TAXONOMIC OUTLINE OF THE PROCARYOTES
BERGEY'S MANUAL® OF SYSTEMATIC BACTERIOLOGY, SECOND EDITION
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Taxonomic Outline of the Procaryotes Release 4.0
Bergey's Manual ™ of Systematic Bacteriology, 2nd Edition

GEORGE M. GARRITY, JULIA A. BELL AND TIMOTHY G. LILBURN

Background The classification presented below was initiated in the early 1990s in the editorial office of Bergey's Manual Trust as a preliminary step in organizing the content of the second edition of *Bergey's Manual of Systematic Bacteriology* (the *Systematics*). The primary objective was to devise a classification that would reflect the phylogeny of procaryotes, as defined by 16S rDNA sequence analysis, while simultaneously placing all of the validly named members of a given taxon into the classification at a single point, based on the sequence of the type strain, type species, or type genus.[1]

Under ideal conditions, such a task would be relatively straightforward. All species assigned to a genus would be in agreement with the phylogenetic model and this would be reflected in the nomenclature. Furthermore, each species would bear a single name that would reflect both its taxonomic and phylogenetic position. However, we find this not to be the case as there are a number of existing genera (e.g., *Clostridium, Aquaspirillum*) that are paraphyletic based on the 16S rDNA model. It is our view that such instances indicate a need for taxonomic revision. In addition, prior taxonomic revisions have led to numerous instances in which the same species may bear more than one validly published name, indicating differences in taxonomic opinion. To ensure completeness, we have opted to include the majority of these synonyms within the Outline.

Placement of species within the Outline is dictated by the genus name rather than the position within any given phylogenetic model. We believe that periodic publication of updated versions of this Outline will provide the community with an indication of the progress that has been made in resolving such problems, as well as pointing out any remaining or new discrepancies that have occurred between revisions. Therefore, any reference to the outline should include the release number, the publication date, and the digital object identifier (the DOI).

Technical notes Release 4.0 will be the last before publication of Volume 2 of the second edition of the *Systematics*. As stated earlier, we continue to search the taxonomic literature and the public databases for new, high quality 16S rDNA sequences (defined as >1400 nts, < 4% ambiguity, and fewer than 10 missing positions) and have added these sequences to our phylogenetic models. In this release, we list 5914 unique sequences that are associated with 4968 type strains. We have also added 385 new species/new combinations, 73 new genera, 8 new families, 4 new orders, 1 new class and 1 new phylum to our taxonomic model, including the first instance in which a new phylum has been added to our model since it was first published in 2001. New additions are summarized in Table 1. We have also made a number of rearrangements within the taxonomy based on recent publications and comments that have been conveyed to us by readers and contributors to the *Systematics*. The most significant of the rearrangements occurs within the *Methanococci*. We received comments from Sean Turner (NCBI) that this class, as previously described, was polyphyletic. To address this issue we undertook a reanalysis of the *Archaea*. Using a set of 258 aligned sequences, a complete evolutionary distance matrix was calculated and visualized using heatmaps. Heatmaps were ordered using the both the original classification (Release 3.0) and an optimized rearrangement that was maximally smoothed using a newly developed algorithm to identify taxonomic misplacements/classification errors. These plots confirmed the polyphyly of *Methanococci* and provide a reasonable alternative classification, in which the *Methanomicrobiales* and *Methanosarcinales* have been moved into a separate class, *"Methanomicrobia"*.

The taxonomic model Within this classification, we recognize two procaryotic Domains: the *Archaea* and *Bacteria*. The Domains are divided into Phyla which are in turn divided into Classes, Orders (except for the *Cyanobacteria* for which we use the rank of subdivision), Families, and Genera. In the *Actinobacteria*, subclasses and suborders are recognized and suborders occur within the *Myxococcales*. The rank of *Kingdom* is not used to avoid possible conflicts with the Botanical Code, where some overlap exists. Readers are advised that the Code of Procaryotic Nomenclature does not cover taxa above the Class, even though the Domain and Phylum names appearing in the Outline and in the *Manual* have appeared in Validation List 85. As of July 2003, 6271 validly named procaryotic species appeared either in the Approved List of Bacterial Names (Skerman et al., 1980), in original papers published in the *International Journal of Systematic Bacteriology* or the *International Journal of Systematic and Evolutionary Microbiology*, or in Validation Lists 1–92.[2] In addition, 1226 synonyms have

[1] A more detailed discussion of the historical aspects of this effort are presented in the first release of the Outline and by Garrity and Holt in Volume 1 of the *Systematics*.

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been reported in the literature as a result of taxonomic emendments. In this version of the Outline, we extend this list to 1228 by including forthcoming assertions of synonymy that will appear in Volume 2 of the *Systematics*. Readers should be aware that, in some cases, we have opted to exclude some names that have not found widespread usage, even though those names are validly published.

Adoption of a hierarchical classification presents several difficulties that must also be recognized. By definition, each species must be a member of successively higher ranks (six of which are recognized for the majority of taxa in the second edition of the *Systematics*). Yet there is considerable reluctance among many contemporary systematic procaryotic biologists to place new species and genera into higher taxa, especially at the intermediate levels (family, order, and class) because of uncertainty of phylogenetic models. In compiling and maintaining the outline we have often had to deal with instances where new species were variously assigned to a class or domain without being ascribed membership in any of the intervening taxa. This may be attributed to a lack of clear rules for delineating higher taxa. It may also reflect the inherent limitations of the 16S rRNA gene for defining a higher taxonomic structure, especially when contemporary phylogenetic techniques, which rely on tree graphs as the principal interpretive device, are used to analyze small and inherently biased data sets. We have also observed a general lack of consistency in defining the boundaries of genera based on 16S rDNA sequence analysis. This is particularly problematic in bushy areas of the ARB and RDP trees where uncertainty of branching order is high and clear demarcation of taxonomic groups is impossible in the absence of other supporting data.

In dealing with such problems, we have filled in the missing taxa to complete the hierarchy. Names of higher taxa are based largely on priority, except in instances where such a strategy might lead to unnecessary confusion (e.g., *Helicobacteraceae* rather than *Wolinellaceae*). Considerable effort has been spent in confirming the placement of genera within higher taxa. Each of these higher taxa has also been scrutinized for phylogenetic coherence so as to avoid paraphyletic or polyphyletic groupings wherever possible. However, since 16S rDNA sequences are not yet available for all validly named species, some such instances will remain for the foreseeable future. We have annotated the species level outline in many areas to provide users some insight into our rationale for placements that might be deemed controversial or to alert the reader to problems concerning the validity or legitimacy of names. Readers are invited to pass along any comments or observations – along with supporting data – regarding other potential misplacements or errors.

Despite some limitations, it is our view that the use of the well established phylogeny based on the 16S rRNA gene provides a marked improvement over the earlier artificial classifications of procaryotes. The technique (16S rDNA sequencing) is universally applicable and provides a single type of data that will soon be available for all validly named species. Given the rapid advancements in sequencing technology, we expect that sequences of other genes will follow in the near future and help in resolving the placement of problem taxa.

Interpretation of the taxonomic outline At present, the two procaryotic domains have been subdivided into 26 phyla[3], two of which occur within the *Archaea*. The remaining 24 phyla are ascribed to the *Bacteria*. The fact that the *Archaea* and deeply branching *Bacteria* are presented first is based largely on the early versions of the RDP tree. Since the branching order of species within genera is frequently ambiguous and the data set is known to be incomplete, the use of phylogenetic trees as a guide for ordering taxa, both in the outline and the *Systematics Manual* proved to be untenable. Thus, we have adopted a more workable and all-inclusive strategy. The type taxon always appears first. Within lower taxa, members of the rank will usually appear in alphabetical order. The hierarchical numbering scheme used in the outline is arbitrary, especially at the lower levels. It is also subject to change as new taxa are described and existing taxa reclassified. Therefore, we advise against using the numbering scheme as an organizational or mnemonic device.

Decoding the entries Within this document, as well as within the *Systematics*, we follow the American style for rendering Latinized names. Regardless of rank, all names appear in italics. The superscript AL indicates that the name was included on the Approved Lists of Bacterial Names published in 1980. The superscript VP indicates that the name was validly published in the *International Journal of Systematic Bacteriology* (now

[2] Lists 1-71 were published in the *International Journal of Systematic Bacteriology* and lists 72-82 in the *International Journal of Systematic and Evolutionary Microbiology*, ***27*** (1977) 306; ***29*** (1979) 79, 436; ***30*** (1980) 601, 676; ***31*** (1981) 215, 382; 32 (1982) 266, 384; ***33*** (1983) 438, 672, 896; ***34*** (1984) 91, 270, 355, 503; ***35*** (1985) 223, 375, 535; ***36*** (1986) 354, 489, 573; ***37*** (1987) 179; ***38*** (1988) 136, 220, 328, 449; ***39*** (1989) 93, 205, 371, 495; ***40*** (1990) 105, 212, 320, 470; ***41*** (1991) 178, 331, 456, 580; ***42*** (1992) 191, 327, 511, 656; ***43*** (1993) 188, 398, 624, 864; ***44*** (1994) 182, 370, 595, 852; ***45*** (1995) 197, 418, 619, 879; ***46*** (1996) 362, 625, 836, 1189; ***47*** (1997) 242, 601, 915, 1274; ***48*** (1998) 327, 627, 631, 1083; ***49*** (1999) 1, 341, 935, 1325;***50*** (2000) 3, 423, 949, 1415, 1699, 1953; ***51*** (2001) 1, 263, 793, 1229, 1619, 1945; ***52***(2002) 3, 293, 685, 1075, 1437, 1915.***53*** (2003) 1, 373, 627, 935.

[3] It is likely that this number understates the true number of phylum level lineages within the *Bacteria*. Hugenholtz recognizes at least four other phyla within the *Firmicutes*.

the *International Journal of Systematic and Evolutionary Microbiology*) or appeared on one of the validation lists published in that journal. Names appearing in quotes have no standing in nomenclature, although they may have been effectively published elsewhere. Names followed with superscripted NP suffix are indicative of proposals for new taxa that will appear in the forthcoming second volume of the *Systematics*.

In the case of species names, each is followed with the authority for the name and year of the original description, in abbreviated form. The type strain (species), type species (genus), type genus (family and order), and type order (class and above) are indicated by an uppercase T, enclosed in parentheses and in superscript. New taxa (recently added) are highlighted in red type and those which have been relocated within the outline as a result of comments from experts appear in magenta, followed by the word *"moved"*. Readers should understand that the taxa are not, in reality moved, but are the subjects of alternative taxonomic views. These changes are summarized in Table 2.

In the unabridged version of the outline that includes species names and associated information, proposals for new combinations typically result in multiple changes within the taxonomy. The new name is followed by the basonym, which is identified by the symbol <- preceding the old name. Basonyms are also homotypic synonyms (formerly referred to as objective synonyms) by default. To minimize redundancy, we will not identify them as such. The old name is also retained within the outline, in the original location. However, older names are preceded by a dagger symbol (†) and should be considered deprecated under most circumstances. Following the old name and information about the taxonomic authority the new name appears in green type preceded by an arrow (->). In instances of synonymy, the synonyms (either homotypic or heterotypic) are identified as such and preceded by an equals sign (=). Synonyms are further categorized as either senior or junior, indicating priority. More detailed information regarding the topics of synonymy and priority are available in the *International Code of Nomenclature of Bacteria (1990 Revision)*[4] and in Minutes of the Judicial Commission on Prokaryotic Nomenclature published in the *International Journal of Systematic and Evolutionary Microbiology*.

Immediately following the nomenclature section of each entry follows key information regarding the type strain, including the original strain designation, when reported, and all known deposits in major culture collections[5]. Each such deposit is set off by a small vertical bar (|). If one or more high quality 16S rDNA sequences have been reported for that strain, information regarding those sequences will follow. The first value will be the GenBank, EMBL or DDBJ accession number(s). This will be followed by the RDP short identifier, which is typically an alphanumeric abbreviation derived from the species name. Each such triplet is set off from others by the small vertical bar (|).

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[4] Lapage et al., (1992) ASM Press, Washington, DC.

[5] With this release of the Outline, we have implemented a change in the prefix of the former Institute of Fermentation, Osaka culture collection (IFO) to the new designation as the NITE (National Institute of Technology and Evaluation) Biological Resource Center (NBRC).

Table 1. New Orders, Families, Genera, Species and Subspecies added to the Taxonomic Outline, Version 4.0, September 2003

Rank	Taxon	Phylum	Class
Orders	*Caldisphaerales*	*Crenarchaeota*	*Thermoprotei*
	Gemmatimonadales	*Gemmatimonadetes*	*Gemmatimonadetes*
	Gemmatimonadales	*Gemmatimonadetes*	*Gemmatimonadetes*
	Parvularculales	*Proteobacteria*	*Alphaproteobacteria*
Families	*Aurantimonadaceae*	*Proteobacteria*	*Alphaproteobacteria*
	Caldisphaeracea	*Crenarchaeota*	*Thermoprotei*
	Haliangiaceae	*Proteobacteria*	*Deltaproteobacteria*
	Halothiobacillaceae	*Proteobacteria*	*Gammaproteobacteria*
	Nautiliaceae	*Proteobacteria*	*Epsilonproteobacteria*
	Parvularculaceae	*Proteobacteria*	*Alphaproteobacteria*
	Saccharospirillaceae	*Proteobacteria*	*Gammaproteobacteria*
	Victivallaceae	*Dictyoglomus*	*Dictyoglomi*
Genera	*Aequorivita*	*Bacteroidetes*	*Flavobacteria*
	Albidovulum	*Proteobacteria*	*Alphaproteobacteria*
	Alicycliphilus	*Proteobacteria*	*Betaproteobacteria*
	Allisonella	*Firmicutes*	*Clostridia*
	Allofustis	*Firmicutes*	*Bacilli*
	Anaerostipes	*Firmicutes*	*Clostridia*
	Aurantimonas	*Proteobacteria*	*Alphaproteobacteria*
	Caldisphaera	*Crenarchaeota*	*Thermoprotei*
	Caminibacter	*Proteobacteria*	*Epsilonproteobacteria*
	Caminicella	*Firmicutes*	*Clostridia*
	Carboxydocella	*Firmicutes*	*Clostridia*
	Chlorobaculum	*Chlorobi*	*Chlorobia*
	Citricoccus	*Actinobacteria*	*Actinobacteria*
	Cobetia	*Proteobacteria*	*Gammaproteobacteria*
	Conexibacter	*Actinobacteria*	*Actinobacteria*
	Croceibacter	*Bacteroidetes*	*Flavobacteria*
	Dehalospirillum	*Proteobacteria*	*Epsilonproteobacteria*
	Desulfobotulus	*Proteobacteria*	*Deltaproteobacteria*
	Diaphorobacter	*Proteobacteria*	*Betaproteobacteria*
	Enterovibrio	*Proteobacteria*	*Gammaproteobacteria*
	Faecalibacterium	*Firmicutes*	*Clostridia*

Rank	Taxon	Phylum	Class
	Gallibacterium	*Proteobacteria*	*Gammaproteobacteria*
	Gemmatimonas	*Gemmatimonadetes*	*Gemmatimonadetes*
	Haliangium	*Proteobacteria*	*Deltaproteobacteria*
	Halobiforma	*Euryarchaeota*	*Halobacteria*
	Halomicrobium	*Euryarchaeota*	*Halobacteria*
	Halosimplex	*Euryarchaeota*	*Halobacteria*
	Inquilinus	*Proteobacteria*	*Alphaproteobacteria*
	Jannaschia	*Proteobacteria*	*Alphaproteobacteria*
	Jeotgalicoccus	*Firmicutes*	*Bacilli*
	Kineosphaera	*Actinobacteria*	*Actinobacteria*
	Laribacter	*Proteobacteria*	*Betaproteobacteria*
	Lentibacillus	*Firmicutes*	*Bacilli*
	Marinilactibacillus	*Firmicutes*	*Bacilli*
	Marinithermus	*Deinococcus-Thermus*	*Deinococci*
	Microvirga	*Proteobacteria*	*Alphaproteobacteria*
	Muricoccus	*Proteobacteria*	*Alphaproteobacteria*
	Nautilia	*Proteobacteria*	*Epsilonproteobacteria*
	Oceanithermus	*Deinococcus-Thermus*	*Deinococci*
	Oleispira	*Proteobacteria*	*Gammaproteobacteria*
	Oxalicibacterium	*Proteobacteria*	*Betaproteobacteria*
	Pannonibacter	*Proteobacteria*	*Alphaproteobacteria*
	Paraliobacillus	*Firmicutes*	*Bacilli*
	Parvularcula	*Proteobacteria*	*Alphaproteobacteria*
	Pelotomaculum	*Firmicutes*	*Clostridia*
	Plantibacter	*Actinobacteria*	*Actinobacteria*
	Plesiocystis	*Proteobacteria*	*Deltaproteobacteria*
	Propionimicrobium	*Actinobacteria*	*Actinobacteria*
	Pseudorhodobacter	*Proteobacteria*	*Alphaproteobacteria*
	Ramlibacter	*Proteobacteria*	*Betaproteobacteria*
	Reichenbachia	*Bacteroidetes*	*Sphingobacteria*
	Rheinheimera	*Proteobacteria*	*Gammaproteobacteria*
	Rhodoglobus	*Actinobacteria*	*Actinobacteria*
	Rubritepida	*Proteobacteria*	*Alphaproteobacteria*
	Saccharospirillum	*Proteobacteria*	*Gammaproteobacteria*
	Schlegelella	*Proteobacteria*	*Betaproteobacteria*

Rank	Taxon	Phylum	Class
	Shuttleworthia	*Firmicutes*	*Clostridia*
	Solirubrobacter	*Actinobacteria*	*Actinobacteria*
	Sterolibacterium	*Proteobacteria*	*Betaproteobacteria*
	Sulfurihydrogenibium	*Aquificae*	*Aquificae*
	Teichococcus	*Proteobacteria*	*Alphaproteobacteria*
	Tepidibacter	*Firmicutes*	*Clostridia*
	Teredinibacter	*Proteobacteria*	*Gammaproteobacteria*
	Thermanaeromonas	*Firmicutes*	*Clostridia*
	Thermovenabulum	*Firmicutes*	*Clostridia*
	Thermovibrio	*Aquificae*	*Aquificae*
	Thioalkalispira	*Proteobacteria*	*Gammaproteobacteria*
	Tistrella	*Proteobacteria*	*Alphaproteobacteria*
	Varibaculum	*Actinobacteria*	*Actinobacteria*
	Victivallis	*Dictyoglomus*	*Dictyoglomi*
	Vulcanithermus	*Deinococcus-Thermus*	*Deinococci*
	Xylanimonas	*Actinobacteria*	*Actinobacteria*
	Zooshikella	*Proteobacteria*	*Gammaproteobacteria*
Species	*Acetobacter cerevisiae*	*Proteobacteria*	*Alphaproteobacteria*
	Acetobacter malorum	*Proteobacteria*	*Alphaproteobacteria*
	Acidovorax valerianellae	*Proteobacteria*	*Betaproteobacteria*
	Acinetobacter baylyi	*Proteobacteria*	*Gammaproteobacteria*
	Acinetobacter bouvetii	*Proteobacteria*	*Gammaproteobacteria*
	Acinetobacter gerneri	*Proteobacteria*	*Gammaproteobacteria*
	Acinetobacter grimontii	*Proteobacteria*	*Gammaproteobacteria*
	Acinetobacter tandoii	*Proteobacteria*	*Gammaproteobacteria*
	Acinetobacter tjernbergiae	*Proteobacteria*	*Gammaproteobacteria*
	Acinetobacter towneri	*Proteobacteria*	*Gammaproteobacteria*
	Actinobacillus equuli haemolyticus	*Proteobacteria*	*Gammaproteobacteria*
	Actinobacillus equuli equuli	*Proteobacteria*	*Gammaproteobacteria*
	Actinobaculum urinale	*Actinobacteria*	*Actinobacteria*
	Actinokineospora auranticolor	*Actinobacteria*	*Actinobacteria*
	Actinokineospora enzanensis	*Actinobacteria*	*Actinobacteria*
	Actinomadura catellatispora	*Actinobacteria*	*Actinobacteria*
	Actinomadura glauciflava	*Actinobacteria*	*Actinobacteria*
	Actinomadura namibiensis	*Actinobacteria*	*Actinobacteria*

Rank	Taxon	Phylum	Class
	Actinomyces cardiffensis	*Actinobacteria*	*Actinobacteria*
	Actinomyces vaccimaxillae	*Actinobacteria*	*Actinobacteria*
	Aequorivita antarctica	*Bacteroidetes*	*Flavobacteria*
	Aequorivita crocea	*Bacteroidetes*	*Flavobacteria*
	Aequorivita lipolytica	*Bacteroidetes*	*Flavobacteria*
	Aequorivita sublithincola	*Bacteroidetes*	*Flavobacteria*
	Aeromonas culicicola	*Proteobacteria*	*Gammaproteobacteria*
	Aeromonas hydrophila ranae	*Proteobacteria*	*Gammaproteobacteria*
	Afipia birgiae	*Proteobacteria*	*Alphaproteobacteria*
	Afipia massiliensis	*Proteobacteria*	*Alphaproteobacteria*
	Agromyces aurantiacus	*Actinobacteria*	*Actinobacteria*
	Albidovulum inexpectatum	*Proteobacteria*	*Alphaproteobacteria*
	Alcanivorax jadensis	*Proteobacteria*	*Gammaproteobacteria*
	Alcanivorax venustensis	*Proteobacteria*	*Gammaproteobacteria*
	Alicycliphilus denitrificans	*Proteobacteria*	*Betaproteobacteria*
	Alicyclobacillus acidiphilus	*Firmicutes*	*Bacilli*
	Alicyclobacillus sendaiensis	*Firmicutes*	*Bacilli*
	Allisonella histaminiformans	*Firmicutes*	*Clostridia*
	Allofustis seminis	*Firmicutes*	*Bacilli*
	Amycolatopsis balhimycina	*Actinobacteria*	*Actinobacteria*
	Amycolatopsis keratiniphila	*Actinobacteria*	*Actinobacteria*
	Amycolatopsis keratiniphila keratiniphila	*Actinobacteria*	*Actinobacteria*
	Amycolatopsis keratiniphila nogabecina	*Actinobacteria*	*Actinobacteria*
	Amycolatopsis tolypomycina	*Actinobacteria*	*Actinobacteria*
	Amycolatopsis vancoresmycina	*Actinobacteria*	*Actinobacteria*
	Anaerostipes caccae	*Firmicutes*	*Clostridia*
	Aurantimonas coralicida	*Proteobacteria*	*Alphaproteobacteria*
	Azoarcus buckelii	*Proteobacteria*	*Betaproteobacteria*
	Bacillus barbaricus	*Firmicutes*	*Bacilli*
	Bacillus decolorationis	*Firmicutes*	*Bacilli*
	Bacillus luciferensis	*Firmicutes*	*Bacilli*
	Bacillus nealsonii	*Firmicutes*	*Bacilli*
	Bacillus psychrodurans	*Firmicutes*	*Bacilli*
	Bacillus psychrotolerans	*Firmicutes*	*Bacilli*
	Bosea eneae	*Proteobacteria*	*Alphaproteobacteria*

Rank	Taxon	Phylum	Class
	Bosea massiliensis	*Proteobacteria*	*Alphaproteobacteria*
	Bosea vestrisii	*Proteobacteria*	*Alphaproteobacteria*
	Brachybacterium fresconis	*Actinobacteria*	*Actinobacteria*
	Brachybacterium sacelli	*Actinobacteria*	*Actinobacteria*
	Bradyrhizobium yuanmingense	*Proteobacteria*	*Alphaproteobacteria*
	Burkholderia anthina	*Proteobacteria*	*Betaproteobacteria*
	Burkholderia cenocepacia	*Proteobacteria*	*Betaproteobacteria*
	Burkholderia hospita	*Proteobacteria*	*Betaproteobacteria*
	Burkholderia phymatum	*Proteobacteria*	*Betaproteobacteria*
	Burkholderia terricola	*Proteobacteria*	*Betaproteobacteria*
	Burkholderia tuberum	*Proteobacteria*	*Betaproteobacteria*
	Butyrivibrio hungatei	*Firmicutes*	*Clostridia*
	Caldisphaera lagunensis	*Crenarchaeota*	*Thermoprotei*
	Caminibacter hydrogeniphilus	*Proteobacteria*	*Epsilonproteobacteria*
	Caminicella sporogenes	*Firmicutes*	*Clostridia*
	Carboxydocella thermautotrophica	*Firmicutes*	*Clostridia*
	Carnobacterium maltaromaticum	*Firmicutes*	*Bacilli*
	Carnobacterium viridans	*Firmicutes*	*Bacilli*
	Cellvibrio fibrivorans	*Proteobacteria*	*Gammaproteobacteria*
	Cellvibrio fulvus	*Proteobacteria*	*Gammaproteobacteria*
	Cellvibrio gandavensis	*Proteobacteria*	*Gammaproteobacteria*
	Cellvibrio japonicus	*Proteobacteria*	*Gammaproteobacteria*
	Cellvibrio ostraviensis	*Proteobacteria*	*Gammaproteobacteria*
	Cellvibrio vulgaris	*Proteobacteria*	*Gammaproteobacteria*
	Chlorobaculum chlorovibrioides	*Chlorobi*	*Chlorobia*
	Chlorobaculum limnaeum	*Chlorobi*	*Chlorobia*
	Chlorobaculum parvum	*Chlorobi*	*Chlorobia*
	Chlorobaculum tepidum	*Chlorobi*	*Chlorobia*
	Chlorobaculum thiosulfatiphilum	*Chlorobi*	*Chlorobia*
	Chlorobium clathratiforme	*Chlorobi*	*Chlorobia*
	Chlorobium luteolum	*Chlorobi*	*Chlorobia*
	Chryseobacterium defluvii	*Bacteroidetes*	*Flavobacteria*
	Chryseobacterium joostei	*Bacteroidetes*	*Flavobacteria*
	Citricoccus muralis	*Actinobacteria*	*Actinobacteria*
	Clostridium bolteae	*Firmicutes*	*Clostridia*

Rank	Taxon	Phylum	Class
	Clostridium bowmanii	*Firmicutes*	*Clostridia*
	Clostridium caminithermale	*Firmicutes*	*Clostridia*
	Clostridium colicanis	*Firmicutes*	*Clostridia*
	Clostridium diolis	*Firmicutes*	*Clostridia*
	Clostridium estertheticum	*Firmicutes*	*Clostridia*
	Clostridium estertheticum estertheticum	*Firmicutes*	*Clostridia*
	Clostridium estertheticum laramiense	*Firmicutes*	*Clostridia*
	Clostridium frigoris	*Firmicutes*	*Clostridia*
	Clostridium lacusfryxellense	*Firmicutes*	*Clostridia*
	Clostridium psychrophilum	*Firmicutes*	*Clostridia*
	Clostridium thiosulfatireducens	*Firmicutes*	*Clostridia*
	Cobetia marina	*Proteobacteria*	*Gammaproteobacteria*
	Comamonas aquatica	*Proteobacteria*	*Betaproteobacteria*
	Comamonas kerstersii	*Proteobacteria*	*Betaproteobacteria*
	Conexibacter woesei	*Actinobacteria*	*Actinobacteria*
	Corynebacterium aquilae	*Actinobacteria*	*Actinobacteria*
	Corynebacterium atypicum	*Actinobacteria*	*Actinobacteria*
	Corynebacterium glaucum	*Actinobacteria*	*Actinobacteria*
	Corynebacterium sphenisci	*Actinobacteria*	*Actinobacteria*
	Corynebacterium spheniscorum	*Actinobacteria*	*Actinobacteria*
	Croceibacter atlanticus	*Bacteroidetes*	*Flavobacteria*
	Crossiella equi	*Actinobacteria*	*Actinobacteria*
	Curtobacterium herbarum	*Actinobacteria*	*Actinobacteria*
	Cystobacter disciformis	*Proteobacteria*	*Deltaproteobacteria*
	Deferribacter desulfuricans	*Deferribacteres*	*Deferribacteres*
	Dehalospirillum multivorans	*Proteobacteria*	*Epsilonproteobacteria*
	Desulfarculus baarsii	*Proteobacteria*	*Deltaproteobacteria*
	Desulfitobacterium metallireducens	*Firmicutes*	*Clostridia*
	Desulfobotulus saprovorans	*Proteobacteria*	*Deltaproteobacteria*
	Desulfobacterium niacini	*Proteobacteria*	*Deltaproteobacteria*
	Desulfobacterium vacuolatum	*Proteobacteria*	*Deltaproteobacteria*
	Desulfobulbus mediterraneus	*Proteobacteria*	*Deltaproteobacteria*
	Desulfosarcina cetoniumi	*Proteobacteria*	*Deltaproteobacteria*
	Desulfosarcina ovata	*Proteobacteria*	*Deltaproteobacteria*
	Desulfomicrobium macestii	*Proteobacteria*	*Deltaproteobacteria*

Rank	Taxon	Phylum	Class
	Desulfotignum phosphitoxidans	*Proteobacteria*	*Deltaproteobacteria*
	Desulfovibrio hydrothermalis	*Proteobacteria*	*Deltaproteobacteria*
	Devosia neptuniae	*Proteobacteria*	*Alphaproteobacteria*
	Diaphorobacter nitroreducens	*Proteobacteria*	*Betaproteobacteria*
	Dysgonomonas mossii	*Bacteroidetes*	*Bacteroidetes*
	Enterococcus canis	*Firmicutes*	*Bacilli*
	Enterococcus phoeniculicola	*Firmicutes*	*Bacilli*
	Enterovibrio norvegicus	*Proteobacteria*	*Gammaproteobacteria*
	Erythrobacter citreus	*Proteobacteria*	*Alphaproteobacteria*
	Erythrobacter flavus	*Proteobacteria*	*Alphaproteobacteria*
	Escherichia albertii	*Proteobacteria*	*Gammaproteobacteria*
	Eubacterium pyruvativorans	*Firmicutes*	*Clostridia*
	Faecalibacterium prausnitzii	*Firmicutes*	*Clostridia*
	Flavobacterium limicola	*Bacteroidetes*	*Flavobacteria*
	Flavobacterium omnivorum	*Bacteroidetes*	*Flavobacteria*
	Flavobacterium xinjiangense	*Bacteroidetes*	*Flavobacteria*
	Francisella tularensis tularensis	*Proteobacteria*	*Gammaproteobacteria*
	Gallibacterium anatis	*Proteobacteria*	*Gammaproteobacteria*
	Gemmatimonas aurantiaca	*Gemmatimonadetes*	*Gemmatimonadetes*
	Geobacillus toebii	*Firmicutes*	*Bacilli*
	Glaciecola mesophila	*Proteobacteria*	*Gammaproteobacteria*
	Haliangium ochraceum	*Proteobacteria*	*Deltaproteobacteria*
	Haliangium tepidum	*Proteobacteria*	*Deltaproteobacteria*
	Halobacillus karajensis	*Firmicutes*	*Bacilli*
	Halobacillus salinus	*Firmicutes*	*Bacilli*
	Halobiforma haloterrestris	*Euryarchaeota*	*Halobacteria*
	Halobiforma nitratireducens	*Euryarchaeota*	*Halobacteria*
	Halococcus dombrowskii	*Euryarchaeota*	*Halobacteria*
	Halomicrobium mukohataei	*Euryarchaeota*	*Halobacteria*
	Halomonas halocynthiae	*Proteobacteria*	*Gammaproteobacteria*
	Halomonas muralis	*Proteobacteria*	*Gammaproteobacteria*
	Halorhodospira neutrophila	*Proteobacteria*	*Gammaproteobacteria*
	Halosimplex carlsbadense	*Euryarchaeota*	*Halobacteria*
	Idiomarina baltica	*Proteobacteria*	*Gammaproteobacteria*
	Inquilinus limosus	*Proteobacteria*	*Alphaproteobacteria*

Rank	Taxon	Phylum	Class
	Jannaschia helgolandensis	*Proteobacteria*	*Alphaproteobacteria*
	Jeotgalicoccus halotolerans	*Firmicutes*	*Bacilli*
	Jeotgalicoccus psychrophilus	*Firmicutes*	*Bacilli*
	Kineosphaera limosa	*Actinobacteria*	*Actinobacteria*
	Kocuria polaris	*Actinobacteria*	*Actinobacteria*
	Kribbella koreensis	*Actinobacteria*	*Actinobacteria*
	Kytococcus schroeteri	*Actinobacteria*	*Actinobacteria*
	Lactobacillus ingluviei	*Firmicutes*	*Bacilli*
	Lactobacillus mindensis	*Firmicutes*	*Bacilli*
	Lactobacillus pantheris	*Firmicutes*	*Bacilli*
	Lactobacillus thermotolerans	*Firmicutes*	*Bacilli*
	Lactobacillus versmoldensis	*Firmicutes*	*Bacilli*
	Laribacter hongkongensis	*Proteobacteria*	*Betaproteobacteria*
	Legionella busanensis	*Proteobacteria*	*Gammaproteobacteria*
	Leifsonia aurea	*Actinobacteria*	*Actinobacteria*
	Leifsonia rubra	*Actinobacteria*	*Actinobacteria*
	Lentibacillus salicampi	*Firmicutes*	*Bacilli*
	Lentzea flaviverrucosa	*Actinobacteria*	*Actinobacteria*
	Leuconostoc inhae	*Firmicutes*	*Bacilli*
	Liberibacter africanus africanus	*Proteobacteria*	*Alphaproteobacteria*
	Liberibacter africanus capensis	*Proteobacteria*	*Alphaproteobacteria*
	Liberibacter asiaticus	*Proteobacteria*	*Alphaproteobacteria*
	Maricaulis parjimensis	*Proteobacteria*	*Alphaproteobacteria*
	Maricaulis salignorans	*Proteobacteria*	*Alphaproteobacteria*
	Maricaulis virginensis	*Proteobacteria*	*Alphaproteobacteria*
	Maricaulis washingtonensis	*Proteobacteria*	*Alphaproteobacteria*
	Marinilactibacillus psychrotolerans	*Firmicutes*	*Bacilli*
	Marinithermus hydrothermalis	*Deinococcus-Thermus*	*Deinococci*
	Marinobacter litoralis	*Proteobacteria*	*Gammaproteobacteria*
	Marinomonas primoryensis	*Proteobacteria*	*Gammaproteobacteria*
	Marinospirillum alkaliphilum	*Proteobacteria*	*Gammaproteobacteria*
	Megasphaera micronuciformis	*Firmicutes*	*Clostridia*
	Meiothermus taiwanensis	*Deinococcus-Thermus*	*Deinococci*
	Methanocalculus taiwanensis	*Euryarchaeota*	*Methanomicrobia*
	Methylophaga alcalica	*Proteobacteria*	*Gammaproteobacteria*

Rank	Taxon	Phylum	Class
	Microbacterium paraoxydans	*Actinobacteria*	*Actinobacteria*
	Microbulbifer salipaludis	*Proteobacteria*	*Gammaproteobacteria*
	Microvirga subterranea	*Proteobacteria*	*Alphaproteobacteria*
	Moritella abyssi	*Proteobacteria*	*Gammaproteobacteria*
	Moritella profunda	*Proteobacteria*	*Gammaproteobacteria*
	Muricoccus roseus	*Proteobacteria*	*Alphaproteobacteria*
	Mycobacterium holsaticum	*Actinobacteria*	*Actinobacteria*
	Mycobacterium lacus	*Actinobacteria*	*Actinobacteria*
	Mycobacterium palustre	*Actinobacteria*	*Actinobacteria*
	Mycobacterium shottsii	*Actinobacteria*	*Actinobacteria*
	Mycobacterium vanbaalenii	*Actinobacteria*	*Actinobacteria*
	Nannocystis exedens aggregans	*Proteobacteria*	*Deltaproteobacteria*
	Nannocystis exedens cinnabarina	*Proteobacteria*	*Deltaproteobacteria*
	Nannocystis exedens glomerata	*Proteobacteria*	*Deltaproteobacteria*
	Nannocystis exedens pulla	*Proteobacteria*	*Deltaproteobacteria*
	Nannocystis pusilla	*Proteobacteria*	*Deltaproteobacteria*
	Nautilia lithotrophica	*Proteobacteria*	*Epsilonproteobacteria*
	Nitrosomonas mobilis	*Proteobacteria*	*Deltaproteobacteria*
	Nocardia caishijiensis	*Actinobacteria*	*Actinobacteria*
	Nocardia cerradoensis	*Actinobacteria*	*Actinobacteria*
	Nocardia pseudovaccinii	*Actinobacteria*	*Actinobacteria*
	Nocardiopsis metallicus	*Actinobacteria*	*Actinobacteria*
	Nocardiopsis xinjiangensis	*Actinobacteria*	*Actinobacteria*
	Novosphingobium hassiacum	*Proteobacteria*	*Alphaproteobacteria*
	Novosphingobium tardaugens	*Proteobacteria*	*Alphaproteobacteria*
	Oceanithermus profundus	*Deinococcus-Thermus*	*Deinococci*
	Ochrobactrum gallinifaecis	*Proteobacteria*	*Alphaproteobacteria*
	Oleispira antarctica	*Proteobacteria*	*Gammaproteobacteria*
	Oxalicibacterium flavum	*Proteobacteria*	*Betaproteobacteria*
	Paenibacillus agarexedens	*Firmicutes*	*Bacilli*
	Paenibacillus agaridevorans	*Firmicutes*	*Bacilli*
	Paenibacillus brasilensis	*Firmicutes*	*Bacilli*
	Paenibacillus daejeonensis	*Firmicutes*	*Bacilli*
	Paenibacillus glycanilyticus	*Firmicutes*	*Bacilli*
	Paenibacillus koleovorans	*Firmicutes*	*Bacilli*

Rank	Taxon	Phylum	Class
	Paenibacillus kribbensis	*Firmicutes*	*Bacilli*
	Paenibacillus nematophilus	*Firmicutes*	*Bacilli*
	Paenibacillus terrae	*Firmicutes*	*Bacilli*
	Paenibacillus turicensis	*Firmicutes*	*Bacilli*
	Pannonibacter phragmitetus	*Proteobacteria*	*Alphaproteobacteria*
	Paracoccus seriniphilus	*Proteobacteria*	*Alphaproteobacteria*
	Paracoccus yeei	*Proteobacteria*	*Alphaproteobacteria*
	Paracoccus zeaxanthinifaciens	*Proteobacteria*	*Alphaproteobacteria*
	Paraliobacillus ryukyuensis	*Firmicutes*	*Bacilli*
	Parvularcula bermudensis	*Proteobacteria*	*Alphaproteobacteria*
	Pectobacterium atrosepticum	*Proteobacteria*	*Gammaproteobacteria*
	Pectobacterium betavasulorum	*Proteobacteria*	*Gammaproteobacteria*
	Pectobacterium wasabiae	*Proteobacteria*	*Gammaproteobacteria*
	Pediococcus claussenii	*Firmicutes*	*Bacilli*
	Pelotomaculum thermopropionicum	*Firmicutes*	*Clostridia*
	Persephonella hydrogeniphila	*Aquificae*	*Aquificae*
	Petrotoga olearia	*Thermotogae*	*Thermotogae*
	Petrotoga sibirica	*Thermotogae*	*Thermotogae*
	Planococcus antarcticus	*Firmicutes*	*Bacilli*
	Planococcus psychrophilus	*Firmicutes*	*Bacilli*
	Plantibacter flavus	*Actinobacteria*	*Actinobacteria*
	Plesiocystis pacifica	*Proteobacteria*	*Deltaproteobacteria*
	Plesiocystis pacifica	*Proteobacteria*	*Deltaproteobacteria*
	Porphyrobacter cryptus	*Proteobacteria*	*Alphaproteobacteria*
	Porphyrobacter sanguineus	*Proteobacteria*	*Alphaproteobacteria*
	Propionibacterium australiense	*Actinobacteria*	*Actinobacteria*
	Propionimicrobium lymphophilum	*Actinobacteria*	*Actinobacteria*
	Prosthecochloris aestuarii	*Chlorobi*	*Chlorobia*
	Prosthecochloris vibrioformis	*Chlorobi*	*Chlorobia*
	Pseudoalteromonas agarivorans	*Proteobacteria*	*Gammaproteobacteria*
	Pseudoalteromonas mariniglutinosa	*Proteobacteria*	*Gammaproteobacteria*
	Pseudoalteromonas paragorgicola	*Proteobacteria*	*Gammaproteobacteria*
	Pseudoalteromonas phenolica	*Proteobacteria*	*Gammaproteobacteria*
	Pseudoalteromonas translucida	*Proteobacteria*	*Gammaproteobacteria*
	Pseudobutyrivibrio xylanivorans	*Firmicutes*	*Clostridia*

Rank	Taxon	Phylum	Class
	Pseudomonas brenneri	*Proteobacteria*	*Gammaproteobacteria*
	Pseudomonas cedrina	*Proteobacteria*	*Gammaproteobacteria*
	Pseudomonas chloritidismuta	*Proteobacteria*	*Gammaproteobacteria*
	Pseudomonas costantinii	*Proteobacteria*	*Gammaproteobacteria*
	Pseudomonas extremorientali	*Proteobacteria*	*Gammaproteobacteria*
	Pseudomonas grimontii	*Proteobacteria*	*Gammaproteobacteria*
	Pseudomonas indica	*Proteobacteria*	*Gammaproteobacteria*
	Pseudomonas jinjuensis	*Proteobacteria*	*Gammaproteobacteria*
	Pseudomonas koreensis	*Proteobacteria*	*Gammaproteobacteria*
	Pseudomonas mediterranea	*Proteobacteria*	*Gammaproteobacteria*
	Pseudomonas orientalis	*Proteobacteria*	*Gammaproteobacteria*
	Pseudomonas palleroniana	*Proteobacteria*	*Gammaproteobacteria*
	Pseudomonas salomonii	*Proteobacteria*	*Gammaproteobacteria*
	Pseudomonas thermotolerans	*Proteobacteria*	*Gammaproteobacteria*
	Pseudomonas umsongensis	*Proteobacteria*	*Gammaproteobacteria*
	Pseudonocardia spinosispora	*Actinobacteria*	*Actinobacteria*
	Pseudorhodobacter ferrugineus	*Proteobacteria*	*Alphaproteobacteria*
	Pseudoxanthomonas taiwanensis	*Proteobacteria*	*Gammaproteobacteria*
	Psychrobacter faecalis	*Proteobacteria*	*Gammaproteobacteria*
	Psychrobacter fozii	*Proteobacteria*	*Gammaproteobacteria*
	Psychrobacter jeotgali	*Proteobacteria*	*Gammaproteobacteria*
	Psychrobacter luti	*Proteobacteria*	*Gammaproteobacteria*
	Psychrobacter pulmonis	*Proteobacteria*	*Gammaproteobacteria*
	Psychromonas arctica	*Proteobacteria*	*Gammaproteobacteria*
	Psychromonas kaikoae	*Proteobacteria*	*Gammaproteobacteria*
	Psychromonas marina	*Proteobacteria*	*Gammaproteobacteria*
	Psychromonas profunda	*Proteobacteria*	*Gammaproteobacteria*
	Ralstonia insidiosa	*Proteobacteria*	*Betaproteobacteria*
	Ramlibacter henchirensis	*Proteobacteria*	*Betaproteobacteria*
	Ramlibacter tataouinensis	*Proteobacteria*	*Betaproteobacteria*
	Rathayibacter caricis	*Actinobacteria*	*Actinobacteria*
	Rathayibacter festucae	*Actinobacteria*	*Actinobacteria*
	Reichenbachia agariperforans	*Bacteroidetes*	*Sphingobacteria*
	Rheinheimera baltica	*Proteobacteria*	*Gammaproteobacteria*
	Rhizobium indigoferae	*Proteobacteria*	*Alphaproteobacteria*

Rank	Taxon	Phylum	Class
	Rhodocista pekingensis	*Proteobacteria*	*Alphaproteobacteria*
	Rhodococcus maanshanensis	*Actinobacteria*	*Actinobacteria*
	Rhodoferax ferrireducens	*Proteobacteria*	*Betaproteobacteria*
	Rhodoglobus vestalii	*Actinobacteria*	*Actinobacteria*
	Rhodopseudomonas faecalis	*Proteobacteria*	*Alphaproteobacteria*
	Roseburia intestinalis	*Firmicutes*	*Clostridia*
	Rothia amarae	*Actinobacteria*	*Actinobacteria*
	Rubritepida flocculans	*Proteobacteria*	*Alphaproteobacteria*
	Ruminococcus luti	*Firmicutes*	*Clostridia*
	Runella zeae	*Bacteroidetes*	*Sphingobacteria*
	Saccharospirillum impatiens	*Proteobacteria*	*Gammaproteobacteria*
	Schlegelella thermodepolymerans	*Proteobacteria*	*Betaproteobacteria*
	Serratia marcescens sakuensis	*Proteobacteria*	*Gammaproteobacteria*
	Serratia quinivorans	*Proteobacteria*	*Gammaproteobacteria*
	Shewanella denitrificans	*Proteobacteria*	*Gammaproteobacteria*
	Shewanella fidelis	*Proteobacteria*	*Gammaproteobacteria*
	Shewanella marinintestina	*Proteobacteria*	*Gammaproteobacteria*
	Shewanella olleyana	*Proteobacteria*	*Gammaproteobacteria*
	Shewanella sairae	*Proteobacteria*	*Gammaproteobacteria*
	Shewanella schlegeliana	*Proteobacteria*	*Gammaproteobacteria*
	Shuttleworthia satelles	*Firmicutes*	*Clostridia*
	Sinorhizobium adhaerens	*Proteobacteria*	*Alphaproteobacteria*
	Sinorhizobium kummerowiae	*Proteobacteria*	*Alphaproteobacteria*
	Sinorhizobium morelense	*Proteobacteria*	*Alphaproteobacteria*
	Solirubrobacter pauli	*Actinobacteria*	*Actinobacteria*
	Sphingomonas melonis	*Proteobacteria*	*Alphaproteobacteria*
	Sphingopyxis alaskensis	*Proteobacteria*	*Alphaproteobacteria*
	Sphingopyxis chilensis	*Proteobacteria*	*Alphaproteobacteria*
	Sphingopyxis witflariensis	*Proteobacteria*	*Alphaproteobacteria*
	Spirochaeta americana	*Spirochaetes*	*Spirochaetes*
	Sporotomaculum syntrophicum	*Firmicutes*	*Clostridia*
	Staphylococcus succinus casei	*Firmicutes*	*Bacilli*
	Staphylococcus succinus succinus	*Firmicutes*	*Bacilli*
	Stenotrophomonas rhizophila	*Proteobacteria*	*Gammaproteobacteria*
	Sterolibacterium denitrificans	*Proteobacteria*	*Betaproteobacteria*

Rank	Taxon	Phylum	Class
	Streptococcus gallolyticus gallolyticus	*Firmicutes*	*Bacilli*
	Streptococcus gallolyticus macedonicus	*Firmicutes*	*Bacilli*
	Streptococcus gallolyticus pasteurianus	*Firmicutes*	*Bacilli*
	Streptococcus infantarius coli	*Firmicutes*	*Bacilli*
	Streptococcus infantarius infantarius	*Firmicutes*	*Bacilli*
	Streptococcus oligofermentans	*Firmicutes*	*Bacilli*
	Streptococcus sinensis	*Firmicutes*	*Bacilli*
	Streptomyces avermectinius	*Actinobacteria*	*Actinobacteria*
	Streptomyces avermitilis	*Actinobacteria*	*Actinobacteria*
	Streptomyces beijiangensis	*Actinobacteria*	*Actinobacteria*
	Streptomyces mexicanus	*Actinobacteria*	*Actinobacteria*
	Streptomyces scopiformis	*Actinobacteria*	*Actinobacteria*
	Streptomyces speibonae	*Actinobacteria*	*Actinobacteria*
	Streptomyces yunnanensis	*Actinobacteria*	*Actinobacteria*
	Subtercola pratensis	*Actinobacteria*	*Actinobacteria*
	Sulfolobus tokodaii	*Crenarchaeota*	*Thermoprotei*
	Sulfurihydrogenibium subterraneum	*Aquificae*	*Aquificae*
	Sulfurospirillum halorespirans	*Proteobacteria*	*Epsilonproteobacteria*
	Sulfurospirillum multivorans	*Proteobacteria*	*Epsilonproteobacteria*
	Teichococcus ludipueritiae	*Proteobacteria*	*Alphaproteobacteria*
	Tepidibacter thalassicus	*Firmicutes*	*Clostridia*
	Teredinibacter turnerae	*Proteobacteria*	*Gammaproteobacteria*
	Thauera aminoaromatica	*Proteobacteria*	*Betaproteobacteria*
	Thauera phenylacetica	*Proteobacteria*	*Betaproteobacteria*
	Thermanaeromonas toyohensis	*Firmicutes*	*Clostridia*
	Thermococcus gammatolerans	*Euryarchaeota*	*Thermococci*
	Thermocrinis albus	*Aquificae*	*Aquificae*
	Thermomonas hydrothermalis	*Proteobacteria*	*Gammaproteobacteria*
	Thermovenabulum ferriorganovorum	*Firmicutes*	*Clostridia*
	Thermovibrio ruber	*Aquificae*	*Aquificae*
	Thioalkalispira microaerophila	*Proteobacteria*	*Gammaproteobacteria*
	Tistrella mobilis	*Proteobacteria*	*Alphaproteobacteria*
	Varibaculum cambriense	*Actinobacteria*	*Actinobacteria*
	Vibrio brasiliensis	*Proteobacteria*	*Gammaproteobacteria*
	Vibrio chagasii	*Proteobacteria*	*Gammaproteobacteria*

Rank	Taxon	Phylum	Class
	Vibrio coralliilyticus	*Proteobacteria*	*Gammaproteobacteria*
	Vibrio kanaloae	*Proteobacteria*	*Gammaproteobacteria*
	Vibrio neptunius	*Proteobacteria*	*Gammaproteobacteria*
	Vibrio pomeroyi	*Proteobacteria*	*Gammaproteobacteria*
	Vibrio ruber	*Proteobacteria*	*Gammaproteobacteria*
	Vibrio xuii	*Proteobacteria*	*Gammaproteobacteria*
	Victivallis vadensis	*Dictyoglomus*	*Dictyoglomi*
	Virgibacillus carmonensis	*Firmicutes*	*Bacilli*
	Virgibacillus marismortui	*Firmicutes*	*Bacilli*
	Virgibacillus necropolis	*Firmicutes*	*Bacilli*
	Virgibacillus picturae	*Firmicutes*	*Bacilli*
	Virgibacillus salexigens	*Firmicutes*	*Bacilli*
	Vulcanithermus mediatlanticus	*Deinococcus-Thermus*	*Deinococci*
	Xanthobacter aminoxidans	*Proteobacteria*	*Alphaproteobacteria*
	Xanthobacter viscosus	*Proteobacteria*	*Alphaproteobacteria*
	Xylanimonas cellulosilytica	*Actinobacteria*	*Actinobacteria*
	Zooshikella ganghwensis	*Proteobacteria*	*Gammaproteobacteria*

Table 2. Higher taxa that have been moved within the Outline.

	Taxon	Moved from	Moved to
Order	*Methanomicrobiales*	*Methanococci*	*Methanomicrobia*
	Methanosarcinales	*Methanococci*	*Methanomicrobia*
Genus	*Anaeroarcus*	*Peptococcaceae*	*Acidominococcacea*
	Anaerosinus	*Peptococcaceae*	*Acidominococcacea*
	Anaerovibrio	*Peptococcaceae*	*Acidominococcacea*
	Caedibacter	*Holosporaceae*	*Incertae sedis 3*
	Catenococcus	*Neisseriaceae*	*Vibrionaceae*
	Centipeda	*Peptococcaceae*	*Acidominococcacea*
	Dendrosporobacter	*Peptococcaceae*	*Acidominococcacea*
	Derxia	*Beijerinckiaceae*	*Alcaligenaceae*
	Desulfonatronum	*Desulfovibrionaceae*	*Desulfonatronumaceae*
	Halothiobacillus	*Chromatiaceae*	*Halothiobacillaceae*
	Lampropedia	*Pseudomonadaceae*	*Comamonadaceae*
	Lyticum	*Holosporaceae*	*Incertae sedis 3*
	Mitsukella	*Peptococcaceae*	*Acidominococcacea*
	Myroides	*Myroidaceae*	*Flavobacteriaceae*
	Oceanobacillus	*Oceanospirillaceae*	*Bacillaceae*
	Odyssella	*Holosporaceae*	*Incertae sedis 3*
	Polynucleobacter	*Holosporaceae*	*Burkholderiaceae*
	Propionispora	*Peptococcaceae*	*Acidominococcacea*
	Pseudocaedibacter	*Holosporaceae*	*Incertae sedis 3*
	Psychromonas	*Myroidaceae*	*Alteromonadaceae*
	Succinispora	*Peptococcaceae*	*Acidominococcacea*
	Symbiotes	*Holosporaceae*	*Incertae sedis 3*
	Tectibacter	*Holosporaceae*	*Incertae sedis 3*
	Terasakiella	*Oceanospirillaceae*	*Methylocystaceae*
	Thermoleophilum	*Pseudomonadaceae*	*Rubrobacteraceae*

Domain *Archaea* VP
Phylum AI. *Crenarchaeota* VP [6]
Class I. *Thermoprotei* VP
Order I. *Thermoproteales* VP (T)
Family I. Thermoproteaceae VP
Genus I. Thermoproteus VP (T)
Thermoproteus tenax VP (T) Zillig and Stetter 1982 - DSM 2078
Thermoproteus neutrophilus VP Zillig 1989 - DSM 2338 | JCM 9278, AB009618, Thp.neutro
Thermoproteus uzoniensis VP Bonch-Osmolovskaya et al. 2001 [7] - Z-605 | DSM 5263
Genus II. Caldivirga VP
Caldivirga maquilingensis VP (T) Itoh et al. 1999 - IC-167, AB013926 | JCM 10307 | MCC-UPLB 1200 | ANMR 0178
Genus III. Pyrobaculum VP
Pyrobaculum islandicum VP (T) Huber et al. 1988 - GEO3, L07511, Pyb.island | DSM 4184
Pyrobaculum aerophilum VP Völkl et al. 1996 - IM2, L07510, Pyb.aeroph | DSM 7523
Pyrobaculum arsenaticum VP Huber et al. 2001 - PZ6, AJ277124 | 700994 | ATCC 700994 | DSM 13514
Pyrobaculum organotrophum VP Huber et al. 1988 - H10 | DSM 4185
Pyrobaculum oguniense VP Sako et al. 2001 - TE7, AB029339 | DSM 13380 | JCM 10595
Genus IV. Thermocladium VP
Thermocladium modestius VP (T) Itoh et al. 1998 - IC-125, AB005296, Tcl.modest | JCM 10088
Genus V. Vulcanisaeta VP
Vulcanisaeta souniana VP (T) Itoh et al. 2002 - IC-059 | JCM 11219 | DSM 14430, AB063645
Vulcanisaeta distributa VP Itoh et al. 2002 - IC-017, AB063630 | JCM 11212 | DSM 14429
Family II. Thermofilaceae VP
Genus I. Thermofilum VP (T)
Thermofilum pendens VP (T) Zillig and Gierl 1983 - Hvv3, X14835, Tmf.penden | DSM 2475, X14835, Tmf.penden
Order II. "***Caldisphaerales***"
Family I. Caldisphaeraceae"
Genus I. ***Caldisphaera*** VP (T)
Caldisphaera lagunensis VP (T) Itoh et al. 2003 - IC-154, AB087499 | ANMR 0165 | JCM 11604 | MCC-UPLB 1331
Order III. *Desulfurococcales* VP
Family I. Desulfurococcaceae VP
Genus I. Desulfurococcus VP (T)
Desulfurococcus mucosus VP (T) Zillig and Stetter 1983 - DSM 2162
Desulfurococcus amylolyticus VP Bonch-Osmolovskaya et al. 2001 - Z–533, AF250331 | DSM 3822 | JCM 9188
Desulfurococcus mobilis VP Zillig and Stetter 1983 - DSM 2161
Genus II. Acidilobus VP [8]
Acidilobus aceticus VP (T) Prokofeva et al. 2000 - 1904 | DSM 11585, AF191225
Genus III. Aeropyrum VP
Aeropyrum pernix VP (T) Sako et al. 1996 - K1, AB008745, Ap.pernix2 | K1, D83259, Ap.pernix1 | DSM 11879 | JCM 9820
Genus IV. Ignicoccus VP

[6] Both the ARB and RDP trees provide support for the general taxonomic structure proposed for the *Crenarchaeota*. Ludwig indicates that *Sulfolobales* and *Desulfurococcales* are sister groups but states that the *Thermoproteales* may not be monophyletic.
[7] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[8] Prokofeva et al. suggest that *Acidilobus* represents a separate lineage within the *Crenarchaeota*. This has not yet been confirmed in either the ARB or RDP trees.

Ignicoccus islandicus [VP (T)] Huber et al. 2000 - Kol8, X99562 | ATCC 700957 | DSM 13165

Ignicoccus pacificus [VP] Huber and Stetter 2000 - LPC33, AJ271794 | ATCC 700958 | DSM 13166

Genus V. Staphylothermus [VP]

Staphylothermus marinus [VP (T)] Stetter and Fiala 1986 - F1, X99560, Sth.marinu | ATCC 49053 | DSM 3639, X99560, Sth.marinu

Staphylothermus hellenicus [VP] Arab et al. 2000 - P8, AJ012645 | DSM 12710 | JCM 10830

Genus VI. Stetteria [VP]

Stetteria hydrogenophila [VP (T)] Jochimsen et al. 1998 - 4ABC, Y07784, Str.hygen2 | 4ABC, Y07963, Str.hygeno | DSM 11227

Genus VII. Sulfophobococcus [VP]

Sulfophobococcus zilligii [VP (T)] Hensel et al. 1997 - K1, X98064, Slp.zillig | DSM 11193 | JCM 10309

Genus VIII. Thermodiscus [VP]

Thermodiscus maritimus NP [(T)] Stetter 2001 - S2, X99554

Genus IX. Thermosphaera [VP]

Thermosphaera aggregans [VP (T)] Huber et al. 1998 - M11TL, X99556, Thm.aggreg | DSM 11486

Family II. Pyrodictiaceae [VP]

Genus I. Pyrodictium [VP (T)]

Pyrodictium occultum [VP (T)] Stetter et al. 1984 - PL-19, M21087, Pyr.occult | DSM 2709

Pyrodictium abyssi [VP] Pley et al. 1991 - AV2 | DSM 6158, X99559, Pyr.abyssi

Pyrodictium brockii [VP] Stetter et al. 1984 - S 1 | DSM 2708

Genus II. Hyperthermus [VP]

Hyperthermus butylicus [VP (T)] Zillig et al. 1991 - DSM 5456, X99553, Hth.butyli

Genus III. Pyrolobus [VP]

Pyrolobus fumari [VP (T)] Blöchl et al. 1999 - 1A, X99555, Pyl.fumari | DSM 11204

Order IV. *Sulfolobales* [VP]

Family I. Sulfolobaceae [VP]

Genus I. Sulfolobus [AL (T)]

Sulfolobus acidocaldarius [AL (T)] Brock et al. 1972 - ATCC 33909, D14876, Sul.acalda | DSM 639, D14053, Sul.acald4 | DSM 639, U32320, Sul.acald5 | NCIB 11770

†Sulfolobus brierleyi [AL] Zillig et al. 1980 -> *Acidianus brierleyi* - DSM 1651, X90477, Adi.brier3 | NBRC 15269

Sulfolobus hakonensis [VP] Takayanagi et al. 1996 - HO1-1 | ATCC 51241 | DSM 7519 | IAM 14250 | JCM 8857

Sulfolobus metallicus [VP] Huber and Stetter 1992 - Kra 23 | DSM 6482, D85519, Sul.metal2 | DSM 6482, X90479, Sul.metall

Sulfolobus shibatae [VP] Grogan et al. 1991 - B12 | DSM 5389 | DSM 5389, M32504, Sul.shibat

Sulfolobus solfataricus [AL] Zillig et al. 1980 - ATCC 35091 | DSM 1616, D26490, Sul.solfa4 | DSM 1616, X90478, Sul.solfa6

Sulfolobus tokodaii [VP] Suzuki et al. 2002 [9] - 7, AB022438 | JCM 10545

Sulfolobus yangmingensis [VP] Jan et al. 1999 - YM1, AB010957

Genus II. Acidianus [VP]

Acidianus infernus [VP (T)] Segerer et al. 1986 - So4a | DSM 3191, D38773, Adi.infern | DSM 3191, D85505, Adi.infer3 | DSM 3191, X89852, Adi.infer2

Acidianus ambivalens [VP] (Zillig and Böck 1987) Fuchs et al. 1996 <- *Desulfurolobus ambivalens* (basonym) - Lei 10 | DSM 3772, D85506, Adi.ambivl | DSM 3772, D85506, Adi.ambiv3 | DSM 3772, X90484, Adi.ambiv2

Acidianus brierleyi [VP] (Zillig et al. 1980) Segerer et al. 1986 <- *Sulfolobus brierleyi* (basonym) - DSM 1651, D26489, Adi.brier2 | DSM 1651, X90477, Adi.brier3

[9] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Genus III. Metallosphaera VP
Metallosphaera sedula VP (T) Huber et al. 1989 - TH2 | DSM 5348, D26491, Mts.sedula | DSM 5348, X90481, Mts.sedul3
Metallosphaera prunae VP Fuchs et al. 1996 - Ron 12/II, X90482, Mts.prunae | DSM 10039, X90482, Mts.prunae
Genus IV. Stygiolobus VP
Stygiolobus azoricus VP (T) Segerer et al. 1991 - FC6 | DSM 6296, D85520, Sl.azoric2 | DSM 6296, X90480, Sl.azoricu
Genus V. Sulfurisphaera VP
Sulfurisphaera ohwakuensis VP (T) Kurosawa et al. 1998 - TA-1, D85507, Sfr.ohwaku | DSM 12421 | NBRC 15161, D85507, Sfr.ohwaku
Genus VI. Sulfurococcus VP
Sulfurococcus mirabilis VP (T) Golovacheva et al. 1995 - INMI AT-59
Sulfurococcus yellowstonensis VP Karavaiko et al. 1995 - Str6kar

Phylum AII. *Euryarchaeota* VP [10]
Class I. *Methanobacteria* VP
Order I. *Methanobacteriales* VP (T)
Family I. Methanobacteriaceae AL
Genus I. Methanobacterium AL (T)
Methanobacterium formicicum AL (T) Schnellen 1947 - MF | ATCC 33274 | DSM 1535, AF169245 | OCM 55
Methanobacterium alcaliphilum VP Worakit et al. 1986 - WeN4 | DSM 3387 | OCM 11
†*Methanobacterium arbophilicum* AL Zeikus and Henning 1975 -> *Methanobrevibacter arboriphilicus* - DH1 | ATCC 33747 | DSM 1125
Methanobacterium bryantii VP Balch and Wolfe 1981 - M.o.H. | ATCC 33272 | DSM 863, M59124, Mb.bryanti
Methanobacterium congolense VP Cuzin et al. 2001 - C, AF233586 | DSM 7095 | OCM 779
†*Methanobacterium defluvii* VP Kotelnikova et al. 1994 -> *Methanothermobacter defluvii* - ADZ, X99046, Mbt.dfluvi | DSM 7466, X99046, Mbt.dfluvi | VKM B-1962, X99046, Mbt.dfluvi [11]
Methanobacterium espanolae VP Patel et al. 1990 - GP9, AF095260, Mb.espanol | DSM 5982 | NRC 5912
Methanobacterium ivanovii VP Jain et al. 1988 - DSM 2611 | Ivanov | OCM 140, AF095261, Mb.ivanovi
†*Methanobacterium mobile* AL Paynter and Hungate 1968 -> *Methanomicrobium mobile* - ATCC 35094 | DSM 1539, M59142, Mm.mobile
Methanobacterium oryzae VP Joulian et al. 2000 - Fpi, AF028690 | DSM 11106
Methanobacterium palustre VP Zellner et al. 1990 - F, AF095263, Mb.palustr | DSM 3108
†*Methanobacterium ruminantium* AL Smith and Hungate 1958 -> *Methanobrevibacter ruminantium* - DSM 1093
Methanobacterium subterraneum VP Kotelnikova et al. 1998 - A8p, X99044, Mb.subterr | DSM 11074, X99044, Mb.subterr
Methanobacterium thermaggregans VP Blotevogel and Fischer 1988 - ATCC 43168 | DSM 3266 | OCM 141, AF095264, Mb.thaggre
†*Methanobacterium thermalcaliphilum* VP Blotevogel et al. 1988 = *Methanobacterium thermautotrophicum* (earlier heterotypic synonym) - AC60 | ATCC 43169 | DSM 3267
†*Methanobacterium thermautotrophicum* AL Zeikus and Wolfe 1972 = *Methanobacterium thermoformicicum* (later heterotypic synonym) = *Methanobacterium*

[10] In Ludwig and Klenk's chapter, they indicate that the *Halobacteriales*, *Methanomicrobiales* and *Thermoplasmatales* share a common root with *Methanobacteriales*, branching off of the first two. Ludwig indicates that he was not able to stably resolve a relationship among the *Methanomicrobiales*, *Halobacteriales* and *Methanobacteriales* with the *Archaeoglobales*, *Methanococcales, Thermococcales and Methanopyrales*. He makes no mention of the *Methanosarcinales* which is clearly evident in the RDP tree.
[11] *Methanothermobacter defluvii* comb. nov. is proposed in Volume 1 of *Bergey's Manual of Systematic Bacteriology*, 2nd Ed.

thermalcaliphilum (later heterotypic synonym) -> *Methanothermobacter thermautotrophicus* - DH, X68720 | DSM 1053 | ATCC 29096

†*Methanobacterium thermoflexum* [VP] Kotelnikova et al. 1994 -> *Methanothermobacter thermoflexus* - IDZ, X99047, Mbt.thflex | DSM 7268, X99047, Mbt.thflex | VKM B-1963, X99047, Mbt.thflex[12]

†*Methanobacterium thermoformicicum* [VP] Zhilina and Ilarionov 1986 = *Methanobacterium thermautotrophicum* (earlier heterotypic synonym) - DSM 3720 | INMI Z-245, X68712, Mb.tauZ245

†*Methanobacterium thermophilum* [VP] Laurinavichus et al. 1990 -> *Methanothermobacter thermophilus* - M, X99048, Mbt.thphil | DSM 6529, X99048, Mbt.thphil | VKM B-1786, X99048, Mbt.thphil[13]

Methanobacterium uliginosum [VP] König 1985 - P2St | DSM 2956

†*Methanobacterium wolfei* [VP] Winter et al. 1985 -> *Methanothermobacter wolfeii* - ATCC 43096 | DSM 2970

Genus II. Methanobrevibacter [VP]

Methanobrevibacter ruminantium [VP (T)] (Smith and Hungate 1958) Balch and Wolfe 1981 <- *Methanobacterium ruminantium* (basonym) - M1 | DSM 1093

Methanobrevibacter arboriphilicus [VP] (Zeikus and Henning 1975) Balch and Wolfe 1981 <- *Methanobacterium arbophilicum* (basonym) - DH1 | ATCC 33747 | DSM 1125

Methanobrevibacter acididurans [VP] Savant et al. 2002 - ATM, AF242652 | MCM B 613 | OCM 804

Methanobrevibacter curvatus [VP] Leadbetter and Breznak 1997 - RFM-2, U62533, Mbb.curvat | DSM 11111

Methanobrevibacter cuticularis [VP] Leadbetter and Breznak 1997 - RFM-1, U41095, Mbb.cuticl | DSM 11139

Methanobrevibacter filiformis [VP] Leadbetter et al. 1998 - RFM-3, U82322, Mbb.filfor | DSM 11501

Methanobrevibacter gottschalkii [VP] Miller and Lin 2002 - HO, U55239 | DSM 11977 | OCM 813

Methanobrevibacter oralis [VP] Ferrari et al. 1995 - ZR | DSM 7256

Methanobrevibacter smithii [VP] Balch and Wolfe 1981 - PS, U55233, Mbb.smithi | ATCC 3506 | DSM 861

Methanobrevibacter thaueri [VP] Miller and Lin 2002 - CW, U55236 | DSM 11955 | OCM 817

Methanobrevibacter woesei [VP] Miller and Lin 2002 - GS, U55237 | DSM 11979 | OCM 815

Methanobrevibacter wolinii [VP] Miller and Lin 2002 - SH, U55240 | DSM 11976 | OCM 814

Genus III. Methanosphaera [VP]

Methanosphaera stadtmanae [VP (T)] Miller and Wolin 1985 - MCB-3 | DSM 3091, M59139, Mpr.stadtm

Methanosphaera cuniculi [VP] Biavati et al. 1990 - 1R7 | DSM 4103

Genus IV. Methanothermobacter [VP]

Methanothermobacter defluvii (Kotelnikova et al. 1994) Boone 2001 *comb. nov.* <- *Methanobacterium defluvii* (basonym) - ADZ, X99046, Mbt.dfluvi | DSM 7466, X99046, Mbt.dfluvi | OCM 570 | VKM B-1962, X99046, Mbt.dfluvi

Methanothermobacter marburgensis [VP] Wasserfallen et al. 2000 - Marburg, X15364, Mb.tautotr | DSM 2133 | OCM 82

Methanothermobacter thermautotrophicus [VP] (Zeikus and Wolfe 1972) Wasserfallen et al. 2000 <- *Methanobacterium thermautotrophicum* (basonym) - DH, X68720, Mb.tauDELH | ATCC 29096 | DSM 1053

[12] *Methanothermobacter thermoflexus* comb. nov. is proposed in Volume 1 of *Bergey's Manual of Systematic Bacteriology*, 2nd Ed.
[13] *Methanothermobacter thermophilus* comb. nov. is proposed in Volume 1 of *Bergey's Manual of Systematic Bacteriology*, 2nd Ed.

Methanothermobacter thermoflexus (Kotelnikova et al. 1994) Boone 2001 *comb. nov.* <- *Methanobacterium thermoflexum* (basonym) - IDZ, X99047, Mbt.thflex | DSM 7268, X99047, Mbt.thflex | OCM 571 | VKM B-1963, X99047, Mbt.thflex

Methanothermobacter thermophilus (Laurinavichus et al. 1990) Boone 2001 *comb. nov.* <- *Methanobacterium thermophilum* (basonym) - M, X99048, Mbt.thphil | OCM 231 | DSM 6529, X99048, Mbt.thphil

Methanothermobacter wolfeii VP (Winters et al. 1985) Wasserfallen et al. 2000 <- *Methanobacterium wolfei* (basonym) - ATCC 43096 | DSM 2970 | OCM 154

Family II. Methanothermaceae VP

Genus I. Methanothermus VP (T)

Methanothermus fervidus VP (T) Stetter et al. 1982 - DSM 2088, M59145, Mt.fervidu

Methanothermus sociabilis VP Lauerer et al. 1986 - DSM 3496

Class II. *Methanococci* VP

Order I. *Methanococcales* VP (T)

Family I. Methanococcaceae VP

Genus I. Methanococcus AL (T)

Methanococcus vannielii AL (T) Stadtman and Barker 1951 - ATCC 35089 | DSM 1224

†Methanococcus deltae VP Corder et al. 1988 = *Methanococcus maripaludis* (earlier heterotypic synonym) - Delta RC, U38485, Mc.deltae2 | ATCC 35294 | DSM 2771

†Methanococcus fervens VP Jeanthon et al. 1999 -> *Methanocaldococcus fervens* - AG86, AF056938, Mcd.ferven | DSM 4213, AF056938, Mcd.ferven

†Methanococcus frisius VP Blotevogel et al. 1986 -> *Methanosarcina frisia* - C 16 | DSM 3318 | DSM 3318

†Methanococcus halophilus VP Zhilina 1984 -> *Methanohalophilus halophilus* - DSM 3094 | INMI Z-7982 | OCM 160

†Methanococcus igneus VP Burggraf et al. 1990 -> *Methanotorris igneus* - Ko15 | DSM 5666, M59125, Mc.igneus[14]

†Methanococcus infernus VP Jeanthon et al. 1998 -> *Methanocaldococcus infernus* - ME | DSM 11812, AF025822, Mc.inferns

†Methanococcus jannaschii VP Jones et al. 1984 -> *Methanocaldococcus jannaschii* - JAL-1 | DSM 2661, M59126, Mc.jannasc

Methanococcus maripaludis VP Jones et al. 1984 = *Methanococcus deltae* (later heterotypic synonym) - JJ, U38484, Mc.maripa2 | DSM 2067

†Methanococcus mazei AL Barker 1936 -> *Methanosarcina mazei* - S-6, AJ012095 | DSM 2053, U20151

†Methanococcus thermolithotrophicus VP Huber et al. 1984 -> *Methanothermococcus thermolithotrophicus* - DSM 2095, M59128, Mc.thlitho

Methanococcus voltae VP Balch and Wolfe 1981 emend. Ward et al. 1989 - PS, U38461, Mc.voltae2 | ATCC 33273, M59290, Mc.voltae | DSM 1537

†Methanococcus vulcanius VP Jeanthon et al. 1999 -> *Methanocaldococcus vulcanius* - M7, AF051404, Mcd.vulcan | DSM 12094

Genus II. Methanothermococcus VP

Methanothermococcus thermolithotrophicus (Huber et al. 1984) Whitman 2001 *comb. nov.* [15] <- *Methanococcus thermolithotrophicus* (basonym) - SN-1 | DSM 2095, M59128, Mc.thlitho

Methanothermococcus okinawensis VP Takai et al. 2002 - IH1, AB057722 | DSM 14208 | JCM 11175

Family II. Methanocaldococcaceae VP

Genus I. Methanocaldococcus VP (T)

[14] *Methanotorris igneus* comb. nov. is proposed in Volume 1 of *Bergey's Manual of Systematic Bacteriology*, 2nd Ed.

[15] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Methanocaldococcus fervens (Jeanthon et al. 1999) Whitman 2001 *comb. nov.* [16] <- *Methanococcus fervens* (basonym) - AG86, AF056938, Mcd.ferven | DSM 4213, AF056938, Mcd.ferven

Methanocaldococcus infernus (Jeanthon et al. 1998) Whitman 2001 *comb. nov.* [17] <- *Methanococcus infernus* (basonym) - ME | DSM 11812, AF025822, Mc.inferns

Methanocaldococcus jannaschii (Jones et al. 1984) Whitman 2001 *comb. nov.* <- *Methanococcus jannaschii* (basonym) - JAL-1 | DSM 2661, M59126, Mc.jannasc

Methanocaldococcus vulcanius (Jeanthon et al. 1999) Whitman 2001 *comb. nov.* [18] <- *Methanococcus vulcanius* (basonym) - M7, AF051404, Mcd.vulcan | DSM 12094

Genus II. Methanotorris VP

Methanotorris igneus(T) (Burggraf et al. 1990) Whitman 2001 *comb. nov.* [19] <- *Methanococcus igneus* (basonym) - Kol5 | DSM 5666, M59125, Mc.igneus

Class III. *"Methanomicrobia"*[20]

Order I. ***Methanomicrobiales (moved)*** VP (T)

Family I. Methanomicrobiaceae VP

Genus I. ***Methanomicrobium*** VP (T) ***(moved)***

Methanomicrobium mobile VP (T) (Paynter and Hungate 1968) Balch and Wolfe 1981 <- *Methanobacterium mobile* (basonym) - BP | ATCC 35094 | DSM 1539, M59142, Mm.mobile

†Methanomicrobium paynteri VP Rivard et al. 1984 -> *Methanolacinia paynteri* - G-2000 | ATCC 33997 | DSM 2545

Genus II. ***Methanoculleus*** VP ***(moved)***

Methanoculleus bourgensis VP (T) (Ollivier et al. 1986) Maestrojuán et al. 1990 <- *Methanogenium bourgense* (basonym) - MS2, AF095269, AF095269 | DSM 3045 | OGC 15

Methanoculleus chikugoensis VP Dianou et al. 2001 - MG62, AB038795 | DSM 13459 | JCM 10825

Methanoculleus marisnigri VP (Romesser et al. 1981) Maestrojuán et al. 1990 <- *Methanogenium marisnigri* (basonym) - JR1 | ATCC 35101 | DSM 1498, M59134, Mcu.marisn | OGC 56

Methanoculleus oldenburgensis VP Blotevogel et al. 1998 - CB-1 | DSM 6216

Methanoculleus olentangyi VP (Corder et al. 1988) Maestrojuán et al. 1990 <- *Methanogenium olentangyi* (basonym) - RC/ER, AF095270, Mcu.olent2 | ATCC 35293 | DSM 2772

Methanoculleus palmolei VP Zellner et al. 1998 - INSLUZ | DSM 4273, Y16382, Mcu.palmol

Methanoculleus thermophilicus VP (Rivard and Smith 1982) Maestrojuán et al. 1990 <- *Methanogenium thermophilicum* (basonym) - CR-1 | ATCC 33837 | DSM 2373

Genus III. ***Methanofollis*** VP ***(moved)***

Methanofollis tationis VP (T) (Zabel et al. 1986) Zellner et al. 1999 <- *Methanogenium tationis* (basonym) - Chile 9 | DSM 2702, AF095272, Mf.tationi | OCM 43

Methanofollis aquaemaris VP Lai and Chen 2001 - N2F9704 | OCM 746 | CCRC 16166

[16] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[17] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[18] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[19] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[20] S. Turner (NCBI) has indicated that the *Methanococci*, as formed in the earlier releases of the Outline was paraphyletic. Garrity and Lilburn have confirmed that the *Methanomicrobiales* and *Methanosarcinales* were more closely related in large scale heatmaps than either group was to the *Methanococci*, which are in turn more closely related to *Thermococcales* and *Archaeaoglobales*. NCBI currently lists those taxa within the *Methanomicrobiales* and *Methanosarcinales* as orders incertae sedis. We tentatively ascribe these orders to the class *Methanomicrobia* based on priority.

Methanofollis liminatans [VP] (Zellner et al. 1990) Zellner et al. 1999 <- *Methanogenium liminatans* (basonym) - GKZPZ, AF095271, Mf.liminat | DSM 4140

Genus IV. ***Methanogenium*** [VP] ***(moved)***

Methanogenium cariaci [VP (T)] Romesser et al. 1981 emend. Maestroju n et al. 1990 - JR 1 | ATCC 35093 | DSM 1497, M59130, Mg.cariaci | OCM 49

†Methanogenium aggregans [VP] Ollivier et al. 1985 -> *Methanocorpusculum aggregans* - Mst | DSM 3027 | OCG 21

†Methanogenium bourgense [VP] Ollivier et al. 1986 -> *Methanoculleus bourgensis* - MS 2, AF095269 | DSM 3045

Methanogenium frigidum [VP] Franzmann et al. 1997 - Ace-2 | OCM 469 | SMCC 459W

Methanogenium frittonii [VP] Harris et al. 1996 - FR-4 | DSM 2832 | OCM 200

†Methanogenium liminatans [VP] Zellner et al. 1990 -> *Methanofollis liminatans* - GKZPZ, AF095271, Mf.liminat | DSM 4140

†Methanogenium marisnigri [VP] Romesser et al. 1981 -> *Methanoculleus marisnigri* - JR 1 | ATCC 35101 | DSM 1498, M59134, Mcu.marisn

†Methanogenium olentangyi [VP] Corder et al. 1988 -> *Methanoculleus olentangyi* - RC/ER, AF095270 | ATCC 35293 | DSM 2722

Methanogenium organophilum [VP] Widdel et al. 1989 - CV | DSM 3596, M59131, Mg.organop | OCM 72

†Methanogenium tationis [VP] Zabel et al. 1986 -> *Methanofollis tationis* - DSM 2702, AF095272, Mf.tationi

†Methanogenium thermophilicum [VP] Rivard and Smith 1982 -> *Methanoculleus thermophilicus* - CR-1 | ATCC 33837 | DSM 2373

Genus V. ***Methanolacinia*** [VP] ***(moved)***

Methanolacinia paynteri [VP (T)] (Rivard et al. 1984) Zellner et al. 1990 <- *Methanomicrobium paynteri* (basonym) - G-2000 | ATCC 33997 | DSM 2545

Genus VI. ***Methanoplanus*** [VP] ***(moved)***

Methanoplanus limicola [VP (T)] Wildgruber et al. 1984 - DSM 2279, M59143, Mpl.limico

Methanoplanus endosymbiosus [VP] van Bruggen et al. 1986 - MC1 | DSM 3599, Z29435, Mpl.endsym

Methanoplanus petrolearius [VP] Ollivier et al. 1998 - DSM 11571 | OCM 486 | SEBR 4847, U76631, Mpl.petrlr

Family II. Methanocorpusculaceae [VP]

Genus I. ***Methanocorpusculum*** [VP (T)] ***(moved)***

Methanocorpusculum parvum [VP (T)] Zellner et al. 1988 - XII | ATCC 43721 | DSM 3823, M59147, Mcr.parvum

Methanocorpusculum aggregans [VP] (Ollivier et al. 1985) Xun et al. 1989 <- *Methanogenium aggregans* (basonym) - MSt | DSM 3027 | OGC 21

Methanocorpusculum bavaricum [VP] Zellner et al. 1989 - SZSXXZ, AF042197, Mcr.bavarc | SZSXXZ, AF095266, Mcr.bavar2 | DSM 4179

Methanocorpusculum labreanum [VP] Zhao et al. 1989 - Z, AF095267, Mcr.labre2 | DSM 4855 | OGC 1

Methanocorpusculum sinense [VP] Zellner et al. 1989 - China Z, AF095268, Mcr.sinens | DSM 4274

Family III. Methanospirillaceae [VP]

Genus I. ***Methanospirillum*** [AL (T)] ***(moved)***

Methanospirillum hungatei [AL (T)] Ferry et al. 1974 - ATCC 27890 | DSM 864 | OCM 16

Genera incertae sedis

Genus I. ***Methanocalculus*** [VP] ***(moved)***

Methanocalculus halotolerans [VP (T)] Ollivier et al. 1998 - OCM 470 | SEBR 4845, AF033672

Methanocalculus pumilus [VP] Mori et al. 2000 - MHT-1, AB008853 | DSM 12632 | JCM 10627

Methanocalculus taiwanensis [VP] Lai et al. 2002 - P2F9704a, AF172443 | CCRC 16182 | DSM 14663 | OCM 671

Order II. ***Methanosarcinales (moved)*** [VP]

Family I. Methanosarcinaceae [VP]

Genus I. ***Methanosarcina*** [AL (T)] ***(moved)***

Methanosarcina barkeri [AL (T)] Schnellen 1947 - MS | ATCC 43569 | DSM 800, AJ012094, Msr.barke2 | OCM 38

Methanosarcina acetivorans [VP] Sowers et al. 1986 - C2A | ATCC 35395 | DSM 2834, M59137, Msr.acetiv | OCM 95

Methanosarcina baltica [VP] von Klein et al. 2002 - GS1-A, AJ238648 | DSM 14042 | JCM 11281

†Methanosarcina frisia [VP] (Blotevogel et al. 1986) Blotevogel and Fischer 1989 = *Methanosarcina mazei* (earlier heterotypic synonym) <- *Methanococcus frisius* (basonym) - C16 | ATCC 43330 | DSM 3318

Methanosarcina lacustris [VP] Simankova et al. 2002 - ZS, AF432127 | DSM 13486 | VKM B-2268

Methanosarcina mazei [VP] (Barker 1936) Mah and Kuhn 1984 = *Methanosarcina frisia* (later heterotypic synonym) <- *Methanococcus mazei* (basonym) - S-6, U20151, Msr.mazei1 | ATCC 43340 | DSM 2053, AJ012095, Msr.mazei4

Methanosarcina methanica (Smit 1930) Kluyver and van Niel 1936 *nom. rej.*

Methanosarcina semesiae [VP] Lyimo et al. 2000 - MD1 | DSM 12914, AJ012742

Methanosarcina siciliae [VP] (Stetter and König 1989) Ni et al. 1994 <- *Methanolobus siciliae* (basonym) - T4/M, U20153, Msr.sicili | DSM 3028

Methanosarcina thermophila [VP] Zinder et al. 1985 - TM-1 | DSM 1825, M59140, Msr.thmoph

Methanosarcina vacuolata [VP] Zhilina and Zavarzin 1987 - Z-761, U20150, Msr.vacuol | ATCC 35090 | DSM 1232 | OCM 85

Genus II. ***Methanococcoides*** [VP] ***(moved)***

Methanococcoides methylutens [VP (T)] Sowers and Ferry 1985 - TMA-10 | ATCC 33938 | DSM 2657, M59127, Mcc.mluten | OCM 158

Methanococcoides burtonii [VP] Franzmann et al. 1993 - DSM 6242, X65537, Mcc.burton | OCM 468

Genus III. ***Methanohalobium*** [VP] ***(moved)***

Methanohalobium evestigatum [VP (T)] Zhilina and Zavarzin 1988 - Z-7303, U20149, Mhb.evesti | DSM 3721 | OCM 161

Genus IV. ***Methanohalophilus*** [VP] ***(moved)***

Methanohalophilus mahii [VP (T)] Paterek and Smith 1988 - SLP (Salt Lake Paterek) | ATCC 35705 | DSM 5219, M59133, Mha.mahii | OCM 68

Methanohalophilus halophilus [VP] (Zhilina 1984) Wilharm et al. 1991 <- *Methanococcus halophilus* (basonym) - DSM 3094 | INMI Z-7982 | OCM 160

†Methanohalophilus oregonensis [VP] Liu et al. 1990 -> *Methanolobus oregonensis* - WAL1 | DSM 5435, U20152, Mlo.oregon | OGI 99

Methanohalophilus portucalensis [VP] Boone et al. 1993 - FDF-1 | DSM 7471 | OCM 59

†Methanohalophilus zhilinae [VP] Mathrani et al. 1988 -> *Methanosalsum zhilinae* - WeN5 | DSM 4017 | OCM 62

Genus V. ***Methanolobus*** [VP] ***(moved)***

Methanolobus tindarius [VP (T)] König and Stetter 1983 - Tindari 3 | ATCC 35996 | DSM 2278, M59135, Mlo.tindar | OCM 150

Methanolobus bombayensis [VP] Kadam et al. 1994 - B-1, U20148, Mlo.bombay | DSM 7082 | OCM 438

Methanolobus oregonensis (Liu et al. 1990) Boone 2001 *comb. nov.* <- *Methanohalophilus oregonensis* (basonym) - WAL-1, U20152, Mlo.oregon | DSMZ 5435 | OCM 99

†Methanolobus siciliae [VP] Stetter and König 1989 emend. Ni and Boone 1991 -> *Methanosarcina siciliae* - T4/M, U20153, Msr.sicili | DSM 3028

Methanolobus taylorii [VP] Oremland and Boone 1994 - GS-16, U20154, Mlo.taylor | DSM 9005 | OCM 58

Methanolobus vulcani [VP] Stetter et al. 1989 emend. Kadam and Boone 1995 – PL-12/M, U20155, Mlo.vulcan | DSM 3029 | OCM 157

Genus VI. ***Methanimicrococcus*** [VP] ***(moved)***

Methanimicrococcus blatticola [VP (T)] Sprenger et al. 2000 – PA, AJ238002 | DSM 13328

Genus VII. Methanosalsum [VP]

Methanosalsum zhilinae[(T)] (Mathrani et al. 1988) Boone and Baker 2001 *comb. nov.* <- *Methanohalophilus zhilinae* (basonym) – WeN5 | DSM 4017 | OCM 62

Family II. Methanosaetaceae [VP]

Genus I. ***Methanosaeta*** [VP (T)] ***(moved)***

Methanosaeta concilii [VP (T)] (Patel 1985) Patel and Sprott 1990 <- *Methanothrix concilii* (basonym) – GP6 | ATCC 35969 | DSM 3671 | NRC 2989 | OGC 69

Methanosaeta thermoacetophila (Nozhevnikova and Chudina 1988) Patel and Sprott 1990 *nom. rej.* <- *Methanothrix thermoacetophila* (basonym) – Z517 | DSM 4774

Methanosaeta thermophila [VP] (Kamagata et al. 1992) Boone and Kamagata 1998 <- *Methanothrix thermophila* (basonym) – PT, AB071701 | DSM 6194

Class IV. *Halobacteria* [VP]

Order I. *Halobacteriales* [VP (T)]

Family I. Halobacteriaceae [AL]

Genus I. Halobacterium [AL (T)]

Halobacterium salinarum [AL (T)] (Harrison and Kennedy 1922) Elazari-Volcani 1957 = *Halobacterium cutirubrum* (later heterotypic synonym) = *Halobacterium halobium* (later heterotypic synonym) – ATCC 33171 | DSM 3754, AJ496185 | NCIMB 764 | NRC 34002

†Halobacterium cutirubrum [AL] (Lochhead 1934) Elazari-Volcani 1957 = *Halobacterium salinarum* (earlier heterotypic synonym) – ATCC 33170 | DSM 669 | NRC 34001

†Halobacterium denitrificans [VP] Tomlinson et al. 1986 -> *Haloferax denitrificans* – S1 | ATCC 35960, D14128, Hf.denitrf | DSM 4425

†Halobacterium distributum [VP] Zvyagintseva and Tarasov 1989 -> *Halorubrobacterium distributum* – I-M | VKM B-1733

†Halobacterium halobium [AL] (Petter 1931) Elazari-Volcani 1957 = *Halobacterium salinarum* (earlier heterotypic synonym) – NCIB 8720

†Halobacterium lacusprofundi [VP] Franzmann et al. 1989 -> *Halorubrobacterium lacusprofundi* – ACAM 34, X82170, Hr.lacspr2 | DSM 5036 | JCM 8891, U17365, Hr.lacspro | UQM 3107

†Halobacterium mediterranei [VP] Rodriguez-Valera 1983 -> *Haloferax mediterranei* – R-4 | ATCC 33500, D11107, Hf.mediter | CCM 3361 | DSM 1411

†Halobacterium pharaonis [VP] Soliman and Trüper 1983 -> *Natronobacterium pharaonis* – Gabara | DSM 2160

†Halobacterium saccharovorum [AL] Tomlinson and Hochstein 1977 -> *Halorubrobacterium saccharovorum* – ATCC 29252 | DSM 1137 | JCM 8865, U17364, Hr.saccha2

†Halobacterium sodomense [VP] Oren 1983 -> *Halorubrobacterium sodomense* – RD-26 | ATCC 33755, D13379, Hr.sodomen | ATCC 33755, X82169, Hr.sodome2 | DSM 3755 | NCMB 2197

†Halobacterium trapanicum [AL] (Petter 1931) Elazari-Volcani 1957 -> *Halorubrum trapanicum* – DSM 5647 | NRC 34021, X82168, Hr.trapan2

†Halobacterium vallismortis [AL] Gonzalez et al. 1979 -> *Haloarcula vallismortis* – ATCC 29715 | DSM 3756

†Halobacterium volcanii [AL] Mullakhanbhai and Larson 1975 -> *Haloferax volcanii* – DSM 3757 | NCMB 2012

Genus II. Haloarcula [VP]

Haloarcula vallismortis [VP (T)] (Gonzalez et al. 1979) Torreblanca et al. 1986 <- *Halobacterium vallismortis* (basonym) – JF 54 | ATCC 29715 | CCM 3404 | DSM 3756 | NCMB 2082

Haloarcula argentinensis [VP] Ihara et al. 1997 – arg-1, D50849, Har.argent | DSM 12282 | JCM 9737

Haloarcula hispanica [VP] Juez et al. 1986 - Y27 | ATCC 33960, U68541, Har.hispan | DSM 4426 | NCMB 2187

Haloarcula japonica [VP] Takashina et al. 1991 - TR-1, D28872, Har.japoni | DSM 6131 | JCM 7785

Haloarcula marismortui [VP] (ex Elazari-Volcani) Oren et al. 1990 - ATCC 43049 | DSM 3752

†*Haloarcula mukohataei* [VP] Ihara et al. 1997 -> *Halomicrobium mukohataei* - arg-2, D50850, Har.mukoht | ATCC 700874 | DSM 12286 | JCM 9738 | CIP 105174 | NCIMB 13541, D50850

Haloarcula quadrata [VP] Oren et al. 1999 - DSM 11927, AB010964 | DSM 11927, AB010965

Genus III. Halobaculum [VP]

Halobaculum gomorrense [VP (T)] Oren et al. 1995 - DS2807 | DSM 9297

Genus IV. ***Halobiforma*** [VP]

Halobiforma haloterrestris [VP (T)] Hezayen et al. 2002 - 135, AF333760 | DSM 13078 | JCM 11627

Halobiforma nitratireducens [VP] (Xin et al. 2001) Hezayen et al. 2002 <- *Natronobacterium nitratireducens* (basonym) - C231, AB045012 | AS 1.1980 | JCM 10879

Genus V. Halococcus [AL]

Halococcus morrhuae [AL (T)] (Farlow 1880) Kocur and Hodgkiss 1973 - ATCC 17082 | CCM 537 | DSM 1307 | NCMB 787 | NRC 16008, D11106, Hc.morrhu3

Halococcus dombrowskii [VP] Stan-Lotter et al. 2002 - H4, AJ420376 | ATCC BAA-364 | DSM 14522 | NCIMB 13803

Halococcus saccharolyticus [VP] Montero et al. 1990 - P-423 | ATCC 49257 | ATCC 49257, AB004876, Hc.sacchar | CCM 4147 | DSM 5350

Halococcus salifodinae [VP] Denner et al. 1994 - Blp, Z28387, Hc.salifod | ATCC 51437 | DSM 8989 | DSM 8989, AB004877, Hc.salifo2

†*Halococcus turkmenicus* [VP] Zvyagintseva and Tarasov 1989 -> *Haloterrigena turkmenica* - 4 | VKM B-1734, AB004878, Ht.turkmen

Genus VI. Haloferax [VP]

Haloferax volcanii [VP (T)] (Mullakhanbhai and Larsen 1975) Torreblanca et al. 1986 <- *Halobacterium volcanii* (basonym) - DS-2 | ATCC 29605 | CCM 2852 | DSM 3757 | DSM 3757, K00421, Hf.volcani | NCMB 2012

Haloferax alexandrinus [VP] Asker and Ohta 2002 [21] - TM, AB037474 | NBRC 16590 | JCM 10717

Haloferax denitrificans [VP] (Tomlinson et al. 1986) Tindall et al. 1989 <- *Halobacterium denitrificans* (basonym) - S1 | ATCC 35960, D14128, Hf.denitrf | DSM 4425

Haloferax gibbonsii [VP] Juez et al. 1986 - MA2.38 | ATCC 33959, D13378, Hf.gibbons | DSM 4427 | NCMB 2188

Haloferax mediterranei [VP] (Rodriguez-Valera 1983) Torreblanca et al. 1987 <- *Halobacterium mediterranei* (basonym) - R4 | ATCC 33500, D11107, Hf.mediter | CCM 3361 | DSM 1411

Genus VII. Halogeometricum [VP]

Halogeometricum borinquense [VP (T)] Montalvo-Rodr¡guez et al. 1998 - PR3, AF002984, Hg.borinqu | ATCC 700274

Genus VIII. ***Halomicrobium*** [VP]

Halomicrobium mukohataei [VP (T)] Oren et al. 2002 <- *Haloarcula mukohataei* (basonym) - arg-2 | ATCC 700874 | CIP 105174 | DSM 12286 | JCM 9738 | NCIMB 13541, D50850

Genus IX. Halorhabdus [VP]

Halorhabdus utahensis [VP (T)] Wainø et al. 2000 - AX-2, AF071880 | DSM 12940

Genus X. Halorubrum [VP]

[21] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Halorubrum saccharovorum VP (T) (Tomlinson and Hochstein 1977) McGenity and Grant 1996 <- *Halorubrobacterium saccharovorum* (basonym) - ATCC 29252 | DSM 1137 | JCM 8865, U17364, Hr.saccha2 | NCIMB 2081, X82167, Hr.saccha3

Halorubrum coriense VP (Kamekura and Dyall-Smith 1996) Oren and Ventosa 1996 <- *Halorubrobacterium coriense* (basonym) - Ch2, L00922, Hb.spCh2_3 | ACM 3911 | DSM 10284

Halorubrum distributum VP (Zvyagintseva and Tarasov 1989) Oren and Ventosa 1996 <- *Halorubrobacterium distributum* (basonym) - I-M | ATCC 51197 | JCM 9100, D63572, Hr.distrib | NCIMB 13203 | VKM B-1733

Halorubrum lacusprofundi VP (Franzmann et al. 1989) McGenity and Grant 1996 <- *Halorubrobacterium lacusprofundi* (basonym) - ACAM 34, X82170, Hr.lacspr2 | DSM 5036 | JCM 8891 | NCIMB 12997 | UQM 3107

Halorubrum sodomense VP (Oren 1983) McGenity and Grant 1996 <- *Halorubrobacterium sodomense* (basonym) - RD-26 | ATCC 33755, D13379, Hr.sodomen | ATCC 33755, X82169, Hr.sodome2 | DSM 3755 | NCMB 2197

Halorubrum tebenquichense VP Lizama et al. 2002 - ALT6-92, AJ276887 | CECT 5317 | DSM 14210

Halorubrum trapanicum VP (Petter 1931) McGenity and Grant 1996 <- *Halobacterium trapanicum* (basonym) - DSM 5647 | NRC 34021, X82168, Hr.trapan2

Halorubrum vacuolatum VP (Mwatha and Grant 1993) Kamekura et al. 1997 <- *Natronobacterium vacuolatum* (basonym) - M24 | ATCC 51376 | DSM 8800 | JCM 9060, D87972, Hr.vacuola | NCIMB 13189

Genus XI. ***Halosimplex*** VP

Halosimplex carlsbadense VP (T) Vreeland et al. 2003 - 2-9-1 | ATCC BAA-75 | JCM 11222, AF320480

Genus XII. Haloterrigena VP

Haloterrigena turkmenica VP (T) (Zvyagintseva and Tarasov 1989) Ventosa et al. 1999 <- *Halococcus turkmenicus* (basonym) - 4 | DSM 5511 | VKM B-1734, AB004878, Ht.turkmen

Haloterrigena thermotolerans VP Montalvo-Rodríguez et al. 2000 - PR5, AF115478 | ATCC 700275, AF115478 | DSM 11552, AF115478

Genus XIII. Natrialba VP

Natrialba asiatica VP (T) Kamekura and Dyall-Smith 1996 - 172P1, D14123, str.172P1 | DSM 12278 | JCM 9576

Natrialba aegyptia VP Hezayen et al. 2001 - 40, AF251941 | DSM 13077 | JCM 11194

Natrialba chahannaoensis VP Xu et al. 2001 - C112, AJ004806 | AS 1.1977 | JCM 10990

Natrialba hulunbeirensis VP Xu et al. 2001 - X21 | AS 1.1986, AF262026 | JCM 10989

Natrialba magadii VP (Tindall et al. 1984) Kamekura et al. 1997 <- *Natronobacterium magadii* (basonym) - MS3 | ATCC 43099 | CCM 3739 | DSM 3394 | NCMB 2190, X72495, Nat.magadi

Natrialba taiwanensis VP Hezayen et al. 2001 - B1T, D14124 | DSM 12281 | JCM 9577

Genus XIV. Natrinema VP

Natrinema pellirubrum VP (T) McGenity et al. 1998 - NCIMB 786, AJ002947, Na.pelrubm

Natrinema pallidum VP McGenity et al. 1998 - NCIMB 777, AJ002949, Na.pallidu

Natrinema versiforme VP Xin et al. 2000 - XF10, AB023426 | ANMR 0149 | AS 1.2365 | JCM 10478

Genus XV. Natronobacterium VP

Natronobacterium gregoryi VP (T) Tindall et al. 1984 - SP2 | ATCC 43098 | CCM 3738 | DSM 3393 | NCMB 2189, D87970

†Natronobacterium magadii VP Tindall et al. 1984 -> *Natrialba magadii* - MS3 | ATCC 43099 | CCM 3739 | DSM 3394 | NCMB 2190, X72495, Nat.magadi

†Natronobacterium nitratireducens VP Xin et al. 2001 -> *Halobiforma nitratireducens* - C231, AB045012 | AS 1.1980 | JCM 10879

†*Natronobacterium pharaonis* [VP] (Soliman and Trüper 1983) Tindall et al. 1984 <- *Halobacterium pharaonis* (basonym) -> *Natronomonas pharaonis* - ATCC 35678 | DSM 2160

†*Natronobacterium vacuolatum* [VP] Mwatha and Grant 1993 -> *Halorubrum vacuolatum* - M24 | DSM 8800 | NCIMB 13189

Genus XVI. Natronococcus [VP]

Natronococcus occultus [VP (T)] Tindall et al. 1984 - SP4 | ATCC 43101 | CCM 3871 | DSM 3396 | NCMB 2192, Z28378, Ntc.occult

Natronococcus amylolyticus [VP] Kanai et al. 1995 - Ah-36, D43628, Ntc.amylyt | DSM 10524 | JCM 9655

Genus XVII. Natronomonas [VP]

Natronomonas pharaonis [VP (T)] (Soliman and Trüper 1983) Kamekura et al. 1997 <- *Natronobacterium pharaonis* (basonym) - Gabara | ATCC 35678 | DSM 2160 | JCM 8858, D87971, Ntm.pharao | NCIMB 2260

Genus XVIII. Natronorubrum [VP]

Natronorubrum bangense [VP (T)] Xu et al. 1999 - A33, Y14028, Nnr.bangen | AS 1.1984

Natronorubrum tibetense [VP] Xu et al. 1999 - GA33, AB005656 | AS 1.2123

Class V. *Thermoplasmata* [VP]

Order I. *Thermoplasmatales* [VP (T)]

Family I. Thermoplasmataceae [VP]

Genus I. Thermoplasma [AL (T)]

Thermoplasma acidophilum [AL (T)] Darland et al. 1970 - 122-1B2, M38637, Tpl.acidop | AMRC-C165 | ATCC 25905 | DSM 1728

Thermoplasma volcanium [VP] Segerer et al. 1988 - GSS1, AJ299215, AF339746 | ATCC 51530 | DSM 4299

Family II. Picrophilaceae [VP]

Genus I. Picrophilus [VP (T)]

Picrophilus oshimae [VP (T)] Schleper et al. 1996 - KAW 2/2, X84901, Pph.oshima | DSM 9789

Picrophilus torridus [VP] Zillig et al. 1996 - KAW 2/3 | DSM 9790

Family III. "Ferroplasmataceae"

Genus I. Ferroplasma [VP]

Ferroplasma acidiphilum [VP (T)] Golyshina et al. 2000 - Y, AJ224936 | DSM 12658

Class VI. *Thermococci* [VP]

Order I. *Thermococcales* [VP (T)]

Family I. Thermococcaceae [VP]

Genus I. Thermococcus [VP (T)]

Thermococcus celer [VP (T)] Zillig 1983 - ATCC 35543 | DSM 2476, M21529, Tc.celer

Thermococcus acidaminovorans [VP] Dirmeier et al. 2001 [22] - AEDII10, Y15935 | DSM 11906

Thermococcus aegaeus [VP] Arab et al. 2000 - P5, AJ012643 | DSM 12767 | JCM 10828

Thermococcus aggregans [VP] Canganella et al. 1998 - TY, Y08384, Tc.aggrgan | DSM 10597 | JCM 10137

Thermococcus alcaliphilus [VP] Keller et al. 1997 - AEDII12 | DSM 10322, AB055121

Thermococcus barophilus [VP] Marteinsson et al. 1999 - MP, U82237, Tc.barophl | CNCM I-1946 | DSM 11836

Thermococcus chitonophagus [VP] Huber and Stetter 1996 - GC74 | DSM 10152, X99570, Tc.chitnph

Thermococcus fumicolans [VP] Godfroy et al. 1996 - ST557, Z70250, Tc.fumicol | CIP 104680

Thermococcus gammatolerans [VP] Jolivet et al. 2003 - EJ3, AF479014 | DSM 15229 | JCM 11827

Thermococcus gorgonarius [VP] Miroshnichenko et al. 1998 - W-12 | DSM 10395

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Thermococcus guaymasensis VP Canganella et al. 1998 – TYS, Y08385, Tc.guaymas | DSM 11113 | JCM 10136
Thermococcus hydrothermalis VP Godfroy et al. 1997 – AL662, Z70244, Tc.hythrml | CNCMI 1319
Thermococcus litoralis VP Neuner et al. 2001 – NS-C | DSM 5473 | JCM 8560
Thermococcus pacificus VP Miroshnichenko et al. 1998 – P-4, Y16227, Tc.pacific | DSM 10394
Thermococcus peptonophilus VP González et al. 1996 – OG-1, D37982, Tc.peptphl | DSM 10343 | JCM 9653
Thermococcus profundus VP Kobayashi et al. 1995 – DT 5432, Z75233, Tc.profun3 | ATCC 51592 | DSM 9503 | JCM 9378
Thermococcus sibiricus VP Miroshnichenko et al. 2001 [23] – MM739 | DSM 12597
Thermococcus siculi VP Grote et al. 2000 – RG-20 | DSM 12349, AB010893
Thermococcus stetteri VP Miroshnichenko et al. 1990 – DSM 5262 | K-3, Z75240, Tc.stette2
Thermococcus waiotapuensis VP Gonz lez et al. 2001 [24] – WT1, AF134982 | DSM 12768
Thermococcus zilligii VP Ronimus et al. 1997 – AN1, U76534 | DSM 2770

Genus II. Palaeococcus VP
Palaeococcus ferrophilus VP (T) Takai et al. 2000 – JCM 10246 | DMJ, AB019239

Genus III. Pyrococcus VP
Pyrococcus furiosus VP (T) Fiala and Stetter 1986 – Vc 1 | DSM 3638 | DSM 3638, U20163, Pc.furios2
Pyrococcus glycovorans VP Barbier et al. 1999 – AL585, Z70247 | CNCM I-2120
Pyrococcus horikoshii VP González et al. 1999 – JA-1, D87344 | JCM 9974
Pyrococcus woesei VP Zillig et al. 1988 – DSM 3773

Class VII. *Archaeoglobi* VP
Order I. *Archaeoglobales* VP (T)
Family I. Archaeoglobaceae VP
Genus I. Archaeoglobus VP (T)
Archaeoglobus fulgidus VP (T) Stetter 1988 – VC-16, X05567, Arg.fulgid | VC-16, Y00275, Arg.fulgi3 | DSM 4304
Archaeoglobus profundus VP Burggraf et al. 1990 – AV18 | DSM 5631
Archaeoglobus veneficus VP Huber et al. 1998 – SNP6, Y10011, Arg.venefi | DSM 11195

Genus II. Ferroglobus VP
Ferroglobus placidus VP (T) Hafenbradl et al. 1997 – AEDII12DO, X99565, Frr.placid | DSM 10642, X99565, Frr.placid

Genus III. Geoglobus VP
Geoglobus ahangari VP (T) Kashefi et al. 2002 [25] – 234, AF220165 | ATCC BAA-425

Class VIII. *Methanopyri* VP
Order I. *Methanopyrales* VP (T)
Family I. Methanopyraceae VP
Genus I. Methanopyrus VP (T)
Methanopyrus kandleri VP (T) Kurr et al. 1992 – AV19, M59932, Mpy.kandl1 | DSM 6324

Domain *Bacteria* VP
Phylum BI. *Aquificae* VP [26]
Class I. *Aquificae* VP
Order I. *Aquificales* VP (T)

[23] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

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[26] Ludwig indicates that the ARB tree supports the *Aquificales*.

Family I. Aquificaceae VP

Genus I. Aquifex VP (T)

Aquifex pyrophilus VP (T) Huber and Stetter in Huber et al. 1992 - Kol5a, M83548, Aqu.pyroph | DSM 6858

Genus II. Calderobacterium VP [27]

†*Calderobacterium hydrogenophilum* VP (T) Kryukov et al. 1984 -> *Hydrogenobacter hydrogenophilus* - DSM 2913, Z30242, Cld.hgenph | INMI Z-829, Z30242, Cld.hgenph

Genus III. Hydrogenobaculum VP

Hydrogenobaculum acidophilum VP (T) (Shima and Suzuki 1993) Stöhr et al. 2001 <- *Hydrogenobacter acidophilus* (basonym) - 3H-1, D16296 | DSM 11251, Hdg.acidp | JCM 8795

Genus IV. Hydrogenobacter VP

Hydrogenobacter thermophilus VP (T) Kawasumi et al. 1984 - DSM 6534 | IAM 12695, Z30214, Hdg.thphi2 | TK-6, Z30214, Hdg.thphi2

†*Hydrogenobacter acidophilus* VP Shima and Suzuki 1993 -> *Hydrogenobaculum acidophilum* - 3H-1, D16296, Hdg.acidp | JCM 8795

Hydrogenobacter hydrogenophilus VP (Kryukov et al. 1984) Stöhr et al. 2001 <- *Calderobacterium hydrogenophilum* (basonym) - DSM 2913, Z30242, Cld.hgenph | INMI Z-829, Z30242 | JCM 8158, Cld.hgenph

Hydrogenobacter subterraneus VP Takai et al. 2001 [28] - HGP1, AB026268 | NBRC 16485 | JCM 10660

Genus V. Hydrogenothermus VP

Hydrogenothermus marinus VP (T) Stöhr et al. 2001 - VM1, AJ292525 | DSM 12046 | JCM 10974

Genus VI. Persephonella VP

Persephonella marina VP (T) Gotz et al. 2002 - EX-H1, AF188332 | DSM 14350 | OCM 794

Persephonella guaymasensis VP Gotz et al. 2002 - EX-H2, , , AF385630 | DSM 14351 | OCM 975

Persephonella hydrogeniphila VP Nakagawa et al. 2003 - 29W, AB086419 | DSM 15103 | JCM 11663

Genus VII. ***Sulfurihydrogenibium*** VP

Sulfurihydrogenibium subterraneum VP (T) Takai et al. 2003 - HGMK-1, AB071324 | ATCC BAA-562 | DSM 15120 | JCM 11477

Genus VIII. Thermocrinis VP

Thermocrinis ruber VP (T) Huber et al. 1999 - OC 1/4, AJ005640, Tcr.ruber1 | DSM 12173, AJ005640, Tcr.ruber1 | DSM 12173

Thermocrinis albus VP Eder and Huber 2002 - HI 11/12, AJ278895 | DSM 14484 | JCM 11386

Genera incertae sedis

Genus I. Desulfurobacterium VP [29]

Desulfurobacterium thermolithotrophum VP (T) L'Haridon et al. 1998 - BSA, AJ001049 | DSM 11699

Genus II. ***Thermovibrio*** VP

Thermovibrio ruber VP (T) Huber et al. 2002 - ED11/3LLK | DSM 14644, AJ316619 | JCM 11468

Phylum BII. *Thermotogae* VP [30]

Class I. *Thermotogae* VP

[27] Reassignment of the nomenclatural type of *Calderobacterium* to *Hydrogenobacter* precludes the addition of new species unless the name *Calderobacterium* is conserved and a new type species is established by the action of the Judicial Commission

[28] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[29] Ludwig indicates that *Desulfurobacterium* (*sic Desulfobacterium thermolithotrophum*) may represent a member of a separate phylum. No sequence data were available from the RDP, Release 8.0.

[30] Ludwig indicates that ARB tree supports the *Thermotogales*.

Order I. *Thermotogales* VP (T)
Family I. Thermotogaceae VP
Genus I. Thermotoga VP (T)
Thermotoga maritima VP (T) Huber et al. 1986 - MSB8, M21774, Tt.maritim | DSM 3109, M21774, Tt.maritim
Thermotoga elfii VP Ravot et al. 1995 - DSM 9442 | SEBR 6459, X80790, Tt.elfii
Thermotoga hypogea VP Fardeau et al. 1997 - DSM 11164 | SEBR 7054, U89768, Tt.hypogea
Thermotoga lettingae VP Balk et al. 2002 - TMO, AF355615 | DSM 14385 | ATCC BAA-301
Thermotoga naphthophila VP Takahata et al. 2001 - RKU-10, AB027017 | DSM 13996 | JCM 10882
Thermotoga neapolitana VP Jannasch et al. 1989 - NS-E | ATCC 49049 | DSM 4359, AB039768
Thermotoga petrophila VP Takahata et al. 2001 - RKU-1, AB027016 | DSM 13995 | JCM 10881
Thermotoga subterranea VP Jeanthon et al. 2000 - SL1, U22664 | DSM 9912
Thermotoga thermarum VP Windberger et al. 1992 - LA3 | DSM 5069, AB039769
Genus II. Fervidobacterium VP
Fervidobacterium gondwanense VP Andrews and Patel 1996 - AB39, Z49117, Fer.gndwns | ACM 5017, Z49117, Fer.gndwns
Fervidobacterium islandicum VP Huber et al. 1991 - H21, M59176, Fer.island | DSM 5733
Fervidobacterium nodosum VP (T) Patel et al. 1985 - Rt17-B | ATCC 35602, M59177, Fer.nodosm | DSM 5306
Fervidobacterium pennivorans VP Friedrich and Antranikian 1999 - Ven5 | DSM 9078
Genus III. Geotoga VP
Geotoga petraea VP (T) Davey et al. 1993 - T5, L10658, Got.petrae | ATCC 51226
Geotoga subterranea VP Davey et al. 1993 - CC-1, L10659, Got.subter | ATCC 51225
Genus IV. Marinitoga VP
Marinitoga camini VP (T) Wery et al. 2001 - MV1075, AJ250439 | CNCM I-2413 | DSM 13578
Marinitoga piezophila VP Alain et al. 2002 - KA3, AF326121 | DSM 14283 | JC 11233
Genus V. Petrotoga VP
Petrotoga miotherma VP (T) Davey et al. 1993 - 42-6, L10657, Pet.miothr | ATCC 51224 | DSM 10691
Petrotoga mobilis VP Lien et al. 1998 - SJ95, Y15479, Pet.mobili | DSM 10674
Petrotoga olearia VP L'Haridon et al. 2002 - SL24, AJ311703 | DSM 13574 | JCM 11234
Petrotoga sibirica VP L'Haridon et al. 2002 - SL25, AJ311702 | DSM 13575 | JCM 11235
Genus VI. Thermosipho VP
Thermosipho africanus VP (T) Huber et al. 1989 - Ob7 | DSM 5309 | DSM 5309, M83140, Tsi.africa
Thermosipho geolei VP L'Haridon et al. 2001 - SL31 | DSM 13256, AJ272022 | JCM 10986
Thermosipho japonicus VP Takai and Horikoshi 2000 - IHB1, AB024932 | JCM 10495
Thermosipho melanesiensis VP Antoine et al. 1997 - BI429, Z70248, Tsi.melane | CIP 104789 | DSM 12029

Phylum BIII. *Thermodesulfobacteria* VP [31]
Class I. *Thermodesulfobacteria* VP
Order I. *Thermodesulfobacteriales* VP (T)
Family I. Thermodesulfobacteriaceae VP
Genus I. Thermodesulfobacterium VP (T)
Thermodesulfobacterium commune VP (T) Zeikus et al. 1995 - YSRA-1, L10662, Tdb.commun | ATCC 33708 | DSM 2178

[31] Ludwig indicates that the ARB tree supports the *Thermodesulfobacteriales*.

Thermodesulfobacterium hydrogeniphilum [VP] Jeanthon et al. 2002 - SL6, AF332514 | DSM 14290 | JCM 11239

Thermodesulfobacterium hveragerdense [VP] Sonne-Hansen and Ahring 2000 - JSP | DSM 12571, X96725

Thermodesulfobacterium mobile [VP] (Rozanova and Khudyakova 1974) Rozanova and Pivovarova 1991 <- *Desulfovibrio thermophilus* (basonym) - DSM 1276, AF334601 | VKM V-1128

Phylum BIV. *Deinococcus-Thermus* [VP] [32]

Class I. *Deinococci* [VP]

Order I. *Deinococcales* [VP (T)]

Family I. Deinococcaceae [VP]

Genus I. Deinococcus [VP (T)]

Deinococcus radiodurans [VP (T)] Brooks and Murray 1981 - ATCC 13939 | CCM 1700 | DSM 20539, Y11332, D.radiodu2 | IMET 10603 | NCIB 9279 | UWO 288

†Deinococcus erythromyxa [VP] Brooks and Murray 1981 -> *Kocuria erythromyxa* - ATCC 187, Y11330, Kc.rosea2 | DSM 11630 | UWO 1045

Deinococcus geothermalis [VP] Ferreira et al. 1997 - AG-3a, Y13038, D.geotherm | DSM 11300

Deinococcus grandis [VP] (Oyaizu et al. 1987) Rainey et al. 1997 <- *Deinobacter grandis* (basonym) - KS 0485 | ATCC 43672 | DSM 3963, Y11329, D.grandis1 | IAM 13005

Deinococcus murrayi [VP] Ferreira et al. 1997 - ALT-1b, Y13041, D.murrayi1 | DSM 11303

Deinococcus proteolyticus [VP] Brooks and Murray 1981 - ATCC 35074 | CCM 2703 | DSM 20540, Y11331, D.prtlytic | UWO 1056

Deinococcus radiophilus [VP] Brooks and Murray 1981 - ATCC 27603 | CCM 2564 | DSM 20551, Y11333, D.radiophl | NCIB 10648 | NCTC 10785 | UWO 1055

Deinococcus radiopugnans [VP] Brooks and Murray 1981 - ATCC 19172, Y11334, D.radiopug | DSM 12027 | UWO 293

Order II. *Thermales* [VP]

Family I. Thermaceae [VP]

Genus I. Thermus [AL (T)]

Thermus aquaticus [AL (T)] Brock and Freeze 1969 - ATCC 25104 | DSM 625 | IMET 11241 | YT-1, L09663, T.aquaticu

Thermus antranikianii [VP] Chung et al. 2000 - HN3-7, Y18411 | DSM 12462

Thermus brockianus [VP] Williams et al. 1995 - YS38, Z15062, T.spYS38 | NCIB 12676

†Thermus chliarophilus [VP] Tenreiro et al. 1995 -> *Meiothermus chliarophilus* - ALT-8, X84212, Mei.chliar | DSM 9957

Thermus filiformis [VP] Hudson et al. 1987 - Wai33 A1, X58345, T.filiform | ATCC 43280, X58345, T.filiform | DSM 4687, L09667, T.filifor2

Thermus igniterrae [VP] Chung et al. 2000 - RF-4, Y18406 | DSM 12459

Thermus oshimai [VP] Williams et al. 1996 - SPS17, Y18416 | ATCC 700435 | DSM 12092 | NCIMB 13400

†Thermus ruber [VP] Loginova et al. 1984 -> *Meiothermus ruber* - Loginova 21 | ATCC 35948, Z15059, Mei.ruber4 | AUCM 1258 | DSM 1279 | VKM 1258

Thermus scotoductus [VP] Kristjansson et al. 1994 - SE-1, AF032127, T.scotoduc | DSM 8553

†Thermus silvanus [VP] Tenreiro et al. 1995 -> *Meiothermus silvanus* - VI-R2, X84211, Mei.silva2 | DSM 9946

Thermus thermophilus [VP] (ex Oshima and Imahori 1974) Manaia et al. 1995 - HB8, X58342, T.thmophl2 | ATCC 27634, M26923, T.thmophls | ATCC 27634, X07998, T.thmophl3 | ATCC 27634, X58342, T.thmophl2 | ATCC 27634 | DSM 579 | NCIB 11244

Genus II. ***Marinithermus*** [VP]

[32] Ludwig indicates that the ARB tree supports the grouping of *Deinococcus-Thermus* into two separate but closely related lineages.

Marinithermus hydrothermalis VP (T) Sako et al. 2003 - T1, AB079382 | DSM 14884 | JCM 11576

Genus III. Meiothermus VP

Meiothermus ruber VP (T) (Loginova et al. 1984) Nobre et al. 1996 <- *Thermus ruber* (basonym) - Loginova 21 | ATCC 35948, Z15059, Mei.ruber4 | DSM 1279 | VKM 1258

Meiothermus cerbereus VP Chung et al. 1997 - GY-1, Y13594, Mei.cerber | DSM 11376

Meiothermus chliarophilus VP (Tenreiro et al. 1995) Nobre et al. 1996 <- *Thermus chliarophilus* (basonym) - ALT-8, X84212, Mei.chliar | DSM 9957

Meiothermus silvanus VP (Tenreiro et al. 1995) Nobre et al. 1996 <- *Thermus silvanus* (basonym) - VI-R2, X84211, Mei.silva2 | DSM 9946

Meiothermus taiwanensis VP Chen et al. 2002 - WR 30, AF418001 | ATCC BAA-399 | CCRC 17170 | DSM 14542

Genus IV. ***Oceanithermus*** VP

Oceanithermus profundus VP (T) Miroshnichenko et al. 2003 - 506 | DSM 14977, AJ430586 | VKM B-2274

Genus V. ***Vulcanithermus*** VP

Vulcanithermus mediatlanticus VP (T) Miroshnichenko et al. 2003 - TR, AJ507298 | DSM 14978

Phylum BV. *Chrysiogenetes* VP [33]

Class I. *Chrysiogenetes* VP

Order I. *Chrysiogenales* VP (T)

Family I. Chrysiogenaceae VP

Genus I. Chrysiogenes VP (T)

Chrysiogenes arsenatis VP (T) Macy et al. 1996 - BAL-1, X81319 | DSM 11915

Phylum BVI. *"Chloroflexi"* [34]

Class I. *"Chloroflexi"*

Order I. *"Chloroflexales"*

Family I. "Chloroflexaceae"

Genus I. Chloroflexus AL

Chloroflexus aurantiacus AL (T) Pierson and Castenholz 1974 - J-10-fl, D38365, Cfx.auran2 | J-10-fl, M34116, Cfx.aurant | ATCC 29366 | DSM 635

Chloroflexus aggregans VP Hanada et al. 1995 - MD-66, D32255, Cfx.aggreg | DSM 9485

Genus II. Chloronema AL

Chloronema giganteum AL (T) Dubinina and Gorlenko 1975

Genus III. Heliothrix VP

Heliothrix oregonensis VP (T) Pierson et al. 1986 - IS/F-1

Genus IV. Roseiflexus VP

Roseiflexus castenholzii VP Hanada et al. 2002 - HLO8 | DSM 13941 | JCM 11240

Family II. Oscillochloridaceae VP [35]

Genus I. Oscillochloris VP (T)

Oscillochloris chrysea VP (T) Gorlenko and Pivovarova 1989

Oscillochloris trichoides VP Gorlenko and Korotkov 1989

Order II. *"Herpetosiphonales"*

Family I. "Herpetosiphonaceae"

Genus I. Herpetosiphon AL

Herpetosiphon aurantiacus AL (T) Holt and Lewin 1968 - ATCC 23779, M34117, Her.aurant | DSM 785

[33] Ludwig makes no mention of *Chrysiogenes*. In the RDP, this taxon is grouped with *Flexistipes*. Macy indicates differently. PCA plots of Garrity and Lilburn show that *Chrysiogenes* maps close to the *Deferribacteres*.

[34] Ludwig supports the placement of *Chloroflexaceae* and *Herpetosiphonales* . He argues for the inclusion of *Thermomicrobium* in the phylum, which is also supported by the RDP and Hugenholtz>However, PCA plots show a clear separation, with *Thermomicrobium* removed. As this organism hasn't been studied for a considerable period of time, it might be hard to discern what is going on. Readers should refer to Boone's treatment in volume 1.

[35] Pearson believes that creation of this family may be premature. Differentiation is based solely on 16S rDNA sequence data.

†*Herpetosiphon cohaerens* [AL] Lewin 1970 -> *Lewinella cohaerens* - ATCC 23123, AF039292, Lew.cohaer
Herpetosiphon geysericola [AL] (Copeland 1936) Lewin 1970 - ATCC 23076, AF039293, Her.geyser | DSM 7119
†*Herpetosiphon nigricans* [AL] Lewin 1970 -> *Lewinella nigricans* - ATCC 23147, AF039294, Lew.nigric
†*Herpetosiphon persicus* [AL] Lewin 1970 -> *Lewinella persica* - ATCC 23167, AF039295, Lew.persic

Phylum BVII. *Thermomicrobia* [VP]
Class I. *Thermomicrobia* [VP]
Order I. *Thermomicrobiales* [VP (T)]
Family I. Thermomicrobiaceae [VP]
Genus I. Thermomicrobium [AL (T)]
Thermomicrobium roseum [AL (T)] Jackson et al. 1973 - ATCC 27502, M34115, Tmc.roseum | DSM 5159
Thermomicrobium fosteri [AL] Phillips and Perry 1976 - ATCC 29033

Phylum BVIII. *"Nitrospira"*[36]
Class I. *"Nitrospira"*
Order I. *"Nitrospirales"*
Family I. "Nitrospiraceae"
Genus I. Nitrospira [VP]
Nitrospira marina [VP (T)] Watson et al. 1986 - ATCC 43039
Nitrospira moscoviensis [VP] Ehrich et al. 2001 [37] - NSP M-1, X82558 | DSM 10035
Genus II. Leptospirillum [VP]
Leptospirillum ferrooxidans [VP (T)] (ex Markosyan 1972) Hippe 2000 - L15, X86776, Lpp.ferro3 | ATCC 29047 | DSM 2705, X86776, Lpp.ferro3
Leptospirillum ferriphilum [VP] Coram and Rawlings 2002 - P3a | ATCC 49881, AF356829 | DSM 14647
Leptospirillum thermoferrooxidans [VP] Hippe 2000 - INMI L-88
Genus III. Magnetobacterium [VP]
Candidatus "Magnetobacterium bavaricum" [VP (T)] X71838Mgb.bavarc
Genus IV. Thermodesulfovibrio [VP]
Thermodesulfovibrio yellowstonii [VP (T)] Henry et al. 1994 - YP87, L14619, Tdv.yellow | ATCC 51303 | DSM 11347
Thermodesulfovibrio islandicus [VP] Sonne-Hansen and Ahring 2000 - R1Ha3 | DSM 12570, X96726

Phylum BIX. *Deferribacteres* [VP][38]
Class I. *Deferribacteres* [VP]
Order I. *Deferribacterales* [VP (T)]
Family I. Deferribacteraceae [VP]
Genus I. Deferribacter [VP (T)]
Deferribacter thermophilus [VP (T)] Greene et al. 1997 - BMA, U75602, Dfr.thphil | ACM 5093
Deferribacter desulfuricans [VP] Takai et al. 2003 - SSM1, AB086060 | DSM 14783 | JCM 11476
Genus II. Denitrovibrio [VP]
Denitrovibrio acetiphilus [VP (T)] Myhr and Torsvik 2000 - N2460, AF146526 | DSM 12809
Genus III. Flexistipes [VP]
Flexistipes sinusarabici [VP (T)] Fiala et al. 2000 - MAS10 | DSM 4947, M59231, Fls.sinusa

[36] These species appear as multiple branches in the RDP, suggesting the possibility of at least three or more families. This pattern is also seen in PCA plots, where the four genera are well separated along the second dimension, suggesting the possibility of deep branches.
[37] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[38] Ludwig recommends that *Flexistipes* be a separate phylum. In PCA plots, the genera are spaced out along the second dimension and are as far apart as *Acidobacterium* and *Fibrobacter*. Ludwig and Klenk's chapter refers to only two cultivated strains of *Flexistipes*, but recent communications with other authors indicate that *Deferribacter* and *Geovibrio* should also be in the phylum.

Genus IV. Geovibrio VP
Geovibrio ferrireducens VP (T) Caccavo et al. 2000 – PAL-1, X95744, Gv.ferredu | ATCC 51996
Geovibrio thiophilus VP Janssen et al. 2002 – AAFu3, AJ299402 | DSM 11263 | ATCC BAA-311
Genera incertae sedis
Genus I. Synergistes VP [39]
Phylum BX. *Cyanobacteria*
Class I. *Cyanobacteria* VP [40]
Subsection I. *Subsection 1* VP
Family I. Family 1.1 VP
Form genus I. Chamaesiphon VP
Chamaesiphon minutus – ATCC 27169 | PCC 6605
Chamaesiphon subglobosus – ATCC 29397 | PCC 7430
Form genus II. Chroococcus VP
Chroococcus sp
Form genus III. Cyanobacterium VP
Cyanobacterium sp
Form genus IV. Cyanobium VP
Cyanobium gracile
Form genus V. Cyanothece VP
Cyanothece – ATCC 29141 | ATCC 29155 | ATCC 29534 | PCC 7418, AJ000708, Cya.SAJ708 | PCC 7424, AJ000715, Cya.SAJ715 | PCC 7425
Cyanothece sp
Form genus VI. Dactylococcopsis VP
Dactylococcopsis (Myxobaktron) salina – PCC 8305, AJ000711, Dlc.sp8305
Form genus VII. Gloeobacter VP
Gloeobacter violaceus – ATCC 29082 | PCC 7421
Form genus VIII. Gloeocapsa VP
Gloeocapsa – ATCC 27928 | ATCC 29159 | PCC 73106 | PCC 7428
Form genus IX. Gloeothece VP
Gloeothece – ATCC 27151 | PCC 6501, X78680, Glth.memb2
Form genus X. Microcystis VP
Microcystis aeruginosa VP (T) Otsuka et al. 2001 [41] – NIES843 | IAM M-247, AB035549
Form genus XI. Prochlorococcus VP
Prochlorococcus marinus subspecies marinus VP (T) (Chisholm et al. 1992) Chisholm et al. 2001 [42] – CCMP-1375
Prochlorococcus marinus subspecies pastoris VP Rippka et al. 2001 – PCC 9511 | ATCC 700925, AF180967
Form genus XII. Prochloron VP
Prochloron didemni VP (T) Florenzano et al. 1986

[39] Ludwig makes no mention of where to place *Synergistes*. The available sequence from GenBank does not meet our criteria for inclusion in the PCA models. In the RDP, *Synergistes* groups near the *Verrucomicrobia* and *Nitrospina*. *Nitrospina* is known to be misplaced in the RDP.
[40] Ludwig recognizes the *Cyanobacteria* as a separate line of descent, along with the chloroplasts. PCA plots show a high level of variation in the chloroplasts.

In Wilmotte and Herdman's chapter on the phylogeny of *Cyanobacteria* (Volume 1 of the second edition), they state that there is considerable variation in the branching order of the *Cyanobacteria*, especially at the base of the tree. Presumably, this arises from an explosive radiation shortly after the evolution of oxygenic photosynthesis. However, terminal nodes tend to cluster in a predictable manner.

Wilmotte and Herdman also note that there is a multiplicity of confounding problems in linking available phenotypic and genotypic information. Part of the difficulty stems from misidentified reference material, including that which is held in collections. There also seems to be a problem with the quality of sequence data (especially short sequences). They urge any experimenter to confirm the identity of each strain using a polyphasic approach. Only then might it be possible to link the taxonomy and phylogeny in a meaningful way.
[41] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244). While the form genus *Microcystis* has standing in botanical nomenclature, there is some doubt as to the legitimacy of the genus name in procaryotic nomenclature as the name has never been validly published.

[42] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Form genus XIII. Synechococcus [VP]
Synechococcus - ATCC 27265 | PCC 7003, AB015059, Syn.7003
Synechococcus cedrorum - ATCC 29140 | PCC 7202
Synechococcus lividus - ATCC 27149 | PCC 6715
Form genus XIV. Synechocystis [VP]
Synechosystis - ATCC 27150 | ATCC 27189 | ATCC 27266 | PCC 6308 | PCC 6714 | PCC 6906
Subsection II. *Subsection 2* [VP]
Family I. Family 2.1 [VP]
Form genus I. Cyanocystis [VP]
Cyanocystis sp
Form genus II. Dermocarpella [VP]
Dermocarpella incrassata - SAG 29.84, AJ344559 | ATCC 29376 | PCC 7326
Form genus III. Stanieria [VP]
Stanieria - ATCC 29367 | PCC 7301
Form genus IV. Xenococcus [VP]
Xenococcus schousboei - ATCC 29373 | PCC 7305
Family II. Family 2.2 [VP]
Form genus I. Chroococcidiopsis [VP]
Chroococcidiopsis - ATCC 27176 | PCC 6712
Chroococcidiopsis thermalis - ATCC 27900 | CCAP 1451/1 | PCC 7203, AB039005
Form genus II. Myxosarcina [VP]
Myxosarcina concinna - ATCC 29377 | PCC 7312
Myxosarcina sp
Form genus III. Pleurocapsaa [VP]
Pleurocapsa - ATCC 29388 | ATCC 29393 | ATCC 29396 | PCC 7319 | PCC 7327 | PCC 7516, X78681, Plrc.7516
Subsection III. *Subsection 3* [VP]
Family I. Family 3.1 [VP]
Form genus I. Arthrospira [VP]
Arthrospira jenneri
Arthrospira maxima
Arthrospira platensis - ATCC 29408 | PCC 7345, X70769, Ar.sp8005
Form genus II. Borzia [VP]
Borzia sp
Form genus III. Crinalium [VP]
Crinalium epipsammum [VP (T)] De Winder et al. 1990 - SAG 22.89 | ATCC 49662
Form genus IV. Geitlerinema [VP]
Geitlerinema - ATCC 29120 | ATCC 29126 | PCC 7105 | PCC 7407
Genus V. Halospirulina [VP]
Halospirulina tapeticola [VP (T)] Nübel et al. 2000 - CCC Baja-95 Cl. 2, Y18791
Form genus VI. Leptolyngbya [VP]
Leptolyngbya - ATCC 29117 | ATCC 29409 | PCC 7104 | PCC 7375
Form genus VII. Limnothrix [VP]
Limnothrix sp
Form genus VIII. Lyngbya [VP]
Lyngbya confervoides - ATCC 29346 | PCC 7419, AJ000714, Lyn.cnfrvo
Form genus IX. Microcoleus [VP]
Microcoleus chthonoplastes - ATCC 29206 | PCC 7113
Microcoleus lacustris - ATCC 29128 | PCC 7420, X70770, Mccl.7420
Form genus X. Oscillatoria [VP]
Oscillatoria acuminata - ATCC 27930 | PCC 6304, AB039014
Oscillatoria agardhii - NIVA-CYA 68 | PCC 7805
Oscillatoria nigro-viridis - ATCC 29134 | PCC 7112
Oscillatoria princeps

Oscillatoria prolifera
Oscillatoria sancta - ATCC 29209 | PCC 7515, AB039015, AF132933
Oscillatoria tenuis
Form genus XI. Planktothrix VP
Planktothrix sp
Form genus XII. Prochlorothrix VP
Prochlorothrix hollandica VP (T) Burger-Wiersma et al. 1989 - CCAP 1490/1
Form genus XIII. Pseudanabaena VP
Pseudanabaena tenuis
Form genus XIV. Spirulina VP
Spirulina major - ATCC 29542 | PCC 6313, X75045, Ar.sp7345
Form genus XV. Starria VP
Starria zimbabweënsis
Form genus XVI. Symploca VP
Symploca - PCC 8002
Genus XVII. Trichodesmium VP
Trichodesmium
Form genus XVIII. Tychonema VP
Tychonema sp
Subsection IV. *Subsection 4* VP
Family I. Family 4.1 VP
Form genus I. Anabaena VP
Anabaena - PCC 7108
Anabaena - ATCC 29208
Anabaena cylindrica - ATCC 27899 | CCAP 1403/2a | PCC 7122, AF091150, Anbn.cyli2 | UTEX 629
Anabaena sphaerica - UTEX 1616
Form genus II. Anabaenopsis VP
Anabaenopsis - PCC 7905
Form genus III. Aphanizomenon VP
Aphanizomenon flos-aquae - CCAP 1401/1 | PCC 7905
Form genus IV. Cyanospira VP
Cyanospira sp
Form genus V. Cylindrospermopsis VP
Cylindrospermopsis raciborskii Seenayya and Subba-Raju 1972
Form genus VI. Cylindrospermum VP
Cylindrospermum majus - ATCC 33001 | CCAP 1415/2 | PCC 7604
Cylindrospermum stagnale - ATCC 29204, AF132789 | PCC 7417, AJ133163
Form genus VII. Nodularia VP
Nodularia harveyana - M93/1 | PCC 7804
Nodularia spumigena - ATCC 29167 | PCC 73104, AB039002, AF268023 | UTEX 2901
Form genus VIII. Nostoc VP
Nostoc - ATCC 29150 | PCC 7107
Nostoc commune
Nostoc muscorum - ATCC 29105 | PCC 6719
Nostoc punctiforme - ATCC 29133 | PCC 73102, AF027655, Nost.punct
Form genus IX. Scytonema VP
Scytonema hofmanni
Family II. Family 4.2 VP
Form genus I. Calothrix VP
Calothrix - ATCC 27901 | ATCC 29111 | ATCC 29112 | PCC 7102 | PCC 7116 | PCC 7507
Form genus II. Rivularia VP
Rivularia sp
Form genus III. Tolypothrix VP
Tolypothrix - ATCC 29157 | PCC 7415aloth

Tolypothrix tenuis - ATCC 27914 | IAM M-29 | NIBB 1027 | PCC 7101

Subsection V. *Subsection 5* VP

Family I. Subsection 5.1 VP

Form genus I. Chlorogloeopsis VP

Chlorogloeopsis fritschii - ATCC 27193 | CCAP 1411/1 | PCC 6912

Form genus II. Fischerella VP

Fischerella thermalis

Form genus III. Geitleria VP

Geitleria - NCTC 10915

Form genus IV. Iyengariella VP

Iyengariella sp

Form genus V. Nostochopsis VP

Nostochopsis sp

Form genus VI. Stigonema VP

Stigonema minutum

Phylum BXI. *Chlorobi* VP [43]

Class I. *"Chlorobia"*

Order I. *Chlorobiales* AL

Family I. Chlorobiaceae AL

Genus I. Chlorobium AL (T)

Chlorobium limicola AL (T) Nadson 1906 - DSM 245, Y10640, Chl.limic3

Chlorobium clathratiforme VP (Szafer 1911) Imhoff 2003 <- *Pelodictyon clathratiforme* (basonym) - BU1 | DSM 5477 , Y08108[44]

†Chlorobium chlorovibrioides AL Gorlenko et al. 1974 -> *Chlorobaculum chlorovibrioides* - DSM 1377

Chlorobium luteolum VP (Schmidle 1901) Imhoff 2003 <- *Pelodictyon luteolum* (basonym) [45] - DSM 273, Y08107

Chlorobium phaeobacteroides AL Pfennig 1968 - 2430, Y08104, Chl.phbact | DSM 266

Chlorobium phaeovibrioides AL Pfennig 1968 - 2631, Y08105, Chl.phvibr | DSM 269

†Chlorobium tepidum VP Wahlund et al. 1996 -> *Chlorobaculum tepidum* - TLS | ATCC 49652

†Chlorobium vibrioforme AL Pelsh 1936 -> *Prosthecochloris vibrioformis* - 6030, M62791 | DSM 260, M62791, Chl.vibrio

Genus II. Ancalochloris AL

Ancalochloris perfilievii AL (T) Gorlenko and Lebedeva 1971

Genus III. ***Chlorobaculum*** VP

Chlorobaculum tepidum VP (T) (Wahlund et al. 1996) Imhoff 2003 <- *Chlorobium tepidum* (basonym) - TLS | ATCC 49652, M58468 | CIP 105973 | DSM 12025

Chlorobaculum chlorovibrioides (Gorlenko et al. 1974) Imhoff 2003 <- *Chlorobium chlorovibrioides* (basonym) - UdG 6026 , Y10649[46]

Chlorobaculum limnaeum VP Imhoff 2003 - DSM 1677 , AJ290831[47]

Chlorobaculum parvum VP Imhoff 2003 - DSM 263, Y10647[48]

Chlorobaculum thiosulfatiphilum VP Imhoff 2003 - DSM 249 , Y08102[49]

[43] Ludwig states that there is considerable evidence that the *Chlorobiales* and *Bacteroides* have a common root. He doesn't make mention of *Ancalochloris* or *Chloroherpton* in his text.

[44] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244)..

[45] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[46] Invalid and illegitimate name. Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).. Moreover, the author did not formally propose UdG 6026 as the neotype strain.

[47] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[48] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[49] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Genus IV. Chloroherpeton VP
Chloroherpeton thalassium VP (T) Gibson et al. 1985 - GB-78 | ATCC 35110
Genus V. Pelodictyon AL
†Pelodictyon clathratiforme AL (T) (Szafer 1911) Lauterborn 1913 -> *Chlorobium clathratiforme*, Y08106, Pld.clathr[50]
†Pelodictyon luteolum AL (Schmidle 1901) Pfennig and Trüper 1971 -> *Chlorobium luteolum* - 2530, Y08107, Pld.luteol | DSM 273
†Pelodictyon phaeoclathratiforme VP Overmann and Pfennig 1990 -> *Chlorobium phaeobacteroides* - BU 1, Y08108, Pld.phclth | DSM 5477
Pelodictyon phaeum AL Gorlenko 1972 - RP 6 | DSM 728[51]
Genus VI. Prosthecochloris AL
Prosthecochloris aestuarii AL (T) (Gorlenko 1970) emend. Imhoff 2003 - SK 413, Y07837, Prst.aestu | DSM 271
Prosthecochloris aestuarii VP (T) Gorlenko 1970 (Approved Lists 1980) emend. Imhoff 2003. - DSM 271, Y07837
Prosthecochloris vibrioformis VP (Pelsh 1936) Imhoff 2003 [52] <- *Chlorobium vibrioforme* (basonym) - DSM 260 , M62791[53]

Phylum BXII. *"Proteobacteria"* NP [54]
Class I. *"Alphaproteobacteria"* NP
Order I. *Rhodospirillales* AL (T)[55]
Family I. Rhodospirillaceae AL
Genus I. Rhodospirillum AL (T)[56]
Rhodospirillum rubrum AL (T) (Esmarch 1887) Molisch 1907 - ATH 1.1.1, M32020, R.rubrum | ATCC 11170, D30778, R.rubrum3 | DSM 467 | NCIB 8255
Rhodospirillum centenum VP Favinger et al. 1994 = *Rhodocista centenaria* (homotypic synonym) - ATCC 43720, D12701, Rhc.centen | DSM 9894 | IAM 14193, D12701, Rhc.centen
†Rhodospirillum fulvum AL van Niel 1944 -> *Phaeospirillum fulvum* - KK | ATCC 15798 | DSM 113 | NCIMB 11762, D14433, Phs.fulvu2 | NCIMB 11884
†Rhodospirillum molischianum AL Giesberger 1947 -> *Phaeospirillum molischianum* - ATCC 14031, M59067, Phs.molsch | DSM 120
Rhodospirillum photometricum AL Molisch 1907 - ATCC 49918 | DSM 122
†Rhodospirillum salexigens VP Drews 1982 -> *Rhodothalassium salexigens* - WS 68 | ATCC 35888, D14431, Rt.salexi2 | DSM 2132, M59070, Rt.salexig
†Rhodospirillum salinarum VP Nissen and Dundas 1985 -> *Rhodovibrio salinarum* - ATCC 35394, M59069, Rdv.salna2 | DSM 9154
†Rhodospirillum sodomense VP Mack et al. 1996 -> *Rhodovibrio sodomensis* - DSI, M59072, Rdv.sodmen | ATCC 51195 | DSM 9895
†Rhodospirillum tenue AL Pfennig 1969 -> *Rhodocyclus tenuis* - ATCC 25093 | DSM 109, D16208, Rcy.tenuis | SMG 109
Genus II. Azospirillum AL [57]
Azospirillum lipoferum AL (T) (Beijerinck 1925) Tarrand et al. 1979 - Sp 59b | ATCC 29707, M59061, Azs.lipofe | DSM 1691

[50] Rule 37a(1) states that the name of a taxon must be changed if the nomenclatural type of the taxon is excluded.
[51] In the proposal of Imhoff (Int. J. Syst. Evol. Microbiol., 2003, 53, 941-951),to reclassify *Pelodictyon clathratiforme, Pelodictyon luteolum, Pelodictyon phaeoclathratiforme,* he fails to take account *Pelodictyon phaeum*.
[52] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[53] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).
[54] In communications with Ludwig, he raises the point that the *Proteobacteria* are not monophyletic. Some differences exist between the RDP and ARB trees. Most notably, the delta and epsilon proteobacteria are separated from the alpha, beta and gamma proteobacteria in the ARB tree. In PCA plots, Garrity and Lilburn observe the same separation.
[55] Ludwig indicates that the branching of the *Rhodospirillaceae* and *Acteobacteriacea* is not as deep as some of the other alpha proteobacteria (eg. *Caulobacteria*).
[56] Member of the alpha-1 subgroup *sensu* Imhoff.
[57] Member of the alpha-1 subgroup *sensu* Imhoff.

Azospirillum amazonense [VP] Magalhaes et al. 1984 - Am 14 (Y1) | ATCC 35119 | DSM 2787, Z29616, Azs.amazon

Azospirillum brasilense [AL] Tarrand et al. 1979 - Sp7, X79739, Azs.brasi5 | ATCC 29145 | DSM 1690 | IMET 11303

Azospirillum doebereinerae [VP] Eckert et al. 2001 [58] - GSF71, AJ238567 | DSM 13131

Azospirillum halopraeferens [VP] Reinhold et al. 1987 - Au 4, X79731, Azs.halpr2 | DSM 3675, Z29618, Azs.halprf | LMG 7108

Azospirillum irakense [VP] Khammas et al. 1991 - KBC1, Z29583, Azs.iraken | CIP 103311, X79737, Azs.irake2 | DSM 11586

Azospirillum largimobile [VP] (Skerman et al. 1983) Ben Dekhil et al. 1997 <- *Conglomeromonas largomobilis subspecies largmobilis* (basonym) - ACM 2041, X90759, Azs.largom | DSM 9441 | UQM 2041

Genus III. ***Inquilinus*** [VP]

Inquilinus limosus [VP (T)] Coenye et al. 2002 - AU 476, AY043374 | CCUG 45653 | LMG 20952

Genus IV. Magnetospirillum [VP] [59]

Magnetospirillum gryphiswaldense [VP (T)] Schleifer et al. 1992 - MSR-1, Y10109 | DSM 6361

Magnetospirillum magnetotacticum [VP] (Maratea and Blakemore 1981) Schleifer et al. 1992 <- *Aquaspirillum magnetotacticum* (basonym) - MS-1, Y10110 | ATCC 31632 | DSM 3856 | NBRC 15272

Genus V. Phaeospirillum [VP] [60]

Phaeospirillum fulvum [VP (T)] (van Niel 1944) Imhoff et al. 1998 <- *Rhodospirillum fulvum* (basonym) - KK | NCIB 11762, D14433 | ATCC 15798 | DSM 113, Phs.fulvu2 | NCIMB 11884

Phaeospirillum molischianum [VP] (Giesberger 1947) Imhoff et al. 1998 <- *Rhodospirillum molischianum* (basonym) - ATCC 14031, M59067, Phs.molsch | DSM 120

Genus VI. Rhodocista [VP] [61]

Rhodocista centenaria [VP (T)] (Favinger et al. 1994) Kawasaki et al. 1994 = *Rhodospirillum centenum* (homotypic synonym) - ATCC 43720, D12701, Rhc.centen | DSM 9894 | IAM 14193, D12701, Rhc.centen

Rhodocista pekingensis [VP] Zhang et al. 2003 - 3-p, AF523824 | AS 1.2194 | JCM 11669

Genus VII. Rhodospira [VP] [62]

Rhodospira trueperi [VP (T)] Pfennig et al. 1998 - 8316 | ATCC 700224

Genus VIII. Rhodovibrio [VP] [63]

Rhodovibrio salinarum [VP (T)] (Nissen and Dundas 1985) Imhoff et al. 1998 <- *Rhodospirillum salinarum* (basonym) - ATCC 35394, M59069, Rdv.salna2 | DSM 9154

Rhodovibrio sodomensis [VP] (Mack et al. 1996) Imhoff et al. 1998 <- *Rhodospirillum sodomense* (basonym) - DSI, M59072, Rdv.sodmen | ATCC 51195 | DSM 9895

Genus IX. Roseospira [VP] [64]

Roseospira mediosalina [VP (T)] Imhoff et al. 1998 - L1-66 , AJ000989 | BN 280

Genus X. Skermanella [VP]

Skermanella parooensis [VP (T)] (Skerman et al. 1983) Sly and Stackebrandt 1999 <- *Conglomeromonas largomobilis subspecies parooensis* (basonym) - ACM 2042, X90760, Skm.paroon | DSM 9527 | UQM 2042

Genus XI. Thalassospira [VP]

Thalassospira lucentensis [VP (T)] Lopez-Lopez 2002 - QMT2, AF358664 | DSM 14000 | CECT 5390

[58] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[59] Member of the alpha-1 subgroup *sensu* Imhoff.
[60] Member of the alpha-1 subgroup *sensu* Imhoff.
[61] Member of the alpha-1 subgroup *sensu* Imhoff.
[62] Member of the alpha-1 subgroup *sensu* Imhoff.
[63] Imhoff indicates that *Rhodovibrio* should be assigned to a separate family.
[64] Member of the alpha-1 subgroup *sensu* Imhoff.

Genus XII. ***Tistrella*** [VP]

Tistrella mobilis [VP (T)] Shi et al. 2003 - IAM 14872 | TISTR 1108, AB071665

Family II. Acetobacteraceae [VP]

Genus I. Acetobacter [AL (T)]

Acetobacter aceti [AL (T)] (Pasteur 1864) Beijerinck 1898 = *Acetobacter aceti subspecies aceti* (homotypic synonym) - ATCC 15973 | DSM 3508, X74066, Aba.aceti2 | ICMP 8807 | IMET 10732 | JCM 7641, D30768, Aba.aceti | LMG 1261 | NCIB 8621, X74066, Aba.aceti2

†*Acetobacter aceti subspecies aceti* [AL (T)] (Pasteur 1864) Beijerinck 1898 = *Acetobacter aceti* (homotypic synonym) - ATCC 15973 | DSM 3508, X74066, Aba.aceti2 | ICMP 8807 | IMET 10732 | JCM 7641, D30768, Aba.aceti | LMG 1261 | NCIB 8621, X74066, Aba.aceti2

Acetobacter cerevisiae [VP] Cleenwerck et al. 2002 - LMG 1625, AJ419843 | ATCC 23765 | DSM 14362 | NCIB 8894

†*Acetobacter aceti subspecies liquefaciens* [AL] (Asai 1935) De Ley and Frateur 1974 -> *Acetobacter liquefaciens* - DSM 5603 | IAM 1834

†*Acetobacter aceti subspecies orleanensis* [AL] (Henneberg 1906) De Ley and Frateur 1974 -> *Acetobacter orleanensis* - ATCC 12876 | IMET 10752

†*Acetobacter aceti subspecies xylinus* [AL] (Brown 1886) De Ley and Frateur 1974 -> *Acetobacter xylinus* - ATCC 23767 | DSM 3509 | NCIB 11664 | NCIB 4112B

Acetobacter cibinongensis [VP] Lisdiyanti et al. 2002 [65] - 4H-1 | NBRC 16605 | JCM 11196

†*Acetobacter diazotrophicus* [VP] Gillis et al. 1989 -> *Gluconacetobacter diazotrophicus* - D PA1 5 | ATCC 49037, X75618, Gab.diaztr | DSM 5601 | LMG 7603, X75618, Gab.diaztr

Acetobacter estunensis [VP] (Carr 1958) Lisdiyanti et al. 2001 <- *Acetobacter pasteurianus subspecies estunensis* (basonym) - ATCC 23753 | NBRC 13751, AB032349 | LMG 1626 | NCIMB 8935

†*Acetobacter europaeus* [VP] Sievers et al. 1992 -> *Gluconacetobacter europaeus* - DES 11, Z21936, Gab.europa | DSM 6160, Z21936, Gab.europa

†*Acetobacter hansenii* [VP] Gossele et al. 1983 -> *Gluconacetobacter hansenii* - ATCC 35959 | DSM 5602 | NCIB 8746, X75620, Gab.hansen

Acetobacter indonesiensis [VP] Lisdiyanti et al. 2001 - 5H-1 | NBRC 16471 | JCM 10948 | NRIC 0313, AB032356

†*Acetobacter intermedius* [VP] Boesch et al. 1998 -> *Gluconacetobacter intermedius* - TF2, Y14694, Aba.intmed | DSM 11804

†*Acetobacter liquefaciens* [VP] (Asai 1935) Gosselé et al. 1983 <- *Acetobacter aceti subspecies liquifaciens* (basonym) -> *Gluconacetobacter liquefaciens* - ATCC 14835 | DSM 5603 | IAM 1834 | NBRC 12388, X75617, Gab.liqfac

Acetobacter lovaniensis [VP] (Frateur 1950) Lisdiyanti et al. 2001 <- *Acetobacter pasteurianus subspecies lovaniensis* (basonym) - ATCC 12875 | DSM 4491 | NBRC 13753, AB032351 | LMG 1579 | NCIMB 8620

Acetobacter malorum [VP] Cleenwerck et al. 2002 - LMG 1746, AJ419844 | DSM 14337

†*Acetobacter methanolicus* [VP] Uhlig et al. 1986 -> *Acidomonas methanolica* - MB58, X77468, Adm.metha2 | ATCC 43581 | DSM 5432 | IMET 10945

†*Acetobacter oboediens* [VP] Sokollek et al. 1998 -> *Gluconacetobacter oboediens* - LTH 2460, AJ001631, Aba.oboedi | DSM 11826

Acetobacter orientalis [VP] Lisdiyanti et al. 2002 [66] - 21F-2 | NBRC 16606 | JCM 11197

Acetobacter orleanensis [VP] (Henneberg 1906) Lisdiyanti et al. 2001 <- *Acetobacter aceti subspecies orleanensis* (basonym) - ATCC 12876 | DSM 4492 | NBRC 13752, AB032350 | IMET 10752 | LMG 1583 | NCIMB 8622

[65] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[66] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Acetobacter pasteurianus subspecies pasteurianus [AL] (Hansen 1879) Beijerinck 1916 - ATCC 33445 | DSM 3505 | IMET 10733 | LMD 22.1, X71863, Aba.paster[67]

Acetobacter pasteurianus subspecies ascendens [AL] (Henneberg 1898) De Ley and Frateur 1974 - LMD 51.1

†*Acetobacter pasteurianus subspecies estunensis* [AL] (Carr 1958) De Ley and Frateur 1974 -> *Acetobacter estunensis* - ATCC 23753

†*Acetobacter pasteurianus subspecies lovaniensis* [AL] (Frateur 1950) De Ley and Frateur 1974 -> *Acetobacter lovaniensis* - ATCC 12875 | IMET 10734

Acetobacter pasteurianus subspecies paradoxus [AL] (Frateur 1950) De Ley and Frateur 1974 - LMD 53.6

Acetobacter peroxydans [AL] Visser't Hooft 1925 - ATCC 12874 | NCIB 8618

Acetobacter pomorum [VP] Sokollek et al. 1998 - LTH 2458, AJ001632, Aba.pomorm | DSM 11825

Acetobacter syzygii [VP] Lisdiyanti et al. 2002 [68] - 9H-2 | NBRC 16604 | JCM 11197

Acetobacter tropicalis [VP] Lisdiyanti et al. 2001 - Ni-6b | NBRC 16470 | JCM 10947 | NRIC 0312, AB032354 | NRIC 0312, AB032355

†*Acetobacter xylinus subspecies xylinus* [VP] (Brown 1886) Yamada 1984 [69] -> *Gluconacetobacter xylinus* - ATCC 23767 | DSM 6513 | LMG 1515, X75619, Gab.xylxyl | NCIB 11664, X75619, Gab.xylxyl

Acetobacter xylinus subspecies sucrofermentans [VP] Toyosaki et al. 1996 - BPR 2001, AJ007698, Gab.xylsuc | ATCC 700178 | JCM 9730

Genus II. Acidiphilium [VP]

Acidiphilium cryptum [VP (T)] Harrison 1981 - Lhet2 | ATCC 33463, D30773, Acdp.cryp3 | DSM 2389

Acidiphilium acidophilum [VP] (Harrison 1983) Hiraishi et al. 1998 <- *Thiobacillus acidophilus* (basonym) - TM | ATCC 27807, D86511, Acdp.acphl | CIP 104483 | DSM 700

†*Acidiphilium aminilyticum* [VP] Kishimoto et al. 1994 -> *Acidocella aminolytica* - 101, D30771, Acc.amnlyt | ATCC 51361 | DSM 11237 | JCM 8796

Acidiphilium angustum [VP] Wichlacz et al. 1986 - KLB | ATCC 35903, D30772, Acdp.angu2

†*Acidiphilium facile* [VP] Wichlacz et al. 1986 -> *Acidocella facilis* - PW2 | ATCC 35904, D30774, Acc.facil2

Acidiphilium multivorum [VP] Wakao et al. 1995 - AIU 301, AB006711, Acdp.mltvr | DSM 11245 | JCM 8867

Acidiphilium organovorum [VP] Lobos et al. 1986 - ATCC 43141, D30775, Acdp.organ

Acidiphilium rubrum [VP] Wichlacz et al. 1986 - OP | ATCC 35905, D30776, Acdp.rubr2

Genus III. Acidisphaera [VP]

Acidisphaera rubrifaciens [VP (T)] Hiraishi et al. 2000 - HS-AP3, D86512 | JCM 10600, D86512

Genus IV. Acidocella [VP]

Acidocella facilis [VP (T)] (Wichlacz et al. 1986) Kishimoto et al. 1996 <- *Acidiphilium facile* (basonym) - PW2 | ATCC 35904, D30774, Acc.facil2

Acidocella aminolytica [VP] (Kishimoto et al. 1994) Kishimoto et al. 1996 <- *Acidiphilium aminilyticum* (basonym) - 101, D30771, Acc.amnlyt | ATCC 51361 | DSM 11237 | JCM 8796

Genus V. Acidomonas [VP] [70]

[67] In the first edition of *Bergey's Manual of Systematic Bacteriology*, De Ley et al. included the five subspecies of *Acetobacter pasteurianus*, along with *A. peroxydans*, as junior subjective synonyms of *A. pasteurianus*. However, this nomenclatural change was not validated in IJSB (now IJSEM).

[68] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[69] *Acetobacter xylinus* has been reclassified as *Gluconacetobacter xylinus*. However, the subspecies *sucrofermentans* and *xylinus* were not addressed by the authors.

[70] Member of the alpha-1 subgroup *sensu* Imhoff

Acidomonas methanolica [VP (T)] (Uhlig et al. 1986) Urakami et al. 1989 <- *Acetobacter methanolicus* (basonym) – TK 0705 | ATCC 43581 | DSM 5432 | IMET 10945, D30770, Adm.methan | LMG 1668, X77468, Adm.metha2 | MB 58, X77468, Adm.metha2

Genus VI. Asaia [VP]

Asaia bogorensis [VP (T)] Yamada et al. 2000 – 71, AB025928 | JCM 10569 | NRIC 0311

Asaia siamensis [VP] Katsura et al. 2001 [71] – S60-1, AB035416 | NBRC 16457 | JCM 10715 | NRIC 0323

Genus VII. Craurococcus [VP]

Craurococcus roseus [VP (T)] Saito et al. 1998 – NS130, D85828 | JCM 9933

Genus VIII. Gluconacetobacter [VP]

Gluconacetobacter liquefaciens [VP (T)] (Asai 1935) Yamada et al. 1998 <- *Acetobacter liquefaciens* (basonym) – ATCC 14835 | CCUG 18124 | DSM 5603 | IAM 1834 | NBRC 12388, X75617, Gab.liqfac

Gluconacetobacter azotocaptans [VP] Fuentes-Ramírez et al. 2001 – ATCC 700988 | CFN-Ca54, AF192761 | DSM 13594

Gluconacetobacter diazotrophicus [VP] (Gillis et al. 1989) Yamada et al. 1998 <- *Acetobacter diazotrophicus* (basonym) – Döbereiner PAI 5 | ATCC 49037, X75618, Gab.diaztr | DSM 5601 | LMG 7603, X75618, Gab.diaztr

Gluconacetobacter entanii [VP] Schüller et al. 2000 – LTH 4560, AJ251110 | DSM 13536

Gluconacetobacter europaeus [VP] (Sievers et al. 1992) Yamada et al. 1998 <- *Acetobacter europaeus* (basonym) – DES 11, Z21936, Gab.europa | DSM 6160 | ATCC 51845

Gluconacetobacter hansenii [VP] (Gossele et al. 1983) Yamada et al. 1998 <- *Acetobacter hansenii* (basonym) – ATCC 35959 | CCUG 18123 | DSM 5602 | LMG 1527, X75620, Gab.hansen | NCIB 8746, X75620, Gab.hansen

Gluconacetobacter intermedius [VP] (Boesch et al. 1998) Yamada 2000 <- *Acetobacter intermedius* (basonym) – TF2, Y14694, Aba.intmed | DSM 11804

Gluconacetobacter johannae [VP] Fuentes-Ramírez et al. 2001 – ATCC 700987 | CFN-Cf55, AF111841 | DSM 13595

Gluconacetobacter oboediens [VP] (Sokollek et al. 1998) Yamada 2000 <- *Acetobacter oboediens* (basonym) – LTH 2460, AJ001631, Aba.oboedi | DSM 11826

Gluconacetobacter xylinus [VP] (Brown 1886) Yamada et al. 1998 <- *Acetobacter xylinus* (basonym) – ATCC 23767 | DSM 6513 | LMG 1515, X75619 | NCIB 11664

Genus IX. Gluconobacter [AL]

Gluconobacter oxydans subspecies oxydans [AL (T)] (Henneberg 1897) De Ley 1961 – ATCC 19357 | DSM 3503, X73820, Gb.oxydans | ICMP 12533 | LMG 1408

Gluconobacter oxydans subspecies industrius [AL] (Henneberg 1898) De Ley and Frateur 1974 – LMD 24.1

Gluconobacter oxydans subspecies melanogenes [AL] (Beijerinck 1911) De Ley and Frateur 1974 – LMD 29.2

Gluconobacter oxydans subspecies sphaericus [AL] Ameyama 1975 – NBRC 12467

Gluconobacter oxydans subspecies suboxydans [AL] (Kluyver and de Leeuw 1924) De Ley and Frateur 1974 – IMET 10507 | LMD 23.2

Gluconobacter asaii [VP] Mason and Claus 1989 – ATCC 49206 | DSM 7148 | NBRC 3276, X80165, Gb.asaii

Gluconobacter cerinus [VP] Yamada and Akita 1984 – ATCC 19441 | DSM 9533 | NBRC 3267, X80775, Gb.cerinus | LMG 1368, X80775, Gb.cerinus

Gluconobacter frateurii [VP] Mason and Claus 1989 – Kondo 40 | ATCC 49207 | DSM 7146 | NBRC 3264, X82290, Gb.frateur | LMG 1365, X82290, Gb.frateur

Genus X. Kozakia [VP]

Kozakia baliensis [VP] Lisdiyanti et al. 2002 – Yo-3, AB056321 | DSM 14400 | NBRC 16664 | JCM 11301 | NRIC 0488

[71] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Genus XI. ***Muricoccus*** [VP]
Muricoccus roseus [VP (T)] Kämpfer et al. 2003 - 173/96, AJ488505 | CIP 107419 | DSM 14916
Genus XII. Paracraurococcus [VP]
Paracraurococcus ruber [VP (T)] Saito et al. 1998 - NS89, D85827 | JCM 9931
Genus XIII. Rhodopila [VP]
Rhodopila globiformis [VP (T)] (Pfennig 1974) Imhoff et al. 1984 <- *Rhodopseudomonas globiformis* (basonym) - ATCC 35887 | DSM 161, D86513, Rpl.globi2
Genus XIV. Roseococcus [VP]
Roseococcus thiosulfatophilus [VP (T)] Yurkov et al. 1994 - RB3, X72908, Rsc.thsulf | DSM 8511
Genus XV. ***Rubritepida*** [VP]
Rubritepida flocculans [VP (T)] Alarico et al. 2002 - H-8 | ATCC BAA-385 | DSM 14296, AF465832
Genus XVI. Stella [VP]
Stella humosa [VP (T)] Vasilyeva 1985 - ATCC 43930 | AUCM B-1137 | DSM 5900 | VKM B-1137
Stella vacuolata [VP] Vasilyeva 1985 - ATCC 43931 | DSM 5901 | INMI 229 | VKM B-1552
Genus XVII. ***Teichococcus*** [VP]
Teichococcus ludipueritiae [VP (T)] Kämpfer et al. 2003 - 170/96, AJ488504 | CIP 107418 | DSM 14915
Genus XVIII. Zavarzinia [VP]
Zavarzinia compransoris [VP (T)] Meyer et al. 1994 - Z-1155 | DSM 1231

Order II. *Rickettsiales* [AL] [72]
Family I. Rickettsiaceae [AL]
Genus I. Rickettsia [AL (T)]
Rickettsia prowazekii [AL (T)] da Rocha-Lima 1916 - ATCC VR 142
Rickettsia aeschlimannii [VP] Beati et al. 1997 - MC16, U74757, Ric.aeschl
Rickettsia africae [VP] Kelly et al. 1996 - Z9-Hu
Rickettsia akari [AL] Huebner et al. 1946 - MK (Kaplan), L36099, Ric.akari2 | ATCC VR 148
Rickettsia australis [AL] Philip 1950 - NIAID Phillips 32, L36101, Ric.austr3 | NIAID Phillips 32, U12459, Ric.austrl
Rickettsia bellii [VP] Philip et al. 1983 - RML 369-C, L36103, Ric.belli2
Rickettsia canadensis [AL] McKiel et al. 1967 - 2678, L36104, Ric.canad2 | ATCC VR 610
Rickettsia conorii [AL] Brumpt 1932 - NIAID Malish 7 | ATCC VR-613
Rickettsia felis [VP] Bouyer et al. 2001 [73] - Ctenocephalides felis-LSU [74]
Rickettsia helvetica [VP] Beati et al. 1993 - C3
Rickettsia honei [VP] Stenos et al. 1998 - RB, U17645, Ric.honei | ATCC VR-1472
Rickettsia japonica [VP] Uchida et al. 1992 - YH | ATCC VR-1363
Rickettsia massiliae [VP] Beati and Raoult 1993 - Mtu1, L36214, Ric.massi2
Rickettsia montanensis [VP] Weiss and Moulder 1984 - Tick | ATCC VR-611, L36215, Ric.monta2
Rickettsia parkeri [AL] Lackman et al. 1965 - NIAID maculatum 20, L36673, Ric.parker | NIAID maculatum 20, U12461, Ric.parke2
Rickettsia peacockii [VP] Niebylski et al. 1997 - Skalkaho, U55820, Ric.peacck
Rickettsia rhipicephali [VP] (ex Burgdorfer) Weiss and Moulder 1988 - Burgdorfer 3-7-wbl.6, L36216, Ric.rhicp2
Rickettsia rickettsii [AL] (Wolbach 1919) Brumpt 1922 - ATCC VR 149, L36217
†Rickettsia sennetsu [AL] Misao and Kobayashi 1956 -> *Ehrlichia sennetsu* - Miyayama, M73219 | ATCC VR 367

[72] Ludwig indicates that the *Ricketsiales* and *Ehrlichiaceae* are close together in the ARB tree.
[73] Note that the type strain is only deposited in conjuction with a patent application and is not freely unavailable, violating Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244)

[74] No reliable propagation of *R. felis* in culture and no 16S rDNA sequence reported.

Rickettsia sibirica [AL] Zdrodovskii 1948 – 246, L36218, Ric.sibiri | ATCC VR 151, D38628, Ric.sibir3

Rickettsia slovaca [VP] Sekeyov et al. 1998

†Rickettsia tsutsugamushi [AL] (Hayashi 1920) Ogata 1931 -> *Orientia tsutsugamushi* – ATCC VR 150

Rickettsia typhi [AL] (Wolbach and Todd 1920) Philip 1943 – Wilmington, L36221, Ric.typhi2 | Wilmington, M20499, Ric.typhi | Wilmington, U12463, Ric.typhi3 | ATCC VR 144

Genus II. Orientia [VP]

Orientia tsutsugamushi [VP (T)] (Hayashi 1920) Tamura et al. 1995 <- *Rickettsia tsutsugamushi* (basonym) – Karp, U17257, Ort.tsuts3 | ATCC VR 150 | Karp, D38623, Ort.tsuts6

Family II. Anaplasmataceae [AL]

Genus I. Anaplasma [AL (T)]

Anaplasma marginale [AL (T)] Theiler 1910 – no culture isolated, M60313, AF309866, AF309867, AF309868, AF309869, AF311303, Ana.margin

Anaplasma bovis [VP] (ex Donatien and Lestoquard 1936) Dumler et al. 2001 <- *Ehrlichia bovis* (basonym) [75] – no culture isolated, U03775

Anaplasma caudatum [VP] (ex Kreier and Ristic 1963) Ristic and Kreier 1984 – no culture isolated

Anaplasma centrale [VP] (ex Theiler 1911) Ristic and Kreier 1984 , AF283007, AF318944 – no culture isolated

Anaplasma ovis [AL] Lestoquard 1924 , AF309865, AF318945, NKIT36586 – no culture isolated

Anaplasma phagocytophilum [VP] (Foggie 1949) Dumler et al. 2001 <- *Ehrlichia phagocytophila* (basonym) = *Ehrlichia equi* (earlier heterotypic synonym) – Webster, U02521, M73220, M73224

Anaplasma platys [VP] Dumler et al. 2001 <- *"Ehrlichia platys"* (basonym) [76] – no culture isolated, M82801, AF156784

Genus II. Aegyptianella [AL]

Aegyptianella pullorum [AL (T)] Carpano 1929

Genus III. Cowdria [AL] [77]

†Cowdria ruminantium [AL (T)] (Cowdry 1925) Moshkovski 1947 -> *Ehrlichia ruminantium* – no culture isolated, AF069758, Cow.rumin5, U03776, Cow.rumin3, U03777, Cow.rumin4, X61659, Cow.rumina, X62432, Cow.rumin2

Genus IV. Ehrlichia [AL]

Ehrlichia canis [AL (T)] (Donatien and Lestoquard 1935) Moshkovski 1945 , AF162860, M73221, M73226, U26740

Ehrlichia chaffeensis [VP] Anderson et al. 1992 – Arkansas, M73222, AF147752, U23503, U60476, U86664, U86665, Ehr.chaffe | ATCC CRL 10679

Ehrlichia equi [VP] Lewis et al. 1988 = *Anaplasma phagocytophilum* (later heterotypic synonym) , AF036645, AF036646, AF036647, AF172164, AF172165, AF172166, AF172167, M73223

Ehrlichia ewingii [VP] Anderson et al. 1992 – Stillwater, M73227, U96436

Ehrlichia muris [VP] Wen et al. 1995 – AS145, U15527, Ehr.muris | ATCC VR-1411

†Ehrlichia phagocytophila [AL] (Foggie 1949) Philip 1962 -> *Anaplasma phagocytophilum*, M73220, M73224

†Ehrlichia risticii [VP] Holland et al. 1985 -> *Neorickettsia risticii* – Illinois, M21290, Ehr.ristic | ATCC VR-986, M21290, Ehr.ristic | HRC-IL, AF036648, AF036649, AF036650, AF036651, AF036652, AF036653, AF036654, AF036655,

[75] In the paper by Dumler et al. 2001, *Anaplasma bovis* is erroneously cited as a new combination

[76] In the paper by Dumler et al. 2001, *Anaplasma platys* is erroneously cited as a new combination. According to Rule 27(2) b, *Anaplasma platys* is illegitimate because the derivation (etymology) of the specific epithet is provided neither in the paper by Dumler et al. 2001 nor in the paper by French and Harvey 1983.

[77] Rule 37a(1) states that the name of a taxon must be changed if the nomenclatural type of the taxon is excluded.

AF036656, AF036657, AF036658, AF036659, AF037210, AF037211, AF170727, AF170729

Ehrlichia ruminantium [VP] (Cowdry 1925) Dumler et al. 2001 <- *Cowdria ruminantium* (basonym) , AF069758 - Welgevonden, X61659, Cow.rumin5, U03776, Cow.rumin3, U03777, Cow.rumin4, X61659, Cow.rumina, X62432, Cow.rumin2

†*Ehrlichia sennetsu* [VP] (Misao and Kobayashi 1956) Ristic and Huxsoll 1984 <- *Rickettsia sennetsu* (basonym) -> *Neorickettsia sennetsu* - Miyayama, M73219, Ehr.sennet | ATCC VR 367, M73225

Genus V. Neorickettsia [AL]

Neorickettsia helminthoeca [AL (T)] Philip et al. 1953 - no culture isolated, U12457, Nric.helmn

Neorickettsia risticii [VP] (Holland et al. 1985) Dumler et al. 2001 [78] <- *Ehrlichia risticii* (basonym) - HRC-IL | Illinois, M21290, Ehr.ristic | ATCC VR-986, M21290, Ehr.ristic | HRC-IL

Neorickettsia sennetsu [VP] (Misao and Kobayashi 1956) Dumler et al. 2001 <- *Ehrlichia sennetsu* (basonym) [79] - Miyayama, M73219, Ehr.sennet | Miyayama, M73225 | ATCC VR 367

Genus VI. Wolbachia [AL]

Wolbachia pipientis [AL (T)] Hertig 1936 - no culture isolated, U23709, Wlb.pipie9, X61768, Wlb.pipien, AF179630

Wolbachia melophagi [AL] (Noller 1917) Philip 1956 - no culture isolated, X89110, Wlb.melphg,

Wolbachia persica [AL] Suitor and Weiss 1961 - ATCC VR 331, M21292, Wlb.persic

Genus VII. Xenohaliotis [VP]

Candidatus "Xenohaliotis californiensis" [VP (T)] Friedman et al. 2000 AF133090

Family III. "Holosporaceae" [NP]

Genus I. Holospora [VP (T)]

Holospora undulata [VP (T)] (ex Hafkine 1890) Gromov and Ossipov 1981 - C204

Holospora caryophila [VP] (ex Hafkine 1890) Preer and Preer 1982 - ATCC 30694

Holospora elegans [VP] (ex Hafkine 1890) Preer and Preer 1982 - C101

Holospora obtusa [VP] (ex Hafkine 1890) Gromov and Ossipov 1981 - C103, X58198

Genera incertae sedis [80]

Genus I. ***Caedibacter (moved)***

Caedibacter taeniospiralis [VP (T)] (ex Preer et al. 1974) Preer and Preer 1982 - 51 | ATCC 30632

Caedibacter caryophilus [VP] Schmidt et al. 1987 - 221, X71837, Cae.caryph | ATCC 50168

Caedibacter paraconjugatus [VP] Quackenbush 1982 - 570 | ATCC 30638

Caedibacter pseudomutans [VP] Quackenbush 1982 - 51 ml | ATCC 30633

Caedibacter varicaedens [VP] Quackenbush 1982 - 7 | ATCC 30637

Genus II. ***Lyticum*** [VP] ***(moved)***

Lyticum flagellatum [VP (T)] Preer and Preer 1982 - 299 | ATCC 30700

Lyticum sinuosum [VP] Preer and Preer 1982 - 114 | ATCC 30696

Genus III. ***Odyssella*** [VP] ***(moved)***

Candidatus "Odyssella thessalonicensis" [VP (T)] Birtles et al. 2000 AF069496

Genus IV. ***Polynucleobacter*** [VP] ***(moved)***

Polynucleobacter necessarius [VP (T)] Heckmann and Schmidt 1987 - ATCC 30859, X93019, Pnb.neces2

Genus V. ***Pseudocaedibacter*** [VP] ***(moved)***

[78] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[79] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[80] Goertz and Schmidt raise questions regarding the composition of the family *Holosporaceae*. These are all endosymbionst of protists and few if any have been sequenced. With the exception of *Holospora*, all should be listed as *incertae sedis*

Pseudocaedibacter conjugatus VP (T) Quackenbush 1982 - 540 | ATCC 30796
Pseudocaedibacter falsus VP Quackenbush 1982 - 1010 | ATCC 30640
Pseudocaedibacter minutus VP Quackenbush 1982 - 214 | ATCC 30699

Genus VI. ***Symbiotes*** AL ***(moved)***[81]
Symbiotes lectularius AL (T) (Arkwright et al. 1921) Philip 1956

Genus VII. ***Tectibacter*** VP ***(moved)***
Tectibacter vulgaris VP (T) Preer and Preer 1982 - 225 | ATCC 30697

Order III. *"Rhodobacterales"* NP
Family I. "Rhodobacteraceae" NP [82]
Genus I. Rhodobacter VP (T)[83]
Rhodobacter capsulatus VP (T) (Molisch 1907) Imhoff et al. 1984 <- *Rhodopseudomonas capsulata* (basonym) - ATCC 11166, D13474, Rb.capsul3 | ATCC 11166, D16428, Rb.capsul4 | ATCC 17015 | DSM 1710 | NCIB 8254 | NCIB 8286
†Rhodobacter adriaticus VP (Neutzling et al. 1984) Imhoff et al. 1984 <- *Rhodopseudomonas adriatica* (basonym) -> *Rhodovulum adriaticum* - BN 721(6II) | ATCC 35885, D13476 | DSM 2781, D16418, Rhv.adriat
Rhodobacter azotoformans VP Hiraishi et al. 1997 - KA25, D70846, Rb.azofrmn | JCM 9340
Rhodobacter blasticus VP (Eckersley and Dow 1981) Kawasaki et al. 1994 <- *Rhodopseudomonas blastica* (basonym) - ATCC 33485, D16429, Rb.blastic | DSM 2131 | NCIMB 11576, D13478, Rb.blasti2
†Rhodobacter euryhalinus VP Kompantseva 1989 -> *Rhodovulum euryhalinum* - KA-65 | DSM 4868, D13479, Rhv.euryh2 | DSM 4868, D16426, Rhv.euryhl
Rhodobacter sphaeroides VP (van Niel 1944) Imhoff et al. 1984 <- *Rhodopseudomonas sphaeroides* (basonym) - ATH 2.4.1, X53853, Rb.sphrrnA | ATH 2.4.1, X53854, Rb.sphrrnB | ATH 2.4.1, X53855, Rb.sphrrnC | ATCC 17023 | DSM 158 | NCIB 8253
†Rhodobacter sulfidophilus VP (Hansen and Veldkamp 1973) Imhoff et al. 1984 <- *Rhodopseudomonas sulfidophila* (basonym) -> *Rhodovulum sulfidophilum* - DSM 1374, D16423, Rhv.sulfid
Rhodobacter veldkampii VP Hansen and Imhoff 1985 - Hansen 51 | ATCC 35703, D13477, Rb.veldka2 | ATCC 35703, D16421, Rb.veldkam

Genus II. Ahrensia VP
Ahrensia kielensis VP (T) (ex Ahrens 1968) Uchino et al. 1999 - IAM 12618, D88524, Ah.kielien

Genus III. ***Albidovulum*** VP
Albidovulum inexpectatum VP (T) Albuquerque et al. 2003 - FRR-10, AF465833 | ATCC BAA-387 | DSM 12048

Genus IV. Amaricoccus VP
Amaricoccus kaplicensis VP (T) Maszenan et al. 1997 - Ben 101, U88041, Amr.kaplic | ACM 5099
Amaricoccus macauensis VP Maszenan et al. 1997 - Ben 104, U88042, Amr.macaue | ACM 5096
Amaricoccus tamworthensis VP Maszenan et al. 1997 - Ben 103, U88044, Amr.tamwor | ACM 5097
Amaricoccus veronensis VP Maszenan et al. 1997 - Ben 102, U88043, Amr.verone | ACM 5098

Genus V. Antarctobacter VP
Antarctobacter heliothermus VP (T) Labrenz et al. 1998 - EL-219, Y11552, Anb.helthr | DSM 11440

Genus VI. Gemmobacter VP
Gemmobacter aquatilis VP (T) Rothe et al. 1988 - ATCC 49971 | DSM 3857 | IFAM 1031

Genus VII. Hirschia VP

[81] Placement of *Symbiotes* is problematic as this species is an obligate symbiont and members of this species have not yet been cultivated. Furthermore, there has been no work on this genus since the early 1970s.
[82] The family *Rhodobacteraceae* is supported in the ARB tree.
[83] Member of the alpha-3 subgroup *sensu* Imhoff.

Hirschia baltica [VP (T)] Schlesner et al. 1990 - ATCC 49814 | DSM 5838 | IFAM 1418, X52909, Hir.baltic

Genus VIII. Hyphomonas [VP] [84]

Hyphomonas polymorpha [VP (T)] Moore et al. 1984 - PS728 | ATCC 33881 | DSM 2665, AJ227813 | IAM 14246 | IFAM PS728

Hyphomonas adhaerens [VP] Weiner et al. 2000 - MHS-3, AF082790 | ATCC 43965

Hyphomonas hirschiana [VP] Weiner et al. 1985 - VP5, AF082794, Hym.hirsch | ATCC 33886 | DSM 5152

Hyphomonas jannaschiana [VP] Weiner et al. 1985 - VP2, AF082789, Hym.janna2 | ATCC 33883, AJ227814 | DSM 5153

Hyphomonas johnsonii [VP] Weiner et al. 2000 - MHS-2, AF082791 | ATCC 43964

Hyphomonas neptunium [VP] (Leifson 1964) Moore et al. 1984 <- *Hyphomicrobium neptunium* (basonym) - LE670, AF082798, Hym.neptun | ATCC 15444 | DSM 5154 | IFAM LE670, AF082798, Hym.neptun

Hyphomonas oceanitis [VP] Weiner et al. 1985 - SCH89, AF082797, Hym.oceani | ATCC 33879 | DSM 5155 | IFAM 1325

Hyphomonas rosenbergii [VP] Weiner et al. 2000 - VP6, AF082795 | ATCC 43869

Genus IX. ***Jannaschia*** [VP]

Jannaschia helgolandensis [VP (T)] Wagner-Döbler et al. 2003 - Hel 10, AJ438157 | DSM 14858 | NCIMB 13941

Genus X. Ketogulonicigenium [VP]

Ketogulonicigenium vulgare [VP (T)] Urbance et al. 2001 [85] - DSM 4025

Ketogulonicigenium robustum [VP] Urbance et al. 2001 - X6L | KCTC 0858BP | NRRL B-21627

Genus XI. Leisingera [VP]

Leisingera methylohalidivorans [VP (T)] Schaefer et al. 2002 - MB2, AY005463 | ATCC BAA-92 | DSM 14336

Genus XII. Maricaulis [VP]

Maricaulis maris [VP (T)] (Poindexter 1964) Abraham et al. 1999 <- *Caulobacter maris* (basonym) = *Caulobacter halobacteroides* (heterotypic synonym) - CM 11 | ATCC 15268, AJ007807, Cau.maris1

Maricaulis parjimensis [VP] Abraham et al. 2002 - MCS 25, AJ227808 | CIP 107440 | LMG 19863

Maricaulis salignorans [VP] Abraham et al. 2002 - MCS 18, AJ227806 | CIP 107439 | LMG 19864

Maricaulis virginensis [VP] Abraham et al. 2002 - VC-5, AJ301667 | CIP 107438 | LMG 21018 | VKM B-1513

Maricaulis washingtonensis [VP] Abraham et al. 2002 - MCS 6, AJ227804 | CIP 107441 | LMG 19865

Genus XIII. Methylarcula [VP]

Methylarcula marina [VP (T)] Doronina et al. 2000 - h1, AF030436 | VKM B-2159, AF030436

Methylarcula terricola [VP] Doronina et al. 2000 - h37, AF030437 | VKM B-2160, AF030437

Genus XIV. Octadecabacter [VP]

Octadecabacter arcticus [VP (T)] Gosink et al. 1998 - 238, U73725, Oct.arctic

Octadecabacter antarcticus [VP] Gosink et al. 1998 - 307, U14583, Oct.antarc

Genus XV. ***Pannonibacter*** [VP]

Pannonibacter phragmitetus [VP (T)] Borsodi et al. 2003 - C6/19, AJ400704 | DSM 14782 | NCAIM B02025

Genus XVI. Paracoccus [VP] [86]

[84] Member of the alpha-3 subgroup *sensu* Imhoff.

[85] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[86] Member of the alpha-3 subgroup *sensu* Imhoff.

Paracoccus denitrificans [AL (T)] (Beijerinck and Minkman 1910) Davis 1969 emend. Rainey et al. 1999 - ATCC 17741 | ATCC 17741, Y16927, Par.denit3 | DSM 65 | DSM 65, Y16935, Par.pnttr2 | IAM 12479, D13480, Par.denit2 | ICPB 3979 | IMET 10380 | LMD 22.21, Y16928, Par.denit4 | LMG 4218, X69159, Par.denitr | NCIB 11627

Paracoccus alcaliphilus [VP] Urakami et al. 1989 - TK 1015 | Urakami 0-100 | ATCC 51199 | DSM 8512 | JCM 7364, D32238, Par.alcalp | NCIMB 13180

Paracoccus alkenifer [VP] Lipski et al. 1998 - A901/1, Y13827, Par.alkenf | DSM 11593

Paracoccus aminophilus [VP] Urakami et al. 1990 - DM-15 | ATCC 49673 | DSM 8538 | IAM 14245 | JCM 7686, D32239, Par.amphil

Paracoccus aminovorans [VP] Urakami et al. 1990 - DM-82 | ATCC 49632 | DSM 8537 | IAM 14244 | JCM 7685, D32240, Par.amvora

Paracoccus carotinifaciens [VP] Tsubokura et al. 1999 - E-396, AB006899 | NBRC 16121

†*Paracoccus halodenitrificans* [AL] Robinson and Gibbons 1952) Davis 1969 -> *Halomonas halodenitrificans* - ATCC 13511, L04942, Hlm.halden | CCM 286 | DSM 735 | NCMB 700

Paracoccus kocurii [VP] Ohara et al. 1990 - B | ATCC 49631 | CCM 4333 | DSM 8536 | IAM 14243 | JCM 7684, D32241, Par.kocuri

Paracoccus kondratievae [VP] Doronina and Trotsenko 2001 [87] - GB, AF250332 | VKM B-2222

Paracoccus marcusii [VP] Harker et al. 1998 - MH1 | DSM 11574

Paracoccus methylutens [VP] Doronina et al. 1998 - DM12 | VKM B-2164

Paracoccus pantotrophus [VP] (Robertson and Kuenen 1984) Rainey et al. 1999 <- *Thiosphaera pantotropha* (basonym) - GB 17 | ATCC 35512, Y16933, Par.pnttro | DSM 2944 | LMD 82.5

Paracoccus seriniphilus [VP] Pukall et al. 2003 - MBT-A4, AJ428275 | CIP 107400 | DSM 14827

Paracoccus solventivorans [VP] Siller et al. 1996 emend. Lipski et al. 1998 - L1 | DSM 6637, Y07705, Par.solven

Paracoccus thiocyanatus [VP] Katayama et al. 1996 - THI 011, D32242, Par.thcyan | IAM 12816 | NBRC 14569

Paracoccus versutus [VP] (Harrison 1983) Katayama et al. 1996 <- *Thiobacillus versutus* (basonym) - A2 | ATCC 25364 | ATCC 25364, Y16932, Par.versu4 | CCM 2505 | DSM 582 | IAM 12814, D32243, Par.versu2

Paracoccus yeei [VP] Daneshvar et al. 2003 - ATCC BAA-599 | CCUG 46822 | CDC G1212, AY014173

Paracoccus zeaxanthinifaciens [VP] Berry et al. 2003 - ATCC 21588, AF461158 | LMG 21293 | R-1512

Genus XVII. ***Pseudorhodobacter*** [VP]

Pseudorhodobacter ferrugineus [VP (T)] (Rüger and Höfle 1992) Uchino et al. 2003 <- *Agrobacterium ferrugineum* (basonym) - ATCC 25652 | IAM 12616, D88522

Genus XVIII. Rhodobaca [VP]

Rhodobaca bogoriensis [VP (T)] Milford et al. 2001 [88] - LBB1, AF248638 | ATCC 700920

Genus XIX. Rhodothalassium [VP] [89]

Rhodothalassium salexigens [VP (T)] (Drews 1982) Imhoff et al. 1998 <- *Rhodospirillum salexigens* (basonym) - WS 68 | ATCC 35888, D14431, Rt.salexi2 | DSM 2132, M59070, Rt.salexig

Genus XX. Rhodovulum [VP] [90]

[87] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[88] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[89] Member of the alpha-3 subgroup *sensu* Imhoff. However, Imhoff notes that the branching is quite deep and placement somewhat uncertain. BLAST, RDP and heatmap analysis suggest otherwise.

[90] Member of the alpha-3 subgroup *sensu* Imhoff.

Rhodovulum sulfidophilum VP (T) (Hansen and Veldkamp 1973) Hiraishi and Ueda 1994 <- *Rhodobacter sulfidophilus* (basonym) - Hansen W4, D13475, Rhv.sulfi2 | ATCC 35886 | DSM 1374, D16423, Rhv.sulfid

Rhodovulum adriaticum VP (Neutzling et al. 1984) Hiraishi and Ueda 1994 <- *Rhodobacter adriatica* (basonym) - Imhoff 6II | ATCC 35885, D13476, Rhv.adria2 | BN 721 (6II) | DSM 2781, D16418, Rhv.adriat

Rhodovulum euryhalinum VP (Kompantseva 1989) Hiraishi and Ueda 1994 <- *Rhodobacter euryhalinus* (basonym) - KA-65 | DSM 4868, D13479, Rhv.euryh2 | DSM 4868, D16426, Rhv.euryhl

Rhodovulum iodosum VP Straub et al. 1999 - N1, Y15011, Rhv.iodosm | DSM 12328

Rhodovulum robiginosum VP Straub et al. 1999 - N2, Y15012, Rhv.robign | DSM 12329

Rhodovulum strictum VP Hiraishi and Ueda 1995 - MB-G2, D16419, Rhv.strict | ATCC 51905 | DSM 11289 | JCM 9220

Genus XXI. Roseibium VP

Roseibium denhamense VP (T) Suzuki et al. 2000 - OCh 254, D85832 | ATCC BAA-251 | CIP 107047 | JCM 10543

Roseibium hamelinense VP Suzuki et al. 2000 - OCh 368, D85836 | ATCC BAA-252 | CIP 107048 | JCM 10544

Genus XXII. Roseinatronobacter VP

Roseinatronobacter thiooxidans VP (T) Sorokin et al. 2000 - ALG 1, AF249749 | DSM 13087

Genus XXIII. Roseivivax VP

Roseivivax halodurans VP (T) Suzuki et al. 1999 - OCh 239, D85829 | JCM 10272

Roseivivax halotolerans VP Suzuki et al. 1999 - OCh 210, D85831 | JCM 10271

Genus XXIV. Roseobacter VP [91]

Roseobacter litoralis VP (T) Shiba 1991 - Och 149 | ATCC 49566, X78312, Ros.litora | DSM 6996

†*Roseobacter algicola* VP Lafay et al. 1995 -> *Ruegeria algicola* - FF3 | ATCC 51440, X78315, Rg.algicoo | DSM 10251

Roseobacter denitrificans VP Shiba 1991 - Och 114, L01784, Ros.denit3 | Och 114, M96746, Ros.denit2 | ATCC 33942 | DSM 7001

Roseobacter gallaeciensis VP Ruiz-Ponte et al. 1998 - BS107, Y13244, Ros.gallci | CIP 105210 | DSM 12440

Genus XXV. Roseovarius VP

Roseovarius tolerans VP (T) Labrenz et al. 1999 - EL-172, Y11551, Rv.toleran | DSM 11457

Genus XXVI. Rubrimonas VP

Rubrimonas cliftonensis VP (T) Suzuki et al. 1999 - OCh 317 | JCM 10189

Genus XXVII. Ruegeria VP

Ruegeria atlantica VP (T) (Rüger and Höfle 1992) Uchino et al. 1999 <- *Agrobacterium atlanticum* (basonym) - 1480 | DSM 5823 | IAM 14463, D88526, Rg.atlanti

Ruegeria algicola VP (Lafay et al. 1995) Uchino et al. 1999 <- *Roseobacter algicola* (basonym) - FF3 | ATCC 51440, X78315 | DSM 10251 | IAM 14591

Ruegeria gelatinovorans VP (Rüger and Höfle 1992) Uchino et al. 1999 <- *Agrobacterium gelatinovorum* (basonym) - B6 | ATCC 25655 | DSM 5887 | IAM 12617, D88523, Rg.gelatin

Genus XXVIII. Sagittula VP

Sagittula stellata VP (T) Gonzalez et al. 1997 - E-37, U58356, Sag.stllat | ATCC 700073 | DSM 11524

Genus XXIX. Staleya VP

Staleya guttiformis VP (T) Labrenz et al. 2000 - EL-38, Y16427 | DSM 11458

Genus XXX. Stappia VP

Stappia stellulata VP (T) (Rüger and Höfle 1992) Uchino et al. 1999 <- *Agrobacterium stellulatum* (basonym) - ATCC 15215 | DSM 5886 | IAM 12621, D88525, Sta.stellu

[91] Member of the alpha-3 subgroup *sensu* Imhoff.

Stappia aggregata VP (ex Ahrens 1968) Uchino et al. 1999 - IAM 12614

Genus XXXI. Sulfitobacter VP

Sulfitobacter pontiacus VP (T) Sorokin 1996 - ChLG 10, Y13155, Sft.pntiac | DSM 10014 | LMD 95.85 | VKM B-2022

Sulfitobacter brevis VP Labrenz et al. 2000 - EL-162, Y16425 | DSM 11443

Sulfitobacter mediterraneus VP Pukall et al. 1999 - CH-B427, Y17387, Sft.medter | DSM 12244

Order IV. *"Sphingomonadales"* NP

Family I. Sphingomonadaceae VP

Genus I. Sphingomonas VP (T)

Sphingomonas paucimobilis VP (T) (Holmes et al. 1977) Yabuuchi et al. 1990 <- *Pseudomonas paucimobilis* (basonym) - ATCC 29837, U20776, Spg.pauci6 | ATCC 29837, U37337, Spg.pauci8 | DSM 1098, X72722, Spg.paucim | GIFU 2395, D16144, Spg.pauci3 | JCM 7516 | LMG 1227 | NCPPB 3838 | NCTC 11030

Sphingomonas adhaesiva VP Yabuuchi et al. 1990 - Op-55 | ATCC 51229 | DSM 7418 | GIFU 11458, D16146, Spg.adhae2 | IAM 14270 | JCM 7370, X72720, Spg.adhaes

†*Sphingomonas alaskensis* VP Vancanneyt et al. 2001 -> *Sphingopyxis alaskensis* - RB2256, AF145754 | DSM 13593 | LMG 18877

Sphingomonas aquatilis VP Lee et al. 2001 [92] - JSS7, AF131295 | KCCM 41067 | KCTC 2881

†*Sphingomonas aromaticivorans* VP Balkwill et al. 1997 -> *Novosphingobium aromaticivorans* - F199 | DSM 12444 | SMCC F199, U20756, Spg.spF199

Sphingomonas asaccharolytica VP Takeuchi et al. 1995 - Y-345 | DSM 10564 | NBRC 15499

†*Sphingomonas capsulata* VP (Leifson 1962) Yabuuchi et al. 1990 <- *Flavobacterium capsulatum* (basonym) -> *Novosphingobium capsulatum* - ATCC 14666 | DSM 30196 | GIFU 11526, D16147, Spg.capsu2 | IAM 14271 | NBRC 12533 | JCM 7508 | LMG 2830 | NCIB 9890

†*Sphingomonas chlorophenolica* VP Nohynek et al. 1996 -> *Sphingobium chlorophenolicum* - ATCC 33790, U60171, Spg.chlor3 | ATCC 33790, X87161, Spg.chloro | DSM 7098

Sphingomonas cloacae VP Fujii et al. 2001 [93] - S-3, AB040739 | IAM 14885 | JCM 10874

Sphingomonas chungbukensis VP Kim et al. 2000 - DJ77, AF159257 | KCTC 2955 | IMSNU 11152

Sphingomonas echinoides VP (Heumann 1962) Denner et al. 1999 <- *Pseudomonas echinoides* (basonym) - ATCC 14820, AB021370 | DSM 1805, AJ012461 | DSM 50409 | ICPB 2835 | NCIB 9420

†*Sphingomonas herbicidovorans* VP Zipper et al. 1997 -> *Sphingobium herbicidovorans* - MH | DSM 11019

Sphingomonas koreensis VP Lee et al. 2001 [94] - JSS26, AF131296 | KCCM 41069 | KCTC 2882

†*Sphingomonas macrogoltabidus* VP Takeuchi et al. 1993 -> *Sphingopyxis macrogoltabida* - 203 | ATCC 51380 | DSM 8826 | NBRC 15033, D13723, Spg.macgol

Sphingomonas mali VP Takeuchi et al. 1995 - Y-351 | DSM 10565 | NBRC 15500, Y09638, Spg.mali2

Sphingomonas melonis VP Buonaurio et al. 2002 - DAPP-PG 224, AB055863 | DSM 14444 | LMG 19484

[92] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[93] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[94] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Sphingomonas natatoria [VP] (Sly 1985) Yabuuchi et al. 1999 <- *Blastomonas natatoria* (basonym) - ACM 2507 | ATCC 35951 | DSM 3183, Y13774 | JCM 10396 | NCIMB 12085[95]

Sphingomonas parapaucimobilis [VP] Yabuuchi et al. 1990 - OH 3807 | ATCC 51231 | DSM 7463 | GIFU 11387 | IAM 14268 | JCM 7510, X72721, Spg.ppauci | LMG 10923

Sphingomonas pituitosa [VP] Denner et al. 2001 - EDIV, AJ243751 | CIP 106154 | DSM 13101

Sphingomonas pruni [VP] Takeuchi et al. 1995 - Y-250 | DSM 10566 | NBRC 15498, D28568, Spg.pruni | NBRC 15498, Y09637, Spg.pruni2

Sphingomonas rosa [VP] Takeuchi et al. 1995 -> *Novosphingobium rosa* - DSM 7285 | IAM 14222, D13945, Spg.rosa | NBRC 15208, D13945, Spg.rosa | NCPPB 2661

Sphingomonas roseiflava [VP] Yun et al. 2000 - MK341, D84520 | IAM 14823

Sphingomonas sanguinis [VP] Takeuchi et al. 1993 - GIFU 2397 | NBRC 13937, D13726, Spg.sangui

†*Sphingomonas stygia* [VP] Balkwill et al. 1997 -> *Novosphingobium stygium* - B0712 | DSM 12445 | SMCC B0712, Spg.spB712

†*Sphingomonas subarctica* [VP] Nohynek et al. 1996 -> *Novosphingobium subarcticum* - KF1, X94102, Spg.subarc | DSM 10700 | HAMBI 2110

Sphingomonas suberifaciens [VP] (van Bruggen et al. 1990) Yabuuchi et al. 1999 <- *Rhizomonas suberifaciens* (basonym) - CA1 | ATCC 49355 | DSM 7465 | ICMP 12535 | LMG 11026 | NCPPB 3629

†*Sphingomonas subterranea* [VP] Balkwill et al. 1997 -> *Novosphingobium subterraneum* - B0478, U20773, Spg.spB478 | DSM 12447 | SMCC B0478, U20773, Spg.spB478

Sphingomonas taejonensis [VP] Lee et al. 2001 [96] - JSS54, AF131297 | KCCM 41068 | KCTC 2884

†*Sphingomonas terrae* [VP] Takeuchi et al. 1993 -> *Sphingopyxis terrae* - E-1-A | ATCC 51381 | DSM 8831 | NBRC 15098, D13727, Spg.terrae

Sphingomonas trueperi [VP] Kämpfer et al. 1997 - ATCC 12417 | DSM 7225 | LMG 2141 | LMG 2142, X97776, Spg.truepr | NCIMB 9391

Sphingomonas ursincola [VP] (Yurkov et al. 1997) Yabuuchi et al. 1999 <- *Erythromonas ursincola* (basonym) - KR-99, Y10677 | DSM 9006 | JCM 10397[97]

Sphingomonas wittichii [VP] Yabuuchi et al. 2001 - EY 4224 | RW1, AB021492 | DSM 6014, AB021492 | JCM 10273 | SMUM 2128

Sphingomonas xenophaga [VP] Stolz et al. 2000 - BN6, X94098 | DSM 6383

†*Sphingomonas yanoikuyae* [VP] Yabuuchi et al. 1990 -> *Sphingobium yanoikuyae* - ATCC 51230 | DSM 7462 | GIFU 9882, D16145, Spg.yanoi2 | IAM 14269 | JCM 7371, X72725, Spg.yanoi4 | LMG 11252

Genus II. Blastomonas [VP] [98]

†*Blastomonas natatoria* [VP (T)] (Sly 1985) Sly and Cahill 1997 <- *Blastobacter natatorius* (basonym) -> *Sphingomonas natatoria* - ACM 2507 | ATCC 35951 | DSM 3183, Y13774, Bla.natato | NCIMB 12085 | UQM 2507

Blastomonas ursincola [VP] (Yurkov et al. 1997) Hiraishi et al. 2000 <- *Erythromonas ursincola* (basonym) - KR-99 | DSM 9006, AB024289

Genus III. Erythrobacter [VP]

Erythrobacter longus [VP (T)] Shiba and Simidu 1982 - OCh101, L01786, Erb.longu4 | OCh101, M59062, Erb.longus | OCh101, M96744, Erb.longu3 | ATCC 33941 | DSM 6997 | IAM 14242 | NBRC 14126 | JCM 6170, D12699, Erb.longu5

[95] *Blastomonas natatoria* was transferred to *Sphingomonas* as *Sphingomonas natatoria*. Subsequently, Hiraishi et al. (2000) have proposed that the genus *Blastomonas* and the species *Blastomonas natatoria* be retained.

[96] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[97] There are competing proposals regarding this species. Yabuuchi et al. have proposed that *Erythromonas ursincola* be transferred to *Sphingomonas* as *Sphingomonas ursincola*. Subsequently, Hiraishi et al. have proposed that *Erythromonas ursincola* be transferred to *Blastomonas* as *Blastomonas ursincola*.

[98] There are competing proposals regarding this genus. Yabuuchi et al. have combined *Erythromonas* and *Blastomonas* with *Sphingomonas*. Hiraishi et al. have proposed that *Erythromonas* be combined with *Blastomonas* and the latter be retained.

Erythrobacter citreus VP Denner et al. 2002 - RE35F/1, AF118020 | CIP 107092 | DSM 14432

Erythrobacter flavus VP Yoon et al. 2003 - SW-46, AF500004 | JCM 11808 | KCCM 41642

Erythrobacter litoralis VP Yurkov et al. 1994 - T4, X72962, Erb.litorl | DSM 8509, AB013354, Erb.litor2 | IAM 14332

Genus IV. Erythromicrobium VP

Erythromicrobium ramosum VP (T) Yurkov et al. 1994 - E5, X72909, Erm.ramosu | DSM 8510, AB013355, Erm.ramos2 | IAM 14332 | NCIMB 13404

Genus V. Erythromonas VP

†Erythromonas ursincola VP (T) Yurkov et al. 1997 -> *Sphingomonas ursincola* - KR-99, Y10677, Ery.ursinc | DSM 9006

Genus VI. Novosphingobium VP

Novosphingobium capsulatum VP (T) (Leifson 1962) Takeuchi et al. 2001 [99] <- *Sphingomonas capsulata* (basonym) - ATCC 14666 | DSM 30196 | GIFU 11526, D16147, Spg.capsu2 | IAM 14271 | NBRC 12533 | JCM 7508 | LMG 2830 | NCIB 9890

Novosphingobium aromaticivorans VP (Balkwill et al. 1997) Takeuchi et al. 2001 [100] <- *Sphingomonas aromaticivorans* (basonym) - F199 | DSM 12444 | SMCC F199, U20756, Spg.spF199

Novosphingobium hassiacum VP Kämpfer et al. 2002 - W-51, AJ416411 | CIP 107176 | DSM 14552

Novosphingobium rosa VP (Takeuchi et al. 1995) Takeuchi et al. 2001 [101] <- *Sphingomonas rosa* (basonym) - DSM 7285 | IAM 14222, D13945, Spg.rosa | NBRC 15208, D13945, Spg.rosa | NCPPB 2661

Novosphingobium stygium VP (Balkwill et al. 1997) Takeuchi et al. 2001 [102] <- *Sphingomonas stygia* (basonym) - B0712 | DSM 12445 | SMCC B0712, U20775, Spg.spB712

Novosphingobium subarcticum VP (Nohynek et al. 1996) Takeuchi et al. 2001 [103] <- *Sphingomonas subarctica* (basonym) - KF1, X94102, Spg.subarc | DSM 10700 | HAMBI 2110

Novosphingobium subterraneum VP (Balkwill et al. 1997) Takeuchi et al. 2001 [104] <- *Sphingomonas subterranea* (basonym) - B0478, U20773, Spg.spB478 | DSM 12447 | SMCC B0478, U20773, Spg.spB478

Novosphingobium tardaugens VP Fujii et al. 2003 - ARI-1, AB070237 | ATCC BAA-531 | NBRC 16725 | JCM 11434

Genus VII. Porphyrobacter VP

Porphyrobacter neustonensis VP (T) Fuerst et al. 1993 - ACM 2844, L01785, Ppb.neust2 | ACM 2844, M96745, Ppb.neusto | DSM 9434

Porphyrobacter cryptus VP da Costa et al. 2003 - ALC-2, AF465834 | DSM 12079

Porphyrobacter sanguineus VP Hiraishi et al. 2002 - A91 | ATCC 25659 | IAM 12620, AB021493

Porphyrobacter tepidarius VP Hanada et al. 1997 - OT3, D84429, Ppb.tepida | DSM 10594

[99] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[100] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[101] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[102] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[103] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[104] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Genus VIII. Rhizomonas VP [105]

†*Rhizomonas suberifaciens*(T) van Bruggen et al. 1990 *nom. rej.* -> *Sphingomonas suberifaciens* - CA1 | ATCC 49355 | DSM 7465 | ICMP 12535 | LMG 11026 | NCPPB 3629

Genus IX. Sandaracinobacter VP

Sandaracinobacter sibiricus VP (T) Yurkov et al. 1997 - RB16-17, Y10678, San.sibiri

Genus X. Sphingobium VP

Sphingobium yanoikuyae VP (T) (Yabuuchi et al. 1990) Takeuchi et al. 2001 [106] <- *Sphingomonas yanoikuyae* (basonym) - ATCC 51230 | DSM 7462 | GIFU 9882, D16145, Spg.yanoi2 | IAM 14269 | NBRC 15102, D13728 | JCM 7371, X72725, Spg.yanoi4 | LMG 11252

Sphingobium chlorophenolicum VP (Nohynek et al. 1996) Takeuchi et al. 2001 [107] <- *Sphingomonas chlorophenolica* (basonym) - ATCC 33790, U60171, Spg.chlor3 | ATCC 33790, X87161, Spg.chloro | DSM 7098 | NBRC 1672

Sphingobium herbicidovorans VP (Zipper et al. 1997) Takeuchi et al. 2001 [108] <- *Sphingomonas herbicidovorans* (basonym) - MH | DSM 11019 | NBRC 16415, AB042233

Genus XI. Sphingopyxis VP

Sphingopyxis macrogoltabida VP (T) (Takeuchi et al. 1993) Takeuchi et al. 2001 [109] <- *Sphingomonas macrogoltabidus* (basonym) - 203 | ATCC 51380 | DSM 8826 | NBRC 15033, D12640, D13723, Spg.macgol

Sphingopyxis alaskensis VP (Vancanneyt et al. 2001) Godoy et al. 2003 <- *Sphingomonas alaskensis* (basonym) - S37, AF367204 | DSM 13593 | LMG 18877 | RB2256

Sphingopyxis chilensis VP Godoy et al. 2003 - S37, AF367204 | DSM 14889 | LMG 20986

Sphingopyxis terrae VP (Takeuchi et al. 1993) Takeuchi et al. 2001 [110] <- *Sphingomonas terrae* (basonym) - E-1-A | ATCC 51381 | DSM 8831 | NBRC 15098, D13727, Spg.terrae

Sphingopyxis witflariensis VP Kämpfer et al. 2002 - W-50, AJ416410 | CIP 107174 | DSM 14551

Genus XII. Zymomonas AL

Zymomonas mobilis subspecies mobilis AL (T) (Lindner 1928) De Ley and Swings 1976 - ATCC 10988 | DSM 424 | NCIB 8938 | NRRL B-806

Zymomonas mobilis subspecies pomaceae AL (Millis 1956) De Ley and Swings 1976 - ATCC 29192 | NCIB 11200

Order V. *Caulobacterales* AL [111]

Family I. Caulobacteraceae AL

Genus I. Caulobacter AL (T)

Caulobacter vibrioides AL (T) Henrici and Johnson 1935 = *Caulobacter crescentus* (later heterotypic synonym) - Stove CB51 | VKM B-1496, AJ009957

†*Caulobacter bacteroides* AL Poindexter 1964 -> *Brevundimonas bacteroides* - CB 7, M83796, Cau.bacter | ATCC 15254, AB008513, Cau.bacte2 | DSM 4726 | LMG 15096, AJ227782

†*Caulobacter crescentus* AL Poindexter 1964 = *Caulobacter vibrioides* (earlier heterotypic synonym) - CB 2, M83799, Cau.cres4 | ATCC 15252, AJ227756 | DSM 4727

[105] **WARNING** — The names *Rhizomonas* and *Rhizomonas suberifcaiens* are rejected and illegitimate and should not be used.

[106] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[107] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[108] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[109] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[110] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[111] Ludwig recognizes the group but indicates that it cannot be reliably resolved in the ARB tree.

Caulobacter fusiformis [AL] Poindexter 1964 - CB 27 | ACM 5108, AJ007803, Cau.fusfo2 | ATCC 15257, AB008533, Cau.fusfor | ATCC 15257, AJ007803, Cau.fusfo2 | ATCC 15257, AJ227759, Cau.fusfo3 | DSM 4728

†*Caulobacter halobacteroides* [AL] Poindexter 1964 = *Maricaulis maris* (heterotypic synonym) - CM 13 | ATCC 15269, AJ227803 | ATCC 15269, AJ007804, Cau.halbac | DSM 4729

Caulobacter henricii [AL] Poindexter 1964 - CB4 | ACM 5105, AJ007805, Cau.henri2 | ATCC 15253, AB008532, Cau.henric | ATCC 15253, AJ007805, Cau.henri2 | ATCC 15253, AJ227758, Cau.henri3 | DSM 4730

†*Caulobacter intermedius* [AL] Poindexter 1964 -> *Brevundimonas intermedia* - CB63 | ACM 2608, AJ007802, Cau.interm | ATCC 15262, AJ007802, Cau.interm | ATCC 15262, AB023784, Cau.inter2 | DSM 4732 | MBIC2712, AB023784, Cau.inter2

Caulobacter leidyi [AL] Poindexter 1964 - CB 37 | ATCC 15260 | ATCC 15260, AJ007806, Cau.leidy3 | ATCC 15260, AJ227812, Cau.leidy2 | ATCC 15260, AB008391, Cau.leidy1 | DSM 4733

†*Caulobacter maris* [AL] Poindexter 1964 -> *Maricaulis maris* - CM 11 | ATCC 15268, AJ007807, Cau.maris1 | DSM 4734

Caulobacter segnis [VP] (Urakami et al. 1990) Abraham et al. 1999 <- *Mycoplana segnis* (basonym) - ATCC 21756 | DSM 7131 | NBRC 13240, D13947, Myp.segnis | TK0059

†*Caulobacter subvibrioides* [AL] Poindexter 1964 -> *Brevundimonas subvibrioides* - CB 81 | ATCC 15264, AB008392, Cau.subvi3 | ATCC 15264, X94470, Cau.subvi2 | DSM 4735

†*Caulobacter variabilis* [VP] (ex Poindexter 1964) Poindexter 1989 -> *Brevundimonas variabilis* - CB17 | ACM 5107, AJ007808, Cau.variab | ATCC 15255, AJ007808, Cau.variab | DSM 4737

Genus II. Asticcacaulis [AL]

Asticcacaulis excentricus [AL (T)] Poindexter 1964 - CB 48 | ACM 1263, AJ007800, Asc.excen2 | ATCC 15261, AB016610, Asc.excent | ATCC 15261, AJ007800, Asc.excen2 | ATCC 15261, AF115499, Asc.excen3 | DSM 4724

Asticcacaulis biprosthecium [AL] Pate et al. 1973 - C-19 | ACM 2498, AJ007799, Asc.bipro2 | ATCC 27554, AB014055, Asc.bipros | ATCC 27554, AJ007799, Asc.bipro2 | DSM 4723

Genus III. Brevundimonas [VP]

Brevundimonas diminuta [VP (T)] (Leifson and Hugh 1954) Segers et al. 1994 <- *Pseudomonas diminuta* (basonym) - ATCC 11568, M59064, Br.diminu2 | CCEB 513 | CCUG 1427 | DSM 7234 | IMET 10409 | LMG 2089

Brevundimonas alba [VP] Abraham et al. 1999 - CB88 | DSM 4736, M59179

Brevundimonas aurantiaca [VP] Abraham et al. 1999 - CB-R, AJ227787 | DSM 4731

Brevundimonas bacteroides [VP] (Poindexter 1964) Abraham et al. 1999 <- *Caulobacter bacteroides* (basonym) - CB 7, M83796 | ATCC 15254, AB008513 | DSM 4726 | LMG 15096, AJ227782

Brevundimonas intermedia [VP] (Poindexter 1964) Abraham et al. 1999 <- *Caulobacter intermedius* (basonym) - CB63 | ACM 2608, AJ007802 | ATCC 15262, AB023784 | ATCC 15262, AJ007802 | DSM 4732 | MBIC2712, AB023784

Brevundimonas subvibrioides [VP] (Poindexter 1964) Abraham et al. 1999 <- *Caulobacter subvibrioides* (basonym) - CB81 | ATCC 15264, AB008392 | ATCC 15264, X94470 | DSM 4735 | LMG 14903, AJ227784

Brevundimonas variabilis [VP] (Poindexter 1989) Abraham et al. 1999 <- *Caulobacter variabilis* (basonym) - CB17 | ACM 5107, AJ007808 | ATCC 15255, AJ007808 | ATCC 15255, AJ227783 | DSM 4737

Brevundimonas vesicularis [VP] (Busing et al. 1953) Segers et al. 1994 <- *Pseudomonas vesicularis* (basonym) - ACM 2862 | ATCC 11426, AJ007801, Br.vesicu1 | CCM 3398 | CCUG 2032 | DSM 7226 | IAM 12105 | IAM 12105, AB021414, Br.vesicu3 | JCM 1477 | LMG 2350, AJ227780, Br.vesicu2 | NCMB 1945 | NCTC 10900

Genus IV. Phenylobacterium [VP] [112]

Phenylobacterium immobile [VP (T)] Lingens et al. 1985 - E, Y18216, Pb.immobil | ATCC 35973 | DSM 1986 | NCIB 12055

Order VI. *"Rhizobiales"* [NP]

Family I. Rhizobiaceae [AL]

Genus I. Rhizobium [AL (T)]

Rhizobium leguminosarum [AL (T)] (Frank 1879) Frank 1889 = *Rhizobium trifolii* (later heterotypic synonym) - 3H0q18 | ATCC 10004 | ATCC 10313 | CCT 5087 | DSM 30132 | NCIB 11478

†Rhizobium ciceri [VP] Nour et al. 1994 -> *Mesorhizobium ciceri* - ATCC 51585 | DSM 11540 | LMG 14898 | UPM-Ca7, U07934, Msu.huaku3

Rhizobium etli [VP] Segovia et al. 1993 - ATCC 51251 | CFN 42, U28916, Rhb.etli42 | DSM 11541

†Rhizobium fredii [VP] Scholla and Elkan 1984 -> *Sinorhizobium fredii* - ATCC 35423, D14516, Srh.fredi5 | DSM 5851 | LMG 6217, X67231, Srh.fredi2 | PRC 205 | USDA 205

Rhizobium galegae [VP] Lindström 1989 - ATCC 43677, D11343, Rhb.galega | DSM 11542 | HAMBI 540 | LMG 6214, X67226, Rhb.galeg2 | NZP 5563

Rhizobium gallicum [VP] Amarger et al. 1997 - MSDJ1109 | R602sp, AF008130, Rhb.gallic | R602sp, U86343, Rhb.galli2

Rhizobium giardinii [VP] Amarger et al. 1997 - H152, U86344, Rhb.giardi | MSDJ0144

Rhizobium hainanense [VP] Chen et al. 1997 - CCBAU 57015 | DSM 11917 | I66, U71078, Rhb.hainnn

†Rhizobium huakuii [VP] Chen et al. 1991 -> *Mesorhizobium huakuii* - 103 | ATCC 51122 | CCBAU 2609 | DSM 6573 | IAM 14158, D12797, Mso.huakui

Rhizobium huautlense [VP] Wang et al. 1998 - S02, AF025852, Rhb.huautl

Rhizobium indigoferae [VP] Wei et al. 2002 [113] - AS 1.3054 | CCBAU 71042, AF364068

†Rhizobium japonicum [AL] (Kirchner 1896) Buchanan 1926 -> *Bradyrhizobium japonicum* - 3I1b6 | ATCC 10324 | DSM 30131

†Rhizobium loti [VP] Jarvis et al. 1982 -> *Mesorhizobium loti* - ATCC 33669, D14514, Mso.loti5 | DSM 2626 | LMG 6125, X67229, Mso.loti2 | NZP 2213

Rhizobium lupini [AL] (Schroeter 1886) Eckhardt et al. 1931 - 3C231 | ATCC 10319 | DSM 30140

†Rhizobium mediterraneum [VP] Nour et al. 1995 -> *Mesorhizobium mediterraneum* - ATCC 51670 | DSM 11555 | UPM-Ca36, L38825, Mso.medter

†Rhizobium meliloti [AL] Dangeard 1926 -> *Sinorhizobium meliloti* - 3D0a2 | ATCC 9930 | DSM 30135 | LMG 6133, X67222, Srh.melil3

Rhizobium mongolense [VP] van Berkum et al. 1998 - USDA 1844, U89817, Rhb.mongol

Rhizobium phaseoli [AL] Dangeard 1926 - 3I6c15 | ATCC 14482 | DSM 30137

Rhizobium radiobacter [VP] (Beijerinck and van Delden 1902) Young et al. 2001 <- *Agrobacterium radiobacter* (basonym) - EX 3.24.2 | NCIB 9042 | ATCC 19358, AJ389904 | DSM 30147 | NBRC 13532

Rhizobium rhizogenes [VP] (Riker et al. 1930) Young et al. 2001 <- *Agrobacterium rhizogenes* (basonym) - ATCC 11325 | CFBP 2408 | DSM 30148 | ICMP 5794 | NBRC 13257 | IMET 11180

Rhizobium rubi [VP] (Hildebrand 1940) Young et al. 2001 <- *Agrobacterium rubi* (basonym) - TR3 | ATCC 13335 | CFBP 1317 | DSM 6772 | ICMP 6428 | LMG 156, X67228, Ag.rubi | NCPPB 1854

Rhizobium sullae [VP] Squartini et al. 2002 - IS123 | USDA 4950, Y10170 | DSM 14623

†Rhizobium tianshanense [VP] Chen et al. 1995 -> *Mesorhizobium tianshanense* - A-1BS, AF041447, Mso.tiansh | A-1BST, U71079, Mso.tians2 | CCBAU3306 | DSM 11417

[112] In an early version of the outline, *Phenylobacterium* appeared in the *Pseudomonadaceae*.

[113] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

†*Rhizobium trifolii* [AL] Dangeard 1926 = *Rhizobium leguminosarum* (earlier heterotypic synonym) - 3D1k22a | ATCC 14480 | CIAT 899

Rhizobium tropici [VP] Mart¡nez-Romero et al. 1991 - ATCC 49672 | CIAT 899, U89832, Rhb.trop10 | LMG 9503, X77125, Rhb.tropi6

Rhizobium undicola [VP] (de Lajudie et al. 1998) Young et al. 2001 -> *Allorhizobium undicola* - LMG 11875, Y17047, Alr.undcol | ORS 992

Rhizobium vitis [VP] (Ophel and Kerr 1990) Young et al. 2001 <- *Agrobacterium vitus* (basonym) - K309 | ATCC 49767 | ICMP 1075 | LMG 8750, X67225, Ag.vitis | NCPPB 3554, D14502, Ag.vitis3 | NCPPB 3554, U45329, Ag.vitis5

Rhizobium yanglingense [VP] Tan et al. 2001 - SH 22623, AF003375 | CCBAU 71623

Genus II. Agrobacterium [AL]

†*Agrobacterium tumefaciens* [AL (T)] (Smith and Townsend 1907) Conn 1942 = *Agrobacterium radiobacter* (earlier heterotypic synonym) - ATCC 23308 | CCM 1040 | CFBP 2413 | CIP B6 | DSM 30205, M11223, Ag.tumefac | ICMP 5856 | ICPB TT 3 | NCPPB 397

†*Agrobacterium atlanticum* [VP] Rüger and Höfle 1992 -> *Ruegeria atlantica* = *Agrobacterium meteori* (heterotypic synonym) - 1480 | DSM 5823

†*Agrobacterium ferrugineum* [VP] (ex Ahrens and Rheinheimer 1967) Rüger and Höfle 1992 -> *Pseudorhodobacter ferrugineus* - ATCC 25652 | DSM 5888 | ICPB 4164[114]

†*Agrobacterium gelatinovorum* [VP] (ex Ahrens 1968) Rüger and Höfle 1992 -> *Ruegeria gelatinovorans* - B6 | ATCC 25655 | DSM 5887

Agrobacterium larrymoorei [VP] Bouzar and Jones 2001 - AF3.10, Z30542 | ATCC 51759 | CFBP 5473 | NCPPB 4096

†*Agrobacterium meteori* [VP] Rüger and Höfle 1992 = *Agrobacterium atlanticum* (heterotypic synonym) - 1513 | DSM 5824

†*Agrobacterium radiobacter* [AL] (Beijerinck and van Delden 1902) Conn 1942 emend. Sawada et al. 1993 = *Agrobacterium tumefaciens* (later heterotypic synonym) -> *Rhizobium radiobacter* - EX 3.24.2 | ATCC 19358 | DSM 30147 | NBRC 13532 | NCIB 9042

†*Agrobacterium rhizogenes* [AL] (Riker et al. 1930) Conn 1942 emend. Sawada et al. 1993 -> *Rhizobium rhizogenes* - ATCC 11325 | CFBP 2408 | DSM 30148 | ICMP 5794 | NBRC 13257 | IMET 11180

†*Agrobacterium rubi* [AL] (Hildebrand 1940) Starr and Weiss 1943 -> *Rhizobium rubi* - TR3 | ATCC 13335 | CFBP 1317 | DSM 6772 | ICMP 6428 | LMG 156, X67228, Ag.rubi | NCPPB 1854

†*Agrobacterium stellulatum* [VP] (ex Stapp and Knösel 1954) Rüger and Höfle 1992 -> *Stappia stellulata* - 2M/E | ATCC 15215 | DSM 5886 | ICPB 4170

†*Agrobacterium vitis* [VP] Ophel and Kerr 1990 -> *Rhizobium vitis* - K309 | ATCC 49767 | ICMP 1075 | LMG 8750, X67225, Ag.vitis | NCPPB 3554, D14502, Ag.vitis3 | NCPPB 3554, U45329, Ag.vitis5

Genus III. Allorhizobium [VP]

†*Allorhizobium undicola* [VP (T)] de Lajudie et al. 1998 [115] -> *Rhizobium undicola* - LMG 11875, Y17047, Alr.undcol | ORS 992

Genus IV. Carbophilus [VP]

Carbophilus carboxidus [VP (T)] (ex Nozhevnikova and Zavarzin 1974) Meyer et al. 1994 - Z-1171 | ATCC 51424 | DSM 1086

Genus V. Chelatobacter [VP]

Chelatobacter heintzii [VP (T)] Auling et al. 1993 - ATCC 29600 | DSM 10368

Genus VI. Ensifer [VP]

Ensifer adhaerens [VP (T)] Casida 1982 <- *Sinorhizobium adhaerens* (basonym) - A | ATCC 33212, AF191739 | NCIB 12342

Genus VII. Sinorhizobium [VP]

[114] Young et al. proposed that the type species of *Agrobacterium* be transferred to the *Rhizobium*, thereby deprecating the genus *Agrobacterium*. These authors did not, however, make any proposal regarding the transfer of *A. ferrugineum* to either *Rhizobium* or another genus. A proposal to do so was published subsequently, by Uchino, et al (2003).

[115] Rule 37a(1) states that the name of a taxon must be changed if the nomenclatural type of the taxon is excluded.

Sinorhizobium fredii [VP (T)] (Scholla and Elkan 1984) Chen et al. 1988 emend. De Lajudie et al. 1994 <- *Rhizobium fredii* (basonym) - ATCC 35423, D14516, Srh.fredi5 | DSM 5851 | LMG 6217, X67231, Srh.fredi2 | PRC 205 | USDA 205

Sinorhizobium adhaerens [VP] (Casida 1982) Willems et al. 2003 <- *Ensifer adhaerens* (basonym) - A | ATCC 33212, AJ505595 | LMG 20216

Sinorhizobium arboris [VP] Nick et al. 1999 - TTR 38 | HAMBI 1552, Z78204 | LMG 14919

Sinorhizobium kostiense [VP] Nick et al. 1999 - TTR 15 | HAMBI 1489, Z78203 | LMG 15613

Sinorhizobium kummerowiae [VP] Wei et al. 2002 [116] - AS 1.3046 | CCBAU 71714, AF364067

Sinorhizobium medicae [VP] Rome et al. 1996 - A 321

Sinorhizobium meliloti [VP] (Dangeard 1926) De Lajudie et al. 1994 <- *Rhizobium meliloti* (basonym) - 3D0a2 | ATCC 9930 | DSM 30135 | LMG 6133, X67222, Srh.melil3 | NZP 4027

Sinorhizobium morelense [VP] Wang et al. 2002 [117] - Lc04, AY024335 | CFN E1007 | LMG 21331

Sinorhizobium sahel [VP] De Lajudie et al. 1994 - DSM 11273 | LMG 7837, X68390, Srh.saheli | ORS 609

Sinorhizobium terangae [VP] De Lajudie et al. 1994 - DSM 11282 | LMG 7854, X68391, Rhb.sp7854 | ORS 1009

Sinorhizobium xinjiangense [VP] Chen et al. 1988 - ATCC 49357 | CCBAU 110 | DSM 5852 | IAM 14142, D12796, Srh.xinjia

Family II. "Aurantimonadaceae" [NP (T)]

Genus I. ***Aurantimonas*** [VP (T)]

Aurantimonas coralicida [VP (T)] Denner et al. 2003 - WP1, AY065627 | CIP 107386 | DSM 14790

Family III. Bartonellaceae [AL]

Genus I. Bartonella [AL (T)]

Bartonella bacilliformis [AL (T)] (Strong et al. 1913) Strong et al. 1915 - ATCC 35685

Bartonella alsatica [VP] Heller et al. 1999 - IBS 382, AJ002139, Bar.alsati | CIP 105477

Bartonella birtlesii [VP] Bermond et al. 2000 - IBS 325, AF204274 | CIP 106294 | CCUG 44360

Bartonella bovis [VP] Bermond et al. 2002 - 91-4 | CCUG 43828, AF293391 | CIP 106692

Bartonella capreoli [VP] Bermond et al. 2002 - IBS 193, AF293389 | CCUG 43827 | CIP 106691

Bartonella clarridgeiae [VP] Lawson and Collins 1996 - Houston-2 cat | ATCC 51734, X89208, Bar.clardg

Bartonella doshiae [VP] Birtles et al. 1995 - R18, Z31351, Bar.doshia | ATCC 700133 | NCTC 12862

Bartonella elizabethae [VP] (Daly et al. 1993) Brenner et al. 1993 <- *Rochalimaea elizabethae* (basonym) - B91-002005 | F9251 | ATCC 49927, L01260, Bar.elizab

Bartonella grahamii [VP] Birtles et al. 1995 - V2, Z31349, Bar.graham | ATCC 700132 | NCTC 12860

Bartonella henselae [VP] (Regnery et al. 1992) Brenner et al. 1993 <- *Rochalimaea henselae* (basonym) - G5436 | Houston-1 | ATCC 49882 | CIP 103737

Bartonella koehlerae [VP] Droz et al. 2000 - C-29, AF076237 | ATCC 700693

Bartonella peromysci [VP] (Ristic and Kreier 1984) Birtles et al. 1995 <- *Grahamella peromysci* (basonym)

Bartonella quintana [VP] (Schmincke 1917) Brenner et al. 1993 <- *Rochalimaea quintana* (basonym) - ATCC VR 358

[116] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[117] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Bartonella schoenbuchensis [VP] Dehio et al. 2001 - R1, AJ278187 | DSM 13525 | NCTC 13165

Bartonella talpae [VP] (Ristic and Kreier 1984) Birtles et al. 1995 <- *Grahamella talpae* (basonym)

Bartonella taylorii [VP] Birtles et al. 1995 - M6, Z31350, Bar.taylor | NCTC 12861

Bartonella tribocorum [VP] Heller et al. 1998 - IBS 506, AJ003070, Bar.trbcor | CIP 105476

Bartonella vinsonii subspecies vinsonii [VP] (Weiss and Dasch 1982) Brenner et al. 1993 emend. Kordick et al. 1996 <- *Rochalimaea vinsonii* (basonym) - Baker, Z31352, Bar.vinso2 | ATCC VR-152 | CIP 103738

Bartonella vinsonii subspecies arupensis [VP] Welch et al. 2000 - OK 94-513 | ATCC 700727

Bartonella vinsonii subspecies berkhoffii [VP] Kordick et al. 1996 - ATCC 51672 | NCSU 93-CO1, L35052, Bar.vinso4

Family IV. Brucellaceae [AL]

Genus I. Brucella [AL (T)][118]

Brucella melitensis [AL (T)] (Hughes 1893) Meyer and Shaw 1920 emend. Verger et al. 1985 = *Brucella abortus* (later heterotypic synonym) = *Brucella canis* (later heterotypic synonym) = *Brucella neotomae* (later heterotypic synonym) = *Brucella ovis* (later heterotypic synonym) = *Brucella suis* (later heterotypic synonym) - ATCC 23456, L26166, Bru.melten

†*Brucella abortus* [AL] (Schmidt 1901) Meyer and Shaw 1920 = *Brucella melitensis* (earlier heterotypic synonym) - ATCC 23448

†*Brucella canis* [AL] Carmichael and Bruner 1968 = *Brucella melitensis* (earlier heterotypic synonym) - RM-666 | ATCC 23365 | NCTC 10854

†*Brucella neotomae* [AL] Stoenner and Lackman 1957 = *Brucella melitensis* (earlier heterotypic synonym) - 5K33 | ATCC 23459, L26167, Bru.melte4

†*Brucella ovis* [AL] Buddle 1956 = *Brucella melitensis* (earlier heterotypic synonym) - 63/290 | ATCC 25840, L26168, Bru.melte5

†*Brucella suis* [AL] Huddleson 1929 = *Brucella melitensis* (earlier heterotypic synonym) - ATCC 23444, L26169, Bru.melte6

Genus II. Mycoplana [AL]

Mycoplana dimorpha [AL (T)] Gray and Thornton 1928 emend. Urakami et al. 1990 - 103 | ATCC 4279 | DSM 7138

Mycoplana bullata [AL] Gray and Thornton 1928 emend. Urakami et al. 1990 - 79 | ATCC 4278 | ATCC 7980 | DSM 7126 | IAM 13153, D12785, Myp.bullat

Mycoplana ramosa [VP] Urakami et al. 1990 - M51 of Macdonald | NCIB 9440 | ATCC 49678 | DSM 7292 | TKOO53

†*Mycoplana segnis* [VP] Urakami et al. 1990 -> *Caulobacter segnis* - ATCC 21756 | DSM 7131 | NBRC 13240, D13947, Myp.segnis | TK0059

Genus III. Ochrobactrum [VP]

Ochrobactrum anthropi [VP (T)] Holmes et al. 1988 - ATCC 49687 | CIP 14970 | CIP 82.115 | DSM 6882 | LMG 3331 | NCTC 12168

Ochrobactrum gallinifaecis [VP] Kämpfer et al. 2003 - Iso196, AJ519939 | CIP 107753 | DSM 15295

Ochrobactrum grignonense [VP] Lebuhn et al. 2000 - OgA9a, AJ242581 | DSM 13338 | LMG 18954

Ochrobactrum intermedium [VP] Velasco et al. 1998 - CNS 2-75 | LMG 3301, U70978, Ocb.intmed | NCTC 12171

Ochrobactrum tritici [VP] Lebuhn et al. 2000 - SCII24, AJ242584 | DSM 13340 | LMG 18957

Family V. "Phyllobacteriaceae" [NP]

Genus I. Phyllobacterium [VP (T)]

[118] The nomen species *B. abortus*, *B. canis*, *B. neotomae*, *B. ovis*, and *B. suis* can be used to avoid confusion, according The International Committee on Systematic Bacteriology Subcommittee on the Taxonomy of *Brucella* (IJSB, 1988, *38:* 450 452)

Phyllobacterium myrsinacearum [VP (T)] Knösel 1984 = *Phyllobacterium rubiacearum* (later heterotypic synonym) - ATCC 43590 | DSM 5892 | IAM 13584, D12789, Plb.myrsin | LMG 2t2 | NCIMB 12127

Phyllobacterium rubiacearum [VP] Knösel 1984 = *Phyllobacterium myrsinacearum* (earlier heterotypic synonym) - ATCC 43591 | DSM 5893 | LMG 1t1 | NCIMB 12128

Genus II. Aminobacter [VP]

Aminobacter aminovorans [VP (T)] (den Dooren de Jong 1926) Urakami et al. 1992 <- *Pseudomonas aminovorans* (basonym) - TK3001 | ATCC 23314 | DSM 7048, AJ011759, Amb.amnvor | JCM 7852 | NCIB 9039 | NCIB 9039 | NCTC 10

Aminobacter aganoensis [VP] Urakami et al. 1992 - TH-3 | DSM 7051, AJ011760, Amb.aganoe | JCM 7854 | JCM 7854

Aminobacter niigataensis [VP] Urakami et al. 1992 - DM-81 | DSM 7050, AJ011761, Amb.niigat | JCM 7853

Genus III. Aquamicrobium [VP]

Aquamicrobium defluvii [VP (T)] Bambauer et al. 1998 - NKK, Y15403 | DSM 11603

Genus IV. Defluvibacter [VP]

Defluvibacter lusatiensis [VP (T)] Fritsche et al. 1999 - S1 | DSM 11099, AJ132378

Genus V. "Candidatus Liberibacter"

Candidatus "Liberibacter asiaticus" [(T)] Jagoueix et al. 1994 L22532

Candidatus "Liberibacter africanus subspecies africanus" Jagoueix et al. 1994 L22533

Candidatus "Liberibacter africanus subspecies capensis" Garnier et al. 2000 AF137368

Genus VI. Mesorhizobium [VP]

Mesorhizobium loti [VP (T)] (Jarvis et al. 1982) Jarvis et al. 1997 <- *Rhizobium loti* (basonym) - ATCC 33669, D14514, Mso.loti5 | DSM 2626 | LMG 6125, X67229, Mso.loti2 | NZP 2213

Mesorhizobium amorphae [VP] Wang et al. 1999 - ACCC 19665, AF041442, Mso.amorph

Mesorhizobium chacoense [VP] Vel zquez et al. 2001 - Pr-5, AJ278249 | CECT 5336 | LMG 19008

Mesorhizobium ciceri [VP] (Nour et al. 1994) Jarvis et al. 1997 <- *Rhizobium ciceri* (basonym) - ATCC 51585 | DSM 11540 | LMG 14898 | UPM-Ca7, U07934, Msu.huaku3

Mesorhizobium huakuii [VP] (Chen et al. 1991) Jarvis et al. 1997 <- *Rhizobium huakuii* (basonym) - 103 | ATCC 51122 | CCBAU 2609 | DSM 6573 | IAM 14158, D12797, Mso.huakui

Mesorhizobium mediterraneum [VP] (Nour et al. 1995) Jarvis et al. 1997 <- *Rhizobium mediterraneum* (basonym) - ATCC 51670 | DSM 11555 | UPM-Ca36, L38825, Mso.medter

Mesorhizobium plurifarium [VP] de Lajudie et al. 1998 - LMG 11892, Y14158, Mso.plrfar | ORS 1032

Mesorhizobium tianshanense [VP] (Chen et al. 1995) Jarvis et al. 1997 <- *Rhizobium tianshanense* (basonym) - A-1BS, AF041447, Mso.tiansh | A-1BS, U71079, Mso.tians2 | CCBAU 3306 | DSM 11417

Genus VII. Pseudaminobacter [VP]

Pseudaminobacter salicylatoxidans [VP (T)] Kämpfer et al. 1999 - BN12, AF072542, Pab.slcylt | DSM 6986

Pseudaminobacter defluvii [VP] Kämpfer et al. 1999 - THI 051, D32248, Pad.dfluvi | NBRC 14570

Family VI. "Methylocystaceae" [NP] [119]

Genus I. Methylocystis [VP (T)]

Methylocystis parvus [VP (T)] (ex Romanovskaya et al. 1978) Bowman et al. 1993 - OBBP, M29026, Mcy.parvus | ACM 3309 | ATCC 35066 | IMET 10483 | NCIMB 11129

Methylocystis echinoides [VP] (ex Gal'chenko et al. 1977) Bowman et al. 1993 - IMET 10491 | NCIMB 13100

[119] Ludwig indicates support for the family *Methylocystaceae* in the ARB tree.

Genus II. Albibacter VP
Albibacter methylovorans VP (T) Doronina et al. 2001 - DM10, AF273213 | DSM 13819 | VKM B-236
Genus III. Methylopila VP [120]
Methylopila capsulata VP (T) Doronina et al. 1998 - IM1, AF004844, Mpi.capsul | VKM B-1606
Methylopila helvetica VP Doronina et al. 2000 - DM9, AF227126 | VKM B-2189
Genus IV. Methylosinus VP
Methylosinus trichosporium VP (T) (ex Romanovskaya et al. 1978) Bowman et al. 1993 - OB3b, M29024, Msi.tricho | ACM 3311 | ATCC 35070 | IMET 10543 | NCIMB 11131
Methylosinus sporium VP (ex Romanovskaya et al. 1978) Bowman et al. 1993 - ACM 3306, Y18946 | ATCC 35069 | NCIMB 11126
Genus V. ***Terasakiella*** VP ***(moved)***
Terasakiella pusilla VP (T) (Terasaki 1973) Satomi et al. 2002 <- *Oceanospirillum pusillum* (basonym) - ATCC 33338 | CIP 103382 | DSM 6293 | IAM 14442 | LMG 7372 | NBRC 13613, AB006768, Osp.pusil2 | NCIMB 2229

Family VII. "Beijerinckiaceae" NP [121]
Genus I. Beijerinckia AL (T)
Beijerinckia indica subspecies indica AL (T) (Starkey and De 1939) Derx 1950 - Delft E.II.12.1.1 | ATCC 9039, M59060, Bei.indica | DSM 1715 | NCIB 8712 | WR-119
Beijerinckia indica subspecies lacticogenes VP Thompson and Skerman 1981 - ATCC 19361 | DSM 1719 | NCIB 8846 | WR-119
Beijerinckia derxii subspecies derxii AL Tchan 1957 - Q13 of Tchan | ATCC 49361 | DSM 2328 | UQM 1968
Beijerinckia derxii subspecies venezuelae VP Thompson and Skerman 1981 - 2 of Materassi | DSM 2329 | WR-222
Beijerinckia fluminensis AL Döbereiner and Ruschel 1958 - DSM 2327 | UQM 1685
Beijerinckia mobilis AL Derx 1950 - ATCC 35011 | DSM 2326 | UQM 1969
Genus II. Chelatococcus VP
Chelatococcus asaccharovorans VP (T) Auling et al. 1993 - TE2 | ATCC 51531 | DSM 6462
Genus III. Methylocapsa VP
Methylocapsa acidiphila VP Dedysh et al. 2002 - B2, AJ278726 | DSM 13967 | NCIMB 13765
Genus IV. Methylocella VP
Methylocella palustris VP (T) Dedysh et al. 2000 - K, Y17144 | ATCC 700799

Family VIII. "Bradyrhizobiaceae" NP [122]
Genus I. Bradyrhizobium VP (T)
Bradyrhizobium japonicum VP (T) (Kirchner 1896) Jordan 1982 [123] <- *Rhizobium japonicum* (basonym) - 3I1b6, U69638, Bdr.japo11 | ATCC 10324, U69638, Bdr.japo11 | DSM 30131, X87272, Bdr.japon8 | LMG 6138, S46916, Bdr.japo12 | LMG 6138, X66024, Bdr.japoni | NCIB 11477 | USDA 505
Bradyrhizobium elkanii VP Kuykendall et al. 1993 [124] - ATCC 49852 | DSM 11554 | USDA 76, U35000, Bdr.elkani
Bradyrhizobium liaoningense VP Xu et al. 1995 - 2281 [125]

[120] The placement of *Methylopila* is provisional. Bowman suggests that it be treated as *incertae sedis*.
[121] In communications with Ludwig, he makes no mention of this family. In the RDP tree it appears to stand alone. No data were available for either *Derxia* or *Chelatococcus*.
[122] Ludwig indicates that the family *Bradyrhizobiaceae* is supported in the ARB tree. We use the name *Bradyrhizobiaceae* to distinguish this lineage from the family *Nitrobacteraceae* (Buchanan, 1917) which appears on the Approved Lists but is paraphyletic.
[123] Member of the alpha-2b subgroup *sensu* Imhoff.

[124] Member of the alpha-2b subgroup *sensu* Imhoff.

[125] There is some question as to the legitimacy of this species name as there does not appear to be a deposit of the type strain in a public collection

Bradyrhizobium yuanmingense VP Yao et al. 2002 [126] - CCBAU 10071, AF193818 | CFNEB 101

Genus II. Afipia VP [127]

Afipia felis VP (T) Brenner et al. 1992 - AFIP strain BV | B-91-007352 | F6400 | G1492 | ATCC 53690 | CIP 103515 | CSD1 | DSM 7326 | NCTC 12499

Afipia birgiae VP La Scola et al. 2002 - 34632, AF288304 | CCUG 43108 | CIP 106344

Afipia broomeae VP Brenner et al. 1992 - B-91-007286 | F186 | GO382 | ATCC 49717 | CIP 103517 | DSM 7327, U87759, Afp.broom2 | NCTC 12720

Afipia clevelandensis VP Brenner et al. 1992 - 411m | B-91-007353 | F6703 | G1849 | ATCC 49720 | CIP 103516 | DSM 7315 | NCTC 12721

Afipia massiliensis VP La Scola et al. 2002 - 34633 | CCUG 45153 | CIP 107022, AY029562

Genus III. Agromonas VP [128]

Agromonas oligotrophica VP (T) Ohta and Hattori 1985 - DSM 12412 | JCM 1494, D78366, Agm.oltrph

Genus IV. Blastobacter AL [129]

Blastobacter henricii AL (T) Zavarzin 1961

Blastobacter aggregatus VP Hirsch and Müller 1986 - M 161, X73041 | Müller 161 | ATCC 43293 | DSM 1111 | IFAM 1003

Blastobacter capsulatus VP Hirsch and Müller 1986 - M 216, X73042 | Müller 216 | ATCC 43294 | DSM 1112 | IFAM 1004

Blastobacter denitrificans VP Hirsch and Müller 1986 - M 222 | Müller 222 | ATCC 43295 | DSM 1113 | IAM 1005 | IFAM 1005 | LMG 8443, S46917, Blb.denit2 | LMG 8443, X66025, Blb.denitr | NCIMB 12292

†*Blastobacter natatorius* VP Sly 1985 -> *Blastomonas natatoria* - ATCC 35951 | DSM 3183, Y13774, Bla.natato | UQM 2507

Genus V. Bosea VP [130]

Bosea thiooxidans VP (T) Das et al. 1996 - BI 42, X81044, Bo.thiooxi | ATCC 700366 | DSM 9653

Bosea eneae VP La Scola et al. 2003 - 34614, AF288300 | CCUG 43111 | CIP 106338

Bosea massiliensis VP La Scola et al. 2003 - 63287, AF288309 | CCUG 43117 | CIP 106336

Bosea vestrisii VP La Scola et al. 2003 - 34635, AF288306 | CCUG 43114 | CIP 106340

Genus VI. Nitrobacter AL

Nitrobacter winogradskyi AL (T) Winslow et al. 1917 [131] - ATCC 25391 | DSM 10237 | Nb-255

Nitrobacter alkalicus VP Sorokin et al. 2001 - AN1, AF069956 | LMD 97.163

Nitrobacter hamburgensis VP Bock et al. 2001 [132][133] - X14, L11663 | DSM 10229

Nitrobacter vulgaris VP Bock et al. 2001 [134] - Z | DSM 10236

Genus VII. Oligotropha VP

Oligotropha carboxidovorans VP (T) Meyer et al. 1994 - OM5 | ATCC 49405 | DSM 1227

Genus VIII. Rhodoblastus VP [135]

[126] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[127] Member of the alpha-2b subgroup *sensu* Imhoff.

[128] Member of the alpha-2b subgroup *sensu* Imhoff.

[129] Distant member of the alpha-2 subgroup *sensu* Imhoff. Placement within the *Bradyrhizobiaecea* questionable.

[130] Member of the alpha-2b subgroup *sensu* Imhoff.

[131] Member of the alpha-2b subgroup *sensu* Imhoff.

[132] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[133] Member of the alpha-2b subgroup *sensu* Imhoff.

[134] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[135] Member of the alpha-2b subgroup *sensu* Imhoff.

Rhodoblastus acidophilus [VP (T)] (Pfennig 1969) Imhoff 2001 <- *Rhodopseudomonas acidophila* (basonym) - Pfennig 7050 | ATCC 25092, M34128 | DSM 137

Genus IX. Rhodopseudomonas [AL]

Rhodopseudomonas palustris [AL (T)] (Molisch 1907) van Niel 1944 [136] = *Rhodopseudomonas rutila* (later heterotypic synonym) - ATH 2.1.6 | ATCC 17001, D12700, Rps.palus5 | ATCC 17001, D25312, Rps.palus7 | ATCC 17001, L11664, Rps.palus2 | DSM 123, L11664, Rps.palus2

†*Rhodopseudomonas acidophila* [AL] Pfennig 1969 -> *Rhodoblastus acidophilus* - ATCC 25092 | DSM 137

†*Rhodopseudomonas adriatica* [VP] Neutzling et al. 1984 -> *Rhodobacter adriaticum* - BN 721 (6 II) | ATCC 35885, D13476, Rhv.adria2 | DSM 2781, D16418, Rhv.adriat

†*Rhodopseudomonas blastica* [VP] Eckersley and Dow 1981 -> *Rhodobacter blasticus* - ATCC 33485, D16429, Rb.blastic | DSM 2131 | NCIB 11576, D13478, Rb.blasti2

†*Rhodopseudomonas capsulata* [AL] (Molisch 1907) van Niel 1944 -> *Rhodobacter capsulatus* - ATCC 17015 | ATCC 11166, D13474, Rb.capsul3 | ATCC 11166, D16428, Rb.capsul4 | DSM 1710 | NCIB 8254 | NCIB 8286

Rhodopseudomonas faecalis [VP] Zhang et al. 2002 - gc | JCM 11668 | AS 1.2176, AF123085

†*Rhodopseudomonas gelatinosa* [AL] (Molisch 1907) van Niel 1944 -> *Rhodocyclus gelatinosus* - ATH 2.2.1, M60682, Rub.gelati | ATCC 17011, D16213, Rub.gelat2 | DSM 1709 | LMG 4311 | NCIB 8290

†*Rhodopseudomonas globiformis* [AL] Pfennig 1974 -> *Rhodopila globiformis* - ATCC 35887 | DSM 161, D86513, Rpl.globi2

Rhodopseudomonas julia [VP] Kompantseva 1993 - KR-11-67 | ATCC 51105 | DSM 11549

†*Rhodopseudomonas marina* [VP] Imhoff 1984 -> *Rhodobium marinum* - BN 126 | ATCC 35675 | DSM 2698, D30790

Rhodopseudomonas rhenobacensis [VP] Hougardy et al. 2000 - Rb | 12706

†*Rhodopseudomonas rosea* [VP] Janssen and Harfoot 1991 -> *Rhodoplanes roseus* - 941, D25313, Rhp.roseus | DSM 5909, D14429, Rhp.roseu2 | NCIMB 13363

†*Rhodopseudomonas rutila* [VP] Akiba et al. 1983 = *Rhodopseudomonas palustris* (earlier heterotypic synonym) - R1, D14435 | ATCC 33872

†*Rhodopseudomonas sphaeroides* [AL] van Niel 1944 -> *Rhodobacter sphaeroides* - ATH 2.4.1, X53853, Rb.sphrrnA | ATH 2.4.1, X53854, Rb.sphrrnB | ATH 2.4.1, X53855, Rb.sphrrnC | ATCC 17023 | DSM 158 | IAM 14237 | NCIB 8253

†*Rhodopseudomonas sulfidophila* [AL] Hansen and Veldkamp 1973 -> *Rhodobacter sulfidophilus* - W4, D13475, Rhv.sulfi2 | ATCC 35886 | DSM 1374, D16423

†*Rhodopseudomonas sulfoviridis* [AL] Keppen and Gorlenko 1975 -> *Blastochloris sulfoviridis* - P1 | DSM 729, D86514, Bl.slfvird

†*Rhodopseudomonas viridis* [AL] Drews and Giesbrecht 1966 -> *Blastochloris viridis* - ATCC 19567, D25314, Bl.viridi3 | DSM 133

Family IX. Hyphomicrobiaceae [AL] [137]

Genus I. Hyphomicrobium [AL (T)] [138]

Hyphomicrobium vulgare [AL (T)] Stutzer and Hartleb 1899 - NCIB 8698

Hyphomicrobium aestuarii [VP] Hirsch 1989 - ATCC 27483 | IFAM NQ-521Gr

Hyphomicrobium chloromethanicum [VP] McDonald et al. 2001 - CM2, AF198623 | NCIMB 13687 | VKM B-2176

Hyphomicrobium coagulans [VP] Hirsch 1989 - Takada 10-2

Hyphomicrobium denitrificans [VP] Urakami et al. 1995 - TK 0415 | X | DSM 1869, Y14308, Hyp.dnitri | NCIB 11706

Hyphomicrobium facile subspecies facile [VP] Hirsch 1989 - ATCC 27485 | DSM 1565 | IFAM H-526, Y14309, Hyp.facile | NCIB 10342

[136] Member of the alpha-2b subgroup *sensu* Imhoff.

[137] Ludwig indicates support for the *Hyphomicrobiaceae* in the ARB tree.

[138] Member of the alpha-2c subgroup *sensu* Imhoff.

Hyphomicrobium facile tolerans [VP] Hirsch 1989 - ATCC 27489, Y14311, Hyp.facil3 | IFAM I-551, Y14311, Hyp.facil3

Hyphomicrobium facile ureaphilum [VP] Hirsch 1989 - ATCC 27492, Y14310, Hyp.facil2 | IFAM CO-582, Y14310, Hyp.facil2

Hyphomicrobium hollandicum [VP] Hirsch 1989 - ATCC 27498 | IFAM KB-677, Y14303, Hyp.hollnd

Hyphomicrobium indicum [AL] Johnson and Weisrock 1969 - ATCC 19614 | DSM 5151

Hyphomicrobium methylovorum [VP] Iizumi et al. 1983 - KM 146 | ATCC 35216 | DSM 5458, Y14307, Hyp.mvorum | NBRC 1480

†*Hyphomicrobium neptunium* [AL] Leifson 1964 -> *Hyphomonas neptunium* - ATCC 15444 | DSM 5154 | IFAM LE670, AF082798, Hym.neptun

Hyphomicrobium sulfonivorans [VP] Borodina et al. 2002 - S1, AF235089 | ATCC BAA-113 | DSM 13863

Hyphomicrobium zavarzinii [VP] Hirsch 1989 - ATCC 27496 | IFAM ZV-622, Y14305, Hyp.zavarz

Genus II. Ancalomicrobium [AL]

Ancalomicrobium adetum [AL (T)] Staley 1968 - 4a:2 | ATCC 23632 | DSM 4722

Genus III. Ancylobacter [VP] [139]

Ancylobacter aquaticus [VP (T)] (Orskov 1928) Raj 1983 <- *Microcyclus aquaticus* (basonym) - Orskov | ATCC 25396, M62790, Anc.aquati | CCM 1786 | DSM 101 | NCIB 9271

Genus IV. Angulomicrobium [VP]

Angulomicrobium tetraedrale [VP (T)] Vasil'eva et al. 1986 - Z-2821 | AUCM B-1335

Genus V. Aquabacter [VP] [140]

Aquabacter spiritensis [VP (T)] Irgens et al. 1993 - SPL-1 | ATCC 43981 | DSM 9035 | LMG 8611

Genus VI. Azorhizobium [VP] [141]

Azorhizobium caulinodans [VP (T)] Dreyfus et al. 1988 - LMG 6465 | ORS 571

Genus VII. Blastochloris [VP] [142]

Blastochloris viridis [VP (T)] (Drews and Giesbrecht 1966) Hiraishi 1997 <- *Rhodopseudomonas viridis* (basonym) - ATCC 19567, D25314, Bl.viridi3 | DSM 133

Blastochloris sulfoviridis [VP] (Keppen and Gorlenko 1975) Hiraishi 1997 <- *Rhodopseudomonas sulfoviridis* (basonym) - P1 | DSM 729, D86514, Bl.slfvird

Genus VIII. Devosia [VP] [143]

Devosia riboflavina [VP (T)] Nakagawa et al. 1996 - Foster strain 4R | ATCC 9526 | CCEB 535 | CCM 1979 | CIP 59.10 | DSM 7230 | IAM 1093 | NBRC 13584, D49423, Dv.riboflv | LMG 2277 | NCIB 8177

Devosia neptuniae [VP] Rivas et al. 2003 - J1, AF469072 | CECT 5650 | LMG 21357

Genus IX. Dichotomicrobium [VP]

Dichotomicrobium thermohalophilum [VP (T)] Hirsch and Hoffmann 1989 - ATCC 49408 | DSM 5002 | IFAM 954

Genus X. Filomicrobium [VP]

Filomicrobium fusiforme [VP (T)] Schlesner 1988 - ATCC 35158, Y14313 | DSM 5304 | IFAM 1315

Genus XI. Gemmiger [AL]

Gemmiger formicilis [AL (T)] Gossling and Moore 1975 - X2-56 | ATCC 27749

Genus XII. Labrys [VP]

Labrys monachus [VP (T)] Vasilyeva and Semenov 1985 - 42 | ATCC 43932 | DSM 5896 | VKM B-1479

[139] Member of the alpha-2a subroup *sensu* Imhoff.
[140] Member of the alpha-2a subroup *sensu* Imhoff.
[141] Member of the alpha-2a subroup *sensu* Imhoff.
[142] Member of the alpha-2a subroup *sensu* Imhoff.
[143] Distant member of the alpha-2 subgroup *sensu* Imhoff.

Genus XIII. Methylorhabdus VP [144]

Methylorhabdus multivorans VP (T) Doronina et al. 1998 - ATCC 51890 | DM13, AF004845, Mrh.multiv | VKM B-2030

Genus XIV. Pedomicrobium AL [145]

Pedomicrobium ferrugineum AL (T) Aristovskaya 1961 emend. Gebers and Beese 1988 - S-122 | ATCC 33119 | DSM 1540 | IFAM S-1290

Pedomicrobium americanum VP Gebers and Beese 1988 - ATCC 43612 | IFAM G-1381

Pedomicrobium australicum VP Gebers and Beese 1988 - ATCC 43611 | IFAM ST-1306, X97693, Pdmb.austr

Pedomicrobium manganicum AL Aristovskaya 1961 - ATCC 3121 | DSM 1545 | IFAM E-1129

Genus XV. Prosthecomicrobium AL

Prosthecomicrobium pneumaticum AL (T) Staley 1968 [146] - ATCC 23633 | DSM 8972

Prosthecomicrobium enhydrum AL Staley 1968 - ATCC 23634 | DSM 8908

Prosthecomicrobium hirschii VP Staley 1984 - 16 | ATCC 27832 | DSM 8907

Prosthecomicrobium litoralum VP Bould et al. 1983 - 524-16 | ATCC 35022

Genus XVI. Rhodomicrobium AL [147]

Rhodomicrobium vannielii AL (T) Duchow and Douglas 1949 - ATH 3.1.1 | ATCC 17100 | DSM 162

Genus XVII. Rhodoplanes VP [148]

Rhodoplanes roseus VP (T) (Janssen and Harfoot 1991) Hiraishi and Ueda 1994 <- *Rhodopseudomonas rosea* (basonym) - 941, D25313, Rhp.roseus | DSM 5909, D14429, Rhp.roseu2 | NCIMB 13363

Rhodoplanes elegans VP Hiraishi and Ueda 1994 - AS130, D25311, Rhp.elegan | JCM 9224

Genus XVIII. Seliberia AL

Seliberia stellata AL (T) Aristovskaya and Parinkina 1963 - E-37 | ATCC 700073 | INMI N-9

Genus XIX. Starkeya VP

Starkeya novella VP (T) (Starkey 1934) Kelly et al. 2000 <- *Thiobacillus novellus* (basonym) - ATCC 8093 | CCM 1077 | DSM 506 | IAM 12100, D32247 | NBRC 12443 | NCIB 9113

Genus XX. Xanthobacter AL [149]

Xanthobacter autotrophicus AL (T) (Baumgarten et al. 1974) Wiegel et al. 1978 - 7C, X94201, Xtb.autrph | ATCC 35674 | DSM 432

Xanthobacter agilis VP Jenni and Aragno 1988 - SA 35, X94198, Xtb.agilis | ATCC 43847 | DSM 3770 | NEU2015

Xanthobacter aminoxidans VP Doronina and Trotsenko 2003 - 14a, AF399969 | ATCC BAA-299 | VKM B-2254

Xanthobacter flavus AL Malik and Claus 1979 - 301, X94199, Xtb.flavus | ATCC 35867 | DSM 338 | NBRC 14759 | NCIB 10071

Xanthobacter tagetidis VP Padden et al. 1997 - TagT2C, X99469, Xtb.tageti | DSM 11105

Xanthobacter viscosus VP Doronina and Trotsenko 2003 - 7d, AF399970 | ATCC BAA-298 | VKM B-2253

Family X. "Methylobacteriaceae" NP [150]

Genus I. Methylobacterium AL (T)

Methylobacterium organophilum AL (T) Patt et al. 1976 - XX, M29028, Mlb.organo | ATCC 27886 | DSM 760 | IAM 12098 | JCM 2833, D32226, Mlb.organ2 | NCIB 11278

[144] Member of the alpha-2a subroup *sensu* Imhoff.
[145] Member of the alpha-2c subgroup *sensu* Imhoff.
[146] Distant member of the alpha-2 subgroup *sensu* Imhoff.

[147] Member of the alpha-2c subgroup *sensu* Imhoff.
[148] Member of the alpha-2a subroup *sensu* Imhoff.
[149] Member of the alpha-2a subroup *sensu* Imhoff.
[150] Ludwig indicates that the ARB tree supports the *Methylobacteriaceae* .

Methylobacterium aminovorans [VP] Urakami et al. 1993 - TH-15 | JCM 8240 | NCIMB 13343

Methylobacterium chloromethanicum [VP] McDonald et al. 2001 - CM4, AF198624 | NCIMB 13688 | VKM B-2223

Methylobacterium dichloromethanicum [VP] Doronina et al. 2000 - DM4, AF227128 | DSM 6343 | VKM B-2191

Methylobacterium extorquens [VP] (Urakami and Komagata 1984) Bousfield and Green 1985 <- *Protomonas extorquens* (basonym) - TK 0001 | ATCC 43645 | CCRC 12234 | DSM 1337 | IAM 12631 | NBRC 15687 | IMET 11113 | JCM 2802, D32224, Mlb.extor4 | NCIB 9399, L20847, Mlb.extor3

Methylobacterium fujisawaense [VP] Green et al. 1988 - 0-31, AF223382 | ATCC 43884 | DSM 5686 | NCIB 12417

Methylobacterium lusitanum [VP] Doronina et al. 2002 - RXM, AY009403 | DSM 14457 | NCIMB 13779 | VKM B-2239

Methylobacterium mesophilicum [VP] (Austin and Goodfellow 1979) Green and Bousfield 1983 <- *Pseudomonas mesophilica* (basonym) - ATCC 29983 | DSM 1708 | ICPB 4095 | JCM 2829, D32225, Mlb.mesphl | NCIB 11561

Methylobacterium radiotolerans [VP] (Ito and Iizuka 1971) Green and Bousfield 1983 <- *Pseudomonas radiora* (basonym) - ATCC 27329 | CIP 101128 | DSM 1819 | IAM 12098 | NBRC 15690 | JCM 2831, D32227, Mlb.radtol | LMG 2269 | NCIB 10815 | NCIB 10815

Methylobacterium rhodesianum [VP] Green et al. 1988 - Pseudomonas strain 1 | ATCC 43882 | DSM 5687 | NCIB 12249, L20850, Mlb.rhodes

Methylobacterium rhodinum [VP] (Heumann 1962) Green and Bousfield 1983 <- *Pseudomonas rhodos* (basonym) - ATCC 14821 | DSM 2163 | JCM 2811, D32229, Mlb.rhodi2 | NCIB 9421, L20849, Mlb.rhodin

Methylobacterium suomiense [VP] Doronina et al. 2002 - F20, AY009404 | DSM 14458 | NCIMB 13778 | VKM B-2238

Methylobacterium thiocyanatum [VP] Wood et al. 1999 - ALL/SCN-P | ATCC 700647 | DSM 11490

Methylobacterium zatmanii [VP] Green et al. 1988 - Pseudomonas 135 | ATCC 43883 | DSM 5688 | NCIB 12243, L20804, Mlb.zatman

Genus II. ***Microvirga*** [VP]

Microvirga subterranea [VP (T)] Kanso and Patel 2003 - FaiI4 | ATCC BAA-295 | DSM 14364, AY078053

Genus III. Protomonas [VP]

†*Protomonas extorquens* [VP (T)] Urakami and Komagata 1984 -> *Methylobacterium extorquens* - TK0001 | ATCC 43645 | DSM 1337 | IMET 11113 | JCM 2802, D32224, Mlb.extor4 | NCIB 9399, L20847, Mlb.extor3

Genus IV. Roseomonas [VP] [151]

Roseomonas gilardii [VP (T)] Rihs et al. 1998 - 5424 | ATCC 49956, AY150045 | CIP 104026

Roseomonas cervicalis [VP] Rihs et al. 1998 - E7107 | ATCC 49957, AY150047 | CIP 104027

Roseomonas fauriae [VP] Rihs et al. 1998 - C610 | ATCC 49958, AY150046 | CIP 104028

Family XI. "Rhodobiaceae" [NP]

Genus I. Rhodobium [VP (T)] [152]

Rhodobium orientis [VP (T)] Hiraishi et al. 1995 - MB312, D30792 | DSM 11290 | JCM 9337

Rhodobium marinum [VP] (Imhoff 1984) Hiraishi et al. 1995 <- *Rhodopseudomonas marina* (basonym) - Imhoff BN 126 | ATCC 35675 | DSM 2698, D30790

Genus II. Roseospirillum [VP] [153]

[151] Peter Green has recommended that *Roseomonas* be placed into the *Methylobacteriaceae*.On the other hand, phylogenetic evidence from Wyant shows that the type *Roseomonas gilardii* and *R. cervicalis* belong in the *Acetobacteraceae* while *R. fauriae* belongs in the *Rhodospirillaceae*.

[152] Distant member of the alpha-2 subgroup *sensu* Imhoff.

[153] Imhoff places elsewhere, but is not specific as to where. I have moved it to *Rhodospirillaceae*. Overmann's proposal suggests differently.

Roseospirillum parvum VP (T) Glaeser and Overmann 2001 [154] - 930I, AJ011919 | DSM 12498

Order VII. ***"Parvularculales"*** NP

Family I. *"Parvularculaceae"* NP

Genus I. ***Parvularcula*** VP (T)

Parvularcula bermudensis VP (T) Cho and Giovannoni 2003 - HTCC2503, AF544015 | ATCC BAA-594 | KCTC 12087

Class II. *"Betaproteobacteria"* NP [155]

Order I. *"Burkholderiales"* NP (T)

Family I. *"Burkholderiaceae"* NP

Genus I. *Burkholderia* VP (T)

Burkholderia cepacia VP (T) (Palleroni and Holmes 1981) Yabuuchi et al. 1993 <- *Pseudomonas cepacia* (basonym) - Ballard 717 | ATCC 25416, M22518, Bur.cepaci | ATCC 25416, U96927, Bur.cepac8 | CFBP 2227 | DSM 7288 | ICPB 25 | NCTC 10743

Burkholderia ambifaria VP Coenye et al. 2001 - AMMD, AF043302 | CCUG 44356 | LMG 19182

Burkholderia andropogonis VP (Smith 1911) Gillis et al. 1995 <- *Pseudomonas andropogonis* (basonym) = *Pseudomonas woodsii* (heterotypic synonym) - ATCC 23061, X67037, Bur.androp | CFBP 2421 | DSM 9511 | ICMP 2807 | LMG 2129 | NCPPB 934

Burkholderia anthina VP Vandamme et al. 2002 - W92B | CCUG 46047 | LMG 20980

Burkholderia caledonica VP Coenye et al. 2001 - W50D | CCUG 42236 | LMG 19076, AF215704

Burkholderia caribensis VP Achouak et al. 1999 - MWAP64, Y17009, Bur.caribn | LMG 18531

Burkholderia caryophylli VP (Burkholder 1942) Yabuuchi et al. 1993 <- *Pseudomonas caryophylli* (basonym) - PC 113 | ATCC 25418, X67039, Bur.caryph | CCEB 861 | CFBP 2429 | DSM 50341 | ICMP 512 | LMG 2155 | NCPPB 2151 | PDDCC 512

Burkholderia cenocepacia VP Vandamme et al. 2003 - ATCC BAA-245 | CCM 4899 | LMG 16656, AF148556 | NCTC 13227.

†Burkholderia cocovenenans VP (van Damme et al. 1960) Gillis et al. 1995 = *Burkholderia gladioli* (earlier heterotypic synonym) <- *Pseudomonas cocovenenans* (basonym) - LMAU P25 | ATCC 33664 | DSM 11318 | LMG 11626, U96934, Bur.gladi4 | NCIB 9450

Burkholderia fungorum VP Coenye et al. 2001 - Croize P763–2 | CCUG 31961 | LMG 16225, AF215705

Burkholderia gladioli VP (Severini 1913) Yabuuchi et al. 1993 <- *Pseudomonas gladioli* (basonym) = *Burkholderia cocovenenans* (later heterotypic synonym) = *Pseudomonas antimicrobica* (later heterotypic synonym) - ATCC 10248, X67038, Bur.gladi2 | CFBP 2427 | DSM 4285 | ICPB PM 107 | NBRC 13700 | NCPPB 1891 | NRRL B-793 | PDDCC 3950

Burkholderia glathei VP (Zolg and Ottow 1975) Vandamme et al. 1997 <- *Pseudomonas glathei* (basonym) - N 15 | ATCC 29195, Y17052, Bur.glath1 | DSM 50014 | LMG 14190, U96935, Bur.glath2 | LMG 14190, Y17052, Bur.glath1

Burkholderia glumae VP (Kurita and Tabei 1967) Urakami et al. 1994 <- *Pseudomonas glumae* (basonym) - ATCC 33617 | CFBP 2430 | DSM 7169 | LMG 2196, U96931, Bur.glumae | NCPPB 2981 | NIAES 1169

Burkholderia graminis VP Viallard et al. 1998 - C4D1M, U96939, Bur.gramin | ATCC 700544

Burkholderia hospita VP Goris et al. 2003 - CCUG 43658 | LMG 20598, AY040365

Burkholderia kururiensis VP Zhang et al. 2000 - KP23, AB024310 | JCM 10599

[154] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[155] Ludwig indicates that the *Betaproteobacteria* are a monophyletic group.

Burkholderia mallei [VP] (Zopf 1885) Yabuuchi et al. 1993 <- *Pseudomonas mallei* (basonym) - ATCC 23344, S55000, Bur.mallei

Burkholderia multivorans [VP] Vandamme et al. 1997 - LMG 13010, Y18703 | NCTC 13007

†*Burkholderia norimbergensis* [VP] Wittke et al. 1998 -> *Pandoraea norimbergensis* - R2, Y09879, Bur.norimb | CCUG 39188 | DSM 11628 | LMG 18379

Burkholderia phenazinium [VP] (Bell and Turner 1973) Viallard et al. 1998 <- *Pseudomonas phenazinium* (basonym) - 1A | ATCC 33666 | DSM 10684 | LMG 2247, U96936, Bur.phenaz | NCIB 11027

Burkholderia phymatum [VP] Vandamme et al. 2003 - STM815, AJ302312 | CCUG 47179 | LMG 21445

†*Burkholderia pickettii* [VP] (Ralston et al. 1973) Yabuuchi et al. 1993 <- *Pseudomonas pickettii* (basonym) -> *Ralstonia pickettii* - K-288 | ATCC 27511, S55004, Ral.picket | CIP 73.23 | DSM 6297 | JCM 5969 | NCTC 11149

Burkholderia plantarii [VP] (Azegami et al. 1987) Urakami et al. 1994 <- *Pseudomonas plantarii* (basonym) = *Burkholderia vandii* (later heterotypic synonym) - ATCC 43733 | AZ 8201 | DSM 9509 | ICMP 9424 | JCM 5492 | LMG 9035, U96933, Bur.planta | NIAES 1723

Burkholderia pseudomallei [VP] (Whitmore 1913) Yabuuchi et al. 1993 <- *Pseudomonas pseudomallei* (basonym) - ATCC 23343 | WRAIR 286

Burkholderia pyrrocinia [VP] (Imanaka et al. 1965) Vandamme et al. 1997 <- *Pseudomonas pyrrocinia* (basonym) - 2327 | ATCC 15958 | DSM 10685 | LMG 14191, U96930, Bur.pyrroc

Burkholderia sacchari [VP] Brämer et al. 2001 - IPT101, AF263278 | CCT 6771 | LMG 19450

†*Burkholderia solanacearum* [VP] (Smith 1896) Yabuuchi et al. 1993 <- *Pseudomonas solanacearum* (basonym) -> *Ralstonia solanacearum* - 60-1 | ATCC 11696, X67036, Ral.solan2 | CFBP 2047 | DSM 9544 | ICMP 5712 | ICPB PS 256 | NCPPB 325

Burkholderia stabilis [VP] Vandamme et al. 2000 - LMG 14294, AF148554 | NCTC 13011

Burkholderia terricola [VP] Goris et al. 2003 - LMG 20594, AY040362

Burkholderia thailandensis [VP] Brett et al. 1998 - E264, U91838, Bur.thaila | ATCC 700388

Burkholderia tuberum [VP] Vandamme et al. 2003 - STM678, AJ302311 | CCUG 47178 | LMG 21444

Burkholderia ubonensis [VP] Yabuuchi et al. 2000 - EY 3383

†*Burkholderia vandii* [VP] Urakami et al. 1994 = *Burkholderia plantarii* (earlier heterotypic synonym) - VA-1316 | ATCC 51545 | DSM 9510 | JCM 7957 | LMG 16020, U96932, Bur.plant2

Burkholderia vietnamiensis [VP] Gillis et al. 1995 - TVV75, U96928, Bur.vietn1 | TVV75, U96929, Bur.vietn2 | DSM 11319 | LMG 10929

Genus II. Cupriavidus [VP]

Cupriavidus necator [VP (T)] Makkar and Casida 1987 - N-1 | ATCC 43291, AF191737

Genus III. Lautropia [VP] [156]

Lautropia mirabilis [VP (T)] Gerner-Smidt et al. 1995 - AB2188 | ATCC 51599 | DSM 11362 | NCTC 12852

Genus IV. Limnobacter [VP]

Limnobacter thiooxidans [VP (T)] Spring et al. 2001 - CS-K2, AJ289885 | DSM 13612 | LMG 19593

Genus V. Pandoraea [VP]

Pandoraea apista [VP (T)] Coenye et al. 2000 - CCUG 38412, AF139173 | LMG 16407

Pandoraea norimbergensis [VP] (Wittke et al. 1998) Coenye et al. 2000 <- *Burkholderia norimbergensis* (basonym) - R2, Y09879 | CCUG 39188 | LMG 18379 | DSM 11628

Pandoraea pnomenusa [VP] Coenye et al. 2000 - CCUG 38742, AF139174 | LMG 18087

[156] The position of *Lautropia* is in question.

Pandoraea pulmonicola VP Coenye et al. 2000 - CCUG 38759, AF139175 | LMG 18106
Pandoraea sputorum VP Coenye et al. 2000 - CCUG 39682, AF139176 | LMG 18819
Genus VI. Paucimonas VP
Paucimonas lemoignei VP (Delafield et al. 1965) Jendrossek 2001 <- *Pseudomonas lemoignei* (basonym) - ATCC 17989 | DSM 7445 | LMG 2207, X92555, Ps.lemoign
Genus VII. ***Polynucleobacter*** VP ***(moved)***
Polynucleobacter necessarius VP (T) Heckmann and Schmidt 1987 - ATCC 30859, X93019, Pnb.neces2
Genus VIII. Ralstonia VP [157]
Ralstonia pickettii VP (T) (Ralston et al. 1973) Yabuuchi et al. 1996 <- *Burkholderia pickettii* (basonym) - K-288 | ATCC 27511, S55004, Ral.picket | CIP 73.23 | DSM 6297 | JCM 5969 | NCTC 11149
Ralstonia basilensis VP Steinle et al. 1999 - RK1 | DSM 11853, AF312022
Ralstonia campinensis VP Goris et al. 2001 - WS2, AF312020 | CCUG 44526 | LMG 19282
Ralstonia eutropha VP (Davis 1969) Yabuuchi et al. 1996 <- *Alcaligenes eutrophus* (basonym) - 335 | ATCC 17697 | ATCC 17697, M32021, Ral.eutrop | DSM 531 | IMET 10383
Ralstonia gilardii VP Coenye et al. 1999 - API 141-2-84 | LMG 5886, AF076645, Ral.gilard
Ralstonia insidiosa VP Coenye et al. 2003 - AU2944 | CCUG 46789 | LMG 21421, AF488779
Ralstonia mannitolilytica VP De Baere et al. 2001 - LMG 6866, AJ270258 | NCIMB 10805
Ralstonia metallidurans VP Goris et al. 2001 - CH34, Y10824 | DSM 2839 | LMG 1195
Ralstonia oxalatica VP (ex Khambata and Bhat 1953) Sahin et al. 2000 - Ox1 | DSM 1105, AF155567 | ATCC 11883 | NCIMB 8642 | LMG 2235
Ralstonia paucula VP Vandamme et al. 1999 - CCUG 12507 | CDC E6793 | LMG 3244
Ralstonia solanacearum VP (Smith 1896) Yabuuchi et al. 1996 <- *Burkholderia solanacearum* (basonym) - 60-1 | ATCC 11696, X67036, Ral.solan2 | DSM 9544 | ICMP 5712 | ICPB PS 256 | NCPPB 325
Ralstonia taiwanensis VP Chen et al. 2001 - R1 | CCUG 44338 | LMG 19424, AF300324
Genus IX. Thermothrix VP
Thermothrix thiopara VP (T) Caldwell et al. 1981 - ATCC 29244
Thermothrix azorensis VP Odintsova et al. 1996 - TM | ATCC 51754
Family II. "Oxalobacteraceae" NP
Genus I. Oxalobacter VP (T)
Oxalobacter formigenes VP (T) Allison et al. 1985 - OxB, U49757, Oxa.formi2 | ATCC 35274
Oxalobacter vibrioformis VP Dehning and Schink 1990 - WoOx3 | DSM 5502
Genus II. Duganella VP
Duganella zoogloeoides VP (T) Hiraishi et al. 1997 - OSU 115 | ATCC 25935 | IAM 12670, D14256, Dg.zooglo3
Genus III. Herbaspirillum VP
Herbaspirillum seropedicae VP (T) Baldani et al. 1986 emend. Baldani et al. 1996 - Z67 | ATCC 35892 | DSM 6445, Y10146, Hs.serpedi | NCIB 12540, Y10146, Hs.serpedi
Herbaspirillum frisingense VP Kirchhof et al. 2001 [158] - GSF30, AJ238358 | DSM 13128
Herbaspirillum rubrisubalbicans VP (Christopher and Edgerton 1930) Baldani et al. 1996 <- *Pseudomonas rubrisubalbicans* (basonym) - ATCC 19308, AB021424 | CFBP 1202 | DSM 9440 | ICMP 5777 | LMG 2286 | NCPPB 1027
Genus IV. Janthinobacterium AL

[157] *Ralstonia* moved back into the *Burkholderiaceae* based on recommendations from Kuzuko
[158] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Janthinobacterium lividum [AL (T)] De Ley et al. 1978 - H-24 | ATCC 12473 | CCM 160 | DSM 1522, Y08846, Jb.lividum | NCIB 9130 | NCTC 9796

Janthinobacterium agaricidamnosum [VP] Lincoln et al. 1999 - W1r3, Y08845 | DSM 9628 | NCPPB 3945

Genus V. Massilia [VP]

Massilia timonae [VP (T)] La Scola et al. 2000 - UR/MT95, U54470 | CIP 105350

Genus VI. ***Oxalicibacterium*** [VP]

Oxalicibacterium flavum [VP (T)] Tamer et al. 2003 - NEU 98 | TA17, AY061962 | CCM 7086 | CIP 107889 | KUEN 1580 | LMG 21571

Genus VII. Telluria [VP]

Telluria mixta [VP (T)] (Bowman et al. 1989) Bowman et al. 1993 <- *Pseudomonas mixta* (basonym) - ACM 1762, X65589, Tlr.mixta | ATCC 49108 | DSM 4832 | UQM 1762

Telluria chitinolytica [VP] Bowman et al. 1993 - 20M | ACM 3522 | CNCM I-804

Family III. Alcaligenaceae [VP]

Genus I. Alcaligenes [AL (T)]

Alcaligenes faecalis subspecies faecalis [AL (T)] Castellani and Chalmers 1919 - 16 | ATCC 8750, M22508, Alc.faecal | CCM 1052 | CIP 60.80 | DSM 30030 | DSM 61 | NBRC 13111 | IMET 10443 | NCDO 868 | NCIB 8156

†*Alcaligenes aestus* [AL] Baumann et al. 1972 -> *Deleya aesta* - ATCC 27128 | DSM 30161

†*Alcaligenes aquamarinus* [AL] (ZoBell and Upham 1944) Hendrie et al. 1974 -> *Deleya aquamarina* - ATCC 14400, M93352, Hlm.aqmari | DSM 30161 | NCMB 557

†*Alcaligenes cupidus* [AL] Baumann et al. 1972 -> *Deleya cupida* - 79 | ATCC 27124 | DSM 4740, L42615, Hlm.cupida

Alcaligenes defragrans [VP] Foss et al. 1998 - 54Pin, AJ005447, Alc.defrag | DSM 12141

†*Alcaligenes denitrificans* [VP] (ex Leifson and Hugh 1954) Rüger and Tan 1983 -> *Achromobacter xylosoxidans subspecies denitrificans* - 12 | 55B | ATCC 15173, M22509, Amo.xylden | CIP 7715 | DSM 30026 | NCTC 8582

†*Alcaligenes eutrophus* [AL] Davis 1969 -> *Ralstonia eutropha* - 335 | ATCC 17697 | DSM 531 | IMET 10383

†*Alcaligenes faecalis subspecies homari* [VP] Austin et al. 1981 = *Deleya aquamarina* (earlier heterotypic synonym) - L1 | ATCC 33127 | NCMB 2116

Alcaligenes faecalis subspecies parafaecalis [VP] Schroll et al. 2001 - G, AJ242986 | CIP 106866 | DSM 13975

Alcaligenes latus [AL] Palleroni and Palleroni 1978 - H-4 | ATCC 29712 | DSM 1122 | IAM 12599, D88007, Alc.latus1

†*Alcaligenes pacificus* [AL] Baumann et al. 1972 -> *Deleya pacifica* - 62 | ATCC 27122 | DSM 4742, L42616, Hlm.pacfca

†*Alcaligenes paradoxus* [AL] Davis 1969 -> *Variovorax paradoxus* - 351 | B13-0-1 D | ATCC 17713 | DSM 30034 | DSM 66, AJ420329 | NBRC 15149 | LGM 11797t2 | LGM 1797t1

†*Alcaligenes piechaudii* [VP] Kiredjian et al. 1986 -> *Achromobacter piechaudii* - 366-5 | Hugh 366-5 | ATCC 43552 | CIP 60.75 | DSM 10342 | EY3680, AB010841 | IAM 12591 | LMG 1873

†*Alcaligenes ruhlandii* [VP] (Packer and Vishniac 1955) Aragno and Schlegel 1977 -> *Achromobacter ruhlandii* - ATCC 15749 | DSM 653 | EY3918 , AB010840

†*Alcaligenes venustus* [AL] Baumann et al. 1972 -> *Deleya venusta* - ATCC 27125 | DSM 4743, L42618, Hlm.venust

†*Alcaligenes xylosoxidans* [VP] (Yabuuchi and Yano 1981) Kiredjian et al. 1986 -> *Achromobacter xylosoxidans subspecies xylosoxidans* - KM 543 | ATCC 27061 | CIP 71.32 | NBRC 15126 | NCTC 10807

Genus II. Achromobacter [VP]

Achromobacter xylosoxidans subspecies xylosoxidans [VP (T)] (ex Yabuuchi and Ohyama 1971) Yabuuchi and Yano 1981 emend. Yabuuchi et al. 1998 <- *Alcaligenes xylosoxidans* (basonym) - KM 543 | ATCC 27061, AJ131590 | CIP 71.32 | NBRC 15126 | NCTC 10807

Achromobacter xylosoxidans subspecies denitrificans VP (Rüger and Tan 1983) Yabuuchi et al. 1998 <- *Alcaligenes denitrificans* (basonym) - ATCC 15173 | CIP 77.15 | LMG 1231 | NCTC 8582

Achromobacter piechaudii VP (Kiredjian et al. 1986) Yabuuchi et al. 1998 <- *Alcaligenes piechaudii* (basonym) - 366-5 | Hugh 366-5 | ATCC 43552 | CIP 60.75 | DSM 10342 | EY3680, AB010841, AB010841 | IAM 12591 | LMG 1873

Achromobacter ruhlandii VP (Packer and Vishniac 1955) Yabuuchi et al. 1998 <- *Alcaligenes ruhlandii* (basonym) - ATCC 15749 | DSM 653 | EY3918 , AB010840, AB010840

Genus III. Bordetella AL

Bordetella pertussis AL (T) (Bergey et al. 1923) Moreno-Lopez 1952 - ATCC 9797, U04950, Brd.pertus | DSM 5571

Bordetella avium VP Kersters et al. 1984 - Hinz 591-77 | ATCC 35086, U04947, Brd.avium | CCUG 13726 | DSM 11332 | LMG 1852

Bordetella bronchiseptica AL (Ferry 1912) Moreno-Lopez 1952 - ATCC 19395, U04948, Brd.bronc2 | NCTC 452

Bordetella hinzii VP Vandamme et al. 1995 - TC58 | ATCC 51783 | CIP 104527 | DSM 11333 | LMG 13501, AF177667

Bordetella holmesii VP Weyant et al. 1995 - ATCC 51541 | CDC F5101, U04820, Brd.holmes

Bordetella parapertussis AL (Eldering and Kendrick 1938) Moreno-Lopez 1952 - ATCC 15311, U04949, Brd.pperts | NCTC 5952

Bordetella petrii VP von Wintzingerode et al. 2001 - Se-1111R, AJ249861 | CCUG 43448 | DSM 12804

Bordetella trematum VP Vandamme et al. 1996 - 1779 | CCUG 32381 | DSM 11334, AJ277798 | LMG 13506

Genus IV. Brackiella VP

Brackiella oedipodis VP (T) Willems et al. 2002 - LMG 19451, AJ277742 | DSM 13743 | NCIMB 13739

Genus V. ***Derxia*** AL ***(moved)***[159]

Derxia gummosa AL (T) Jensen et al. 1960 - ATCC 15994 | DSM 723 | NCIB 9064

Oligella VP [160]

Oligella urethralis VP (T) (Lautrop et al. 1970) Rossau et al. 1987 <- *Moraxella urethralis* (basonym) - MC213 | ATCC 17960, AF227163 | CCUG 13463 | CDC 7603 | DSM 7531 | LMG 5303, AF133538

Oligella ureolytica VP Rossau et al. 1987 - ATCC 43534, AJ247261 | CCUG 1465 | CDC C379 | LMG 6519

Genus VI. Pelistega VP

Pelistega europaea VP (T) Vandamme et al. 1998 - N57 | LMG 10982, Y11890, Pls.europa

Genus VII. Pigmentiphaga VP

Pigmentiphaga kullae VP (T) Blümel et al. 2001 - K24, AF282916 | DSM 13608 | NCIMB 13708

Genus VIII. Sutterella VP

Sutterella wadsworthensis VP (T) Wexler et al. 1996 - WAL 9799 | ATCC 51579

Genus IX. Taylorella VP

Taylorella equigenitalis VP (T) (Taylor et al. 1983) Sugimoto et al. 1984 <- *Haemophilus equigenitalis* (basonym) - 61717/77 | CIP 7909 | DSM 10668 | NCTC 11184, X68645, Tay.eqgeni

Taylorella asinigenitalis VP Jang et al. 2001 - UCD-1, AF067729 | ATCC 700933 | LMG 19572

Family IV. Comamonadaceae VP

Genus I. Comamonas VP (T)

[159] Phylogenetic data have been communicated to the Trust indicating that *Derxia* is misplaced in the outline. Hui and Akira presented data at the 20th Annual Conference on Bacterial Taxonomy in Japan that the closest relative is *Achromobacter* and suggest membership in the *Alcaligenaceae*

[160] Kersters recommends placement in the *Alcaligenaceae*.

Comamonas terrigena [VP (T)] (Hugh 1962) DeVos et al. 1985 = *Aquaspirillum aquaticum* (later heterotypic synonym) - Hugh 247 | V 31 | IMI 359870 | ATCC 8461 | CCUG 15327 | CCUG 2185 | CIP 63.44 | DSM 7099 | IMET 10768, AF078772, Com.terrig | LMG 5929 | NCIB 8193 | NCTC 1937 | NRRL B-1055

Comamonas acidovorans [VP] (den Dooren de Jong 1926) Tamaoka et al. 1987 <- *Pseudomonas acidovorans* (basonym) -> *Delftia acidovorans* - KS 0057 | ATCC 15668 | DSM 39 | DSM 50251 | IAM 12409, AB021417 | IMET 10620 | JCM 5833 | NCIB 9681

Comamonas aquatica [VP] (Hylemon et al. 1973) Wauters et al. 2003 <- *Aquaspirillum aquaticum* (basonym) - ATCC 11330 | CCUG 15845 | LMG 2370, AJ430344

Comamonas denitrificans [VP] Gumaelius et al. 2001 [161] - 123, AF233877 | ATCC 700936

Comamonas kerstersii [VP] Wauters et al. 2003 - AF61 | CCUG 15333 | LMG 3475, AJ430347

Comamonas koreensis [VP] Chang et al. 2002 [162] - YH-12, AF275377 | IMSNU 11158 | KCTC 12005

Comamonas nitrativorans [VP] Etchebehere et al. 2001 - 23310, AJ251577 | CCT 7062 | DSM 13191 | NCCB 100007

Comamonas testosteroni [VP] (Marcus and Talalay 1956) Tamaoka et al. 1987 <- *Pseudomonas testosteroni* (basonym) - KS 0043 | ATCC 11996, M11224, Com.testos | DSM 50244 | IAM 12419 | ICPB 2741-78 | JCM 5832 | NCIB 8955

Genus II. Acidovorax [VP]

Acidovorax facilis [VP (T)] (Schatz and Bovell 1952) Willems et al. 1990 <- *Pseudomonas facilis* (basonym) - ATCC 11228 | CCUG 2113, AF078765, Av.facilis | DSM 649 | LMG 2193

Acidovorax anthurii [VP] Gardan et al. 2000 - CFBP 3232, AJ007013

Acidovorax avenae subspecies avenae [VP] (Manns 1909) Willems et al. 1992 <- *Pseudomonas avenae subspecies avenae* (basonym) = *Pseudomonas rubrilineans* (later heterotypic synonym) - ATCC 19860, AF078759, Av.avenave | CCUG 15838 | CFPB 2425 | ICMP 3138 | ICPB PA117 | LMG 2117 | NCPPB 1011

Acidovorax avenae subspecies cattleyae [VP] (Pavarino 1911) Willems et al. 1992 <- *Pseudomonas cattleyae* (basonym) - DFBP 2423 | ATCC 33619 | CCUG 21975 | ICMP 2826 | LMG 2364 | LMG 5286 | NCPPB 961, AF078762, Av.avencat

Acidovorax avenae subspecies citrulli [VP] (Schaad et al. 1978) Willems et al. 1992 <- *Pseudomonas avenae subspecies citrulli* (basonym) - ATCC 29625, AF078761, Av.avencit | CCUG 17393 | ICMP 7500 | LMG 5376 | NCPPB 3679

Acidovorax defluvii [VP] Schulze et al. 1999 - BSB411, Y18616 | DSM 12644

Acidovorax delafieldii [VP] (Davis 1970) Willems et al. 1990 <- *Pseudomonas delafieldii* (basonym) - 133 | FD-6 | ATCC 17505, AF078764, Av.delfldi | CCUG 1779 | DSM 64 | LMG 5943

Acidovorax konjaci [VP] (Goto 1983) Willems et al. 1992 <- *Pseudomonas avenae subspecies konjaci* (basonym) - K2 | ATCC 33996, AF078760, Av.konjaci | DSM 7481 | ICMP 7733 | LMG 5691 | PDDCC 7733

Acidovorax temperans [VP] Willems et al. 1990 - CCUG 11779, AF078766, Av.tempran | DSM 7270 | LMG 7169

Acidovorax valerianellae [VP] Gardan et al. 2003 - CFBP 4730, AJ431731 | NCPPB 4283

Genus III. ***Alicycliphilus*** [VP]

Alicycliphilus denitrificans [VP (T)] Mechichi et al. 2003 - K601, AJ418042 | CIP 107495 | DSMZ 14773

Genus IV. Brachymonas [VP]

Brachymonas denitrificans [VP] Hiraishi et al. 1995 - AS-P1, D14320, Brch.denit | JCM 9216

[161] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[162] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Genus V. Caldimonas VP

Caldimonas manganoxidans VP (T) Takeda et al. 2002 - HS | ATCC BAA-369 | NBRC 16448 | JCM 10698, AB008801

Genus VI. Delftia VP

Delftia acidovorans VP (T) (den Dooren de Jong 1926) Wen et al. 1999 <- *Comamonas acidovorans* (basonym) - ACM 489, AF078774, Df.acvoran | ATCC 15668 | DSM 39 | IAM 12409, AB021417 | JCM 5833

Genus VII. ***Diaphorobacter*** VP

Diaphorobacter nitroreducens VP (T) Khan and Hiraishi 2003 - NA10B, AB064317 | CIP 107294 | JCM 11421

Genus VIII. Hydrogenophaga VP

Hydrogenophaga flava VP (T) (Niklewski 1910) Willems et al. 1989 <- *Pseudomonas flava* (basonym) - ATCC 33667 | CCUG 1658, AF078771, Hgp.flava1 | DSM 619 | LMG 2185

Hydrogenophaga intermedia VP Contzen et al. 2001 [163] - S1, AF019037 | DSM 5680

Hydrogenophaga palleronii VP (Davis et al. 1970) Willems et al. 1989 <- *Pseudomonas palleronii* (basonym) - Stanier 362t1 | ATCC 17724 | CCUG 20334, AF078769, Hgp.palle2 | DSM 63, AF019073, Hgp.paller | LMG 2366

Hydrogenophaga pseudoflava VP (Auling et al. 1978) Willems et al. 1989 <- *Pseudomonas pseudoflava* (basonym) - GA3 | ATCC 33668, AF078770, Hgp.psflav | CCUG 13799 | DSM 1034 | LMG 5945

Hydrogenophaga taeniospiralis VP (Lalucat et al. 1982) Willems et al. 1989 <- *Pseudomonas taeniospiralis* (basonym) - 2K1 | ATCC 49743, AF078768, Hgp.taensp | CCUG 15921 | DSM 2082 | LMG 7170

Genus IX. ***Lampropedia*** AL ***(moved)***

Lampropedia hyalina AL (T) (Ehrenberg 1832) Schroeter 1886 - ATCC 11041[164]

Genus X. Macromonas AL [165]

Macromonas mobilis AL (T) (Lauterborn 1915) Utermohl and Koppe 1924

Macromonas bipunctata VP Dubinina and Grabovich 1989 - DSM 12705 | VKM 1366

Genus XI. Polaromonas VP

Polaromonas vacuolata VP (T) Irgens et al. 1996 - 34-P, U14585, Po.vacuola | ATCC 51984

Genus XII. ***Ramlibacter*** VP

Ramlibacter tataouinensis VP (T) Heulin et al. 2003 - TTB310, AF144383 | ATCC BAA-407 | DSM 14655 | LMG 21543

Ramlibacter henchirensis VP Heulin et al. 2003 - TMB834, AF439400 | ATCC BAA-408 | DSM 14656 | LMG 21542

Genus XIII. Rhodoferax VP

Rhodoferax fermentans VP (T) Hiraishi et al. 1992 - FR2, D16211, Rhf.ferme2 | ATCC 49787 | DSM 10138 | JCM 7819

Rhodoferax antarcticus VP Madigan et al. 2001 [166] - ANT.BR, AF084947 | ATCC 700587

Rhodoferax ferrireducens VP Finneran et al. 2003 - ATCC BAA-621 | DSM 15236 | T118, AF435948

Genus XIV. Variovorax VP

Variovorax paradoxus VP (T) (Davis 1969) Willems et al. 1991 <- *Alcaligenes paradoxus* (basonym) - 351 | ATCC 17713 | DSM 30034 | DSM 66 | ICPB 3985 | NBRC 15149 | LMG 1797t1 | LMG 1797t2

Genus XV. Xenophilus VP

[163] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[164] Hui and Akira presented data at the 20th Annual Conference on Bacterial Taxonomy in Japan indicating that *Lampropedia* should be moved to the *Comamonadaceae*

[165] In their treatment in Vol 2 of *Bergey's Manual of Systematic Bacteriology, Second Ed.*, Dubinina et al. indicate that *Macromonas bipunctata* is more closely related to *Hydrogenophila* (*Comamonadaceae*) rather than members of the *Thiotrichaceae*. However, placement of the genus is difficult as the type material consists of a description rather than a viable specimen.

[166] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Xenophilus azovorans [VP (T)] Blümel et al. 2001 - KF46F, AF285414 | DSM 13620 | NCIMB 13707

Genera incertae sedis *Incertae sedis*[167]

Genus I. Aquabacterium [VP]

Aquabacterium commune [VP (T)] Kalmbach et al. 1999 - B8, AF035054, Aqa.commun | DSM 11901

Aquabacterium citratiphilum [VP] Kalmbach et al. 1999 - B4, AF035050, Aqa.citrph | DSM 11900

Aquabacterium parvum [VP] Kalmbach et al. 1999 - B6, AF035052, Aqa.parvum | DSM 11968

Genus II. Ideonella [VP]

Ideonella dechloratans [VP (T)] Malmqvist et al. 1994 - Anox B, X72724, Id.dechlrt | ATCC 51718 | CCUG 30898 | CCUG 30977

Genus III. Leptothrix [AL]

Leptothrix ochracea [AL (T)] (Roth 1797) Kützing 1843

Leptothrix cholodnii [AL] Mulder and van Veen 1963 - LVMW 99

Leptothrix discophora [VP] Spring et al. 1997 - SS-1, L33975, Lptx.disc3 | SS-1, Z18533, Lptx.disco | ATCC 43182 | CCM 2812 | LMG 8141

Leptothrix lopholea [AL] Dorff 1934 - LVMW 124

Leptothrix mobilis [VP] Spring et al. 1997 - Feox-1, X97071, Lptx.mobil | DSM 10617 | LMG 17066

Genus IV. Roseateles [VP]

Roseateles depolymerans [VP (T)] Suyama et al. 1999 - 61A, AB003624, Rst.dpoly2 | 61A, AB003623, Rst.dpolym | DSM 11813, AB003624, Rst.dpoly2 | DSM 11813, AB003623, Rst.dpolym

Genus V. Rubrivivax [VP]

Rubrivivax gelatinosus [VP (T)] (Molisch 1907) Willems et al. 1991 <- *Rhodocyclus gelatinosus* (basonym) - ATH 2.2.1, M60682, Rub.gelati | ATCC 17011, D16213, Rub.gelat2 | DSM 1709 | LMG 4311 | NCIB 8290

Genus VI. ***Schlegelella*** [VP]

Schlegelella thermodepolymerans [VP (T)] Elbanna et al. 2003 - K14, AY152824 | DSM 15344 | LMG 21644

Genus VII. Sphaerotilus [AL]

Sphaerotilus natans [AL (T)] Kützing 1833 - 6 | ATCC 13338 | DSM 6575

Genus VIII. Tepidimonas [VP]

Tepidimonas ignava [VP (T)] Moreira et al. 2000 - SPS-1037, AF177943 | DSM 12034

Genus IX. Thiomonas [VP]

Thiomonas intermedia [VP (T)] (London 1963) Moreira and Amils 1997 <- *Thiobacillus intermedius* (basonym) - ATCC 15466

Thiomonas cuprina [VP] (Huber and Stetter) Moreira and Amils 1997 - Hö5 | DSM 5495, U67162, Tmn.cuprin

Thiomonas perometabolis [VP] (London and Rittenberg 1967 emend. Katayama-Fujimura and Kuraishi 1983) Moreira <- *Thiobacillus perometabolis* (basonym) - ATCC 23370

Thiomonas thermosulfata [VP] Shooner et al. 1996) Moreira and Amils 1997 <- *Thiobacillus thermosulfatus* (basonym) - ATCC 51520, U27839, Tmn.thsulf

Genus X. Xylophilus [VP][168]

Xylophilus ampelinus [VP (T)] (Panagopoulos 1969) Willems et al. 1987 <- *Xanthomonas ampelina* (basonym) - ATCC 33914, AF078758, Xp.ampelin | CNPB 1192 | DSM 7250 | LMG 5856 | LMG 5856 | NCPPB 2217 | PDDCC 4298

Order II. *"Hydrogenophilales"* [NP][169]

[167] Although closely aligned with the *Comamonadacea*, Willems has recommended that *Aquabacterium, Ideonella, Leptothrix, Roseateles, Rubrivivax, Sphaerotilus, Tepidimonas*, and *Thiomonas* be excluded from the family. These genera consistently cluster in a separate group within phylogenetic trees generated by multiple methods.

[168] Willems notes that *Xylophilus* was misplaced in the *Pseudomonadaceae*

[169] Ludwig indicates that the *Hydrogenophilales* represents the deepest branching group within the *Betaproteobacteria* .

Family I. "Hydrogenophilaceae" [NP]

Genus I. Hydrogenophilus [VP (T)]

Hydrogenophilus thermoluteolus [VP (T)] Hayashi et al. 1999 - TH-1, AB009828, Hgh.thlute | NBRC 14978

Hydrogenophilus hirschii [VP] Stöhr et al. 2001 - Yel5a | DSM 11420 | JCM 10831

Genus II. Thiobacillus [AL 170]

Thiobacillus thioparus [AL (T)] Beijerinck 1904 - ATCC 8158, M79426, Thb.thiopa | CIP 104484 | DSM 505 | NCIB 8370

†*Thiobacillus acidophilus* [VP] Harrison 1983 -> *Acidiphilium acidophilum* - TM | ATCC 27807, D86511, Acdp.acphl | CIP 104483 | DSM 700

†*Thiobacillus albertis* [VP] Bryant et al. 1988 -> *Acidithiobacillus albertensis* - ATCC 35403

Thiobacillus aquaesulis [VP] Wood and Kelly 1995 - ATCC 43788 | DSM 4255

†*Thiobacillus caldus* [VP] Hallberg and Lindström 1995 -> *Acidithiobacillus caldus* - KU | ATCC 51756 | DSM 8584, Z29975, Thb.caldus

†*Thiobacillus concretivorus* [AL] Parker 1945 = *Thiobacillus thiooxidans* (earlier heterotypic synonym) - NCIB 8345

Thiobacillus delicatus [VP] Katayama-Fujimura et al. 1984 - THI 091 | IAM 12624

Thiobacillus denitrificans [VP] Kelly and Harrison 1989 - ATCC 23644, AJ243144 | DSM 12475 | JCM 3870 | NCIB 8327 | NCIMB 9548

†*Thiobacillus ferrooxidans* [AL] Temple and Colmer 1951 -> *Acidithiobacillus ferrooxidans* - ATCC 23270, M79404 | ATCC 23270, M79405 | ATCC 23270, M79406 | NCIB 8455

†*Thiobacillus halophilus* [VP] Wood and Kelly 1995 -> *Halothiobacillus halophilus* - ATCC 49870, U58020 | DSM 6132

†*Thiobacillus hydrothermalis* [VP] Durand et al. 1997 -> *Halothiobacillus hydrothermalis* - R3, M90662, Thb.hyther | ATCC 51453 | DSM 7121

†*Thiobacillus intermedius* [AL] London 1963 -> *Thiomonas intermedia* - ATCC 15466

†*Thiobacillus neapolitanus* [AL] Parker 1957 -> *Halothiobacillus neapolitanus* - DSM 581 | NCIB 8539, M79399 | NCIB 8539, M79419 | NCIB 8539, M79420

†*Thiobacillus novellus* [AL] Starkey 1934 -> *Starkeya novella* - ATCC 8093 | CCM 1077 | DSM 506 | IAM 12100, D32247 | NBRC 12443 | NCIB 9113

†*Thiobacillus perometabolis* [AL] London and Rittenberg 1967 emend. Katayama-Fujimura and Kuraishi 1983 -> *Thiomonas perometabolis* - ATCC 23370

†*Thiobacillus rapidicrescens* [VP] Katayama-Fujimura et al. 1983 = *Thiobacillus versutus* (earlier heterotypic synonym) - A2 | THI O41 | ATCC 25364 | CCM 2505 | IAM 12814, D32243, Par.versu2

†*Thiobacillus tepidarius* [VP] Wood and Kelly 1985 -> *Thermithiobacillus tepidarius* - ATCC 43215, M79424 | ATCC 43215, M79425 | DSM 3134

†*Thiobacillus thermosulfatus* [VP] Shooner et al. 1996 -> *Thiomonas thermosulfata* - ATCC 51520, U27839, Tmn.thsulf

†*Thiobacillus thiooxidans* [AL] Waksman and Joffe 1922 = *Thiobacillus concretivorus* (later heterotypic synonym) -> *Acidithiobacillus thiooxidans* - ATCC 19377, M79396 | ATCC 19377, M79397 | ATCC 19377, M79398 | ATCC 19377, M79401 | NCIMB 8343

†*Thiobacillus thyasiris* [VP] Wood and Kelly 1995 -> *Thiomicrospira thyasirae* - TG2 | ATCC 51452 | DSM 5322, AF016046

†*Thiobacillus versutus* [VP] Harrison 1983 = *Thiobacillus rapidicrescens* (later heterotypic synonym) -> *Paracoccus versutus* - A2 | ATCC 25364 | CCM 2505 | DSM 582 | IAM 12814, D32243, Par.versu2

Order III. *"Methylophilales"* [NP]

Family I. "Methylophilaceae" [NP]

Genus I. Methylophilus [VP (T)]

[170] Placement of *Thiobacillus* is based on a recommendation of Ludwig. PCA plots show *Thiobacillus* to be quite distinct based on 16S.

Methylophilus methylotrophus [VP (T)] Jenkins et al. 1987 – AS1, M29021, Mlp.methyl | ATCC 53528 | ATCC 53528, L15475, Mlp.methy1 | DSM 46235 | IMET 10786 | NCIB 10515

Methylophilus leisingeri [VP] Doronina and Trotsenko 2001 [171] – DM11, AF250333 | DSM 6813 | VKM B-2013

Genus II. Methylobacillus [AL]

Methylobacillus glycogenes [AL (T)] Yordy and Weaver 1977 emend. Urakami and Komagata 1986 – T-11, M95652, Mbs.glycog | ATCC 29475 | DSM 46232 | DSM 5685 | IMET 10774 | JCM 2850 | NCIB 11375

Methylobacillus flagellatus [VP] Govorukhina et al. 1998 – KT, M95651, Mbs.flagel | ATCC 51484 | DSM 6875 | VKM B-161

Genus III. Methylovorus [VP]

Methylovorus glucosotrophus [VP (T)] Govorukhina and Trotsenko 1991 – 6B1 | UCM B-1475

Methylovorus mays [VP] Doronina et al. 2001 [172] – BV | VKM B-2221

Order IV. *"Neisseriales"* [NP]

Family I. Neisseriaceae [AL]

Genus I. Neisseria [AL (T)]

Neisseria gonorrhoeae [AL (T)] (Zopf 1885) Trevisan 1885 – B 5025 | ATCC 19424 | DSM 9188 | NCTC 8375, X07714, Nis.gonor1

Neisseria animalis [AL] Berger 1960 – NCTC 10212, AJ239288

Neisseria canis [AL] Berger 1962 – H 6 | ATCC 14687, L06170, Nis.canis

Neisseria caviae [AL] Pelczar 1953 = *Moraxella caviae* (homotypic synonym) – GP 11 | ATCC 14659 | CCUG 2132 | CCUG 355, AF005187 | NCTC 10293

Neisseria cinerea [AL] (von Lingelsheim 1906) Murray 1939 – ATCC 14685 | DSM 4630 | NCTC 10294

†*Neisseria cuniculi* [AL] Berger 1962 -> *Moraxella cuniculi* – ATCC 14688

Neisseria denitrificans [AL] Berger 1962 – ATCC 14686, L06173, Nis.denit2 | ATCC 14686, M35020, Nis.dentri

Neisseria dentiae [VP] Sneath and Barrett 1997 – Dent SHI/3848 | V33 | ATCC 70027

Neisseria elongata subspecies elongata [AL] Bovre and Holten 1970 – ATCC 25295, L06171, Nis.elong2

Neisseria elongata subspecies glycolytica [AL] Henriksen and Holten 1976 – ATCC 29315

Neisseria elongata subspecies nitroreducens [VP] Grant et al. 1991 – B1019 | ATCC 49377

Neisseria flava [AL] Bergey et al. 1923 – NRL 30,008

Neisseria flavescens [AL] Branham 1930 – ATCC 13120, L06168, Nis.flaves

Neisseria iguanae [VP] Barrett et al. 1994 – ATCC 51483 | NVSL 85737

Neisseria lactamica [AL] Hollis et al. 1969 – ATCC 23970 | DSM 4691 | NCDC A7515 | NCTC 10617

Neisseria macacae [VP] Vedros et al. 1983 – M-740 | ATCC 33926, L06169, Nis.macaca

Neisseria meningitidis [AL] (Albrecht and Ghon 1901) Murray 1929 – M1027 | ATCC 13077 | DSM 10036 | NCTC 10025

Neisseria mucosa [AL] Veron et al. 1959 – ATCC 19696 | ATCC 25996 | DSM 4631 | NCTC 10774

Neisseria ovis [AL] Lindqvist 1960 = *Moraxella ovis* (homotypic synonym) – ATCC 33078, AF005186

Neisseria perflava [AL] Bergey et al. 1923 – ATCC 10555

Neisseria polysaccharea [VP] Riou and Guibourdenche 1987 – ATCC 43768, L06167, Nis.polsac | CIP 100113 | LNP N462 | NCTC 11858 | NGC 11858

Neisseria sicca [AL] (von Lingelsheim 1908) Bergey et al. 1923 – NRL 30,016

Neisseria subflava [AL] (Flügge 1886) Trevisan 1889 – NRL 30,017

[171] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[172] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Neisseria weaveri [VP] Holmes et al. 1993 - ATCC 51223 | CCUG 4007 | CDC 8142, L10738, Nis.weaver | ISL775/91 | LMG 5135 | NCTC 12742

Genus II. Alysiella [AL]

Alysiella filiformis [AL (T)] (Schmid 1922) Langeron 1923 - A1 | ATCC 15532 | NCTC 10282

Genus III. Aquaspirillum [AL]

Aquaspirillum serpens subspecies serpens [AL (T)] (Müller 1786) Hylemon et al. 1973 emend. Boivin et al. 1985 [173] = *Aquaspirillum bengal* (later heterotypic synonym) - ATCC 12638 | DSM 68

Aquaspirillum serpens subspecies bengal NP Kumar et al. 1974 <- *Aquaspirillum bengal* (basonym) - ATCC 27641

Aquaspirillum anulus [AL] (Williams and Rittenberg 1957) Hylemon et al. 1973 - ATCC 35958 | NCIB 9012 | NRRL B-2067

†*Aquaspirillum aquaticum* [AL] Hylemon et al. 1973 = *Comamonas terrigena* (earlier heterotypic synonym) -> *Comamonas aquatica* - ATCC 11330 | CCUG 17395 | DSM 9155 | LMG 2370

Aquaspirillum arcticum [VP] Butler et al. 1990 - Res-10 | ATCC 49402 | DSM 6444

Aquaspirillum autotrophicum [AL] Aragno and Schlegel 1978 - SA 32 | ATCC 29984 | DSM 732

Aquaspirillum delicatum [AL] (Leifson 1962) Hylemon et al. 1973 - 146 | ATCC 14667 | CCUG 15846 | DSM 11558 | LMG 4328, AF078756, Aqsp.delic | NCIB 9419

Aquaspirillum dispar [AL] Hylemon et al. 1973 = *Microvirgula aerodenitrificans* (later heterotypic synonym) - 104 | ATCC 27510 | DSM 736[174]

†*Aquaspirillum fasciculus* [AL] Strength et al. 1976 -> *Prolinoborus fasciculus* - ATCC 27740 | LMG 6233

Aquaspirillum giesbergeri [AL] (Williams and Rittenberg 1957) Hylemon et al. 1973 - ATCC 11334 | DSM 9157 | NCIB 9073 | NRRL B-2060

Aquaspirillum gracile [AL] (Canale-Parola et al. 1966) Hylemon et al. 1973 - D4 | ATCC 19624, AF078753, Aqsp.graci | DSM 9158

Aquaspirillum itersonii subspecies itersonii [AL] (Giesberger 1936) Hylemon et al. 1973 [175] <- *"Spirillum itersonii subspecies ittersonii"* (basonym) -> *"Levispirillum itersonii" subspecies "ittersonii"* - Giesberger | ATCC 12639 | NCIMB 9070, Z29620, Aqsp.iters | NRRL B-2053

Aquaspirillum itersonii subspecies nipponicum [AL] (Terasaki 1973) Terasaki 1979 <- *"Spirillum itersonii subspecies nipponicum"* (basonym) -> *"Levispirillum itersonii" subspecies "nipponicum"* - KF 8 | ATCC 33333 | DSM 11590 | NBRC 13615

†*Aquaspirillum magnetotacticum* [VP] Maratea and Blakemore 1981 -> *Magnetospirillum magnetotacticum* - MS-1, Y10110 | ATCC 31632 | DSM 3856 | NBRC 15272

Aquaspirillum metamorphum [AL] (Terasaki 1961) Hylemon et al. 1973 - ATCC 15280 | CCUG 13794 | DSM 1837 | NBRC 12012 | LMG 4339, AF078757, Aqsp.metam | NCIB 9509

Aquaspirillum peregrinum subspecies peregrinum [AL] (Pretorius 1963) Hylemon et al. 1973 -> *"Levispirillum peregrinum" subspecies "peregrinum"* - ATCC 15387 | DSM 1839 | NCIB 9435

Aquaspirillum peregrinum subspecies integrum [AL] (Terasaki 1973) Terasaki 1979 -> *"Levispirillum peregrinum" subspecies "integrum"* - MF 19 | ATCC 33334 | DSM 11589 | NBRC 13617

Aquaspirillum polymorphum [AL] (Williams and Rittenberg 1957) Hylemon et al. 1973 - ATCC 11332 | DSM 9160 | IAM 14441 | NBRC 13961 | NCIB 9072 | NRRL B-2066

Aquaspirillum psychrophilum [AL] (Terasaki 1973) Terasaki 1979 - CA 1 | ATCC 33335 | DSM 11588 | NBRC 13611 | NBRC 13611 | LMG 5408, AF078755, Aqsp.psych

[173] This subspecies was automatically created under Rule 40d (formerly Rule 46, IJSEM 50: 2239–2244)

[174] *Microvirgula aerodenitrificans* is the type species. Rule 37a and Rule 42 are in conflict as to which name should be retained.

[175] Pot and Gillis propose that subspecies Aquaspirillum itersonii subspecies itersonii , subspecies niponicum, *A. peregrinum* subspecies periigrinum and subspecies integrum are misclassified. These species have been transferred to a new genus, *Levispirillum*.

Aquaspirillum putridiconchylium [AL] (Terasaki 1961) Hylemon et al. 1973 - ATCC 15279 | NBRC 12013 | NCIB 9508

Aquaspirillum sinuosum [AL] (Williams and Rittenberg 1957) Hylemon et al. 1973 - ATCC 9786 | CCUG 13728 | LMG 4393, AF078754, Aqsp.sinos | NCIB 9010 | NCMB 59 | NRRL B-2065 | VPI 18

Genus IV. Chromobacterium [AL]

Chromobacterium violaceum [AL (T)] Bergonzini 1881 - ATCC 12472, M22510, Crb.violac | DSM 30191 | NBRC 12614 | NCIB 9131 | NCTC 9757

†Chromobacterium fluviatile [VP] Moss et al. 1981 -> *Iodobacter fluviatilis* - 165 | ATCC 33051, M22511, Iod.fluvia | CCM 3308 | DSM 3764 | NCTC 11159

Genus V. Eikenella [AL]

Eikenella corrodens [AL (T)] (Eiken 1958) Jackson and Goodman 1972 - 333/54-55 | ATCC 23834, M22512, Eik.corrod | DSM 8340

Genus VI. Formivibrio [VP] [176]

Formivibrio citricus [VP (T)] Tanaka et al. 1991 - CreCit1 | ATCC 49791 | DSM 6150, Y17602

Genus VII. Iodobacter [VP]

Iodobacter fluviatilis [VP (T)] (Moss et al. 1981) Logan 1989 <- *Chromobacterium fluviatile* (basonym) - Logan C009 | ATCC 33051, M22511, Iod.fluvia | CCM 3308 | DSM 3764 | NCTC 11159

Genus VIII. Kingella [AL]

Kingella kingae [AL (T)] (Henriksen and Bovre 1968) Henriksen and Bovre 1976 - 4177/66 | ATCC 23330, M22517, Kin.kingae | DSM 7536

Kingella denitrificans [AL] Snell and Lapage 1976 - ATCC 33394, M22516, Kin.denitr | DSM 10202 | NCTC 10995

†Kingella indologenes [AL] Snell and Lapage 1976 -> *Suttonella indologenes* - ATCC 25869, M35015, St.indolog | DSM 8309 | NCTC 10717

Kingella oralis [VP] Dewhirst et al. 1993 - UB-38, L06164, Kin.oralis | ATCC 51147 | CCUG 30450, L06164, Kin.oralis

Genus IX. ***Laribacter*** [VP]

Laribacter hongkongensis [VP (T)] Yuen et al. 2002 - HKU1, AF389085 | DSM 14985 | LMG 21516

Genus X. Microvirgula [VP]

Microvirgula aerodenitrificans [VP (T)] Patureau et al. 1998 = *Aquaspirillum dispar* (earlier heterotypic synonym) - SGLY2, U89333, Mvr.ardntf

Genus XI. ***Morococcus*** [VP] ***(moved)*** [177]

Morococcus cerebrosus [VP (T)] Long et al. 1981 - ATCC 33486 | NCTC 11393 | UQM 858

Prolinoborus [VP]

Prolinoborus fasciculus [VP (T)] (Strength et al. 1976) Pot et al. 1992 <- *Aquaspirillum fasciculus* (basonym) - XI | ATCC 27740 | CIP 103579 | LMG 6233

Genus XII. Simonsiella [AL]

Simonsiella crassa [AL] Schmid 1922 - S6 | ATCC 15533 | DSM 2578 | NCTC 10283

Simonsiella muelleri [AL (T)] Schmid 1922 - 36 | ATCC 29453, M59071, Sim.muelle | DSM 2579

Simonsiella steedae [AL] Kuhn and Gregory 1979 - 4 | ATCC 27409, AF328153 | DSM 2580

Genus XIII. Vitreoscilla [AL] [178]

Vitreoscilla beggiatoides [AL (T)] Pringsheim 1949 emend. Strohl et al. 1986 - ATCC 43189 | B23SS

Vitreoscilla filiformis [VP] Strohl et al. 1986 - L1401-2 | ATCC 43190

Vitreoscilla stercoraria [AL] Pringsheim 1951 - SAG 1488-6 | ATCC 15218, L06174, Vit.sterc2 | DSM 513

Genus XIV. Vogesella [VP]

[176] Placement of *Formivibrio* is based on Hippe et al., IJSB, 1999,*49:* 779 and recommendations by Ludwig and Dewhirst.

[177] Sly cites unpublished data that indicates *Morococcus cerebrosus* is closely related to *Neisseria macacae*. However, he indicates that an assertion of synonymy may be premature.

[178] Placement is based on *V. stercoraria* rather than *V. beggiatoides*, the type strain. Placement based on Ludwig's recommendation.

Vogesella indigofera VP (T) (Voges 1893) Grimes et al. 1997 <- *Pseudomonas indigofera* (basonym) - ATCC 19706, U45995, Crb.indgfr | DSM 3303 | IMET 10724

Order V. *"Nitrosomonadales"* NP

Family I. "Nitrosomonadaceae" NP

Genus I. Nitrosomonas AL (T)

Nitrosomonas europaea AL (T) Winogradsky 1892 - C-31, M96399, Nmn.europ2 | ATCC 25978

Nitrosomonas aestuarii VP Koops et al. 2001 [179] - Nm 36

Nitrosomonas communis VP Koops et al. 2001 [180] - Nm 2

Nitrosomonas eutropha VP Koops et al. 2001 [181] - C-91 | Nm 57

Nitrosomonas halophila VP Koops et al. 2001 [182] - Nm 1

Nitrosomonas marina VP Koops et al. 2001 [183] - Nm 22[184]

Nitrosomonas mobilis NP Koops and Pommerening-Röser 2004 = *"Nitrosococcus mobilis"* - Nc2

Nitrosomonas nitrosa VP Koops et al. 2001 [185] - Nc 5 | Nm 90[186]

Nitrosomonas oligotropha VP Koops et al. 2001 [187] - Nm 45[188]

Nitrosomonas ureae VP Koops et al. 2001 [189] - Nm 10

Genus II. Nitrosolobus AL [190]

†*Nitrosolobus multiformis* AL (T) Watson et al. 1971 -> *Nitrosospira multiformis* - C-71 | ATCC 25196, L35509, Nss.multi3

Genus III. Nitrosospira AL

Nitrosospira briensis AL (T) Winogradsky and Winogradsky 1933

Nitrosospira multiformis VP (Watson et al. 1971) Head et al. 1995 <- *Nitrosolobus multiformis* (basonym) - C-71 | ATCC 25196 | ATCC 25196, L35509, Nss.multi3

Nitrosospira tenuis VP Head et al. 1995 - Nv-1

Family II. Spirillaceae AL

Genus I. Spirillum AL (T)

Spirillum volutans AL (T) Ehrenberg 1832 - Wells | ATCC 19554, M34131, Spr.voluta

Family III. Gallionellaceae AL

Genus I. Gallionella AL (T)

Gallionella ferruginea AL (T) Ehrenberg 1838 - no culture isolated, L07897, Gal.ferrug

Order VI. *"Rhodocyclales"* NP

Family I. "Rhodocyclaceae" NP [191]

Genus I. Rhodocyclus AL (T)

Rhodocyclus purpureus AL (T) Pfennig 1978 - DSM 168, M34132, Rcy.purpur | NCIMB 13339

[179] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[180] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[181] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[182] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[183] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[184] Culture collection number reported incorrectly in IJSEM.

[185] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[186] Culture collection number reported incorrectly in IJSEM.

[187] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[188] Culture collection number reported incorrectly in IJSEM.

[189] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[190] Rule 37a(1) states that the name of a taxon must be changed if the nomenclatural type of the taxon is excluded.

[191] Mazanan and co-workers note that the *Rhodocycles* group ("*Rhodocyclaceae*") is in need of revision.

†*Rhodocyclus gelatinosus* VP (Molisch 1907) Imhoff et al. 1984 <- *Rhodopseudomonas gelatinosa* (basonym) -> *Rubrivivax gelatinosus* - ATH 2.2.1, M60682, Rub.gelati | ATCC 17011, D16213, Rub.gelat2 | DSM 1709 | LMG 4311 | NCIB 8290

Rhodocyclus tenuis VP (Pfennig 1969) Imhoff et al. 1984 <- *Rhodospirillum tenue* (basonym) - SMG 109, D16208, Rcy.tenuis | ATCC 25093 | DSM 109

Genus II. Azoarcus VP

Azoarcus indigens VP (T) Reinhold-Hurek et al. 1993 - VB32, AF011345, Azc.indig2 | VB32, L15531, Azc.indige | DSM 12121 | LMG 9092

Azoarcus anaerobius VP Springer et al. 1998 - LuFRes1, Y14701, Azc.anaero | DSM 12081

Azoarcus buckelii VP Mechichi et al. 2002 [192] - U120, AJ315676 | DSM 14744

Azoarcus communis VP Reinhold-Hurek et al. 1993 - SWub3, AF011343, Azc.commu3 | SWub3, X85432, Azc.commun | DSM 12120 | LMG 9095

Azoarcus evansii VP Anders et al. 1995 - KB 740, X77679, Azc.evansi | DSM 6898

Azoarcus toluclasticus VP Song et al. 1999 - MF63, AF123077 | ATCC 700605

Azoarcus tolulyticus VP Zhou et al. 1995 - Tol-4, L33694, Azc.toluly | ATCC 51758

Azoarcus toluvorans VP Song et al. 1999 - Td21, L33692, Azc.denit7 | ATCC 700604

Genus III. Azonexus VP

Azonexus fungiphilus VP (T) Reinhold-Hurek and Hurek 2000 - BS5-8, AF011350 | LMG 19178

Genus IV. Azospira VP

Azospira oryzae VP (T) Reinhold-Hurek and Hurek 2000 - 6a3, AF011347 | LMG 9096

Genus V. Azovibrio VP

Azovibrio restrictus VP (T) Reinhold-Hurek and Hurek 2000 - S5b2, AF011346 | LMG 9099

Genus VI. Dechloromonas VP

Dechloromonas agitata VP (T) Achenbach et al. 2001 - CKB, AF047462 | ATCC 700666 | DSM 13637

Genus VII. Dechlorosoma VP

Dechlorosoma suillum VP (T) Achenbach et al. 2001 - PS, AF170348 | ATCC BAA-33 | DSM 13638

Genus VIII. Ferribacterium VP

Ferribacterium limneticum VP Cummings et al. 2000 - CdA-1, Y17060 | ATCC 700589

Genus IX. Propionibacter VP [193]

†*Propionibacter pelophilus* VP (T) Meijer et al. 1999 -> *Propionivibrio pelophilus* - DSM 12018, AF016690

Genus X. Propionivibrio VP

Propionivibrio dicarboxylicus VP (T) Tanaka et al. 1991 - CreMal1 | DSM 5885, Y17601 | JCM 7784

Propionivibrio limicola VP Brune et al. 2002 - GolChi1, AJ307983 | ATCC BAA-290 | DSM 6832

Propionivibrio pelophilus VP (Meijer et al. 1999) Brune et al. 2002 [194] <- *Propionibacter pelophilus* (basonym) - asp 66, AF016690 | DSM 12018

[195]

Genus XI. Quadricoccus VP

Quadricoccus australiensis VP (T) Maszenan et al. 2002 - Ben 117, AY007722 | CIP 107055 | NCIMB 13738

Genus XII. ***Sterolibacterium*** VP

[192] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[193] Rule 37a(1) states that the name of a taxon must be changed if the nomenclatural type of the taxon is excluded.

[194] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[195] Placement of *Propionivibrio* based on Hippe et al., 1999, IJSB *49:* 779 and discussions with Ludwig and Dewhirst.

Sterolibacterium denitrificans VP (T) Tarlera and Denner 2003 - Chol-1S, AJ306683 | ATCC BAA-354 | DSM 13999

Genus XIII. Thauera VP

Thauera selenatis VP (T) Macy et al. 1993 - AX, X68491, Tha.selnat | ATCC 55363, Y17591[196]

Thauera aminoaromatica VP Mechichi et al. 2002 [197] - S2, AJ315677 | DSM 14742

Thauera aromatica VP Anders et al. 1995 - K 172, X77118, Tha.aromat | DSM 6984

Thauera chlorobenzoica VP Song et al. 2001 [198] - 3CB-1, AF123264 | ATCC 700723

Thauera linaloolentis VP Foss and Harder 1999 - 47Lol, AJ005816, Tha.linalo | DSM 12138

Thauera merchernichensis VP Scholten et al. 1999 - TL1, Y17590 | DSM 12266

Thauera phenylacetica VP Mechichi et al. 2002 [199] - B4P, AJ315678 | DSM 14743

Thauera terpenica VP Foss and Harder 1999 - 58Eu, AJ005817, Tha.terpen | DSM 12139

Genus XIV. Zoogloea AL

Zoogloea ramigera AL (T) Itzigsohn 1868 - 106 | ATCC 19544, X74913, Dg.zooglo7

Zoogloea resiniphila VP Mohn et al. 1999 - DhA-35, AJ011506 | ATCC 700687

Order VII. *"Procabacteriales"* NP

Family I. "Procabacteriaceae" NP

Genus I. "Procabacter"

Candidatus "Procabacter acanthamoeba" VP

Class III. *"Gammaproteobacteria"* NP [200]

Order I. *"Chromatiales"* NP (T)[201]

Family I. Chromatiaceae AL

Genus I. Chromatium AL (T)

Chromatium okenii AL (T) (Ehrenberg 1838) Perty 1852 - DSM 169, AJ223234, Chr.okeni2

†Chromatium buderi AL Trüper and Jannasch 1968 -> *Isochromatium buderi* - ATCC 25588 | DSM 176, AJ224430, Ic.buderiT

†Chromatium glycolicum VP Caumette et al. 1997 -> *Halochromatium glycolicum* - SL 3201 | ATCC 700202 | DSM 11080

†Chromatium gracile AL Strzeszewski 1913 -> *Marichromatium gracile* - DSM 203

†Chromatium minus AL Winogradsky 1888 -> *Thiocystis minor* - DSM 178, Y12372, Thc.minor1

†Chromatium minutissimum AL Winogradsky 1888 -> *Allochromatium minutissimum* - glubokoe | DSM 1376, Y12369, Alm.minsim

†Chromatium purpuratum VP Imhoff and Trüper 1980 -> *Marichromatium purpuratum* - BN 5500, AF001580, Mch.purpu2 | DSM 1591, AJ224439, Mch.purpur

†Chromatium salexigens VP Caumette et al. 1989 -> *Halochromatium salexigens* - SG 3201 | DSM 4395, X98597, Hch.salexi

†Chromatium tepidum VP Madigan 1986 -> *Thermochromatium tepidum* - MC, M59150, Tch.tepidm | ATCC 43061 | DSM 3771

†Chromatium vinosum AL (Ehrenberg 1838) Winogradsky 1888 -> *Allochromatium vinosum* - ATCC 17899 | DSM 180

†Chromatium violascens AL Perty 1852 -> *Thiocystis violascens* - ATCC 17096, AJ224438, Thc.vlscen | DSM 198

[196] The type strain of *Thauera selenatis* is not available as it is a restricted deposit, made in association with a patent application. The unavailability of the the type material technically renders both the species and the genus illegitimate.

[197] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[198] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[199] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[200] Ludwig indicates that the *Betaproteobacteria* are embedded within the *Gammaproteobacteria* and that the relative branching order cannot be unambiguously determined. This is clearly borne out in the trees and PCA plots.

[201] Ludwig indicates that *Chromatiales* is the deepest branching group in the *Gammaproteobacteria*.

†*Chromatium warmingii* [AL] (Cohn 1875) Migula 1900 -> *Allochromatium warmingii* - ATCC 14959 | DSM 173, Y12365, Alm.warmng

Chromatium weissei [AL] Perty 1852 - DSM 171

Genus II. Allochromatium [VP]

Allochromatium vinosum [VP (T)] (Ehrenberg 1838) Imhoff et al. 1998 <- *Chromatium vinosum* (basonym) - ATCC 17899 | DSM 180

Allochromatium minutissimum [VP] (Winogradsky 1888) Imhoff et al. 1998 <- *Chromatium minutissimum* (basonym) - glubokoe | DSM 1376, Y12369, Alm.minsim

Allochromatium warmingii [VP] (Cohn 1875) Imhoff et al. 1998 <- *Chromatium warmingii* (basonym) - ATCC 14959 | DSM 173, Y12365, Alm.warmng

Genus III. Amoebobacter [AL] [202]

†*Amoebobacter roseus* [AL (T)] Winogradsky 1888 -> *Thiocapsa rosea* - DSM 235, AJ002798, Tcp.rosea1 | DSM 235, AJ006062, Tcp.rosea2

†*Amoebobacter pedioformis* [VP] Eichler and Pfennig 1987 -> *Thiolamprovum pedioforme* - CML2 | DSM 3802, Y12297, Tav.pedfrm

†*Amoebobacter pendens* [AL] (Molisch 1906) Pfennig and Trüper 1971 -> *Thiocapsa pendens* - DSM 236, AJ002797, Tcp.penden

†*Amoebobacter purpureus* [VP] Eichler and Pfennig 1989 -> *Pfennigia purpurea* - ThSch 12 | DSM 4197, AJ223235, Abb.purpur | DSM 4197, Y12366, Abb.purpu2 | Schleinsee

Genus IV. Halochromatium [VP]

Halochromatium salexigens [VP (T)] (Caumette et al. 1989) Imhoff et al. 1998 <- *Chromatium salexigens* (basonym) - SG 3201 | DSM 4395, X98597, Hch.salexi

Halochromatium glycolicum [VP] (Caumette et al. 1997) Imhoff et al. 1998 <- *Chromatium glycolicum* (basonym) - SL 3201 | ATCC 700202 | DSM 11080

Genus V. Isochromatium [VP]

Isochromatium buderi [VP (T)] (Trüper and Jannasch 1968) Imhoff et al. 1998 <- *Chromatium buderi* (basonym) - ATCC 25588 | DSM 176, AJ224430, Ic.buderiT

Genus VI. Lamprobacter [VP]

Lamprobacter modestohalophilus [VP (T)] Gorlenko et al. 1988 - INMI RO-1

Genus VII. Lamprocystis [AL]

Lamprocystis roseopersicina [AL (T)] (Kützing 1849) Schroeter 1886 - DSM 229, AJ006063, Lpc.rosprs

Lamprocystis purpurea [VP] (Eichler and Pfennig 1989) Imhoff 2001 [203] <- *Pfennigia purpurea* (basonym) - BN 4450 | ThSch12 | DSM 4197, AJ223235, Abb.purpur | DSM 4197, Y12366, Abb.purpu2 | Schleinsee

Genus VIII. Marichromatium [VP]

Marichromatium gracile [VP (T)] (Strzeszewski 1913) Imhoff et al. 1998 <- *Chromatium gracile* (basonym) - DSM 203

Marichromatium purpuratum [VP] (Imhoff and Trüper 1980) Imhoff et al. 1998 <- *Chromatium purpuratum* (basonym) - BN 5500, AF001580, Mch.purpu2 | DSM 1591, AJ224439, Mch.purpur

Genus IX. Nitrosococcus [AL] [204]

Nitrosococcus nitrosus [AL (T)] (Migula 1900) Buchanan 1925

Nitrosococcus oceani [AL] (Watson 1965) Watson 1971 - C-107, M96395, Nsc.ocean2 | ATCC 19707

Genus X. Pfennigia [VP]

†*Pfennigia purpurea* [VP (T)] (Eichler and Pfennig 1989) Tindall 1999 <- *Amoebobacter purpureus* (basonym) -> *Lamprocystis purpurea* - ThSch 12 | DSM 4197, AJ223235, Abb.purpur | DSM 4197, Y12366, Abb.purpu2 | Schleinsee

Genus XI. Rhabdochromatium [VP]

[202] Rule 37a(1) states that the name of a taxon must be changed if the nomenclatural type of the taxon is excluded.

[203] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[204] Koops places *Nitrosococcus* and *Nitrosolobus* in *Chromatiaceae*. Imhoff only incorporates phototrophs into the family.

Rhabdochromatium marinum [VP (T)] Dilling et al. 1996 - 8315-5, X84316, Rc.marinum | DSM 5261

Genus XII. ***Rheinheimera*** [VP]

Rheinheimera baltica [VP (T)] Brettar et al. 2002 - OSBAC1, AJ441080 | DSM 14885 | LMG 21511

Genus XIII. Thermochromatium [VP]

Thermochromatium tepidum [VP (T)] (Madigan 1986) Imhoff et al. 1998 <- *Chromatium tepidum* (basonym) - MC, M59150, Tch.tepidm | ATCC 43061 | DSM 3771

Genus XIV. Thioalkalicoccus [VP]

Thioalkalicoccus limnaeus Bryantseva et al. 2000 - A26, AJ277023 | ATCC BAA-32

Genus XV. Thiobaca [VP]

Thiobaca trueperi [VP (T)] Rees et al. 2002 - BCH, AJ404006 | ATCC BAA-132 | DSM 13587

Genus XVI. Thiocapsa [AL]

Thiocapsa roseopersicina [AL (T)] Winogradsky 1888 - BN 4210, Y12364, Tcp.rosprs | DSM 217

Thiocapsa halophila [VP] Caumette et al. 1991 -> *Thiohalocapsa halophila* - SG 3202, AJ002796, Thh.haloph | ATCC 49740 | DSM 6210

Thiocapsa litoralis [VP] Puchkova et al. 2000 - BM5, AJ242772 | ATCC 700894

Thiocapsa pendens [VP] (Molisch 1906) Guyoneaud et al. 1998 <- *Amoebobacter pendens* (basonym) - DSM 236, AJ002797, Tcp.penden

†*Thiocapsa pfennigii* [AL] Eimhjellen 1970 -> *Thiococcus pfennigii* - DSM 1375 | DSM 226

Thiocapsa rosea [VP] (Winogradsky 1888) Guyoneaud et al. 1998 <- *Amoebobacter roseus* (basonym) - DSM 235, AJ002798, Tcp.rosea1 | DSM 235, AJ006062, Tcp.rosea2

Genus XVII. Thiococcus [VP]

Thiococcus pfennigii [VP (T)] (Eimhjellen 1970) Imhoff et al. 1998 <- *Thiocapsa pfennigii* (basonym) - 4250, Y12373, Tco.pfnnig | RG3 | DSM 1375 | DSM 226

Genus XVIII. Thiocystis [AL]

Thiocystis violacea [AL (T)] Winogradsky 1888 - 2711, Y11315, Thc.vlacea | DSM 207, Y11315, Thc.vlacea

Thiocystis gelatinosa [AL] (Winogradsky 1888) Pfennig and Trüper 1971 - 2611, Y11317, Thc.gelati | DSM 215, Y11317, Thc.gelati

Thiocystis minor [VP] (Winogradsky 1888) Imhoff et al. 1998 <- *Chromatium minus* (basonym) - DSM 178, Y12372, Thc.minor1

Thiocystis violascens [VP] (Perty 1852) Imhoff et al. 1998 <- *Chromatium violascens* (basonym) - ATCC 17096, AJ224438, Thc.vlscen | DSM 198

Genus XIX. Thiodictyon [AL]

Thiodictyon elegans [AL (T)] Winogradsky 1888 - 3011 | DSM 232

Thiodictyon bacillosum [AL] (Winogradsky 1888) Pfennig and Trüper 1971 - 1814 | DSM 234

Genus XX. Thioflavicoccus [VP]

Thioflavicoccus mobilis [VP (T)] Imhoff and Pfennig 2001 [205] - 8321, AJ010125 | ATCC 700959

Genus XXI. Thiohalocapsa [VP]

Thiohalocapsa halophila [VP (T)] (Caumette et al. 1991) Imhoff et al. 1998 <- *Thiocapsa halophila* (basonym) - SG 3202, AJ002796, Thh.haloph | ATCC 49740 | DSM 6210

Genus XXII. Thiolamprovum [VP]

Thiolamprovum pedioforme [VP (T)] (Eichler and Pfennig 1987) Guyoneaud et al. 1998 <- *Amoebobacter pedioformis* (basonym) - CML 2 | Taichung | DSM 3802, Y12297, Tav.pedfrm

Genus XXIII. Thiopedia [AL]

[205] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Thiopedia rosea [AL (T)] Winogradsky 1888

Genus XXIV. Thiorhodococcus [VP]

Thiorhodococcus minor [VP (T)] Guyoneaud et al. 1998 - ATCC 700259 | CE2203, Y11316, Trc.minor1 | DSM 11518

Genus XXV. Thiorhodovibrio [VP]

Thiorhodovibrio winogradskyi [VP (T)] Overmann et al. 1993 - SSP1, AJ006214, Trv.wingr2 | DSM 6702, AB016986, Trv.wingr3

Genus XXVI. Thiospirillum [AL]

Thiospirillum jenense [AL (T)] (Ehrenberg 1838) Migula 1900 - DSM 216

Family II. Ectothiorhodospiraceae [VP]

Genus I. Ectothiorhodospira [AL]

Ectothiorhodospira mobilis [AL (T)] Pelsh 1936 - DSM 237, X93481, Ec.mobilis

†Ectothiorhodospira abdelmalekii [VP] Imhoff and Trüper 1982 -> *Halorhodospira abdelmalekii* - BN 9840 | ATCC 35917 | DSM 2110

Ectothiorhodospira haloalkaliphila [VP] Imhoff and Süling 1997 - BN 9903, X93479, Ec.haloalk | ATCC 51935

†Ectothiorhodospira halochloris [AL] Imhoff and Trüper 1979 -> *Halorhodospira halochloris* - BN 9850 | ATCC 35916, M59152, Hrh.halch2 | DSM 1059

†Ectothiorhodospira halophila [AL] Raymond and Sistrom 1969 -> *Halorhodospira halophila* - DSM 244

Ectothiorhodospira marina [VP] Imhoff and Süling 1997 - BA 1010 | DSM 241, X93476, Ec.marina

Ectothiorhodospira marismortui [VP] Oren et al. 1990 - EG-1 | DSM 4180, X93482, Ec.marismo

Ectothiorhodospira shaposhnikovii [AL] Cherni et al. 1969 - DSM 243, M59151, Ec.shaposh | KMMGU N1

Ectothiorhodospira vacuolata [VP] Imhoff et al. 1982 - BN 9512 | ATCC 43036 | DSM 2111, X93478, Ec.vacuola

Genus II. Alcalilimnicola [VP]

Alcalilimnicola halodurans [VP (T)] Yakimov et al. 2001 - 34A1c, AJ404972 | DSM 13718 | LMG 20111

Genus III. Alkalispirillum [VP]

Alkalispirillum mobile [VP (T)] Rijkenberg et al. 2002 - SL-1 | DSM 12769, AF114783 [206]

Genus IV. Arhodomonas [VP]

Arhodomonas aquaeolei [VP (T)] Adkins et al. 1993 - HA-1 | ATCC 49307, M26631, Ard.aquaeo | DSM 8974

Genus V. Halorhodospira [VP]

Halorhodospira halophila [VP (T)] (Raymond and Sistrom 1969) Imhoff and Süling 1997 <- *Ectothiorhodospira halophila* (basonym) - DSM 244

Halorhodospira abdelmalekii [VP] (Imhoff and Trüper 1982) Imhoff and Süling 1997 <- *Ectothiorhodospira abdelmalekii* (basonym) - BN 9840 | ATCC 35917 | DSM 2110, X93477, Hrh.abdelm

Halorhodospira halochloris [VP] (Imhoff and Trüper 1979) Imhoff and Süling 1997 <- *Ectothiorhodospira halochloris* (basonym) - BN 9850 | ATCC 35916, M59152, Hrh.halch2 | DSM 1059

Halorhodospira neutrophila [VP] Hirschler-Réa et al. 2003 [207] - SG 3301, AJ318525 | DSM 15116

Genus VI. Nitrococcus [AL] [208]

Nitrococcus mobilis [AL (T)] Watson and Waterbury 1971 - Nb-231 | ATCC 25380, L35510, Nc.mobilis

[206] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[207] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[208] Placement according to PCA plots of Garrity and Lilburn. Position confirmed in both the ARB and RDP trees.

Genus VII. ***Thioalkalispira*** [VP] [209]

Thioalkalispira microaerophila [VP (T)] Sorokin et al. 2002 - ALEN 1, AF481118 | DSM 14786 | UNIQEM 212

Genus VIII. Thioalkalivibrio [VP]

Thioalkalivibrio versutus [VP (T)] Sorokin et al. 2001 - AL 2, AF126546 | CBS 100464 | DSM 13738

Thioalkalivibrio denitrificans [VP] Sorokin et al. 2001 - ALJD, AF126545 | DSM 13742 | NCCB 100001

Thioalkalivibrio jannaschii [VP (T)] Sorokin et al 2002 - ALM 2, AF329083 | DSM 14478 | JCM 11372

Thioalkalivibrio nitratis [VP] Sorokin et al. 2001 - ALJ 12, AF126547 | DSM 13741 | NCCB 100002

Thioalkalivibrio paradoxus [VP] Sorokin et al. 2002 - ARh 1, AF151432 | DSM 13531 | JCM 11367

Thioalkalivibrio thiocyanoxidans [VP] Sorokin et al. 2002 - ARh 2, AF302081 | DSM 13532 | JCM 11368

Genus IX. Thiorhodospira [VP]

Thiorhodospira sibirica [VP (T)] Bryantseva et al. 1999 - A12, AJ006530, Trs.sibiri | ATCC 700588

Family III. "Halothiobacillaceae" [NP]

Genus I. ***Halothiobacillus*** [VP (T]) ***(moved)***

Halothiobacillus kellyi [VP (T)] - Milos-BIII | DSM 13162, AF170419

Order II. *"Acidithiobacillales"* [NP]

Family I. "Acidithiobacillaceae" [NP]

Genus I. Acidithiobacillus [VP (T)]

Acidithiobacillus thiooxidans [AL (T)] (Waksman and Joffe 1922) Kelly and Wood 2000 <- *Thiobacillus thiooxidans* (basonym) = *Thiobacillus concretivorus* (later heterotypic synonym) - ATCC 19377, M79396 | ATCC 19377, M79397 | ATCC 19377, M79398 | ATCC 19377, M79401 | NCIMB 8343

Acidithiobacillus albertensis [VP] (Bryant et al. 1988) Kelly and Wood 2000 <- *Thiobacillus albertensis* (basonym) - ATCC 35403

Acidithiobacillus caldus [VP] (Hallberg and Lindström 1995) Kelly and Wood 2000 -> *Thiobacillus caldus* - KU | ATCC 51756 | DSM 8584, Z29975, Thb.caldus

Acidithiobacillus ferrooxidans [AL] (Temple and Colmer 1951) Kelly and Wood 2000 <- *Thiobacillus ferrooxidans* (basonym) - ATCC 23270, M79404 | ATCC 23270, M79405 | ATCC 23270, M79406 | NCIB 8455

Family II. "Thermithiobacillaceae" [NP]

Genus I. Thermithiobacillus [VP (T)]

Thermithiobacillus tepidarius [VP (T)] (Wood and Kelly 1985) Kelly and Wood 2000 <- *Thiobacillus tepidarius* (basonym) - ATCC 43215, M79424 | ATCC 43215, M79425 | DSM 3134

Order III. *"Xanthomonadales"* [NP] [210]

Family I. "Xanthomonadaceae" [NP]

Genus I. Xanthomonas [AL (T)]

Xanthomonas campestris [AL (T)] (Pammel 1895) Dowson 1939 emend. Vauterin et al. 1995 - P 25 | ATCC 33913 | CFBP 2350 | DSM 3586 | LMG 568, X95917, Xan.campe7 | NCPPB 528 | PDDCC 13

Xanthomonas albilineans [AL] (Ashby 1929) Dowson 1943 - LMG 494, X95918, Xan.albiln | ZA6 | ATCC 33915 | CFBP 2523 | DSM 3583 | NCPPB 2969 | PDDCC 196

†Xanthomonas ampelina [AL] Panagopoulos 1969 -> *Xylophilus ampelinus* - ATCC 33914, AJ420330 | CNBP 1192 | DSM 7250, AF078758 | LMG 5856 | NCPPB 2217 | PDDCC 4298

[209] Positioning of *Thioalkalispira* within the *Ectothiorhodospiraceae* is based upon the RDP rather than what was reported by the Sorokin et al.

[210] Ludwig states that the *Xanthomonadales* probably represents a sister group of the *Betaproteobacteria* and branch higher than *Chromatiales* .

Xanthomonas arboricola [VP] Vauterin et al. 1995 - ICMP 35 | LMG 747, Y10757, Xan.arbori | NCPPB 411

Xanthomonas axonopodis [AL] Starr and Garces 1950 emend. Vauterin et al. 1995 - ATCC 19312 | DSM 3585 | ICMP 50 | ICPB XA 103 | LMG 538, X95919, Xan.axonop | NCPPB 45

Xanthomonas bromi [VP] Vauterin et al. 1995 - CFBP 1976 | ICMP 12545 | LMG 947, Y10764, Xan.bromi1

Xanthomonas cassavae [VP] (ex Wiehe and Dowson 1953) Vauterin et al. 1995 - ICMP 204 | LMG 673, Y10762, Xan.cassav | NCPPB 101

Xanthomonas citri [VP] (ex Hasse) Gabriel et al. 1989 - 3213 | ATCC 49118

Xanthomonas codiaei [VP] Vauterin et al. 1995 - ICMP 9513 | LMG 8678, Y10765, Xan.codiae

Xanthomonas cucurbitae [VP] (ex Bryan 1926) Vauterin et al. 1995 - CFBP 254 | ICMP 2299 | LMG 690, Y10760, Xan.cucurb | NCPPB 2597

Xanthomonas cynarae [VP] Trébaol et al. 2000 - CFBP 4188, AF208315

Xanthomonas fragariae [AL] Kennedy and King 1962 - ATCC 33239 | CFBP 2157 | DSM 3587 | LMG 708, X95920, Xan.fraga2 | NCPPB 1469 | PDDCC 5715

Xanthomonas hortorum [VP] Vauterin et al. 1995 - ICMP 453 | LMG 733, Y10759, Xan.hortor | NCPPB 939

Xanthomonas hyacinthi [VP] (ex Wakker 1883) Vauterin et al. 1995 - ATCC 19314 | CFPB 1156 | ICMP 189 | LMG 739, Y10754, Xan.hyacin | NCPPB 599

†*Xanthomonas maltophilia* [VP] (Hugh 1981) Swings et al. 1983 <- *Pseudomonas maltophilia* (basonym) -> *Stenotrophomonas maltophilia* - 810-2 | RH 1168 | Stanier 67 | ATCC 13637, M59158, Ste.maltop | DSM 50170 | ICPB 2648-67 | LMG 958, X95923, Ste.malto3 | NCIB 9203 | NCTC 10257

Xanthomonas melonis [VP] Vauterin et al. 1995 - ICMP 8682 | LMG 8670, Y10756, Xan.meloni | NCPPB 3434

Xanthomonas oryzae [VP] (ex Ishiyama 1922) Swings et al. 1990 - Dye YK9 | Rao X08 | LMG 5047, X95921, Xan.oryza2 | NCCPPB 3002 | PDDCC 3125

Xanthomonas phaseoli [VP] (ex Smith) Gabriel et al. 1989 - G27 | ATCC 49119

Xanthomonas pisi [VP] (ex Goto and Okabe 1958) Vauterin et al. 1995 - ATCC 35936 | ICMP 570 | LMG 847, Y10758, Xan.pisi1 | NCPPB 762

Xanthomonas populi [VP] (ex Ridé 1958) van den Mooter and Swings 1990 - ATCC 51165 | CFBP 1817 | CFBP 1817 | ICMP 58 | ICMP 5816 | LMG 5743, X95922, Xan.populi | NCPPB 2959

Xanthomonas saccari [VP] Vauterin et al. 1995 - LMG 471, Y10766, Xan.saccha

Xanthomonas theicola [VP] Vauterin et al. 1995 - ICMP 6774 | LMG 8684, Y10763, Xan.theico

Xanthomonas translucens [VP] (ex Jones et al. 1917) Vauterin et al. 1995 - ATCC 19319 | ICMP 5752 | LMG 876, X99299, Xan.trnslu | NCPPB 973

Xanthomonas vasicola [VP] Vauterin et al. 1995 - CFBP 2543 | ICMP 3103 | LMG 736, Y10755, Xan.vasico | NCPPB 2417

Xanthomonas vesicatoria [VP] (ex Doidge 1920) Vauterin et al. 1995 - ICMP 63 | LMG 911, Y10761, Xan.vesitr | NCPPB 422

Genus II. Frateuria [VP]

Frateuria aurantia [VP (T)] Swings et al. 1980 - G-6 | Kond 67 | ATCC 33424 | DSM 6220, AJ010481, Frt.aurant | NBRC 3245, AJ010481, Frt.aurant

Genus III. Fulvimonas [VP]

Fulvimonas soli [VP (T)] Mergaert et al. 2002 - LMG 19981 | DSM 14263, AJ311653

Genus IV. Luteimonas [VP]

Luteimonas mephitis [VP (T)] Finkmann et al. 2000 - B1953/27.1, AJ012228 | DSM 12574

Genus V. Lysobacter [AL] [211]

[211] *Lysobacter antibioticus* belongs to the *Xanthomonadaceae* . No sequence available for the type strain, therefore the position of *Lysobacter* should be regarded as tentative.

Lysobacter enzymogenes subspecies enzymogenes [AL (T)] Christensen and Cook 1978 - Ly e1 | ATCC 29487 | DSM 2043 | UASM 495

Lysobacter enzymogenes subspecies cookii [AL] Christensen and Cook 1978 - ATCC 29488 | UASM 13B

Lysobacter antibioticus [AL] Christensen and Cook 1978 - Ly a2 | ATCC 29479, AB019582, Lyb.antbio | DSM 2044, AB019582, Lyb.antbio

Lysobacter brunescens [AL] Christensen and Cook 1978 - ATCC 29482 | DSM 6979 | NCIB 11895

Lysobacter gummosus [AL] Christensen and Cook 1978 - ATCC 29489 | DSM 6980 | NCIB 11896 | UASM 402

Genus VI. Nevskia [AL] [212]

Nevskia ramosa [AL (T)] Famintzin 1892 - Soe1, AJ001010, Nv.ramosa1 | DSM 11499

Genus VII. Pseudoxanthomonas [VP]

Pseudoxanthomonas broegbernensis [VP (T)] Finkmann et al. 2000 - B1616/1, AJ012231 | DSM 12573

Pseudoxanthomonas taiwanensis [VP] Chen et al. 2002 - CB-226, AF427039 | ATCC BAA-404 | CCRC 17172

Genus VIII. Rhodanobacter [VP] [213]

Rhodanobacter lindaniclasticus [VP (T)] Nalin et al. 1999 - RP5557, AF039167, Rhn.lndcls | LMG 18385

Genus IX. Schineria [VP]

Schineria larvae [VP (T)] Tóth et al. 2001 - L1/68, AJ252143 | DSM 13226 | NCAIM B01938

Genus X. Stenotrophomonas [VP]

Stenotrophomonas maltophilia [VP (T)] (Hugh 1981) Palleroni and Bradbury 1993 <- *Xanthomonas maltophilia* (basonym) - Hugh 810-2 | RH 1168 | Stanier 67 | ATCC 13637, AB008509, Ste.malto2 | ATCC 13637, M59158, Ste.maltop | DSM 50170 | ICPB 2648-67 | IMET 10402 | LMG 958, X95923, Ste.malto3 | NCIB 9203 | NCTC 10257

Stenotrophomonas acidaminiphila [VP] Assih et al. 2002 - AMX 19, AF273080 | ATCC 700916 | CIP 106456 | DSM 13117

Stenotrophomonas africana [VP] Drancourt et al. 1997 - MGB, U62646, Ste.africa | CIP 104854

Stenotrophomonas nitritireducens [VP] Finkmann et al. 2000 - L2, AJ012229 | DSM 12575

Stenotrophomonas rhizophila [VP] Wolf et al. 2002 - e-p10, AJ293463 | ATCC BAA-473 | DSM 14405

Genus XI. Thermomonas [VP]

Thermomonas haemolytica [VP (T)] Busse et al. 2002 - A50-7-3, AJ300185 | DSM 13605 | LMG 19653

Thermomonas hydrothermalis [VP] Alves et al. 2003 - SGM-6, AF542054 | ATCC BAA-470 | DSM 14834

Genus XII. Xylella [VP]

Xylella fastidiosa [VP (T)] Wells et al. 1987 - 2683 PCE-RR | ATCC 35879 | DSM 10026 | ICMP 11140

Order IV. *"Cardiobacteriales"* [NP]

Family I. Cardiobacteriaceae [VP] [214]

Genus I. Cardiobacterium [AL (T)]

Cardiobacterium hominis [AL (T)] Slotnick and Dougherty 1964 - ATCC 15826, M35014, Car.homini | DSM 8339 | NCTC 10426

Genus II. Dichelobacter [VP]

Dichelobacter nodosus [VP (T)] (Beveridge 1941) Dewhirst et al. 1990 <- *Bacteroides nodosus* (basonym) - ATCC 25549 | DSM 20708 | VPI 2340

Genus III. Suttonella [VP]

[212] Positioning based on the location of *Nevskia* within the RDP tree.
[213] *Rhodanobacter* was incorrectly placed within the *Sphingomonadaceae* in the first version of the taxonomic outline.
[214] Ludwig notes that the position of the *Cardiobacteriaceae* is unstable and dependent on the treeing method.

Suttonella indologenes VP (T) (Snell and Lapage 1976) Dewhirst et al. 1990 <- *Kingella indologenes* (basonym) - ATCC 25869, M35015, St.indolog | DSM 8309 | NCTC 10717

Order V. *"Thiotrichales"* NP

Family I. "Thiotrichaceae" NP

Genus I. Thiothrix AL (T)

Thiothrix nivea AL (T) (Rabenhorst 1865) Winogradsky 1888 - JP2, L40993, Thtx.nive2 | DSM 5205

Thiothrix defluvii VP Howarth et al. 1999 - Ben57

Thiothrix disciformis VP Aruga et al. 2002 - B3-1, AB042532 | DSM 14473 | JCM 1136

Thiothrix eikelboomii VP Howarth et al. 1999 - AP3, AB042819 | ATCC 49788

Thiothrix flexilis VP Aruga et al. 2002 - EJ2M-B, AB042545 | DSM 14609 | JCM 11135

Thiothrix fructosivorans VP Howarth et al. 1999 - Q | ATCC 49748

Thiothrix unzii VP Howarth et al. 1999 - A1 | ATCC 49747

Genus II. Achromatium AL [215]

Achromatium oxaliferum AL (T) Schewiakoff 1893 - no culture isolated, L42543, Ama.oxalif

Genus III. Beggiatoa AL

Beggiatoa alba AL (T) (Vaucher 1803) Trevisan 1845 - LSU B18LD

Genus IV. Leucothrix AL

Leucothrix mucor AL (T) Oersted 1844 - 1 | ATCC 25107 | DSM 2157, X87277, Lct.mucor

Genus V. Thiobacterium VP

Thiobacterium bovistum VP (T) La Riviere and Kuenen 1989

Genus VI. Thiomargarita VP

Thiomargarita namibiensis VP (T) Schulz et al. 1999 [216]

Genus VII. Thioploca AL

Thioploca schmidlei AL (T) Lauterborn 1907

Thioploca araucae VP Maier and Gallardo 1984

Thioploca chileae VP Maier and Gallardo 1984

Thioploca ingrica VP Maier 1984 - no pure culture, L40998, Thpl.ingri

Genus VIII. Thiospira AL

Thiospira winogradskyi AL (T) (Omelianski 1905) Visloukh 1914

Family II. "Piscirickettsiaceae" NP

Genus I. Piscirickettsia VP (T)

Piscirickettsia salmonis VP (T) Fryer et al. 1992 - LF-89, U36941, Psr.salmo4 | ATCC(R) VR 1361

Genus II. Cycloclasticus VP

Cycloclasticus pugetii VP (T) Dyksterhouse et al. 1995 - PS-1, U12624, Cyc.pugeti | ATCC 51542

Genus III. Hydrogenovibrio VP

Hydrogenovibrio marinus VP (T) Nishihara et al. 1991 - MH-110, D86374, Hgv.marinu | DSM 11271 | JCM 7688, D86374, Hgv.marinu

Genus IV. Methylophaga VP

Methylophaga marina VP (T) Janvier et al. 1985 - 222 | ATCC 35842, X87338, Mp.marina2 | DSM 5689, X95459, Mp.marina | NCMB 2244

Methylophaga alcalica VP Doronina et al. 2003 - M39, AF384373 | ATCC BAA-297 | VKM B-2251

Methylophaga sulfidovorans VP de Zwart et al. 1998 - RB-1, X95461, Mp.slfidvo | LMD 95.210

Methylophaga thalassica VP Janvier et al. 1985 - ATCC 33146, X87339, Mp.thalas2 | DSM 5690, X95460, Mp.thalass | IAM 12458 | LMG 4055 | NCMB 2163

[215] Position in the RDP tree is not based on sequence data derived from the type strain. Therefore, the placement of *Achromatium* should be regarded as tentative.

[216] A viable sample of *Thiomargarita namibiensis* has not yet been deposited in any culture collection.

Genus V. Thioalkalimicrobium [VP]
Thioalkalimicrobium aerophilum [VP (T)] Sorokin et al. 2001 - AL 3, AF126548 | CBS 100465 | DSM 13739
Thioalkalimicrobium cyclicum [VP] Sorokin et al 2002 - ALM 1, AF329082 | DSM 14477 | JCM 11371
Thioalkalimicrobium sibiricum [VP] Sorokin et al. 2001 - AL 7, AF126549 | DSM 13740 | NCCB 100000
Genus VI. Thiomicrospira [AL]
Thiomicrospira pelophila [AL (T)] Kuenen and Veldkamp 1972 - 4B | ATCC 27801 | DSM 1534, L40809, Tms.peloph
Thiomicrospira chilensis [VP] Brinkhoff et al. 1999 - Ch-1, AF013975, Tms.chilns | DSM 12352
Thiomicrospira crunogena [VP] Jannasch et al. 1985 - TH-55 | ATCC 35932, L40810, Tms.crunog | DSM 12353 | LMD 84.00
Thiomicrospira denitrificans [AL] Timmer-ten Hoor 1975 - ATCC 33889 | DSM 1251, L40808, Tms.denitr[217]
Thiomicrospira frisia [VP] Brinkhoff et al. 1999 - JB-A2, AF013974, Tms.frisia | DSM 12351
Thiomicrospira kuenenii [VP] Brinkhoff et al. 1999 - JB-A1, AF013978, Tms.kuenen | DSM 12350
Thiomicrospira thyasirae [VP] (Wood and Kelly 1995) Wood and Kelly 1995 <- *Thiobacillus thyasiris* (basonym) - TG2 | ATCC 51452 | DSM 5322, AF016046, Tms.thyas2
Family III. "Francisellaceae" [NP] [218]
Genus I. Francisella [AL (T)]
Francisella tularensis subspecies tularensis [AL (T)] (McCoy and Chapin 1912) Dorofeev 1947 - B-38 | ATCC 6223, Z21931, Fnc.tularn
Francisella tularensis subspecies holarctica [VP] Olsufjev and Meshcheryakova 1983 - GIEM 503
Francisella tularensis subspecies mediasiatica [VP] (ex Akimbaev 1966) Olsufjev and Meshcheryakova 1983 - GIEM 543
Francisella tularensis subspecies novicida NP (Larson et al. 1955) Sjöstedt 2004 <- *Francisella novicida* (basonym) - ATCC 15482
†*Francisella novicida* [AL] (Larson et al. 1955) Olsufiev et al. 1959 -> *Francisella tularensis subspecies novicida* - ATCC 15482
Francisella philomiragia [VP] (Jensen et al. 1969) Hollis et al. 1990 <- *Yersinia philomiragia* (basonym) - 0#319L | ATCC 25015 | DSM 7535
Order VI. *"Legionellales"* [NP]
Family I. Legionellaceae [AL]
Genus I. Legionella [AL (T)]
Legionella pneumophila subspecies pneumophila [AL (T)] Brenner et al. 1979 - Philadelphia 1, M36023, Leg.pneuP1 | ATCC 33152, M59157, Leg.pneumo | DSM 7513
Legionella pneumophila subspecies fraseri [VP] Brenner et al. 1989 - Los Angeles 1, M36025, Leg.pneum2 | ATCC 33156 | DSM 7514
Legionella pneumophila subspecies pascullei [VP] Brenner et al. 1989 - U8W | ATCC 33737 | DSM 7515
Legionella adelaidensis [VP] Benson et al. 1991 - 1762-Aus-E | ATCC 49625
Legionella anisa [VP] Gorman et al. 1985 - WA-316-C3, Z32635, Leg.anisa2 | ATCC 35292, X73394, Leg.anisa
Legionella beliardensis [VP] Lo Presti et al. 2001 - Montbéliard A1, AF122884 | ATCC 700512 | CIP 106632
Legionella birminghamensis [VP] Wilkinson et al. 1988 - 1407-AL-H | ATCC 43702
†*Legionella bozemanii* [VP] Brenner et al. 1980 -> *Fluoribacter bozemanae* - WIGA, M36031, Flu.bozema | ATCC 33217

[217] The identity of *Thiomicrospira denitrificans* is questionable as it belongs within the *Epsilonproteobacteria*.
[218] The position of the *Francisellaceae* is ambiguous within the ARB tree.

Legionella brunensis [VP] Wilkinson et al. 1989 – 441-1, Z32636, Leg.brune2 | ATCC 43878
Legionella busanensis [VP] Park et al. 2003 – K9951, AF424887 | ATCC BAA-518 | KCTC 12084
Legionella cherrii [VP] Brenner et al. 1985 – ORW | ATCC 35252, X73404, Leg.cherri
Legionella cincinnatiensis [VP] Thacker et al. 1989 – 72-OH-H | ATCC 43753, X73407, Leg.cincin
†*Legionella dumoffii* [VP] Brenner et al. 1980 -> *Fluoribacter dumoffii* – NY 23, Z32637, Flu.dumof3 | ATCC 33279, X73405, Flu.dumof2
Legionella drozanskii [VP] Adeleke et al. 2001 [219] – LLAP-1, X97355 | ATCC 700990
Legionella erythra [VP] Brenner et al. 1985 – SE-32A-C8, Z32638, Leg.eryth2 | ATCC 35303
Legionella fairfieldensis [VP] Thacker et al. 1991 – 1725-Aus-E | ATCC 49588
Legionella fallonii [VP] Adeleke et al. 2001 [220] – LLAP-10, X97363 | ATCC 700992
Legionella feeleii [VP] Herwaldt et al. 1984 – WO-44C | ATCC 35072, X73395, Leg.feelei
Legionella geestiana [VP] Dennis et al. 1993 – 1308 | ATCC 49504
†*Legionella gormanii* [VP] Morris et al. 1980 -> *Fluoribacter gormanii* – LS-13, Z32639, Flu.gorma2 | ATCC 33297
Legionella gratiana [VP] Bornstein et al. 1991 – Lyon 8420412 | ATCC 49413
Legionella gresilensis [VP] Lo Presti et al. 2001 – Gréoux 11 D13, AF122883 | ATCC 700509 | CIP 106631
Legionella hackeliae [VP] Brenner et al. 1985 – Lansing 2, M36028, Leg.hackel | ATCC 35250
Legionella israelensis [VP] Bercovier et al. 1986 – Bercovier 4, Z32640, Leg.israe2 | ATCC 43119, X73408, Leg.israel
Legionella jamestowniensis [VP] Brenner et al. 1985 – JA-26-G1-E2 | ATCC 35298, X73409, Leg.jamest
Legionella jordanis [VP] Cherry et al. 1982 – BL-540, Z32667, Leg.jorda2 | ATCC 33623, X73396, Leg.jordan
Legionella lansingensis [VP] Thacker et al. 1994 – 1677-MI-H | ATCC 49751
Legionella londiniensis [VP] Dennis et al. 1993 – 1477 | ATCC 49505
Legionella longbeachae [VP] McKinney et al. 1982 – Long Beach 4, M36029, Leg.longbe | ATCC 33462 | DSM 10572 | NCTC 11477
Legionella lytica [VP] (Drozanski 1991) Hookey et al. 1996 <- *Sarcobium lyticum* (basonym) – L2, X97364, Leg.lytic3 | PCM 2298
†*Legionella maceachernii* [VP] Brenner et al. 1985 -> *Tatlockia maceachernii* – PX-1-G2-EZ, Z32641, Tat.macea2 | ATCC 35300
†*Legionella micdadei* [VP] Hebert et al. 1980 = *Legionella pittsburghensis* (homotypic synonym) -> *Tatlockia micdadei* – TATLOCK, M36032, Tat.micdad | ATCC 33218
Legionella moravica [VP] Hebert et al. 1980 – 316-36 | ATCC 43877
Legionella nautarum [VP] Dennis et al. 1993 – 1224 | ATCC 49506
Legionella oakridgensis [VP] Orrison et al. 1983 – Oak Ridge 10, Z32642, Leg.oakrd2 | ATCC 33761, X73397, Leg.oakrdg
Legionella parisiensis [VP] Brenner et al. 1985 – PF-209C-C2 | ATCC 35299
Legionella pittsburghensis [VP] Pasculle et al. 1980 = *Legionella micdadei* (homotypic synonym) – TATLOCK, M36032 | ATCC 33218
Legionella quateirensis [VP] Dennis et al. 1993 – 1335 | ATCC 49507
Legionella quinlivanii [VP] Benson et al. 1990 – 1442-Aus-E | ATCC 43830
Legionella rowbothamii [VP] Adeleke et al. 2001 [221] – LLAP-6, X97359 | ATCC 700991

[219] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[220] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[221] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Legionella rubrilucens [VP] Brenner et al. 1985 – WA-270A-C2, Z32643, Leg.rubri2 | ATCC 35304, X73398, Leg.rubril | DSM 11884
Legionella sainthelensi [VP] Campbell et al. 1984 – Mt. St. Helens 4 | ATCC 35248, X73399, Leg.stheln
Legionella santicrucis [VP] Brenner et al. 1985 – SC-63-C7 | ATCC 35301
Legionella shakespearei [VP] Verma et al. 1992 – 214 | ATCC 49655
Legionella spiritensis [VP] Brenner et al. 1985 – Mount Saint Helens 9, M36030, Leg.spirit | ATCC 35249
Legionella steigerwaltii [VP] Brenner et al. 1985 – SC-18-C9 | ATCC 35302, X73400, Leg.steigw
Legionella taurinensis [VP] Lo Presti et al. 1999 – Turin I no. 1, AF037597, Leg.taurin | ATCC 700508, AF037597, Leg.taurin
Legionella tucsonensis [VP] Thacker et al. 1990 – 1087-AZ-H, Z32644, Leg.tucson | ATCC 49180
Legionella wadsworthii [VP] Edelstein et al. 1983 – Wadsworth 81-716A | ATCC 33877, X73401, Leg.wdswrt
Legionella waltersii [VP] Benson et al. 1996 – 2074-AUS-E, AF122886 | ATCC 51914
Legionella worsleiensis [VP] Dennis et al. 1993 – 1347 | ATCC 49508

Family II. "Coxiellaceae" [NP] [222]

Genus I. Coxiella [AL (T)]

Coxiella burnetii [AL (T)] (Derrick 1939) Philip 1948 – ATCC VR 615

Genus II. Rickettsiella [AL]

Rickettsiella popilliae [AL (T)] (Dutky and Gooden 1952) Philip 1956 – no culture isolated
Rickettsiella chironomi [VP] Weiss et al. 1984 – no culture isolated
Rickettsiella grylli [VP] Weiss et al. 1984 – no culture isolated, U97547, Rcl.grylli
Rickettsiella stethorae [VP] Hall and Badgley 1957 – no culture isolated

Order VII. *"Methylococcales"* [NP] [223]

Family I. Methylococcaceae [VP]

Genus I. Methylococcus [AL (T)]

Methylococcus capsulatus [AL (T)] Foster and Davis 1966 – ACM 1292, X72770, Mlc.capsu3 | ATCC 19069
†Methylococcus bovis [VP] Romanovskaya et al. 1981 = *Methylococcus luteus* (earlier heterotypic synonym) – CM of Whittenbury
Methylococcus chroococcus [VP] Romanovskaya et al. 1981 – 9 of Whittenbury
†Methylococcus luteus [VP] Romanovskaya et al. 1981 -> *Methylobacter luteus* = *Methylococcus bovis* (later heterotypic synonym) – IMET 10584 | UCM 53B | VKM 53 B
Methylococcus mobilis [VP] Hazeu et al. 1980 – LMD 77.28
Methylococcus thermophilus [AL] Malashenko et al. 1975 – ACM 3585, X73819, Mlc.thphil | IMV-2Yu | VKM-2-Yu
†Methylococcus vinelandii [VP] Romanovskaya et al. 1981 = *Methylococcus whittenburyi* (heterotypic synonym) – Mexica of Whittenbury
†Methylococcus whittenburyi [VP] Romanovskaya et al. 1981 = *Methylococcus vinelandii* (heterotypic synonym) -> *Methylobacter whittenburyi* – 1521 of Whittenbury

Genus II. Methylobacter [VP]

Methylobacter luteus [VP (T)] (Romanovskaya et al. 1981) Bowman et al. 1993 <- *Methylococcus luteus* (basonym) – ACM 3304 | IMET 10584 | NCIMB 11914, M95657, Mbc.luteus | UCM 53 B | VKM-53B
†Methylobacter agilis [VP] Bowman et al. 1993 -> *Methylomicrobium agile* – A30, X72767 | ACM 3308 | ATCC 35068 | NCIMB 11124
†Methylobacter albus [VP] Bowman et al. 1993 -> *Methylomicrobium album* – ACM 3314, X72777 | NCIMB 11123 | VKM-BG8
Methylobacter marinus [VP] Bowman et al. 1993 – A45, AF304197 | Lidstrom A4 | ACM 4717

[222] The position of the *Coxiellaceae* is ambiguous within the ARB tree.
[223] The position of the *Methylococcales* is ambiguous within the ARB tree.

†*Methylobacter pelagicus* [VP] (Sieburth et al. 1988) Bowman et al. 1993 <- *Methylomonas pelagica* (basonym) -> *Methylomicrobium pelagicum* - AA23 | NCIMB 2265

Methylobacter psychrophilus [VP] Omel'chenko et al. 2000 - Z-0021 | VKM B-2103, AF152597

Methylobacter whittenburyi [VP] (Romanovskaya et al. 1981) Bowman et al. 1993 <- *Methylococcus whittenburyi* (basonym) - Y | 1521 of Whittenbury | ACM 3310, X72773, Mbc.whtbur | NCIMB 11128, L20843, Mbc.capsul

Genus III. Methylocaldum [VP]

Methylocaldum szegediense [VP (T)] Bodrossy et al. 1998 - OR2, U89300, Mca.szeged

Methylocaldum gracile [VP] Bodrossy et al. 1998 - 14L, U89298 | NCIMB 11912

Methylocaldum tepidum [VP] Bodrossy et al. 1998 - LK6, U89297, Mca.tepidu

Genus IV. Methylomicrobium [VP]

Methylomicrobium agile [VP (T)] (Bowman et al. 1993) Bowman et al. 1995 <- *Methylobacter agilis* (basonym) - A30 | ACM 3308, X72767, Mmb.agile | ATCC 35068 | NCIMB 11124

Methylomicrobium album [VP] (Bowman et al. 1993) Bowman et al. 1995 <- *Methylobacter albus* (basonym) - ACM 3314, X72777, Mmb.album | NCIMB 11123 | VKM-BG8

Methylomicrobium buryatense [VP] Kaluzhnaya et al. 2001 [224] - 5B, AF307138[225] | VKM B-2245

Methylomicrobium pelagicum [VP] (Sieburth et al. 1988) Bowman et al. 1995 <- *Methylobacter pelagicus* (basonym) - AA-23 | ACM 3505, X72775, Mmb.pelagi | NCMB 2265

Genus V. Methylomonas [VP]

Methylomonas methanica [VP (T)] Whittenbury and Krieg 1984 - ACM 3307 | ATCC 35067 | IMET 10542 | NCIB 11130

Methylomonas aurantiaca [VP] Bowman et al. 1990 - JB103, X72776, Mlm.aurant | UQM 3406

Methylomonas fodinarum [VP] Bowman et al. 1990 - LD2 | UQM 3268, X72778, Mlm.fodinr

†*Methylomonas pelagica* [VP] Sieburth et al. 1988 -> *Methylobacter pelagicus* - AA-23 | NCMB 2265

Methylomonas scandinavica [VP] Kalyuzhnaya et al. 2000 - SR5, AJ131369 | VKM B-2140

Genus VI. Methylosarcina [VP]

Methylosarcina fibrata [VP (T)] Wise et al. 2001 - AML-C10, AF177296 | ATCC 700909 | DSM 13736

Methylosarcina quisquiliarum [VP] Wise et al. 2001 - AML-D4, AF177297 | ATCC 700908 | DSM 13737

Genus VII. Methylosphaera [VP]

Methylosphaera hansonii [VP (T)] Bowman et al. 1998 - ACAM 549 | AM6, U67929, Met.hanson

Order VIII. *"Oceanospirillales"* [NP] [226]

Family I. "Oceanospirillaceae" [NP]

Genus I. Oceanospirillum [AL (T)]

Oceanospirillum linum [AL (T)] (Williams and Rittenberg 1957) Hylemon et al. 1973 - ATCC 11336 | DSM 6292 | NCIMB 56

Oceanospirillum beijerinckii subspecies beijerinckii [AL] ((Williams and Rittenberg 1957) Hylemon et al. 1973) emend. Satomi et al. 2002 - ATCC 12754 | DSM 7166 | LMG 5405 | NCMB 52 | VPI 34

[224] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[225] GenBank accession number for strain 5B (AF307139) incorrectly reported in IJSEM.

[226] The position of the *Oceanospirillales* within the ARB tree is ambiguous.

Oceanospirillum beijerinckii subspecies pelagicum [VP] (Terasaki 1973) Pot et al. 1989 <- *Oceanospirillum pelagicum* (basonym) -> *Oceanospirillum beijerinckii* - ATCC 33337 | DSM 6288 | NBRC 13612, AB006761, Osp.beipel | LMG 5307 | NCMB 2228 | SWC UF1

Oceanospirillum commune [VP] (Baumann et al. 1972) Bowditch et al. 1984 <- *Alteromonas communis* (basonym) = *Marinomonas communis* (earlier homotypic synonym) - 8 | ATCC 27118

†*Oceanospirillum hiroshimense* [AL] (Terasaki 1973) Terasaki 1979 -> *Oceanospirillum maris subspecies hiroshimense* - DSM 9524 | NBRC 13616 | LMG 5305 | LMG 7371

Oceanospirillum jannaschii [VP] Bowditch et al. 1984 - 207 | ATCC 27135 | DSM 6295 | NBRC 15466, AB006765, Osp.janna2 | NCIMB 2044

Oceanospirillum japonicum [AL] (Watanabe 1959) Hylemon et al. 1973 - ATCC 19191, AB006766 | DSM 7165 | VPI 38

Oceanospirillum kriegii [VP] Bowditch et al. 1984 -> *Oceanobacter kriegii* - 197 | ATCC 27133 | DSM 6294 | NBRC 15467, AB006767, Osp.krieg2 | NCIMB 2042

Oceanospirillum maris subspecies maris [AL] (Hylemon et al. 1973) emend. Satomi et al. 2002 - Jannasch 101 | ATCC 27509, AB006771, Osp.marmar | DSM 6286 | LMG 5213 | NCIMB 2226 | VPI 35

Oceanospirillum maris subspecies hiroshimense [VP] (Terasaki 1973) Pot et al. 1989 -> *Oceanospirillum maris* <- *Oceanospirillum hiroshimense* (basonym) - LMG 5305 | LMG 7371 | SWC OF2

Oceanospirillum maris subspecies williamsae [VP] Linn and Krieg 1978 -> *Oceanospirillum maris* - 2b | ATCC 29547 | NBRC 15468, AB006763, Osp.marwil

†*Oceanospirillum minutulum* [AL] (Watanabe 1959) Hylemon et al. 1973 -> *Marinospirillum minutulum* - ATCC 19193, AB006769, Mrs.minutl | DSM 6287 | NCIMB 1347

Oceanospirillum multiglobuliferum [AL] (Terasaki 1973) Terasaki 1979 - NBRC 13614, AB006764, Osp.multi2

†*Oceanospirillum pelagicum* [AL] (Terasaki 1973) Terasaki 1979 -> *Oceanospirillum beijerinckii subspecies pelagicum* - DSM 6288 | NBRC 13612 | NCIMB 2228

†*Oceanospirillum pusillum* [AL] (Terasaki 1973) Terasaki 1979 -> *Terasakiella pusilla* - ATCC 33338 | DSM 6293 | IAM 14442 | NBRC 13613, AB006768, Osp.pusil2 | NCIMB 2229

Oceanospirillum vagum [VP] (Baumann et al. 1972) Bowditch et al. 1984 <- *Alteromonas vaga* (basonym) = *Marinomonas vaga* (earlier homotypic synonym) - 40, X67025 | ATCC 27119

Genus II. Balneatrix [VP]

Balneatrix alpica [VP (T)] Dauga et al. 1993 - 4 87, Y17112, Bln.alpica | CIP 103589

Genus III. Marinomonas [VP]

Marinomonas communis [VP (T)] (Baumann et al. 1972) van Landschoot and De Ley 1984 <- *Alteromonas communis* (basonym) = *Oceanospirillum commune* (later homotypic synonym) - 8 | ATCC 27118

Marinomonas mediterranea [VP] Solano and Sanchez-Amat 1999 - MMB-1, AF063027 | CECT 4803 | ATCC 700492

Marinomonas primoryensis [VP] Romanenko et al. 2003 - JCM 11775 | KMM 3633, AB074193 | NRIC 523

Marinomonas vaga [VP] (Baumann et al. 1972) van Landschoot and De Ley 1984 <- *Alteromonas vaga* (basonym) = *Oceanospirillum vagum* (later homotypic synonym) - ATCC 27119, X67025, Mrm.vaga2 | CCUG 16047 | CIP 74.02 | DSM 5605 | LMG 2845 | NCMB 1962

Genus IV. Marinospirillum [VP]

Marinospirillum minutulum [VP (T)] (Watanabe 1959) Satomi et al. 1998 <- *Oceanospirillum minutulum* (basonym) - ATCC 19193, AB006769, Mrs.minutl | DSM 6287 | NCIMB 1347

Marinospirillum alkaliphilum VP Zhang et al. 2002 [227] - Z4, AF275713 | CGMCC AS 1.2746

Marinospirillum megaterium VP Satomi et al. 1998 - H7 | JCM 10129

Genus V. Neptunomonas VP

Neptunomonas naphthovorans VP (T) Hedlund et al. 1999 - ATCC 700637 | NAG-2N-126, AF053734, Npm.nphthv

Genus VI. Oceanobacter VP

Oceanobacter kriegii VP (T) (Bowditch et al. 1984) Satomi et al. 2002 [228] <- *Oceanospirillum kriegii* (basonym) - 197 | ATCC 27133 | DSM 6294 | NBRC 15467, AB006767, Osp.krieg2 | NCIMB 2042

Genus VII. ***Oleispira*** VP

Oleispira antarctica VP (T) Yakimov et al. 2003 - RB-8, AJ426420 | DSM 14852 | LMG 21398

Genus VIII. Pseudospirillum VP

Pseudospirillum japonicum VP (T) (Watanabe 1959) Satomi et al. 2002 [229] <- *Oceanospirillum japonicum* (basonym) - ATCC 19191, AB006766

Family II. "Alcanivoraceae" NP

Genus I. Alcanivorax VP (T)

Alcanivorax borkumensis VP (T) Yakimov et al. 1998 = *Fundibacter jadensis* (earlier heterotypic synonym) - SK2, Y12579, Aln.borkum | DSM 11573

Alcanivorax jadensis VP (Bruns and Berthe-Corti 1999) Fernández-Martínez et al. 2003 <- *Fundibacter jadensis* (basonym) - T9, AJ001150 | DSM 12178

Alcanivorax venustensis VP Fernández-Martínez et al. 2003 - ISO4, AF328762 | CECT 5388 | DSM 13974

Genus II. Fundibacter VP [230]

Fundibacter jadensis VP (T) Bruns and Berthe-Corti 1999 = *Alcanivorax borkumensis* (later heterotypic synonym) - T9, AJ001150, Fn.jadensi | DSM 12178

Family III. "Hahellaceae" NP

Genus I. Hahella VP (T)

Hahella chejuensis VP (T) Lee et al. 2001 [231] - KCTC 2396, AF195410 | IMSNU 11157

Genus II. ***Zooshikella*** VP [232]

Zooshikella ganghwensis VP (T) Yi et al. 2003 - JC2044, AY130994 | DSM 15267 | KCTC 12044 | IMSNU 14003

Family IV. Halomonadaceae VP

Genus I. Halomonas VP (T)

Halomonas elongata VP (T) Vreeland et al. 1980 - 1H9 | ATCC 33173, M93355, Hlm.elong2 | ATCC 33173, X67023, Hlm.elonga | DSM 2581 | IAM 14166

Halomonas alimentaria VP Yoon et al. 2002 - YKJ-16, AF211860 | JCM 10888 | KCCM 41042

Halomonas aquamarina VP (ZoBell and Upham 1944) Dobson and Franzmann 1996 <- *Deleya aquamarina* (basonym) - 558 | ATCC 14400, M93352, Hlm.aqmari | DSM 30161 | IAM 12550 | NCMB 557

Halomonas campisalis VP Mormile et al. 2000 - A4 | ATCC 700597, AF054286

[227] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[228] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[229] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[230] The 16S sequence of the type species of *Fundibacter* shows 97.94% similarity to *Alcanivorax*. As *Alcanivorax* has precedence, *Fundibacter* should be regarded as a junior heterotypic synonym of *Alcanivorax*.

[231] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[232] The current position of *Zooshikella* is tentative and based on the limited taxon sampling of Yi et al. There appears to be a string affinity to numerous *Pseudomonas* spp as well as *Microbulbifer*, *Marinobacter* and *Marinobacterium*.

†*Halomonas canadensis* [VP] Huval et al. 1996 -> *Chromohalobacter canadensis* - HX | ATCC 43984, AJ295143 | DSM 6769, AF211861 | NRCC 41227

Halomonas cupida [VP] (Baumann et al. 1972) Dobson and Franzmann 1996 <- *Deleya cupida* (basonym) - 79 | ATCC 27124 | DSM 4740, L42615, Hlm.cupida

Halomonas desiderata [VP] Berendes et al. 1997 - FB2, X92417, Hlm.desdra | DSM 9502

Halomonas eurihalina [VP] (Quesada et al. 1990) Mellado et al. 1995 <- *Volcaniella eurihalina* (basonym) - F9-6 | ATCC 49336, L42620, Hlm.euriha | ATCC 49336, X87218, Hlm.eurih2 | DSM 5720

Halomonas halmophila [VP] (Elazari-Volcani 1940) Franzmann et al. 1989 emend. Dobson et al. 1990 <- *Flavobacterium halmophilum* (basonym) - ATCC 19717, M59153 | DSM 5349 | IAM 14439 | NCMB 1971

Halomonas halocynthiae [VP] Romanenko et al. 2002 - DSM 14573 | KMM 1376, AJ417388

Halomonas halodenitrificans [VP] (Robinson and Gibbons 1952) Dobson and Franzmann 1996 <- *Paracoccus halodenitrificans* (basonym) - ATCC 13511, L04942, Hlm.halden | ATCC 13511 | CCM 286 | DSM 735 | NCMB 700

Halomonas halodurans [VP] Hebert and Vreeland 1987 - C-1 | ATCC 29686, L42619 | DSM 5160

Halomonas halophila [VP] (Quesada et al. 1984) Dobson and Franzmann 1996 <- *Deleya halophila* (basonym) - F5-7 | CCM 3662, L42619, Hlm.haldur | DSM 4770, M93353, Hlm.hphila

†*Halomonas israelensis* [VP] Huval et al. 1996 -> *Chromohalobacter israelensis* - Ba1 | ATCC 43985, AJ295144 | DSM 6768, AF211862

Halomonas magadiensis [VP] Duckworth et al. 2000 - 21M1 | NCIMB 13595

†*Halomonas marina* [VP] (Cobet et al. 1970) Dobson and Franzmann 1996 <- *Deleya marina* (basonym) -> *Cobetia marina* - 219 | ATCC 25374, M93354, Hlm.marina | CECT 4278 | CIP 104765 | DSM 4741 | LMG 2217 | NCIMB 1877

Halomonas marisflavi [VP] Yoon et al. 2001 - SW32, AF251143 | JCM 10873 | KCCM 80003

Halomonas maura [VP] Bouchotroch et al. 2001 - S-31 | CECT 5298 | DSM 13445

Halomonas meridiana [VP] James et al. 1990 - ACAM 246 | ATCC 49692 | DSM 5425, M93356, Hlm.meridi | UQM 3352

Halomonas muralis [VP] Heyrman et al. 2002 - R-5058 | DSM 14789 | LMG 20969, AJ320530

Halomonas pacifica [VP] (Baumann et al. 1972) Dobson and Franzmann 1996 <- *Deleya pacifica* (basonym) - 62 | ATCC 27122 | DSM 4742, L42616, Hlm.pacfca

Halomonas pantelleriensis [VP] Romano et al. 1997 - AAP, X93493, Hlm.pantel | ATCC 700273 | DSM 9661

Halomonas salina [VP] (Valderrama et al. 1991) Dobson and Franzmann 1996 <- *Deleya salina* (basonym) - F8-11 | ATCC 49509, L42617, Hlm.salina | ATCC 49509, X87217, Hlm.salin2 | DSM 5928 | IAM 14438

Halomonas subglaciescola [VP] Franzmann et al. 1987 - ACAM 12 | ATCC 43668 | DSM 4683, M93358, Hlm.sglacs | IAM 14167 | UQM 2926

Halomonas variabilis [VP] (Fendrich 1989) Dobson and Franzmann 1996 <- *Halovibrio variabilis* (basonym) - III | DSM 3051, M93357, Hlm.varbil | IAM 14440, X90483, Sul.solfa5

Halomonas venusta [VP] (Baumann et al. 1972) Dobson and Franzmann 1996 <- *Deleya venusta* (basonym) - 86 | ATCC 27125 | DSM 4743, L42618, Hlm.venust

Genus II. Carnimonas [VP]

Carnimonas nigrificans [VP (T)] Garriga et al. 1998 - CECT 4437, Y13299 | CTCBS1

Genus III. Chromohalobacter [VP]

Chromohalobacter marismortui [VP (T)] Ventosa et al. 1989 - M.G.1.1 | ATCC 17056, X87219, Ch.marismo | CCM 3518 | DSM 6770 | IAM 14437 | NCIMB 8731

Chromohalobacter canadensis [VP] (Huval et al. 1996) Arahal et al. 2001 <- *Halomonas canadensis* (basonym) - HX | ATCC 43984, AJ295143 | CCM 4920 | CECT 5287 | CIP 105571 | DSM 6769, AF211861 | NCIMB 13766 | NRCC 41227

Chromohalobacter israelensis [VP] (Huval et al. 1996) Arahal et al. 2001 <- *Halomonas israelensis* (basonym) - BA1 | ATCC 43985, AJ295144 | CCM 4920 | CECT 5287 | CIP 106853 | DSM 6768, AF211862 | SAN 6768 | NCIMB 13766

Chromohalobacter salexigens [VP] Arahal et al. 2001 - 1H11 | ATCC BAA-138 | CCM 4921 | CECT 5384 | CIP 106854 | DSM 3043, AJ295146 | NCIMB 13768

Genus IV. ***Cobetia*** [VP]

Cobetia marina [VP (T)] (Cobet et al. 1970) Arahal et al. 2002 <- *Deleya marina* (basonym) - 219 | ATCC 25374 | DSM 4741, AJ306890

Genus V. Deleya [VP]

†Deleya aesta [VP (T)] (Baumann et al. 1972) Baumann et al. 1983 = *Deleya aquamarina* (earlier heterotypic synonym) <- *Alcaligenes aestus* (basonym) - 134 | ATCC 27128

†Deleya aquamarina [VP] (ZoBell and Upham 1944) Akagawa and Yamasato 1989 = *Alcaligenes faecalis homari* (later heterotypic synonym) = *Deleya aesta* (later heterotypic synonym) <- *Alcaligenes aquamarinus* (basonym) -> *Halomonas aquamarina* - ZoBell and Upham 558 | DSM 30161 | NCMB 557

†Deleya cupida [VP] (Baumann et al. 1972) Baumann et al. 1983 <- *Alcaligenes cupidus* (basonym) -> *Halomonas cupida* - 79 | ATCC 2712

†Deleya halophila [VP] Quesada et al. 1984 -> *Halomonas halophila* - F5-7 | CCM 3662 | DSM 4770, M93353

†Deleya marina [VP] (Cobet et al. 1970) Baumann et al. 1983 <- *Pseudomonas marina* (basonym) -> *Halomonas marina* - 219 | ATCC 25374, M93354, Hlm.marina

†Deleya pacifica [VP] (Baumann et al. 1972) Baumann et al. 1983 <- *Alcaligenes pacificus* (basonym) -> *Halomonas pacifica* - 62 | DSM 4742, L42616

†Deleya salina [VP] Valderrama et al. 1991 -> *Halomonas salina* - F8-11, X87217, L42617 | ATCC 49509

†Deleya venusta [VP] (Baumann et al. 1972) Baumann et al. 1983 <- *Alcaligenes venustus* (basonym) -> *Halomonas venusta* - 86

Genus VI. Zymobacter [VP]

Zymobacter palmae [VP (T)] Okamoto et al. 1995 - T109, D14555, Zyb.palmae | ATCC 51623 | DSM 10491 | IAM 14233

Family V. Oleiphilaceae [VP]

Genus I. Oleiphilus [VP (T)]

Oleiphilus messinensis [VP (T)] Golyshin et al. 2002 - ME102, AJ295154 | DSM 13489 | LMG 20357

Family VI. "Saccharospirillaceae" [NP]

Genus I. ***Saccharospirillum*** [VP (T)]

Saccharospirillum impatiens [VP (T)] Labrenz et al. 2003 - EL-105, AJ315983 | CECT 5721 | DSM 12546

Order IX. *Pseudomonadales* [AL]

Family I. Pseudomonadaceae [AL]

Genus I. Pseudomonas [AL (T)]

Pseudomonas aeruginosa [AL (T)] (Schroeter 1872) Migula 1900 - ATCC 10145 | CCEB 481 | DSM 50071, X06684, Ps.aerugi3 | IBCS 277 | ICPB 2523 | LMG 1242, Z76651, Ps.aerugi7 | NCIB 8295 | NCTC 10332 | NRRL B-771

Pseudomonas abietaniphila [VP] Mohn et al. 1999 - BKME-9 | ATCC 700689

†Pseudomonas acidovorans [AL] den Dooren de Jong 1926 -> *Comamonas acidovorans* - KS 0057 | ATCC 15668 | DSM 39 | DSM 50251 | IAM 12409, AB021417 | IMET 10620 | JCM 5833 | NCIB 9681

Pseudomonas agarici [AL] Young 1970 - ATCC 25941, D84005, Ps.agarici | CFBP 2063 | DSM 11810 | ICMP 2656 | ICPB PA144 | LMG 2112, Z76652, Ps.agaric2 | NCPPB 2289

Pseudomonas alcaligenes [AL] Monias 1928 - ATCC 14909 | DSM 50342 | IMET 11155 | LMG 1224, Z76653, Ps.alcali2 | NCTC 10367

Pseudomonas alcaliphila [VP] Yumoto et al. 2001 - AL15-21, AB030583 | IAM 14884 | JCM 10630

†*Pseudomonas aminovorans* [AL] den Dooren de Jong 1926 -> *Aminobacter aminovorans* - TK3001 | ATCC 23314 | DSM 7048, AJ011759, Amb.amnvor | JCM 7852 | NCIB 9039 | NCTC 10

Pseudomonas amygdali [AL] Psallidas and Panagopoulos 1975 = *Pseudomonas ficuserecta* (later heterotypic synonym) = *Pseudomonas meliae* (later heterotypic synonym) = *Pseudomonas savastanoi* (later heterotypic synonym) - AL1 | ATCC 33614, D84007, Ps.amygdal | DSM 7298 | ICMP 3918 | LMG 2123, Z76654, Ps.amygda2 | NCPPB 2607

†*Pseudomonas andropogonis* [AL] (Smith 1911) Stapp 1928 -> *Burkholderia andropogonis* - ATCC 23061, X67037, Bur.androp | CFBP 2421 | DSM 9511 | ICMP 2807 | LMG 2129 | NCPPB 934

Pseudomonas anguilliseptica [AL] Wakabayashi and Egusa 1972 - ATCC 33660 | DSM 12111 | NCMB 1949, X99540, Ps.anguill

†*Pseudomonas antimicrobica* [VP] Attafuah and Bradbury 1990 = *Burkholderia gladioli* (earlier heterotypic synonym) - B | DSM 8361 | NCIB 9898, AB021384

Pseudomonas asplenii [AL] (Ark and Tompkins 1946) Savulescu 1947 - ATCC 23835 | ICMP 3944 | LMG 2137, Z76655, Ps.aspleni

Pseudomonas aurantiaca [AL] Nakhimovskaya 1948 - NCIB 10068

†*Pseudomonas aureofaciens* [AL] Kluyver 1956 = *Pseudomonas chlororaphis* (earlier heterotypic synonym) - ATCC 13985, AF094722

Pseudomonas avellanae [VP] Janse et al. 1997 - F11 | BPIC 631 | DSM 11809 | ICPB 9746 | NCPPB 3487

†*Pseudomonas avenae subspecies avenae* [AL] Manns 1909 = *Pseudomonas rubrilineans* (later heterotypic synonym) -> *Acidovorax avenae subspecies avenae* - ATCC 19860, AF078759, Av.avenave | DSM 7227 | ICMP 3183 | ICPB PA117 | LMG 2117 | NCPPB 1011

†*Pseudomonas avenae subspecies citrulli* [VP] (Schaad et al. 1978) Hu et al. 1991 <- *Pseudomonas pseudoalcaligenes subspecies citrulli* (basonym) -> *Acidovorax avenae subspecies citrulli* - ATCC 29625, AF078761, Av.avencit | CCUG 17393 | ICMP 7500 | LMG 5376 | NCPPB 961, AF078762

†*Pseudomonas avenae subspecies konjaci* [VP] (Goto 1983) Hu et al. 1991 <- *Pseudomonas pseudoalcaligenes subspecies konjaci* (basonym) -> *Acidovorax konjaci* - K2 | ATCC 33996, AF078760, Av.konjaci | CCUG 17394 | DSM 7481 | ICMP 7733 | LMG 5691 | PDDCC 7733

Pseudomonas azotoformans [AL] Iizuka and Komagata 1963 - IAM 1603, D84009, Ps.azotofo

Pseudomonas balearica [VP] Bennasar et al. 1996 - SP1402, U26418, Ps.baleari | DSM 6083

Pseudomonas beijerinckii [AL] Hof 1935 - L 593 | ATCC 19372, AB021386 | DSM 7218 | NCIB 9041

Pseudomonas beteli [AL] (Ragunathan 1928) Savulescu 1947 - ATCC 19861 | ICMP 2820 | LMG 978

Pseudomonas boreopolis [AL] Gray and Thornton 1928 - NCIB 9401

Pseudomonas brassicacearum [VP] Achouak et al. 2000 - CFBP 11706, AF100321 | DBK 11

Pseudomonas brenneri [VP] Baïda et al. 2002 [233] - CFML 97-391, AF268968 | CIP 106646

Pseudomonas cannabina [VP] (ex Sutic and Dowson 1959) Gardan et al. 1999 - CFBP 2341 | ICMP 2823 | NCPPB 1437

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Pseudomonas carboxydohydrogena [VP] Meyer et al. 1980 - Z-1062 | ATCC 29978 | DSM 1083, AB021393

Pseudomonas caricapapayae [AL] Robbs 1956 - ATCC 33615, D84010, Ps.caripap | CFBP 3204 | NCPPB 1873

†*Pseudomonas caryophylli* [AL] (Burkholder 1942) Starr and Burkholder 1942 -> *Burkholderia caryophylli* - PC 113 | ATCC 25418, X67039, Bur.caryph | CCEB 861 | CFBP 2429 | DSM 50341 | ICMP 512 | LMG 2155 | NCPPB 2151 | PDDCC 512

†*Pseudomonas cattleyae* [AL] (Pavarino 1911) Savulescu 1947 -> *Acidovorax avenae subspecies cattleyae* - ATCC 33619 | CCUG 21975 | DFBP 2423 | ICMP 2826 | LMG 2364 | LMG 5286 | NCPPB 961, AF078762, Av.avencat

Pseudomonas cedrina [VP] Dabboussi et al. 2002 [234] - CFML 96-198, AF064461 | CIP 105541

†*Pseudomonas cepacia* [VP] Palleroni and Holmes 1981 -> *Burkholderia cepacia* - 717-ICPB 25 | Ballard 717 | Burkholder | ATCC 25416, M22518, Bur.cepaci | ATCC 25416, U96927, Bur.cepac8 | DSM 7288 | ICPB 25 | NCTC 10743

Pseudomonas chloritidismuta [VP] Wolterink et al. 2002 - AW-1, AY017341 | ATCC BAA-443 | DSM 13592

Pseudomonas chlororaphis [AL] (Guignard and Sauvageau 1894) Bergey et al. 1930 = *Pseudomonas aureofaciens* (later heterotypic synonym) - ATCC 9446 | CCM 1975 | DSM 50083 | ICPB 2392 | NBRC 3904, D86004, Ps.chlrap2 | IMET 10404 | LMG 5004, Z76657, Ps.chlrap3 | NCIB 9392 | NRRL B-560

Pseudomonas cichorii [AL] (Swingle 1925) Stapp 1928 - PC 1 | ATCC 10857 | CFBP 2101 | DSM 50259 | ICMP 5707 | IMET 11188 | LMG 2162, Z76658, Ps.cichori

Pseudomonas cissicola [AL] (Takimoto 1939) Burkholder 1948 - ATCC 33616, AB021399 | CCM 2888 | NCPPB 2982

Pseudomonas citronellolis [AL] Seubert 1960 - ATCC 13674 | CIP 104381 | DSM 50332, Z76659, Ps.citrone

†*Pseudomonas cocovenenans* [AL] van Damme et al. 1960 -> *Burkholderia cocovenenans* - LMAU P25 | ATCC 33664 | DSM 11318 | LMG 11626, U96934, Bur.gladi4 | NCIB 9450

Pseudomonas corrugata [VP] Roberts and Scarlett 1981 emend. Sutra et al. 1997 - ATCC 29736, D84012, Ps.corruga | CFBP 2431 | DSM 7228 | NCPPB 2445

Pseudomonas costantinii [VP] Munsch et al. 2002 - CFBP 5705 | HAMBI 2444 | PS 3a, AF374472

Pseudomonas cremoricolorata [VP] Uchino et al. 2002 [235] - CC-8 | JCM 11246 | NBRC 16634 | NRIC 0181

†*Pseudomonas delafieldii* [AL] Davis 1970 -> *Acidovorax delafieldii* - FD-6 | Stanier 133 | ATCC 17505, AF078764, Av.delfldi | CCUG 1779 | DSM 64 | LMG 5943

†*Pseudomonas diminuta* [AL] Leifson and Hugh 1954 -> *Brevundimonas diminuta* - ATCC 11568, M59064, Br.diminu2 | DSM 7234 | IMET 10409

Pseudomonas doudoroffii [AL] Baumann et al. 1972 -> *Oceanimonas doudoroffi* - 70 | ATCC 27123, AB021371 | DSM 7028 | IAM 14168

†*Pseudomonas echinoides* [AL] Heumann 1962 -> *Sphingomonas echinoides* - ATCC 14820, AB021370 | DSM 1805, AJ012461, Ps.echinoi | DSM 50409 | ICPB 2835 | NCIB 9420

Pseudomonas elongata [AL] Humm 1946 - ATCC 10144, AB021368 | DSM 6810 | LMG 2182 | NCIB 1141

Pseudomonas extremorientali [VP] Ivanova et al. 2002 - KMM 3447 | LMG 19695, AF405328

†*Pseudomonas facilis* [AL] (Schatz and Bovell 1952) Davis 1969 -> *Acidovorax facilis* - ATCC 11228 | CCUG 2113, AF078765, Av.facilis | DSM 649 | LMG 2193

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[235] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

†*Pseudomonas ficuserectae* [VP] Goto 1983 = *Pseudomonas amygdali* (earlier heterotypic synonym) - L7 | ATCC 35104 | CFBP 3224 | DSM 6929 | LMG 5694, Z76661, Ps.amygda3 | PDDCC 7848

†*Pseudomonas flava* [AL] (Niklewski 1910) Davis 1969 -> *Hydrogenophaga flava* - ATCC 33667 | CCUG 1658, AF078771, Hgp.flava1 | DSM 619 | LMG 2185

Pseudomonas flavescens [VP] Hildebrand et al. 1994 - B62, U01916, Ps.flavesc | DSM 12071 | NCPPB 3063

Pseudomonas flectens [AL] Johnson 1956 - ATCC 12775, AB021400 | ICMP 745 | LMG 2187

Pseudomonas fluorescens [AL] Migula 1895 - Biovar I | ATCC 13525 | CCEB 546 | DSM 50090, Z76662, Ps.fluore7 | ICPB 3200 | IMET 10619 | NCIB 9046 | NCTC 10038

Pseudomonas fragi [AL] (Eichholz 1902) Gruber 1905 - ATCC 4973, AF094733 | DSM 3456 | IMET 11250 | NRRL B-25

Pseudomonas frederiksbergensis [VP] Andersen et al. 2000 - JAJ28, AJ249382 | DSM 13022

Pseudomonas fulva [AL] Iizuka and Komagata 1963 - IAM 1529, D84015, Ps.fulva1

Pseudomonas fuscovaginae [VP] Miyajima et al. 1983 - 6801 | ICMP 5940 | CFBP 2065 | DSM 7231 | NCPPB 3085 | PDDCC 5940

Pseudomonas gelidicola [AL] Kadota 1951 - IAM 1127

Pseudomonas geniculata [AL] (Wright 1895) Chester 1901 - ATCC 19374, AB021404

Pseudomonas gessardii [VP] Verhille et al. 1999 - CFML 95-251, AF074384 | CIP 105469

†*Pseudomonas gladioli* [AL] Severini 1913 -> *Burkholderia gladioli* - ATCC 10248, X67038, Bur.gladi2 | CFBP 2427 | DSM 4285 | ICPB PM 107 | NBRC 13700 | NCPPB 1891 | NRRL B-793 | PDDCC 3950

†*Pseudomonas glathei* [AL] Zolg and Ottow 1975 -> *Burkholderia glathei* - ATCC 29195, Y17052, Bur.glath1 | DSM 50014 | LMG 14190, U96935, Bur.glath2 | LMG 14190, Y17052, Bur.glath1 | N 15

†*Pseudomonas glumae* [AL] Kurita and Tabei 1967 -> *Burkholderia glumae* - ATCC 33617 | CFBP 2430 | DSM 7169 | LMG 2196, U96931, Bur.glumae | NCPPB 2981 | NIAES 1169

Pseudomonas graminis [VP] Behrendt et al. 1999 - P 294/08 | DSM 11363, Y11150, Ps.gramini

Pseudomonas grimontii [VP] Baïda et al. 2002 - ATCC BAA-140 | CFML 97-514, AF268029 | CIP 106645

Pseudomonas halophila [VP] Fendrich 1989 - II | DSM 3050, AB021383

Pseudomonas hibiscicola [AL] Moniz 1963 - ATCC 19867, AB021405 | ICMP 3945 | LMG 980

Pseudomonas huttiensis [AL] Leifson 1962 - ATCC 14670, AB021366 | DSM 10281

Pseudomonas indica [VP] Pandey et al. 2002 - DSM 14015 | IMT37, AF302795 | MTCC 3713

†*Pseudomonas indigofera* [AL] (Voges 1893) Migula 1900 -> *Vogesella indigofera* - ATCC 19706, U45995, Crb.indgfr | DSM 3303 | IMET 10724

†*Pseudomonas iners* [AL] Iizuka and Komagata 1964 -> *Marinobacterium georgiense* - IAM 1419, AB021408

Pseudomonas jessenii [VP] Verhille et al. 1999 - CFML 95-307 | CIP 105274, AF068259

Pseudomonas jinjuensis [VP] Kwon et al. 2003 - Pss 26, AF468448 | KACC 10760 | LMG 21316

Pseudomonas kilonensis [VP] Sikorski et al. 2001 - 520–20, AJ292426 | CFBP 5372 | DSM 13647

Pseudomonas koreensis [VP] Kwon et al. 2003 - Ps 9-14, AF468452 | KACC 10848 | LMG 21318

Pseudomonas lanceolata [AL] Leifson 1962 - ATCC 14669, AB021390

†*Pseudomonas lemoignei* [AL] Delafield et al. 1965 -> *Paucimonas lemoignei* - ATCC 17989 | DSM 7445 | LMG 2207, X92555, Ps.lemoign

Pseudomonas libanensis [VP] Dabboussi et al. 1999 – CFML 96-195 | CIP 105460, AF057645

Pseudomonas lini [VP] Delorme et al. 2002 – DLE411J | CFBP 5737, AY035996 | ICMP 14138

Pseudomonas lundensis [VP] Malin et al. 1986 – 138 | 573 | ATCC 49968, AB021395 | CCM 3503 | DSM 6252

Pseudomonas luteola [VP] Kodama et al. 1985 = *Chryseomonas luteola* (later homotypic synonym) = *Chryseomonas polytricha* (later heterotypic synonym) – G.L. Gilardt 4239 | KS0921 | DSM 6975 | IAM 1300, D84002, Ps.luteola | JCM 3352[236]

†*Pseudomonas mallei* [AL] (Zopf 1885) Redfearn et al. 1966 -> *Burkholderia mallei* – ATCC 23344, S55000, Bur.mallei

†*Pseudomonas maltophilia* [VP] Hugh 1981 -> *Xanthomonas maltophilia* – 810-2 | Hugh 810-2 | RH 1168 | Stanier 67 | ATCC 13637, AB008509, Ste.malto2 | ATCC 13637, M59158, Ste.maltop | DSM 50170 | ICPB 2648-67 | IMET 10402 | LMG 958, X95923 | NCIB 9203 | NCTC 10257

Pseudomonas mandelii [VP] Verhille et al. 1999 – CFML 95-303 | CIP 105273, AF058286

Pseudomonas marginalis [AL] (Brown 1918) Stevens 1925 – ATCC 10844 | CFBP 1387 | ICMP 3553 | LMG 2210, Z76663, Ps.margina

†*Pseudomonas marina* [AL] (Cobet et al. 1970) Baumann et al. 1972 -> *Deleya marina* – 219 | ATCC 25374, M93354, Hlm.marina | DSM 4741

Pseudomonas mediterranea [VP] Catara et al. 2002 – CFBP 5447, AF386080 | ICMP 14184

†*Pseudomonas meliae* [AL] Ogimi 1981 = *Pseudomonas amygdali* (earlier heterotypic synonym) – No. 2 | ATCC 33050 | DSM 6759 | ICMP 6289 | LMG 2220 | NCPPB 3033

Pseudomonas mendocina [AL] Palleroni 1970 – CH50 | ATCC 25411, M59154, Ps.mendoci | DSM 50017 | IMET 11176 | LMG 1223, Z76664, Ps.mendoc7

Pseudomonas mephitica [AL] Claydon and Hammer 1939 – NCIB 9672

†*Pseudomonas mesophilica* [AL] Austin and Goodfellow 1979 -> *Methylobacterium mesophilicum* – A 47 | ATCC 29983 | DSM 1708 | ICPB 4095 | NCIB 11561

Pseudomonas migulae [VP] Verhille et al. 1999 – CFML 95-321, AF074383 | CIP 105470

†*Pseudomonas mixta* [AL] Bowman et al. 1989 -> *Telluria mixta* – ACM 1762, X65589, Tlr.mixta | ATCC 49108 | DSM 4832 | UQM 1762

Pseudomonas monteilii [VP] Elomari et al. 1997 – CFML 90-60 | CIP 104883, AF064458, Ps.monteil

Pseudomonas mosselii [VP] Dabboussi et al. 2002 – CFML 90-83 | ATCC BAA-99 | CIP 105259, AF072688

Pseudomonas mucidolens [AL] Levine and Anderson 1932 – ATCC 4685

Pseudomonas multiresinivorans [VP] Mohn et al. 1999 – IpA-1 | ATCC 700690

†*Pseudomonas nautica* [AL] Baumann et al. 1972 = *Marinobacter hydrocarbonoclasticus* (earlier heterotypic synonym) – 179 | ATCC 27132, AB019148, Mrb.hycla4 | DSM 50418 | ICPB 3529

Pseudomonas nitroreducens [AL] Iizuka and Komagata 1964 – IAM 1439, D84021, Ps.nitrred

Pseudomonas oleovorans [AL] Lee and Chandler 1941 – ATCC 8062 | DSM 1045, Z76665, Ps.oleovo2 | NCIB 6576 | NCTC 10692 | NCTC 6576

Pseudomonas orientalis [VP] Dabboussi et al. 2002 [237] – CFML 96-170, AF064457 | CIP 105540

[236] The new combination *Chryseomonas luteola* was proposed by Holmes et al. (1987). Subsequently, Anzai et all reported that 16S rRNA similarity between *C. luteola* and *Pseudomonas aeruginosa* is 94%. Based on these results, these authors proposed that *C. luteola* should be considered a junior synonym of *Pseudomonas luteola*.

[237] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Pseudomonas oryzihabitans [VP] Kodama et al. 1985 = *Flavimonas oryzihabitans* (later homotypic synonym) [238] - AJ 2197 | KS 0036 | L-1 | ATCC 43272 | DSM 6835 | IAM 1568, D84004, Fm.oryzhab | JCM 2942

Pseudomonas palleroniana [VP] Gardan et al. 2002 - CFBP 4389, AY091527 | ICMP 14253 | NCPPB 4278

†*Pseudomonas palleronii* [AL] Davis 1970 -> *Hydrogenophaga palleronii* - Stanier 362 | Stanier 362t1 | ATCC 17724 | CCUG 20334, AF078769 | DSM 63, AF019073, Hgp.paller | LMG 2366t1

Pseudomonas parafulva [VP] Uchino et al. 2002 [239] - CB-1 | AJ 2129 | NBRC 16636 | JCM 11244 | NRIC 0501

†*Pseudomonas paucimobilis* [AL] Holmes et al. 1977 -> *Sphingomonas paucimobilis* - ATCC 29837, U20776, Spg.pauci6 | ATCC 29837, U37337, Spg.pauci8 | CL 1/70 | DSM 1098, X72722, Spg.paucim | GIFU 2395, D16144 | JCM 7516 | LMG 1227 | NCPPB 3838 | NCTC 11030

†*Pseudomonas perfectomarina* [VP] Baumann et al. 1983 = *Pseudomonas stutzeri* (earlier heterotypic synonym) - 218 | ATCC 14405

Pseudomonas pertucinogena [AL] Kawai and Yabuuchi 1975 - ATCC 190

†*Pseudomonas phenazinium* [AL] Bell and Turner 1973 -> *Burkholderia phenazinium* - 1A | ATCC 33666 | DSM 10684 | LMG 2247, U96936, Bur.phenaz | NCIB 11027

†*Pseudomonas pickettii* [AL] Ralston et al. 1973 -> *Burkholderia pickettii* - K-288 | ATCC 27511, S55004, Ral.picket | CIP 73.23 | DSM 6297 | JCM 5969 | NCTC 11149

Pseudomonas pictorum [AL] Gray and Thornton 1928 - ATCC 23328, AB021392

†*Pseudomonas plantarii* [VP] Azegami et al. 1987 -> *Burkholderia plantarii* - ATCC 43733 | AZ 8201 | DSM 9509 | ICMP 9424 | JCM 5492 | LMG 9035, U96933, Bur.planta | NIAES 1723

Pseudomonas plecoglossicida [VP] Nishimori et al. 2000 - ATCC 700383 | FPC 951, AB009457

Pseudomonas pseudoalcaligenes subspecies pseudoalcaligenes [AL] Stanier 1966 - X-59 | ATCC 17440 | DSM 50188 | ICPB 2750-63 | IMET 11177 | JCM 5968 | LMG 1225, Z76666, Av.avenci2 | NCIB 9946 | NCTC 10860

†*Pseudomonas pseudoalcaligenes subspecies citrulli* [AL] Schaad et al. 1978 -> *Pseudomonas avenae subspecies citrulli* - ATCC 29625, AF078761, Av.avencit | CCUG 17393 | ICMP 7500 | LMG 5376 | NCPPB 961, AF078762

†*Pseudomonas pseudoalcaligenes subspecies konjaci* [VP] Goto 1983 -> *Pseudomonas avenae subspecies konjaci* - ATCC 33996, AF078760, Av.konjaci | CCUG 17394 | DSM 7481 | ICMP 7733 | K2 | LMG 5691 | PDDCC 773

†*Pseudomonas pseudoflava* [AL] Auling et al. 1978 -> *Hydrogenophaga pseudoflava* - GA3 | ATCC 33668, AF078770, Hgp.psflav | CCUG 13799 | DSM 1034 | LMG 5945

†*Pseudomonas pseudomallei* [AL] (Whitmore 1913) Haynes 1957 -> *Burkholderia pseudomallei* - ATCC 23343 | WRAIR 286

Pseudomonas psychrophila [VP] Yumoto et al. 2002 [240] - E-3, AB041885 | JCM 10889

Pseudomonas putida [AL] (Trevisan 1889) Migula 1895 = *Arthrobacter siderocapsulatus* (later heterotypic synonym) - Biovar A, Z76667, Ps.putid10 | ATCC 12633, D37923, Ps.putida3 | DSM 291 | DSM 50202 | ICPB 2963 | NCTC 10936

†*Pseudomonas pyrrocinia* [AL] Imanaka et al. 1965 -> *Burkholderia pyrrocinia* - 2327 | ATCC 15958 | DSM 10685 | LMG 14191, U96930, Bur.pyrroc

†*Pseudomonas radiora* [AL] Ito and Iizuka 1971 -> *Methylobacterium radiotolerans* - 0-1 | ATCC 27329 | CIP 101128 | DSM 1819 | IAM 12098 | NBRC 15690 | JCM 2831, D32227, Mlb.radtol | LMG 2269 | NCIB 10815

[238] The new combination *Flavimonas oryzihabitans* was proposed by Holmes et al. (1987). Subsequently, Anzai et al. reported that 16S rRNA similarity between *F. oryzihabitans* and *Pseudomonas aeruginosa* is 93.9%. Based on these results, these authors proposed that *F. oryzihabitans* should be considered a junior synonym of *Pseudomonas oryzihabitans*.

[239] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[240] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Pseudomonas resinovorans [AL] Delaporte et al. 1961 - ATCC 14235 | CCUG 4439 | CIP 61.9 | LMG 2274, Z76668, Ps.resinov | NCIB 9280

Pseudomonas rhodesiae [VP] Coroler et al. 1997 - CIP 104664, AF064459, Ps.rhodesi

†*Pseudomonas rhodos* [AL] Heumann 1962 -> *Methylobacterium rhodinum* - ATCC 14821 | DSM 2163 | JCM 2811, D32229 | NCIB 9421, L20849, Mlb.rhodin

†*Pseudomonas rubrilineans* [AL] (Lee et al. 1925) Stapp 1928 = *Pseudomonas avenae subspecies avenae* (earlier heterotypic synonym) - ATCC 19307, AB021421

†*Pseudomonas rubrisubalbicans* [AL] (Christopher and Edgerton 1930) Krassilnikov 1949 -> *Herbaspirillum rubrisubalbicans* - ATCC 19308, AB021424, AB021424 | DSM 9440 | LMG 2286 | NCPPB 1027

Pseudomonas saccharophila [AL] Doudoroff 1940 - ATCC 15946 | DSM 654, AB021407

Pseudomonas salomonii [VP] Gardan et al. 2002 - CFBP 2022, AY091528 | ICMP 14252 | NCPPB 4277

†*Pseudomonas savastanoi* [VP] (ex Smith 1908) Gardan et al. 1992 <- *Pseudomonas syringae subspecies savastanoi* (basonym) = *Pseudomonas amygdali* (earlier heterotypic synonym) - ATCC 13522, AB021402 | CFBP 1 | ICMP 4352 | NCPPB 639

†*Pseudomonas solanacearum* [AL] (Smith 1896) Smith 1914 -> *Burkholderia solanacearum* - 60-1 | ATCC 11696, X67036, Ral.solan2 | CFBP 2047 | DSM 9544 | ICMP 5712 | ICPB PS 256 | NCPPB 325

Pseudomonas spinosa [AL] Leifson 1962 - 83 | ATCC 14606, AB021387

†*Pseudomonas stanieri* [VP] Baumann et al. 1983 = *Marinobacterium stanieri* (heterotypic synonym) - 146 | ATCC 27130, AB021367 | DSM 7027

Pseudomonas straminea [AL] Iizuka and Komagata 1963 - IAM 1598, D84023, Ps.stramin

Pseudomonas stutzeri [AL] (Lehmann and Neumann 1896) Sijderius 1946 = *Pseudomonas perfectomarina* (later heterotypic synonym) - AB201 | ATCC 17588 | CCUG 11256, U26262, Ps.stutzer | DSM 5190 | LMG 2333 | NCIB 11358 | NCPPB 1973

Pseudomonas synxantha [AL] (Ehrenberg 1840) Holland 1920 - ATCC 9890 | CCEB 293 | NRRL B-780

Pseudomonas syringae subspecies syringae [AL] van Hall 1902 - ATCC 19310, D84026, Ps.syring5 | CFBP 1392 | DSM 6693 | ICMP 3023 | LMG 1247, Z76669, Ps.syring6 | NCPPB 281 | PDDCC 3023

†*Pseudomonas syringae subspecies savastanoi* [VP] (ex Smith) Janse 1982 -> *Pseudomonas savastanoi* - ATCC 13522, AB021402 | DSM 50298 | ICMP 4352 | NCPPB 639

Pseudomonas syzygii [VP] Roberts et al. 1990 - R001, U28237, Ps.syzygi2 | ATCC 49543 | DSM 7385 | ICMP 1091 | NCPPB 3445 | NCPPB 3446

†*Pseudomonas taeniospiralis* [VP] Lalucat et al. 1982 -> *Hydrogenophaga taeniospiralis* - 2K1 | ATCC 49743, AF078768, Hgp.taensp | DSM 2082

Pseudomonas taetrolens [AL] Haynes 1957 - A.3.19 | Stanier 92 | ATCC 4683 | CCEB 381 | IAM 1653, D84027, Ps.taetrol | NCIB 9396 | NRRL B-14

†*Pseudomonas testosteroni* [AL] Marcus and Talalay 1956 -> *Comamonas testosteroni* - KS 0043 | ATCC 11996, M11224, Com.testos | DSM 50244 | IAM 12419 | ICPB 2741-78 | JCM 5832 | NCIB 8955

Pseudomonas thermotolerans [VP] Manaia and Moore 2002 - CM3, AJ311980 | DSM 14292 | LMG 21284

Pseudomonas thivervalensis [VP] Achouak et al. 2000 - SBK26 | CFBP 11261, AF100323

Pseudomonas tolaasii [AL] Paine 1919 - ATCC 33618, D84028, Ps.tolaasi | CFBP 2068 | LMG 2342, Z76670, Ps.tolaas2 | NCPPB 2192 | PDDCC 2290

Pseudomonas tremae [VP] Gardan et al. 1999 - CFBP 3229 | ICMP 9151 | NCPPB 3465

Pseudomonas umsongensis [VP] Kwon et al. 2003 - Ps 3-10, AF468450 | KACC 10847 | LMG 21317

Pseudomonas vancouverensis [VP] Mohn et al. 1999 - DhA-51 | ATCC 700688

Pseudomonas veronii [VP] Elomari et al. 1996 - CFML 92-134 | CIP 104663, AF064460, Ps.veronii | DSM 11331

†*Pseudomonas vesicularis* [AL] (Busing et al. 1953) Galarneault and Leifson 1964 -> *Brevundimonas vesicularis* - ACM 2862 | ATCC 11426, AJ007801, Br.vesicu1 |

CCM 3398 | CCUG 2032 | CECT 327 | DSM 7226 | IAM 12105, AB021414 | JCM 1477 | LMG 2350, AJ227780, Br.vesicu2 | NCMB 1945 | NCTC 10900

Pseudomonas viridiflava [AL] (Burkholder 1930) Dowson 1939 - ATCC 13223 | CFBP 2107 | DSM 6694 | ICMP 2848 | LMG 2352, Z76671, Ps.viridif

†*Pseudomonas woodsii* [AL] (Smith 1911) Stevens 1925 = *Burkholderia andropogonis* (earlier heterotypic synonym) - ATCC 19311, AB021422 | DSM 44247 | DSM 9884 | NCPPB 968

Genus II. Azomonas [AL]

Azomonas agilis [AL (T)] (Beijerinck 1901) Winogradsky 1938 - ATCC 7494 | DSM 375

Azomonas insignis [AL] (Derx 1951) Jensen 1955 - UQM 1966

Azomonas macrocytogenes [VP] (Jensen 1955) New and Tchan 1982 <- *Azomonotrichon macrocytogenes* (basonym) - Jensen O | WR 111 | ATCC 12335 | NCIB 8700

Genus III. Azotobacter [AL]

Azotobacter chroococcum [AL (T)] Beijerinck 1901 - 43 | ATCC 9043 | DSM 2286 | VKM B-1616

Azotobacter armeniacus [VP] Thompson and Skerman 1981 - DSM 2284 | Kirakosyan N28 | WR-136

Azotobacter beijerinckii [AL] Lipman 1904 - M.B. 2.3 | ATCC 19360 | DSM 378 | NCIB 8948 | VKM B-1615

†*Azotobacter macrocytogenes* [AL] Jensen 1955 -> *Azomonotrichon macrocytogenes* - Jensen O | ATCC 12335 | DSM 721 | NCIB 8700 | WR 111

Azotobacter nigricans subspecies nigricans [AL] Krassilnikov 1949 - DSM 2288 | UQM 1967

Azotobacter nigricans subspecies achromogenes [VP] Thompson and Skerman 1981 - A-2 of Jensen | WR-41

†*Azotobacter paspali* [AL] Döbereiner 1966 -> *Azorhizophilus paspali* - WR-129 | ATCC 23833 | DSM 2283

Azotobacter salinestris [VP] Page and Shivprasad 1991 - 184 | ATCC 49674 | DSM 11553

Azotobacter vinelandii [AL] Lipman 1903 - 16 | ATCC 478 | DSM 2289

Genus IV. Cellvibrio [VP]

Cellvibrio mixtus subspecies mixtus [VP (T)] Blackall et al. 1986 - DSM 9528 | UQM 2601

Cellvibrio mixtus subspecies dextranolyticus [VP] Blackall et al. 1986 - UQM 1666

Cellvibrio fibrivorans [VP] Mergaert et al. 2003 - R4079, AJ289164 | ACM 5172 | LMG 18561

Cellvibrio fulvus (ex Stapp and Bortels 1934) Humphry et al. 2003 *nom. rev.* - LMG 2847 | NCIMB 8634, AF448514

Cellvibrio gandavensis [VP] Mergaert et al. 2003 - R4069, AJ289162 | ACM 5174 | LMG 18551

Cellvibrio japonicus [VP] Humphry et al. 2003 - NCDO 2697 | NCIMB 10462, AF452103

Cellvibrio ostraviensis [VP] Mergaert et al. 2003 - ACM 5173 | LMG 19434, AJ493583

Cellvibrio vulgaris (ex Stapp and Bortels 1934) Humphry et al. 2003 *nom. rev.* - LMG 2848 | NCIMB 8633, AF448513

Genus V. Chryseomonas [VP]

†*Chryseomonas polytricha* [VP (T)] Holmes et al. 1986 = *Pseudomonas luteola* (earlier heterotypic synonym) - E2770 | NCTC 11843

†*Chryseomonas luteola* [VP] (Kodama et al. 1985) Holmes et al. 1987 = *Pseudomonas luteola* (earlier homotypic synonym) - KS 0921 | ATCC 43273 | DSM 6975 | IAM 1300, D84002, Ps.luteola | JCM 3352[241]

Genus VI. Flavimonas [VP]

[241] The new combination *Chryseomonas luteola* was proposed by Holmes et al. (1987). Subsequently, Anzai et al. repoted that 16S rRNA similarity between *C. luteola* and *Pseudomonas aeruginosa* was 94%. Based on these results, these authros proposed that *C. luteola* is a junior synonym of *Pseudomonas luteola*.

†*Flavimonas oryzihabitans* [VP (T)] (Kodama et al. 1985) Holmes et al. 1987 = *Pseudomonas oryzihabitans* (earlier homotypic synonym) - AJ 2197 | KS0036 | L-1 | DSM 6835 | IAM 1568, D84004, Fm.oryzhab | JCM 295[242]

Genus VII. Mesophilobacter [VP]

Mesophilobacter marinus [VP (T)] Nishimura et al. 1989 - 14S-4 | DSM 9142 | IAM 13185

Genus VIII. Rhizobacter [VP]

Rhizobacter dauci [VP (T)] Goto and Kuwata 1988 - H6 | ATCC 43778 | DSM 11587 | ICMP 9400 | LMG 9036

Genus IX. Rugamonas [VP]

Rugamonas rubra [VP (T)] Austin and Moss 1987 - MOM 28/2/79 | ATCC 43154 | CCM 3730

Genus X. Serpens [AL]

Serpens flexibilis [AL (T)] Hespell 1977 - PFR-1 | ATCC 29606

Family II. Moraxellaceae [VP] [243]

Genus I. Moraxella [AL (T)][244]

Moraxella lacunata [AL (T)] (Eyre 1900) Bovre 1979 - Morax 260 | ATCC 17967, AF005170, AF005160, D64049 | NCTC 11011[245]

†*Moraxella anatipestifer* [AL] (Henrickson and Hilbert 1932) Bruner and Fabricant 1954 -> *Riemerella anatipestifer* - ATCC 11845, U10877, Rie.anati2 | ATCC 11845, U60101, Rie.anati3 | LMG 11054 | MCCM 00568

Moraxella atlantae [AL] (Bovre et al. 1976) Bovre 1979 - 5118 | ATCC 29525 | NCTC 11091

Moraxella boevrei [VP] Kodjo et al. 1997 - 88365 | ATCC 700022 | CCUG 35435 | CIP 104716 | NCTC 12925

Moraxella bovis [AL] (Hauduroy et al. 1937) Bovre 1979 - ATCC 10900, AF005182, Mrx.bovis1

Moraxella canis [VP] Jannes et al. 1993 - N7 | CCUG 8415A | LMG 11194, AJ269511

Moraxella caprae [VP] Kodjo et al. 1995 - 8897 | CCUG 33297 | NCTC 12877

Moraxella catarrhalis [AL] (Frosch and Kolle 1896) Bovre 1979 <- *Branhamella catarrhalis* (basonym) - ATCC 25238, AF005185, U10876 | DSM 9143 | NCTC 11020

Moraxella caviae [AL] (Pelczar 1953) Bovre 1979 = *Neisseria caviae* (homotypic synonym) - GP 11 | ATCC 14659 | CCUG 2132 | CCUG 355, AF005187, Mrx.cavia2 | NCTC 10293

Moraxella cuniculi [VP] (Berger 1962) Boevre and Hagen 1984 <- *Neisseria cuniculi* (basonym) - ATCC 14688

Moraxella equi [AL] Hughes and Pugh 1970 - ATCC 25576

Moraxella lincolnii [VP] Vandamme et al. 1993 - CCUG 9405 | LMG 5127

Moraxella nonliquefaciens [AL] (Scarlett 1916) Bovre 1979 - 4663/62 | ATCC 19975 | NCTC 10464

Moraxella osloensis [AL] (Bovre and Henriksen 1967) Bovre 1979 - A1920 | ATCC 19976 | NCTC 10465

Moraxella ovis [AL] (Lindquist 1960) Bovre 1968 = *Neisseria ovis* (homotypic synonym) - 199/55 | ATCC 33078, AF005186 | NCTC 11227

†*Moraxella phenylpyruvica* [AL] (Bovre and Henriksen 1967) Bovre 1979 -> *Psychrobacter phenylpyruvicus* - 2863 | ATCC 23333 | NCTC 10526

Moraxella saccharolytica [AL] Flamm 1956 - ATCC 19245

†*Moraxella urethralis* [AL] Lautrop et al. 1970 -> *Oligella urethralis* - ATCC 17960, AF227163 | CCUG 13463 | DSM 7531 | LMG 5303

Genus II. Acinetobacter [AL]

[242] The new combination *Flavimonas oryzihabitans* was proposed by Holmes et al. (1987). Subsequently, Anzai et al. reported that 16S rRNA similarity between *F. oryzihabitans* and *Pseudomonas aeruginosa* was 93.9%. Based on these results, these authors proposed that *F. oryzihabitans* is a junior synonym of *Pseudomonas oryzihabitans*.

[243] The position of *Moraxellaceae* in *Pseudomonadales* might be called into question. Ludwig notes that the placement of this genus in trees is method dependant. In PCA plots it maps to the same general location as *Pseudomonas*

[244] The subgenera *Moraxella* (*Moraxella* Lwoff 1939) Bøvre 1984 and *Moraxella* (*Branhamella* Catlin 1970) Bøvre 1984 have been validly published but are not used in this outline. *Moraxella* (*Moraxella*) contains *M. atlantae*, *M. bovis*, *M. lacunata*, *M. nonliquefaciens*, *M. osloensis*, and *M. phenylpyruvica*; *Moraxella* (*Branhamella*) contains *M. catarrhalis*, *M. caviae*, and *M. ovis*.

[245] Juni indicates that the type material for *Moraxella lacunata* subspecies lacunata is actually a strain of "*M. lacunata* subspecies liquifaciens".

Acinetobacter calcoaceticus AL (T) (Beijerinck 1911) Baumann et al. 1968 - ATCC 23055, Z93434, Acn.calco6 | CIP 81.08 | DSM 30006, X81661, Acn.calco4

Acinetobacter baumannii VP Bouvet and Grimont 1986 - ATCC 19606 | CIP 70.34 | DSM 30007, X81660, Acn.bauman

Acinetobacter baylyi VP Carr et al. 2003 - B2, AF509820 | CIP 107474 | DSM 14961

Acinetobacter bouvetii VP Carr et al. 2003 - 4B02, AF509827 | CIP 107468 | DSM 14964

Acinetobacter gerneri VP Carr et al. 2003 - 9A01, AF509829 | CIP 107464 | DSM 14967

Acinetobacter grimontii VP Carr et al. 2003 - 17A04, AF509828 | CIP 107470 | DSM 14968

Acinetobacter haemolyticus VP Bouvet and Grimont 1986 - B40 | Mannheim 2446/60 | ATCC 17906 | CIP 64.3 | DSM 6962, X81662, Acn.haemol | NCTC 10305

Acinetobacter johnsonii VP Bouvet and Grimont 1986 - B8 | Mannheim 3865/60 | ATCC 17909 | CIP 64.6 | DSM 6963, X81663, Acn.johnsn | NCTC 10308

Acinetobacter junii VP Bouvet and Grimont 1986 - B10 | Mannheim 2723/59 | ATCC 17908 | CIP 64.5 | DSM 6964, X81664, Acn.junii | NCTC 10307

Acinetobacter lwoffii AL (Audureau 1940) Brisou and Prévot 1954 emend. Bouvet and Grimont 1986 - ATCC 15309 | CIP 644.10 | DSM 2403, X81665, Acn.lwoff4 | IMET 10416 | NCTC 5866

Acinetobacter radioresistens VP Nishimura et al. 1988 - FO-1 | ATCC 43998 | DSM 6976, X81666, Acn.radres | IAM 13186

Acinetobacter schindleri VP Nemec et al. 2001 - LUH 5832, AJ278311 | CNCTC 6736 | LMG 19576 | NIPH 1034

Acinetobacter tandoii VP Carr et al. 2003 - 4N13, AF509830 | CIP 107469 | DSM 14670

Acinetobacter tjernbergiae VP Carr et al. 2003 - 7N16, AF509825 | CIP 107465 | DSM 14971

Acinetobacter towneri VP Carr et al. 2003 - AB1110, AF509823 | CIP 107472 | DSM 14962

Acinetobacter ursingii VP Nemec et al. 2001 - LUH 3792, AJ275038 | CNCTC 6735 | LMG 19575 | NIPH 137

Genus III. ***Enhydrobacter*** VP ***(moved)***

Enhydrobacter aerosaccus VP (T) Staley et al. 1987 - ATCC 27094, AJ550856 | DSM 8914

Genus IV. Psychrobacter VP

Psychrobacter immobilis VP (T) Juni and Heym 1986 - 14 | A351 | ATCC 43116, U39399, Psy.immobl | CCUG 9708 | DSM 7229 | LMG 7091 | LMG 7203 | NCIB 12350

Psychrobacter faecalis VP Kämpfer et al. 2002 - Iso-46, AJ421528 | CIP 107288 | DSM 14664

Psychrobacter fozii VP Bozal et al. 2003 - NF23, AJ430827 | CECT 5889 | LMG 21280

Psychrobacter frigidicola VP Bowman et al. 1996 - ACAM 304, U46143, Psy.frgdcl | CCUG 34377

Psychrobacter glacincola VP Bowman et al. 1997 - ACAM 483, U46145, Psy.glacin | DSM 12194

Psychrobacter jeotgali VP Yoon et al. 2003 - YKJ-103, AF441201 | JCM 11463 | KCCM 41559

Psychrobacter luti VP Bozal et al. 2003 - NF11, AJ430828 | CECT 5885 | LMG 21276

Psychrobacter marincola VP Lyudmila et al. 2002 - KMM 277, AJ309941 | DSM 14160 |

Psychrobacter pacificensis VP Maruyama et al. 2000 - NBRC 16270, AB016057 | NIBH P2K6

Psychrobacter phenylpyruvicus VP (Bovre and Henriksen 1967) Bowman et al. 1996 <- *Moraxella phenylpyruvica* (basonym) - ACAM 535 | ACM 886 | ATCC 23333, U46144, Psy.phpyru | CCUG 351 | DSM 7000 | NCTC 105[246]

Psychrobacter proteolyticus VP Denner et al. 2001 - 116, AJ272303 | CIP 106830 | DSM 13887

[246] Juni argues that there are a significant biological differences that suggest *Psychrobacter phenylpyruvicus* (*Moraxella phenylpyruvicus*) is misplaced and probably warrants elevation to a separate, new genus.

Psychrobacter pulmonis [VP] Vela et al. 2003 - CCUG 46240 | CECT 5989, AJ437696 | S-606
Psychrobacter submarinus [VP] Lyudmila et al. 2002 - KMM 225, AJ309940 | DSM 14161
Psychrobacter urativorans [VP] Bowman et al. 1996 - B-57 | ACAM 534 | ATCC 15174, U46141, Psy.uratov | CCM 900 | CCUG 4982 | DSM 20429

Order X. *"Alteromonadales"*[247]
Family I. Alteromonadaceae [VP]
Genus I. Alteromonas [AL (T)]
Alteromonas macleodii [AL (T)] Baumann et al. 1972 - 107, Y18228 | ATCC 27126 | DSM 6062
†*Alteromonas atlantica* [VP] Akagawa-Matsushita et al. 1992 -> *Pseudoalteromonas atlantica* - ATCC 19262 | DSM 6839 | IAM 12927, X82134, Pal.atlant | LMG 2138 | NCIMB 301
†*Alteromonas aurantia* [AL] Gauthier and Breittmayer 1979 -> *Pseudoalteromonas aurantia* - Cerbom 208 | ATCC 33046, X82135, Pal.aurant | DSM 6057 | NCIMB 2052
†*Alteromonas carrageenovora* [VP] Akagawa-Matsushita et al. 1992 -> *Pseudoalteromonas carrageenovora* - ATCC 43555 | DSM 6820 | IAM 12662, X82136, Pal.carrag | NBRC 12985 | NCIMB 302
†*Alteromonas citrea* [AL] Gauthier 1977 -> *Pseudoalteromonas citrea* - ATCC 29719 | DSM 6058 | NCIMB 1889, X82137, Pal.citrea
†*Alteromonas colwelliana* [VP] Weiner et al. 1988 -> *Shewanella colwelliana* - LST-W | ATCC 39565
†*Alteromonas communis* [AL] Baumann et al. 1972 -> *Marinomonas communis* - ATCC 27118 | DSM 5604 | LMG 2864
†*Alteromonas denitrificans* [VP] Enger et al. 1987 -> *Pseudoalteromonas denitrificans* - Nygaard 1977 | ATCC 43337, X82138, Pal.denitr | DSM 6059 | IAM 14445
†*Alteromonas distincta* [VP] Romanenko et al. 1995 -> *Pseudoalteromonas distincta* - KMM 638, AF082564, Altm.disti | ATCC 700518
†*Pseudoalteromonas elyakovii* [VP] Ivanova et al. 1997 -> *Pseudoalteromonas elyakovii* - 40MC | ATCC 700519 | KMM 162, AF082562, Altm.elyak | VKPM B3905
†*Alteromonas espejiana* [AL] Chan et al. 1978 -> *Pseudoalteromonas espejiana* - ATCC 29659 | CCUG 16147 | DSM 9414 | IAM 12640 | NCIMB 2127, X82143, Pal.espeji
Alteromonas fuliginea [VP] Romanenko et al. 1995 - KMM 216 | KMM 216, AF082563, Pal.citre2
†*Alteromonas haloplanktis* [AL] (ZoBell and Upham 1944) Reichelt and Baumann 1973 -> *Pseudoalteromonas haloplanktis subspecies haloplanktis* - ATCC 14393, X67024, Pal.halopl | DSM 6060
†*Alteromonas hanedai* [VP] Jensen et al. 1981 -> *Shewanella hanedai* - 281 | ATCC 33224 | DSM 6066
†*Alteromonas luteoviolacea* [VP] Gauthier 1982 -> *Pseudoalteromonas luteoviolacea* - CH130 | ATCC 33492 | DSM 6061 | NCMB 1893, X82144, Pal.luteov
†*Alteromonas nigrifaciens* [VP] (ex White 1940) Baumann et al. 1984 emend. Ivanova et al. 1996 -> *Pseudoalteromonas nigrifaciens* - 217 | ATCC 19375 | DSM 6063
†*Alteromonas putrefaciens* [VP] (ex Derby and Hammer) Lee et al. 1981 -> *Shewanella putrefaciens* - Hammer 95 | ATCC 8071, X82133, She.putre3 | DSM 6067 | ICPB 352 | NCIB 10471
†*Alteromonas rubra* [AL] Gauthier 1976 -> *Pseudoalteromonas rubra* - ATCC 29570, X82147, Pal.rubra | DSM 6064
†*Alteromonas tetraodonis* [VP] Simidu et al. 1990 -> *Pseudoalteromonas haloplanktis subspecies tetraodonis* - GFC | ATCC 51193 | DSM 9166 | IAM 14160, X82139, Pal.haltet | NCIMB 13177
†*Alteromonas undina* [AL] Chan et al. 1978 -> *Pseudoalteromonas undina* - 272 | ATCC 29660 | DSM 6065

[247] Ludwig indicates that the *Aeromonadales* , *Alteromonadales* , *Enterobacteriales* , *Pasteurellales* , and *Vibrionales* cluster together in both the ARB and RDP trees.

†*Alteromonas vaga* [AL] Baumann et al. 1972 -> *Marinomonas vaga* - ATCC 27119, X67025, Mrm.vaga2 | CCUG 16047 | CIP 74.02 | DSM 5605 | LMG 2845 | NCMB 1962

Genus II. Alishewanella [VP]

Alishewanella fetalis [VP (T)] Fonnesbech Vogel et al. 2000 - Uppsala R2422019, AF144407 | ATCC BAA-284 | CCUG 30811 | CIP 106648

Genus III. Colwellia [VP]

Colwellia psychrerythrea [VP (T)] Deming et al. 1988 - ATCC 27364, AB011364, Clw.peryt3 | ATCC 27364, AF001375, Clw.peryt2 | DSM 8813

Colwellia demingiae [VP] Bowman et al. 1998 - ACAM 459, U85845

Colwellia hadaliensis [VP] Deming et al. 1988 - BNL-1

Colwellia hornerae [VP] Bowman et al. 1998 - ACAM 607, U85847

Colwellia maris [VP] Yumoto et al. 1998 - ABE-1, AB002630, Clw.maris1 | JCM 10085

Colwellia psychrotropica [VP] Bowman et al. 1998 - ACAM 179, U85846, Clw.psytrp

Colwellia rossensis [VP] Bowman et al. 1998 - ACAM 608, U14581

Genus IV. Ferrimonas [VP]

Ferrimonas balearica [VP (T)] Rosselló-Mora et al. 1996 - PAT, X93021, Frm.balear | DSM 9799

Genus V. Glaciecola [VP]

Glaciecola punicea [VP (T)] Bowman et al. 1998 - ACAM 611, U85853

Glaciecola mesophila [VP] Romanenko et al. 2003 - DSM 15026 | KMM 241, AJ488501

Glaciecola pallidula [VP] Bowman et al. 1998 - ACAM 615, U85854

Genus VI. Idiomarina [VP]

Idiomarina abyssalis [VP (T)] Ivanova et al. 2000 - KMM 227, AF052740

Idiomarina baltica [VP] Brettar et al. 2003 - OS145, AJ440214 | DSM 15154 | LMG 21691

Idiomarina zobellii [VP] Ivanova et al. 2000 - KMM 231, AF052741

Genus VII. Marinobacter [VP] [248]

Marinobacter hydrocarbonoclasticus [VP (T)] Gauthier et al. 1992 = *Pseudomonas nautica* (later heterotypic synonym) - SP.17 | ATCC 49840, X67022, Mrb.hyclas | DSM 8798

Marinobacter aquaeolei [VP] Nguyen et al. 1999 - VT8, AJ000726, Mrb.aquaeo | ATCC 700491 | DSM 11845

Marinobacter litoralis [VP] Yoon et al. 2003 - SW-45, AF479689 | JCM 11547 | KCCM 41591

Genus VIII. Marinobacterium [VP] [249]

Marinobacterium georgiense [VP (T)] (González et al. 1997) Satomi et al. 2002 = *Pseudomonas iners* (earlier heterotypic synonym) - KW-40, U58339, Mba.georgn | ATCC 700074 | CIP 10.5236 | DSM 11526

Marinobacterium jannaschii [VP] (Bowditch et al. 1984) Satomi et al. 2002 [250] <- *Oceanospirillum jannaschii* (basonym) - 207, AB006765 | ATCC 27135 | NBRC 15466

Marinobacterium stanieri [VP] (Baumann et al. 1983) Satomi et al. 2002 [251] <- *Pseudomonas stanieri* (basonym) - 146 | ATCC 27130, AB021367

Genus IX. Microbulbifer [VP] [252]

Microbulbifer hydrolyticus [VP (T)] González et al. 1997 - IRE-31, U58338, Mbf.hylyts | ATCC 700072 | CIP 105235 | DSM 11525

Microbulbifer salipaludis [VP] Yoon et al. 2003 - SM-1, AF479688 | JCM 11542 | KCCM 41586

[248] Heatmap analysis of the *Alteromonadales* (Garrity and Lilburn, unpublished) suggests that subspecies Marinobacter, Marinobacterium and *Microbulbifer* are likely not members of the *Alteromonadaceae*.

[249] Heatmap analysis of the *Alteromonadales* (Garrity and Lilburn, unpublished) suggest that subspecies Marinobacter, Marinobacterium and *Microbulbifer* are likely not members of the *Alteromonadaceae*.

[250] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[251] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[252] Heatmap analysis of the *Alteromonadales* (Garrity and Lilburn, unpublished) suggest that subspecies Marinobacter, Marinobacterium and *Microbulbifer* are likely not members of the *Alteromonadaceae*.

Genus X. Moritella VP

Moritella marina VP (T) (Baumann et al. 1984) Urakawa et al. 1999 <- *Vibrio marinus* (basonym) - ATCC 15381, X74709, Mrt.marin3

Moritella abyssi VP Xu et al. 2003 - 2693, AJ252022 | JCM 11436 | LMG 21258

Moritella japonica VP Nogi et al. 1999 - DSK1, D21224, Mrt.japoni | JCM 10249

Moritella profunda VP Xu et al. 2003 - 2674, AJ252023 | JCM 11435 | LMG 21259

Moritella viscosa VP (Lunder et al. 2000) Benediktsdóttir et al. 2000 <- *Vibrio viscosus* (basonym) - NCIMB 13584 | NVI 88/478, AJ132226

Moritella yayanosii VP Nogi and Kato 1999 - DB21MT-5, AB008797 | JCM 10263

Genus XI. Pseudoalteromonas VP

Pseudoalteromonas haloplanktis subspecies haloplanktis VP (T) (ZoBell and Upham 1944) Gauthier et al. 1995 <- *Alteromonas haloplanktis* (basonym) - 215 | ATCC 14393, X67024, Pal.halopl | DSM 6060

†*Pseudoalteromonas haloplanktis subspecies tetraodonis* VP (Simidu et al. 1990) Gauthier et al. 1995 <- *Alteromonas tetraodonis* (basonym) -> *Pseudoalteromonas tetraodonis* - ATCC 51193 | DSM 9166 | GFC | IAM 14160, X82139, Pal.haltet | NCIMB 13177

Pseudoalteromonas agarivorans VP Romanenko et al. 2003 - DSM 14585 | KMM 255, AJ417594

Pseudoalteromonas antarctica VP Bozal et al. 1997 - NF3, AF045560 | CECT 4664, X98336, Pal.antarc

Pseudoalteromonas atlantica VP (Akagawa-Matsushita et al. 1992) Gauthier et al. 1995 <- *Alteromonas atlantica* (basonym) - ATCC 19262 | IAM 12927, X82134, Pal.atlant | NCIMB 301

Pseudoalteromonas aurantia VP (Gauthier and Breittmayer 1979) Gauthier et al. 1995 <- *Alteromonas aurantia* (basonym) - Cerbom 208 | ATCC 33046, X82135, Pal.aurant | DSM 6057 | NCIMB 2052

Pseudoalteromonas bacteriolytica VP Sawabe et al. 1998 - IAM 14595, D89929, Pal.baclyt

Pseudoalteromonas carrageenovora VP (Akagawa-Matsushita et al. 1992) Gauthier et al. 1995 <- *Alteromonas carrageenovora* (basonym) - ATCC 43555 | DSM 6820 | IAM 12662, X82136, Pal.carrag | NBRC 12985 | NCIMB 302

Pseudoalteromonas citrea VP (Gauthier 1977) Gauthier et al. 1995 emend. Ivanova et al. 1998 <- *Alteromonas citrea* (basonym) - ATCC 29719 | DSM 6058 | NCIMB 1889, X82137, Pal.citrea

Pseudoalteromonas denitrificans VP (Enger et al. 1987) Gauthier et al. 1995 <- *Alteromonas denitrificans* (basonym) - Nygaard 1977 | ATCC 43337, X82138, Pal.denitr | DSM 6059 | IAM 14445

Pseudoalteromonas distincta VP (Romanenko et al. 1995) Ivanova et al. 2000 <- *Alteromonas distinca* (basonym) - ATCC 700518 | KMM 638, AF043742

Pseudoalteromonas elyakovii VP (Ivanova et al. 1997) Sawabe et al. 2000 <- *Alteromonas elyakovii* (basonym) - 40MC | ATCC 700519 | KMM 162, AF082562, Altm.elyak | VKPM B3905

Pseudoalteromonas espejiana VP (Chan et al. 1978) Gauthier et al. 1995 <- *Alteromonas espejiana* (basonym) - ATCC 29659 | CCUG 16147 | DSM 9414 | IAM 12640 | NCIMB 2127, X82143, Pal.espeji

Pseudoalteromonas flavipulchra VP Ivanova et al. 2002 - KMM 3630 | LMG 20361 | NCIMB 2033, AF297958

Pseudoalteromonas issachenkonii VP Ivanova et al. 2002 - CIP 106858 | KMM 3549, AF316144 | LMG 19697

Pseudoalteromonas luteoviolacea VP (Gauthier 1982) Gauthier et al. 1995 <- *Alteromonas luteoviolacea* (basonym) - CH 130 | ATCC 33492 | DSM 6061 | NCIMB 1893, X82144, Pal.luteov

Pseudoalteromonas maricaloris VP Ivanova et al. 2002 - KMM 636, AF144036 | CIP 106859 | LMG 19692

Pseudoalteromonas mariniglutinosa [VP] (ex Berland et al. 1969) Romanenko et al. 2003 nom. rev. - KMM 3635 | NCIMB 1770, AJ507251

Pseudoalteromonas nigrifaciens [VP] (Baumann et al. 1984) Gauthier et al. 1995 emend. Ivanova et al. 1996 <- *Alteromonas nigrifaciens* (basonym) - 217 | ATCC 19375 | DSM 6063 | NCIMB 8614, X82146, Pal.nigrif

Pseudoalteromonas paragorgicola [VP] Ivanova et al. 2002 - ATCC BAA-322 | KMM 3548, AY040229 | LMG 19694

Pseudoalteromonas peptidolytica [VP] Venkateswaran and Dohmoto 2000 - F12-50-A1, AF007286 | MBICC F1250A1

Pseudoalteromonas phenolica [VP] Isnansetyo and Kamei 2003 - O-BC30, AF332880 | IAM 14989 | KCTC 12086

Pseudoalteromonas piscicida [VP] (Bein 1954) Gauthier et al. 1995 - ATCC 15057, X82215, Pal.pisci2

Pseudoalteromonas prydzensis [VP] Bowman 1998 - ACAM 620

Pseudoalteromonas rubra [VP] (Gauthier 1976) Gauthier et al. 1995 <- *Alteromonas rubra* (basonym) - ATCC 29570, X82147, Pal.rubra | DSM 6064

Pseudoalteromonas ruthenica Ivanova et al. 2002 - CIP 106857 | KMM 300, AF316891 | LMG 19699

Pseudoalteromonas tetraodonis [VP] (Simidu et al. 1990) Ivanova et al. 2001 <- *Pseudoaltermonas haloplanktis subspecies tetraodonis* (basonym) - GFC | DSM 9166 | IAM 14160, X82139 | KMM 458

Pseudoalteromonas translucida [VP] Ivanova et al. 2002 - ATCC BAA-315 | KMM 520, AY040230 | LMG 19696

Pseudoalteromonas tunicata [VP] Holmström et al. 1998 - D2, Z25522 | CCUG 2675

Pseudoalteromonas ulvae [VP] Egan et al. 2001 - UL12, AF172987 | NCIMB 13762 | UNSW 095600

Pseudoalteromonas undina [VP] (Chan et al. 1978) Gauthier et al. 1995 <- *Alteromonas undina* (basonym) - ATCC 29660 | DSM 6065 | NCIMB 2128, X82140, Pal.undina

Genus XII. ***Psychromonas*** [VP] ***(moved)***[253]

Psychromonas antarctica [VP (T)] Mountfort et al. 1998 - star-1, Y14697 | DSM 10704

Psychromonas arctica [VP] Groudieva et al. 2003 - Pull 5.3, AF374385 | CECT 5674 | DSM 14288

Psychromonas kaikoae [VP] Nogi et al. 2002 - JT7304, AB052160 | ATCC BAA-353 | JCM 11054

Psychromonas marina [VP] Kawasaki et al. 2002 - 4-22, AB023378 | IAM 14899 | JCM 10501 | NCIMB 13792

Psychromonas profunda [VP] Xu et al. 2003 - 2825, AJ416756 | JCM 11437 | LMG 21260

Genus XIII. Shewanella [VP]

Shewanella putrefaciens [VP (T)] (Lee et al. 1981) MacDonell and Colwell 1986 <- *Alteromonas putrefaciens* (basonym) - Hammer 95 | ATCC 8071, X82133, She.putre3 | DSM 6067 | ICPB 352 | LMG 2268 | NCIB 10471

Shewanella algae [VP] Simidu et al. 1990 emend. Nozue et al. 1992 - OK-1 | ACAM 541 | ATCC 51192, AF005249, She.algaVe | IAM 14159, U91546, She.algae4

Shewanella amazonensis [VP] Venkateswaran et al. 1998 - SB2B, AF005248, She.amznen | ATCC 700329

Shewanella baltica [VP] Ziemke et al. 1998 - CECT 323 | DSM 9439 | IAM 1477 | LMG 2250 | NCTC 10735, AJ000214, She.baltic

Shewanella benthica [VP] MacDonell and Colwell 1986 - W 145 | ATCC 43992, X82131, She.benthi | DSM 8812

Shewanella colwelliana [VP] (Weiner et al. 1988) Coyne et al. 1990 <- *Alteromonas colwelliana* (basonym) - ATCC 39565

Shewanella denitrificans [VP] Brettar et al. 2002 - OS217, AJ311964 | DSM 15013 | LMG 21692

[253] B.J. Tindall and J.F. Bernardet have notified us that the genus *Psycrhomonas* was misplaced in the *Flavobacteriales*.

Shewanella fidelis [VP] Ivanova et al. 2003 - ATCC BAA-318 | KMM 3582, AF420312 | LMG 20551
Shewanella frigidimarina [VP] Bowman et al. 1997 - ICP1, U85903, She.frgmar | ACAM 591, U85903, She.frgmar | DSM 12253
Shewanella gelidimarina [VP] Bowman et al. 1997 - ICP6 | ACAM 456, U85907, She.gelmar
Shewanella hanedai [VP] (Jensen et al. 1981) MacDonell and Colwell 1986 <- *Alteromonas hanedai* (basonym) - 281 | ATCC 33224, U91590, She.haned2 | CIP 103207, X82132, She.haneda | DSM 6066
Shewanella japonica [VP] Ivanova et al. 2001 - CIP 106860 | KMM 3299, AF145921 | LMG 19691
Shewanella livingstonensis [VP] Bozal et al. 2002 - NF22, AJ300834 | CECT 5933 | LMG 19866
Shewanella marinintestina [VP] Satomi et al. 2003 - IK-1, AB081757 | JCM 11558 | LMG 21403
Shewanella olleyana [VP] Skerratt et al. 2002 - ACAM 644 | ACEM 9, AF295592 | LMG 21437
Shewanella oneidensis [VP] Venkateswaran et al. 1999 - MR-1, AF005251, She.oneidn | ATCC 700550
Shewanella pealeana [VP] Leonardo et al. 1999 - ANG-SQ1, AF011335 | ATCC 700345
Shewanella sairae [VP] Satomi et al. 2003 - JCM 11563 | LMG 21408 | SM2-1, AB081762
Shewanella schlegeliana [VP] Satomi et al. 2003 - HRKA1, AB081760 | JCM 11561 | LMG 21406
Shewanella violacea [VP] Nogi et al. 1999 - DSS12, D21225, She.violac | JCM 10179
Shewanella woodyi [VP] Makemson et al. 1997 - MS32, AF003549, She.woody2 | ATCC 51908 | DSM 12036

Genus XIV. Thalassomonas [VP]
Thalassomonas viridans [VP (T)] Mación et al. 2001 - XOM25, AJ294748 | CECT 5083 | DSM 13754

Family II. Incertae sedis

Genus I. ***Teredinibacter*** [VP]
Teredinibacter turnerae [VP (T)] Distel et al. 2002 - T7902, AY028398 | ATCC 39867 | DSM 15152

Order XI. *"Vibrionales"* [NP]

Family I. Vibrionaceae [AL]

Genus I. Vibrio [AL (T)]
Vibrio cholerae [AL (T)] Pacini 1854 = *Vibrio albensis* (later heterotypic synonym) - ATCC 14035, X74695, V.cholera2 | ATCC 14035, Z21856, V.cholera6 | NCTC 8021
Vibrio aerogenes [VP] Shieh et al. 2000 - FG1, AF124055 | ATCC 700797 | CCRC 17041
Vibrio aestuarianus [VP] Tison and Seidler 1983 - OY-0-002 | ATCC 35048, X74689, V.aestuar3
Vibrio agarivorans [VP] Macián et al. 2001 - 289 | CECT 5085, AJ310647 | DSM 13756
†*Vibrio albensis* [AL] Lehmann and Neumann 1896 = *Vibrio cholerae* (earlier heterotypic synonym) - ATCC 14547
Vibrio alginolyticus [AL] (Miyamoto et al. 1961) Sakazaki 1968 <- *Beneckea alginolytica* (basonym) - ATCC 17749, X56576, V.alginoly | ATCC 17749, X74690, V.alginol3 | CCM 2578 | CIP I.029 | DSM 2171 | IMET 11295
†*Vibrio anguillarum* [AL] Bergeman 1909 -> *Listonella anguillarum* - ATCC 19264, X16895, Lsn.angu22 | NCMB 6
Vibrio brasiliensis [VP] Thompson et al. 2003 - CAIM 495 | LMG 20546, AJ316172
Vibrio calviensis [VP] Denner et al. 2002 - RE35F/12 | CIP 107077, AF118021 | DSM 14347
Vibrio campbellii [VP] (Baumann et al. 1971) Baumann et al. 1981 <- *Beneckea campbellii* (basonym) - ATCC 25920, X56575, V.campbell | IMET 11296
Vibrio carchariae [VP] Grimes et al. 1985 = *Vibrio harveyi* (earlier heterotypic synonym) - 1116b, X74693 | ATCC 35084

Vibrio chagasii [VP] Thompson et al. 2003 - R-3712, AJ316199 | CAIM 431 | LMG 21353
Vibrio cincinnatiensis [VP] Brayton et al. 1986 - ATCC 35912, X74698, V.cincnati
Vibrio coralliilyticus [VP] Ben-Haim et al. 2003 - YB1, AJ440005 | ATCC BAA-450 | LMG 20984
†*Vibrio costicola* [AL] Smith 1938 emend. Garcia et al. 1987 -> *Salinivibrio costicola* - ATCC 33508, X74699, Sav.costic | DSM 11403 | NCMB 701
Vibrio cyclitrophicus [VP] Hedlund and Staley 2001 - P-2P44, U57919 | ATCC 700982 | CIP 106644
†*Vibrio damselae* [VP] Love et al. 1982 [254] -> *Listonella damselae* - ATCC 33539, AB032015 | CDC 2588-80
Vibrio diabolicus [VP] Raguénès et al. 1997 - HE800, X99762, V.diabolic | CNCM I-1629
Vibrio diazotrophicus [VP] Guerinot et al. 1982 - NS1 | ATCC 33466, X56577, V.diazotro | ATCC 33466, X74701, V.diazotr3 | DSM 2604 | IAM 14402
Vibrio fischeri [AL] (Beijerinck 1889) Lehmann and Neumann 1896 = *Photobacterium fischeri* (homotypic synonym) - ATCC 7744 | DSM 507 | NCMB 1281, X70640, V.fischer4
Vibrio fluvialis [VP] Lee et al. 1981 [255] = *Allomonas enterica* (later homotypic synonym) - VL 5125 | ATCC 33809, X74703, V.fluviali | IMET 11293 | NCTC 11327, X76335, V.fluvial3
Vibrio furnissii [VP] Brenner et al. 1984 - ATCC 35016, X74704, V.furnissi | ATCC 35016, X76336, V.furniss2 | CDC B3215
Vibrio gazogenes [VP] (Harwood et al. 1980) Baumann et al. 1981 <- *Beneckea gazogenes* (basonym) - PB1 | ATCC 29988, X74705, V.gazogene
Vibrio halioticoli [VP] Sawabe et al. 1998 - A431 | IAM 14596, AB000390, V.haliotic
Vibrio harveyi [VP] (Johnson and Shunk 1936) Baumann et al. 1981 <- *Beneckea harveyi* (basonym) <- *Lucibacterium harveyi* (basonym) = *Vibrio carchariae* (later heterotypic synonym) = *Vibrio trachuri* (later heterotypic synonym) - ATCC 14126, X56578, V.harveyi4 | ATCC 14126, X74706, V.harveyi6[256]
Vibrio hollisae [VP] Hickman et al. 1982 -> *Grimontia hollisae* - ATCC 33564, X56583, V.hollisae | ATCC 33564, X74707, V.hollisa3 | CDC 0075-80 | IMET 12291
Vibrio ichthyoenteri [VP] Ishimura et al. 1996 - F-2 | NBRC 15847
†*Vibrio iliopiscarius* [VP] Onarheim et al. 1995 -> *Photobacterium iliopiscarium* - PS1 | PT1 | ATCC 51760, AB000278, Phb.iliopi | DSM 9896
Vibrio kanaloae [VP] Thompson et al. 2003 - CAIM 485 | INCO 191 | LMG 20539, AJ316193
Vibrio lentus [VP] Macian et al. 2001 - 4OM4, AJ278881 | CECT 5110 | DSM 13757
Vibrio logei [VP] (Harwood et al. 1980) Baumann et al. 1981 <- *Photobacterium logei* (basonym) - 584 | ATCC 29985
†*Vibrio marinus* [VP] Baumann et al. 1984 -> *Moritella marina* - ATCC 15381, X74709, Mrt.marin3
Vibrio mediterranei [VP] Pujalte and Garay 1986 - 50 | ATCC 43341 | CECT 621 | CIP 103203, X74710, V.mediterr | LMG 11258 | NCTC 11946
Vibrio metschnikovii [AL] Gamaleia 1888 - P.6915, X74711 | CCUG 3280 | CIP 69.15 | ICPB 3552 | LMG 4417 | NCTC 8443
Vibrio mimicus [VP] Davis et al. 1982 - 1721-77 | ATCC 33653, X74713, V.mimicus
Vibrio mytili [VP] Pujalte et al. 1993 - 165 | CECT 632
Vibrio natriegens [VP] (Payne et al. 1961) Baumann et al. 1981 <- *Beneckea natriegens* (basonym) - ATCC 14048, X74714, V.natrieg4 | DSM 759 | IMET 11297 | NCMB 857
Vibrio navarrensis [VP] Urdaci et al. 1991 - 1397-6 | CIP 103381, X74715, V.navarren

[254] Farmer et al contend that the the corrected epithet *damselae* is unnecessarry as the the original form damsela is formed properly as a noun in opposition (sic) and is consistent with Rule 12c(2) of the Code. Users of the Outline should also be be aware that there are conflicting views on the transfer of *Vibrio damsela* to the genus *Photobacterium*.

[255] *Allomonas enterica* is a subjective synonym of *Vibrio fluvialis* according to Farmer.

[256] *Benekea harveyi* and *Lucibacterium harveyi* are objective synonyms and both are considered basonyms of *Vibrio harveyi*.

Vibrio neptunius [VP] Thompson et al. 2003 - CAIM 532 | LMG 20536, AJ316171
Vibrio nereis [VP] (Harwood et al. 1980) Baumann et al. 1981 <- *Beneckea nereis* (basonym) - 80 | ATCC 25917, X74716, V.nereis
Vibrio nigripulchritudo [VP] (Baumann et al. 1971) Baumann et al. 1981 <- *Beneckea nigrapulchrituda* (basonym) - ATCC 27043, X74717, V.nigripul
Vibrio ordalii [VP] Schiewe et al. 1982 - DF3K | ATCC 33509, X70641, V.ordalii5 | ATCC 33509, X74718, V.ordalii
Vibrio orientalis [VP] Yang et al. 1983 - 717 | ATCC 33934, X74719, V.oriental
Vibrio parahaemolyticus [AL] (Fujino et al. 1951) Sakazaki et al. 1963 = *Beneckea parahaemolytica* (homotypic synonym) - EB 101 | ATCC 17802, M59161, V.phaemoly | ATCC 17802, X56580, V.phaemol2 | ATCC 17802, X74720, V.phaemol5 | CIP 75.2 | DSM 10027 | NCMB 1902 | NCTC 10903
Vibrio pectenicida [VP] Lambert et al. 1998 - A365, Y13830, V.pectenic | CIP 105190
†*Vibrio pelagius* [VP] (Baumann et al. 1971) Mandel Baumann et al. 1981 <- *Beneckea pelagia* (basonym) -> *Listonella pelagia* - 99 | ATCC 25916, X74722
Vibrio penaeicida [VP] Ishimaru et al. 1995 - KH-1 | NBRC 15640 | JCM 9123
Vibrio pomeroyi [VP] Thompson et al. 2003 - CAIM 578 | INCO 62 | LMG 20537, AJ491290
Vibrio proteolyticus [VP] (Merkel et al. 1964) Baumann et al. 1982 <- *Aeromonas hydrophila subspecies proteolytica* (basonym) - ATCC 15338, X56579, V.proteoly | ATCC 15338, X74723, V.proteol3 | CIP 73.06 | DSM 30189 | NBRC 13287 | NCMB 1326
Vibrio ruber [VP] Shieh et al. 2003 - VR1 | CCRC 17186 | JCM 11486, AF462458
Vibrio rumoiensis [VP] Yumoto et al. 1999 - S-1, AB013297 | FERM P-14531
Vibrio salmonicida [VP] Egidius et al. 1986 - HI 7751 | NCMB 2262, X70643, V.salmoni4
Vibrio scophthalmi [VP] Cerdà-Cuéllar et al. 1997 - A089, U46579, V.scophtha | CECT 4638, U46579, V.scophtha
Vibrio shilonii [VP] Kushmaro et al. 2001 - AK1, AF007115 | ATCC BAA-91 | DSM 13774
Vibrio splendidus [VP] (Beijerinck 1900) Baumann et al. 1981 <- *Beneckea splendida* (basonym) - ATCC 33125, X74724, V.splendid | NCMB 1
†*Vibrio succinogenes* [AL] Wolin et al. 1961 -> *Wolinella succinogenes* - ATCC 29543, M88159, Wln.succi2 | DSM 1740
Vibrio tapetis [VP] Borrego et al. 1996 - B1090 | CECT 4600, Y08430, V.tapetis1
Vibrio trachuri [VP] Iwamoto et al. 1996 = *Vibrio harveyi* (earlier heterotypic synonym) - T9210 | JCM 9677
Vibrio tubiashii [VP] Hada et al. 1984 - ATCC 19109, X74725, V.tubiashi
†*Vibrio viscosus* [VP] Lunder et al. 2000 -> *Moritella viscosa* - NVI 88/478, AJ132226 | NVI 88/478, Y17574 | NCIMB 13584
Vibrio vulnificus [VP] (Reichelt et al. 1979) Farmer 1980 <- *Beneckea vulnifica* (basonym) - 324 | ATCC 27562, X56582, V.vulnific | ATCC 27562, X74726, V.vulnifiT | ATCC 27562, X76333, V.vulnifi6 | DSM 10143 | IMET 11292
Vibrio wodanis [VP] Lunder et al. 2000 - NVI 88/441, AJ132227 | NCIMB 13582
Vibrio xuii [VP] Thompson et al. 2003 - R-15052, AJ316181 | CAIM 467 | LMG 21346

Genus II. Allomonas [VP]
Allomonas enterica [VP (T)] Kalina et al. 1984 = *Vibrio fluvialis* (homotypic synonym) - 40 | BKM B1485 | VKM B-1485

Genus III. ***Catenococcus*** [VP] ***(moved)***[257]
Catenococcus thiocycli [VP (T)] Sorokin 1994 - TG 5-3, AF139723 | ATCC 51228 | DSM 9165 | LMD 92.12

Genus IV. ***Enterovibrio*** [VP]
Enterovibrio norvegicus [VP (T)] Thompson et al. 2002 - CAIM 430 | LMG 19839, AJ316208

Genus V. ***Grimontia*** [VP]

[257] Placement based on short sequence (421 nts).

Grimontia hollisae[(T)] Thompson et al. 2003 *comb. nov.* <- *Vibrio hollisae* (basonym) - LMG 17719, AJ514909

Genus VI. Listonella [VP]

Listonella anguillarum [VP (T)] (Bergeman 1909) MacDonell and Colwell 1986 <- *Vibrio anguillarum* (basonym) - ATCC 19264, X16895, Lsn.angu22 | NCMB 6

†*Listonella damselae* [VP] (Love et al. 1982) MacDonell and Colwell 1986 <- *Vibrio damselae* (basonym) -> *Photobacterium damselae subspecies damselae* - ATCC 33539, AB032015 | CDC 2588-80 | DSM 7482

†*Listonella pelagia* [VP] (Baumann et al. 1971) MacDonell and Colwell 1986 <- *Vibrio pelagius* (basonym) - 99 | ATCC 25916, X74722, Lsn.pelag2

Genus VII. Photobacterium [AL]

Photobacterium phosphoreum [AL (T)] (Cohn 1878) Beijerinck 1889 - ATCC 11040, D25310, Phb.phosp4 | ATCC 11040, X74687, Phb.phosp3 | ATCC 11040, Z19107 | Baumann 439 | CIP 75.09 | LMG 4233 | NCMB 1282

Photobacterium angustum [AL] Reichelt et al. 1979 - 68 | B-2 | ATCC 25915, D25307, Phb.angus3 | ATCC 25915, X74685, Phb.angust

Photobacterium damselae subspecies damselae [VP] (Love et al. 1982) Smith et al. 1991 <- *Listonella damselae* (basonym) = *Photobacterium histaminum* (later heterotypic synonym) - ATCC 33539, X74700, Phb.damse5 | CDC 2588-80 | DSM 7482

Photobacterium damselae subspecies piscicida [VP] (ex Snieszko et al. 1964) Gauthier et al. 1995 - NCIMB 2058, X78105, Phb.damsel

Photobacterium fischeri [AL] (Beijerinck 1889) Reichelt and Baumann 1973 = *Vibrio fischeri* (homotypic synonym) - ATCC 7744 | NCMB 1281, X70640, X74702

†*Photobacterium histaminum* [VP] Okuzumi et al. 1994 = *Photobacterium damselae subspecies damselae* (earlier heterotypic synonym) - C-8, D25308, Phb.histam | JCM 8968

Photobacterium iliopiscarium [VP] (Onarheim et al. 1995) Urakawa et al. 1999 <- *Vibrio iliopiscarius* (basonym) - PS1 | PT1 | ATCC 51760, AB000278, Phb.iliopi | DSM 9896

Photobacterium leiognathi [AL] Boisvert et al. 1967 - ATCC 25521, D25309, Phb.leiog4 | ATCC 25521, X74686, Phb.leiogn

†*Photobacterium logei* [VP] (ex Bang et al. 1978) Harwood et al. 1980 -> *Vibrio logei* - 584 | ATCC 29985

Photobacterium profundum [VP] Nogi et al. 1998 - DSJ4, D21226, Phb.profnd | JCM 10084

Genus VIII. Salinivibrio [VP]

Salinivibrio costicola subspecies costicola [VP (T)] (Smith 1938 emend. Garcia et al. 1987) Mellado et al. 1996 <- *Vibrio costicola* (basonym) - ATCC 33508, X74699, Sav.costic | DSM 11403 | NCIMB 701, X95527, Sav.costi3

Salinivibrio costicola subspecies vallismortis [VP] Huang et al. 2000 - DV, AF057016 | DSM 8285

Order XII. *"Aeromonadales"* [NP]

Family I. Aeromonadaceae [VP]

Genus I. Aeromonas [AL (T)]

Aeromonas hydrophila subspecies hydrophila [AL (T)] (Chester 1901) Stanier 1943 - ATCC 7966, M59148, Arm.hphil2 | ATCC 7966, X60404, Arm.hphila | ATCC 7966, X60406, Arm.salmo4 | ATCC 7966, X60407, Arm.salmo8 | ATCC 7966, X60410, Arm.media | ATCC 7966, X60412, Arm.sobria | ATCC 7966, X60413, Arm.jandae | ATCC 7966, X60414, Arm.veroni | ATCC 7966, X60415, Arm.trota | ATCC 7966, X60416, Arm.schubr | ATCC 7966, X60417, Arm.sp2 | ATCC 7966, X74677, Arm.hphil4 | DSM 30187, X87271, Arm.hphil5 | NCDC 359-60 | NCMB 86 | NCTC 8049

Aeromonas hydrophila subspecies anaerogenes [AL] Schubert 1964 - ATCC 15467 | DSM 30188 | NBRC 13282

[257] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Aeromonas hydrophila subspecies dhakensis [VP] Huys et al. 2002 - P21 | CCUG 45377 | LMG 19562

†*Aeromonas hydrophila subspecies proteolytica* [AL] (Merkel et al. 1964) Schubert 1969 -> *Vibrio proteolyticus* - ATCC 15338, X56579, V.proteoly | ATCC 15338, X74723, V.proteol3 | CIP 73.06 | DSM 30189 | NBRC 13287 | NCMB 1326

Aeromonas hydrophila subspecies ranae [VP] Huys et al. 2003 - Au-1D12 | HDP 90246, AJ508766 | CCUG 46211 | LMG 19707

Aeromonas allosaccharophila [VP] Martinez-Murcia et al. 1992 - ATCC 51208 | CECT 4199, S39232, Arm.allsac | DSM 11576

Aeromonas bestiarum [VP] Ali et al. 1996 - ATCC 51108, X60406 | CDC 9533-76 | CIP 7430

Aeromonas caviae [VP] Popoff 1984 = *Aeromonas punctata* (earlier homotypic synonym) - ATCC 15468, X74674, Arm.cavia4 | DSM 7323 | NRRL B-968

Aeromonas culicicola [VP] Pidiyar et al. 2002 [258] - MTCC 3249, AF170914 | NCIM 5147

Aeromonas encheleia [VP] Esteve et al. 1995 emend. Huys et al. 1997 - S181 | CECT 4342 | DSM 11577 | LMG 16330

Aeromonas enteropelogenes [VP] Schubert et al. 1991 - J11 | ATCC 49803 | DSM 6394, X71121, Arm.epelog | JCM 8355

Aeromonas eucrenophila [VP] Schubert and Hegazi 1988 emend. Huys et al. 1997 - Popoff 546 | ATCC 23309, X74675, Arm.eucre2 | CDC-RH63 | NCMB 74

Aeromonas ichthiosmia [VP] Schubert et al. 1991 - 115/II | ATCC 49904 | DSM 6393, X71120, Arm.ichthi | JCM 8354 | NCIMB 13205

Aeromonas jandaei [VP] Carnahan et al. 1992 - ATCC 49568, X74678, Arm.janda2 | CDC 0787-80, U88662, Arm.janda3 | DSM 7311

Aeromonas media [VP] Allen et al. 1983 - RM | ATCC 33907, X74679, Arm.media3 | DSM 4881

Aeromonas popoffii [VP] Huys et al. 1997 - LMG 17541, AJ224308, Arm.popoff

Aeromonas punctata subspecies punctata [AL] (Zimmermann 1890) Snieszko 1957 = *Aeromonas caviae* (later homotypic synonym) - ATCC 15468

Aeromonas punctata subspecies caviae [AL] (Scherago 1936) Schubert 1964 = *Aeromonas caviae* (later homotypic synonym) - ATCC 15468 | IMET 11045

Aeromonas salmonicida subspecies salmonicida [AL] (Lehmann and Neumann 1896) Griffin et al. 1953 - ATCC 33658, X74681, Arm.salmo6 | IMET 11051 | NCMB 1102, X60405, Arm.salmo3 | NCMB 1102, X71836, Arm.salmo9

Aeromonas salmonicida subspecies achromogenes [AL] (Smith 1963) Schubert 1967 - NCMB 1110

Aeromonas salmonicida subspecies masoucida [AL] Kimura 1969 - ATCC 27013, X74680, Arm.salmo5

Aeromonas salmonicida subspecies pectinolytica [VP] Pavan et al. 2000 - 34mel, AF134065 | DSM 12609

Aeromonas salmonicida subspecies smithia [VP] Austin et al. 1989 - 138 | CCM 4103, AJ009859, Arm.salm11

Aeromonas schubertii [VP] Hickman-Brenner et al. 1989 - ATCC 43700, X74682, Arm.schub2 | CDC 2446-81 | DSM 4882

Aeromonas sobria [VP] Popoff and Veron 1981 - 208 | ATCC 43979, X74683, Arm.sobri2 | CDC 9358-7b | CIP 7433 | NCIB 12065

Aeromonas trota [VP] Carnahan et al. 1992 - AH2 | ATCC 49657 | DSM 7312

Aeromonas veronii [VP] Hickman-Brenner et al. 1988 - ATCC 35624, X74684, Arm.veron3 | CDC 1169-83 | DSM 7386

Genus II. Oceanimonas [VP]

Oceanimonas doudoroffii [VP (T)] (Baumann et al. 1972) Brown et al. 2001 <- *Pseudomonas doudoroffii* (basonym) - 70 | DSM 7028 | ATCC 27123, AB019390

[258] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Oceanimonas baumannii [VP] Brown et al. 2001 - GB6 | ATCC 700832, | NCIMB 13685, AF168367

Genus III. Tolumonas [VP]

Tolumonas auensis [VP (T)] Fischer-Romero et al. 1996 - TA 4, X92889, Tlm.auensi | DSM 9187

Family II. Succinivibrionaceae [VP] [259]

Genus I. Succinivibrio [AL (T)]

Succinivibrio dextrinosolvens [AL (T)] Bryant and Small 1956 - 554 | ATCC 19716 | DSM 3072, Y17600

Genus II. Anaerobiospirillum [AL] [260]

Anaerobiospirillum succiniciproducens [AL (T)] Davis et al. 1976 - S411 | ATCC 29305, U96412, Abs.sucprd | DSM 6400 | NCTC 11536

Anaerobiospirillum thomasii [VP] Malnick 1997 - A273/88 | DSM 11806, AJ420985 | NCTC 12467

Genus III. Ruminobacter [VP]

Ruminobacter amylophilus [VP (T)] (Hamlin and Hungate 1956) Stackebrandt and Hippe 1987 <- *Bacteroides amylophilus* (basonym) - H 18 | ATCC 29744, Y15992, Rum.amylo2 | DSM 1361, Y15992, Rum.amylo2 | VPI 2502 B

Genus IV. Succinimonas [VP]

Succinimonas amylolytica [AL (T)] Bryant et al. 1958 - B24 | ATCC 19206 | DSM 2873, Y17599 | VPI 13846

Order XIII. *"Enterobacteriales"* [NP]

Family I. Enterobacteriaceae [AL]

Genus I. Escherichia [AL (T)]

Escherichia coli [AL (T)] (Migula 1895) Castellani and Chalmers 1919 , E.coli1775 - O1:K1:H7 | ATCC 11775, X80725 | CCM 5172 | CIP 54.8 | DSM 30083 | IAM 12119 | JCM 1649 | NCDO 1989 | NCTC 9001

†Escherichia adecarboxylata [AL] Leclerc 1962 -> *Leclercia adecarboxylata* - ATCC 23216 | DSM 30081

Escherichia albertii [VP] Huys et al. 2003 - Albert 19982 | CCUG 46494 | LMG 20976, AJ508775

Escherichia blattae [AL] Burgess et al. 1973 - ATCC 29907 | CDC 9005-74 | DSM 4481

Escherichia fergusonii [VP] Farmer et al. 1985 - ATCC 35469 | CDC 0568-73

Escherichia hermannii [VP] Brenner et al. 1983 - ATCC 33650 | CDC 980-72 | DSM 4560

Escherichia vulneris [VP] Brenner et al. 1983 - ATCC 33821, X80734, E.vulneris | CDC 875-72 | DSM 4564 | IAM 14239 | JCM 1688 | NIH 580

Genus II. Alterococcus [VP]

Alterococcus agarolyticus [VP (T)] Shieh and Jean 1999 - ADT3, AF075271, Alt.agrlyt | CCRC 19135

Genus III. Arsenophonus [VP]

Arsenophonus nasoniae [VP (T)] Gherna et al. 1991 - SK14, M90801, Ars.nasoni | ATCC 49151, M90801, Ars.nasoni

Genus IV. Brenneria [VP]

Brenneria salicis [VP (T)] (Day 1924) Hauben et al. 1999 <- *Erwinia salicis* (basonym) - BS 1027 | EX2 | ATCC 15712, U80210, Bn.salicis | CFBP 802 | DSM 30166 | ICMP 1587 | LMG 2698, Z96097, Bn.salici2 | NCPPB 447

Brenneria alni [VP] (Surico et al. 1996) Hauben et al. 1999 <- *Erwinia alni* (basonym) - PVFi 20 | DSM 11811 | ICMP 12481, AJ223468, Bn.alni1 | NCPPB 3934

Brenneria nigrifluens [VP] (Wilson et al. 1957) Hauben et al. 1999 <- *Erwinia nigrifluens* (basonym) - EN 101 | ATCC 13028, U80203, Bn.nigrif1 | DSM 30175 | ICMP 1578 | LMG 2694, Z96095, Bn.nigrif2

[259] Placement of the *Succinivibrionaceae* is based on Ludwig's recommendation. No sequence data available for the type strain in the RDP.
[260] Placement of *Anaerobiospirillum* is based on Ludwig s recommendation and mapping of sequence data in PCA plots.

Brenneria paradisiaca [VP] (Fernandez-Borrero and Lopez-Duque 1970) Hauben et al. 1999 <- *Erwinia paradisiaca* (basonym) - ATCC 33242 | LMG 2542, Z96096, Bn.paradis | NCPPB 2511

Brenneria quercina [VP] (Hildebrand and Schroth 1967) Hauben et al. 1999 <- *Erwinia quercina* (basonym) - ATCC 29281 | DSM 4561 | ICMP 1845 | ICPB EQ 101 | LMG 2724, AJ223469, Bn.quercin

Brenneria rubrifaciens [VP] (Wilson et al. 1967) Hauben et al. 1999 <- *Erwinia rubrifaciens* (basonym) - 533c | Dye FC1 | ATCC 29291, U80207, Bn.rubrifa | CFBP 1283 | DSM 4483 | ICMP 1915 | ICPB ER 103 | LMG 2709, Z96098, Bn.rubrif2 | NCPPB 2020 | PDDCC 1915

Genus V. Buchnera [VP]

Buchnera aphidicola [VP (T)] Munson et al. 1991 - no culture isolated, M63246, Buc.aph-Sgr

Genus VI. Budvicia [VP]

Budvicia aquatica [VP (T)] Bouvet et al. 1985 - 20186 | 20186HG01 | ATCC 25567 | CNCTC 350

Genus VII. Buttiauxella [VP]

Buttiauxella agrestis [VP (T)] Ferragut et al. 1982 emend. Müller et al. 1996 - Gavini F-44 | ATCC 33320 | CDC 1176-81, AJ293685 | CIP 80-31 | CUETM 77-167 | DSM 4586

Buttiauxella brennerae [VP] Müller et al. 1996 - S1/6-571 | ATCC 51605 | DSM 9396, AJ233401

Buttiauxella ferragutiae [VP] Müller et al. 1996 - ATCC 51602 | CDC 1180-81 | CUETM 78-31 | DSM 9390, AJ233402

Buttiauxella gaviniae [VP] Müller et al. 1996 - S1/1-984 | ATCC 51604 | DSM 9393, AJ233403

Buttiauxella izardii [VP] Müller et al. 1996 - S3/2-161 | ATCC 51606 | DSM 9397, AJ233404

Buttiauxella noackiae [VP] Müller et al. 1996 - NSW 11, AJ293689 | ATCC 51607 | DSM 9401, AJ233405

Buttiauxella warmboldiae [VP] Müller et al. 1996 - NSW 326 | ATCC 51608 | DSM 9404, AJ233406

Genus VIII. Calymmatobacterium [VP]

†Calymmatobacterium granulomatis [AL (T)] Aragao and Vianna 1913 -> *Klebsiella granulomatis*, AF010251, Cmb.granu1, AF010252, Cmb.granu2, AF010253, Cmb.granu3

Genus IX. Cedecea [VP]

Cedecea davisae [VP (T)] Grimont et al. 1981 - 5 | ATCC 33431 | CDC 3278-77 | CIP 80.34

Cedecea lapagei [VP] Grimont et al. 1981 - 4 | ATCC 33432 | CDC 0485-76 | CIP 80.35

Cedecea neteri [VP] Farmer et al. 1983 - 002 of Grimont e | ATCC 33855 | CDC 0621-75

Genus X. Citrobacter [AL]

Citrobacter freundii [AL (T)] (Braak 1928) Werkman and Gillen 1932 - ATCC 8090 | DSM 30039, AJ233408 | NBRC 12681 | NCTC 9750

Citrobacter amalonaticus [VP] (Young et al. 1971) Brenner and Farmer 1982 <- *Levinea amalonatica* (basonym) - ATCC 25405 | CIP 82.89 | DSM 4593 | NCTC 10805

Citrobacter braakii [VP] Brenner et al. 1993 - ATCC 51113 | CDC 80-58, AF025368, Cit.braaki

Citrobacter diversus (Burkey 1928) Werkman and Gillen 1932 *nom. rej.* [261] = *Citrobacter koseri* (earlier heterotypic synonym) - ATCC 27156 | CDC 3613-63, AF025372, Cit.koseri | CIP 82.94 | DSM 4570

Citrobacter farmeri [VP] Brenner et al. 1993 - ATCC 51112 | CDC 2991-81, AF025371, Cit.farmer

Citrobacter gillenii [VP] Brenner et al. 2000 - ATCC 51117 | CCUG 30796 | CDC 4693-86

[261] *Citrobacter diversus* was included in the Approved List of Bacterial Names but has since been placed on the list of *nomina rejicienda*.

Citrobacter koseri [AL] Frederiksen 1970 = *Levinea malonatica* (later heterotypic synonym) = *Citrobacter diversus* (later heterotypic synonym) – ATCC 27028 | CCM 2537 | CDC 3613-63, AF025372 | CIP 82.87 | DSM 4595 | NCTC 10786

Citrobacter murliniae [VP] Brenner et al. 1999 – ATCC 51118 | CCUG 30797 | CDC 2970-59, AF025369

Citrobacter rodentium [VP] Schauer et al. 1996 – ATCC 51116 | CDC 1843-73, AF025363, Cit.rodent

Citrobacter sedlakii [VP] Brenner et al. 1993 – ATCC 51115 | CDC 4696-86, AF025364, Cit.sedlak

Citrobacter werkmanii [VP] Brenner et al. 1993 – ATCC 51114 | CDC 876-58, AF025373, Cit.werkma

Citrobacter youngae [VP] Brenner et al. 1993 – ATCC 29935 | CDC 460-61

Genus XI. Edwardsiella [AL]

Edwardsiella tarda [AL (T)] Ewing and McWhorter 1965 – K349 | ATCC 15947 | ATCC 23656 | CCM 2238 | CDC 1483-59 | DSM 30052 | NCDC 1483-59 | NCTC 10396

Edwardsiella anguillimortifera [AL] (Hoshina 1962) Sakazaki and Tamura 1975 – ATCC 15947

Edwardsiella hoshinae [VP] Grimont et al. 1981 – 28522 | ATCC 33379 | CIP 78.56

Edwardsiella ictaluri [VP] Hawke et al. 1981 – ATCC 33202 | CDC 1976-78 | SECFDL GA77-52

Genus XII. Enterobacter [AL]

Enterobacter cloacae [AL (T)] (Jordan 1890) Hormaeche and Edwards 1960 – ATCC 13047, AJ251469 | CIP 60.85 | DSM 30054 | NBRC 13535 | NCDC 279-56 | NCTC 10005

Enterobacter aerogenes [AL] Hormaeche and Edwards 1960 = *Klebsiella mobilis* (homotypic synonym) – ATCC 13048 | CDC 819-56 | DSM 30053 | JCM 1235, AB004750, Enb.aeroge | NCTC 10006

†*Enterobacter agglomerans* [AL] Ewing and Fife 1972 -> *Pantoea agglomerans* = *Erwinia herbicola* (later heterotypic synonym) = *Erwinia milletiae* (later heterotypic synonym) – ATCC 27155 | CIP 57.51 | DSM 3493 | JCM 1236, AB004691, Pn.agglomr | NCTC 9381

Enterobacter amnigenus [VP] Izard et al. 1981 – ATCC 33072 | CUETM 77-118 | DSM 4486 | JCM 1237, AB004749, Enb.amnige

Enterobacter asburiae [VP] Brenner et al. 1988 – 1497-78 | ATCC 35953 | CDC 1497-78 | JCM 6051, AB004744, Enb.asburi

Enterobacter cancerogenus [VP] (Urosevic 1966) Dickey and Zumoff 1988 <- *Erwinia cancerogena* (basonym) = *Enterobacter taylorae* (later heterotypic synonym) – ATCC 33241 | ICMP 5706 | LMG 2693, Z96078, Enb.cancer | NCPPB 2176

Enterobacter cowanii [VP] Inoue et al. 2001 [262] – 888–76 | JCM 10956[263]

Enterobacter dissolvens [VP] (Rosen 1922) Brenner et al. 1988 <- *Erwinia dissolvens* (basonym) – ATCC 23373 | ICMP 1570 | LMG 2683, Z96079, Enb.dissol | NCPPB 1850

Enterobacter gergoviae [VP] Brenner et al. 1980 – ATCC 33028 | CDC 604-77 | CIP 76.01 | DSM 9245 | JCM 1234, AB004748, Enb.gergov | NCTC 11434

Enterobacter hormaechei [VP] O'Hara et al. 1990 – 0992-77 | ATCC 49162 | DSM 12409

Enterobacter intermedius [VP] Izard et al. 1980 – E86 | Gavini E 86 | ATCC 33110 | CIP 79-27 | CUETM 77-130 | DSM 4581 | IAM 14238 | JCM 1238, AB004747, Enb.interm

Enterobacter kobei [VP] Kosako et al. 1997 – JCM 8580 | NIH 1485-79

Enterobacter nimipressuralis [VP] (Carter 1945) Brenner et al. 1988 <- *Erwinia nimipressuralis* (basonym) – ATCC 9912 | ICMP 1577 | LMG 10245, Z96077, Enb.nimipr

Enterobacter pyrinus [VP] Chung et al. 1993 – ATCC 49851 | CDC G6570 | DSM 12410 | ICMP 1 | KCTC 2520, AJ010486, Enb.pyrinu

[262] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[263] GenBank accession number not reported in IJSEM, Curr Microbiol, or GenBank.

Enterobacter sakazakii [VP] Farmer et al. 1980 - Ct2 | ATCC 29544 | CDC 4562-70 | DSM 4485 | JCM 1233, AB004746, Enb.sakaza

†Enterobacter taylorae [VP] Farmer et al. 1985 = *Enterobacter cancerogenus* (earlier heterotypic synonym) - ATCC 35317 | CDC 2126-81

Genus XIII. Erwinia [AL]

Erwinia amylovora [AL (T)] (Burrill 1882) Winslow et al. 1920 emend. Hauben et al. 1998 - ATCC 15580, U80195, Er.amylovr | ATCC 15580 | CCM 1114 | CFBP 1232 | DSM 30165 | ICMP 1540 | NBRC 12687 | LMG 2024, Z96088, Er.amylov2 | NCPPB 683 | PDDCC 1540

†Erwinia alni [VP] Surico et al. 1996 -> *Brenneria alni* - PVFi 20 | DSM 11811 | ICMP 12481, AJ223468, Bn.alni1 | NCPPB 3934

†Erwinia ananatis [AL] Serrano 1928 = *Erwinia uredovora* (later heterotypic synonym) -> *Pantoea ananatis* - ATCC 11530 | DSM 30070 | NCPPB 1846

Erwinia aphidicola [VP] Harada et al. 1998 - X 001 | IAM 14479

Erwinia billingiae [VP] Mergaert et al. 1999 - Billing E63 | LMG 2613, Y13249, Er.bllingi | NCPPB 661

†Erwinia cacticida [VP] Alcorn et al. 1991 -> *Pectobacterium cacticida* - 1 12 | ATCC 49481 | ICMP 1551-66 | ICPB EC1

†Erwinia cancerogena [AL] Urosevic 1966 -> *Enterobacter cancerogenus* - NCPPB 2176

Erwinia carnegieana [AL] Standring 1942 <- *Pectobacterium carnegieana* (basonym) - NCPPB 439

†Erwinia carotovora subspecies carotovora [AL] (Jones 1901) Bergey et al. 1923 -> *Pectobacterium carotovorum subspecies carotovorum* - BS 1008 | ATCC 15713, U80197, Pcb.carcar | CCM 1008 | CCUG 4907 | CECT 225 | CIP 82.83 | DSM 30168 | LMG 2404, Z96089, Pcb.carca2 | M59149 | NCPPB 312

†Erwinia carotovora subspecies atroseptica [AL] (van Hall 1902) Dye 1969 -> *Pectobacterium carotovorum subspecies atrosepticum* - ATCC 33260 | CFBP 1526 | LMG 2386, Z96090, Pcb.caratr | NCPPB 549

†Erwinia carotovora subspecies betavasculorum [VP] Thomson et al. 1984 -> *Pectobacterium carotovorum subspecies betavasculorum* - ATCC 43762, U80198, Pcb.carbe2 | CFBP 1539 | LMG 2466, Z96091, Pcb.carbet | NCPPB 2795

†Erwinia carotovora subspecies odorifera [VP] Gallois et al. 1992 -> *Pectobacterium carotovorum subspecies odoriferum* - CFBP 1878 | ICMP 11533 | NCPPB 3839

†Erwinia carotovora subspecies wasabiae [VP] Goto and Mazumoto 1987 -> *Pectobacterium carotovorum subspecies wasabiae* - SR91 | ATCC 43316, U80199, Pcb.carwas | LMG 8444 | PDDCC 9121

†Erwinia chrysanthemi [AL] Burkholder et al. 1953 -> *Pectobacterium chrysanthemi* - EC17 | ATCC 11663, U80200, Pcb.chrysn | CFBP 2048 | CIP 82.99 | DAR 35625 | DSM 4610 | ICMP 5703 | LMG 2804, Z96093, Pcb.chrys2 | NCPPB 402 | PDDCC 5703

Erwinia cypripedii [AL] (Hori 1911) Bergey et al. 1923 = *Pectobacterium cypripedii* (homotypic synonym) - ATCC 29267, U80201, Pcb.cyprip | DSM 3873 | LMG 2657, Z96094, Pcb.cypri2 | NCPPB 3994 | PDDCC 1591

†Erwinia dissolvens [AL] (Rosen 1922) Burkholder 1948 -> *Enterobacter dissolvens* - ATCC 23373

†Erwinia herbicola [AL] (Lohnis 1911) Dye 1964 = *Enterobacter agglomerans* (earlier heterotypic synonym) - ATCC 33243, U80202, Pn.agglom3 | CIP 82.100 | DSM 4609 | ICMP 272 | NCPPB 2971

Erwinia mallotivora [AL] Goto 1976 emend. Hauben et al. 1998 - AM1 | ATCC 29573 | CFBP 2503 | DSM 4565 | ICMP 5705 | LMG 2708, Z96084, Er.mallotv | NCPPB 2851 | PDDCC 5705

†Erwinia milletiae [AL] (Kawakami and Yoshida 1920) Magrou 1937 = *Enterobacter agglomerans* (earlier heterotypic synonym) - ATCC 33261, U80183, Pn.agglom2 | NCPPB 2519

†*Erwinia nigrifluens* [AL] Wilson et al. 1957 -> *Brenneria nigrifluens* - EN 101 | ATCC 13028, U80203, Bn.nigrif1 | DSM 30175 | ICMP 1578 | LMG 2694, Z96095, Bn.nigrif2

†*Erwinia nimipressuralis* [AL] (Carter 1945) Dye 1969 -> *Enterobacter nimipressuralis* - ATCC 9912

†*Erwinia paradisiaca* [AL] Fernandez-Borrero and Lopez-Duque 1970 -> *Brenneria paradisiaca* - ATCC 33242 | LMG 2542, Z96096, Bn.paradis | NCPPB 2511

Erwinia persicina [VP] Hao et al. 1990 - AJ 2716 | HK 204 | ATCC 35998, U80205, Er.persici | CDC 9108-82 | IAM 12843 | JCM 3704

Erwinia psidii [VP] Neto et al. 1988 - ATCC 49406 | IBSBF 435 | PDDCC 8426

Erwinia pyrifoliae [VP] Kim et al. 1999 - Ep16/96 | CFBP 4172 | DSM 12163

†*Erwinia quercina* [AL] Hildebrand and Schroth 1967 -> *Brenneria quercina* - ATCC 29281 | DSM 4561 | ICMP 1845 | ICPB EQ 101 | LMG 2724, AJ223469, Bn.quercin

Erwinia rhapontici [AL] (Millard 1924) Burkholder 1948 emend. Hauben et al. 1998 <- *Pectobacterium rhapontici* (basonym) - CP/28 | ATCC 29283, U80206, Er.rhapont | DSM 4484 | ICMP 1582 | ICPB ER 102 | LMG 2688, Z96087, Er.rhapon2 | NCPPB 1578

†*Erwinia rubrifaciens* [AL] Wilson et al. 1967 -> *Brenneria rubrifaciens* - 533c | Dye FC1 | ATCC 29291, U80207, Bn.rubrifa | CFBP 1283 | DSM 4483 | ICMP 1915 | ICPB ER 103 | LMG 2709, Z96098, Bn.rubrif2 | NCPPB 2020 | PDDCC 1915

†*Erwinia salicis* [AL] (Day 1924) Chester 1939 -> *Brenneria salicis* - BS 1027 | EX2 | ATCC 15712, U80210, Bn.salicis | CFBP 802 | DSM 30166 | ICMP 1587 | LMG 2698, Z96097, Bn.salici2 | NCPPB 447

†*Erwinia stewartii* [AL] (Smith 1898) Dye 1963 -> *Pantoea stewartii subspecies stewartii* - SS11 | ATCC 8199, U80208, Pn.stewstw | DSM 30176 | IMET 11187

Erwinia tracheiphila [AL] (Smith 1895) Bergey et al. 1923 emend. Hauben et al. 1998 - ATCC 33245 | CFBP 2355 | LMG 2906, Y13250, Er.trachep | NCPPB 2452

†*Erwinia uredovora* [AL] (Pon et al. 1954) Dye 1963 = *Erwinia ananatis* (earlier heterotypic synonym) - ATCC 19321, U80209, Pn.ananas1 | DSM 30080 | NCPPB 800

Genus XIV. Ewingella [VP]

Ewingella americana [VP (T)] Grimont et al. 1984 - ATCC 33852 | CCUG 14506 | CDC 1468-78 | CIP 81.94 | CIP 8194 | DSM 4580 | JCM 5911 | LMG 7869

Genus XV. Hafnia [AL]

Hafnia alvei [AL (T)] Moller 1954 - ATCC 13337, M59155, Haf.alvei | CIP 57.31 | DSM 30163 | NCDC 434-68 | NCTC 8105

Genus XVI. Klebsiella [AL]

Klebsiella pneumoniae subspecies pneumoniae [AL (T)] (Schroeter 1886) Trevisan 1887 - Serovar 3 | ATCC 13883, Y17656, K.pneupneu | DSM 30104, X87276, K.pneumoni | IAM 14200 | JCM 1662, AB004753, K.pneumon4 | NCDC 298-53 | NCTC 9633

Klebsiella pneumoniae subspecies ozaenae [VP] (Abel 1893) Oerskov 1984 <- *Klebsiella ozaenae* (basonym) - ATCC 11296, Y17654, K.pneuozae | NCTC 5050

Klebsiella pneumoniae subspecies rhinoscleromatis [VP] (Trevisan 1887) Oerskov 1984 <- *Klebsiella rhinoscleromatis* (basonym) - ATCC 13884, Y17657, K.pneurhin | NCTC 5046

Klebsiella granulomatis [VP] (Aragão and Vianna 1913) Carter et al. 1999 <- *Calymmatobacterium granulomatis* (basonym) - no strain extant, AF009171, AF010251, AF010252, AF010253

Klebsiella mobilis [AL] Bascomb et al. 1971 = *Enterobacter aerogenes* (homotypic synonym) - ATCC 13048

†*Klebsiella ornithinolytica* [VP] Sakazaki et al. 1989 [264] -> *Raoultella ornithinolytica* - DSM 7464 | JCM 6096, AJ251467 | NIH 90-72

Klebsiella oxytoca [AL] (Flügge 1886) Lautrop 1956 - 479-2 | ATCC 13182, Y17655, K.oxytoca2 | DSM 5175 | IAM 14201 | JCM 1665, AB004754, K.oxytoca1

[264] Grimont indicates that the transfer of *Klebsiella ornithinolytica, K. planticola* and *K. terrigena* to *Raoultella* is not supported in phylogenetic trees based on *rpo*B.

†*Klebsiella ozaenae* [AL] (Abel 1893) Bergey et al. 1925 -> *Klebsiella pneumoniae subspecies ozaenae* - ATCC 11296, Y17654, K.pneuozae

†*Klebsiella planticola* [VP] Bagley et al. 1982 [265] = *Klebsiella trevisanii* (later heterotypic synonym) -> *Raoultella planticola* -> - V-236 | ATCC 33531, Y17659, K.plantic4 | CDC 4245-72 | DSM 3069, X93215, K.plantico | IAM 14202 | NBRC 14939 | JCM 7251, AB004755, K.plantic3

†*Klebsiella rhinoscleromatis* [AL] Trevisan 1887 -> *Klebsiella pneumoniae subspecies rhinoscleromatis* - ATCC 13884, Y17657, K.pneurhin

†*Klebsiella terrigena* [VP] Izard et al. 1981 [266] -> *Raoultella terrigena* - Gavini L 84 | ATCC 33257, Y17658, K.terrigen | CIP 80-07 | CUETM 77-176 | DSM 2687

†*Klebsiella trevisanii* [VP] Ferragut et al. 1983 = *Klebsiella planticola* (earlier heterotypic synonym) - Gavini K70 | ATCC 33558, AF129444 | CIP 81-36 | CUETM 78-120 | DSM 2688

Genus XVII. Kluyvera [VP]

Kluyvera ascorbata [VP (T)] Farmer et al. 1981 - ATCC 33433, AF310219, AF008579 | CDC 0648-74, AF176560 | CIP 82.95 | DSM 4611 | IAM 14203

Kluyvera cochleae [VP] Müller et al. 1996 - S3/1-49 | ATCC 51609, AF047187, Klu.cochle | DSM 9406

Kluyvera cryocrescens [VP] Farmer et al. 1981 - ATCC 33435, AF310218 | CDC 2065-78 | CIP 82.96 | DSM 4588 | IAM 14204

Kluyvera georgiana [VP] Müller et al. 1996 - ATCC 51603, AF047186, Klu.georgi | CDC 2891-76 | CDC enteric group 36/37 | DSM 9409

Genus XVIII. Leclercia [VP]

Leclercia adecarboxylata [VP (T)] (Leclerc 1962) Tamura et al. 1987 <- *Escherichia adecarboxylata* (basonym) - ATCC 23216 | DSM 5077 | IAM 14240 | JCM 1667

Genus XIX. Leminorella [VP]

Leminorella grimontii [VP (T)] Hickman-Brenner et al. 1985 - 81H-380 | ATCC 33999 | CDC 1944-81 | DSM 5078, AJ233421

Leminorella richardii [VP] Hickman-Brenner et al. 1985 - ATCC 33998 | CDC 0978-82

Genus XX. Moellerella [VP]

Moellerella wisconsensis [VP (T)] Hickman-Brenner et al. 1984 - 2896-78 | ATCC 35017 | DSM 5076

Genus XXI. Morganella [AL]

Morganella morganii subspecies morganii [AL (T)] (Winslow et al. 1919) Fulton 1943 = *Proteus morganii* (homotypic synonym) - M 11 | ATCC 25830 | DSM 30164 | NBRC 3848 | NCIB 235 | NCTC 235

Morganella morganii subspecies sibonii [VP] Jensen et al. 1992 - 8103-85 | AB 2048 | ATCC 49948

Genus XXII. Obesumbacterium [AL]

Obesumbacterium proteus [AL (T)] Shimwell 1963 - 42 | ATCC 12841 | DSM 2777, AJ233422 | NCIB 8771

Genus XXIII. Pantoea [VP]

Pantoea agglomerans [VP (T)] (Ewing and Fife 1972) Gavini et al. 1989 <- *Enterobacter agglomerans* (basonym) - ATCC 27155 | CDC 1461-67 | DSM 3493 | ICPB 3435 | JCM 1236, AB004691, Pn.agglomr | LMG 1286 | NCTC 9381

Pantoea ananatis [VP] (Serrano 1928) Mergaert et al. 1993 <- *Erwinia ananatis* (basonym) - ATCC 33244, U80196, Pn.ananat2 | LMG 2665, Z96081, Pn.ananati | NCPPB 1846 | PDDCC 1850

Pantoea citrea [VP] Kageyama et al. 1992 - SHS 2003 | ATCC 31623

Pantoea dispersa [VP] Gavini et al. 1989 - ATCC 14589 | DSM 30073 | LMG 2603

Pantoea punctata [VP] Kageyama et al. 1992 - SHS 2006 | ATCC 31626

[265] Grimont indicates that the transfer of *Klebsiella ornithinolytica, K. planticola* and *K. terrigena* to *Raoultella* is not supported in phylogenetic trees based on *rpo*B.

[266] Grimont indicates that the transfer of *Klebsiella ornithinolytica, K. planticola* and *K. terrigena* to *Raoultella* is not supported in phylogenetic trees based on *rpo*B.

Pantoea stewartii subspecies stewartii [VP] (Smith 1898) Mergaert et al. 1993 <- *Erwinia stewartii* (basonym) - ATCC 8199 | DSM 30176 | IMET 11187 | LMG 2715, Z96080, Pn.stewst2

Pantoea stewartii subspecies indologenes [VP] Mergaert et al. 1993 - ICMP 77 | LMG 2632, Y13251, Pn.stewind | NCPPB 2280

Pantoea terrea [VP] Kageyama et al. 1992 - SHS 2008 | ATCC 31628

Genus XXIV. Pectobacterium [AL]

Pectobacterium carotovorum subspecies carotovorum [VP (T)] (Jones 1901) Hauben et al. 1999 <- *Erwinia carotovora subspecies carotovora* (basonym) - 904 | BS 1008 | ATCC 15713, U80197, Pcb.carcar | CCM 1008 | DSM 30168 | LMG 2404, Z96089, Pcb.carca2 | NCPPB 312

†*Pectobacterium carotovorum subspecies atrosepticum* [VP] (van Hall 1902) Hauben et al. 1999 <- *Erwinia carotovora subspecies atroseptica* (basonym) -> *Pectobacterium atrosepticum* - ATCC 33260 | LMG 2386, Z96090, Pcb.caratr | NCPPB 549

†*Pectobacterium carotovorum subspecies betavasculorum* [VP] (Thomson et al. 1984) Hauben et al. 1999 <- *Erwinia carotovora subspecies betavasculorum* (basonym) -> *Pectobacterium betavasulorum* - ATCC 43762, U80198, Pcb.carbe2 | CFBP 1539 | LMG 2464, Z96091, Pcb.carbet | NCPPB 2795

Pectobacterium carotovorum subspecies odoriferum [VP] (Gallois et al. 1992) Hauben et al. 1999 <- *Erwinia carotovora subspecies odorifera* (basonym) - CFBP 1878 | LMG 17566, AJ223407, Pcb.carodo

†*Pectobacterium carotovorum subspecies wasabiae* [VP] (Goto and Mazumoto 1987) Hauben et al. 1999 <- *Erwinia carotovora subspecies wasabiae* (basonym) -> *Pectobacterium wasabiae* - SR 91 | ATCC 43316, U80199, Pcb.carwas | ICMP 9121, AJ223408 | PDDCC 9121

Pectobacterium atrosepticum [VP] (van Hall 1902) Gardan et al. 2003 <- *Pectobacterium carotovorum subspecies atrosepticum* (basonym) - CFBP 1526 | ICMP 1526, Z96090 | LMG 2386 | NCPPB 549

Pectobacterium betavasulorum [VP] (Thomson et al. 1984) Gardan et al. 2003 <- *Pectobacterium carotovorum subspecies betavasculorum* (basonym) - ATCC 43762, U80198 | CFBP 2122 | ICMP 4226 | LMG 2466, Z96091 | NCPPB 2795

Pectobacterium cacticida [VP] (Alcorn et al. 1991) Hauben et al. 1999 <- *Erwinia cacticida* (basonym) - 1 12 | ATCC 49481, AJ223409 | ICPB EC186 | LMG 17936

†*Pectobacterium carnegieana* [AL] (Standring 1942) Brenner et al. 1973 -> *Erwinia carnegieana* - NCPPB 439

Pectobacterium chrysanthemi [AL] (Burkholder et al. 1953) Brenner et al. 1973 emend. Hauben et al. 1998 = *Erwinia chrysanthemi* (homotypic synonym) - ATCC 11663, U80200, Pcb.chrysn | CIP 82.99 | DAR 35625 | DSM 4610 | EC17 | LMG 2804, Z96093, Pcb.chrys2 | NCPPB 402 | PDDCC 5703

Pectobacterium cypripedii [AL] (Hori 1911) Brenner et al. 1973 emend. Hauben et al. 1998 = *Erwinia cypripedii* (homotypic synonym) - ATCC 29267, U80201, Pcb.cyprip | DSM 3873 | ICMP 1591 | LMG 2657, Z96094, Pcb.cypri2 | NCPPB 3994 | PDDCC 1591

†*Pectobacterium rhapontici* [AL] (Millard 1924) Patel and Kulkarni 1951 -> *Erwinia rhapontici* - CP/28 | ATCC 29283, U80206, Er.rhapont | DSM 4484 | ICMP 1582 | ICPB ER 102 | LMG 2688, Z96087, Er.rhapon2 | NCPPB 1578

Pectobacterium wasabiae [VP] (Goto and Mazumoto 1987) Gardan et al. 2003 <- *Erwinia carotovora subspecies wasabiae* (basonym) - SR 91 | ATCC 43316, U80199 | CFBP 3304 | ICMP 9121, AJ223408 | LMG 8404 | NCPPB 3701 | PDDCC 9121

Genus XXV. "Phlomobacter"

Candidatus "Phlomobacter fragariae" U91515

Genus XXVI. Photorhabdus [VP]

Photorhabdus luminescens subspecies luminescens [VP (T)] (Thomas and Poinar 1979) Boemare et al. 1993 <- *Xenorhabdus luminescens* (basonym) - Hb | ATCC 29999, D78005, Pr.lumine4 | DSM 3368, X82248, Pr.lumines

Photorhabdus luminescens subspecies akhurstii [VP] Fischer-Le Saux et al. 1999 – FRG04 | CIP 105564, AJ007359

Photorhabdus luminescens subspecies laumondii [VP] Fischer-Le Saux et al. 1999 – TT01 | CIP 105565, AJ007404

Phororhabdus asymbiotica [VP] Fischer-Le Saux et al. 1999 – 3265-86, Z76755 | ATCC 43950

Photorhabdus temperata [VP] Fischer-Le Saux et al. 1999 – XlNach | CIP 105563, AJ007405

Genus XXVII. Plesiomonas [AL]

Plesiomonas shigelloides [AL (T)] (Bader 1954) Habs and Schubert 1962 – M51 | RH 798 | ATCC 14029, M59159, Ple.shigel | ATCC 14029, X74688, Ple.shige4 | CDC 3085-55 | DSM 8224 | NCIB 9242

Genus XXVIII. Pragia [VP]

Pragia fontium [VP (T)] Aldova et al. 1988 – HG16 | CCUG 180 | CDC 963-84 | CNCTC Eb11/82 | DRL 20125 | DSM 5563, AJ233424

Genus XXIX. Proteus [AL]

Proteus vulgaris [AL (T)] Hauser 1885 – ATCC 13315 | DSM 30118, AJ233425 | NBRC 3851 | NCIB 4175

Proteus hauseri [VP] O'Hara et al. 2000 – ATCC 700826 | CDC 1732-80

Proteus inconstans [AL] (Orstein 1920) Shaw and Clarke 1955 – ATCC 9886

Proteus mirabilis [AL] Hauser 1885 – ATCC 29906, AF008582 | CDC PR 14 | DSM 4479 | NCTC 11938

Proteus morganii [AL] (Winslow et al. 1919) Yale 1939 = *Morganella morganii* (homotypic synonym) – ATCC 25830 | DSM 30164 | NBRC 3848 | NCIB 235 | NCTC 235

Proteus myxofaciens [AL] Cosenza and Podgwaite 1966 – ATCC 19692 | DSM 4482

Proteus penneri [VP] Hickman et al. 1983 – ATCC 33519 | CDC 1808-73 | DSM 4544

Proteus rettgeri [AL] (Hadley et al. 1918) Rustigian and Stuart 1943 = *Providencia rettgeri* (homotypic synonym) – Biovar 2a | ATCC 29944 | DSM 4542

Genus XXX. Providencia [AL]

Providencia alcalifaciens [AL (T)] (de Salles Gomes 1944) Ewing 1962 – Serovar 019:H2 | ATCC 9886 | DSM 30120

†Providencia friedericiana [VP] Müller et al. 1986 = *Providencia rustigianii* (earlier heterotypic synonym) – 1 33 | DSM 2620

Providencia heimbachae [VP] Müller et al. 1986 – MUA 2-110 | ATCC 35613 | CDC 8025-83 | DSM 3591

Providencia rettgeri [AL] (Hadley et al. 1918) Brenner et al. 1978 = *Proteus rettgeri* (homotypic synonym) – Biovar 2a | ATCC 29944 | DSM 4542

Providencia rustigianii [VP] Hickman-Brenner et al. 1983 = *Providencia friedericiana* (later heterotypic synonym) – ATCC 33673 | CDC 0132-68 | DSM 4541

Providencia stuartii [AL] (Buttiaux et al. 1954) Ewing 1962 – ATCC 29914, AF008581 | CDC 2896-68 | DSM 4539

Genus XXXI. Rahnella [VP]

Rahnella aquatilis [VP (T)] Izard et al. 1981 – 133 | ATCC 33071 | CIP 78-65 | CUETM 75.115 | DSM 4594, AJ233426

Genus XXXII. Raoultella [VP]

Raoultella planticola [VP (T)] (Bagley et al. 1982) Drancourt et al. 2001 <- *Klebsiella planticola* (basonym) – V-236 | ATCC 33531, Y17659, K.plantic4 | ATCC 33531, AF129443 | CDC 4245-72 | CIP 100751 | DSM 3069, X93215, K.plantico | IAM 14202 | NBRC 14939 | JCM 7251, AB004755, K.plantic3

Raoultella ornithinolytica [VP] (Sakazaki et al. 1989) Drancourt et al. 2001 <- *Klebsiella ornithinolytica* (basonym) – ATCC 31898, AF129441 | CIP 103576 | DSM 7464 | JCM 6096, AJ251467 | NIH 90–72

Raoultella terrigena [VP] (Izard et al. 1981) Drancourt et al. 2001 <- *Klebsiella terrigena* (basonym) – Gavini L 84 | ATCC 33257, AF129442, Y17658, K.terrigen | CIP 80-07 | CIP 103576 | CUETM 77-176 | DSM 2687

Genus XXXIII. Saccharobacter [VP]

Saccharobacter fermentatus [VP (T)] Yaping et al. 1990 - WVB 8512

Genus XXXIV. Salmonella [AL] [267]

Salmonella enterica subspecies enterica [(T)] (ex Kauffmann and Edwards 1952) Le Minor and Popoff 1987 = *Salmonella choleraesuis subspecies choleraesuis* (heterotypic synonym) = *Salmonella enteritidis* (heterotypic synonym) = *Salmonella paratyphi* (heterotypic synonym) = *Salmonella typhi* (heterotypic synonym) = *Salmonella typhimurium* (heterotypic synonym) - LT2 | ATCC 43971 | CIP 60.62 | NCIMB 11450 | NCTC 8385

Salmonella enterica subspecies arizonae (Borman 1957) Le Minor and Popoff 1987 <- *Salmonella choleraesuis subspecies arizonae* (basonym) - ATCC 13314 | CCUG 6322 | CIP 82.30 | DSM 9386 | NCTC 8297

†Salmonella enterica subspecies bongori Le Minor et al. 1985) Le Minor and Popoff 1987 <- *Salmonella choleraesuis subspecies bongori* (basonym) -> *Salmonella bongori*, AF029227, S.bongori1 - ATCC 43975 | CIP 82.33

Salmonella enterica subspecies diarizonae (Le Minor et al. 1985) Le Minor and Popoff 1987 <- *Salmonella choleraesuis subspecies diarizonae* (basonym) - ATCC 43973 | CCUG 30040 | CIP 82.31 | NCTC 10060

Salmonella enterica subspecies houtenae (Le Minor et al. 1985) Le Minor and Popoff 1987 <- *Salmonella choleraesuis subspecies houtenae* (basonym) - ATCC 43974 | CCUG 30041 | CIP 82.32 | DSM 9221 | NCTC 12418

Salmonella enterica subspecies indica (Le Minor et al. 1985) Le Minor and Popoff 1987 <- *Salmonella choleraesuis subspecies indica* (basonym) - K1240 | ATCC 43976 | CCUG 30038 | CIP 102501 | NCTC 12420

Salmonella enterica subspecies salamae (Le Minor et al. 1985) Le Minor and Popoff 1987 <- *Salmonella choleraesuis subspecies salamae* (basonym) - ATCC 43972 | CCUG 30039 | CIP 8229 | DSM 9220 | NCTC 5773

Salmonella bongori [VP] (Le Minor et al. 1985) Reeves et al. 1989 <- *Salmonella choleraesuis subspecies bongori* (basonym) - 66:z41:-, AF029227, S.bongori1 | ATCC 43975 | CIP 82.33

†Salmonella choleraesuis subspecies choleraesuis [AL] (Smith 1894) Weldin 1927 = *Salmonella enterica subspecies enterica* (heterotypic synonym) - ATCC 13312 | ATCC 13314 | CIP 55-133 | NCTC 5735

†Salmonella choleraesuis subspecies arizonae [VP] (Borman 1957) Le Minor et al. 1985 <- *Salmonella arizonae* (basonym) -> *Salmonella enterica subspecies arizonae* - Serovar 51:z4,z23 | ATCC 13314 | CIP 82.30 | DSM 9386 | NCTC 8297

†Salmonella choleraesuis subspecies bongori [VP] Le Minor et al. 1985 -> *Salmonella bongori* - CIP 82.33

†Salmonella choleraesuis subspecies diarizonae [VP] Le Minor et al. 1985 -> *Salmonella enterica subspecies diarizonae* - CIP 82.31 | NCTC 10060

†Salmonella choleraesuis subspecies houtenae [VP] Le Minor et al. 1985 -> *Salmonella enterica subspecies houtenae* - Serovar 45:g,z51 | ATCC 43974 | CIP 82.32 | DSM 9221

†Salmonella choleraesuis subspecies indica [VP] Le Minor et al. 1987 -> *Salmonella enterica subspecies indica* - K1240 | CIP 102501

†Salmonella choleraesuis subspecies salamae [VP] Le Minor et al. 1985 -> *Salmonella enterica subspecies salamae* - CIP 82.29 | DSM 9220 | NCTC 5773

[267] In a Request for an Opinion published in 1987, Le Minor and Popoff proposed replacement of the type species of *Salmonella* (*Salmonella choleraesuis* subsp. *choleraesuis*) with *Salmonella enterica* as the former was considered to be a source of confusion. Although the Request was denied by the Judicial Commission, their proposal resulted in an alternative naming convention which has found widespread endorsement in the public health community. This matter was revisited in July 2002 by the Judicial Commission during the IUMS Congress in response to several new Requests for an Opinion, and will likely result in a decision to replace the type strain *Salmonella choleraesuis* subsp. *choleraesuis* with *Salmonella enterica* subsp *enterica* stain LT2, while preserving the former rather than placing it on the list of rejected names. We view the six subspecies of *Salmonella choleraesuis* as deprecated, as indicated by the dagger symbol (*†*) preceding these names. Readers are also advised that names *Salmonella enteritidis*, *Salmonella paratyphi*, *Salmonella typhi* and *Salmonella paratyphi* are synonyms of *Salmonella enterica* subsp. *enterica* and refer to specific serovars. These names have not been deprecated at this time as they remain in use by some public health reporting agencies.

†*Salmonella arizonae* [AL] (Bowman 1957) Kauffman 1964 -> *Salmonella choleraesuis subspecies arizonae* - ATCC 13314 | NCTC 8297

Salmonella enteritidis [AL] (Gaertner 1888) Castellani and Chalmers 1919 = *Salmonella enterica subspecies enterica* (heterotypic synonym) - ATCC 13076

Salmonella paratyphi [VP] Ezaki et al. 2000 = *Salmonella enterica subspecies enterica* (heterotypic synonym) - KI 1015 | NCTC 5702

Salmonella typhi [AL] (Schroeter 1886) Warren and Scott 1930 = *Salmonella enterica subspecies enterica* (heterotypic synonym) - ATCC 19430, Z47544, S.typhi2

Salmonella typhimurium [AL] (Loeffler 1892) Castellani and Chalmers 1919 = *Salmonella enterica subspecies enterica* (heterotypic synonym) - ATCC 13311, X80681, S.tymurium | NCTC 74

Genus XXXV. Samsonia [VP]

Samsonia erythrinae [VP (T)] Sutra et al. 2001 - CFBP 5236, AF273037 | ICMP 13937

Genus XXXVI. Serratia [AL]

Serratia marcescens subspecies marcescens [AL (T)] Bizio 1823 - ATCC 13880, M59160, Ser.marces | CCM 303 | DSM 30121 | DSM 47 | NCDC 813-60 | NCIB 9155 | NCTC 10211

Serratia marcescens subspecies sakuensis [VP] Ajithkumar et al. 2003 - KRED, AB061685 | CIP 107489 | JCM 11315

Serratia entomophila [VP] Grimont et al. 1988 - A1 | ATCC 4370 | DSM 12358, AJ233427

Serratia ficaria [VP] Grimont et al. 1981 - 4024 | Serovar 0:1 | ATCC 33105 | CIP 79.23 | DSM 4569 | ICPB 4050 | JCM 1241, AB004745, Ser.ficari

Serratia fonticola [AL] Gavini et al. 1979 - ATCC 29844 | CIP 78.64 | CUETM 77.165 | DSM 4576, AJ233429

Serratia grimesii [VP] Grimont et al. 1983 - Grimont 503 | ATCC 14460 | DSM 30063, AJ233430 | NBRC 13537 | NCTC 10422

†*Serratia liquefaciens* [AL] (Grimes and Hennerty 1931) Bascomb et al. 1971 = *Serratia proteamaculans subspecies proteamaculans* (earlier heterotypic synonym) - ATCC 27592 | CDC 57 | DSM 4487 | JCM 1245, AB004752, Ser.liqfac

Serratia marinorubra [AL] ZoBell and Upham 1944 = *Serratia rubidaea* (homotypic synonym) - ATCC 27593

Serratia odorifera [AL] Grimont et al. 1978 - CDC 1979-77 | CIP 79.01 | DSM 4582, AF286870, AJ233432 | ICPB 3995 | NCTC 11214

Serratia plymuthica [AL] (Lehmann and Neumann 1896) Breed et al. 1948 - K-7 | ATCC 183 | DSM 4540, AF286872, AJ233433

Serratia proteamaculans subspecies proteamaculans [AL] (Paine and Stansfield 1919) Grimont et al. 1978 = *Serratia liquefaciens* (later heterotypic synonym) - ATCC 19323 | DSM 4543 | ICMP 1724 | NCPPB 245 | NCTC 394

†*Serratia proteamaculans subspecies quinovora* [VP] Grimont et al. 1983 -> *Serratia quinivorans* - 4364 | ATCC 33765 | CIP 8195 | DSM 4597

Serratia quinivorans [VP] (Grimont et al. 1983) Ashelford et al. 2002 <- *Serratia proteamaculans subspecies quinovora* (basonym) - 4364 | ATCC 33765 | DSM 4597, AJ233435

Serratia rubidaea [AL] (Stapp 1940) Ewing et al. 1973 = *Serratia marinorubra* (homotypic synonym) - Ewing 2199-72 | ATCC 27593 | DSM 4480 | JCM 1240, AB004751, Ser.rubida

Genus XXXVII. Shigella [AL]

Shigella dysenteriae [AL (T)] (Shiga 1898) Castellani and Chalmers 1919 - ATCC 13313, X96966, Shi.dysnt2 | DSM 4781 | NCTC 4837

Shigella boydii [AL] Ewing 1949 - P288 | Serovar 2 | ATCC 8700 | DSM 7532

Shigella flexneri [AL] Castellani and Chalmers 1919 - Serovar 2a | ATCC 29903, X96963, Shi.flxne2 | DSM 4782

Shigella sonnei [AL] (Levine 1920) Weldin 1927 - ATCC 29930 | DSM 5570

Genus XXXVIII. Sodalis [VP]

Sodalis glossinidius [VP (T)] Dale and Maudlin 1999 - M1 | NCIMB 13495

Genus XXXIX. Tatumella [VP]

Tatumella ptyseos [VP (T)] Hollis et al. 1982 - H36 | ATCC 33301 | CDC 9591-7 | CDC D6168 | DSM 5000, AJ233437

Genus XL. Trabulsiella [VP]

Trabulsiella guamensis [VP (T)] McWhorter et al. 1992 - ATCC 49490 | CDC 0370-85

Genus XLI. Wigglesworthia [VP]

Wigglesworthia glossinidia [VP (T)] Aksoy 1995 - no culture isolated

Genus XLII. Xenorhabdus [AL]

Xenorhabdus nematophila subspecies nematophila [AL (T)] (Poinar and Thomas 1965) Thomas and Poinar 1979 - ATCC 19061, D78009, Xen.nemph3 | DSM 3370, X82251, Xen.nemphl

†Xenorhabdus nematophila subspecies beddingii [VP] Akhurst 1986 -> *Xenorhabdus beddingii* - Q58 | ATCC 49542 | DSM 4764, X82254 | DSM 4764, D78006 | UQB 2871

†Xenorhabdus nematophila subspecies bovienii [VP] Akhurst 1983 -> *Xenorhabdus bovienii* - T228 | ATCC 35271, D78007, Xen.bovie2 | DSM 4766, X82252, Xen.bovien | UQM 2210

†Xenorhabdus nematophila subspecies poinarii [VP] Akhurst 1983 -> *Xenorhabdus subspecies poinarii* - 61 | G1 | ATCC 3527 | DSM 4768, D78010 | DSM 4768, X82253 | UQM 2216

Xenorhabdus beddingii [VP] (Akhurst 1986) Akhurst and Boemare 1993 <- *Xenorhabdus nematophila subspecies beddingii* (basonym) - Q58 | ATCC 49542 | DSM 4764, D78006, Xen.beddn2 | DSM 4764, X82254, Xen.beddng | UQM 2871

Xenorhabdus bovienii [VP] (Akhurst 1983) Akhurst and Boemare 1993 <- *Xenorhabdus nematophila subspecies bovienii* (basonym) - T228 | ATCC 35271, D78007, Xen.bovie2 | DSM 4766, X82252, Xen.bovien | UQM 2210

Xenorhabdus japonica [VP] Nishimura et al. 1995 - SK-1, Z76739, Xen.japon2 | IAM 14265, D78008, Xen.japoni

†Xenorhabdus luminescens [AL] Thomas and Poinar 1979 -> *Photorhabdus luminescens* - ATCC 29999, D78005, Pr.lumine4 | DSM 3368, X82248, Pr.lumines

Xenorhabdus poinarii [VP] (Akhurst 1983) Akhurst and Boemare 1993 <- *Xenorhabdus nematophila subspecies poinarii* (basonym) - 61 | G1 | ATCC 3527 | DSM 4768, D78010, Xen.poina2 | DSM 4768, X82253, Xen.poinar | UQM 2216

Genus XLIII. Yersinia [AL]

Yersinia pestis [AL (T)] (Lehmann and Neumann 1896) van Loghem 1944 - ATCC 19428 | NCTC 5923

Yersinia aldovae [VP] Bercovier et al. 1984 - Al 19955 | IP 6005 | ATCC 35236, X75277, Yer.aldova | CDC 669-83 | CNY 6005

Yersinia bercovieri [VP] Wauters et al. 1988 - ATCC 43970, AF366377 | CDC 2475-87 | CNY 7506 | WAIP 208

Yersinia enterocolitica subspecies enterocolitica [AL] (Schleifstein and Coleman 1939) Frederiksen 1964 - Biovar 1b | ATCC 9610, M59292, Yer.entero | DSM 4780

Yersinia enterocolitica subspecies palearctica [VP] Neubauer et al. 2000 - Y11 | DSM 13030

Yersinia frederiksenii [VP] Ursing et al. 1981 - 6175 | ATCC 33641, AF366379 | CIP 80-29

Yersinia intermedia [VP] Brenner et al. 1981 - 3953 | Bottone 48 | Chester 48 | ATCC 29909, AF366380

Yersinia kristensenii [VP] Bercovier et al. 1981 - 105 | ATCC 33638, AF366381 | CIP 80-30

Yersinia mollaretii [VP] Wauters et al. 1988 - ATCC 43969, AF366382 | CDC 2465-87 | CNY 7263 | WAIP 204

†Yersinia philomiragia [AL] Jensen et al. 1969 -> *Francisella philomiragia* - ATCC 25015 | DSM 7535

Yersinia pseudotuberculosis subspecies pseudotuberculosis [AL] (Pfeiffer 1889) Smith and Thal 1965 - Serovar I | ATCC 29833 | CIP 55.85 | DSM 8992 | NCTC 10275

Yersinia pseudotuberculosis subspecies pestis (Lehmann and Neumann 1896) Bercovier et al. 1981 *nom. rej.* - NCTC 5923

Yersinia rohdei [VP] Aleksic et al. 1987 – H271-36/78 | ATCC 43380, AF366384 | CDC 3022-85

Yersinia ruckeri [AL] Ewing et al. 1978 – ATCC 29473, X75275, Yer.rucker

Genus XLIV. Yokenella [VP]

Yokenella regensburgei [VP (T)] Kosako et al. 1985 = *Koserella trabulsii* (later heterotypic synonym) – JCM 2403 | NIH 725-83

Order XIV. *"Pasteurellales"* [NP]

Family I. Pasteurellaceae [VP]

Genus I. Pasteurella [AL (T)]

Pasteurella multocida subspecies multocida [AL (T)] (Lehmann and Neumann 1899) Rosenbusch and Merchant 1939 – NCTC 10322, M35018, Pas.multoc

Pasteurella multocida subspecies gallicida [VP] Mutters et al. 1985 – NCTC 10204

Pasteurella multocida subspecies septica [VP] Mutters et al. 1985 – CIP A125

Pasteurella aerogenes [AL] McAllister and Carter 1974 – P-172-71 | ATCC 27883, M75048, Pas.aeroge | ATCC 27883, U66491, Pas.aerog2 | DSM 10153

†Pasteurella anatis [VP] Mutters et al. 1985 -> *Gallibacterium anatis* – F149 | ATCC 43329, M75054, Pas.anatis | CCUG 15563 | NCTC 11413

Pasteurella avium [VP] (Hinz and Kunjara 1977) Mutters et al. 1985 <- *Haemophilus avium* (basonym) – ATCC 29546 | CCUG 12833 | IPDH 2654

Pasteurella bettyae [VP] Sneath and Stevens 1990 – A271 | A99 | ATCC 23273 | CCUG 2042, L06088, Pas.bettya | CDC 41-5568 | NCTC 10535

Pasteurella caballi [VP] Schlater et al. 1990 – 83851 | ATCC 49197

Pasteurella canis [VP] Mutters et al. 1985 – ATCC 43326, M75049, Pas.canis | NCTC 11621

Pasteurella dagmatis [VP] Mutters et al. 1985 – ATCC 43325, M75051, Pas.dagmat | NCTC 11617

Pasteurella gallicida [AL] (Burrill 1883) Buchanan 1925 – NCTC 10322

Pasteurella gallinarum [AL] Hall et al. 1955 – ATCC 13361 | NCTC 11188, M75059, Pas.gallin

†Pasteurella granulomatis [VP] Ribeiro et al. 1990 -> *Mannheimia granulomatis* – 26 | ATCC 49244, AF053902

†Pasteurella haemolytica [AL] Newsome and Cross 1932 -> *Mannheimia haemolytica* – Biovar A | serovar 2 | DSM 10531 | NCTC 9380, M75080, Mnh.haeml9

Pasteurella langaaensis [VP] Mutters et al. 1985 – ATCC 43328, M75053, Pas.langaa | NCTC 11411

Pasteurella lymphangitidis [VP] Sneath and Stevens 1990 – 71 | A82 | Jayaraman strain I | NCTC 10547

Pasteurella mairii [VP] Sneath and Stevens 1990 – 68 | A10 | D1187 | CCUG 27189, AF024532, Pas.mairii | CCUG 27189, L06089, Pas.mair89 | LPHL 5143/70 | NCTC 10699

Pasteurella pneumotropica [AL] Jawetz 1950 – NCTC 8141, M75083, Pas.pneumo

Pasteurella skyensis [VP] Birkbeck et al. 2002 – 95A1, AJ243202 | NCIMB 13593 | NCTC 13204

Pasteurella stomatis [VP] Mutters et al. 1985 – ATCC 43327, M75050, Pas.stomat | NCTC 11623

Pasteurella testudinis [VP] Snipes and Biberstein 1982 – ATCC 33688 | CCUG 19802, L06090, Pas.testud | NCTC 12150 | UCD 90-23-79n

Pasteurella trehalosi [VP] Sneath and Stevens 1990 – A92 | S110 | serovar 3/T15 | ATCC 29703 | NCTC 10370

†Pasteurella ureae [AL] Jones 1962 -> *Actinobacillus ureae* – Henrikson 3520/59, M75075 | ATCC 25976 | DSM 5568 | NCTC 10219

Pasteurella volantium [VP] Mutters et al. 1985 – Lovell 6 | ATCC 14385 | NCTC 3438, M75070, Pas.volant

Genus II. Actinobacillus [AL]

Actinobacillus lignieresii [AL (T)] Brumpt 1910 – NCTC 4189, M75068, Acb.lignie

†*Actinobacillus actinomycetemcomitans* [AL] (Klinger 1912) Topley and Wilson 1929 -> *Haemophilus actinomycetemcomitans* - Serovar c | ATCC 33384, M75039, H.actinomy | DSM 8324 | NCTC 9710

Actinobacillus arthritidis [VP] Christensen et al. 2002 - CCUG 24862, AF247712 | ATCC 13376

Actinobacillus capsulatus [AL] Arseculeratne 1962 - 22586 | Frederiksen P243 | ATCC 51571 | CCUG 12396, M75069, Acb.cap396 | CIP 103283 | NCTC 11408, M75062, Acb.cap408

Actinobacillus delphinicola [VP] Foster et al. 1996 - M906/93, X89378 | DSM 11374 | NCTC 12870

Actinobacillus equuli subspecies equuli [AL] (van Straaten 1918) Haupt 1934 [268] - PM 30/53 | ATCC 19392 | NCTC 8529, M75072, Acb.equuli

Actinobacillus equuli subspecies haemolyticus [VP] Christensen et al. 2002 - F 154, AF247716 | CCUG 19799 | NCTC 13195

Actinobacillus hominis [VP] Friis-Moeller 1985 - 12 | P 578 | CCUG 19800, L06076, Acb.hom800 | NCTC 11529

Actinobacillus indolicus [VP] Moeller et al. 1996 - 46KC2, U65584, Acb.indoli

Actinobacillus minor [VP] Moeller et al. 1996 - NM305, U65582, Acb.minor1

Actinobacillus muris [VP] Bisgaard 1988 - 80-443D | CCUG 16938, AF024526, Acb.muris1

Actinobacillus pleuropneumoniae [VP] (Shope 1964) Pohl et al. 1983 <- *Haemophilus pleuropneumoniae* (basonym) - HK 405 | Shope 4074 | ATCC 27088, M75074, Acb.plpneu | CCM 5869, D30030, Acb.plpne2

Actinobacillus porcinus [VP] Moeller et al. 1996 - NM319, U65583, Acb.porcin

Actinobacillus rossii [VP] Sneath and Stevens 1990 - A55 | A68 | P624 | Ross 192 | ATCC 27072 | NCTC 10801

Actinobacillus scotiae [VP] Foster et al. 1998 - M2000/95/1 | NCTC 12922

Actinobacillus seminis [VP] (ex Baynes and Simmons 1960) Sneath and Stevens 1990 - 5 | A51 | A65 | Simmons K3844-C | ATCC 15768, M75047, Acb.semini | NCTC 10851

Actinobacillus succinogenes [VP] Guettler et al. 1999 - 130Z, AF024525, Acb.succin | ATCC 55618

Actinobacillus suis [AL] van Dorssen and Jaartsveld 1962 - ATCC 33415 | ATCC 49261 | CCM 5586, AF015299, Acb.suis2

Actinobacillus ureae [VP] (Jones 1962) Mutters et al. 1986 <- *Pasteurella ureae* (basonym) - Henriksen 3520/59, M75075, Acb.ureae | ATCC 25976 | DSM 5568 | NCTC 10219

Genus III. ***Gallibacterium*** [VP]

Gallibacterium anatis [VP (T)] (Mutters et al. 1985) Christensen et al. 2003 <- *Pasteurella anatis* (basonym) - F 149, AF228001 | ATCC 43329, M75054 | CCUG 15563 | NCTC 11413

Genus IV. Haemophilus [AL]

Haemophilus influenzae [AL (T)] (Lehmann and Neumann 1896) Winslow et al. 1917 - ATCC 33391, M35019, H.influenz | DSM 4690 | NCTC 8143

Haemophilus actinomycetemcomitans [VP] (Klinger 1912) Potts et al. 1985 <- *Actinobacillus actinomycetemcomitans* (basonym) - ATCC 33384, M75039, H.actinomy | DSM 8324 | NCTC 9710

Haemophilus aegyptius [AL] (Trevisan 1889) Pittman and Davis 1950 - 180-a | ATCC 11116 | NCTC 8502, M75044, H.aegyptiu

Haemophilus aphrophilus [AL] Khairat 1940 - ATCC 33389, M75041, H.aphrophi | CIP 70.73 | NCTC 5906

†*Haemophilus avium* [AL] Hinz and Kunjara 1977 -> *Pasteurella avium* - 2654 | ATCC 29546

Haemophilus ducreyi [AL] (Neveu-Lemaire 1921) Bergey et al. 1923 - X2 | CIP 542, M75078, H.ducreyi | DSM 8925 | NCTC 10945

[268] This subspecies was automatically created under Rule 40d (formerly Rule 46, IJSEM 50: 2239–2244)

†*Haemophilus equigenitalis* [VP] Taylor et al. 1983 -> *Taylorella equigenitalis* - 61717/77 | NCTC 11184, X68645, Tay.eqgeni
Haemophilus felis [VP] Inzana et al. 1999 - TI189 | ATCC 49733
Haemophilus haemoglobinophilus [AL] (Lehmann and Neumann 1907) Murray 1939 - NCTC 1659, M75064, H.haemoglo
Haemophilus haemolyticus [AL] Bergey et al. 1923 - NCTC 10659, M75045, H.haemolyt
Haemophilus paracuniculus [VP] Targowski and Targowski 1984 - ATCC 29986, M75061, H.paracuni
Haemophilus paragallinarum [AL] Biberstein and White 1969 - ATCC 29545 | NCTC 11296, M75057, H.paragall
Haemophilus parahaemolyticus [AL] Pittman 1953 - 536 | ATCC 10014 | NCTC 8479, M75073, H.parahaem
Haemophilus parainfluenzae [AL] Rivers 1922 - ATCC 33392, M75081, H.parainfl | DSM 8978 | NCTC 7857
Haemophilus paraphrohaemolyticus [AL] Zinnemann et al. 1971 - NCTC 10670, M75076, H.pphrhaem
Haemophilus paraphrophilus [AL] Zinnemann et al. 1968 - ATCC 29241, M75042, H.paraphrF | NCTC 10557
Haemophilus parasuis [AL] Biberstein and White 1969 - 1374 | ATCC 19417 | NCTC 4557, M75065, H.parasuis
Haemophilus piscium [AL] Snieszko et al. 1950 - ATCC 10801
†*Haemophilus pleuropneumoniae* [AL] Shope 1964 -> *Actinobacillus pleuropneumoniae* - ATCC 27088
Haemophilus segnis [AL] Kilian 1977 - ATCC 33393, M75043, H.segnis | NCTC 10977
†*Haemophilus vaginalis* [AL] Gardner and Dukes 1955 -> *Gardnerella vaginalis* - ATCC 14018, M58744 | CCUG 3717 | DSM 4944 | NCTC 10915

Genus V. Lonepinella [VP]
Lonepinella koalarum [VP (T)] Osawa et al. 1996 - LX-1 | ACM 3666, Y17189, Lp.koalaru | DSM 10053 | UQM 3666

Genus VI. Mannheimia [VP]
Mannheimia haemolytica [VP (T)] (Newsome and Cross 1932) Angen et al. 1999 <- *Pasteurella haemolytica* (basonym) - Biovar A | serovar 2 | DSM 10531 | NCTC 9380, AF060699, Mnh.haemly | NCTC 9380, M75080, Mnh.haeml9
Mannheimia glucosida [VP] Angen et al. 1999 - P925 | CCUG 38457, AF053889, Mnh.glucos | CCUG 38457, AF053897, Mnh.gluco2, AF053889, Mnh.glucos
Mannheimia granulomatis [VP] (Ribeiro et al. 1990) Angen et al. 1999 <- *Pasteurella granulomatis* (basonym) - 26 | ATCC 49244, AF053902, Mnh.granul
Mannheimia ruminalis [VP] Angen et al. 1999 - HPA92 | CCUG 38470, AF053900, Mnh.rumina
Mannheimia varigena [VP] Angen et al. 1999 - 177, AF053893, Mnh.varign | CCUG 38462, AF053893, Mnh.varign

Genus VII. Phocoenobacter [VP]
Phocoenobacter uteri [VP (T)] Foster et al. 2000 - M1063U/93, X89379 | NCTC 12872

Class IV. *"Deltaproteobacteria"* [NP] [269]
Order I. *"Desulfurellales"* [NP (T)]
Family I. "Desulfurellaceae" [NP]

Genus I. Desulfurella [VP (T)]
Desulfurella acetivorans [VP (T)] Bonch-Osmolovskaya et al. 1993 - A63 | ATCC 51451 | DSM 5264, X72768, Dsr.acevor
Desulfurella kamchatkensis [VP] Miroshnichenko 1998 - K-119, Y16941, Dsr.kamcha | DSM 10409, Y16941, Dsr.kamcha
Desulfurella multipotens [VP] Miroshnichenko et al. 1996 - RH-8 | DSM 8415, Y16943, Dsr.multip

[269] The current arrangement of the *Deltaproteobacteriaceae* is based on extensive changes introduced into the outline by Widdel and Rainey.

Desulfurella propionica [VP] Miroshnichenko 1998 - U-8, Y16942, Dsr.propio | DSM 10410, Y16942, Dsr.propio

Genus II. Hippea [VP]

Hippea maritima [VP (T)] Miroshnichenko et al. 1999 - MH2, Y18292 | DSM 10411

Order II. *"Desulfovibrionales"* [NP] [270]

Family I. "Desulfovibrionaceae" [NP]

Genus I. Desulfovibrio [AL (T)]

Desulfovibrio desulfuricans subspecies desulfuricans [AL (T)] (Beijerinck 1895) Kluyver and van Niel 1936 - Essex 6 | ATCC 29577, M34113, Dsv.desulf | DSM 642 | NCIB 8307 | VKM B-1799

Desulfovibrio desulfuricans subspecies aestuarii [AL] Postgate and Campbell 1966 - NCIB 9335

Desulfovibrio acrylicus [VP] van der Maarel et al. 1997 - W218, U32578, Dsv.acryli | DSM 10141

Desulfovibrio aespoeensis [VP] Motamedi and Pedersen 1998 - Aspo-2 | Aspo-2, X95230, Dsv.aespoe | DSM 10631

Desulfovibrio africanus [AL] Campbell et al. 1966 - ATCC 19996 | DSM 2603, X99236, Dsv.afric2 | NCIB 8401 | VKM B-1757

Desulfovibrio alcoholovorans [VP] Qatibi et al. 1995 - SPSN | ATCC 49738 | DSM 5433, AF053751, Dsv.alvora | VKM B-1761

Desulfovibrio aminophilus [VP] Baena et al. 1999 - ALA-3, AF067964, Dsv.amphil | DSM 12254

Desulfovibrio baarsii [VP] Widdel 1981 -> *Desulfarculus baarsii* - 2st 14 | ATCC 33931 | DSM 2075, M34403, Dsv.baarsi | VKM B-1802

†*Desulfovibrio baculatus* [VP] Rozanova and Nazina 1984 -> *Desulfomicrobium baculatum* - DSM 4028 | INMI strain X, AJ277894, AF030438 | VKM B-1378

Desulfovibrio burkinensis [VP] Ouattara et al. 1999 - HDv, AF053752, Dsv.burkbn | DSM 6830, AF053752, Dsv.burkbn

Desulfovibrio carbinolicus [VP] Nanninga and Gottschal 1995 - EDK82 | DSM 3852 | VKM B-1758

Desulfovibrio cuneatus [VP] Sass et al. 1998 - STL1, X99501, Dsv.cuneat | DSM 11391

Desulfovibrio dechloracetivorans [VP] Sun et al. 2001 [271] - SF3, AF230530 | ATCC 700912

Desulfovibrio fructosovorans [VP] Ollivier et al. 1990 - JJ | ATCC 4920 | DSM 3604, AF050101, Dsv.frvora | VKM B-1801

Desulfovibrio furfuralis [VP] Folkerts et al. 1989 - F1 | DSM 2599

Desulfovibrio gabonensis [VP] Tardy-Jacquenod et al. 1996 - DSM 10636 | SEBR 2840, U31080, Dsv.gabonn

Desulfovibrio giganteus [VP] Esnault et al. 1988 - DSM 4123

Desulfovibrio gigas [AL] Le Gall 1963 - ATCC 19364, M34400, Dsv.gigas | DSM 1382 | NCIB 9332 | VKM B-1759

Desulfovibrio halophilus [VP] Caumette et al. 1991 - ATCC 51179 | DSM 5663, X99237, Dsv.halph2 | SL 8903, U48243, Dsv.halphl

Desulfovibrio hydrothermalis [VP] Alazard et al. 2003 - AM13, AF458778 | CIP 107303 | DSM 14728

Desulfovibrio indonesiensis [VP] Feio et al. 2000 - Ind 1 | NCIMB 13468

Desulfovibrio inopinatus [VP] Reichenbecher and Schink 1999 - HHQ 20, AF177276 | DSM 10711

Desulfovibrio intestinalis [VP] Fröhlich et al. 1999 - KMS2, Y12254 | DSM 11275

Desulfovibrio litoralis [VP] Sass et al. 1998 - STL6, X99504, Dsv.litora | DSM 11393

Desulfovibrio longreachensis [VP] Redburn and Patel 1995 - AB16910a, Z24450 | ACM 3958

[270] Ludwig indicates that *Desulfovibrionales* represents the deepest branching group in the *Proteobacteria*.

[271] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Desulfovibrio longus [VP] Magot et al. 1992 - ATCC 51456 | DSM 6739 | SEBR 2582, X63623, Dsv.longus
Desulfovibrio magneticus [VP] Sakaguchi et al. 2002 - RS-1 | ATCC 700980 | DSM 13731
Desulfovibrio mexicanus [VP] Hernandez-Eugenio et al. 2001 [272] - Lup1 | DSM 13116, AF227984
Desulfovibrio oxyclinae [VP] Krekeler et al. 2000 - P1B, U33316 | DSM 11498
Desulfovibrio pigra [AL (T)] (Moore et al. 1976) emend. Loubinoux et al. 2002 <- *Desulfomonas pigra* (basonym) - ATCC 29098, M34404, AF192152, Dms.pigra | DSM 749 | VPI 11112 | VPI C3-23
Desulfovibrio profundus [VP] Bale et al. 1997 - 500-1 | DSM 11384, U90726, Dsv.profun
Desulfovibrio salexigens [AL] Postgate and Campbell 1966 - ATCC 14822, M34401, Dsv.salexi | DSM 2638 | NCIB 8403
Desulfovibrio sapovorans [VP] Widdel 1981 -> *Desulfobotulus saprovorans* - 1pa3, M34402, Dsv.sapovo | Lindhorst | ATCC 33892, M34402, Dsv.sapovo | DSM 2055 | VKM B-1803
Desulfovibrio senezii [VP] Tsu et al. 1999 - CVL, AF050100, Dsv.senezi | DSM 8436, AF050100, Dsv.senezi
Desulfovibrio simplex [VP] Zellner et al. 1990 - XVI | DSM 4141
Desulfovibrio sulfodismutans [VP] Bak and Pfennig 1988 - ThAc01, Y17764 | ATCC 43913 | DSM 3696 | VKM B-1764
Desulfovibrio termitidis [VP] Trinkerl et al. 1991 - HI 1, X87409, Dsv.termit | ATCC 49858 | DSM 5308 | VKM B-1765
†*Desulfovibrio thermophilus* [AL] Rozanova and Khudyakova 1974 -> *Thermodesulfobacterium mobile* - DSM 1276, AF334601 | VKM V-1128
Desulfovibrio vietnamensis [VP] Dang et al. 2002 [273] - G3 100, X93994
Desulfovibrio vulgaris subspecies vulgaris [AL] Postgate and Campbell 1966 - ATCC 29579 | DSM 644, M34399, Dsv.vulgar | NCIB 8303 | VKM B-1760
Desulfovibrio vulgaris subspecies oxamicus [AL] Postgate and Campbell 1966 - ATCC 33405 | DSM 1925 | Monticello 2 | NCIB 9442 | VKM B-1766
Desulfovibrio zosterae [VP] Nielsen et al. 1999 - lac, Y18049, Dsv.zoster | DSM 11974

Genus II. Bilophila [VP]
Bilophila wadsworthia [VP (T)] Baron et al. 1990 - WAL 7959 | ATCC 49260

Genus III. Lawsonia [VP]
Lawsonia intracellularis [VP (T)] McOrist et al. 1995 - 1482/89 | NCTC 12656, U30147, Lw.intcell

Family II. "Desulfomicrobiaceae"

Genus I. Desulfomicrobium [VP (T)]
Desulfomicrobium baculatum [VP (T)] (Rozanova and Nazina 1984) Rozanova et al. 1994 <- *Desulfovibrio baculatus* (basonym) - DSM 4028, AF030438, Dmb.bacul2 | INMI strain X, AF030438, Dmb.bacul2 | VKM B-1378, AF030438, Dmb.bacul2
Desulfomicrobium apsheronum [VP] Rozanova et al. 1994 - 1105 | DSM 5918, U64865, Dmb.apsher | VKM B-1804
Desulfomicrobium escambiense [VP] Sharak Genthner et al. 1996 - ESC 1, U02469, Dmb.escamb | ATCC 51164 | DSM 10707
Desulfomicrobium macestii [VP] (Gogotova and Vainstein 1989) Hippe et al. 2003 <- *Desulfobacterium macestii* (basonym) - M-9 | DSM 4194, AJ237604 | VKM B-1598
Desulfomicrobium norvegicum [VP] Sharak Genthner et al. 1997 - Norway 4 | DSM 1741, AJ277897 | NCIMB 8310
Desulfomicrobium orale [VP] Langendijk et al. 2001 [274] - NY678 | DSM 12838, AJ251623

[272] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[273] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[274] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Family III. "Desulfohalobiaceae" NP
Genus I. Desulfohalobium VP (T)
Desulfohalobium retbaense VP (T) Ollivier et al. 1991 - HR100, X99235, Dhb.retba2 | DSM 5692, U48244, Dhb.retbae
Genus II. Desulfomonas AL [275]
†Desulfomonas pigra AL (T) Moore et al. 1976 -> *Desulfovibrio pigra* - ATCC 29098, M34404, Dms.pigra | DSM 749 | VPI 11112 | VPI C3-23
Genus III. Desulfonatronovibrio VP
Desulfonatronovibrio hydrogenovorans VP (T) Zhilina et al. 1997 - Z-7935, X99234, Dsn.hyvora | DSM 9292, X99234, Dsn.hyvora
Genus IV. "Desulfothermus " NP
Desulfothermus napthae NP - TD3 | DSM 13418, X80922
Family IV. "Desulfonatronumaceae" NP
Genus I. ***Desulfonatronum*** VP (T) ***(moved)*** [276]
Desulfonatronum lacustre VP (T) Pikuta et al. 1998 - Z-7951, Y14594 | DSM 10312
Order III. *"Desulfobacterales"* NP
Family I. "Desulfobacteraceae" NP
Genus I. ***Desulfobacter*** VP (T)
Desulfobacter postgatei VP (T) Widdel 1981 - 2ac9 | Dangast | DSM 2034 | VKM B-1643
Desulfobacter curvatus VP Widdel 1988 - AcRM3 | ATCC 43919 | DSM 3379, M34413, Dsb.curvat
Desulfobacter giganteus VP Esnault et al. 1988 - 8601 | DSM 4123
Desulfobacter halotolerans VP Brandt and Ingvorsen 1998 - GSL-Ac1 | DSM 11383
Desulfobacter hydrogenophilus VP Widdel 1988 - AcRS1 | ATCC 43915 | DSM 3380, M34412, Dsb.hyphil
Desulfobacter latus VP Widdel 1988 - AcRS2 | ATCC 43918 | DSM 3381, M34414, Dsb.latus
Desulfobacter vibrioformis VP Lien and Beeder 1997 - B54, U12254, Dsb.vibrio | DSMZ 8776
Genus II. Desulfobacterium VP
Desulfobacterium indolicum VP (T) Bak and Widdel 1988 - In04 | ATCC 43938 | DSM 3383, AJ237607
Desulfobacterium anilini VP Schnell et al. 1990 - Ani | DSM 4660, AJ237601
Desulfobacterium autotrophicum VP Brysch et al. 1988 - HRM2 | ATCC 43914 | DSM 3382, M34409, Dbm.autcum
Desulfobacterium catecholicum VP Szewzyk and Pfennig 1988 - Nelson | NZ | NZva20 | DSM 3882, AJ237602
†Desulfobacterium cetonicum VP Galushko and Rozanova 1994 -> *Desulfosarcina cetonium* - 480 | DSM 7267, AJ237603 | VKM B-1975
Desulfobacterium macestii VP Gogotova and Vainstein 1989 -> *Desulfomicrobium macestii* - M-9 | DSM 4194, AJ237604 | VKM B-1598
Desulfobacterium niacini NP Kuever et al. 2004 = *"Desulfococcus niacini"* - NAV-1 | DSM 2650, M34406
†Desulfobacterium phenolicum VP Bak and Widdel 1988 -> *Desulfobacula phenolica* - Ph01 | ATCC 43956 | DSM 3384, AJ237606
Desulfobacterium vacuolatum NP Kuever et al., 2004 - 1bRM | DSM 3385, M33408
Genus III. Desulfobacula VP
Desulfobacula toluolica VP (T) Rabus et al. 2000 - Tol2 | DSM 7467, X70953
Desulfobacula phenolica (Bak and Widdel 1988) Kuever et al. 2001 [277] <- *Desulfobacterium phenolicum* (basonym) - Ph 01 | ATCC 43956 | DSM 3384, AJ237606
Genus IV. ***"Desulfobotulus "*** NP

[275] Loubinoux et al. 2002 have proposed the transfer of *Desulfomonas pigra* to *Desulfovibrio pigra*. Rule 37a(1) states that the name of a taxon must be changed if the nomenclatural type of the taxon is excluded.
[276] Kuever et al. treat *Desulfonatronum* as a member of the *Desulfovibrionales* in the Systematics.
[277] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Desulfobotulus saprovorans[(T)] (Widdel 1981, 382) Keuver et al. 2004 *comb. nov.* <- *Desulfovibrio sapovorans* (basonym) - 1pa3 | Lindohorst | ATCC 33892 | DSM 2055, M34402

Genus V. Desulfocella [VP]

Desulfocella halophila [VP (T)] Brandt et al. 1999 - GSL-But2, AF022936 | ATCC 700426 | DSM 11763

Genus VI. Desulfococcus [VP]

Desulfococcus multivorans [VP (T)] Widdel 1981 - 1be1 | Göttingen | ATCC 33890, M34405, Dcc.multiv | DSM 2059

Desulfococcus biacutus [VP] Platen et al. 1991 - KMRActs | DSM 5651, AJ277887

Genus VII. Desulfofaba [VP]

Desulfofaba gelida [VP (T)] Knoblauch et al. 1999 - PSv29, AF099063 | DSM 12344

Genus VIII. Desulfofrigus [VP]

Desulfofrigus oceanense [VP (T)] Knoblauch et al. 1999 - ASv26, AF099064 | DSM 1234

Desulfofrigus fragile [VP] Knoblauch et al. 1999 - LSv21, AF099065 | DSM 12345

Genus IX. Desulfomusa [VP]

Desulfomusa hansenii [VP (T)] Finster et al. 2001 - P1, AF321820 | ATCC 700811 | DSM 12642

Genus X. Desulfonema [VP]

Desulfonema limicola [VP (T)] Widdel 1981 - 5ac10 | Jadebusen | ATCC 33961 | DSM 2076, U45990, Dsf.limico

Desulfonema ishimotonii [VP] Fukui et al. 2000 - Tokyo 01, U45992 | DSM 9680

Desulfonema magnum [VP] Widdel 1981 - 4be13 | Montpellier | ATCC 35288 | DSM 2077, U45989, Dsf.magnum

Genus XI. Desulforegula [VP]

Desulforegula conservatrix [VP (T)] Rees and Patel 2001 - Mb1Pa, AF243334 | ATCC BAA-134 | DSM 13527

Genus XII. Desulfosarcina [VP]

Desulfosarcina variabilis [VP (T)] Widdel 1981 - 3be13 | Montpellier | DSM 2060, M26632, Dss.variab | DSM 2060, M34407, Dss.varia2 | VKM B-1627

Desulfosarcina cetonium NP Kuever et al. 2004 <- *Desulfobacterium cetonium* (basonym) - 480 | DSM 7267, AJ237603 | VKM B-1975

Desulfosarcina ovata NP Kuever et al., 2004 - oXyS1, Y17286 | DSM 13228

Genus XIII. Desulfospira [VP]

Desulfospira joergensenii [VP (T)] Finster et al. 1997 - B331 | DSM 10085, X99637, Dsp.joerge

Genus XIV. Desulfotignum [VP]

Desulfotignum balticum [VP (T)] Kuever et al. 2001 [278] - Sax, AF233370 | DSM 7044

Desulfotignum phosphitoxidans [VP] Schink et al. 2002 - FiPS-3, AF420288 | DSM 13687 | OCM 818

Family II. "Desulfobulbaceae" [NP]

Genus I. Desulfobulbus [VP (T)]

Desulfobulbus propionicus [VP (T)] Widdel 1981 - 1pr3 | Lindhorst | ATCC 33891, M34410, Dbb.propio | DSM 2032

Desulfobulbus elongatus [VP] Samain et al. 1985 - FP, X95180, Dbb.elonga | ATCC 43118 | DSM 2908, X95180, Dbb.elonga

Desulfobulbus mediterraneus [VP] Sass et al. 2002 [279] - 86FS1, AF354663 | DSM 13871

Desulfobulbus rhabdoformis [VP] Lien et al. 1998 - M16, U12253, Dbb.rhabdo | DSM 8777

Genus II. Desulfocapsa [VP]

Desulfocapsa thiozymogenes [VP (T)] Janssen et al. 1997 - Bra2, X95181, Dsc.thiozy | DSM 7269

[278] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[279] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Desulfocapsa sulfexigens VP Finster et al. 2000 - SB164P1, Y13672 | DSM 10523

Genus III. Desulfofustis VP

Desulfofustis glycolicus VP (T) Friedrich et al. 1996 - PerGlyS, X99707, Dfs.glycol | DSM 9705

Genus IV. Desulforhopalus VP

Desulforhopalus vacuolatus VP (T) Isaksen and Teske 1999 - 1tk 10, L42613, Drp.vacuol | DSM 9700

Desulforhopalus singaporensis VP Lie et al. 2000 - S pore T1, AF118453 | DSM 12130

Genus V. Desulfotalea VP

Desulfotalea psychrophila VP (T) Knoblauch et al. 1999 - LSv54, AF099062 | DSM 12343

Desulfotalea arctica VP Knoblauch et al. 1999 - LSv514, AF099061 | DSM 12342

Family III. "Nitrospinaceae" NP [280]

Genus I. Nitrospina AL (T)

Nitrospina gracilis AL (T) Watson and Waterbury 1971 , L35503, Nts.gracil, L35504, Nts.graci2

Order IV. ***"Desulfarcales"*** NP

Family I. "Desulfarculaceae" NP

Genus I. ***"Desulfarculus"*** NP

Desulfarculus baarsii NP Kuever et al. 2004 <- *Desulfovibrio baarsii* (basonym) - 2st 14 | ATCC 33931 | DSM 2075, M34403, Dsv.baarsi | VKM B-1802

Order V. *"Desulfuromonales"* NP [281]

Family I. "Desulfuromonaceae" NP

Genus I. Desulfuromonas AL (T)

Desulfuromonas acetoxidans AL (T) Pfennig and Biebl 1977 - DSM 684, M26634

Desulfuromonas acetexigens VP Finster et al. 1997 - 2873 | DSM 1397

Desulfuromonas chloroethenica VP Krumholz 1997 - TT4B, U49748 | ATCC 700295 | DSM 12431

Desulfuromonas palmitatis VP Coates et al. 2000 - SDBY1, U28172 | ATCC 51701 | DSM 12391

Desulfuromonas thiophila VP Finster et al. 1997 - NZ27, Y11560, Dsm.thioph | DSMZ 8987, Y11560, Dsm.thioph

Genus II. Desulfuromusa VP

Desulfuromusa kysingii VP (T) Liesack and Finster 1994 - Kysw2, X79414, Dsu.kysngi | DSM 7343, X79414, Dsu.kysngi

Desulfuromusa bakii VP Liesack and Finster 1994 - Gyprop, X79412, Dsu.bakii | DSM 7345, X79412, Dsu.bakii

Desulfuromusa succinoxidans VP Liesack and Finster 1994 - Gylac, X79415, Dsu.succin | DSM 8270, X79415, Dsu.succin

Genus III. Malonomonas VP

Malonomonas rubra VP (T) Dehning and Schink 1990 - Gra Mal 1, Y17712, Mln.rubra1 | DSM 5091

Genus IV. Pelobacter VP

Pelobacter acidigallici VP (T) Schink and Pfennig 1983 - Ma Gal 2, X77216, Peb.acidgl | ATCC 49970 | DSM 2377, X77216, Peb.acidgl

Pelobacter acetylenicus VP Schink 1986 - WoAcy 1, X70955, Peb.aceten | DSM 3246, X70955, Peb.aceten [282]

Pelobacter carbinolicus VP Schink 1984 - Gra Bd 1, X79413, Peb.carbin | DSM 2380, X79413, Peb.carbin [283]

[280] In the first version of the taxonomic outline, this family appeared under the name *Desulfoarculaceae* and included the genus *Desulfoarcula* . However, as of April 2001, that genus has not been validly or effectively published. The group has been retained in the outline as a family and is renamed *Nitrospinaceae* based on priority.

[281] There are currently competing views about the nature of this order. Noting that *Pelobacter* is paraphyletic, Lonergan et al. have grouped all members of the "*Desulfuromodales*" into a single family: "*Geobacteraceae*". Kuever et al. group these genera into two separate families based upon both physiological and phylogenetic analyses and recommend that aberrant *Pelobacter* species should be reclassified into one or more new genera. Neither viewpoint is currently reflected in a formal proposal.

[282] By 16S rDNA sequence analysis, this species groups with species of *Desulfuromonas*.

[283] By 16S rDNA sequence analysis, this species groups with species of the *Desulfuromonas*.

Pelobacter massiliensis VP Schnell et al. 1991 – HHQ7 | ATCC 49973 | DSM 6233[284]
Pelobacter propionicus VP Schink 1984 – Ott Bd 1, X70954, Peb.propio | DSM 2379, X70954, Peb.propio[285]
Pelobacter venetianus VP Schink and Stieb 1984 – Gra PEG 1 | DSM 2394, U41562, Peb.veneti[286]
Family II. "Geobacteraceae" NP [287]
Genus I. Geobacter VP (T)
Geobacter metallireducens VP (T) Lovley et al. 1995 – GS-15, L07834, Gbc.metred | ATCC 53774 | DSM 7210
Geobacter bremensis VP Straub and Buchholz-Cleven 2001 – Dfr1, U96917 | DSM 12179 | OCM 796
Geobacter chapellei VP Coates et al. 2001 – 172, U41561 | ATCC 51744 | DSM 13688
Geobacter grbiciae VP Coates et al. 2001 – TACP-2, AF335182 | ATCC BAA-45 | DSM 13689
Geobacter hydrogenophilus VP Coates et al. 2001 – H2, U28173 | ATCC 51590 | DSM 13691
Geobacter pelophilus VP Straub and Buchholz-Cleven 2001 – Dfr2, U96918 | DSM 12255 | OCM 797
Geobacter sulfurreducens VP Caccavo et al. 1995 – PCA, U13928, Gb, \c.slfred | ATCC 51573 | DSM 12127
Genus II. Trichlorobacter VP
Trichlorobacter thiogenes VP (T) De Wever et al. 2001 [288] – K1 | ATCC BAA-34, AF223382
Order VI. *"Syntrophobacterales"* NP
Family I. "Syntrophobacteraceae" NP
Genus I. Syntrophobacter VP (T)
Syntrophobacter wolinii VP (T) Boone and Bryant 1984 – DBT | Desulfovibrio sp. G-11 | DSM 2805, X70905, Snp.wolini
Syntrophobacter fumaroxidans VP Harmsen et al. 1998 – MPOB, X82874, Snp.fumrox | DSM 10017
Syntrophobacter pfennigii VP Wallrabenstein et al. 1996 – KoProp1, X82875, Snp.pfnngi | DSM 10092
Genus II. Desulfacinum VP
Desulfacinum infernum VP (T) Rees et al. 1995 – BαG1, L27426 | ACM 3991
Desulfacinum hydrothermale VP Sievert and Kuever 2000 – MT-96 | DSM 13146, AF170417
Genus III. Desulforhabdus VP
Desulforhabdus amnigena VP (T) Oude Elferink et al. 1997 – ASRB1, X83274, Drh.amnign | ATCC 51979 | DSM 10338
Genus IV. Desulfovirga VP
Desulfovirga adipica VP (T) Tanaka et al. 2000 – TsuAS1, AJ237605 | DSM 12016
Genus V. Thermodesulforhabdus VP
Thermodesulforhabdus norvegica VP (T) Beeder et al. 1996 – A8444, U25627, Tdr.norveg | DSM 9990
Family II. "Syntrophaceae" NP
Genus I. Syntrophus VP (T)
Syntrophus buswellii VP (T) Mountfort et al. 1984 – DM-2 | DSM 2612, X85131, Syt.buswel | DSM 2612A | DSM 2612B

[284] By 16S rDNA sequence analysis, this species groups with species of the *Desulfuromonas*.
[285] By 16S rDNA sequence analysis, this species groups with members of the *Geobacteraceae*.
[286] By 16S rDNA sequence analysis, this species groups with species of the *Desulfuromonas*.
[287] Ludwig indicates that the phylogenetic depth of the *Geobacteriaceae* is equivalent to that of the *Desulfurobacteriales* and *Myxococcales*.
[288] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Syntrophus aciditrophicus VP Jackson et al. 2001 [289] - SB | ATCC 700169
Syntrophus gentianae VP Wallrabenstein et al. 1996 - HQGö1, X85132, Syt.gentia | DSM 8423
Genus II. Desulfobacca VP
Desulfobacca acetoxidans VP (T) Oude Elferink et al. 1999 - ASRB2, AF002671, Dfb.acetox | DSM 11109
Genus III. Desulfomonile VP
Desulfomonile tiedjei VP (T) DeWeerd et al. 1991 - DCB-1 | ATCC 49306, M26635, Dmn.tiedje | DSM 6799
Desulfomonile limimaris VP Sun et al. 2001 [290] - DCB-M, AF230531 | ATCC 700979
Genus IV. Smithella VP
Smithella propionica VP (T) Liu et al. 1999 - LYP | OCM 661
Order VII. *"Bdellovibrionales"* NP
Family I. "Bdellovibrionaceae" NP
Genus I. Bdellovibrio AL (T)
Bdellovibrio bacteriovorus AL (T) Stolp and Starr 1963 - HD 100, AJ292759 | ICPB 3268 | NCIB 9529 | DSM 50701
†Bdellovibrio starrii AL Seidler et al. 1972 -> *Bacteriovorax starrii* - A3.12, AF084852 | ATCC 15145
†Bdellovibrio stolpii AL Seidler et al. 1972 -> *Bacteriovorax stolpii* - UKi2, M34125, Bde.stolpi | ATCC 27052 | DSM 50722 | ICPB 3291
Genus II. Bacteriovorax VP
Bacteriovorax stolpii VP (T) Baer et al. 2000 <- *Bdellovibrio stolpii* (basonym) - UKi2, M34125 | ATCC 27052 | DSM 50722 | ICPB 3291
Bacteriovorax starrii VP Baer et al. 2000 <- *Bdellovibrio starrii* (basonym) - A3.12, AF084852 | ATCC 15145
Genus III. Micavibrio VP
Micavibrio admirandus VP (T) Lambina et al. 1989 - ARL-14 | VKM B-1619
Genus IV. Vampirovibrio VP
Vampirovibrio chlorellavorus VP (T) Gromov and Mamkayeva 1980 - ATCC 29753 | ICPB 3707 | NCIB 11383
Order VIII. *Myxococcales* AL
Suborder I. *"Cystobacterineae"* NP
Family I. *Cystobacteraceae* AL
Genus I. Cystobacter AL (T)
Cystobacter fuscus AL (T) Schroeter 1886 - M29 | ATCC 25194, M94276, Cys.fuscus | DSM 2262
Cystobacter armeniaca NP Reichenbach 2002 - Cb a1 | DSM 14710
Cystobacter badius NP Reichenbach 2002 - Cb b2 | DSM 17723
Cystobacter disciformis (Thaxter 1904) Reichenbach 2004 <- *Angiococcus disciformis* (basonym) - ATCC 33172,
Cystobacter ferrugineus AL (Krzemieniewska and Krzemieniewski 1927) McCurdy 1970 - Windsor M-203 | Cb fe18, AJ233901 | DSM 14716
Cystobacter gracilis NP Reichenbach 2002 - Cb g1 | DSM 14753
Cystobacter miniatus NP Reichenbach 2002 - Cb a24 | DSM 14712
Cystobacter minor (Krzemieniewska and Krzemieniewski 1926) McCurdy 1970 = *Cystobacter minor nom. corr.* (earlier heterotypic synonym) - Windsor M-307 | Cb m2, AJ233903 | DSM 14751
Cystobacter velatus NP Reichenbach 2002 - Cb v34 | DSM 14718

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Cystobacter violaceus (ex Kühlwein and Gallwitz, 1958; Kühlwein and Reichenbach 1962) Reichenbach 2002 *nom. rev.* <- *Archangium violaceum* (basonym) - Cb vi61 | DSM 14727

Genus II. ***Anaeromyxobacter*** *VP*

Anaeromyxobacter dehalogenans *VP (T)* Sanford et al. 2002 [291] - 2CP-1, AF382396 | ATCC BAA-258

Genus III. Archangium *AL*

Archangium gephyra *AL (T)* Jahn 1924 - M18 | ATCC 25201, M94273, Arc.gephyr | DSM 2261

Genus IV. "Hyalangium" *NP*

Hyalangium minutum NP *(T)* Reichenbach 2002 - NOCB-2 | DSM 14724

Genus V. Melittangium *AL*

Melittangium boletus *AL (T)* Jahn 1924 - Me b8, AJ233908 | DSM 14713

Melittangium alboracemum nom corr. *AL* (McCurdy 1971) Reichenbach 2002 <- *Melittangium alboraceum* (basonym) - UMH Slides Peterson 72

Melittangium lichenicola *AL* (Thaxter 1892) McCurdy 1971 - M155 | ATCC 25946, M94277, Mel.lichen | DSM 2275

Genus VI. Stigmatella *AL*

Stigmatella aurantiaca *AL (T)* Berkeley and Curtis 1875 - ATCC 25190, M94281, Sma.aurant

Stigmatella erecta *AL* (Schroeter 1886) McCurdy 1971 - ATCC 25191

Stigmatella hybrida NP Reichenbach 2002 - Sg h20 | DSM 14722

Family II. *Myxococcaceae* *AL*

Genus I. Myxococcus *AL (T)*

Myxococcus fulvus *AL (T)* (Cohn 1875) Jahn 1911 - ATCC 25199

Myxococcus coralloides *AL* Thaxter 1892 -> *Corallococcus coralloides* - M2 | ATCC 25202, M94278, Myx.corall | DSM 2259

†Myxococcus disciformis *AL* Thaxter 1904 -> *Angiococcus disciformis* - ATCC 33172, M94374, Ang.discif | CMU-1

Myxococcus flavescens *VP* Yamanaka et al. 1990 = *Myxococcus virescens* [292] (heterotypic synonym) - 38 | ATCC 51243 | DSM 4946 | IAM 13189 | JCM 6245

†Myxococcus macrosporus *AL* (Krzemieniewska and Krzemieniewski 1926) Zahler and McCurdy 1974 - Windsor M271 [293]

Myxococcus stipitatus *AL* Thaxter 1897 - Windsor M78

Myxococcus virescens *AL* Thaxter 1892 - M22 | ATCC 25203 | DSM 2260

Myxococcus xanthus *AL* Beebe 1941 - FB | ATCC 25232 | NBRC 13542 | NCIB 9412

Genus II. "Corallococcus" *NP*

Corallococcus coralloides NP *(T)* (Thaxter 1892) Reichenbach 2002 <- *Myxococcus coralloides* (basonym) - M2 | ATCC 25202, M94278, Myx.corall | DSM 2259

Corallococcus exiguus NP Reichenbach 2002 - Cc e167 | DSM 14696

Corallococcus macrosporus NP (ex Krzemieniewska and Krzemieniewski, 1926) Reichenbach 2002 <- *"Chondrococcus macrosporus"* (basonym) - Cc m8 | DSM 14697

Genus III. "Pyxicoccus" *NP*

Pyxicoccus fallax NP *(T)* Reichenbach 2002 - Py f1 | DSM 14698

Suborder II. *"Sorangineae"* *NP*

Family I. *Polyangiaceae* *AL*

Genus I. Polyangium *AL (T)*

Polyangium vitellinum *AL (T)* Link 1809 - TC 4564

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[292] Reichenbach suggests that *Myxococcus flavescens* is a strain of *Myxococcus virescens*, however, does not formally emend the genus description.

[293] Reichenbach indicates that this species is probably not a myxobacteria and may be a fungus. No viable material available for further study.

Polyangium aureum [VP] (ex Krzemieniewska and Krzemieniewski) Brockman 1989 – No viable type strain.

†Polyangium cellulosum [VP] (ex Imshenetski and Solntseva 1936) Brockman 1989 -> *Sorangium cellulosum* – No viable type strain.

Polyangium fumosum [AL] Krzemieniewska and Krzemieniewski 1930 – Windsor M257 | Pl fu5 | DSM 14668

Polyangium luteum [VP] (ex Krzemieniewska and Krzemieniewski 1927) Brockman 1989 – No viable type strain.

†Polyangium minor [AL] (Peterson 1959) Reichenbach 2002 [294] -> *"Haploangium minus"* – UMH Peterson 44

Polyangium parasiticum [VP] ex Geitler 1924) Brockman 1989 – No viable type strain.

Polyangium rugiseptum [AL] (Peterson 1959) McCurdy 1970 [295] -> *"Haploangium rugiseptum"* – UMH Peterson 51

Polyangium sorediatum [VP] (ex Thaxter 1904) Brockman 1989 – | Pl s12 | DSM 14670

Polyangium spumosum [VP] (ex Krzemieniewska and Krzemieniewski) Brockman 1989 – Pl sm5 | DSM 14734

Genus II. "Byssophaga " [NP]

Byssophaga cruenta NP [(T)] Reichenbach 2002 [296] <- *Chondrococcus cruentus* (basonym) – By c2 | DSM 14553

Genus III. Chondromyces [AL]

Chondromyces crocatus [AL (T)] Berkeley and Curtis 1874 – TC 601 | Cm c5 | DSM 14714

Chondromyces apiculatus [AL] Thaxter 1897 – TC 4481 | Cm a14 , AJ233938 | DSM 14605

Chondromyces catenulatus [AL] Thaxter 1904 – TC 4517

Chondromyces lanuginosus [AL] Kofler 1913 – TC 4494 | Sy t2 | DSM 14631

Chondromyces pediculatus [AL] Thaxter 1904 – TC 4524 | Cm p51TC , | DSM 14607

Chondromyces robustus NP Reichenbach 2002 – Cm a13 | DSM 14608

Genus IV. "Haploangium"

"Haploangium rugiseptum" NP [(T)] (Peterson, 1959) Reichenbach 2004 <- *Polyangium rugiseptum* (basonym) – UMH Peterson 51

"Haploangium minus" NP [(T)] (Peterson, 1959) Reichenbach 2004 <- *Polyangium minor* (basonym) – UMH Peterson 41

Genus V. "Jahnia " [NP]

Jahnia thaxteri NP [(T)] Reichenbach – Pl t4 | DSM 14626

Genus VI. "Sorangium " [NP] [297]

Sorangium cellulosum NP [(T)] Reichenbach 2002 <- *Polyangium cellulosum* (basonym) – ce1871 | DSM 14627

Suborder III. *"Nannocystineae "* [NP]

Family I. *"Nannocystaceae "* [NP]

Genus I. Nannocystis [VP (T)]

Nannocystis exedens subspecies excedans [AL (T)] Reichenbach 1970 – Na e1, AJ233946 | ATCC 25963, M94279, Nan.exeden | DSM 71

Nannocystis exedens subspecies aggregans Reichenbach 2004 – Na a1 | DSM 14639

[294] It is unclear as to whether or not the Code of Prokaryotic Nomenclature supports the formation of a new combination for an uncultivated species, even though the basonym appeared on the Approved Lists of Names.

[295] It is unclear as to whether or not the Code of Prokaryotic Nomenclature supports the formation of a new combination for an uncultivated species, even though the basonym appeared on the Approved Lists of Names.

[296] Reichenbach refers to this a new combination. However, Neither *Chondrococcus* nor *Myxococcus* cruentus appear on the Approved Lists of Bacterial Names or subsequent Validation Lists.

[297] Reichenbach has named the suborder after *Sorangium*, which is not yet published and has neither standing nor priority. The use of *Sorangium* as the root name is questionable. *Polyangium* has priority and is the type of the family. It would have been more logical to have *Polyangium* serve as the type genus for the Suborder as well. At present, this proposal violates Rule 21a.

Nannocystis exedens subspecies cinnabarina Reichenbach 2004 - Na c1 | DSM 14641

Nannocystis exedens subspecies glomerata Reichenbach 2004 - Na g1 | DSM 14640

Nannocystis exedens subspecies pulla Reichenbach 2004 - Na a145 | DSM 14629

Nannocystis pusilla NP Reichenbach 2004 - Na p29 | DSM 14622

Genus II. ***Plesiocystis*** VP

Plesiocystis pacifica VP (T) Iizuka et al. 2003 - SIR-1, AB083432 | AJ 13960 | DSM 14875 | JCM 11591

Family II. *"Haliangiaceae"* NP

Genus I. ***Haliangium*** VP (T)

Haliangium ochraceum VP (T) Fudou et al. 2002 - SMP-2, AB016470 | AJ 13395 | DSM 14365 | JCM 11303

Haliangium tepidum VP Fudou et al. 2002 - SMP-10 | AJ 13914 | DSM 14436 | JCM 11304, AB062751

Family III. *"Kofleriaceae "* NP

Genus I. "Kofleria " NP (T)

Kofleria flava (ex Kofler 1913) Reichenbach 2002 *nom. rev.* - Pl vt1 | DSM 14601

Class V. *"Epsilonproteobacteria"* NP

Order I. *"Campylobacterales"* NP (T)

Family I. Campylobacteraceae VP

Genus I. Campylobacter AL (T)

Campylobacter fetus fetus AL (T) (Smith and Taylor 1919) Sebald and Veron 1963 - ATCC 27324, L04314, Cam.fetus4 | ATCC 27324, M65012, Cam.fetus2 | CCUG 6823 | CIP 5396 | DSM 5361 | LMG 6442 | NCTC 10842

†*Campylobacter butzleri* VP Kiehlbauch et al. 1991 -> *Arcobacter butzleri* - ATCC 49616 | D2686 | DSM 8739 | LMG 10828

†*Campylobacter cinaedi* VP Totten et al. 1988 -> *Helicobacter cinaedi* - 165 | ATCC 35683 | CCUG 18818, M88150, Hlb.cinaed | DSM 5359 | LMG 7543

Campylobacter coli AL (Doyle 1948) Veron and Chatelain 1973 = *Campylobacter hyoilei* (later heterotypic synonym) - serovar 4 | ATCC 33559, M59073, Cam.coli | CCUG 11283, L04312, Cam.coli83 | CIP 7080 | DSM 4689 | LMG 6440 | LMG 8847 | NCTC 11366

Campylobacter concisus VP Tanner et al. 1981 - ATCC 33237, L04322, Cam.concis | CCUG 13144 | DSM 5360 | FDC 484, L04322, Cam.concis | LMG 7788 | NCTC 11485

†*Campylobacter cryaerophilus* VP Neill et al. 1985 -> *Arcobacter cryaerophilus* - 2766 | A 169/B | ATCC 43158 | CCUG 17801, L14624, Aob.cryaer | DSM 7289 | LMG 7536 | NCTC 11885

Campylobacter curvus VP (Tanner et al. 1984) Vandamme et al. 1991 <- *Wolinella curva* (basonym) - ATCC 35224, L04313, Cam.curvus | CCUG 13146 | DSM 6644 | LMG 7609 | NCTC 11649 | VPI 9584

†*Campylobacter fennelliae* VP Totten et al. 1988 -> *Helicobacter fennelliae* - 231 | ATCC 35684 | CCUG 18820, M88154, Hlb.fennel | DSM 7491 | LMG 7546 | NCTC 11612

Campylobacter fetus venerealis AL (Florent 1959) Veron and Chatelain 1973 - ATCC 19483, L14633, Cam.fetus | ATCC 19483, M65011, Cam.fetus1

Campylobacter gracilis VP (Tanner et al. 1981) Vandamme et al. 1995 <- *Bacteroides gracilis* (basonym) - ATCC 33236, L04320, Cam.gracil | CCUG 27720 | FDC 1084 | NCTC 12738

Campylobacter helveticus VP Stanley et al. 1993 - ATCC 51209 | CCUG 30682 | NCTC 12470, U03022, Cam.helvet

Campylobacter hominis VP Lawson et al. 2001 - CH001A, AJ251584 | LMG 19568 | NCTC 13146

†*Campylobacter hyoilei* VP Alderton et al. 1995 = *Campylobacter coli* (earlier heterotypic synonym) - CCUG 33450 | RMIT 32A, L19738, Cam.coli4

Campylobacter hyointestinalis subspecies hyointestinalis [VP] Gebhardt et al. 1985 emend. On et al. 1995 - 80-4577-4 | ATCC 35217, M65010, Cam.hyoin2 | CCUG 14169 | LMG 7817 | NCTC 11608, AF097689

Campylobacter hyointestinalis subspecies lawsonii [VP] On et al. 1995 - CCUG 34538 | CHY 5, AF097685 | LMG 14432 | NCTC 12901

Campylobacter jejuni subspecies jejuni [AL] (Jones et al. 1931) Veron and Chatelain 1973 - Biovar 1 | Penner serovar 23 | ATCC 33560, M59298, Cam.jejuni | CCUG 11284, L04315, Cam.jejun4 | CIP 702 | DSM 4688 | LMG 6444 | LMG 8841 | NCTC 11351

Campylobacter jejuni subspecies doylei [VP] Steele and Owen 1988 - 93 | CCUG 24567, L14630, Cam.jejun2 | IMVS 1141 | LMG 8843 | NCTC 11951

Campylobacter lanienae [VP] Logan et al. 2000 - NCTC 13004, AF043425

Campylobacter lari [VP] Benjamin et al. 1984 - ATCC 35221 | CCUG 10773, L04316, Cam.lari | CCUG 23947 | DSM 11375 | LMG 8846 | NCTC 11352 | WRI 3034/77

Campylobacter mucosalis [VP] (Lawson et al. 1981) Roop et al. 1985 <- *Campylobacter sputorum subspecies mucosalis* (basonym) - FS253/72 | ATCC 43264 | CCUG 6822, L06978, Cam.mucosa | LMG 6448 | NCTC 11000

†*Campylobacter mustelae* [VP] (Fox et al. 1988) Fox et al. 1989 <- *Campylobacter pylori subspecies mustelae* (basonym) -> *Helicobacter mustelae* - R85-13-6 | ATCC 43772, M35048, Hlb.mustel

†*Campylobacter nitrofigilis* [VP] McClung et al. 1983 -> *Arcobacter nitrofigilis* - CI | ATCC 33309 | CCUG 15893, L14627, Aob.nfigil | DSM 7299 | LMG 7604 | NCTC 12251

†*Campylobacter pylori subspecies pylori* [VP] (Marshall et al. 1985) Marshall and Goodwin 1987 emend. Fox et al. 1988 -> *Helicobacter pylori* - ATCC 43504, M88157, Hlb.pylori | ATCC 43504, U01330, Hlb.pylor6 | CCUG 17874 | DSM 4867 | LMG 7539 | NCTC 11637, Z25741, Hlb.pylor2 | Royal Perth Hospital 13487

†*Campylobacter pylori subspecies mustelae* [VP] Fox et al. 1988 -> *Campylobacter mustelae* - R85-13-6 | ATCC 43772, M35048, Hlb.mustel

Campylobacter rectus [VP] (Tanner et al. 1981) Vandamme et al. 1991 <- *Wolinella recta* (basonym) - ATCC 33238, L04317, Cam.rectu2 | CCUG 20446 | DSM 3260 | FDC 371 | NCTC 11489

Campylobacter showae [VP] Etoh et al. 1993 - SU A4 | ATCC 51146 | CCUG 30254, L06974, Cam.show54

Campylobacter sputorum subspecies sputorum [AL] (Prévot 1940) Véron and Chatelain 1973 emend. On et al. 1998 - Forsyth ER33 | ATCC 35980 | CCUG 9728 | CIP 103749 | DSM 10535 | LMG 7795, X67775, Cam.sputo3 | NCTC 11528 | VPI S-17

Campylobacter sputorum subspecies bubulus [AL] (Florent 1953) Véron and Chatelain 1973 - CCUG 11289 | CIP 53103 | DSM 5363 | LMG 6447 | NCTC 11367

†*Campylobacter sputorum subspecies mucosalis* [VP] (ex Lawson and Rowland 1974) Lawson et al. 1981 -> *Campylobacter mucosalis* - NCTC 11000

Campylobacter upsaliensis [VP] Sandstedt and Ursing 1991 - C231 | ATCC 43954 | CCUG 14913, L14628, Cam.upsali | DSM 5365 | LMG 8850 | NCTC 11541

Genus II. Arcobacter [VP]

Arcobacter nitrofigilis [VP (T)] (McClung et al. 1983) Vandamme et al. 1991 <- *Campylobacter nitrofigilis* (basonym) - CI | ATCC 33309 | CCUG 15893, L14627, Aob.nfigil | DSM 7299 | LMG 7604 | NCTC 12251

Arcobacter butzleri [VP] (Kiehlbauch et al. 1991) Vandamme et al. 1992 <- *Campylobacter butzleri* (basonym) - ATCC 49616 | CCUG 30485 | CDC D2686 | DSM 8739 | LMG 10828

Arcobacter cryaerophilus [VP] (Neill et al. 1985) Vandamme et al. 1991 <- *Campylobacter cryaerophilus* (basonym) - 2766 | A 169/B | Neill A 169/B | CCUG 17801, L14624, Aob.cryaer | DSM 7289 | LMG 7536 | NCTC 11885

Arcobacter skirrowii [VP] Vandamme et al. 1992 - 449/80 | Skirrow 449/80 | CCUG 10374, L14625, Aob.skirro | DSM 7302 | LMG 6621

Genus III. "Dehalospirillum"

†*Dehalospirillum multivorans* [AL (T)] Scholz-Muramatsu et al. 2002 -> *Sulfurospirillum multivorans* - K, X82931 | DSM 12446 [298]

Genus IV. Sulfurospirillum [VP]

Sulfurospirillum deleyianum [VP (T)] Schumacher et al. 1993 - 5175, Y13671, Sfs.deleyi | "Spirillum" 5175 | ATCC 51133 | DSM 6946

Sulfurospirillum arcachonense [VP] Finster et al. 1997 - F1F6, Y11561, Sfs.arcach | DSMZ 9755, Y11561, Sfs.arcach

Sulfurospirillum arsenophilum [VP] Stolz et al. 1999 - MIT-13, U85964, Sfs.arseno | ATCC 700056

Sulfurospirillum barnesii [VP] Stolz et al. 1999 - SES-3, AF038843, Sfs.barnes | SES-3, U41564, Gs.barnesi | ATCC 700032

Sulfurospirillum halorespirans [VP] Luijtgen et al. 2003 - PCE-M2, AF218076 | ATCC BAA-583 | DSM 13726

Sulfurospirillum multivorans [VP] (Scholz-Muramatsu et al. 2002) Luijtgen et al. 2003 [299] <- *Dehalospirillum multivorans* (basonym) - PCE-M2, AF218076 | DSM 12446

Family II. "Helicobacteraceae" [NP]

Genus I. Helicobacter [VP (T)]

Helicobacter pylori [VP (T)] (Marshall et al. 1986) Goodwin et al. 1989 <- *Campylobacter pylori* (basonym) - ATCC 43504, M88157, Hlb.pylori | ATCC 43504, M88157, Hlb.pylori | ATCC 43504, U01330, Hlb.pylor6 | CCUG 17874 | DSM 4867 | JCM 7653 | LMG 7539 | NCTC 11637, Z25741, Hlb.pylor2

Helicobacter acinonychis [VP] Eaton et al. 1993 - 90-119, M88148, Hlb.acinyc | ATCC 51101 | CCUG 29263, M88148, Hlb.acinyc

Helicobacter aurati [VP] Patterson et al. 2002 [300] - MIT 97-5075, AF297868 | ATCC BAA-1 [301]

Helicobacter bilis [VP] Fox et al. 1997 - Hb1, U18766, Hlb.bilis1 | ATCC 51630

Helicobacter bizzozeronii [VP] Hänninen et al. 1996 - CCUG 35045, Y09404, Hlb.bizzoz

Helicobacter canadensis [VP] Fox et al. 2002 [302] - MIT 98-5491 | ATCC 700968 | NLEP-16143, AF262037

Helicobacter canis [VP] Stanley et al. 1994 - ATCC 51401 | NCTC 12739, L13464, Hlb.canis

Helicobacter cholecystus [VP] Franklin et al. 1997 - Hkb-1, U46129, Hlb.cholec

Helicobacter cinaedi [VP] (Totten et al. 1985) Vandamme et al. 1991 <- *Campylobacter cinaedi* (basonym) - 165 | Fennell 165 | ATCC 35683 | CCUG 18818, M88150, Hlb.cinaed | DSM 5359 | LMG 7543

Helicobacter felis [VP] Paster et al. 1991 - CS1, M57398, Hlb.felCS1 | ATCC 49179, M57398, Hlb.felCS1

Helicobacter fennelliae [VP] (Totten et al. 1985) Vandamme et al. 1991 <- *Campylobacter fennelliae* (basonym) - 231 | Fennell 231 | ATCC 35684 | CCUG 18820, M88154, Hlb.fennel | DSM 7491 | LMG 7546 | NCTC 11612

Helicobacter hepaticus [VP] Fox et al. 1994 - Hh-2, U07574, Hlb.hepat4 | ATCC 51448

Helicobacter ganmani [VP] Robertson et al. 2001 - CMRI H02, AF000221 | CCUG 43526 | CIP 106846

Helicobacter mesocricetorum [VP] Simmons et al. 2000 - MU 97-1514, AF072471 | ATCC 700932

[298] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[299] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[300] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[301] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[302] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Helicobacter muridarum VP Lee et al. 1992 - ST1, M80205, Hlb.murida | ATCC 49282, M80205, Hlb.murida

Helicobacter mustelae VP (Fox et al. 1988) Goodwin et al. 1989 <- *Campylobacter mustelae* (basonym) - R85-13-6 | ATCC 43772, M35048, Hlb.mustel

Helicobacter nemestrinae VP Bronsdon et al. 1991 - T81213-NTB | ATCC 49396, X67854, Hlb.nemstr | DSM 7492

Helicobacter pametensis VP Dewhirst et al. 1994 - Seymour B9, M88147, Hlb.pamten | ATCC 51478 | CCUG 29255

Helicobacter pullorum VP Stanley et al. 1995 - NCTC 12824, L36141, Hlb.pullr1

Helicobacter rodentium VP Shen et al. 1997 - MIT 95-1707, U96296, Hlb.rodent | ATCC 700285

Helicobacter salomonis VP Jalava et al. 1997 - Inkinen, U89351, Hlb.salomn | CCUG 37845

Helicobacter trogontum VP Mendes et al. 1996 - ATCC 700114 | LRB 8581, U65103, Hlb.trogon

Helicobacter typhlonius VP Franklin et al. 2002 [303] - MIT 97-6810, AF127912 | ATCC BAA-367[304]

Genus II. Thiovulum AL [305]

Thiovulum majus AL (T) Hinze 1913 - no culture isolated, M92323

Genus III. Wolinella VP

Wolinella succinogenes VP (T) (Wolin et al. 1961) Tanner et al. 1981 <- *Vibrio succinogenes* (basonym) - ATCC 29543, M26636, Wln.succin | ATCC 29543, M88159, Wln.succi2 | DSM 1740

†Wolinella curva VP Tanner et al. 1984 -> *Campylobacter curvus* - ATCC 35224, L04313 | CCUG 13146 | DSM 6644 | LMG 7609 | NCTC 11649 | VPI 9584

†Wolinella recta VP Tanner et al. 1981 -> *Campylobacter rectus* - ATCC 33238, L04317 | CCUG 20446 | DSM 3260 | FDC 371 | NCTC 11489

Family III. "Nautiliaceae" NP

Genus I. ***Nautilia*** VP (T)

Nautilia lithotrophica VP (T) Miroshnichenko et al. 2002 [306] - 525 T, | DSM 13520, AJ404370

[307]

Genus II. ***Caminibacter*** VP

Caminibacter hydrogeniphilus VP (T) Alain et al. 2002 - AM1116, AJ309655 | DSM 14510 | CIP 107140

Phylum BXIII. *"Firmicutes"*

Class I. *"Clostridia"*

Order I. *Clostridiales* AL [308]

Family I. Clostridiaceae AL

Genus I. Clostridium AL (T)

Clostridium butyricum AL (T) Prazmowski 1880 - ATCC 19398, M59085, C.butyricm | DSM 552 | NBRC 13949 | NCIB 7423 | NCTC 7423 | VKM B-1773

Clostridium absonum AL Nakamura et al. 1973 - HA 7103 | ATCC 27555 | DSM 599, X77842, C.absonum | NCTC 10984

Clostridium aceticum VP Gottschalk and Braun 1981 - ATCC 35044 | DSM 1496

[303] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[304] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[305] Robertson et al. place *Thiovulum* into the *Helicobacteriaceae* rather than the *Campylobacteriaceae*. The tree which is presented in their chapter suggests that *Thiovulum*, *"Alvinella"* and several thermal vent clones may form a separate line of descent.

[306] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[307] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[308] Ludwig notes that the *Eubacteriaceae* and *Peptostreptococcaceae* are sister groups within the *Clostridiales*.

Clostridium acetireducens [VP] Örlygsson et al. 1996 - 30A, X79862, C.acetired | DSM 10703

Clostridium acetobutylicum [AL] McCoy et al. 1926 - ATCC 824, U16166, C.acebuty9 | ATCC 824, X78070, C.acebuty3 | DSM 792 | NCIB 8052, S46735, C.beijeri5 | NCIB 8052, U16165, C.beijeri6 | NCIB 8052, X68182, C.beijeri4 | NCIB 8052, X81021, C.beijeri7 | VKM B-1787

Clostridium acidilosi [VP] Kuhner et al. 2000 - CK74, AJ237756 | DSM 12555

Clostridium acidurici [AL] (Liebert 1909) Barker 1938 - ATCC 7906, M59084, C.acidiuri | DSM 604 | IMG 1642

Clostridium aerotolerans [VP] van Gylswyk and van der Toorn 1987 - X8A62 | ATCC 43524 | DSM 5434, X76163, C.aerotole

Clostridium akagii [VP] Kuhner et al. 2000 - CK58, AJ237755 | DSM 12554

Clostridium aldrichii [VP] Yang et al. 1990 - OGI 112 | P-1 | ATCC 49358 | DSM 6149, X71846, C.aldrichi

Clostridium algidicarnis [VP] Lawson et al. 1995 - NCFB 2931, X77676, C.algidcrn

Clostridium algidixylanolyticum [VP] Broda et al. 2000 - SPL73, AF092549 | DSM 12273

Clostridium aminophilum [VP] Paster et al. 1993 - F, L04165, C.aminophi | ATCC 49906 | DSM 10710

Clostridium aminovalericum [AL] Hardman and Stadtman 1960 - ATCC 13725 | DSM 1283, X73436, C.aminova2 | NCIB 10631

Clostridium arcticum [VP] (ex Jordan and McNicol 1979) Cato et al. 1988 - Jordan and McNicol no.III

Clostridium argentinense [VP] Suen et al. 1988 - ATCC 27322, X68316, C.argenti2

Clostridium aurantibutyricum [AL] Hellinger 1944 - ATCC 17777 | DSM 793 | NCIB 10659, S46736, C.auranti2 | NCIB 10659, X68183, C.aurantib

Clostridium baratii [AL] (Prevot 1938) Holdeman and Moore 1970 = *Clostridium paraperfringens* (later heterotypic synonym) = *Clostridium perenne* (later heterotypic synonym) - ATCC 27638, X68174, C.barati3 | DSM 601

†*Clostridium barkeri* [AL] Stadtman et al. 1972 -> *Eubacterium barkeri* - ATCC 25849, M23927, Eub.barker | DSM 1223 | NCIB 10623 | VKM B-1775 | VPI 5359

Clostridium beijerinckii [AL] Donker 1926 - ATCC 25752 | DSM 791, X68179, C.beijeri2 | NCIB 9362, X68180, C.beijeri3 | VPI 5481

Clostridium bifermentans [AL] (Weinberg and Seguin 1918) Bergey et al. 1923 - ATCC 638, X75906, C.biferm_M

Clostridium bolteae [VP] Song et al. 2003 - WAL 16351, AJ508452 | ATCC BAA-613 | CCUG 46953

Clostridium botulinum [AL] (van Ermengem 1896) Bergey et al. 1923 - ATCC 25763, L37585, C.botuliA3

Clostridium bowmanii [VP] Spring et al. 2003 - A-1/C-an/C1 | ATCC BAA-581 | DSM 14206, AJ506119, AJ506120 (two clones from same strain)

†*Clostridium bryantii* [VP] Stieb and Schink 1985 -> *Syntrophospora bryantii* - CuCa1 | DSM 3014 | DSM 3014A

Clostridium cadaveris [AL] (Klein 1899) McClung and McCoy 1957 - T4 | ATCC 25783, M59086, C.cadavers | DSM 1284 | NCIB 10676 | VPI 2718

Clostridium caminithermale [VP] Brisbarre et al. 2003 - DVird3 | CIP 107654 | DSM 15212, AF458779

Clostridium carnis [AL] (Klein 1904) Spray 1939 - ATCC 25777, M59091, C.carnis | CDC KA 84 | DSM 1293 | NCIB 10670 | VPI 1635 B

Clostridium celatum [AL] Hauschild and Holdeman 1974 - ATCC 27791 | DSM 1785, X77844, C.celatum | VPI 8759-1

Clostridium celerecrescens [VP] Palop et al. 1989 - 18A | CECT 954 | DSM 5628, X71848, C.celerecr

Clostridium cellobioparum [AL] Hungate 1944 - ATCC 15832 | DSM 1351, X71856, C.celbiopa | NCIB 10669

Clostridium cellulofermentans [VP] Yanling et al. 1991 - AS 1.1775

Clostridium cellulolyticum [VP] Petitdemange et al. 1984 - H10 | ATCC 35319, X71847, C.cellulol | DSM 5812 | JCM 6584
Clostridium cellulosi [VP] Yanling et al. 1991 - AS 1.1777
Clostridium cellulovorans [VP] Sleat et al. 1985 - 743B | ATCC 35296 | DSM 3052, X71849, C.celluvor | DSM 3052, X73438, C.celluvo2 | OCM 3
Clostridium chartatabidum [VP] Kelly et al. 1996 - 163 | DSM 5482, X71850, C.chartata
Clostridium chauvoei [AL] (Arloing et al. 1887) Scott 1928 - ATCC 10092, U51843, C.chauvoei | DSM 7528 | NCIMB 10665
Clostridium clostridioforme [AL] (Burri and Ankersmit 1906) Kaneuchi et al. 1976 - ATCC 25537, M59089 | DSM 933 | VPI 0316
Clostridium coccoides [AL] Kaneuchi et al. 1976 - CLC-1 | ATCC 29236 | DSM 935 | NCTC 11035
Clostridium cochlearium [AL] (Douglas et al. 1919) Bergey et al. 1923 = *Clostridium lentoputrescens* (later heterotypic synonym) - ATCC 17787, M59093, C.cochlear | DSM 1285 | NCIB 10633
Clostridium colicanis [VP] Greetham et al. 2003 - 3WC2 | CCUG 44556 | DSM 13634, AJ420008
Clostridium cocleatum [AL] Kaneuchi et al. 1979 - I50, Y18188 | ATCC 29902 | DSM 1551 | NCTC 11210
Clostridium colinum [VP] Berkhoff 1985 - 72042 | ATCC 27770 | DSM 6011, X76748, C.colinum | JCM 5831
Clostridium collagenovorans [VP] Jain and Zeikus 1988 - SG | ATCC 49001 | DSM 3089, X73439, C.colgenvo
Clostridium cylindrosporum [VP] Andreesen et al. 1985 - HC-1, Y18179 | ATCC 7905 | DSM 605 | IMG 1641
Clostridium difficile [AL] (Hall and O'Toole 1935) Prevot 1938 - 90556-M6S | ATCC 9689 | DSM 1296 | NCIB 10666 | NCTC 11209, X73450, C.difficil
Clostridium diolis [VP] Biebl and Spröer 2003 - 88-273 | ATCC BAA-557 | DSM 15410 | SH1, AJ458418
Clostridium disporicum [VP] Horn 1987 - DS1, Y18176 | ATCC 43838 | DSM 5521 | NCIB 12424
†*Clostridium durum* [AL] Smith and Cato 1974 -> *Paenibacillus durus* - ATCC 27763, X77846
Clostridium estertheticum [VP] Collins et al. 1993 - MT1 | DSM 8809 | NCIMB 12511, S46734, C.esterthe | NCIMB 12511, X68181, C.esterth2
Clostridium estertheticum [VP] Collins et al. 1993 emend. Spring et al. 2003. - NCIMB 12511, X68181
Clostridium estertheticum subspecies estertheticum [VP] Collins et al. 1993 - ATCC 51377 | CIP 105093 | DSM 8809 | NCIMB 12511, X68181
Clostridium estertheticum subspecies laramiense [VP] (Kalchayanand et al. 1993) Spring et al. 2003 <- *Clostridium laramiense* (basonym) - NK1 | ATCC 51254 | DSM 14864, AJ506115
Clostridium fallax [AL] (Weinberg and Seguin 1915) Bergey et al. 1923 - ATCC 19400, M59088, C.fallax | DSM 2631 | NCTC 8380 | VPI 5729
Clostridium felsineum [AL] (Carbone and Tombolato 1917) Bergey et al. 1939 - 541 | ATCC 17788 | DSM 794, X77851, C.felsineu | NCIB 10690
†*Clostridium fervidum* [VP] Patel et al. 1987 -> *Caloramator fervidus* - Rt4-B1 | ATCC 43204, L09187, Clr.fervid | DSM 5463
Clostridium fimetarium [VP] Kotsyurbenko et al. 1997 - DSM 9179 | Z-2189, AF126687
Clostridium formicaceticum [AL] Andreesen et al. 1970 - A1, X77836 | ATCC 27076 | DSM 92
Clostridium frigidicarnis [VP] Broda et al. 1999 - SPL77A | DSM 12271, AF069742
Clostridium frigoris [VP] Spring et al. 2003 - D-1/D-an/II | ATCC BAA-579 | DSM 14204, AJ506116, AJ506117 (two clones from same)
Clostridium gasigenes [VP] Broda et al. 2000 - DB1A, AF092548 | DSM 12272

Clostridium ghonii [AL] Prevot 1938 – ATCC 25757
Clostridium glycolicum [AL] Gaston and Stadtman 1963 – ATCC 14880 | DSM 1288, X76750, C.glycolic | NCIB 10632
Clostridium grantii [VP] Mountfort et al. 1996 – A-1, X75272, C.grantii | DSM 8605
Clostridium haemolyticum [AL] (Hall 1929) Scott et al. 1935 – ATCC 9650, AB037910 | DSM 5565, Y18173 | NCIB 10664
Clostridium halophilum [VP] Fendrich et al. 1991 – M1 | ATCC 49637 | DSM 5387, X77837, C.halphlum
Clostridium hastiforme [AL] MacLennan 1939 – ATCC 33268 | DSM 5675, X77848, C.hastifor | DSM 5675, X80841, C.hastifo2 | VPI 12193
Clostridium hathewayi [VP] Steer et al. 2002 – 1313, AJ311620 | CCUG 43506 | DSM 13479
Clostridium herbivorans [VP] Varel et al. 1995 – 54408, L34418 | ATCC 49925
Clostridium hiranonis [VP] Kitahara et al. 2001 – TO-931, AB023970 | DSM 13275 | JCM 10541
Clostridium histolyticum [AL] (Weinberg and Seguin 1916) Bergey et al. 1923 – ATCC 19401, M59094, C.histolyt | DSM 2158 | NCIB 503 | NCTC 503
Clostridium hungatei [VP] Monserrate et al. 2001 [309] – AD, AF020429 | ATCC 700212
Clostridium hylemonae [VP] Kitahara et al. 2000 – TN-271 | JCM 10539, AB023973
Clostridium homopropionicum [VP] Dörner and Schink 1991 – LuHBu1 | DSM 5847, X76744, C.homoprop
†*Clostridium hydroxybenzoicum* [VP] Zhang et al. 1994 -> *Sedimentibacter hydroxybenzoicus* – JW/Z-1, L11305, C.hybenzoi | ATCC 51151 | DSM 7310
Clostridium indolis [AL] McClung and McCoy 1957 – ATCC 25771, Y18184 | DSM 755 | NCIB 9731
Clostridium innocuum [AL] Smith and King 1962 – B-3, M23732, C.innocuum | ATCC 14501, M23732, C.innocuum | DSM 1286 | NCIB 10674
Clostridium intestinale [VP] Lee et al. 1989 – Catt39 | ATCC 49213 | DSM 6191, X76740, C.intestin | JCM 7506
Clostridium irregulare [AL] (Choukevitch 1911) Prevot 1938 – ATCC 25756 | DSM 2635, X73447, C.irregulr | VPI 4428
Clostridium isatidis [VP] Padden et al. 1999 – Wv6, X98395 | NCFB 3071
Clostridium josui [VP] Sukhumavasi et al. 1988 – III | FERM P-9684, AB011057, C.josui1
Clostridium kluyveri [AL] Barker and Taha 1942 – K1 | ATCC 12489 | ATCC 8527, M59092, C.kluyveri | DSM 555 | NCIB 10680
Clostridium lactatifermentans [VP] van der Wielen et al. 2002 – G17, AY033434 | DSM 14214 | LMG 20954
Clostridium lacusfryxellense [VP] Spring et al. 2003 – C/C-an/B1 | ATCC BAA-580 | DSM 14205, AJ506118
Clostridium laramiense [VP] Kalchayanand et al. 1993 -> *Clostridium estertheticum subspecies laramiense* – NK1 | ATCC 51254
Clostridium lentocellum [VP] Murray et al. 1987 – RHM5 | DSM 5427, X71851, C.lentocel | DSM 5427, X76162, C.lentoce2 | NCIB 11756
†*Clostridium lentoputrescens* [AL] Hartsell and Rettger 1934 = *Clostridium cochlearium* (earlier heterotypic synonym) – ATCC 17794
Clostridium leptum [AL] Moore et al. 1976 – ATCC 29065, M59095, C.leptum | DSM 753 | VPI T7-24-1
Clostridium limosum [AL] Andre 1948 – ATCC 25620 | DSM 1400 | NCIB 10638 | VPI 2700
Clostridium litorale [VP] Fendrich et al. 1991 – W6 | ATCC 49638 | DSM 5388, X77845, C.litorale
Clostridium lituseburense [AL] (Laplanche and Saissac 1948) McClung and McCoy 1957 – A25K | ATCC 25759, M59107, C.litusebu | DSM 797 | NCIB 10637 | VPI 2751
Clostridium ljungdahlii [VP] Tanner et al. 1993 – ATCC 49587 | PETC, M59097, C.ljungdah

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†*Clostridium lortetii* [VP] Oren 1984 -> *Sporohalobacter lortetii* - MD-2 | ATCC 35059, M59122, Shb.lortet | DSM 3070

Clostridium magnum [VP] Schink 1984 - Wo Bd P1 | ATCC 49199 | DSM 2767, X77835, C.magnum

Clostridium malenominatum [AL] (Weinberg et al. 1937) Spray 1948 - ATCC 25776, M59099, C.malenomi | DSM 1127 | NCIB 10667 | Prévot 1503 | VPI 2721

Clostridium mangenotii [AL] (Prévot and Zimmès-Chaverou 1947) McClung and McCoy 1957 - ATCC 25761, M59098, C.mangenot | DSM 1289 | NCIB 10639 | VPI 4622

Clostridium mayombei [VP] Kane et al. 1992 - SFC-5 | ATCC 51428 | DSM 6539

Clostridium methoxybenzovorans [VP] Mechichi et al. 1999 - SR3, AF067965 | DSM 12182

Clostridium methylpentosum [VP] Himelbloom and Canale-Parola 1989 - R2, Y18181 | ATCC 43829 | DSM 5476

Clostridium neopropionicum [VP] Tholozan et al. 1995 - X4 | DSM 3847, X76746, C.neopropi

Clostridium nexile [AL] Holdeman and Moore 1974 - ATCC 27757 | DSM 1787, X73443, C.nexile | VPI C48-37

Clostridium novyi [AL] (Migula 1894) Bergey et al. 1923 - 151 | ATCC 17861, L37594, C.novyi3 | ATCC 17861, M59100, C.novyi

Clostridium oceanicum [AL] Smith 1970 - ATCC 25647, M59101, C.oceanicm | DSM 1290 | NCIB 10625

Clostridium orbiscindens [VP] Winter et al. 1991 - 265, Y18187 | ATCC 49531 | DSM 6740

Clostridium oroticum [AL] (Wachsman and Barker 1954) Cato et al. 1968 - ATCC 13619, M59109, C.oroticum | DSM 1287 | NCIB 10650

†*Clostridium oxalicum* [VP] Dehning and Schink 1990 -> *Oxalophagus oxalicus* - Alt Ox1 | DSM 5503, X77840, Oxl.oxalic

Clostridium papyrosolvens [VP] Madden et al. 1982 - DSM 2782, X71852, C.papyroso | NCIB 11394

Clostridium paradoxum [VP] Li et al. 1993 - JW-YL-7 | DSM 7308, Z69942, C.pardoxu2

†*Clostridium paraperfringens* [AL] Nakamura et al. 1970 = *Clostridium baratii* (earlier heterotypic synonym) - ATCC 27639

Clostridium paraputrificum [AL] (Bienstock 1906) Snyder 1936 - ATCC 25780, X75907, C.pputrif2 | DSM 2630, X73445, C.pputrifi | NCIB 10671 | VPI 1584

Clostridium pascui [VP] Wilde et al. 1997 - Cm19, X96736, C.pascui1 | DSM 10365, X96736, C.pascui1

Clostridium pasteurianum [AL] Winogradsky 1895 - ATCC 6013, M23930, C.pasteuri | DSM 525 | IMET 11346 | NCIB 9486

Clostridium peptidivorans [VP] Mechichi et al. 2000 - TMC4 | DSM 12505, AF156796

†*Clostridium perenne* [AL] (Prevot 1940) McClung and McCoy 1957 = *Clostridium baratii* (earlier heterotypic synonym) - ATCC 25782

Clostridium perfringens [AL] (Veillon and Zuber 1898) Hauduroy et al. 1937 - ATCC 13124, M59103, C.perfring | DSM 756 | NCIB 6125 | NCTC 8237

†*Clostridium pfennigii* [VP] Krumholz and Bryant 1985 -> *Oxobacter pfennigii* - V5-2 | DSM 3222, X77838, Ox.pfennig

Clostridium phytofermentans [VP] Warnik et al. 2002 [310] - ISDg | ATCC 700394 | AF020431

Clostridium piliforme [VP] Duncan et al. 1993 , L07416, C.piliform

Clostridium polysaccharolyticum [VP] (van Gylswyk 1981) van Gylswyk et al. 1983 <- *Fusobacterium polysaccharolyticum* (basonym) - B | ATCC 33142 | DSM 1801, X71858, C.polsacch | DSM 1801, X77839, C.polsacc2

Clostridium populeti [VP] Sleat and Mah 1985 - 743A | ATCC 35295, X71853, C.populeti | DSM 5832 | OCM 2

Clostridium propionicum [AL] Cardon and Barker 1946 - ATCC 25522 | DSM 1682, X77841, C.propioni | NCIB 10656

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Clostridium proteoclasticum [VP] Attwood et al. 1996 - B316, U37378, C.proteocl | ATCC 51982

Clostridium proteolyticum [VP] Jain and Zeikus 1988 - CG | DSM 3090, X73448, C.proteoly

Clostridium psychrophilum [VP] Spring et al. 2003 - A-1/C-an/I | ATCC BAA-582 | DSM 14207, AJ297443

Clostridium puniceum [VP] Lund et al. 1981 - ATCC 43978 | BL 70/20 | DSM 2619, X71857, C.punecium | DSM 2619, X73444, C.puneciu2 | NCIB 11596

Clostridium purinilyticum [VP] Dürre et al. 1981 - WA-1 | ATCC 33906, M60491 | DSM 1384

Clostridium putrefaciens [AL] (McBryde 1911) Sturges and Drake 1927 - ATCC 25786, Y18177, AF127024 | DSM 1291 | NCTC 9836 | VPI 5395

Clostridium putrificum (Trevisan 1889) Reddish and Rettger 1922 *nom. rej.* - ATCC 25784 | DSM 1734, X73442, C.putrific | NCIB 10677 | Prévot 2318 | VPI 4440-1

†*Clostridium quercicolum* [AL] Stankewich et al. 1971 -> *Dendrosporobacter quercicolus* - ATCC 25974, M59110, C.quercico | DSM 1736

Clostridium quinii [VP] Svensson et al. 1995 - BS1 | DSM 6736, X76745, C.quinii

Clostridium ramosum [AL] (Veillon and Zuber 1898) Holdeman et al. 1971 - ATCC 25582 | DSM 1402, X73440, C.ramosum2 | NCIB 10673 | VPI 0427

Clostridium rectum [AL] (Heller 1922) Holdeman and Moore 1972 - ATCC 25751 | DSM 1295 | NCIB 10651, X77850, C.rectum | VPI 2488

Clostridium roseum [VP] (McCoy and McClung 1935) Cato et al. 1988 - ATCC 17797 | DSM 51

Clostridium saccharobutylicum [VP] Keis et al. 2001 - NCP 262, U16147 | ATCC BAA-117 | DSM 13864

Clostridium saccharoperbutylacetonicum [VP] Keis et al. 2001 [311] - N1–4 (HTM), U16122 | ATCC 27021

Clostridium saccharolyticum [VP] Murray et al. 1982 - WM1 | ATCC 35040, Y18185 | DSM 2544 | NRC 2533

Clostridium sardiniense [AL] Prevot 1938 - ATCC 33455, X73446 | DSM 2632 | VPI 2971

Clostridium sartagoforme [AL] Partansky and Henry 1935 - ATCC 25778, Y18175 | DSM 1292 | NCIB 10668 | VPI 3195

Clostridium scatologenes [AL] (Weinberg and Ginsbourg 1927) Prevot 1948 - ATCC 25775, M59104, C.scatolog | DSM 757 | NCIB 8855 | VPI 5393

Clostridium scindens [VP] Morris et al. 1985 - Bokkenheuser 19, Y18186, AF262238 | ATCC 35704 | DSM 5676 | VPI 13733

Clostridium septicum [AL] (Mace 1889) Ford 1927 - Pasteur III | ATCC 12464, U59278, C.septicum | CIP 61.10 | DSM 7534 | NCIMB 547 | NCTC 547

Clostridium sordellii [AL] (Hall and Scott 1927) Prévot 1938 - ATCC 9714, M59105, C.sordelli | DSM 2141 | NCIB 10717

Clostridium sphenoides [AL] (Douglas et al. 1919) Bergey et al. 1923 - ATCC 19403 | DSM 632, X73449, C.sphenoid | NCIB 10627 | NCTC 507

Clostridium spiroforme [AL] Kaneuchi et al. 1979 - ATCC 29900, X75908, C.spirofo2 | DSM 1552 | NCTC 11211 | VPI C28-23-1A

Clostridium sporogenes [AL] (Metchnikoff 1908) Bergey et al. 1923 - McClung 2004 | ATCC 25781 | ATCC 3584, M59115, C.sporogen | ATCC 3584, X68189, C.sporoge2 | DSM 795 | NBRC 13950 | NCIB 10696

Clostridium sporosphaeroides [AL] Soriano and Soriano 1948 - ATCC 25781, M59116, C.sporosph | DSM 1294, X66002, C.sporosp2 | NCIB 10672 | VPI 4527

Clostridium stercorarium subspecies stercorarium [VP] Madden 1983 [312] - DSM 6239 | NCIB 11754, L09174, C.stercora

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[312] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Clostridium stercorarium subspecies leptospartum [VP] (Toda et al. 1989) Fardeau et al. 2001 [313] <- *Thermobacteroides leptospartum* (basonym) [314] - C17–70 | ATCC 35414, AF266461 | DSM 9219

Clostridium stercorarium subspecies thermolacticum [VP] (Le Ruyet et al. 1988) Fardeau et al. 2001 [315] <- *Clostridium thermolacticum* (basonym) - TX41, X72870 , C.thlacti3 | ATCC 43739 | DSM 2910

Clostridium sticklandii [AL] Stadtman and McClung 1957 - HF | ATCC 12662 | DSM 519 | NCIB 10654

Clostridium subterminale [AL] (Hall and Whitehead 1927) Spray 1948 - ATCC 25774, L37595, C.subterm4 | ATCC 25774, M59106, C.subtermi | CDC KA152 | DSM 6970 | VPI 2023

Clostridium symbiosum [AL] (Stevens 1956) Kaneuchi et al. 1976 - ATCC 14940, M59112, C.symbiosm | DSM 934

Clostridium termitidis [VP] Hethener et al. 1992 - CT1112 | ATCC 51846 | DSM 5398

Clostridium tertium [AL] (Henry 1917) Bergey et al. 1923 - ATCC 14573, Y18174, AJ245413 | DSM 2485 | IAM 14196 | NCIB 10697

Clostridium tetani [AL] (Flügge 1886) Bergey et al. 1923 - ATCC 19406 | NCTC 279, X74770, C.tetani

Clostridium tetanomorphum [VP] Wilde et al. 1989 - 259E.III | ATCC 49273 | DSM 4474 | NCTC 543

†*Clostridium thermaceticum* [AL] Fontaine et al. 1942 -> *Moorella thermoacetica* - ATCC 35608 | DSM 521

†*Clostridium thermautotrophicum* [VP] Wiegel et al. 1982 -> *Moorella thermoautotrophica* - JW 701/3, X58354, Mrl.thaut5 | ATCC 33924 | DSM 1974

Clostridium thermoalcaliphilum [VP] Li et al. 1994 - JW/YL23-2, L11304, C.thalcali | ATCC 51508 | DSM 7309

Clostridium thermobutyricum [VP] Wiegel et al. 1989 - ATCC 49875 | DSM 4928 | JW171K

Clostridium thermocellum [AL] Viljoen et al. 1926 - ATCC 27405 | DSM 1237, L09173, C.thcellum | NCIB 10682

†*Clostridium thermocopriae* [VP] Jin et al. 1988 -> *Thermoanaerobacter thermocopriae* - JT3-3 | IAM 13577, L09167, Tab.thcop2

†*Clostridium thermohydrosulfuricum* [AL] Klaushofer and Parkkinen 1965 -> *Thermoanaerobacter thermohydrosulfuricus* - E 100-69, L09161 | ATCC 35045 | DSM 567 | NCIB 10956 | VKM B-1834

†*Clostridium thermolacticum* [VP] Le Ruyet et al. 1988 -> *Clostridium stercorarium subsp. thermolacticum* - TX 41, X72870, C.thlacti3 | ATCC 43739 | DSM 2910

Clostridium thermopalmarium [VP] Soh et al. 1991 - BVP | ATCC 51427 | DSM 5974

Clostridium thermopapyrolyticum [VP] Méndez et al. 1991 - UBA 305

†*Clostridium thermosaccharolyticum* [AL] McClung 1935 -> *Thermoanaerobacterium thermosaccharolyticum* - NCA 3814 | ATCC 7956, M59119, Tbm.thsacc | DSM 571 | NCIB 9385

Clostridium thermosuccinogenes [VP] Drent et al. 1995 - IC, Y18180 | DSM 5807

†*Clostridium thermosulfurogenes* [VP] Schink and Zeikus 1983 -> *Thermoanaerobacterium thermosulfurigenes* - 4B | ATCC 33743, L09171 | DSM 2229

Clostridium thiosulfatireducens [VP] Hernandez-Eugenio et al. 2002 - Lup 21, AF317650 | CIP 106908 | DSM 13105

Clostridium tyrobutyricum [AL] van Beynum and Pette 1935 - ATCC 25755, M59113, C.tyrobuty | DSM 2637 | NCIB 10635 | VPI 5392

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[314] The basonym *Thermobacteroides leptospartum* became invalid upon transfer of the type species, *T. acetoethylicus* by Rainey, et al. (1993) J. Bact., 145: 4772.

[315] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Clostridium uliginosum [VP] Matthies et al. 2001 - CK55, AJ276992 | ATCC BAA-53 | DSM 12992

Clostridium ultunense [VP] Schnürer et al. 1996 - BS, Z69293, C.ultunens | DSM 10521

†*Clostridium villosum* [AL] Love et al. 1979 -> *Filifactor villosus* - ATCC 33388 | DSM 1645, X73452, Flf.villos | NCTC 11220 | VPB 3349

Clostridium vincentii [VP] Mountfort et al. 1997 - lac-1 | DSM 10228

Clostridium viride [VP] Buckel et al. 1995 - T2-7, X81125, C.viride | ATCC 43977 | DSM 6836, X81125, C.viride

Clostridium xylanolyticum [VP] Rogers and Baecker 1991 - ATCC 49623, X71855, C.xylanoly | DSM 6555, X76739, C.xylanol2

Clostridium xylanovorans [VP] Mechichi et al. 2000 - HESP1, AF116920 | DSM 12503

Genus II. Acetivibrio [VP]

Acetivibrio cellulolyticus [VP (T)] Patel et al. 1980 = *Acetivibrio cellulosolvens* (later heterotypic synonym) - CD2 | ATCC 33288, L35516, Acv.cellyt | DSM 1870 | NRC 2248

†*Acetivibrio cellulosolvens* [VP] Khan et al. 1984 = *Acetivibrio cellulolyticus* (earlier heterotypic synonym) - BAS | ATCC 35928, L35515, Acv.celly2 | NRC 2936

Acetivibrio ethanolgignens [VP] Robinson and Ritchie 1981 - 77-6 | ATCC 33324 | DSM 3005

Acetivibrio multivorans [VP] Tanaka et al. 1992 - PeC1 | ATCC 49731 | DSM 6139

Genus III. Acidaminobacter [VP]

Acidaminobacter hydrogenoformans [VP (T)] Stams and Hansen 1985 - glu 65, AF016691, Aab.hydfor | DSM 2784

Genus IV. Alkaliphilus [VP]

Alkaliphilus transvaalensis [VP (T)] Takai et al. 2001 - SAGM1 | ATCC 700919 | JCM 10712

Genus V. Anaerobacter [VP]

Anaerobacter polyendosporus [VP (T)] Duda et al. 1996 - PS-1, Y18189 | DSM 5272 | VKM B-1724

Genus VI. ***Caminicella*** [VP]

Caminicella sporogenes [VP (T)] Alain et al. 2002 - AM1114, AJ320233 | CIP 107141 | DSM 14501

Genus VII. Caloramator [VP]

Caloramator fervidus [VP (T)] (Patel et al. 1987) Collins et al. 1994 <- *Clostridium fervidum* (basonym) - Rt4-B1 | ATCC 43204, L09187, Clr.fervid | DSM 5463

Caloramator coolhaasii [VP] Plugge et al. 2000 - Z, AF104215 | DSM 12679

Caloramator indicus [VP] Chrisostomos et al. 1996 - IndiB4, X75788, Clr.indicu | ACM 3982

Caloramator proteoclasticus [VP] Tarlera et al. 1997 - U | DSM 10124

Caloramator viterbiensis [VP] Seyfried et al. 2002 - JW/MS-VS5, AF181848 | DSM 13723 | ATCC PTA 584

Genus VIII. Caloranaerobacter [VP]

Caloranaerobacter azorensis [VP] Wery et al. 2001 - MV1087, AJ272422 | CNCM I-2543 | DSM 13643

Genus IX. Coprobacillus [VP]

Coprobacillus cateniformis [VP (T)] Kageyama and Benno 2000 - RCA1-24 | JCM 10604, AB030219

Genus X. Dorea [VP]

Dorea formicigenerans [VP (T)] (Holdeman and Moore 1974) Taras et al. 2002 [316] <- *Eubacterium formicigenerans* (basonym) - ATCC 27755, L34619, Eub.formic | DSM 3992 | JCM 10342 | VPI C8-13

Dorea longicatena [VP] Taras et al. 2002 - 111-35, AJ132842 | CCUG 45247 | DSM 13814 | JCM 11232

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Genus XI. ***Faecalibacterium*** [VP]
Faecalibacterium prausnitzii [VP (T)] (Hauduroy et al. 1937) Duncan et al. 2002 <- *Fusobacterium prausnitzii* (basonym) - ATCC 27768, AJ413954 | NCIMB 13872
Genus XII. Natronincola [VP]
Natronincola histidinovorans [VP (T)] Zhilina et al. 1999 - Z-7940, Y16716 | DSM 11416
Genus XIII. Oxobacter [VP]
Oxobacter pfennigii [VP (T)] (Krumholz and Bryant 1985) Collins et al. 1994 <- *Clostridium pfennigii* (basonym) - V5-2 | DSM 3222, X77838, Ox.pfennig
Genus XIV. Sarcina [AL]
Sarcina ventriculi [AL (T)] Goodsir 1842 - ATCC 19633 | ATCC 29068 | DSM 286, X76649, Src.vntri2
Sarcina maxima [AL] Lindner 1888 - K66 | ATCC 33910 | DSM 316, X76650, Src.maxima | IMET B 103
Genus XV. Sporobacter [VP]
Sporobacter termitidis [VP (T)] Grech-Mora et al. 1996 - SYR, Z49863, Sb.termiti | DSM 10068
Genus XVI. ***Tepidibacter*** [VP]
Tepidibacter thalassicus [VP (T)] Slobodkin et al. 2003 - SC 562, AY158079 | DSM 15285 | UNIQEM 215
Genus XVII. Thermobrachium [VP]
Thermobrachium celere [VP (T)] Engle et al. 1996 - JW/YL-NZ35, X99238, Tmb.celer1 | DSM 8682
Genus XVIII. Thermohalobacter [VP]
Thermohalobacter berrensis [VP (T)] Cayol et al. 2000 - CTT3 | CNCM 105955, AF113543
Genus XIX. Tindallia [VP]
Tindallia magadiensis [VP (T)] Kevbrin et al. 1999 - Z-7934, Y15626 | DSM 10318

Family II. "*Lachnospiraceae*"
Genus I. Lachnospira [AL]
Lachnospira multipara [AL (T)] Bryant and Small 1956 - D32 | ATCC 19207 | DSM 3073
Lachnospira pectinoschiza [VP] Cornick et al. 1994 - 150-1, L14675, Lcn.pectin | ATCC 49827
Genus II. Acetitomaculum [VP]
Acetitomaculum ruminis [VP (T)] Greening and Leedle 1995 - 139B, M59083, Acm.rumini | ATCC 43876, M59083, Acm.rumini | DSM 5522
Genus III. Anaerofilum [VP 318]
Anaerofilum pentosovorans [VP (T)] Zellner et al. 1996 - Fae, X97852, Af.pentosv | DSM 7168, X97852, Af.pentosv
Anaerofilum agile [VP] Zellner et al. 1996 - DSM 4272, X98011, Af.agile1 | F, X98011, Af.agile1
Genus IV. ***Anaerostipes*** [VP]
Anaerostipes caccae [VP (T)] Schwiertz et al. 2002 - L1-92, AJ270487 | DSM 14662 | NCIMB 13811
Genus V. Butyrivibrio [AL]
Butyrivibrio fibrisolvens [AL (T)] Bryant and Small 1956 - ATCC 19171, U41172, Btv.fbrsl6 | DSM 3071
Butyrivibrio crossotus [AL] Moore et al. 1976 - ATCC 29175 | DSM 2876 | VPI T9-40A
Butyrivibrio hungatei [VP] Kopecny et al. 2003 - JK 615, AJ428553 | ATCC BAA-456 | DSM 14810
Genus VI. Catenibacterium [VP]
Catenibacterium mitsuokai [VP (T)] Kageyama and Benno 2000 - RCA14-39 | JCM 10609, AB030224
Genus VII. Catonella [VP]

[317] The type strain designation in the species description (111–35) differs from the type strain designation in GenBank (III-35)
[318] Placement of *Anaerofilum* is based on Ludwig's recommendation. Position within PCA plots suggest that the genus may still be misplaced.

Catonella morbi [VP (T)] Moore and Moore 1994 - ATCC 51271, X87151, Cn.morbi | VPI D154F-12

Genus VIII. Coprococcus [AL]

Coprococcus eutactus [AL (T)] Holdeman and Moore 1974 - ATCC 27759, D14148, Cop.eutact | VPI C33-22

Coprococcus catus [AL] Holdeman and Moore 1974 - ATCC 27761 | NCTC 11835 | VPI C6-61

Coprococcus comes [AL] Holdeman and Moore 1974 - ATCC 27758 | VPI C1-38

Genus IX. Johnsonella [VP]

Johnsonella ignava [VP (T)] Moore and Moore 1994 - ATCC 51276, X87152, Jhn.ignava | VPI D94B-12

Genus X. Lachnobacterium [VP]

Lachnobacterium bovis [VP (T)] Whitford et al. 2001 - YZ 87 | ATCC BAA-151, AF298663 | DSM 14045 | LRC 5382

Genus XI. Pseudobutyrivibrio [VP]

Pseudobutyrivibrio ruminis [VP (T)] van Gylswyk et al. 1996 - A12-1 | DSM 9787, X95893, Pv.ruminis

Pseudobutyrivibrio xylanivorans [VP] Kopecny et al. 2003 - MZ 5, AJ428548 | ATCC BAA-455 | DSM 14809

Genus XII. Roseburia [VP]

Roseburia cecicola [VP (T)] Stanton and Savage 1983 - GM | ATCC 33874, L14676, Rsb.cecic

Roseburia intestinalis [VP] Duncan et al. 2002 - L1-82, AJ312385 | DSM 14610 | NCIMB 13810

Genus XIII. Ruminococcus [AL]

Ruminococcus flavefaciens [AL (T)] Sijpesteijn 1948 - C94 | ATCC 19208, L76603, Ruc.flvfa3 | NCDO 2213

Ruminococcus albus [AL] Hungate 1957 - 7 | ATCC 27210, L76598, Ruc.albus2 | DSM 20455

Ruminococcus bromii [AL] Moore et al. 1972 - ATCC 27255, L76600, Ruc.bromi2 | VPI 6883

Ruminococcus callidus [AL] Holdeman and Moore 1974 - ATCC 27760, L76596, Ruc.calli2 | VPI 57-31

Ruminococcus gnavus [AL] Moore et al. 1976 - ATCC 29149, D14136, Ruc.gnavus | ATCC 29149, L76597, Ruc.gnavu2 | ATCC 29149, X94967, Ruc.gnavu3 | VPI C7-9

Ruminococcus hansenii [VP] (Holdeman and Moore 1974) Ezaki et al. 1994 <- *Streptococcus hansenii* (basonym) - ATCC 27752, D14155, Ruc.hanse2 | ATCC 27752, M59114, Ruc.hansen | DSM 20583 | VPI C7-24

Ruminococcus hydrogenotrophicus [VP] Bernalier et al. 1997 - S5a33, X95624, Ruc.hygeno | DSM 10507

Ruminococcus lactaris [AL] Moore et al. 1976 - ATCC 29176, L76602, Ruc.lactar | VPI X6-29

Ruminococcus luti [VP] Simmering et al. 2002 - BInIX, AJ133124 | CCUG 45635 | DSM 14534

Ruminococcus obeum [AL] Moore et al. 1976 - ATCC 29174, L76601, Ruc.obeum2 | VPI B3-21

†Ruminococcus palustris [VP] Zhilina et al. 1997 -> *Trichococcus palustris* - Z-7189 | DSM 9172, AJ296179

†Ruminococcus pasteurii [VP] Schink 1985 -> *Lactosphaera pasteurii* - KoTa2, X87150, Lcs.paster | ATCC 35945, L76599, Lcs.paste2 | DSM 2381

Ruminococcus productus [VP] (Prévot 1941) Ezaki et al. 1994 <- *Peptostreptococcus productus* (basonym) - 2396 | ATCC 27340, D14144, Ruc.produc | ATCC 27340, L76595, Ruc.produ2 | ATCC 27340, X94966, Ruc.produ3 | DSM 2950 | VPI 4299

Ruminococcus schinkii [VP] Rieu-Lesme et al. 1997 - B, X94965, Ruc.schink | DSM 10518

Ruminococcus torques [AL] Holdeman and Moore 1974 - ATCC 27756, D14137, Ruc.torque | ATCC 27756, L76604, Ruc.torqu2 | VPI B2-51

Genus XIV. ***Shuttleworthia*** [VP]

Shuttleworthia satelles [VP (T)] Downes et al. 2002 - CCUG 45864 | DSM 14600 | VPI D143K-13, AF399956

Genus XV. Sporobacterium [VP]

Sporobacterium olearium [VP (T)] Mechichi et al. 1999 - SR1, AF116854 | DSM 12504

Family III. "Peptostreptococcaceae"

Genus I. Peptostreptococcus [AL]

Peptostreptococcus anaerobius [AL (T)] (Foubert and Douglas 1948) Douglas 1957 - ATCC 27337, D14150, Pps.anaer2 | ATCC 27337, L04168, Pps.anaero | DSM 2949 | VPI 4330

†Peptostreptococcus asaccharolyticus [VP] (Distaso 1912) Ezaki et al. 1983 <- *Peptococcus asaccharolyticus* (basonym) -> *Peptoniphilus asaccharolyticus* - BAI | ATCC 14963, D14138, Pps.asaclt | DSM 20463 | NCIB 10074 | UW 228

†Peptostreptococcus barnesae [VP] Schiefer-Ullrich and Andreesen 1986 -> *Gallicola barnesae* - HKB-5 | ATCC 49795 | DSM 3244

†Peptostreptococcus harei [VP] Murdoch et al. 1997 -> *Peptoniphilus harei* - SBH 432, Y07839, Pps.harei1 | CIP 105323 | DSM 10020, Y07839, Pps.harei1

†Peptostreptococcus heliotrinreducens [VP] (Lanigan 1983) Ezaki and Yabuuchi 1986 <- *Peptococcus heliotrinreducens* (basonym) -> *Slackia heliotrinireducens* - RHS 1 | ATCC 29202, AF101241 | DSM 20476 | NCTC 11029

†Peptostreptococcus hydrogenalis [VP] Ezaki et al. 1990 -> *Anaerococcus hydrogenalis* - ATCC 49630 | DSM 7454 | GIFU 7662, D14140, Pps.hygenl | JCM 7635

†Peptostreptococcus indolicus [VP] (Christiansen 1934) Ezaki et al. 1983 <- *Peptococcus indolicus* (basonym) -> *Peptoniphilus indolicus* - R13 | ATCC 29427, D14147, Pps.indoli | CCM 5987 | DSM 20464

†Peptostreptococcus ivorii [VP] Murdoch et al. 1997 -> *Peptoniphilus ivorii* - SBH 093, Y07840, Pps.ivorii | CIP 105325 | DSM 10022, Y07840, Pps.ivorii

†Peptostreptococcus lacrimalis [VP] Li et al. 1992 -> *Peptoniphilus lacrimalis* - DSM 7455 | GIFU 7667, D14141, Pps.lacrim | JCM 8139, D14141, Pps.lacrim

†Peptostreptococcus lactolyticus [VP] Li et al. 1992 -> *Anaerococcus lactolyticus* - ATCC 51172 | DSM 7456 | GIFU 8586, D14154, Pps.laclyt | JCM 8140, D14154, Pps.laclyt

†Peptostreptococcus magnus [VP] (Prevot 1933) Ezaki et al. 1983 <- *Peptococcus magnus* (basonym) -> *Finegoldia magna* - 2974 | ATCC 15794, D14149, D14149, Pps.magnus | DSM 20470

†Peptostreptococcus micros [AL] (Prevot 1933) Smith 1957 = *Peptococcus glycinophilus* (later heterotypic synonym) -> *Micromonas micros* - 3024A | ATCC 33270 | DSM 20468 | VPI 5464

†Peptostreptococcus octavius [VP] Murdoch et al. 1997 -> *Anaerococcus octavius* - Davey 1 | DSM 11663 | NCTC 9810, Y07841, Pps.octavi

†Peptostreptococcus parvulus [AL] (Weinberg et al. 1937) Smith 1957 -> *Streptococcus parvulus* - ATCC 33793 | DSM 20469 | VPI 0546

†Peptostreptococcus prevotii [VP] (Foubert and Douglas 1948) Ezaki et al. 1983 <- *Peptococcus prevotii* (basonym) -> *Anaerococcus prevotii* - PC 1 | ATCC 9321, D14139, Pps.prevot | DSM 20548

†Peptostreptococcus productus [AL] (Prévot 1941) Smith 1957 -> *Ruminococcus productus* - 2396 | ATCC 27340, D14144, Ruc.produc | ATCC 27340, L76595, Ruc.produ2 | DSM 2950 | VPI 4299

†Peptostreptococcus tetradius [VP] Ezaki et al. 1983 -> *Anaerococcus tetradius* - ATCC 35098 | CCM 3634 | DSM 2951 | GIFU 7672, D14142, Pps.tetrad | JCM 1964

†Peptostreptococcus vaginalis [VP] Li et al. 1992 -> *Anaerococcus vaginalis* - ATCC 51170 | DSM 7457 | GIFU 12669, D14146, Pps.vagnls | JCM 8138, D14146, Pps.vagnls

Genus II. Anaerococcus [VP]

Anaerococcus prevotii VP (T) (Foubert and Douglas 1948) Ezaki et al. 2001 [319] <- *Peptostreptococcus prevotii* (basonym) - PC 1 | ATCC 9321, D14139, Pps.prevot | DSM 20548

Anaerococcus hydrogenalis VP (Ezaki et al. 1990) Ezaki et al. 2001 <- *Peptostreptococcus hydrogenalis* (basonym) - ATCC 49630 | DSM 7454 | GIFU 7662, D14140, Pps.hygenl | JCM 7635

Anaerococcus lactolyticus VP (Li et al. 1992) Ezaki et al. 2001 <- *Peptostreptococcus lactolyticus* (basonym) - ATCC 51172 | DSM 7456 | GIFU 8586, D14154, Pps.laclyt | JCM 8140, D14154, Pps.laclyt

Anaerococcus octavius VP (Murdoch et al. 1997) Ezaki et al. 2001 [320] <- *Peptostreptococcus octavius* (basonym) - Davey 1 | DSM 11663 | NCTC 9810, Y07841, Pps.octavi

Anaerococcus tetradius VP (Ezaki et al. 1983) Ezaki et al. 2001 <- *Peptostreptococcus tetradius* (basonym) - ATCC 35098 | CCM 3634 | DSM 2951 | GIFU 7672, D14142, Pps.tetrad | JCM 1964

Anaerococcus vaginalis VP (Li et al. 1992) Ezaki et al. 2001 <- *Peptostreptococcus vaginalis* (basonym) - ATCC 51170 | DSM 7457 | GIFU 12669, D14146, Pps.vagnls | JCM 8138, D14146, Pps.vagnls

Genus III. Filifactor VP

Filifactor villosus VP (T) (Love et al. 1979) Collins et al. 1994 <- *Clostridium villosum* (basonym) - ATCC 33388 | DSM 1645, X73452, Flf.villos | NCTC 11220 | VPB 3349

Filifactor alocis VP (Cato et al. 1985) Jalava and Eerola 1999 <- *Fusobacterium alocis* (basonym) - ATCC 35896, AJ006962 | ATCC 35896, X55406 | VPI D40B-5

Genus IV. Finegoldia VP

Finegoldia magna VP (T) (Prevot 1933) Murdoch and Shah 2000 <- *Peptostreptococcus magnus* (basonym) - ATCC 15794, D14149 | DSM 20470 | NCTC 11804 | GIFU 7629

Genus V. Fusibacter VP

Fusibacter paucivorans VP (T) Ravot et al. 1999 - SEBR 4211, AF050099 | DSM 12116

Genus VI. Gallicola VP

Gallicola barnesae VP (T) (Schiefer-Ullrich and Andreesen 1986) Ezaki et al. 2001 [321] <- *Peptostreptococcus barnesae* (basonym) - HKB-5 | ATCC 49795 | DSM 3244, AB038361

Genus VII. Helcococcus VP [322]

Helcococcus kunzii VP (T) Collins et al. 1993 - n 22 | ATCC 51366 | DSM 10548 | NBRC 15552 | NCFB 2900, X69837, Hlc.kunzii

Helcococcus ovis VP Collins et al. 1999 - S840-96-1 | CCUG 37441, Y16279

Genus VIII. Micromonas VP [323]

Micromonas micros VP (T) (Prevot 1933) Murdoch and Shah 2000 <- *Peptostreptococcus micro* (basonym) - DSM 20468

Genus IX. Peptoniphilus VP

Peptoniphilus asaccharolyticus VP (T) (Distaso 1912) Ezaki et al. 2001 [324] <- *Peptostreptococcus asaccharolyticus* (basonym) - BAI | ATCC 14963, D14138, Pps.asaclt | DSM 20463 | GIFU 7656 | NCIB 10074 | UW 228

[319] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[320] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[321] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[322] Placement of *Helcococcus* is based on Ludwig's recommendation. This placement is not consistent with PCA plots.

[323] The name *Micromonas* is illegitimate because of precedence of the fungal genus *Micromonas*.

[324] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Peptoniphilus harei [VP] (Murdoch et al. 1997) Ezaki et al. 2001 [325] <- *Peptostreptococcus harei* (basonym) - SBH 432, Y07839, Pps.harei1 | CIP 105323 | DSM 10020, Y07839, Pps.harei1

Peptoniphilus indolicus [VP] (Christiansen 1934) Ezaki et al. 2001 [326] <- *Peptostreptococcus indolicus* (basonym) - R13 | ATCC 29427, D14147, Pps.indoli | CCM 5987 | DSM 20464

Peptoniphilus ivorii [VP] (Murdoch et al. 1997) Ezaki et al. 2001 [327] <- *Peptostreptococcus ivorii* (basonym) - SBH 093, Y07840, Pps.ivorii | CIP 105325 | DSM 10022, Y07840, Pps.ivorii

Peptoniphilus lacrimalis [VP] (Li et al. 1992) Ezaki et al. 2001 <- *Peptostreptococcus lacrimalis* (basonym) - DSM 7455 | GIFU 7667, D14141, Pps.lacrim | JCM 8139, D14141, Pps.lacrim

Genus X. Sedimentibacter [VP]

Sedimentibacter hydroxybenzoicus [VP (T)] (Zhang et al. 1994) Breitenstein et al. 2002 <- *Clostridium hydroxybenzoicum* (basonym) - JW/Z-1, L11305, C.hybenzoi | ATCC 51151 | DSM 7310

Sedimentibacter saalensis [VP] Breitenstein et al. 2002 - ZF2, AJ404680 | ATCC BAA-283 | DSM 13558

Genus XI. Sporanaerobacter [VP]

Sporanaerobacter acetigenes [VP (T)] Hernandez-Eugenio et al. 2002 - Lup 33 , AF358114 | CIP 106730 | DSM 13106,

Genus XII. Tissierella [VP]

Tissierella praeacuta [VP (T)] (Tissier 1908) Collins and Shah 1986 <- *Bacteroides praeacutus* (basonym) - ATCC 25539, X80833, Tss.praea2 | NCTC 11158

Tissierella creatinini [VP] Farrow et al. 1995 - BN11 | DSM 9508

Tissierella creatinophila [VP] Harms et al. 1998 - KRE 4, X80227, Tss.creatn | DSM 6911

Family IV. "Eubacteriaceae"

Genus I. Eubacterium [AL]

Eubacterium limosum [AL (T)] (Eggerth 1935) Prevot 1938 - ATCC 8486, M59120, Eub.limosu | DSM 20543 | NCIB 9763

Eubacterium acidaminophilum [VP] Zindel et al. 1989 - a1-2 | ATCC 49065 | DSM 3953, AF071416, Eub.acidam

†Eubacterium aerofaciens [AL] (Eggerth 1935) Prevot 1938 -> *Collinsella aerofaciens* - ATCC 25986 | DSM 3979 | VPI 1003

Eubacterium aggregans [VP] Mechichi et al. 2000 - SR12, AF073898 | DSM 12183, AF073898

†Eubacterium alactolyticum [AL] (Prevot and Taffanel 1942) Holdeman and Moore 1970 -> *Pseudoramibacter alactolyticus* - DO-4 | ATCC 23263, AB036759 | DSM 3980 | VPI 0416

Eubacterium angustum [VP] Beuscher and Andreesen 1985 - MK-1 | ATCC 43737, L34612, Eub.angust | DSM 1989

Eubacterium barkeri [VP] (Stadtman et al. 1972) Collins et al. 1994 <- *Clostridium barkeri* (basonym) - ATCC 25849, M23927, Eub.barker | DSM 1223 | NCIB 10623 | VKM B-1775 | VPI 5359

Eubacterium biforme [AL] (Eggerth 1935) Prevot 1938 - ATCC 27806, M59230, Eub.biform | DSM 3989 | VPI C17-5

Eubacterium brachy [VP] Holdeman et al. 1980 - ATCC 33089, U13038, Eub.brach2 | ATCC 33089, Z36272, Eub.brachy | DSM 3990 | VPI D6B-23

[325] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[326] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[327] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Eubacterium budayi [AL] (Le Blaye and Guggenheim 1914) Holdeman and Moore 1970 - ECI | ATCC 25541 | DSM 3981 | VPI 0250

Eubacterium callanderi [VP] Mountfort et al. 1988 - FD | ATCC 49165 | DSM 3662, X96961, Eub.callan | JCM 10284

Eubacterium cellulosolvens [AL] (Bryant et al. 1958) Holdeman and Moore 1972 - Bryant B348 | Gylswyk and Hoffmann 6 | ATCC 43171, L34613, Eub.cellul | ATCC 43171, X71860, Eub.cellu2

Eubacterium combesii [AL] (Prevot and Laplanche 1947) Holdeman and Moore 1970 - A13D | ATCC 25545, L34614, Eub.combes | DSM 20696 | VPI 0136

Eubacterium contortum [AL] (Prevot 1947) Holdeman et al. 1971 - 113 VI | ATCC 25540, L34615, Eub.contor | DSM 3982 | VPI 0119

Eubacterium coprostanoligenes [VP] Freier et al. 1994 - HL | ATCC 5122

Eubacterium cylindroides [AL] (Rocchi 1908) Holdeman and Moore 1970 - ATCC 27803, L34617, Eub.cylin2 | DSM 3983 | JCM 10261 | VPI 3654

Eubacterium desmolans [VP] Morris et al. 1986 - ATCC 43058, L34618, Eub.desmol

Eubacterium dolichum [AL] Moore et al. 1976 - ATCC 29143, L34682, Eub.dolich | DSM 3991 | VPI C9-20

Eubacterium eligens [AL] Holdeman and Moore 1974 - ATCC 27750, L34420, Eub.eligen | DSM 3376 | VPI C15-48

†*Eubacterium exiguum* [VP] Poco et al. 1996 -> *Slackia exigua* - S-7 | ATCC 700122, AF101240, Slk.exigua

Eubacterium fissicatena [AL] Taylor 1972 - AzA | ATCC 33661 | DSM 3598 | NCIB 10446

†*Eubacterium formicigenerans* [AL] Holdeman and Moore 1974 -> *Dorea formicigenerans* - ATCC 27755, L34619, Eub.formic | DSM 3992 | JCM 10342 | VPI C8-13

†*Eubacterium fossor* [VP] Bailey and Love 1986 -> *Atopobium fossor* - ATCC 43386, L34620, Eub.fossor | NCTC 11919 | VPB 2127

Eubacterium hadrum [AL] Moore et al. 1976 - ATCC 29173 | DSM 3319 | VPI B2-52

Eubacterium hallii [AL] Holdeman and Moore 1974 - ATCC 27751, L34621, Eub.hallii | DSM 3353 | JCM 7789 | VPI B4-27

Eubacterium infirmum [VP] Cheeseman et al. 1996 - NCTC 12940 | NCTC 12940, U13039, Eub.infir2

†*Eubacterium lentum* [AL] (Eggerth 1935) Prevot 1938 -> *Eggerthella lenta* - ATCC 25559, AF292375 | DSM 2243 | VPI 0255

Eubacterium minutum [VP] Poco et al. 1996 = *Eubacterium tardum* (later heterotypic synonym) - M-6 | ATCC 700079, AB020885, Eub.minut1 | ATCC 700079, AJ005636, Eub.minut2

Eubacterium moniliforme [AL] (Repaci 1910) Holdeman and Moore 1970 - ATCC 25546, L34622, Eub.monili | DSM 3984 | VPI 0142B

Eubacterium multiforme [AL] (Distaso 1911) Holdeman and Moore 1970 - ATCC 25552 | DSM 20694 | VPI 4154

Eubacterium nitritogenes [AL] Prevot 1940 - ATCC 25547 | DSM 3985 | VPI 0263

Eubacterium nodatum [VP] Holdeman et al. 1980 - ATCC 33099, U13041, Eub.nodat2 | ATCC 33099, Z36274, Eub.nodatm | DSM 3993 | VPI D6A-5

Eubacterium oxidoreducens [VP] Krumholz and Bryant 1986 - G41 | DSM 3217

Eubacterium plautii [VP] (Seguin 1928) Hofstad and Aasjord 1982 <- *Fusobacterium plauti* (basonym) - Pr S1 | ATCC 29863 | DSM 4000 | VPI 0310

Eubacterium plexicaudatum [AL] Wilkins et al. 1974 - VPI 7582

Eubacterium pyruvativorans [VP] Wallace et al. 2003 - I-6, AJ310335 | ATCC BAA-574 | NCIMB 13911

Eubacterium ramulus [AL] Moore et al. 1976 - ATCC 29099, L34623, Eub.ramulu | DSM 3995

Eubacterium rectale [AL] (Hauduroy et al. 1937) Prevot 1938 - ATCC 33656, L34627, Eub.rectal | DSM 3377 | VPI 0989

Eubacterium ruminantium [AL] Bryant 1959 - GA 195, AB008552, Eub.rumina | ATCC 17233 | DSM 20704

Eubacterium saburreum [AL] (Prevot 1966) Holdeman and Moore 1970 - ATCC 33271 | DSM 3986 | VPI 11763

Eubacterium saphenum [VP] Uematsu et al. 1993 - U 164-47 | ATCC 49989, U65987, Eub.saphen

Eubacterium siraeum [AL] Moore et al. 1976 - ATCC 29066, L34625, Eub.siraeu | DSM 3996 | VPI T9-50-2

†*Eubacterium suis* [VP] Wegienek and Reddy 1982 -> *Actinomyces suis* - ATCC 33144 | DSM 20639, S83623, Abl.suis | Soltys 50052

Eubacterium sulci [VP] (Cato et al. 1985) Jalava and Eerola 1999 <- *Fusobacterium sulci* (basonym) - ATCC 35585, AJ006963 | VPI D45A-29A

Eubacterium tarantellae [AL] Udey et al. 1977 - ATCC 29255, L34624, Eub.tarant | DSM 3997

†*Eubacterium tardum* [VP] Cheeseman et al. 1996 = *Eubacterium minutum* (earlier heterotypic synonym) - NCTC 12941 | NCTC 12941, U13037, Eub.tardum

Eubacterium tenue [AL] (Bergey et al. 1923) Holdeman and Moore 1970 - ATCC 25553, M59118, Eub.tenue | DSM 20695

†*Eubacterium timidum* [VP] Holdeman et al. 1980 -> *Mogibacterium timidum* - ATCC 33093, U13042, Eub.timid2 | ATCC 33093, Z36296, Eub.timidm | VPI D1B-22

Eubacterium tortuosum [AL] (Debono 1912) Prevot 1938 - ATCC 25548, L34683, Eub.tortuo | DSM 3987 | VPI 1084B

Eubacterium uniforme [VP] van Gylswyk and van der Toorn 1985 - X3C39 | ATCC 35992, L34626, Eub.unifor

Eubacterium ventriosum [AL] (Tissier 1908) Prevot 1938 - ATCC 27560, L34421, Eub.ventri | DSM 3988 | VPI 1013B

Eubacterium xylanophilum [VP] van Gylswyk and van der Toorn 1985 - X6C58 | ATCC 35991, L34628, Eub.xylano

Eubacterium yurii subspecies yurii [VP] Margaret and Krywolap 1986 - SM14 | ATCC 43714

Eubacterium yurii subspecies margaretiae [VP] Margaret and Krywolap 1986 - SM65

Eubacterium yurii subspecies schtitka [VP] Margaret and Krywolap 1986 - SMN | ATCC 43716

Genus II. Acetobacterium [AL]

Acetobacterium woodii [AL (T)] Balch et al. 1977 - WB1 | ATCC 29683 | DSM 1030, X96954, Atb.woodii | JCM 2381

Acetobacterium bakii [VP] Kotsyurbenko et al. 1997 - Z-4391 | Z-S11 | DSM 8239, X96960, Atb.bakii1

Acetobacterium carbinolicum [VP] Eichler and Schink 1985 - WoProp 1 | DSM 2925, X96956, Atb.carbin

Acetobacterium fimetarium [VP] Kotsyurbenko et al. 1997 - Z-4290 | Z-M13 | DSM 8238, X96959, Atb.fimetr

Acetobacterium malicum [VP] Tanaka and Pfennig 1990 - MuME1 | DSM 4132, X96957, Atb.malicu

Acetobacterium paludosum [VP] Kotsyurbenko et al. 1997 - Z-4092 | Z-B12 | DSM 8237, X96958, Atb.paludo

Acetobacterium tundrae [VP] Simankova et al. 2001 [328] - Z-4493 | DSM 9173, AJ297449

Acetobacterium wieringae [VP] Braun and Gottschalk 1983 - C | DSM 1911, X96955, Atb.wierin | JCM 2380

Genus III. Anaerovorax [VP]

Anaerovorax odorimutans [VP (T)] Matthies et al. 2000 - NorPut1, AJ251215 | DSM 5092

Genus IV. Mogibacterium [VP]

Mogibacterium pumilum [VP (T)] Nakazawa et al. 2000 - D2-18 | ATCC 700696, AB021701

Mogibacterium diversum [VP] Nakazawa et al. 2002 - HM-7 | ATCC 700923, AB037874 | JCM 11205

[328] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Mogibacterium neglectum [VP] Nakazawa et al. 2002 - P9a-h | ATCC 700924, AB037875 | JCM 11204

Mogibacterium timidum [VP] (Holdeman et al. 1980) Nakazawa et al. 2000 <- *Eubacterium timidum* (basonym) - ATCC 33093, U13042 | ATCC 33093, Z36296 | VPI D1B-22

Mogibacterium vescum [VP] Nakazawa et al. 2000 - D5-2 | ATCC 700697, AB021702

Genus V. Pseudoramibacter [VP]

Pseudoramibacter alactolyticus [VP (T)] (Prevot and Taffanel 1942) Willems and Collins 1996 <- *Eubacterium alactolyticum* (basonym) - DO-4 | ATCC 23263, AB036759 | DSM 3980 | VPI 0416

Family V. Peptococcaceae [AL] [329]

Genus I. Peptococcus [AL (T)]

Peptococcus niger [AL (T)] (Hall 1930) Kluyver and van Niel 1936 - ATCC 27731 | DSM 20475 | VPI 7953

†Peptococcus asaccharolyticus [AL] (Distaso 1912) Douglas 1957 -> *Peptostreptococcus asaccharolyticus* - UW 228 | ATCC 14963, D14138, Pps.asaclt | DSM 20463 | NCIB 10074

†Peptococcus glycinophilus [AL] (Cardon and Barker 1946) Douglas 1957 = *Peptostreptococcus micros* (earlier heterotypic synonym) - ATCC 23195

†Peptococcus heliotrinreducens [VP] Lanigan 1983 -> *Peptostreptococcus heliotrinireducens* - RHS1 | ATCC 29202 | DSM 20476 | NCTC 11029

†Peptococcus indolicus [AL] (Christiansen 1934) Sorensen 1975 -> *Peptostreptococcus indolicus* - R13 | ATCC 29427, D14147, Pps.indoli | CCM 5987 | DSM 20464

†Peptococcus magnus [AL] (Prevot 1933) Holdemann and Moore 1972 -> *Peptostreptococcus magnus* - ATCC 15794, D14149, Pps.magnus | DSM 20470

†Peptococcus prevotii [AL] (Foubert and Douglas 1948) Douglas 1957 -> *Peptostreptococcus prevotii* - PC 1 | ATCC 9321, D14139, Pps.prevot | DSM 20548

†Peptococcus saccharolyticus [AL] (Foubert and Douglas 1948) Douglas 1957 -> *Staphylococcus saccharolyticus* - S1 | ATCC 14953, L37602, Stp.sacly2 | DSM 20359

Genus II. Carboxydothermus [VP]

Carboxydothermus hydrogenoformans [VP (T)] Svetlichny et al. 1991 - Z-2901 | DSM 6008

Genus III. Dehalobacter [VP]

Dehalobacter restrictus [VP (T)] Holliger et al. 1998 - PER-K23, U84497 | DSM 9455

Genus IV. Desulfitobacterium [VP]

Desulfitobacterium dehalogenans [VP (T)] Utkin et al. 1994 - JW/IU-DC1, L28946, Dfi.dehalo | ATCC 51507 | DSM 9161

Desulfitobacterium chlororespirans [VP] Sanford et al. 2001 [330] - Co23, U68528 | ATCC 700715 | DSM 11544

Desulfitobacterium frappieri [VP] Bouchard et al. 1996 - PCP-1, U40078, Dfi.frappi

Desulfitobacterium hafniense [VP] Christiansen and Ahring 1996 - DCB-2, X94975, Dfi.hafnie | DSMZ 10664

Desulfitobacterium metallireducens [VP] Finneran et al. 2002 [331] - 853-15A | ATCC BAA-636, AF297871

Genus V. Desulfonispora [VP]

Desulfonispora thiosulfatigenes [VP (T)] Denger et al. 1999 - GKNTAU, Y18214 | ATCC 700533 | DSM 11270

Genus VI. Desulfosporosinus [VP]

Desulfosporosinus orientis [VP (T)] (Campbell and Postgate 1965) Stackebrandt et al. 1997 <- *Desulfotomaculum orientis* (basonym) - Singapore I, M34417, Dfm.orient |

[329] Strömple and Tindall suggest that the original placement of *Anaeroarcus, Anaerosinus, Anaerovibrio, Centipeda, Dendrosporobacter, Mitsukella, Propionispira*, and *Succinispira* were misplaced within the *Peptococcaceae*. These genera have been moved to the *Acidominococaceae* on the based of combined sequence and lipid data.

[330] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[331] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

ATCC 19365 | DSM 765, Y11570, Ds.orienti | NCIB 8382, M34417, Dfm.orient | VKM B-1628

Desulfosporosinus meridiei [VP] Robertson et al. 2001 - S10 | DSM 13257 | NCIMB 13706

Genus VII. Desulfotomaculum [AL]

Desulfotomaculum nigrificans [AL (T)] (Werkman and Weaver 1927) Campbell and Postgate 1965 - Delft 74 | ATCC 19858 | ATCC 19998 | DSM 574 | NBRC 13698 | NCIB 8395, X62176, Dfm.nigrif

Desulfotomaculum acetoxidans [AL] Widdel and Pfennig 1977 - 5575 | ATCC 49208 | DSM 771, Y11566, Dfm.acetox | VKM B-1644

Desulfotomaculum aeronauticum [VP] Hagenauer et al. 1997 - 9 | DSM 10349, X98407, Dfm.aerona

Desulfotomaculum alkaliphilum [VP] Pikuta et al. 2000 - S1 | DSM 12257, AF097024

Desulfotomaculum antarcticum [VP] (ex Iizuka et al. 1988 - IAM 64

Desulfotomaculum auripigmentum [VP] Newman et al. 2000 - OREX-4 | DSM 13351

Desulfotomaculum australicum [VP] Love et al. 1993 - AB33, M96665, Dfm.austra | ACM 3917

Desulfotomaculum geothermicum [VP] Daumas et al. 1990 - BSD | ATCC 49053 | DSM 3669, X80789, Dfm.geothr | DSM 3669, Y11567, Dfm.geoth2

Desulfotomaculum gibsoniae [VP] Kuever et al. 1999 - Groll, Y11576 | DSM 7213

Desulfotomaculum guttoideum [VP] Gogotova and Vainstein 1986 - 50 | DSM 4024, Y11568, Dfm.guttoi | VKM B-1591 | VKM B-T591

Desulfotomaculum halophilum [VP] Tardy-Jacquenod et al. 1998 - DSM 11559 | SEBR 3139, U88891, Dfm.haloph

Desulfotomaculum kuznetsovii [VP] Nazina et al. 1990 - 17 | DSM 6115, Y11569, Dfm.kuznet | VKM B-1805

Desulfotomaculum luciae [VP] Liu et al. 1997 - SLT, AF069293, Dfm.luciae | DSM 12396 | SMCC W644

†Desulfotomaculum orientis [AL] Campbell and Postgate 1965 -> *Desulfosporosinus orientis* - Singapore I, M34417, Dfm.orient | ATCC 19365 | DSM 765, Y11570, Ds.orienti | NCIB 8382, M34417, Dfm.orient | VKM B-1628

Desulfotomaculum putei [VP] Liu et al. 1997 - TH-11 | DSM 12395 | SMCC W459, AF053929, Dfm.putei1

Desulfotomaculum ruminis [AL] Campbell and Postgate 1965 - DL | ATCC 23193 | DSM 2154, Y11572, Dfm.rumin3 | NCIB 8452, M34418, Dfm.rumin2

Desulfotomaculum sapomandens [VP] Cord-Ruwisch and Garcia 1990 - Pato | DSM 3223, AF168365

Desulfotomaculum thermoacetoxidans [VP] Min and Zinder 1995 - CAMZ | DSM 5813, Y11573, Dfm.thacet

Desulfotomaculum thermobenzoicum subspecies thermobenzoicum [VP] Tasaki et al. 1991 - TSB | ATCC 49756 | DSM 6193, Y11574, Dfm.thben2[332]

Desulfotomaculum thermobenzoicum subspecies thermosyntrophicum [VP] Plugge et al. 2002 [333] - TPO | DSM 14055, AY007190[334]

Desulfotomaculum thermocisternum [VP] Nilsen et al. 1996 - ST90, U33455, Dfm.thcist | DSM 10259

Desulfotomaculum thermosapovorans [VP] Fardeau et al. 1995 - MLF, Z26315, Dfm.thsapv | DSM 6562, Y11575, Dfm.thsap2

Genus VIII. ***Pelotomaculum*** [VP]

Pelotomaculum thermopropionicum [VP (T)] Imachi et al. 2002 - SI, AB035723 | DSM 13744 | JCM 10971

Genus IX. Syntrophobotulus [VP]

Syntrophobotulus glycolicus [VP (T)] Friedrich et al. 1996 - FlGlyR | DSM 8271

[332] This subspecies was automatically created under Rule 40d (formerly Rule 46, IJSEM 50: 2239–2244)

[333] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[334] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Genus X. Thermoterrabacterium VP [335]

Thermoterrabacterium ferrireducens VP (T) Slobodkin et al. 1997 - JW/AS-Y7 | DSM 11255

Family VI. "Heliobacteriaceae"

Genus I. Heliobacterium VP

Heliobacterium chlorum VP (T) Gest and Favringer 1985 - Gest/Favinger | ATCC 35205 | ATCC 35205, M11212, Hel.chlor2 | DSM 3682

Heliobacterium gestii VP Ormerod et al. 1996 - Chainat | ATCC 43375 | ATCC 43375, L36198, Hel.gestii | ATCC 43375, U14558, Hel.gesti2 | DSM 11169

Heliobacterium modesticaldum VP Kimble et al. 1996 - Ice 1, L36200, Hel.spIce1 | Ice 1, U14559, Hel.modcal | ATCC 51547 | DSM 9504

Heliobacterium sulfidophilum VP Bryantseva et al. 2001 [336] - BR4, AF249678 | UNIQEM 113

Heliobacterium undosum VP Bryantseva et al. 2001 [337] - BG29, AF249679 | DSM 13378

Genus II. Heliobacillus VP

Heliobacillus mobilis VP (T) Beer-Romero and Guest 1998 - 6 | ATCC 43427 | DSM 6151

Genus III. Heliophilum VP

Heliophilum fasciatum VP (T) Ormerod et al. 1996 - Tanzania, L36197, Hph.fascia | ATCC 51790 | DSM 11170

Genus IV. Heliorestis VP

Heliorestis daurensis VP (T) Bryantseva et al. 2000 - BT-H1, AF079102 | ATCC 700597

Heliorestis baculata VP Bryantseva et al. 2001 [338] - OS-H1, AF249680 | DSM 13446

Family VII. "Acidaminococcaceae" [339] [340] [341]

Genus I. Acidaminococcus AL

Acidaminococcus fermentans AL (T) Rogosa 1969 emend. Cook et al. 1994 - VR4 | ATCC 25085, X65935, Aam.fermen | DSM 20731, X78017, Aam.ferme3

Genus II. Acetonema VP

Acetonema longum VP (T) Kane and Breznak 1992 - APO-1, M61919, Ace.longum | ATCC 51454 | DSM 6540

*Genus III. **Allisonella*** VP

Allisonella histaminiformans VP (T) Garner et al. 2003 - MR2, AF548373 | ATCC BAA-610 | DSM 15230

*Genus IV. **Anaeroarcus*** VP ***(moved)***

Anaeroarcus burkinensis VP (T) (Ouattara et al. 1992) Strompl et al. 1999 <- *Anaerovibrio burkinabensis* (basonym) - B4B0 | DSM 6283, AJ010961 | ATCC 51455

Genus V. Anaeroglobus VP

Anaeroglobus geminatus VP Carlier et al. 2002 - AIP 313.00, AF338413 | CCUG 44773 | CIP 106856

Genus VI. Anaeromusa VP

Anaeromusa acidaminophila VP (T) (ex Nanninga et al. 1987) Baena et al. 1999 - DSM 3853, AF071415

*Genus VII. **Anaerosinus*** VP ***(moved)***

[335] *Thermoterrabacterium* may be misplaced.

[336] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[337] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[338] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[339] The family *Acidaminococcaceae* was created at the suggestion of Ludwig and Schliefer to contain the Gram- negative cell wall containing low G + C Gram positives. The group forms a well defined lineage off the main line of decent of the *Peptococcaceae*. *Acidaminococcus* was selected as the type genus on the basis of priority.

[340] The family *Veillonaceae* Rogosa has priority over "*Acidaminococcaceae*". An emendation of the family, and possibly a split, may be warranted.

[341] Strömple and Tindall suggest that the original placement of *Anaeroarcus, Anaerosinus, Anaerovibrio, Centipeda, Dendrosporobacter, Mitsukella, Propionispira*, and *Succinispira* were misplaced within the *Peptococcaceae*. These genera have been moved to the *Acidominococaceae* on the based of combined sequence and lipid data.

Anaerosinus glycerini VP (T) (Schauder and Schink 1996) Strömpl et al. 1999 <- *Anaerovibrio glycerini* (basonym) - LGS 4 | ATCC 51177 | DSM 5192, AJ010960

Genus VIII. ***Anaerovibrio*** AL ***(moved)***

Anaerovibrio lipolyticus AL (T) Hungate 1966 - 5S | ATCC 33276 | DSM 3074, AJ010959 | VPI 7553

†Anaerovibrio burkinabensis VP Ouattara et al. 1992 -> *Anaeroarcus burkinensis* - B4B0 | ATCC 51455 | DSM 6283, AJ010961

†Anaerovibrio glycerini VP Schauder and Schink 1996 -> *Anaerosinus glycerini* - LGS 4 | ATCC 51177 | DSM 5192, AJ010960

Genus IX. ***Centipeda*** VP ***(moved)***

Centipeda periodontii VP (T) Lai et al. 1983 - LL2383 | ATCC 35019 | DSM 2778, AJ010963

Genus X. ***Dendrosporobacter*** VP ***(moved)***

Dendrosporobacter quercicolus VP (T) (Stankewich et al. 1971) Strömpl et al. 2000 <- *Clostridium quercicolum* (basonym) - ATCC 25974, M59110 | DSM 1736

Genus XI. Dialister VP

Dialister pneumosintes VP (T) (Olitsky and Gates 1921) Moore and Moore 1994 <- *Bacteroides pneumosintes* (basonym) - ATCC 33048, X82500, Di.psintes | CCUG 21025 | DSM 11619 | VPI 9415

Genus XII. Megasphaera AL

Megasphaera elsdenii AL (T) (Gutierrez et al. 1959) Rogosa 1971 - LC1 | ATCC 25940 | DSM 20460 | NCIB 8927

Megasphaera cerevisiae VP Engelmann and Weiss 1986 - PAT 1 | ATCC 43254 | DSM 20462

Megasphaera micronuciformis VP Marchandin et al. 2003 - AIP 412.00, AF473834 | CCUG 45952 | CIP 107280

Genus XIII. ***Mitsuokella*** VP ***(moved)***

Mitsuokella multacida VP (T) (Mitsuoka et al. 1974) Shah and Collins 1983 <- *Bacteroides multiacidus* (basonym) - A 405-1 | ATCC 27723 | DSM 20544 | NCTC 10934, X81878, Msk.mulcid

†Mitsuokella dentalis VP Haapasalo et al. 1986 -> *Prevotella dentalis* - ES2772 | ATCC 49559 | DSM 3688, X81876, Prv.denti3

Mitsuokella jalaludinii VP Lan et al. 2002 - M 9 | ATCC BAA-307, AF479674 | DSM 13811

Genus XIV. Papillibacter VP

Papillibacter cinnamivorans VP (T) Defnoun et al. 2000 - CIN1, AF167711 | DSM 12816 | ATCC 700879

Genus XV. Pectinatus AL

Pectinatus cerevisiiphilus AL (T) Lee et al. 1978 emend. Schleifer et al. 1990 - ATCC 29359 | CCC B-1022 | DSM 20467

Pectinatus frisingensis VP Schleifer et al. 1990 - V1 | ATCC 33332 | CCM 6217 | DSM 6306 | VTT-E-79100

Genus XVI. Phascolarctobacterium VP

Phascolarctobacterium faecium VP (T) Del Dot et al. 1994 - ACM 3679, X72865, Pha.faeci2

Genus XVII. ***Propionispira*** VP ***(moved)***

Propionispira arboris VP (T) Schink et al. 1983 - 12B4, Y18190 | ATCC 33732 | DSM 2179

Genus XVIII. Propionispora VP

Propionispora vibrioides VP (T) Biebl et al. 2001 [342] - FKBS1, AJ279802 | DSM 13305

Genus XIX. Quinella VP

Quinella ovalis VP (T) Krumholz et al. 1993 - no axenic culture, M62701, Qui.ovalis

Genus XX. Schwartzia VP

[342] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Schwartzia succinivorans [VP (T)] van Gylswyk et al. 1997 - S1-1 | DSM 10502, Y09434, Scw.succin

Genus XXI. Selenomonas [AL]

Selenomonas sputigena [AL (T)] (Flügge 1886) Boskamp 1922 - ATCC 35185, AF287793, AF373023 | DSM 20758 | VPI 10068 | VPI D19B-28

†*Selenomonas acidaminovorans* [VP] Guangsheng et al. 1997 -> *Thermanaerovibrio acidaminovorans* - Su883 | ATCC 49978 | DSM 6589, AF071414

Selenomonas artemidis [VP] Moore et al. 1987 - ATCC 43528 | VPI D22B-14

Selenomonas dianae [VP] Moore et al. 1987 - ATCC 43527, AF287801 | VPI D19A-11

Selenomonas flueggei [VP] Moore et al. 1987 - ATCC 43531, AF287803 | VPI E4M-28B

Selenomonas infelix [VP] Moore et al. 1987 - ATCC 43532, AF287802 | VPI D75B-30

Selenomonas lacticifex [VP] Schleifer et al. 1990 - VB4b | ATCC 49690, AF373024 | DSM 20757

Selenomonas lipolytica [VP] Dighe et al. 1998 - CF1B | MCMB 505

Selenomonas noxia [VP] Moore et al. 1987 - ATCC 43541, AF287799 | VPI D9B-5

Selenomonas ruminantium subspecies ruminantium [AL] Bryant 1974 - GA-192, M62702, Sln.rum192 | ATCC 12561 | DSM 2150

Selenomonas ruminantium subspecies lactilytica [AL] Bryant 1956 - PC 18 | ATCC 19205 | DSM 2872 | JCM 6582, AB003379, Sln.rumin4

Genus XXII. Sporomusa [VP]

Sporomusa sphaeroides [VP (T)] Möller et al. 1985 - E | ATCC 35900 | DSM 2875, AJ279801

Sporomusa acidovorans [VP] Ollivier et al. 1990 - Mol | ATCC 49682 | DSM 3132, AJ279798

Sporomusa malonica [VP] Dehning et al. 1990 - WoG12 | ATCC 49684 | DSM 5090, AJ279799

Sporomusa ovata [VP] Möller et al. 1985 - H1 | ATCC 35899 | DSM 2662, AJ279800

Sporomusa paucivorans [VP] Hermann et al. 1987 - X | DSM 3697

Sporomusa silvacetica [VP] Kuhner et al. 1997 - DG-1, Y09976, Spm.silvac | DSMZ 10669

Sporomusa termitida [VP] Breznak et al. 1990 - JSN-2, M61920, Spm.termit | ATCC 49683 | DSM 4440

Genus XXIII. Succiniclasticum [VP]

Succiniclasticum ruminis [VP (T)] van Gylswyk 1995 - SE 10, X81137, Scl.rumini | DSM 9236

Genus XXIV. ***Succinispira*** [VP] ***(moved)***

Succinispira mobilis [VP (T)] Janssen and O'Farrell 1999 - 19gly1, AJ006980 | DSM 6222

Genus XXV. Veillonella [AL]

Veillonella parvula subspecies parvula [AL (T)] (Veillon and Zuber 1898) Prevot 1933 = *Veillonella alcalescens subspecies alcalescens* (later heterotypic synonym) - Te3 | ATCC 10790 | DSM 2008, X84005, Vln.parvul

†*Veillonella parvula subspecies atypica* [AL] Rogosa 1965 -> *Veillonella atypica* - ATCC 17744 | DSM 20739, X84007, Vln.atypic

†*Veillonella parvula subspecies rodentium* [AL] Rogosa 1965 -> *Veillonella rodentium* - ATCC 17743 | DSM 20737

†*Veillonella alcalescens subspecies alcalescens* [AL] Prevot 1933 = *Veillonella parvula* (earlier heterotypic synonym) - B13-0-1 D | ATCC 17745

†*Veillonella alcalescens subspecies criceti* [AL] Rogosa 1965 -> *Veillonella criceti* - ATCC 17747, AF186072 | DSM 20734

†*Veillonella alcalescens subspecies dispar* [AL] Rogosa 1965 -> *Veillonella dispar* - ATCC 17748 | DSM 20735, X84006, Vln.dispar

†*Veillonella alcalescens subspecies ratti* [AL] Rogosa 1965 -> *Veillonella ratti* - ATCC 17746, AF186071 | DSM 20736

Veillonella atypica [VP] (Rogosa 1965) Mays et al. 1982 <- *Veillonella parvula subspecies atypica* (basonym) - KON | ATCC 17744 | DSM 20739, X84007, Vln.atypic

Veillonella caviae [VP] Mays et al. 1982 - Rogosa PV1 | ATCC 33540 | DSM 20738 | VPI 12140

Veillonella criceti VP (Rogosa 1965) Mays et al. 1982 <- *Veillonella alcalescens subspecies criceti* (basonym) - HV-1 | Serogroup I | ATCC 17747 | DSM 20734

Veillonella dispar VP (Rogosa 1965) Mays et al. 1982 <- *Veillonella alcalescens subspecies dispar* (basonym) - ERN | Serogroup VII | ATCC 17748 | DSM 20735, X84006, Vln.dispar

Veillonella ratti VP (Rogosa 1965) Mays et al. 1982 <- *Veillonella alcalescens subspecies ratti* (basonym) - RV-12x | ATCC 17746 | DSM 20736

Veillonella rodentium VP (Rogosa 1965) Mays et al. 1982 <- *Veillonella parvula subspecies rodentium* (basonym) - HV 19 | ATCC 17743 | DSM 20737

Genus XXVI. Zymophilus VP

Zymophilus raffinosivorans VP (T) Schleifer et al. 1990 - SH2 | ATCC 49691 | DSM 20765

Zymophilus paucivorans VP Schleifer et al. 1990 - AA1 | ATCC 49689 | DSM 20756

Family VIII. Syntrophomonadaceae VP [343]

Genus I. Syntrophomonas VP (T)

Syntrophomonas wolfei subspecies wolfei VP (T) McInerney et al. 1982 emend. Lorowitz et al. 1989 - G G311 | DSM 2245 | OCM 41

Syntrophomonas wolfei subspecies saponavida VP Lorowitz et al. 1989 - SD2 | DSM 4212

Syntrophomonas sapovorans VP Roy et al. 1987 - OM | DSM 3441

Genus II. Acetogenium VP [344]

†*Acetogenium kivui* VP (T) Leigh and Wolfe 1983 -> *Thermoanaerobacter kivui* - LKT-1 | ATCC 33488 | DSM 2030, L09160, Tab.kivui

Genus III. Aminobacterium VP

Aminobacterium colombiense VP (T) Baena et al. 1999 - ALA-1, AF069287 | DSM 12261

Aminobacterium mobile VP Baena et al. 2000 - ILE-3, AF073521 | DSM 12262

Genus IV. Aminomonas VP

Aminomonas paucivorans VP (T) Baena et al. 1999 - GLU-3, AF072581 | DSM 12260

Genus V. Anaerobaculum VP

Anaerobaculum thermoterrenum VP (T) Rees et al. 1997 - RWcit2, U50711, Anr.thmter | ACM 5076

Anaerobaculum mobile VP Menes and Muxí 2002 - NGA, AJ243189 | ATCC BAA-54 | DSM 13181

Genus VI. Anaerobranca VP [345]

Anaerobranca horikoshii VP (T) Engle et al. 1995 - JW/YL-138, U21809, Abr.horiko | DSM 9786

Anaerobranca gottschalkii VP Prowe and Antranikian 2001 [346] - LBS3, AF203703 | DSM 13577

Genus VII. Caldicellulosiruptor VP

Caldicellulosiruptor kristjanssonii VP Bredholt et al. 1999 - I77R1B, AJ004811 | DSM 12137

Caldicellulosiruptor lactoaceticus VP Mladenovska et al. 1997 - 6A, X82842, Ccs.lactoa | DSM 9545

Caldicellulosiruptor owensensis VP Huang et al. 1998 - OL, U80596, Ccs.owense | ATCC 700167

Caldicellulosiruptor saccharolyticus VP (T) Rainey et al. 1995 - Tp8T 6331, L09178, Ccs.saccha | ATCC 43494 | DSM 8903

Genus VIII. ***Carboxydocella*** VP

Carboxydocella thermautotrophica VP (T) Sokolova et al. 2002 - 41, AY061974 | DSM 12326 | VKM B-2282

Genus IX. Dethiosulfovibrio VP

[343] Hugenholtz notes that the *Syntrophomonadaceae* is polyphyletic and represents a phylum-level lineage distinct from the *Firmicutes*. That lineage should consist of *Syntrophomonas, Aminobacterium, Aminomonas, Anaerobaculum* and *Dethiosulfovibrio*

[344] Hugenholtz indicates that *Acetogenium* should be moved to the *Thernoanaerobacteriaceae*

[345] The placement of *Anaerobranca* is questionable. It is, however, within the same region as *Thermoanaerobacterium* in the ARB tree.

[346] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Dethiosulfovibrio peptidovorans VP (T) Magot et al. 1997 - SEBR 4207, U52817 | DSM 11002

Dethiosulfovibrio acidaminovorans VP Surkov et al. 2001 [347] - SR 15, AY005466 | DSM 12590

Dethiosulfovibrio marinus VP Surkov et al. 2001 [348] - WS100, AF234542 [349] | DSM 12537

Dethiosulfovibrio russensis VP Surkov et al. 2001 [350] - SR 12 | DSM 12538 [351]

Genus X. Pelospora VP

Pelospora glutarica VP (T) Matthies et al. 2000 - WoG13, AJ251214 | DSM 6652

Genus XI. Syntrophospora VP

Syntrophospora bryantii VP (T) (Stieb and Schink 1985) Zhao et al. 1990 <- *Clostridium bryantii* (basonym) - CuCal | DSM 3014 | DSM 3014A,B

Genus XII. Syntrophothermus VP

Syntrophothermus lipocalidus VP (T) Sekiguchi et al. 2000 - TGB-C1 | DSM 12680, AB021305

Genus XIII. Thermaerobacter VP

Thermaerobacter marianensis VP (T) Takai et al. 1999 - 7p75a, AB011495, Tar.marian | JCM 10246

Thermaerobacter nagasakiensis VP Nunoura et al. 2002 - Tsla, AB061441 | JCM 11223 | DSM 14512

Thermaerobacter subterraneus VP Spanevello et al. 2002 - C21, AF343566 | ATCC BAA-137 | DSM 13965

Genus XIV. Thermanaerovibrio VP [352]

Thermanaerovibrio acidaminovorans VP (T) (Guangsheng et al. 1997) Baena et al. 1999 <- *Selenomonas acidaminovorans* (basonym) - DSM 6589, AF071414

Thermanaerovibrio velox VP Zavarzina et al. 2000 - Z-9701, AF161069 | DSM 12556

Genus XV. Thermohydrogenium VP

Thermohydrogenium kirishiense VP (T) Zacharova et al. 1996 - ZE-7 | DSM 11055

Genus XVI. Thermosyntropha VP

Thermosyntropha lipolytica VP (T) Svetlitshnyi et al. 1996 - JW/VS-265, X99980, Tsy.lipolyt | DSM 11003

Order II. *"Thermoanaerobacteriales"* [353]

Family I. "Thermoanaerobacteriaceae"

Genus I. Thermoanaerobacterium VP

Thermoanaerobacterium thermosulfurigenes VP (T) (Schink and Zeikus 1983) Lee et al. 1993 <- *Clostridium thermosulfurigenes* (basonym) - 4B, X58351, Tbm.thsul2 | ATCC 33743, L09171, Tbm.thsulf | DSM 2229

Thermoanaerobacterium aotearoense VP Liu et al. 1996 - JW/SL-NZ613, X93359, Tbm.aotear | DSM 10170

Thermoanaerobacterium polysaccharolyticum VP Cann et al. 2001 - KMTHCJ, U40229 | ATCC BAA-17 | DSM 13641

Thermoanaerobacterium saccharolyticum VP Lee et al. 1993 - B6A-RI | ATCC 49915 | DSM 7060, L09169, Tbm.saccha

[347] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[348] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[349] Genbank accession number reported incorrectly in IJSEM. Strain designation reported incorrectly in GenBank.

[350] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[351] Genbank accession number reported incorrectly in IJSEM. Strain designation reported incorrectly in GenBank.

[352] The current placement of *Thermanaerovibrio* is questionable.

[353] The *Thermoanaerobacteriales* was created to contain the deeper branching groups that were originally included in the *Peptococcaceae* and *Syntrophomonadaceae*.Hugenholtz indicates that this family probably represents a separate phylum-level lineage, distinct from the *Firmicutes*.

Thermoanaerobacterium thermosaccharolyticum [VP] (McClung 1935) Collins et al. 1994 <- *Clostridium thermosaccharolyticum* (basonym) - NCA 3814 | ATCC 7956, M59119, Tbm.thsacc | DSM 571 | NCIB 9385

Thermoanaerobacterium xylanolyticum [VP] Lee et al. 1993 - LX-11 | ATCC 49914 | DSM 7097, L09172, Tbm.xylano

Thermoanaerobacterium zeae [VP] Cann et al. 2001 - mel2, U75993 | ATCC BAA-16 | DSM 13642

Genus II. Ammonifex [VP]

Ammonifex degensii [VP (T)] Huber and Stetter 1996 - KC4, U34975, Am.degensi | DSM 10501

Genus III. Carboxydibrachium [VP]

Carboxydibrachium pacificum [VP (T)] Sokolova et al. 2001 [354] - JM, AF174484 | DSM 12653

Genus IV. Coprothermobacter [VP 355]

Coprothermobacter proteolyticus [VP (T)] (Ollivier et al. 1985) Rainey and Stackebrandt 1993 <- *Thermobacteroides proteolyticus* (basonym) - BT | ATCC 35245, X69335, Ctm.prtlyt | DSM 5265

Coprothermobacter platensis [VP] Etchebehere et al. 1998 - 3R, Y08935, Ctm.platen | DSM 11748

Genus V. Gelria [VP]

Gelria glutamica [VP (T)] Plugge et al. 2002 - TGO, AF321086 | ATCC BAA-262 | DSM 14054

Genus VI. Moorella [VP 356]

Moorella thermoacetica [VP (T)] (Fontaine et al. 1942) Collins et al. 1994 <- *Clostridium thermaceticum* (basonym) - ATCC 35608 | DSM 521

Moorella glycerini [VP] Slobodkin et al. 1997 - JW/AS-Y6, U82327, Mrl.glycer | ATCC 700316 | DSM 11254

Moorella thermoautotrophica [VP] (Wiegel et al. 1982) Collins et al. 1994 <- *Clostridium thermautotrophicum* (basonym) - JW 701/3, X58354, Mrl.thaut5 | ATCC 33924 | DSM 1974, L09168, Mrl.thaut3 | DSM 1974, X77849, Mrl.thauto

Genus VII. Sporotomaculum [VP]

Sporotomaculum hydroxybenzoicum [VP (T)] Brauman et al. 1998 - BT, Y14845, Smc.hybenz | DSM 5475, Y14845, Smc.hybenz

Sporotomaculum syntrophicum [VP] Qiu et al. 2003 - FB, AB076610 | DSM 14795 | JCM 11495

Genus VIII. Thermacetogenium [VP]

Thermacetogenium phaeum [VP (T)] Hattori et al. 2000 - PB, ABO20336 | DSM 12270

Genus IX. ***Thermanaeromonas*** [VP]

Thermanaeromonas toyohensis [VP (T)] Mori et al. 2002 - ToBE, AB062280 | DSM 14490 | JCM 11376

Genus X. Thermoanaerobacter [VP 357]

Thermoanaerobacter ethanolicus [VP (T)] Wiegel and Ljungdahl 1982 - JW 200, X58347, Tab.ethano | ATCC 31550, L09162, Tab.ethan1 | DSM 2246 | VKM B-1835

Thermoanaerobacter acetoethylicus [VP] (Ben-Bassat and Zeikus 1983) Rainey and Stackebrandt 1993 <- *Thermobacteroides acetoethylicus* (basonym) - HTB2 | HTB2/W, X58348, Tab.aceet2 | ATCC 33265, L09163, Tab.aceeth | ATCC 33265, X69336, Tab.aceet3 | DSM 2359

Thermoanaerobacter brockii subspecies brockii [VP] (Zeikus et al. 1983) Lee et al. 1993 emend. Cayol et al. 1995 <- *Thermoanaerobium brockii* (basonym) - HTD4, X58349, Tab.brock2 | ATCC 33075 | DSM 1457, L09165, Tab.brocki

[354] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[355] Hugenholtz indicates that *Coprothermobacter* is a distinct phylum-level lineage.

[356] Ludwig indicates that the position of *Moorella* is uncertain. However, placement within the *Thermoanaerobacteriales* seems reasonable until more data become available.

[357] Ludwig indicates that the position of *Thermoanaerobacter* is uncertain.

Thermoanaerobacter brockii subspecies finnii VP (Schmid et al. 1986) Cayol et al. 1995 <- *Thermoanaerobacter finnii* (basonym) - AKO-1 | DSM 3389, L09166, Tab.brock4

Thermoanaerobacter brockii subspecies lactiethylicus VP Cayol et al. 1995 - DSM 9801 | SEBR 5268, U14330, Tab.brock3

†*Thermoanaerobacter finnii* VP Schmid et al. 1986 -> *Thermoanaerobacter brockii subspecies finnii* - AKO-1 | DSM 3389, L09166, Tab.brock4

Thermoanaerobacter italicus VP Kozianowski et al. 1998 - Ab9 | DSM 9252

Thermoanaerobacter kivui VP (Leigh and Wolfe 1983) Collins et al. 1994 <- *Acetogenium kivui* (basonym) - LKT-1 | ATCC 33488 | DSM 2030, L09160, Tab.kivui

Thermoanaerobacter mathranii VP Larsen et al. 1998 - A3, Y11279, Tab.mathra | DSM 11426

Thermoanaerobacter siderophilus VP Slobodkin et al. 1999 - SR4, AF120479 | DSM 12299

Thermoanaerobacter subterraneus VP Fardeau et al. 2000 - SEBR 7858, AF195797 | CNCM I-2383 | DSM 13054

Thermoanaerobacter sulfurophilus VP Bonch-Osmolovskaya 1998 - L-64, Y16940, Tab.slfphl | DSM 11584

Thermoanaerobacter tengcongensis VP Xue et al. 2001 - MB4, AF209708 | AS 1.2430 | JCM 11007

Thermoanaerobacter thermocopriae VP (Jin et al. 1988) Collins et al. 1994 <- *Clostridium thermocopriae* (basonym) - JT 3-3 | IAM 13577, L09167, Tab.thcop2

Thermoanaerobacter thermohydrosulfuricus VP (Klaushofer and Parkkinen 1965) Lee et al. 1993 <- *Clostridium thermohydrosulfuricum* (basonym) - E100-69, L09161 | ATCC 35045 | DSM 567, L09161, Tab.thsulf | NCIB 10956 | VKM B-1834

Thermoanaerobacter wiegelii VP Cook et al. 1996 - Rt8.B1, X92513, Tab.wiegel | DSM 10319

Thermoanaerobacter yonseiensis VP Kim et al. 2001 - KB-1, AF212925 | DSM 13777 | KFCC 11116

Genus XI. Thermoanaerobium VP [358]

†*Thermoanaerobium brockii* VP (T) Zeikus et al. 1983 -> *Thermoanaerobacter brockii subspecies brockii* - HTD4, X58349, Tab.brock2 | ATCC 33075 | DSM 1457, L09165, Tab.brocki

Thermoanaerobium acetigenum VP Nielsen et al. 1994 - X6B | DSM 7040

Genus XII. ***Thermovenabulum*** VP

Thermovenabulum ferriorganovorum VP (T) Zavarzina et al. 2002 - Z-9801, AY033493 | DSM 14006 | UNIQEM 210

Order III. *Halanaerobiales* VP [359]

Family I. Halanaerobiaceae VP

Genus I. Halanaerobium VP (T)

Halanaerobium praevalens VP (T) Zeikus et al. 1984 - GSL | ATCC 33744, M59123, Han.praeve | DSM 2228, AB022034, Han.praev2

Halanaerobium acetethylicum VP (Rengpipat et al. 1989) Rainey et al. 1995 <- *Halobacteroides acetethylicus* (basonym) - EIGI | ATCC 43120 | DSM 3532, U32594, Hbac.aceet | DSM 3532, X89071, Han.aceth2

Halanaerobium alcaliphilum VP Tsai et al. 1995 - GSLS, X81850, Han.alclph | DSM 8275

Halanaerobium congolense VP Ravot et al. 1998 - DSM 11287 | SEBR 4224, U76632, Han.congol

Halanaerobium fermentans VP Kobayashi et al. 2000 - R-9, AB023308 | JCM 10494

Halanaerobium kushneri VP Bhupathiraju et al. 1999 - VS-751 | ATCC 700103, U86446

[358] Ludwig indicates that the position of *Thermoanaerobium* is uncertain.

[359] Ludwig states that the position of *Haloanaerobiales* is strongly influenced by the treeing method. Large scale PCA plots (Garrity and Lilburn) do not provide much resolution, perhaps because of the high level of diversity within the class. Ludwig indicates that the two families are phylogenetically coherent and suggests the possibility that they might be members of a separate phylum. Hugenholtz supports the view that the *Haloanaerobiales* are a phylum-level lineage.

Halanaerobium lacusrosei [VP] Cayol et al. 1995 - H200, L39787, Han.lacuro | DSM 10165

Halanaerobium saccharolyticum subspecies saccharolyticum [VP] (Zhilina et al. 1992 emend. Cayol et al. 1994) Rainey et al. 1995 <- *Haloincola saccharolyticus subspecies saccharolyticus* (basonym) - Z-7787, L37424, Han.sacsa2 | Z-7787, Z49115, Han.sacsac | DSM 6643, X89069, Han.sacsa3 | DSM 6643, Z49115, Han.sacsac

Halanaerobium saccharolyticum subspecies senegalense [VP] (Cayol et al. 1994) Rainey et al. 1995 <- *Haloincola saccharolyticus subspecies senegalensis* (basonym) - H150, Z49116, Han.sacsen | DSM 7379, X89070, Han.sacse2 | DSM 7379, Z49116, Han.sacsen

Halanaerobium salsuginis [VP] Bhupathiraju et al. 1994 - ATCC 51327 | VS-752, L22890, Han.salsug

Genus II. Halocella [VP]

Halocella cellulosilytica [VP (T)] Simancova et al. 1994 - Z-10151 | ATCC 700086 | DSM 7362, X89072, Hcl.cellyt

Genus III. Halothermothrix [VP]

Halothermothrix orenii [VP (T)] Cayol et al. 1994 - H168, L22016, Htt.orenii | DSM 9562 | OCM 544

Family II. Halobacteroidaceae [VP]

Genus I. Halobacteroides [VP (T)]

Halobacteroides halobius [VP (T)] Oren et al. 1984 - MD-1, U32595, Hbac.halo2 | ATCC 35273, U32595, Hbac.halo2 | DSM 5150, X89074, Hbac.halo3

†Halobacteroides acetethylicus [VP] Rengpipat et al. 1989 -> *Haloanaerobium acetethylicum* - EIGI | ATCC 43120 | DSM 3532, U32594, Hbac.aceet | DSM 3532, X89071, Han.aceth2

Halobacteroides elegans [VP] Zhilina et al. 1997 - Z-7287, L37423, Hbac.halob | DSM 6639

†Halobacteroides lacunaris [VP] Zhilina et al. 1992 -> *Halanaerobacter lacunaris* - Z-7888, L37421, Hla.lacuna | Z-7888, U32593, Hla.lacun2 | ATCC 49944 | DSM 6640, X89075, Hla.lacun3

Genus II. Acetohalobium [VP]

Acetohalobium arabaticum[(T)] Zhilina and Zavarzin 1990 - Z-7288, L37422, Ach.araba2 | ATCC 49924 | DSM 5501, X89077, Ach.araba3

Genus III. Halanaerobacter [VP]

Halanaerobacter chitinovorans [VP (T)] Liaw and Mah 1996 - W5C8, U32596, Hla.chitnv | DSM 9569 | OCM 229, U32596, Hla.chitnv | OGM 229, X89076, Hla.chitn2

Halanaerobacter lacunaris [VP] (Zhilina et al. 1992) Rainey et al. 1995 <- *Halobacteroides lacunaris* (basonym) - Z-7888, L37421, Hla.lacuna | Z-7888, U32593, Hla.lacun2 | ATCC 49944 | DSM 6640, X89075, Hla.lacun3

Halanaerobacter salinarius [VP] Moun et al. 1999 - SG3903, Y14212, Hla.salinr

Genus IV. Halonatronum [VP]

Halonatronum saccharophilum [VP (T)] Zhilina et al. 2001 - Z-7986, AY014858 | DSM 13868 | UNIQEM 211

Genus V. Natroniella [VP] [360]

Natroniella acetigena [VP (T)] Zhilina et al. 1996 - Z-7937 | DSM 9952

Genus VI. Orenia [VP]

Orenia marismortui [VP (T)] (Oren et al. 1988) Rainey et al. 1995 <- *Sporohalobacter marismortui* (basonym) - DY-1 | ATCC 35420 | DSM 5156, X89073, O.marismor

Orenia salinaria [VP] Mouné et al. 2000 - SG 3902, Y18485 | ATCC 700911

Orenia sivashensis [VP] Zhilina et al. 2000 - Z-7191, AF152595 | DSM 12596

Genus VII. Selenihalanaerobacter [VP]

[360] In version 1.0 of the Bergey's Outline *Natroniella* was placed in the *Haloanaerobiaceae*. Both Switzer Bloom et. al. and Zhalina et al. have placed this genus in the *Halobacteroidiaceae*.

Selenihalanaerobacter shriftii [VP (T)] Switzer Blum et al. 2001 [361] - DSSe-1 | ATCC BAA-73

Genus VIII. Sporohalobacter [VP]

Sporohalobacter lortetii [VP (T)] (Oren 1984) Oren et al. 1988 <- *Clostridium lortetii* (basonym) - MD-2 | ATCC 35059, M59122, Shb.lortet | DSM 3070

†Sporohalobacter marismortui [VP] Oren et al. 1988 -> *Orenia marismortui* - DY-1 | ATCC 35420 | DSM 5156, X89073, O.marismor

Class II. *Mollicutes* [AL]

Order I. *Mycoplasmatales* [AL (T)]

Family I. Mycoplasmataceae [AL]

Genus I. Mycoplasma [AL (T)]

Mycoplasma mycoides subspecies mycoides [AL (T)] (Borrel et al. 1910) Freundt 1955 - NCTC 10114

Mycoplasma mycoides subspecies capri [AL] (Edward 1953) Freundt 1955 - NCTC 10137

Mycoplasma adleri [VP] Del Giudice et al. 1995 - G145, U67943, M.adleri1 | ATCC 27948

Mycoplasma agalactiae [AL] (Wroblewski 1931) Freundt 1955 - NCTC 10123, M24290, M.agalacti

Mycoplasma agassizii [VP] Brown et al. 2001 [362] - PS6, U09786 | ATCC 700616

Mycoplasma alkalescens [AL] Leach 1973 - PG 51, U44764, M.alkalesc | ATCC 29103 | NCTC 10135

Mycoplasma alligatoris [VP] Brown et al. 2001 - A21JP2, U56733[363] | ATCC 700619

Mycoplasma alvi [AL] Gourlay et al. 1977 - Ilsley, U44765, M.alvi1 | ATCC 29626 | NCTC 10157

Mycoplasma anatis [AL] Roberts 1964 - ATCC 25524

Mycoplasma anseris [VP] Bradbury et al. 1988 - 1219, AF125584

Mycoplasma arginini [AL] Barile et al. 1968 - ATCC 23838, M24579, M.arginini | ATCC 23838, U15794, M.arginin2

Mycoplasma arthritidis [AL] (Sabin 1941) Freundt 1955 - ATCC 19611, M24580, M.arthriti

Mycoplasma auris [VP] DaMassa et al. 1994 - UIA, U67944, M.auris1 | ATCC 51348 | NCTC 11731

Mycoplasma bovigenitalium [AL] Freundt 1955 - PG-11, M24291, M.bovigeni | ATCC 19852, M24291, M.bovigeni

Mycoplasma bovirhinis [AL] Leach 1967 - 5M331 | PG 43, U44766, M.bovirhi3 | ATCC 27748 | NCTC 10118

Mycoplasma bovis [AL] (Hale et al. 1962) Askaa and Erno 1976 - Donetta, U02968, M.bovis | Donetta, U44767, M.bovis2 | PG 45 | ATCC 25523 | NCTC 10131

Mycoplasma bovoculi [AL] Langford and Leach 1973 - M165/69, U44768, M.bovoculi | ATCC 29104 | NCTC 10141

Mycoplasma buccale [AL] Freundt et al. 1974 - ATCC 23636

Mycoplasma buteonis [VP] Poveda et al. 1994 - Bb/T2g | ATCC 51371

Mycoplasma californicum [VP] Jasper et al. 1981 - ST-6, M24582, M.californ | AMRC-C 1077 | ATCC 33461, M24582, M.californ

Mycoplasma canadense [AL] Langford et al. 1976 - 275C, U44769, M.canaden3 | ATCC 29418 | NCTC 10152

Mycoplasma canis [AL] Edward 1955 - C55 | PG 14, AF412972, AF340023 | ATCC 19525

Mycoplasma capricolum subspecies capricolum [AL] Tully et al. 1974 - California kid, U26045, M.caprico5 | California kid, U26046, M.caprico6 | ATCC 27343 | NCTC 10154

[361] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[362] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[363] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Mycoplasma capricolum subspecies capripneumoniae [VP] Leach et al. 1993 - F38, M94728, M.sp.F38 | F38, U26042, M.caprico4 | NCTC 10192
Mycoplasma caviae [AL] Hill 1971 - ATCC 27108
Mycoplasma cavipharyngis [VP] Hill 1989 - 117C, AF125879 | ATCC 43016 | NCTC 11700
Mycoplasma citelli [AL] Rose et al. 1978 - ATCC 29760
Mycoplasma cloacale [VP] Bradbury and Forrest 1984 - 383, AF125592 | ATCC 35276 | NCTC 10199
Mycoplasma collis [VP] Hill 1983 - 58B, AF412974 | NCTC 10197
Mycoplasma columbinasale [VP] Jordan et al. 1982 - 694, AF221112 | ATCC 33549 | NCTC 10184
Mycoplasma columbinum [AL] Shimizu et al. 1978 - ATCC 29257
Mycoplasma columborale [AL] Shimizu et al. 1978 - ATCC 29258
Mycoplasma conjunctivae [AL] Barile et al. 1972 - HRC/581 | ATCC 25834 | NCTC 10147
Mycoplasma corogypsi [VP] Panangala et al. 1993 - BV1, L08054, M.corogyps | ATCC 51148
Mycoplasma cottewii [VP] DaMassa et al. 1994 - VIS, U67945, M.cottewii | ATCC 51347 | NCTC 11732
Mycoplasma cricetuli [VP] Hill 1983 - CH, AF412976 | NCTC 10190
Mycoplasma crocodyli [VP] Kirchhoff et al. 1997 - MP145, AF412977 | ATCC 51981
Mycoplasma cynos [AL] Rosendal 1973 - ATCC 27544
Mycoplasma dispar [AL] Gourlay and Leach 1970 - ATCC 27140
Mycoplasma edwardii [AL] Tully et al. 1970 - C21 | ATCC 23462 | NCTC 10132
Mycoplasma elephantis [VP] Kirchhoff et al. 1996 - E42, AF221121 | ATCC 51980
†*Mycoplasma ellychniae* [VP] Tully et al. 1989 -> *Entomoplasma ellychniae* - ELCN-1, M24292, Enp.ellych | ATCC 43707, M24292, Enp.ellych
Mycoplasma equigenitalium [AL] Kirchhoff 1978 - ATCC 29869
Mycoplasma equirhinis [AL] Allam and Lemcke 1975 - ATCC 29420
Mycoplasma falconis [VP] Poveda et al. 1994 - H/T1, AF125591 | ATCC 51372
Mycoplasma fastidiosum [VP] Lemcke and Poland 1980 - 4822, AF125878 | ATCC 33229 | NCTC 10180
Mycoplasma faucium [AL] Freundt et al. 1974 - ATCC 25293
Mycoplasma felifaucium [VP] Hill 1988 - PU | ATCC 43228, U15795, M.felifauc | NCTC 11703
Mycoplasma feliminutum [AL] Heyward et al. 1969 - ATCC 25749, U16758, M.feliminu
Mycoplasma felis [AL] Cole et al. 1967 - ATCC 23391, U09787, M.felis
Mycoplasma fermentans [AL] Edward 1955 - PG18, M24289, M.fermenta | ATCC 19989, M24289, M.fermenta
Mycoplasma flocculare [AL] Meyling and Friis 1972 - Ms42, L22210, M.floccul2 | Ms42, X62699, M.floccula | Ms42, X63377, M.floccul3 | ATCC 27399 | NCTC 10143
Mycoplasma gallinaceum [VP] Jordan et al. 1982 - DD, L24104, M.galnacem | ATCC 33550 | NCTC 10183
Mycoplasma gallinarum [AL] Freundt 1955 - Fowl | ATCC 19708 | NCTC 10120
Mycoplasma gallisepticum [AL] Edward and Kanarek 1960 - PG 31 | X95 | ATCC 19610 | NCTC 10115
Mycoplasma gallopavonis [VP] Jordan et al. 1982 - WP1 | WR1, AF412980 | ATCC 33551 | NCTC 10186
Mycoplasma gateae [AL] Cole et al. 1967 - ATCC 23392, U15796, M.gateae
Mycoplasma genitalium [VP] Tully et al. 1983 - G-37, X77334, M.genital2 | ATCC 33530
Mycoplasma glycophilum [VP] Forrest and Bradbury 1984 - 486, AF412981 | ATCC 35277 | NCTC 10194
Mycoplasma gypis [VP] Poveda et al. 1994 - B1/T1, AF125589 | ATCC 51370
Mycoplasma haemocanis [VP] (Kreier and Ristic 1984) Messick et al. 2002 <- *Haemobartonella canis* (basonym) , AF197337[364]

[364] Corrected name after species was illegitimately assigned Candidatus status

Mycoplasma haemofelis [VP] (Kreier and Ristic 1984) Neimark et al. 2002 <- *Haemobartonella felis* (basonym) , U88563, Hbn.felis2, U88564, Hbn.felis1, U95297, Hbn.felis3[365]

Mycoplasma haemomuris [VP] (Mayer 1921) Neimark et al. 2002 <- *Haemobartonella muris* (basonym) , U82963, Hbn.muris1[366]

Mycoplasma hominis [AL] (Freundt 1953) Edward 1955 - H 50 | PG21, AJ002265, M.hominis3 | Serotype 5 | ATCC 23114, M24473, M.hominis | NCTC 10111

Mycoplasma hyopharyngis [VP] Erickson et al. 1986 - H3-6B F | ATCC 35707

Mycoplasma hyopneumoniae [AL] Mare and Switzer 1965 - ATCC 25934

Mycoplasma hyorhinis [AL] Switzer 1955 - ATCC 17981, M24658, M.hyorhini

Mycoplasma hyosynoviae [AL] Ross and Karmon 1970 - S16, U26730, M.hyosyno2 | ATCC 25591

Mycoplasma imitans [VP] Bradbury et al. 1993 - 4229, L24103, M.imitans | ATCC 51306 | NCTC 11733

Mycoplasma indiense [VP] Hill 1993 - 3T, AF125593 | NCTC 11728

Mycoplasma iners [AL] Edward and Kanarek 1960 - ATCC 19705

Mycoplasma iowae [VP] Jordan et al. 1982 - 695 | ATCC 33552, M24293, M.iowae | NCTC 10185

†*Mycoplasma lactucae* [VP] Rose et al. 1990 -> *Mesoplasma lactucae* - 831-C4, M24479, Mes.lactuc | ATCC 49193, M24479, Mes.lactuc

Mycoplasma lagogenitalium [VP] Kobayashi et al. 1997 - 12MS, AF412983 | ATCC 700289

Mycoplasma leonicaptivi [VP] Hill 1992 - 3L2 | ATCC 49890, U16759, M.leocaptv | NCTC 11726

Mycoplasma leopharyngis [VP] Hill 1992 - LL2 | ATCC 49889, U16760, M.leophryn | NCTC 11725

Mycoplasma lipofaciens [VP] Bradbury et al. 1983 - R171, AF221115 | ATCC 35015 | NCTC 10191

Mycoplasma lipophilum [AL] Del Giudice et al. 1974 - ATCC 27104, M24581, M.lipophil

†*Mycoplasma lucivorax* [VP] Williamson et al. 1990 -> *Entomoplasma lucivorax* - PIPN-2 | ATCC 49196

†*Mycoplasma luminosum* [VP] Williamson et al. 1990 -> *Entomoplasma luminosum* - PIMN-1 | ATCC 49195

Mycoplasma maculosum [AL] Edward 1955 - ATCC 19327

†*Mycoplasma melaleucae* [VP] Tully et al. 1990 -> *Entomoplasma melaleucae* - M1, M24478, Enp.melale | ATCC 49191, M24478, Enp.melale

Mycoplasma meleagridis [AL] Yamamoto et al. 1965 - 17529, L24106, M.meleagri | ATCC 25294

Mycoplasma microti [VP] Brown et al. 2001 [367] - IL371, AF212859 | ATCC 700935

Mycoplasma moatsii [AL] Madden et al. 1974 - ATCC 27625

Mycoplasma mobile [VP] Kirchhoff et al. 1987 - 163K | ATCC 43663, M24480, M.mobile

Mycoplasma molare [AL] Rosendal 1974 - ATCC 27746

Mycoplasma muris [VP] McGarrity et al. 1983 - RIII-4, M23939, M.muris | ATCC 33757, M23939, M.muris

Mycoplasma mustelae [VP] Salih et al. 1983 - MX9, AF412986 | AMRC-C 1486 | ATCC 35214 | NCTC 10193

Mycoplasma neurolyticum [AL] (Sabin 1941) Freundt 1955 - ATCC 19988, M23944, M.neurolyt

Mycoplasma opalescens [AL] Rosendal 1975 - ATCC 27921

Mycoplasma orale [AL] Taylor-Robinson et al. 1964 - CH19299, M24659, M.orale | ATCC 23714, M24659, M.orale

[365] Corrected name after species was illegitimately assigned Candidatus status

[366] Corrected name after species was illegitimately assigned Candidatus status

[367] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Mycoplasma ovipneumoniae [AL] Carmichael et al. 1972 - Y98, U44771, M.ovipneu3 | ATCC 29419 | NCTC 10151
Mycoplasma oxoniensis [VP] Hill 1991 - 128 | NCTC 11712
Mycoplasma penetrans [VP] Lo et al. 1992 - GTU-54-6A1, L10839, M.penetrns | ATCC 55252
Mycoplasma phocicerebrale [VP] Giebel et al. 1991 - 1049, AF304323 | ATCC 49640
Mycoplasma phocirhinis [VP] Giebel et al. 1991 - 852, AF304324 | ATCC 49639
Mycoplasma phocidae [VP] Ruhnke and Madoff 1992 - 105, AF304325 | ATCC 33657
Mycoplasma pirum [VP] Del Giudice et al. 1985 - HRC 70-159, M23940, M.pirum | ATCC 25960, M23940, M.pirum
Mycoplasma pneumoniae [AL] Somerson et al. 1963 - FH, M29061, M.pneumoni | ATCC 15531, M29061, M.pneumoni
Mycoplasma primatum [AL] Del Giudice et al. 1971 - ATCC 25948
Mycoplasma pullorum [VP] Jordan et al. 1982 - CKK, U58504, M.pullorum | ATCC 33553 | NCTC 10187
Mycoplasma pulmonis [AL] (Sabin 1941) Freundt 1955 - ATCC 19612, M23941, M.pulmonis
Mycoplasma putrefaciens [AL] Tully et al. 1974 - C30 KS-1, U26055, M.putrefa2 | ATCC 15718
Mycoplasma salivarium [AL] Edward 1955 - H110 | PG 20, M24661, M.salivari | ATCC 23064, M24661, M.salivari | NCTC 10113
Mycoplasma simbae [VP] Hill 1992 - LX | ATCC 49888, U16323, M.simbae | NCTC 11725
†*Mycoplasma somnilux* [VP] Williamson et al. 1990 -> *Entomoplasma somnilux* - PYAN-1 | ATCC 49194
Mycoplasma spermatophilum [VP] Hill 1991 - AH159, AF221119 | NCTC 11720
Mycoplasma spumans [AL] Edward 1955 - ATCC 19526
Mycoplasma sturni [VP] Forsyth et al. 1996 - ATCC 51945 | UCMF, U22013, M.sturnida
Mycoplasma sualvi [AL] Gourlay et al. 1978 - Mayfield (clone B), M23936, M.sualvi | ATCC 33004, M23936, M.sualvi | NCTC 10170
Mycoplasma subdolum [AL] Lemcke and Kirchhoff 1979 - ATCC 29870
Mycoplasma suis [VP] (Splitter 1950) Neimark et al. 2002 <- *Eperythrozoon suis* (basonym) , AF029394, U88565[368]
Mycoplasma synoviae [AL] Olson et al. 1964 - ATCC 25204 | NCTC 10124 | WVU 1853, L07757, M.synoviae | WVU 1853, X52083, M.synovia3
Mycoplasma testudinis [VP] Hill 1985 - 1008 | ATCC 43263, U09788, M.testudin | NCTC 11701
Mycoplasma verecundum [AL] Gourlay et al. 1974 - ATCC 27862
Mycoplasma wenyonii [VP] (Adler and Ellenbogen 1934) Neimark et al. 2002 <- *Eperythrozoon wenyonii* (basonym) [369]
Mycoplasma yeatsii [VP] DaMassa et al. 1994 - GIH, U67946, M.yeatsii1 | ATCC 51346 | NCTC 11730

Genus II. Eperythrozoon [AL]
Eperythrozoon coccoides [AL (T)] Schilling 1928
Eperythrozoon ovis [AL] Neitz et al. 1934
Eperythrozoon parvum [AL] Splitter 1950
†*Eperythrozoon suis* [AL] Splitter 1950 -> *Mycoplasma suis*, AF029394, U88565
†*Eperythrozoon wenyonii* [AL] Adler and Ellenbogen 1934 -> *Mycoplasma wenyonii*, AF016546

Genus III. Haemobartonella [AL 370]
†*Haemobartonella muris* [AL (T)] (Mayer 1921) Tyzzer and Weinman 1939 -> *Mycoplasma haemomuris*, U82963, Hbn.muris1
†*Haemobartonella canis* [VP] Kreier and Ristic 1984 -> *Mycoplasma haemocanis*

[368] Corrected name after species was illegitimately assigned Candidatus status
[369] Corrected name after species was illegitimately assigned Candidatus status
[370] PCA plots strongly suggest that *Eperythrozoon* and *Haemobartonella* are distantly removed from other members of the *Mollicutes*, based on 16S sequence data.

†*Haemobartonella felis* [VP] Kreier and Ristic 1984 -> *Mycoplasma haemofelis*, U88563, Hbn.felis2, U88564, Hbn.felis1, U95297, Hbn.felis3

Genus IV. Ureaplasma [AL]

Ureaplasma urealyticum [AL (T)] Shepard et al. 1974 - 960, M23935, Upl.urealy | CX8 | Serotype VIII | ATCC 27618 | NCTC 10177, M23935, Upl.urealy

Ureaplasma canigenitalium [VP] Harasawa et al. 1993 - D6P-C, D78648, Upl.cangen | ATCC 51252

Ureaplasma cati [VP] Harasawa et al. 1990 - F2, D78649, Upl.cati | ATCC 49228 | NCTC 11710

Ureaplasma diversum [VP] Howard and Gourlay 1982 - A417, D78650, Upl.divers | NCTC 10182

Ureaplasma felinum [VP] Harasawa et al. 1990 - FT2-B, D78651, Upl.felinu | ATCC 49229 | NCTC 11709

Ureaplasma gallorale [VP] Koshimizu et al. 1987 - D6-1 | ATCC 43346, U62937, Upl.gallor | NCTC 11707

Ureaplasma parvum [VP] Robertson et al. 2002 - 27 | ATCC 27815, AF073456 | NCTC 11736

Order II. *Entomoplasmatales* [VP]

Family I. Entomoplasmataceae [VP]

Genus I. Entomoplasma [VP (T)]

Entomoplasma ellychniae [VP (T)] (Tully et al. 1989) Tully et al. 1993 <- *Mycoplasma ellychniae* (basonym) - ELCN-1, M24292, Enp.ellych | ATCC 43707, M24292, Enp.ellych

Entomoplasma freundtii [VP] Tully et al. 1998 - BARC 318 | ATCC 51999

Entomoplasma lucivorax [VP] (Williamson et al. 1990) Tully et al. 1993 <- *Mycoplasma lucivorax* (basonym) - PIPN-2 | ATCC 49196

Entomoplasma luminosum [VP] (Williamson et al. 1990) Tully et al. 1993 <- *Mycoplasma luminosum* (basonym) - PIMN-1 | ATCC 49195

Entomoplasma melaleucae [VP] (Tully et al. 1990) Tully et al. 1993 <- *Mycoplasma melaleucae* (basonym) - M1, M24478, Enp.melale | ATCC 49191, M24478, Enp.melale

Entomoplasma somnilux [VP] (Williamson et al. 1990) Tully et al. 1993 <- *Mycoplasma somnilux* (basonym) - PYAN-1 | ATCC 49194

Genus II. Mesoplasma [VP]

Mesoplasma florum [VP (T)] (McCoy et al. 1984) Tully et al. 1993 <- *Acholeplasma florum* (basonym) - L1, AF300327 | ATCC 33453

Mesoplasma chauliocola [VP] Tully et al. 1994 - CHPA-2 | ATCC 49578

Mesoplasma coleopterae [VP] Tully et al. 1994 - BARC 779 | ATCC 49583

Mesoplasma corruscae [VP] Tully et al. 1994 - ELCA-2 | ATCC 49579

Mesoplasma entomophilum [VP] (Tully et al. 1988) Tully et al. 1993 <- *Acholeplasma entomophilum* (basonym) - TAC, M23931, Mes.entomo | ATCC 43706, M23931, Mes.entomo

Mesoplasma grammopterae [VP] Tully et al. 1994 - GRUA-1 | ATCC 49580

Mesoplasma lactucae [VP] (Rose et al. 1990) Tully et al. 1993 <- *Mycoplasma lactucae* (basonym) - 831-C4, M24479, Mes.lactuc | ATCC 49193, M24479, Mes.lactuc

Mesoplasma photuris [VP] Tully et al. 1994 - PUPA-2 | ATCC 49581

Mesoplasma pleciae [VP] Tully et al. 1994 - PS-1 | ATCC 49582

Mesoplasma seiffertii [VP] (Bonnet et al. 1991) Tully et al. 1993 <- *Acholeplasma seiffertii* (basonym) - F7 | ATCC 49495

Mesoplasma syrphidae [VP] Tully et al. 1994 - YJS | ATCC 51578

Mesoplasma tabanidae [VP] Tully et al. 1994 - BARC 857 | ATCC 49584

Family II. Spiroplasmataceae [VP]

Genus I. Spiroplasma [AL (T)]

Spiroplasma citri [AL (T)] Saglio et al. 1973 - Morocco-R8-A2, X63781, Spp.cit2HP | ATCC 27556, M23942, Spp.citri | NCPPB 2647

Spiroplasma alleghenense [VP] Adams et al. 1997 - PLHS-1 | ATCC 51752

Spiroplasma apis [VP] Mouches et al. 1984 - B 31, M23937, Spp.apis | ATCC 33834, M23937, Spp.apis
Spiroplasma cantharicola [VP] Whitcomb et al. 1993 - CC-1 | ATCC 43207
Spiroplasma chinense [VP] Guo et al. 1990 - CCH | ATCC 43960
Spiroplasma chrysopicola [VP] Whitcomb et al. 1997 - DF-1 | ATCC 43209
Spiroplasma clarkii [VP] Whitcomb et al. 1993 - CN-5, M24474, Spp.clarki | ATCC 33827, M24474, Spp.clarki
Spiroplasma corruscae [VP] Hackett et al. 1996 - EC-1 | ATCC 43212
Spiroplasma culicicola [VP] Hung et al. 1987 - AES-1 | ATCC 35112
Spiroplasma diabroticae [VP] Carle et al. 1997 - DU-1, M24482, Spp.diabro | ATCC 43210
Spiroplasma diminutum [VP] Williamson et al. 1996 - CUAS-1 | ATCC 49235
Spiroplasma floricola [VP] Davis et al. 1981 - 23-6 | ATCC 29989
Spiroplasma gladiatoris [VP] Whitcomb et al. 1997 - TG-1, M24475, Spp.gladia | ATCC 43525, M24475, Spp.gladia
Spiroplasma helicoides [VP] Whitcomb et al. 1997 - TABS-2 | ATCC 51746
Spiroplasma insolitum [VP] Hackett et al. 1993 - M55 | ATCC 33502
Spiroplasma ixodetis [VP] Tully et al. 1995 - Y32, M24477, Spp.ixodet | ATCC 33835, M24477, Spp.ixodet
Spiroplasma kunkelii [VP] Whitcomb et al. 1986 - E275 | ATCC 29320
Spiroplasma lampyridicola [VP] Stevens et al. 1997 - PUP-1 | ATCC 43206
Spiroplasma leptinotarsae [VP] Hackett et al. 1996 - LD-1 | ATCC 43213
Spiroplasma lineolae [VP] French et al. 1997 - TALS-2 | ATCC 51749
Spiroplasma litorale [VP] Konai et al. 1997 - TN-1 | ATCC 43211
Spiroplasma melliferum [VP] Clark et al. 1985 - BC-3 | ATCC 33219
Spiroplasma mirum [VP] Tully et al. 1982 - SMCA, M24662, Spp.mirum | ATCC 29335, M24662, Spp.mirum
Spiroplasma monobiae [VP] Whitcomb et al. 1993 - MQ-1, M24481, Spp.monobi | ATCC 33825
Spiroplasma montanense [VP] Whitcomb et al. 1997 - ATCC 51745 | HYOS-1
Spiroplasma phoeniceum [VP] Saillard et al. 1987 - P40 | ATCC 43115
Spiroplasma platyhelix [VP] Williamson et al. 1997 - PALS-1 | ATCC 51748
Spiroplasma poulsonii [VP] Williamson et al. 1999 - DW-1, M24483, Spp.sp.DW1 | ATCC 43153
Spiroplasma sabaudiense [VP] Abalain-Colloc et al. 1987 - Ar-1343 | ATCC 43303
Spiroplasma syrphidicola [VP] Whitcomb et al. 1996 - EA-1 | ATCC 33826
Spiroplasma tabanidicola [VP] Whitcomb et al. 1997 - TAUS-1 | ATCC 51747
Spiroplasma taiwanense [VP] Abalain-Colloc et al. 1988 - CT-1, M24476 | ATCC 43302, M24476, Spp.taiwan, Spp.taiwan
Spiroplasma turonicum [VP] Hélias et al. 1998 - Tab4c | ATCC 700271
Spiroplasma velocicrescens [VP] Konai et al. 1995 - MQ-4 | ATCC 35262

Order III. *Acholeplasmatales* [VP]
Family I. Acholeplasmataceae [AL]
Genus I. Acholeplasma [AL]
Acholeplasma laidlawii [AL (T)] (Freundt 1955) Edward and Freundt 1970 - PG8, U14905, Acp.laidl2 | ATCC 23206, U14905, Acp.laidl2 | IMET 10894 | NCTC 10116
Acholeplasma axanthum [AL] Tully and Razin 1970 - ATCC 25176
Acholeplasma brassicae [VP] Tully et al. 1994 - 502 | ATCC 49388
Acholeplasma cavigenitalium [VP] Hill 1992 - GP3 | NCTC 11727
†*Acholeplasma entomophilum* [VP] Tully et al. 1988 -> *Mesoplasma entomophilum* - TAC, M23931, Mes.entomo | ATCC 43706, M23931, Mes.entomo
Acholeplasma equifetale [AL] Kirchoff 1974 - ATCC 29724
†*Acholeplasma florum* [VP] McCoy et al. 1984 -> *Mesoplasma florum* - L1, AF300327 | ATCC 33453
Acholeplasma granularum [AL] (Switzer 1964) Edward and Freundt 1970 - ATCC 19168
Acholeplasma hippikon [AL] Kirchoff 1974 - ATCC 29725

Acholeplasma modicum [AL] Leach 1973 - PG 49, M23933, Acp.modicu | ATCC 29102, M23933, Acp.modicu
Acholeplasma morum [VP] Rose et al. 1980 - 72-043 | PN525 | ATCC 33211
Acholeplasma multilocale [VP] Hill et al. 1992 - NCTC 11723
Acholeplasma oculi [AL] Al-Aubaidi et al. 1973 - 19-L, U14904, Acp.oculi | ATCC 27350, U14904, Acp.oculi
Acholeplasma palmae [VP] Tully et al. 1994 - J233, L33734, Acp.spJ233 | ATCC 49389, L33734, Acp.spJ233
Acholeplasma parvum [VP] Atobe et al. 1983 - H23M | ATCC 29892
†Acholeplasma seiffertii [VP] Bonnet et al. 1991 -> *Mesoplasma seiffertii* - F7 | ATCC 49495
Acholeplasma vituli [VP] Angulo et al. 2000 - FC 097-2, AF031479 | ATCC 70067, AF031479

Order IV. *Anaeroplasmatales* [VP]
Family I. Anaeroplasmataceae [VP]
Genus I. Anaeroplasma [AL (T)]
Anaeroplasma abactoclasticum [AL (T)] Robinson et al. 1975 - ATCC 27879, M25050, Anp.abacto
Anaeroplasma bactoclasticum [AL] (Robinson and Hungate 1973) Robinson and Allison 1975 - ATCC 27112, M25049, Anp.bactoc
Anaeroplasma intermedium [VP] Robinson and Freundt 1987 - 7LA | ATCC 43166
Anaeroplasma varium [VP] Robinson and Freundt 1987 - A-2, M23934, Anp.varium | ATCC 43167, M23934, Anp.varium
Genus II. Asteroleplasma [VP]
Asteroleplasma anaerobium [VP (T)] Robinson and Freundt 1987 - 161, M22351, Ast.anaero | ATCC 27880, M22351, Ast.anaero

Order V. *Incertae sedis*
Family I. "Erysipelotrichaceae"
Genus I. Erysipelothrix [AL]
Erysipelothrix rhusiopathiae [AL (T)] (Migula 1900) Buchanan 1918 - ATCC 19414, AB019247, Ers.rhusi2 | ATCC 19414, M23728, Ers.rhusio | DSM 5055 | NCTC 8163
Erysipelothrix tonsillarum [VP] Takahashi et al. 1987 - T-305 | ATCC 43339, AB019248, Ers.tonsi2
Genus II. Bulleidia [VP]
Bulleidia extructa [VP (T)] Downes et al. 2000 - W1219 | DSM 13220, AF220064
Genus III. Holdemania [VP]
Holdemania filiformis [VP (T)] Willems et al. 1997 - J1-31B-1 | ATCC 51649, Y11466, Hld.filfor | DSM 12042
Genus IV. Solobacterium [VP]
Solobacterium moorei [VP (T)] Kageyama and Benno 2000 - RCA59-74, AB031056 | JCM 10645

Class III. *"Bacilli"*
Order I. *Bacillales* [AL] [371]
Family I. Bacillaceae [AL]
Genus I. Bacillus [AL (T)]
Bacillus subtilis subspecies subtilis [AL (T)] (Ehrenberg 1835) Cohn 1872 - NRS 744 | ATCC 6051 | CCM 2216 | DSM 10 | IAM 12118 | NBRC 12210 | IMET 10758 | JCM 1465 | LMG 7135 | NCIB 3610 | NCTC 3610
Bacillus subtilis subspecies spizizenii [VP] Nakamura et al. 1999 - NRRL B-23049, AF074970

[371] Ludwig states that a clear resolution among the families of *Bacillales* cannot be achieved. Taxa have been rearranged to follow the broader topology of the RDP and ARB trees.

†*Bacillus acidocaldarius* [AL] Darland and Brock 1971 -> *Alicyclobacillus acidocaldarius* - 104-IA | ATCC 27009 | DSM 446, X60742, Alb.acical | NBRC 1565 | IMET 11356 | JCM 5260 | NCIB 11725

†*Bacillus acidoterrestris* [VP] Deinhard et al. 1988 -> *Alicyclobacillus acidoterrestris* - GD3B | ATCC 49025 | DSM 3922, X60602, Alb.aciter

Bacillus agaradhaerens [VP] Nielsen et al. 1995 - PN-105 | DSM 8721, X76445, B.sp8

†*Bacillus agri* [VP] (ex Laubach and Rice 1916) Nakamura 1993 -> *Brevibacillus agri* = *Bacillus galactophilus* (later heterotypic synonym) - ATCC 51663 | DSM 6348 | NRRL NRS-1219, D78454, Bb.agri1

Bacillus alcalophilus [AL] Vedder 1934 - ATCC 27647 | DSM 485, X60603, B.alcaloph | DSM 485, X76436, B.alcalop2 | NCIB 10436 | NCIB 8772

†*Bacillus alginolyticus* [VP] Nakamura 1987 -> *Paenibacillus alginolyticus* - DSM 5050, D78465, Pae.algily | NRRL NRS-1347

†*Bacillus alvei* [AL] Cheshire and Cheyne 1885 -> *Paenibacillus alvei* - IMAB B-3-4 | ATCC 6344, X57304, Pae.alvei2 | CCM 2051 | DSM 29 | NBRC 3343 | LMG 13253 | NCIB 9371 | NCTC 6352

Bacillus amyloliquefaciens [VP] (ex Fukumoto 1943) Priest et al. 1987 - Fukumoto strain F | ATCC 23350, X60605, B.amylique | DSM 7 | LMG 9814

†*Bacillus amylolyticus* [VP] (ex Choukévitch 1911) Nakamura 1984 -> *Paenibacillus amylolyticus* - 290 | ATCC 9995 | DSM 3034 | LMG 11153 | NRRL B-377 | NRRL NRS-290, D85396

†*Bacillus aneurinolyticus* [VP] (ex Kimura and Aoyama 1952) Shida et al. 1994 -> *Aneurinibacillus aneurinilyticus* - NRS 1589 | ATCC 12856, D78455, Ab.anurly3 | CIP 104007 | DSM 5562, X94194, Ab.anurly2 | IAM 1077 | NBRC 1552 | JCM 9024

Bacillus anthracis [AL] Cohn 1872 - ATCC 14578

Bacillus arseniciselenatis [VP] Switzer Blum et al. 2001 [372] - E1H, AF064705 | ATCC 700614

Bacillus atrophaeus [VP] Nakamura 1989 - DSM 7364 | NRRL NRS-213

†*Bacillus azotofixans* [VP] Seldin et al. 1984 -> *Paenibacillus azotofixans* - P3L-5 | ATCC 35681, X60608, Pae.azofi2 | DSM 5976 | LMG 14658

Bacillus azotoformans [VP] (ex Pichinoty et al. 1976) Pichinoty et al. 1983 - ATCC 29788, X60609, B.azotofor | CCM 2849 | CIP R925 | DSM 1046, D78309, B.azotofo2

Bacillus badius [AL] Batchelor 1919 - ATCC 14574, D78310, B.badius3 | ATCC 14574, X77790, B.badius2 | CCM 2113 | DSM 23 | NCIB 9364 | NCTC 10333

Bacillus barbaricus [VP] Täubel et al. 2003 - V2-BIII-A2, AJ422145 | CCM 4982 | DSM 14730

Bacillus benzoevorans [VP] Pichinoty et al. 1987 - B1 | ATCC 49005 | CCM 3364 | DSM 5391, D78311, B.benzoev2 | LMD 79.7 | NCIB 12555

†*Bacillus borstelensis* [VP] (ex Porter) Shida et al. 1995 -> *Brevibacillus borstelensis* - B4 | ATCC 51668 | CIP 104545 | DSM 6347 | NBRC 15714 | JCM 9022 | NRRL NRS-818, D78456, Bb.borstel

†*Bacillus brevis* [AL] Migula 1900 -> *Brevibacillus brevis* - 27B | ATCC 8246, M10111, Bb.brevis1 | CCM 2050 | DSM 30 | JCM 2503, D78457, Bb.brevis3 | LMG 16703 | NCIB 9372, X60612, Bb.brevis | NCTC 2611

Bacillus carboniphilus [VP] Fujita et al. 1996 - Kasumi 6 | JCM 9731, AB021182

†*Bacillus centrosporus* [VP] (ex Ford 1916) Nakamura 1993 -> *Brevibacillus centrosporus* - 120 | ATCC 51661 | DSM 8445 | NRRL NRS-664, D78458, Bb.centspr

Bacillus cereus [AL] Frankland and Frankland 1887 - ATCC 14579 | CCM 2010 | DSM 31 | LMG 6923 | NCIB 9373 | NCTC 2599

Bacillus chitinolyticus [VP] Kuroshima et al. 1996 - EAG-3 | DSM 11030 | NBRC 15660, AB021183

†*Bacillus chondroitinus* [VP] Nakamura 1987 -> *Paenibacillus chondroitinus* - DSM 5051, D82064, Pae.chndro | NRRL NRS-1351

[372] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

†*Bacillus choshinensis* [VP] Takagi et al. 1993 -> *Brevibacillus choshinensis* - HPD 52, D78459, Bb.choshin | ATCC 51359 | CIP 103838 | DSM 8552 | JCM 8505

Bacillus circulans [AL] Jordan 1890 - 26 | ATCC 4513 | CCM 2048 | DSM 11 | IMET 11259 | JCM 2504 | LMG 13261 | NCDO 1775, X60613, B.circulan | NCIB 9374 | NCTC 2610

Bacillus clarkii [VP] Nielsen et al. 1995 - PN-102 | VP 395 | DSM 8720, X76444, B.sp7

Bacillus clausii [VP] Nielsen et al. 1995 - C 360 | PN-23 | CIP 104718 | DSM 8716, X76440, B.sp3 | NCIMB 10309

Bacillus coagulans [AL] Hammer 1915 - ATCC 7050 | CCM 2013 | DSM 1 | IAM 1115, D16267, B.coagula2 | IMET 10993 | JCM 2257, D78313, B.coagula3 | NCDO 1761, X60614, B.coagulan | NCIB 9365 | NCTC 10334

Bacillus cohnii [VP] Spanka and Fritze 1993 - RSH | ATCC 5122 | CCM 4369 | DSM 6307, X76437, B.cohnii | NBRC 15565

†*Bacillus curdlanolyticus* [VP] Kanzawa et al. 1995 -> *Paenibacillus curdlanolyticus* - DSM 10247 | NBRC 15724, D78466, Pae.curdly | YK9

†*Bacillus cycloheptanicus* [VP] Deinhard et al. 1988 -> *Alicyclobacillus cycloheptanicus* - SCH | ATCC 49028 | DSM 4006 | NBRC 15310

Bacillus decolorationis [VP] Heyrman et al. 2003 - DSM 14890 | LMG 19507, AJ315075

†*Bacillus dipsosauri* [VP] Lawson et al. 1996 -> *Gracilibacillus dipsosauri* - DD1, X82436, Grb.dipsau | DSM 11125 | NCFB 3027

Bacillus edaphicus [VP] Shelobolina et al. 1998 - T7, AF006076, B.edaphicu | VKPM B-7517

Bacillus ehimensis [VP] Kuroshima et al. 1996 - EAG-5 | DSM 11029 | NBRC 15659, AB021184

Bacillus endophyticus [VP] Reva et al. 2002 - 2DT, AF295302 | CIP 106778 | UCM B-5715

Bacillus fastidiosus [AL] den Dooren de Jong 1929 - ATCC 29604 | Delft LMD 29-14 | DSM 91, X60615, B.fastidio | LMD 29-14 | NCIB 11326

Bacillus firmus [AL] Bredemann and Werner 1933 - ATCC 14575 | CCM 2213 | DSM 12 | IAM 12464, D16268, B.firmus2 | NBRC 15306 | JCM 2512, D78314, B.firmus3 | LMG 7125 | NCIB 9366, X60616, B.firmus | NCTC 10335

Bacillus flexus [VP] (ex Batchelor 1919) Priest et al. 1989 - NRS 665 | ATCC 49095 | DSM 1320

†*Bacillus formosus* [VP] (ex Porter) Shida et al. 1995 -> *Brevibacillus formosus* - F12 | NRS 863, D78460, Bb.formosu | DSM 9885 | NBRC 15716 | JCM 9169 | NRRL NRS-863

Bacillus fumarioli [VP] Logan et al. 2000 - Rcp Sm1 | LMG 17489, AJ250056

Bacillus funiculus [VP] Ajithkumar et al. 2002 - NAF001, AB049195 | JCM 11201 | CIP 107128

Bacillus fusiformis [VP] (ex Meyer and Gottheil 1901) Priest et al. 1989 - ATCC 7055, L14013, B.fusifor2 | DSM 2898

†*Bacillus galactophilus* [VP] Takagi et al. 1993 = *Bacillus agri* (earlier heterotypic synonym) - JCM 8507 | NRRL NRS-616

Bacillus gibsonii [VP] Nielsen et al. 1995 - PN-109 | CIP 104720 | DSM 8722, X76446, B.sp9

†*Bacillus globisporus subspecies globisporus* [AL] Larkin and Stokes 1967 -> *Sporosarcina globispora* - W 25, X54967, B.globisp2 | ATCC 23301 | CCM 2119 | DSM 4, X68415, B.globisp3 | NCIB 11434, X60644, B.globispr

†*Bacillus globisporus subspecies marinus* [AL] Rüger and Richter 1979 -> *Bacillus marinus* - ATCC 29841 | DSM 1297, AJ237708

†*Bacillus glucanolyticus* [VP] Alexander and Priest 1989 -> *Paenibacillus glucanolyticus* - B0030 | S93 | ATCC 49278 | DSM 5162, D78470, Pae.glulyt | NBRC 15330 | NCIMB 12809

†*Bacillus gordonae* [VP] Pichinoty et al. 1987 -> *Paenibacillus gordonae* - Q1 | ATCC 29948, X60617, Pae.valid2

Bacillus halmapalus [VP] Nielsen et al. 1995 - PN-118 | DSM 8723, X76447, B.sp10

Bacillus haloalkaliphilus [VP] Fritze 1996 - WN13 | DSM 5271, X72876, B.spWN13

Bacillus halodenitrificans [VP] Denariaz et al. 1989 - ATCC 49067, AB021186 | DSM 10037

Bacillus halodurans [VP] (ex Boyer 1973) Nielsen et al. 1995 - PN-80 | ATCC 27557 | DSM 497 | NRRL B-3881

Bacillus halophilus [VP] Ventosa et al. 1990 - N23-2 | ATCC 49085 | CCM 4074 | DSM 4771, AJ243920, AB021188

Bacillus horikoshii [VP] Nielsen et al. 1995 - JP 277 | PN-121 | DSM 8719, X76443, B.sp6

Bacillus horti [VP] Yumoto et al. 1998 - K13, D87035, B.horti1 | JCM 9943

Bacillus infernus [VP] Boone et al. 1995 - TH-23, U20385, B.infernu2 | DSM 10277 | OCM 459 | SMCC/W 479

Bacillus insolitus [AL] Larkin and Stokes 1967 - W16B | ATCC 23299 | CCM 2175 | DSM 5, X60642, B.insolitu | NCIB 11433

Bacillus jeotgali [VP] Yoon et al. 2001 - YKJ-10, AF221061 | JCM 10885 | KCCM 41040

†*Bacillus kaustophilus* [VP] (ex Prickett 1928) Priest et al. 1989 -> *Geobacillus kaustophilus* - NRS 7281 | ATCC 8005 | DSM 7263 | NCIMB 8547, X60618, B.kaustoph | NRRL-NRS 81

†*Bacillus kobensis* [VP] Kanzawa et al. 1995 -> *Paenibacillus kobensis* - YK205 | DSM 10249 | NBRC 15729, D78471, Pae.kobens

Bacillus laevolacticus [VP] (ex Nakayama and Yanoshi 1967) Andersch et al. 1994 - M 8 | ATCC 23492 | DSM 442 | IAM 12321, D16270, B.lvolacti | JCM 2513 | NCIB 10269

†*Bacillus larvae* [AL] White 1906 -> *Paenibacillus larvae* - Med-540 | ATCC 9545, X60619, Pae.larvae | DSM 7030 | LMG 9820 | NRRL B-2605

†*Bacillus laterosporus* [AL] Laubach 1916 -> *Brevibacillus laterosporus* - AMC 797 | AMNH 797 | ATCC 64 | CCM 2116 | DSM 25, X57307, Bb.lateros | IAM 12465, D16271, Bb.latero3 | NBRC 15654 | JCM 2496, D78461, Bb.latero4 | LMG 16000 | NCIB 9367 | NCTC 6357

†*Bacillus lautus* [VP] (ex Batchelor 1919) Nakamura 1984 -> *Paenibacillus lautus* - ATCC 43898 | DSM 3035 | LMG 11157 | NCIMB 12780, X60621, Pae.lautus | NRRL NRS-666, D78473, Pae.lautu2

†*Bacillus lentimorbus* [AL] Dutky 1940 -> *Paenibacillus lentimorbus* - ATCC 14707, AF071861, Pae.lenti3 | ATCC 14707, X60622, Pae.lentim

Bacillus lentus [AL] Gibson 1935 - ATCC 10840 | CCM 2214 | DSM 9 | IAM 12466, D16272, B.lentus2 | NBRC 15655 | JCM 2511, D78315, B.lentus3 | NCIB 8773 | NCTC 4824

Bacillus licheniformis [AL] (Weigmann 1898) Chester 1901 - ATCC 14580 | CCM 2145 | DSM 13, X68416, B.licheni2 | NBRC 12200 | NCDO 1772, X60623, B.lichenif | NCIB 9375 | NCTC 10341

Bacillus luciferensis [VP] Logan et al. 2002 - SSI061 | CIP 107105 | LMG 18422, AJ419629

†*Bacillus macerans* [AL] Schardinger 1905 -> *Paenibacillus macerans* - ATCC 8244, X57306, Pae.macer2 | CCM 2012 | DSM 24, X57306, Pae.macer2 | IAM 1227 | LMG 13281 | NCIB 9368 | NCTC 6355

†*Bacillus macquariensis* [AL] Marshall and Ohye 1966 -> *Paenibacillus macquariensis* - ATCC 23464, X57305, Pae.macqri | DSM 2 | LMG 13289 | NCIB 9934 | NCTC 10419, X60625, Pae.macqr2

†*Bacillus marinus* [VP] (Rüger and Richter 1979) Rüger 1983 <- *Bacillus globisporus subspecies marinus* (basonym) -> *Marinibacillus marinus* - ATCC 29841 | DSM 1297, AJ237708

†*Bacillus marismortui* [VP] Arahal et al. 1999 -> *Salibacillus marismortui* - 123, AJ009793 | ATCC 700626 | CECT 5066 | CIP 105609 | DSM 12325

Bacillus megaterium [AL] de Bary 1884 - ATCC 14581 | CCM 2007 | DSM 32, X60629, B.megateri | NCIB 9376 | NCTC 10342

Bacillus methanolicus [VP] Arfman et al. 1992 - PB1 | NCIMB 1311

†*Bacillus migulanus* [VP] Takagi et al. 1993 -> *Aneurinibacillus migulanus* - ATCC 9999, D78462, Ab.migulan | CIP 103841 | DSM 2895, X94195, Ab.migula2 | NBRC 15520 | JCM 8504 | NCIB 7096 | NCTC 7096 | VKM B-1722

Bacillus mojavensis [VP] Roberts et al. 1994 - RO-H-1 | ATCC 51516 | DSM 9205 | NRRL B-14698

Bacillus mucilaginosus [VP] Avakyan et al. 1998 emend. Shelobolina et al. 1998 - 1480D, AF006077, B.mucilagi | VKPM B-7519

Bacillus mycoides [AL] Flügge 1886 - ATCC 6462, AF155956, AB021192 | DSM 2048

Bacillus naganoensis [VP] Tomimura et al. 1990 - D 39 | ACM 5005 | ATCC 53909, AB021193 | DSM 10191

Bacillus nealsonii [VP] Venkateswaran et al. 2003 - FO-92, AF234863 | ATCC BAA-519 | DSM 15077

Bacillus neidei [VP] Nakamura et al. 2002 - JCM 11077 | NRRL BD-87, AF169520

Bacillus niacini [VP] Nagel and Andreesen 1991 - DSM 2923 | NBRC 15566, AB021194

Bacillus oleronius [VP] Kuhnigk et al. 1996 - Rt 10 | CIP 104972 | DSM 9356, X82492, B.oleroniu

Bacillus okuhidensis [VP] Zhiyu et al. 2002 - GTC 854, AB047684 | JCM 10945 | DSM 13666

†*Bacillus pabuli* [VP] (ex Schieblich 1923) Nakamura 1984 -> *Paenibacillus pabuli* - ATCC 43899 | DSM 3036 | LMG 11158 | NCIMB 12781, X60630, Pae.pabuli | NRRL NRS-924

Bacillus pallidus [VP] Scholz et al. 1988 - ATCC 51176 | DSM 3670, Z26930, B.pallidus | H12

†*Bacillus pantothenticus* [AL] Proom and Knight 1950 -> *Virgibacillus pantothenticus* - B 21 | CN 3028 | ATCC 14576 | CCM 2049 | DSM 26 | NCIB 8775 | NCTC 8162

†*Bacillus parabrevis* [VP] Takagi et al. 1993 -> *Brevibacillus parabrevis* - ATCC 10027 | CIP 103840 | DSM 8376 | NBRC 12334, D78463, Bb.prbrevi | JCM 8506

†*Bacillus pasteurii* [AL] (Miquel 1889) Chester 1898 -> *Sporosarcina pasteurii* - 22 | ATCC 11859 | CCM 2056 | DSM 33 | NCIMB 8841, X60631, B.pasteuri | NCTC 4822

†*Bacillus peoriae* [VP] Montefusco et al. 1993 -> *Paenibacillus peoriae* - 11.B.9 | BD-57 | DSM 8320 | NBRC 15541, D78476, Pae.peoria | LMG 14832 | NRRL B-14750

†*Bacillus polymyxa* [AL] (Prazmowski 1880) Mace 1889 -> *Paenibacillus polymyxa* - ATCC 842 | BUCSAV 162 | CCM 1459 | DSM 36, X57308, Pae.plymyx | IAM 13419, D16276, Pae.plymy3 | NBRC 15309 | JCM 2507 | LMG 13294 | NCIB 8158 | NCTC 10343

†*Bacillus popilliae* [AL] Dutky 1940 -> *Paenibacillus popilliae* - ATCC 14706, AF071859, Pae.popill | ATCC 14706, X60633, Pae.popil2

Bacillus pseudalcaliphilus [VP] Nielsen et al. 1995 - PN-137 | DSM 8725, X76449, B.sp12

Bacillus pseudofirmus [VP] Nielsen et al. 1995 - C 324 | PN-3 | DSM 8715, X76439, B.sp2 | NCIMB 10283

Bacillus pseudomycoides [VP] Nakamura 1998 - DSM 12442 | NRRL B-617

Bacillus psychrodurans [VP] Abd El-Rahman et al. 2002 - 68E3 | DSM 11713, AJ277984 | NCIMB 13837

†*Bacillus psychrophilus* [VP] Nakamura 1984 -> *Sporosarcina psychrophila* - W16A, X54968, B.psycphi2 | ATCC 23304, X60634, B.psycphil | CCM 2117 | DSM 3 | NRRL NRS 1530

Bacillus psychrosaccharolyticus [VP] Priest et al. 1989 - T25B | ATCC 23296, X60635, B.psycsacc | DSM 6 | NCIB 11729

Bacillus psychrotolerans [VP] Abd El-Rahman et al. 2002 - 3H1 | DSM 11706, AJ277983 | NCIMB 13838

†*Bacillus pulvifaciens* [VP] (ex Katznelson 1950) Nakamura 1984 -> *Paenibacillus pulvifaciens* - ATCC 49843 | DSM 3615 | LMG 6911 | NCIMB 11201 | NRRL B-3685

Bacillus pumilus [AL] Meyer and Gottheil 1901 - ATCC 7061 | CCM 2144 | DSM 27 | NBRC 12092 | JCM 2508 | NCIB 9369 | NCTC 10337

Bacillus pycnus [VP] Nakamura et al. 2002 - JCM 11075 | NRRL NRS-1691, AF169531

†*Bacillus reuszeri* [VP] Shida et al. 1995 -> *Brevibacillus reuszeri* - Army strain 39 | ATCC 51665 | CIP 104543 | DSM 9887 | NBRC 15719 | JCM 9170 | NRRL NRS-1206, D78464, Bb.reuszer

†*Bacillus salexigens* [VP] Garabito et al. 1997 -> *Salibacillus salexigens* - C-20Mo, Y11603, Sa.salexig | ATCC 700290 | CCM 4646 | DSM 11483

Bacillus schlegelii [VP] Schenk and Aragno 1981 - MA 48 | ATCC 43741 | DSM 2000, Z26934, B.schlegel

Bacillus selenitireducens [VP] Switzer Blum et al. 2001 [373] - MLS10, AF064704 | ATCC 700615

Bacillus silvestris [VP] Rheims et al. 1999 - HR3-23, AJ006086, B.silvestr | DSM 12223

Bacillus simplex [VP] (ex Meyer and Gottheil 1901) Priest et al. 1989 - NRS 960 | ATCC 49097 | DSM 1321, D78478, B.simplex3 | DSM 1321, X60638, B.simplex

Bacillus siralis [VP] Pettersson et al. 2000 - 171544, AF071856 | CIP 106295 | DSM 13140, | NCIMB 13601

Bacillus smithii [VP] Nakamura et al. 1988 - DSM 4216, X60643, B.smithii | DSM 4216, Z26935, B.smithii2 | NBRC 15311 | JCM 9076, D78316, B.smithii3 | NRRL NRS-173

Bacillus sonorensis [VP] Palmisano et al. 2001 - L87–10 | DSM 13779 | NRRL B-23154, AF302118

Bacillus sphaericus [AL] Meyer and Neide 1904 - ATCC 14577, L14010, B.sphaeri7 | CCM 2120 | DSM 28 | IAM 13420, D16280, B.sphaeri8 | JCM 2502 | LMG 7134 | NCIB 9370 | NCTC 10338

Bacillus sporothermodurans [VP] Petterson et al. 1996 - GmbH | M215, U49078, B.sporther | M215, U49079, B.sporthe2 | M215, U49080, B.sporthe3 | UHT-milk | DSMZ 10599

†*Bacillus stearothermophilus* [AL] Donk 1920 -> *Geobacillus stearothermophilus* - NCA 26 | ATCC 12980 | CCM 2062 | CCUG 26241 | DSM 22, AJ294817 | IAM 11062 | NBRC 12550 | NCIB 8923 | NCTC 10339

Bacillus subterraneus [VP] Kanso et al. 2002 - COOI3B, AY007244 | ATCC BAA-136 | DSM 13966

Bacillus thermantarcticus [VP] Nicolaus et al. 2002 - M1 | DSM 9572[374]

†*Bacillus thermoaerophilus* [VP] Meier-Stauffer et al. 1996 -> *Aneurinibacillus thermoaerophilus* - L420-91, X94196, B.thaeroph | DSM 10154, X94196, B.thaeroph

Bacillus thermoamylovorans [VP] Combet-Blanc et al. 1995 - DKP | CNCM I-1378, L27478

†*Bacillus thermocatenulatus* [VP] Golovacheva 1991 -> *Geobacillus thermocatenulatus* - 178 | DSM 730, Z26926, B.thcatenu | NBRC 15316 | VKM B-1259

Bacillus thermocloacae [VP] Demharter and Hensel 1989 - S6025, Z26939 | ATCC 49805 | DSM 5250

†*Bacillus thermodenitrificans* [VP] (ex Klaushofer and Hollaus 1970) Manachini et al. 2000 -> *Geobacillus thermodenitrificans* - DSM 465, Z26928

†*Bacillus thermoglucosidasius* [VP] Suzuki 1984 -> *Geobacillus thermoglucosidasius* - KP 1006 | ATCC 43742, X60641, B.thglucos | DSM 2542 | NCIB 11955

†*Bacillus thermoleovorans* [VP] Zarilla and Perry 1988 -> *Geobacillus thermoleovorans* - LEH-1 | ATCC 43513, M77488, B.thleovo2 | DSM 5366, Z26923, B.thleovor

†*Bacillus thermoruber* [VP] (ex Guicciardi et al. 1968) Manachini et al. 1985 -> *Brevibacillus thermoruber* - BT2 | MIM 30.8.38 | DSM 7064, Z26921, Bb.thruber

†*Bacillus thermosphaericus* [VP] Andersson et al. 1996 -> *Ureibacillus thermosphaericus* - P-11, X90640, B.thsphaer | DSM 10633 | HAMBI 1900

†*Bacillus thiaminolyticus* [VP] Nakamura 1990 -> *Paenibacillus thiaminolyticus* - AHU 1392 | DSM 7262 | JCM 8360, D78475, Pae.thiamn | NRRL B-4156

Bacillus thuringiensis [AL] Berliner 1915 - ATCC 10792, AF290545 | CCM 19 | DSM 2046, B.thurin10 | NCIB 9134, X55062, B.thuringi

[373] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[374] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Bacillus tusciae [VP] Bonjour and Aragno 1985 - T2 | DSM 2912, Z26933, B.tusciae | NBRC 15312

Bacillus validus [VP] (ex Bredemann and Heigener 1935) Nakamura 1984 -> *Paenibacillus validus* - ATCC 43897 | DSM 3037, D78320 | LMG 11161 | NRRL NRS-1000

Bacillus vallismortis [VP] Roberts et al. 1996 - DV1-F-3 | DSM 11031, AB021198 | NRRL B-14890

Bacillus vedderi [VP] Agnew et al. 1996 - JaH, Z48306, B.vedderi | ATCC 700130 | DSM 9768

Bacillus vulcani [VP] Caccamo et al. 2000 - 3s-1, AJ293805 | CIP 106305 | DSM 13174

Bacillus weihenstephanensis [VP] Lechner et al. 1998 - WSBC 10204 | DSM 11821

Genus II. Amphibacillus [VP]

Amphibacillus xylanus [VP (T)] Niimura et al. 1990 - Ep01 | ATCC 51415 | DSM 6626 | NBRC 15112 | JCM 7361, D82065, Amh.xylanu

Amphibacillus fermentum [VP] Zhilina et al. 2002 - Uniqem 210 | DSM 13869 | Z-7984, AF418603

Amphibacillus tropicus [VP] Zhilina et al. 2002 - Uniqem 212 | DSM 13870 | Z-7792, AF418602

Genus III. Anoxybacillus [VP]

Anoxybacillus pushchinoensis [VP (T)] Pikuta et al. 2000 - K1, AJ010478 | ATCC 700785 | DSM 12423 | VKM B-2193

Anoxybacillus flavithermus [VP] Pikuta et al. 2000 - d.y., Z26932 | DSM 2641

Genus IV. Exiguobacterium [VP]

Exiguobacterium aurantiacum [VP (T)] Collins et al. 1984 - BL 77/1 | ATCC 35652 | DSM 6208 | NCDO 2321, X70316, Exg.aurant | NCIB 11798

Exiguobacterium acetylicum [VP] (Levine and Soppeland 1926) Farrow et al. 1994 <- *Brevibacterium acetylicum* (basonym) - 1005 | ATCC 953 | DSM 20416 | IMET 11072 | NCIB 9889, X70313, Exg.acety2

Exiguobacterium antarcticum [VP] Fruhling et al. 2002 - H2, AJ297437 | DSM 14480 | CIP 107163

Exiguobacterium undae [VP] Fruhling et al. 2002 - L2, AJ344151 | DSM 14481 | CIP 197162

Genus V. Filobacillus [VP]

Filobacillus milosensis [VP] Schlesner et al. 2001 - SH 714, AJ238042 | ATCC 700960 | DSM 13259

Genus VI. Geobacillus [VP]

Geobacillus stearothermophilus [VP (T)] (Donk 1920) Nazina et al. 2001 [375] <- *Bacillus stearothermophilus* (basonym) - NCA 26 | ATCC 12980 | CCM 2062 | CCUG 26241 | DSM 22, AJ294817 | IAM 11062 | NBRC 12550 | NCDO 1768, X60640 | NCIB 8923 | NCTC 10339

Geobacillus caldoxylosilyticus [VP] (Ahmad et al. 2000) Fortina et al. 2001 <- *Saccharococcus caldoxylosilyticus* (basonym) - S1812, AF067651 | ATCC 700356 | DSM 97-987 | DSM 12041

Geobacillus kaustophilus [VP] (Priest et al. 1989) Nazina et al. 2001 [376] <- *Bacillus kaustophilus* (basonym) - NRS 7281 | ATCC 8005 | DSM 7263 | NCIMB 8547, X60618, B.kaustoph | NRRL-NRS 81

Geobacillus subterraneus [VP] Nazina et al. 2001 - 34, AF276306 | AS12673 | DSM 13552 | VKM B-2226

Geobacillus thermocatenulatus [VP] (Golovacheva 1991) Nazina et al. 2001 <- *Bacillus thermocatenulatus* (basonym) - 178 | DSM 730, Z26926, B.thcatenu | NBRC 15316 | VKM B-1259

[375] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[376] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Geobacillus thermodenitrificans [VP] (Manachini et al. 2000) Nazina et al. 2001 [377] <- *Bacillus thermodenitrificans* (basonym) - DSM 465, Z26928

Geobacillus thermoglucosidasius [VP] (Suzuki 1984) Nazina et al. 2001 [378] <- *Bacillus thermoglucosidasius* (basonym) - KP 1006 | ATCC 43742, X60641, B.thglucos | DSM 2542 | NCIB 11955

Geobacillus thermoleovorans [VP] (Zarilla and Perry 1988) Nazina et al. 2001 [379] <- *Bacillus thermoleovorans* (basonym) - LEH-1 | ATCC 43513, M77488, B.thleovo2 | DSM 5366, Z26923, B.thleovor

Geobacillus toebii [VP] Sung et al. 2002 - BK-1, AF326278 | DSM 14590 | KCTC 0306BP

Geobacillus uzenensis [VP] Nazina et al. 2001 - U, AF276304 | AS 12674 | DSM 13551 | VKM B-2229

Genus VII. Gracilibacillus [VP]

Gracilibacillus halotolerans [VP (T)] Wainø et al. 1999 - NN, AF036922, Grb.haltol | DSM 11805

Gracilibacillus dipsosauri [VP] (Lawson et al. 1996) Wainø et al. 1999 <- *Bacillus dipsosauri* (basonym) - DD1, X82436, Grb.dipsau | DSM 11125 | NCFB 3027

Genus VIII. Halobacillus [VP]

Halobacillus halophilus [VP (T)] (Claus et al. 1984) Spring et al. 1996 <- *Sporosarcina halophila* (basonym) - 3 | ATCC 35676 | DSM 2266

Halobacillus karajensis [VP] Amoozegar et al. 2003 - MA-2, AJ486874 | DSM 14948 | LMG 21515

Halobacillus litoralis [VP] Spring et al. 1996 - SL-4, X94558, Hbl.litora | DSM 10405

Halobacillus salinus [VP] Yoon et al. 2003 - HSL-3, AF500003 | JCM 11546 | KCCM 41590

Halobacillus trueperi [VP] Spring et al. 1996 - SL-5 | DSM 10404, AJ310149

Genus IX. Jeotgalibacillus [VP]

Jeotgalibacillus alimentarius [VP (T)] Yoon et al. 2001 - YKJ-13, AF281158 | JCM 10872 | KCCM 80002

Genus X. ***Lentibacillus*** [VP]

Lentibacillus salicampi [VP (T)] Yoon et al. 2002 - SF-20, AY057394 | JCM 11462 | KCCM 41560

Genus XI. Marinibacillus [VP]

Marinibacillus marinus [VP (T)] (Rüger and Richter 1979) Yoon et al. 2001 [380] <- *Bacillus marinus* (basonym) - ATCC 29841 | DSM 1297, AJ237708

Genus XII. ***Oceanobacillus*** [VP] ***(moved)***

Oceanobacillus iheyensis [VP (T)] Lu et al. 2002 - HTE831, AB10863 | DSM 14371 | JCM 11309

Genus XIII. ***Paraliobacillus*** [VP]

Paraliobacillus ryukyuensis [VP (T)] Ishikawa et al. 2003 - O15-7, AB087828 | DSM 15140 | IAM 15001 | NBRC100001 | NRIC 0520

Genus XIV. Saccharococcus [VP]

Saccharococcus thermophilus [VP (T)] Nystrand 1984 - 657 | ATCC 43125, L09227, Sac.thmoph | ATCC 43125, X70430, Sac.thmop2 | CCM 3586 | DSM 4749

†Saccharococcus caldoxylosilyticus [VP] Ahmad et al. 2000 -> *Geobacillus caldoxylosilyticus* - S1812, AF067651 | ATCC 700356 | DSM 97-987

Genus XV. Salibacillus [VP]

†Salibacillus salexigens [VP (T)] (Garabito et al. 1997) Wainø et al. 1999 <- *Bacillus salexigens* (basonym) -> *Virgibacillus marismortui* - C-20Mo, Y11603, Sa.salexig | ATCC 700290 | CCM 4646 | DSM 11483

[377] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[378] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[379] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[380] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

†*Salibacillus marismortui* [VP] (Arahal et al. 1999) Arahal et al. 2000 <- *Bacillus marismortui* (basonym) -> *Virgibacillus marismortui* - 123, AJ009793 | DSM 12325

Genus XVI. Ureibacillus [VP]

Ureibacillus thermosphaericus [VP (T)] (Andersson et al. 1996) Fortina et al. 2001 <- *Bacillus thermosphaericus* (basonym) - P-11, X90640, B.thsphaer | DSM 10633 | HAMBI 1900

Ureibacillus terrenus [VP] Fortina et al. 2001 - TH9A, AJ276403 | DSM 12654 | LMG 19470

Genus XVII. Virgibacillus [VP]

Virgibacillus pantothenticus [VP (T)] (Proom and Knight 1950) Heyndrickx et al. 1999 <- *Bacillus pantothenticus* (basonym) - B 21 | CN 3028 | ATCC 14576 | CCM 2049 | DSM 26 | LMG 7129 | NCDO 1765, X60627, Vr.pantoth | NCIMB 8775 | NCTC 8162

Virgibacillus carmonensis [VP] Heyrman et al. 2003 - DSM 14868 | LMG 20964, AJ316302

Virgibacillus marismortui [VP] (Arahal et al. 1999) Heyrman et al. 2003 <- *Salibacillus marismortui* (basonym) - 123, AJ009793 | ATCC 700626 | CECT 5066 | CIP 105609 | DSM 12325

Virgibacillus necropolis [VP] Heyrman et al. 2003 - DSM 14866 | LMG 19488, AJ315056

Virgibacillus picturae [VP] Heyrman et al. 2003 - DSM 14867 | LMG 19492, AJ315060

Virgibacillus proomii [VP] Heyndrickx et al. 1999 - LMG 12370, AJ012667

Virgibacillus salexigens [VP] (Garabito et al. 1997) Heyrman et al. 2003 <- *Salibacillus salexigens* (basonym) - C-20Mo, Y11603 | ATCC 700290 | CCM 4646 | DSM 11483

Family II. "Alicyclobacillaceae" [381]

Genus I. Alicyclobacillus [VP]

Alicyclobacillus acidocaldarius subspecies acidocaldarius [VP (T)] (Darland and Brock 1971) Wisotzkey et al. 1992 <- *Bacillus acidocaldarius* (basonym) - 104-1A | ATCC 27009 | DSM 446, X60742, Alb.acical | NBRC 15652 | IMET 11356 | JCM 5260

Alicyclobacillus acidocaldarius subspecies rittmannii [VP] Nicolaus et al. 2002 [382] - MR1 | DSM 11297

Alicyclobacillus acidiphilus [VP] Matsubara et al. 2002 - TA-67, AB076660 | DSM 14558 | IAM 14935 | NRIC 6496

Alicyclobacillus acidoterrestris [VP] (Deinhard et al. 1988) Wisotzkey et al. 1992 <- *Bacillus acidoterrestris* (basonym) - GD3B | ATCC 49025 | DSM 3922, X60602, Alb.aciter | NCIB 11725

Alicyclobacillus cycloheptanicus [VP] (Deinhard et al. 1988) Wisotzkey et al. 1992 <- *Bacillus cycloheptanicus* (basonym) - SCH | ATCC 49028 | DSM 4006 | NBRC 15310

Alicyclobacillus herbarius [VP] Goto et al. 2002 - CP-1, AB042055 | DSM 13609 | IAM 14883 | NRIC 0477

Alicyclobacillus hesperidum [VP] Albuquerque et al. 2000 - FR-11, AJ133633 | DSM 12489

Alicyclobacillus sendaiensis [VP] Tsuruoka et al. 2003 - NTAP-1, AB084128 | ATCC BAA-609 | JCM 11817

Genus II. Pasteuria [AL]

Pasteuria ramosa [AL (T)] Metchnikoff 1888 [383]

Pasteuria nishizawae [VP] Sayre et al. 1992

Pasteuria penetrans [VP] (ex Thorne 1940) Sayre and Starr 1986

Pasteuria thornei [VP] Starr and Sayre 1988 - ATCC 15713

Genus III. Sulfobacillus [VP] [384]

Sulfobacillus thermosulfidooxidans [VP (T)] Golovacheva and Karavaiko 1991 - AT-1, X91080, Sfb.tsoxi2 | DSM 9293 | VKM B-1269, Z21979, Sfb.tsoxid

[381] Within the ARB tree, the *Alicyclobacillaceae* represent a deep branch within the order *Bacillales*.

[382] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[383] Strain ATCC 27377 was proposed as a neotype strain for *Pasteuria ramosa* but was rejected. It is now the type strain of *Pirellula staleyi*.

[384] Ludwig states that *Sulfobacillus* might be a member of a separate phylum. Hugenholtz supports this view.

Sulfobacillus acidophilus [VP] Norris et al. 1996 - NAL, AF050169 | DSM 10332, Sfb.acidop

Sulfobacillus disulfidooxidans [VP] Dufresne et al. 1996 - SD-11, U34974, Sfb.dislfx | SD-6 | ATCC 51911 | DSM 12064

Family III. Caryophanaceae [AL]

Genus I. Caryophanon [AL (T)]

Caryophanon latum [AL (T)] Peshkoff 1939 - NCIB 9533, X70314, Crp.latum2

Caryophanon tenue [VP] (Peshkoff 1939) Trentini 1988 - NCIB 9535

Family IV. "Listeriaceae"

Genus I. Listeria [AL]

Listeria monocytogenes [AL (T)] (Murray et al. 1926) Pirie 1940 - 53 XXIII | ATCC 15313 | DSM 20600 | NCTC 10357, X56153, Lis.monoc2 | SLCC 53

†Listeria denitrificans [AL] Prevot 1961 -> *Jonesia denitrificans* - 55134 | ATCC 14870 | CIP 55134 | DSM 20603 | IMET 7763 | NCTC 10816

Listeria grayi [AL] Errebo Larsen and Seeliger 1966 = *Listeria murrayi* (later heterotypic synonym) - Li 2080 | ATCC 19120, X98526, Lis.grayi2 | DSM 20601

Listeria innocua [VP] Seeliger 1983 - 58 | ATCC 33090, X98527, Lis.innoc3 | DSM 20649 | NCTC 11288, X56152, Lis.innocu | SLCC 3379

Listeria ivanovii subspecies ivanovii [VP] Seeliger et al. 1984 - Li 1979 | ATCC 19119 | CLIP 12510, X98528, Lis.ivano2 | DSM 20750 | SLCC 2739

Listeria ivanovii subspecies londoniensis [VP] Boerlin et al. 1992 - CNL 89/5081 | CIP 103466 | CLIP 12229, X98529, Lis.ivano3 | DSM 12491

†Listeria murrayi [AL] Welshimer and Meredith 1971 = *Listeria grayi* (earlier heterotypic synonym) - ATCC 25401 | CIP 76124 | DSM 20596 | NCTC 10812, X56154, Lis.grayi3

Listeria seeligeri [VP] Rocourt and Grimont 1983 - 1120 | ATCC 35967 | CIP 100100 | DSM 20751 | NCTC 11856, X56148, Lis.seelig | SLCC 3954

Listeria welshimeri [VP] Rocourt and Grimont 1983 - V8 | ATCC 35897, X98532, Lis.welsh2 | CIP 8149 | DSM 20650 | SLCC 5334

Genus II. Brochothrix [AL]

Brochothrix thermosphacta [AL (T)] (McLean and Sulzbacher 1953) Sneath and Jones 1976 - SW 26 | ATCC 11509, M58798, Bro.thermo | DSM 20171 | IMET 11238 | NCDO 1676, X56155, Bro.therm2 | NCIB 10018

Brochothrix campestris [VP] Talon et al. 1988 - S3 | ATCC 43754, X56156, Bro.campes | CIP 102920 | DSM 4712

Family V. "Paenibacillaceae"[385]

Genus I. Paenibacillus [VP]

Paenibacillus polymyxa [VP (T)] (Prazmowski 1880) Ash et al. 1994 <- *Bacillus polymyxa* (basonym) - ATCC 842 | BUCSAV 162 | CCM 1459 | DSM 36, X57308, Pae.plymyx | IAM 13419, D16276, Pae.plymy3 | NBRC 15309 | JCM 2507 | LMG 13294 | NCIB 8158 | NCTC 10343

Paenibacillus agarexedens [VP] (ex Wieringa 1941) Uetanabaro et al. 2003 - 10 | CIP 107437 | DSM 1327, AJ345020

Paenibacillus agaridevorans [VP] Uetanabaro et al. 2003 - 65 | CIP 107436 | DSM 1355, AJ345023

Paenibacillus alginolyticus [VP] (Nakamura 1987) Shida et al. 1997 <- *Bacillus alginolyticus* (basonym) - ATCC 51185 | DSMZ 5050, D78465, Pae.algily | NRRL NRS-1347

Paenibacillus alvei [VP] (Cheshire and Cheyne 1885) Ash et al. 1994 <- *Bacillus alvei* (basonym) - ATCC 6344, X57304, Pae.alvei2 | CCM 2051 | DSM 29 | NBRC 3343, D78317, Pae.alvei | IMAB B-3-4 | LMG 13253 | NCIB 9371 | NCTC 6352

Paenibacillus amylolyticus [VP] (Nakamura 1984) Ash et al. 1994 emend. Shida et al. 1997 <- *Bacillus amylolyticus* (basonym) - 290 | ATCC 9995 | DSM 3034 | LMG 11153 | NRRL B-377 | NRRL NRS 290, D85396, Pae.amyly2

[385] The family *Paenibacillaceae* presents some problems. Ludwig states that *Brevibacillus* and *Paenibacillus* group together, as do *Ammoniphilus*, *Aneurinibacillus*, and *Oxalophagus*. Further rearrangements are likely to take place as work on Volume III progresses.

Paenibacillus apiarius [VP] Nakamura 1996 - BX 3 | ATCC 29575 | DSM 5581 | NRRL NRS 1438, U49247, Pae.apiari

Paenibacillus azoreducens [VP] Meehan et al. 2001 - CM1, AJ272249 | DSM 13822 | NCIMB 13761

†*Paenibacillus azotofixans* [VP] (Seldin et al. 1984) Ash et al. 1994 = *Paenibacillus durus* (earlier heterotypic synonym) <- *Bacillus azotofixans* (basonym) - P3L-5 | ATCC 35681, X60608, Pae.azofi2 | DSM 5976 | LMG 14658

Paenibacillus borealis [VP] Elo et al. 2001 - KK19, AJ011322 | CCUG 43137 | DSM 13188

Paenibacillus brasilensis [VP] von der Weid et al. 2002 - PB172, AF273740 | ATCC BAA-413 | DSM 14914

Paenibacillus campinasensis [VP] Yoon et al. 1998 - 324, AF021924, Pae.campin | KCTC 0364B

Paenibacillus chibensis [VP] Shida et al. 1997 - DSM 11731 | HSCC 442 | NBRC 15958 | JCM 9905 | NRRL B-142, D85395, Pae.chiben

Paenibacillus chinjuensis [VP] Yoon et al. 2002 - WN9, AF164345 | JCM 10939 | KCTC 8951

Paenibacillus chondroitinus [VP] (Nakamura 1987) Shida et al. 1997 <- *Bacillus chondroitinus* (basonym) - ATCC 51184 | DSMZ 5051, D82064, Pae.chndro | HSCC 176 | NBRC 15376 | JCM 9072 | NRRL NRS-1351

Paenibacillus curdlanolyticus [VP] (Kanzawa et al. 1995) Shida et al. 1997 <- *Bacillus curdlanolyticus* (basonym) - YK9 | ATCC 51898 | CIP 104575 | DSM 10247 | HSCC 491 | NBRC 15724, D78466, Pae.curdly

Paenibacillus daejeonensis [VP] Lee et al. 2002 - AP-20, AF290916 | JCM 11237 | KCTC 3750

Paenibacillus dendritiformis [VP] Tcherpakov et al. 1999 - BGSC 30A1 | T168

Paenibacillus durus [VP] (Smith and Cato 1974) Collins et al. 1994 <- *Clostridium durum* (basonym) = *Paenibacillus azotofixans* (later heterotypic synonym) - ATCC 27763, X77846 | DSM 1735

Paenibacillus glucanolyticus [VP] (Alexander and Priest 1989) Shida et al. 1997 <- *Bacillus glucanolyticus* (basonym) - B0030 | S93 | ATCC 49278 | DSMZ 5162, D78470, Pae.glulyt | NBRC 15330 | NCIMB 12809

Paenibacillus glycanilyticus [VP] Dasman et al. 2002 - DS-1, AB042938 | NBRC 16618 | JCM 11221 | NRRL B-23455

†*Paenibacillus gordonae* [VP] (Pichinoty et al. 1987) Ash et al. 1994 = *Paenibacillus validus* (earlier heterotypic synonym) <- *Bacillus gordonae* (basonym) - Q1 | ATCC 29948, X60617, Pae.valid2 | DSM 5395, D78320 | LMG 9817 | NCIB 12553

Paenibacillus graminis [VP] Berge et al. 2002 - RSA19, AJ223987 | ATCC BAA-95 | LMG 19080

Paenibacillus granivorans [VP] Van der Maarel et al. 2001 [386] - A30, AF237682 | CBS 229.89

Paenibacillus illinoisensis [VP] Shida et al. 1997 - DSM 11733 | HSCC 309 | NBRC 15959 | JCM 9907 | NRRL NRS-1356, D85397, Pae.illnoi

Paenibacillus jamilae [VP] Aguilera et al. 2001 - B.3 | CECT 5266, AJ271157[387] | DSM 13815

Paenibacillus kobensis [VP] (Kanzawa et al. 1995) Shida et al. 1997 <- *Bacillus kobensis* (basonym) - YK205 | ATCC 51900 | CIP 104576 | DSM 10249 | NBRC 15729, D78471, Pae.kobens

Paenibacillus koleovorans [VP] Takeda et al. 2002 - TB, AB041720 | IAM 14926 | JCM 11186 | KCTC 13912

Paenibacillus koreensis [VP] Chung et al. 2000 - YC300, AF130254 | KCTC 2393 | KCCM 40903

[386] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[387] GenBank accession number reported incorrectly in IJSEM.

Paenibacillus kribbensis VP Yoon et al. 2003 - AM49, AF391123 | JCM 11465 | KCTC 0766BP

Paenibacillus larvae subspecies larvae VP (White 1906) Ash et al. 1994 emend. Heyndrickx et al. 1996 <- *Bacillus larvae* (basonym) - Med-540 | ATCC 9545, X60619, Pae.larvae | DSM 7030 | LMG 9820 | NRRL B-2605

Paenibacillus larvae subspecies pulvifaciens VP (Nakamura 1984) Heyndrickx et al. 1996 <- *Paenibacillus pulvifaciens* (basonym) - ATCC 13537, AY030080 | DSM 3615 | LMG 15974 | LMG 6911 | NCIMB 11201 | NRRL B-3685

Paenibacillus lautus VP (Nakamura 1984) Heyndrickx et al. 1996 <- *Bacillus lautus* (basonym) - ATCC 43898 | DSM 3035 | LMG 11157 | NCIMB 12780, X60621, Pae.lautus | NRRL NRS 666, D78473, Pae.lautu2

Paenibacillus lentimorbus VP (Dutky 1940) Pettersson et al. 1999 <- *Bacillus lentimorbus* (basonym) - ATCC 14707, AF071861, Pae.lenti3

Paenibacillus macerans VP (Schardinger 1905) Ash et al. 1994 <- *Bacillus macerans* (basonym) - ATCC 8244, X57306, Pae.macer2 | CCM 2012 | DSM 24, X57306, Pae.macer2 | IAM 1227 | JCM 2500, D78319, Pae.macern | LMG 13281 | NCDO 1764, X60624, Pae.macer3 | NCIB 9368 | NCTC 6355

Paenibacillus macquariensis VP (Marshall and Ohye 1966) Ash et al. 1994 <- *Bacillus macquariensis* (basonym) - ATCC 23464, X57305, Pae.macqri | DSM 2 | LMG 13289 | NCIB 9934 | NCTC 10419, X60625, Pae.macqr2

Paenibacillus naphthalenovorans VP Daane et al. 2002 - PR-N1, AF353681 | ATCC BAA-206 | DSM 14203

Paenibacillus nematophilus VP Enright et al. 2003 - NEM1a, AF480935 | DSM 13559 | NCIMB 13845

Paenibacillus odorifer VP Berge et al. 2002 - TOD45, AJ223990 | ATCC BAA-93 | LMG 19079

Paenibacillus pabuli VP (Nakamura 1984) Ash et al. 1994 <- *Bacillus pabuli* (basonym) - ATCC 43899 | DSM 3036 | LMG 11158 | NCIMB 12781, X60630, Pae.pabuli | NRRL NRS 924

Paenibacillus peoriae VP (Montefusco et al. 1993) Heyndrickx et al. 1996 <- *Bacillus peoriae* (basonym) - 11.B.9 | BD-57 | DSM 8320 | NBRC 15541, D78476, Pae.peoria | LMG 14832 | NRRL B-14750

Paenibacillus popilliae VP (Dutky 1940) Pettersson et al. 1999 <- *Bacillus popilliae* (basonym) - ATCC 14706, AF071859, Pae.popill

†*Paenibacillus pulvifaciens* VP (Nakamura 1984) Ash et al. 1994 <- *Bacillus pulvifaciens* (basonym) -> *Paenibacillus larvae subspecies pulvifaciens* - ATCC 49843

Paenibacillus terrae VP Yoon et al. 2003 - AM141, AF391124 | JCM 11466 | KCCM 41557

Paenibacillus thiaminolyticus VP (Nakamura 1990) Shida et al. 1997 <- *Bacillus thiaminolyticus* (basonym) - AHU 1393 | DSM 7262 | HSCC 148 | NBRC 15656 | JCM 8360, D78475, Pae.thiamn | NRRL B-4156

Paenibacillus turicensis VP Bosshard et al. 2002 - MOL722, AF378694–AF378700 | DSM 14349 | NCCB 100011

Paenibacillus validus VP (Nakamura 1984) Ash et al. 1994 emend. Heyndrickx et al. 1995 <- *Bacillus validus* (basonym) = *Paenibacillus gordonae* (later heterotypic synonym) - ATCC 43897 | DSM 3037, D78320, Pae.validu | LMG 11161 | NRRL NRS 1000

Genus II. Ammoniphilus VP [388]

Ammoniphilus oxalaticus VP (T) Zaitsev et al. 1998 - RAOx-1 | DSM 11538 | HAMBI 2283, Y14578

Ammoniphilus oxalivorans VP Zaitsev et al. 1998 - RAOx-FS, Y14580, Amm.oxaliv | DSM 11537 | HAMBI 2284

Genus III. Aneurinibacillus VP

[388] The current placement of *Ammoniphilus* is questionable.

Aneurinibacillus aneurinilyticus [VP (T)] (Shida et al. 1994) Shida et al. 1996 emend. Heyndrickx et al. 1997 <- *Bacillus aneurinolyticus* (basonym) - NRS 1589 | ATCC 12856, D78455, Ab.anurly3 | CIP 104007 | DSM 5562, X94194, Ab.anurly2 | IAM 1077 | NBRC 15521 | JCM 9024 | NCIMB 10056, X60645, Ab.anurlyt

Aneurinibacillus migulanus [VP] (Takagi et al. 1993) Shida et al. 1996 emend. Heyndrickx et al. 1997 <- *Bacillus migulanus* (basonym) - ATCC 9999, D78462, Ab.migulan | CIP 10381 | DSM 2895, X94195, Ab.migula2 | NBRC 15520 | JCM 8504 | NCIB 7096 | NCTC 7096 | VKM B-1722

Aneurinibacillus thermoaerophilus [VP] (Meier-Stauffer et al. 1996) Heyndrickx et al. 1997 <- *Bacillus thermoaerophilus* (basonym) - L420-91, X94196, B.thaeroph | DSM 10154, X94196, B.thaeroph | LMG 17165

Genus IV. Brevibacillus [VP]

Brevibacillus brevis [VP (T)] (Migula 1900) Shida et al. 1996 <- *Bacillus brevis* (basonym) - 27B | ATCC 8246, M10111, Bb.brevis1 | CCM 2050 | CIP 52.86 | JCM 2503, D78457, Bb.brevis3 | LMG 16703 | NCIB 9372, X60612, Bb.brevis | NCTC 2611

Brevibacillus agri [VP] (Nakamura 1993) Shida et al. 1996 <- *Bacillus agri* (basonym) - DSMZ 6348 | NBRC 15538 | JCM 9067 | NRRL NRS-1219, D78454, Bb.agri1

Brevibacillus borstelensis [VP] (Shida et al. 1995) Shida et al. 1996 <- *Bacillus borstelensis* (basonym) - B4 | ATCC 51668 | CIP 104545 | DSM 6347 | NBRC 15714 | JCM 9022 | NRRL NRS-818, D78456, Bb.borstel

Brevibacillus centrosporus [VP] (Nakamura 1993) Shida et al. 1996 <- *Bacillus centrosporus* (basonym) - 120 | ATCC 51661 | DSM 8445 | NBRC 15540 | JCM 9071 | NRRL NRS-664, D78458, Bb.centspr

Brevibacillus choshinensis [VP] (Takagi et al. 1993) Shida et al. 1996 <- *Bacillus choshinensis* (basonym) - HPD 52, D78459, Bb.choshin | ATCC 51359 | CIP 103838 | DSM 8552 | NBRC 15518 | JCM 8505

Brevibacillus formosus [VP] (Shida et al. 1995) Shida et al. 1996 <- *Bacillus formosus* (basonym) - F12 | DSM 9885 | NBRC 15716 | JCM 9169 | NRRL NRS-863 | NRS 863, D78460, Bb.formosu

Brevibacillus invocatus [VP] Logan et al. 2002 - B2156 | CIP 106911 | LMG 18962, AF378231 | NCIMB 13772

Brevibacillus laterosporus [VP] (Laubach 1916) Shida et al. 1996 <- *Bacillus laterosporus* (basonym) - AMC 797 | AMNH 797 | ATCC 64 | CCM 2116 | CIP 52.83 | DSM 25, X57307, Bb.lateros | IAM 12465, D16271, Bb.latero3 | NBRC 15654 | JCM 2496, D78461, Bb.latero4 | LMG 16000 | NCDO 1763, X60620, Bb.latero2 | NCIB 9367 | NCTC 6357

Brevibacillus parabrevis [VP] (Takagi et al. 1993) Shida et al. 1996 <- *Bacillus parabrevis* (basonym) - ATCC 10027 | CIP 103840 | DSM 8376 | NBRC 12334, D78463, Bb.prbrevi | JCM 8506

Brevibacillus reuszeri [VP] (Shida et al. 1995) Shida et al. 1996 <- *Bacillus reuszeri* (basonym) - Army strain 39 | ATCC 51665 | CIP | CIP 104543 | DSM 9887 | NBRC 15719 | JCM 9170 | NRRL NRS 1206, D78464, Bb.reuszer

Brevibacillus thermoruber [VP] (Manachini et al. 1985) Shida et al. 1996 <- *Bacillus thermoruber* (basonym) - BT2 | MIM 30.8.38 | DSMZ 7064, Z26921, Bb.thruber

Genus V. Oxalophagus [VP]

Oxalophagus oxalicus [VP (T)] (Dehning and Schink 1990) Collins et al. 1994 <- *Clostridium oxalicum* (basonym) - Alt Ox1 | DSM 5503, X77840, Oxl.oxalic | DSM 5503, Y14581, Oxl.oxali2

Genus VI. Thermicanus [VP]

Thermicanus aegyptius [VP (T)] Gößner et al. 2000 - ET-5b | DSM 12793, AJ242495

Genus VII. Thermobacillus [VP]

Thermobacillus xylanilyticus [VP (T)] Touzel et al. 2000 - XE, AJ005795 | CNCM I-1017

Family VI. Planococcaceae [AL]

Genus I. Planococcus [AL (T)]

Planococcus citreus [AL (T)] Migula 1894 - 628 | ATCC 14404 | CCM 316 | DSM 20549 | NCMB 1493, X62172, Plc.citreu

Planococcus alkanoclasticus [VP] Engelhardt et al. 2001 [389] - MAE2, AF029364 | NCIMB 13489

Planococcus antarcticus [VP] Reddy et al. 2002 - CMS 26or, AJ314745 | DSM 14505 | MTCC 3854

†*Planococcus halophilus* [AL] Novitsky and Kushner 1976 -> *Marinococcus halophilus* - ATCC 27964 | CCM 2706 | DSM 20408, X90835 | JCM 2479 | NRCC 14033

Planococcus kocurii [VP] Hao and Komagata 1986 - AJ 3345 | HK 701 | CCM 1849 | DSM 20747 | IAM 12847 | JCM 2569 | NCMB 629, X62173, Plc.kocuri

†*Planococcus mcmeekinii* [VP] Junge et al. 1998 -> *Planomicrobium mcmeekinii* - S23F2, AF041791, Plc.mcmeek | ATCC 700539

†*Planococcus okeanokoites* [VP] (ZoBell and Upham 1944) Nakagawa et al. 1996 <- *Flavobacterium okeanokoites* (basonym) -> *Planomicrobium okeanokoites* - CCM 320 | NBRC 12536, D55729, Plc.okeano | NCIMB 561

Planococcus psychrophilus [VP] Reddy et al. 2002 - CMS 53or, AJ314746 | DSM 14507 | MTCC 3812

Genus II. Filibacter [VP]

Filibacter limicola [VP (T)] Maiden and Jones 1985 - 1SS101 | NCIB 11923

Genus III. Kurthia [AL]

Kurthia zopfii [AL (T)] (Kurth 1883) Trevisan 1885 - F 64/100 | ATCC 33403, M58800, Kur.zopfii | DSM 20580 | NCIB 9878, X70321, Kur.zopfi2 | NCTC 10597

Kurthia gibsonii [VP] Shaw and Keddie 1983 - S8 | ATCC 43195 | DSM 20636 | NCIB 9758, X70320, Kur.gibson

Kurthia sibirica [VP] Belikova et al. 1988 - 13-22 | CCM 3477 | DSM 4747 | VKM B-1549

Genus IV. Planomicrobium [VP]

Planomicrobium koreense [VP (T)] Yoon et al. 2001 - JG07, AF144750 | JCM 10704 | KCTC 3684

Planomicrobium mcmeekinii [VP] (Junge et al. 1998) Yoon et al. 2001 [390] <- *Planococcus mcmeekinii* (basonym) - S23F2, AF041791, Plc.mcmeek | ATCC 700539

Planomicrobium okeanokoites [VP] (ZoBell and Upham 1944) Yoon et al. 2001 [391] <- *Planococcus okeanokoites* (basonym) - CCM 320 | NBRC 12536, D55729, Plc.okeano | NCIMB 561

Genus V. Sporosarcina [AL]

Sporosarcina ureae [AL (T)] (Beijerinck 1901) Kluyver and van Niel 1936 - ATCC 6473 | CCM 684 | DSM 2281 | NCIB 9251, X62175, Spo.ureae

Sporosarcina aquimarina [VP] Yoon et al. 2001 - SW28, AF202056 | JCM 10887 | KCCM 41039

Sporosarcina globispora [VP] (Larkin and Stokes 1967) Yoon et al. 2001 [392] <- *Bacillus globisporus subspecies globisporus* (basonym) - W 25, X54967, B.globisp2 | ATCC 23301 | CCM 2119 | DSM 4, X68415, B.globisp3 | NCIB 11434, X60644, B.globispr

†*Sporosarcina halophila* [VP] Claus et al. 1984 -> *Halobacillus halophilus* - 3 | ATCC 35676 | DSM 2266

[389] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[390] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[391] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[392] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Sporosarcina pasteurii [VP] (Miquel 1889) Yoon et al. 2001 [393] <- *Bacillus pasteurii* (basonym) - 22 | ATCC 11859 | CCM 2056 | DSM 33 | NCIMB 8841, X60631, B.pasteuri | NCTC 4822

Sporosarcina psychrophila [VP] (Nakamura 1984) Yoon et al. 2001 [394] <- *Bacillus psychrophilus* (basonym) - W16A, X54968, B.psycphi2 | ATCC 23304, X60634, B.psycphil | CCM 2117 | DSM 3 | IAM 12468, D16277 | NRRL NRS 1530

Family VII. "Sporolactobacillaceae"

Genus I. Sporolactobacillus [AL]

Sporolactobacillus inulinus [AL (T)] (Kitahara and Suzuki 1963) Kitahara and Lai 1967 - EU | ATCC 15538, M58838, Spl.inulin | CIP 103279 | DSM 20348 | IAM 12543 | NBRC 13595 | JCM 6014, D16283, Spl.inuli2 | NCIMB 9743

Sporolactobacillus kofuensis [VP] Yanagida et al. 1997 - M-19 | JCM 3419 | LMG 18786

Sporolactobacillus lactosus [VP] Yanagida et al. 1997 - X1-1 | JCM 9690

Sporolactobacillus nakayamae subspecies nakayamae [VP] Yanagida et al. 1997 - M-114 | DSM 11696 | JCM 3514

Sporolactobacillus nakayamae subspecies racemicus [VP] Yanagida et al. 1997 - M-17 | JCM 3417 | LMG 18785

Sporolactobacillus terrae [VP] Yanagida et al. 1997 - M-116, D16289, Spl.racmi3 | DSM 11697 | JCM 3516

Genus II. Marinococcus [VP]

Marinococcus halophilus [VP (T)] (Novitsky and Kushner 1976) Hao et al. 1985 <- *Planococcus halophilus* (basonym) - HK 718 | ATCC 27964 | CCM 2706 | DSM 20408, X90835, Mrc.halop2 | IAM 12844 | JCM 2479 | NRCC 14033

Marinococcus albus [VP] Hao et al. 1985 - HK 733 | CCM 3517 | DSM 20748, X90834, Mrc.albus1 | IAM 12845 | JCM 2574

†*Marinococcus hispanicus* [VP] Marquez et al. 1990 -> *Salinicoccus hispanicus* - J-82 | ATCC 49259 | CCM 4148 | DSM 5352, AY028927

Family VIII. "Staphylococcaceae"

Genus I. Staphylococcus [AL]

Staphylococcus aureus subspecies aureus [AL (T)] Rosenbach 1884 - 533 R4 | ATCC 12600, D83357, Stp.aure10 | ATCC 12600, L36472, Stp.aureu4 | ATCC 12600, L37597, Stp.aureu5 | ATCC 12600, X68417, Stp.aureus | CCM 885 | DSM 20231 | NCDO 949, X70648, Stp.aureu2 | NCTC 8532

Staphylococcus aureus subspecies anaerobius [VP] De La Fuente et al. 1985 - MVF-7 | ATCC 35844, D83355, Stp.aureu8 | DSM 20714

Staphylococcus arlettae [VP] Schleifer et al. 1985 - BP47 | ATCC 43957, AB009933, Stp.arlet2 | DSM 20672

Staphylococcus auricularis [VP] Kloos and Schleifer 1983 - WK 811M | ATCC 33753, D83358, Stp.auric4 | ATCC 33753, L37598, Stp.auric3 | DSM 20609

Staphylococcus capitis subspecies capitis [AL] Kloos and Schleifer 1975 - LK 499 | ATCC 27840, L37599, Stp.capit2 | CCM 2734 | DSM 20326

Staphylococcus capitis subspecies urealyticus [VP] Bannerman and Kloos 1991 - MAW 8436 | ATCC 49326, AB009937, Stp.capit3 | DSM 6717

Staphylococcus caprae [VP] Devriese et al. 1983 - 143.22 | ATCC 35538, AB009935, Stp.capra2 | CCM 3573 | DSM 20608, Y12593, Stp.capra3

Staphylococcus carnosus subspecies carnosus [VP] Schleifer and Fischer 1982 - 361 | ATCC 51365, AB009934, Stp.carno2 | DSM 20501

Staphylococcus carnosus subspecies utilis [VP] Probst et al. 1998 - LTH 3728 | SK 11 | DSM 11676 | JCM 6067

[393] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[394] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

†*Staphylococcus caseolyticus* [VP] Schleifer et al. 1982 -> *Macrococcus caseolyticus* - ATCC 13548, D83359, Mac.caseo2 | ATCC 13548, Y15711, Mac.caseol | DSM 20597

Staphylococcus chromogenes [VP] (Devriese et al. 1978) Hajek et al. 1987 <- *Staphylococcus hyicus subspecies chromogenes* (basonym) - 1462 | ATCC 43764, D83360, Stp.chromo | CCM 3387 | DSM 20454 | NCTC 10530

Staphylococcus cohnii subspecies cohnii [AL] Schleifer and Kloos 1975 - GH 137 | ATCC 29974, D83361, Stp.cohni2 | CCM 2736 | DSM 20260

Staphylococcus cohnii subspecies urealyticus [VP] Kloos and Wolfshohl 1991 - CK27 | ATCC 49330, AB009936, Stp.cohni3 | DSM 6718

Staphylococcus condimenti [VP] Probst et al. 1998 - F-2 | LTH 3734 | DSM 11674, Y15750, Stp.cndmnt, Y15750, Stp.cndmnt | JCM 6074

Staphylococcus delphini [VP] Varaldo et al. 1988 - Heidy | ATCC 49171, AB009938, Stp.delphn | DSM 20771

Staphylococcus epidermidis [AL] (Winslow and Winslow 1908) Evans 1916 - Fussel | ATCC 14990, D83363, Stp.epide9 | ATCC 14990, L37605, Stp.epide5 | CCM 2124 | DSM 20044

Staphylococcus equorum [VP] Schleifer et al. 1985 - PA231 | ATCC 43958, AB009939, Stp.equor2 | ATCC 43958, AF041363, Stp.equor3 | DSM 20674, AF041363, Stp.equor3

Staphylococcus felis [VP] Igimi et al. 1989 - GD521 | SG521 | ATCC 49168, D83364, Stp.felis1 | DSM 7377 | JCM 7469

Staphylococcus fleurettii [VP] Vernozy-Rozand et al. 2000 - 241 | CIP 106114 | DSM 13212

Staphylococcus gallinarum [VP] Devriese et al. 1983 - VIII1 | ATCC 35539, D83366, Stp.gallin | CCM 3572 | DSM 20610

Staphylococcus haemolyticus [AL] Schleifer and Kloos 1975 - SM 131 | ATCC 29970, L37600, Stp.haemo3 | ATCC 29970, D83367, Stp.haemo4 | CCM 2737, X66100, Stp.haemo2 | DSM 20263

Staphylococcus hominis subspecies hominis [AL] Kloos and Schleifer 1975 emend. Kloos et al. 1998 - DM 122 | ATCC 27844, L37601, Stp.homin3 | DSM 20328, X66101, Stp.homin2

Staphylococcus hominis subspecies novobiosepticus [VP] Kloos et al. 1998 - R22 | ATCC 700236

Staphylococcus hyicus subspecies hyicus [AL] (Sompolinsky 1953) Devriese et al. 1978 - 1 | ATCC 11249, D83368, Stp.hyicus | CCM 2368 | DSM 20459 | NCTC 10350

†*Staphylococcus hyicus subspecies chromogenes* [AL] Devriese et al. 1978 -> *Staphylococcus chromogenes* - MAFF911474, D83360 | ATCC 43764 | CCM 3387 | DSM 20454 | NCTC 10530

Staphylococcus intermedius [AL] Hajek 1976 - ATCC 29663, D83369, Stp.intme2 | CCM 5739 | DSM 20373 | H11 | NCTC 11048

Staphylococcus kloosii [VP] Schleifer et al. 1985 - SC210 | ATCC 43959, AB009940, Stp.kloos2 | DSM 20676

Staphylococcus lentus [VP] (Kloos et al. 1967) Schleifer et al. 1983 <- *Staphylococcus sciuri subspecies lentus* (basonym) - K21 | ATCC 29070, D83370, Stp.lentus | DSM 20352

Staphylococcus lugdunensis [VP] Freney et al. 1988 - N860297 | ATCC 43809, AB009941, Stp.lugdu2 | DSM 4804

Staphylococcus lutrae [VP] Foster et al. 1997 - M340/94/1 | DSM 10244 | DSM 10244, X84731, Stp.lutrae

Staphylococcus muscae [VP] Hájek et al. 1992 - MB4, S83566, Stp.muscae | ATCC 49910 | CCM 4175, S83566, Stp.muscae | DSM 7068

Staphylococcus pasteuri [VP] Chesneau et al. 1993 - BM9357 | ATCC 51129, AB009944, Stp.pasteu | ATCC 51129, AF041361, Stp.paste2 | CCM 4389 | DSM 10656

Staphylococcus piscifermentans [VP] Tanasupawat et al. 1992 - SK03, Y15754, Stp.pisci2 | ATCC 51136, AB009943, Stp.piscif | DSM 7373 | JCM 6057 | NCIMB 13277 | NRIC 1817 | TISTR 824

Staphylococcus pulvereri [VP] Zakrzewska-Czerwinska et al. 1995 = *Staphylococcus vitulinus* (earlier heterotypic synonym) - NT215, U12764, Stp.pulver | ATCC 51698, AB009942, Stp.pulve2 | DSM 9930 | PCM 2443

Staphylococcus saccharolyticus [VP] (Foubert and Douglas 1948) Kilpper-Bälz and Schleifer 1984 <- *Peptococcus saccharolyticus* (basonym) - S1 | ATCC 14953, L37602, Stp.sacly2 | DSM 20359

Staphylococcus saprophyticus subspecies saprophyticus [AL] (Fairbrother 1940) Shaw et al. 1951 - S-41 | ATCC 15305, D83371, Stp.sapro4 | ATCC 15305, L37596, Stp.sapro3 | CCM 883 | DSM 20229 | NCIB 8711 | NCTC 7292

Staphylococcus saprophyticus subspecies bovis [VP] Hájek et al. 1996 - KV 12 | CCM 4410

Staphylococcus schleiferi subspecies schleiferi [VP] Freney et al. 1988 - N850274 | ATCC 43808 | DSM 4807 | DSM 4807, S83568, Stp.schlei

Staphylococcus schleiferi subspecies coagulans [VP] Igimi et al. 1990 - GA211 | ATCC 49545, AB009945, Stp.schle5 | CIP 104370 | DSM 6628 | JCM 7470

Staphylococcus sciuri subspecies sciuri [AL] Kloos et al. 1976 emend. Kloos et al. 1997 - SC 116 | ATCC 29062 | DSM 20345, AJ421446

Staphylococcus sciuri subspecies carnaticus [VP] Kloos et al. 1997 - DD 791 | ATCC 700058

†*Staphylococcus sciuri subspecies lentus* [AL] Kloos et al. 1976 -> *Staphylococcus lentus* - K21 | ATCC 29070, D83370, Stp.lentus | DSM 20352

Staphylococcus sciuri subspecies rodentium [VP] Kloos et al. 1997 - DD 4761 | R1-33 | ATCC 700061

Staphylococcus simulans [AL] Kloos and Schleifer 1975 - MK 148 | ATCC 27848, D83373, Stp.simuln | CCM 2705 | DSM 20322

Staphylococcus succinus [VP] Lambert et al. 1998 - AMG-D1, AF004220, Stp.succin | ATCC 700337

Staphylococcus succinus subspecies succinus [VP] Lambert et al. 2003 - AMG-D1, AF004220 | ATCC 700337

Staphylococcus succinus subspecies casei [VP] Place et al. 2003 - SB72, AJ320272 | CIP 107658 | DSM 15096

Staphylococcus vitulinus [VP] Webster et al. 1994 = *Staphylococcus pulvereri* (later heterotypic synonym) - DD 756 | ATCC 51145, AB009946, Stp.vitulu

Staphylococcus warneri [AL] Kloos and Schleifer 1975 - AW 25 | ATCC 27836, L37603, Stp.warne2 | CCM 2730 | DSM 20316

Staphylococcus xylosus [AL] Schleifer and Kloos 1975 - KL 162 | ATCC 29971, D83374, Stp.xylos2 | CCM 2738 | DSM 20266

Genus II. Gemella [AL]

Gemella bergeri [VP] Collins et al. 1998 - 617-93, Y13365 | CCUG 37817

Gemella cuniculi [VP] Hoyles et al. 2000 - M60449/99/1, AJ251987 | CCUG 42726 | CIP 106481

Gemella haemolysans [AL] (Thjotta and Boe 1938) Berger 1960 - ATCC 10379, L14326, Gem.haemo2 | ATCC 10379, M58799, Gem.haemol | NCTC 5414

Gemella morbillorum [VP] (Prevot 1933) Kilpper-Bälz and Schleifer 1988 <- *Streptococcus morbillorum* (basonym) - 2917B | ATCC 27824, L14327, Gem.morbil | DSM 20572 | VPI 5424

Gemella palaticanis [VP] Collins et al. 1999 - M663-98-1 | CCUG 39489, Y17280

Gemella sanguinis [VP] Collins et al. 1999 - 2045-94, Y13364, Gem.sangui | CCUG 37820

Genus III. ***Jeotgalicoccus*** [VP]

Jeotgalicoccus halotolerans [VP (T)] Yoon et al. 2003 - YKJ-101, AY028925 | JCM 11198 | KCCM 41448

Jeotgalicoccus psychrophilus [VP] Yoon et al. 2003 - YKJ-115, AY028926 | JCM 11199 | KCCM 41449

Genus IV. Macrococcus [VP]
Macrococcus equipercicus [VP (T)] Kloos et al. 1998 - DD 9350 | ATCC 51831
Macrococcus bovicus [VP] Kloos et al. 1998 - DD 4516 | ATCC 51825
Macrococcus carouselicus [VP] Kloos et al. 1998 - DD 9348 | ATCC 51828
Macrococcus caseolyticus [VP] (Schleifer et al. 1982) Kloos et al. 1998 <- *Staphylococcus caseolyticus* (basonym) - DD 4508 | ATCC 13548, D83359, Mac.caseo2 | ATCC 13548, Y15711, Mac.caseol | DSM 20597
Genus V. Salinicoccus [VP]
Salinicoccus roseus [VP (T)] Ventosa et al. 1990 - 9 | ATCC 49258 | CCM 3516 | DSM 5351, X94559, Sc.roseus2
Salinicoccus alkaliphilus [VP] Zhang et al. 2002 - T8, AF275710 | AS 1.2691 | JCM 11311
Salinicoccus hispanicus [VP] (Marquez et al. 1990) Ventosa et al. 1993 <- *Marinococcus hispanicus* (basonym) - J-82 | ATCC 49259 | CCM 4148 | DSM 5352, AY028927
Family IX. "Thermoactinomycetaceae"[395]
Genus I. Thermoactinomyces [AL]
Thermoactinomyces vulgaris [AL (T)] Tsilinsky 1899 - ATCC 43649 | CBS 505.77 | CUB 250 | DSM 43016 | NBRC 13606 | IMET 9711 | JCM 3162 | KCC A-0162 | NCIB 11364, M77491, Ta.vulgari
Thermoactinomyces candidus [AL] Kurup et al. 1975 - T-106 | ATCC 27868 | DSM 43352
Thermoactinomyces dichotomicus [AL] (Krassilnikov and Agre 1964) Cross and Goodfellow 1973 - N1595 | ATCC 49854 | CUB 581 | INMI 114 | NCIMB 10211, L16902, Ta.dichoto
Thermoactinomyces intermedius [VP] Kurup et al. 1981 - T-323 | ATCC 33205, AJ251775 | DSM 43846
Thermoactinomyces peptonophilus [AL] Nonomura and Ohara 1971 - ATCC 27302
Thermoactinomyces putidus [VP] Lacey and Cross 1989 - NCIB 12324
Thermoactinomyces sacchari [AL] Lacey 1971 - A 978 | ATCC 27375 | CBS 701.70 | CUB 618 | DSM 43356 | NBRC 13920 | IMET 9713 | NCIB 10486 | NCTC 10721
Thermoactinomyces thalpophilus [VP] Lacey and Cross 1989 - ATCC 49855 | CBS 319.66 | CUB 808 | DSM 43354 | NBRC 15852 | JCM 3217
Family X. "Turicibacteraceae"[396]
Genus I. Turicibacter [VP (T)]
Turicibacter sanguinis [VP] Bosshard et al. 2002 - MOL361, AF349724 | DSM 14220 | NCCB 100008
Order II. *"Lactobacillales"*
Family I. Lactobacillaceae [AL]
Genus I. Lactobacillus [AL (T)]
Lactobacillus delbrueckii subspecies delbrueckii [AL (T)] (Leichmann 1896) Beijerinck 1901 - 730 | ATCC 9649 | DSM 20074, M58814, L.delbruck | NCDO 213, X52654, L.delbruc2 | NCIB 8130
Lactobacillus delbrueckii subspecies bulgaricus [VP] (Orla-Jensen 1919) Weiss et al. 1984 <- *Lactobacillus bulgaricus* (basonym) - Lb.14 | ATCC 11842, AY050171 | DSM 20081 | IMET 10708 | JCM 1002, AB007908, L.delbruc3 | LMG 6901 | NCDO 1489
Lactobacillus delbrueckii subspecies lactis [VP] (Orla-Jensen 1919) Weiss et al. 1984 <- *Lactobacillus lactis* (basonym) - L 110 | ATCC 12315 | DSM 20072, M58823, L.delbruc4 | NCDO 1438
Lactobacillus acetotolerans [VP] Entani et al. 1986 - NBI 3014 | ATCC 43578 | DSM 20749, M58801, L.acetoler | JCM 3825
Lactobacillus acidipiscis [VP] Tanasupawat et al. 2000 - FS60-1, AB023836 | PCU 207 | NRIC 0300 | HSCC 1411 | JCM 10692 | TISTR 1386

[395] Ludwig indicates that within the ARB tree, the *Thermoactinomycetaceae* represents deep lineage within the *Bacillales*.
[396] This family was created to accommodate *Turicibacter sanguinis* which was reported by Bosshard et al. as being equidistant from *Paenibacillus* and *Gemella*.

Lactobacillus acidophilus [AL] (Moro 1900) Hansen and Mocquot 1970 – Scav | ATCC 4356, M58802, L.acidophi | DSM 20079, M58802, L.acidophi | IMET 10710 | NCDO 1748 | NCIB 8690, X61138, L.acidoph1

Lactobacillus agilis [VP] Weiss et al. 1982 – 262 | DSM 20509, M58803, L.agilis | NCIB 11716

Lactobacillus algidus [VP] Kato et al. 2000 – M6A9 | JCM 10491, AB03329

Lactobacillus alimentarius [VP] Reuter 1983 – R 13 | ATCC 29643 | DSM 20249, M58804, L.alimenta

Lactobacillus amylolyticus [VP] Bohak et al. 1999 – LA 5, Y17361, L.amylytic | DSM 11664

Lactobacillus amylophilus [VP] Nakamura and Crowell 1981 – ATCC 49845 | DSM 20533, M58806 | NRRL B-4437

Lactobacillus amylovorus [VP] Nakamura 1981 – ATCC 33620 | DSM 20531, M58805, L.amyvorus | NRRL B-4540

Lactobacillus animalis [VP] Dent and Williams 1983 – 1535 | PPI/1535 | ATCC 35046 | DSM 20602, M58807, L.animalis | NCDO 2425, X61133, L.animali1

Lactobacillus arizonensis [VP] Swezey et al. 2000 – DSM 13273 | NRRL B-14768, AF093757

Lactobacillus aviarius subspecies aviarius [VP] Fujisawa et al. 1986 – 75 | ATCC 43234 | DSM 20655, M58808, L.aviarius

Lactobacillus aviarius subspecies araffinosus [VP] Fujisawa et al. 1986 – ML2 | ATCC 43235 | DSM 20653

†*Lactobacillus bavaricus* [VP] Stetter and Stetter 1980 = *Lactobacillus sakei* (earlier heterotypic synonym) – ATCC 31063 | DSM 20269

Lactobacillus bifermentans [VP] Kandler et al. 1983 – N2 | ATCC 35409 | DSM 20003, M58809, L.bifermen | JCM 1094, D31680, L.biferme2 | LMG 9845

Lactobacillus brevis [AL] (Orla-Jensen 1919) Bergey et al. 1934 – Bb14 | ATCC 14869, M58810, L.brevis | DSM 20054 | IMET 10711 | NCDO 1749, X61134, L.brevis1

Lactobacillus buchneri [AL] (Henneberg 1903) Bergey et al. 1923 – ATCC 4005 | CCM 1819 | DSM 20057, M58811, L.buchneri | IMET 10692 | NCDO 110, X61139, L.buchner1 | NCIB 8007

†*Lactobacillus bulgaricus* [AL] (Orla-Jensen 1919) Rogosa and Hansen 1971 -> *Lactobacillus delbrueckii bulgaricus* – ATCC 11842, AY050171 | DSM 20081 | IMET 10708

†*Lactobacillus carnis* [VP] Shaw and Harding 1986 = *Lactobacillus piscicola* (earlier heterotypic synonym) – LV61 | NCDO 2764

Lactobacillus casei subspecies casei [AL] (Orla-Jensen 1916) Hansen and Lessel 1971 – ATCC 393, D16551, L.casei_ca | ATCC 393, M23928, L.casei | DSM 20011 | NCDO 161, D16551, L.casei_ca | NCDO 161, X61135, L.casei1

†*Lactobacillus casei subspecies alactosus* [AL] Mills and Lessel 1973 = *Lactobacillus paracasei subspecies paracasei* (earlier heterotypic synonym) – ATCC 27216, D16548, L.prcasei2 | DSM 20020

†*Lactobacillus casei subspecies pseudoplantarum* [AL] Abo-Elnaga and Kandler 1965 = *Lactobacillus paracasei subspecies paracasei* (earlier heterotypic synonym) – ATCC 25598, D16549, L.prcasei3 | DSM 20008 | NCIB 9713

†*Lactobacillus casei subspecies rhamnosus* [AL] Hansen 1968 -> *Lactobacillus rhamnosus* – ATCC 7469, D16552, L.rhamnos2 | CCM 1825 | DSM 20021, M58815, L.rhamnosu | IMET 10691 | NCDO 243, D16552, L.rhamnos2 | NCIB 6375

†*Lactobacillus casei subspecies tolerans* [AL] Abo-Elnaga and Kandler 1965 -> *Lactobacillus paracasei subspecies tolerans* – 27211 | ATCC 25599, D16550, L.prcas_to | DSM 20258 | NCIB 9709

Lactobacillus catenaformis [AL] (Eggerth 1935) Moore and Holdeman 1970 – 1871 | ATCC 25536, M23729, L.catenafo | DSM 20559 | VPI 2933

Lactobacillus cellobiosus [AL] Rogosa et al. 1953 – 19 LC 3 | ATCC 11739 | DSM 20055 | NCDO 928

Lactobacillus coleohominis [VP] Nikolaitchouk et al. 2001 – CIP 106820 | CCUG 44007 | DSM 14060

Lactobacillus collinoides [AL] Carr and Davies 1972 – Cl3a | ATCC 27612 | DSM 20515 | JCM 1123, AB005893, L.collinoi | JCM 1123, D31683, L.collino2 | LMG 9149 | NCIB 10925

†*Lactobacillus confusus* [AL] (Holzapfel and Kandler 1969) Sharpe et al. 1972 -> *Weissella confusa* – 548-D | ATCC 10881 | DSM 20196, M23036, Wei.confus | NCDO 1586, X52567, Wei.confu2 | NCIB 9311

Lactobacillus coryniformis subspecies coryniformis [AL] Abo-Elnaga and Kandler 1965 – 34 | ATCC 25602 | DSM 20001, M58813, L.corynifo | NCIB 9711

Lactobacillus coryniformis subspecies torquens [AL] Abo-Elnaga and Kandler 1965 – 30 | ATCC 25600 | DSM 20004 | NCIB 9712

Lactobacillus crispatus [AL] (Brygoo and Aladame 1953) Moore and Holdeman 1970 – ATCC 33820 | DSM 20584, Y17362, L.crispat2 | VPI 3199

Lactobacillus curvatus subspecies curvatus [AL] (Troili-Petersson 1903) Abo-Elnaga and Kandler 1965 emend. Klein et al. 1996 – 1 | ATCC 25601 | DSM 20019 | NCIB 9710

Lactobacillus curvatus subspecies melibiosus [VP] Torriani et al. 1996 – R 60 | CCUG 34545

Lactobacillus cypricasei [VP] Lawson et al. 2001 – LMK3, AJ251560 | CCUG 42961 | CIP 106393

Lactobacillus diolivorans [VP] Krooneman et al. 2002 – JKD6, AF264701 | DSM 14421 | LMG 19667

†*Lactobacillus divergens* [VP] Holzapfel and Gerber 1984 -> *Carnobacterium divergens* – 66 | ATCC 35677 | DSM 20623, M58816, Crn.diverg | NCDO 2763

Lactobacillus durianis [VP] Leisner et al. 2002 – CCUG 45405 | LMG 19193, AJ315640

Lactobacillus equi [VP] Morotomi et al. 2002 – YIT 0455, AB048833 | ATCC BAA-261 | JCM 10991

Lactobacillus farciminis [VP] Reuter 1983 – Rv4 | ATCC 29644, M58817, L.farcimin | DSM 20184 | IMET 11462 | NCIB 11717

Lactobacillus ferintoshensis [VP] Simpson et al. 2002 [397] – R7-84, AF275311 | CIP 106749[398]

Lactobacillus fermentum [AL] Beijerinck 1901 – Bb28 | ATCC 14931, M58819, L.fermentm | DSM 20052 | NCDO 1750, X61142, L.ferment1

Lactobacillus fornicalis [VP] Dicks et al. 2000 – TV 1018, Y18654 | ATCC 70934 | DSM 13171

Lactobacillus fructivorans [AL] Charlton et al. 1934 – ATCC 8288 | DSM 20203, M58818, L.fructivo | DSM 20203, X76330, L.fructiv2 | IMET 11463 | NCIB 8039

†*Lactobacillus fructosus* [AL] Kodama 1956 -> *Leuconostoc fructosum* – 353 | ATCC 13162 | DSM 20349 | NBRC 3516 | NCDO 2345, X61140, L.fructosu | NCINMB 10784

Lactobacillus frumenti [VP] Müller et al. 2000 – TMW 1.666, AJ250074 | DSM 13145 | LMG 19473

Lactobacillus fuchuensis [VP] Sakala et al. 2002 – B5M10, AB063479 | JCM 11249 | DSM 14340

Lactobacillus gallinarum [VP] Fujisawa et al. 1992 – ATCC 33199, AJ242968 | DSM 10532 | NCFB 2235 | VPI 1294

Lactobacillus gasseri [VP] Lauer and Kandler 1980 – 63 AM | ATCC 33323 | DSM 20243, M58820, L.gasseri | NCDO 2233, X61137, L.gasseri1 | NCIB 11718

Lactobacillus graminis [VP] Beck et al. 1989 – G90 (1) | ATCC 51150 | CIP 105164 | DSM 20719 | NCIB 12808

†*Lactobacillus halotolerans* [VP] Kandler et al. 1983 -> *Weissella halotolerans* – G1 | R61 | ATCC 35410 | DSM 20190, M23037, Wei.haltol

[397] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[398] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Lactobacillus hamsteri [VP] Mitsuoka and Fujisawa 1988 - Ha5F1 | ATCC 43851 | DSM 5661, AJ306298 | JCM 6256

Lactobacillus helveticus [AL] (Orla-Jensen 1919) Bergey et al. 1925 - Lh12 | ATCC 15009 | DSM 20075 | IMET 10709 | NCDO 2712, X61141, L.helvetic

Lactobacillus heterohiochii [AL] Kitahara et al. 1957 - ATCC 15435

Lactobacillus hilgardii [AL] Douglas and Cruess 1936 - 9 | ATCC 8290 | DSM 20176, M58821, L.hilgardi | NCDO 264 | NCIB 8040

Lactobacillus homohiochii [AL] Kitahara et al. 1957 - H42 | ATCC 15434 | DSM 20571 | JCM 1199

Lactobacillus iners [VP] Falsen et al. 1999 - CCUG 28746

Lactobacillus ingluviei [VP] Baele et al. 2003 - KR3, AF333975 | CCUG 45722 | LMG 20380

Lactobacillus intestinalis [VP] (ex Hemme 1974) Fujisawa et al. 1990 - Th4 | ATCC 49335 | DSM 6629, AJ306299 | JCM 7548

Lactobacillus jensenii [AL] Gasser et al. 1970 - 62G | ATCC 25258, AF243176 | DSM 20557

Lactobacillus johnsonii [VP] Fujisawa et al. 1992 - ATCC 33200, AJ002515, L.johnsoni | DSM 10533 | NCFB 2241 | VPI 7960

†*Lactobacillus kandleri* [VP] Holzapfel and van Wyk 1983 -> *Weissella kandleri* - L250 | ATCC 51149 | DSM 20593, M23038, Wei.kandlr | NCFB 2753

Lactobacillus kefiranofaciens [VP] Fujisawa et al. 1988 - WT-2B | ATCC 43761 | DSM 5016 | JCM 6985

Lactobacillus kefirgranum [VP] Takizawa et al. 1994 - GCL 1701 | DSM 10550 | JCM 8572

Lactobacillus kefiri [VP] Kandler and Kunath 1983 - A/K | ATCC 35411 | DSM 20587

Lactobacillus kimchii [VP] Yoon et al. 2000 - MT-1077, AF183558 | JCM 10707 | KCTC 8903P

Lactobacillus kunkeei [VP] Edwards et al. 1998 - YH-15, Y11374 | ATCC 700308 | DSM 12361

†*Lactobacillus lactis* [AL] (Orla-Jensen 1919) Bergey et al. 1934 -> *Lactobacillus delbrueckii subspecies lactis* - ATCC 12315 | DSM 20072, M58823, L.delbruc4

Lactobacillus leichmannii [AL] (Henneberg 1903) Bergey et al. 1923 - ATCC 4797

Lactobacillus lindneri [VP] Back et al. 1997 - KPA | DSM 20690, X95421, L.lindneri

Lactobacillus malefermentans [VP] Farrow et al. 1989 - D2 MF1 | ATCC 49373 | DSM 5705 | NCDO 1410

Lactobacillus mali [AL] Carr and Davies 1970 = *Lactobacillus yamanashiensis mali* (later homotypic synonym) = *Lactobacillus yamanashiensis yamanashiensis* (later heterotypic synonym) -> *Lactobacillus yamanashiensis mali* - J12 | ATCC 27053 | DSM 20444, M58824, L.mali | NCIB 10560

Lactobacillus maltaromicus [AL] Miller et al. 1974 - MX 5 | ATCC 27865 | DSM 20342, M58825, L.maltarom | JCM 1154, X54420, L.maltaro2 | LMG 6903

Lactobacillus manihotivorans [VP] Morlon-Guyot et al. 1998 - OND 32, AF000162, L.manihotv | LMG 18010

Lactobacillus mindensis [VP] Ehrmann et al. 2003 - TMW 1.80, AJ313530 | DSM 14500 | LMG 21508

†*Lactobacillus minor* [VP] Kandler et al. 1983 -> *Weissella minor* - 3 | ATCC 35412 | DSM 20014, M23039, Wei.minor

†*Lactobacillus minutus* [AL] (Hauduroy et al. 1937) Moore and Holdeman 1972 -> *Atopobium minutum* - ATCC 33267 | DSM 20586 | VPI 9428

Lactobacillus mucosae [VP] Roos et al. 2000 - S32, AF126738

Lactobacillus murinus [VP] Hemme et al. 1982 - 313 | ATCC 35020 | CNRZ 220 | DSM 20452, M58826, L.murinus

Lactobacillus nagelii [VP] Edwards et al. 2000 - LuE10 | ATCC 700692, Y17500

Lactobacillus oris [VP] Farrow and Collins 1988 - 5A1 | ATCC 49062 | DSM 4864, X94229, L.oris2 | NCDO 2160, X61131, L.oris | NCIB 8831

Lactobacillus panis [VP] Wiese et al. 1996 - ST1 | DSM 6035, X94230, L.panis1

Lactobacillus pantheris [VP] Liu and Dong 2002 - A24-2-1 | AS 1.2826 | LMG 21017, AF413523

Lactobacillus parabuchneri [VP] Farrow et al. 1989 - ATCC 49374 | DSM 5707 | NCDO 2748 | NCIB 8838

Lactobacillus paracasei subspecies paracasei [VP] Collins et al. 1989 = *Lactobacillus casei subspecies alactosus* (later heterotypic synonym) = *Lactobacillus casei subspecies pseudoplantarum* (later heterotypic synonym) - RO94 | ATCC 25302 | DSM 5622 | NBRC 15889 | JCM 8130, D79212, L.prcasei | NCDO 151

Lactobacillus paracasei subspecies tolerans [VP] (Abo-Elnaga and Kandler 1965) Collins et al. 1989 <- *Lactobacillus casei subspecies tolerans* (basonym) - 27211 | ATCC 25599 | DSM 20258 | JCM 1171, D16550, L.prcas_to | NCFB 2774 | NCIB 9709

Lactobacillus parakefiri [VP] Takizawa et al. 1994 - GCL 1731 | DSM 10551 | NBRC 15890 | JCM 8573

Lactobacillus paralimentarius [VP] Cai et al. 1999 - TB 1 | JCM 10415

Lactobacillus paraplantarum [VP] Curk et al. 1996 - CST 10961 | CIP 104668 | CNRZ 1885 | DSM 10667, AJ306297

Lactobacillus pentosus [VP] Zanoni et al. 1987 - 124-2 | ATCC 8041 | DSM 20314 | NCDO 363 | NCIB 8026

Lactobacillus perolens [VP] Back et al. 2000 - L 532, Y19167 | LMG 18936 | DSM 12744

†*Lactobacillus piscicola* [VP] Hiu et al. 1984 -> *Carnobacterium piscicola* - B270 = *Lactobacillus carnis* (later heterotypic synonym) | ATCC 35586 | DSM 20730 | NCDO 2762

Lactobacillus plantarum [AL] (Orla-Jensen 1919) Bergey et al. 1923 - Lp 39 | ATCC 14917 | DSM 20174 | JCM 1149, D79210, L.plantar3 | LMG 6907 | NCDO 1752, X52653, L.plantar2

Lactobacillus pontis [VP] Vogel et al. 1994 - LTH 2587, X76329, L.pontis | DSM 8475 | LMG 14187

Lactobacillus psittaci [VP] Lawson et al. 2001 - CCUG 42378, AJ272391 | CIP 106492

Lactobacillus reuteri [VP] Kandler et al. 1982 - F 275 | ATCC 23272 | DSM 20016, L23507, L.reuteri | DSM 20016, X76328, L.reuteri3

Lactobacillus rhamnosus [VP] (Hansen 1968) Collins et al. 1989 <- *Lactobacillus casei subspecies rhamnosus* (basonym) - ATCC 7469 | CCM 1825 | DSM 20021, M58815, L.rhamnosu | NCDO 243 | NCIB 6375

†*Lactobacillus rimae* [VP] Olsen et al. 1991 -> *Atopobium rimae* - ATCC 49626, AF292371 | DSM 7090 | VPI D140H-11A

Lactobacillus rogosae [AL] Holdeman and Moore 1974 - VPI C37-38

Lactobacillus ruminis [AL] Sharpe et al. 1973 - RFl | ATCC 27780 | DSM 20403, M58828, L.ruminis

Lactobacillus sakei subspecies sakei [AL] Katagiri et al. 1934 emend. Klein et al. 1996 = *Lactobacillus bavaricus* (later heterotypic synonym) - ATCC 15521 | DSM 20017, M58829, L.sakeisak

Lactobacillus sakei subspecies carnosus [VP] Torriani et al. 1996 - R 14b/a | CCUG 31331

Lactobacillus salivarius subspecies salivarius [AL] Rogosa et al. 1953 - ATCC 11741, AF089108, L.salivar2 | DSM 20555 | H066 | NCDO 929

Lactobacillus salivarius subspecies salicinius [AL] Rogosa et al. 1953 - ATCC 11742 | DSM 20554, M59054, L.salivari | HO268 | NCDO 1555

Lactobacillus sanfranciscensis [VP] Weiss and Schillinger 1984 - L-12 | ATCC 27651, X76327, L.sanfran2 | DSM 20451 | NRRL B-3934

Lactobacillus sharpeae [VP] Weiss et al. 1982 - 71 | ATCC 49974 | DSM 20505, M58831, L.sharpeae | JCM 1186 | NCDO 2590 | NCIB 11720

Lactobacillus suebicus [VP] Kleynmans et al. 1989 - I | ATCC 49375 | DSM 5007

Lactobacillus thermotolerans [VP] Niamsup et al. 2003 - G35, AF317702 | DSM 14792 | JCM 11425

Lactobacillus trichodes [AL] Fornachon et al. 1949 - ATCC 27394

†*Lactobacillus uli* [VP] Olsen et al. 1991 -> *Olsenella uli* - ATCC 49627, AY005814, AF292373 | DSM 7084 | VPI D76D-27C

Lactobacillus vaccinostercus [VP] Kozaki and Okada 1983 - TUA 055B | X-94 | ATCC 33310 | DSM 20634

Lactobacillus vaginalis [VP] Embley et al. 1989 - ATCC 49540 | DSM 5837 | Lac 19 | NCTC 12197, X61136, L.vaginali

Lactobacillus versmoldensis [VP] Kröckel et al. 2003 - KU-3, AJ496791 | ATCC BAA-478 | DSM 14857 | NCCB 100034

†*Lactobacillus viridescens* [AL] Niven and Evans 1957 -> *Weissella viridescens* - S38A | ATCC 12706 | CCM 56 | DSM 20410, M23040, Wei.viride | NCDO 1655, X52568, Wei.virid1 | NCIB 8965

Lactobacillus vitulinus [AL] Sharpe et al. 1973 - RL 2 | ATCC 27783, M23727, L.vitulinu | DSM 20405, M23727, L.vitulinu | JCM 8228

†*Lactobacillus xylosus* [AL] Kitahara 1938 = *Lactococcus lactis subspecies lactis* (earlier heterotypic synonym) - ATCC 15577

†*Lactobacillus yamanashiensis subspecies yamanashiensis* [VP] Nonomura 1983 = *Lactobacillus mali* (earlier heterotypic synonym) - 239 | ATCC 27304

†*Lactobacillus yamanashiensis subspecies mali* [VP] Nonomura 1983 = *Lactobacillus mali* (earlier homotypic synonym) - NCIB 10560

Lactobacillus zeae [VP] Dicks et al. 1996 - ATCC 15820, D86516, L.zeae1 | DSM 20178 | NCIB 9537 | RIA 482

Genus II. Paralactobacillus [VP]

Paralactobacillus selangorensis [VP (T)] Leisner et al. 2000 - LMG 17710, AF049745

Genus III. Pediococcus [AL]

Pediococcus damnosus [AL (T)] Claussen 1903 - Be.1 | ATCC 29358 | DSM 20331 | JCM 5886, D87678, Ped.damnos | LMG 11484 | NCDO 1832

Pediococcus acidilactici [AL] Lindner 1887 - B213c | DSM 20284, M58833, Ped.acidil

Pediococcus claussenii [VP] Dobson et al. 2002 - P06 | ATCC BAA-344 | DSM 14800

Pediococcus dextrinicus [AL] (Coster and White 1964) Back 1978 - L95 | ATCC 33087 | DSM 20335 | JCM 5887, D87679, Ped.dextrn | LMG 10649 | NCDO 1561

†*Pediococcus halophilus* [AL] Mees 1934 -> *Tetragenococcus halophilus* - TC 1 | ATCC 23315 | DSM 20339, AJ301843 | NCDO 1635

Pediococcus inopinatus [VP] Back 1988 - 236b | DSM 20285, AJ271383

Pediococcus parvulus [AL] Gunther and White 1961 - S182 | ATCC 19371 | DSM 20332 | JCM 5889, D88528, Ped.parvul | LMG 11486 | NCDO 1634 | NCIB 9447

Pediococcus pentosaceus [AL] Mees 1934 - ATCC 33316 | DSM 20336, M58834, Ped.pentos | NCDO 990

Pediococcus urinaeequi [VP] Garvie 1988 - ATCC 29723 | DSM 20341 | NCDO 1636

Family II. "Aerococcaceae"

Genus I. Aerococcus [AL]

Aerococcus viridans [AL (T)] Williams et al. 1953 - M1 | ATCC 11563, M58797, Aer.virida | CCM 1914 | DSM 20340 | IAM 13649 | IMET 11154 | NCDO 1225 | NCTC 8251

Aerococcus christensenii [VP] Collins et al. 1999 - CCUG 28831, Y17005

Aerococcus sanguinicola [VP] Lawson et al. 2001 - CCUG 43001, AJ276512 | CIP 106533

Aerococcus urinae [VP] Aguirre and Collins 1992 - DSM 7446 | NCFB 2893, M77819, Aer.urinae | NCTC 12142

Aerococcus urinaehominis [VP] Lawson et al. 2001 - CCUG 42038b | CIP 106675

Genus II. Abiotrophia [VP]

Abiotrophia defectiva [VP (T)] (Bouvet et al. 1989) Kawamura et al. 1995 <- *Streptococcus defectivus* (basonym) - SC10 | ATCC 49176, D50541, Abt.defect | CIP 103242 | DSM 9849

†*Abiotrophia adiacens* [VP] (Bouvet et al. 1989) Kawamura et al. 1995 <- *Streptococcus adjacens* (basonym) -> *Granulicatella adiacens* - GaD | ATCC 49175, D50540, Abt.adiacn | CIP 103243 | DSM 9848

†*Abiotrophia balaenopterae* VP Lawson et al. 1999 -> *Granulicatella balaenopterae* - M1975/96/1 | CCUG 37380, Y16547, Abt.balaen

†*Abiotrophia elegans* VP Roggenkamp et al. 1999 -> *Granulicatella elegans* - B1333, AF016390, Abt.elegan | DSM 11693, AF016390, Abt.elegan

Genus III. Dolosicoccus VP

Dolosicoccus paucivorans VP (T) Collins et al. 1999 - 2992-95, AJ012666 | CCUG 39307

Genus IV. Eremococcus VP

Eremococcus coleocola VP (T) Collins et al. 1999 - M1832/95/2 | CCUG 38207, Y17780

Genus V. Facklamia VP

Facklamia hominis VP (T) Collins et al. 1997 - CCUG 36813 | CCUG 36813, Y10772, Fac.homini

Facklamia ignava VP Collins et al. 1998 - 164-97 | CCUG 37419 | CIP 105583

Facklamia languida VP Lawson et al. 1999 - 1144-97, Y18053 | CCUG 37842

Facklamia miroungae VP Hoyles et al. 2001 - A/G13/99/2 | CCUG 42728, AJ277381[399] | CIP 106764

Facklamia sourekii VP Collins et al. 1999 - STR 2/84 | CCUG 28783A, Y17312, Fac.sourek

Facklamia tabacinasalis VP Collins et al. 1999 - CCUG 30090, Y17820

Genus VI. Globicatella VP

Globicatella sanguinis VP (T) Collins et al. 1995 - 1152-78 | ATCC 51173 | DSM 7447 | NCFB 2835

Globicatella sulfidifaciens VP Vandamme et al. 2001 - GEM 604 | CCUG 44365 | LMG 18844, AJ297627

Genus VII. Ignavigranum VP

Ignavigranum ruoffiae VP (T) Collins et al. 1999 - CCUG 37658, Y16426, Ig.ruoffia

Family III. "Carnobacteriaceae"

Genus I. Carnobacterium VP

Carnobacterium divergens VP (T) (Holzapfel and Gerber 1983) Collins et al. 1987 <- *Lactobacillus divergens* (basonym) - 66 | ATCC 35677 | DSM 20623, M58816, Crn.diverg | NCDO 2763, X54270, Crn.diver1

Carnobacterium alterfunditum VP Franzmann et al. 1993 - pf4 | ACAM 313 | ATCC 49837 | DSM 5972

Carnobacterium funditum VP Franzmann et al. 1993 - pf3, S86170, Crn.fundit | ACAM 312 | ATCC 49836 | DSM 5970, S86170, Crn.fundit

Carnobacterium gallinarum VP Collins et al. 1987 - MT44 | ATCC 49517 | DSM 4847 | NCFB 2766, X54269, Crn.gallin

Carnobacterium inhibens VP Jöborn et al. 1999 - K1, Z73313 | CCUG 31728

Carnobacterium maltaromaticum VP (Miller et al. 1974) Mora et al. 2003 <- *Carnobacterium piscicola* (basonym) - ATCC 27865 | CCUG 30142 | CIP 103135 | DSM 20342 | JCM 1154, X54420 | LMG 6903 | NRRL B-14852

Carnobacterium mobile VP Collins et al. 1987 - MT37L | ATCC 40516 | DSM 4848 | NCFB 2765, X54271, Crn.mobile

†*Carnobacterium piscicola* VP (Hiu et al. 1984) Collins et al. 1987 <- *Lactobacillus piscicola* (basonym) -> *Carnobacterium piscicola* - B270 | ATCC 35586 | DSM 20730 | NCDO 2762, X54268, Crn.pisci1

Carnobacterium viridans VP Holley et al. 2002 - MPL-11, AF425608 | ATCC BAA-336 | DSM 14451

Genus II. Agitococcus VP

Agitococcus lubricus VP (T) Franzmann and Skerman 1981 - DSM 5822 | UQM 1981

Genus III. Alkalibacterium VP

Alkalibacterium olivapovliticus VP (T) Ntougias and Russel 2001 - WW2–SN4a, AF143511 | DSM 13175 | NCIMB 13710

*Genus IV. **Allofustis*** VP

[399] GenBank accession number not currently valid.

Allofustis seminis VP (T) Collins et al. 2003 - 01-570-1 | CCUG 45438, AJ410303 | CIP 107425

Genus V. Alloiococcus VP

Alloiococcus otitis VP (T) Aguirre and Collins 1992 - 7760 | DSM 7252 | NCFB 2890, X59765, Aic.otitis

Genus VI. Desemzia VP

Desemzia incerta VP (T) (Steinhaus 1941) Stackebrandt et al. 1999 <- *Brevibacterium incertum* (basonym) - ATCC 8363 | DSM 20581, Y14650, Dsz.incert | IMET 11374 | NCIB 9892

Genus VII. Dolosigranulum VP

Dolosigranulum pigrum VP (T) Aguirre et al. 1994 - R91/1468 | NCFB 2975, X70907, Dol.pigrum

Genus VIII. Granulicatella VP

Granulicatella adiacens VP (T) (Bouvet et al. 1989) Collins and Lawson 2000 <- *Abiotrophia adiacens* (basonym) - GaD | ATCC 49175, D50540 | CIP 103243 | DSM 9848

Granulicatella balaenopterae VP (Lawson et al. 1999) Collins and Lawson 2000 <- *Abiotrophia balaenopterae* (basonym) - M1975/96/1 | CCUG 37380, Y16547

Granulicatella elegans VP (Roggenkamp et al. 1999) Collins and Lawson 2000 <- *Abiotrophia elegans* (basonym) - B1333, AF016390 | DSM 11693

Genus IX. Isobaculum VP

Isobaculum melis VP (T) Collins et al. 2002 - M577-94 | CCUG 37660, AJ302648 | DSM 13760

Genus X. Lactosphaera VP 400

†*Lactosphaera pasteurii* VP (T) (Schink 1985) Janssen et al. 1995 <- *Ruminococcus pasteurii* (basonym) -> *Trichococcus pasteurii* - KoTa2, X87150, Lcs.paster | ATCC 35945 | DSM 2381, L76599, Lcs.paste2

Genus XI. ***Marinilactibacillus*** VP

Marinilactibacillus psychrotolerans VP (T) Ishikawa et al. 2003 - M13-2, AB083406 | IAM 14980 | NBRC 100002 | NCIMB 13873 | NRIC 0510

Genus XII. Trichococcus VP

Trichococcus flocculiformis VP (T) Scheff et al. 1984 - Echt, Y17301 | ATCC 51221 | DSM 2094

Trichococcus palustris VP (Zhilina et al. 1997) Jian-Rong et al. 2002 <- *Ruminococcus palustris* (basonym) - Z-7189 | DSM 9172, AJ296179

Trichococcus pasteurii VP (T) (Schink 1985) Jian-Rong et al. 2002 <- *Lactosphaera pasteurii* (basonym) - KoTa2, X87150, Lcs.paster | ATCC 35945 | DSM 2381, L76599, Lcs.paste2

Family IV. "Enterococcaceae"

Genus I. Enterococcus VP

Enterococcus faecalis VP (T) (Andrewes and Horder 1906) Schleifer and Kilpper-Bälz 1984 <- *Streptococcus faecalis* (basonym) - ATCC 19433 | DSM 20478 | JCM 5803, AB012212, Eco.faeca1 | NCDO 581 | NCIB 775 | NCTC 775

Enterococcus asini VP de Vaux et al. 1998 - AS2, Y11621, Eco.asini1 | DSM 11492

Enterococcus avium VP Collins et al. 1984 - Guthof E6844 | ATCC 14025 | DSM 20679 | IMET 3257 | NCDO 2369 | NCTC 9938

Enterococcus canis VP De Graef et al. 2003 - CCUG 46666 | LMG 12316, X76177

Enterococcus casseliflavus VP Collins et al. 1984 <- *Streptococcus casseliflavus* (basonym) - MUTK 20, Y18161 | ATCC 25788 | CCM 2478 | DSM 20680 | NCDO 2372 | NCIB 11449

Enterococcus cecorum VP (Devriese et al. 1983) Williams et al. 1989 <- *Streptococcus cecorum* (basonym) - A60, Y18355, AF061009 | ATCC 43198 | DSM 20682 | NCDO 2674

Enterococcus columbae VP Devriese et al. 1993 - STR 345, X56422, Eco.columb | ATCC 51263 | DSM 7374 | NCIMB 13013, X56422, Eco.columb

[400] Rule 37a(1) states that the name of a taxon must be changed if the nomenclatural type of the taxon is excluded.

Enterococcus dispar [VP] Collins et al. 1991 – E18-1, Y18358, AF061007 | ATCC 51266 | DSM 6630 | NCFB 2821 | NCIMB 13000

Enterococcus durans [VP] Collins et al. 1984 = *Streptococcus durans* (later homotypic synonym) – 98D | ATCC 19432 | CCM 5612 | DSM 20633 | NCDO 596 | NCTC 8307

Enterococcus faecium [VP] (Orla-Jensen 1919) Schleifer and Kilpper-Bälz 1984 <- *Streptococcus faecium* (basonym) – ATCC 19434 | DSM 20477, AJ276355 | JCM 5804, AB012213, Eco.faeci3 | NCDO 942 | NCTC 7171

Enterococcus flavescens [VP] Pompei et al. 1992 – CA 2 | ATCC 49996 | CCM 4239 | DSM 7370

Enterococcus gallinarum [VP] (Bridge and Sneath 1982) Collins et al. 1984 <- *Streptococcus gallinarum* (basonym) – F87/276 | PB21 | ATCC 35038 | DSM 20628 | NCDO 2313 | NCTC 11428

Enterococcus gilvus [VP] Turrell et al. 2002 – PQ1, AY033814 | ATCC BAA-350 | CCUG 45553

Enterococcus haemoperoxidus [VP] Svec et al. 2001 – 440 | CCM 4851, AF286832 | LMG 19487

Enterococcus hirae [VP] Farrow and Collins 1985 – R | ATCC 8043 | CCM 2423 | CCM 2424 | DSM 20160, AJ276356, Y17302 | IMET 11742 | NCDO 1258 | NCFP 1258, Y18354 | NCIB 6459

Enterococcus malodoratus [VP] Collins et al. 1984 – ATCC 43197, Y18339, AF061012 | DSM 20681 | NCDO 846

Enterococcus moraviensis [VP] Svec et al. 2001 – 330 | CCM 4856, AF286831 | LMG 19486

Enterococcus mundtii [VP] Collins et al. 1986 – MUTK 559, Y18340, AF061013 | ATCC 43186 | DSM 4838 | NCDO 2375

Enterococcus pallens [VP] Turrell et al. 2002 – PQ2, AY033815 | ATCC BAA-351 | CCUG 45554

Enterococcus phoeniculicola [VP] Law-Brown and Meyers 2003 – JLB-1, AY028437 | ATCC BAA-412 | DSM 14726

Enterococcus porcinus [VP] Teixeira et al. 2001 – DS 1390–83 | ATCC 700913, AF335596 | CCUG 43229 | NCIMB 13634

Enterococcus pseudoavium [VP] Collins et al. 1989 – 47-16, Y18356, AF061002 | ATCC 49372 | DSM 5632 | NCDO 2138

Enterococcus raffinosus [VP] Collins et al. 1989 – 1789/79 | ATCC 49427 | DSM 5633 | NCTC 12192

Enterococcus ratti [VP] Teixeira et al. 2001 – DS 2705–87, AF326472[401] | ATCC 700914 | CCUG 43228 | NCIMB 13635

Enterococcus saccharolyticus [VP] (Farrow et al. 1985) Rodrigues and Collins 1991 <- *Streptococcus saccharolyticus* (basonym) – HF 62 | ATCC 43076 | DSM 20726 | NCDO 2594, X55767, Eco.saclyt

†*Enterococcus seriolicida* [VP] Kusuda et al. 1991 = *Lactococcus garvieae* (earlier heterotypic synonym) – YT-3, L32813, Lcc.garvi2 | ATCC 49156 | DSM 6783

Enterococcus solitarius [VP] Collins et al. 1989 – 885/78 | ATCC 49428, AF061010 | DSM 5634, AJ301840 | NCTC 12193

Enterococcus sulfureus [VP] Martinez-Murcia and Collins 1991 – MUTK 31, X55133, Eco.sulfur | NCDO 2379, X55133, Eco.sulfur

Enterococcus villorum [VP] Vancanneyt et al. 2001 [402] – 88-5474 | CCM 4887 | LMG 12287, AJ271329

Genus II. Atopobacter [VP]

Atopobacter phocae [VP (T)] Lawson et al. 2000 – M1590/94/2, Y16546 | CCUG 42358 | CIP 106392

Genus III. Melissococcus [VP]

[401] GenBank accession number not currently valid.

[402] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Melissococcus plutonius [VP (T)] Bailey and Collins 1983 – NCDO 2443, X75751, Mlsc.plutn

Genus IV. Tetragenococcus [VP]

Tetragenococcus halophilus [VP (T)] (Mees 1934) Collins et al. 1993 <- *Pediococcus halophilus* (basonym) – TC 1 | ATCC 33315 | DSM 20339, AJ301843 | IAM 12284 | IAM 1676, D88668, Tgc.halop2 | JCM 5888, D87680, Tgc.haloph | NCDO 1635

Tetragenococcus muriaticus [VP] (Mees 1934) Collins et al. 1993 – X-1 | JCM 10006, D88824

Genus V. Vagococcus [VP]

Vagococcus fluvialis [VP (T)] Collins et al. 1990 – M-29C | ATCC 49515 | CCUG 32704, Y18098 | DSM 5731 | NCDO 2497, X54258, Vag.fluvia

Vagococcus fessus [VP] Hoyles et al. 2000 – M2661/98/1, AJ243326 | CCUG 41755

Vagococcus lutrae [VP] Lawson et al. 1999 – CCUG 39187, Y17152

Vagococcus salmoninarum [VP] Wallbanks et al. 1990 – OS1-68 | ATCC 51200 | DSM 6633 | NCFB 2777, X54272, Vag.salmon

Family V. "Leuconostocaceae"

Genus I. Leuconostoc [AL]

Leuconostoc mesenteroides subspecies mesenteroides [AL (T)] (Tsenkovskii 1878) van Tieghem 1878 – 37 Y | ATCC 8293 | CCM 1803 | DSM 20343, M23035, Lc.mesente | NCDO 523, X95978, Lc.mesent2 | NCIB 8023

Leuconostoc inhae [VP] Kim et al. 2003 – IH003, AF439560 | DSM 15101 | KCTC 3774

Leuconostoc mesenteroides subspecies cremoris [VP] (Knudsen and Sörensen 1929) Garvie 1983 <- *Leuconostoc cremoris* (basonym) – ATCC 19254 | CCM 2078 | DSM 20346 | IMET 10694 | NCDO 543

Leuconostoc mesenteroides subspecies dextranicum [VP] (Beijerinck 1912) Garvie 1983 <- *Leuconostoc dextranicum* (basonym) – ATCC 19255 | CCM 2086 | DSM 20484 | NCDO 529 | NRRL B-3469

†*Leuconostoc amelibiosum* [VP] Schillinger et al. 1989 = *Leuconostoc citreum* (earlier heterotypic synonym) – ATCC 13146 | DSM 20188 | NRRL B-742

Leuconostoc argentinum [VP] Dicks et al. 1993 – DSM 8581, AF175403 | LL76

Leuconostoc carnosum [VP] Shaw and Harding 1989 – SML40 | ATCC 49367 | DSM 5576 | NCFB 2776, X95977, Lc.carnosu

Leuconostoc citreum [VP] Farrow et al. 1989 = *Leuconostoc amelibiosum* (later heterotypic synonym) – B2399 | ATCC 49730 | DSM 5577 | NCDO 1837

†*Leuconostoc cremoris* [AL] (Knudsen and Sörenson 1929) Garvie 1960 -> *Leuconostoc mesenteroides subspecies cremoris* – LF2 | ATCC 19254 | CCM 2078 | DSM 20346, M23034, Lc.mesencr | IMET 10693 | NCDO 543

†*Leuconostoc dextranicum* [AL] (Beijerinck 1912) Hucker and Pederson 1930 -> *Leuconostoc mesenteroides subspecies dextranicum* – DSM 20484 | IMET 10694 | NCDO 529

Leuconostoc fallax [VP] Martinez-Murcia and Collins 1992 – DSM 20189, S63851, Lc.fallax

Leuconostoc ficulneum [VP] Antunes et al. 2002 – FS-1, AF360736 | DSM 13613 | NRRL B-23447

Leuconostoc fructosum [VP] (Kodama 1956) Antunes et al. 2002 <- *Lactobacillus fructosus* (basonym) – ATCC 13162 | DSM 20349, AF360737 | NBRC 3516 | NCDO 2345, X61140, L.fructosu | NCIMB 10784

Leuconostoc gasicomitatum [VP] Björkroth et al. 2001 [403] – TB 1-10 | LMG 18811, AF231131

Leuconostoc gelidum [VP] Shaw and Harding 1989 – SML9 | ATCC 49366 | DSM 5578, AF175402 | NCFB 2775

Leuconostoc kimchii [VP] Kim et al. 2000 – IH25, AF173986 | IMSNU 11154 | KCTC 2386

[403] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Leuconostoc lactis [AL] Garvie 1960 - ATCC 19256 | DSM 20202, M23031, Lc.lactis | NCDO 533

†Leuconostoc oeni [AL] Garvie 1967 -> *Oenococcus oeni* - ATCC 23279 | DSM 20252, M35820, Occ.oeni2 | NCDO 1674, X95980, Occ.oeni1

†Leuconostoc paramesenteroides [AL] Garvie 1967 -> *Weissella paramesenteroides* - R 80 | ATCC 33313 | DSM 20288, M23033, Wei.pmesen | IMET 10704 | NCDO 803, X95982, Wei.pmese2

Leuconostoc pseudomesenteroides [VP] Farrow et al. 1989 - 39 | ATCC 12291 | CCM 2083 | DSM 20193 | DSM 284 | NCDO 768, X95979, Lc.pmesent | NCIB 8699

Genus II. Oenococcus [VP]

Oenococcus oeni [VP (T)] (Garvie 1967) Dicks et al. 1995 <- *Leuconostoc oeni* (basonym) - Baudry 1 | ATCC 23179 | DSM 20252, M35820, Occ.oeni2 | NCDO 1674, X95980, Occ.oeni1

Genus III. Weissella [VP]

Weissella viridescens [VP (T)] (Niven and Evans 1957) Collins et al. 1994 <- *Lactobacillus viridescens* (basonym) - S38A | ATCC 12706 | CCM 56 | DSM 20410, M23040, Wei.viride | NCDO 1655, X52568, Wei.virid1 | NCIB 8965

Weissella cibaria [VP] Björkroth et al. 2002 - II-I-59 | CCUG 41967 | LMG 17699, AJ295989

Weissella confusa [VP] (Holzapfel and Kandler 1969) Collins et al. 1994 <- *Lactobacillus confusus* (basonym) - 548-D | ATCC 10881 | DSM 20196, M23036, Wei.confus | NCDO 1586, X52567, Wei.confu2 | NCIB 9311

Weissella halotolerans [VP] (Kandler et al. 1983) Collins et al. 1994 <- *Lactobacillus halotolerans* (basonym) - G1 | R61 | ATCC 35410 | DSM 20190, M23037, Wei.haltol

Weissella hellenica [VP] Collins et al. 1994 - LV346 | ATCC 51523 | DSM 7378 | NCFB 2973, X95981, Wei.helle2

Weissella kandleri [VP] (Holzapfel and van Wyk 1983) Collins et al. 1994 <- *Lactobacillus kandleri* (basonym) - L250 | ATCC 51149 | DSM 20593, M23038, Wei.kandlr | NCFB 2753

Weissella kimchii [VP] Choi et al. 2002 - CHJ3, AF312874 | DSM 14295 | KCTC 3746 | KCCM 41287

Weissella koreensis [VP] Lee et al. 2002 - S-5623 | KCTC3621 | KCCM 41516 | JCM 11263, AY035891

Weissella minor [VP] (Kandler et al. 1983) Collins et al. 1994 <- *Lactobacillus minor* (basonym) - 3 | ATCC 35412 | DSM 20014, M23039, Wei.minor

Weissella paramesenteroides [VP] (Garvie 1967) Collins et al. 1994 <- *Leuconostoc paramesenteroides* (basonym) - R 80 | ATCC 33313 | DSM 20288, M23033, Wei.pmesen | IMET 10704 | NCDO 803, X95982, Wei.pmese2

Weissella soli [VP] Magnusson et al. 2002 - Mi268, AY028260 | DSM 14420 | LMG 20113

Weissella thailandensis [VP] Tanasupawat et al. 2000 - FS61-1, AB023838 | PCU 210 | NRIC 0298 | HSCC 1412 | JCM10695 | TISTR 1384

Family VI. Streptococcaceae [AL]

Genus I. Streptococcus [AL (T)]

Streptococcus pyogenes [AL (T)] Rosenbach 1884 - SF 130 | T1 | ATCC 12344, AB002521, Stc.pyoge3 | DSM 20565 | IMET 3002 | NCTC 8198

Streptococcus acidominimus [AL] Ayers and Mudge 1922 - ATCC 51725 | CCUG 27296 | DSM 20622 | NCDO 2025 | NCDO 2025, X58301, Stc.acidom

†Streptococcus adjacens [VP] Bouvet et al. 1989 -> *Abiotrophia adiacens* - GaD | ATCC 49175, D50540, Abt.adiacn | CIP 103243 | DSM 9848

Streptococcus agalactiae [AL] Lehmann and Neumann 1896 - G 19 | ATCC 13813, AB002479, Stc.agala4 | DSM 2134 | NCDO 1348, X59032, Stc.agalac | NCTC 8181, AB002479, Stc.agala4

Streptococcus alactolyticus [VP] Farrow et al. 1985 = *Streptococcus intestinalis* (later heterotypic synonym) - GP2 | ATCC 43077 | DSM 20728 | NCDO 1091, X58319, Stc.alacto

Streptococcus anginosus [AL] Andrewes and Horder 1906 emend. Whiley and Beighton 1991 – Havill III | ATCC 12395 | ATCC 33397 | DSM 20563 | NCTC 10713, X58309, Stc.angino

Streptococcus australis [VP] Willcox et al. 2001 – AI-1 | ATCC 700641 | NCTC 13166

Streptococcus bovis [AL] Orla-Jensen 1919 = *Streptococcus equinus* (earlier heterotypic synonym) – Pearl 11 | ATCC 33317, AB002482, Stc.bovis3 | ATCC 33317, M58835, Stc.bovis | DSM 20480 | NCDO 597, AB002482, Stc.bovis3 | NCDO 597, X58317, Stc.bovis1 | NCTC 8177

Streptococcus canis [VP] Devriese et al. 1986 – STR-T1 | ATCC 43496, AB002483, Stc.canis2 | DSM 20715, AB002483, Stc.canis2 | DSM 20715, X59061, Stc.canis

†*Streptococcus caprinus* [VP] Brooker et al. 1996 = *Streptococcus gallolyticus* (earlier heterotypic synonym) – TPC 2.3 | ACM 3969, Y10868, Stc.gallyt

†*Streptococcus casseliflavus* [VP] Vaughan et al. 1979 -> *Enterococcus casseliflavus* – ATCC 25788, Y18161 | CCM 2478 | DSM 20680 | NCDO 2372 | NCIB 11449

†*Streptococcus cecorum* [VP] Devriese et al. 1983 -> *Enterococcus cecorum* – A6O, Y18355, AF061009 | ATCC 43198 | DSM 20682 | NCDO 2674

Streptococcus constellatus subspecies constellatus [AL] Prévot 1924 emend. Whiley and Beighton 1991 – ATCC 27823 | CIP 103247 | DSM 20575 | NCDO 2226 | NCTC 11325, X58310, Stc.angin2 | VPI 3810

Streptococcus constellatus subspecies pharyngis [VP] Whiley et al. 1999 – MM9889a | NCTC 13122

†*Streptococcus cremoris* [AL] Orla-Jensen 1919 -> *Streptococcus lactis subspecies cremoris* – HP | ATCC 19257, M58836, Lcc.laccre | DSM 20069 | IMET 10707 | NCDO 607 | NCIB 8662

Streptococcus criceti [AL] Coykendall 1977 – HS6 | ATCC 19642 | DSM 20562 | NCDO 2720, X58305, Stc.cricet

Streptococcus cristatus [VP] Handley et al. 1991 – CR311 | DSM 8249 | NCTC 12479, AB008313, Stc.crstat

†*Streptococcus defectivus* [VP] Bouvet et al. 1989 -> *Abiotrophia defectiva* – SC10 | ATCC 49176, D50541, Abt.defect | CIP 103242 | DSM 9849

Streptococcus didelphis [VP] Rurangirwa et al. 2000 – W94-11374-1 | ATCC 700828, AF176103

Streptococcus difficilis [VP] Eldar et al. 1995 – ND 2-22 | ATCC 51487 | CIP 103768 | LMG 159

Streptococcus downei [VP] Whiley et al. 1988 – MFe28 | ATCC 33748 | DSM 5635 | NCTC 11391, X58306, Stc.downei

Streptococcus durans [VP] Knight et al. 1984 = *Enterococcus durans* (earlier homotypic synonym) – ATCC 19432

Streptococcus dysgalactiae subspecies dysgalactiae [VP] Garvie et al. 1983 emend. Vieira et al. 1998 – 134 | ATCC 43078, AB002485, Stc.dysga3 | DSM 20662 | NCDO 2023 | NCDO 2023, X59030, Stc.dysgal

Streptococcus dysgalactiae subspecies equisimilis [VP] Vandamme et al. 1996 emend. Vieira et al. 1998 – LMG 16026 | NCFB 1356, AB008926, Stc.dysga4

Streptococcus entericus [VP] Vela et al. 2002 – CCUG 44616 | CECT 5353, AJ409287

Streptococcus equi subspecies equi [AL] Sand and Jensen 1888 – C 15 | ATCC 33398, AB002515, Stc.equi3 | DSM 20561 | NCDO 2493, X58314, Stc.equi | NCTC 9682, AB002515, Stc.equi3

Streptococcus equi subspecies zooepidemicus [VP] Farrow and Collins 1985 – S 34 | ATCC 43079, AB002516, Stc.equi4 | DSM 20727 | NCDO 1358 | NCTC 7023

Streptococcus equinus [AL] Andrewes and Horder 1906 – Hl2B = *Streptococcus bovis* (later heterotypic synonym) | ATCC 9812 | DSM 20558 | NCDO 1037, X58318, Stc.equins

†*Streptococcus faecalis* [AL] Andrewes and Horder 1906 -> *Enterococcus faecalis* – ATCC 19433 | DSM 20478 | NCDO 581 | NCIB 775 | NCTC 775

†*Streptococcus faecium* [AL] Orla-Jensen 1919 -> *Enterococcus faecium* – ATCC 19434 | DSM 20477, AJ276355 | NCDO 942 | NCTC 7171

Streptococcus ferus [VP] Coykendall 1983 - 8S1 | ATCC 33477 | DSM 20646

Streptococcus gallinaceus [VP] Collins et al. 2002 - CCUG 42692, , AJ307888 | CIP 107087

†*Streptococcus gallinarum* [VP] Bridge and Sneath 1982 -> *Enterococcus gallinarum* - F87/276 | PB21 | ATCC 35038 | DSM 20628 | NCDO 2313 | NCTC 11428

Streptococcus gallolyticus [VP] Osawa et al. 1996 = *Streptococcus caprinus* (later heterotypic synonym) - ACM 3611, X94337

Streptococcus gallolyticus subspecies gallolyticus [VP] Schlegel et al. 2003 <- *Streptococcus gallolyticus* (basonym) = *Streptococcus caprinus* (later heterotypic synonym) - ACM 3611, X94337 | CCUG 35224 | CIP 105428 | HDP 98035 | JCM 10005 | LMG 16802

Streptococcus gallolyticus subspecies macedonicus [VP] (Tsakalidou et al. 1998) Schlegel et al. 2003 <- *Streptococcus caprinus* (basonym) - ACA-DC 206 | ATCC BAA-249 | CCUG 39970 | CIP 105683 | HDP 98362 | JCM 11119 | LAB 617 | , Z94012

Streptococcus gallolyticus subspecies pasteurianus [VP] (Poyart et al. 2002) Schlegel et al. 2003 [404] <- *Streptococcus pasteurianus* (basonym) - CIP 107122 | NEM 1202, not available from type

†*Streptococcus garvieae* [VP] Collins et al. 1984 -> *Lactococcus garvieae* - 159 | ATCC 43921 | DSM 20684 | JCM 10343 | NCDO 2155

Streptococcus gordonii [VP] Kilian et al. 1989 - ATCC 10558, AF003931, Stc.gordo3 | DSM 6777 | NCTC 7865, D38483, Stc.gordon | SK3

†*Streptococcus hansenii* [AL] Holdeman and Moore 1974 -> *Ruminococcus hansenii* - ATCC 27752, D14155, Ruc.hanse2 | ATCC 27752, M59114, Ruc.hansen | DSM 20583 | VPI C7-24

Streptococcus hyointestinalis [VP] Devriese et al. 1988 - S93 | ATCC 49169, AB002518, Stc.hyoin2 | DSM 20770, AB002518, Stc.hyoin2 | DSM 20770, X58313, Stc.hyoint

Streptococcus hyovaginalis [VP] Devriese et al. 1997 - SHV515, Y07601, Stc.hyovag | DSM 12219 | LMG 14710

Streptococcus infantarius subspecies infantarius [VP] Schlegel et al. 2000 - HDP 90056, AF177729 | NCDO 599, AF177729

†*"Streptococcus infantarius subspecies coli"* Schlegel et al. 2000 [405] -> *Streptococcus lutetiensis* - HDP 90246, AF429763 | NCDO 964

Streptococcus infantarius subspecies infantarius [VP] Schlegel et al. 2003 - HDP 90056, AF429762 | ATCC BAA-102 | CCUG 43820 | CIP 103233

Streptococcus infantarius subspecies coli [VP] Schlegel et al. 2003 - CCUG 43822 | HDP 90246, AF429763 | NCDO 964

Streptococcus infantis [VP] Kawamura et al. 1998 - GTC 849, AB008315, Stc.infant | O-122 | JCM 10157

Streptococcus iniae [AL] Pier and Madin 1976 = *Streptococcus shiloi* (later heterotypic synonym) - PW | ATCC 29178, AF335572 | DSM 20576

Streptococcus intermedius [AL] Prévot 1925 emend. Whiley and Beighton 1991 - ATCC 27335, AF104671 | CIP 103248 | DSM 20573 | NCDO 2227 | VPI 3372A

†*Streptococcus intestinalis* [VP] Robinson et al. 1988 = *Streptococcus alactolyticus* (earlier heterotypic synonym) - 76-84-1 | ATCC 43492, AB002519, Stc.alact2 | DSM 5199

†*Streptococcus lactis subspecies lactis* [AL] (Lister 1873) Lohnis 1909 -> *Lactococcus lactis subspecies lactis* - ATCC 19435, M58837, Lcc.lactis | DSM 20481 | IMET 10699 | NCDO 604

†*Streptococcus lactis subspecies cremoris* [VP] (Orla-Jensen 1919) Garvie and Farrow 1982 <- *Streptococcus cremoris* (basonym) -> *Lactococcus lactis subspecies cremoris* - ATCC 19257, M58836, Lcc.laccre | IMET 10707 | NCDO 607

[404] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[405] *Streptococcus infantarius* subsp. *coli*is illegitimate as a type strain was not designated.

†*Streptococcus lactis subspecies diacetilactis* [VP] (Matuszewski et al. 1936) Garvie and Farrow 1982 = *Lactococcus lactis subspecies lactis* (earlier heterotypic synonym) - NCDO 176

Streptococcus lutetiensis [VP] Poyart et al. 2002 [406] - HDP 90246, AF429763 | NCDO 964

Streptococcus macacae [VP] Beighton et al. 1984 - 25-1 | ATCC 35911 | DSM 20724 | NCTC 11558, X58302, Stc.macaca

Streptococcus macedonicus [VP] Tsakalidou et al. 1998 = *Streptococcus waius* (later heterotypic synonym) - ACA-DC 206, Z94012, Stc.macedn | LAB 617, Z94012, Stc.macedn

Streptococcus mitis [AL] Andrewes and Horder 1906 - MAFF 911479 | NS 51, AB002520, Stc.mitis2 | ATCC 49456, AF003929, Stc.mitis3 | NCTC 12261, AB002520, Stc.mitis2 | NCTC 12261, D38482, Stc.mitis

†*Streptococcus morbillorum* [AL] (Prevot 1933) Holdeman and Moore 1974 -> *Gemella morbillorum* - 2917 B | ATCC 27824, L14327, Gem.morbil | DSM 20572 | VPI 5424

Streptococcus mutans [AL] Clarke 1924 - ATCC 25175 | DSM 20523 | NBRC 13955 | NCDO 2062 | NCTC 10449, X58303, Stc.mutans

Streptococcus oligofermentans [VP] Tong et al. 2003 - AS 1.3089 | LMG 21535, AY099095

Streptococcus oralis [VP] Bridge and Sneath 1982 - LVG 1 | PB182 | ATCC 35037, AF003932, Stc.orali3 | DSM 20627 | NCTC 11427, S70359, Stc.orali2 | NCTC 11427, X58308, Stc.oralis

Streptococcus orisratti [VP] Zhu et al. 2000 - A63, AF124350 | ATCC 700640

Streptococcus ovis [VP] Collins et al. 2001 - S369/98/1 | CCUG 39485 | LMG 19174

Streptococcus parasanguinis [VP] Whiley et al. 1990 - 55898 | SS 898 | ATCC 15912, AF003933 | DSM 6778

Streptococcus parauberis [VP] Williams and Collins 1990 - BC45 RH | DSM 6631 | NCDO 2020

†*Streptococcus parvulus* [VP] (Weinberg et al. 1937) Cato 1983 <- *Peptostreptococcus parvulus* (basonym) -> *Atopobium parvulum* - IPP 1246 | ATCC 33793 | DSM 20469 | VPI 0546

Streptococcus pasteurianus [VP] Poyart et al. 2002 [407] - NEM782 | CIP 107122

Streptococcus peroris [VP] Kawamura et al. 1998 - GTC 848, AB008314, Stc.perori | O-66 | JCM 10158

Streptococcus phocae [VP] Skaar et al. 1994 - 8399 H1, AF235052 | NCTC 12719

†*Streptococcus plantarum* [VP] Collins et al. 1984 -> *Lactococcus plantarum* - 5L | ATCC 43199 | DSM 20686 | NCDO 1869, X54259, Lcc.planta

Streptococcus pleomorphus [AL] Barnes et al. 1979 - EBF 61/608 | ATCC 29734, M23730, Stc.pleomo | DSM 20574 | NCTC 11087

Streptococcus pluranimalium [VP] Devriese et al. 1999 - T70 | LMG 14177

Streptococcus pneumoniae [AL] (Klein 1884) Chester 1901 - SV 1 | ATCC 33400, AF003930, Stc.pneum4 | DSM 20566 | NCTC 7465, X58312, Stc.pneumo

Streptococcus porcinus [VP] Collins et al. 1985 - ATCC 43138, AB002523, Stc.porci2 | DSM 20725 | NCDO 600, X58315, Stc.porcin | NCTC 10999, AB002523, Stc.porci2

†*Streptococcus raffinolactis* [AL] Orla-Jensen and Hansen 1932 -> *Lactococcus raffinolactis* - 23.C.5 | ATCC 43920 | DSM 20443 | NCDO 617, X54261, Lcc.raffin

Streptococcus ratti [AL] Coykendall 1977 - FA1 | ATCC 19645 | DSM 20564 | IMET 3280

†*Streptococcus saccharolyticus* [VP] Farrow et al. 1985 -> *Enterococcus saccharolyticus* - HF 62 | ATCC 43076 | DSM 20726 | NCDO 2594, X55767, Eco.saclyt

Streptococcus salivarius subspecies salivarius [AL] Andrewes and Horder 1906 - ATCC 7073 | DSM 20560 | NCTC 8618

[406] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[407] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

†*Streptococcus salivarius subspecies thermophilus* [VP] (Orla-Jensen 1919) Farrow and Collins 1984 -> *Streptococcus thermophilus* - ATCC 19258 | DSM 20617, X68418 | NCDO 573 | NCIB 8510

Streptococcus sanguinis [AL] White and Niven 1946 - ATCC 10556, AF003928 | DSM 20567

†*Streptococcus shiloi* [VP] Eldar et al. 1995 = *Streptococcus iniae* (earlier heterotypic synonym) - ND 2-16 | ATCC 51499 | CIP 103769

Streptococcus sinensis [VP] Woo et al. 2002 - HKU4, AF432856 | DSM 14990 | LMG 21517

Streptococcus sobrinus [VP] Coykendall 1983 - SL1 | ATCC 33478 | CCM 6070 | DSM 20742, X58307, Stc.sobrin

Streptococcus suis [VP] (ex Elliott 1966) Kilpper-Bälz and Schleifer 1987 - Henrichsen S735 | CCUG 7984 | DSM 9682 | NCTC 10234, AB002525, Stc.suis2 | NCTC 10234, AF009477, Stc.suis3

Streptococcus thermophilus [VP] (ex Orla-Jensen 1919) Schleifer et al. 1995 <- *Streptococcus salivarius subspecies thermophilus* (basonym) - ATCC 19258 | DSM 20617, X68418, Stc.therm3 | NCDO 573 | NCIB 8510

Streptococcus thoraltensis [VP] Devriese et al. 1997 - S69, Y09007, Stc.thralt | DSM 12221 | LMG 13593

Streptococcus uberis [AL] Diernhofer 1932 - ATCC 19436, AB002526, Stc.uberi2 | DSM 20569 | NCDO 2038 | NCTC 3858, AB002526, Stc.uberi2

Streptococcus urinalis [VP] Collins et al. 2000 - 2285-97 | CCUG 41590, AJ131965

Streptococcus vestibularis [VP] Whiley and Hardie 1988 - MM1 | DSM 5636 | NCTC 12166, X58321, Stc.vestib

Streptococcus waius [VP] Flint et al. 1999 = *Streptococcus macedonicus* (earlier homotypic synonym) - 3 1 | NZRCC 20100, AF088900

Genus II. Lactococcus [VP]

Lactococcus lactis subspecies lactis [VP (T)] (Lister 1873) Schleifer et al. 1986 <- *Streptococcus lactis subspecies lactis* (basonym) = *Lactobacillus xylosus* (later heterotypic synonym) = *Streptococcus lactis subspecies diacetilactis* (later heterotypic synonym) - ATCC 19435, M58837, Lcc.lactis | CCM 1877 | DSM 20481 | IMET 10699 | NCDO 604 | NCIB 6681 | NCTC 6681

Lactococcus lactis subspecies cremoris [VP] (Orla-Jensen 1919) Schleifer et al. 1986 <- *Streptococcus lactis subspecies cremoris* (basonym) - ATCC 19257, M58836, Lcc.laccre | DSM 20069 | IMET 10707 | NCDO 607 | NCIB 8662

Lactococcus lactis subspecies diacetilactis - NCDO 176

Lactococcus lactis subspecies hordniae [VP] Schleifer et al. 1986 - HC-1 | ATCC 29071 | DSM 20450 | NCDO 2181

Lactococcus garvieae [VP] (Collins et al. 1984) Schleifer et al. 1986 <- *Streptococcus garvieae* (basonym) = *Enterococcus seriolicida* (later heterotypic synonym) - 159 | ATCC 43921 | DSM 20684 | JCM 10343 | NCDO 2155

Lactococcus piscium [VP] Williams et al. 1990 - HRIA 68, X53905, Lcc.piscum | CIP 104371 | DSM 6634 | NCFB 2778

Lactococcus plantarum [VP] (Collins et al. 1984) Schleifer et al. 1986 <- *Streptococcus plantarum* (basonym) - 5L | ATCC 43199 | DSM 20686 | NCDO 1869, X54259, Lcc.planta

Lactococcus raffinolactis [VP] (Orla-Jensen and Hansen 1932) Schleifer et al. 1988 <- *Streptococcus raffinolactis* (basonym) - 23.C.5 | ATCC 43920 | DSM 20443 | NCDO 617, X54261, Lcc.raffin

Family VII. Incertae sedis[408]

Genus I. Acetoanaerobium [VP]

Acetoanaerobium noterae [VP (T)] Sleat et al. 1985 - NOT-3 | ATCC 35199

Genus II. Oscillospira [AL]

Oscillospira guilliermondii [AL (T)] Chatton and Perard 1913

Genus III. Syntrophococcus [VP]

[408] Ludwig makes no mention of any of the genera incertae sedis. Sequences are not available from the RDP so position cannot be confirmed.

Syntrophococcus sucromutans VP (T) Krumholz and Bryant 1986 - S195, Y18191, AF202264 | DSM 3224

Phylum BXIV. *"Actinobacteria"* NP

Class I. *Actinobacteria* VP [409]

Subclass I. *Acidimicrobidae* VP

Order I. *Acidimicrobiales* VP

Suborder IV. *"Acidimicrobineae"*

Family I. *Acidimicrobiaceae* VP

Genus I. Acidimicrobium VP (T)

Acidimicrobium ferrooxidans VP (T) Clark and Norris 1996 - ICP | DSM 10331 | DSM 10331, U75647, A.feroxidn

Subclass II. *Rubrobacteridae* VP

Order I. *Rubrobacterales* VP

Suborder V. *"Rubrobacterineae"*

Family I. *Rubrobacteraceae* VP

Genus I. Rubrobacter VP (T)

Rubrobacter radiotolerans VP (T) (Yoshinaka et al. 1973) Suzuki et al. 1989 <- *Arthrobacter radiotolerans* (basonym) - ATCC 51242 | DSM 46359, X87134, Rbb.radtol | DSM 5868, X98372, Rbb.radto3 | IAM 12072 | IMET 11468 | JCM 2153, U65647, Rbb.radto2 | NCIMB 11766

Rubrobacter xylanophilus VP Carreto et al. 1996 - PRD-1, X87135, Rbb.xylano | DSM 9941 | NBRC 16129

Genus II. ***Conexibacter*** VP

Conexibacter woesei VP (T) Monciardini et al. 2003 - ID131577 | DSM 14684 | JCM 11494, AJ440237

Genus III. ***Solirubrobacter*** VP

Solirubrobacter pauli VP (T) Singleton et al. 2003 - B33D1, AY039806 | ATCC BAA-492 | DSM 14954

Genus IV. ***Thermoleophilum*** VP ***(moved)*** [410]

Thermoleophilum album VP (T) Zarilla and Perry 1986 - HS-5 | ATCC 35263, AJ458462

Thermoleophilum minutum VP Zarilla and Perry 1986 - YS-4 | ATCC 35265, AJ458464

Subclass III. *Coriobacteridae* VP

Order I. *Coriobacteriales* VP

Suborder VI. *"Coriobacterineae"*

Family I. *Coriobacteriaceae* VP

Genus I. Coriobacterium VP (T)

Coriobacterium glomerans VP (T) Haas and König 1988 - PW2 | ATCC 49209 | DSM 20642, X79048 | JCM 10262

Genus II. Atopobium VP

Atopobium minutum VP (T) (Hauduroy et al. 1937) Collins and Wallbanks 1993 <- *Lactobacillus minutus* (basonym) - ATCC 33267, M59059, Atp.minut2 | DSM 20586 | VPI 9428

[409] The *Actinobacteria* are a unique line of descent. The lineages of *Coriobacteridae*, *Rubrobacteridae*, and *Acidomicobidae* are deep branching and well separated in the PCA plots, with the former appearing embedded in the outlying regions of the *Clostrida*. Ludwig notes support for the separation of the *Kineosporiaceae* (sic *Kineococcaceae*) as we have noted with our own unpublished sequence data. The lack of a stable branching pattern within the major taxa of the *Actinobacteria* is borne out by the incredibly tight clustering in the PCA plots. While the 16S data might suggest that the taxa of *Actinobacteria* are overclassified, there is ample support for the current scheme based on other features.

Ludwig has also called into question the separation of bifidobacteria into a separate class. Although he notes some peculiarities in the sequences, he has not recognized these as a separate lineage. PCA plots clearly demonstrate a separation of this group from the main line of descent. More importantly, the adjacent groups in the plots are consistent with the adjacent groups in the RDP tree. While this can be argued as an artifact of the treeing, it might also indicate some additional support for the separation proposed by Stackebrandt et al. This will likely be resolved as work on Volume IV progresses.

[410] Sequence data became available subsequent to initial placement of this genus within the *Pseudomonadaceae*. It is now apparent that this placement was in error (Yakimov et al., IJSEM 53:377–380).

Atopobium fossor [VP] (Bailey and Love 1986) Kageyama et al. 1999 <- *Eubacterium fossor* (basonym) - ATCC 43386, L34620 | NCTC 11919 | JCM 9981 | VPB 2127

Atopobium parvulum [VP] (Weinberg et al. 1937) Collins and Wallbanks 1993 <- *Streptococcus parvulus* (basonym) - 1246 | ATCC 33793 | ATCC 33793, X67150, Atp.parvul | DSM 20469 | VPI 0546

Atopobium rimae [VP] (Olsen et al. 1991) Collins and Wallbanks 1993 <- *Lactobacillus rimae* (basonym) - ATCC 49626, AF292371 | DSM 7090 | VPI D140H-11A

Atopobium vaginae [VP] Rodriguez Jovita et al. 1999 - CCUG 38953, Y17195

Genus III. Collinsella [VP]

Collinsella aerofaciens [VP (T)] (Eggerth 1935) Kageyama et al. 1999 <- *Eubacterium aerofaciens* (basonym) - ATCC 25986 | DSM 3979 | JCM 10188, AB011816, AB011816 | VPI 1003

Collinsella intestinalis [VP] Kageyama and Benno 2000 - RCA56-68, AB031063 | DSM 13280 | JCM 10643

Collinsella stercoris [VP] Kageyama and Benno 2000 - RCA55-54, AB031061 | DSM 13279 | JCM 10641

Genus IV. Cryptobacterium [VP]

Cryptobacterium curtum [VP (T)] Nakazawa et al. 1999 - 12-3 | ATCC 700863, AB019260

Genus V. Denitrobacterium [VP]

Denitrobacterium detoxificans [VP (T)] Anderson et al. 2000 - NPOH1, U43492 | ATCC 700546

Genus VI. Eggerthella [VP]

Eggerthella lenta [VP (T)] (Eggerth 1935) Wade et al. 1999 <- *Eubacterium lentum* (basonym) - ATCC 25559, AF292375 | DSM 2243 | NCTC 11813 | VPI 0255

Genus VII. Olsenella [VP]

Olsenella uli [VP] (Olsen et al. 1991) Dewhirst et al. 2001 [411] <- *Lactobacillus uli* (basonym) - ATCC 49627, AF292373, AY005814 | DSM 7084 | VPI D76D-27C

Olsenella profusa [VP] Dewhirst et al. 2001 [412] - D315A-29, AF292374 | DSM 13989

Genus VIII. Slackia [VP]

Slackia exigua [VP (T)] (Poco et al. 1996) Wade et al. 1999 <- *Eubacterium exiguum* (basonym) - S-7 | ATCC 700122, AF101240, Slk.exigua

Slackia heliotrinreducens [VP] (Lanigan 1983) Wade et al. 1999 <- *Peptostreptococcus heliotrinreducens* (basonym) - RHS 1 | ATCC 29202, AF101241, Slk.hlitrn | NCTC 11029

Subclass IV. *Sphaerobacteridae* [VP]

Order I. *Sphaerobacterales* [VP]

Suborder VII. *"Sphaerobacterineae"*

Family I. *Sphaerobacteraceae* [VP]

Genus I. Sphaerobacter [VP (T)]

Sphaerobacter thermophilus [VP (T)] Demharter et al. 1989 - S 6022, X53210, Spb.thermo | ATCC 49802 | DSM 20745, X53210, Spb.thermo

Subclass V. *Actinobacteridae* [VP]

Order I. *Actinomycetales* [AL]

Suborder VIII. *Actinomycineae* [VP]

Family I. *Actinomycetaceae* [AL]

[411] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[412] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Genus I. Actinomyces [AL (T)]

Actinomyces bovis [AL (T)] Harz 1877 - P1S | ATCC 13683 | DSM 43014, X53224, Act.bovis | IMET 10973

†*Actinomyces bernardiae* [VP] Funke et al. 1995 -> *Arcanobacterium bernardiae* - GF 750 | CCUG 33419 | DSM 9152, X79224, Abc.bernrd | LCDC 89-0504

Actinomyces bowdenii [VP] Pascual et al. 1999 - M1327/96/1 | CCUG 37421, AJ234039

Actinomyces canis [VP] Hoyles et al. 2000 - M2289/98/2

Actinomyces cardiffensis [VP] Hall et al. 2003 - R10394 | CCUG 44997 | CIP 107323

Actinomyces catuli [VP] Hoyles et al. 2001 - M1192/98/1 | CCUG 41709, AJ276805 | CIP 106507

Actinomyces coleocanis [VP] Hoyles et al. 2002 - M343/98/2, AJ249326 | CCUG 41708 | CIP 106873

Actinomyces denticolens [VP] Dent and Williams 1984 - Sh 8/4303 | ATCC 43322 | DSM 20671 | NCTC 11490, X80412, Act.dentic

Actinomyces europaeus [VP] Funke et al. 1997 - CCUG 32789A, Y08828, Act.europa

Actinomyces funkei [VP] Lawson et al. 2001 - CCUG 42773 | CIP106713

Actinomyces georgiae [VP] Johnson et al. 1990 - ATCC 49285 | DSM 6843, X80413, Act.georgi | VPI D145A-7

Actinomyces gerencseriae [VP] Johnson et al. 1990 - 2-606-032 | ATCC 23860 | CDC W 838 | DSM 6844, X80414, Act.geren3 | VPI 12594

Actinomyces graevenitzii [VP] Pascual Ramos et al. 1997 - CCUG 27294, Y09589, Act.graeve

Actinomyces hordeovulneris [VP] Buchanan et al. 1984 - ATCC 35275 | CIP 103149, X82448, Act.hordvl | DSM 20732 | UCD 81-332-9

Actinomyces howellii [VP] Dent and Williams 1984 - Sh 7/4276 | NCTC 11636, X80411, Act.howell

†*Actinomyces humiferus* [AL] Gledhill and Casida 1969 -> *Cellulomonas humilata* - ATCC 25174, X82449

Actinomyces hyovaginalis [VP] Collins et al. 1993 - BM 1192/5 | ATCC 51367 | CIP 103923 | DSM 10695 | NCFB 2983, X69616, Act.hyovag

Actinomyces israelii [AL] (Kruse 1896) Lachner-Sandoval 1898 - 277 | ATCC 12102 | CIP 103259, X82450, Act.israe5 | DSM 43320 | IMET 10972 | WVU 46

Actinomyces marimammalium [VP] Hoyles et al. 2001 - M1749/98/1, AJ276405 | CCUG 41710 | CIP 106509

Actinomyces meyeri [VP] Cato et al. 1984 - PIP 2477B | ATCC 35568 | CIP 103148, X82451, Act.meyeri | DSM 20733 | VPI 8617

Actinomyces naeslundii [AL] Thompson and Lovestedt 1951 - 279 | ATCC 12104 | DSM 43013, M33911, Act.naesl2 | DSM 43013, X53226, Act.naeslu | IMET 11091 | NCTC 10301, X81062, Act.naesl3 | WVU 45

Actinomyces neuii subspecies neuii [VP] Funke et al. 1994 - 97/90, X71861, Act.neuii2 | ATCC 51847 | DSM 8576

Actinomyces neuii subspecies anitratus [VP] Funke et al. 1994 - 50/90, X71862, Act.neuii3 | DSM 8577

Actinomyces odontolyticus [AL] Batty 1958 - 2A.10 | API ATB 32 A | ATCC 17929 | CDC X363 | DSM 43760 | NCTC 9935, X80504, Act.odont2

†*Actinomyces pyogenes* [VP] (Glage 1903) Reddy et al. 1982 <- *Corynebacterium pyogenes* (basonym) -> *Arcanobacterium pyogenes* - 84 | C-100 | ATCC 19411, M29552, Abc.pyogen | DSM 20630 | NCTC 5224, X79225, Abc.pyoge3

Actinomyces radicidentis [VP] Collins et al. 2001 - M1749/98/1, AJ251986 | CCUG 41710 | CIP 106509

Actinomyces radingae [VP] Wüst et al. 1995 emend. Vandamme et al. 1998 - APL1, X78719, Act.radnga | ATCC 51856 | CCUG 32394 | CIP 105358 | DSM 9169

Actinomyces slackii [VP] Dent and Williams 1986 - Sh 13/4563 | NCTC 11923, X82452, Act.slacki

Actinomyces suimastitidis [VP] Hoyles et al. 2001 - CCUG 39276, AJ277385[413] | CIP 106779

†*Actinomyces suis* [VP] (Wegienek and Reddy 1982) Ludwig et al. 1992 <- *Eubacterium suis* (basonym) -> *Actinobaculum suis* - 50052 | ATCC 33144 | DSM 20639, S83623, Abl.suis

Actinomyces turicensis [VP] Wüst et al. 1995 emend. Vandamme et al. 1998 - APL10, X78720, Act.turcns | ATCC 51857 | CCUG 32401 | CIP 105357 | DSM 9168

Actinomyces urogenitalis [VP] Nikolaitchuk et al. 2000 - CCUG 38702, AJ243791

Actinomyces vaccimaxillae [VP] Hall et al. 2003 - CCUG 46091 | CIP 107423

Actinomyces viscosus [AL] (Howell et al. 1965) Georg et al. 1969 - ATCC 15987 | DSM 43327 | IMET 11092 | KCC S-0130 | NIH T-6 | WVU 745

Genus II. Actinobaculum [VP]

Actinobaculum suis [VP (T)] (Wegienek and Reddy 1982) Lawson et al. 1997 <- *Actinomyces suis* (basonym) - 50052 | ATCC 33144 | DSM 20639, S83623, Abl.suis

Actinobaculum schaalii [VP] Lawson et al. 1997 - CCUG 27420, Y10773, Abl.schaa2 | CCUG 27420, Y12329, Abl.schaal

Actinobaculum urinale [VP] Hall et al. 2003 - CCUG 46093, | CIP 107424

Genus III. Arcanobacterium [VP]

Arcanobacterium haemolyticum [VP (T)] (ex Mac Lean et al. 1946) Collins et al. 1983 - 11018 | ATCC 9345 | CCM 5947 | DSM 20595 | IMET 11143 | NCTC 8452

Arcanobacterium bernardiae [VP] (Funke et al. 1995) Pascual Ramos et al. 1997 <- *Actinomyces bernardiae* (basonym) - GF 750 | CCUG 33419 | DSM 9152, X79224, Abc.bernrd | LCDC 89-0504

Arcanobacterium hippocoleae [VP] Hoyles et al. 2002 - M401624/00/2 | CCUG 44697, AJ300767 | CIP 106850

Arcanobacterium phocae [VP] Pascual Ramos et al. 1997 - M1590/94/3 | DSM 10002

Arcanobacterium pluranimalium [VP] Lawson et al. 2001 [414] - M430/94/2, AJ250959 | CCUG 42575 | CIP 106442 | DSM 13483

Arcanobacterium pyogenes [VP] (Glage 1903) Pascual Ramos et al. 1997 <- *Actinomyces pyogenes* (basonym) - 84 | C-100 | ATCC 19411, M29552, Abc.pyogen | DSM 20630 | NCTC 5224, X79225, Abc.pyoge3

Genus IV. Mobiluncus [VP]

Mobiluncus curtisii subspecies curtisii [VP (T)] Spiegel and Roberts 1984 - BV345-16 | ATCC 35241, X53186, Mob.curtis

Mobiluncus curtisii subspecies holmesii [VP] Spiegel and Roberts 1984 - BV376-6 | ATCC 35242

Mobiluncus mulieris [VP] Spiegel and Roberts 1984 - SV17J | ATCC 35243, X53187, Mob.mulier

Genus V. ***Varibaculum*** [VP]

[413] GenBank accession number not currently valid.

[414] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Varibaculum cambriense [VP (T)] Hall et al. 2003 - R12359 | CCUG 44998, AJ491326 | CIP 107344

Suborder IX. *Micrococcineae* [VP]

Family I. *Micrococcaceae* [AL]

Genus I. Micrococcus [AL (T)]

Micrococcus luteus [AL (T)] (Schroeter 1872) Cohn 1872 - ATCC 4698 | CCM 169 | DSM 20030 | NCIB 9278 | NCTC 2665

†*Micrococcus agilis* [AL] Ali-Cohen 1889 -> *Arthrobacter agilis* - ATCC 966 | CCM 2390 | DSM 20550, X80748, Arb.agilis | IMET 11266 | NCDO 983 | NCTC 7509

Micrococcus antarcticus [VP] Liu et al. 2000 - AS 1.2372 | T2, AJ005932

†*Micrococcus halobius* [AL] Onishi and Kamekura 1972 -> *Nesterenkonia halobia* - 28-3 | ATCC 21727 | CCM 2591 | DSM 20541, X80747, Nk.halobia | IMET 11383

†*Micrococcus kristinae* [AL] Kloos et al. 1974 -> *Kocuria kristinae* - PM 129 | ATCC 27570 | CCM 2690 | DSM 20032, X80749, Kc.kristin | IMET 11367

Micrococcus lylae [AL] Kloos et al. 1974 - JL 178 | ATCC 27566 | CCM 2693 | DSM 20315, X80750, Mic.lylae | IMET 11368

†*Micrococcus nishinomiyaensis* [AL] Oda 1935 -> *Dermacoccus nishinomiyaensis* - 59 | OUT 809 | ATCC 29093 | CCM 2140 | DSM 20448 | IMET 11365

†*Micrococcus roseus* [AL] Flügge 1886 -> *Kocuria rosea* - ATCC 186 | CCM 679 | DSM 20447 | IMET 11363 | NCTC 7523

†*Micrococcus sedentarius* [AL] ZoBell and Upham 1944 -> *Kytococcus sedentarius* - 54 | ATCC 14392 | CCM 314 | DSM 20547, X87755, Ky.sedntrs | IMET 11362

†*Micrococcus varians* [AL] Migula 1900 -> *Kocuria varians* - G 33 | ATCC 15306 | CCM 884 | DSM 20033, X87754, Kc.varians | IMET 11364 | NCDO 777 | NCTC 7564

Genus II. Arthrobacter [AL]

Arthrobacter globiformis [AL (T)] (Conn 1928) Conn and Dimmick 1947 - 168 | ATCC 8010 | DSM 20124, M23411, Arb.globif | DSM 20124, X80736, Arb.globi2 | IMET 11240 | NCIB 8907

Arthrobacter agilis [VP] (Ali-Cohen 1889) Koch et al. 1995 <- *Micrococcus agilis* (basonym) - W.O. 219 | ATCC 966 | CCM 2390 | DSM 20550, X80748, Arb.agilis | IMET 11266 | NCDO 983 | NCTC 7509

Arthrobacter albus [VP] Wauters et al. 2000 - CF43, AJ243421 | DSM 13068

Arthrobacter atrocyaneus [AL] Kuhn and Starr 1960 - A 9.2 | ATCC 13752 | CCM 1645 | DSM 20127, X80746, Arb.atcyan | IMET 10432 | NCIB 9220

Arthrobacter aurescens [AL] Phillips 1953 - 579 | ATCC 13344 | CCM 1647 | DSM 20116, X83405, Arb.auresc | IMET 11247 | NCIB 8912

Arthrobacter chlorophenolicus [VP] Westerberg et al. 2000 - A6, AF102267 | DSM 12829

Arthrobacter citreus [AL] Sacks 1954 - C7 | ATCC 11624 | CCM 1647 | DSM 20133, X80737, Arb.citrus | IMET 10680 | NCIB 8915

Arthrobacter creatinolyticus [VP] Hou et al. 1998 - GIFU 12498, D88211, Arb.creati | JCM 10102

Arthrobacter crystallopoietes [AL] Ensign and Rittenberg 1963 - ATCC 15481 | CCM 2386 | DSM 20117, X80738, Arb.crystl | IMET 10362 | NCIB 9499

Arthrobacter cumminsii [VP] Funke et al. 1997 - DMMZ 445 | DSM 10493

Arthrobacter duodecadis [AL] Lochhead 1958 - 541 | CDA 859 | ATCC 13347

†*Arthrobacter flavescens* [AL] Lochhead 1958 -> *Aureobacterium flavescens* - 401, Y17232 | ATCC 13348 | DSM 20643 | IMET 10367 | NCIB 9221

Arthrobacter flavus [VP] Reddy et al. 2000 - CMS 19Y, AJ242532 | MTCC 3467

Arthrobacter histidinolovorans [AL] Adams 1954 - ATCC 11442 | DSM 20115, X83406, Arb.hstdnl | IMET 10373 | NCIB 9541

Arthrobacter ilicis [VP] (Mandel et al. 1961) Collins et al. 1982 <- *Corynebacterium ilicis* (basonym) - Cr-2 | ATCC 14264 | CFBP 1380 | DSM 20138, X83407, Arb.ilicis | ICMP 2607 | LMG 3659 | NCPPB 1228

Arthrobacter luteolus [VP] Wauters et al. 2000 - CF25, AJ243422 | DSM 13067

Arthrobacter methylotrophus [VP] Borodina et al. 2002 - TGA, AF235090 | ATCC BAA-111 | DSM 14008

Arthrobacter mysorens [AL] Nand and Rao 1972 - NCIB 10583

Arthrobacter nasiphocae [VP] Collins et al. 2002 - M597/99/10, AJ292364 | CCUG 42953 | CIP 107054

Arthrobacter nicotianae [AL] Giovannozzi-Sermanni 1959 - 94 | ATCC 15236 | CCM 1648 | DSM 20123, X80739, Arb.nicnae | IMET 10353 | NCIB 9458

Arthrobacter nicotinovorans [VP] Kodama et al. 1992 - ATCC 49919 | DSM 420, X80743, Arb.nicvor | JCM 3874

Arthrobacter oxydans [AL] Sguros 1954 - Xanthum | ATCC 14358 | DSM 20119, X83408, Arb.oxydan | IMET 10684 | NCIB 9333

Arthrobacter pascens [AL] Lochhead and Burton 1953 - B89 | ATCC 13346 | CCM 1653 | DSM 20545, X80740, Arb.pascns | IMET 10355 | NCIB 8910

†*Arthrobacter picolinophilus* [AL] Tate and Ensign 1974 = *Rhodococcus erythropolis* (earlier heterotypic synonym) - ATCC 27854 | DSM 20665 | IMET 11248

Arthrobacter polychromogenes [AL] Schippers-Lammertse et al. 1963 - 2568 | ATCC 15216 | DSM 20136, X80741, Arb.plychr | IMET 11071 | NCIB 10267

Arthrobacter protophormiae [VP] (Lysenko 1959) Stackebrandt et al. 1984 <- *Brevibacterium protophormiae* (basonym) - M-570 | ATCC 19271 | CCEB 282 | DSM 20168, X80745, Arb.protph

Arthrobacter psychrolactophilus [VP] Loveland-Curtze et al. 2000 - B7, AF134179 | ATCC 700733

†*Arthrobacter radiotolerans* [AL] Yoshinaka et al. 1973 -> *Rubrobacter radiotolerans* - ATCC 51242 | DSM 46359, X87134, Rbb.radtol | DSM 5868, X98372, Rbb.radto3 | IAM 12072 | IMET 11468 | JCM 2153, U65647, Rbb.radto2 | NCIMB 11766

Arthrobacter ramosus [AL] Jensen 1960 - I Gm 25 | ATCC 13727 | CCM 1646 | DSM 20546, X80742, Arb.ramosu | IMET 10685 | NCIB 9066

Arthrobacter rhombi [VP] Osorio et al. 1999 - F98.3HR69, Y15885 | CCUG 38813

Arthrobacter roseus [VP] Reddy et al. 2002 - CMS 90r, AJ278870 | DSM 14508 | MTCC 3712

†*Arthrobacter siderocapsulatus* [AL] Dubinina and Zhdanov 1975 = *Pseudomonas putida* (earlier heterotypic synonym) - BKM-B N 1122 | IMET 11317 | VKM-B 1122

†*Arthrobacter simplex* [AL] (Jensen 1934) Lochhead 1957 -> *Pimelobacter simplex* - ATCC 6946, M37693, Ncr.simpl2 | CCM 1652 | DSM 20130 | IMET 10368 | NCIB 8929 | NCTC 4215

Arthrobacter sulfonivorans [VP] Borodina et al. 2002 - ALL, AF235091 | ATCC BAA-112 | DMS 14002

Arthrobacter sulfureus [VP] Stackebrandt et al. 1984 - 36375 | ATCC 19098 | DSM 20167, X83409, Arb.sulfur | NCIB 10355

†Arthrobacter terregens [AL] Lochhead and Burton 1953 -> *Aureobacterium terregens* - 88, Y17239 | ATCC 13345 | CCM 2634 | DSM 20449 | IMET 10504 | NCIB 8909

†Arthrobacter tumescens [AL] (Jensen 1934) Conn and Dimmick 1947 -> *Pimelobacter tumescens* - ATCC 6947 | CCM 1655 | DSM 20308 | IMET 10431 | NCIB 8914, X53215, Trb.tumesn | NCTC 4216

Arthrobacter uratoxydans [VP] Stackebrandt et al. 1984 - U-23 | ATCC 21749 | DSM 20647, X83410, Arb.uratox

Arthrobacter ureafaciens [AL] (Krebs and Eggleston 1939) Clark 1955 - NC | ATCC 7562 | CCM 1644 | DSM 20126, X80744, Arb.ureafc | IMET 11370 | NCIB 7811

†Arthrobacter variabilis [AL] Müller 1961 -> *Corynebacterium variabile* - FK 31 | ATCC 15753 | CCM 1565 | DSM 20132, AJ222815 | IMET 10350 | NCIB 9455

Arthrobacter viscosus [AL] Gasdorf et al. 1965 - ATCC 19584 | DSM 7307 | NCIMB 9729 | NRRL B-1973

Arthrobacter woluwensis [VP] Funke et al. 1997 - CUL 1808 | DSM 10495

Genus III. ***Citricoccus*** [VP]

Citricoccus muralis [VP (T)] Altenburger et al. 2002 - 4-0, AJ344143 | CCM 4981 | DSM 14442

Genus IV. Kocuria [VP]

Kocuria rosea [VP (T)] (Flügge 1886) Stackebrandt et al. 1995 <- *Micrococcus roseus* (basonym) = *Kocuria erythromyxa* (later heterotypic synonym) - ATCC 186 | CCM 679 | DSM 20447 | IMET 11363 | NCTC 7523

†Kocuria erythromyxa [VP] (Brooks and Murray 1981) Rainey et al. 1997 = *Kocuria rosea* (earlier heterotypic synonym) <- *Deinococcus erythromyxa* (basonym) - KSE | ATCC 187, Y11330, Kc.rosea2 | CCM 706 | DSM 11630 | UWO 1045

Kocuria kristinae [VP] (Kloos et al. 1974) Stackebrandt et al. 1995 <- *Micrococcus kristinae* (basonym) - PM 129 | ATCC 27570 | CCM 2690 | DSM 20032, X80749, Kc.kristin | IMET 11367

Kocuria palustris [VP] Kovács et al. 1999 - TAGA27, Y16263 | DSM 11925

Kocuria polaris [VP] Reddy and al. 2003 - CMS 76or, AJ278868 | DSM 14382 | MTCC 3702

Kocuria rhizophila [VP] Kovács et al. 1999 - TA68, Y16264 | DSM 11926

Kocuria varians [VP] (Migula 1900) Stackebrandt et al. 1995 <- *Micrococcus varians* (basonym) - G 33 | ATCC 15306 | CCM 884 | DSM 20033, X87754, Kc.varians | IMET 11364 | NCDO 777 | NCTC 7564

Genus V. Nesterenkonia [VP]

Nesterenkonia halobia [VP (T)] (Onishi and Kamekura 1972) Stackebrandt et al. 1995 <- *Micrococcus halobius* (basonym) - 28-3 | ATCC 21727 | CCM 2591 | DSM 20541, X80747, Nk.halobia | IMET 11383

Nesterenkonia lacusekhoensis [VP] Collins et al. 2002 - IFAM EL-30, , AJ290397 | DSM 12544 | CIP107030

Genus VI. Renibacterium [VP]

Renibacterium salmoninarum [VP (T)] Sanders and Fryer 1980 - Lea-1-74 | ATCC 33209, X51601, Ren.salmon | DSM 20767

Genus VII. Rothia [AL]

Rothia dentocariosa [AL (T)] (Onishi 1949) Georg and Brown 1967 - ATCC 17931, M59055, Rot.dentoc | CDC X599 | CIP 81.83 | DSM 46363 | NBRC 12531 | IMET 11515 | JCM 3067 | KCC A-0067 | NCTC 10817

Rothia amarae [VP] Fan et al. 2002 - J18 | AS 4.1721 | JCM 11375, AY043359

Rothia mucilaginosa [VP] (Bergan and Kocur 1982) Collins et al. 2000 <- *Stomatococcus mucilaginosa* (basonym) - DSM 20746, X95483

Rothia nasimurium [VP] Collins et al. 2000 - CCUG 35957, AJ131121

Genus VIII. Stomatococcus [VP]

†Stomatococcus mucilaginosus [VP (T)] Bergan and Kocur 1982 -> *Rothia mucilliginosa* - 5762/67 | ATCC 25296 | CCM 2417 | DSM 20746 | NCTC 10663

Family II. *Bogoriellaceae* [VP]

Genus I. Bogoriella [VP (T)]

Bogoriella caseilytica [VP (T)] Groth et al. 1997 - 2017-12 | DSM 11294 | HKI 0088, Y09911, Bg.caseily

Family III. *Rarobacteraceae* [VP]

Genus I. Rarobacter [VP (T)]

Rarobacter faecitabidus [VP (T)] Yamamoto et al. 1988 - YLM-1, Y17870 | ATCC 49628 | DSM 4813 | NBRC 14760 | JCM 6097

Rarobacter incanus [VP] Yamamoto et al. 1994 - YLM 32 | ATCC 51544 | CIP 104132 | DSM 10596 | JCM 6350

Family IV. *Sanguibacteraceae* [VP]

Genus I. Sanguibacter [VP (T)]

Sanguibacter keddieii [VP (T)] Fernández-Garayzábal et al. 1995 - ST-74, X79450, Sgb.keddie | ATCC 51767 | CECT 4540 | DSM 10542 | NCFB 3025

Sanguibacter inulinus [VP] Pascual et al. 1996 - ST-50, X79451, Sgb.inuli2 | NCFB 3024

Sanguibacter suarezii [VP] Fernández-Garayzábal et al. 1995 - ST-26, X79452, Sgb.suarez | ATCC 51766 | CECT 4539 | DSM 10543 | NCFB 3023

Family V. *Brevibacteriaceae* [AL]

Genus I. Brevibacterium [AL (T)]

Brevibacterium linens [AL (T)] (Wolff 1910) Breed 1953 - 56b | ATCC 9172 | DSM 20425, X77451, Brb.linen2 | IMET 11075 | NCIB 9909

†Brevibacterium acetylicum [AL] (Levine and Soppeland 1926) Breed 1957 -> *Exiguobacterium acetylicum* - 1005 | ATCC 953 | DSM 20416 | IMET 11072 | NCIB 9889, X70313, Exg.acety2

Brevibacterium albidum [AL] Komagata and Iizuka 1964 = *Curtobacterium albidum* (homotypic synonym) - ATCC 15831

†Brevibacterium ammoniagenes [AL] (Cooke and Keith 1927) Breed 1953 -> *Corynebacterium ammoniagenes* - AJ 1443 | ATCC 6871 | DSM 20306 | IMET 11243 | NCIB 8143 | NCTC 2398

Brevibacterium avium [VP] Pascual and Collins 1999 - NCIMB 703055, Y17962

Brevibacterium casei [VP] Collins et al. 1983 - CMD1 | ATCC 35513 | DSM 20657 | IMET 10997 | NCDO 2048, X76564, Brb.casei

Brevibacterium citreum [AL] Komagata and Iizuka 1964 = *Curtobacterium citreum* (homotypic synonym) - ATCC 15828 | CCM 2297 | DSM 20528, X77436, Cub.citreu | IAM 1614 | IMET 10359 | NCIB 10702

†Brevibacterium divaricatum [AL] Su and Yamada 1960 = *Corynebacterium glutamicum* (earlier heterotypic synonym) - ATCC 14020 | DSM 20297 | IMET 11073 | NCIB 9379

Brevibacterium epidermidis [VP] Collins et al. 1983 - D731 | DSM 20660 | IMET 10998 | NCDO 2286, X76565, Brb.epider

Brevibacterium fermentans [AL] Chatelain and Second 1966 - CIP 6611 | IMET 19689

Brevibacterium frigoritolerans [AL] Delaporte and Sasson 1967 - 6720 | WS 1085 | ATCC 25097 | DSM 8801

Brevibacterium halotolerans [AL] Delaporte and Sasson 1967 – 6721 | WS 1087 | ATCC 25096 | DSM 8802

†*Brevibacterium imperiale* [AL] (Steinhaus 1941) Breed 1953 -> *Microbacterium imperiale* – 72 | ATCC 8365 | DSM 20530, X77442, Mbm.imper2 | IAM 1654 | IMET 10714 | NCIB 9888

†*Brevibacterium incertum* [AL] (Steinhaus 1941) Breed 1953 -> *Desemzia incerta* – ATCC 8363 | DSM 20581, Y14650, Dsz.incert | IMET 11374 | NCIB 9892

Brevibacterium iodinum [VP] Collins et al. 1981 – ATCC 49514 | DSM 20626, X83813, Brb.iodin2 | IMET 10995 | NCDO 613, X76567, Brb.iodini

Brevibacterium liquefaciens [AL] Okabayashi and Masuo 1960 – ATCC 14929 | DSM 20579, AJ251417 | NCIB 9545

Brevibacterium luteum [AL] Komagata and Iizuka 1964 = *Curtobacterium luteum* (homotypic synonym) – ATCC 15830 | IAM 1623 | IMET 10360

Brevibacterium lyticum [AL] Takayama et al. 1960 – ATCC 15921

Brevibacterium mcbrellneri [VP] McBride et al. 1994 – E2cr | ATCC 49030, X93594, Brb.mcbrel | DSM 9583

Brevibacterium otitidis [VP] Pascual et al. 1996 – A37/73, X93593, Brb.otidit | DSM 10718 | NCFB 3053, X93593, Brb.otidit

†*Brevibacterium oxydans* [AL] Chatelain and Second 1966 -> *Microbacterium oxydans* – X98, Y17227 | CIP 6612 | DSM 20578 | NCIB 9944

Brevibacterium paucivorans [VP] Wauters et al. 2001 – CF62, AJ251463 | DSM 13657 | LMG 19814

†*Brevibacterium protophormiae* [AL] Lysenko 1959 -> *Arthrobacter protophormiae* – M-570 | ATCC 19271 | CCEB 282 | DSM 20168, X80745, Arb.protph

Brevibacterium pusillum [AL] Iizuka and Komagata 1965 = *Curtobacterium pusillum* (homotypic synonym) – ATCC 19096 | IMET 11077

†*Brevibacterium saperdae* [AL] Lysenko 1959 = *Curtobacterium saperdae* (homotypic synonym) -> *Aureobacterium saperdae* – 48-1-4 | ATCC 19272 | CCEB 366 | DSM 20169 | NBRC 15038, AB004719, Mbm.saperd | IMET 11076

Brevibacterium stationis [AL] (ZoBell and Upham 1944) Breed 1953 – 622 | ATCC 14403 | DSM 20302

†*Brevibacterium testaceum* [AL] Komagata and Iizuka 1964 = *Curtobacterium testaceum* (homotypic synonym) -> *Aureobacterium testaceum* – Rp-3 | ATCC 15829 | CCM 2299 | DSM 20166, X77445, Mbm.testac | IMET 10361

†*Brevibacterium vitarumen* [AL] (Bechdel et al. 1928) Breed 1957 -> *Corynebacterium vitaeruminis* – ATCC 10234 | DSM 20294 | IMET 11372 | NCIB 9291

Family VI. *Cellulomonadaceae* [VP]

Genus I. Cellulomonas [AL (T)]

Cellulomonas flavigena [AL (T)] (Kellerman and McBeth 1912) Bergey et al. 1923 – 134 | ATCC 482 | CCM 1926 | DSM 20109, X83799, Cllm.flavi | IMET 10357 | NCIB 8073, X79463, Cllm.flav2

Cellulomonas biazotea [AL] (Kellerman et al. 1913) Bergey et al. 1923 – 127 | ATCC 486 | DSM 20112, X79462, Cllm.biaz2 | DSM 20112, X83802, Cllm.biazo | IMET 10473 | NCDO 1654 | NCIB 8077

†*Cellulomonas cartae* [VP] Stackebrandt and Kandler 1980 = *Cellulomonas cellulans* (earlier heterotypic synonym) – ATCC 21681 | DSM 20106 | IMET 10715 | NCIB 11440[415]

[415] In the first edition of *Bergey's Manual of Systematic Bacteriology*, Stackebrandt and Keddie considered *Cellulomonas cellulans* to be a senior synonym of *C. cartae*. However, this proposal has never been validly published.

Cellulomonas cellasea [AL] (Kellerman et al. 1913) Bergey et al. 1923 - 124 | ATCC 487 | CCM 1925, X83804, Cllm.clsea | CCM 1925 | DSM 20118, X79459, Cllm.clse2 | NCIB 8078

†*Cellulomonas cellulans* [VP] (Metcalf and Brown 1957) Stackebrandt and Keddie 1988 <- *Nocardia cellulans* (basonym) = *Cellulomonas cartae* (later heterotypic synonym) -> *Cellulosimicrobium cellulans* - ATCC 12830 | DSM 43189 | DSM 43879, X79455, Cllm.cllu2 | DSM 43879, X83809, Cllm.cllul | IMET 7404 | NCIB 8868

Cellulomonas fermentans [VP] Bagnara et al. 1985 - M | ATCC 43279 | CIP 103003 | DSM 3133, X79458, Cllm.ferm2 | DSM 3133, X83805, Cllm.fermn

Cellulomonas fimi [AL] (McBeth and Scales 1913) Bergey et al. 1923 - 133 | ATCC 484 | DSM 20113, X79460, Cllm.fimi2 | DSM 20113, X83803, Cllm.fimi | IMET 10687 | NCIB 8980 | NCTC 7547

Cellulomonas gelida [AL] (Kellerman et al. 1913) Bergey et al. 1923 - 126 | ATCC 488 | DSM 20111, X83800, Cllm.gelid | IMET 11078 | NCIB 8076, X79461, Cllm.geli2

Cellulomonas hominis [VP] Funke et al. 1996 - DMMZ CE40, X82598, Cllm.homin | DSM 9581

Cellulomonas humilata [VP] (Gledhill and Casida 1969) Collins and Pascual 2000 <- *Actinomyces humiferus* (basonym) - ATCC 25174, X82449

Cellulomonas iranensis [VP] Elberson et al. 2000 - O, AF064702 | ATCC 700643

Cellulomonas persica [VP] Elberson et al. 2000 - I, AF064701 | ATCC 700642

†*Cellulomonas turbata* [VP] (Erikson 1954) Stackebrandt et al. 1983 <- *Oerskovia turbata* (basonym) -> *Oerskovia turbata* - 891 | AB 1476 | N32 | Oerskov 27 | ATCC 25835 | CIP 100331 | DSM 20577, X83806, Cllm.turba | IMET 7405 | JCM 3160 | NCIB 10587, X79454, Cllm.turb1

Cellulomonas uda [AL] (Kellerman et al. 1913) Bergey et al. 1923 - 136 | ATCC 491 | DSM 20107, X83801, Cllm.uda | NCIB 8200, X79457, Cllm.uda2

Genus II. Oerskovia [AL] [416]

Oerskovia turbata [AL (T)] (Prauser et al. 1970) Stackebradt et al. 2002 -> *Cellulomonas turbata* <- *Cellulomonas turbata* (basonym) - 891 | AB 1476 | N32 | Oerskov 27 | ATCC 25835 | CIP 100331 | DSM 20577, X83806, Cllm.turba | IMET 7405 | JCM 3160 | NCIB 10587, X79454, Cllm.turb1

Oerskovia enterophila [VP] (Jager et al. 1983) Stackebrandt et al. 2002 - DFA-19 | ATCC 35307 | DSM 43852, X83807, Prm.entphl | HMGB B1078 | NBRC 14650 | IMET 7687 | JCM 7350 | NRRL B-16223

Oerskovia jenensis [VP] Stackebrandt et al. 2002 - CIP 100330 | DSM 46000, AJ314848

Oerskovia paurometabola [VP] Stackebrandt et al. 2002 - DSM 14281, AJ314851 | LMG 20385

Oerskovia xanthineolytica [AL] Lechevalier 1972 = *Cellulosimicrobium cellulans* (later homotypic synonym) - ATCC 27402 | IMET 7383 [417]

Genus III. Tropheryma [VP]

Tropheryma whipplei [VP (T)] La Scola et al. 2001 [418] - Twist-Marseille, AF251035 | CNCM I-2202

Family VII. *Dermabacteraceae* [VP]

[416] Stackebrandt et al. have proposed the reintroduction and emendation of the genus Oerskovia. This proposal requires transfer of the type species back from *Cellulomonas*.

[417] Because the type species of the genus *Oerskovia* has been transferred to the *Cellulomonas*, all other species must be transferred to other genera. Yet, no proposal to transfer *Oerskovia xanthineolytica* has been made to date. Stackebrandt et al. proposed combining *O. xanthineolytica*, *Brevibacterium fermentans*, *Brevibacterium lyticum*, *Nocardia cellulans*, and *Cellulomonas cartae* into a single species: *Cellulomonas cellulans*. However, only the transfer of *Nocardia cellulans* to *Cellulomonas* as *Cellulomonas cellulans* has been validly published.

[418] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Genus I. Dermabacter [VP (T)]
Dermabacter hominis [VP (T)] Jones and Collins 1989 - S69 | ATCC 49369 | DSM 7083, X91034, Drb.homin2 | NCFB 2769, X76728, Drb.homini
Genus II. Brachybacterium [VP]
Brachybacterium faecium [VP (T)] Collins et al. 1988 - Schefferle 6-10 | ATCC 43885 | DSM 4810, X83810, Bcb.faecim | DSM 4810, X91032, Bcb.faeci2 | IMET 11352 | NCIB 9860
Brachybacterium alimentarium [VP] Schubert et al. 1996 - CNRZ 925, X91031, Bcb.alimnt | DSM 10672
Brachybacterium conglomeratum [VP] Takeuchi et al. 1995 - 5 2 | AJ 1015 | Komagata 5-2 | CCM 2589 | DSM 10241 | NBRC 154
Brachybacterium fresconis [VP] Heyrman et al. 2002 - DSM 14564 | LMG 20336, AJ415378
Brachybacterium nesterenkovii [VP] Gvozdyak et al. 1992 - 35 | DSM 9573, X91033, Bcb.nester | IMV Ac-752
Brachybacterium paraconglomeratum [VP] Takeuchi et al. 1995 - 7 11 | ATCC 51843 | DSM 46341 | NBRC 15224 | IMET 11353 | NCIB 9861
Brachybacterium rhamnosum [VP] Takeuchi et al. 1995 - H-6S | ATCC 15203 | DSM 10240 | NBRC 15203
Brachybacterium sacelli [VP] Heyrman et al. 2002 - DSM 14566 | LMG 20345, AJ415384
Brachybacterium tyrofermentans [VP] Schubert et al. 1996 - CNRZ 926, X91657, Bcb.tyfrmn | DSM 10673
Family VIII. *Dermatophilaceae* [AL]
Genus I. Dermatophilus [AL (T)]
Dermatophilus congolensis [AL (T)] (Van Saceghem 1915) Gordon 1964 - A-4 | ATCC 14637, M59057, Der.congol | DSM 44180 | JCM 8106
Dermatophilus chelonae [VP] Masters et al. 1995 - W16 | ATCC 51576 | CIP 104541 | DSM 44178, AJ243919 | JCM 9706
Genus II. ***Kineosphaera*** [VP]
Kineosphaera limosa [VP (T)] Liu et al. 2002 - Lpha5, AF109792 | DSM 14548 | JCM 11399
Family IX. *Dermacoccaceae* [VP]
Genus I. Dermacoccus [VP (T)]
Dermacoccus nishinomiyaensis [VP (T)] (Oda 1935) Stackebrandt et al. 1995 <- *Micrococcus nishinomiyaensis* (basonym) - 59 | OUT 8094 | ATCC 29093 | CCM 2140 | DSM 20448 | IMET 11365
Genus II. Demetria [VP]
Demetria terragena [VP (T)] Groth et al. 1997 - 2002-46 | DSM 11295 | HKI 0089, Y14152, Dm.terragn
Genus III. Kytococcus [VP]
Kytococcus sedentarius [VP (T)] (ZoBell and Upham 1944) Stackebrandt et al. 1995 <- *Micrococcus sedentarius* (basonym) - 54 | ATCC 14392 | CCM 314 | DSM 20547, X87755, Ky.sedntrs | IMET 11362
Kytococcus schroeteri [VP] Becker et al. 2002 - Muenster 2000, AJ297722 | CCM 4918 | DSM 13884
Family X. *Intrasporangiaceae* [VP]
Genus I. Intrasporangium [AL (T)]
Intrasporangium calvum [AL (T)] Kalakoutskii et al. 1967 - No.7 KIP | ATCC 23552 | CUB 430 | DSM 43043 | NBRC 12989, D85486, Isp.calvum | IMET 7816 | JCM 3097 | KCC A-0097 | NCIB 10167
Genus II. Janibacter [VP]
Janibacter limosus [VP (T)] Martin et al. 1997 - 2003-10 | DSM 11140, Y08539, Jan.limosu | HKI 83 | NBRC 16128

Janibacter brevis [VP] Imamura et al. 2000 - 10N, AB016438 | DSM 13953, AJ310085 | IAM 14781

Janibacter terrae [VP] Yoon et al. 2000 - CS12, AF176948 | JCM 10705 | KCCM 80001

Genus III. Knoellia [VP]

Knoellia sinensis [VP (T)] Groth et al. 2002 - HKI 0119, AJ294412 | CIP 106775 | DSM 12331

Knoellia subterranea [VP] Groth et al. 2002 - HKI 0120, AJ294413 | CIP 106776 | DSM 12332

Genus IV. Ornithinicoccus [VP]

Ornithinicoccus hortensis [VP (T)] Groth et al. 1999 - DSM 12335 | HKI 0125, Y17869

Genus V. Ornithinimicrobium [VP]

Ornithinimicrobium humiphilum [VP (T)] Groth et al. 2001 - HKI 0124, AJ277650 | CIP 106634 | DSM 12362, AJ277650

Genus VI. Nostocoidia [VP]

Candidatus "Nostocoidia limicola" [VP (T)] Blackall et al. 2000 X85211X85212Y14597Y14595Y14596

Genus VII. Terrabacter [VP]

Terrabacter tumescens [VP (T)] (Jensen 1934) Collins et al. 1989 <- *Pimelobacter tumescens* (basonym) - ATCC 6947 | CCM 1655 | DSM 20308, X83812, Trb.tumes2 | IAM 12345 | IMET 10431 | JCM 1365 | NCIB 8914, X53215, Trb.tumesn | NCTC 4216

Genus VIII. Terracoccus [VP]

Terracoccus luteus [VP (T)] Prauser et al. 1997 - CCM 4701 | DSM 44267, Y11928, Trr.luteus | NBRC 16165 | IMET 7848

Genus IX. Tetrasphaera [VP]

Tetrasphaera japonica [VP (T)] Maszenan et al. 2000 - T1-X7, AF125092 | ACM 5116

Tetrasphaera australiensis [VP] Maszenan et al. 2000 - Ben 109, AF125091 | ACM 5117

Tetrasphaera elongata [VP] Hanada et al. 2002 - Lp2, AB030911 | DSM 14184 | JCM 11141

Family XI. *Jonesiaceae* [VP]

Genus I. Jonesia [VP (T)]

Jonesia denitrificans [VP (T)] (Prevot 1961) Rocourt et al. 1987 <- *Listeria denitrificans* (basonym) - 55134, X78420, X83811 | ATCC 14870 | CIP 55134 | DSM 20603, X83811, Jns.denitr | IMET 7763 | NCTC 10816, X78420, Jns.denit2

Family XII. *Microbacteriaceae* [VP]

Genus I. Microbacterium [AL (T)]

Microbacterium lacticum [AL (T)] Orla-Jensen 1919 - ATCC 8180 | DSM 20427, X77441, Mbm.lacti2 | NBRC 14135, D21343, Mbm.lactic | IMET 10712 | NCDO 747 | NCIB 8540

Microbacterium aerolatum [VP] Zlamala et al. 2002 - V-73, AJ309929 | DSM 14217 | CCM 4955

Microbacterium arabinogalactanolyticum [VP] (Yokota et al. 1993) Takeuchi and Hatano 1998 <- *Aureobacterium arabinogalactanolyticum* (basonym) - M-2 | CCM 4370 | CIP 103814 | DSM 8611 | NBRC 14344, AB004715, Mbm.argaly

Microbacterium arborescens [VP] Imai et al. 1985 - ATCC 4358 | DSM 20754, X77443, Mbm.arbor2 | NBRC 3750, D21339, Mbm.arbors

Microbacterium aurantiacum [VP] Takeuchi and Hatano 1998 - ATCC 49090 | DSM 12506 | NBRC 15234, AB004726, Mbm.aurant | NCFB 2288

Microbacterium aurum [VP] Yokota et al. 1993 - H-5 | ATCC 51345 | DSM 8600 | NBRC 15204, D21340, Mbm.aurum

Microbacterium barkeri [VP] (Collins et al. 1983) Takeuchi and Hatano 1998 <- *Aureobacterium barkeri* (basonym) - 7 | ATCC 15954 | CCM 1928 | DSM 20145, X77446, Mbm.barker | IMET 10688 | NCIB 9658

Microbacterium chocolatum [VP] Takeuchi and Hatano 1998 - BUCSAV 207 | DSM 12507 | NBRC 3758, AB004725, Mbm.choclt | NCIB 8181

Microbacterium dextranolyticum [VP] Yokota et al. 1993 - M-73 | ATCC 51344 | DSM 8607 | NBRC 14592, D21341, Mbm.dexlyt

Microbacterium esteraromaticum [VP] (Omelianski 1923) Takeuchi and Hatano 1998 <- *Aureobacterium esteraromaticum* (basonym) , Y17231 - ATCC 8091 | CCM 4371 | DSM 8609 | NBRC 3751

Microbacterium flavescens [VP] (Lochhead 1958) Takeuchi and Hatano 1998 <- *Aureobacterium flavescens* (basonym) - 401 | ATCC 13348 | DSM 20643 | NBRC 15039, AB004716, Mbm.flaves | IMET 10367 | NCIB 9221

Microbacterium foliorum [VP] Behrendt et al. 2001 - P 333/02, AJ249780 | DSM 12966 | LMG 19580

Microbacterium gubbeenense [VP] Brennan et al. 2001 - DPC 5286 | LMG S-19263 | NCIMB 30129

Microbacterium halophilum [VP] Takeuchi and Hatano 1998 - N 76 | DSM 12508 | NBRC 16062, AB004714, Mbm.haloph

Microbacterium hominis [VP] Takeuchi and Hatano 1998 - DSM 12509 | NBRC 15708, AB004727, Mbm.homini | LCDC 84-209

Microbacterium imperiale [VP] (Steinhaus 1941) Collins et al. 1983 <- *Brevibacterium imperiale* (basonym) - 72 | ATCC 8365 | DSM 20530, X77442, Mbm.imper2 | IAM 1654 | NBRC 12610, D21342, Mbm.imperi | IMET 10714 | NCIB 9888

Microbacterium keratanolyticum [VP] (Yokota et al. 1993) Takeuchi and Hatano 1998 <- *Aureobacterium keratanolyticum* (basonym) - ATCC 35057 | CCM 4375 | CIP 103815 | DSM 8606, Y14786, Mbm.kerly2 | NBRC 13309, AB004717, Mbm.kerlyt

Microbacterium ketosireducens [VP] Takeuchi and Hatano 1998 - DSM 12510 | NBRC 14548, AB004724, Mbm.ketred

Microbacterium kitamiense [VP] Matsuyama et al. 1999 - Kitami C2, AB013907 | JCM 10270

Microbacterium laevaniformans [VP] Collins et al. 1983 - 1 | ATCC 15953 | CCM 1929 | DSM 20140 | NBRC 14471, D21344, Mbm.levfor | IMET 10713 | NCIB 9659

Microbacterium liquefaciens [VP] (Collins et al. 1983) Takeuchi and Hatano 1998 <- *Aureobacterium liquefaciens* (basonym) - Mbm 15 | ATCC 43647 | DSM 20638, X77444, Mbm.liqfac | IMET 11374 | NCIB 11509

Microbacterium luteolum [VP] (Yokota et al. 1993) Takeuchi and Hatano 1998 <- *Aureobacterium luteolum* (basonym) - 69 | ATCC 51474 | DSM 20143 | NBRC 15074, AB004718, Mbm.luteol | NCIMB 9568

Microbacterium maritypicum [VP] (ZoBell and Upham 1944) Takeuchi and Hatano 1998 <- *Flavobacterium marinotypicum* (basonym) - ATCC 19260 | DSM 12512 | NBRC 15779 | NCMB 1050

Microbacterium oxydans [VP] (Chatelain and Second 1966) Schumann et al. 1999 <- *Brevibacterium oxydans* (basonym) , Y17227 - X98 | CIP 6612 | DSM 20578 | NCIB 9944

Microbacterium paraoxydans [VP] Laffineur et al. 2003 - CF36, AJ491806 | CCUG 46601 | DSM 15019

Microbacterium phyllosphaerae [VP] Behrendt et al. 2001 - P 369/06, AJ277840 | DSM 13468 | LMG 19581

Microbacterium resistens [VP] (Funke et al. 1998) Behrendt et al. 2001 <- *Aureobacterium resistens* (basonym) - CSM 11986 | DMMZ 1710, Y14699 | DSM 11986

Microbacterium saperdae [VP] (Lysenko 1959) Takeuchi and Hatano 1998 <- *Aureobacterium saperdae* (basonym) - 48-1-4 | ATCC 19272 | CCEB 366 | DSM 20169 | NBRC 15038, AB004719, Mbm.saperd | IMET 11076

Microbacterium schleiferi [VP] (Yokota et al. 1993) Takeuchi and Hatano 1998 <- *Aureobacterium schleiferi* (basonym) - S 110 | ATCC 51473 | DSM 20489 | NBRC 15075, AB004723, Mbm.schlfr

Microbacterium terrae [VP] (Yokota et al. 1993) Takeuchi and Hatano 1998 <- *Aureobacterium terrae* (basonym) - ATCC 51476 | CCM 4374 | CIP 103816 | DSM 8610 | NBRC 15300, Y17238, AB004720

Microbacterium terregens [VP] (Lochhead and Burton 1953) Takeuchi and Hatano 1998 <- *Aureobacterium terregens* (basonym) - 88 | ATCC 13345 | CCM 2634 | DSM 20449 | NBRC 12961, AB004721, Mbm.trrgns | IMET 10504 | NCIB 8909

Microbacterium testaceum [VP] (Komagata and Iizuka 1964) Takeuchi and Hatano 1998 <- *Aureobacterium testaceum* (basonym) - Rp-3 | ATCC 15829 | CCM 2299 | DSM 20166, X77445, Mbm.testac | IMET 10361

Microbacterium thalassium [VP] Takeuchi and Hatano 1998 - DSM 12511 | NBRC 16060, AB004713, Mbm.thlass

Microbacterium trichothecenolyticum [VP] (Yokota et al. 1993) Takeuchi and Hatano 1998 <- *Aureobacterium trichothecenolyticum* (basonym) - 114-2 | ATCC 51475 | CCM 4373 | CIP 103817 | DSM 8608 | NBRC 15077, AB004722, Mbm.trtecl | JCM 1358

Genus II. Agreia [VP]

Agreia bicolorata [VP (T)] Evtushenko et al. 2001 - DL-4 | DSM 14575 | UCM Ac-620 | VKM Ac-1804, AF159363

Genus III. Agrococcus [VP]

Agrococcus jenensis [VP (T)] Groth et al. 1996 - 2002-39/1 | ATCC 700087 | DSM 9580, X92492, Ac.jenensi | NBRC 16126

Agrococcus baldri [VP] Zlamala et al. 2002 - V-108, AJ309928 | DSM 14215 | CCM 4953

Agrococcus citreus [VP] Wieser et al. 1999 - D-1/1a | DSM 12453, AJ012826

Genus IV. Agromyces [AL]

Agromyces ramosus [AL (T)] Gledhill and Casida 1969 - PSU 38L | ATCC 25173 | DSM 43045, X77447, Agmy.ramos | IMET 11027 | KCC A-0108

Agromyces aurantiacus [VP] Li et al. 2003 - YIM 21741, AF389342 | AS 4.1717 | CCTCC 001012 | DSM 14598

Agromyces bracchium [VP] Takeuchi and Hatano 2001 - 65 | NBRC 16238, AB023359 | VKM Ac-2088

Agromyces cerinus subspecies cerinus [VP] Zgurskaya et al. 1992 - ATCC 51762 | DSM 8595, X77448, Agmy.cerin | IMET 11525 | JCM 9083, D45060, Agmy.ceri2 | VKM Ac-1340

Agromyces cerinus subspecies nitratus [VP] Zgurskaya et al. 1992 - ATCC 51763 | DSM 8596 | IMET 11532 | VKM Ac-1351

Agromyces fucosus subspecies fucosus [VP] Zgurskaya et al. 1992 - ATCC 51764 | DSM 8597 | IMET 11529 | VKM Ac-1345

Agromyces fucosus subspecies hippuratus [VP] Zgurskaya et al. 1992 - ATCC 51765 | DSM 8598 | IMET 11533 | JCM 9086, D45061, Agmy.fuco2 | VKM Ac-1352

Agromyces luteolus [VP] Takeuchi and Hatano 2001 - 8 | NBRC 16235, AB023356 | VKM Ac-2085

Agromyces mediolanus [VP] Suzuki et al. 1996 - ATCC 14004 | DSM 20152, X77449, Agmy.medio | JCM 3346 | NCIMB 7206

Agromyces rhizosphaerae [VP] Takeuchi and Hatano 2001 - 14 | NBRC 16236, AB023357 | VKM Ac-2085

Genus V. Aureobacterium [VP]

†Aureobacterium liquefaciens [VP (T)] (ex Orla-Jensen 1919) Collins et al. 1983 -> *Microbacterium liquefaciens* - Mbm 15 | ATCC 43647 | DSM 20638, X77444, Mbm.liqfac | IMET 11374 | NCIB 11509

†Aureobacterium arabinogalactanolyticum [VP] Yokota et al. 1993 -> *Microbacterium arabinogalactanolyticum* - M-2 | CCM 4370 | CIP 103814 | DSM 8611 | NBRC 14344, AB004715, Mbm.argaly

†Aureobacterium barkeri [VP] (ex Dias et al. 1962) Collins et al. 1983 -> *Microbacterium barkeri* - 7 | ATCC 15954 | CCM 1928 | DSM 20145, X77446, Mbm.barker | IMET 10688 | NCIB 9658

†Aureobacterium esteraromaticum [VP] (Omelianski 1923) Yokota et al. 1993 <- *Flavobacterium esteraromaticum* (basonym) -> *Microbacterium esteraromaticum* - ATCC 8091, Y17231 | CCM 4371 | DSM 8609 | NBRC 3751

†Aureobacterium flavescens [VP] (Lochhead 1958) Collins et al. 1983 <- *Arthrobacter flavescens* (basonym) -> *Microbacterium flavescens* - 401, Y17232 | ATCC 13348 | DSM 20643 | NBRC 15039, AB004716, Mbm.flaves | IMET 10367 | NCIB 9221

†Aureobacterium keratanolyticum [VP] Yokota et al. 1993 -> *Microbacterium keratanolyticum* - ATCC 35057 | CCM 4375 | CIP 103815 | DSM 8606, Y14786, Mbm.kerly2 | NBRC 13309, AB004717, Mbm.kerlyt

†Aureobacterium luteolum [VP] Yokota et al. 1993 -> *Microbacterium luteolum* - 69 | ATCC 51474 | DSM 20143 | NBRC 15074, AB004718, Mbm.luteol | NCIMB 9568

†Aureobacterium resistens [VP] Funke et al. 1998 -> *Microbacterium resistens* - CCUG 38312 | DMMZ 1710, Y14699, Aub.resist | DSM 11986

†Aureobacterium saperdae [VP] (Lysenko 1959) Collins et al. 1983 <- *Brevibacterium saperdae* (basonym) <- *Curtobacterium saperdae* (basonym) -> *Microbacterium saperdae* - 48-1-4 | ATCC 19272 | CCEB 366 | DSM 20169 | NBRC 15038, AB004719, Mbm.saperd | IMET 11076[419]

†Aureobacterium schleiferi [VP] Yokota et al. 1993 -> *Microbacterium schleiferi* - S 110 | ATCC 51473 | DSM 20489 | NBRC 15075, AB004723, Mbm.schlfr

†Aureobacterium terrae [VP] Yokota et al. 1993 -> *Microbacterium terrae* - ATCC 51476, Y17238 | CCM 4374 | CIP 103816 | DSM 8610 | NBRC 15300, Y17238, AB004720

†Aureobacterium terregens [VP] (Lochhead and Burton 1953) Collins et al. 1983 <- *Arthrobacter terregens* (basonym) -> *Microbacterium terregens* - 88, Y17239 | ATCC 13345 | CCM 2634 | DSM 20449 | NBRC 12961, AB004721, Mbm.trrgns | IMET 10504 | NCIB 8909

†Aureobacterium testaceum [VP] (Komagata and Iizuka 1964) Collins et al. 1983 <- *Brevibacterium testaceum* (basonym) <- *Curtobacterium testaceum* (basonym) -> *Microbacterium testaceum* - Rp-3 | ATCC 15829 | CCM 2299 | DSM 20166, X77445, Mbm.testac | IMET 10361[420]

†Aureobacterium trichothecenolyticum [VP] Yokota et al. 1993 -> *Microbacterium trichothecenolyticum* - 114-2 | ATCC 51475 | CCM 4373 | CIP 103817 | DSM 8608 | NBRC 15077, AB004722, Mbm.trtecl | JCM 1358

[419] *Brevibacterium saperdae* and *Curtobacterium saperdae* are objective synonyms and both are considered basonyms of *Aureobacterium saperdae*.

[420] *Brevibacterium testaceum* and *Curtobacterium testaceum* are objective synonyms and both are considered basonyms of *Aureobacterium testaceum*.

Genus VI. Clavibacter [VP]

Clavibacter michiganensis subspecies michiganensis [VP (T)] (Smith 1910) Davis et al. 1984 <- *Corynebacterium michiganense subspecies michiganense* (basonym) - SO5 | CFBP 2352 | DSM 46364, X77435, Clv.michg2 | ICMP 2550 | ICPB CM 177 | IMET 11518 | LMG 7333, U09762, Clv.michg6 | NCPPB 2979 | PDDCC 2550

Clavibacter michiganensis subspecies insidiosus [VP] (McCulloch 1925) Davis et al. 1984 <- *Corynebacterium michiganense subspecies insidiosum* (basonym) - ATCC 10253 | CFBP 2404 | DSM 20157 | ICMP 2621 | LMG 3663, U09761, Clv.michg7 | NCPPB 1109

Clavibacter michiganensis subspecies nebraskensis [VP] (Vidaver and Mandel 1974) Davis et al. 1984 <- *Corynebacterium michiganense subspecies nebraskense* (basonym) - II296 | ATCC 27794 | CFBP 2405 | DSM 7483, X77434, Clv.michgn | ICMP 3298 | LMG 3700 | LMG 5627, U09763, Clv.michg9 | NCPPB 2581

Clavibacter michiganensis subspecies sepedonicus [VP] (Spieckermann and Kotthoff 1914) Davis et al. 1984 <- *Corynebacterium michiganense subspecies sepedonicum* (basonym) - C-1 | ATCC 33113 | CFBP 2049 | DSM 20744 | ICMP 2535 | ICPB CS101 | LMG 2889, U09764, Clv.michg8 | NCPPB 2137

Clavibacter michiganensis subspecies tessellarius [VP] (Carlson and Vidaver 1982) Davis et al. 1984 <- *Corynebacterium michiganense subspecies tessellarius* (basonym) - 78181 | ATCC 33566, U30254, Clv.mich10 | ATCC 33566, U96181, Clv.mich13 | DSM 20741 | ICMP 7221 | PDDCC 7221

†Clavibacter iranicum [VP] (Carlson and Vidaver 1982) Davis et al. 1984 <- *Corynebacterium iranicum* (basonym) -> *Rathayibacter iranicus* - 66-807 | CFBP 807 | DSM 7484 | ICMP 3496 | LMG 3677 | NCPPB 2253 | VKM Ac-1602

†Clavibacter rathayi [VP] (Smith 1913) Davis et al. 1984 <- *Corynebacterium rathayi* (basonym) -> *Rathayibacter rathayi* - CE4 | CFBP 2406 | DSM 7485, X77439, Rtb.rathay | ICMP 2574 | JCM 9307, D45062, Rtb.ratha2 | VKM Ac-1601

†Clavibacter toxicus [VP] Riley and Ophel 1992 -> *Rathayibacter toxicus* - CS14 | ATCC 49908 | DSM 7488 | ICMP 9525, D84127, Rtb.toxicu | JCM 9669, D84127, Rtb.toxicu | NCPPB 3552

†Clavibacter tritici [VP] (Carlson and Vidaver 1982) Davis et al. 1984 <- *Corynebacterium tritici* (basonym) -> *Rathayibacter tritici* - CT102 | ATCC 11403 | DSM 7486, X77438, Rtb.tritic | ICMP 2626 | NCPPB 1857 | VKM Ac-1603

†Clavibacter xyli subspecies xyli [VP] Davis et al. 1984 -> *Leifsonia xyli subspecies xyli* - L1A | ATCC 33974 | ICMP 7127 | LMG 7352 | NCPPB 3152 | PDDCC 7127

†Clavibacter xyli subspecies cynodontis [VP] Davis et al. 1984 -> *Leifsonia xyli subspecies cynodontis* - TB1A | ATCC 33973 | DSM 46306 | ICMP 8790 | IMET 11020 | JCM 1376 | JCM 9733, AB016985, Clv.xyli2 | NCIB 11927 | VKM Ac-2041

Genus VII. Cryobacterium [VP]

Cryobacterium psychrophilum [VP (T)] Suzuki et al. 1997 - 27-O-b | K. Inoue and K | ATCC 43563 | DSM 4854 | IAM 12024 | NBRC 15735 | JCM 1463, D45058, Cry.psychp | NCIMB 2068

Genus VIII. Curtobacterium [AL]

Curtobacterium citreum [AL (T)] (Komagata and Iizuka 1964) Yamada and Komagata 1972 = *Brevibacterium citreum* (homotypic synonym) - 2Y-10

| ATCC 15828 | CCM 2297 | DSM 20528, X77436, Cub.citreu | IAM 1614 | IMET 10359 | NCIB 10702

Curtobacterium albidum [AL] (Komagata and Iizuka 1964) Yamada and Komagata 1972 = *Brevibacterium albidum* (homotypic synonym) - Y-3-2 | ATCC 15831 | CCM 2296 | DSM 20512 | IAM 1631 | NCIB 11030

Curtobacterium flaccumfaciens [VP] (Hedges 1922) Collins and Jones 1984 <- *Corynebacterium flaccumfaciens subspecies flaccumfaciens* (basonym) = *Corynebacterium flaccumfaciens subspecies betae* (later heterotypic synonym) = *Corynebacterium flaccumfaciens subspecies oortii* (later heterotypic synonym) = *Corynebacterium flaccumfaciens subspecies poinsettiae* (later heterotypic synonym) - ATCC 6887 | DSM 20129 | ICMP 2584 | LMG 3645, AJ312209 | NCPPB 1446

Curtobacterium herbarum [VP] Behrendt et al. 2002 - P 420/07 | DSM 14013 | LMG 19917, AJ310413

Curtobacterium luteum [AL] (Komagata and Iizuka 1964) Yamada and Komagata 1972 = *Brevibacterium luteum* (homotypic synonym) - 2Y-12 | ATCC 15830 | CCM 2298 | DSM 20542, X77437, Cub.luteum | IAM 1623 | IMET 10360 | NCIB 11029

Curtobacterium plantarum [VP] Dunleavy 1989 - CL63 | ATCC 49174 | DSM 7069

Curtobacterium pusillum [AL] (Iizuka and Komagata 1965) Yamada and Komagata 1972 = *Brevibacterium pusillum* (homotypic synonym) - 100 | ATCC 19096 | DSM 20527 | IAM 1479 | IMET 11077 | NCIB 10354

†Curtobacterium saperdae [AL] (Lysenko 1959) Yamada and Komagata 1972 = *Brevibacterium saperdae* (homotypic synonym) -> *Aureobacterium saperdae* - 48-1-4 | ATCC 19272 | CCEB 366 | DSM 20169 | NBRC 15038, AB004719, Mbm.saperd | IMET 11076

†Curtobacterium testaceum [AL] (Komagata and Iizuka 1964) Yamada and Komagata 1972 = *Brevibacterium testaceum* (homotypic synonym) -> *Aureobacterium testaceum* - Rp-3 | ATCC 15829 | CCM 2299 | DSM 20166, X77445, Mbm.testac | IMET 10361

Genus IX. Frigoribacterium [VP]

Frigoribacterium faeni [VP (T)] Kämpfer et al. 2000 - DSM 10309, Y18807 | 801

Genus X. Leifsonia [VP]

Leifsonia aquatica [VP (T)] (ex Leifson 1962) Evtushenko et al. 2000 - DSM 20146, X77450 | JCM 1368 | VKM Ac-1400

Leifsonia aurea [VP] Reddy et al. 2003 - CMS 81y, AJ438586 | CIP 107785 | DSM 15303 | MTCC 4657

Leifsonia naganoensis [VP] Suzuki et al. 2000 - DB 103 | JCM 10592

Leifsonia poae [VP] Evtushenko et al. 2000 - VKM Ac-1401, AF116342

Leifsonia rubra [VP] Reddy et al. 2003 - CMS 76r, AJ438585 | CIP 107783 | DSM 15304 | MTCC 4210

Leifsonia shinshuensis [VP] Suzuki et al. 2000 - DB 102 | JCM 10591

Leifsonia xyli subspecies xyli [VP] (Davis et al. 1984) Evtushenko et al. 2000 <- *Clavibacter xyli subspecies xyli* (basonym) - L1A | ATCC 33974 | ICMP 7127 | LMG 7352 | NCPPB 3152 | PDDCC 7127

Leifsonia xyli subspecies cynodontis [VP] (Davis et al. 1984) Evtushenko et al. 2000 <- *Clavibacter xyli subspecies cynodontis* (basonym) - TB1A | ATCC 33973 | DSM 46306 | ICMP 8790 | IMET 11020 | JCM 1376 | JCM 9733, AB016985, Clv.xyli2 | NCIB 11927 | VKM Ac-2041

Genus XI. Leucobacter [VP]

Leucobacter komagatae [VP (T)] Takeuchi et al. 1996 - DSM 8803 | IAM 1093 | NBRC 15245, D17751, Lbc.komaga | JCM 9414, D45063, Lbc.komag2

Genus XII. Mycetocola VP
Mycetocola saprophilus VP (T) Tsukamoto et al. 2001 - CM-01, AB012647 | NBRC 16274 | MAFF 211324 | NRRL B-24119
Mycetocola lacteus VP Tsukamoto et al. 2001 - CM-10, AB012648 | NBRC 16278 | MAFF 211326 | NRRL B-24121
Mycetocola tolaasinivorans VP Tsukamoto et al. 2001 - CM-05, AB012646 | NBRC 16277 | MAFF 211325 | NRRL B-24120
Genus XIII. Okibacterium VP
Okibacterium fritillariae VP (T) Evtushenko et al. 2002 - NBRC 16404 | VKM Ac-2059, AB042094
Genus XIV. ***Plantibacter*** VP
Plantibacter flavus VP (T) Behrendt et al. 2002 - DSM 14012, AJ310417 | LMG 19919 | P 297/02
Genus XV. Rathayibacter VP
Rathayibacter rathayi VP (T) (Smith 1913) Zgurskaya et al. 1993 <- *Clavibacter rathayi* (basonym) - CE4 | CFBP 2406 | DSM 7485, X77439, Rtb.rathay | ICMP 2574 | JCM 9307, D45062, Rtb.ratha2 | VKM Ac-1601
Rathayibacter caricis VP Dorofeeva et al. 2002 - UCM Ac-618 | VKM Ac-1799, AF159364
Rathayibacter festucae VP Dorofeeva et al. 2002 - UCM Ac-619 | VKM Ac-1390, AF159365
Rathayibacter iranicus VP (Carlson and Vidaver 1982) Zgurskaya et al. 1993 <- *Clavibacter iranicus* (basonym) - 66-807 | CFBP 807 | DSM 7484 | ICMP 3496 | LMG 3677 | NCPPB 2253 | VKM Ac-1602
Rathayibacter toxicus VP (Riley and Ophel 1992) Sasaki et al. 1998 <- *Clavibacter toxicus* (basonym) - CS14 | ATCC 49908 | DSM 7488 | ICMP 9525, D84127, Rtb.toxicu | JCM 9669, D84127, Rtb.toxicu | NCPPB 3552
Rathayibacter tritici VP (Carlson and Vidaver 1982) Zgurskaya et al. 1993 <- *Clavibacter tritici* (basonym) - CT102 | ATCC 11403 | DSM 7486, X77438, Rtb.tritic | ICMP 2626 | NCPPB 1857 | VKM Ac-1603
Genus XVI. ***Rhodoglobus*** VP
Rhodoglobus vestalii VP (T) Sheridan et al. 2003 - LV3, AJ459101 | ATCC BAA-534 | CIP 107482
Genus XVII. Subtercola VP
Subtercola boreus VP (T) Mannisto et al. 2000 - CCUG 43135 | DSM 13056, AF224722
Subtercola frigoramans VP Mannisto et al. 2000 - CCUG 43136 | DSM 13057, AF224723
Subtercola pratensis VP Behrendt et al. 2002 - P 229/10, AJ310412 | DSM 14246 | LMG 21000

Family XIII. *"Beutenbergiaceae"*[421]
Genus I. Beutenbergia VP (T)
Beutenbergia cavernae VP (T) Groth et al. 1999 - DSM 12333 | HKI 0122, Y18378
Genus II. Georgenia VP
Georgenia muralis VP (T) Altenburger et al. 2002 - 1A-C, X94155 | CCM 4963 | DSM 14418
Genus III. Salana VP
Salana multivorans VP (T) von Wintzingerode et al. 2001 - Se-3111, AJ400627 | DSM 13521 | NRRL B-24118

Family XIV. *Promicromonosporaceae* VP

[421] *Beutenbergia* is thought to represent a separate line of descent within the *Actinobacteria*. This however, remains to be confirmed in large-scale phylogenetic studies.

Genus I. Promicromonospora [AL (T)]

Promicromonospora citrea [AL (T)] Krassilnikov et al. 1961 – ATCC 15908 | DSM 43110, Prm.entphl | DSM 43110, X83808, Prm.citrea | IMET 7267 | INMI 18 | JCM 3051 | KCC A-0051 | RIA 562

Promicromonospora enterophila [VP] Jager et al. 1983 – DFA-19 | ATCC 35307 | DSM 43852, X83807, Prm.entphl | HMGB B1078 | NBRC 14650 | IMET 7687 | JCM 7350 | NRRL B-16223

Promicromonospora sukumoe [VP] Takahashi et al. 1988 – DSM 44121, AJ272024 | NBRC 14650, AB023375, AB056130 | JCM 6845 | SK-2049

Genus II. Cellulosimicrobium [VP]

Cellulosimicrobium cellulans [VP (T)] (Metcalf and Brown 1957) Schumann et al. 2001 [422] <- *Cellulomonas cellulans* (basonym) – ATCC 12830 | DSM 43189 | DSM 43879, X79455, X83809, Cllm.cllu2, Cllm.cllul | IMET 7404 | NCIB 8868

Cellulosimicrobium variabile [VP] Bakalidou et al. 2002 – MX5, AJ298873 | ATCC BAA-303 | DSM 10177

Genus III. ***Xylanimonas*** [VP]

Xylanimonas cellulosilytica [VP (T)] Rivas et al. 2003 – XIL07, AF403541 | CECT 5975 | LMG 20990

Suborder X. *Corynebacterineae* [VP]

Family I. *Corynebacteriaceae* [AL]

Genus I. Corynebacterium [AL (T)]

Corynebacterium diphtheriae [AL (T)] (Kruse 1886) Lehmann and Neumann 1896 – C7S | ATCC 27010 | CIP 100721, X82059, Cor.dipht2 | DSM 44123 | NCTC 11397, X84248, Cor.diphth

Corynebacterium accolens [VP] Neubauer et al. 1991 – ATCC 49725, X80500, Cor.accoln | CCUG 28779, X80500, Cor.accoln | CNCTC Th1/57 | DSM 44278

Corynebacterium afermentans subspecies afermentans [VP] Riegel et al. 1993 – CCUG 32103 | CIP 103499, X82054, Cor.afrme2 | DSM 44280 | LCDC 88199

Corynebacterium afermentans subspecies lipophilum [VP] Riegel et al. 1993 – T18502 | ATCC 51404 | CCUG 32105 | CIP 103500, X82055, Cor.afrme3 | DSM 44282

Corynebacterium ammoniagenes [VP] (Cooke and Keith 1927) Collins 1987 <- *Brevibacterium ammoniagenes* (basonym) – AJ 1443 | ATCC 6871 | CIP 101283, X82056, Cor.ammoni | CIP 101283, X84440, Cor.ammon2 | DSM 20306 | IMET 11243 | NCIB 8143 | NCTC 2398

Corynebacterium amycolatum [VP] Collins et al. 1988 – S160 | CIP 103452, X82057, Cor.amycol | DSM 6922 | NCFB 2768, X84244, Cor.amyco2

Corynebacterium appendicis [VP] Yassin et al. 2002 – DSM 44531 | IMMIB R-3491, AJ314919 | NRRL B-24151

Corynebacterium aquilae [VP] Fernández-Garayzábal et al. 2003 – S-613 | CCUG 46511 | CECT 5993, AJ496733

Corynebacterium argentoratense [VP] Riegel et al. 1995 – IBS B10697 | CIP 104296, X83955, Cor.argent | DSM 44202

Corynebacterium atypicum [VP] Hall et al. 2003 – R2070 | CCUG 45804, AJ441057 | CIP 107431

Corynebacterium aurimucosum [VP] Yassin et al. 2002 [423] – DSM 44532, AJ309207 | IMMIB D-1488

[422] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[423] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Corynebacterium auris [VP] Funke et al. 1995 - CCUG 33426 | DMMZ 328, X81873, Cor.auris2 | DMMZ 328, X82493, Cor.auris | DSM 44122

Corynebacterium auriscanis [VP] Collins et al. 2000 - CCUG 39938 | DSM 43852, AJ243819

†*Corynebacterium betae* [AL] Keyworth et al. 1956 -> *Corynebacterium flaccumfaciens subspecies betae* - NCPPB 374

Corynebacterium beticola [AL] Abdou 1969 - NCPPB 2256

Corynebacterium bovis [AL] Bergey et al. 1923 - ATCC 7715, D38575, Cor.bovis | DSM 20582 | IMET 10632 | NCTC 3224, D38575, Cor.bovis | NCTC 3224, X84444, Cor.bovis3

Corynebacterium callunae [AL] (Lee and Good 1963) Yamada and Komagata 1972 - ATCC 15991 | CCUG 28793, X82053, Cor.callu2 | DSM 20147 | IMET 11079 | NCIB 10338, X84251, Cor.callun | NRRL B-2244

Corynebacterium camporealensis [VP] Fernández-Garayzábal et al. 1998 - CRS-51, Y09569, Cor.campor | CECT 4897

Corynebacterium capitovis [VP] Collins et al. 2001 - CCUG 39779 | CIP 106739

Corynebacterium casei [VP] Brennan et al. 2001 [424] - DPC 5298 | LMG S-19264

Corynebacterium confusum [VP] Funke et al. 1998 - CCUG 38267 | DMMZ 2439, Y15886, Cor.confu1

Corynebacterium coyleae [VP] Funke et al. 1997 - CCUG 35014 | DMMZ 214, X96497, Cor.coylei | DSM 44184, X96497, Cor.coylei

Corynebacterium cystitidis [AL] Yanagawa and Honda 1978 - 42 | ATCC 29593, D37914, Cor.cysttd | CIP 103424, X82058, Cor.cystt3 | DSM 20524 | JCM 3715 | NCTC 11863, X84252, Cor.cystt2

Corynebacterium durum [VP] Riegel et al. 1997 - IBS G15036, Z97069, Cor.durum1 | CCUG 37331 | CIP 105490 | DSM 44351 | NBRC 16161

Corynebacterium efficiens [VP] Fundou et al. 2002 - YS-314, AB055963 | JCM 11189 | DSM 44549

Corynebacterium equi [AL] Magnusson 1923 = *Rhodococcus equi* (homotypic synonym) - ATCC 25729 | ATCC 6939, X80603, Rco.equi4 | CIP 1782.88 | DSM 20307 | NBRC 14956 | IMET 7467 | JCM 1311 | NCIB 12828 | NCTC 1621

Corynebacterium falsenii [VP] Sjödén et al. 1998 - BL 8171 | CCUG 33651, Y13024, Cor.falsen | DSM 44353

†*Corynebacterium fascians* [AL] (Tilford 1936) Dowson 1942 -> *Rhodococcus fascians* - ATCC 12974, X81930, Rco.fasci3 | CIP 104713 | DSM 20669 | NBRC 12155 | JCM 1316 | NCPPB 3067

Corynebacterium felinum [VP] Collins et al. 2001 - M714/95/5 | CCUG 39943, AJ401282 | CIP 106740

†*Corynebacterium flaccumfaciens subspecies flaccumfaciens* [AL] (Hedges 1922) Dowson 1942 -> *Curtobacterium flaccumfaciens* - ATCC 6887 | DSM 20129 | ICMP 2584 | LMG 3645, AJ312209 | NCPPB 1446 | NCTC 4758

†*Corynebacterium flaccumfaciens subspecies betae* [VP] (Keyworth et al. 1956) Carlson and Vidaver 1982 = *Curtobacterium flaccumfaciens* (earlier heterotypic synonym) <- *Corynebacterium betae* (basonym) - NCPPB 374

†*Corynebacterium flaccumfaciens subspecies oortii* [VP] (Saaltink and Maas Geesteranus 1969) Carlson and Vidaver 1982 = *Curtobacterium flaccumfaciens* (earlier heterotypic synonym) <- *Corynebacterium oortii* (basonym) - ATCC 25283

[424] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

†*Corynebacterium flaccumfaciens subspecies poinsettiae* [VP] (Starr and Pirone 1942) Carlson and Vidaver 1982 = *Curtobacterium flaccumfaciens* (earlier heterotypic synonym) <- *Corynebacterium poinsettiae* (basonym) - ATCC 9682

Corynebacterium flavescens [AL] Barksdale et al. 1979 - OJ8 | ATCC 10340 | CIP 69.5, X82060, Cor.flaves | DSM 20296 | IMET 11080 | JCM 1317 | LMG 4046 | NCDO 1320, X84441, Cor.flave2 | NCIB 8707

Corynebacterium freneyi [VP] Renaud et al. 2001 - CIP 106767 | DSM 44506 | ISPB 6695110

Corynebacterium glaucum [VP] Yassin et al. 2003 - IMMIB R-5091, AJ431634 | DSM 44530 | NRRL B-24142

Corynebacterium glucuronolyticum [VP] Funke et al. 1995 - 6 | GF 838, X86688, Cor.glucur | ATCC 51860 | DMMZ 838 | DSM 44120, X86688, Cor.glucur

Corynebacterium glutamicum [AL] (Kinoshita et al. 1958) Abe et al. 1967 = *Brevibacterium divaricatum* (later heterotypic synonym) = *Corynebacterium lilium* (later heterotypic synonym) - ATCC 13032 | DSM 20300, X80629, Cor.gluta2 | IAM 12435 | IMET 10482, X82061, Cor.gluta4 | NCIB 10025, X84257, Cor.gluta3 | NCIB 10025, Z46753, Cor.glutam

Corynebacterium hoagii [AL] (Morse 1912) Eberson 1918 - ATCC 7005, X82052, Cor.hoagii | DSM 20295 | IMET 11373 | NCTC 10673

†*Corynebacterium ilicis* [AL] Mandel et al. 1961 -> *Arthrobacter ilicis* - Cr-2 | ATCC 14264 | CFBP 1380 | DSM 20138, X83407, Arb.ilicis | ICMP 2607 | LMG 3659 | NCPPB 1228

Corynebacterium imitans [VP] Funke et al. 1997 - CCUG 36877 | DMMZ 2023 | DSM 44264 | NBRC 16163 | NCTC 13015

†*Corynebacterium insidiosum* [AL] (McCulloch 1925) Jensen 1934 -> *Corynebacterium michiganense subspecies indiosum* - ATCC 10253 | CFBP 2404 | DSM 20157 | ICMP 2621 | LMG 3663, U09761, Clv.michg7 | NCPPB 1109

†*Corynebacterium iranicum* [VP] (ex Scharif) Carlson and Vidaver 1982 -> *Clavibacter iranicus* - 66-807 | CFBP 807 | DSM 7484 | ICMP 3496 | LMG 3677 | NCPPB 2253 | VKM Ac-1602

Corynebacterium jeikeium [VP] Jackman et al. 1988 - ATCC 43734, U87823, Cor.jeike3 | CIP 103337, X82062, Cor.jeike2 | DSM 46361 | DSM 7171 | NBRC 15298 | IMET 11513 | NCTC 11913, X84250, Cor.jeikei

Corynebacterium kroppenstedtii [VP] Collins et al. 1998 - CCUG 35717, Y10077, Cor.krpnst

Corynebacterium kutscheri [AL] (Migula 1900) Bergey et al. 1925 - ATCC 15677, D37802, Cor.kutsch | CIP 103423, X81871, Cor.kutsc2 | CIP 103423, X82063, Cor.kutsc3 | DSM 20755 | NCTC 11138

†*Corynebacterium lilium* [AL] Lee and Good 1963 = *Corynebacterium glutamicum* (earlier heterotypic synonym) - ATCC 15990 | DSM 20137 | IMET 11081 | NCIB 10337 | NRRL B-2243

Corynebacterium lipophiloflavum [VP] Funke et al. 1997 - CCUG 37336, Y09045 | DMMZ 1944 | DSM 44291

Corynebacterium macginleyi [VP] Riegel et al. 1995 - JCL-2, X80499, Cor.macgin | ATCC 51787 | CCUG 32361 | CIP 104099, X80499, Cor.macgin | DSM 44284

Corynebacterium mastitidis [VP] Fernandez-Garayzabal et al. 1997 - S-8, Y09806 | CCUG 38654 | CECT 4843 | DSM 44356

Corynebacterium matruchotii [VP] (Mendel 1919) Collins 1983 <- *Bacterionema matruchotii* (basonym) - 47 | ATCC 14266 | CIP 81.82, X82065,

Cor.matruc | DSM 20635, X84443, Cor.matru2 | IMET 11403 | NCTC 10254

†*Corynebacterium michiganense subspecies michiganense* [AL] (Smith 1910) Jensen 1934 -> *Clavibacter michiganensis subspecies michiganensis* - SO5 | CFBP 2352 | DSM 46364, X77435, Clv.michg2 | ICMP 2550 | ICPB CM 177 | IMET 11518 | LMG 7333, U09762, Clv.michg6 | NCPPB 2979 | PDDCC 2550

†*Corynebacterium michiganense subspecies insidiosum* [VP] (McCulloch 1925) Carlson and Vidaver 1982 <- *Corynebacterium insidiosum* (basonym) -> *Clavibacter michiganensis subspecies insidiosus* - ATCC 10253 | CFBP 2404 | DSM 20157 | ICMP 2621 | LMG 3663, U09761 | NCPPB 1109

†*Corynebacterium michiganense subspecies nebraskense* [VP] (Vidaver and Mandel 1974) Carlson and Vidaver 1982 <- *Corynebacterium nebraskense* (basonym) -> *Clavibacter michiganensis subspecies nebraskensis* - II296 | CFBP 2405 | DSM 7483, X77434 | ICMP 3298 | LMG 3700 | LMG 5627, U09763 | NCPPB 2581

†*Corynebacterium michiganense subspecies sepedonicum* [VP] (Spieckermann and Kotthoff 1914) Carlson and Vidaver 1982 <- *Corynebacterium sepedonicum* (basonym) -> *Clavibacter michiganensis subspecies sepedonicus* - C-1 | ATCC 33113 | CFBP 2049 | DSM 20744 | ICMP 2535 | ICPB CS101 | LMG 2889, U09764 | NCPPB 2137

†*Corynebacterium michiganense subspecies tessellarius* [VP] Carlson and Vidaver 1982 -> *Clavibacter michiganensis subspecies tessellarius* - 78181 | ATCC 33566, U30254, Clv.mich10 | ATCC 33566, U96181, Clv.mich13 | DSM 20741 | ICMP 7221 | PDDCC 7221

Corynebacterium minutissimum [VP] Collins and Jones 1983 - ATCC 23348 | DSM 20651 | IMET 11144 | NCTC 10288, X82064, Cor.minsi3 | NCTC 10288, X84678, Cor.minsim | NCTC 10288, X84679, Cor.minsi2

Corynebacterium mooreparkense [VP] Brennan et al. 2001 [425] - DPC 5298 | LMG S-19265 | NCIMB 30131

Corynebacterium mucifaciens [VP] Funke et al. 1997 - CCUG 36878 | CIP 105129 | CIP 55.51, X82066, Cor.mycet2 | DMMZ 2278, Y11200, Cor.mucifa | DSM 44265

Corynebacterium mycetoides [VP] Collins 1983 - ATCC 43995 | DSM 20632 | NCTC 9864, X84241, Cor.mycetd

†*Corynebacterium nebraskense* [AL] Vidaver and Mandel 1974 -> *Corynebacterium michiganense subspecies nebraskense* - II296 | ATCC 27794 | CFBP 2405 | DSM 7483, X77434, Clv.michgn | ICMP 3298 | LMG 3700 | LMG 5627, U09763, Clv.michg9 | NCPPB 2581

†*Corynebacterium oortii* [AL] Saaltink and Maas Geesteranus 1969 -> *Corynebacterium flaccumfaciens subspecies oortii* - ATCC 25283

†*Corynebacterium paurometabolum* [AL] Steinhaus 1941 = *Rhodococcus aurantiacus* (later heterotypic synonym) -> *Tsukamurella paurometabola* - ATCC 8368 | DSM 20162, X53206, Tsu.pauro2 | NBRC 16083 | IMET 11082 | IMET 7373

Corynebacterium phocae [VP] Pascual et al. 1998 - M408/89/1, Y10076 | CCUG 38205

Corynebacterium pilosum [AL] Yanagawa and Honda 1978 - 46 | ATCC 29592, D37915, Cor.pilosm | ATCC 29592, X81908, Cor.pilos3 | DSM 20521 | IMET 11382

[425] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

†*Corynebacterium poinsettiae* [AL] (Starr and Pirone 1942) Burkholder 1948 -> *Corynebacterium flaccumfaciens subspecies poinsettiae* - ATCC 9682 | IMET 10506

Corynebacterium propinquum [VP] Riegel et al. 1994 - B 77159 | ATCC 51488 | CCUG 33048 | CIP 103792, X81917, Cor.propnq | CIP 103792, X84438, Cor.propn2 | DSM 44285

Corynebacterium pseudodiphtheriticum [AL] Lehmann and Neumann 1896 - 153 | ATCC 10700 | ATCC 7091 | CCUG 27539 | CIP 103420, X81918, Cor.psdpht | DSM 44287 | NBRC 15362 | NCTC 11136

Corynebacterium pseudotuberculosis [AL] (Buchanan 1911) Eberson 1918 - ATCC 19410, D38579, Cor.pstub4 | CCUG 2806 | CIP 102968, X81916, Cor.pstub5 | DSM 20689 | NCTC 3450, X84255, Cor.pstub6

†*Corynebacterium pyogenes* [AL] (Glage 1903) Eberson 1918 -> *Actinomyces pyogenes* - 84 | C-100 | ATCC 19411, M29552, Abc.pyogen | DSM 20630 | NCTC 5224, X79225, Abc.pyoge3

†*Corynebacterium rathayi* [AL] (Smith 1913) Dowson 1942 -> *Clavibacter rathayi* - CE4 | CFBP 2406 | DSM 7485, X77439, Rtb.rathay | ICMP 2574 | JCM 9307, D45062, Rtb.ratha2 | VKM Ac-1601

Corynebacterium renale [AL] (Migula 1900) Ernst 1906 - ATCC 19412, M29553, Cor.renale | CIP 103421, X81909, Cor.renal7 | CIP 103421, X84249, Cor.renal6 | DSM 20688 | IMET 11147 | NCTC 7448

Corynebacterium riegelii [VP] Funke et al. 1998 - CCUG 38180 | CIP 105310 | DMMZ 2415 | DMMZ 2415, Y14651, Cor.riegel | DSM 44326

Corynebacterium seminale [VP] Riegel et al. 1996 - IBS B12915 | CCUG 34780 | CCUG 34888 | CIP 104297, X84375, Cor.seminl | DSM 44288

†*Corynebacterium sepedonicum* [AL] (Spieckermann and Kotthoff 1914) Skaptason and Burkholder 1942 -> *Corynebacterium michiganense subspecies sepedonicum* - C-1 | ATCC 33113 | CFBP 2049 | DSM 20744 | ICMP 2535 | ICPB CS101 | LMG 2889, U09764, Clv.michg8 | NCPPB 2137

Corynebacterium simulans [VP] Wattiau et al. 2000 - Co 553 | UCL 553, AJ012837 | DSM 44415

Corynebacterium singulare [VP] Riegel et al. 1997 - IBS B52218, Y10999, Cor.singul | CCUG 37330 | CIP 105491 | DSM 44357 | NBRC 16162

Corynebacterium sphenisci [VP] Goyache et al. 2003 - CCUG 46398 | CECT 5990, AJ440964

Corynebacterium spheniscorum [VP] Goyache et al. 2003 - PG39 | CCUG 45512, AJ429234 | CECT 5986

Corynebacterium striatum [AL] (Chester 1901) Eberson 1918 - ATCC 6940 | CIP 81.15, X81910, Cor.striat | DSM 20668 | NCTC 764, X84442, Cor.stria2

Corynebacterium sundsvallense [VP] Collins et al. 1999 - CCUG 36622, Y09655, Cor.sundsv

Corynebacterium terpenotabidum [VP] Takeuchi et al. 1999 - Y-11 | NBRC 14764, AB004730

Corynebacterium testudinoris [VP] Collins et al. 2001 - M935/96/4 | CCUG 41823, AJ295841 | CIP 106763

Corynebacterium thomssenii [VP] Zimmermann et al. 1998 - Tho 218/95 | DSM 44276

†*Corynebacterium tritici* [VP] (ex Hutchinson) Carlson and Vidaver 1982 -> *Clavibacter tritici* - CT102 | ATCC 11403 | DSM 7486, X77438, Rtb.tritic | ICMP 2626 | NCPPB 1857 | VKM Ac-1603

Corynebacterium ulcerans [VP] Riegel et al. 1995 - ATCC 51799 | CCUG 2708, X81911, Cor.ulcern | DSM 46325 | IMET 11148 | NCTC 7910, X84256, Cor.ulcer2

Corynebacterium urealyticum [VP] Pitcher et al. 1992 – ATCC 43042, X81913, Cor.urealy | DSM 7109, X84439, Cor.ureal2 | NCTC 12011

Corynebacterium variabile [VP] (Müller 1961) Collins 1987 <- *Arthrobacter variabilis* (basonym) = *Caseobacter polymorphus* (later heterotypic synonym) – FK 31 | ATCC 15753 | CCM 1565 | DSM 20132, AJ222815 | IMET 10350 | NCDO 2097, X53185, Cor.variab | NCIB 9455

Corynebacterium vitaeruminis [VP] (Bechdel et al. 1928) Lanéelle et al. 1980 <- *Brevibacterium vitarumen* (basonym) – ATCC 10234 | DSM 20294 | IMET 11372 | NCIB 9291

Corynebacterium xerosis [AL] Lehmann and Neumann 1899 – ATCC 373, X81914, Cor.xeros4 | DSM 20743, X84446, Cor.xeros5

Family II. *Dietziaceae* [VP]

Genus I. Dietzia [VP (T)]

Dietzia maris [VP (T)] (Nesterenko et al. 1982) Rainey et al. 1995 <- *Rhodococcus maris* (basonym) – AUCNM A-593 | ATCC 35013, X81920, Dz.maris3 | CIP 104188 | DSM 43672, X79290, Dz.maris2 | NBRC 15801 | IMET 7760 | IMV 195 | JCM 6166 | VKM Ac-593

Dietzia natronolimnaea [VP] Duckworth et al. 1999 – 15LN1, X92157 | CBS 107.95

Dietzia psychralcaliphila [VP] Yumoto et al. 2002 – ILA-1, AB049630 | IAM 14896 | JCM 10987 | NCIMB 13777

Family III. *Gordoniaceae* [VP]

Genus I. Gordonia [VP (T)]

Gordonia bronchialis [VP (T)] (Tsukamura 1971) Stackebrandt et al. 1989 <- *Rhodococcus bronchialis* (basonym) – Tsukamura 3410 | ATCC 25592 | CIP 100847 | DSM 43247, X79287, Grd.bronc2 | IMET 7370 | JCM 3198 | KCC A-0198 | NCTC 10667, X75903, Grd.bronc3

Gordonia aichiensis [VP] (Tsukamura 1983) Klatte et al. 1994 <- *Rhodococcus aichiensis* (basonym) – 62001 | E 9028 | N934 | ATCC 33611, X81925, Grd.aichi2 | DSM 43978, X80633, Grd.aichie | IMET 7752 | JCM 6046

Gordonia alkanivorans [VP] Kummer et al. 1999 – DSM 44369, Y18054 | HKI 0136

Gordonia amarae [VP] (Lechevalier and Lechevalier 1974) Klatte et al. 1994 <- *Nocardia amarae* (basonym) – Se6 | ATCC 27808, X80601, Grd.amara3 | CCM 2753 | CIP 104501 | DSM 43376 | DSM 43392, X80635, Grd.amarae | DSM 43587 | IMET 7518 | IMRU 3960 | JCM 3171 | KCC A-0171 | NCIB 11222

Gordonia amicalis [VP] Kim et al. 2000 – IEGM, AF101418 | DSM 44461 | KCTC 9899

Gordonia desulfuricans [VP] Kim et al. 1999 – 213E, AF101416 | NCIMB 40816

Gordonia hirsuta [VP] Klatte et al. 1996 – K718a | DSM 44140, X93485, Grd.hyphob | DSM 44140, X93485, Grd.hirsut

Gordonia hydrophobica [VP] Bendinger et al. 1995 – 1610/1b | DSM 44015, X87340 | CIP 104672 | NBRC 16057

Gordonia namibiensis [VP] Brandao et al. 2002 – NAM-BN063A, AF380930 | DSM 44568 | NCIMB 13780

Gordonia nitida [VP] Yoon et al. 2000 – LE31, AF148947 | KCTC 0605BP | KCCM 80004

Gordonia polyisoprenivorans [VP] Linos et al. 1999 – Kd2, Y18310 | DSM 44302

Gordonia rhizosphera [VP] Takeuchi and Hatano 1998 – 141 | NBRC 16068

Gordonia rubripertincta [VP] (Hefferan 1904) Stackebrandt et al. 1989 <- *Rhodococcus rubropertinctus* (basonym) – 154 | ATCC 14352,

X81915, Grd.rubpe2 | DSM 43197, X80632, Grd.rubper | JCM 3204 | KCC A-0204 | NCIB 9664

Gordonia sputi [VP] (Tsukamura 1978) Stackebrandt et al. 1989 emend. Riegel et al. 1994 <- *Rhodococcus sputi* (basonym) = *Rhodococcus chubuensis* (later heterotypic synonym) - Nagura 8539 | ATCC 29627, X81923, Grd.sputi2 | CIP 100849 | DSM 43896, X80634, Grd.sputi | IMET 7569 | JCM 3228 | KCC A-0228

Gordonia terrae [VP] (Tsukamura 1971) Stackebrandt et al. 1989 <- *Rhodococcus terrae* (basonym) - ATCC 25594, X81922, Grd.terra3 | DSM 43249, X53202, Grd.terrae | DSM 43249, X79286, Grd.terra2 | IMET 7371 | NCTC 10669

Gordonia westfalica [VP] Linos et al. 2002 - Kb2, AJ312907 | DSM 44215 | NRRL B-24152

Genus II. Skermania [VP]

Skermania piniformis [VP (T)] (Blackall et al. 1989) Chun et al. 1997 <- *Nocardia pinensis* (basonym) - DSM 43998 | NBRC 15059, Z35435, Sk.pinifrm | UQM 3063

Family IV. *Mycobacteriaceae* [AL]

Genus I. Mycobacterium [AL (T)]

Mycobacterium tuberculosis subspecies tuberculosis [AL (T)] (Zopf 1883) Lehmann and Neumann 1896 - H37Rv, X55588, Myb.tuber3 | ATCC 27294

†*Mycobacterium tuberculosis subspecies caprae* [VP] Aranaz et al. 1999 -> *Mycobacterium bovis subspecies caprae* - gM-1, AJ131120 | CIP 105776

Mycobacterium abscessus [VP] (Moore and Frerichs 1953) Kusunoki and Ezaki 1992 <- *Mycobacterium chelonae subspecies abscessus* (basonym) - ATCC 19977, X82235, Myb.absces | DSM 43491

Mycobacterium africanum [AL] Castets et al. 1969 - ATCC 25420

Mycobacterium agri [VP] Tsukamura 1981 - 6214 | 90012 | ATCC 27406 | CIP 1320001 | DSM 44218 | JCM 6377

Mycobacterium aichiense [VP] Tsukamura 1981 - 5545 | 49005 | ATCC 27280, X55598, Myb.aichie | DSM 44147 | JCM 6376 | NCTC 10820

Mycobacterium alvei [VP] Ausina et al. 1992 - CR-21 | CIP 103464, AF023664, Myb.alvei1 | DSM 44176

Mycobacterium asiaticum [AL] Weiszfeiler et al. 1971 - 3056 | ATCC 25276, X55604, Myb.asiat2 | CCUG 29115 | DSM 44297

Mycobacterium aurum [AL] Tsukamura 1966 - 358 | ATCC 23366, M29558, Myb.aurum | ATCC 23366, X55595, Myb.aurum2 | DSM 43999 | JCM 6366 | NCTC 10437

Mycobacterium austroafricanum [VP] Tsukamura et al. 1983 - E9789-SA12441 | ATCC 33464, X93182, Myb.ausafr | DSM 44191 | JCM 6369

Mycobacterium avium subspecies avium [AL] Chester 1901 emend. Thorel et al. 1990 - SSC 1336 | ATCC 25291 | DSM 44156 | TMC 724

Mycobacterium avium subspecies paratuberculosis [VP] (Bergey et al. 1923) Thorel et al. 1990 <- *Mycobacterium paratuberculosis* (basonym) - 5617 | ATCC 19698, X52934, Myb.aviumT | DSM 44133 | TMC 807

Mycobacterium avium subspecies silvaticum [VP] Thorel et al. 1990 - 6409 | CIP 103317 | DSM 44175

Mycobacterium bohemicum [VP] Reischl et al. 1998 - 2938-X86 | DSM 44277

Mycobacterium botiense [VP] Torkko et al. 2000 - E347, AJ012756 | ATCC 700701

Mycobacterium bovis subspecies bovis [AL] Karlson and Lessel 1970 - ATCC 19210[426]

Mycobacterium bovis subspecies caprae [VP] (Aranaz et al. 1999) Niemann et al. 2002 [427] <- *Mycobacterium tuberculosis caprae* (basonym) - gM-1, AJ131120 | CIP 105776

Mycobacterium branderi [VP] Koukila-Kähkölä et al. 1995 - 52157, X82234, Myb.brandr | ATCC 51789

Mycobacterium brumae [VP] Luquin et al. 1993 - CR-270 | ATCC 51384 | CIP 103465 | DSM 44177

Mycobacterium celatum [VP] Butler et al. 1993 - ATCC 51131, L08169, Myb.celatm | CDC 89-0899 | DSM 44243

Mycobacterium chelonae subspecies chelonae [AL] (Bergey et al. 1923) Kubica et al. 1972 - ATCC 35752, X82236, Myb.chelo6 | DSM 43804 | IMET 10609 | JCM 6388 | NCTC 946 | TMC 1544

†*Mycobacterium chelonae subspecies abscessus* [VP] (Moore and Frerichs 1953) Kubica et al. 1972 -> *Mycobacterium abscessus* - ATCC 19977, X82235, Myb.absces | DSM 43491

Mycobacterium chitae [AL] Tsukamura 1967 - ATCC 19627, M29560, Myb.chitae | ATCC 19627, X55603, Myb.chita2 | ATCC 19627, X67874, Myb.chita3

Mycobacterium chlorophenolicum [VP] (Apajalahti et al. 1986) Häggblom et al. 1994 <- *Rhodococcus chlorophenolicus* (basonym) - PCP-1, X79094, Myb.chlphe | ATCC 49826 | DSM 43826, X79292, Myb.chlph2 | JCM 7439 | NCIMB 123325, X81926, Myb.chlph3 | NRRL B-16528

Mycobacterium chubuense [VP] Tsukamura 1981 - 5517 | 48013 | OI-CHU | ATCC 27278, X55596, Myb.chuben | DSM 44219 | JCM 6374 | NCTC 10819

Mycobacterium confluentis [VP] Kirschner et al. 1992 - 1389/90 | ATCC 49920 | DSM 44017

Mycobacterium conspicuum [VP] Springer et al. 1996 - E100 | E27 | 3895/92 | CIP 105165 | DSM 44136

Mycobacterium cookii [VP] Kazda et al. 1990 - NZ2, X53896, Myb.cookii | ATCC 49103, X53896, Myb.cookii | DSM 43922

Mycobacterium diernhoferi [VP] Tsukamura et al. 1983 - 41001 | ATCC 19340, X55593, Myb.diernh | DSM 43524 | JCM 6371

Mycobacterium doricum [VP] Tortoli et al. 2001 - FI-13295, AF264700 | CIP 106867 | DSM 44339

Mycobacterium duvalii [AL] Stanford and Gunthorpe 1971 - C-63 | ATCC 43910, U94745, Myb.duvali | DSM 44244 | NCTC 358

Mycobacterium elephantis [VP] Shojaei et al. 2000 - 484, AJ010747 | DSM 44368

Mycobacterium fallax [VP] Levy-Frebault et al. 1983 - ATCC 35219, M29562, Myb.fallax | CIP 8139 | DSM 44179

Mycobacterium farcinogenes [AL] Chamoiseau 1973 - GA 923 | M 262 | N168 | ATCC 35753, AF055333, Myb.farci2 | CCM 6181 | DSM 43637 | NCTC 10955

Mycobacterium flavescens [AL] Bojalil et al. 1962 - SN 1900 | ATCC 14474, M29561, Myb.flaves | ATCC 14474, X52932, Myb.flave2 | DSM 43219

[426] This subspecies was automatically created under Rule 40d (formerly Rule 46, IJSEM 50: 2239–2244)

[427] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Mycobacterium fortuitum subspecies fortuitum [AL] da Costa Cruz 1938 - ATCC 6841, X52933, Myb.fortui | DSM 46621 | IMET 10605 | NCTC 10394 | TMC 1529

Mycobacterium fortuitum subspecies acetamidolyticum [VP] Tsukamura et al. 1986 - ATCC 35931 | DSM 44220 | JCM 6368 | NCH E11620

Mycobacterium frederiksbergense [VP] Willumsen et al. 2001 - FAn9 | DSM 44346, AJ276274 | NRRL B-24126

Mycobacterium gadium [AL] Casal and Calero 1974 - ATCC 27726, M61663, Myb.gadium | ATCC 27726, X55594, Myb.gadiu2 | DSM 44077

Mycobacterium gastri [AL] Wayne 1966 - W-417 | ATCC 15754, X52919, Myb.gastri | ATCC 15980 | DSM 43505 | IMET 10662 | TMC 1456

Mycobacterium genavense [VP] Böttger et al. 1993 - 2289 | ATCC 51234

Mycobacterium gilvum [AL] Stanford and Gunthorpe 1971 - SM 35 | ATCC 43909, X55599, Myb.gilvum | ATCC 43909, X81996, Myb.gilvu2 | DSM 44245 | JCM 6395 | NCTC 10742

Mycobacterium goodii [VP] Brown et al. 1999 - MO69, Y12872 | ATCC 700504

Mycobacterium gordonae [VP] Bojalil et al. 1962 - P-15 | W-1609 | ATCC 14470, M29563, Myb.gordon | ATCC 14470, X52923, Myb.gordo2 | DSM 44160 | JCM 6382 | NCTC 10267 | TMC 1324

Mycobacterium haemophilum [AL] Sompolinsky et al. 1978 - ATCC 29548

Mycobacterium hassiacum [VP] Schröder et al. 1997 - 3849 | DSM 44199

Mycobacterium heckeshornense [VP] Roth et al. 2001 [428] - S369, AF174290 | DSM 44428

Mycobacterium heidelbergense [VP] Haas et al. 1998 - 2554/91, AJ000684, Myb.hdlbrg | ATCC 51253

Mycobacterium hiberniae [VP] Kazda et al. 1993 - Hi 11 | IR 103 | ATCC 49874, X67096, Myb.hibern | DSM 44241

Mycobacterium hodleri [VP] Kleespies et al. 1996 - EMI2 | CIP 104909 | DSM 44183, X93184, Myb.hodler

Mycobacterium holsaticum [VP] Richter et al. 2002 - 1406, AJ310467 | CCUG 46267 | DSM 44478

Mycobacterium immunogenum [VP] Wilson et al. 2001 - BH29 | MC 779 | ATCC 700505[429] | CIP 106684

Mycobacterium interjectum [VP] Springer et al. 1995 - 4185/92 | ATCC 51457 | DSM 44064

Mycobacterium intermedium [VP] Meier et al. 1993 - 1669/91 | ATCC 51848 | CIP 104542 | DSM 44049

Mycobacterium intracellulare [AL] (Cuttino and McCabe 1949) Runyon 1965 - 3600 | SN 424 | ATCC 13950 | ATCC 15985, X52927, Myb.intcel | DSM 43223 | JCM 6384 | NCTC 10682

Mycobacterium kansasii [AL] Hauduroy 1955 - G 133 | ATCC 12478, M29575, Myb.kansas | DSM 44162 | JCM 6379 | TMC 1204

Mycobacterium komossense [AL] Kazda and Müller 1979 - Ko 2 | ATCC 33013, X55591, Myb.komoss | DSM 44078

Mycobacterium kubicae [VP] Floyd et al. 2000 - ATCC 700732 | CDC 941078, AF133902 | CIP 106428

Mycobacterium lacus [VP] Turenne et al. 2002 - ATCC BAA-323 | DSM 44577 | NRCM 00-225, AF406783

Mycobacterium lentiflavum [VP] Springer et al. 1996 - 2186/92, X80769, Myb.lenfla | ATCC 51985 | DSM 44195

[428] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[429] GenBank accession number for ATCC 700505 reported as bankit378724.

Mycobacterium leprae [AL] (Hansen 1880) Lehmann and Neumann 1896 , X53999, Myb.leprae, X55022, Myb.lepra2, X55587, Myb.lepra3
Mycobacterium lepraemurium [AL] Marchoux and Sorel 1912
Mycobacterium madagascariense [VP] Kazda et al. 1992 - P2 | ATCC 4986
Mycobacterium mageritense [VP] Domenech et al. 1997 - 938 | CIP 104973
Mycobacterium malmoense [AL] Schröder and Juhlin 1977 - Mo 816 | ATCC 29571, M61666, Myb.malmo1 | ATCC 29571, X52930, Myb.malmo2 | DSM 44163 | TMC 802
Mycobacterium marinum [AL] Aronson 1926 - ATCC 927 | DSM 43225 | NCTC 2275
Mycobacterium microti [AL] Reed 1957 - DSM 44155 | NCTC 8710
Mycobacterium moriokaense [VP] Tsukamura et al. 1986 - 48504 | ATCC 43059 | DSM 44221 | JCM 6375 | NCH E11715
Mycobacterium mucogenicum [VP] Springer et al. 1995 - ATCC 49650, X80771, Myb.mucogn
Mycobacterium murale [VP] Vuorio et al. 1999 - MA112/96 | DSM 44340
Mycobacterium neoaurum [AL] Tsukamura 1972 - 3503 | ATCC 25795, M29564, Myb.neoaur | DSM 44074 | JCM 6365 | NCTC 10818
Mycobacterium nonchromogenicum [AL] Tsukamura 1965 - 317 | ATCC 19530, M29565, Myb.nonchr | ATCC 19530, X52928, Myb.nonch2 | ATCC 23067 | DSM 44164 | JCM 6364 | NCTC 10424 | TMC 1481
Mycobacterium novocastrense [VP] Shojaei et al. 1997 - 73, U96747, Myb.novcas | DSM 44203
Mycobacterium obuense [VP] (Tsukamura and Mizuno 1971) Tsukamura and Mizuno 1981 - 4388 | 47001 | ATCC 27023, X55597, Myb.obuens | DSM 44075 | JCM 6372 | NCTC 10778
Mycobacterium palustre [VP] Torkko et al. 2002 - E846, AJ308603 | ATCC BAA-377 | DSM 44572
Mycobacterium parafortuitum [AL] Tsukamura et al. 1965 - 311 | SN 1603 | ATCC 19686 | DSM 43528, X93183, Myb.pfortu | JCM 6387 | NCTC 10411
†*Mycobacterium paratuberculosis* [AL] Bergey et al. 1923 -> *Mycobacterium avium subspecies paratuberculosis* - ATCC 19698, X52934, Myb.aviumT | DSM 44133
Mycobacterium peregrinum [VP] Kusunoki and Ezaki 1992 - Schering 206 | ATCC 14467 | ATCC 23023, AF058712, Myb.peregr | DSM 43271 | IMET 10608 | NCTC 10264, AF058712, Myb.peregr
Mycobacterium phlei [AL] Lehmann and Neumann 1899 - ATCC 11758, M29566, Myb.phlei | ATCC 19249 | DSM 43239 | NCTC 8151
Mycobacterium porcinum [VP] Tsukamura et al. 1983 - E10241-1 | ATCC 33776 | DSM 44242 | JCM 6378
Mycobacterium poriferae [VP] Padgitt and Moshier 1987 - 47 | ATCC 35087
Mycobacterium pulveris [VP] Tsukamura et al. 1983 - ATCC 35154 | CIP 1480001 | DSM 44222 | JCM 6370 | NCH 33505
Mycobacterium rhodesiae [VP] Tsukamura 1981 - 2002 | OI-RHO | JCM 6363 | ATCC 27024 | DSM 44223 | NCTC 10779
Mycobacterium scrofulaceum [AL] Prissick and Masson 1956 - 12238 | ATCC 19981, X52924, Myb.scrofu | DSM 43992 | JCM 6381 | NCTC 10803 | TMC 1323
Mycobacterium senegalense [AL] (Chamoiseau 1973) Chamoiseau 1979 - GA 924 | M 263 | N169 | ATCC 35796, M29567, Myb.senega | DSM 43656 | IMET 7381 | NCTC 10956 | TMC 806
Mycobacterium septicum [VP] Schinsky et al. 2000 - W4964, AF111809 | ATCC 700731 | DSM 44393

Mycobacterium shimoidei [VP] Tsukamura 1982 - E4796 | N 29 | ATCC 27962, X82459, Myb.shimo2 | DSM 44152

Mycobacterium shottsii [VP] Rhodes et al. 2003 - M175, AY005147 | ATCC 700981 | NCTC 13215

Mycobacterium simiae [AL] Karassova et al. 1965 - 3015 | ATCC 25275, X52931, Myb.simiae | DSM 44165 | TMC 1226

Mycobacterium smegmatis [AL] (Trevisan 1889) Lehmann and Neumann 1899 - GA 735 | ATCC 19420, AJ131761, Myb.smegm2 | DSM 43756 | JCM 5866 | KCTC 9108 | NCTC 8159

Mycobacterium sphagni [VP] Kazda 1980 - Sph 38 | ATCC 33027 | DSM 44076

Mycobacterium szulgai [AL] Marks et al. 1972 - 25932 | ATCC 35799, M61665, Myb.szulg2 | ATCC 35799, X52926, Myb.szulga | DSM 44166 | JCM 6383 | NCTC 10831 | PCM 1876 | TMC 1328

Mycobacterium terrae [AL] Wayne 1966 - F 628 | SN 2700 | W45 | ATCC 15755, M29568, Myb.terra1 | ATCC 15755, X52925, Myb.terra2 | DSM 43227

Mycobacterium thermoresistibile [AL] Tsukamura 1966 - 316 | ATCC 19527, M29570, Myb.thermo | DSM 44167 | JCM 6392 | NCTC 10409

Mycobacterium tokaiense [VP] Tsukamura 1981 - 5553 | 47503 | ATCC 27282 | NCTC 10821

Mycobacterium triplex [VP] Floyd et al. 1997 - 90-1019 | ATCC 700071

Mycobacterium triviale [AL] Kubica 1970 - T-255-3 | ATCC 23292, M29571, Myb.trivia | ATCC 23292, X88924, Myb.trivi2 | DSM 44153 | TMC 1453

Mycobacterium tusciae [VP] Tortoli et al. 1999 - FI-25796, AF058299 | DSM 44338

Mycobacterium ulcerans [AL] MacCallum et al. 1950 - ATCC 19423 | DSM 44154

Mycobacterium vaccae [AL] Bönicke and Juhasz 1964 - SN 920 | ATCC 15483, X55601, Myb.vaccae | DSM 43292 | NCIB 9937

Mycobacterium vanbaalenii [VP] Khan et al. 2002 - PYR-1, X84977 | DSM 7251 | NRRL B-24157

Mycobacterium wolinskyi [VP] Brown et al. 1999 - MO739, Y12873 | ATCC 700010

Mycobacterium xenopi [AL] Schwabacher 1959 - ATCC 19250, M61664, Myb.xenop1 | ATCC 19250, X52929, Myb.xenop3 | ATCC 19250, X53895, Myb.xenop2 | DSM 43995 | NCTC 10042 | TMC 1482

Family V. *Nocardiaceae* [AL]

Genus I. Nocardia [AL (T)]

Nocardia asteroides [AL (T)] (Eppinger 1891) Blanchard 1896 - GA 875 | M 170-6 | PSA 165 | ATCC 19247, X84850, Noc.aster6 | ATCC 19247, Z36934, Noc.aster2 | CCM 2754 | DSM 43373 | DSM 43757, X80606, Noc.aster4 | IMET 7547 | JCM 3384 | NCTC 11293

Nocardia abscessus [VP] Yassin et al. 2000 - IMMIB D-1592, AF218292 | DSM 44432

Nocardia africana [VP] Hamid et al. 2001 - SD769, AF277198 | DSM 44491 | NCTC 13181

†*Nocardia amarae* [AL] Lechevalier and Lechevalier 1974 -> *Gordonia amarae* - Se6 | ATCC 27808, X80601, Grd.amara3 | CCM 2753 | CIP 104501 | DSM 43376 | DSM 43392, X80635, Grd.amarae | DSM 43587 | IMET 7518 | IMRU 3960 | JCM 3171 | KCC A-0171 | NCIB 11222

†*Nocardia autotrophica* [AL] (Takamiya and Tubaki 1956) Hirsch 1961 -> *Amycolata autotrophica* - 394 | ATCC 19727 | CBS 466.68 | DSM 40011 | DSM 43210, X54288, Psc.autotr | DSM 535 | NBRC 12743 | IMET 7646 | ISP 5011 | KCC S-0348 | RIA 1008

Nocardia beijingensis [VP] Wang et al. 2001 – 02 | AS4.1521, AF154129 | NBRC 16342 | JCM 10666

Nocardia brasiliensis [AL] (Lindenberg 1909) Pinoy 1913 – GA 876 | ATCC 19296, X80591, Noc.brasi2 | ATCC 19296, Z36935, Noc.brasil | CBS 330.54 | DSM 43758, X80608, Noc.brasi3 | NBRC 14402 | JCM 3374 | NCTC 11294

Nocardia brevicatena [VP] (Lechevalier et al. 1961) Goodfellow and Pirouz 1982 <- *Micropolyspora brevicatena* (basonym) – ATCC 15333, X80600, Noc.brevi2 | DSM 43024, Z36928, Noc.brevic | NBRC 12119 | IMET 9542 | IMRU 1086W | KCC A-0029 | RIA 709

Nocardia caishijiensis [VP] Zhang et al. 2003 – F829, AF459443 | AS 4.1728 | JCM 11508

†*Nocardia calcarea* [AL] Metcalf and Brown 1957 = *Rhodococcus erythropolis* (earlier heterotypic synonym) – ATCC 19369 | CBS 613.67 | CCM 2597 | DSM 43188, X80618, Rco.eryth4 | NCIB 8863

Nocardia carnea [AL] (Rossi Doria 1891) Castellani and Chalmers 1913 – ATCC 6847, X80602, Noc.carne2 | DSM 43397, X80607, Noc.carne3 | DSM 43397, Z36929, Noc.carnea | DSM 43580 | IMET 7504 | IMRU 3419 | NCTC 3527

†*Nocardia cellulans* [AL] Metcalf and Brown 1957 -> *Cellulomonas cellulans* – ATCC 12830 | DSM 43189 | DSM 43879, X79455, Cllm.cllu2 | DSM 43879, X83809, Cllm.cllul | IMET 7404 | NCIB 8868

Nocardia cerradoensis [VP] Albuquerque de Barros et al. 2003 – VC5, AF060790 | CCT 5601 | DSM 44546 | Y9

Nocardia coeliaca [AL] (Gray and Thornton 1928) Waksman and Henrici 1948 – ATCC 17041

Nocardia corynebacterioides [AL] Serrano et al. 1972 – ATCC 14898 | DSM 20151, X80615, Noc.corbac | IMET 7767 | NCIB 9433 | NCTC 10391 | NRRL B-24037

Nocardia crassostreae [VP] Friedman et al. 1998 – NB4H, Z37989, Noc.crasso | ATCC 700418

Nocardia cummidelens [VP] Maldonado et al. 2001 – R89, AF277202[430] | DSM 44490 | NCIMB 13758

Nocardia cyriacigeorgica [VP] Yassin et al. 2001 [431] – DSM 44484 | IMMIB D-1627, AF282889

Nocardia farcinica [AL] Trevisan 1889 – GA 919 | M 258 | N 164 | ATCC 3318, X80595, Noc.farci2 | ATCC 3318, Z36936, Noc.farcin | DSM 43257 | DSM 43578 | DSM 43665, X80610, Noc.farci5 | IMET 7377 | IMRU 3318 | NCIB 12058 | NCTC 11134

Nocardia flavorosea [VP] Chun et al. 1998 – JCM 3332, Z46754 | NRRL B-16176

Nocardia fluminea [VP] Maldonado et al. 2001 – S1, AF277204[432] | DSM 44489 | NCIMB 13759

Nocardia globerula [AL] (Gray 1928) Waksman and Henrici 1948 – ATCC 19370

†*Nocardia hydrocarbonoxydans* [AL] Nolof and Hirsch 1962 -> *Amycolata hydrocarbonoxydans* – Schering 228 | ATCC 15104 | DSM 43281, X76955, Psc.hcarbo | IMET 7645 | NCIB 9436

Nocardia ignorata [VP] Yassin et al. 2001 – DSM 44496 | IMMIB R-1434, AJ303008 | NRRL B-24141

[430] Genbank accession number reported incorrectly in IJSEM. Strain designation reported incorrectly in GenBank.

[431] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[432] Genbank accession number reported incorrectly in IJSEM. Strain designation reported incorrectly in GenBank.

†*Nocardia mediterranei* [AL] (Margalith and Beretta 1960) Thiemann et al. 1969 -> *Amycolatopsis mediterranei* - 368 | ME 83/973 | PSA 71 | Schering 368 | ATCC 13685, X76957, Amy.medter | CBS 121.63 | CBS 716.72 | DSM 40501 | DSM 43304 | NBRC 13415 | IMET 7651 | ISP 5501 | JCM 4789 | KCC S-0789 | LBG A 3136 | NCIB 9613 | NRRL B-3240 | RIA 1376 | VKM Ac-798

Nocardia nova [VP] Tsukamura 1983 - R.E. Gordon R443 | Tsukamura 23095 | ATCC 33726, X80593, Noc.nova2 | JCM 6044, Z36930, Noc.nova

†*Nocardia orientalis* [AL] (Pittenger and Brigham 1956) Pridham and Lyons 1969 -> *Amycolatopsis orientalis subspecies orientalis* - M 43-05865 | ATCC 19795 | CBS 547.68 | CCM 2778 | DSM 40040, X76958, Amy.orient | IAM 14281 | NBRC 12360 | NBRC 12806 | IMET 7510 | IMET 7653 | ISP 5040 | JCM 4235 | JCM 4600 | KCC S-0235 | KCC S-0600 | NRRL 2450 | RIA 1074

Nocardia otitidiscaviarum [AL] Snijders 1924 - ATCC 14629, X80599, Noc.otiti2 | DSM 43242, X80611, Noc.otiti3 | NCTC 1934

Nocardia paucivorans [VP] Yassin et al. 2000 - DSM 44386, AF179865 | IMMIB D-1632

†*Nocardia petroleophila* [AL] Hirsch and Engel 1956 -> *Pseudonocardia petroleophila* - 78 | ATCC 15777, X80596, Psc.petrol | DSM 43193 | DSM 655 | NBRC 14406 | IMET 7162 | JCM 3378 | JCM 3394 | NCIB 9438

†*Nocardia pinensis* [VP] Blackall et al. 1989 -> *Skermania piniformis* - DSM 43998 | NBRC 15059, Z35435, Sk.pinifrm | UQM 3063

Nocardia pseudobrasiliensis [VP] Ruimy et al. 1996 - ATCC 51512, X84857, Noc.psbra2 | CCUG 35436 | CIP 104600 | DSM 44290

Nocardia pseudovaccinii [VP] Kim et al. 2002 - AR 368 | 38366-20 | DSM 43406, AF430046 | NRRL B-24154

†*Nocardia restricta* [AL] (Turfitt 1944) McClung 1974 = *Rhodococcus equi* (earlier heterotypic synonym) - ATCC 14887 | ATCC 25716 | DSM 43199 | IMET 7279 | KCC A-0223 | NCIB 10027

Nocardia rugosa [VP] Goodfellow and Lechevalier 1988 = *Amycolatopsis rugosa* (homotypic synonym) - ATCC 43014 | IMET 7650 | IMRU 3760

Nocardia salmonicida [VP] Isik et al. 1999 - ATCC 27463 | CBS 694.72 | NBRC 13393 | ISP 5472 | JCM 4826, D44392, Noc.salmon | JCM 4826, Z46750, Noc.salmo2 | JCM 4826 | NRRL B-2778

†*Nocardia saturnea* [AL] Hirsch 1960 -> *Amycolata saturnea* - 71 | ATCC 15809 | DSM 43195, X76956, Psc.saturn | IMET 7647 | NCIB 9437

Nocardia seriolae [VP] Kudo et al. 1988 - NA 8191 | ATCC 43933, X80592, Noc.serio2 | DSM 44129 | JCM 3360, Z36925, Noc.seriol

Nocardia soli [VP] Maldonado et al. 2001 - W30, AF277223[433] | DSM 44488 | NCIMB 13760

Nocardia sulphurea [VP] Goodfellow and Lechevalier 1988 = *Amycolatopsis sulphurea* (homotypic synonym) - ATCC 27624 | DSM 46092, AF051343 | IMET 7649

Nocardia transvalensis [AL] Pijper and Pullinger 1927 - ATCC 6865, X80598, Noc.trnsv2 | DSM 43405, X80609, Noc.trnsv3 | DSM 43405, Z36926, Noc.trnsvl | DSM 43582 | NBRC 15921 | IMET 7500 | IMRU 3426 | NCTC 2392

Nocardia uniformis [VP] Isik et al. 1999 - JCM 3224, Z46752 | CBS 224.60 | DSM 43136 | NBRC 13702 | NCIB 963

Nocardia vaccinii [AL] Demaree and Smith 1952 - BG 19 | Schering 245 | ATCC 11092, X80597, Noc.vaccn2 | CBS 247.55 | DSM 43285, Z36927, Noc.vaccni | ICMP 5814 | NBRC 15922 | IMET 7503 | IMRU 3500 | NCPPB 954

[433] Genbank accession number reported incorrectly in IJSEM. Strain designation reported incorrectly in GenBank.

Nocardia veterana [VP] Gürtler et al. 2001 - M157222 | DSM 44445 | NRRL B-24136

Nocardia vinacea [VP] Kinoshita et al. 2002 [434] - MK703-102F1 | NBRC 16497 | JCM 10988

Genus II. Rhodococcus [AL]

Rhodococcus rhodochrous [AL (T)] (Zopf 1891) Tsukamura 1974 emend. Rainey et al. 1995 = *Rhodococcus roseus* (later heterotypic synonym) - 372 | ATCC 13808 | CIP 104376 | DSM 43241, X79288, Rco.rhodo2 | IMET 7374 | KCC A-0202 | LMG 5365 | NCIB 11147 | NCTC 10210

†*Rhodococcus aichiensis* [VP] Tsukamura 1983 -> *Gordonia aichiensis* - 62001 | E 9028 | N934 | ATCC 33611, X81925, Grd.aichi2 | DSM 43978, X80633, Grd.aichie | IMET 7752 | JCM 6046

†*Rhodococcus aurantiacus* [VP] (ex Tsukamura and Mizuno 1971) Tsukamura and Yano 1985 = *Corynebacterium paurometabolum* (earlier heterotypic synonym) - ATCC 25938 | IMET 7373

†*Rhodococcus bronchialis* [AL] (Tsukamura 1971) Tsukamura 1974 -> *Gordonia bronchialis* - Tsukamura 3410 | ATCC 25592 | CIP 100847 | DSM 43247, X79287, Grd.bronc2 | IMET 7370 | JCM 3198 | KCC A-0198 | NCTC 10667, X75903, Grd.bronc3

†*Rhodococcus chlorophenolicus* [VP] Apajalahti et al. 1986 -> *Mycobacterium chlorophenolicum* - PCP-1, X79094, Myb.chlphe | ATCC 49826 | DSM 43826, X79292, Myb.chlph2 | JCM 7439 | NCIMB 123325, X81926, Myb.chlph3 | NRRL B-16528

†*Rhodococcus chubuensis* [VP] Tsukamura 1983 = *Gordonia sputi* (earlier heterotypic synonym) - E 6324 | ATCC 33609 | DSM 44019, X80627, Grd.sputi5

Rhodococcus coprophilus [AL] Rowbotham and Cross 1979 - N 744 | ATCC 29080, X81928, Rco.coprp2 | CCUG 23572 | CUB 687 | DSM 43347, X80626, Rco.coprph | IMET 7375 | JCM 3200, U93340, Rco.coprp3 | NCIB 11211 | NCTC 10994

†*Rhodococcus corallinus* [AL] (Bergey et al. 1923) Goodfellow and Alderson 1977 = *Rhodococcus rubropertinctus* (earlier heterotypic synonym) - ATCC 25593 | CIP 100848 | DSM 43248 | IMET 7372 | NCTC 10668

Rhodococcus equi [AL] (Magnusson 1923) Goodfellow and Alderson 1977 = *Corynebacterium equi* (homotypic synonym) = *Nocardia restricta* (later heterotypic synonym) - ATCC 25729 | ATCC 6939 | CIP 1782.88, X80603, Rco.equi4 | DSM 20307, X80603, Rco.equi4 | DSM 20307, X80614, Rco.equi2 | NBRC 14956 | IMET 7467 | JCM 1311 | NCIB 12828 | NCTC 1621

Rhodococcus erythropolis [AL] (Gray and Thornton 1928) Goodfellow and Alderson 1979 = *Arthrobacter picolinophilus* (later heterotypic synonym) = *Nocardia calcarea* (later heterotypic synonym) - ATCC 25544 | ATCC 4277, X81929, Rco.eryth5 | CBS 266.39 | CCM 277 | CIP 104179 | DSM 43066, X79289, Rco.erthrs | DSM 763 | NBRC 15567 | IMET 7462 | JCM 3201 | NCIB 11148, X76691, Rco.eryth3 | NCIB 9158 | NRRL B-16025

Rhodococcus fascians [VP] (Tilford 1936) Goodfellow 1984 <- *Corynebacterium fascians* (basonym) = *Rhodococcus luteus* (later heterotypic synonym) - ATCC 12974, X81930, Rco.fasci3 | CIP 104713 | DSM 20669, X79186, Rco.fasci2 | NBRC 12155 | JCM 1316 | NCPPB 3067

Rhodococcus globerulus [VP] Goodfellow et al. 1985 - 544 | R58 | ATCC 25714 | DSM 43954 | DSM 43954, X80619, Rco.globe4 | IMET 7543 | NCIMB

[434] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

12315, U89713, Rco.globe5 | NCIMB 12315, X77779, Rco.glober | NCIMB 12315, X81931, Rco.globe3

Rhodococcus jostii [VP] Takeuchi et al. 2002 – CCM 4760 | NBRC 16295, AB046357

Rhodococcus koreensis [VP] Rhodococcus koreensis Yoon et al. 2000 – DNP505, AF124343 | DNP505, AF124342 | KCTC 0569BP

†*Rhodococcus luteus* [VP] Nesterenko et al. 1982 = *Rhodococcus fascians* (earlier heterotypic synonym) – AUCNM A-594 | ATCC 35014, X81932, Rco.fasci4 | DSM 43673, X79187, Rco.fasci5 | IMET 7761 | IMV 385 | JCM 6162 | VKM Ac-594

Rhodococcus maanshanensis [VP] Zhang et al. 2002 – M712, AF416566 | AS 4.1720 | JCM 11374

Rhodococcus marinonascens [VP] Helmke and Weyland 1984 – 3438 W | ATCC 35653 | DSM 43752, X80617, Rco.marna2 | NBRC 14363 | JCM 6241 | NCMB 2246

†*Rhodococcus maris* [VP] Nesterenko et al. 1982 -> *Dietzia maris* – AUCNM A-593 | ATCC 35013, X81920, Dz.maris3 | CIP 104188 | DSM 43672, X79290, Dz.maris2 | NBRC 15801 | IMET 7760 | IMV 195 | JCM 6166 | VKM Ac-593

Rhodococcus obuensis [VP] Tsukamura 1983 – E 8179 | ATCC 33610 | IMET 7753

Rhodococcus opacus [VP] Klatte et al. 1995 – 1B | ATCC 51881 | CIP 104549 | DSM 427 | DSM 43205, X80630, Rco.opacus

Rhodococcus percolatus [VP] Briglia et al. 1996 – MBS1, X92114, Rco.percol | LMAU R292 | CIP 104964 | DSM 44240 | HAMBI 1752

Rhodococcus pyridinivorans [VP] Yoon et al. 2000 – PDB9, AF173005 | KCTC 0647BP | KCCM 80005

Rhodococcus rhodnii [AL] Goodfellow and Alderson 1979 – N 445 | ATCC 35071, X81935, Rco.rhodn4 | DSM 43336, X80621, Rco.rhodni | KCC A-0203 | NCIB 11279

†*Rhodococcus roseus* [VP] Tsukamura et al. 1991 = *Rhodococcus rhodochrous* (earlier heterotypic synonym) – 212 | ATCC 271, X81921, Rco.rhodo3 | DSM 43274, X80624, Rco.rhodo5 | JCM 2156

Rhodococcus ruber [AL] (Kruse 1896) Goodfellow and Alderson 1977 – N361 | DSM 43338, X80625, Rco.ruber | NBRC 15591 | IMET 7477 | KCC A-0205

†*Rhodococcus rubropertinctus* [AL] (Hefferan 1904) Tsukamura 1974 = *Rhodococcus corallinus* (later heterotypic synonym) -> *Gordonia rubropertincta* – 154 | ATCC 14352, X81915, Grd.rubpe2 | DSM 43197, X80632, Grd.rubper | JCM 3204 | KCC A-0204 | NCIB 9664

†*Rhodococcus sputi* [VP] (ex Tsukamura 1978) Tsukamura and Yano 1985 -> *Gordonia sputi* – 3884 | Nagura 8539 | ATCC 29627, X81923, Grd.sputi2 | CIP 100849 | DSM 43896, X80634, Grd.sputi | IMET 7569 | JCM 3228 | KCC A-0228

†*Rhodococcus terrae* [AL] (Tsukamura 1971) Tsukamura 1974 -> *Gordonia terrae* – ATCC 25594, X81922, Grd.terra3 | DSM 43249, X53202, Grd.terrae | DSM 43249, X79286, Grd.terra2 | IMET 7371 | NCTC 10669

Rhodococcus wratislaviensis [VP] (Goodfellow et al. 1995) Goodfellow et al. 2002 <- *Tsukamurella wratislaviensis* (basonym) – N805 | NCIMB 13082, Z37138, Tsu.wrtslv | DSM 44107

Rhodococcus zopfii [VP] Stoecker et al. 1994 – T1 | ATCC 51349, X81934, Rco.zopfii | DSM 44108

Family VI. *Tsukamurellaceae* [VP]

Genus I. Tsukamurella [VP (T)]

Tsukamurella paurometabola [VP (T)] (Steinhaus 1941) Collins et al. 1988 <- *Corynebacterium paurometabolum* (basonym) = *Rhodococcus aurantiacus* (later heterotypic synonym) - ATCC 8368 | DSM 20162, X53206, Tsu.pauro2 | DSM 20162, X80628, Tsu.pauro4 | DSM 20162, Z46751, Tsu.pauro7 | NBRC 16083 | IMET 11082 | IMET 7373

Tsukamurella inchonensis [VP] Yassin et al. 1995 - DSM 44067, X85955, Tsu.inchon | IMMIB D-771, X85955, Tsu.inchon

Tsukamurella pulmonis [VP] Yassin et al. 1996 - DSM 44142 | IMMIB D-1321, X92981, Tsu.pulmon

Tsukamurella strandjordii [VP] Kattar et al. 2002 - 32-92, AF283283 | ATCC BAA-173 | DSM 44573

Tsukamurella tyrosinosolvens [VP] Yassin et al. 1997 - DSM 44234, Y12246 | IMMIB D-1397

†*Tsukamurella wratislaviensis* [VP] Goodfellow et al. 1995 -> *Rhodococcus wratislaviensis* - N 805 | ATCC 51786 | DSM 44107 | IMRU 878 | NCIMB 13082, Z37138, Tsu.wrtslv

Family VII. "*Williamsiaceae*"

Genus I. Williamsia [VP]

Williamsia muralis [VP (T)] Kämpfer et al. 1999 - MA140/96, Y17384, Wlm.murali | DSM 44343

Suborder XI. *Micromonosporineae* [VP]

Family I. *Micromonosporaceae* [AL]

Genus I. Micromonospora [AL (T)]

Micromonospora chalcea [AL (T)] (Foulerton 1905) Orskov 1923 - 1464-217L | ATCC 12452, U58531, Mms.chalce | CBS 269.62 | DSM 43026, X92594, Mms.chalc2 | IAM 14285 | NBRC 13503 | IMET 8209 | JCM 3031 | KCC A-0031

Micromonospora aurantiaca [AL] Sveshnikova et al. 1969 - ATCC 27029 | CBS 129.76 | DSM 43813, X92604, Mms.aurant | NBRC 14068 | NBRC 16125 | IMET 8216 | INA 9442 | JCM 3232 | KCC A-0232 | NRRL B-16091 | VKM Ac-613

†*Micromonospora brunnea* [AL] Sveshnikova et al. 1969 = *Micromonospora purpureochromogenes* (earlier heterotypic synonym) - ATCC 27334 | CBS 130.76 | DSM 43814, X92605, Mms.brnnea | NBRC 14069 | IMET 8304 | INA 166 | JCM 3233 | NRRL B-16079 | VKM Ac-614

Micromonospora carbonacea subspecies carbonacea [AL] Luedemann and Brodsky 1965 - ATCC 27114 | DSM 43168, X92599, Mms.carbon | JCM 3139 | KCC A-0139 | NRRL 2972

Micromonospora carbonacea subspecies aurantiaca [AL] Luedemann and Brodsky 1965 - ATCC 27115 | DSM 43815, X92606, Mms.carbo2 | NBRC 14107 | JCM 3168 | KCC A-0168 | NRRL 2997

Micromonospora chersina [VP] Tomita et al. 1992 - M956-1 | ATCC 53710 | DSM 44151

Micromonospora coerulea [AL] Jensen 1932 - 36 | ATCC 27008 | DSM 43143, X92598, Mms.coerul | NBRC 13504 | IMET 8210 | KCC A-0175

Micromonospora echinospora subspecies echinospora [AL] Luedemann and Brodsky 1964 - ATCC 15837, U58532, Mms.echns4 | CBS 619.66 | DSM 43816, X92607, Mms.echnsp | NBRC 12574 | IMET 8211 | JCM 3073 | NRRL 2985 | RIA S-420

Micromonospora echinospora subspecies ferruginea [AL] Luedemann and Brodsky 1964 - M 4051 | ATCC 15836 | CBS 618.66 | DSM 43141, X92597, Mms.echns3 | NBRC 14109 | JCM 3221 | KCC A-0221 | NRRL 2995

Micromonospora echinospora subspecies pallida [AL] Luedemann and Brodsky 1964 - ATCC 15838 | CBS 617.66 | DSM 43817, X92608, Mms.echns2 | NBRC 14110 | JCM 3133 | KCC A-0133 | NRRL 2996

Micromonospora gallica [AL] (Erikson 1935) Waksman 1961 - NCTC 4582

Micromonospora halophytica subspecies halophytica [AL] Weinstein et al. 1968 - ATCC 27596 | DSM 43171, X92601, Mms.halphy | JCM 3125 | KCC A-0125 | NRRL 2998

Micromonospora halophytica subspecies nigra [AL] Weinstein et al. 1968 - ATCC 33088 | DSM 43818, X92609, Mms.halph2 | NRRL 3097

Micromonospora inositola [AL] Kawamoto et al. 1974 - MK-41 | ATCC 21773 | DSM 43819, X92610, Mms.inosit | JCM 6239 | NRRL B-16095

Micromonospora matsumotoense [VP] (Asano et al. 1989) Lee et al. 2000 <- *Catellatospora matsumotoense* (basonym) - 6393-C | ATCC 49364 | DSM 44100 | FERM BP-1196 | NBRC 14550, AF152109 | IMNSU 22003 | NRRL B-16490

Micromonospora olivasterospora [VP] Kawamoto et al. 1983 - MK70 | ATCC 21819 | DSM 43868, X92613, Mms.olivas | FERM P-1560 | NBRC 14304 | IMET 8310 | JCM 7348

Micromonospora purpurea [AL] Luedemann and Brodsky 1964 - ATCC 15835 | CBS 648.71 | DSM 43036, X92595, Mms.purpur | DSM 43820 | NBRC 12575 | IMET 8212 | JCM 3074 | KCC A-0074 | NRRL 2953

Micromonospora purpureochromogenes [AL] (Waksman and Curtis 1916) Luedemann 1971 = *Micromonospora brunnea* (later heterotypic synonym) - ATCC 27007 | CBS 326.71 | DSM 43821, X92611, Mms.preoch | NBRC 13324 | IMET 8213 | IMRU 3343 | JCM 3156 | NRRL B-16094

Micromonospora rhodorangea [AL] Wagman et al. 1974 - G-418 | ATCC 27932 | DSM 1039 | DSM 43822, X92612, Mms.rhodrn | NRRL 5326

Micromonospora rosaria [VP] Horan and Brodsky 1986 - 67694 | SCC 957 | ATCC 29337 | DSM 803, X92631, Mms.rosari | JCM 3159 | NRRL 3718

Genus II. Actinoplanes [AL]

Actinoplanes philippinensis [AL (T)] Couch 1950 - ATCC 12427, U58525, Apl.phlpp3 | CBS 107.58 | DSM 43019, X72864, Apl.phlppn | DSM 43019, X93187, Apl.phlpp2 | IAM 14278 | NBRC 13878, D85474, Apl.phlpp4 | IMET 9218 | JCM 3001 | KCC A-0001 | NRRL 2506 | RIA 468 | UNCC P-15

†*Actinoplanes armeniacus* [AL] Kalakoutskii and Kuznetsov 1964 -> *Streptomyces armeniacus* - ATCC 15676 | DSM 43125 | ETH 32694 | IMET 9250 | LBG A 3125 | RIA 26A-32 | RIA 807

Actinoplanes auranticolor [VP] (Couch 1963) Stackebrandt and Kroppenstedt 1988 <- *Amorphosporangium auranticolor* (basonym) - ATCC 15330 | CBS 189.64 | DSM 43031 | NBRC 12245, U58526, Apl.aurant | KCC A-0038 | UNCC 253

Actinoplanes brasiliensis [AL] Thiemann et al. 1969 - A/672 | MB-T 20 | ATCC 25844 | DSM 43805, X93185, Apl.brasil | KCC A-0196

†*Actinoplanes caeruleus* [VP] Horan and Brodsky 1986 -> *Couchioplanes caeruleus subspecies caeruleus* - SCC 1014 | ATCC 33937 | DSM 1037 | DSM 43634 | NBRC 13939, D14645, Ccp.caerul | IMET 9248 | JCM 3195 | KCC A-0195 | NRRL 5325

Actinoplanes campanulatus [VP] (Couch 1963) Stackebrandt and Kroppenstedt 1988 <- *Ampullariella campanulata* (basonym) - ATCC 15348 | CBS 190.64 | DSM 43148 | NBRC 12511, AB036995 | KCC A-0059 | UNCC 65

Actinoplanes capillaceus [VP] Matsumoto et al. 2001 [435] - K95–5561, AB013495 | NBRC 16408 | JCM 10268

Actinoplanes consettensis [VP] Goodfellow et al. 1990 - LA 97 | ATCC 49799 | DSM 43942 | NBRC 14913, AB036996 | NCIB 20027

Actinoplanes cyaneus [VP] Terekhova et al. 1987 - DSM 46137, X93186, Apl.cyaneu | IMET 9243 | INA 1569 | VKM Ac 1095

Actinoplanes deccanensis [AL] Parenti et al. 1975 - A/10655 | MB-T 21 | ATCC 21983 | DSM 43806 | NBRC 14935, AB036999 | IMET 9256 | JCM 3247 | KCC A-0247

Actinoplanes derwentensis [VP] Goodfellow et al. 1990 - LA 107 | ATCC 49798 | DSM 43941 | NBRC 14935, AB036999 | NCIB 12875

Actinoplanes digitatis [VP] (Couch 1963) Stackebrandt and Kroppenstedt 1988 <- *Ampullariella digitata* (basonym) - ATCC 15349 | CBS 191.64 | DSM 43149 | NBRC 12512, AB037000 | KCC A-0068 | UNCC 33

Actinoplanes durhamensis [VP] Goodfellow et al. 1990 - LA 139 | ATCC 49800 | DSM 43939 | NBRC 14914, AB037001 | NCIB 20041

Actinoplanes ferrugineus [AL] Palleroni 1979 - MB-T 22 | X-14695 | ATCC 29868 | DSM 43807 | IMET 9273 | KCC A-0277

Actinoplanes friuliensis [VP] Aretz et al. 2001 - HAG 010964 | DSM 7358 [436][437]

Actinoplanes globisporus [VP] (Thiemann 1967) Stackebrandt and Kroppenstedt 1988 <- *Amorphosporangium globisporum* (basonym) - SS/37 | ATCC 23056 | DSM 43857 | DSM 43894 | NBRC 13912, AB037003 | IMET 9263 | JCM 3186 | KCC A-0186

Actinoplanes humidus [VP] Goodfellow et al. 1990 - LA 6 | ATCC 49801 | DSM 43938 | NBRC 14915 | NCIB 20000

Actinoplanes italicus [AL] Beretta 1973 - A-5221 | ATCC 27366 | DSM 43146 | IMET 9251 | KCC A-0165

Actinoplanes lobatus [VP] (Couch 1963) Stackebrandt and Kroppenstedt 1988 <- *Ampullariella lobata* (basonym) - ATCC 15350 | CBS 192.64 | DSM 43150 | NBRC 12513, AB037006 | KCC A-0061 | UNCC 72

†*Actinoplanes minutisporangius* [VP] Ruan et al. 1986 -> *Cryptosporangium minutisporangium* - A-60 | NBRC 15962, AB037007 | IMRU LL-A-6

Actinoplanes missouriensis [AL] Couch 1963 - ATCC 14538 | CBS 188.64 | DSM 43046 | NBRC 13243, AB037008 | IMET 9249 | KCC A-0121

Actinoplanes palleronii [VP] Goodfellow et al. 1990 - LA 83 | ATCC 49797 | DSM 43940 | NBRC 14916, AB037009 | NCIB 20021

Actinoplanes rectilineatus [AL] Lechevalier and Lechevalier 1975 - LL 7-10 | MB-T 24 | ATCC 29234 | DSM 43808 | NBRC 13941, AB037010 | IMET 9276 | IMRU 3919 | KCC A-0194

Actinoplanes regularis [VP] (Couch 1963) Stackebrandt and Kroppenstedt 1988 <- *Ampullariella regularis* (basonym) - CBS 193.64 | DSM 43151, X93188, Apl.reglar | IAM 14279 | NBRC 12514 | IMET 9268 | JCM 3062 | KCC A-0062 | RIA 821 | UNCC 79

Actinoplanes utahensis [AL] Couch 1963 - ATCC 14539 | CBS 367.66 | DSM 43147 | NBRC 13244, AB037012 | IMET 9252 | JCM 3122 | KCC A-0122 | UNCC 260

Genus III. Asanoa [VP]

Asanoa ferruginea [VP (T)] (Asano and Kawamoto 1986) Lee and Hah 2002 - 6257-C | DMS 44099 | NBRC 14496 | IMSNU 22009, AF152108

[435] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[436] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[437] Patent strain, restricted availability.

Asanoa ishikariensis [VP] Lee and Hah 2002 - NBRC 14551, AJ294715 | IMSNU 22004 |

Genus IV. Catellatospora [VP]

Catellatospora citrea subspecies citrea [VP (T)] Asano and Kawamoto 1986 - 6183-E | ATCC 49964 | DSM 44097, X93197, Ctl.citrea | NBRC 14495, D85477, Ctl.citre3 | JCM 7542 | NRRL B-16429

Catellatospora citrea subspecies methionotrophica [VP] Asano and Kawamoto 1988 - 6257-B | ATCC 49965 | DSM 44098, X93198, Ctl.citre2 | NBRC 14553 | JCM 7543 | NRRL B-16431

Catellatospora ferruginea [VP] Asano and Kawamoto 1986 - 6257-C | ATCC 49966 | DSM 44099, X93199, Ctl.ferrug | NBRC 14496 | JCM 7544 | NRRL B-16430

Catellatospora koreensis [VP] Lee et al. 2000 - LM 042, AF171700 | IMSNU 50729

†*Catellatospora matsumotoense* [VP] Asano et al. 1989 -> *Micromonospora matsumotoense* - 6393-C | ATCC 49364 | DSM 44100 | FERM BP-1196 | NBRC 14550, AF152109 | IMNSU 22003 | NRRL B-16490

Catellatospora tsunoense [VP] Asano et al. 1989 - 6420-P | ATCC 49635 | DSM 44101, X93200, Ctl.tsuoen | FERM BP-1195 | NBRC 14552 | NRRL B-16491

Genus V. Catenuloplanes [VP]

Catenuloplanes japonicus [VP (T)] Yokota et al. 1993 - N381-16 | ATCC 31637 | DSM 44102, X93201, Cat.japon1 | NBRC 14176, D14642, Cat.japon2

Catenuloplanes atrovinosus [VP] Tamura et al. 1995 - RA332 | NBRC 15579

Catenuloplanes castaneus [VP] Tamura et al. 1995 - RA344 | NBRC 15584

Catenuloplanes crispus [VP] (Petrolini et al. 1993) Kudo et al. 1999 <- *Planopolyspora crispa* (basonym) - ATCC 51431 | DSM 44128 | NBRC 15622 | IPV 2867 | JCM 9312, AB024701 | NCB 1173

Catenuloplanes indicus [VP] Tamura et al. 1995 - RA328 | NBRC 15575

Catenuloplanes nepalensis [VP] Tamura et al. 1995 - RA343 | NBRC 15583, D85476, Cat.japon5

Catenuloplanes niger [VP] Tamura et al. 1995 - N406-14 | ATCC 31638 | NBRC 14177, D14643, Cat.japon4

Genus VI. Couchioplanes [VP]

Couchioplanes caeruleus subspecies caeruleus [VP (T)] (Horan and Brodsky 1986) Tamura et al. 1994 <- *Actinoplanes caeruleus* (basonym) - SCC 1014 | ATCC 33937 | DSM 1037 | DSM 43634 | NBRC 13939, D14645, Ccp.caerul | NBRC 13939, D85479, Ccp.caeru2 | IMET 9248 | JCM 3195 | KCC A-0195 | NRRL 5325

Couchioplanes caeruleus subspecies azureus [VP] Tamura et al. 1994 - ATCC 31157 | DSM 44103, X93202, Cat.caurul | NBRC 13993, D85478, Ccp.caeru3

Genus VII. Dactylosporangium [AL]

Dactylosporangium aurantiacum [AL (T)] Thiemann et al. 1967 - D-748 | ATCC 23491, U58528, Dct.auran4 | DSM 43157, X72779, Dct.aurant | DSM 43157, X93191, Dct.auran2 | NBRC 12592, D85480, Dct.auran3 | IMET 9028 | JCM 3083 | KCC A-0083 | RIA 922

Dactylosporangium fulvum [VP] Shomura et al. 1986 - SF-2113 | ATCC 43301 | DSM 43917, X93192, Dct.fulvum | NBRC 14381, D86942, Dct.fulvu2 | JCM 5631

Dactylosporangium matsuzakiense [VP] Shomura and Niida 1983 - SF-2052 | ATCC 31570 | DSM 43810, X93193, Dct.matsuz | FERM-P 4670 | NBRC 14259, D86940, Dct.matsu2 | JCM 3311 | KCC A-0311

Dactylosporangium roseum [VP] Shomura et al. 1985 – SF-2186 | DSM 43916, X93194, Dct.roseum | NBRC 14352, D86941, Dct.roseu2 | NBRC 14352, U58529, Dct.roseu3 | JCM 3364

Dactylosporangium thailandense [AL] Thiemann et al. 1967 – D-449 | ATCC 23490 | DSM 43158, X92630, Dct.thailn | NBRC 12593, D85481, Dct.thail2 | IMET 9029 | KCC A-0084

Dactylosporangium vinaceum [VP] Shomura et al. 1983 – SF-2127 | ATCC 35207 | DSM 43823, X93196, Dct.vinace | NBRC 14181, D86939, Dct.vinac2 | JCM 3307 | KCC A-0307 | NCIMB 12891

Genus VIII. Pilimelia [AL]

Pilimelia terevasa [AL (T)] Kane 1966 – ATCC 25603 | DSM 43040, X93190, Plm.terev2 | NBRC 14556, D86946, Plm.tereva | IMET 9270 | KCC A-0091

Pilimelia anulata [AL] Kane 1966 – ATCC 25604 | DSM 43039, X93189, Plm.anulat | IMET 9269 | KCC A-0090

Pilimelia columellifera subspecies pallida [VP] Vobis et al. 1986 – MB-SK8 | DSM 43799

Pilimelia columellifera subspecies columellifera [VP] Vobis et al. 1986 – MB-SK6 | CBS 568.75 | DSM 43797

Genus IX. Spirilliplanes [VP]

Spirilliplanes yamanashiensis [VP (T)] Tamura et al. 1997 – YU127-1 | DSM 44325 | NBRC 15828, D63912, Sp.yamansh

Genus X. Verrucosispora [VP]

Verrucosispora gifhornensis [VP (T)] Rheims et al. 1998 – HR1-2, Y15523, Vs.gifhorn | DSM 44337 | JCM 10457

Genus XI. Virgisporangium [VP]

Virgisporangium ochraceum [VP (T)] Tamura et al. 2001 [438] – YU655–43, AB006167 | NBRC 16418

Virgisporangium aurantiacum [VP] Tamura et al. 2001 [439] – YU438–5, AB006169 | NBRC 16421 | JCM 11002

Suborder XII. *Propionibacterineae* [VP]

Family I. *Propionibacteriaceae* [AL]

Genus I. Propionibacterium [AL (T)]

Propionibacterium freudenreichii subspecies freudenreichii [AL (T)] (van Niel 1928) Moore and Holdeman 1970 – 53-W | ATCC 6207 | CCM 1857 | DSM 20271, X53217, Prp.freud1 | NCDO 564 | NCIB 5959 | NCTC 10470

Propionibacterium freudenreichii subspecies shermanii [AL] (van Niel 1928) Holdeman and Moore 1970 – E11.1 | ATCC 9614 | DSM 4902, Y10819, Prp.freud4 | NCDO 853 | NCIB 8099 | VPI 0405

Propionibacterium acidipropionici [AL] Orla-Jensen 1909 – 14X | ATCC 25562 | DSM 4900 | VPI 0399

Propionibacterium acnes [AL] (Gilchrist 1900) Douglas and Gunter 1946 – ATCC 6919 | DSM 1897, X53218, Prp.acnes1 | NCTC 737

Propionibacterium australiense [VP] Bernard et al. 2002 – 98A078, AF225962 | ATCC BAA-263 | CCUG 46075

Propionibacterium avidum [AL] (Eggerth 1935) Moore and Holdeman 1969 – 1689B | ATCC 25577 | DSM 4901, AJ003055, Prp.avidu2 | VPI 0179

Propionibacterium cyclohexanicum [VP] Kusano et al. 1997 – TA-12 | IAM 14535 | NRIC 0247

[438] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[439] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Propionibacterium granulosum [AL] (Prevot 1938) Moore and Holdeman 1970 - ATCC 25564 | DSM 20700, AJ003057, Prp.granu2 | VPI 0507

†*Propionibacterium innocuum* [VP] Pitcher and Collins 1992 -> *Propioniferax innocua* - L60 | ATCC 49929, AF227165 | DSM 8251 | NCTC 11082

Propionibacterium jensenii [AL] van Niel 1928 - 29 | ATCC 4868 | DSM 20535, X53219, Prp.jense1 | NCDO 850 | NCIB 8071

†*Propionibacterium lymphophilum* [AL] (Torrey 1916) Johnson and Cummins 1972 -> *Propionimicrobium lymphophilum* - ATCC 27520 | DSM 4903, AJ003056, Prp.lymph2 | JCM 5829 | VPI 7625B

Propionibacterium microaerophilum [VP] Koussmon et al. 2001 - M5, AF234623 | CNCM I-2360 | DSM 13435

Propionibacterium propionicum [VP] (Buchanan and Pine 1962) Charfreitag et al. 1988 <- *Arachnia propionica* (basonym) - 699 | ATCC 14157 | DSM 43307, AJ003058, Prp.propi2 | DSM 43307, X53216, Prp.propio | IMET 10974

Propionibacterium thoenii [AL] van Niel 1928 - 15 | ATCC 4874 | CCM 1865 | DSM 20276, X53220, Prp.thoen1 | NCDO 568 | NCIB 5966

Genus II. Luteococcus [VP]

Luteococcus japonicus [VP (T)] Tamura et al. 1994 - ATCC 51526 | CIP 104067 | DSM 10546, Z78208, Lut.japon3 | NBRC 12422, D21245, Lut.japoni | NBRC 12422, D85487, Lut.japon2 | JCM 9415

Luteococcus peritonei [VP] Collins et al. 2000 - CCUG 38120, AJ132334

Genus III. Microlunatus [VP]

Microlunatus phosphovorus [VP (T)] Nakamura et al. 1995 - NM-1, D26169, Mcl.phpho3 | DSM 10555, Z78207, Mcl.phpho2 | JCM-9379

Genus IV. Propioniferax [VP]

Propioniferax innocua [VP (T)] (Pitcher and Collins 1992) Yokota et al. 1994 <- *Propionibacterium innocuum* (basonym) - L60 | ATCC 49929, AF227165 | DSM 8251 | NCTC 11082

Genus V. ***Propionimicrobium*** [VP]

Propionimicrobium lymphophilum [VP (T)] (Torrey 1916) Stackebrandt et al. 2002 <- *Propionibacterium lymphophilum* (basonym) - ATCC 27520, AJ003056, DSM 4903

Genus VI. Tessaracoccus [VP]

Tessaracoccus bendigoniensis [VP (T)] Maszenan et al. 1999 - Ben 106, AF038504, Tsc.bndign | ACM 5119, AF038504, Tsc.bndign

Family II. *Nocardioidaceae* [VP]

Genus I. Nocardioides [AL (T)]

Nocardioides albus [AL (T)] Prauser 1976 - 652-48 | ATCC 27980 | CCM 2712 | DSM 43109, X53211, Ncr.albus | IMET 7807 | JCM 3185 | KCTC 9186, AF004988, Ncr.albus2 | NCIB 11454

Nocardioides aquaticus [VP] Lawson et al. 2000 - EL-17K | DSM 11439 | NCFB 3076

†*Nocardioides fastidiosus* [VP] Collins and Stackebrandt 1989 -> *Aeromicrobium fastidiosum* - J41 | DSM 10552, Z78209, Armb.fast3 | NBRC 14897 | NCIB 12713, X53189, Armb.fast2 | NCIB 12713, X76862, Armb.fasti

Nocardioides jensenii [VP] (Suzuki and Komagata 1983) Collins et al. 1989 <- *Pimelobacter jensenii* (basonym) - CNF 091 | ATCC 49810 | DSM 20641, X53214, Ncr.jensen | DSM 20641, Z78210, Ncr.jense2 | IAM 12581 | NBRC 14755 | IMET 10678 | JCM 1364 | NCIB 9770

Nocardioides luteus [VP] Prauser 1985 - 939-9 | ATCC 43052 | DSM 43366 | DSM 43811 | NBRC 14491 | IMET 7830 | JCM 3358 | NCIB 11455, X53212, Ncr.luteus

Nocardioides nitrophenolicus [VP] Yoon et al. 1999 - NSP41, AF005024, Ncr.nitrph | KCTC 0457BP

Nocardioides plantarum [VP] Collins et al. 1994 - Grainger J70 | DSM 11054, Z78211, Ncr.plant2 | NCIMB 12834, AF005008, Ncr.plant3 | NCIMB 12834, X69973, Ncr.planta

Nocardioides pyridinolyticus [VP] Yoon et al. 1997 - OS4, U61298, Ncr.pyrlyt | KCTC 0074B

Nocardioides simplex [VP] (Jensen 1934) O'Donnell et al. 1983 <- *Arthrobacter simplex* (basonym) = *Pimelobacter simplex* (earlier homotypic synonym) - ATCC 6946, M37693, Ncr.simpl2 | CCM 1652 | DSM 20130, Z78212, Ncr.simpl3 | IAM 1660 | IMET 10368 | JCM 1363 | KCTC 9106, AF005009, Ncr.simpl4 | NCIB 8929, X53213, Ncr.simplx | NCTC 4215

Genus II. Aeromicrobium [VP]

Aeromicrobium erythreum [VP (T)] Miller et al. 1991 - ATCC 51598 | DSM 8599 | NRRL B-3381, AF005021, Armb.eryt5 | NRRL B-3381, M37200, Armb.eryth

Aeromicrobium fastidiosum [VP] (Collins and Stackebrandt 1989) Tamura and Yokota 1994 <- *Nocardioides fastidiosus* (basonym) - J41 | DSM 10552, Z78209, Armb.fast3 | NBRC 14897 | NCIB 12713, X53189, Armb.fast2 | NCIB 12713, X76862, Armb.fasti

Genus III. Actinopolymorpha [VP]

Actinopolymorpha singaporensis [VP (T)] Wang et al. 2001 - IM 7744, AF237815 | JCM 10761 | NRRL B-24113

Genus IV. Friedmanniella [VP]

Friedmanniella antarctica [VP (T)] Schumann et al. 1997 - AA-1042 | DSM 11053, Z78206, Frd.antarc

Friedmanniella capsulata [VP] Maszenan et al. 1999 - Ben 108 | ACM 5120, AF084529

Friedmanniella lacustris [VP] Lawson et al. 2000 - EL-17A, AJ132943 | DSM 11465

Friedmanniella spumicola [VP] Maszenan et al. 1999 - Ben 107 | ACM 5121, AF062535

Genus V. Hongia [VP]

†Hongia koreensis [VP (T)] Lee et al. 2000 - LM 161, Y09159 | IMSNU 50530 -> *Kribbella koreensis*

Genus VI. Kribbella [VP]

Kribbella flavida [VP (T)] Park et al. 1999 - NBRC 14399, AF005017, Kr.flavida | KCTC 9580

Kribbella koreensis [VP (T)] (Lee et al. 2000) Sohn et al. 2003 <- *Hongia koreensis* (basonym) - LM 161 | IMSNU 50530, Y09159 | JCM 10977

Kribbella sandramycini [VP] Park et al. 1999 - ATCC 39419, AF005020, Kr.sndrmyc | KCTC 9609

Genus VII. Micropruina [VP]

Micropruina glycogenica [VP (T)] Shintani et al. 2000 - Lg2 | JCM 10248, AB012607

Genus VIII. Marmoricola [VP]

Marmoricola aurantiacus [VP (T)] Urzì et al. 2000 - BC 361, Y18629 | DSM 12652

Suborder XIII. *Pseudonocardineae* [VP]

Family I. *Pseudonocardiaceae* [VP]

Genus I. Pseudonocardia [AL (T)]

Pseudonocardia thermophila [AL (T)] Henssen 1957 - A18 | ATCC 19285, X53195, Psc.therm2 | CBS 277.66 | DSM 43832 | IAM 14290 | JCM 3095 | NCIB 10079

Pseudonocardia alaniniphila [VP] (Xu et al. 1999) Huang et al. 2002 <- *Actinobispora alaniniphila* (basonym) - CCTCC AA97001 | Y-16303, AF056708, Abi.alniph

Pseudonocardia alni [VP] (Evtushenko et al. 1989) Warwick et al. 1994 <- *Amycolata alni* (basonym) - 3LS | DSM 44104, Y08535, Psc.alni2 | NBRC 14991 | VKM Ac-901, X76954, Psc.alni

Pseudonocardia asaccharolytica [VP] Reichert et al. 1998 - 580 | DSM 44247, Y08536, Psc.asacch | NBRC 16224

Pseudonocardia aurantiaca (Xu et al. 1999) Huang et al. 2002 <- *Actinobispora aurantiaca* (basonym) - CCTCC AA97002, AF056707, AF056707, Abi.aurant | Y-14860

Pseudonocardia autotrophica [VP] (Takamiya and Tubaki 1956) Warwick et al. 1994 <- *Amycolata autotrophica* (basonym) - 394 | ATCC 19727 | CBS 466.68 | DSM 40011 | DSM 43210, X54288, Psc.autotr | DSM 535 | NBRC 12743 | IMET 7646 | ISP 5011 | KCC S-0348 | RIA 1008

†Pseudonocardia azurea [VP] Omura et al. 1983 -> *Amycolatopsis azurea* - AM-3696 | ATCC 51273 | DSM 43854 | FERM-P 4738 | JCM 3275 | NRRL 11412, X53199, Amy.azurea

Pseudonocardia compacta [VP] Henssen et al. 1983 - MB H-146 | ATCC 35407 | CBS 160.82 | DSM 43592, X76959, Psc.compac | NBRC 14343 | JCM 7438

Pseudonocardia halophobica [VP] (Akimov et al. 1989) McVeigh et al. 1994 <- *Pseudoamycolata halophobica* (basonym) - SS1/1 | ATCC 51535 | DSM 43089, Y08534, Psc.hphob2 | DSM 43089, Z14111, Psc.hphobi | DSM 656 | IMRU 1300 | JCM 9421 | NRRL B-16064 | VKM Ac-1069

Pseudonocardia hydrocarbonoxydans [VP] (Nolof and Hirsch 1962) Warwick et al. 1994 <- *Amycolata hydrocarbonoxydans* (basonym) - Schering 228 | ATCC 15104 | DSM 43281, X76955, Psc.hcarbo | IMET 7645 | NCIB 9436 | NRRL B 16171

Pseudonocardia kongjuensis [VP] Lee et al. 2001 - LM 157, AJ252833 | DSM 44525 | IMSNU 50583 | KCTC 9990

Pseudonocardia nitrificans [VP] (ex Schatz et al. 1954) Warwick et al. 1994 - IFAM 379

Pseudonocardia petroleophila [VP] (Hirsch and Engel 1956) Warwick et al. 1994 <- *Nocardia petroleophila* (basonym) - 78 | ATCC 15777, X80596, Psc.petrol | DSM 43193 | DSM 655 | IFAM 78, X55608, Amc.petrop | NBRC 14406 | IMET 7162 | JCM 3378 | JCM 3394 | NCIB 9438

Pseudonocardia saturnea [VP] (Hirsch 1960) Warwick et al. 1994 <- *Amycolata saturnea* (basonym) - 71 | ATCC 15809 | DSM 43195, X76956, Psc.saturn | IMET 7647 | IMRU 1181 | NCIB 9437 | NRRL B 16172

Pseudonocardia spinosa [AL] Schäfer 1971 - ATCC 25924

Pseudonocardia spinosispora [VP] Lee et al. 2002 - LM 141, AJ249206 | IMSNU 50581 | KCTC 9991 | NRRL B-24156

Pseudonocardia sulfidoxydans [VP] Reichert et al. 1998 - 592 | DSM 44248, Y08537, Psc.slfoxy | NBRC 16205

Pseudonocardia xinjiangensis [VP] (Xu et al. 1999) Huang et al. 2002 <- *Actinobispora xinjiangensis* (basonym) - XJ-45, Scm.xinjia | CCTCC AA97020, AF056709

Pseudonocardia yunnanensis [VP] (Jiang et al. 1991) Huang et al. 2002 <- *Actinobispora yunnanensis* (basonym) - Y-11981, AF056706, Abi.yunnan | CCTCC M 90959 | DSM 44253 | NBRC 15681, D85472, Abi.yunna2 | JCM 9330

Pseudonocardia zijingensis [VP] Huang et al. 2002 - 6330, AF325725 | AS 4.1545 | JCM 11117

Genus II. Actinoalloteichus [VP]

Actinoalloteichus cyanogriseus [VP (T)] Tamura et al. 2000 - AS 4.1159 | DSM 43889 | NBRC 14455, AB006178

Genus III. Actinopolyspora [AL]

Actinopolyspora halophila [AL (T)] Gochnauer et al. 1975 - ATCC 27976, X54287, Acy.haloph | DSM 43834 | NBRC 14106 | JCM 3278 | KCC A-0278 | NCIB 11472, X54287, Acy.haloph

Actinopolyspora iraqiensis [VP] Ruan et al. 1994 - IQ-H1 | CCIM A.S. 4.1193

Actinopolyspora mortivallis [VP] Yoshida et al. 1991 - HS-1 | ATCC 49777 | CCRC 13635 | DSM 44261 | NBRC 15162 | JCM 7550, Z22730, Acy.mortiv | NCIMB 13257

Genus IV. Amycolatopsis [VP]

Amycolatopsis orientalis subspecies orientalis [VP (T)] (Pittenger and Brigham 1956) Lechevalier et al. 1986 <- *Nocardia orientalis* (basonym) - M 43-05865 | ATCC 19795 | CBS 547.68 | CCM 2778 | DSM 40040, X76958, Amy.orient | IAM 14281 | NBRC 12360 | NBRC 12806, D86935, Amy.orien3 | IMET 7510 | IMET 7653 | ISP 5040 | JCM 4235 | JCM 4600 | KCC S-0235 | KCC S-0600 | NRRL 2450 | RIA 1074

Amycolatopsis orientalis subspecies lurida [VP] (Grundy et al. 1957) Lechevalier et al. 1986 - 24315 | NA 3-TE-19 | ATCC 14930 | DSM 43134 | DSM 43192 | NBRC 14500 | IMET 7654 | JCM 3141 | LBG A 3091 | NCIB 9601 | NRRL 2430

Amycolatopsis alba [VP] Mertz and Yao 1993 - A83850 | ATCC 51368 | DSM 44262, AF051340, Amy.alba1 | NBRC 15602 | NRRL 18532

Amycolatopsis albidoflavus [VP] Lee and Hah 2001 - ATCC 53205 | IMSNU 22139, AJ252832 | KCTC 9471

Amycolatopsis azurea [VP] (Omura et al. 1983) Henssen et al. 1987 <- *Pseudonocardia azurea* (basonym) - AM-3696 | ATCC 51273 | DSM 43854 | FERM-P 4738 | JCM 3275 | NRRL 11412, X53199, Amy.azurea

Amycolatopsis balhimycina [VP] Wink et al. 2003 - FH 1894 | DSM 44591, AJ508239 | NRRL B-24207

Amycolatopsis coloradensis [VP] Labeda 1995 - ATCC 53629 | DSM 44225 | NBRC 15804 | NRRL 3218, AF051341, Amy.colora

Amycolatopsis eurytherma [VP] Kim et al. 2002 - NT202, AJ000285 | DSM 44348 | NCIMB 13795

Amycolatopsis fastidiosa [VP] (ex Celmer et al. 1977) Henssen et al. 1987 - FD 25028 | ATCC 31181, X53200, Amy.fastid | DSM 43855 | NBRC 14105 | JCM 3276

Amycolatopsis japonica [VP] Goodfellow et al. 1997 - MG417-CF17 | DSM 44213

Amycolatopsis keratiniphila [VP] Al-Mussalam et al. 2003 - D2 | DSM 44409, AJ278496 | NRRL B-24117

Amycolatopsis keratiniphila subspecies keratiniphila [VP] Al-Musallam et al. 2003 - D2 | DSM 44409, AJ278496 | NRRL B-24117

Amycolatopsis keratiniphila subspecies nogabecina [VP] Wink et al. 2003 - FH 1893 | DSM 44586, AJ508238 | NRRL B-24206

Amycolatopsis mediterranei [VP] (Margalith and Beretta 1960) Lechevalier et al. 1986 <- *Nocardia mediterranei* (basonym) - ME 83/973 | PSA 71 | Schering 368 | ATCC 13685, X76957, Amy.medter | CBS 121.63 | CBS 716.72 | DSM 40501 | DSM 43304 | NBRC 13415 | IMET 7651 | ISP 5501 | JCM 4789 | KCC S-0789 | LBG A 3136 | NCIB 9613 | NRRL B-3240 | RIA 1376 | VKM Ac-798

Amycolatopsis methanolica [VP] de Boer et al. 1990 - 239 | DSM 44096 | NBRC 15065 | JCM 8087 | LMD 80.32 | NCIB 11946, X54274, Amy.methan

Amycolatopsis rubida [VP] Huang et al. 2001 - 13.4, AF222022 | AS 4.1541 | JCM 10871

†*Amycolatopsis rugosa* [VP] (ex di Marco and Spalla 1957) Lechevalier et al. 1986 = *Nocardia rugosa* (homotypic synonym) -> *Prauserella rugosa* - ATCC 43014 | DSM 43194, AF051342, Prl.rugosa | NBRC 14506 | IMET 7650 | IMRU 3760 | JCM 3193 | KCC A-0193 | NCIB 8926 | NRRL 2295

Amycolatopsis sacchari [VP] Goodfellow et al. 2001 - K24, AF223354 | DSM 44468 | KCTC 9863

Amycolatopsis sulphurea [VP] (ex Oliver and Sinclair 1964) Lechevalier et al. 1986 = *Nocardia sulphurea* (homotypic synonym) - ATCC 27624 | DSM 46092, AF051343, Amy.sulphu | NBRC 13270 | IMET 7649 | JCM 3142 | KCC A-0142 | NRRL 2822

Amycolatopsis thermoflava [VP] Chun et al. 1999 - N1165 | NBRC 14333, AF052390

Amycolatopsis tolypomycina [VP] Wink et al. 2003 - ATCC 21177 | DSM 44544, AJ508241 | NBRC 14664 (previously NBRC 14664) | NRRL B-24205

Amycolatopsis vancoresmycina [VP] Wink et al. 2003 - ST 101170 | DSM 44592, AJ508240 | NRRL B-24208

Genus V. Crossiella [VP]

Crossiella cryophila [VP (T)] (Labeda and Lechevalier 1989) Labeda 2001 <- *Saccharothrix cryophilis* (basonym) - TS-1980 | ATCC 51143 | DSM 44230 | NBRC 14475 | JCM 9111 | NCIMB 13187 | NRRL B-16238, AF114806

Crossiella equi [VP] Donahue et al. 2002 - DSM 44580 | LDDC 22291-98 | NRRL B-24104, AF245017

Genus VI. Kibdelosporangium [VP]

Kibdelosporangium aridum subspecies aridum [VP] Shearer et al. 1986 - ATCC 39323 | DSM 43828 | NBRC 14493 | JCM 7912 | SKF-AAD-216

Kibdelosporangium aridum subspecies largum [VP] Shearer et al. 1988 - ATCC 39922 | DSM 44150 | NBRC 15152 | SKF-AAD-609

Kibdelosporangium albatum [VP] Tomita et al. 1993 - R761-7 | ATCC 55061 | DSM 44149

Kibdelosporangium philippinense [VP] Mertz and Yao 1988 - A80407 | ATCC 49844 | DSM 44226 | NRRL 18198

Genus VII. Kutzneria [VP]

Kutzneria viridogrisea [VP (T)] (Okuda et al. 1966) Stackebrandt et al. 1994 <- *Streptosporangium viridogriseum subspecies viridogriseum* (basonym) - MCRL 0044 | ATCC 25242 | DSM 43850, X70429, Kt.viridog | JCM 3282, U58530, Kt.virido2 | NIHJ 523

Kutzneria albida [VP] (Furumai et al. 1968) Stackebrandt et al. 1994 <- *Streptosporangium albidum* (basonym) - MCRL 048 | ATCC 25243 | DSM 43870 | NBRC 13901

Kutzneria kofuensis [VP] (Nonomura and Ohara 1969) Stackebrandt et al. 1994 <- *Streptosporangium viridogriseum subspecies kofuense* (basonym) - S2-28 | ATCC 27102 | CBS 803.70 | DSM 43851 | NBRC 13989 | JCM 3157

Genus VIII. Prauserella [VP]

Prauserella rugosa [VP (T)] (Lechevalier et al. 1986) Kim and Goodfellow 1999 <- *Amycolatopsis rugosa* (basonym) - ATCC 43014 | DSM 43194, AF051342, Prl.rugosa | IMET 7650 | IMRU 3760 | JCM 3193 | NCIMB 8926

Genus IX. Saccharomonospora [AL]

Saccharomonospora viridis [AL (T)] (Schuurmans et al. 1956) Nonomura and Ohara 1971 - P101 | ATCC 15386, X54286, Scm.viridi | CBS 484.63 | DSM 43017 | DSM 43018 | DSM 43754 | NBRC 12207 | IMET 9550 | KCC A-0036 | NCIB 9602, Z38007, Scm.virid3 | NRRL B-3044

Saccharomonospora azurea [VP] Runmao 1987 - NA-128, Z38017, Scm.azurea | SIIA 86128

Saccharomonospora cyanea [VP] Runmao et al. 1988 - NA-134, Z38018, Scm.cyanea | Na-2468 | ATCC 43724 | DSM 44106 | NBRC 14841 | JCM 7552 | SIIA 86134

Saccharomonospora glauca [VP] Greiner-Mai et al. 1988 - K62 | DSM 43769, Z38003, Scm.glauca | NBRC 14841 | JCM 7444

Saccharomonospora halophila [VP] Al-Zarban et al. 2002 - 8 | DSM 44411, AJ278497 | NRRL B-24125

Saccharomonospora xinjiangensis [VP] Jin et al. 1998 - XJ-54, AF056710, Scm.xinji2 | CCTCC AA9702, AF056710, Scm.xinji2

Genus X. Saccharopolyspora [AL]

Saccharopolyspora hirsuta subspecies hirsuta [AL (T)] Lacey and Goodfellow 1975 - ATCC 27875, M20388, Scp.hirsut | ATCC 27875, U93341, Scp.hirhir | ATCC 27875, X53196, Scp.hirsu1 | CBS 42074 | DSM 43402 | NCIB 11079 | NRRL B-5792

Saccharopolyspora hirsuta subspecies kobensis [VP] Lacey 1989 - KC 6606 | ATCC 20501 | FERM-P 3912

†*Saccharopolyspora hirsuta subspecies taberi* [VP] Labeda 1987 -> *Saccharopolyspora taberi* - LL-WRAT-210 | ATCC 49842 | DSM 43856, AF002819, Scp.taberi | NBRC 15061 | IMET 7648 | NRRL B-16173

†*Saccharopolyspora erythraea* [VP] (Waksman 1923) Labeda 1987 <- *Streptomyces erythraeus* (basonym) - M-5-12559 | ATCC 11635 | CBS 727.72 | DSM 40517 | DSM 41036 | NBRC 13426 | ISP 5517 | JCM 4026 | JCM 4748 | NCIB 8594 | NRRL 2338, X53198, Scp.erythr | RIA 1387

Saccharopolyspora flava [VP] Lu et al. 2001 - 07 | AS4.1520, AF154128 | NBRC 16345 | JCM 10665

Saccharopolyspora gregorii [VP] Goodfellow et al. 1989 - A85 | DSM 44324 | NCIB 12823, X76962, Scp.gregor

Saccharopolyspora hordei [VP] Goodfellow et al. 1989 - A54, X53197, Scp.hordei | A735 | ATCC 49856 | DSM 44065 | NBRC 15046 | JCM 8090 | NCIB 12824

Saccharopolyspora rectivirgula [VP] (Krassilnikov and Agre 1964) Korn-Wendisch et al. 1989 <- *Faenia rectivirgula* (basonym) - ATCC 33515, M20387, Scp.rectiv | ATCC 33515, X53194, Scp.recti2 | BKM A-810 | DSM 43747 | INMI 683 | KCC A-0057 | VKM Ac-810

Saccharopolyspora spinosa [VP] Mertz and Yao 1990 - A83543.1 | ATCC 49460 | DSM 44228, AF002818, Scp.spinos | NRRL 18395

Saccharopolyspora spinosporotrichia [VP] Zhou et al. 1998 - AS4.198, Y09571, Scp.spnstr | DSM 44350

Saccharopolyspora taberi [VP] (Labeda 1987) Korn-Wendisch et al. 1989 <- *Saccharopolyspora hirsuta subspecies taberi* (basonym) - LL-WRAT-210 | ATCC 49842 | DSM 43856, AF002819, Scp.taberi | NBRC 15061 | IMET 7648 | NRRL B-16173

Saccharopolyspora thermophila [VP] Lu et al. 2001 - 216 | AS4.1511, AF127526 | NBRC 16346 | JCM 10664

Genus XI. Streptoalloteichus [VP]

Streptoalloteichus hindustanus [VP (T)] Tomita et al. 1987 - C677-91 | ATCC 31217 | DSM 44318

Genus XII. Thermobispora [VP]

Thermobispora bispora [VP (T)] (Henssen 1957) Wang et al. 1996 <- *Microbispora bispora* (basonym) - R51 | ATCC 19993, U58523, Ths.bispo5 | ATCC 19993, U83909, Ths.bispo2 | ATCC 19993, U83910, Ths.bispor | ATCC 19993, U83911, Ths.bispo3 | ATCC 19993, U83912, Ths.bispo4 | CBS 139.67 | DSM 43833 | NBRC 14880

Genus XIII. Thermocrispum [VP]

Thermocrispum municipale [VP (T)] Korn-Wendisch et al. 1995 - MKD35 | ATCC 51796 | DSM 44069, X79184, Th.munici2 | NBRC 15806 | NCIMB 13403

Thermocrispum agreste [VP] Korn-Wendisch et al. 1995 - CHB77 | ATCC 51797 | DSM 44070, X79183, Th.agreste | NBRC 15805 | NCIMB 13402

Family II. *Actinosynnemataceae* [VP]

Genus I. Actinosynnema [AL (T)]

Actinosynnema mirum [AL (T)] Hasegawa et al. 1978 - 101 | ATCC 29888 | DSM 43827, X84447, Asy.mirum | IAM 14280 | NBRC 14064, D85475, Asy.mirum2 | IMET 9740 | IMRU 3971 | JCM 3225 | KCC A-0225

Actinosynnema pretiosum subspecies pretiosum [VP] Hasegawa et al. 1983 - C-15003 (N-1) | RCTI C-15003 (N-1) | ATCC 31281 | DSM 44132 | FERM-P 3992 | NBRC 13726 | JCM 7344

Actinosynnema pretiosum subspecies auranticum [VP] Hasegawa et al. 1983 - C-14482 (N-1001) | RTCI C-14482 | ATCC 31309 | DSM 44131 | FERM-P 4130 | NBRC 13725 | JCM 7343

Genus II. Actinokineospora [VP]

Actinokineospora riparia [VP (T)] Hasegawa 1988 - C-39162 | ATCC 27300 | CCRC 13450 | DSM 44259 | NBRC 14541, X76953, Ack.ripari | JCM 7471 | MTCC 2712 | NCIMB 13255 | NRRL B-16432

Actinokineospora auranticolor [VP] Otoguro et al. 2003 - YU 961-1 | DSM 44650 | NBRC 16518

Actinokineospora diospyrosa [VP] Tamura et al. 1995 - YU8-1 | DSM 44255 | NBRC 15665 | JCM 9921 | KCTC 9569 | MTCC 2687

Actinokineospora enzanensis [VP] Otoguro et al. 2003 - YU 924-101 | DSM 44649 | NBRC 16517

Actinokineospora globicatena [VP] Tamura et al. 1995 - YU6-1 | DSM 44256 | NBRC 15664 | JCM 9922 | KCTC 9570 | MTCC 2686

Actinokineospora inagensis [VP] Tamura et al. 1995 - YU4-1 | DSM 44258 | NBRC 15663 | JCM 9923 | KCTC 9571 | MTCC 2685

Actinokineospora terrae [VP] Tamura et al. 1995 - YU6-3 | DSM 44260 | NBRC 15668 | JCM 9924 | KCTC 9572 | MTCC 2688

Genus III. Lechevalieria [VP]

Lechevalieria aerocolonigenes [VP (T)] (Labeda 1986) Labeda et al. 2001 <- *Saccharothrix aerocolonigenes* (basonym) - Shinobu N 701 | 96CJ10356 | ATCC 23870 | CBS 609.68 | CCRC 13661 | DSM 40034 | NBRC 3837 | NBRC 13195 | IMET 7515 | ISP 5034, AB020030 | JCM 4150 | NRRL B-3298, AF114804 | RIA 1108

Lechevalieria flava [VP] (Gauze et al. 1974) Labeda et al. 2001 <- *Saccharothrix flava* (basonym) - ATCC 29533 | CCRC 13328 | DSM 43885 | NBRC 14521 | INA 2171 | JCM 3296 | KCC A-0296 | NCIB 11447 | NRRL B-16131, AF114808

Genus IV. Lentzea [VP]

†*Lentzea albidocapillata* [VP (T)] Yassin et al. 1995 -> *Saccarothrix albidocapillata* - DSM 44073 | NBRC 15855 | IMMIB D-958, X84321, Lz.albicap | JCM 9732

Lentzea albida [VP] Labeda et al. 2001 - DSM 43393 | NBRC 16102, AB006176 | NRRL B-24073

Lentzea californiensis [VP] Labeda et al. 2001 - DSM 43393 | IMRU 550 | NRRL B-16137, AF174435

Lentzea flaviverrucosa [VP] Xie et al. 2002 - AS 4.0578, AF183957 | JCM 11373

Lentzea violacea [VP] (Lee et al. 2000) Labeda et al. 2001 [440] <- *Saccharothrix violacea* (basonym) - LM 036, AJ242633 | IMNSU 50388

Lentzea waywayandensis [VP] (Labeda and Lyons 1989) Labeda et al. 2001 <- *Saccharothrix waywayandensis* (basonym) - LL-37Z-15 | ATCC 51594 | DSM 44232 | NBRC 14970 | JCM 9114, AB020029 | NCIMB 13164 | NRRL B-16159, AF114813, AF114813

Genus V. Saccharothrix [VP]

Saccharothrix australiensis [VP (T)] Labeda et al. 1984 - LL-BM782Ce82 | ATCC 31497, M29282, Sct.austr2 | DSM 43800 | IAM 14291 | NBRC 14444 | JCM 3370 | NCIMB 13188 | NRRL 11239

Saccharothrix albidocapillata (Yassin et al. 1995) Lee et al. 2000 <- *Lentzia albidocapillata* (basonym) - LM 044, AJ242634 | DSM 44073 | IMMIB D-958

†*Saccharothrix aerocolonigenes subspecies aerocolonigenes* [VP] Labeda 1986 -> *Lechevalieria aerocolonigenes* - Shinobu N 701 | ATCC 23870 | CBS 609.68 | DSM 40034 | NBRC 13195 | NBRC 3837 | IMET 7515 | ISP 5034, AB020030 | NRRL B-3298 | RIA 1108

Saccharothrix aerocolonigenes subspecies staurosporea [VP] Takahashi et al. 1996 - AM-2282 | NRRL 11184

Saccharothrix coeruleofusca [VP] (Preobrazhenskaya and Sveshnikova 1974) Grund and Kroppenstedt 1990 <- *Nocardiopsis coeruleofusca* (basonym) - ATCC 35108 | DSM 43679, X76963, Sct.coerul | IMET 9602 | INA 1335

Saccharothrix coeruleoviolacea [VP] (Preobrazhenskaya et al. 1987) Kroppenstedt et al. 1991 <- *Actinomadura coeruleoviolacea* (basonym) - DSM 43935 | INA 3564 | VKM Ac 1083

†*Saccharothrix cryophilis* [VP] Labeda and Lechevalier 1989 -> *Crossiella cryophila* - TS-1980 | ATCC 51143, AF114806 | DSM 44230 | NBRC 14475 | JCM 9111 | NCIMB 13187 | NRRL B-16238, AF114807

Saccharothrix espanaensis [VP] Labeda and Lechevalier 1989 - LL-C19004-NS29 | ATCC 51144 | DSM 44229 | NBRC 15066 | JCM 9112 | NRRL 15764

†*Saccharothrix flava* [VP] (Gauze et al. 1974) Grund and Kroppenstedt 1990 <- *Nocardiopsis flava* (basonym) -> *Lechevalieria flava* - ATCC 29533 | DSM 43885 | INA 2171 | JCM 3296 | KCC A-0296 | NCIB 11447

Saccharothrix longispora [VP] (Preobrazhenskaya and Sveshnikova 1974) Grund and Kroppenstedt 1990 <- *Nocardiopsis longispora* (basonym) - ATCC 35109 | DSM 43749, X76964, Sct.longis | IMET 9603 | INA 10222

Saccharothrix mutabilis subspecies mutabilis [VP] (Shearer et al. 1983) Labeda and Lechevalier 1989 <- *Nocardiopsis mutabilis* (basonym) - AAA-0025 | ATCC 31520 | DSM 43853, X76966, Sct.mutabm | NBRC 14310 | JCM 3380 | NRRL B-16077 | SKF-AAA025

Saccharothrix mutabilis subspecies capreolus [VP] Grund and Kroppenstedt 1990 - M48-E 2655 | ATCC 23892 | CBS 678.68 | DSM 40225, X76965, Sct.mutabc | NBRC 12847 | ISP 5225 | NRRL 2773 | RIA 1167

[440] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Saccharothrix syringae [VP] (Gauze et al. 1985) Grund and Kroppenstedt 1990 <- *Nocardiopsis syringae* (basonym) - ATCC 51364 | DSM 43886 | NBRC 14523 | IMET 9675 | INA 2240 | JCM 6844

Saccharothrix tangerinus [VP] Kinoshita et al. 2000 - MK27-91F2, AB020031 | FERM P-16053 | NBRC 16184 | JCM 10302

Saccharothrix texasensis [VP] Labeda and Lyons 1989 - LL-37U-77 | ATCC 51593 | DSM 44231 | NBRC 14971 | JCM 9113 | NCIMB 13186 | NRRL B-16134, AF114814

†*Saccharothrix violacea* [VP] Lee et al. 2000 -> *Lentzea violacea* - LM 036, AJ242633 | IMSNU 50388

†*Saccharothrix waywayandensis* [VP] Labeda and Lyons 1989 -> *Lentzea waywayandensis* - LL-37Z-15 | ATCC 51594 | DSM 44232 | NBRC 14970 | JCM 9114, AB020029 | NCIMB 13164 | NRRL B-16159, AF114813

Suborder XIV. *Streptomycineae* [VP]

Family I. *Streptomycetaceae* [AL]

Genus I. Streptomyces [AL (T)]

Streptomyces albus subspecies albus [AL (T)] (Rossi Doria 1891) Waksman and Henrici 1943 - ATCC 25426 | ATCC 3004 | CBS 924.69 | DSM 40313, X53163, Stm.albus | NBRC 13014 | IMET 40241 | ISP 5313 | NRRL B-1811 | RIA 12C6

Streptomyces albus subspecies pathocidicus [AL] Nagatsu et al. 1962 - BK-513 | ATCC 14510 | DSM 40799 | JCM 4166 | KCC S-0166

Streptomyces abikoensis [VP] (Umezawa et al. 1951) Witt and Stackebrandt 1991 <- *Streptoverticillium abikoense* (basonym) - AS-803 | ATCC 12766 | CBS 487.62 | DSM 40831, X53168, Stm.abikon | NRRL B-1518 | RIA 497

Streptomyces aburaviensis [AL] Nishimura et al. 1957 - SRL S-66 | ATCC 23869 | CBS 608.68 | DSM 40033 | NBRC 12830 | IMET 43031 | ISP 5033 | JCM 4170 | KCC S-0170 | NRRL B-2218 | RIA 1107

Streptomyces achromogenes subspecies achromogenes [AL] Okami and Umezawa 1953 - Z-4-1 | ATCC 12767 | ATCC 19719 | CBS 458.68 | DSM 40028 | NBRC 12735 | IMET 43080 | ISP 5028 | JCM 4121 | RIA 1000

Streptomyces achromogenes subspecies rubradiris [AL] Bhuyan et al. 1965 - CBS 566.70 | DSM 40789 | JCM 4955 | NRRL 3061

Streptomyces acidiscabies [VP] Lambert and Loria 1989 - RL-110 | ATCC 49003, D63865, Stm.acidsc | DSM 41668 | ICMP 12536 | JCM 7913

Streptomyces acrimycini [AL] (Preobrazhenskaya et al. 1957) Pridham et al. 1958 - ATCC 19720 | ATCC 19885 | CBS 459.68 | DSM 40135 | ETH 24207 | NBRC 12736 | INA 7699 | ISP 5135 | KCC S-0339 | NRRL B-2565 | RIA 1001

Streptomyces aculeolatus [VP] Shomura et al. 1988 - SF2415 | JCM 6055

Streptomyces afghaniensis [AL] Shimo et al. 1959 - 772 | ATCC 23871 | CBS 610.68 | DSM 40228 | NBRC 12831 | IMET 42942 | ISP 5228, AJ399483 | JCM 4340 | RIA 1169

Streptomyces alanosinicus [AL] Thiemann and Beretta 1966 - V/119 | ATCC 15710 | CBS 348.69 | CBS 794.72 | DSM 40606 | NBRC 13493 | ISP 5606 | RIA 1454

Streptomyces albaduncus [AL] Tsukiura et al. 1964 - ATCC 14698 | CBS 698.72 | DSM 40478 | NBRC 13397 | ISP 5478 | JCM 4715 | KCC S-0715 | RIA 1358

Streptomyces albiaxialis [VP] Kuznetsov et al. 1993 - VKM A-691

Streptomyces albidochromogenes [VP] Preobrazhenskaya 1986 - INA 11792

Streptomyces albidoflavus [AL] (Rossi Doria 1891) Waksman and Henrici 1948 - ATCC 25422 | CBS 416.34 | CBS 920.69 | DSM 40455, Z76676, Stm.albflv | ICMP 12537 | NBRC 13010 | ISP 5455 | JCM 4446 | NRRL B-1271 | RIA 1202

Streptomyces albireticuli [VP] (Nakazawa 1955) Witt and Stackebrandt 1991 <- *Streptoverticillium albireticuli* (basonym) - ATCC 19721 | CBS 460.68 | DSM 40051 | NBRC 12737 | ISP 5051 | JCM 4116 | RIA 1002

Streptomyces albofaciens [AL] Thirumalachar and Bhatt 1960 - 27-A | ATCC 23873 | ATCC 25184 | CBS 612.68 | DSM 40268 | NBRC 12833 | IMET 43518 | ISP 5268 | JCM 4342, AB045880 | RIA 1189

Streptomyces alboflavus [AL] (Waksman and Curtis 1916) Waksman and Henrici 1948 - ATCC 12626 | ATCC 23874 | CBS 613.68 | DSM 40045 | NBRC 13196 | IMET 42936 | IMRU 3008 | ISP 5045 | RIA 1112

Streptomyces albogriseolus [AL] Benedict et al. 1954 - ATCC 23875 | CBS 614.68 | DSM 40003 | NBRC 12834 | ISP 5003 | JCM 4004 | JCM 4616 | NRRL B-1305 | RIA 1101

Streptomyces albolongus [AL] Tsukiura et al. 1964 - 304 R7 | ATCC 27414 | CBS 766.72 | DSM 40570 | NBRC 13465 | ISP 5570 | JCM 4716 | RIA 1426

Streptomyces alboniger [AL] Porter et al. 1952 - P-638 | ATCC 12461 | ATCC 19722 | CBS 461.68 | DSM 40043 | NBRC 12738 | IMET 43691 | ISP 5043 | RIA 1003

Streptomyces albospinus [AL] Wang et al. 1966 - M750-G1 | ATCC 29808 | DSM 41674 | NBRC 13846 | JCM 3399

Streptomyces albosporeus subspecies albosporeus [AL] (Krainsky 1914) Waksman and Henrici 1948 = *Streptomyces aurantiacus* (earlier heterotypic synonym) - ATCC 15394 | CCM 3157 | DSM 40795 | NRRL B-2372 | RIA 482

Streptomyces albosporeus subspecies labilomyceticus [AL] Okami et al. 1963 - A955-Y3 | DSM 41672 | JCM 3383 | NIHJ 425[441]

Streptomyces alboverticillatus [VP] (Locci and Schofield 1989) Witt and Stackebrandt 1991 <- *Streptoverticillium alboverticillatum* (basonym) - 1101-A5 | IMC S-0603 | ATCC 29818 | DSM 41500 | DSM 41678 | NBRC 13861 | IPV 2254 | JCM 5010 | KCC S-1010

Streptomyces albovinaceus [AL] (Kudrina 1957) Pridham et al. 1958 - ATCC 15823 | CBS 256.66 | CBS 462.68 | DSM 40136 | NBRC 12739 | INA 273/53 | ISP 5136 | JCM 4343 | KCC S-0343 | RIA 1004

Streptomyces alboviridis [AL] (Duche 1934) Pridham et al. 1958 - BS 923.69 | LCP 68 | ATCC 25425 | DSM 40326 | NBRC 13013 | ISP 5326 | NRRL B-3633 | RIA 1205

Streptomyces albulus [AL] Routien 1969 - BA 4105 | ATCC 12757 | CBS 711.72 | DSM 40492 | NBRC 13410 | ISP 5492 | RIA 1371

Streptomyces almquistii [AL] (Duche 1934) Pridham et al. 1958 - ATCC 25427 | ATCC 618 | CBS 925.69 | DSM 40447 | NBRC 13015 | IMET 43380 | ISP 5447 | KCC S-0451 | RIA 1207

Streptomyces althioticus [AL] Yamaguchi et al. 1957 - 245-22 | ATCC 19724 | CBS 463.68 | DSM 40092 | NBRC 12740 | ISP 5092 | RIA 1005

Streptomyces amakusaensis [AL] Nagatsu et al. 1963 - IPCR 10-101 | ATCC 23876 | CBS 615.68 | DSM 40219 | NBRC 12835 | ISP 5219 | JCM 4167 | JCM 4617 | RIA 1163

[441] Rule 37a(1) states that the name of a taxon must be changed if the nomenclatural type of the taxon is excluded. The status of *Streptomyces albosporeus* subsp. *labilomyceticus* is unclear following the combination of *Streptomyces albosporeus* subsp. *albosporeus* with *Streptomyces aurantiacus*

Streptomyces ambofaciens [AL] Pinnert-Sindico 1954 – 3486 | ATCC 23877, M27245, Stm.ambofa | CBS 616.68 | DSM 40053 | NBRC 12836 | ISP 5053 | JCM 4204 | RIA 1115

Streptomyces aminophilus [AL] Foster 1961 = *Streptomyces cacaoi subspecies cacaoi* (earlier heterotypic synonym) – ATCC 14961 | ATCC 23878 | CBS 617.68 | DSM 40186 | NBRC 12837 | ISP 5186 | NRRL 2390 | RIA 1140

Streptomyces anandii [AL] Batra and Bajaj 1965 – ITCC 1233 | ATCC 19388 | CBS 739.72 | DSM 40535 | NBRC 13438 | ISP 5535 | JCM 4720 | RIA 1399

Streptomyces anthocyanicus [AL] (Krassilnikov et al. 1965) Pridham 1970 – 69 | ATCC 19821 | DSM 41422 | INMI 69 | NRRL B-12341

Streptomyces antibioticus [AL] (Waksman and Woodruff 1941) Waksman and Henrici 1948 – ATCC 23879 | ATCC 8663 | CBS 659.68 | DSM 40234 | NBRC 12838 | IMET 40227 | IMRU 3435 | ISP 5234 | RIA 1174

Streptomyces antimycoticus [AL] Waksman 1957 – ATCC 23880 | CBS 660.68 | DSM 40284 | NBRC 12839 | ISP 5284 | JCM 4228 | NRRL 2421 | RIA 1198

Streptomyces anulatus [AL] (Beijerinck 1912) Waksman 1953 – ATCC 27416 | CBS 100.18 | CBS 670.72 | DSM 40361 | NBRC 13369 | IMET 43334 | ISP 5361 | JCM 4721 | KCC S-0721 | RIA 1330

Streptomyces arabicus [AL] Shibata et al. 1957 – ATCC 23881 | CBS 661.68 | DSM 40252 | NBRC 12840 | ISP 5252 | NRRL B-1733 | RIA 1178

Streptomyces ardus [VP] (De Boer et al. 1961) Witt and Stackebrandt 1991 <- *Streptoverticillium ardum* (basonym) – UC 2500 | ATCC 27417 | CBS 731.72 | DSM 40527 | NBRC 13430 | ISP 5527 | JCM 4543 | JCM 4722 | NRRL 2817 | RIA 1391

Streptomyces arenae [AL] Pridham et al. 1958 – NA 269-M2 | ATCC 25428 | CBS 926.69 | DSM 40293 | NBRC 13016 | ISP 5293, AJ399485 | NRRL 2377 | RIA 1208

Streptomyces argenteolus [AL] Tresner et al. 1961 – MD 2428 | ATCC 11009 | ATCC 23882 | CBS 662.68 | DSM 40226 | ETH 24234 | NBRC 12841 | IMET 43659 | ISP 5226 | JCM 4623, AB045872 | KCC S-0229 | KCC S-0623 | NIHJ 501 | RIA 1168

Streptomyces armeniacus [VP] (Kalakoutskii and Kuznetsov 1964) Wellington and Williams 1981 <- *Actinoplanes armeniacus* (basonym) – ATCC 15676 | DSM 43125 | DSM 43125 | ETH 32694 | IMET 9250 | JCM 3070, AB018092, Stm.armen1 | JCM 3070, AB018093, Stm.armen2 | JCM 3070, AB018094, Stm.armen3 | LBG A 3125 | RIA 26A-32 | RIA 807

Streptomyces asiaticus [VP] Sembiring et al. 2001 – A14P1, AJ391830 | DSM 41761 | NCIMB 13675

Streptomyces asterosporus [VP] Preobrazhenskaya 1986 – DSM 41452 | INMI 16 | JCM 6912 | VKM Ac-40

Streptomyces atratus [AL] Shibata et al. 1962 – Nakazawa 46408 | ATCC 14046 | DSM 41673 | NBRC 3897 | JCM 3386

Streptomyces atroaurantiacus [VP] Nakagaito et al. 1993 – K55-G-32 | ATCC 51343 | DSM 41649 | NBRC 14327 | JCM 3337

Streptomyces atroolivaceus [AL] (Preobrazhenskaya et al. 1957) Pridham et al. 1958 – ATCC 19725 | CBS 464.68 | DSM 40137 | NBRC 12741 | IMET 43088 | INA 4776/54 | ISP 5137 | RIA 1006

Streptomyces atrovirens [VP] Preobrazhenskaya and Terekhova 1986 – DSM 41467 | INA 1551 | JCM 6913

Streptomyces aurantiacus [AL] (Rossi Doria 1891) Waksman 1953 emend. Lanoot et al. 2002 = *Streptomyces albosporeus subspecies albosporeus* (later heterotypic synonym) - ATCC 19822 | ATCC 25429 | CBS 927.69 | DSM 40412 | NBRC 13017 | INMI 1373 | ISP 5412 | RIA 1209

Streptomyces aurantiogriseus [AL] (Preobrazhenskaya 1957) Pridham et al. 1958 - ATCC 19887 | CBS 663.68 | DSM 40138 | NBRC 12842 | INA 10369/58 | ISP 5138 | RIA 1130

Streptomyces aureocirculatus [AL] (Krassilnikov and Yuan 1965) Pridham 1970 - ATCC 15851 | ATCC 19823 | ATCC 25430 | CBS 928.69 | DSM 40386 | NBRC 13018 | INMI 735 | ISP 5386 | RIA 1210 | RIA 682

Streptomyces aureofaciens [AL] Duggar 1948 - A-377 | ATCC 10762 | ATCC 23884 | CBS 664.68 | DSM 40127 | ICMP 499 | NBRC 12594 | NBRC 12843 | IMET 43577 | ISP 5127 | JCM 4008 | LMG 5968 | NRRL 2209, Y15504, Stm.aureof | RIA 1129

Streptomyces aureorectus [VP] Taig and Solovieva 1986 - 2843-10 | DSM 41692 | NBRC 15896 | INA A-78 | RIA 553 | VKM Ac-1828

Streptomyces aureoversilis [VP] (Locci et al. 1969) Witt and Stackebrandt 1991 <- *Streptoverticillium aureoversile* (basonym) - ATCC 15853 | ATCC 25433 | CBS 664.69 | DSM 40387 | NBRC 13021 | ISP 5387 | JCM 4457 | KCC S-0457 | RIA 1213 | RIA 681

Streptomyces aureoverticillatus [AL] (Krassilnikov and Yuan 1960) Pridham 1970 - ATCC 15854 | CBS 465.68 | DSM 40080 | NBRC 12742 | INMI-1077 | ISP 5080 | RIA 1007 | RIA 679

Streptomyces avellaneus [AL] Baldacci and Grein 1966 - 2758 FI | ATCC 23730 | CBS 752.72 | DSM 40554 | NBRC 13451 | IMRU 3911 | IPV 1830 | ISP 5554 | JCM 4321 | NRRL B-3447 | RIA 1412

Streptomyces avermectinius [VP] Takahashi et al. 2002 = *Streptomyces avermitilis* (earlier homotypic synonym) - MA-4680, AB078897 | ATCC 31267 | NRRL 8165

Streptomyces avermitilis [VP] Kim and Goodfellow 2002 = *Streptomyces avermectinius* (later homotypic synonym) - MA-4680 | ATCC 31267 | NCIMB 12804, AF145223 | NRRL 8165

Streptomyces avidinii [AL] Stapley et al. 1964 - MA-833 | ATCC 27419 | CBS 730.72 | DSM 40526 | NBRC 13429 | IMET 43538 | ISP 5526 | NRRL 3077 | RIA 1390

†*Streptomyces azaticus* [VP] Nakagaito et al. 1993 -> *Kitasatospora azatica* - OS-3256 | ATCC 51237 | DSM 41650 | NBRC 13803, U93312

Streptomyces azureus [AL] Kelly et al. 1959 - SC-2364 | ATCC 14921 | CBS 467.68 | DSM 40106 | NBRC 12744 | IMET 43765 | ISP 5106 | JCM 4217 | JCM 4564 | RIA 1009

Streptomyces baarnensis [AL] Pridham et al. 1958 - Dreyfus 472 | ATCC 23885 | CBS 306.55 | CBS 665.68 | DSM 40232 | NBRC 13197 | IMET 43091 | ISP 5232 | RIA 1172

Streptomyces bacillaris [AL] (Krassilnikov 1958) Pridham 1970 - ATCC 15855 | CBS 788.72 | DSM 40598 | NBRC 13487 | INMI 445 | ISP 5598 | RIA 1448 | RIA 336

Streptomyces badius [AL] (Kudrina 1957) Pridham et al. 1958 - 1203/53 | ATCC 19729 | ATCC 19888 | CBS 468.68 | DSM 40139 | NBRC 12745 | IMET 43089 | ISP 5139 | RIA 1010

†*Streptomyces baldaccii* [VP] (Farina and Locci 1966) Witt and Stackebrandt 1991 = *Streptomyces roseoverticillatus* (earlier heterotypic synonym) <- *Streptoverticillium baldaccii* (basonym) - ATCC 23654 | DPDU 0819, X53164, Stm.rosver

Streptomyces bambergiensis [AL] Wallhäusser et al. 1966 - 3263 | ATCC 13879 | CBS 780.72 | DSM 40590 | NBRC 13479 | ISP 5590 | JCM 4728 | RIA 1440

Streptomyces beijiangensis [VP] Li et al. 2002 - AS 4.1718 | CCTCC 99005 | DSM 41794 | YIM6, AF385681

Streptomyces bellus [AL] Margalith and Beretta 1960 - A/870 | ATCC 14925 | ATCC 23886 | CBS 666.68 | DSM 40185 | NBRC 12844 | IMET 42062 | JCM 4292 | JCM 4625 | RIA 1139

Streptomyces bikiniensis [AL] Johnstone and Waksman 1947 - ATCC 11062 | DSM 40581, X79851, Stm.bikini | ETH 14303 | IMET 41362 | IMRU 3514 | ISP 5581 | JCM 4011 | NRRL B-1049

†*Streptomyces biverticillatus* [VP] (Preobrazhenskaya 1957) Witt and Stackebrandt 1991 = *Streptomyces roseoverticillatus* (earlier heterotypic synonym) <- *Streptoverticillium biverticillatum* (basonym) - ATCC 23615 | ATCC 23888 | CBS 668.68 | DSM 40272 | NBRC 12845 | INA 10204/54 | ISP 5272 | RIA 1190

Streptomyces blastmyceticus [VP] (Watanabe et al. 1957) Witt and Stackebrandt 1991 <- *Streptoverticillium blastmyceticum* (basonym) - 445 D1 | ATCC 19731 | CBS 470.68 | DSM 40029 | NBRC 12747 | ISP 5029 | RIA 1012

Streptomyces bluensis [AL] Mason et al. 1963 - U-12898 | ATCC 27420 | CBS 761.72 | DSM 40564 | NBRC 13460 | ISP 5564, X79324, Stm.bluens | NRRL 2876 | RIA 1421

Streptomyces bobili [AL] (Waksman and Curtis 1916) Waksman and Henrici 1948 - ATCC 23889 | ATCC 3310 | CBS 675.68 | DSM 40056 | NBRC 13199 | IMET 41372 | IMRU 3310 | ISP 5056 | RIA 1116

Streptomyces bottropensis [AL] Waksman 1961 - B-35 | ATCC 25435, D63868, Stm.bottre | CBS 163.64 | CBS 667.69 | DSM 40262 | ETH 23899 | NBRC 13023 | ISP 5262 | JCM 4459 | RIA 1215

Streptomyces brasiliensis [VP] (Falcao de Morais et al. 1966) Goodfellow et al. 1986 <- *Elytrosporangium brasiliense* (basonym) - CCIB 71 | ATCC 23727 | CUB 126 | DSM 43159, X53162, Stm.brasil | NBRC 12596 | IMET 43493 | IMUR 2572 | JCM 3086 | KCC 30 | KCC A-0086 | RIA 911

Streptomyces bungoensis [VP] Eguchi et al. 1993 - MS16-10G | FERM 8432

Streptomyces cacaoi subspecies cacaoi [AL] (Waksman 1932) Waksman and Henrici 1948 emend. Lanoot et al. 2002 = *Streptomyces aminophilus* (later heterotypic synonym) - ATCC 19732 | ATCC 3082 | CBS 471.68 | DSM 40057 | NBRC 12748 | IMET 40260 | IMRU 3082 | ISP 5057 | RIA 1013

Streptomyces cacaoi subspecies asoensis [AL] Isono et al. 1965 - 20-60 | ATCC 19093 | CBS 378.69 | DSM 41440 | NBRC 13813 | JCM 4185 | KCC S-0185 | NCIB 12769 | NRRL B-16592

Streptomyces caelestis [AL] De Boer et al. 1955 - UC 2011 | ATCC 14924 | ATCC 15084 | CBS 472.68 | DSM 40084 | NBRC 12749 | IMET 43502 | ISP 5084 | NRRL 2418, X80824, Stm.caeles | RIA 1014

Streptomyces caeruleus [AL] (Baldacci 1944) Pridham et al. 1958 - ATCC 27421 | CBS 645.72 | DSM 40103 | NBRC 13344 | IMET 40622 | IPV 930 | ISP 5103 | RIA 1305

Streptomyces californicus [AL] (Waksman and Curtis 1916) Waksman and Henrici 1948 - ATCC 11896 | ATCC 19734 | ATCC 3312 | CBS 473.68 | DSM 40058 | ETH 10212 | NBRC 12750 | NBRC 3386 | IMET 40261 | IMRU 3312 | IMRU 3313 | ISP 5058 | KCC S-0015 | KCC S-0567 | NRRL B-2285 | RIA 1015 | RIA 63

Streptomyces calvus [AL] Backus et al. 1957 - T-3018 | ATCC 13382 | ATCC 23890 | CBS 676.68 | DSM 40010 | NBRC 13200 | ISP 5010 | JCM 4326 | JCM 4628 | RIA 1103

Streptomyces canarius [AL] Vavra and Dietz 1965 - UC 2591 | ATCC 27423 | CBS 732.72 | DSM 40528 | NBRC 13431 | IMET 43539 | ISP 5528 | NRRL 2976 | RIA 1392

Streptomyces candidus [VP] Sveshnikova 1986 - ATCC 19735 | ATCC 19891 | ATCC 23981 | CBS 677.68 | DSM 4014 | NBRC 12846 | INA 5855/54 | ISP 5141 | RIA 1131

Streptomyces canescens [AL] Waksman 1957 - 8110 | SC 3069 | ATCC 19736 | CBS 474.68 | DSM 40001, Z76684, Stm.canesc | DSM 41156 | NBRC 12751 | IMET 43077 | IMRU 3782 | ISP 5001 | JCM 4196 | JCM 4568 | KCC S-0196 | KCC S-0568 | NRRL 2419 | RIA 1016

Streptomyces cangkringensis [VP] Sembiring et al. 2001 - D13P3, AJ391831 | DSM 41769 | NCIMB 13684

Streptomyces caniferus [VP] Preobrazhenskaya 1986 - ATCC 43699 | DSM 41453 | INMI 377 | JCM 6914 | VKM 68

Streptomyces canus [AL] Heinemann et al. 1953 - 456786 | ATCC 12237 | CBS 475.68 | DSM 40017 | NBRC 12752 | ISP 5017 | RIA 1017

Streptomyces capillispiralis [VP] Mertz and Higgins 1982 - A49492 | MS 1486 | DSM 41695 | NBRC 14222 | JCM 5075 | KCC S-1075 | NCIMB 12832 | NRRL 12279

Streptomyces capoamus [AL] Goncalves de Lima et al. 1964 - IAUR 3122 | ATCC 19006 | CBS 712.72 | DSM 40494 | NBRC 13411 | ISP 5494 | JCM 4253 | JCM 4734 | RIA 1372

Streptomyces carpaticus [VP] Maksimova and Terekhova 1986 - ATCC 43678 | DSM 41468 | INA 8851 | JCM 6915

Streptomyces carpinensis [VP] (Falcao de Morais et al. 1971) Goodfellow et al. 1986 <- *Elytrosporangium carpinense* (basonym) - 70-6-2 | ATCC 27116 | DSM 43835 | NBRC 14214 | IMET 43558 | JCM 3301 | KCC 3301 | NRRL B-16921 | RIA 982 | VKM Ac-1300 | VKM Ac-657

Streptomyces catenulae [AL] Davisson and Finlay 1961 - 6563 | ATCC 12476 | ATCC 23893 | CBS 679.68 | DSM 40258 | NBRC 12848 | IMET 42944 | ISP 5258 | RIA 1183

Streptomyces caviscabies [VP] Goyer et al. 1996 - EF-87 | ATCC 51928, AF112160

Streptomyces cavourensis subspecies cavourensis [AL] Skarbek and Brady 1978 - 829 | ATCC 14889 | CBS 669.69 | DSM 40300 | NBRC 13026 | ISP 5300 | JCM 4249 | NCIB 8918 | RIA 1218

Streptomyces cavourensis subspecies washingtonensis [AL] Skarbek and Brady 1978 - ATCC 27732 | DSM 41423 | JCM 4967 | KCC S-0967 | NRRL B-8030

Streptomyces cellostaticus [AL] Hamada 1958 - E-150 | ATCC 23894 | CBS 680.68 | DSM 40189 | NBRC 12849 | IMET 42066 | ISP 5189 | RIA 1143

Streptomyces celluloflavus [AL] Nishimura et al. 1953 - ATCC 29806 | DSM 40839 | ETH 24125 | NBRC 13780 | KCC S-0126 | NIHJ 198 | NRRL B-2493

Streptomyces cellulolyticus [VP] Li 1997 - AS. 41332 | LX

Streptomyces cellulosae [AL] (Krainsky 1914) Waksman and Henrici 1948 - ATCC 25439 | CBS 122.18 | CBS 670.69 | DSM 40362 | NBRC 13027 | ISP 5362 | RIA 1219

Streptomyces champavatii [AL] Uma and Narasimha Rao 1959 - DSM 40841 | JCM 5066 | NRRL B-5682

Streptomyces chartreusis [AL] Leach et al. 1953 – UC 2012 | ATCC 14922 | ATCC 19738 | CBS 476.68 | DSM 40085 | NBRC 12753 | ISP 5085, AJ399468 | JCM 4570 | NRRL 2287 | RIA 1018

Streptomyces chattanoogensis [AL] Burns and Holtman 1959 – ATCC 13358 | ATCC 19739 | CBS 477.68 | DSM 40002 | NBRC 12754 | ISP 50002 | J-23 | JCM 4299 | JCM 4571 | RIA 1019

Streptomyces chibaensis [AL] Suzuki et al. 1958 – 77-SN-2 | ATCC 23895 | CBS 681.68 | DSM 40220 | NBRC 12850 | ISP 5220 | RIA 1164

Streptomyces chrestomyceticus [AL] Canevazzi and Scotti 1959 – ATCC 14947 | CBS 745.72 | DSM 40545 | DSM 40820 | NBRC 13444 | IMRU 3835 | ISP 5545 | NCIB 8995 | RIA 1405

Streptomyces chromofuscus [AL] (Preobrazhenskaya et al. 1957) Pridham et al. 1958 – 13638/58 | ATCC 23896 | CBS 682.68 | DSM 40273 | NBRC 12851 | ISP 5273 | RIA 1191

Streptomyces chryseus [AL] (Krassilnikov et al. 1965) Pridham 1970 – ATCC 19829 | CBS 678.72 | DSM 40420 | NBRC 13377 | INMI 1007 B | ISP 5420 | RIA 1338

Streptomyces chrysomallus subspecies chrysomallus [AL] Lindenbein 1952 – Schön 192 | ATCC 11523 | ATCC 23209 | CBS 478.68 | DSM 40128 | ETH 12398 | NBRC 12755 | IMET 41360 | IMRU 3657 | ISP 5128 | KCC S-0355 | NRRL 2250 | RIA 1020

Streptomyces chrysomallus subspecies fumigatus [AL] Frommer 1959 – DSM 41424 | JCM 3371 | NRRL B-2289

Streptomyces cinereorectus [VP] Terekhova and Preobrazhenskaya 1986 – ATCC 43679 | DSM 41469 | INA 5202 | JCM 6916

Streptomyces cinereoruber subspecies cinereoruber [AL] Corbaz et al. 1957 – PSAM 192 | ATCC 19740 | CBS 479.68 | DSM 40012 | DSM 41512 | ETH 7451 | NBRC 12756 | ISP 5012 | JCM 4205 | JCM 4572 | KCC S-0205 | KCC S-0572 | RIA 1021

Streptomyces cinereoruber subspecies fructofermentans [AL] Corbaz et al. 1957 – DSM 40692 | ETH 6143 | JCM 4956 | NRRL 2588

Streptomyces cinereospinus [VP] Terekhova et al. 1986 – ATCC 43680 | DSM 41470 | INA 1719 | JCM 6917

Streptomyces cinereus [VP] (Cross et al. 1963) Goodfellow et al. 1986 <- *Microellobosporia cinerea* (basonym) – ATCC 15840 | CBS 356.67 | CUB 301 | DSM 43033 | NBRC 12477 | IMET 43557 | IMRU 3855 | JCM 3040 | KCC 3040 | NCIB 9586 | RIA 810

Streptomyces cinerochromogenes [AL] Miyairi et al. 1966 – Fuji 50 | ATCC 33339 | DSM 41651 | NBRC 13922 | JCM 3385 | NRRL B-16928

Streptomyces cinnabarinus [AL] (Ryabova and Preobrazhenskaya 1957) Pridham et al. 1958 – ATCC 23617 | CBS 671.69 | DSM 40467 | NBRC 13028 | INA 1242 | ISP 5467, AJ399487 | RIA 1220

Streptomyces cinnamonensis [AL] Okami 1952 – AH-304 | ATCC 12308 | CBS 411.63 | DSM 40803 | NBRC 3414 | NRRL B-1588

Streptomyces cinnamoneus subspecies cinnamoneus [VP] (Benedict et al. 1952) Witt and Stackebrandt 1991 <- *Streptoverticillium cinnamoneum subspecies cinnamoneum* (basonym) – A-725 | ATCC 11874 | ATCC 23897 | CBS 293.64 | CBS 683.68 | DSM 40005 | DSM 41431 | ETH 13 355 | NBRC 12852 | IMRU 3664 | IPV 1776 | IPV 2013 | IPV 936 | ISP 5005, X53171, Stm.cincin | JCM 4152 | JCM 4633 | KCC S-0152 | KCC S-0633 | NCIB 8851 | NRRL B-1285 | RIA 1102 | RIA 360

Streptomyces cinnamoneus subspecies albosporus [VP] (Thirumalachar 1968) Witt and Stackebrandt <- *Streptoverticillium cinnamoneum subspecies albosporum* (basonym) – HA-145 | ATCC 25186 | DSM 40897 | IPV 2066

Streptomyces cinnamoneus subspecies lanosus [VP] (Thirumalachar 1968) Witt and Stackebrandt 1991 <- *Streptoverticillium cinnamoneum subspecies lanosum* (basonym) - HA-176 | ATCC 25187 | DSM 40898 | IPV 2067

Streptomyces cinnamoneus subspecies sparsus [VP] (Thirumalachar 1968) Witt and Stackebrandt 1991 <- *Streptoverticillium cinnamoneum subspecies sparsum* (basonym) - HA-106 | ATCC 25185 | DSM 40899 | IPV 2068

Streptomyces cirratus [AL] Koshiyama et al. 1963 - ATCC 14699 | CBS 699.72 | DSM 40479 | NBRC 13398 | ISP 5479 | JCM 4738 | RIA 1359

Streptomyces ciscaucasicus [VP] Sveshnikova 1986 - ATCC 23626 | ATCC 23918 | CBS 839.68 | DSM 40275 | NBRC 12872 | IMET 42945 | INA 2022/55 | ISP 5275 | RIA 1193

Streptomyces citreofluorescens [AL] (Korenyako et al. 1960) Pridham 1970 - ATCC 15858 | ATCC 23898 | CBS 684.68 | DSM 40265 | NBRC 12853 | INMI 2292 | ISP 5265 | RIA 1187 | RIA 648

Streptomyces clavifer [AL] (Millard and Burr 1926) Waksman 1953 - CBS 101.27 | DSM 40843 | NRRL B-2557

Streptomyces clavuligerus [AL] Higgens and Kastner 1971 - ATCC 27064 | DSM 40751 | IMET 43657 | NRRL 3585

†*Streptomyces cochleatus* [VP] Nakagaito et al. 1993 -> *Kitasatospora cochleata* - M-5, U93316, AB022871 | ATCC 51235 | DSM 41652 | NBRC 14768 | JCM 8799

Streptomyces coelescens [AL] (Krassilnikov et al. 1965) Pridham 1970 - ATCC 19830 | CBS 679.72 | DSM 40421 | NBRC 13378 | INMI 20-41 | ISP 5421 | RIA 1339

Streptomyces coelicoflavus [VP] Terekhova 1986 - DSM 41471 | INA 9630 | JCM 6918

Streptomyces coelicolor [AL] (Müller 1908) Waksman and Henrici 1948 - ATCC 23899 | CBS 210.27 | CBS 795.68 | CUB 100 | DSM 40233, Z76678, Stm.coeli4 | NBRC 12854 | ISP 5233 | JCM 4357 | RIA 1173

Streptomyces coeruleoflavus [VP] Preobrazhenskaya and Maximova 1986 - INA 2206

Streptomyces coeruleofuscus [AL] (Preobrazhenskaya 1957) Pridham et al. 1958 - ATCC 19741 | ATCC 23618 | CBS 480.68 | DSM 40144 | NBRC 12757 | IMET 43574 | INA 2922/57 | ISP 5144, AJ399473 | RIA 1022

Streptomyces coeruleoprunus [VP] Preobrazhenskaya 1986 - ATCC 43681 | DSM 41472 | INA 1655 | JCM 6919

Streptomyces coeruleorubidus [AL] (Preobrazhenskaya 1957) Pridham et al. 1958 - ATCC 13740 | ATCC 23900 | CBS 796.68 | DSM 40145 | NBRC 12855 | IMET 42060 | INA 12531/54 | ISP 5145, AJ306622 | JCM 4359 | RIA 1132

Streptomyces coerulescens [AL] (Preobrazhenskaya 1957) Pridham et al. 1958 - ATCC 19742 | ATCC 19896 | CBS 481.68 | DSM 40146 | NBRC 12758 | IMET 43578 | INA 4562 | ISP 5146 | RIA 1023

Streptomyces collinus [AL] Lindenbein 1952 - ATCC 19743 | CBS 482.68 | DSM 2012 | ICMP 12539 | NBRC 12759 | ISP 5129, AJ399462 | RIA 1024

Streptomyces colombiensis [AL] Pridham et al. 1958 - MA-52 | ATCC 27425 | CBS 755.72 | DSM 40558 | NBRC 13454 | ISP 5558 | KCC S-0675 | KCC S-0740 | NRRL B-1990 | RIA 1415

Streptomyces corchorusii [AL] Ahmad and Bhuiyan 1958 - ATCC 25444 | CBS 677.69 | DSM 40340 | NBRC 13032 | ISP 5340 | JCM 4286 | KCC S-0286 | NCIB 9476 | RIA 1224

Streptomyces costaricanus [VP] Esnard et al. 1995 - CR-43 | ATCC 55274 | NRRL B-16897

Streptomyces cremeus [AL] (Kudrina 1957) Pridham et al. 1958 - ATCC 19744 | ATCC 19897 | CBS 483.68 | DSM 40147 | NBRC 12760 | IMET 43743 | INA 815/54 | ISP 5147 | RIA 1025

Streptomyces crystallinus [AL] Tresner et al. 1961 - T-1384 | DSM 40945 | JCM 5067 | KCC S-1067 | NRRL B-3629

Streptomyces curacoi [AL] Cataldi 1963 - SC 3064 | ATCC 13385 | CBS 484.68 | DSM 40107 | NBRC 12761 | ISP 5107 | JCM 4219 | RIA 1026

Streptomyces cuspidosporus [AL] Higashide et al. 1966 - B-79 | ATCC 33340 | DSM 41425 | DSM 41653 | NBRC 12378 | JCM 4316 | NRRL B-5620

Streptomyces cyaneofuscatus [AL] (Kudrina 1957) Pridham et al. 1958 - ATCC 19746 | ATCC 23619 | CBS 485.68 | DSM 40148 | NBRC 13190 | IMET 41583 | INA 99/54 | ISP 5148 | RIA 1027

Streptomyces cyaneus [AL] (Krassilnikov 1941) Waksman 1953 - H-112 | ATCC 14923 | CBS 647.72 | DSM 40108 | NBRC 13346 | IMRU 3761 | ISP 5108 | LBG A 3119 | RIA 1307

Streptomyces cyanoalbus [AL] (Krassilnikov and Agre 1960) Pridham 1970 - ATCC 15859 | ATCC 23902 | CBS 798.68 | DSM 40198 | NBRC 12857 | INMI 414 | ISP 5198 | RIA 1150 | RIA 662

†*Streptomyces cystargineus* [VP] (Kusakabe and Isono 1992) Nakagaito et al. 1993 <- *Kitasatospora cystarginea* (basonym) -> *Kitasatospora cystarginea* - RK-419 | ATCC 49931 | DSM 41680 | FERM P-8006 | NBRC 14836 | JCM 7356, U93318, Kts.cystar[442]

Streptomyces daghestanicus [AL] (Sveshnikova 1957) Pridham et al. 1958 - ATCC 19747 | ATCC 23620 | CBS 486.68 | DSM 40149 | NBRC 12762 | INA 2656/55 | ISP 5149 | JCM 4365 | RIA 1028

Streptomyces diastaticus subspecies diastaticus [AL] (Krainsky 1914) Waksman and Henrici 1948 - ATCC 3315 | CBS 713.72 | DSM 40496, X53161, Stm.diasta | NBRC 13412 | IMET 40274 | ISP 5496, X53161, Stm.diasta | JCM 4128 | JCM 4745 | NRRL B-1270 | RIA 1373

Streptomyces diastaticus subspecies ardesiacus [AL] (Baldacci et al. 1955) Pridham et al. 1958 - CBS 100.56 | DSM 40934 | ETH 24355 | IPV 755 | JCM 5815 | NRRL B-1773

Streptomyces diastatochromogenes [AL] (Krainsky 1914) Waksman and Henrici 1948 - ATCC 12309, D63867, Stm.dichrm | CBS 370.58 | CBS 690.72 | DSM 40449 | NBRC 13389 | NBRC 3337 | ISP 5449 | NRRL B-1689 | RIA 1350

†*Streptomyces distallicus* [VP] (Locci et al. 1969) Witt and Stackebrandt 1991 = *Streptomyces netropsis* (earlier heterotypic synonym) <- *Streptoverticillium distallicum* (basonym) - DSM 40846 | NBRC 15815 | IPV 1983 | JCM 4544 | KCC S-0544 | NCIB 8936 | NRRL 2886 | VKM Ac-948

Streptomyces djakartensis [AL] Huber et al. 1962 - FH 1279 | ATCC 13441 | DSM 40743 | JCM 4957

Streptomyces durhamensis [AL] Gordon and Lapa 1966 - 59123 | ATCC 23194 | CBS 742.72 | DSM 40539 | NBRC 13441 | IMET 43359 | ISP 5539 | JCM 4291 | RIA 1402

Streptomyces echinatus [AL] Corbaz et al. 1957 - ATCC 19748 | CBS 409.59 | CBS 487.68 | CUB 95 | DSM 40013 | DSM 41251 | NBRC 12763 | IMET 40461 | ISP 5013, AJ399465 | JCM 4144 | JCM 4574 | KCC S-0144 | KCC S-0574 | NRRL 2587 | RIA 1029

Streptomyces echinoruber [VP] Palleroni et al. 1981 - X-14077 | DSM 41696 | NBRC 14238 | JCM 5016 | KCC S-0516 | NCIMB 12831 | NRRL 8144

[442] *Kitasatosporia cystarginea* was transferred to *Streptomyces* as *S. cystargineus*. Subsequently, Zhang et al. (1997) have proposed the revival of the genus *Kitasatospora* and the species *K. cystarginea*.

Streptomyces ederensis [AL] Wallhäusser et al. 1966 – FH 1277 | ATCC 15304 | DSM 40741 | JCM 4958

Streptomyces ehimensis [VP] (Shibata et al. 1954) Witt and Stackebrandt 1991 <- *Streptoverticillium ehimense* (basonym) – 138 | ATCC 23903 | CBS 799.68 | DSM 40253 | NBRC 12858 | NBRC 3398 | ISP 5253 | RIA 1179

Streptomyces endus [AL] Anderson and Gottlieb 1952 – 9 20 | ATCC 23904 | CBS 800.68 | DSM 40187 | NBRC 12859 | IMET 42064 | ISP 5187 | JCM 4213 | NRRL 2339 | RIA 1141

Streptomyces enissocaesilis [VP] Sveshnikova 1986 – ATCC 43682 | DSM 41454 | INMI 40-31 | VKM 130

Streptomyces erumpens [AL] Calot and Cercos 1963 – ATCC 23266 | CBS 252.65 | DSM 40941 | JCM 5060 | NRRL B-3163

†Streptomyces erythraeus [AL] (Waksman 1923) Waksman and Henrici 1948 -> *Saccharopolyspora erythraea* – M-5-12559 | ATCC 11635 | CBS 727.72 | DSM 40517 | DSM 41036 | NBRC 13426 | ISP 5517 | JCM 4026 | JCM 4748 | NCIB 8594 | NRRL 2338, X53198, Scp.erythr | RIA 1387

Streptomyces erythrogriseus [AL] Falcao de Morais and Dalia Maia 1959 – IAUR 1173 | ATCC 27427 | CBS 485.74 | CBS 485.74 | DSM 40116 | ISP 5116

Streptomyces eurocidicus [VP] (Okami et al. 1954) Witt and Stackebrandt 1991 <- *Streptoverticillium eurocidicum* (basonym) – ATCC 27428 | CBS 792.72 | DSM 40604 | NBRC 13491 | IMET 43412 | ISP 5604 | JCM 4029 | NIHJ 267 | NRRL B-1676 | RIA 1452 | RIA 733

Streptomyces europaeiscabei [VP] Bouchek-Mechiche et al. 2000 – CFBP 4497, AJ007423 | ICMP 13714 | NCPPB 4039

Streptomyces eurythermus [AL] Corbaz et al. 1957 – ATCC 14975, D63870, Stm.euryth | ATCC 19749 | CBS 488.68 | DSM 40014 | NBRC 12764 | IMET 43078 | ISP 5014 | NRRL 2539 | RIA 1030

Streptomyces exfoliatus [AL] (Waksman and Curtis 1916) Waksman and Henrici 1948 – ATCC 12627 | ATCC 19750 | CBS 489.68 | DSM 40060 | NBRC 13191 | IMRU 3316 | ISP 5060 | NRRL B-1237 | RIA 1031

Streptomyces felleus [AL] Lindenbein 1952 – 26 | ATCC 19752 | CBS 491.68 | DSM 40130, Z76681, Stm.felleu | NBRC 12766 | ISP 5130 | KCC S-0368 | RIA 1033

†Streptomyces fervens subspecies fervens [VP] (Baldacci and Locci 1974) Witt and Stackebrandt 1991 = *Streptomyces roseoverticillatus* (earlier heterotypic synonym) <- *Streptoverticillium fervens subspecies fervens* (basonym) – ATCC 27429 | ISP 5086 | NRRL 2755

†Streptomyces fervens subspecies melrosporus [VP] (Mason et al. 1965) Witt and Stackebrandt 1991 = *Streptomyces roseoverticillatus* (earlier heterotypic synonym) <- *Streptoverticillium fervens subspecies melrosporus* (basonym) – UC 2459 | DSM 40905 | NBRC 15920 | IPV 2022 | JCM 4926 | KCC S-0926 | NRRL 3117

Streptomyces filamentosus [AL] Okami and Umezawa 1953 – 1-C-9 | ATCC 19753 | CBS 492.68 | DSM 40022 | NBRC 12767 | IMET 43562 | ISP 5022 | RIA 1034

Streptomyces filipinensis [AL] Ammann et al. 1955 – 114-8 | ATCC 23905 | CBS 309.56 | CBS 801.68 | DSM 40112 | DSM 41155 | ETH 20722 | ETH 28584 | ETH 28594 | NBRC 12860 | ISP 5112 | JCM 4369 | KCC S-0369 | NRRL 2437 | RIA 1124

Streptomyces fimbriatus [AL] (Millard and Burr 1926) Waksman and Lechevalier 1953 – ATCC 15051 | CBS 453.65 | DSM 40942 | NRRL B-3175

Streptomyces fimicarius [AL] (Duche 1934) Waksman and Henrici 1948 – ATCC 25449 | CBS 420.34 | CBS 682.69 | DSM 40322 | NBRC 13037 | ISP 5322 | RIA 1229

Streptomyces finlayi [AL] (Szabo et al. 1963) Pridham 1970 – R-1-30 | ATCC 23340 | CBS 802.68 | DSM 40218 | NBRC 13201 | ISP 5218 | RIA 1162

Streptomyces flaveolus [AL] (Waksman 1923) Waksman and Henrici 1948 – ATCC 19754 | ATCC 3319 | CBS 493.68 | DSM 40061 | NBRC 12768 | IMET 40233 | IMRU 3319 | ISP 5061 | JCM 4032 | JCM 4577 | RIA 1035

Streptomyces flaveus [VP] (Cross et al. 1963) Goodfellow et al. 1986 <- *Micromonosporia flavea* (basonym) – ATCC 15332 | CBS 355.67 | DSM 43029 | DSM 43153 | NBRC 12190 | IMET 43554 | IMRU 3857 | JCM 3035 | KCC 3035 | NCIB 95 | RIA 896

Streptomyces flavidofuscus [VP] Preobrazhenskaya 1986 – ATCC 43683 | DSM 41473 | INA 15719 | JCM 6920

Streptomyces flavidovirens [AL] (Kudrina 1957) Pridham et al. 1958 – ATCC 19900 | CBS 684.69 | DSM 40150 | NBRC 13039 | IMET 43744 | INA 12287 | ISP 5150 | RIA 1231

Streptomyces flaviscleroticus [VP] Goodfellow et al. 1986 <- *Chainia flava* (basonym) – ATCC 19346 | ATCC 19347 | DSM 43152 | NBRC 12998 | IMET 43617 | ISP 5270 | KCC 3100 | NCIB 11008 | RIA 883

Streptomyces flavofungini [VP] Uri and Bekesi 1958 – SA-IX-3 | ATCC 27430 | CBS 411.59 | CBS 672.72 | DSM 40366 | NBRC 13371 | ISP 5366 | JCM 4753 | RIA 1332

Streptomyces flavofuscus [VP] (Kudrina 1957) Preobrazhenskaya 1986 <- *Streptomyces globisporus subspecies flavofuscus* (basonym) – ATCC 19908 | DSM 41426 | INA 1565 | NRRL B-2594

Streptomyces flavogriseus [AL] (Duche 1934) Waksman and Lechevalier 1953 – ATCC 25452 | CBS 101.34 | DSM 40323 | NBRC 13040 | IMET 43576 | ISP 5323 | RIA 1232

†*Streptomyces flavopersicus* [VP] (Oliver et al. 1961) Witt and Stackebrandt 1991 = *Streptomyces netropsis* (earlier heterotypic synonym) <- *Streptoverticillium flavopersicum* (basonym) – M-141 | ATCC 19756 | CBS 494.68 | DSM 40093 | NBRC 12769 | ISP 5093 | KCC S-0307 | KCC S-0370 | NRRL 2820 | RIA 1036

Streptomyces flavotricini [AL] (Preobrazhenskaya and Sveshnikova 1957) Pridham et al. 1958 – ATCC 19757 | ATCC 23621 | CBS 495.68 | DSM 40152 | NBRC 12770 | IMET 42057 | INA 11669/58 | ISP 5152 | RIA 1037

Streptomyces flavovariabilis [VP] Sveshnikova 1986 – ATCC 43684 | DSM 41479 | DSM 41503 | DSM 41688 | INMI 702 | NRRL B-16367 | VKM 141

Streptomyces flavovirens [AL] (Waksman 1923) Waksman and Henrici 1948 – ATCC 19758 | ATCC 3320 | CBS 129.20 | CBS 496.68 | DSM 40062 | NBRC 12771 | NBRC 3412 | IMET 40280 | IMRU 3320 | ISP 5062 | KCC S-0035 | RIA 1038

Streptomyces flavoviridis [VP] Preobrazhenskaya 1986 – ATCC 19759 | ATCC 19903 | CBS 497.68 | DSM 4015 | NBRC 12772 | IMET 42058 | INA 2314 | ISP 5153 | RIA 1039

Streptomyces flocculus [AL] (Duche 1934) Waksman and Henrici 1948 – LCP 373 | ATCC 25453 | CBS 686.69 | DSM 40327 | ETH 24454 | NBRC 13041 | IMET 43522 | ISP 5327 | KCC S-0476 | NRRL B-2843 | RIA 1233

Streptomyces floridae [AL] Bartz et al. 1951 – CBS 308.55 | DSM 40938 | ETH 20731 | NCIB 9345 | NRRL 2423

Streptomyces fluorescens [AL] (Krassilnikov 1958) Pridham 1970 – ATCC 15860 | ATCC 23907 | CBS 803.68 | DSM 40203 | NBRC 12861 | INMI 592 | ISP 5203 | RIA 647

Streptomyces fradiae [AL] (Waksman and Curtis 1916) Waksman and Henrici 1948 – ATCC 10745 | ATCC 19760 | CBS 498.68 | DSM 40063 | ETH

13363 | ETH 13472 | ETH 28510 | NBRC 12773 | IMET 42051 | IMRU 3535 | ISP 5063 | JCM 4133 | JCM 4579 | NCIB 8233 | NRRL B-1195 | RIA 1040

Streptomyces fragilis [AL] Anderson et al. 1956 – PD 04926 | ATCC 23908 | CBS 804.68 | DSM 40044 | NBRC 12862 | IMET 43575 | ISP 5044 | NRRL 2424 | RIA 1111

Streptomyces fulvissimus [AL] (Jensen 1930) Waksman and Henrici 1948 – ATCC 27431 | CBS 783.72 | DSM 40593 | NBRC 13482 | ISP 5593 | NCIB 9609 | NRRL B-1453 | RIA 1443

Streptomyces fulvorobeus [VP] Vinogradova and Preobrazhenskaya 1986 – DSM 41455 | INMI 34-280 | JCM 9090 | VKM 158

Streptomyces fumanus [AL] (Sveshnikova 1957) Pridham et al. 1958 – ATCC 19904 | ATCC 25454 | CBS 687.69 | DSM 40154 | NBRC 13042 | INA 10256/54 | ISP 5154, AJ399463 | RIA 1235

Streptomyces fumigatiscleroticus [VP] Goodfellow et al. 1986 <- *Chainia fumigata* (basonym) – ATCC 19345 | DSM 43154 | NBRC 12999 | JCM 3101 | KCC 3044 | KCC 3101 | RIA 729 | RIA 884

Streptomyces galbus [AL] Frommer 1959 – Wind 731 | ATCC 23910 | CBS 831.68 | DSM 40089, X79852, Stm.galbu2 | NBRC 12864 | IMET 42937 | ISP 5089 | NRRL B-2283 | RIA 1121

Streptomyces galilaeus [AL] Ettlinger et al. 1958 – ATCC 14969 | CBS 701.72 | DSM 40481 | ETH 18822 | NBRC 13400 | ISP 5481 | JCM 4231 | NRRL 2722 | RIA 1361

Streptomyces gancidicus [AL] Suzuki 1957 – DSM 40935 | IFM 1024 | JCM 4171 | KCC S-0171 | NRRL B-1872

Streptomyces gardneri [AL] (Waksman 1942) Waksman 1961 – ATCC 23911 | ATCC 9604 | CBS 832.68 | DSM 40064 | DSM 43020 | ETH 28347 | NBRC 12865 | NBRC 13974 | NBRC 3385 | IMET 7182 | IMRU 3834 | ISP 5064 | JCM 3004 | JCM 4375 | KCC A-0004 | KCC S-0375 | RIA 1117 | RIA 634

Streptomyces gelaticus [AL] (Waksman 1923) Waksman and Henrici 1948 – ATCC 23912 | ATCC 3323 | CBS 833.68 | DSM 40065 | NBRC 12866 | IMET 40285 | IMRU 3323 | ISP 5065 | JCM 4012 | JCM 4627 | KCC S-0376 | RIA 1118

Streptomyces geysiriensis [AL] Wallhäusser et al. 1966 – FH 1278 | ATCC 15303 | CBS 546.70 | DSM 40742 | JCM 4962

Streptomyces ghanaensis [AL] Wallhäusser et al. 1966 – FH 1290 | ATCC 14672 | CBS 544.70 | DSM 40746 | JCM 4963

Streptomyces gibsonii [AL] (Erikson 1935) Waksman and Henrici 1948 – Schering 242 | ATCC 6852 | CBS 118.60 | CBS 119.60 | DSM 40959 | DSM 43284 | ETH 16703 | IMET 7023 | IMRU 3420 | JCM 5061 | KCC S-1061 | NCTC 4575

Streptomyces glaucescens [AL] (Preobrazhenskaya 1957) Pridham et al. 1958 – ATCC 19761 | ATCC 23622 | CBS 499.68 | DSM 40155 | DSM 41504 | NBRC 12774 | IMET 43584 | INA 8731 | ISP 5155 | JCM 4377 | KCC S-0377 | NCIB 9619 | NCIB 9844 | RIA 1041

Streptomyces glaucosporus [VP] Agre 1986 – ATCC 25183 | DSM 41689 | NBRC 15416 | INA G-72 | INMI 2979 | JCM 6921 | VKM Ac-1763

Streptomyces glaucus [VP] Agre and Preobrazhenskaya 1986 – ATCC 43685 | DSM 41456 | INA G-86 | INMI 2965 | JCM 6922 | VKM Ac-803

Streptomyces globisporus subspecies globisporus [AL] (Krassilnikov 1941) Waksman 1953 – ATCC 15864 | ATCC 23913 | CBS 834.68 | DSM 40199 | NBRC 12867 | INMI 2302 | ISP 5199 | RIA 1151 | RIA 335

Streptomyces globisporus subspecies caucasicus [AL] (Kudrina 1957) Pridham et al. 1958 - AZ-2 | ATCC 19907 | CBS 120.60 | DSM 40814 | INA 13195154

†*Streptomyces globisporus subspecies flavofuscus* [AL] (Kudrina 1957) Pridham et al. 1958 -> *Streptomyces flavofuscus* - ATCC 19908 | DSM 41426 | INA 1565

Streptomyces globosus [AL] (Krassilnikov 1941) Waksman 1953 - BJ-333 | ATCC 14979 | DSM 40815 | IMRU 3736 | NRRL B-2292

Streptomyces glomeratus [VP] Gauze and Sveshnikova 1986 - DSM 41457 | INA 3980 | INA G-86 | INMI 2965 | VKM 834

Streptomyces glomeroaurantiacus [AL] (Krassilnikov and Yuan 1965) Pridham 1970 - ATCC 15866

Streptomyces gobitricini [AL] (Preobrazhenskaya and Sveshnikova 1957) Pridham et al. 1958 - FH 2147 | CBS 123.60 | DSM 41701 | NBRC 15419 | JCM 5062 | KCC S-1062 | NRRL B-2596

Streptomyces goshikiensis [AL] Niida 1966 - ATCC 23914 | CBS 835.68 | DSM 40190 | NBRC 12868 | IMET 42067 | ISP 5190 | RIA 1144

Streptomyces gougerotii [AL] (Duche 1934) Waksman and Henrici 1948 - ATCC 10975 | ATCC 25455 | CBS 422.34 | CBS 688.69 | DSM 40324, Z76687, Stm.gouger | NBRC 13043 | IMET 40289 | ISP 5324

Streptomyces graminearus [VP] Preobrazhenskaya 1986 - DSM 41474 | INA 13982 | JCM 6923

Streptomyces graminofaciens [AL] Charney et al. 1953 - MA-317 | ATCC 12705 | CBS 756.72 | DSM 40559 | NBRC 13455 | IMET 43540 | ISP 5559 | JCM 4157 | JCM 4762 | NRRL B-2609 | RIA 1416

Streptomyces griseinus [AL] Waksman 1959 - 68 | ATCC 23915 | ATCC 3478 | CBS 836 | DSM 40047 | NBRC 12869 | IMRU 3478 | ISP 5047 | JCM 4379 | RIA 1113

Streptomyces griseoaurantiacus [AL] (Krassilnikov and Yuan 1965) Pridham 1970 - ATCC 19840 | CBS 682.72 | DSM 40430 | NBRC 13381 | INMI AK-5 | ISP 5430 | KCC S-0763 | RIA 1342

Streptomyces griseobrunneus [AL] Waksman 1961 - ATCC 19762 | CBS 498.68 | CBS 500.68 | DSM 40066 | ETH 31437 | ETH 31581 | NBRC 12775 | IMET 42052 | IMRU 3068 | ISP 5066 | JCM 4380 | RIA 1042

Streptomyces griseocarneus [VP] (Benedict et al. 1950) Witt and Stackebrandt 1991 <- *Streptoverticillium griseocarneum* (basonym) - AS 4.1368 | NA 232-M1 | ATCC 12628 | ATCC 19763 | CBS 501.68 | CCM 3228 | DSM 40004, X99943 | DSM 41062 | NBRC 12776 | NBRC 3387 | ISP 5004 | JCM 4095 | JCM 4580 | KCC S-0095 | LMG 5973 | NRRL B-1068 | NRRL B-1350 | RIA 1043 | RIA 132 | VKM Ac-881

Streptomyces griseochromogenes [AL] Fukunaga 1955 - 2A-327 | ATCC 14511 | CBS 714.72 | DSM 40499, AJ310923 | NBRC 13413 | ISP 5499 | JCM 4039 | JCM 4764 | RIA 1374

Streptomyces griseoflavus [AL] (Krainsky 1914) Waksman and Henrici 1948 - ATCC 25456 | CBS 409.52 | CBS 689.69 | DSM 40456 | ETH 10249 | NBRC 13044 | NBRC 13046 | IMET 43530 | ISP 5456 | KCC S-0479 | RIA 1236

Streptomyces griseofuscus [AL] Sakamoto et al. 1962 - 1068 | ATCC 23916 | CBS 837.68 | DSM 40191 | NBRC 12870 | IMET 42068 | ISP 5191 | JCM 4276 | JCM 4641 | RIA 1145

Streptomyces griseoincarnatus [AL] (Preobrazhenskaya et al. 1957) Pridham et al. 1958 - ATCC 23623 | ATCC 23917 | CBS 838.68 | DSM 40274 | NBRC 12871 | INA 9673/55 | ISP 5274 | RIA 1192

Streptomyces griseoloalbus [AL] (Kudrina 1957) Pridham et al. 1958 - ATCC 23624 | ATCC 25458 | CBS 691.69 | DSM 40468 | NBRC 13046 | INA 1875/54 | ISP 5468 | RIA 1238

†*Streptomyces griseolosporeus* [VP] Wellington et al. 1992 <- *Kitasatospora griseola* (basonym) -> *Kitasatospora griseola* - AM-9660 | DSM 43859, M55221, Kts.griseo | NBRC 14371 | JCM 3339 | NRRL B-16229[443]

Streptomyces griseolus [AL] (Waksman 1923) Waksman and Henrici 1948 - ATCC 19764 | ATCC 3325 | CBS 502.68 | DSM 40067 | NBRC 12777 | NBRC 3415 | IMET 42053 | IMRU 3325 | ISP 5067 | KCC S-0042 | KCC S-0043 | KCC S-0581 | NRRL B-1062 | RIA 1044

Streptomyces griseoluteus [AL] Umezawa et al. 1950 - PSA 207 | ATCC 12768 | CBS 676.72 | CCM 3242 | DSM 40392 | DSM 41141 | ETH 24459 | NBRC 13375 | IMRU 3729 | ISP 5392 | JCM 4041 | JCM 4765 | KCC S-0041 | NIHJ 22 | NRRL B-1315 | RIA 1336

Streptomyces griseomycini [AL] (Preobrazhenskaya et al. 1957) Pridham et al. 1958 - ATCC 19765 | ATCC 23625 | CBS 503.68 | DSM 40159 | NBRC 12778 | INA 13984 | ISP 5159 | RIA 1045

Streptomyces griseoplanus [AL] Backus et al. 1957 - AA-223 | ATCC 19766 | CBS 504.68 | DSM 40009 | NBRC 12779 | ISP 5009 | RIA 1046

Streptomyces griseorubens [AL] (Preobrazhenskaya et al. 1957) Pridham et al. 1958 - ATCC 19767 | ATCC 19909 | CBS 505.68 | DSM 40160 | NBRC 12780 | INA 6124/54 | ISP 5160 | RIA 1047

Streptomyces griseoruber [AL] Yamaguchi and Saburi 1955 - H-4650 | ATCC 23919 | CBS 903.68 | DSM 40281 | NBRC 12873 | ISP 5281 | KCC S-0200 | KCC S-0642 | RIA 1195

Streptomyces griseorubiginosus [AL] (Ryabova and Preobrazhenskaya 1957) Pridham et al. 1958 - ATCC 23627 | ATCC 25459 | CBS 692.69 | DSM 40469 | NBRC 13047 | INA 7712 | ISP 5469, AJ399488 | RIA 1239

Streptomyces griseosporeus [AL] Niida and Ogasawara 1960 - B-793 | ATCC 27435 | CBS 137.72 | CBS 759.72 | DSM 40562 | NBRC 13458 | IMET 43543 | ISP 5562 | JCM 4766 | RIA 1419

Streptomyces griseostramineus [AL] (Preobrazhenskaya et al. 1957) Pridham et al. 1958 - ATCC 19768 | ATCC 23628 | CBS 506.68 | DSM 40161 | NBRC 12781 | INA 10381 | ISP 5161 | RIA 1048

Streptomyces griseoverticillatus [VP] (Shinobu and Shimada 1962) Witt and Stackebrandt 1991 <- *Streptoverticillium griseoverticillatum* (basonym) - 722 | ATCC 27436 | CBS 721.72 | DSM 40507 | NBRC 13420 | ISP 5507 | JCM 4202 | JCM 4767 | RIA 1381

Streptomyces griseoviridis [AL] Anderson et al. 1956 - P-D 04955 | ATCC 23920 | CBS 904.68 | DSM 40229 | NBRC 12874 | ISP 5229 | JCM 4250 | JCM 4643 | NRRL 2427 | RIA 1170

Streptomyces griseus subspecies griseus [AL] (Krainsky 1914) Waksman and Henrici 1948 - ATCC 23345, AF056711, Stm.grise2 | ATCC 23921 | CBS 345.35 | CBS 905.68 | DSM 40236 | ETH 4289 | NBRC 12875 | NBRC 3430 | IMRU 3463 | ISP 5236 | KCC S-0047 | KCC S-0644 | NCIB 8232 | NCIB 8506 | NCTC 6961 | RIA 1176

Streptomyces griseus subspecies alpha [AL] (Ciferri 1927) Pridham 1970 - CBS 219.25 | DSM 40937 | NRRL B-2249

Streptomyces griseus subspecies cretosus [AL] Pridham 1970 - ATCC 27903 | ATCC 3005 | CBS 137.21 | CBS 758.72 | DSM 40561 | ETH 13488 | NBRC 13457 | ISP 5561 | KCC S-0742 | RIA 1418

[443] *Kitasatosporia griseola* was transferred to *Streptomyces* as *S. griseolosporeus*. Subsequently, Zhang et al. (1997) have proposed the revival of the genus *Kitasatospora* and the species *K. griseola*.

Streptomyces griseus subspecies solvifaciens [AL] Pridham 1970 - DSM 40933 | NBRC 13689 | NRRL B-1561

Streptomyces hachijoensis [VP] (Hosoya et al. 1952) Witt and Stackebrandt 1991 <- *Streptoverticillium hachijoense* (basonym) - ATCC 19769 | CBS 507.68 | DSM 2011 | NBRC 12782 | ISP 5114 | RIA 1049

Streptomyces halstedii [AL] (Waksman and Curtis 1916) Waksman and Henrici 1948 - ATCC 10897 | ATCC 19770 | CBS 508.68 | DSM 40068 | NBRC 12783 | IMET 40322 | IMRU 3328 | ISP 5068 | KCC S-0052 | RIA 1050

Streptomyces hawaiiensis [AL] Cron et al. 1956 - ATCC 12236 | ATCC 19771 | CBS 509.68 | DSM 40042 | NBRC 12784 | IMET 43082 | ISP 5042, AJ399466 | KCC S-0172 | KCC S-0585 | NCIB 9410 | RIA 1051

Streptomyces heliomycini [VP] Preobrazhenskaya 1986 - DSM 41690 | NBRC 15899 | INA 2915 | VKM Ac-1778

Streptomyces helvaticus [AL] (Krassilnikov et al. 1965) Pridham 1970 - ATCC 19841 | CBS 683.72 | DSM 40431 | NBRC 13382 | INMI 1013B | ISP 5431 | RIA 1343

Streptomyces herbaricolor [AL] Kawato and Shinobu 1959 - ATCC 23922 | CBS 906.68 | DSM 40123 | NBRC 12876 | ISP 5123 | NRRL B-3299 | RIA 1126 | RIA 654

Streptomyces hiroshimensis [VP] (Shinobu 1955) Witt and Stackebrandt 1991 <- *Streptoverticillium hiroshimense* (basonym) - ATCC 19772 | CBS 510.68 | DSM 40037 | NBRC 12785 | IMET 43546 | ISP 5037 | KCC S-0098 | KCC S-0586 | NRRL B-1823 | OEU 201 | RIA 1052

Streptomyces hirsutus [AL] Ettlinger et al. 1958 - ATCC 19773 | CBS 511.68 | DSM 40095 | ETH 16660 | NBRC 12786 | IMET 42054 | ISP 5095 | RIA 1053

Streptomyces humidus [AL] Nakazawa and Shibata 1956 - 23572 | ATCC 12760 | ATCC 23923 | CBS 907.68 | DSM 40263 | NBRC 12877 | ISP 5263 | RIA 1186

Streptomyces humiferus [VP] (Krasil'nikov 1962) Goodfellow et al. 1986 <- *Actinopycnidium caeruleum* (basonym) - ATCC 15719 | DSM 43030 | NBRC 12244 | IMET 43409 | JCM 3037 | KCC 3044 | KCC A-0037 | RIA 729

Streptomyces hydrogenans [AL] Lindner et al. 1958 - FHP 678 | ATCC 19631 | CBS 776.72 | DSM 40586 | NBRC 13475 | IMET 43766 | ISP 5586 | RIA 1436

Streptomyces hygroscopicus subspecies hygroscopicus [AL] (Jensen 1931) Waksman and Henrici 1948 - M5-13184 | ATCC 27438 | CBS 773.72 | DSM 40578 | DSM 41148 | ETH 28553 | NBRC 13472 | ISP 5578 | JCM 4772 | NRRL 2387 | RIA 1433

Streptomyces hygroscopicus subspecies angustmyceticus [AL] Yuntsen et al. 1956 - ATCC 15484 | DSM 41683 | IAM 6A-704 | NBRC 3934 | JCM 4053 | KCC S-0053

Streptomyces hygroscopicus subspecies decoyicus [AL] Vavra et al. 1959 - DSM 41427 | NBRC 13977 | JCM 4550 | KCC S-0550 | NCIB 9752 | NRRL 2666

Streptomyces hygroscopicus subspecies glebosus [AL] Ohmori et al. 1962 - BJ 6 | ATCC 14607 | DSM 40823 | JCM 4954

Streptomyces hygroscopicus subspecies ossamyceticus [AL] Schmitz et al. 1965 - BL-703 | ATCC 15420 | DSM 40824 | JCM 4965

Streptomyces iakyrus [AL] de Querioz and Albert 1962 - IAUR 3923 | ATCC 15375 | CBS 702.72 | DSM 40482 | NBRC 13401 | ISP 5482, AJ399489 | JCM 4254 | JCM 4773 | RIA 1362

Streptomyces indiaensis [VP] (Gupta 1965) Kudo and Seino 1987 <- *Streptosporangium indianense* (basonym) – ATCC 33330 | CBS 560.75 | DSM 43803 | NBRC 13964 | JCM 3053 | KCC A-0053 | NCIB 9794

Streptomyces indigoferus [AL] Shinobu and Kawato 1960 – ATCC 23924 | CBS 908.68 | DSM 40124 | NBRC 12878 | IMET 42938 | ISP 5124 | OEU 709 | RIA 1127

Streptomyces indonesiensis [VP] Sembiring et al. 2001 – A4R2, AJ391835 | DSM 41759 | NCIMB 13673

Streptomyces intermedius [AL] (Krüger 1904) Waksman 1953 – ATCC 3329 | CBS 101.21 | CBS 694.69 | DSM 40372, Z76686, Stm.intmed | ICMP 12540 | NBRC 13049 | IMET 41384 | ISP 5372 | RIA 1241

Streptomyces inusitatus [AL] Hasegawa et al. 1978 – T-41575 | ATCC 33341 | CBS 196.78 | DSM 41441 | NBRC 13601 | JCM 4988 | KCC S-0988

Streptomyces ipomoeae [AL] (Person and Martin 1940) Waksman and Henrici 1948 – 9820 | ATCC 25462 | CBS 695.69 | DSM 40383 | ICMP 12541 | NBRC 13050 | ISP 5383 | RIA 1242

Streptomyces janthinus [AL] (Artamonova and Krassilnikov 1960) Pridham 1970 – ATCC 15870 | ATCC 23925 | CBS 909.68 | DSM 40206 | NBRC 12879 | INMI 117 | ISP 5206, AJ399478 | KCC S-0387 | RIA 1155 | RIA 659

Streptomyces javensis [VP] Sembiring et al. 2001 – B22P3, AJ391833 | DSM 41764 | NCIMB 13679

Streptomyces kanamyceticus [AL] Okami and Umezawa 1957 – K-2J | ATCC 12853 | CBS 715.72 | DSM 40500 | NBRC 13414 | ISP 5500 | JCM 4433 | JCM 4775 | NCIB 9343 | NRRL B-2535 | RIA 1375 | RIA 690

Streptomyces kashimirensis [VP] (Gupta and Chopra 1963) Witt and Stackebrandt 1991 <- *Streptoverticillium kashmirense* (basonym) – RRL 37 A/9 | ATCC 27439 | CBS 665.72 | DSM 40336 | NBRC 13364 | IPV 2023 | ISP 5336 | NRRL B-3103 | RIA 1325

Streptomyces kasugaensis [VP] Hamada et al. 1995 – BL904 | M338-M1, AB024441 | ATCC 15714 | DSM 40819 | NBRC 13851 | JCM 4208 | KCC S-0208

Streptomyces katrae [AL] Gupta and Chopra 1963 – RRL 5036 | ATCC 27440 | CBS 748.72 | DSM 40550 | NBRC 13447 | IMET 43361 | ISP 5550 | NRRL B-3093 | RIA 1408

†*Streptomyces kentuckensis* [VP] (Barr and Carman 1956) Witt and Stackebrandt 1991 = *Streptomyces netropsis* (earlier heterotypic synonym) <- *Streptoverticillium kentuckense* (basonym) – ATCC 12691 | DSM 40052 | IMET 43083

Streptomyces kifunensis [VP] (Barr and Carman 1956) Witt and Stackebrandt 1991 – ATCC 51379 | DSM 41654 | NBRC 15206

Streptomyces kishiwadensis [VP] (Shinobu and Kayamura 1964) Witt and Stackebrandt 1991 <- *Streptoverticillium kishiwadense* (basonym) – ATCC 25464 | CBS 697.69 | DSM 40397 | NBRC 13052 | ISP 5397 | OEU 738 | RIA 1244

Streptomyces kunmingensis [VP] (Ruan et al. 1985) Goodfellow et al. 1986 <- *Chainia kunmingensis* (basonym) – 80-3024 | ATCC 35682 | DSM 41681 | NBRC 14463 | JCM 7473

Streptomyces kurssanovii [AL] (Preobrazhenskaya et al. 1957) Pridham et al. 1958 – ATCC 15824 | ATCC 19774 | ATCC 23629 | CBS 512.68 | DSM 40162 | NBRC 13192 | INA 10294 | ISP 5162 | RIA 1054

Streptomyces labedae [VP] Lacey 1987 – A-24 | IMRU 3737 | ISP 5059 | NRRL B-5616

†*Streptomyces ladakanum* [VP] (Hanka et al. 1966) Witt and Stackebrandt 1991 = *Streptomyces mobaraensis* (earlier heterotypic synonym) <- *Streptoverticillium ladakanum* (basonym) - ATCC 27441 | DSM 40587, X53167, Stm.mobara | NRRL 3191

Streptomyces lanatus [AL] Frommer 1959 - SV 1944 | ATCC 19775 | CBS 513.68 | DSM 40090 | NBRC 12787 | ISP 5090, AJ399469 | NRRL B-2291 | RIA 1055

Streptomyces lateritius [AL] (Sveshnikova 1957) Pridham et al. 1958 - ATCC 19776 | ATCC 19913 | CBS 514.68 | DSM 40163 | NBRC 12788 | INA 6993 | ISP 5163 | RIA 1056

Streptomyces laurentii [AL] Trejo et al. 1979 - SC9895 | ATCC 31255 | DSM 41684 | IMET 43866 | JCM 5063 | KCC S-1063 | PCM 2368

Streptomyces lavendofoliae [AL] (Kuchaeva et al. 1961) Pridham 1970 - ATCC 15872 | ATCC 23928 | CBS 912.68 | DSM 40217 | NBRC 12882 | INA 3613 | ISP 5217 | RIA 1161 | RIA 750

Streptomyces lavendulae subspecies lavendulae [AL] (Waksman and Curtis 1916) Waksman and Henrici 1948 - ATCC 8664 | DSM 2014, X53173, Stm.lavend | NBRC 12789, D85116, Stm.lave12 | NBRC 3177 | ISP 5069, X53173, Stm.lavend

Streptomyces lavendulae subspecies grasserius [AL] (Kuchaeva et al. 1961) Pridham 1970 - ATCC 15875 | ATCC 25457 | CBS 690.69 | DSM 40385 | IAM 2A-458 | NBRC 13045 | ISP 5385 | JCM 4056 | JCM 4556 | KCC S-0056 | KCC S-0556 | RIA 1237

Streptomyces lavenduligriseus [VP] (Locci et al. 1969) Witt and Stackebrandt 1991 <- *Streptoverticillium lavenduligriseum* (basonym) - BA-6903 | FD 22124 | ATCC 13306 | CBS 706.72 | DSM 40487 | NBRC 13405 | ISP 5487 | NRRL B-3173 | RIA 1366

Streptomyces lavendulocolor [AL] (Kuchaeva et al. 1961) Pridham 1970 - ATCC 15871 | CBS 911.68 | DSM 40216 | NBRC 12881 | INA 4518 | ISP 5216 | RIA 1160 | RIA 749

Streptomyces levis [VP] Sveshnikova 1986 - ATCC 43686 | DSM 41458 | INA 9020 | JCM 6924 | VKM 835

Streptomyces libani subspecies libani [AL] Baldacci and Grein 1966 - 2343 FI | ATCC 23732 | CBS 753.72 | DSM 40555 | DSM 41227 | NBRC 13452 | IPV 1945 | ISP 55555 | JCM 4322 | JCM 4781 | KCC S-0322 | KCC S-0781 | NRRL B-3446 | RIA 1413

Streptomyces libani subspecies rufus [AL] Baldacci and Grein 1966 - Fi 2501 | CMI 130 | ATCC 23731 | DSM 41230 | IMRU 3918 | IPV 1942 | JCM 4325 | KCC S-0325 | NCIB 10976 | NRRL B-3445

Streptomyces lienomycini [VP] Gauze and Maksimova 1986 - ATCC 43687 | DSM 41475 | INA 478 | JCM 6925

Streptomyces lilacinus [VP] (Nakazawa et al. 1956) Witt and Stackebrandt 1991 <- *Streptoverticillium lilacinum* (basonym) - ATCC 23930 | CBS 914.68 | DSM 40254 | ETH 24214 | NBRC 12884 | NBRC 3944 | IPV 1999 | ISP 5254 | JCM 4188 | JCM 4648 | RIA 1180

Streptomyces limosus [AL] Lindenbein 1952 - Bö Br 136 | ATCC 19778 | CBS 531.68 | DSM 40131, Z76679, Stm.limosu | NBRC 12790 | ISP 5131 | JCM 4393 | RIA 1058

Streptomyces lincolnensis [AL] Mason et al. 1963 - 2376 | ATCC 25466 | CBS 630.70 | DSM 2013 | DSM 40355 | NBRC 13054 | ISP 5355 | JCM 4287 | KCC S-0287 | NCIB 9413 | NRRL 2936, X79854, Stm.lincln | RIA 1246

Streptomyces lipmanii [AL] (Waksman and Curtis 1916) Waksman and Henrici 1948 - ATCC 19779 | ATCC 3331 | CBS 532.68 | DSM 40070 | NBRC 12791 | IMET 40336 | IMRU 3331 | ISP 5070 | RIA 1059

Streptomyces litmocidini [AL] (Ryabova and Preobrazhenskaya 1957) Pridham et al. 1958 - ATCC 19914 | CBS 533.68 | DSM 40164 | NBRC 12792 | INA 1823/55 | ISP 5164 | JCM 4394 | RIA 1060

Streptomyces lomondensis [AL] Johnson and Dietz 1969 - UC 5022 | ATCC 25299 | DSM 41428 | JCM 4866 | KCC S-0866 | NCIB 10094 | NRRL 3252

Streptomyces longisporoflavus [AL] Waksman 1953 - ATCC 19915 | CBS 915.68 | DSM 40165 | NBRC 12886 | IMET 43506 | INA 81/53 | ISP 5165 | RIA 1133

Streptomyces longispororuber [AL] Waksman 1953 - ATCC 27443 | CBS 789.72 | DSM 40599 | NBRC 13488 | INA 11668/54 | ISP 5599 | KCC S-0784 | RIA 1449

Streptomyces longisporus [AL] (Krassilnikov 1941) Waksman 1953 - ATCC 23931 | CBS 916.68 | DSM 40166 | NBRC 12885 | IMET 43090 | INA 4417/56 | ISP 5166, AJ399475 | JCM 4395 | RIA 1134

Streptomyces longwoodensis [VP] Prosser and Palleroni 1981 - X-14537 | ATCC 29251 | DSM 41677 | NBRC 14251 | JCM 4976 | KCC S-0976

Streptomyces lucensis [AL] Arcamone et al. 1957 - ATCC 17804 | FI 1163 | ATCC 25468 | CBS 701.69 | DSM 40317 | NBRC 13056 | ISP 5317 | JCM 4490 | RIA 1248

Streptomyces luridus [AL] (Krassilnikov et al. 1957) Waksman 1961 - ATCC 19782 | CBS 534.68 | DSM 40081 | NBRC 12793 | INMI 111 | ISP 5081 | JCM 4591 | RIA 1061

Streptomyces lusitanus [AL] Villax 1963 - ATCC 15842 | ATCC 27444 | CBS 765.72 | DSM 40568 | NBRC 13464 | ISP 5568 | JCM 4785 | KCC S-0785 | NCIB 9585 | RIA 1425

Streptomyces luteogriseus [AL] Schmitz et al. 1964 - C-4657 | ATCC 15072 | CBS 703.72 | DSM 40483 | NBRC 13402 | ISP 5483, AJ399490 | JCM 4786 | RIA 1363

Streptomyces luteosporeus [VP] (Locci et al. 1969) Witt and Stackebrandt 1991 <- *Streptoverticillium album* (basonym) - BA 3972 | ATCC 33049 | DSM 40833 | JCM 4542 | NRRL 2401

Streptomyces luteoverticillatus [VP] (Shinobu 1956) Witt and Stackebrandt 1991 <- *Streptoverticillium luteoverticillatum* (basonym) - ATCC 23933 | CBS 917.68 | DSM 40038 | NBRC 12887 | ISP 5038 | JCM 4099 | JCM 46499 | OEU 486 | RIA 1109

Streptomyces lydicus [AL] De Boer et al. 1956 - D-45 | ATCC 25470, Y15507, Stm.lydicu | CBS 703.69 | DSM 40461 | NBRC 13058 | IMET 43531 | ISP 5461 | JCM 4492 | NRRL 2433 | RIA 1250

Streptomyces macrosporus [VP] Goodfellow et al. 1988 - A1201 | K44 | ATCC 51533 | DSM 41449, Z68099, Stm.macspr | NBRC 14748 | INMI 2892 | JCM 6305

Streptomyces malachitofuscus [VP] Preobrazhenskaya and Terekhova 1986 - ATCC 25471 | CBS 881.69 | DSM 40332 | NBRC 13059 | INA 739 | ISP 5332 | KCC S-0493 | RIA 1251

Streptomyces malachitospinus [VP] Preobrazhenskaya and Terekhova 1986 - INA 316 | INMI 217

Streptomyces malaysiensis [VP] Al-Tai et al. 1999 - ATB-11, AF117304 | DSM 41697

Streptomyces mashuensis [VP] (Sawazaki et al. 1955) Witt and Stackebrandt 1991 <- *Streptoverticillium mashuense* (basonym) - IPCR 449 | ATCC 23934 | CBS 918.68 | DSM 40221, X79323, Stm.mashue | NBRC 12888 | IMET 42941 | ISP 5221 | JCM 4059 | JCM 4650 | RIA 1165

Streptomyces massasporeus [AL] Shinobu and Kawato 1959 - ATCC 19785 | CBS 537.68 | DSM 40035 | NBRC 12796 | ISP 5035 | JCM 4139 | JCM 4593 | OEU 602 | RIA 1064

Streptomyces matensis [AL] Margalith et al. 1959 - M-ME/17 | ATCC 23935 | CBS 919.68 | DSM 40188 | ETH 24398 | NBRC 12889 | IMET 42065 | ISP 5188 | JCM 4268 | JCM 4277 | JCM 4651 | NRRL B-2576 | RIA 1142

Streptomyces mauvecolor [AL] Okami and Umezawa 1961 - AT 417 | FH 2163 | ATCC 29835 | DSM 41702 | NBRC 13854 | JCM 5002 | KCC S-1002

†*Streptomyces mediocidicus* [VP] (Labeda 1988) Wellington et al. 1992 <- *Kitasatospora mediocidica* (basonym) -> *Kitasatospora mediocidica* - LL 80, U93324 | ATCC 49055 | DSM 43929 | NBRC 14789 | NRRL B-16109[444]

Streptomyces mediolani [AL] Arcamone et al. 1968 - 2215/74 FI | IMI 134886 | MS 1487 | ATCC 33021 | DSM 41058 | DSM 41647 | IMRU 3934 | IPV 1952 | JCM 5076 | KCC S-1076 | NCIB 10969

Streptomyces megasporus [VP] Agre 1986 - ATCC 43688 | DSM 41476, Z68100, Stm.megspr | INA M-22 | INMI 2869 | JCM 6929

Streptomyces melanogenes [AL] Sugawara and Onuma 1957 - V-1179 | ATCC 23937 | CBS 921.68 | DSM 40192 | NBRC 12890 | ISP 5192 | JCM 4398 | RIA 1146

Streptomyces melanosporofaciens [AL] Arcamone et al. 1959 - Fi 1573 | ATCC 25473 | CBS 883.69 | DSM 40318 | NBRC 13061 | ISP 5318 | JCM 4495 | RIA 1253

Streptomyces mexicanus [VP] Petrosyan et al. 2003 - CH-M-1035, AF441168 | BM-B-384 | DSM 41796 | NRRL B-24196

Streptomyces michiganensis [AL] Corbaz et al. 1957 - ATCC 14970 | ATCC 19786 | CBS 538.68 | DSM 40015 | ETH 14411 | NBRC 12797 | ISP 5015 | KCC S-0594 | RIA 1065

Streptomyces microflavus [AL] (Krainsky 1914) Waksman and Henrici 1948 - ATCC 13231 | ATCC 25474 | CBS 124.18 | CBS 884.69 | DSM 40331 | NBRC 13062 | ISP 5331 | RIA 1254

Streptomyces minutiscleroticus [AL] (Thirumalachar 1965) Pridham 1970 = *Chainia minutisclerotica* (homotypic synonym) - HACC 147 | ATCC 17757 | CBS 662.72 | DSM 40301 | NBRC 13361 | ISP 5301 | RIA 1322 | RIA 885

Streptomyces mirabilis [AL] Ruschmann 1952 - AC-680 | ATCC 27447, AF112180 | CBS 751.72 | DSM 40553 | NBRC 13450 | ISP 5553 | JCM 4551 | JCM 4791 | KCC S-0551 | KCC S-0791 | NRRL B-2400 | RIA 1411

Streptomyces misakiensis [AL] Nakamura 1961 - IPCR 7617 | ATCC 23938 | CBS 278.65 | CBS 922.68 | DSM 40222 | NBRC 12891 | ISP 5222 | JCM 4062 | JCM 4653 | NRRL B-2923 | RIA 1166

Streptomyces misionensis [AL] Cercos et al. 1962 - INTA 3944 | ATCC 14991 | ATCC 25745 | CBS 885.69 | DSM 40306 | NBRC 13063 | ISP 5306 | JCM 4497 | RIA 1255

Streptomyces mobaraensis [VP] (Nagatsu and Suzuki 1963) Witt and Stackebrandt 1991 <- *Streptoverticillium mobaraense* (basonym) = *Streptomyces ladakanum* (later heterotypic synonym) - 16-22 | ATCC 29032 | DSM 40847 | JCM 4168 | KCC S-0168

Streptomyces monomycini [VP] Gauze and Terekhova 1986 - INA 1465

Streptomyces morookaensis [VP] (Locci and Schofield 1989) Witt and Stackebrandt 1991 <- *Streptoverticillium morookaense* (basonym) - SF-337 |

[444] *Kitasatosporia mediocidica* was transferred to *Streptomyces* as *S. mediocidicus*. Subsequently, Zhang et al. (1997) have proposed the revival of the genus *Kitasatospora* and the species *K. mediocidica*.

ATCC 19166 | CBS 717.72 | DSM 40503 | NBRC 13416 | ISP 5503 | RIA 1377

Streptomyces murinus [AL] Frommer 1959 – 1131 | SP 5091 | ATCC 19788 | CBS 540.68 | DSM 40091 | NBRC 12799 | JCM 4333 | JCM 4595 | NRRL B-2286 | RIA 1067

Streptomyces mutabilis [AL] (Preobrazhenskaya and Ryabova 1957) Pridham et al. 1958 – ATCC 19789 | ATCC 19919 | CBS 541.68 | DSM 40169 | NBRC 12800 | IMET 43509 | INA B-472 | ISP 5169 | RIA 1068

Streptomyces mutomycini [VP] Gauze and Maksimova 1986 – ATCC 43689 | DSM 41691 | INA 4305 | JCM 10455 | VKM Ac-1779

Streptomyces naganishii [AL] Yamaguchi and Saburi 1955 – H-4871 | ATCC 23939 | CBS 923.68 | DSM 40282 | NBRC 12892 | ISP 5282 | RIA 1196

Streptomyces narbonensis [AL] Corbaz et al. 1955 – ATCC 19790 | CBS 542.68 | DSM 40016 | ETH 7346 | NBRC 12801 | ISP 5016 | JCM 4147 | RIA 1069

Streptomyces nashvillensis [AL] McVeigh and Reyes 1961 – V-8 | ATCC 25476 | CBS 886.69 | DSM 40314 | NBRC 13064 | ISP 5314 | NRRL B-2606 | RIA 1256

Streptomyces netropsis [VP] (Finlay et al. 1951) Witt and Stackebrandt 1991 <- *Streptoverticillium netropsis* (basonym) = *Streptomyces distallicus* (later heterotypic synonym) = *Streptomyces flavopersicus* (later heterotypic synonym) = *Streptomyces kentuckensis* (later heterotypic synonym) – 4779 | ATCC 23940 | CBS 924.68 | DSM 40259 | ETH 15974 | NBRC 12893 | IPV 1720 | IPV 880 | ISP 5259 | JCM 4063 | JCM 4655 | NRRL 2268 | RIA 1184

Streptomyces neyagawaensis [AL] Yamamoto et al. 1960 – ATCC 27449, D63869, Stm.neygaw | CBS 778.72 | DSM 40588 | NBRC 13477 | NBRC 3784 | ISP 5588 | JCM 4796 | NRRL B-3092 | RIA 1438

Streptomyces niger [VP] (Thirumalachar 1955) Goodfellow et al. 1986 <- *Chainia nigra* (basonym) – HACC 146 | ATCC 17756 | CBS 230.65 | CBS 663.72 | DSM 40302 | DSM 43049 | NBRC 13092 | NBRC 13362 | ISP 5302 | JCM 3158 | KCC 3158 | RIA 1323

Streptomyces nigrescens [AL] (Sveshnikova 1957) Pridham et al. 1958 – ATCC 23941 | CBS 925.68 | DSM 40276 | NBRC 12894 | INA 1800/54 | ISP 5276 | RIA 1194

Streptomyces nigrifaciens [AL] Waksman 1961 – ATCC 19791 | CBS 543.68 | DSM 40071 | NBRC 12802 | IMRU 3067 | ISP 5071 | RIA 1070

Streptomyces nitrosporeus [AL] Okami 1952 – 0-20 | ATCC 12769 | ATCC 19792 | CBS 544.68 | DSM 40023 | DSM 41158 | ETH 17860 | NBRC 12803 | NBRC 3362 | IMET 43842 | IMRU 3728 | ISP 5023 | JCM 4064 | KCC S-0064 | KCC S-0598 | RIA 1071

Streptomyces niveoruber [AL] Ettlinger et al. 1958 – ATCC 14971 | DSM 40638 | ETH 17860 | IMET 43354 | JCM 4234

Streptomyces niveus [AL] Smith et al. 1956 = *Streptomyces caeruleus* (earlier heterotypic synonym) – ATCC 19793 | CBS 545.68 | DSM 40088 | NBRC 12804 | IMET 43503 | ISP 5088 | NRRL 2466 | RIA 1072

Streptomyces noboritoensis [AL] Isono et al. 1957 – IPCR 97 | ATCC 25477 | CBS 887.69 | DSM 40223 | NBRC 13065 | IMET 43914 | ISP 5223 | JCM 4065 | JCM 4557 | RIA 1257

Streptomyces nodosus [AL] Trejo 1961 – SC 2388 | ATCC 14899 | ATCC 23942 | CBS 926.68 | DSM 40109 | NBRC 12895 | ISP 5109 | JCM 4297 | JCM 4656 | RIA 1123

Streptomyces nogalater [AL] Bhuyan and Dietz 1966 – ATCC 27451 | CBS 746.72 | DSM 40546 | NBRC 13445 | IMET 43360 | ISP 5546 | JCM 4553 | NRRL 3035 | RIA 1406

Streptomyces nojiriensis [AL] Ishida et al. 1967 – SF-426 | ATCC 29781 | DSM 41655 | NBRC 13794 | JCM 3382 | NRRL B-16930

Streptomyces noursei [AL] Brown et al. 1953 – 48240 | ATCC 11455 | CBS 240.57 | DSM 40635 | DSM 40636 | DSM 41152 | ETH 13473 | NBRC 15452 | IMRU 3771 | INA 0178 | JCM 4922 | KCC S-0922 | NCIB 8593 | NRRL B-1714

Streptomyces novaecaesareae [AL] Waksman and Henrici 1948 – ATCC 27452 | CBS 134.20 | CBS 669.72 | DSM 40358 | NBRC 13368 | ISP 5358 | NRRL B-1267 | RIA 1329

Streptomyces ochraceiscleroticus [AL] Pridham 1970 = *Chainia ochracea* (homotypic synonym) – ATCC 15814 | CBS 168.62 | DSM 43155 | IMET 43492 | ISP 5594 | RIA 710

Streptomyces odorifer [AL] (Rullmann 1895) Waksman 1953 – ATCC 6246 | CBS 666.72 | DSM 40347, Z76682, Stm.odorif | NBRC 13365 | IMET 41377 | IMRU 3334 | ISP 5347 | JCM 4198 | JCM 4803 | NRRL B-1328 | RIA 1326

Streptomyces olivaceiscleroticus [AL] Pridham 1970 = *Chainia olivacea* (homotypic synonym) – ATCC 15722 | CBS 785.72 | DSM 40595 | IMRU 3751 | ISP 5595 | JCM 3045 | JCM 4805 | RIA 1445

Streptomyces olivaceoviridis [AL] (Preobrazhenskaya and Ryabova 1957) Pridham et al. 1958 – ATCC 19794 | ATCC 23630 | ATCC 25478 | CBS 888.69 | DSM 40334 | NBRC 13066 | IMET 43128 | INA 11584 | ISP 5334 | RIA 1258

Streptomyces olivaceus [AL] (Waksman 1923) Waksman and Henrici 1948 – ATCC 3335 | CBS 281.30 | CBS 546.68 | CUB 508 | DSM 40072 | ETH 14308 | NBRC 12805 | IMET 40350 | IMRU 3335 | ISP 5072 | JCM 4402 | KCC S-0402 | RIA 1073

Streptomyces olivochromogenes [AL] (Waksman 1923) Waksman and Henrici 1948 – ATCC 25479 | ATCC 3336 | CBS 889.69 | DSM 40451 | ETH 11886 | ETH 14310 | ETH 9517 | NBRC 13067 | IMET 40352 | IMRU 3336 | ISP 5451 | KCC S-0163 | KCC S-0500 | NRRL B-1341 | RIA 1259

Streptomyces olivomycini [VP] (Gauze and Sheshnikova 1986) Witt and Stackebrandt 1991 <- *Streptoverticillium olivomycini* (basonym) – INA 16749

Streptomyces olivoreticuli subspecies olivoreticuli [VP] (Arai et al. 1957) Witt and Stackebrandt 1991 <- *Streptoverticillium olivoreticuli subspecies olivoreticuli* (basonym) – ATCC 23943 | CBS 927.68 | DSM 40105 | IFM 1018 | NBRC 12896 | ISP 5105 | JCM 4176 | JCM 4657 | RIA 1122

Streptomyces olivoreticuli subspecies cellulophilus [VP] (Locci and Schofield 1989) Witt and Stackebrandt 1991 <- *Streptoverticillium olivoreticuli subspecies cellulophilum* (basonym) – MK-33 | ATCC 21632 | DPDU 0278, X53166, Stm.olivor | DSM 41687

Streptomyces olivoverticillatus [VP] (Shinobu 1956) Witt and Stackebrandt 1991 <- *Streptoverticillium olivoverticillatum* (basonym) – ATCC 25480 | CBS 890.69 | DSM 40250 | ETH 28537 | NBRC 13068 | ISP 5250 | JCM 4100 | JCM 4501 | NRRL B-1994 | OEU 383 | RIA 1260 | RIA 551

Streptomyces olivoviridis [AL] (Kuchaeva et al. 1960) Pridham 1970 – ATCC 15882 | ATCC 23944 | CBS 928.68 | DSM 40211 | NBRC 12897 | INMI 1475 | ISP 5211 | JCM 4432 | JCM 4658 | RIA 1157 | RIA 661

Streptomyces omiyaensis [AL] Umezawa and Okami 1950 – ATCC 27454 | CBS 750.72 | DSM 40552 | NBRC 13449 | IMET 43362 | ISP 5552 | JCM 4806 | NRRL B-1587 | RIA 1410

Streptomyces orinoci [VP] (Cassinelli et al. 1967) Witt and Stackebrandt 1991 <- *Streptoverticillium orinoci* (basonym) – 1882 FI | ATCC 23202 | CBS

767.72 | DSM 40571 | NBRC 13466 | IPV 1901 | ISP 5571 | JCM 4546 | JCM 4807 | NRRL B-3379 | RIA 1427

Streptomyces pactum [AL] Bhuyan et al. 1962 – UC 2432 | ATCC 12434 | CBS 461.69 | CBS 734.72 | DSM 40530 | DSM 41250 | NBRC 13433 | IMET 43357 | ISP 5530 | JCM 4288 | JCM 4809 | KCC S-0288 | KCC S-0809 | NCIB 9445 | NRRL 2939 | RIA 1394

†*Streptomyces paracochleatus* [VP] Nakagaito et al. 1993 -> *Kitasatospora paracochleata* – M-13 | ATCC 51236 | DSM 41656 | NBRC 14769, U93328

Streptomyces paradoxus [VP] (Krasil'nikov and Yuan 1961) Goodfellow et al. 1986 <- *Actinosporangium violaceum* (basonym) – ATCC 15813 | DSM 43350 | IMET 43491 | INMI 3180 | JCM 3052 | KCC 3052 | KCC A-0052 | RIA 655

Streptomyces parvisporogenes [VP] (Locci et al. 1969) Witt and Stackebrandt 1991 <- *Streptoverticillium parvisporogenes* (basonym) – BA-3572 | ATCC 12568 | CBS 695.72 | DSM 40473 | NBRC 13394 | ISP 5473 | KCC S-0694 | KCC S-0812 | RIA 1355

Streptomyces parvulus [AL] Waksman and Gregory 1954 – ATCC 12434 | ATCC 19796 | CBS 548.68 | DSM 40048 | ETH 12648 | ETH 14318 | ICMP 156 | NBRC 13193 | IMET 41380 | IMRU 3677 | ISP 5048 | JCM 4068 | NCIMB 11240 | NRRL B-1628 | RIA 1075 | RIA 307

Streptomyces parvus [AL] (Krainsky 1914) Waksman and Henrici 1948 – ATCC 12433 | CBS 427.61 | DSM 40348 | ETH 12647 | IMRU 3686 | ISP 5348 | NRRL B-1455

Streptomyces peucetius [AL] Grein et al. 1963 – IMI 101335 | ATCC 29050 | CBS 376.71 | DSM 40754 | DSM 41191 | IMRU 3868 | NCIB 10972

Streptomyces phaeochromogenes [AL] (Conn 1917) Waksman 1957 – ATCC 23945 | ATCC 3338 | CBS 929.68 | DSM 40073 | ETH 20197 | NBRC 12898 | IMET 40355 | IMRU 3338 | ISP 5073 | KCC S-0070 | KCC S-0659 | NCIMB 8505 | RIA 1119

Streptomyces phaeofaciens [AL] Maeda et al. 1952 – RRL B-1516 | ATCC 15034 | CBS 426.64 | CBS 637.72 | DSM 40367 | NBRC 13372 | ISP 5367 | JCM 4125 | JCM 4814 | RIA 1333 | RIA 753

Streptomyces phaeopurpureus [AL] Shinobu 1957 – ATCC 23946 | ATCC 23947 | CBS 930.68 | DSM 40125 | ETH 24482 | NBRC 12899 | ISP 5125 | KCC S-0101 | KCC S-0660 | OEU 146 | RIA 1128

Streptomyces phaeoviridis [AL] Shinobu 1957 – ATCC 23947 | CBS 931.68 | DSM 40285 | NBRC 12900 | ISP 5285 | KCC S-0102 | KCC S-0659 | NRRL B-2258 | OEU 503 | RIA 1199

†*Streptomyces phosalacineus* [VP] (Takahashi et al. 1985) Wellington et al. 1992 <- *Kitasatospora phosalacinea* (basonym) -> *Kitasatospora phosalacinea* – KA-338 | DSM 43860, M55223, Kts.phosal | NBRC 14372 | JCM 2574 | JCM 3340, U93330 | NRRL B-16230[445]

Streptomyces pilosus [AL] Ettlinger et al. 1958 – ATCC 19797 | CBS 594.68 | DSM 40097 | ETH 11686 | NBRC 12807 | ISP 5097 | KCC S-0403 | RIA 1076

Streptomyces platensis [AL] Tresner and Backus 1956 – M5-5353 | ATCC 13865 | ATCC 23948 | CBS 310.56 | CBS 932.68 | DSM 40041 | DSM 41241 | NBRC 12901 | NBRC 14007 | ISP 5041 | JCM 4189, AB045882 | JCM 6442 | KCC S-0189 | KCC S-0662 | NRRL 2364 | RIA 1110

Streptomyces plicatus [AL] Pridham et al. 1958 – PD 04918 | ATCC 25483 | CBS 911.69 | DSM 40319 | ETH 31505 | NBRC 13071 | ISP 5319 | JCM 4504 | NRRL 2428 | RIA 1263

[445] *Kitasatosporia phosalacinea* was transferred to *Streptomyces* as *S. phosalacineus*. Subsequently, Zhang et al. (1997) have proposed the revival of the genus *Kitasatospora* and the species *K. phosalacinea*.

Streptomyces pluricolorescens [AL] Okami and Umezawa 1961 – 91-T1-1 | ATCC 19798 | CBS 550.68 | CUB 141 | DSM 40019 | ETH 24329 | NBRC 12808 | ISP 5019 | JCM 4302 | JCM 4602 | RIA 1077

Streptomyces polychromogenes [AL] Hageman et al. 1964 – T 4473 | ATCC 12595 | ATCC 25484 | CBS 311.56 | CBS 912.69 | DSM 40316 | ETH 23877 | ETH 31545 | NBRC 13072 | ISP 5316 | KCC S-0236 | NRRL B-12233 | RIA 1264 | RIA 362

Streptomyces poonensis [AL] (Thirumalachar 1960) Pridham 1970 = *Chainia poonensis* (homotypic synonym) – ATCC 15723 | CBS 295.66 | CBS 786.72 | DSM 40596 | NBRC 13485 | IMET 43406 | IMRU 3752 | ISP 5596 | RIA 1446

Streptomyces praecox [AL] (Millard and Burr 1926) Waksman 1953 – ATCC 25485 | ATCC 3374 | CBS 104.27 | CBS 913.69 | DSM 40393 | ETH 13078 | ETH 20733 | NBRC 13073 | IMET 40356 | IMRU 3374 | ISP 5393 | KCC S-0506 | RIA 1265 | RIA 66

Streptomyces prasinopilosus [AL] Ettlinger et al. 1958 – ATCC 19799 | CBS 551.68 | DSM 40098 | ETH 13675 | NBRC 12809 | ISP 5098 | JCM 4207 | JCM 4404 | RIA 1078

Streptomyces prasinosporus [AL] Tresner et al. 1966 – BD 278 | ATCC 17918 | CBS 720.72 | DSM 40506 | NBRC 13419 | ISP 5506 | RIA 1380

Streptomyces prasinus [AL] Ettlinger et al. 1958 – ATCC 19800 | CBS 552.68 | DSM 40099 | ETH 13815 | NBRC 12810 | ISP 5099 | KCC S-0192 | KCC S-0603 | RIA 1079

Streptomyces prunicolor [AL] (Ryabova and Preobrazhenskaya 1957) Pridham et al. 1958 – ATCC 25487 | CBS 915 | DSM 40335 | NBRC 13075 | IMET 43129 | INA 8805/64 | ISP 5335 | RIA 1267

Streptomyces psammoticus [AL] Virgilio and Hengeller 1960 – P 19 | S 4623/33 | ATCC 14125 | ATCC 25488 | CBS 175.61 | DSM 40341 | NBRC 13076 | ISP 5341 | JCM 4434 | KCC S-0434 | RIA 1268 | RIA 832

Streptomyces pseudoechinosporeus [VP] (Konev et al. 1967) Goodfellow et al. 1986 <- *Microellobosporia grisea* (basonym) – ATCC 19618 | CUB 161 | DSM 43035 | NBRC 12518 | KCC 3066 | KCC A-0066

Streptomyces pseudogriseolus [AL] Okami and Umezawa 1955 – H-16C | ATCC 12770 | CBS 933.68 | DSM 40026 | NBRC 12902 | ISP 5026 | JCM 4071 | JCM 4663 | NCIB 9411 | RIA 1106

Streptomyces pseudovenezuelae [AL] (Kuchaeva et al. 1961) Pridham 1970 – ATCC 23951 | CBS 934.68 | DSM 40212 | NBRC 12904 | IMET 43512 | IMRU 3774 | ISP 5212, AJ399481 | KCC S-0405 | RIA 1158 | RIA 742

Streptomyces pulveraceus [AL] Shibata et al. 1961 – 45449 | ATCC 13875 | DSM 41657 | NBRC 3855 | JCM 7545

Streptomyces puniceus [AL] Patelski 1951 – PF 1314-5 | ATCC 19801 | CBS 308.55 | CBS 553.68 | DSM 40083 | NBRC 12811 | ISP 5083 | JCM 4406 | NRRL 2423 | RIA 1080

Streptomyces purpeofuscus [AL] Yamaguchi and Saburi 1955 – H-5080 | ATCC 23952 | CBS 935.68 | DSM 40283 | NBRC 12905 | ISP 5283 | KCC S-0156 | KCC S-0509 | NRRL B-1817 | RIA 1197

Streptomyces purpurascens [AL] Lindenbein 1952 – ATCC 25489 | CBS 917.69 | DSM 40310, AJ310925 | NBRC 13077 | ISP 5310 | JCM 4509, AB045888 | RIA 1269

Streptomyces purpureus [VP] (Matsumae and Hata 1968) Goodfellow et al. 1986 <- *Kitasatoa purpurea* (basonym) – KA-279 | ATCC 27787 | DSM 43362 | NBRC 13927 | JCM 3172 | KCC 3172 | NRRL B-5403

Streptomyces purpurogeneiscleroticus [AL] Pridham 1970 = *Chainia purpurogena* (homotypic synonym) – ATCC 19348 | DSM 40271

Streptomyces racemochromogenes [AL] Sugai 1956 - 229 | ATCC 23954 | CBS 937.68 | DSM 40194 | NBRC 12906 | ISP 5194 | JCM 4407 | RIA 1147

Streptomyces rameus [AL] Shibata 1959 - 154 | ATCC 21273 | DSM 41685 | JCM 5064 | KCC S-1064

Streptomyces ramulosus [AL] Ettlinger et al. 1958 - ATCC 19802 | ATCC 6860 | CBS 554.68 | DSM 40100 | ETH 17653 | NBRC 12812 | ISP 5100 | KCC S-0193 | RIA 1081

Streptomyces rangoonensis [AL] (Erikson 1935) Pridham et al. 1958 - ATCC 25490 | ATCC 6860 | CBS 918.69 | DSM 40452 | NBRC 13078 | IMET 41357 | ISP 5452 | NCTC 1678 | RIA 1270

Streptomyces recifensis [AL] (Goncalves de Lima et al. 1955) Falcao de Morais et al. 1957 - AX-18 | ATCC 19803 | CBS 555.68 | DSM 40115 | NBRC 12813 | ISP 5115 | RIA 1082

Streptomyces rectiverticillatus [VP] (Krassilnikov and Yuan 1965) Witt and Stackebrandt 1991 <- *Streptoverticillium rectiverticillatum* (basonym) - ATCC 19845 | ATCC 25491 | CBS 951.69 | DSM 40436 | NBRC 13079 | INMI 380 | ISP 5436 | RIA 1271

Streptomyces rectiviolaceus [VP] Sveshnikova 1986 - ATCC 43690 | DSM 41459 | INMI 563 | VKM 282

Streptomyces regensis [AL] Gupta et al. 1963 - RRL X-5263 | ATCC 27461 | CBS 749.72 | DSM 40551 | NBRC 13448 | ISP 5551 | RIA 1409

Streptomyces resistomycificus [AL] Lindenbein 1952 - ATCC 19804 | CBS 556.68 | DSM 40133, AJ310926 | ETH 23893 | ETH 32680 | NBRC 12814 | IMRU 3658 | ISP 5133 | JCM 4409 | NRRL 2290 | RIA 1083

Streptomyces reticuliscabei [VP] Bouchek-Mechiche et al. 2000 - CFBP 4531, AJ007428 | ICMP 13716 | NCPPB 4041

Streptomyces rhizosphaericus [VP] Sembiring et al. 2001 - A10P1, AJ391834 | DSM 41760 | NCIMB 13674

Streptomyces rimosus subspecies rimosus [AL] Sobin et al. 1953 - FD 10326 | ATCC 10970 | ATCC 23955 | CBS 437.51 | CBS 938.68 | CUB 205 | DSM 40260 | DSM 41132 | ETH 20240 | ICMP 919 | NBRC 12907 | IMRU 3558 | ISP 5260 | JCM 4073 | JCM 4667 | NCIMB 8229 | NRRL 2234 | RIA 1185 | RIA 606

Streptomyces rimosus subspecies paromomycinus [AL] Coffey et al. 1959 - ATCC 14827 | DSM 41429 | IPV 1982 | JCM 4541 | KCC S-0541 | NRRL 2455

Streptomyces rishiriensis [AL] Kawaguchi et al. 1965 - 404Y3 | ATCC 14812 | CBS 708.72 | DSM 40489 | NBRC 13407 | IMET 43843 | ISP 5489 | JCM 4821 | RIA 1368

Streptomyces rochei [AL] Berger et al. 1953 - X-15 | ATCC 10739 | ATCC 19245 | CBS 224.46 | CBS 939.68 | CUB 519 | DSM 40231 | ETH 13471 | ETH 20727 | NBRC 12908 | IMET 41386 | IMRU 3602 | ISP 5231 | JCM 4074 | JCM 4668 | NRRL B-1559 | RIA 1171

Streptomyces roseiscleroticus [AL] Pridham 1970 = *Chainia rosea* (homotypic synonym) - HACC-144 | ATCC 17755 | CBS 226.65 | CBS 664.72 | DSM 40303 | NBRC 13002 | NBRC 13363 | IMET 43586 | ISP 5303 | RIA 1324 | RIA 887

Streptomyces roseodiastaticus [AL] (Duche 1934) Waksman 1953 - FH 2454 | CBS 102.34 | DSM 41703 | ETH 16827 | ETH 31566 | NBRC 15457 | JCM 4295 | KCC S-0295 | NRRL B-1906

Streptomyces roseoflavus [AL] Arai 1951 - 320 | ATCC 13167 | ATCC 19805 | CBS 740.72 | DSM 40536 | DSM 41430 | NBRC 13439 | IMRU 3672 | ISP 5536 | JCM 4824 | KCC S-0824 | NRRL B-1563 | NRRL B-2789 | RIA 1400

Streptomyces roseofulvus [AL] (Preobrazhenskaya 1957) Pridham et al. 1958 - ATCC 19921 | CBS 557.68 | DSM 40172 | NBRC 13194 | INA 14535 | ISP 5172 | KCC S-0334 | KCC S-0605 | RIA 1084

Streptomyces roseolilacinus [AL] (Preobrazhenskaya and Sveshnikova 1957) Pridham et al. 1958 - ATCC 19806 | ATCC 19922 | CBS 264.66 | CBS 558.68 | CUB 521 | DSM 40173 | ETH 28444 | NBRC 12815 | INA 14250 | ISP 5173 | KCC S-0335 | RIA 1085

Streptomyces roseolus [AL] (Preobrazhenskaya and Sveshnikova 1957) Pridham et al. 1958 - ATCC 23210 | CBS 559.68 | DSM 40174 | ETH 24181 | NBRC 12816 | INA 5449/54 | ISP 5174 | KCC S-0411 | RIA 1086

Streptomyces roseosporus [AL] Falcao de Morais and Dalia Maia 1961 - IAUR 4192 | ATCC 23958 | CBS 941.68 | DSM 40122 | NBRC 12910 | ISP 5122 | JCM 4412 | RIA 1125

Streptomyces roseoverticillatus [VP] (Shinobu 1956) Witt and Stackebrandt 1991 <- *Streptoverticillium roseoverticillatum* (basonym) = *Streptomyces baldaccii* (later heterotypic synonym) = *Streptomyces biverticillatus* (later heterotypic synonym) = *Streptomyces fervens subspecies fervens* (later heterotypic synonym) = *Streptomyces fervens subspecies melrosporus* (later heterotypic synonym) = *Streptomyces spitsbergensis* (later heterotypic synonym) - ATCC 19807 | CBS 560.68 | DSM 40039 | ETH 24434 | ETH 24484 | NBRC 12817 | IPV 2003 | ISP 5039 | JCM 4103 | KCC S-0103 | KCC S-0607 | NRRL B-1993 | RIA 1087 | RIA 552

Streptomyces roseoviolaceus [AL] (Sveshnikova 1957) Pridham et al. 1958 - ATCC 25493 | CBS 953.69 | DSM 40277 | NBRC 13081 | INA 1020/54 | ISP 5277, AJ399484 | RIA 1273

Streptomyces roseoviridis [AL] (Preobrazhenskaya 1957) Pridham et al. 1958 - ATCC 23959 | CBS 942.68 | DSM 40175 | NBRC 12911 | INA 3617 | ISP 5175 | RIA 1135

Streptomyces ruber [VP] (Thirumalachar 1955) Goodfellow et al. 1986 <- *Chainia rubra* (basonym) - JCM 3131 | HACC-143 | ATCC 17754 | CBS 228.65 | DSM 40304 | NBRC 14600 | ISP 5304 | KCC 3131 | NCIB 10983

Streptomyces rubiginosohelvolus [AL] (Kudrina 1957) Pridham et al. 1958 - ATCC 19926 | ATCC 23960 | CBS 943.68 | DSM 40176 | ETH 28494 | NBRC 12912 | INA 10/53 | ISP 5176 | JCM 4415 | KCC S-0415 | RIA 1136

Streptomyces rubiginosus [AL] (Preobrazhenskaya et al. 1957) Pridham et al. 1958 - ATCC 19927 | ATCC 23961 | CBS 944.68 | DSM 40177 | ETH 28445 | NBRC 12913 | INA 11852 | ISP 5177 | JCM 4416 | KCC S-0416 | RIA 1137

Streptomyces rubrogriseus [VP] Terekhova 1986 - ATCC 43691 | DSM 41477 | INA 2626 | JCM 6927

Streptomyces rutgersensis subspecies rutgersensis [AL] (Waksman and Curtis 1916) Waksman and Henrici 1948 - ATCC 19809 | ATCC 3350 | CBS 138.20 | CBS 562.68 | DSM 40077, Z76688, Stm.rutger | ETH 17541 | ETH 28343 | NBRC 12819 | IMRU 3350 | ISP 5077 | JCM 4082 | JCM 4608 | KCC S-0082 | KCC S-0608 | NRRL B-1256 | RIA 1089

Streptomyces rutgersensis subspecies castelarensis [AL] Cercos 1954 - BJ-608 | ATCC 15191 | CBS 309.55 | DSM 40830 | IMRU 3559

Streptomyces salmonis [VP] (Baldacci et al. 1966) Witt and Stackebrandt 1991 <- *Streptoverticillium salmonis* (basonym) - DPDU 0098, X53169, Stm.salmon | DSM 40895 | ETH 27040 | ETH 28397 | IPV 2019 | NRRL B-1472

Streptomyces sampsonii [AL] (Millard and Burr 1926) Waksman 1953 - ATCC 25495, D63871, Stm.sampsn | CBS 955.69 | DSM 40394, Z76680, Stm.samps2 | ETH 23691 | NBRC 13083 | IMRU 3371 | ISP 5394 | JCM 4515 | KCC S-0515 | RIA 1275

Streptomyces sannanensis [VP] Iwasaki et al. 1981 - KC-7038 | ATCC 31530 | DSM 41705 | FERM-P 4388 | NBRC 14239 | JCM 9651

Streptomyces sapporonensis [VP] (Locci and Schofield 1989) Witt and Stackebrandt 1991 <- *Streptoverticillium sapporonense* (basonym) - ATCC 21532 | DSM 41493

Streptomyces scabiei [VP] Lambert and Loria 1989 - RL-34 | ATCC 49173, D63862, Stm.scabie | DSM 41658 | ICMP 12542 | JCM 7914

Streptomyces sclerotialus [AL] Pridham 1970 = *Chainia antibiotica* (homotypic synonym) - ATCC 15721 | CBS 167.62 | CBS 657.72 | DSM 40269 | DSM 43032 | NBRC 12246 | NBRC 13356 | NBRC 13904 | IMRU 3750 | ISP 5269 | JCM 3039 | JCM 4828 | KCC A-0039 | KCC S-0828 | RIA 1317

Streptomyces scopiformis [VP] Li et al.2002 - A25, AF184081 | AS 4.1331 | LMG 20251

Streptomyces seoulensis [VP] Chun et al. 1997 - IMSNU 21266, Z71365, Stm.seouln

Streptomyces septatus [VP] (Locci et al. 1969) Witt and Stackebrandt 1991 <- *Streptoverticillium septatum* (basonym) - M-741 | ATCC 27464 | CBS 772.72 | DSM 40577 | NBRC 13471 | ISP 5577 | KCC S-0547 | KCC S-0829 | NRRL 2974 | RIA 1432

†*Streptomyces setae* [VP] (Omura et al. 1983) Wellington et al. 1992 <- *Kitasatospora setae* (basonym) -> *Kitasatospora setae* - KM-6054 | ATCC 33774 | DSM 43861[446], M55220, Kts.setae1 | NBRC 14216 | JCM 3304 | KCC A-0304

Streptomyces setonii [AL] (Millard and Burr 1926) Waksman 1953 - ATCC 25497, D63872, Stm.setoni | CBS 105.72 | CBS 957.69 | DSM 40395 | ICMP 12543 | NBRC 13085 | NBRC 13085 | IMRU 3375 | ISP 5395 | JCM 4226 | JCM 4516 | RIA 1277

Streptomyces showdoensis [AL] Nishimura et al. 1964 - Z-452 | ATCC 15105 | ATCC 25497 | CBS 718.72 | DSM 40504 | NBRC 13417 | ISP 5504 | JCM 4830 | RIA 1378

Streptomyces sindenensis [AL] Nakazawa and Fujii 1957 - ATCC 23963 | CBS 946.68 | DSM 40255 | NBRC 12915 | ISP 5255 | JCM 4164 | JCM 4669 | RIA 1181

Streptomyces sioyaensis [AL] Nishimura et al. 1961 - ATCC 13989 | H-690 | ATCC 19810 | CBS 563.68 | DSM 40032 | NBRC 12820 | IMET 43860 | ISP 5032 | JCM 4418 | RIA 1090

Streptomyces somaliensis [AL] (Brumpt 1906) Waksman and Henrici 1948 - IP733 | ATCC 33201 | DSM 40738, AJ007403 | IMRU 1274

Streptomyces sparsogenes [AL] Owen et al. 1963 - UC 2474 | ATCC 25498 | CBS 672.69 | CBS 958.69 | DSM 40356 | NBRC 13086 | ISP 5356 | JCM 4517 | LMG 5985 | NCIB 9449 | NRRL 2940, AJ391817 | RIA 1278

Streptomyces spectabilis [AL] Mason et al. 1961 - ATCC 27465 | CBS 725.72 | DSM 40512 | NBRC 13424 | ISP 5512 | JCM 4308 | NRRL 2494 | RIA 1385

Streptomyces speibonae [VP] Meyers et al. 2003 - PK-Blue, AF452714 | ATCC BAA-411 | DSM 41797

Streptomyces speleomycini [VP] Preobrazhenskaya and Szabo 1986 - B-23

[446] *Kitasatosporia setae* was transferred to *Streptomyces* as *S. setae*. Subsequently, Zhang et al. (1997) have proposed the revival of the genus *Kitasatospora* and the species *K. setae*.

Streptomyces spheroides [AL] Wallick et al. 1956 = *Streptomyces caeruleus* (earlier heterotypic synonym) – MA-319 | ATCC 23965 | CBS 491.62 | CBS 948.68 | DSM 40292 | NBRC 12917 | ISP 5292 | JCM 4252 | NRRL 2449 | RIA 1200, | RIA 700

Streptomyces spinoverrucosus [VP] Diab and Al-Gounaim 1982 – Diab 163MA | MS 1488 | ATCC 33692 | DSM 41648 | NBRC 14228 | NBRC 14250 | JCM 5077 | KCC S-1077 | NCIB 11666

Streptomyces spiralis [VP] (Falcao de Morais 1970) Goodfellow et al. 1986 <- *Elytrosporangium spirale* (basonym) – Mc 9H | ATCC 25664 | DSM 43836 | NBRC 14215 | JCM 3302 | KCC 3302

Streptomyces spiroverticillatus [AL] Shinobu 1958 – ATCC 19811 | CBS 564.68 | DSM 40036 | NBRC 12821 | IMET 42050 | ISP 5036 | OEU 508 | RIA 1091 | RIA 549

†*Streptomyces spitsbergensis* [VP] Wieczorek et al. 1993 = *Streptomyces roseoverticillatus* (earlier heterotypic synonym) – PCM 2404 | S-2

Streptomyces sporocinereus [VP] Preobrazhenskaya 1986 – DSM 41460 | INMI 32 | VKM 312

Streptomyces sporoclivatus [VP] Preobrazhenskaya 1986 – DSM 41461 | INMI 97 | VKM 315

Streptomyces spororaveus [VP] Preobrazhenskaya 1986 – DSM 41462 | INMI 101 | VKM 318

Streptomyces sporoverrucosus [VP] Preobrazhenskaya 1986 – DSM 41463 | INMI 15 | VKM 321

Streptomyces stelliscabei [VP] Bouchek-Mechiche et al. 2000 – CFBP 4521, AJ007429 | ICMP 13715 | NCPPB 4040

Streptomyces stramineus [VP] Labeda et al. 1997 – NRRL 12292

Streptomyces subrutilus [AL] Arai et al. 1964 – ATCC 27467 | CBS 689.72 | DSM 40445, X80825, Stm.subrut | IFM 713 | NBRC 13388 | ISP 5445 | JCM 4695 | JCM 4834 | RIA 1349

Streptomyces sulfonofaciens [VP] Miyadoh et al. 1983 – SF-2103 | ATCC 31892 | DSM 41679 | NBRC 14260 | JCM 5069 | KCC S-1069

Streptomyces sulphureus [AL] (Gasperini 1894) Waksman 1953 – ATCC 27468 | CBS 646.72 | DSM 40104 | NBRC 13345 | IMET 40623 | IPV 510 | ISP 5104 | NRRL B-1627 | RIA 1306

Streptomyces syringium [VP] (Konev 1986) Witt and Stackebrandt 1991 <- *Streptoverticillium syringium* (basonym) – DSM 41502 | LIA-0725

Streptomyces tanashiensis [AL] Hata et al. 1952 – ATCC 23967 | CBS 165.54 | CBS 950.68 | DSM 40195 | NBRC 12919 | IMET 42939 | ISP 5195 | JCM 4086 | JCM 4671 | NRRL B-1692 | RIA 1148

Streptomyces tauricus [VP] Sveshnikova 1986 – ATCC 27470 | CBS 757.72 | DSM 40560 | NBRC 1345 | IMET 43541 | INA 8173 | ISP 5560 | JCM 4837, AB045879 | RIA 1417

Streptomyces tendae [AL] Ettlinger et al. 1958 – ATCC 19812, D63873, Stm.tnedae | CBS 565.68 | DSM 40101 | ETH 11313 | NBRC 12822 | IMET 40459 | ISP 5101 | JCM 4149 | RIA 1092 | RIA 534

Streptomyces termitum [AL] Duche et al. 1951 – ATCC 25499 | CBS 959.69 | DSM 40329 | NBRC 13087 | IMET 43127 | ISP 5329 | RIA 1279

Streptomyces thermoalcalitolerans [VP] Kim et al. 1999 – TA56, AJ000284, Stm.thalca | DSM 41741

Streptomyces thermoautotrophicus [VP] Gadkari et al. 1991 – UBT1 | DSM 41605

Streptomyces thermocarboxydovorans [VP] Kim et al. 1998 – AT52, U94489 | DSM 44296

Streptomyces thermocarboxydus [VP] Kim et al. 1998 – AT37 | DSM 44293, U94490, Stm.thcarb

Streptomyces thermocoprophilus [VP] Kim et al. 2000 – B19, AJ007402 | DSM 41700

Streptomyces thermodiastaticus [AL] (Bergey et al. 1923) Waksman 1953 – ATCC 27472 | CBS 769.72 | CUB 387 | DSM 40573, Z68101, Stm.thdias | NBRC 13468 | ISP 5573 | JCM 4840, AB018095, Stm.thdia2 | JCM 4840, AB018096, Stm.thdia3 | RIA 1429

Streptomyces thermogriseus [VP] Xu et al. 1998 – Y-14046 | CCTCC AA97014, AF056714, Stm.thgris

Streptomyces thermolineatus [VP] Goodfellow et al. 1988 – A1484 | K47 | DSM 41451, Z68097, Stm.thline | NBRC 14750 | JCM 6307

†*Streptomyces thermonitrificans* [AL] Desai and Dhala 1967 = *Streptomyces thermovulgaris* (earlier heterotypic synonym) – ATCC 23385 | DSM 40579, Z68098, Stm.thvul2 | IMET 43405

Streptomyces thermospinosisporus [VP] Kim and Goodfellow 2002 – AT10, AF333113 | DSM 41779 | KCTC 9909

Streptomyces thermoviolaceus subspecies thermoviolaceus [AL] Henssen 1957 – R-77 | ATCC 19283 | CBS 278.66 | CBS 688.72 | DSM 40443, Z68096, Stm.thvio2 | NBRC 13387 | IMET 43353 | ISP 5443 | RIA 1348

Streptomyces thermoviolaceus subspecies apingens [AL] Henssen 1957 – MB-R89(A34) | ATCC 19994 | CBS 140.67 | DSM 41392, Z68095, Stm.thviol | ETH 25786 | JCM 4312 | NCIMB 10077

Streptomyces thermovulgaris [AL] Henssen 1957 = *Streptomyces thermonitrificans* (later heterotypic synonym) – R-10 | ATCC 19284 | CBS 276.66 | CBS 643.69 | DSM 40444, Z68094, Stm.thvulg | NBRC 13089 | ISP 5444 | KCC S-0240 | KCC S-0520 | RIA 1281

Streptomyces thioluteus [VP] (Okami 1952) Witt and Stackebrandt 1991 <- *Streptoverticillium thioluteum* (basonym) – ATCC 12310 | CBS 642.72 | DSM 40027 | DSM 41486 | NBRC 13341 | NBRC 3364 | ISP 5027 | JCM 4087 | JCM 4182 | RIA 1302

Streptomyces torulosus [AL] Lyons and Pridham 1971 – ATCC 29340 | CBS 801.71 | DSM 40894 | DSM 41249 | IMRU 3950 | JCM 4872 | NRRL B-3889

Streptomyces toxytricini [AL] (Preobrazhenskaya and Sveshnikova 1957) Pridham et al. 1958 – ATCC 19813 | CBS 566.68 | DSM 40178 | NBRC 12823 | INA 13887/54 | ISP 5178 | KCC S-0421 | RIA 1093

Streptomyces tricolor [AL] (Wollenweber 1920) Waksman 1961 – FH 2456 | CBS 103.21 | DSM 41704 | NBRC 15461 | JCM 5065 | KCC S-1065 | NRRL B-16925

Streptomyces tubercidicus [AL] Nakamura 1961 – ATCC 25502 | CBS 644.69 | DSM 40261 | NBRC 13090 | IMET 43517 | ISP 5261 | JCM 4054 | RIA 1282

Streptomyces tuirus [AL] Albert and Malaquias de Querioz 1963 – IAUR 3121 | ATCC 19007 | CBS 719.72 | DSM 40505 | NBRC 13418 | ISP 5505 | JCM 4846 | RIA 1379

Streptomyces turgidiscabies [VP] Miyajima et al. 1998 – ATCC 700248 | NBRC 16080 | SY9113

Streptomyces umbrinus [AL] (Sveshnikova 1957) Pridham et al. 1958 – ATCC 19929 | ATCC 25503 | CBS 645.69 | DSM 40278 | NBRC 13091 | INA 1703 | ISP 5278 | RIA 1283

Streptomyces variabilis [AL] (Preobrazhenskaya et al. 1957) Pridham et al. 1958 – ATCC 19815 | ATCC 19930 | CBS 568.68 | DSM 40179 | NBRC 12825 | IMET 42059 | INA 5557/54 | ISP 5179 | RIA 1095

Streptomyces variegatus [VP] Sveshnikova and Timuk 1986 – ATCC 43696 | DSM 41464 | INA T-511 | JCM 6930 | VKM 846

Streptomyces varsoviensis [AL] Kurylowicz and Woznicka 1967 – 13-1 | ATCC 14631c | ATCC 25505 | CBS 357.64 | CBS 647.69 | CUB 116 | DSM 40346 | DSM 40677 | NBRC 13093 | IMET 43351 | ISP 5346 | JCM 4303 | JCM 4523 | NCIB 9522 | RIA 1285

Streptomyces vastus [AL] Szabo and Marton 1958 – A-10 | ATCC 25506 | CBS 290.60 | CBS 648.69 | DSM 40309 | NBRC 13094 | ISP 5309 | RIA 1286

Streptomyces venezuelae [AL] Ehrlich et al. 1948 – A-65 | PD 04745 | ATCC 10712 | ATCC 25508 | CBS 650.69 | DSM 40230 | DSM 41109 | ETH 26169 | NBRC 12595 | NBRC 13096 | IMET 41356 | IMRU 3534 | IMRU 3625 | ISP 5230 | KCC S-0526 | NIHJ 38 | NRRL 2277 | RIA 1288 | VKM Ac-589

Streptomyces vinaceus [AL] Jones 1952 – 8542-1 | ATCC 27476 | CBS 726.72 | DSM 40515 | ETH 28394 | NBRC 13425 | ISP 5515 | NRRL 2382 | RIA 1386

Streptomyces vinaceusdrappus [AL] Pridham et al. 1958 – D-13 | UC 2007 | ATCC 25511 | CBS 653.69 | DSM 40470 | NBRC 13099 | ISP 5470 | NRRL 2363 | RIA 1291

Streptomyces violaceochromogenes [AL] (Ryabova and Preobrazhenskaya 1957) Pridham 1970 – ATCC 19932 | ATCC 25512 | CBS 654.69 | DSM 40181 | NBRC 13100 | INA 425 | ISP 5181 | RIA 1292

Streptomyces violaceolatus [AL] (Krassilnikov et al. 1965) Pridham 1970 – ATCC 19847 | ATCC 25513 | CBS 655.69 | DSM 40438 | NBRC 13101 | INMI 4 | ISP 5438 | RIA 1293

Streptomyces violaceorectus [AL] (Ryabova and Preobrazhenskaya 1957) Pridham et al. 1958 – ATCC 25514 | CBS 656.69 | DSM 40279 | NBRC 13102 | IMET 43520 | INA 506 | ISP 5279 | RIA 1294

Streptomyces violaceoruber [AL] (Waksman and Curtis 1916) Pridham 1970 – ATCC 14980 | ATCC 19816 | CBS 569.68 | DSM 40049 | ETH 14306 | ETH 9447 | NBRC 12826 | IMET 40270 | IMRU 3030 | ISP 5049 | JCM 4423 | RIA 1069

Streptomyces violaceorubidus [VP] Terekhova 1986 – ATCC 43697 | DSM 41478 | INA 770 | JCM 6931

Streptomyces violaceus [AL] (Rossi Doria 1891) Waksman 1953 emend. Lanoot et al. 2002 = *Streptomyces violatus* (later heterotypic synonym) – ATCC 15888 | ATCC 25515 | CBS 657.69 | DSM 40082 | NBRC 13103 | IMET 43085 | INMI 1 | ISP 5082 | JCM 4533 | RIA 1295 | RIA 656

Streptomyces violaceusniger [AL] (Waksman and Curtis 1916) Pridham et al. 1958 – ATCC 27477 | CBS 760.72 | DSM 40563 | NBRC 13459 | ISP 5563 | NRRL B-1476 | RIA 1420

Streptomyces violarus [AL] (Artamonova and Krassilnikov 1960) Pridham 1970 – ATCC 15891 | ATCC 25516 | CBS 658.69 | DSM 40205 | NBRC 13104 | INMI 1212 | ISP 5205, AJ399477 | JCM 4237 | JCM 4534 | NIHJ 493 | RIA 1296 | RIA 157

Streptomyces violascens [AL] (Preobrazhenskaya and Sveshnikova 1957) Pridham et al. 1958 – ATCC 23968 | CBS 951.68 | DSM 40183 | NBRC 12920 | IMET 42061 | INA 3959/54 | ISP 5183 | JCM 4424 | RIA 1138

Streptomyces violatus [AL] (Artamonova and Krassilnikov 1960) Pridham 1970 = *Streptomyces violaceus* (earlier heterotypic synonym) – IA 1310 | ATCC 15892 | CBS 650.72 | DSM 40209 | NBRC 13349 | INMI 1205 | ISP 5209, AJ399480 | RIA 708

Streptomyces violens [VP] (Kalakoutskii and Krassilnikov 1960) Goodfellow et al. 1987 <- *Chainia violens* (basonym) – ATCC 15898 | CBS 451.65 | CBS 787.72 | DSM 40597 | NBRC 13486 | IMET 43407 | INMI 1212 | ISP 5597 | RIA 1447 | RIA 565

Streptomyces virens [VP] Gauze and Sveshnikova 1986 – DSM 41465 | INA 3831 | VKM 833

Streptomyces virginiae [AL] Grundy et al. 1952 – NA 255-B8 | ATCC 19817 | CBS 291.60 | CBS 570.68 | DSM 40094 | NBRC 12827, D85123, Stm.virgi7 | NBRC 3729, D85119, Stm.virgi3 | IMRU 3651 | ISP 5094 | JCM 4425 | NRRL B-1446 | RIA 1097

Streptomyces viridiflavus [VP] (Locci and Schofield 1989) Witt and Stackebrandt 1991 <- *Streptoverticillium viridoflavum* (basonym) – Y. E. Konev | ATCC 12631 | CBS 652.72 | DSM 40237 | ETH 24306 | NBRC 13351 | IMRU 3685 | ISP 5237 | JCM 4221 | JCM 4857 | NRRL B-1569 | RIA 1312

Streptomyces viridiviolaceus [AL] (Ryabova and Preobrazhenskaya 1957) Pridham et al. 1958 – ATCC 27478 | CBS 660.7 | DSM 40280 | NBRC 13359 | INA 5276/56 | ISP 5280 | RIA 1320

Streptomyces viridobrunneus [VP] Terekhova 1986 – DSM 41466 | INMI 300 | VKM 559

Streptomyces viridochromogenes [AL] (Krainsky 1914) Waksman and Henrici 1948 – ATCC 14920 | CBS 648.72 | DSM 40110 | NBRC 13347 | ISP 5110 | NRRL B-1511 | RIA 1308

Streptomyces viridodiastaticus [AL] (Baldacci et al. 1955) Pridham et al. 1958 – ATCC 25518 | CBS 660.69 | DSM 40249 | NBRC 13106 | IPV 334a | ISP 5249 | RIA 1298

Streptomyces viridosporus [AL] Pridham et al. 1958 – 4889 | ATCC 27479 | CBS 654.72 | DSM 40243 | NBRC 13353 | IMET 43514 | ISP 5243 | JCM 4859 | NRRL 2414 | RIA 1314

Streptomyces vitaminophilus [VP] (Shomura et al. 1983) Goodfellow et al. 1986 <- *Actinosporangium vitaminophilum* (basonym) – SF 2080 | ATCC 31673 | DSM 41686 | FERM-P 5702 | NBRC 14294

Streptomyces wedmorensis [VP] Preobrazhenskaya 1986 – MA-3269 | ATCC 21239 | DSM 41676 | ICMP 12544 | NBRC 14062 | JCM 4937 | KCC S-0937 | NRRL 3426

Streptomyces werraensis [AL] Wallhäusser et al. 1964 – FH 3582 | ATCC 14424 | CBS 437.67 | CBS 705.72 | DSM 40486 | NBRC 13404 | ISP 5486 | JCM 4860 | RIA 1365

Streptomyces willmorei [AL] (Erikson 1935) Waksman and Henrici 1948 – ATCC 6867 | CBS 372.64 | CBS 692.72 | DSM 40459 | ETH 16706 | NBRC 13391 | IMET 41387 | IMRU 3332 | ISP 5459 | JCM 486 | KCC S-0861 | NCTC 1856 | NRRL B-1322 | RIA 1352

Streptomyces xanthochromogenes [AL] Arishima et al. 1956 – 689 | ATCC 19818 | CBS 571.68 | DSM 2015 | DSM 40111 | NBRC 12828 | ISP 5111 | JCM 4215 | JCM 4612 | KCC S-0215 | NIHJ 196 | RIA 1098

Streptomyces xanthocidicus [AL] Asahi et al. 1966 – IPCR 51-4 | ATCC 27480 | CBS 770.72 | DSM 40575 | NBRC 13469 | ISP 5575 | JCM 4243 | JCM 4862 | RIA 1430 | RIA 143D

Streptomyces xantholiticus [AL] (Konev and Tsyganov 1962) Pridham 1970 – ATCC 27481 | CBS 655.72 | DSM 40244 | NBRC 13354 | ISP 5244 | JCM 4282 | JCM 4863 | LIA 1130/12 | RIA 1315

Streptomyces xanthophaeus [AL] Lindenbein 1952 – Wüst 70 | ATCC 19819 | CBS 572.68 | DSM 40134 | NBRC 12829 | ISP 5134 | JCM 4426 | RIA 1099

Streptomyces yerevanensis [VP] (Tsyganov et al. 1964) Goodfellow et al. 1986 <- *Microellobosporia violacea* (basonym) – ATCC 43727 | CUB 297 | DSM 43167 | NBRC 12517 | IMET 43616 | JCM 3047 | KCC 304 | KCC A-0047 | KCC A-0065 | NCIB 9589

Streptomyces yogyakartensis [VP] Sembiring et al. 2001 - C4R3, AJ391827 | DSM 41766 | NCIMB 13681

Streptomyces yokosukanensis [AL] Nakamura 1961 - IPCR B34 | ATCC 25520 | CBS 662.69 | DSM 40224 | NBRC 13108 | ISP 5224 | JCM 4137 | RIA 1300

Streptomyces yunnanensis [VP] Zhang et al. 2003 - CGMCC 4.1004 | DSM 41793 | YIM 41004, AF346818

Streptomyces zaomyceticus [AL] Hinuma 1954 - MTHU N-187 | ATCC 27482 | CBS 649.72 | DSM 40196 | NBRC 13348 | IMET 43841 | ISP 5196 | JCM 4179 | JCM 4864 | KCC S-0179 | KCC S-0864 | NRRL B-2038 | RIA 1309

Genus II. Kitasatospora [VP] [447]

†*Kitasatospora setae* [VP (T)] Omura et al. 1983 -> *Streptomyces setae* <- *Streptomyces setae* (basonym) - KM-6054 | ATCC 33774 | DSM 43861, M55220, Kts.setae1 | NBRC 14216 | JCM 3304 | JCM 3304, U93332, Kts.setae2 | KCC A-0304

Kitasatospora azatica [VP] (Nakagaito et al. 1993) Zhang et al. 1997 <- *Streptomyces azaticus* (basonym) - OS-3256 | ATCC 51237 | DSM 41650 | NBRC 13803 | NBRC 13803, U93312, Kts.azatic

Kitasatospora cheerisanensis [VP] Chung et al. 1999 - YC75, AF050493, Kts.cheeri | KCTC 2395

Kitasatospora cineracea [VP] Tajima et al. 2001 - SK-3255, AB022875 | NBRC 16452 | JCM 10915 | NRRL B-23134

Kitasatospora cochleata [VP] (Nakagaito et al. 1993) Zhang et al. 1997 <- *Streptomyces cochleatus* (basonym) - M-5, U93316, AB022871 | ATCC 51235 | DSM 41652 | NBRC 14768 | JCM 8799

†*Kitasatospora cystarginea* [VP] Kusakabe and Isono 1992 -> *Streptomyces cystargineus* <- *Streptomyces cystargineus* (basonym) - RK-419 | ATCC 49931 | DSM 41680 | FERM P-8006 | NBRC 14836 | JCM 7356, U93318, Kts.cystar

†*Kitasatospora griseola* [VP] Takahashi et al. 1985 -> *Streptomyces griseolosporeus* <- *Streptomyces griseolosporeus* (basonym) - AM-9660 | DSM 43859, M55221, Kts.griseo | NBRC 14371 | JCM 3339 | NRRL B-16229

†*Kitasatospora mediocidica* [VP] Labeda 1988 -> *Streptomyces mediocidicus* <- *Streptomyces mediocidicus* (basonym) - LL 80, U93324 | DSM 43929 | NBRC 14789 | NRRL B-16109

Kitasatospora niigatensis [VP] Tajima et al. 2001 - SK-3406, AB022876 | AB022876 | NBRC 16453 | JCM 10916 | NRRL B-24135

Kitasatospora paracochleata [VP] (Nakagaito et al. 1993) Zhang et al. 1997 <- *Streptomyces paracochleatus* (basonym) - M-13 | ATCC 51236 | DSM 41656 | NBRC 14769 | NBRC 14769, U93328, Kts.pcochl

†*Kitasatospora phosalacinea* [VP] Takahashi et al. 1985 -> *Streptomyces phosalacineus* <- *Streptomyces phosalacineus* (basonym) - KA-338 | DSM 43860, M55223, Kts.phosal | NBRC 14372 | JCM 2574 | JCM 3340 | JCM 3340, U93330, Kts.phosa2 | NRRL B-16230

Genus III. Streptoverticillium [AL]

†*Streptoverticillium baldaccii* [AL (T)] Farina and Locci 1966 -> *Streptomyces baldaccii* - ATCC 23654 | DPDU 0819, X53164, Stm.rosver

†*Streptoverticillium abikoense* [AL] (Umezawa et al. 1951) Locci et al. 1969 -> *Streptomyces abikoensis* - AS-803 | ATCC 12766 | CBS 487.62 | DSM 40831, X53168, Stm.abikon | NRRL B-1518 | RIA 497

[447] The type species of *Kitasatospora*, *K. setae*, was transferred to *Streptomyces*, along with *K. cystarginea*, *K. griseola*, *K. mediocidica*, and *K. phosalacinea*, as *S. setae*, *S. cystargineus*, *S. griseolosporeus*, *S. mediocidicus*, and *S. phosalacineus*, respectively. Subsequently, Zhang et al. (1997) have proposed the revival of the genus *Kitasatospora* and the species *K. setae*, *K. cystarginea*, *K. griseola*, *K. mediocidica*, and *K. phosalacinea*.

†*Streptoverticillium albireticuli* [AL] (Nakazawa 1955) Locci et al. 1969 -> *Streptomyces albireticuli* - ATCC 19721 | CBS 460.68 | DSM 40051 | NBRC 12737 | ISP 5051 | JCM 4116 | RIA 1002

†*Streptoverticillium alboverticillatum* [VP] Locci and Schofield 1989 -> *Streptomyces alboverticillatus* - 1101-A5 | IMC S-0603 | ATCC 29818 | DSM 41500 | DSM 41678 | NBRC 13861 | IPV 2254 | JCM 5010 | KCC S-1010

†*Streptoverticillium album* [AL] Locci et al. 1969 -> *Streptomyces luteosporeus* - BA 3972 | ATCC 33049 | DSM 40833 | JCM 4542 | NRRL 2401

†*Streptoverticillium ardum* [AL] (De Boer et al. 1961) Locci et al. 1969 -> *Streptomyces ardus* - UC 2500 | ATCC 27417 | CBS 731.72 | DSM 40527 | NBRC 13430 | ISP 5527 | JCM 4543 | JCM 4722 | NRRL 2817 | RIA 1391

†*Streptoverticillium aureoversile* [AL] Locci et al. 1969 -> *Streptomyces aureoversilis* - ATCC 15853 | ATCC 25433 | CBS 664.69 | DSM 40387 | NBRC 13021 | ISP 5387 | JCM 4457 | KCC S-0457 | RIA 1213 | RIA 681

†*Streptoverticillium biverticillatum* [AL] (Preobrazhenskaya 1957) Farina and Locci 1966 -> *Streptomyces biverticillatus* - ATCC 23615 | ATCC 23888 | CBS 668.68 | DSM 40272 | NBRC 12845 | INA 10204/54 | ISP 5272 | RIA 1190

†*Streptoverticillium blastmyceticum* [AL] (Watanabe et al. 1957) Locci et al. 1969 -> *Streptomyces blastmyceticus* - 445 D1 | ATCC 19731 | CBS 470.68 | DSM 40029 | NBRC 12747 | ISP 5029 | RIA 1012

†*Streptoverticillium cinnamoneum subspecies cinnamoneum* [AL] (Benedict et al. 1952) Baldacci et al. 1966 -> *Streptomyces cinnamoneus subspecies cinnamoneus* - A-725 | ATCC 11874 | ATCC 23897 | CBS 293.64 | CBS 683.68 | DSM 40005 | DSM 41431 | ETH 13 355 | NBRC 12852 | IMRU 3664 | IPV 1776 | IPV 2013 | IPV 936 | ISP 5005, X53171, Stm.cincin | JCM 4152 | JCM 4633 | KCC S-0152 | KCC S-0633 | NCIB 8851 | NRRL B-1285 | RIA 1102 | RIA 360

†*Streptoverticillium cinnamoneum subspecies albosporum* [AL] Thirumalachar 1968 -> *Streptomyces cinnamoneus subspecies albosporus* - HA-145 | ATCC 25186 | DSM 40897 | IPV 2066

†*Streptoverticillium cinnamoneum subspecies lanosum* [AL] Thirumalachar 1968 -> *Streptomyces cinnamoneus subspecies lanosus* - HA-176 | ATCC 25187 | DSM 40898 | IPV 2067

†*Streptoverticillium cinnamoneum subspecies sparsum* [AL] Thirumalachar 1968 -> *Streptomyces cinnamoneus subspecies sparsus* - HA-106 | ATCC 25185 | DSM 40899 | IPV 2068

†*Streptoverticillium distallicum* [AL] Locci et al. 1969 -> *Streptomyces distallicus* - DSM 40846 | NBRC 15815 | IPV 1983 | JCM 4544 | KCC S-0544 | NCIB 8936 | NRRL 2886 | VKM Ac-948

†*Streptoverticillium ehimense* [AL] (Shibata et al. 1954) Locci et al. 1969 -> *Streptomyces ehimensis* - 138 | ATCC 23903 | CBS 799.68 | DSM 40253 | NBRC 12858 | NBRC 3398 | ISP 5253 | RIA 1179

†*Streptoverticillium eurocidicum* [AL] (Okami et al. 1954) Locci et al. 1969 -> *Streptomyces eurocidicus* - ATCC 27428 | CBS 792.72 | DSM 40604 | NBRC 13491 | IMET 43412 | ISP 5604 | JCM 4029 | NIHJ 267 | NRRL B-1676 | RIA 1452 | RIA 733

†*Streptoverticillium fervens subspecies fervens* [AL] Baldacci and Locci 1974 -> *Streptomyces fervens subspecies fervens* - ATCC 27429 | ISP 5086 | NRRL 2755

†*Streptoverticillium fervens subspecies melrosporus* [AL] Mason et al. 1965 -> *Streptomyces fervens subspecies melrosporus* - UC 2459 | DSM

40905 | NBRC 15920 | IPV 2022 | JCM 4926 | KCC S-0926 | NRRL 3117

†*Streptoverticillium flavopersicum* [AL] (Oliver et al. 1961) Locci et al. 1969 -> *Streptomyces flavopersicus* - M-141 | ATCC 19756 | CBS 494.68 | DSM 40093 | NBRC 12769 | ISP 5093 | KCC S-0307 | KCC S-0370 | NRRL 2820 | RIA 1036

†*Streptoverticillium griseocarneum* [AL] (Benedict et al. 1950) Baldacci et al. 1966 -> *Streptomyces griseocarneus* - AS 4.1368 | NA 232-M1, X99943 | ATCC 12628 | ATCC 19763 | CBS 501.68 | CCM 3228 | DSM 40004 | DSM 41062 | NBRC 12776 | NBRC 3387 | ISP 5004 | JCM 4095 | JCM 4580 | KCC S-0095 | LMG 5973 | NRRL B-1068 | NRRL B-1350 | RIA 1043 | RIA 132 | VKM Ac-881

†*Streptoverticillium griseoverticillatum* [AL] (Shinobu and Shimada 1962) Locci et al. 1969 -> *Streptomyces griseoverticillatus* - 722 | ATCC 27436 | CBS 721.72 | DSM 40507 | NBRC 13420 | ISP 5507 | JCM 4202 | JCM 4767 | RIA 1381

†*Streptoverticillium hachijoense* [AL] (Hosoya et al. 1952) Locci et al. 1969 -> *Streptomyces hachijoensis* - ATCC 19769 | CBS 507.68 | DSM 2011 | NBRC 12782 | ISP 5114 | RIA 1049

†*Streptoverticillium hiroshimense* [AL] (Shinobu 1955) Farina and Locci 1966 -> *Streptomyces hiroshimensis* - ATCC 19772 | CBS 510.68 | DSM 40037 | NBRC 12785 | IMET 43546 | ISP 5037 | KCC S-0098 | KCC S-0586 | NRRL B-1823 | OEU 201 | RIA 1052

†*Streptoverticillium kashmirense* [AL] (Gupta and Chopra 1963) Locci et al. 1969 -> *Streptomyces kashmirensis* - RRL 37 A/9 | ATCC 27439 | CBS 665.72 | DSM 40336 | NBRC 13364 | IPV 2023 | ISP 5336 | NRRL B-3103 | RIA 1325

†*Streptoverticillium kentuckense* [AL] (Barr and Carman 1956) Baldacci et al. 1966 -> *Streptomyces kentuckensis* - ATCC 12691 | DSM 40052 | IMET 43083

†*Streptoverticillium kishiwadense* [AL] (Shinobu and Kayamura 1964) Locci et al. 1969 -> *Streptomyces kishiwadensis* - ATCC 25464 | CBS 697.69 | DSM 40397 | NBRC 13052 | ISP 5397 | OEU 738 | RIA 1244

†*Streptoverticillium ladakanum* [AL] Hanka et al. 1966 -> *Streptomyces ladakanum* - ATCC 27441 | DSM 40587, X53167, Stm.mobara | NRRL 3191

†*Streptoverticillium lavenduligriseum* [AL] Locci et al. 1969 -> *Streptomyces lavenduligriseus* - BA-6903 | FD 22124 | ATCC 13306 | CBS 706.72 | DSM 40487 | NBRC 13405 | ISP 5487 | NRRL B-3173 | RIA 1366

†*Streptoverticillium lilacinum* [AL] (Nakazawa et al. 1956) Locci et al. 1969 -> *Streptomyces lilacinus* - ATCC 23930 | CBS 914.68 | DSM 40254 | ETH 24214 | NBRC 12884 | NBRC 3944 | IPV 1999 | ISP 5254 | JCM 4188 | JCM 4648 | RIA 1180

†*Streptoverticillium luteoverticillatum* [AL] (Shinobu 1956) Locci et al. 1969 -> *Streptomyces luteoverticillatus* - ATCC 23933 | CBS 917.68 | DSM 40038 | NBRC 12887 | ISP 5038 | JCM 4099 | JCM 46499 | OEU 486 | RIA 1109

†*Streptoverticillium mashuense* [AL] (Sawazaki et al. 1955) Locci et al. 1969 -> *Streptomyces mashuensis* - IPCR 449 | ATCC 23934 | CBS 918.68 | DSM 40221, X79323, Stm.mashue | NBRC 12888 | IMET 42941 | ISP 5221 | JCM 4059 | JCM 4650 | RIA 1165

†*Streptoverticillium mobaraense* [AL] (Nagatsu and Suzuki 1963) Locci et al. 1969 -> *Streptomyces mobaraensis* - 16-22 | ATCC 29032 | DSM 40847 | JCM 4168 | KCC S-0168

†*Streptoverticillium morookaense* [VP] Locci and Schofield 1989 -> *Streptomyces morookaensis* - SF-337 | ATCC 19166 | CBS 717.72 | DSM 40503 | NBRC 13416 | ISP 5503 | RIA 1377

†*Streptoverticillium netropsis* [AL] (Finlay et al. 1951) Baldacci et al. 1966 -> *Streptomyces netropsis* - 4779 | ATCC 23940 | CBS 924.68 | DSM 40259 | ETH 15974 | NBRC 12893 | IPV 1720 | IPV 880 | ISP 5259 | JCM 4063 | JCM 4655 | NRRL 2268 | RIA 1184

†*Streptoverticillium olivomycini* [VP] Gauze and Sheshnikova 1986 -> *Streptomyces olivomycini* - INA 16749

†*Streptoverticillium olivoreticuli subspecies olivoreticuli* [AL] (Arai et al. 1957) Baldacci et al. 1966 -> *Streptomyces olivoreticuli subspecies olivoreticuli* - ATCC 23943 | CBS 927.68 | DSM 40105 | IFM 1018 | NBRC 12896 | ISP 5105 | JCM 4176 | JCM 4657 | RIA 1122

†*Streptoverticillium olivoreticuli subspecies cellulophilum* [VP] Locci and Schofield 1989 -> *Streptomyces olivoreticuli subspecies cellulophilus* - MK-33 | ATCC 21632 | DPDU 0278, X53166, Stm.olivor | DSM 41687

†*Streptoverticillium olivoverticillatum* [AL] (Shinobu 1956) Baldacci et al. 1966 -> *Streptomyces olivoverticillatus* - ATCC 25480 | CBS 890.69 | DSM 40250 | ETH 28537 | NBRC 13068 | ISP 5250 | JCM 4100 | JCM 4501 | NRRL B-1994 | OEU 383 | RIA 1260 | RIA 551

†*Streptoverticillium orinoci* [AL] Cassinelli et al. 1967 -> *Streptomyces orinoci* - 1882 FI | ATCC 23202 | CBS 767.72 | DSM 40571 | NBRC 13466 | IPV 1901 | ISP 5571 | JCM 4546 | JCM 4807 | NRRL B-3379 | RIA 1427

†*Streptoverticillium parvisporogenes* [AL] Locci et al. 1969 -> *Streptomyces parvisporogenes* - BA-3572 | ATCC 12568 | CBS 695.72 | DSM 40473 | NBRC 13394 | ISP 5473 | KCC S-0694 | KCC S-0812 | RIA 1355

†*Streptoverticillium rectiverticillatum* [AL] (Krassilnikov and Yuan 1965) Locci et al. 1969 -> *Streptomyces rectiverticillatus* - ATCC 19845 | ATCC 25491 | CBS 951.69 | DSM 40436 | NBRC 13079 | INMI 380 | ISP 5436 | RIA 1271

Streptoverticillium reticulum subspecies protomycicum [VP] (ex Sugawara et al. 1963) Locci and Schofield 1989 - KCC S-0180[448]

†*Streptoverticillium roseoverticillatum* [AL] (Shinobu 1956) Farina and Locci 1966 -> *Streptomyces roseoverticillatus* - ATCC 19807 | CBS 560.68 | DSM 40039 | ETH 24434 | ETH 24484 | NBRC 12817 | IPV 2003 | ISP 5039 | JCM 4103 | KCC S-0103 | KCC S-0607 | NRRL B-1993 | RIA 1087 | RIA 552

†*Streptoverticillium salmonis* [AL] (Baldacci et al. 1966) Locci et al. 1969 -> *Streptomyces salmonis* - DPDU 0098, X53169, Stm.salmon | DSM 40895 | ETH 27040 | ETH 28397 | IPV 2019

†*Streptoverticillium sapporonense* [VP] Locci and Schofield 1989 -> *Streptomyces sapporonensis* - ATCC 21532 | DSM 41493

†*Streptoverticillium septatum* [AL] Locci et al. 1969 -> *Streptomyces septatus* - M-741 | ATCC 27464 | CBS 772.72 | DSM 40577 | NBRC 13471 | ISP 5577 | KCC S-0547 | KCC S-0829 | NRRL 2974 | RIA 1432

†*Streptoverticillium syringium* [VP] Konev 1986 -> *Streptomyces syringium* - DSM 41502 | LIA-0725

†*Streptoverticillium thioluteum* [AL] (Okami 1952) Baldacci et al. 1966 -> *Streptomyces thioluteus* - ATCC 12310 | CBS 642.72 | DSM 40027 | DSM 41486 | NBRC 13341 | NBRC 3364 | ISP 5027 | JCM 4087 | JCM 4182 | RIA 1302

[448] The name *Streptoverticillium reticulum* subsp. *protomycicum* is illegitimate because neither *Streptoverticillium reticulum* nor *Streptoverticillium reticulum* subsp. *reticulum* appeared on the Approved List or subsequent validation lists.

Streptoverticillium verticillium subspecies quintum [VP] (ex Arai 1976) Locci and Schofield 1989 – Okami MA-267-A1

Streptoverticillium verticillium subspecies tsukushiense [VP] (ex Arai 1976) Locci and Schofield 1989 – ATCC 21633[449]

†*Streptoverticillium viridoflavum* [VP] Locci and Schofield 1989 -> *Streptomyces viridoflavus* – ATCC 12631 | CBS 652.72 | DSM 40237 | ETH 24306 | NBRC 13351 | IMRU 3685 | ISP 5237 | JCM 4221 | JCM 4857 | NRRL B-1569 | RIA 1312

Suborder XV. *Streptosporangineae* [VP]

Family I. *Streptosporangiaceae* [VP]

Genus I. Streptosporangium [AL (T)]

Streptosporangium roseum [AL (T)] Couch 1955 – N I 9100 | ATCC 12428 | CBS 313.56 | DSM 43021, X70425, Sts.roseum | DSM 43021, X89947, Sts.roseu2 | IAM 14294 | NBRC 3776 | JCM 3005, U48996, Sts.roseu5 | KCC A-0005 | NCIB 10171 | NRRL B-2505 | RIA 470 | UNCC 27 B

†*Streptosporangium albidum* [AL] Furumai et al. 1968 -> *Kutzneria albida* – MCRL 048 | ATCC 25243 | DSM 43870 | NBRC 13901

Streptosporangium album [AL] Nonomura and Ohara 1960 – S-16 | CBS 429.61 | DSM 43023, X89934, Sts.album | IMET 9014 | KCC A-0025 | NRRL B-2635 | RIA 764

Streptosporangium amethystogenes subspecies amethystogenes [AL] Nonomura and Ohara 1960 – S-5 | ATCC 33327 | CBS 430.61 | DSM 43179, X89935, Sts.amethy | IMET 9011 | KCC A-0026 | NRRL B-2639 | RIA 767

Streptosporangium amethystogenes subspecies fukuiense [VP] Iinuma et al. 1996 – AL-23456 | NBRC 15365

Streptosporangium carneum [VP] Mertz and Yao 1990 – A84575 | DSM 44125, X89938, Sts.carneu | NRRL 18437

Streptosporangium claviforme [VP] Petrolini et al. 1993 – D1 | DSM 44127, X89940, Sts.clavif | IPV 2852 | NCB 1160

†*Streptosporangium corrugatum* [AL] Williams and Sharples 1976 -> *Acrocarpospora corrugata* – E 90 | ATCC 29331, X70427, Sts.corrug | DSM 43316, X70427, Sts.corrug | DSM 43316, X89941, Sts.corru2 | NCIB 11120

Streptosporangium fragile [VP] Shearer et al. 1983 – ATCC 31519 | DSM 43847, X89942, Sts.fragil | NBRC 14311, U48992, Sts.fragi2 | JCM 6242 | SKF-BC2496

†*Streptosporangium indianense* [AL] Gupta 1965 -> *Streptomyces indiaensis* – ATCC 33330 | CBS 560.75 | DSM 43803 | NBRC 13964 | JCM 3053 | KCC A-0053 | NCIB 9794

Streptosporangium longisporum [AL] Schäfer 1969 – S66 | ATCC 25212 | CBS 184.69 | DSM 43180, X89944, Sts.longsp | KCC A-0106

Streptosporangium nondiastaticum [AL] Nonomura and Ohara 1969 – S2-31 | ATCC 27101, X70426, Sts.nondia | CBS 800.70 | DSM 43848, X89945, Sts.nondi2 | NBRC 13990, U48994, Sts.nondi3 | IMET 9018 | JCM 3114, X70426, Sts.nondia | KCC A-0114

Streptosporangium pseudovulgare [AL] Nonomura and Ohara 1969 – FYU S2-32 | ATCC 27100 | CBS 881.70 | DSM 43181, X70428, Sts.pvulgr | DSM 43181, X89946, Sts.pvulg2 | IMET 9017 | KCC A-0115

Streptosporangium subroseum [VP] Zhang et al. 2002 – CY-7113, AF191734 | CCTCC 97008 | CCRC 16302

[449] The names *Streptoverticillium verticillium* subsp. *quintum* and *Streptoverticillium verticillium* subsp. *tsukushiense* are illegitimate because the names *Streptoverticillium verticillium* and *Streptoverticillium verticillium verticillium* did not appear on the Approved List and have never been validly published.

Streptosporangium violaceochromogenes [AL] Kawamoto et al. 1975 - MK-49 | ATCC 21807 | DSM 43849, X89951, Sts.violac | JCM 3281, U48997, Sts.viola3 | KCC A-0281

Streptosporangium viridialbum [AL] Nonomura and Ohara 1960 - FYU S-20 | CBS 432.61 | DSM 43801 | JCM 3027, U48998, Sts.viral3 | KCC A-0027 | NRRL B-2636

†*Streptosporangium viridogriseum subspecies viridogriseum* [AL] Okuda et al. 1966 -> *Kutzneria viridogrisea* - MCRL 0044 | ATCC 25242 | DSM 43850, X70429, Kt.viridog | JCM 3282, U58530, Kt.virido2 | NIHJ 523

†*Streptosporangium viridogriseum subspecies kofuense* [AL] Nonomura and Ohara 1969 -> *Kutzneria kofuensis* - S2-28 | ATCC 27102 | CBS 803.70 | DSM 43851 | NBRC 13989 | JCM 3157

Streptosporangium vulgare [AL] Nonomura and Ohara 1960 - FYU S-1 | ATCC 33329 | DSM 43802, X89955, Sts.vulgar | NBRC 13985, U48999, Sts.vulga4 | IMET 9013 | KCC A-0028 | NRRL B-2633 | RIA 765

Genus II. Acrocarpospora [VP]

Acrocarpospora pleiomorpha [VP (T)] Tamura et al. 2000 - R-31, AB006174 | NBRC 16267, AB006174

Acrocarpospora corrugata [VP] (Williams and Sharples 1976) Tamura et al. 2000 - DSM 43316, X89941 | NBRC 13972, X89941

Acrocarpospora macrocephala [VP] Tamura et al. 2000 - R-55, AB025318 | NBRC 16266, AB025318

Genus III. Herbidospora [VP]

Herbidospora cretacea [VP (T)] Kudo et al. 1993 - K-319 | DSM 44071 | IAM 14284 | NBRC 15474, D85485, Hbs.cretac | JCM 8553

Genus IV. Microbispora [AL]

Microbispora rosea subspecies rosea [AL (T)] Nonomura and Ohara 1957 - FYU M-20 | NI 9096 | ATCC 12950 | CBS 189.57 | CBS 307.61 | DSM 43839 | IAM 0114 | NBRC 14044, D86936, Mbsp.rosea | NBRC 3559 | IMET 9534 | IMRU 3757 | JCM 3006 | KCC A-0006 | NCIB 9560 | RIA 477 | RIA 763

Microbispora rosea subspecies aerata [VP] (Gerber and Lechevalier 1964) Miyadoh et al. 1991 <- *Microbispora aerata* (basonym) - P 132 | ATCC 15448, U48984, Mbsp.rose2 | DSM 43176 | NBRC 12581 | IMET 9503 | JCM 3076

†*Microbispaora aerata* [AL] (Gerber and Lechevalier 1964) Cross 1974 -> *Microbispora rosea subspecies aerata* - P 132 | ATCC 15448, U48984, Mbsp.rose2 | DSM 43176 | IMET 9503 | JCM 3076

Microbispora amethystogenes [AL] Nonomura and Ohara 1960 - CBS 303.61 | DSM 43164 | IMET 9533 | NRRL B-2637 | RIA 760

†*Microbispora bispora* [AL] (Henssen 1957) Lechevalier 1965 -> *Thermobispora bispora* - R51 | ATCC 19993, U58523, Ths.bispo5 | ATCC 19993, U83909, Ths.bispo2 | ATCC 19993, U83910, Ths.bispor | ATCC 19993, U83911, Ths.bispo3 | ATCC 19993, U83912, Ths.bispo4 | CBS 139.67 | DSM 43833 | DSM 43833 | NBRC 14880

Microbispora chromogenes [AL] Nonomura and Ohara 1960 - M-22 | DSM 43165 | JCM 3022 | KCC A-0022 | NRRL B-2634

Microbispora corallina [VP] Nakajima et al. 1999 - DF-32, AB018046 | JCM 10267

Microbispora diastatica [AL] Nonomura and Ohara 1960 - KCC A-0023

†*Microbispora echinospora* [AL] Nonomura and Ohara 1971 -> *Actinomadura echinospora* - Mb3-1, U49004 | ATCC 27300 | DSM 43163 | NBRC 14042 | JCM 3148

Microbispora indica [VP] Rao et al. 1987 - ATCC 35926 | SKF-I-101055

Microbispora karnatakensis [VP] Rao et al. 1987 - ATCC 35927 | SKF-I-58261
Microbispora mesophila [VP] (Nonomura and Ohara 1971) Zhang et al. 1998 <- *Thermomonospora mesophila* (basonym) - T-1 | ATCC 27303 | DSM 43048 | JCM 3151, AF002266, Mbsp.mphil | KCC A-0151
Microbispora parva [AL] Nonomura and Ohara 1960 - KCC A-0024
Microbispora thermodiastatica [AL] Nonomura and Ohara 1969 - FYU M2-59 | ATCC 27098, U48986, Mbsp.rose7 | CBS 799.70 | DSM 43166 | KCC A-0110
Microbispora thermorosea [AL] Nonomura and Ohara 1969 - ATCC 27099, U48987, Mbsp.rose8
†*Microbispora viridis* [VP] Miyadoh et al. 1985 -> *Actinomadura rugatobispora* - SF-2240 | DSM 44130 | NBRC 14382, U49010, Amd.rugato | JCM 3366 | NRRL B-16566

Genus V. Microtetraspora [AL]
Microtetraspora glauca [AL (T)] Thiemann et al. 1968 - T 158 | ATCC 23057 | DSM 43311, X97891, Mtt.glauca | IAM 14286 | NBRC 14761, D85490, Mtt.glauc3 | NBRC 14761, U48974, Mtt.glauc2 | IMET 9532 | JCM 3300 | KCC A-0134
†*Microtetraspora africana* [VP] (Preobrazhenskaya and Sveshnikova 1974) Kroppenstedt et al. 1991 <- *Nocardiopsis africana* (basonym) -> *Nonomuraea africana* - ATCC 35107 | DSM 43748 | NBRC 14745, U48842, Nm.african | INA 1839 | RIA 1839
†*Microtetraspora angiospora* [VP] (Zhukova et al. 1968) Kroppenstedt et al. 1991 <- *Micropolyspora angiospora* (basonym) -> *Nonomuraea angiospora* - DSM 43173 | NBRC 13155, U48843, Nm.angiosp | KCC A-0109 | LIA 3479-30
†*Microtetraspora fastidiosa* [VP] (Soina et al. 1975) Kroppenstedt et al. 1991 <- *Actinomadura fastidiosa* (basonym) -> *Nonomuraea fastidiosa* - ATCC 33516 | DSM 43674 | NBRC 14680, U48844, Nm.fastidi | INMI 104 | JCM 3321 | VKM Ac-804
†*Microtetraspora ferruginea* [VP] (Meyer 1981) Kroppenstedt et al. 1991 <- *Actinomadura ferruginea* (basonym) -> *Nonomuraea ferruginea* - 487-2 | ATCC 35575 | DSM 43553 | NBRC 14094, U48845, Nm.ferrugi | IMET 9567 | JCM 3283 | NCIB 11630 | NRRL B-16096
†*Microtetraspora flexuosa* [VP] (Meyer 1989) Kroppenstedt et al. 1991 <- *Actinomadura flexuosa* (basonym) -> *Nonomuraea flexuosa* - 435 | ATCC 35864 | DSM 43186 | NBRC 14349 | JCM 3056 | KCC A-0056
Microtetraspora fusca [AL] Thiemann et al. 1968 - T/457 | ATCC 23058 | CBS 623.67 | DSM 43841 | NBRC 13915, U48973, Mtt.fusca1 | IMET 9531 | JCM 3183 | RIA 924
†*Microtetraspora helvata* [VP] (Nonomura and Ohara 1971) Kroppenstedt et al. 1991 <- *Actinomadura helvata* (basonym) -> *Nonomuraea helvata* - FYU A-105 | ATCC 27295 | DSM 43142 | IMET 9584 | KCC A-0143
Microtetraspora niveoalba [AL] Nonomura and Ohara 1971 - FYU Mt-3 | ATCC 27301 | DSM 43174 | NBRC 15239, U48976, Mtt.nivalb | JCM 3149 | KCC A-0149
†*Microtetraspora polychroma* [VP] (Galatenko et al. 1987) Kroppenstedt et al. 1991 <- *Actinomadura polychroma* (basonym) -> *Nonomuraea polychroma* - ATCC 49500 | DSM 43925 | NBRC 14345, U48977, Nm.plychrm | IMET 9743 | INA 2755 | NRRL B-16243 | VKM Ac 1084
†*Microtetraspora pusilla* [VP] (Nonomura and Ohara 1971) Kroppenstedt et al. 1991 <- *Actinomadura pusilla* (basonym) -> *Nonomuraea pusilla* - A-118 | ATCC 27296 | CBS 262.72 | DSM 43357 | NBRC 14684, D85491, Nm.pusilla | NBRC 14684, U48978, Nm.pussil2 | KCC A-0144 | NCIMB 11116

†*Microtetraspora recticatena* [VP] (Terekhova et al. 1987) Kroppenstedt et al. 1991 <- *Actinomadura recticatena* (basonym) -> *Nonomuraea recticatena* - DSM 43937 | NBRC 14525, U48979, Nm.rectica | INA 308 | VKM Ac-940

†*Microtetraspora roseola* [VP] (Lavrova and Preobrazhenskaya 1975) Kroppenstedt et al. 1991 <- *Actinomadura roseola* (basonym) -> *Nonomuraea roseola* - ATCC 33579 | DSM 43767 | NBRC 14685, U48980, Nm.salmone | IMET 9576 | INA 1671 | JCM 3323 | KCC A-0323

†*Microtetraspora roseoviolacea* [VP] (Nonomura and Ohara 1971) Kroppenstedt et al. 1991 <- *Actinomadura roseoviolacea* (basonym) -> *Nonomuraea roseoviolacea subspecies roseoviolacea* - A-5 | ATCC 27297 | DSM 43144 | NBRC 14098, AB039959 | IMET 9751 | KCC A-0145

†*Microtetraspora rubra* [VP] (Sveshnikova et al. 1969) Kroppenstedt et al. 1991 <- *Actinomadura rubra* (basonym) -> *Nonomuraea rubra* - ATCC 27031 | CBS 132.76 | DSM 43768, AF277200 | NBRC 14070 | IMET 8181 | JCM 3234 | KCC A-0234 | VKM Ac-615

†*Microtetraspora salmonea* [VP] (Preobrazhenskaya et al. 1975) Kroppenstedt et al. 1991 <- *Actinomadura salmonea* (basonym) -> *Nonomuraea salmonea* - ATCC 33580 | DSM 43678, X97892, Mtt.salmon | IMET 9582 | INA 2488

†*Microtetraspora spiralis* [VP] (Meyer 1981) Kroppenstedt et al. 1991 <- *Actinomadura spiralis* (basonym) -> *Nonomuraea spiralis* - 832-34 | ATCC 35114 | CCM 3426 | DSM 43555 | NBRC 14097, U48983, Nm.spirali | IMET 9621 | JCM 3286 | KCC A-0286 | NCIB 11633 | NRRL B-16098

†*Microtetraspora turkmeniaca* [VP] (Terekhova et al. 1987) Kroppenstedt et al. 1991 <- *Actinomadura turkmeniaca* (basonym) -> *Nonomuraea turkmeniaca* - ATCC 49501 | DSM 43926, AF277201 | NBRC 14348 | IMET 9746 | INA 3344 | VKM Ac 852

Microtetraspora tyrrhenii [VP] Tomita et al. 1992 - Q464-31 | ATCC 53931

†*Microtetraspora viridis* [AL] Nonomura and Ohara 1971 -> *Actinomadura viridis* - Mt-1 | ATCC 27103 | CBS 833.70 | DSM 43175 | IMET 9546 | JCM 3112 | KCC A-0112

Genus VI. Nonomuraea [VP]

Nonomuraea pusilla [VP (T)] (Nonomura and Ohara 1971) Zhang et al. 1998 <- *Microtetraspora pusilla* (basonym) - A-118 | ATCC 27296 | CBS 262.72 | DSM 43357 | NBRC 14684, D85491, Nm.pusilla | NBRC 14684, U48978, Nm.pussil2 | KCC A-0144 | NCIMB 11116

Nonomuraea africana [VP] (Preobrazhenskaya and Sveshnikova 1974) Zhang et al. 1998 <- *Microtetraspora africana* (basonym) - ATCC 35107 | DSM 43748 | NBRC 14745, U48842, Nm.african | INA 1839 | RIA 1839

Nonomuraea angiospora [VP] (Zhukova et al. 1968) Zhang et al. 1998 <- *Microtetraspora angiospora* (basonym) - DSM 43173 | NBRC 13155, U48843, Nm.angiosp | KCC A-0109 | LIA 3479-30

Nonomuraea dietziae [VP] Stackebrandt et al. 2001 - DSM 44320, AJ278220 | NRRL 11111

Nonomuraea fastidiosa [VP] (Soina et al. 1975) Zhang et al. 1998 <- *Microtetraspora fastidiosa* (basonym) - ATCC 33516 | DSM 43674 | NBRC 14680, U48844, Nm.fastidi | INMI 104 | JCM 3321 | VKM Ac-804

Nonomuraea ferruginea [VP] (Meyer 1981) Zhang et al. 1998 <- *Microtetraspora ferruginea* (basonym) - 487-2 | ATCC 35575 | DSM 43553 | NBRC 14094, U48845, Nm.ferrugi | IMET 9567 | JCM 3283 | NCIB 11630 | NRRL B-16096

Nonomuraea flexuosa [VP] (Meyer 1989) Zhang et al. 1998 <- *Microtetraspora flexuosa* (basonym) - 435 | ATCC 35864 | DSM 43186 | NBRC 14349 | JCM 3056 | KCC A-0056

Nonomuraea helvata [VP] (Nonomura and Ohara 1971) Zhang et al. 1998 <- *Microtetraspora helvata* (basonym) - FYU A-105 | ATCC 27295 | DSM 43142 | IMET 9584 | KCC A-0143

Nonomuraea longicatena [VP] Chiba et al. 1999 - K-252 | NRRL 15532, AB018787

Nonomuraea polychroma [VP] (Galatenko et al. 1987) Zhang et al. 1998 <- *Microtetraspora polychroma* (basonym) - ATCC 49500 | DSM 43925 | NBRC 14345, U48977, Nm.plychrm | IMET 9743 | INA 2755 | NRRL B-16243 | VKM Ac 1084

Nonomuraea recticatena [VP] (Terekhova et al. 1987) Zhang et al. 1998 <- *Microtetraspora recticatena* (basonym) - DSM 43937 | NBRC 14525, U48979, Nm.rectica | INA 308 | VKM Ac-940

Nonomuraea roseola [VP] (Lavrova and Preobrazhenskaya 1975) Zhang et al. 1998 <- *Microtetraspora roseola* (basonym) - ATCC 33579 | DSM 43767 | NBRC 14685, U48980, Nm.salmone | IMET 9576 | INA 1671 | JCM 3323 | KCC A-0323

Nonomuraea roseoviolacea subspecies roseoviolacea [VP] (Nonomura and Ohara 1971) Zhang et al. 1998 [450] <- *Microtetraspora roseoviolacea* (basonym) - A-5 | ATCC 27297 | DSM 43144 | NBRC 14098 | IMET 9751 | KCC A-0145

Nonomuraea roseoviolacea subspecies carminata [VP] (Gauze et al. 1973) Gyobu and Miyadoh 2001 <- *Actinomadura carminata* (basonym) - DSM 44170 | NBRC 15903, AB039961 | INA 4281 | VKM Ac-1780

Nonomuraea rubra [VP] (Sveshnikova et al. 1969) Zhang et al. 1998 <- *Microtetraspora rubra* (basonym) - ATCC 27031 | CBS 132.76 | DSM 43768, AF277200 | NBRC 14070 | IMET 8181 | JCM 3234 | KCC A-0234 | VKM Ac-615

Nonomuraea salmonea [VP] (Preobrazhenskaya et al. 1975) Zhang et al. 1998 <- *Microtetraspora salmonea* (basonym) - ATCC 33580 | DSM 43678, X97892, Mtt.salmon | IMET 9582 | INA 2488

Nonomuraea spiralis [VP] (Meyer 1981) Zhang et al. 1998 <- *Microtetraspora spiralis* (basonym) - 832-34 | ATCC 35114 | CCM 3426 | DSM 43555 | NBRC 14097, U48983, Nm.spirali | IMET 9621 | JCM 3286 | KCC A-0286 | NCIB 11633 | NRRL B-16098

Nonomuraea turkmeniaca [VP] (Terekhova et al. 1987) Zhang et al. 1998 <- *Microtetraspora turkmeniaca* (basonym) - ATCC 49501 | DSM 43926, AF277201 | NBRC 14348 | IMET 9746 | INA 3344 | VKM Ac 852

Genus VII. Planobispora [AL]

Planobispora longispora [AL (T)] Thiemann and Beretta 1968 - Pb-1075 | ATCC 23867 | CBS 115.69 | DSM 43041 | IAM 14288 | NBRC 13879 | NBRC 13918, D85494, Pbs.longsp | JCM 3092 | KCC A-0092

Planobispora rosea [AL] Thiemann 1970 - Pb-1435 | ATCC 23866 | DSM 43051 | JCM 3166, AB028654 | KCC A-0166

Genus VIII. Planomonospora [AL]

Planomonospora parontospora subspecies parontospora [AL (T)] Thiemann et al. 1967 - B-677 | ATCC 23863 | DSM 43177 | IAM 14289 | NBRC 13880, D85495, Pms.paront | JCM 3093 | KCC A-0093

Planomonospora parontospora subspecies antibiotica [AL] Thiemann et al. 1968 - B-987 | ATCC 23864 | DSM 43869 | NBRC 15869 | JCM 3094, AB028653

[450] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Planomonospora alba [VP] Mertz 1994 - A82600 | ATCC 51588 | DSM 44227 | NRRL 18924

Planomonospora sphaerica [VP] Mertz 1994 - A51460 | NRRL 18923

Planomonospora venezuelensis [AL] Thiemann 1970 - B-1072 | ATCC 23865 | DSM 43178 | KCC A-0167

Genus IX. Planopolyspora [VP]

†Planopolyspora crispa [VP (T)] Petrolini et al. 1993 -> *Catenuloplanes crispus* - DSM 44128 | IPV 2867 | NCB 1173

Genus X. Planotetraspora [VP]

Planotetraspora mira [VP (T)] Runmao et al. 1993 - NA9211028 | DSM 44359 | NBRC 15435, D85496, Plt.mira1 | JCM 9131 | SIIA9201

Family II. *Nocardiopsaceae* [VP]

Genus I. Nocardiopsis [AL (T)]

Nocardiopsis dassonvillei subspecies dassonvillei [AL (T)] (Brocq-Rousseau 1904) Meyer 1976 = *Nocardiopsis antarctica* (later heterotypic synonym) - ATCC 23218 | DSM 43111, X97886, Nrp.dasson | IAM 14287 | NBRC 14626, D85492, Nrp.dasso2 | IMET 9605 | IMRU 509 | JCM 7437 | NCTC 10488

Nocardiopsis dassonvillei subspecies alborubida [VP] Evtushenko et al. 2000 <- *Nocardiopsis alborubida* (basonym) - ATCC 23612 | CBS 963 | DSM 40465, X97882, Nrp.dasso3 | NBRC 13392 | INA 647 | ISP 5465 | KCC S-0717 | RIA 1953 | VKM Ac-1882

†Nocardiopsis dassonvillei subspecies prasina [VP] Miyashita et al. 1984 -> *Nocardiopsis alba subspecies prasina* - 208 | DSM 43845, X97884, Nrp.prasin | JCM 3336 | KCC A-0336

†Nocardiopsis africana [VP] (Preobrazhenskaya and Sveshnikova 1974) Preobrazhenskaya et al. 1985 <- *Actinomadura africana* (basonym) -> *Microtetraspora africana* - ATCC 35107 | DSM 43748 | NBRC 14745, U48842, Nm.african | INA 1839 | RIA 1839

Nocardiopsis alba subspecies alba [VP] Grund and Kroppenstedt 1990 - A29 | DSM 43377, X97883, Nrp.alba1 | JCM 9419

†Nocardiopsis alba subspecies prasina [VP] Grund and Kroppenstedt 1990 <- *Nocardiopsis dassonvillei subspecies prasina* (basonym) -> *Nocardiopsis prasina* - 208 | ATCC 35940 | DSM 43845, X97884, Nrp.prasin | JCM 3336 | KCC A-0336

†Nocardiopsis alborubida [VP] Grund and Kroppenstedt 1990 -> *Nocardiopsis dassonvillei subspecies albirubida* - ATCC 23612 | CBS 963 | DSM 40465, X97882, Nrp.dasso3 | NBRC 13392 | INA 647 | ISP 5465 | KCC S-0717 | RIA 1953 | VKM Ac-1882

†Nocardiopsis antarctica [VP] Abyzov et al. 1984 = *Nocardiopsis dassonvillei* (earlier heterotypic synonym) - 25-145 | ATCC 43517 | DSM 43884, X97885, Nrp.dasso4 | NBRC 14447 | INMI K-4042 | JCM 6843 | NRRL B-16236 | VKM A-836

Nocardiopsis composta [VP] Kämpfer et al. 2002 - KS9 | DSM 44551, AF360734 | NRRL B-24145

†Nocardiopsis coeruleofusca [VP] (Preobrazhenskaya and Sveshnikova 1974) Preobrazhenskaya and Sveshnikova 1985 <- *Actinomadura coeruleofusca* (basonym) -> *Saccharothrix coeruleofusca* - ATCC 35108 | DSM 43679, X76963, Sct.coerul | IMET 9602 | INA 1335

Nocardiopsis exhalans [VP] Peltola et al. 2002 - ES10.1 | DSM 44407, AY028325 | NRRL B-24123

†Nocardiopsis flava [VP] (Gauze et al. 1974) Gauze and Sveshnikova 1985 <- *Actinomadura flava* (basonym) -> *Saccharothrix flava* - ATCC 29533 | DSM 43885 | INA 2171 | JCM 3296 | KCC A-0296 | NCIB 11447

Nocardiopsis halophila [VP] Al-Tai and Ruan 1994 - IQ-H3 | CCIM A.S.4.1195

Nocardiopsis halotolerans [VP] Al-Zarban et al. 2002 - F100 | DSM 44410 , AJ290448 | NRRL B-24124

Nocardiopsis kunsanensis [VP] Chun et al. 2000 - HA-9, AF195412 | JCM 10721 | KCTC 9831, AF195412

Nocardiopsis listeri [VP] Grund and Kroppenstedt 1990 - ATCC 27442 | CBS 661 | DSM 40297, X97887, Nrp.lister | NBRC 13360 | ISP 5297 | KCC S-0782 | NCTC 434 | PCM 2491 | RIA 1321

†*Nocardiopsis longispora* [VP] (Preobrazhenskaya and Sveshnikova 1974) Preobrazhenskaya and Sveshnikova 1985 <- *Actinomadura longispora* (basonym) -> *Saccharothrix longispora* - ATCC 35109 | DSM 43749, X76964, Sct.longis | IMET 9603 | INA 10222

Nocardiopsis lucentensis [VP] Yassin et al. 1993 - A5-1 | ATCC 51300 | DSM 44048, X97888, Nrp.lucent | NBRC 15854 | JCM 9420

Nocardiopsis metallicus [VP] Schippers et al. 2002 - R2A, AJ420769 | DSM 44598 | KBS6 | NRRL B-24159

†*Nocardiopsis mutabilis* [VP] Shearer et al. 1983 -> *Saccharothrix mutabilis subspecies mutabilis* - AAA-0025 | ATCC 31520 | DSM 43853, X76966, Sct.mutabm | NBRC 14310 | JCM 3380 | NRRL B-16077 | SKF-AAA025

Nocardiopsis prasina [VP] (Grund and Kroppenstedt 1990) Yassin et al. 1997 <- *Nocardiopsis alba subspecies prasina* (basonym) - 208 | ATCC 35940 | DSM 43845, X97884, Nrp.prasin | JCM 3336 | KCC A-0336

Nocardiopsis synnemataformans [VP] Yassin et al. 1997 - DSM 44143 | IMMIB D-1215, Y13593, Nrp.synmtf | JCM 10456

†*Nocardiopsis syringae* [VP] Gauze et al. 1985 -> *Saccharothrix syringae* - ATCC 51364 | DSM 43886 | NBRC 14523 | IMET 9675 | INA 2240 | JCM 6844

Nocardiopsis trehalosi [VP] Evtushenko et al. 2000 - NBRC 14201 | JCM 3357 | NRRL 12026 | VKM Ac-942, AF105972

Nocardiopsis tropica [VP] Evtushenko et al. 2000 - VKM Ac-1457, AF105971

Nocardiopsis umidischolae [VP] Peltola et al. 2002 - 66/93, AY036001 | DSM 44362 | NRRL B-24122

Nocardiopsis xinjiangensis [VP] Li et al. 2003 - CCRC 16285 | CCTCC AA99004 | DSM 44589 | YIM 90004, AF251709

Genus II. Streptomonospora [VP]

Streptomonospora salina [VP (T)] Cui et al. 2001 - YIM 90002, AF178988 | CCRC 16284 | CCTCC 9003

Genus III. Thermobifida [VP]

Thermobifida alba [VP (T)] (Locci et al. 1967) Zhang et al. 1998 <- *Thermomonospora alba* (basonym) - DSM 43310 | IMET 9528 | IPV 1900 | JCM 3077, AF002260, Tbf.alba1 | KCC A-0077

Thermobifida cellulolytica Kukolya et al. 2002 - TB100, AJ298058 | DSM 44535 | NCAIM B01997

Thermobifida fusca [VP] (McCarthy and Cross 1984) Zhang et al. 1998 <- *Thermomonospora fusca* (basonym) - 190Th | ATCC 27730, AF002264, Tbf.fusca1 | ATCC 27730, AF028245, Tbf.fusca2 | CUB 1000 | DSM 43792 | NBRC 14071 | JCM 3263 | NCIB 11185

Family III. *Thermomonosporaceae* [VP]

Genus I. Thermomonospora [AL (T)]

Thermomonospora curvata [AL (T)] Henssen 1957 - B 9 | ATCC 19995 | CBS 141.67 | DSM 43183, X97893, Tmms.curva | IAM 14296 | NBRC

15933, D86945, Tmms.curv2 | IMET 9551 | JCM 3096, AF002262, Tmms.curv3 | KCC A-0096

†*Thermomonospora alba* [AL] (Locci et al. 1967) Cross and Goodfellow 1973 = *Thermomonospora mesouviformis* (later heterotypic synonym) -> *Thermobifida alba* - DSM 43310 | IMET 9528 | IPV 1900 | JCM 3077, AF002260, Tbf.alba1 | KCC A-0077

Thermomonospora chromogena [VP] McCarthy and Cross 1984 - Agre 577 | ATCC 43196, AF028246, Tmms.chrm2 | CUB 580 | DSM 43794 | NBRC 12465 | IMET 9529 | IMRU N 2900 | JCM 6244, AF002261, Tmms.chrmg | NCIB 10212

†*Thermomonospora formosensis* [VP] Hasegawa et al. 1986 -> *Actinomadura formosensis* - C-36820 | ATCC 49059 | DSM 43997 | NBRC 14204 | JCM 7474, AF002263, Amd.frmosn

†*Thermomonospora fusca* [VP] McCarthy and Cross 1984 -> *Thermobifida fusca* - 190Th | ATCC 27730, AF002264, Tbf.fusca1 | ATCC 27730, AF028245, Tbf.fusca2 | CUB 1000 | DSM 43792 | NBRC 14071 | JCM 3263 | NCIB 11185

†*Thermomonospora mesophila* [AL] Nonomura and Ohara 1971 -> *Microbispora mesophila* - T-1 | ATCC 27303 | DSM 43048 | JCM 3151, AF002266, Mbsp.mphil | KCC A-0151

†*Thermomonospora mesouviformis* [AL] Nonomura and Ohara 1974 = *Thermobifida alba* (earlier heterotypic synonym) - T-3 | ATCC 27644, AF028247, Tbf.alba2 | DSM 43185 | KCC A-0169

Genus II. Actinomadura [AL]

Actinomadura madurae [AL (T)] (Vincent 1894) Lechevalier and Lechevalier 1970 - ATCC 19425 | CCM 136 | DSM 43067, X97889, Amd.madur2 | IAM 14277 | NBRC 13909 | NBRC 14623, D85468, Amd.madur3 | IMET 9585 | IMRU 1190 | JCM 7436, D50668, Amd.madura | JCM 7436, U58527, Amd.madur4 | NCTC 5654

†*Actinomadura africana* [AL] Preobrazhenskaya and Sveshnikova 1974 -> *Nocardiopsis africana* - ATCC 35107 | DSM 43748 | NBRC 14745, U48842, Nm.african | INA 1839 | RIA 1839

Actinomadura atramentaria [VP] Miyadoh et al. 1987 - SF2197 | DSM 43919 | NBRC 14695, U49000, Amd.atramn | JCM 6250

†*Actinomadura aurantiaca* [AL] Lavrova and Preobrazhenskaya 1975 -> *Actinocorallia aurantiaca* - DSM 43924 | IMET 9577 | INA 1933 | JCM 8201, AF134066, D50669, Amd.aurant

Actinomadura carminata [AL] Gauze et al. 1973 -> *Nonomuraea roseoviolacea subspecies carminata* - DSM 44170 | NBRC 15903 | INA 4281 | VKM Ac-1780

Actinomadura catellatispora NP Lu et al. 2003 - 3.24 | AS 4.1522 | NBRC 16341

Actinomadura citrea [AL] Lavrova et al. 1972 - ATCC 27887 | DSM 43461 | NBRC 14678, U49001, Amd.citrea | IMET 9573 | INA 1849 | JCM 3295

Actinomadura coerulea [AL] Preobrazhenskaya et al. 1975 - ATCC 33576 | DSM 43675 | NBRC 14679, U49002, Amd.coerul | IMET 9580 | INA 765 | JCM 3320

†*Actinomadura coeruleofusca* [AL] Preobrazhenskaya and Sveshnikova 1974 -> *Nocardiopsis coeruleofusca* - ATCC 35108 | DSM 43679, X76963, Sct.coerul | IMET 9602 | INA 1335

†*Actinomadura coeruleoviolacea* [VP] Preobrazhenskaya and Terekhova 1987 -> *Saccharothrix coeruleoviolacea* - DSM 43935 | INA 3564 | VKM Ac 1083

Actinomadura cremea subspecies cremea [AL] Preobrazhenskaya et al. 1975 - ATCC 33577 | DSM 43676 | IMET 9578 | INA 292

Actinomadura cremea subspecies rifamycini [VP] Gauze et al. 1987 - ATCC 33264, AF051379 | DSM 43936 | NBRC 14183, U49003, Amd.cremea | INA 1349 | JCM 3309 | KCC A-0309 | NCIB 12768 | NRRL B-16122 | VKM Ac 1095

Actinomadura echinospora [VP] (Nonomura and Ohara 1971) Kroppenstedt et al. 1991 <- *Microbispora echinospora* (basonym) - Mb3-1, U49004 | ATCC 27300 | DSM 43163 | NBRC 14042, U49004, Amd.echino | JCM 3148

†*Actinomadura fastidiosa* [AL] Soina et al. 1975 -> *Microtetraspora fastidiosa* - ATCC 33516 | DSM 43674 | NBRC 14680, U48844, Nm.fastidi | INMI 104 | JCM 3321 | VKM Ac-804

†*Actinomadura ferruginea* [VP] Meyer 1981 -> *Microtetraspora ferruginea* - 487-2 | ATCC 35575 | DSM 43553 | NBRC 14094, U48845, Nm.ferrugi | IMET 9567 | JCM 3283 | NCIB 11630 | NRRL B-16096

Actinomadura fibrosa [VP] Mertz and Yao 1990 - A82810.1 | ATCC 49459, AF163114 | DSM 44224 | NRRL 18348

†*Actinomadura flava* [AL] Gauze et al. 1974 -> *Nocardiopsis flava* - ATCC 29533 | DSM 43885 | INA 2171 | JCM 3296 | KCC A-0296 | NCIB 11447

†*Actinomadura flexuosa* [VP] (ex Cross and Goodfellow 1973) Meyer 1989 -> *Nonomuraea flexuosa* - 435 | ATCC 35864 | DSM 43186 | NBRC 14349 | JCM 3056 | KCC A-0056

Actinomadura formosensis [VP] (Hasegawa et al. 1986) Zhang et al. 1998 <- *Thermomonospora formosensis* (basonym) - C-36820 | ATCC 49059 | DSM 43997 | NBRC 14204 | JCM 7474, AF002263, Amd.frmosn

Actinomadura fulvescens [VP] Terekhova et al. 1987 - DSM 43923 | NBRC 14347, U49005, Amd.fulves | IMET 974 | INA 3321 | JCM 6833 | VKM Ac 938

Actinomadura glauciflava [VP] Lu et al. 2003 - 80-60 | AS 4.1202 | NBRC 14668 | JCM 16161

†*Actinomadura glomerata* [VP] Itoh et al. 1996 -> *Actinocorallia glomerata* - I-226, D50660, Amd.glomer | DSM 44360 | NBRC 15960 | JCM 9376, AF134068, D50660, Amd.glomer

†*Actinomadura helvata* [AL] Nonomura and Ohara 1971 -> *Microtetraspora helvata* - FYU A-105 | ATCC 27295 | DSM 43142 | IMET 9584 | KCC A-0143

Actinomadura hibisca [VP] Tomita et al. 1991 - P157-2 | SA 26015 | ATCC 53557 | DSM 44148 | NBRC 15177 | NCIMB 13253

Actinomadura kijaniata [VP] Horan and Brodsky 1982 - 13-363 | SCC 1256 | ATCC 31588 | DSM 43764, X97890, Amd.kijan2 | NBRC 14229, U49006, Amd.kijani | IMET 9741 | JCM 3306 | VKM Ac-874

Actinomadura latina [VP] Trujillo and Goodfellow 1997 - A10 | DSM 43382, AY035998

†*Actinomadura libanotica* [VP] Meyer 1981 -> *Actinocorallia libanotica* - 828-21 | ATCC 35576 | DSM 43554 | NBRC 14095, U49007, Amd.libano | IMET 9616 | JCM 3284 | KCC A-0284 | NCIB 11686 | NRRL B-16097

Actinomadura livida [AL] Lavrova and Preobrazhenskaya 1975 - ATCC 33578 | DSM 43677 | IMET 9575 | INA 1678

†*Actinomadura longicatena* [VP] Itoh et al. 1996 -> *Actinocorallia longicatena* - I-497 | CIP 105488 | DSM 44361 | NBRC 15961 | JCM 9377, AF163117

†*Actinomadura longispora* [AL] Preobrazhenskaya and Sveshnikova 1974 -> *Nocardiopsis longispora* - ATCC 35109 | DSM 43749, X76964, Sct.longis | IMET 9603 | INA 10222

Actinomadura luteofluorescens [AL] (Shinobu 1962) Preobrazhenskaya et al. 1975 – ATCC 25469 | CBS 702.69 | DSM 40398 | NBRC 13057, U49008, Amd.lutflu | IMET 9672 | ISP 5398 | JCM 4203 | KCC S-0203 | KCC S-0491 | RIA 1249

Actinomadura macra [VP] Huang 1980 – FD 25934 | ATCC 31286 | DSM 43862 | NBRC 14102, U49009, Amd.macra | IMET 9754 | JCM 3287 | KCC A-0287

†*Actinomadura malachitica* [AL] Lavrova et al. 1972 = *Actinomadura viridis* (earlier heterotypic synonym) – ATCC 27888 | DSM 43462 | IMET 9581 | INA 1920

Actinomadura namibiensis [VP] Wink et al. 2003 – HAG 010767 | DSM 44197 | NRRL B-24153

Actinomadura nitritigenes [VP] Lipski and Altendorf 1995 – L46 | DSM 44137, AY035999 | NBRC 15918

Actinomadura oligospora [VP] Mertz and Yao 1986 – A80190.1 | NRRL 15878

Actinomadura pelletieri [AL] (Laveran 1906) Lechevalier and Lechevalier 1970 – ATCC 33385 | DSM 43383 | IMET 9693 | JCM 3388, AF163119 | NCTC 4162

†*Actinomadura polychroma* [VP] Galatenko et al. 1987 -> *Microtetraspora polychroma* – ATCC 49500 | DSM 43925 | NBRC 14345, U48977, Nm.plychrm | IMET 9743 | INA 2755 | NRRL B-16243 | VKM Ac 1084

†*Actinomadura pusilla* [AL] Nonomura and Ohara 1971 -> *Microtetraspora pusilla* – A-118 | ATCC 27296 | CBS 262.72 | DSM 43357 | NBRC 14684, D85491, Nm.pusilla | NBRC 14684, U48978, Nm.pussil2 | KCC A-0144 | NCIMB 11116

†*Actinomadura recticatena* [VP] Terekhova et al. 1987 -> *Microtetraspora recticatena* – DSM 43937 | NBRC 14525, U48979, Nm.rectica | INA 308 | VKM Ac-940

†*Actinomadura roseola* [AL] Lavrova and Preobrazhenskaya 1975 -> *Microtetraspora roseola* – ATCC 33579 | DSM 43767 | NBRC 14685, U48980, Nm.salmone | IMET 9576 | INA 1671 | JCM 3323 | KCC A-0323

†*Actinomadura roseoviolacea* [AL] Nonomura and Ohara 1971 -> *Microtetraspora roseoviolacea* – A-5 | ATCC 27297 | DSM 43144 | NBRC 14098, AB039959 | IMET 9751 | KCC A-0145

†*Actinomadura rubra* [AL] (Sveshnikova et al. 1969) Meyer and Sveshnikova 1974 -> *Microtetraspora rubra* – ATCC 27031 | CBS 132.76 | DSM 43768, AF277200 | NBRC 14070 | IMET 8181 | JCM 3234 | KCC A-0234 | VKM Ac-615

Actinomadura rubrobrunea [VP] (ex Krasil nikov et al. 1968) Kroppenstedt et al. 1991 – 2991 | P157-2 | ATCC 53557 | DSM 43750 | NBRC 15178 | IMET 9705 | JCM 7345

Actinomadura rugatobispora [VP] (Miyadoh et al. 1985) Miyadoh et al. 1991 <- *Microbispora viridis* (basonym) – SF-2240 | DSM 44130 | NBRC 14382, U49010, Amd.rugato | JCM 3366 | NRRL B-16566

†*Actinomadura salmonea* [AL] Preobrazhenskaya et al. 1975 -> *Microtetraspora salmonea* – ATCC 33580 | DSM 43678, X97892, Mtt.salmon | IMET 9582 | INA 2488

Actinomadura spadix [AL] Nonomura and Ohara 1971 – FYU A 116 | ATCC 27298 | CBS 261.72 | DSM 43459, AF277201 | NBRC 14099 | IMET 9752 | JCM 3146, AF163120 | KCC A-0146 | NCIB 11118

†*Actinomadura spiralis* [VP] Meyer 1981 -> *Microtetraspora spiralis* – 832-34 | ATCC 35114 | CCM 3426 | DSM 43555 | NBRC 14097, U48983, Nm.spirali | IMET 9621 | JCM 3286 | KCC A-0286 | NCIB 11633 | NRRL B-16098

†*Actinomadura turkmeniaca* [VP] Terekhova et al. 1982 -> *Microtetraspora turkmeniaca* - ATCC 49501 | DSM 43926, AF277201 | NBRC 14348 | IMET 9746 | INA 3344 | VKM Ac 852

Actinomadura umbrina [VP] Galatenko et al. 1987 - Ac 1086 | ATCC 49502 | DSM 43927 | NBRC 14346 | IMET 9746 | INA 2309 | JCM 6837, AF163121 | VKM Ac 1086

Actinomadura verrucosospora [AL] Nonomura and Ohara 1971 - FYU A-184 | ATCC 27299 | DSM 43358 | DSM 43550 | NBRC 14100, U49011, Amd.verruc | IMET 9588 | JCM 3147, D50667, Amd.verru2 | KCC A-0147

Actinomadura vinacea [AL] Lavrova and Preobrazhenskaya 1975 - ATCC 33581 | DSM 43765 | NBRC 14688 | IMET 9574 | INA 1682 | JCM 3325, AF134070 | KCC A-0325

Actinomadura viridilutea [VP] (Agre and Guzeva 1975) Zhang et al. 2001 [451] <- *Excellospora viridilutea* (basonym) - ATCC 33925 | DSM 43934 | DSM 44433 | NBRC 14480, D86943, Exs.viridi | IMET 9742 | INMI 187 | JCM 3398 | JCM 7346

Actinomadura viridis [VP] (Nonomura and Ohara 1971) Miyadoh et al. 1989 <- *Microtetraspora viridis* (basonym) = *Actinomadura malachitica* (later heterotypic synonym) - Mt-1 | ATCC 27103 | CBS 833.70 | DSM 43175 | NBRC 15238, D85467, Amd.viridi | IMET 9546 | JCM 3112 | KCC A-0112

Actinomadura yumaensis [VP] Labeda et al. 1985 - LL-C23024 | NRRL 12515

Genus III. Spirillospora [AL]

Spirillospora albida [AL (T)] Couch 1963 - ATCC 15331 | CBS 291.64 | DSM 43034 | NBRC 12248, D85498, Ssp.albida | IMET 9031 | KCC A-0041 | UNCC 1030

Spirillospora rubra [VP] Vobis and Kothe 1989 - CBS 571.75

Suborder XVI. *Frankineae* [VP]

Family I. *Frankiaceae* [AL]

Genus I. Frankia [AL (T)]

Frankia alni [AL (T)] (Woronin 1866) Von Tubeuf 1895

Family II. *"Geodermatophilaceae"*

Genus I. Geodermatophilus [AL]

Geodermatophilus obscurus [AL (T)] Luedemann 1968 - G-20 | ATCC 25078 | CBS 237.69 | DSM 43160, X92356, Gdp.obscu2 | IAM 14282 | NBRC 13315 | JCM 3152 | KCC A-0152

Genus II. Blastococcus [AL]

Blastococcus aggregatus [AL (T)] Ahrens and Moll 1970 - B15 | ATCC 25902 | ATCC 25902, L40614, Blc.aggreg | DSM 4725

Genus III. Modestobacter [VP]

Modestobacter multiseptatus [VP] Mevs et al. 2000 - AA-826, Y18646 | DSM 44406

Family III. *Microsphaeraceae* [VP]

Genus I. Microsphaera [VP (T)]

Microsphaera multipartita [VP (T)] Yoshimi et al.1996 - Y-104, D50066, Ms.mulpart | DSM 44233 | JCM 9543, Y08541, Ms.mulpar2

Family IV. *Sporichthyaceae* [VP]

Genus I. Sporichthya [AL (T)]

Sporichthya polymorpha [AL (T)] Lechevalier et al. 1968 - ATCC 23823 | DSM 43042 | NBRC 12702, AB025317 | IMRU 3913 | KCC A-0089

Sporichthya brevicatena [VP] Tamura et al. 1999 - YU720-21, AB006164 | NBRC 16195

[451] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Family V. *Acidothermaceae* VP
Genus I. Acidothermus VP (T)
Acidothermus cellulolyticus VP (T) Mohagheghi et al. 1986 – 11B | ATCC 43068, X70635, Acdt.cellu | DSM 8971
Family VI. "*Kineosporiaceae*"[452]
Genus I. Kineosporia AL
Kineosporia aurantiaca AL (T) Pagani and Parenti 1978 – A/10312 | ATCC 29727, X87110, Ks.auranti | DSM 43858 | NBRC 13890 | NBRC 14067, D86937, Ks.aurant3 | JCM 3230, AB003931, Ks.aurant2 | KCC A-0230
Kineosporia mikuniensis VP Kudo et al. 1998 – I-463 | JCM 9961
Kineosporia rhamnosa VP Kudo et al. 1998 – I-132, AB003935, Ks.rhamno2 | JCM 9954, AB003935, Ks.rhamno2
Kineosporia rhizophila VP Kudo et al. 1998 – I-449, AB003933, Ks.rhizoph | JCM 9960, AB003933, Ks.rhizoph
Kineosporia succinea VP Kudo et al. 1998 – I-273, AB003932, Ks.succine | JCM 9957, AB003932, Ks.succine
Genus II. Cryptosporangium VP
Cryptosporangium arvum VP (T) Tamura et al. 1998 – YU 629-21, D85465, Cs.arvum1 | NBRC 15965, D85465, Cs.arvum1
Cryptosporangium aurantiacum VP Tamura and Hatano 2001 [453] – 71–C38 | DSM 46144 | NBRC 13967, AB047490 | JCM 3241
Cryptosporangium japonicum VP Tamura et al. 1998 – YU 636-3, D85466, Cs.japonic | NBRC 15966, D85466, Cs.japonic
Cryptosporangium minutisporangium VP (Ruan et al. 1986) Tamura and Hatano 2001 <- *Actinoplanes minutisporangius* (basonym) – A-60 | LL-A-60 | IMRU LL-A-6 | ATCC 49415 | NBRC 15962, AB037007 | JCM 9458
Genus III. Kineococcus VP
Kineococcus aurantiacus VP (T) Yokota et al. 1993 – RA 333 | DSM 7487, D17527, Knc.aurnat | NBRC 15268, X77958, Knc.aurna2
Kineococcus radiotolerans VP Phillips et al. 2002 – SRS30216, AF247813 | ATCC BAA-149 | DSM 14245
Suborder XVII. *Glycomycineae* VP
Family I. *Glycomycetaceae* VP
Genus I. Glycomyces VP (T)
Glycomyces harbinensis VP (T) Labeda et al. 1985 – LL-DO5139 | ATCC 43155 | DSM 46494 | IAM 14283 | NBRC 14487, D85483, Gm.harbnen | IMET 43812 | JCM 7347 | NRRL 15337
Glycomyces rutgersensis VP Labeda et al. 1985 – LL-I-20 | ATCC 43156 | DSM 43812 | IMET 43813 | NRRL B-16106
Glycomyces tenuis VP Evtushenko et al. 1991 – ATCC 49849 | DSM 44171 | NBRC 15904, D85482, Gm.tenuis1 | INA n-5888 | JCM 9087 | VKM Ac-1250
Order II. *Bifidobacteriales* VP [454]
Family I. Bifidobacteriaceae VP
Genus I. Bifidobacterium AL (T)
Bifidobacterium bifidum AL (T) (Tissier 1900) Orla-Jensen 1924 – ATCC 29521, M38018, Bif.bifidu | DSM 20456, S83624, Bif.bifid3 | JCM 1255 | Ti
Bifidobacterium adolescentis AL Reuter 1963 – biotype a | E194a | ATCC 15703, M58729, Bif.adoles | DSM 20083 | NCTC 11814

[452] Ludwig indicates that ARB tree may not support this placement. Unpublished data of Garrity and Searles supports this family.
[453] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[454] Although Ludwig has expressed some reservations about the placement of the *Bifdobacteriales*, PCA plots (Garrity and Lilburn) clearly show the *Bifidobacteria* are removed from the main lineages of *Actinobacteria*.

Bifidobacterium angulatum [AL] Scardovi and Crociani 1974 - B677 | ATCC 27535, D86182 | DSM 20098

Bifidobacterium animalis [AL] (Mitsuoka 1969) Scardovi and Trovatelli 1974 - R101-8 | ATCC 25527, X70971, Bif.animal | DSM 20104

Bifidobacterium asteroides [AL] Scardovi and Trovatelli 1969 - C51 | ATCC 25910, M58730, Bif.astero | DSM 20089 | JCM 8230

Bifidobacterium boum [AL] Scardovi et al. 1979 - RU917 | ATCC 27917 | DSM 20432

Bifidobacterium breve [AL] Reuter 1963 - S1 | ATCC 15700, M58731, Bif.breve | DSM 20213 | NCTC 11815

Bifidobacterium catenulatum [AL] Scardovi and Crociani 1974 - B669 | ATCC 27539, M58732, Bif.catenu | DSM 20103

Bifidobacterium choerinum [AL] Scardovi et al. 1979 - ATCC 27686, D86186 | DSM 20434 | SU806

Bifidobacterium coryneforme [VP] Biavati et al. 1982 - C-215 | ATCC 25911, M58733, Bif.coryne | DSM 20216

Bifidobacterium cuniculi [AL] Scardovi et al. 1979 - ATCC 27916, M58734, Bif.cunicu | DSM 20435 | RA93

†*Bifidobacterium denticolens* [VP] Crociani et al. 1996 -> *Parascardovia denticolens* - B3028 | AS1.2280, AF240565 | DSM 10105, D89331

Bifidobacterium dentium [AL] Scardovi and Crociani 1974 - B764 | ATCC 27534, D86183 | DSM 20436

Bifidobacterium gallicum [VP] Lauer 1990 - P6 | ATCC 49850 | DSM 20093 | JCM 8224, D86189

Bifidobacterium gallinarum [VP] Watabe et al. 1983 - Ch206-5 | ATCC 33777 | DSM 20670

†*Bifidobacterium globosum* [VP] (ex Scardovi et al. 1969) Biavati et al. 1982 -> *Bifidobacterium pseudolongum subspecies globosum* - RU 224 | ATCC 25865, M58736, Bif.plongl | DSM 20092

Bifidobacterium indicum [AL] Scardovi and Trovatelli 1969 - C 410 | ATCC 25912, M58737, Bif.indicm | DSM 20214

Bifidobacterium infantis [AL] Reuter 1963 - S12 | ATCC 15697, X70974, Bif.infan6 | DSM 20088 | NCTC 11817

†*Bifidobacterium inopinatum* [VP] Crociani et al. 1996 -> *Scardovia inopinata* - B3109 | DSM 10107, AB029087

Bifidobacterium lactis [VP] Meile et al. 1997 - UR1, X89513, Bif.lactis | CIP 105265 | DSM 10140, X89513, Bif.lactis

Bifidobacterium longum [AL] Reuter 1963 - E194b | ATCC 15707, M58739, Bif.longum | DSM 20219 | NCTC 11818

Bifidobacterium magnum [AL] Scardovi and Zani 1974 - RA3 | ATCC 27540, M58740, Bif.magnum | DSM 20222

Bifidobacterium merycicum [VP] Biavati and Mattarelli 1991 - Ru915B | ATCC 49391 | DSM 6492

Bifidobacterium minimum [VP] Biavati et al. 1982 - F392 | ATCC 27538, M58741 | DSM 20102

Bifidobacterium pseudocatenulatum [AL] Scardovi et al. 1979 - B1279 | ATCC 27919 | DSM 20438

Bifidobacterium pseudolongum subspecies pseudolongum [AL] Mitsuoka 1969 - PNC-2-9G | ATCC 25526, M58742, Bif.plonpl | DSM 20099

Bifidobacterium pseudolongum subspecies globosum [VP] (Biavati et al. 1982) Yaeshima et al. 1992 <- *Bifidobacterium globosum* (basonym) - RU 224 | ATCC 25865, M58736, Bif.plongl | DSM 20092

Bifidobacterium pullorum [AL] Trovatelli et al. 1974 - 1145 | ATCC 27685 | DSM 20433

Bifidobacterium ruminantium [VP] Biavati and Mattarelli 1991 - Ru687 | ATCC 49390 | DSM 6489

Bifidobacterium saeculare [VP] Biavati et al. 1992 - RA161 | ATCC 49392 | DSM 6531, D89328

Bifidobacterium scardovii [VP] Hoyles et al. 2002 - CCUG 13008, AJ307005 | DSM 13734

Bifidobacterium subtile [VP] Biavati et al. 1982 - F395 | ATCC 27537 | DSM 20096, D89378

Bifidobacterium suis [AL] Matteuzzi et al. 1971 - SU859 | ATCC 27533, M58743, Bif.suis | DSM 20211

Bifidobacterium thermacidophilum [VP] Dong et al. 2000 - AS 1.2282 | 36, AB016246

Bifidobacterium thermophilum [AL] Mitsuoka 1969 - P2-91 | ATCC 25525, U10151, Bif.thphil | DSM 20210

Genus II. Falcivibrio [VP]

Falcivibrio grandis [VP (T)] Hammann et al. 1984 - L23-1b | ATCC 43064 | DSM 2710

Falcivibrio vaginalis [VP] Hammann et al. 1984 - V125 | ATCC 43063 | DSM 2711

Genus III. Gardnerella [VP]

Gardnerella vaginalis [VP (T)] (Gardner and Dukes 1955) Greenwood and Pickett 1980 <- *Haemophilus vaginalis* (basonym) - 594 | ATCC 14018, M58744, Gar.vagina | CCUG 3717 | DSM 4944 | NCTC 10287

Genus IV. Parascardovia [VP]

Parascardovia denticolens [VP (T)] (Crociani et al. 1996) Jian and Dong 2002 <- *Bifidobacterium denticolens* (basonym) - B3028 | DSM 10105, D89331 | AS1.2280

Genus V. Scardovia [VP]

Scardovia inopinata [VP (T)] (Crociani et al. 1996) Jian and Dong 2002 <- *Bifidobacterium inopinatum* (basonym) - B3109 | AS1.2187 | DSM 10107, AB029087

Family II. Unknown Affiliation [VP]

Genus I. Actinobispora [VP]

†*Actinobispora yunnanensis* [VP (T)] Jiang et al. 1991 -> *Pseudonocardia yunnanensis* - Y-11981, AF056706, Abi.yunnan | CCTCC M 90959, AF056706, Abi.yunnan | DSM 44253 | NBRC 15681, D85472, Abi.yunna2 | JCM 9330

†*Actinobispora alaniniphila* [VP] Xu et al. 1999 -> *Pseudonocardia alaniniphila* - Y-16303, AF056708, Abi.alniph | CCTCC AA97001, AF056708, Abi.alniph

†*Actinobispora aurantiaca* [VP] Xu et al. 1999 -> *Pseudonocardia aurantiaca* - Y-14860, AF056707, Abi.aurant | CCTCC AA97002, AF056707, Abi.aurant

†*Actinobispora xinjiangensis* [VP] Xu et al. 1999 -> *Actinobispora xinjiangensis* - XJ-45, AF056709, Scm.xinjia | CCTCC AA97020, AF056709, Scm.xinjia

Genus II. Actinocorallia [VP]

Actinocorallia herbida [VP (T)] Iinuma et al. 1994 - AL-50780 | ATCC 51528 | CIP 104066 | DSM 44254 | NBRC 15485, D85473, Acr.herbid | JCM 9647

Actinocorallia aurantiaca [VP] (Lavrova and Preobrazhenskaya 1975) Zhang et al. 2001 [455] <- *Actinomadura aurantiaca* (basonym) - DSM 43924 | IMET 9577 | INA 1933 | JCM 8201, AF134066, D50669, Amd.aurant

Actinocorallia glomerata [VP] (Itoh et al. 1996) Zhang et al. 2001 [456] <- *Actinomadura glomerata* (basonym) - I-226, D50660, Amd.glomer | DSM 44360 | NBRC 15960 | JCM 9376, AF134068, D50660, Amd.glomer

Actinocorallia libanotica [VP] (Meyer 1981) Zhang et al. 2001 [457] <- *Actinomadura libanotica* (basonym) - 828-21 | ATCC 35576 | DSM 43554 | NBRC 14095,

[455] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[456] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[457] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

U49007, Amd.libano | IMET 9616 | JCM 3284 | KCC A-0284 | NCIB 11686 | NRRL B-16097

Actinocorallia longicatena [VP] (Itoh et al. 1996) Zhang et al. 2001 [458] <- *Actinomadura longicatena* (basonym) - I-497 | CIP 105488 | DSM 44361 | NBRC 15961 | JCM 9377, AF163117, AF163117

Genus III. Excellospora [AL]

†Excellospora viridilutea [AL (T)] Agre and Guzeva 1975 -> *Actinomadura viridilutea* - ATCC 33925 | DSM 43934 | NBRC 14480, D86943, Exs.viridi | IMET 9742 | INMI 187 | JCM 3398 | JCM 7346

Genus IV. Pelczaria [VP]

Pelczaria aurantia [VP (T)] Poston 1994 - ATCC 49321

Genus V. Turicella [VP]

Turicella otitidis [VP (T)] Funke et al. 1994 - GF 234/92, X73976, Tur.otitid | ATCC 51513 | DSM 8821

Phylum BXV. *"Planctomycetes"* [459]

Class I. *"Planctomycetacia"*

Order I. *Planctomycetales* [VP]

Family I. Planctomycetaceae [VP]

Genus I. Planctomyces [AL (T)]

Planctomyces bekefii [AL (T)] Gimesi 1924

Planctomyces brasiliensis [VP] Schlesner 1990 - ATCC 49424, X85247, Pln.brasi2 | DSM 5305, X81949, Pln.brasil | DSM 5305, AJ231190, Pln.brasi3 | IFAM 1448

Planctomyces guttaeformis [VP] (ex Hortobagyi 1965) Starr and Schmidt 1984

Planctomyces limnophilus [VP] Hirsch and Müller 1986 - 290 | ATCC 43296 | DSM 3776 | IFAM 1008, X62911, Pln.limnop

Planctomyces maris [VP] Bould and Staley 1980 - 534-30 | ATCC 29201, X62910, Pln.maris | DSM 8797, AJ231184, Pln.maris2

Planctomyces stranskae [VP] (ex Warwick 1952) Starr and Schmidt 1984

Genus II. Gemmata [VP]

Gemmata obscuriglobus [VP (T)] Franzmann and Skerman 1985 - DSM 5831 | DSM 5831, AJ231191, Gmt.obscu4 | UQM 2246, X54522, Gmt.obscu2 | UQM 2246, X56305, Gmt.obscur

Genus III. Isosphaera [VP]

Isosphaera pallida [VP (T)] Giovannoni et al. 1995 - IS1B | ATCC 43644 | DSM 9630, AJ231195, Iso.palli3

Genus IV. Pirellula [VP]

Pirellula staleyi [VP (T)] (Schlesner and Hirsch 1984) Schlesner and Hirsch 1987 <- *Pirella staleyi* (basonym) - ATCC 27377, M34126, Pir.staley | DSM 6068, AJ231183, Pir.stale3 | DSM 940

Pirellula marina [VP] (Schlesner 1987) Schlesner and Hirsch 1987 <- *Pirella marina* (basonym) - ATCC 49069 | DSM 3645 | IFAM 1313, X62912, Pir.marina

Phylum BXVI. *"Chlamydiae"*

Class I. *Chlamydiae* [VP]

Order I. *Chlamydiales* [AL (T)]

Family I. Chlamydiaceae [AL]

Genus I. Chlamydia [AL (T)]

Chlamydia trachomatis [AL (T)] (Busacca 1935) Rake 1957 emend. Everett et al. 1999 - A/HAR-13, U68438, Clm.trach2 | A/HAR-13, D89067, Clm.trach4 | ATCC VR 571 | ATCC VR 571B

Chlamydia muridarum [VP] Everett et al. 1999 - MoPn, D85718, Clm.murdar | ATCC VR 123

[458] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[459] There is support in the ARB and RDP trees for the phylum *Planctomycetes*. Ludwig notes that the *Planctomyces/Pirellula* group together as do *Gemmata/Isospharea*. In PCA plots Garrity and Lilburn show the latter to be far removed. The spread of points seems consistent with Ludwig's view that the phylum is diverse.

†*Chlamydia pecorum* VP Fukushi and Hirai 1992 -> *Chlamydophila pecorum* - Bo/E58 | ATCC VR628
†*Chlamydia pneumoniae* VP Grayston et al. 1989 -> *Chlamydophila pneumoniae* - TW-183, U76711, Chd.pneum6 | ATCC VR 2282
†*Chlamydia psittaci* AL (Lillie 1930) Page 1968 -> *Chlamydophila psittaci* - 6BC, AB001778 | 6BC, M13769 | ATCC VR 125, U68447, Chd.psitt4
Chlamydia suis VP Everett et al. 1999 - S45, U73110, Clm.suis1 | ATCC VR 1474
Genus II. Chlamydophila VP
Chlamydophila psittaci VP (T) (Lillie 1930) Everett et al. 1999 <- *Chlamydia psittaci* (basonym) - 6BC, M13769, Chd.psitta | 6BC, AB001778, Chd.psitt5 | ATCC VR 125, AB001778, Chd.psitt5
Chlamydophila abortus VP Everett et al. 1999 - B577, AB001783, Chd.abort1 | B577, D85709, Chd.abort1 | ATCC VR 656, AB001783, Chd.abort1 | ATCC VR 656, D85709, Chd.abort2
Chlamydophila caviae VP Everett et al. 1999 - GPIC, D85708, Chd.caviae | ATCC VR 813, D85708, Chd.caviae
Chlamydophila felis VP Everett et al. 1999 - FP Baker, D85701, Chd.felis1 | ATCC VR 120, D85701, Chd.felis1
Chlamydophila pecorum VP (Fukushi and Hirai 1992) Everett et al. 1999 <- *Chlamydia pecorum* (basonym) - E58, D88317, Chd.pecorm | ATCC VR 628
Chlamydophila pneumoniae VP (Grayston et al. 1989) Everett et al. 1999 <- *Chlamydia pneumoniae* (basonym) - TW-183, Z49873, Chd.pneum3 | ATCC VR 2282
Family II. Parachlamydiaceae VP
Genus I. Parachlamydia VP (T)
Parachlamydia acanthamoebae VP (T) (Amann et al. 1997) Everett et al. 1999 - Bn9, Y07556, Pch.acanth | ATCC VR 1476
Genus II. Neochlamydia VP
Neochlamydia hartmannellae VP (T) Horn et al. 2001 [460] - A1Hsp, AF177275 | ATCC 50902
Family III. Simkaniaceae VP
Genus I. Simkania VP (T)
Simkania negevensis VP (T) Everett et al. 1999 - Z, L27666 | ATCC VR 1471, Smk.negevn
Family IV. Waddliaceae VP
Genus I. Waddlia VP (T)
Waddlia chondrophila VP (T) Rurangirwa et al. 1999 - WSU 86-1044, AF042496, Wd.chndrph | ATCC VR 1470

Phylum BXVII. *"Spirochaetes"* NP
Class I. *"Spirochaetes"*
Order I. *Spirochaetales* AL
Family I. Spirochaetaceae AL
Genus I. Spirochaeta AL (T)
Spirochaeta stenostrepta AL (T) Zuelzer 1912 - Z1, M88724, Spi.stenos | ATCC 25083 | DSM 2028
Spirochaeta africana VP Zhilina et al. 1996 - Z-7692, X93928, Spi.africa | DSM 8902
Spirochaeta alkalica VP Zhilina et al. 1996 - Z-7491, X93927, Spi.alkali | DSM 8900
Spirochaeta americana VP Hoover et al. 2003 - ASpG1 | ATCC BAA-392 | DSM 14872, AF373921
Spirochaeta asiatica VP Zhilina et al. 1996 - Z-7591, X93926, Spi.asiati | DSM 8901
Spirochaeta aurantia subspecies aurantia VP Canale-Parola 1980 - J1 | ATCC 25082, M57740, Spi.aurant | DSM 1902
Spirochaeta aurantia subspecies stricta VP Canale-Parola 1984 - J4T
Spirochaeta caldaria VP Pohlschroeder et al. 1995 - ATCC 51460 | DSM 7334 | H1

[460] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

Spirochaeta halophila [AL] Greenberg and Canale-Parola 1977 - RS1, M88722, Spi.haloph | ATCC 29478 | DSM 10522
Spirochaeta isovalerica [VP] Harwood and Canale-Parola 1983 - MA-2, M88720, Spi.isoval | ATCC 33939 | DSM 2461
Spirochaeta litoralis [VP] Canale-Parola 1980 - R 1 | ATCC 27000 | DSM 2029
Spirochaeta plicatilis [AL] Ehrenberg 1835
Spirochaeta smaragdinae [VP] Magot et al. 1998 - DSM 11293, U80597, Spi.smarag | SEBR 4228, U80597, Spi.smarag
Spirochaeta thermophila [VP] Aksenova et al. 1992 - Z-1203 | DSM 6578
Spirochaeta zuelzerae [VP] Canale-Parola 1980 - ATCC 19044 | DSM 1903

Genus II. Borrelia [AL]
Borrelia anserina [AL (T)] (Sakharoff 1891) Bergey et al. 1925
Borrelia afzelii [VP] Canica et al. 1994 - VS461 | ATCC 51567 | CIP 103469 | DSM 10508
Borrelia baltazardii [VP] Karimi et al. 1983 - B"x"
Borrelia brasiliensis [AL] Davis 1952
Borrelia burgdorferi [VP] Johnson et al. 1984 emend. Baranton et al. 1992 - B31 | ATCC 35210, M59293, Bor.burgdo | DSM 4680
Borrelia caucasica [AL] (Kandelaki 1945) Davis 1957
Borrelia coriaceae [VP] Johnson et al. 1987 - Co534, U42286 | ATCC 43381
Borrelia crocidurae [AL] (Leger 1971) Davis 1957
Borrelia dugesii [AL] (Mazzotti 1949) Davis 1957
Borrelia duttonii [AL] (Novy and Knapp 1906) Bergey et al. 1925
Borrelia garinii [VP] Baranton et al. 1992 - 20047 | ATCC 51383 | CIP 103362 | DSM 10534
Borrelia graingeri [AL] (Heisch 1953) Davis 1957
Borrelia harveyi [AL] (Garnham 1947) Davis 1948
Borrelia hermsii [AL] (Davis 1942) Steinhaus 1946
Borrelia hispanica [AL] (de Buen 1926) Steinhaus 1946
Borrelia japonica [VP] Kawabata et al. 1994 - HO14, L46696, L40597 | JCM 8951
Borrelia latyschewii [AL] (Sofiev 1941) Davis 1948
Borrelia lusitaniae [VP] Le Fleche et al. 1997 - PotiB2
Borrelia mazzottii [AL] Davis 1956
Borrelia miyamotoi [VP] Fukunaga et al. 1995 - HT31, D45192, Bor.miyamo | JCM 9579
Borrelia parkeri [AL] (Davis 1942) Steinhaus 1946
Borrelia persica [AL] (Dschunkowsky 1913) Steinhaus 1946
Borrelia recurrentis [AL] (Lebert 1874) Bergey et al. 1925
Borrelia sinica [VP] Masuzawa et al. 2001 [461] - CMN3, AB022101 | JCM 10505
Borrelia tanukii [VP] Fukunaga et al. 1997 - Hk501 | JCM 9662
Borrelia theileri [AL] (Laveran 1903) Bergey et al. 1925
Borrelia tillae [AL] Zumpt and Organ 1961
Borrelia turdi [VP] Fukunaga et al. 1997 - Ya501, D67022 | JCM 9661
Borrelia turicatae [AL] (Brumpt 1933) Steinhaus 1946
Borrelia valaisiana [VP] Wang et al. 1997 - VS116
Borrelia venezuelensis [AL] (Brumpt 1921) Brumpt 1922

Genus III. Brevinema [VP]
Leptothrix dechloratans [VP (T)] Malmqvist et al. 1994 - Anox B, X72724, Id.dechlrt | ATCC 51718 | CCUG 30898 | CCUG 30977

Genus IV. Clevelandina [VP]
Clevelandina reticulitermitidis [VP (T)] Bermudes et al. 1988

Genus V. Cristispira [AL]
Cristispira pectinis [AL (T)] Gross 1910

Genus VI. Diplocalyx [VP]
Diplocalyx calotermitidis [VP (T)] (ex Gharagozlou 1968) Bermudes et al. 1988

Genus VII. Hollandina [VP]

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Hollandina pterotermitidis VP (T) (ex To et al. 1978) Bermudes et al. 1988

Genus VIII. Pillotina VP

Pillotina calotermitidis VP (T) (ex Gharagozlau 1968) Bermudes et al. 1988

Genus IX. Treponema AL

Treponema pallidum AL (T) (Schaudinn and Hoffmann 1905) Schaudinn 1905

Treponema amylovorum VP Wyss et al. 1997 - HA2P, Y09959, Trp.amylvr | ATCC 700288

Treponema brennaborense VP Schrank et al. 1999 - DD5/3 | DSM 12168

Treponema bryantii VP Stanton and Canale-Parola 1980 - RUS-1, M57737, Trp.bryant | ATCC 33254, M57737, Trp.bryant | DSM 1788

Treponema denticola VP (ex Brumpt 1925) Chan et al. 1993 - a | ATCC 35405, AF139204, AF139203

†*Treponema hyodysenteriae* AL Harris et al. 1972 -> *Serpula hyodysenteriae* - B78, M57743, Brs.hyoB78 | ATCC 27164 | IMET 2

†*Treponema innocens* AL Kinyon and Harris 1979 -> *Serpula innocens* - B256, M57744, Brs.innocn | ATCC 29796

Treponema lecithinolyticum VP Wyss et al. 1999 - OMZ 684 | PFB4G | ATCC 700332, X87139

Treponema maltophilum VP Wyss et al. 1996 - BR, X87140, Trp.maltop | ATCC 51939

Treponema medium VP Umemoto et al. 1997 - G7201, D85437, Trp.medium

Treponema minutum AL Dobell 1912 - CIPP 5162

Treponema paraluiscuniculi AL (Jacobsthal 1920) Smibert 1974

Treponema parvum VP Wyss et al. 2001 [462] - ATCC 700770 | OMZ 833, AF302937

Treponema pectinovorum VP Smibert and Burmeister 1983 - ATCC 33768, M71237, Trp.pectin | VPI D-36DR-2

Treponema pertenue AL (Castellani 1905) Castellani and Chalmers 1910

Treponema saccharophilum VP Paster and Canale-Parola 1986 - PB | ATCC 43261, M71238, Trp.saccha | DSM 2985

Treponema socranskii subspecies socranskii VP Smibert et al. 1984 - ATCC 35536, AF033306, Trp.scrsoc | VPI DR56BRIII6, AF033306, Trp.scrsoc

Treponema socranskii subspecies buccale VP Smibert et al. 1984 - ATCC 35534, AF033305, Trp.scrbuc | VPI D2B8

Treponema socranskii subspecies paredis VP Smibert et al. 1984 - ATCC 35535, AF033307, Trp.scrpar | VPI D46CPE1

Treponema succinifaciens VP Cwyk and Canale-Parola 1981 - 6091, M57738, Trp.succin | ATCC 33096, M57738, Trp.succin | DSM 2489

Family II. "Serpulinaceae" [463]

Genus I. Serpulina VP

†*Serpulina hyodysenteriae* VP (T) (Harris et al. 1972) Stanton et al. 1991 <- *Serpula hyodysenteriae* (basonym) -> *Brachyspira hyodysenteriae* - B78, M57743, Brs.hyoB78 | ATCC 27164 | IMET 2

†*Serpulina alvinipulli* VP Stanton et al. 1998 -> *Brachyspira alvinipulli* - C1 (91-1207/C1) | ATCC 51933

†*Serpulina innocens* VP (Kinyon and Harris 1979) Stanton et al. 1991 <- *Serpula innocens* (basonym) -> *Brachyspira innocens* - B256, M57744, Brs.innocn | ATCC 29796

Serpulina intermedia VP Stanton et al. 1997 - PWS/A | ATCC 51140 [464]

Serpulina murdochii VP Stanton et al. 1997 - 56-150 | ATCC 51254

†*Serpulina pilosicoli* VP Trott et al. 1996 -> *Brachyspira pilosicoli* - P43/6/78 | ATCC 51139

[462] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[463] Tim Lillburn indicates a possible change to *Brachyspiraceae*

[464] The names *Serpulina intermedia* and *Serpulina murdochii* were published in IJSB prior to validation of the transfer of the type species *Serpulina hyodysenteriae* to the genus *Brachyspira*, but after the effective publication of the paper in which this transfer was proposed. A proposal to transfer *S. intermedia* and *S. murdochii* to has not yet been published.

Genus II. Brachyspira [VP]

Brachyspira aalborgi [VP (T)] Hovind-Hougen et al. 1983 emend. Ochiai et al. 1997 – 513A | NCTC 11492, Z22781, Brs.aalbor

Brachyspira alvinipulli [VP] Stanton et al. 1998 <- *Serpulina alvinipulli* (basonym) – C1 (91-1207/C1) | ATCC 51933

Brachyspira hyodysenteriae [VP] (Harris et al. 1972) Ochiai et al. 1998 <- *Serpulina hyodysenteriae* (basonym) – B78, M57743, Brs.hyoB78 | ATCC 27164 | IMET 2

Brachyspira innocens [VP] (Kinyon and Harris 1979) Ochiai et al. 1998 <- *Serpulina innocens* (basonym) – B256, M57744, Brs.innocn | ATCC 29796

Brachyspira pilosicoli [VP] (Trott et al. 1996) Ochiai et al. 1998 <- *Serpulina pilosicoli* (basonym) – P43/6/78 | ATCC 51139

Family III. Leptospiraceae [AL]

Genus I. Leptospira [AL (T)]

Leptospira interrogans [AL (T)] (Stimson 1907) Wenyon 1926 emend. Faine and Stallman 1982 – RGA, Z12817, Lps.interR | ATCC 43642

Leptospira alexanderi [VP] Brenner et al. 1999 – L 60 | ATCC 700520

Leptospira biflexa [AL] (Wolbach and Binger 1914) Noguchi 1918 emend. Faine and Stallman 1982 – Patoc 1, Z12821, Lps.biflex | ATCC 23582

Leptospira borgpetersenii [VP] Yasuda et al. 1987 – Veldrat Bataviae 46, Z21630, Lps.borgp2 | ATCC 43292

Leptospira fainei [VP] Perolat et al. 1998 – BUT 6

Leptospira inadai [VP] Yasuda et al. 1987 – 10 | ATCC 43289

Leptospira kirschneri [VP] Ramadass et al. 1992 – 3522 C, Z21628, Lps.kirsch

Leptospira meyeri [VP] Yasuda et al. 1987 – Iowa City Frog | ATCC 43287

Leptospira noguchii [VP] Yasuda et al. 1987 – CZ 214, Z21635, Lps.noguch | ATCC 43288

Leptospira parva [VP] Hovind-Hougen et al. 1982 – H, Z21636, Lps.parva | NCTC 11395

Leptospira santarosai [VP] Yasuda et al. 1987 – LT 821 | ATCC 43286

Leptospira weilii [VP] Yasuda et al. 1987 – Celledoni, Z21637, Lps.weilii | ATCC 43285, U12676, Lps.weili2

Leptospira wolbachii [VP] Yasuda et al. 1987 – ATCC 43284 | CDC, Z21638, Lps.wolbac

Genus II. Leptonema [VP]

Leptonema illini [VP (T)] Hovind-Hougen 1983 – 3055, Z21632, Lpn.illin2 | NCTC 11301

Phylum BXVIII. *"Fibrobacteres"*

Class I. *"Fibrobacteres"*

Order I. *"Fibrobacterales"*

Family I. "Fibrobacteraceae"

Genus I. Fibrobacter [VP]

Fibrobacter succinogenes subspecies succinogenes [VP (T)] (Hungate 1950) Montgomery et al. 1988 <- *Bacteroides succinogenes* (basonym) – S85, M62696, Fib.sucS85 | ATCC 19169

Fibrobacter succinogenes subspecies elongatus [VP] Montgomery et al. 1988 – HM2, M62689, Fib.sucHM2 | ATCC 43856

Fibrobacter intestinalis [VP] Montgomery et al. 1988 – NR9, M62695, Fib.intNR9 | ATCC 43854

Phylum BXIX. *"Acidobacteria"*

Class I. *Acidobacteria* [VP]

Order I. *Acidobacteriales* [VP (T)]

Family I. "Acidobacteriaceae"

Genus I. Acidobacterium [VP]

Acidobacterium capsulatum [VP (T)] Kishimoto et al. 1991 – 161 | ATCC 51196 | DSM 11244 | JCM 7670 | NCIMB 13165

Genus II. Geothrix [VP]

Geothrix fermentans [VP (T)] Coates et al. 1999 – H-5 | ATCC 700665, U41563

Genus III. Holophaga [VP]

Holophaga foetida [VP (T)] Liesack et al. 1995 - TMBS4, X77215, Hp.foetida | DSM 6591, X77215, Hp.foetida

Phylum BXX. *"Bacteroidetes"*

Class I. *"Bacteroidetes"*

Order I. *"Bacteroidales"*

Family I. Bacteroidaceae [AL]

Genus I. Bacteroides [AL (T)]

Bacteroides fragilis [AL (T)] (Veillon and Zuber 1898) Castellani and Chalmers 1919 - EN-2 | ATCC 25285, X83935, Bac.fragi3 | DSM 2151 | NCTC 9343 | VPI 2553

Bacteroides acidifaciens [VP] Miyamoto and Itoh 2000 - A40, AB021164 | JCM 10556

†Bacteroides amylophilus [AL] Hamlin and Hungate 1956 -> *Ruminobacter amylophilus* - H 18 | ATCC 29744, Y15992, Rum.amylo2 | DSM 1361, Y15992, Rum.amylo2 | VPI 2502 B

†Bacteroides asaccharolyticus [AL] (Holdeman and Moore 1970) Finegold and Barnes 1977 -> *Porphyromonas asaccharolytica* - ATCC 25260, L16490, Ppm.asacch | DSM 20707 | VPI 4198

†Bacteroides bivius [AL] Holdeman and Johnson 1977 -> *Prevotella bivia* - 653C | ATCC 29303, L16475, Prv.bivia | DSM 20514 | NCTC 11156 | VPI 6822

†Bacteroides buccae [VP] Holdeman et al. 1982 = *Bacteroides capillus* (later heterotypic synonym) = *Bacteroides pentosaceus* (later heterotypic synonym) -> *Prevotella buccae* - ATCC 33574, L16477, Prv.buccae | DSM 20615 | VPI D3A-6

†Bacteroides buccalis [VP] Shah and Collins 1982 -> *Prevotella buccalis* - HS4 | ATCC 35310, L16476, Prv.buccls | DSM 20616 | NCDO 2354

Bacteroides caccae [VP] Johnson et al. 1986 - ATCC 43185, X83951, Bac.caccae | VPI 3452A

Bacteroides capillosus [AL] (Tissier 1908) Kelly 1957 - ATCC 29799

†Bacteroides capillus [VP] Kornmann and Holt 1982 = *Bacteroides buccae* (earlier heterotypic synonym) - 938.11 | ATCC 33690, L16478, Prv.bucca2

Bacteroides cellulosolvens [VP] Murray et al. 1984 - WM2 | ATCC 35603, L35517, Bac.cellul | DSM 2933 | NRCC 2944

Bacteroides coagulans [AL] Eggerth and Gagnon 1933 - EUH 581-73 | ATCC 29798 | DSM 20705 | VPI 8755

†Bacteroides corporis [VP] Johnson and Holdeman 1983 -> *Prevotella corporis* - Lambe 532-70A | ATCC 33547, L16465, Prv.corpor | VPI 9342

†Bacteroides denticola [VP] Shah and Collins 1982 emend. Holdeman and Johnson 1982 -> *Prevotella denticola* - 1210 | ATCC 35308, L16467, Prv.dentic | DSM 20614 | NCDO 2352

†Bacteroides disiens [VP] Holdeman and Johnson 1977 -> *Prevotella disiens* - 1304-72B | ATCC 29426, L16483, Prv.disien | DSM 20516 | NCTC 11157 | VPI 8057

Bacteroides distasonis [AL] Eggerth and Gagnon 1933 - ATCC 8503, M86695, Bac.distas | DSM 20701 | NCTC 11152

Bacteroides eggerthii [AL] Holdeman and Moore 1974 - ATCC 27754 | DSM 20697 | NCTC 11155, L16485, Bac.eggert | VPI T5-42B-1

†Bacteroides endodontalis [VP] van Steenbergen et al. 1984 -> *Porphyromonas endodontalis* - HG370 | ATCC 35406, L16491, Ppm.endodo

Bacteroides forsythus [VP] Tanner et al. 1986 -> *Tannerella forsythensis* - ATCC 43037 | FDC 338, L16495, Bac.fsyths

†Bacteroides furcosus [AL] (Veillon and Zuber 1898) Hauduroy et al. 1937 -> *Anaerorhabdus furcosa* - T-301-A2 | ATCC 25662 | VPI 3253

Bacteroides galacturonicus [VP] Jensen and Canale-Parola 1987 - N6 | ATCC 43244 | DSM 3978

†Bacteroides gingivalis [VP] Coykendall et al. 1980 -> *Porphyromonas gingivalis* - 2561 | ATCC 33277, L16492, Ppm.gingiv | DSM 20709

†Bacteroides gracilis [VP] Tanner et al. 1981 -> *Campylobacter gracilis* - ATCC 33236, L04320, Cam.gracil | CCUG 27720 | FDC 1084 | NCTC 12738

Bacteroides helcogenes [VP] Benno et al. 1983 – P 36-108 | ATCC 35417 | DSM 20613

†*Bacteroides heparinolyticus* [VP] Okuda et al. 1985 -> *Prevotella heparinolytica* – HEP | ATCC 35895, L16487, Prv.heplyt

†*Bacteroides hypermegas* [AL] Harrison and Hansen 1963 -> *Megamonas hypermegale* – EBF 61/42 | ATCC 25560 | DSM 1672, AJ420107 | DSM 20631 | NCTC 10570

†*Bacteroides intermedius* [VP] (Holdeman and Moore 1970) Johnson and Holdeman 1983 <- *Bacteroides melaninogenicus subspecies intermedius* (basonym) -> *Prevotella intermedia* – B422 | ATCC 25611, L16468, Prv.interm | ATCC 25611, X73965, Prv.inter2 | DSM 20706 | VPI 4197

†*Bacteroides levii* [VP] (ex Holdeman et al. 1977) Johnson and Holdeman 1983 -> *Porphyromonas levii* – LEV | ATCC 29147, L16493, Ppm.levii | VPI 10450 | VPI 3300

†*Bacteroides loescheii* [VP] Holdeman and Johnson 1982 -> *Prevotella loescheii* – 8B | ATCC 15930, L16481, Prv.loesch | NCTC 11321 | VPI 9085

†*Bacteroides macacae* [VP] (Slots and Genco 1980) Coykendall et al. 1980 <- *Bacteroides melaninogenicus subspecies macacae* (basonym) -> *Porphyromonas macacae* – 7728-L6C | ATCC 33141, L16494, Ppm.macaca | DSM 20710

†*Bacteroides melaninogenicus subspecies melaninogenicus* [AL] (Oliver and Wherry 1921) Holdeman and Moore 1970 -> *Prevotella melaninogenica* – B282 | ATCC 25845, L16469, Prv.melani | DSM 7089 | JCM 6325 | VPI 2381

†*Bacteroides melaninogenicus subspecies intermedius* [AL] Holdeman and Moore 1970 -> *Bacteroides intermedius* – B422 | ATCC 25611, L16468, Prv.interm | DSM 20706 | VPI 4197

†*Bacteroides melaninogenicus subspecies macacae* [VP] Slots and Genco 1980 -> *Bacteroides macacae* – 7728-L6C | ATCC 33141, L16494, Ppm.macaca | DSM 20710

Bacteroides merdae [VP] Johnson et al. 1986 – ATCC 43184, X83954, Bac.merdae | VPI T4-1

†*Bacteroides microfusus* [AL] Kaneuchi and Mitsuoka 1978 -> *Rikenella microfusus* – ATCC 29728, L16498, Rik.mifusu | NCTC 11190

†*Bacteroides multiacidus* [AL] Mitsuoka et al. 1974 -> *Mitsuokella multacida* – A 405-1 | ATCC 27723 | DSM 20544 | NCTC 10934, X81878, Msk.mulcid

†*Bacteroides nodosus* [AL] (Beveridge 1941) Mraz 1963 -> *Dichelobacter nodosus* – ATCC 25549 | DSM 20708 | VPI 2340

†*Bacteroides ochraceus* [AL] Prevot et al. 1956 -> *Capnocytophaga ochracea* – ATCC 27872, U41350, Cap.ochra3 | DSM 7271 | VPI 2845

†*Bacteroides oralis* [AL] Loesche et al. 1964 -> *Prevotella oralis* – ATCC 33269, L16480, Prv.oralis | DSM 20702 | NCTC 11459 | VPI D27B-24

†*Bacteroides oris* [VP] Holdeman et al. 1982 -> *Prevotella oris* – ATCC 33573, L16474, Prv.oris | VPI DIA-1A

†*Bacteroides oulorum* [VP] Shah et al. 1985 -> *Prevotella oulorum* – WPH 179 | ATCC 43324, L16472, Prv.oulora | NCTC 11871

Bacteroides ovatus [AL] Eggerth and Gagnon 1933 – ATCC 8483, X83952, Bac.ovatu2 | DSM 1896 | NCTC 11153, L16484, Bac.ovatus

Bacteroides pectinophilus [VP] Jensen and Canale-Parola 1987 – N3 | ATCC 43243

†*Bacteroides pentosaceus* [VP] Shah and Collins 1982 = *Bacteroides buccae* (earlier heterotypic synonym) – NCDO 2353

†*Bacteroides pneumosintes* [AL] (Olitsky and Gates 1921) Holdeman and Moore 1970 -> *Dialister pneumosintes* – Cal 4692-1-74 | ATCC 33048, X82500, Di.psintes | CCUG 21025 | DSM 11619 | VPI 9415

Bacteroides polypragmatus [VP] Patel and Breuil 1982 – GP4 | NRC 2288

†*Bacteroides praeacutus* [AL] (Tissier 1908) Holdeman and Moore 1970 -> *Tissierella praeacuta* – ATCC 25539, X80833, Tss.praea2 | NCTC 11158

Bacteroides putredinis [AL] (Weinberg et al. 1937) Kelly 1957 – ATCC 29800, L16497, Bac.putred

Bacteroides pyogenes [VP] Benno et al. 1983 – P 39-88 | ATCC 35418 | DSM 20611

†*Bacteroides ruminicola subspecies ruminicola* [AL] Bryant et al. 1958 -> *Prevotella ruminicola* - ATCC 19189, L16482, Prv.rumcol
†*Bacteroides ruminicola subspecies brevis* [AL] Bryant et al. 1958 -> *Prevotella ruminicola subspecies brevis* - GA33, AJ011682, Prv.brevis | ATCC 19188
†*Bacteroides salivosus* [VP] Love et al. 1987 -> *Porphyromonas salivosa* - NCTC 11632, L26103, Ppm.macac2 | VPB 157
Bacteroides splanchnicus [AL] Werner et al. 1975 - 1651/6 | ATCC 29572 | DSM 20712 | NCTC 10825, L16496, Bac.splanc
Bacteroides stercoris [VP] Johnson et al. 1986 - ATCC 43183, X83953, Bac.stercr | VPI B5-21
†*Bacteroides succinogenes* [AL] Hungate 1950 -> *Fibrobacter succinogenes subspecies succinogenes* - S85, M62696, Fib.sucS85 | ATCC 19169
Bacteroides suis [VP] Benno et al. 1983 - P 38024 | ATCC 35419 | DSM 20612
Bacteroides tectus [VP] Love et al. 1986 - 160 | NCTC 11853
†*Bacteroides termitidis* [AL] (Sebald 1962) Holdeman and Moore 1970 -> *Sebaldella termitidis* - ATCC 33386, M58678, Sbd.termit | NCTC 11300
Bacteroides thetaiotaomicron [AL] (Distaso 1912) Castellani and Chalmers 1919 - E50 | ATCC 29148, L16489, Bac.theta2 | ATCC 29148, M58763, Bac.thetai | DSM 2079 | NCTC 10582 | VPI 5482
Bacteroides uniformis [AL] Eggerth and Gagnon 1933 - ATCC 8492, L16486, Bac.unifor | DSM 6597
Bacteroides ureolyticus [AL] Jackson and Goodman 1978 - EDMH-1 | ATCC 33387, L04321, Bac.ureoly | CCUG 7319 | DSM 20703 | LMG 6451 | NCTC 10941
†*Bacteroides veroralis* [VP] Watabe et al. 1983 -> *Prevotella veroralis* - ATCC 33779, L16473, Prv.verora | VPI D22A-7
Bacteroides vulgatus [AL] Eggerth and Gagnon 1933 - ATCC 8482, M58762, Bac.vulgat | DSM 1447
Bacteroides xylanolyticus [VP] Scholten-Koerselman et al. 1988 - X5-1 | DSM 3808
†*Bacteroides zoogleoformans* [VP] (Weinberg et al. 1937) Cato et al. 1982 <- *Capsularis zoogleoformans* (basonym) -> *Prevotella zoogleoformans* - ATCC 33285, L16488, Prv.zoofor | VPI D28K-1

Genus II. Acetofilamentum [VP]
Acetofilamentum rigidum [VP (T)] Dietrich et al. 1989 - MN | DSM 20769

Genus III. Acetomicrobium [VP]
Acetomicrobium flavidum [VP (T)] Soutschek et al. 1985 - ATCC 43122 | DSM 20664
Acetomicrobium faecale [VP] Winter et al. 1988 - DSM 20678

Genus IV. Acetothermus [VP]
Acetothermus paucivorans [VP (T)] Dietrich et al. 1988 - TN | DSM 20768

Genus V. Anaerophaga [VP]
Anaerophaga thermohalophila [VP (T)] Denger et al. 2002 - Fru22, AJ418048 | DSM 12881 | OCM 798

Genus VI. Anaerorhabdus [VP]
Anaerorhabdus furcosa [VP (T)] (Veillon and Zuber 1898) Shah and Collins 1986 <- *Bacteroides furcosus* (basonym) - T-301-A2 | ATCC 25662 | VPI 3253

Genus VII. Megamonas [VP]
Megamonas hypermegale [VP (T)] (Harrison and Hansen 1963) Shah and Collins 1983 <- *Bacteroides hypermegas* (basonym) - EBF 61/42 | ATCC 25560 | DSM 1672, AJ420107 | DSM 20631 | NCTC 10570

Family II. "Rikenellaceae" [VP]

Genus I. Rikenella [VP]
Rikenella microfusus [VP (T)] (Kaneuchi and Mitsuoka 1978) Collins et al. 1985 <- *Bacteroides microfusus* (basonym) - ATCC 29728, L16498, Rik.mifusu | NCTC 11190

Genus II. Marinilabilia [VP]

Marinilabilia salmonicolor VP (T) (Veldkamp 1961) Nakagawa and Yamasato 1996 <- *Cytophaga salmonicolor* (basonym) = *Marinilabilia agarovorans* (later heterotypic synonym) - Cy s1 | ATCC 19041 | DSM 6480 | IAM 14310 | NCIMB 2216, D12672, Ml.salmoni

†*Marinilabilia agarovorans* VP (Reichenbach 1989) Nakagawa and Yamasato 1996 = *Marinilabilia salmonicolor* (earlier heterotypic synonym) <- *Cytophaga agarovorans* (basonym) - Cy s2 | ATCC 19043, M62422, Ml.agarovo | DSM 2097 | IAM 14297 | NCIMB 2217

Family III. "Porphyromonadaceae"

Genus I. Porphyromonas VP

Porphyromonas asaccharolytica VP (T) (Holdeman and Moore 1970) Shah and Collins 1988 <- *Bacteroides asaccharolyticus* (basonym) - ATCC 25260, L16490, Ppm.asacch | DSM 20707 | VPI 4198

Porphyromonas cangingivalis VP Collins et al. 1994 - NCTC 12856 | VPB 4874, X76259, Ppm.cangin

Porphyromonas canoris VP Love et al. 1994 - NCTC 12835 | VPB 4878

Porphyromonas cansulci VP Collins et al. 1994 - NCTC 12858 | VPB 4875, X76260, Ppm.cansul

Porphyromonas catoniae VP (Moore and Moore 1994) Willems and Collins 1995 <- *Oribaculum catoniae* (basonym) - ATCC 51270, X82823, Ppm.catoni | VPI N3B-3

Porphyromonas circumdentaria VP Love et al. 1992 - NCTC 12469, L26102, Ppm.cirden | VPB 3329

Porphyromonas crevioricanis VP Hirasawa and Takada 1994 - ATCC 55563 | NUM 402

Porphyromonas endodontalis VP (van Steenbergen et al. 1984) Shah and Collins 1988 <- *Bacteroides endodontalis* (basonym) - HG370 | ATCC 35406, L16491, Ppm.endodo

Porphyromonas gingivalis VP (Coykendall et al. 1980) Shah and Collins 1988 <- *Bacteroides gingivalis* (basonym) - 2561 | ATCC 33277, L16492, Ppm.gingiv | DSM 20709, X73964, Ppm.gingi2

Porphyromonas gingivicanis VP Hirasawa and Takada 1994 - ATCC 55562 | NUM 301

Porphyromonas gulae VP Fournier et al. 2001 - Loup 1 | ATCC 51700, AF208290 | NCTC 13180

Porphyromonas levii VP (Johnson and Holdeman 1983) Shah et al. 1995 <- *Bacteroides levii* (basonym) - LEV | ATCC 29147, L16493, Ppm.levii | VPI 10450 | VPI 3300

Porphyromonas macacae VP (Slots and Genco 1980) Love 1995 <- *Bacteroides macacae* (basonym) = *Porphyromonas salivosa* (later heterotypic synonym) - 7728-L6C | ATCC 33141, L16494, Ppm.macaca | DSM 20710

†*Porphyromonas salivosa* VP (Love et al. 1987) Love et al. 1992 = *Porphyromonas macacae* (earlier heterotypic synonym) <- *Bacteroides salivosus* (basonym) - VPB 157 | NCTC 11632, L26103, Ppm.macac2

Genus II. Dysgonomonas VP

Dysgonomonas gadei VP (T) Hofstad et al. 2000 - CCUG 42882, Y18530 | CIP 106420

Dysgonomonas capnocytophagoides VP Hofstad et al. 2000 , U41355 - CCUG 17996 | LMG 11519

Dysgonomonas mossii VP Lawson et al. 2002 - CCUG 43457, AJ319867 | CDC F9489 | CIP 107079

Genus III. Tannerella VP

Tannerella forsythensis VP (T) (Tanner et al. 1986) Sakamoto et al. 2002 <- *Bacteroides forsythus* (basonym) - FDC 338 , L16495, Bac.fsyths | ATCC 43037 | JCM 10827

Family IV. "Prevotellaceae"

Genus I. Prevotella VP

Prevotella melaninogenica VP (T) (Oliver and Wherry 1921) Shah and Collins 1990 emend. Wu et al. 1992 <- *Bacteroides melaninogenicus subspecies melaninogenicus* (basonym) - B282 | ATCC 25845, L16469, Prv.melani | DSM 7089 | JCM 6325 | VPI 2381

Prevotella albensis VP Avgustin et al. 1997 - M384, AJ011683, Prv.albens | DSM 11370

Prevotella bivia [VP] (Holdeman and Johnson 1977) Shah and Collins 1990 <- *Bacteroides bivius* (basonym) - 653C | ATCC 29303, L16475, Prv.bivia | DSM 20514 | NCTC 11156 | VPI 6822

Prevotella brevis [VP] (Bryant et al. 1958) Avgustin et al. 1997 <- *Prevotella ruminicola subspecies brevis* (basonym) - GA33, AJ011682, Prv.brevis | ATCC 19188

Prevotella bryantii [VP] Avgustin et al. 1997 - B14, AJ006457, Prv.bryant | DSM 11371, AJ006457, Prv.bryant

Prevotella buccae [VP] (Holdeman et al. 1982) Shah and Collins 1990 <- *Bacteroides buccae* (basonym) - ATCC 33574, L16477, Prv.buccae | VPI D3A-6

Prevotella buccalis [VP] (Shah and Collins 1982) Shah and Collins 1990 <- *Bacteroides buccalis* (basonym) - HS4 | ATCC 35310, L16476, Prv.buccls | DSM 20616 | NCDO 2354

Prevotella corporis [VP] (Johnson and Holdeman 1983) Shah and Collins 1990 <- *Bacteroides corporis* (basonym) - Lambe 532-70A | ATCC 33547, L16465, Prv.corpor | VPI 9342

Prevotella dentalis [VP] (Haapasalo et al. 1986) Willems and Collins 1995 <- *Mitsuokella dentalis* (basonym) - ES 2772 | ES2645 | ATCC 49559 | DSM 3688, X81876, Prv.denti3

Prevotella denticola [VP] (Shah and Collins 1982) Shah and Collins 1990 emend. Wu et al. 1992 <- *Bacteroides denticola* (basonym) - 1210 | ATCC 35308, L16467, Prv.dentic | DSM 20614 | NCDO 2352

Prevotella disiens [VP] (Holdeman and Johnson 1977) Shah and Collins 1990 <- *Bacteroides disiens* (basonym) - 1304-72B | ATCC 29426, L16483, Prv.disien | DSM 20516 | NCTC 11157 | VPI 8057

Prevotella enoeca [VP] Moore et al. 1994 - ATCC 51261, AJ005635, Prv.enoeca | VPI D194A-25A

Prevotella heparinolytica [VP] (Okuda et al. 1985) Shah and Collins 1990 <- *Bacteroides heparinolyticus* (basonym) - HEP | ATCC 35895, L16487, Prv.heplyt

Prevotella intermedia [VP] (Holdeman and Moore 1970) Shah and Collins 1990 <- *Bacteroides intermedius* (basonym) - B422 | ATCC 25611, L16468, Prv.interm | ATCC 25611, X73965, Prv.inter2 | DSM 20706 | VPI 4197

Prevotella loescheii [VP] (Holdeman and Johnson 1982) Shah and Collins 1990 emend. Wu et al. 1992 <- *Bacteroides loescheii* (basonym) - 8B | ATCC 15930, L16481, Prv.loesch | NCTC 11321 | VPI 9085

Prevotella nigrescens [VP] Shah and Gharbia 1992 - Lambe 729-74 | ATCC 33563, L16471, Prv.nigres | NCTC 9336, X73963, Prv.nigre3 | VPI 8944

Prevotella oralis [VP] (Loesche et al. 1964) Shah and Collins 1990 <- *Bacteroides oralis* (basonym) - ATCC 33269, L16480, Prv.oralis | DSM 20702 | NCTC 11459 | VPI D27B-24

Prevotella oris [VP] (Holdeman et al. 1982) Shah and Collins 1990 <- *Bacteroides oris* (basonym) - ATCC 33573, L16474, Prv.oris | VPI DIA-1A

Prevotella oulorum [VP] (Shah et al. 1985) Shah and Collins 1990 <- *Bacteroides oulorum* (basonym) - ATCC 43324, L16472, Prv.oulora | NCTC 11871 | WPH 179

Prevotella pallens [VP] Könönen et al. 1998 - AHN 10371, Y13105, Prv.pallen | NCTC 13042

Prevotella ruminicola subspecies ruminicola [VP] (Bryant et al. 1958) Shah and Collins 1990 emend. Avgustin et al. 1997 <- *Bacteroides ruminicola subspecies ruminicola* (basonym) - ATCC 19189, L16482, Prv.rumcol

†Prevotella ruminicola subspecies brevis [VP] (Bryant et al. 1958) Shah and Collins 1990 <- *Bacteroides ruminicola subspecies brevis* (basonym) -> *Prevotella brevis* - ATCC 19188

Prevotella tannerae [VP] Moore et al. 1994 - ATCC 51259, AJ005634, Prv.tanner | VPI N14B-15

Prevotella veroralis [VP] (Watabe et al. 1983) Shah and Collins 1990 emend. Wu et al. 1992 <- *Bacteroides veroralis* (basonym) - ATCC 33779, L16473, Prv.verora | VPI D22A-7

Prevotella zoogleoformans [VP] (Weinberg et al. 1937) Shah and Collins 1990 emend. Moore et al. 1994 <- *Bacteroides zoogleoformans* (basonym) - ATCC 33285, L16488, Prv.zoofor | VPI D28K-1

Class II. *Flavobacteria* [VP]

Order I. *"Flavobacteriales"*

Family I. Flavobacteriaceae [VP]

Genus I. Flavobacterium [AL (T)]

Flavobacterium aquatile [AL (T)] (Frankland and Frankland 1889) Bergey et al. 1923 emend. Bernardet et al. 1996 - F 36 | ATCC 11947, M62797, F.aquatile | CIP 55.141 | DSM 1132 | DSM 30095 | NCIB 8694

Flavobacterium acidificum [AL] Steinhaus 1941 - NCIB 9891

Flavobacterium acidurans [AL] Millar 1973 - ATCC 27383

†*Flavobacterium balustinum* [AL] Harrison 1929 -> *Chryseobacterium balustinum* - LA 724 | ATCC 33487, M58771, Csb.balust | NBRC 15053, D14016, Csb.balus2 | NCTC 11212

Flavobacterium branchiophilum [VP] Wakabayashi et al. 1989 emend. Bernardet et al. 1996 - BGD-7721 | ATCC 35035 | CIP 103527

†*Flavobacterium breve* [VP] Holmes and Owen 1982 -> *Empedobacter brevis* - CL88/76 | ATCC 43319 | NCTC 11099

†*Flavobacterium capsulatum* [AL] Leifson 1962 -> *Sphingomonas capsulata* - ATCC 14666 | DSM 30196 | GIFU 11526, D16147, Spg.capsu2 | IAM 14271 | NBRC 12533 | JCM 7508 | LMG 2830 | NCIB 9890

Flavobacterium columnare [VP] (Bernardet and Grimont 1989) Bernardet et al. 1996 <- *Flexibacter columnaris* (basonym) - ATCC 23463 | LMG 13035 | NCIMB 2248, D12659, F.columnar

Flavobacterium devorans [AL] (Zimmermann 1890) Bergey et al. 1923 - ATCC 10829 | CCM 72 | DSM 30198 | NCIB 8195 | NRRL B 54

†*Flavobacterium esteraromaticum* [AL] (Omelianski 1923) Bergey et al. 1930 -> *Aureobacterium esteraromaticum* - ATCC 8091, Y17231 | CCM 4371 | DSM 8609 | NBRC 3751

Flavobacterium ferrugineum [AL] Sickles and Shaw 1934 - 3576 | ATCC 13524, M62798, F.ferrugin | DSM 30193

Flavobacterium flevense [VP] (van der Meulen et al. 1974) Bernardet et al. 1996 <- *Cytophaga flevensis* (basonym) - A-34 | ATCC 27944, M58767, F.flevense | DSM 1076 | IAM 14303 | LMG 8328

Flavobacterium frigidarium [VP] Humphry et al. 2001 - A2i, AF162266 | ATCC 700810 | NCIMB 13737

Flavobacterium gillisiae [VP] McCammon and Bowman 2000 - ACAM 601, U85889

†*Flavobacterium gleum* [VP] Holmes et al. 1984 -> *Chryseobacterium gleum* - F93 | ATCC 35910, M58772, Csb.gleum | NBRC 15054 | JCM 2410 | NCTC 11432

†*Flavobacterium gondwanense* [VP] Dobson et al. 1993 -> *Psychroflexus gondwanensis* - ACAM 44, M92278, Psf.gondwn | ATCC 51278 | DSM 5423, M92278, Psf.gondwn

†*Flavobacterium halmophilum* [AL] Elazari-Volcani 1940 -> *Halomonas halmophila* - ATCC 19717, M59153 | DSM 5349 | IAM 14439 | NCMB 1971

†*Flavobacterium heparinum* [AL] Payza and Korn 1956 -> *Cytophaga heparina* - HIM 762-3 | ATCC 13125 | DSM 2366 | NBRC 12017 | LMG 10339 | NCIB 9290

Flavobacterium hibernum [VP] McCammon et al. 1998 - ACAM 376 | ATCC 51468, L39067, F.hibernum

Flavobacterium hydatis [VP] (Strohl and Tait 1978) Bernardet et al. 1996 <- *Cytophaga aquatilis* (basonym) - Cy aq1 | ATCC 29551, M58764, F.hydatis | DSM 2063 | LMG 3835

†*Flavobacterium indologenes* [VP] Yabuuchi et al. 1983 -> *Chryseobacterium indologenes* - RH542 | ATCC 29897, M58773, Csb.indlog | CDC 3716 | GIFU 1347 | NCTC 10796

†*Flavobacterium indoltheticum* [VP] Campbell and Williams 1951 -> *Chryseobacterium indoltheticum* - ATCC 27950, M58774, Csb.indthe

Flavobacterium johnsoniae [VP] (Stanier 1947) Bernardet et al. 1996 <- *Cytophaga johnsonae* (basonym) - Cy j3 | MYX 1.1.1 | ATCC 17061, M59051, F.johnsoni | DSM 2064, M59051, F.johnsoni | IAM 14304 | NBRC 14942, D12664, F.johnson3 | LMG 1341 | NCIB 11054

Flavobacterium limicola [VP] Tamaki et al. 2003 - ST-82, AB075230 | DSM 15094 | JCM 11473

†*Flavobacterium marinotypicum* [AL] ZoBell and Upham 1944 -> *Microbacterium maritypicum* - ATCC 19260 | DSM 12512 | NBRC 15779 | NCMB 1050

†*Flavobacterium meningosepticum* [AL] King 1959 -> *Chryseobacterium meningosepticum* - 14 | ATCC 13253, M58776, Csb.mening | DSM 2800 | NCTC 10016

Flavobacterium mizutaii [VP] (Yabuuchi et al. 1983) Holmes et al. 1988 <- *Sphingobacterium mizutaii* (basonym) - ATCC 33299, M58796, F.mizutaii | GIFU 1203 | KC1794

†*Flavobacterium multivorum* [VP] Holmes et al. 1981 -> *Sphingobacterium multivorum* - B 5533 | LRA 260776 | ATCC 33613 | DSM 6175 | GIFU 2812 | NCTC 11343

Flavobacterium oceanosedimentum [AL] Carty and Litchfield 1978 - ATCC 31317

†*Flavobacterium odoratum* [AL] Stutzer 1929 -> *Myroides odoratus* - ATCC 4651, M58777, My.odoratu | DSM 2801 | IAM 14199 | JCM 7458, D14019, My.odorat2 | LMG 1233 | NCTC 11036

†*Flavobacterium okeanokoites* [AL] ZoBell and Upham 1944 -> *Planococcus okeanokoites* - CCM 320 | NBRC 12536, D55729, Plc.okeano | NCIMB 561

Flavobacterium omnivorum [VP] Zhu et al. 2003 - ZF-8 | AS 1.2747 | JCM 11313, AF433174

Flavobacterium pectinovorum [VP] (Reichenbach 1989) Bernardet et al. 1996 <- *Cytophaga pectinovora* (basonym) - 81 | Cy p1 | ATCC 19366 | DSM 6368 | IAM 14307 | LMG 4031 | NCIMB 9059, D12669, F.pectinov

Flavobacterium psychrophilum [VP] (Bernardet and Grimont 1989) Bernardet et al. 1996 <- *Flexibacter psychrophilus* (basonym) - 3068 | DSM 3660 | IAM 14308 | LMG 13179 | NCIMB 1947, D12670, F.psychro3

Flavobacterium resinovorum [AL] Delaporte and Daste 1956 - ATCC 33545 | DSM 7478 | NCIB 8767

Flavobacterium saccharophilum [VP] (Reichenbach 1989) Bernardet et al. 1996 <- *Cytophaga saccharophila* (basonym) - 24 | DSM 1811 | IAM 14309 | LMG 8384 | NCIMB 2072, D12671, F.sacchar2

†*Flavobacterium salegens* [VP] Dobson et al. 1993 -> *Salegentibacter salegens* - ACAM 48, M92279, F.salegens | ATCC 51522 | DSM 5424, M92279, F.salegens

†*Flavobacterium scophthalmum* [VP] Mudarris et al. 1994 -> *Chryseobacterium scophthalmum* - MM1 | CCM 4109 | LMG 13028

†*Flavobacterium spiritivorum* [VP] Holmes et al. 1982 -> *Sphingobacterium spiritivorum* - KM 2138 | ATCC 33861, M58778, Sph.sprvo2 | CDC E7288 | DSM 2582 | GIFU 2138 | IAM 14210 | JCM 1277, D14026, Sph.sprvor | NCTC 11386

Flavobacterium succinicans [VP] (Reichenbach 1989) Bernardet et al. 1996 <- *Cytophaga succinicans* (basonym) - Cy su3 | DSM 4002 | IAM 14311 | NBRC 14905, D12673, F.succini2 | LMG 10402 | NCIMB 2277

Flavobacterium tegetincola [VP] McCammon and Bowman 2000 - ACAM 602, U85887

†*Flavobacterium thalpophilum* [VP] Holmes et al. 1983 -> *Sphingobacterium thalpophilum* - CL413/81 | K-1173 | ATCC 43320, M58779, Sph.thalpo | NBRC 14963, D14020, Sph.thalp3 | NCTC 11429

Flavobacterium thermophilum [VP] Loginova and Egorova 1982 - VKM 1325

†*Flavobacterium uliginosum* [AL] ZoBell and Upham 1944 -> *Cytophaga uliginosa* - 553 | ATCC 14397, M62799, Cy.uligino | DSM 2061 | IAM 14312 | NBRC 14962 | NCMB 1863, D12674, Cy.uligin2

Flavobacterium xanthum [VP] McCammon and Bowman 2000 - ACAM 81, AF030380

Flavobacterium xinjiangense [VP] Zhu et al. 2003 - ZF-6 | AS 1.2749 | JCM 11314, AF433173

†*Flavobacterium yabuuchiae* [VP] Holmes et al. 1988 = *Sphingobacterium spiritivorum* (earlier heterotypic synonym) - D7529 | F8081 | NCTC 12113

Genus II. ***Aequorivita*** [VP]

Aequorivita antarctica [VP (T)] Bowman and Nichols 2002 - SW49, AY027802 | ACAM 640 | DSM 14231

Aequorivita crocea [VP] Bowman and Nichols 2002 - Y12-2, AY027806 | ACAM 642 | DSM 14293

Aequorivita lipolytica [VP] Bowman and Nichols 2002 - Y10-2, AY027805 | ACAM 641 | DSM 14236

Aequorivita sublithincola [VP] Bowman and Nichols 2002 - 9-3, AF170749 | ACAM 643 | DSM 14238

Genus III. Arenibacter [VP] [465]

Arenibacter latericius [VP (T)] Ivanova et al. 2001 - CIP 106861 | KMM 426, AF052742[466] | LMG 19694 | VKM B 2137D

Genus IV. Bergeyella [VP]

Bergeyella zoohelcum [VP (T)] (Holmes et al. 1987) Vandamme et al. 1994 <- *Weeksella zoohelcum* (basonym) - CL 544/80 | D658 | ATCC 43767, M93153, Brg.zoohel | CDC D658 | NCTC 11660

Genus V. Capnocytophaga [VP]

Capnocytophaga ochracea [VP (T)] (Prevot et al. 1956) Leadbetter et al. 1982 <- *Bacteroides ochraceus* (basonym) - ATCC 27872, U41350, Cap.ochra3 | DSM 7271 | VPI 2845

Capnocytophaga canimorsus [VP] Brenner et al. 1990 - 7120 | ATCC 35979, L14637, Cap.canimo | ATCC 35979, X97246, Cap.canim2

Capnocytophaga cynodegmi [VP] Brenner et al. 1990 - E6447 | ATCC 49044, L14638, Cap.cynode | ATCC 49044, X97245, Cap.cynod2

Capnocytophaga gingivalis [VP] Leadbetter et al. 1982 emend. London et al. 1985 - 27 | 927-3 | ATCC 33624, L14639, Cap.gingi2 | ATCC 33624, X67608, Cap.gingiv | DSM 3290

Capnocytophaga granulosa [VP] Yamamoto et al. 1994 - B0611 | ATCC 51502, X97248, Cap.granu3 | DSM 11449 | JCM 8566

Capnocytophaga haemolytica [VP] Yamamoto et al. 1994 - A0404 | ATCC 51501, X97247, Cap.haemo2 | DSM 11385 | JCM 8565 | LMG 16021, U41349, Cap.haemol

Capnocytophaga sputigena [VP] Leadbetter et al. 1982 - 4 | ATCC 33612, L14636, Cap.sputi3 | ATCC 33612, X67609, Cap.sputi2 | DSM 3292

Genus VI. Cellulophaga [VP] [467]

Cellulophaga lytica [VP (T)] (Lewin 1969) Johansen et al. 1999 <- *Cytophaga lytica* (basonym) - ATCC 23178, D12666, M62796, M28058

Cellulophaga algicola [VP] Bowman 2000 - IC166, AF001366

Cellulophaga baltica [VP] Johansen et al. 1999 - NN015840, AJ005972 | LMG 18535

Cellulophaga fucicola [VP] Johansen et al. 1999 - NN015860, AJ005973 | LMG 18536

Genus VII. Chryseobacterium [VP]

Chryseobacterium gleum [VP (T)] (Holmes et al. 1984) Vandamme et al. 1994 <- *Flavobacterium gleum* (basonym) - F93 | ATCC 35910, M58772, Csb.gleum | NBRC 15054 | JCM 2410 | NCTC 11432

[465] Placement of *Arenibacter* within the *Flavobacteriaceae* is questionable

[466] GenBank accession number for strain KMM 426 (AF052740) reported incorrectly in IJSEM.

[467] Placement of *Cellulophaga* is based on the recommendation of Ludwig.

Chryseobacterium balustinum VP (Harrison 1929) Vandamme et al. 1994 <- *Flavobacterium balustinum* (basonym) - LA 724 | ATCC 33487, M58771, Csb.balust | NBRC 15053, D14016, Csb.balus2 | NCTC 11212

Chryseobacterium defluvii VP Kämpfer et al. 2003 - B2, AJ309324 | CIP 107207 | DSM 14219

Chryseobacterium indologenes VP (Yabuuchi et al. 1983) Vandamme et al. 1994 <- *Flavobacterium indologenes* (basonym) - RH542 | ATCC 29897, M58773, Csb.indlog | CDC 3716 | GIFU 1347 | NCTC 10796

Chryseobacterium indoltheticum VP (Campbell and Williams 1951) Vandamme et al. 1994 <- *Flavobacterium indoltheticum* (basonym) - ATCC 27950, M58774, Csb.indthe

Chryseobacterium joostei VP Hugo et al. 2003 - CCUG 46665 | Ix 5a | LMG 18212, AJ271010

Chryseobacterium meningosepticum VP (King 1959) Vandamme et al. 1994 <- *Flavobacterium meningosepticum* (basonym) - 14 | ATCC 13253, M58776, Csb.mening | DSM 2800 | NCTC 10016

Chryseobacterium scophthalmum VP (Mudarris et al. 1994) Vandamme et al. 1994 <- *Flavobacterium scophthalmum* (basonym) - MM1 | CCM 4109 | LMG 13028

Genus VIII. Coenonia VP

Coenonia anatina VP (T) Vandamme et al. 1999 - 1502-91 | LMG 14382, Y17612, Cno.anatin

Genus IX. ***Croceibacter*** VP

Croceibacter atlanticus VP (T) Cho and Giovannoni 2003 - HTCC2559 | ATCC BAA-628, AY163576 | KCTC 12090

Genus X. Empedobacter VP

Empedobacter brevis VP (T) (Holmes and Owen 1982) Vandamme et al. 1994 <- *Flavobacterium breve* (basonym) - CL88/76 | ATCC 43319 | NCTC 11099

Genus XI. Gelidibacter VP

Gelidibacter algens VP (T) Bowman et al. 1997 - ACAM 536, U62914 | ATCC 700364 | DSM 12408

Gelidibacter mesophilus VP Macian et al. 2002 - 2SM29, AJ344133 | CECT 5103 | DSM 14095

Genus XII. Muricauda VP

Muricauda ruestringensis VP (T) Bruns et al. 2001 - B1, AF218782 | DSM 13258 | LMG 19739

[468]

Genus XIII. ***Myroides*** VP ***(moved)***[469]

Myroides odoratus VP (T) (Stutzer 1929) Vancanneyt et al. 1996 <- *Flavobacterium odoratum* (basonym) - ATCC 4651, M58777, My.odoratu | DSM 2801 | IAM 14199 | JCM 7458, D14019, My.odorat2 | LMG 1233 | NCTC 11036

Myroides odoratimimus VP Vancanneyt et al. 1996 - LMG 4029 | NCTC 11180

Genus XIV. Ornithobacterium VP

Ornithobacterium rhinotracheale VP (T) Vandamme et al. 1994 - CCUG 23171 | LMG 9086, L19156, Orn.rhinot | MCCM 01774

Genus XV. Polaribacter VP

Polaribacter filamentus VP (T) Gosink et al. 1998 - 215, U73726 | ATCC 70039

Polaribacter franzmannii VP Gosink et al. 1998 - 301, U14586 | ATCC 700399

Polaribacter glomeratus VP (McGuire et al. 1988) Gosink et al. 1998 <- *Flectobacillus glomeratus* (basonym) - ACAM 171T | ACM 3055 | ATCC 43844, M58775, Plr.glomer | UQM 3055

Polaribacter irgensii VP Gosink et al. 1998 - 23-P | ATCC 700398

Genus XVI. Psychroflexus VP

[468] Placement of *Muricauda* within the *Flavobacteriaceae* is questionable

[469] J. F. Bernardet has communicated that *Myroides* was misplaced in a family separate from the *Flavobacteriaceae*. Recently the genus was incorporated into the emended description of the family *Flavobacteraceae* (IJSEM 52: 1049–1070).

Psychroflexus torquis VP (T) Bowman et al. 1999 – 651 | ACAM 623, U85881, Psf.torqui

Psychroflexus gondwanensis VP (Dobson et al. 1993) Bowman et al. 1999 <- *Flavobacterium gondwanense* (basonym) – ACAM 44, M92278, Psf.gondwn | ATCC 51278 | DSM 5423, M92278, Psf.gondwn

Genus XVII. Psychroserpens VP

Psychroserpens burtonensis VP (T) Bowman et al. 1997 – ACAM 188, U62913, Psh.burton | DSM 12212

Genus XVIII. Riemerella VP

Riemerella anatipestifer VP (T) (Henrickson and Hilbert 1932) Segers et al. 1993 <- *Moraxella anatipestifer* (basonym) – ATCC 11845, U10877, Rie.anati2 | ATCC 11845, U60101, Rie.anati3 | LMG 11054 | MCCM 00568

Riemerella columbina VP Vancanneyt et al. 1999 – Hinz x183-89 | LMG 11607, AF181448

Genus XIX. Saligentibacter VP

Salegentibacter salegens VP (T) (Dobson et al. 1993) McCammon and Bowman 2000 <- *Flavobacterium salegens* (basonym) – ACAM 48, M92279 | ATCC 51522 | DSM 5424

Genus XX. Tenacibaculum VP

Tenacibaculum maritimum VP (T) (Wakabayashi et al. 1986) Suzuki et al. 2001 [470] <- *Flexibacter maritimus* (basonym) – R2 | ATCC 43398, M64629, Flx.marit2 | NCIMB 2154[471], Flx.marit3

Tenacibaculum amylolyticum VP Suzuki et al. 2001 – DSM 13766 | NBRC 16310 | MBIC 4355, AB032505

Tenacibaculum mesophilum VP Suzuki et al. 2001 – DSM 13764 | NBRC 16307 | MBIC 1140, AB032501

Tenacibaculum ovolyticum VP (Hansen et al. 1992) Suzuki et al. 2001 [472] <- *Flexibacter ovolyticus* (basonym) – EKD002 | IAM 14318, AB032506 | NCIMB 13127

Genus XXI. Weeksella VP

Weeksella virosa VP (T) Holmes et al. 1987 – ATCC 43766, M93152, Wee.virosa | CDC 9751 | NCTC 11634

†Weeksella zoohelcum VP Holmes et al. 1987 -> *Bergeyella zoohelcum* – CL 544/80 | D658 | ATCC 43767, M93153, Brg.zoohel | CDC D658 | NCTC 11660

Genus XXII. Zobellia VP

Zobellia galactanivorans VP (T) Barbeyron et al. 2001 – Dsij, AF208293 | CIP 106680 | DSM 12802

Zobellia uliginosa VP (ZoBell and Upham 1944) Barbeyron et al. 2001 [473] <- *Cytophaga uliginosa* (basonym) – 553 | ZoBell 553 | ATCC 14397, M62799 | ATCC 14397, M28238 | DSM 2061 | IAM 14312 | NBRC 14962 | NCMB 1863, D12674

Family II. "Myroidaceae"

Genus I. Myroides VP [474]

Myroides odoratus VP (T) (Stutzer 1929) Vancanneyt et al. 1996 <- *Flavobacterium odoratum* (basonym) – ATCC 4651, M58777, My.odoratu | DSM 2801 | IAM 14199 | JCM 7458, D14019, My.odorat2 | LMG 1233 | NCTC 11036

Myroides odoratimimus VP Vancanneyt et al. 1996 – LMG 4029 | NCTC 11180

Family III. "Blattabacteriaceae"

Genus I. Blattabacterium AL

[470] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[471] NCIMB accession number is transposed in the GenBank record.

[472] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[473] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[474] Placement of *Myroides* into a separate family may not be warranted as it has recently been incorporated into the emended family *Flavobacteriaceae* (IJSEM 52: 1049–1070).

Blattabacterium cuenoti [AL (T)] (Mercier 1906) Hollande and Favre 1931

Class III. *"Sphingobacteria"*

Order I. *"Sphingobacteriales"*

Family I. Sphingobacteriaceae [VP]

Genus I. Sphingobacterium [VP (T)]

Sphingobacterium spiritivorum [VP (T)] (Holmes et al. 1982) Yabuuchi et al. 1983 <- *Flavobacterium spiritivorum* (basonym) = *Flavobacterium yabuuchiae* (later heterotypic synonym) - ATCC 33861, M58778, Sph.sprvo2 | CDC E7288 | GIFU 3101 | IAM 14210 | JCM 1277, D14026, Sph.sprvor | NCTC 11386

Sphingobacterium antarcticum [VP] Shivaji et al. 1992 - 4BY | MTCC 675

Sphingobacterium faecium [VP] Takeuchi and Yokota 1993 - KS 0470 | NBRC 15299

†Sphingobacterium heparinum [VP] (Payza and Korn 1956) Takeuchi and Yokota 1993 <- *Cytophaga heparina* (basonym) -> *Pedobacter heparinus* - HIM 762-3 | ATCC 13125 | DSM 2366 | NBRC 12017 | LMG 10339 | NCIB 9290

†Sphingobacterium mizutaii [VP] Yabuuchi et al. 1983 -> *Flavobacterium mizutaii* - ATCC 33299, M58796, F.mizutaii | GIFU 1203 | KC1794

Sphingobacterium multivorum [VP] (Holmes et al. 1981) Yabuuchi et al. 1983 <- *Flavobacterium multivorum* (basonym) - B 5533 | LRA 260776 | ATCC 33613 | DSM 6175 | GIFU 2812 | NCTC 11343

†Sphingobacterium piscium [VP] Takeuchi and Yokota 1993 -> *Pedobacter piscium* - DSM 11725 | NBRC 14985 | JCM 7454

Sphingobacterium thalpophilum [VP] (Holmes et al. 1983) Takeuchi and Yokota 1993 <- *Flavobacterium thalpophilum* (basonym) - CL413/81 | K-1173 | ATCC 43320, M58779, Sph.thalpo | NBRC 14963, D14020, Sph.thalp3 | NCTC 11429

Genus II. Pedobacter [VP]

Pedobacter heparinus [VP (T)] (Payza and Korn 1956) Steyn et al. 1998 <- *Sphingobacterium heparinum* (basonym) - HIM 762-3 | ATCC 13125 | DSM 2366 | NBRC 12017 | LMG 10339 | NCIB 9290

Pedobacter africanus [VP] Steyn et al. 1998 - DSM 12126 | LMG 10353

Pedobacter piscium [VP] (Takeuchi and Yokota 1993) Steyn et al. 1998 <- *Sphingobacterium piscium* (basonym) - NBRC 14985 | JCM 7454 | LMG 14023

Pedobacter saltans [VP] Steyn et al. 1998 - DSM 12145 | LMG 10337

Family II. "Saprospiraceae"

Genus I. Saprospira [AL]

Saprospira grandis [AL (T)] Gross 1911 - WH | ATCC 19586 | ATCC 23119, M58795, Sap.grandi

Genus II. Haliscomenobacter [AL]

Haliscomenobacter hydrossis [AL (T)] van Veen et al. 1973 - O | ATCC 27775, M58790, Hal.hydros | DSM 1100

Genus III. Lewinella [VP]

Lewinella cohaerens [VP (T)] (Lewin 1970) Sly et al. 1998 <- *Herpetosiphon cohaerens* (basonym) - II-2 | ATCC 23123, AF039292, Lew.cohaer

Lewinella nigricans [VP] (Lewin 1970) Sly et al. 1998 <- *Herpetosiphon nigricans* (basonym) - SS-2 | ATCC 23147, AF039294, Lew.nigric

Lewinella persica [VP] (Lewin 1970) Sly et al. 1998 <- *Herpetosiphon persicus* (basonym) - T-3 | ATCC 23167, AF039295, Lew.persic

Family III. "Flexibacteraceae"

Genus I. Flexibacter [AL]

Flexibacter flexilis [AL (T)] Soriano 1945 - CR-63 | Fx f1 | ATCC 23079, M62794, Flx.flexil | DSM 6793

Flexibacter aggregans [AL] (Lewin 1969) Leadbetter 1974 - ATCC 23162, M64628, Flx.aggre1

Flexibacter aurantiacus [AL] Lewin 1969 - Fx a2 | ATCC 23107, M62792, Flx.aurant | DSM 6792 | NBRC 15970

Flexibacter canadensis [VP] Christensen 1980 - ATCC 29591, M62793, Flx.canada | DSM 3403 | UASM 9D

†Flexibacter columnaris [VP] (ex Leadbetter) Bernardet and Grimont 1989 = *Cytophaga columnaris* (homotypic synonym) -> *Flavobacterium columnare* - ATCC 23463 | NCMB 2248, D12659, F.columnar

Flexibacter elegans [VP] Reichenbach 1989 - Fx a2 | NZ-1, M58783, Flx.ele.NZ | ATCC 23112, M58783, Flx.ele.NZ | DSM 3317 | IAM 14319 | NBRC 15055

Flexibacter filiformis [VP] Reichenbach 1989 - Fx e1, M58782, Flx.filfor | ATCC 29495, M58782, Flx.filfor | DSM 527 | IAM 14320 | NBRC 15056

Flexibacter japonensis [VP] Fujita et al. 1997 - 758 | JCM 9735

Flexibacter litoralis [AL] Lewin 1969 - Fx 11 | SIO-4 | ATCC 23117, M58784, Flx.litora | DSM 6794 | NBRC 15988

†Flexibacter maritimus [VP] Wakabayashi et al. 1986 = *Cytophaga marina* (later heterotypic synonym) -> *Tenacibaculum maritimum* - R2 | ATCC 43398, M64629, Flx.marit2 | NCMB 2154, D14023, Flx.marit3

†Flexibacter ovolyticus [VP] Hansen et al. 1992 -> *Tenacibaculum ovolyticum* - EKD002 | NCIMB 13127

Flexibacter polymorphus [AL] Lewin 1974 - ATCC 27820, M58786, Flx.polymo | DSM 9678

†Flexibacter psychrophilus [VP] (ex Borg 1960) Bernardet and Grimont 1989 = *Cytophaga psychrophila* (homotypic synonym) -> *Flavobacterium psychrophilum* - 3068 | DSM 3660 | IAM 14308 | LMG 13179 | NCIMB 1947, D12670, F.psychro3

Flexibacter roseolus [AL] Lewin 1969 - R-155 | ATCC 23088, M58787, Flx.roseol | DSM 9546

Flexibacter ruber [AL] Lewin 1969 - GEY | ATCC 23103, M58788, Flx.ruber | DSM 9560

Flexibacter sancti [AL] Lewin 1969 - BA-3 | ATCC 23092, M62795, Flx.sancti | DSM 784 | NBRC 15057

Flexibacter tractuosus [AL] (Lewin 1969) Leadbetter 1974 - H-43 | ATCC 23168, M58789, Flx.tractu | DSM 4126 | NBRC 15989 | NCMB 1408

Genus II. Cyclobacterium [VP]

Cyclobacterium marinum [VP (T)] (Raj 1976) Raj and Maloy 1990 <- *Flectobacillus marinus* (basonym) - Raj | ATCC 25205 | DSM 745

Genus III. Cytophaga [AL]

Cytophaga hutchinsonii [AL (T)] Winogradsky 1929 - D465 | ATCC 33406, M58768, Cy.hutchin | DSM 1761, D12663, Cy.hutchi2 | NBRC 15051 | IMET 11357 | NCIB 9469

†Cytophaga agarovorans [VP] Reichenbach 1989 -> *Marinilabilia agarovorans* - Cy s2 | ATCC 19043, M62422, Ml.agarovo | DSM 2097 | IAM 14297 | NCIMB 2217

†Cytophaga aprica [VP] Reichenbach 1989 -> *Flammeovirga aprica* - JL-4 Lewin | ATCC 23126, D12655, Flv.aprica

†Cytophaga aquatilis [AL] Strohl and Tait 1978 -> *Flavobacterium hydatis* - Cy aq1 | ATCC 29551, M58764, F.hydatis | DSM 2063

Cytophaga arvensicola [VP] Oyaizu et al. 1983 - M64 | DSM 3695 | IAM 12650, D12657, Cy.arvensi | JCM 2836 | NCIB 11855

Cytophaga aurantiaca [VP] Reichenbach 1989 - ATCC 12208 | DSM 3654 | IAM 14300 | NCIB 8628, D12658, Cy.aurant2

Cytophaga columnaris [VP] Reichenbach 1989 = *Flexibacter columnaris* (homotypic synonym) - 1-S-2cl | ATCC 23463 | NCMB 2248, D12659, F.columnar

†Cytophaga diffluens [VP] Reichenbach 1989 -> *Persicobacter diffluens* - B-1 | DSM 3658 | IAM 14117 | NCMB 1402, D12660, Prb.diffl2

Cytophaga fermentans [AL] Bachmann 1955 - ATCC 19072, M58766, Cy.ferment | DSM 9555 | IAM 14302 | NCIMB 2218, D12661, Cy.fermen2

†Cytophaga flevensis [AL] van der Meulen et al. 1974 -> *Flavobacterium flevense* - A-34 | ATCC 27944, M58767, F.flevense | DSM 1076 | IAM 14303 | LMG 8328

†*Cytophaga heparina* [VP] (Payza and Korn 1956) Christensen 1980 <- *Flavobacterium heparinum* (basonym) -> *Sphingobacterium heparinum* - HIM 762-3 | ATCC 13125 | DSM 2366 | NBRC 12017 | LMG 10339 | NCIB 9290

†*Cytophaga johnsonae* [AL] Stanier 1947 -> *Flavobacterium johnsoniae* - Cy j3 | MYX 1.1.1 | ATCC 17061, M59051, F.johnsoni | DSM 2064, M59051, F.johnsoni | IAM 14304 | NBRC 14942, D12664, F.johnson3 | LMG 1341 | NCIB 11054

Cytophaga latercula [AL] Lewin 1969 - SIO-1 | ATCC 23177, D12665, Cy.laterc2 | ATCC 23177, M58769, Cy.latercu | DSM 2041 | IAM 14305

†*Cytophaga lytica* [AL] Lewin 1969 -> *Cellulophaga lytica* - Cy l2 | ATCC 23178, D12666, Cy.lytica2 | ATCC 23178, M62796, Cy.lytica | DSM 2039 | NBRC 15985

†*Cytophaga marina* [VP] Reichenbach 1989 = *Flexibacter maritimus* (earlier heterotypic synonym) - R-2 | NCMB 2153

Cytophaga marinoflava [VP] Reichenbach 1989 - ATCC 19326, M58770, Cy.marinof | DSM 3653 | IAM 14116 | NCMB 397, D12668, Cy.marino2

†*Cytophaga pectinovora* [VP] Reichenbach 1989 -> *Flavobacterium pectinovorum* - 81 | Cy p1 | ATCC 19366 | DSM 6368 | IAM 14307 | LMG 4031 | NCIMB 9059, D12669, F.pectinov

Cytophaga psychrophila [VP] (ex Borg 1960) Reichenbach 1989 = *Flexibacter psychrophilus* (homotypic synonym) - 3068 | DSM 3660 | IAM 14308 | LMG 13179 | NCIMB 1947, D12670, F.psychro3

†*Cytophaga saccharophila* [VP] Reichenbach 1989 -> *Flavobacterium saccharophilum* - 24 | DSM 1811 | IAM 14309 | LMG 8384 | NCIMB 2072, D12671, F.sacchar2

†*Cytophaga salmonicolor* [AL] Veldkamp 1961 -> *Marinilabilia salmonicolor* - Cy s1 | ATCC 19041 | DSM 6480 | IAM 14310 | NCIMB 2216, D12672, Ml.salmoni

†*Cytophaga succinicans* [VP] Reichenbach 1989 -> *Flavobacterium succinicans* - Cy su3 | DSM 4002 | IAM 14311 | NBRC 14905, D12673, F.succini2 | LMG 10402 | NCIMB 2277

†*Cytophaga uliginosa* [VP] (ZoBell and Upham 1944) Reichenbach 1989 <- *Flavobacterium uliginosum* (basonym) -> *Zobellia uliginosa* - 553 | ATCC 14397, M62799 | ATCC 14397, M28238 | DSM 2061 | IAM 14312 | NBRC 14962 | NCMB 1863, D12674

Cytophaga xylanolytica [VP] Haak and Breznak 1993 - XM3 | ATCC 51429 | DSM 6779

Genus IV. Dyadobacter [VP]

Dyadobacter fermentans [VP (T)] Chelius and Triplett 2000 - NS114, AF137029 | ATCC 700827

Genus V. Flectobacillus [AL]

Flectobacillus major [AL (T)] (Gromov 1963) Larkin et al. 1977 - ATCC 29496, M62787, Flc.major | DSM 103 | VKM B-859

†*Flectobacillus glomeratus* [VP] McGuire et al. 1988 -> *Polaribacter glomeratus* - ACAM 171 | ACM 3055 | ATCC 43844, M58775, Plr.glomer | UQM 3055

†*Flectobacillus marinus* [AL] (Raj 1976) Borrall and Larkin 1978 -> *Cyclobacterium marinum* - ATCC 25205 | DSM 745

Genus VI. Hymenobacter [VP] [475]

Hymenobacters roseosalivarius [VP (T)] Hirsch et al. 1999 - AA-718 | DSM 11622

Hymenobacter aerophilus [VP] Buczolits et al. 2002 - I/26-Cor1, AJ276901 | DSM 13606 | LMG 19657

Hymenobacter actinosclerus [VP] Collins et al. 2000 - CCUG 39621, Y17356

Genus VII. Meniscus [AL]

Meniscus glaucopis [AL (T)] Irgens 1977 - ATCC 29398

Genus VIII. Microscilla [AL]

Microscilla marina [AL (T)] (Pringsheim 1951) Lewin 1969 - SIO-8 | ATCC 23134, M58793, Msc.marina | DSM 4236 | NCMB 1400

Genus IX. ***Reichenbachia*** [VP]

[475] Placement of *Hymenobacter* is based on the recommendation of Ludwig.

Reichenbachia agariperforans [VP (T)] Nedashkovskaya et al. 2003 – NBRC 16625 | JCM 11238 | KMM 3525, AB058919

Genus X. Runella [AL]

Runella slithyformis [AL (T)] Larkin and Williams 1978 – ATCC 29530, M62786, Run.slithy | LSU 4

Runella zeae [VP] Chelius et al. 2002 – NS12, AF137381 | ATCC BAA-293 | LMG 21438

Genus XI. Spirosoma [AL]

Genus XII. Sporocytophaga [AL]

Sporocytophaga myxococcoides [AL (T)] (Krzemieniewska 1933) Stanier 1940 – NRS 142 | ATCC 10010 | DSM 11118, AJ310654 | NCIMB 9920

Family IV. "Flammeovirgaceae"

Genus I. Flammeovirga [VP]

Flammeovirga aprica [VP (T)] (Reichenbach 1989) Nakagawa et al. 1997 <- *Cytophaga aprica* (basonym) – JL-4 Lewin | ATCC 23126, D12655, Flv.aprica

Genus II. Flexithrix [AL] [476]

Flexithrix dorotheae [AL (T)] Lewin 1970 – Ft d1 | QQ-3 | ATCC 23163, AF039296, Flt.doroth | DSM 6795 | NBRC 15987

Genus III. Persicobacter [VP]

Persicobacter diffluens [VP (T)] (Reichenbach 1989) Nakagawa et al. 1997 <- *Cytophaga diffluens* (basonym) – B-1 Lewin | DSM 3658 | IAM 14117 | NCMB 1402, D12660, Prb.diffl2

Genus IV. Thermonema [VP]

Thermonema lapsum [VP (T)] Hudson et al. 1989 – 23/9 | ATCC 43542 | DSM 5718

Thermonema rossianum [VP] Nobre et al. 1997 – NR-27, Y08956 | DSM 10300

Family V. Crenotrichaceae [AL]

Genus I. Crenothrix [AL (T)]

Crenothrix polyspora [AL (T)] Cohn 1870

Genus II. Chitinophaga [VP]

Chitinophaga pinensis [VP (T)] Sangkhobol and Skerman 1981 – ACM 2034, AF078775, Cht.pinens | ATCC 43595 | DSM 2588 | NBRC 15968 | NCIB 11800 | UQM 2034

Genus III. Rhodothermus [VP] [477]

Rhodothermus marinus [VP (T)] Alfredsson et al. 1995 = *Rhodothermus obamensis* (later heterotypic synonym) – R-10, X80994, Rht.marin2 | ATCC 43812 | DSM 4252, X80994, Rht.marin2

†Rhodothermus obamensis [VP] Sako et al. 1996 = *Rhodothermus marinus* (earlier heterotypic synonym) – OKD7, X95071, Rht.obamen | DSM 12399 | JCM 9785

Genus IV. Salinibacter [VP]

Salinibacter ruber [VP (T)] Antón et al. 2002 – M31, AF323500 | CECT 5946 | DSM 13855

Genus V. Toxothrix [AL]

Toxothrix trichogenes [AL (T)] (Cholodny 1924) Beger 1953

Phylum BXXI. *"Fusobacteria"*

Class I. *"Fusobacteria"*

Order I. *"Fusobacteriales"*

Family I. "Fusobacteriaceae"

Genus I. Fusobacterium [AL]

Fusobacterium nucleatum subspecies nucleatum [AL (T)] Knorr 1922 – ATCC 25586, M58683, Fus.nuclea | ATCC 25586, X55401, Fus.nucle2 | VPI 4355

Fusobacterium nucleatum subspecies animalis [VP] Gharbia and Shah 1992 – DSM 8253 | NCTC 12276, X55404, Fus.nucle5

Fusobacterium nucleatum subspecies fusiforme [VP] Gharbia and Shah 1992 – DSM 8252 | NCTC 11326, X55403, Fus.nucle6

[476] Placement based on the position of *Flexithrix* in the RDP tree.

[477] The genus *Rhodothermus* appears to be paraphyletic. It represents a deep branch within the phylum, and member species appear as two well-separated points that are removed from the main group of *Bacteroidetes*.

Fusobacterium nucleatum subspecies polymorphum [VP] Dzink et al. 1990 – 555A | ATCC 10953, X55402, Fus.nucle4 | DSM 20482 | NCTC 10562

Fusobacterium nucleatum subspecies vincentii [VP] Dzink et al. 1990 – ATCC 49256, AJ006964, Fus.nucle7

†*Fusobacterium alocis* [VP] Cato et al. 1985 -> *Filifactor alocis* – ATCC 35896, AJ006962, Fus.aloci2 | ATCC 35896, X55406, Fus.alocis | VPI D40B-5

Fusobacterium equinum [VP] Dorsch et al. 2001 – NCTC 13176 | JCM 11174 | VPB 4027, AJ295750

Fusobacterium gonidiaformans [AL] (Tunnicliff and Jackson 1925) Moore and Holdeman 1970 – ATCC 25563, X55410, Fus.gonid2

Fusobacterium mortiferum [AL] (Harris 1901) Moore and Holdeman 1970 – ATCC 25557, M58680, Fus.mortif | ATCC 25557, X55414, Fus.morti2

Fusobacterium naviforme [AL] (Jungano 1909) Moore and Holdeman 1970 – ATCC 25832

Fusobacterium necrogenes [AL] (Weinberg et al. 1937) Moore and Holdeman 1970 – ATCC 25556, X55408, Fus.necgen

Fusobacterium necrophorum subspecies necrophorum [AL] (Flügge 1886) Moore and Holdeman 1969 – ATCC 25286, X55411, Fus.necpho | JCM 3718 | VPI 2891

Fusobacterium necrophorum subspecies funduliforme [VP] (ex Hall 1898) Shinjo et al. 1991 – Fn524 | JCM 3724

Fusobacterium perfoetens [AL] (Tissier 1905) Moore and Holdeman 1973 – ATCC 29250, M58684, Fus.perfoe

Fusobacterium periodonticum [VP] Slots et al. 1984 – EK1-15 | ATCC 33693, X55405, Fus.period

†*Fusobacterium plautii* [AL] Seguin 1928 -> *Eubacterium plautii* – Pr S1 | ATCC 29863 | DSM 4000 | VPI 0310

†*Fusobacterium polysaccharolyticum* [VP] van Gylswyk 1981 -> *Clostridium polysaccharolyticum* – B | ATCC 33142 | DSM 1801, X71858, C.polsacch | DSM 1801, X77839, C.polsacc2

†*Fusobacterium prausnitzii* [AL] (Hauduroy et al. 1937) Moore and Holdeman 1970 -> *Faecalibacterium prausnitzi* – ATCC 27768, AJ413954

†*Fusobacterium pseudonecrophorum* [VP] (ex Prevot 1940) Shinjo et al. 1990 = *Fusobacterium varium* (earlier heterotypic synonym) – Fn521 | JCM 3722

Fusobacterium russii [AL] (Hauduroy et al. 1937) Moore and Holdeman 1970 – ATCC 25533, M58681, Fus.russi | ATCC 25533, X55409, Fus.russi2

Fusobacterium simiae [VP] Slots and Potts 1982 – 7511 R2-13 | ATCC 33568, M58685, Fus.simiae | ATCC 33568, X55407, Fus.simia2

†*Fusobacterium sulci* [VP] Cato et al. 1985 -> *Eubacterium sulci* – ATCC 35585, AJ006963, Fus.sulci1 | VPI D45A-29A

Fusobacterium ulcerans [VP] Adriaans and Shah 1988 – NCTC 12111, X55412, Fus.ulcera

Fusobacterium varium [AL] (Eggerth and Gagnon 1933) Moore and Holdeman 1969 = *Fusobacterium pseudonecrophorum* (later heterotypic synonym) – ATCC 8501, M58686, Fus.varium

Genus II. Ilyobacter [VP] [478]

Ilyobacter polytropus [VP (T)] Stieb and Schink 1985 – CuHbu 1 | DSM 2926, AJ307981

Ilyobacter delafieldii [VP] Janssen and Harfoot 1991 – 10cr1 | ATCC 49679 | DSM 5704 [479]

Ilyobacter insuetus [VP] Brune et al. 2002 – VenChi2 | ATCC BAA-291 | DSM 6831, AJ307980

Ilyobacter tartaricus [VP] Schink 1985 – GraTa2 | DSM 2382, AJ307982

Genus III. Leptotrichia [AL]

Leptotrichia buccalis [AL (T)] (Robin 1853) Trevisan 1879 – C-1013-b | ATCC 14201 | DSM 1135 | NCTC 10249, X90831, Lpt.bucca3

[478] Placement of *Ilyobacter* is based on the recommendation of Ludwig.

[479] Brune et al. indicate that *Ilyobacter delafieldii* is misidentified and should be transferred to the genus Clostridium

Leptotrichia trevisanii VP Tee et al. 2002 [480] - "Wee Tee" 1999, AF206305 | ATCC 700907[481]

Genus IV. Propionigenium VP

Propionigenium modestum VP (T) Schink and Pfennig 1983 - Gra Succ 2 | DSM 2376

Propionigenium maris VP Janssen and Liesack 1996 - 10succ1, X84049, Prg.maris | DSM 9537

Genus V. Sebaldella VP

Sebaldella termitidis VP (T) (Sebald 1962) Collins and Shah 1986 <- *Bacteroides termitidis* (basonym) - ATCC 33386, M58678, Sbd.termit | NCTC 11300

Genus VI. Streptobacillus AL

Streptobacillus moniliformis AL (T) Levaditi et al. 1925 - 9901 | ATCC 14647, Z35305, Stb.monili | DSM 12112

Genus VII. Sneathia VP

Sneathia sanguinegens VP (T) Collins et al. 2002 - CCUG 41628 | CIP 106906

Family II. Incertae sedis VP

Genus I. Cetobacterium VP

Cetobacterium ceti VP (T) Foster et al. 1996 - M-3333, X78419, Cb.ceti1 | NCFB 3026

Phylum BXXII. *"Verrucomicrobia"*

Class I. *Verrucomicrobiae* VP [482]

Order I. *Verrucomicrobiales* VP (T)

Family I. Verrucomicrobiaceae VP

Genus I. Verrucomicrobium VP (T)

Verrucomicrobium spinosum VP (T) Schlesner 1988 - ATCC 43997 | DSM 4136, X90515, Ver.spino2 | IFAM 1439

Genus II. Prosthecobacter VP

Prosthecobacter fusiformis VP (T) Staley et al. 1980 - FC4, U60015, Prsb.fusfm | ATCC 25309 | DSM 8960

Prosthecobacter debontii VP Hedlund et al. 1998 - FC3, U60014, Prsb.dbont | ATCC 70020

Prosthecobacter dejongeii VP Hedlund et al. 1998 - FC1, U60012, Prsb.djong | ATCC 27091

Prosthecobacter vanneervenii VP Hedlund et al. 1998 - FC2, U60013, Prsb.vnnrv | ATCC 70019

Family II. "Opitutaceae"

Genus I. Opitutus VP (T)

Opitutus terrae VP (T) Chin et al. 2001 [483] - PB90–1, AJ229235 | DSM 11246

Family III. "Xiphinematobacteriaceae"

Genus I. Xiphinematobacter VP

Candidatus "Xiphinematobacter brevicoli" VP (T) Vandekerckhove et al. 2000 AF217462

Candidatus "Xiphinematobacter americanii" VP Vandekerckhove et al. 2000 AF217460

Candidatus "Xiphinematobacter revesi" VP Vandekerckhove et al. 2000 AF217461

Phylum BXXIII. *"Dictyoglomus"* [484]

Class I. *"Dictyoglomi"*

Order I. *"Dictyoglomales"*

[480] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[481] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[482] Both the ARB and RDP trees support placement of the *Verrucomicrobiales* into a separate phylum, close to the *Chlamydia*. This is also borne out in the PCA plots.

[483] Note that a subculture of the type strain is only deposited in one public collection or may otherwise be in violation of Rules 27(3) and/or 30(3a-b,4) as emended by the Judicial Commission in 1999 (IJSEM 50: 2239–2244).

[484] Ludwig recommends placement of *Dictyoglomus* into a separate phylum. It has been moved from Volume III to Volume V to permit adequate time for resolution of problems associated with this taxon.

Family I. *"Dictyoglomaceae"*
Genus I. *Dictyoglomus* VP
Dictyoglomus thermophilum VP (T) Saiki et al. 1985 – H-6-12 | ATCC 35947 | DSM 3960, X69194, Dgl.thmoph
Dictyoglomus turgidum VP Svetlichny and Svetlichnaya 1988 – Z-1310 | DSM 6724
Family II. *"Victivallaceae"*
Genus I. ***Victivallis*** VP
Victivallis vadensis VP (T) Zoetendal et al. 2003 – Cello, AY049713 | ATCC BAA-548 | DSM 14823
Phylum BXXIV. ***Gemmatimonadetes*** VP
Class I. *Gemmatimonadetes* VP
Order I. ***Gemmatimonadales*** VP (T)
Family I. *Gemmatimonadales* VP
Genus I. ***Gemmatimonas*** VP (T)
Gemmatimonas aurantiaca VP (T) Zhang et al. 2003 – T-27, AB072735 | DSM 14586 | JCM 11422

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