559, Aeropyrum camini, Desulfurococcaceae  
**D83259, Aeropyrum pernix, type sp., Desulfurococcaceae**  
**X99554, Thermoterris maritimus, type sp., Desulfurococcaceae**  
**Y07784, Stetteria hydrogenophila, type sp., Desulfurococcaceae**

**Acidilobales (3)**

**AF191225, Acidilobus aceticus, type sp., Acidilobaceae**  
AY350586, Acidilobus saccharovorans, Acidilobaceae  
**AB087499, Caldisphaera lagunensis, type sp., Caldisphaeraceae**

**DQ060321, Ignisphaera aggregans, type sp., Desulfurococcaceae**

**Pyrodictiaceae (2)**

**CP000493, Hyperthermus butylicus, type sp., Pyrodictiaceae**  
**M21087, Pyrodictium occultum, type sp., Pyrodictiaceae**