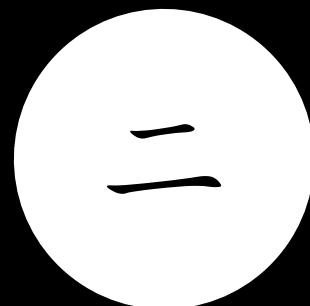


BACTERIA



TAXONOMY
Reclassified Species

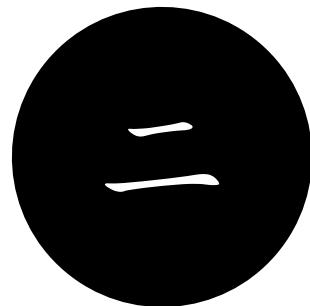
Bacteria I. Taxonomy: Genera and Species

Bacteria II. Taxonomy: Reclassified Species

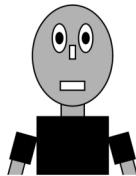
Bacteria III. Taxonomy: Phyla, Classes, Orders, Families, and Genera

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BACTERIA



TAXONOMY
Reclassified Species



Bacteria II. Taxonomy: Reclassified Species

1,561 New Names ← 1,554 Old Names

Martin Klvana

2nd Edition | 2020-04-01



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Om Try-Ambakam Yajaamahe
Sugandhim Pushti-Vardhanam
Urvaarukamiva Bandhanaan
Mrityor-Mukshiya Maamrtaat

Rg Veda 7.59.12

	Contents	1						
1	Introduction	3						
2	A	5	11	J	87	20	T	191
3	B	29	12	K	88	21	U	200
4	C	38	13	L	94	22	V	201
5	D	53	14	M	102	23	W	204
6	E	60	15	N	127	24	X	206
7	F	65	16	O	132	25	Y	207
8	G	70	17	P	135	26	Z	209
9	H	76	18	R	162			
10	I	84	19	S	172			

1 Introduction

Bacteria (sing. *bacterium*: mod. L., ad. Gr. βακτήριον, dim. of βάκτρον stick, staff) are living things belonging to the domain **Bacteria**.¹ Taxonomy (irreg. f. Gr. τάξις arrangement, order; -νομία distribution) is an orderly arrangement of (living) things into vertical and transverse series of named units, the so-called taxa (sing. taxon; phyla, classes, orders, families, genera, and species), each defined by a set of attributes shared by its members.

The names of bacterial species consist of two words: generic name (with the first letter capitalized) and specific epithet, but some bacterial species are presently

known under different names, and, hence, the complete list of currently recognized names of bacterial species is redundant: **Bacteria I. Taxonomy: Genera and Species**.

The formal cause of **Bacteria II. Taxonomy: Reclassified Species** (this book) is, therefore, an idea of "a list of all relevant intra- and inter-generic reclassifications of bacterial species with references to primary/secondary publications containing the specific descriptions." The material cause of this book includes a computer (Windows, Cygwin, Mintty, VIM, Python, MikTeX, Zotero, Xara Designer Pro, EverNote, Trello), table, chair, eyeglasses, coffee, peanuts, electricity, and the

Internet. The efficient cause of this book is a skillful use of the means. The final cause is a harmony between this book and its formal cause.

The names of bacterial species are listed in alphabetical order; new names are in bold, and below each new name there is one or more old names; new type species are indicated by † superscript; identifiers in superscripts are linked to the corresponding references in the References sections; each reference contains three links (active, ■; inactive, □): URL, DOI, and PMID.

This version (2020-04-01) of **Bacteria II. Reclassified Species** includes the reclassification of 1,554 bacterial species (the old names) into 1,561 bacterial species (the new names), which implies about nine per cent redundancy in **Bacteria I. Taxonomy: Genera and Species.**

The latest version of this book is available at bacteria.martinklvana.com, researchgate.net/publication/323111136, and patreon.com/martinklvana. New versions will be announced in the **BACTERIA** project on ResearchGate.

References

- [1] Woese, C. R.; Fox, G. E. *Proc Natl Acad Sci U S A* 1977, 74, 5088–5090.

■ ■ ■

2 A

Abiotrophia adiacens

← *Streptococcus adjacens*¹

Abiotrophia defectiva[†]

← *Streptococcus defectivus*¹

Acetoanaerobium sticklandii

← *Clostridium sticklandii*²

Acetomicrobium hydrogeniformans

← *Anaerobaculum hydrogeniformans*³

Acetomicrobium mobile

← *Anaerobaculum mobile*³

Acetomicrobium thermoterrenum

← *Anaerobaculum thermoterrenum*³

Acholeplasma pleiae

← *Mesoplasma pleiae*⁴

Achromobacter denitrificans

← *Alcaligenes denitrificans*⁵

Achromobacter piechaudii

← *Alcaligenes piechaudii*⁶

Achromobacter ruhlandii

← *Alcaligenes ruhlandii*⁶

Acidimangrovimonas indica

← *Defluviimonas indica*⁷

Acidimangrovimonas pyrenivorans

← *Defluviimonas pyrenivorans*⁷

Acidiphilium acidophilum

← *Thiobacillus acidophilus*⁸

Acidipropionibacterium acidipropionici

← *Propionibacterium acidipropionici*⁹

Acidipropionibacterium damnosum

← Propionibacterium damnosum⁹

Acidipropionibacterium jensenii[†]

← Propionibacterium jensenii⁹

Acidipropionibacterium microaerophilum

← Propionibacterium microaerophilum⁹

Acidipropionibacterium olivae

← Propionibacterium olivae⁹

Acidipropionibacterium thoenii

← Propionibacterium thoenii⁹

Acidithiobacillus albertensis

← Thiobacillus albertis¹⁰

Acidithiobacillus caldus

← Thiobacillus caldus¹⁰

Acidithiobacillus thiooxidans[†]

← Thiobacillus thiooxidans¹⁰

Acidocella aminolytica

← Acidiphilum aminolytica¹¹

Acidocella facilis[†]

← Acidiphilum facilis¹¹

Acidomonas methanolica[†]

← Acetobacter methanolicus¹²

Acidovorax avenae

← Pseudomonas avenae¹³

Acidovorax delafieldii

← Pseudomonas delafieldii¹⁴

Acidovorax facilis[†]

← Pseudomonas facilis¹⁴

Actinoallomurus spadix[†]

← Actinomadura spadix¹⁵

Actinobacillus pleuropneumoniae

← Haemophilus pleuropneumoniae¹⁶

Actinobacillus ureae

← Pasteurella ureae¹⁷

Actinobaculum suis[†]

← Actinomyces suis¹⁸

Actinokineospora alba

← Alloactinosynnema album^{† 19}

Actinokineospora fastidiosa

← Amycolatopsis fastidiosa²⁰

Actinokineospora iranica

← Alloactinosynnema iranicum¹⁹

Actinomadura echinospora

← Microbispora echinospora²¹

Actinomadura formosensis

← Thermomonospora formosensis²²

Actinomadura rugatobispora

← Microbispora viridis²¹

Actinomadura viridis

← Actinomadura malachitica²³

← Microtetrasporea viridis²³

Actinomyces pyogenes

← Corynebacterium pyogenes^{24,25}

Actinomyces suis

← Eubacterium suis²⁶

Actinoplanes ferrugineus

← Pseudosporangium ferrugineum^{† 19}

Actinotalea fermentans[†]

← Cellulomonas fermentans²⁷

Actinotignum schaalii[†]

← Actinobaculum schaalii²⁸

Actinotignum urinale

← Actinobaculum urinale²⁸

Adlercreutzia caecicola

← Parvibacter caecicola^{† 19}

Adlercreutzia caecimuris

← Enterorhabdus caecimuris¹⁹

Adlercreutzia mucosicola

← Enterorhabdus mucosicola^{†19}
Adlercreutzia muris
← Enterorhabdus muris¹⁹
Advenella kashmirensis
← Tetrathiobacter kashmirensis²⁹
Advenella mimigardefordensis
← Tetrathiobacter mimigardefordensis²⁹
Aeribacillus pallidus[†]
← Geobacillus pallidus³⁰
Aerococcus urinaeequi
← Pediococcus urinaeequi³¹
Aeromicrobium fastidiosum
← Nocardoides fastidiosa³²
Afifella marina[†]
← Rhodobium marinum³³
Afifella pfennigii
← Rhodobium pfennigii³³

Agathobacter rectalis[†]
← Eubacterium rectale³⁴
Agathobaculum desmolans
← Eubacterium desmolans³⁵
Aggregatibacter actinomycetemcomitans[†]
← Actinobacillus actinomycetemcomitans³⁶
Aggregatibacter aphrophilus
← Haemophilus aphrophilus³⁶
Aggregatibacter segnis
← Haemophilus segnis³⁶
Agreia pratensis
← Subtercola pratensis³⁷
Agrobacterium nepotum
← Rhizobium nepotum³⁸
Agrobacterium pusense
← Rhizobium pusense³⁸
Agrobacterium skaterniewicense

← *Rhizobium skaternewicense*³⁸

Albibacter helveticus

← *Methylopila helvetica*³⁹

***Albidiferax ferrireducens*[†]**

← *Rhodoferax ferrireducens*⁴⁰

Alcanivorax jadensis

← *Fundibacter jadensis*⁴¹

***Aldersonia kunmingensis*[†]**

← *Rhodococcus kunmingensis*¹⁹

Algibacter aestuarii

← *Marinivirga aestuarii*⁴²

Algibacter pectinivorans

← *Pontirhabdus pectinivorans*⁴³

Algicola sagamiensis

← *Pseudoalteromonas sagamiensis*⁴⁴

Algoriphagus alkaliphilus

← *Chimaereicella alkaliphila*^{† 45}

Algoriphagus boritolerans

← *Chimaereicella boritolerans*⁴⁵

Algoriphagus halophilus

← *Hongiella halophila*⁴⁶

Algoriphagus mannitolivorans

← *Hongiella mannitolivorans*⁴⁵

Algoriphagus marincola

← *Hongiella marincola*⁴⁵

Algoriphagus ornithinivorans

← *Hongiella ornithinivorans*⁴⁵

Aliidiomarina maris

← *Idiomarina maris*⁴⁷

***Aliiglaciecola lipolytica*[†]**

← *Glaciecola lipolytica*⁴⁸

Aliiglaciecola litoralis

← *Aestuariibacter litoralis*⁴⁸

Aliiroseovarius crassostreae

← Roseovarius crassostreeae⁴⁹
Aliiroseovarius halocynthiae
← Roseovarius halocynthiae⁴⁹
Aliiroseovarius sediminilitoris
← Roseovarius sediminilitoris⁴⁹
Aliivibrio fischeri[†]
← Vibrio fischeri⁵⁰
Aliivibrio logei
← Vibrio logei⁵⁰
Aliivibrio salmonicida
← Vibrio salmonicida⁵⁰
Aliivibrio wodanis
← Vibrio wodanis⁵⁰
Alishewanella longhuensis
← Rheinheimera longhuensis⁵¹
Alistipes putredinis[†]
← Bacteroides putredinis⁵²

Alkalibacillus haloalkaliphilus[†]
← Bacillus haloalkaliphilus⁵³
Alkalicoccus saliphilus[†]
← Bacillus saliphilus⁵⁴
Alkalispirochaeta alkalica[†]
← Spirochaeta alkalica⁵⁵
Alkalispirochaeta americana
← Spirochaeta americana⁵⁵
Alkalispirochaeta odontotermitis
← Spirochaeta odontotermitis⁵⁵
Alkalispirochaeta sphaeroplastigenens
← Spirochaeta sphaeroplastigenens⁵⁵
Allochromatium minutissimum
← Chromatium minutissimum⁵⁶
Allochromatium vinosum[†]
← Chromatium vinosum⁵⁶
Allochromatium warmingii

← *Chromatium warmingii*⁵⁶

Allofrancisella guangzhouensis

← *Francisella guangzhouensis*⁵⁷

***Allohahella antarctica*[†]**

← *Hahella antarctica*⁵⁸

***Allocutzneria albata*[†]**

← *Kibdelosporangium albatum*⁵⁹

***Alloprevotella tannerae*[†]**

← *Prevotella tannerae*⁶⁰

Allorhizobium borbori

← *Rhizobium borbori*³⁸

Allorhizobium oryzae

← *Rhizobium oryzae*³⁸

Allorhizobium paknamense

← *Rhizobium paknamense*³⁸

Allorhizobium pseudoryzae

← *Rhizobium pseudoryzae*³⁸

Allorhizobium taibaishanense

← *Rhizobium taibaishanense*³⁸

Allorhizobium vitis

← *Rhizobium vitis*³⁸

Alloscardovia criceti

← *Metascardovia criceti*⁶¹

Altererythrobacter luteolus

← *Erythrobacter luteolus*⁶²

Alteribacillus iranensis

← *Bacillus iranensis*⁶³

Alteribacillus persepolensis

← *Bacillus persepolensis*⁶⁴

***Alysiella crassa*[†]**

← *Simonsiella crassa*⁶⁵

***Aminobacter aminovorans*[†]**

← *Pseudomonas aminovorans*⁶⁶

Amycolatopsis arida

← *Yuhushiella deserti*[†]¹⁹

Amycolatopsis azurea

← *Pseudonocardia azurea*⁶⁷

***Anaeroarcus burkinensis*[†]**

← *Anaerovibrio burkinabensis*⁶⁸

Anaerobacillus alkalidiazotrophicus

← *Bacillus alkalidiazotrophicus*⁶⁹

***Anaerobacillus arseniciselenatis*[†]**

← *Bacillus arseniciselenatis*⁶⁹

Anaerobacillus macyae

← *Bacillus macyae*⁶⁹

***Anaerobutyricum hallii*[†]**

← *Eubacterium hallii*⁷⁰

Anaerocolumna aminovalericia

← *Clostridium aminovalericum*⁷¹

Anaerocolumna jejuensis

← *Clostridium jejuense*⁷¹

Anaerocolumna xylanovorans

← *Clostridium xylanovorans*⁷¹

Anaeroplasma bactoclasticum

← *Acholeplasma bactoclasticum*⁷²

***Anaerorhabdus furcosa*[†]**

← *Bacteroides furcosus*⁷³

***Anaerosinus glycerini*[†]**

← *Anaerovibrio glycerini*⁶⁸

Anaerostipes hadrus

← *Eubacterium hadrum*⁷⁴

Anaerotignum lactatifermentans

← *Clostridium lactatifermentans*⁷⁵

Anaerotignum neopropionicum

← *Clostridium neopropionicum*⁷⁵

Anaerotignum propionicum

← *Clostridium propionicum*⁷⁵

Anaplasma phagocytophilum

← *Ehrlichia phagocytophila*⁷⁶
Andreesenia angusta[†]
← *Eubacterium angustum*⁷⁷
Aneurinibacillus thermoerophilus
← *Bacillus thermoerophilus*⁷⁸
Annwoodia aquaesulis[†]
← *Thiobacillus aquaesulis*⁷⁹
Anoxybacillus tepidamans
← *Geobacillus tepidamans*⁸⁰
Aquamicrobium lusatense
← *Defluvibacter lusatiensis*⁸¹
Aquaspirillum psychrophilum
← *Spirillum psychrophilum*⁸²
Aquibacillus albus[†]
← *Virgibacillus albus*⁸³
Aquibacillus koreensis
← *Virgibacillus koreensis*⁸³

Aquimarna brevivitae
← *Gaetbulimicrobium brevivitae*⁸⁴
Aquimarna latercula
← *Stanierella latercula*⁸⁴
Arachnia propionica[†]
← *Actinomyces propionicus*⁸⁵
Arachnia rubra
← *Pseudopropionibacterium rubrum*⁸⁶
Arcanobacterium bernardiae
← *Actinomyces bernardiae*⁸⁷
Arcanobacterium pyogenes
← *Actinomyces pyogenes*⁸⁷
Archangium disciforme
← *Angiococcus disciformis*⁸⁸
Archangium minus
← *Cystobacter minus*⁸⁸
Archangium violaceum

← *Cystobacter violaceus*⁸⁸
Arcobacter butzleri
← *Campylobacter butzleri*⁸⁹
Arenimonas composti
← *Aspromonas composti*⁹⁰
Aromatoleum anaerobium
← *Azoarcus anaerobius*⁹¹
Aromatoleum buckelii
← *Azoarcus buckelii*⁹¹
Aromatoleum evansii
← *Azoarcus evansii*⁹¹
Aromatoleum toluclasticum
← *Azoarcus toluclasticum*⁹¹
Aromatoleum tolulyticum
← *Azoarcus tolulyticum*⁹¹
Aromatoleum toluvorans
← *Azoarcus toluvorans*⁹¹

Arthrobacter agilis
← *Micrococcus agilis*⁹²
Arthrobacter ilicis
← *Corynebacterium ilicis*⁹³
Arthrobacter protophormiae
← *Brevibacterium protophormiae*⁹⁴
Arthrobacter ureafaciens
← *Corynebacterium ureafaciens*⁹⁵
Arvibacter aurantiibacter
← *Filimonas aurantiibacter*⁹⁶
Asaccharospora irregularis[†]
← *Clostridium irregulare*⁹⁷
Asanoa ferruginea[†]
← *Catellatospora ferruginea*⁹⁸
Atlantibacter hermannii
← *Escherichia hermannii*⁹⁹
Atlantibacter subterranea[†]

← *Salmonella* subterranea⁹⁹
Atopobium fessor
← *Eubacterium fessor*¹⁰⁰
Aureimonas altamirensis[†]
← *Aurantimonas altamirensis*¹⁰¹
Aureimonas frigidaquae
← *Aurantimonas frigidaquae*¹⁰¹
Aureimonas ureilytica
← *Aurantimonas ureilytica*¹⁰¹
Aureobacterium esteraromaticum
← *Flavobacterium esteraromaticum*¹⁰²
Austwickia chelonae[†]
← *Dermatophilus chelonae*¹⁰³
Avibacterium avium
← *Pasteurella avium*¹⁰⁴
Avibacterium gallinarum[†]
← *Pasteurella gallinarum*¹⁰⁴

Avibacterium paragallinarum
← *Haemophilus paragallinarum*¹⁰⁴
Avibacterium volantium
← *Pasteurella volantium*¹⁰⁴

References

- [1] Kawamura, Y.; Hou, X.-G.; Sultana, F.; Liu, S.; Yamamoto, H.; Ezaki, T. *Int J Syst Bacteriol* **1995**, *45*, 798–803.
■ ■ ■
- [2] Galperin, M. Y.; Brover, V.; Tolstoy, I.; Yutin, N. *Int J Syst Evol Microbiol* **2016**, *66*, 5506–5513.
■ ■ □
- [3] Hania, W. B.; Bouanane-Darenfed, A.; Cayol, J.-L.; Ollivier, B.; Fardeau, M.-L. *Int J*

Syst Evol Microbiol **2016**, *66*, 1506–1509.



- [4] Knight, T. F. *Int J Syst Evol Microbiol* **2004**, *54*, 1951–1952.



- [5] Coenye, T.; Vancanneyt, M.; Cnock-aert, M. C.; Falsen, E.; Swings, J.; Vandamme, P. *Int J Syst Evol Microbiol* **2003**, *53*, 1825–1831.



- [6] Yabuuchi, E.; Kawamura, Y.; Kosako, Y.; Ezaki, T. *Microbiol Immunol* **1998**, *42*, 429–438.



- [7] Ren, H.; Ma, H.; Li, H.; Huang, L.; Luo, Y.

Int J Syst Evol Microbiol **2019**, *69*, 2445–2451.



- [8] Hiraishi, A.; Nagashima, K. V. P.; Matsuurra, K.; Shimada, K.; Takaichi, S.; Wakao, N.; Katayama, Y. *Int J Syst Bacteriol* **1998**, *48*, 1389–1398.



- [9] Scholz, C. F. P.; Kilian, M. *Int J Syst Evol Microbiol* **2016**, *66*, 4422–4432.



- [10] Kelly, D. P.; Wood, A. P. *Int J Syst Evol Microbiol* **2000**, *50*, 511–516.



- [11] Kishimoto, N.; Kosako, Y.; Wakao, N.; Tano, T.; Hiraishi, A. *Syst Appl Microbiol*

1995, 18, 85–91.



- [12] Urakami, T.; Tamaoka, J.; Suzuki, K.-I.; Komagata, K. *Int J Syst Bacteriol* 1989, 39, 50–55.



- [13] Willems, A.; Goor, M.; Thielemans, S.; Gillis, M.; Kersters, K.; De Ley, J. *Int J Syst Bacteriol* 1992, 42, 107–119.



- [14] Willems, A.; Falsen, E.; Pot, B.; Jantzen, E.; Hoste, B.; Vandamme, P.; Gillis, M.; Kersters, K.; De Ley, J. *Int J Syst Bacteriol* 1990, 40, 384–398.



- [15] Tamura, T.; Ishida, Y.; Nozawa, Y.;

Otoguro, M.; Suzuki, K.-i. *Int J Syst Evol Microbiol* 2009, 59, 1867–1874.



- [16] Pohl, S.; Bertschinger, H. U.; Frederiksen, W.; Mannheim, W. *Int J Syst Bacteriol* 1983, 33, 510–514.



- [17] Mutters, R.; Pohl, S.; Mannheim, W. *Int J Syst Bacteriol* 1986, 36, 343–344.



- [18] Lawson, P. A.; Falsen, E.; Åkervall, E.; Vandamme, P.; Collins, M. D. *Int J Syst Bacteriol* 1997, 47, 899–903.



- [19] Nouiou, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyripi-

- des, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*, 2007.
- ■ □
- [20] Labeda, D. P.; Price, N. P.; Tan, G. Y. A.; Goodfellow, M.; Klenk, H.-P. *Int J Syst Evol Microbiol* **2010**, *60*, 1444–1449.
- ■ ■
- [21] Miyadoh, S.; Amano, S.; Tohyama, H.; Shomura, T. *J Gen Microbiol* **1990**, *136*, 1905–1913.
- ■ ■
- [22] Zhang, Z.; Wang, Y.; Ruan, J. *Int J Syst Bacteriol* **1998**, *48*, 411–422.
- ■ □
- [23] Miyadoh, S.; Anzai, H.; Amano, S.; Shomura, T. *Int J Syst Bacteriol* **1989**, *39*, 152–158.
- ■ □
- [24] Reddy, C. A.; Cornell, C. P.; Fraga, A. M. *Int J Syst Bacteriol* **1982**, *32*, 419–429.
- ■ □
- [25] Collins, M. D.; Jones, D. *J Gen Microbiol* **1982**, *128*, 901–903.
- ■ ■
- [26] Ludwig, W.; Kirchhof, G.; Weizenegger, M.; Weiss, N. *Int J Syst Bacteriol* **1992**, *42*, 161–165.
- ■ ■
- [27] Yi, H.; Schumann, P.; Chun, J. *Int J Syst Evol Microbiol* **2007**, *57*, 151–156.
- ■ □

- [28] Yassin, A. F.; Spröer, C.; Pukall, R.; Sylvester, M.; Siering, C.; Schumann, P. *Int J Syst Evol Microbiol* **2015**, *65*, 615–624.

■ ■ ■

- [29] Gibello, A.; Vela, A. I.; Martín, M.; Barra-Caracciolo, A.; Grenni, P.; Fernández-Garayzábal, J. F. *Int J Syst Evol Microbiol* **2009**, *59*, 1914–1918.

■ ■ ■

- [30] Miñana-Galbis, D.; Pinzón, D. L.; Lorén, J. G.; Manresa, À.; Oliart-Ros, R. M. *Int J Syst Evol Microbiol* **2010**, *60*, 1600–1604.

■ ■ ■

- [31] Felis, G. E.; Torriani, S.; Dellaglio, F. *Int J Syst Evol Microbiol* **2005**, *55*, 1325–1327.

■ ■ ■

- [32] Tamura, T.; Yokota, A. *Int J Syst Bacteriol* **1994**, *44*, 608–611.

■ ■ □

- [33] Urdiain, M.; López-López, A.; Gonzalo, C.; Busse, H.-J.; Langer, S.; Kämpfer, P.; Rosselló-Móra, R. *Syst Appl Microbiol* **2008**, *31*, 339–351.

■ ■ ■

- [34] Rosero, J. A.; Killer, J.; Sechovcová, H.; Mrázek, J.; Benada, O.; Fliegerová, K.; Havlík, J.; Kopečný, J. *Int J Syst Evol Microbiol* **2016**, *66*, 768–773.

■ ■ ■

- [35] Ahn, S.; Jin, T.-E.; Chang, D.-H.; Rhee, M.-S.; Kim, H. J.; Lee, S. J.; Park, D.-S.; Kim, B.-C.

Int J Syst Evol Microbiol **2016**, *66*, 3656–3661.



- [36] Nørskov-Lauritsen, N.; Kilian, M. *Int J Syst Evol Microbiol* **2006**, *56*, 2135–2146.



- [37] Schumann, P.; Behrendt, U.; Ulrich, A.; Suzuki, K.-i. *Int J Syst Evol Microbiol* **2003**, *53*, 2041–2044.



- [38] Mousavi, S. A.; Willems, A.; Nesme, X.; de Lajudie, P.; Lindström, K. *Syst Appl Microbiol* **2015**, *38*, 84–90.



- [39] Yang, L.-Q.; Liu, L.; Salam, N.; Xiao, M.; Kim, C.-J.; Hozzein, W. N.; Park, D.-J.;

Int J Syst Evol Microbiol **2016**, *66*, 2825–2830.



- [40] Ramana, C. V.; Sasikala, C. *J Gen Appl Microbiol* **2009**, *55*, 301–304.



- [41] Fernández-Martínez, J.; Pujalte, M. J.; García-Martínez, J.; Mata, M.; Garay, E.; Rodríguez-Valera, F. *Int J Syst Evol Microbiol* **2003**, *53*, 331–338.



- [42] Park, S. C.; Hwang, Y. M.; Lee, J. H.; Baik, K. S.; Seong, C. N. *Int J Syst Evol Microbiol* **2013**, *63*, 3494–3500.



- [43] Park, S. C.; Hwang, Y. M.; Choe, H. N.;

Baik, K. S.; Kim, H.; Seong, C. N. *Int J Syst Evol Microbiol* **2013**, *63*, 2038–2042.



- [44] Nam, Y.-D.; Chang, H.-W.; Park, J. R.; Kwon, H.-Y.; Quan, Z.-X.; Park, Y.-H.; Lee, J.-S.; Yoon, J.-H.; Bae, J.-W. *Int J Syst Evol Microbiol* **2007**, *57*, 12–18.



- [45] Nedashkovskaya, O. I.; Kim, S. B.; Kwon, K. K.; Shin, D. S.; Luo, X.; Kim, S.-J.; Mikhailov, V. V. *Int J Syst Evol Microbiol* **2007**, *57*, 1988–1994.



- [46] Nedashkovskaya, O. I.; Vancanneyt, M.; Van Trappen, S.; Vandemeulebroecke, K.; Lysenko, A. M.; Rohde, M.; Falsen, E.; Frol-

ova, G. M.; Mikhailov, V. V.; Swings, J. *Int J Syst Evol Microbiol* **2004**, *54*, 1757–1764.



- [47] Chiu, H.-H.; Rogozin, D. Y.; Huang, S.-P.; Degermendzhy, A. G.; Shieh, W. Y.; Tang, S.-L. *Int J Syst Evol Microbiol* **2014**, *64*, 1334–1339.



- [48] Jean, W. D.; Hsu, C. Y.; Huang, S.-P.; Chen, J.-S.; Lin, S.; Su, M.-H.; Shieh, W. Y. *Int J Syst Evol Microbiol* **2013**, *63*, 2859–2864.



- [49] Park, S.; Park, J.-M.; Kang, C.-H.; Yoon, J.-H. *Int J Syst Evol Microbiol* **2015**, *65*, 2646–2652.



- [50] Urbanczyk, H.; Ast, J. C.; Higgins, M. J.;

- Carson, J.; Dunlap, P. V. *Int J Syst Evol Microbiol* **2007**, *57*, 2823–2829.
- ■ ■
- [51] Sisinty, S.; Chakraborty, D.; Adicherla, H.; Gundlapally, S. R. *Antonie van Leeuwenhoek* **2017**, *110*, 1227–1241.
- ■ ■
- [52] Rautio, M.; Eerola, E.; Väisänen-Tunkelrott, M.-L.; Molitoris, D.; Lawson, P.; Collins, M. D.; Jousimies-Somer, H. *Syst Appl Microbiol* **2003**, *26*, 182–188.
- ■ ■
- [53] Jeon, C. O.; Lim, J.-M.; Lee, J.-M.; Xu, L.-H.; Jiang, C.-L.; Kim, C.-J. *Int J Syst Evol Microbiol* **2005**, *55*, 1891–1896.
- ■ ■
- [54] Zhao, B.; Lu, W.; Zhang, S.; Liu, K.; Yan, Y.; Li, J. *Int J Syst Evol Microbiol* **2017**, *67*, 1557–1563.
- ■ ■
- [55] Sravanthi, T.; Tushar, L.; Sasikala, C.; Ramana, C. V. *Int J Syst Evol Microbiol* **2016**, *66*, 1612–1619.
- ■ ■
- [56] Imhoff, J. F.; Süling, J.; Petri, R. *Int J Syst Bacteriol* **1998**, *48*, 1129–1143.
- ■ □
- [57] Qu, P.-H.; Li, Y.; Salam, N.; Chen, S.-Y.; Liu, L.; Gu, Q.; Fang, B.-Z.; Xiao, M.; Li, M.; Chen, C.; Li, W.-J. *Int J Syst Evol Microbiol* **2016**, *66*, 4832–4838.
- ■ ■

- [58] Han, Y.; Zhao, R.; Yu, T.; Li, Z.; Zhang, X.-H. *Int J Syst Evol Microbiol* **2016**, *66*, 3207–3213.

■ ■ ■

- [59] Labeda, D. P.; Kroppenstedt, R. M. *Int J Syst Evol Microbiol* **2008**, *58*, 1472–1475.

■ ■ ■

- [60] Downes, J.; Dewhirst, F. E.; Tanner, A. C. R.; Wade, W. G. *Int J Syst Evol Microbiol* **2013**, *63*, 1214–1218.

■ ■ ■

- [61] Killer, J.; Ročková, Š.; Vlková, E.; Rada, V.; Havlík, J.; Kopečný, J.; Bunešová, V.; Benadá, O.; Kofroňová, O.; Pechar, R.; Profousová, I. *Int J Syst Evol Microbiol* **2013**, *63*, 4439–4446.

■ ■ ■

- [62] Kwon, K. K.; Woo, J.-H.; Yang, S.-H.; Kang, J.-H.; Kang, S. G.; Kim, S.-J.; Sato, T.; Kato, C. *Int J Syst Evol Microbiol* **2007**, *57*, 2207–2211.

■ ■ ■

- [63] Azmatunnisa Begum, M.; Varshini, V.; Rahul, K.; Chandana, A.; Sasikala, C.; Ramana, C. V. *Int J Syst Evol Microbiol* **2016**, *66*, 4772–4778.

■ ■ ■

- [64] Didari, M.; Amoozegar, M. A.; Bagheri, M.; Schumann, P.; Spröer, C.; Sánchez-Porro, C.; Ventosa, A. *Int J Syst Evol Microbiol* **2012**, *62*, 2691–2697.

■ ■ ■

- [65] Xie, C.-H.; Yokota, A. *J Gen Appl Microbiol*

2005, 51, 1–10.



- [66] Urakami, T.; Araki, H.; Oyanagi, H.; Suzuki, K.-I.; Komagata, K. *Int J Syst Bacteriol* 1992, 42, 84–92.



- [67] Henssen, A.; Kothe, H. W.; Kroppenstedt, R. M. *Int J Syst Bacteriol* 1987, 37, 292–295.



- [68] Strömpl, C.; Tindall, B. J.; Jarvis, G. N.; Lünsdorf, H.; Moore, E. R. B.; Hippe, H. *Int J Syst Bacteriol* 1999, 49, 1861–1872.



- [69] Zavarzina, D. G.; Tourova, T. P.; Kolganova, T. V.; Boulygina, E. S.; Zhilina, T. N.

Microbiology 2009, 78, 723–731.



- [70] Shetty, S. A.; Zuffa, S.; Bui, T. P. N.; Aalvink, S.; Smidt, H.; De Vos, W. M. *Int J Syst Evol Microbiol* 2018, 68, 3741–3746.



- [71] Ueki, A.; Ohtaki, Y.; Kaku, N.; Ueki, K. *Int J Syst Evol Microbiol* 2016, 66, 2936–2943.



- [72] Robinson, I. M.; Allison, M. J. *Int J Syst Bacteriol* 1975, 25, 182–186.



- [73] Shah, H. N.; Collins, M. D. *Syst Appl Microbiol* 1986, 8, 86–88.



- [74] Allen-Vercoe, E.; Daigneault, M.; White, A.; Panaccione, R.; Duncan, S. H.; Flint, H. J.; O'Neal, L.; Lawson, P. A. *Anaerobe* **2012**, *18*, 523–529.

■ ■ ■

- [75] Ueki, A.; Goto, K.; Ohtaki, Y.; Kaku, N.; Ueki, K. *Int J Syst Evol Microbiol* **2017**, *67*, 4146–4153.

■ ■ ■

- [76] Dumler, J. S.; Barbet, A. F.; Bekker, C. P.; Dasch, G. A.; Palmer, G. H.; Ray, S. C.; Rikihisa, Y.; Rurangirwa, F. R. *Int J Syst Evol Microbiol* **2001**, *51*, 2145–2165.

■ ■ ■

- [77] Poehlein, A.; Yutin, N.; Daniel, R.; Galperin, M. Y. *Int J Syst Evol Microbiol* **2017**,

67, 2711–2719.

■ ■ ■

- [78] Heyndrickx, M.; Lebbe, L.; Vancanneyt, M.; Kersters, K.; De Vos, P.; Logan, N. A.; Forsyth, G.; Nazli, S.; Ali, N.; Berkeley, R. C. W. *Int J Syst Bacteriol* **1997**, *47*, 808–817.

■ ■ □

- [79] Boden, R.; Hutt, L. P.; Rae, A. W. *Int J Syst Evol Microbiol* **2017**, *67*, 1191–1205.

■ ■ ■

- [80] Coorevits, A.; Dinsdale, A. E.; Halket, G.; Lebbe, L.; De Vos, P.; Van Landschoot, A.; Logan, N. A. *Int J Syst Evol Microbiol* **2012**, *62*, 1470–1485.

■ ■ ■

- [81] Kämpfer, P.; Martin, E.; Lodders, N.;

- Jäckel, U. *Int J Syst Evol Microbiol* **2009**, *59*, 2468–2470.
- ■ ■
- [82] Terasaki, Y. *Int J Syst Bacteriol* **1979**, *29*, 130–144.
- ■ □
- [83] Amoozegar, M. A.; Bagheri, M.; Didari, M.; Mehrshad, M.; Schumann, P.; Spröer, C.; Sánchez-Porro, C.; Ventosa, A. *Int J Syst Evol Microbiol* **2014**, *64*, 3616–3623.
- ■ ■
- [84] Nedashkovskaya, O. I.; Vancanneyt, M.; Christiaens, L.; Kalinovskaya, N. I.; Mikhailov, V. V.; Swings, J. *Int J Syst Evol Microbiol* **2006**, *56*, 2037–2041.
- ■ ■
- [85] Pine, L.; Georg, L. K. *Int J Syst Bacteriol* **1969**, *19*, 267–272.
- ■ □
- [86] Tindall, B. J. *Int J Syst Evol Microbiol* **2019**, *69*, 2612–2615.
- ■ □
- [87] Pascual Ramos, C.; Foster, G.; Collins, M. D. *Int J Syst Bacteriol* **1997**, *47*, 46–53.
- ■ ■
- [88] Lang, E.; Schumann, P.; Tindall, B. J.; Mohr, K. I.; Spröer, C. *Int J Syst Evol Microbiol* **2015**, *65*, 4032–4042.
- ■ ■
- [89] Vandamme, P.; Vancanneyt, M.; Pot, B.; Mels, L.; Hoste, B.; Dewettinck, D.; Vlaes, L.; Van Den Borre, C.; Higgins, R.; Hommez, J.;

- Kersters, K.; Butzler, J.-P.; Goossens, H. *Int J Syst Bacteriol* **1992**, *42*, 344–356.
- ■ ■
- [90] Aslam, Z.; Park, J. H.; Kim, S. W.; Jeon, C. O.; Chung, Y. R. *Int J Syst Evol Microbiol* **2009**, *59*, 2967–2972.
- ■ ■
- [91] Rabus, R.; Wöhlbrand, L.; Thies, D.; Meyer, M.; Reinhold-Hurek, B.; Kämpfer, P. *Int J Syst Evol Microbiol* **2019**, *69*, 982–997.
- ■ ■
- [92] Koch, C.; Schumann, P.; Stackebrandt, E. *Int J Syst Bacteriol* **1995**, *45*, 837–839.
- ■ ■
- [93] Collins, M. D.; Jones, D.; Kroppenstedt, R. M. *Zentralbl Bakteriol Parasitenkd Infektionskr Hyg Abt 1 Orig* **1981**, *2*, 318–323.
- ■ ■ □
- [94] Stackebrandt, E.; Fowler, V. J.; Fiedler, F.; Seiler, H. *Syst Appl Microbiol* **1983**, *4*, 470–486.
- ■ ■
- [95] Clark, F. E. *Int J Syst Bacteriol* **1955**, *5*, 111–113.
- ■ □
- [96] Wang, C.; Lv, Y.; Li, A.; Bao, G.; Feng, G.; Zhang, J.; Tan, Z.; Zhu, H. *Int J Syst Evol Microbiol* **2019**, *69*, 1650–1655.
- ■ ■
- [97] Gerritsen, J.; Fuentes, S.; Grievink, W.; van Niftrik, L.; Tindall, B. J.; Timmerman, H. M.;

- Rijkers, G. T.; Smidt, H. *Int J Syst Evol Microbiol* **2014**, *64*, 1600–1616.
- ■ □
- [98] Lee, S. D.; Hah, Y. C. *Int J Syst Evol Microbiol* **2002**, *52*, 967–972.
- ■ ■
- [99] Hata, H.; Natori, T.; Mizuno, T.; Kanazawa, I.; Eldesouky, I.; Hayashi, M.; Miyata, M.; Fukunaga, H.; Ohji, S.; Hosoyama, A.; Aono, E.; Yamazoe, A.; Tsuchikane, K.; Fujita, N.; Ezaki, T. *Microbiol Immunol* **2016**, *60*, 303–311.
- ■ ■
- [100] Kageyama, A.; Benno, Y.; Nakase, T. *Microbiol Immunol* **1999**, *43*, 389–395.
- ■ ■
- [101] Rathsack, K.; Reitner, J.; Stackebrandt, E.; Tindall, B. J. *Int J Syst Evol Microbiol* **2011**, *61*, 2722–2728.
- ■ ■
- [102] Yokota, A.; Takeuchi, M.; Sakane, T.; Weiss, N. *Int J Syst Bacteriol* **1993**, *43*, 555–564.
- ■ ■
- [103] Hamada, M.; Iino, T.; Iwami, T.; Harayama, S.; Tamura, T.; Suzuki, K.-i. *J Gen Appl Microbiol* **2010**, *56*, 427–436.
- ■ □
- [104] Blackall, P. J.; Christensen, H.; Beckenham, T.; Blackall, L. L.; Bisgaard, M. *Int J Syst Evol Microbiol* **2005**, *55*, 353–362.
- ■ ■

3 B

Bacillus halotolerans

← *Brevibacterium halotolerans*¹

Bacteriolyticum stolpii[†]

← *Bacteriovorax stolpii*²

Bacteriovorax starrii

← *Bdellovibrio starrii*³

Bacteriovorax stolpii[†]

← *Bdellovibrio stolpii*³

Bacteroides zoogloeformans

← *Capsularis zoogloeformans*^{†4}

Barrientosimonas marina

← *Tamlicoccus marinus*^{†5}

Bartonella elizabethae

← *Rochalimaea elizabethae*⁶

Bartonella henselae

← *Rochalimaea henselae*⁶

Bartonella peromysci

← *Grahamella peromysci*⁷

Bartonella quintana

← *Rochalimaea quintana*⁶

Bartonella talpae

← *Grahamella talpae*⁷

Bartonella vinsonii

← *Rochalimaea vinsonii*⁶

Bauldia consociata

← *Prosthecomicrobium consociatum*⁸

Bauldia litoralis[†]

← *Prosthecomicrobium litoralum*⁸

Bergeriella denitrificans [†]	← <i>Pirellula marina</i> ¹⁵
← <i>Neisseria denitrificans</i> ⁹	
Bhargavaea beijingensis	Blautia coccoides [†]
← <i>Bacillus beijingensis</i> ¹⁰	← <i>Clostridium coccoides</i> ¹⁶
Bhargavaea ginsengi	Blautia hansenii
← <i>Bacillus ginsengi</i> ¹⁰	← <i>Ruminococcus hansenii</i> ¹⁶
Bibersteinia trehalosi [†]	Blautia hydrogenotrophica
← <i>Pasteurella trehalosi</i> ¹¹	← <i>Ruminococcus hydrogenotrophicus</i> ¹⁶
Blastochloris sulfoviridis	Blautia luti
← <i>Rhodopseudomonas sulfoviridis</i> ¹²	← <i>Ruminococcus luti</i> ¹⁶
Blastochloris viridis [†]	Blautia obeum
← <i>Rhodopseudomonas viridis</i> ¹²	← <i>Ruminococcus obeum</i> ¹⁷
Blastomonas natatoria [†]	Blautia producta
← <i>Blastobacter natatorius</i> ¹³	← <i>Ruminococcus productus</i> ¹⁶
Blastomonas ursincola	Blautia schinkii
← <i>Erythromonas ursincola</i> ¹⁴	← <i>Ruminococcus schinkii</i> ¹⁶
Blastopirellula marina [†]	Boudabousia marimammalium [†]
	← <i>Actinomyces marimammalium</i> ¹⁸

Bowdenia nasicola [†]	← Rhizobium lupini ²³
← Actinomyces nasicola ¹⁸	
Brachyspira hyodysenteriae	Bradyrhizobium oligotrophicum
← Serpulina hyodysenteriae ¹⁹	← Agromonas oligotrophica ²⁴
Brachyspira innocens	Brevibacterium iodinum
← Serpulina innocens ¹⁹	← Chromobacterium iodinum ²⁵
Brachyspira intermedia	Brevundimonas bacteroides
← Serpulina intermedia ²⁰	← Caulobacter bacteroides ²⁶
Brachyspira murdochii	Brevundimonas bullata
← Serpulina murdochii ²⁰	← Mycoplana bullata ²⁷
Brachyspira pilosicoli	Brevundimonas diminuta [†]
← Serpulina pilosicoli ¹⁹	← Pseudomonas diminuta ²⁸
Bradyrhizobium denitrificans	Brevundimonas intermedia
← Blastobacter denitrificans ²¹	← Caulobacter intermedius ²⁶
Bradyrhizobium japonicum [†]	Brevundimonas subvibrioides
← Rhizobium japonicum ²²	← Caulobacter subvibrioides ²⁶
Bradyrhizobium lupini	Brevundimonas variabilis
	← Caulobacter variabilis ²⁶

Brevundimonas vesicularis
← Pseudomonas vesicularis²⁸

Buchananella hordeovulneris[†]
← Actinomyces hordeovulneris¹⁸

Burkholderia caryophylli
← Pseudomonas caryophylli²⁹

Burkholderia cepacia[†]
← Pseudomonas cepacia²⁹

Burkholderia cocovenenans
← Pseudomonas cocovenenans³⁰

Burkholderia gladioli
← Pseudomonas gladioli²⁹

Burkholderia glumae
← Pseudomonas glumae³¹

Burkholderia mallei
← Pseudomonas mallei²⁹

Burkholderia pickettii

← Pseudomonas pickettii²⁹

Burkholderia plantarii
← Pseudomonas plantarii³¹

Burkholderia pseudomallei
← Pseudomonas pseudomallei²⁹

Burkholderia solanacearum
← Pseudomonas solanacearum²⁹

Butyricoccus desmolans
← Eubacterium desmolans³²

Butyrivibrio proteoclasticus
← Clostridium proteoclasticum³³

References

- [1] Ben-Gad, D.; Gerchman, Y. *Curr Microbiol* 2017, 74, 1–5.
- ■ ■
- [2] Piñeiro, S. A.; Williams, H. N.; Stine, O. C.

Int J Syst Evol Microbiol **2008**, *58*, 1203–1209.

■ ■ ■

- [3] Baer, M. L.; Ravel, J.; Chun, J.; Hill, R. T.; Williams, H. N. *Int J Syst Evol Microbiol* **2000**, *50*, 219–224.

■ ■ ■

- [4] Cato, E. P.; Kelley, R. W.; Moore, W. E. C.; Holdeman, L. V. *Int J Syst Bacteriol* **1982**, *32*, 271–274.

■ ■ □

- [5] Parag, B.; Sasikala, C.; Ramana, C. V. *Int J Syst Evol Microbiol* **2015**, *65*, 3031–3036.

■ ■ ■

- [6] Brenner, D. J.; O'Connor, S. P.; Winkler, H. H.; Steigerwalt, A. G. *Int J Syst Bacteriol* **1993**, *43*,

777–786.

■ ■ ■

- [7] Birtles, R. J.; Harrison, T. G.; Saunders, N. A.; Molyneux, D. H. *Int J Syst Bacteriol* **1995**, *45*, 1–8.

■ ■ ■

- [8] Yee, B.; Oertli, G. E.; Fuerst, J. A.; Staley, J. T. *Int J Syst Evol Microbiol* **2010**, *60*, 2960–2966.

■ ■ □

- [9] Xie, C.-H.; Yokota, A. *J Gen Appl Microbiol* **2005**, *51*, 1–10.

■ ■ ■

- [10] Verma, P.; Pandey, P. K.; Gupta, A. K.; Seong, C. N.; Park, S. C.; Choe, H. N.; Baik, K. S.; Patole, M. S.; Shouche, Y. S. *Int J*

- Syst Evol Microbiol* **2012**, *62*, 2495–2504.
- ■ ■
- [11] Blackall, P. J.; Bojesen, A. M.; Christensen, H.; Bisgaard, M. *Int J Syst Evol Microbiol* **2007**, *57*, 666–674.
- ■ ■
- [12] Hiraishi, A. *Int J Syst Bacteriol* **1997**, *47*, 217–219.
- ■ ■
- [13] Sly, L. I.; Cahill, M. M. *Int J Syst Bacteriol* **1997**, *47*, 566–568.
- ■ ■
- [14] Hiraishi, A.; Kuraishi, H.; Kawahara, K. *Int J Syst Evol Microbiol* **2000**, *50*, 1113–1118.
- ■ ■
- [15] Schlesner, H.; Rensmann, C.; Tindall, B. J.; Gade, D.; Rabus, R.; Pfeiffer, S.; Hirsch, P. *Int J Syst Evol Microbiol* **2004**, *54*, 1567–1580.
- ■ □
- [16] Liu, C.; Finegold, S. M.; Song, Y.; Lawson, P. A. *Int J Syst Evol Microbiol* **2008**, *58*, 1896–1902.
- ■ ■
- [17] Lawson, P. A.; Finegold, S. M. *Int J Syst Evol Microbiol* **2015**, *65*, 789–793.
- ■ ■
- [18] Nouiou, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyriopoulos, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*,

2007.



- [19] Ochiai, S.; Adachi, Y.; Mori, K. *Microbiol Immunol* **1997**, *41*, 445–452.



- [20] Hampson, D. J.; La, T. *Int J Syst Evol Microbiol* **2006**, *56*, 1009–1012.



- [21] van Berkum, P.; Leibold, J. M.; Eardly, B. D. *Syst Appl Microbiol* **2006**, *29*, 207–215.



- [22] Jordan, D. C. *Int J Syst Bacteriol* **1982**, *32*, 136–139.



- [23] Peix, A.; Ramírez-Bahena, M. H.; Flores-

Félix, J. D.; Alonso de la Vega, P.; Rivas, R.; Mateos, P. F.; Igual, J. M.; Martínez-Molina, E.; Trujillo, M. E.; Velázquez, E. *Int J Syst Evol Microbiol* **2015**, *65*, 1213–1219.



- [24] Ramírez-Bahena, M.-H.; Chahboune, R.; Peix, A.; Velázquez, E. *Int J Syst Evol Microbiol* **2013**, *63*, 1013–1016.



- [25] Collins, M. D.; Jones, D.; Keddie, R. M.; Sneath, P. H. A. *J Gen Microbiol* **1980**, *120*, 1–10.



- [26] Abraham, W.-R.; Strömpl, C.; Meyer, H.; Lindholst, S.; Moore, E. R. B.; Christ, R.; Vancanneyt, M.; Tindall, B. J.; Bennasar, A.;

- Smit, J.; Tesar, M. *Int J Syst Bacteriol* **1999**, *49*, 1053–1073.
- ■ ■
- [27] Kang, S.-J.; Choi, N.-S.; Choi, J. H.; Lee, J.-S.; Yoon, J.-H.; Song, J. J. *Int J Syst Evol Microbiol* **2009**, *59*, 3155–3160.
- ■ ■
- [28] Segers, P.; Vancanneyt, M.; Pot, B.; Torck, U.; Hoste, B.; Dewettinck, D.; Falsen, E.; Kersters, K.; De Vos, P. *Int J Syst Bacteriol* **1994**, *44*, 499–510.
- ■ ■
- [29] Yabuuchi, E.; Kosako, Y.; Oyaizu, H.; Yano, I.; Hotta, H.; Hashimoto, Y.; Ezaki, T.; Arakawa, M. *Microbiol Immunol* **1992**, *36*, 1251–1275.
- ■ ■
- [30] Zhao, N.; Qu, C.; Wang, E.; Chen, W. *Int J Syst Bacteriol* **1995**, *45*, 600–603.
- ■ ■
- [31] Urakami, T.; Ito-Yoshida, C.; Araki, H.; Kijima, T.; Suzuki, K.-I.; Komagata, K. *Int J Syst Bacteriol* **1994**, *44*, 235–245.
- ■ □
- [32] Takada, T.; Watanabe, K.; Makino, H.; Kushiro, A. *Int J Syst Evol Microbiol* **2016**, *66*, 4125–4131.
- ■ ■
- [33] Moon, C. D.; Pacheco, D. M.; Kelly, W. J.; Leahy, S. C.; Li, D.; Kopečný, J.; Attwood, G. T. *Int J Syst Evol Microbiol*

2008, 58, 2041–2045.

■ ■ ■

4 C

Caballeronia arationis

← Burkholderia arationis¹

Caballeronia arvi

← Caballeronia arvi¹

Caballeronia calidae

← Caballeronia calidae¹

Caballeronia catudaia

← Caballeronia catudaia¹

Caballeronia choica

← Burkholderia choica²

Caballeronia concitans

← Caballeronia concitans¹

Caballeronia cordobensis

← Burkholderia cordobensis²

Caballeronia fortuita

← Caballeronia fortuita¹

Caballeronia glathei[†]

← Burkholderia glathei²

Caballeronia glebae

← Caballeronia glebae¹

Caballeronia grimmiae

← Burkholderia grimmiae²

Caballeronia humi

← Burkholderia humi²

Caballeronia hypogea

← Caballeronia hypogea¹

Caballeronia insecticola

← Burkholderia insecticola³

Caballeronia jiangsuensis	← Burkholderia terrestris ²
← Burkholderia jiangsuensis ²	
Caballeronia megalochromosomata	← Caballeronia turbans ¹
← Burkholderia megalochromosomata ²	
Caballeronia pedi	← Burkholderia udeis ²
← Caballeronia pedi ¹	
Caballeronia peredens	← Burkholderia zhejiangensis ²
← Caballeronia peredens ¹	
Caballeronia ptereochnonis	Caldanaerobacter subterraneus[†]
← Caballeronia ptereochnonis ¹	← Carboxydibrachium pacificum ⁴
Caballeronia sordidicola	← Thermoanaerobacter subterraneus ⁴
← Burkholderia sordidicola ²	← Thermoanaerobacter tengcongensis ⁴
Caballeronia telluris	← Thermoanaerobacter yonseiensis ⁴
← Burkholderia telluris ²	Caldanaerobius polysaccharolyticus
Caballeronia temeraria	← Thermoanaerobacterium polysaccharolyticum ⁵
← Caballeronia temeraria ¹	Caldanaerobius zeae
Caballeronia terrestris	← Thermoanaerobacterium zeae ⁵

- Caldibacillus debilis**[†]
← *Geobacillus debilis*⁶
- Caldicellulosiruptor acetigenus**
← *Thermoanaerobium acetigenum*⁷
- Caldicoprobacter faecalis**
← *Acetomicrobium faecale*⁸
- Calidithermus chliarophilus**[†]
← *Meiothermus chliarophilus*⁹
- Calidithermus roseus**
← *Meiothermus roseus*⁹
- Calidithermus terrae**
← *Meiothermus terrae*⁹
- Calidithermus timidus**
← *Meiothermus timidus*⁹
- Caloramator fervidus**[†]
← *Clostridium fervidum*¹⁰
- Campylobacter gracilis**
← *Bacteroides gracilis*¹¹
- Campylobacter ureolyticus**
← *Bacteroides ureolyticus*¹²
- Carboxydothermus ferrireducens**
← *Thermoterrabacterium ferrireducens*¹³
- Castellaniella defragrans**[†]
← *Alcaligenes defragrans*¹⁴
- Catellibacterium changlense**
← *Rhodobacter changlensis*¹⁵
- Catelliglobosispora koreensis**[†]
← *Catellatospora koreensis*¹⁶
- Catenuloplanes crispus**
← *Planopolyspora crispa*[†]¹⁷
- Caulobacter segnis**
← *Mycoplana segnis*¹⁸
- Celeribacter halophilus**
← *Huaishuia halophila*¹⁹

Cellulomonas humilata	← <i>Actinomyces humiferus</i> ²⁰	← <i>Flexibacter filiformis</i> ²⁷
Cellulophaga lytica [†]	← <i>Cytophaga lytica</i> ²¹	Chitinophaga japonensis
Cellulophaga uliginosa	← <i>Cytophaga uliginosa</i> ²²	← <i>Flexibacter japonensis</i> ²⁷
Cellulosilyticum lentocellum	← <i>Clostridium lentocellum</i> ²³	Chitinophaga sancti
Cellulosimicrobium cellulans [†]	← <i>Cellulomonas cellulans</i> ²⁴	← <i>Flexibacter sancti</i> ²⁷
Cereibacter changlensis [†]	← <i>Gemmobacter changlensis</i> ²⁵	Chromohalobacter beijerinckii
Chelativorans composti	← <i>Thermovum composti</i> ²⁶	← <i>Pseudomonas beijerinckii</i> ²⁸
Chitinophaga arvensicola	← <i>Cytophaga arvensicola</i> ²⁷	Chromohalobacter canadensis
Chitinophaga filiformis		← <i>Halomonas canadensis</i> ²⁹

<i>Chryseobacterium marinum</i>	← <i>Thalassobius maritima</i> ³⁸
← <i>Sejongia marina</i> ³⁰	
<i>Chryseobacterium taklimakanense</i>	<i>Cognatiyoonia koreensis</i>[†]
← <i>Planobacterium taklimakanense</i> ³²	← <i>Loktanella koreensis</i> ³⁸
<i>Chryseomonas luteola</i>	<i>Cognatiyoonia sediminum</i>
← <i>Pseudomonas luteola</i> ³³	← <i>Loktanella sediminum</i> ³⁸
<i>Clostridioides difficile</i>[†]	<i>Collinsella aerofaciens</i>[†]
← <i>Clostridium difficile</i> ³⁴	← <i>Eubacterium aerofaciens</i> ³⁹
<i>Clostridioides mangenotii</i>	<i>Comamonas acidovorans</i>
← <i>Clostridium mangenotii</i> ³⁴	← <i>Pseudomonas acidovorans</i> ⁴⁰
<i>Clostridium drakei</i>	<i>Comamonas testosteroni</i>
← <i>Clostridium scatologenes</i> ³⁵	← <i>Pseudomonas testosteroni</i> ⁴⁰
<i>Clostridium polysaccharolyticum</i>	<i>Conchiformibius steedae</i>[†]
← <i>Fusobacterium polysaccharolyticum</i> ³⁶	← <i>Simonsiella steedae</i> ⁴¹
<i>Cobetia marina</i>[†]	<i>Coprothermobacter proteolyticus</i>[†]
← <i>Halomonas marina</i> ³⁷	← <i>Thermobacteroides proteolyticus</i> ⁴²
<i>Cognatishimia maritima</i>[†]	<i>Corynebacterium ammoniagenes</i>
	← <i>Brevibacterium ammoniagenes</i> ⁴³

Corynebacterium flavescent
← *Microbacterium flavum*⁴⁴

Corynebacterium liquefaciens
← *Brevibacterium liquefaciens*⁴⁵

Corynebacterium matruchotii
← *Bacterionema matruchotii*⁴⁶

Corynebacterium otitidis
← *Turicella otitidis*^{† 47}

Corynebacterium stationis
← *Brevibacterium stationis*⁴⁸

Corynebacterium variabile
← *Arthrobacter variabilis*⁴⁹

Corynebacterium vitaeruminis
← *Brevibacterium vitaeruminis*⁴⁵

Cosenzaea myxofaciens[†]
← *Proteus myxofaciens*⁵⁰

Couchioplanes caeruleus[†]

← *Actinoplanes caeruleus*⁵¹

Croceibacter mercuriale
← *Porphyrobacter mercurialis*⁵²

Cronobacter helveticus
← *Enterobacter helveticus*⁵³

Cronobacter pulveris
← *Enterobacter pulveris*⁵³

Cronobacter sakazakii[†]
← *Enterobacter sakazakii*⁵⁴

Cronobacter zurichensis
← *Enterobacter turicensis*⁵³

Cryptosporangium minutisporangium
← *Actinoplanes minutisporangius*⁵⁵

Cupriavidus numazuensis
← *Wautersia numazuensis*⁵⁶

Curtobacterium flaccumfaciens
← *Corynebacterium betaee*⁵⁷

← *Corynebacterium flaccumfaciens*⁵⁷
← *Corynebacterium oortii*⁵⁷
← *Corynebacterium poinsettiae*⁵⁷

Curvibacter delicatus
← *Aquaspirillum delicatum*⁵⁸

Curvibacter lanceolatus
← *Pseudomonas lanceolata*⁵⁸

Cutibacterium acnes[†]
← *Propionibacterium acnes*⁵⁹

Cutibacterium avidum
← *Propionibacterium avidum*⁵⁹

Cutibacterium granulosum
← *Propionibacterium granulosum*⁵⁹

Cutibacterium namnetense
← *Propionibacterium namnetense*⁶⁰

Cyclobacterium marinum[†]
← *Flectobacillus marinus*⁶¹

Cytophaga heparina

← *Flavobacterium heparinum*⁶²

References

- [1] Dobritsa, A. P.; Linardopoulou, E. V.; Samadpour, M. *Int J Syst Evol Microbiol* **2017**, *67*, 3846–3853.
■ ■ □
- [2] Dobritsa, A. P.; Samadpour, M. *Int J Syst Evol Microbiol* **2016**, *66*, 2836–2846.
■ ■ □
- [3] Dobritsa, A. P.; Samadpour, M. *Int J Syst Evol Microbiol* **2019**, *69*, 2057–2063.
■ ■ ■
- [4] Fardeau, M.-L.; Salinas, M. B.; L'Haridon, S.; Jeanthon, C.; Verhé, F.; Cayol, J.-L.; Patel, B.

- K. C.; Garcia, J.-L.; Ollivier, B. *Int J Syst Evol Microbiol* **2004**, *54*, 467–474.
- ■ ■
- [5] Lee, Y.-J.; Mackie, R. I.; Cann, I. K. O.; Wiegel, J. *Int J Syst Evol Microbiol* **2008**, *58*, 666–670.
- ■ ■
- [6] Coorevits, A.; Dinsdale, A. E.; Halket, G.; Lebbe, L.; De Vos, P.; Van Landschoot, A.; Logan, N. A. *Int J Syst Evol Microbiol* **2012**, *62*, 1470–1485.
- ■ ■
- [7] Onyenwoke, R. U.; Lee, Y.-J.; Dabrowski, S.; Ahring, B. K.; Wiegel, J. *Int J Syst Evol Microbiol* **2006**, *56*, 1391–1395.
- ■ ■
- [8] Bouanane-Darenfed, A.; Ben Hania, W.; Cayol, J.-L.; Ollivier, B.; Fardeau, M.-L. *Int J Syst Evol Microbiol* **2015**, *65*, 3286–3288.
- ■ ■
- [9] Raposo, P.; Viver, T.; Albuquerque, L.; Froufe, H.; Barroso, C.; Egas, C.; Rosselló-Móra, R.; da Costa, M. S. *Int J Syst Evol Microbiol* **2019**, *69*, 1060–1069.
- ■ ■
- [10] Collins, M. D.; Lawson, P. A.; Willems, A.; Cordoba, J. J.; Fernandez-Garayzabal, J.; Garcia, P.; Cai, J.; Hippe, H.; Farrow, J. A. E. *Int J Syst Bacteriol* **1994**, *44*, 812–826.
- ■ □
- [11] Vandamme, P.; Daneshvar, M. I.; Dewhirst, F. E.; Paster, B. J.; Kersters, K.;

- Goossens, H.; Moss, C. W. *Int J Syst Bacteriol* **1995**, *45*, 145–152.
- ■ ■
- [12] Vandamme, P.; Debruyne, L.; De Brandt, E.; Falsen, E. *Int J Syst Evol Microbiol* **2010**, *60*, 2016–2022.
- ■ ■
- [13] Slobodkin, A. I.; Sokolova, T. G.; Lysenko, A. M.; Wiegel, J. *Int J Syst Evol Microbiol* **2006**, *56*, 2349–2351.
- ■ ■
- [14] Kämpfer, P.; Denger, K.; Cook, A. M.; Lee, S.-T.; Jäckel, U.; Denner, E. B. M.; Busse, H.-J. *Int J Syst Evol Microbiol* **2006**, *56*, 815–819.
- ■ ■
- [15] Zheng, J.-W.; Chen, Y.-G.; Zhang, J.; Ni, Y.-Y.; Li, W.-J.; He, J.; Li, S.-P. *Int J Syst Evol Microbiol* **2011**, *61*, 1921–1926.
- ■ ■
- [16] Ara, I.; Bakir, M. A.; Kudo, T. *Int J Syst Evol Microbiol* **2008**, *58*, 1950–1960.
- ■ ■
- [17] Kudo, T.; Nakajima, Y.; Suzuki, K.-i. *Int J Syst Bacteriol* **1999**, *49*, 1853–1860.
- ■ ■
- [18] Abraham, W.-R.; Strömpl, C.; Meyer, H.; Lindholst, S.; Moore, E. R. B.; Christ, R.; Vancanneyt, M.; Tindall, B. J.; Bennasar, A.; Smit, J.; Tesar, M. *Int J Syst Bacteriol* **1999**, *49*, 1053–1073.
- ■ ■
- [19] Lai, Q.; Cao, J.; Yuan, J.; Li, F.; Shao, Z. *Int J*

Syst Evol Microbiol **2014**, *64*, 4160–4167.

■ ■ ■

- [20] Collins, M. D.; Pascual, C. *Int J Syst Evol Microbiol* **2000**, *50*, 661–663.

■ ■ ■

- [21] Johansen, J. E.; Nielsen, P.; Sjøholm, C. *Int J Syst Bacteriol* **1999**, *49*, 1231–1240.

■ ■ ■

- [22] Bowman, J. P. *Int J Syst Evol Microbiol* **2000**, *50*, 1861–1868.

■ ■ ■

- [23] Cai, S.; Dong, X. *Int J Syst Evol Microbiol* **2010**, *60*, 845–849.

■ ■ ■

- [24] Schumann, P.; Weiss, N.; Stackebrandt, E. *Int*

J Syst Evol Microbiol **2001**, *51*, 1007–1010.

■ ■ ■

- [25] Suresh, G.; Sasikala, C.; Ramana, C. V. *Int J Syst Evol Microbiol* **2015**, *65*, 794–798.

■ ■ ■

- [26] Kämpfer, P.; Arun, A. B.; Busse, H.-J.; Zhang, Z.-L.; Young, C.-C.; Glaeser, S. P. *Int J Syst Evol Microbiol* **2015**, *65*, 1646–1652.

■ ■ ■

- [27] Kämpfer, P.; Young, C.-C.; Sridhar, K. R.; Arun, A. B.; Lai, W. A.; Shen, F. T.; Rekha, P. D. *Int J Syst Evol Microbiol* **2006**, *56*, 2223–2228.

■ ■ ■

- [28] Pećonek, J.; Gruber, C.; Gallego, V.; Ventosa, A.; Busse, H.-J.; Kämpfer, P.; Radax, C.;

- Stan-Lotter, H. *Int J Syst Evol Microbiol* **2006**, *56*, 1953–1957.
- ■ ■
- [29] Arahal, D. R.; García, M. T.; Ludwig, W.; Schleifer, K. H.; Ventosa, A. *Int J Syst Evol Microbiol* **2001**, *51*, 1443–1448.
- ■ ■
- [30] Kämpfer, P.; Lodders, N.; Vaneechoutte, M.; Wauters, G. *Int J Syst Evol Microbiol* **2009**, *59*, 2238–2240.
- ■ ■
- [31] Kämpfer, P.; Vaneechoutte, M.; Lodders, N.; De Baere, T.; Avesani, V.; Janssens, M.; Busse, H.-J.; Wauters, G. *Int J Syst Evol Microbiol* **2009**, *59*, 2421–2428.
- ■ ■
- [32] Holmes, B.; Steigerwalt, A. G.; Nicholson, A. C. *Int J Syst Evol Microbiol* **2013**, *63*, 4639–4662.
- ■ ■
- [33] Holmes, B.; Steigerwalt, A. G.; Weaver, R. E.; Brenner, D. J. *Int J Syst Bacteriol* **1987**, *37*, 245–250.
- ■ □
- [34] Lawson, P. A.; Citron, D. M.; Tyrrell, K. L.; Finegold, S. M. *Anaerobe* **2016**, *40*, 95–99.
- ■ ■
- [35] Liou, J. S.-C.; Balkwill, D. L.; Drake, G. R.; Tanner, R. S. *Int J Syst Evol Microbiol* **2005**, *55*, 2085–2091.
- ■ ■
- [36] Van Gylswyk, N. O.; Morris, E. J.; Els, H. J. J

- Gen Microbiol* **1980**, *121*, 491–493.
■ ■ □
- [37] Arahal, D. R.; Castillo, A. M.; Ludwig, W.; Schleifer, K. H.; Ventosa, A. *Syst Appl Microbiol* **2002**, *25*, 207–211.
■ ■ ■
- [38] Wirth, J. S.; Whitman, W. B. *Int J Syst Evol Microbiol* **2018**, *68*, 2393–2411.
■ ■ □
- [39] Kageyama, A.; Benno, Y.; Nakase, T. *Int J Syst Bacteriol* **1999**, *49*, 557–565.
■ ■ ■
- [40] Tamaoka, J.; Ha, D.-M.; Komagata, K. *Int J Syst Bacteriol* **1987**, *37*, 52–59.
■ ■ □
- [41] Xie, C.-H.; Yokota, A. *J Gen Appl Microbiol* **2005**, *51*, 1–10.
■ ■ ■
- [42] Rainey, F. A.; Stackebrandt, E. *Int J Syst Bacteriol* **1993**, *43*, 857–859.
■ ■ □
- [43] Collins, M. D. *Int J Syst Bacteriol* **1987**, *37*, 442–443.
■ ■ □
- [44] Barksdale, L.; Lanéelle, M.-A.; Pollice, M. C.; Asselineau, J.; Welby, M.; Norgard, M. V. *Int J Syst Bacteriol* **1979**, *29*, 222–233.
■ ■ □
- [45] Lanéelle, M. A.; Asselineau, J.; Welby, M.; Norgard, M. V.; Imaeda, T.; Pollice, M. C.;

- Barksdale, L. *Int J Syst Bacteriol* **1980**, *30*, 539–546.
■ ■ □
- [46] Collins, M. D. *Zentralbl Bakteriol Parasitenkd Infektionskr Hyg Abt 1 Orig* **1982**, *3*, 364–367.
■ ■ □
- [47] Baek, I.; Kim, M.; Lee, I.; Na, S.-I.; Goodfellow, M.; Chun, J. *Front Microbiol* **2018**, *9*.
■ ■ ■
- [48] Bernard, K. A.; Wiebe, D.; Burdz, T.; Reimer, A.; Ng, B.; Singh, C.; Schindle, S.; Pacheco, A. L. *Int J Syst Evol Microbiol* **2010**, *60*, 874–879.
■ ■ ■
- [49] Collins, M. D. *Int J Syst Bacteriol* **1987**, *37*, 287–288.
■ ■ □
- [50] Giammanco, G. M.; Grimont, P. A. D.; Grimont, F.; Lefevre, M.; Giammanco, G.; Pignato, S. *Int J Syst Evol Microbiol* **2011**, *61*, 1638–1644.
■ ■ ■
- [51] Tamura, T.; Nakagaito, Y.; Nishii, T.; Hasegawa, T.; Stackebrandt, E.; Yokota, A. *Int J Syst Evol Microbiol* **1994**, *44*, 193–203.
■ ■ ■
- [52] Liu, Y.-H.; Fang, B.-Z.; Dong, Z.-Y.; Li, L.; Mohamad, O. A. A.; Zhang, Y.-G.; Egamberdieva, D.; Xiao, M.; Li, W.-J. *Int J Syst Evol Microbiol* **2019**, *69*, 2547–2554.
■ ■ ■

- [53] Brady, C.; Cleenwerck, I.; Venter, S.; Coutinho, T.; De Vos, P. *Syst Appl Microbiol* **2013**, *36*, 309–319.
- ■ □
- [54] Iversen, C.; Mullane, N.; McCardell, B.; Tall, B. D.; Lehner, A.; Fanning, S.; Stephan, R.; Joosten, H. *Int J Syst Evol Microbiol* **2008**, *58*, 1442–1447.
- ■ ■
- [55] Tamura, T.; Hatano, K. *Int J Syst Evol Microbiol* **2001**, *51*, 2119–2125.
- ■ ■
- [56] Martínez-Aguilar, L.; Caballero-Mellado, J.; Estrada-de los Santos, P. *Int J Syst Evol Microbiol* **2013**, *63*, 208–211.
- ■ ■
- [57] Collins, M. D.; Jones, D. *J Gen Microbiol* **1983**, *129*, 3545–3548.
- ■ □
- [58] Ding, L.; Yokota, A. *Int J Syst Evol Microbiol* **2004**, *54*, 2223–2230.
- ■ ■
- [59] Scholz, C. F. P.; Kilian, M. *Int J Syst Evol Microbiol* **2016**, *66*, 4422–4432.
- ■ □
- [60] Nouiouï, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyripides, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*, 2007.
- ■ □
- [61] Raj, H. D.; Maloy, S. R. *Int J Syst Bacteriol*

1990, 40, 337–347.

■ ■ □

- [62] Christensen, P. *Int J Syst Bacteriol* 1980, 30, 473–475.

■ ■ □

5 D

Deleya aquamarina

← *Alcaligenes aquamarinus*¹

← *Deleya aesta*¹

Delftia acidovorans[†]

← *Comamonas acidovorans*²

Demequina gelatinilytica

← *Lysinimicrobium gelatinilyticum*³

Demequina iriomotensis

← *Lysinimicrobium iriomotense*³

Demequina mangrovi

← *Lysinimicrobium mangrovi*^{†3}

Demequina maris

← *Lysinimicrobium aestuarii*³

Demequina pelophila

← *Lysinimicrobium pelophilum*³

Demequina phytophila

← *Lysinimicrobium flavum*³

Demequina rhizosphaerae

← *Lysinimicrobium rhizosphaerae*³

Demequina silvatica

← *Lysinimicrobium luteum*³

Demequina soli

← *Lysinimicrobium soli*³

Demequina subtropica

← *Lysinimicrobium subtropicum*³

Dendrosporobacter querciculus[†]

← *Clostridium quercicolum*⁴

Desemzia incerta[†]

← *Brevibacterium incertum*⁵

Desulfallas alcoholivorax

← *Desulfotomaculum alcoholivorax*⁶

Desulfallas arcticus

← *Desulfotomaculum arcticus*⁶

Desulfallas geothermicus

← *Desulfotomaculum geothermicus*⁶

Desulfallas gibsoniae

← *Desulfotomaculum gibsoniae*⁶

Desulfallas sapomandens[†]

← *Desulfotomaculum sapomandens*⁶

Desulfallas thermosapavorans

← *Desulfotomaculum thermosapavorans*⁶

Desulfatiglans anilini[†]

← *Desulfobacterium anilini*⁷

Desulfobacula phenolica

← *Desulfobacterium phenolicum*⁸

Desulfocurvibacter africanus[†]

← *Desulfovibrio africanus*⁹

Desulfofaba hansenii

← *Desulfomusa hansenii*¹⁰

Desulfovarcimen acetoxidans[†]

← *Desulfotomaculum acetoxidans*⁶

Desulfovarcimen intricatum

← *Desulfotomaculum intricatum*⁶

Desulfovundulus australicus

← *Desulfotomaculum australicus*⁶

Desulfovundulus kuznetsovii[†]

← *Desulfotomaculum kuznetsovii*⁶

Desulfovundulus luciae

← *Desulfotomaculum luciae*⁶

Desulfovundulus solfataricus

← *Desulfotomaculum solfataricus*⁶

Desulfovundulus thermobenzoicus

← Desulfotomaculum thermobenzoicus⁶
Desulfofundulus thermocisternus
← Desulfotomaculum thermocisternus⁶
Desulfofundulus thermosubterraneus
← Desulfotomaculum thermosubterraneus⁶
Desulfohalotomaculum alkaliphilum
← Desulfotomaculum alkaliphilum⁶
Desulfohalotomaculum halophilum[†]
← Desulfotomaculum halophilum⁶
Desulfohalotomaculum peckii
← Desulfotomaculum peckii⁶
Desulfohalotomaculum tongense
← Desulfotomaculum tongense⁶
Desulfohalovibrio alkalitolerans
← Desulfovibrio alkalitolerans⁹
Desulfomicrobium macestii
← Desulfobacterium macestii¹¹

Desulfomicrobium norvegicum
← Desulfovibrio desulfuricans¹²
Desulfosporosinus auripigmenti
← Desulfotomaculum auripigmentum¹³
Desulfosporosinus orientis[†]
← Desulfotomaculum orientis¹⁴
Desulfovibrio piger
← Desulfomonas pigrat¹⁵
Devosia enhydra
← Vasilyevaea enhydra¹⁶
Devosia mishustinii
← Vasilyevaea mishustinii¹⁶
Dialister pneumosintes[†]
← Bacteroides pneumosintes¹⁷
Dichelobacter nodosus[†]
← Bacteroides nodosus¹⁸
Dickeya chrysanthemi[†]

← *Pectobacterium chrysanthemi*¹⁹

Dickeya paradisiaca

← *Brenneria paradisiaca*¹⁹

Dietzia maris[†]

← *Rhodococcus maris*²⁰

Dokdonia diaphoros

← *Krokinobacter diaphorus*²¹

Dokdonia eikasta

← *Krokinobacter eikastus*²¹

Dokdonia genika

← *Krokinobacter genikus*^{† 21}

Dorea formicigenerans[†]

← *Eubacterium formicigenerans*²²

References

- [1] Akagawa, M.; Yamasato, K. *Int J Syst Bacteriol* **1989**, *39*, 462–466.



- [2] Wen, A.; Fegan, M.; Hayward, C.; Chakraborty, S.; Sly, L. I. *Int J Syst Bacteriol* **1999**, *49*, 567–576.



- [3] Nouiou, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyriides, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*, 2007.



- [4] Strömpl, C.; Tindall, B. J.; Lünsdorf, H.; Wong, T. Y.; Moore, E. R.; Hippe, H. *Int J Syst Evol Microbiol* **2000**, *50*, 101–106.



- [5] Stackebrandt, E.; Schumann, P.; Swiderski, J.;

Weiss, N. *Int J Syst Bacteriol* **1999**, *49*, 185–188.

■ ■ ■

- [6] Watanabe, M.; Kojima, H.; Fukui, M. *Int J Syst Evol Microbiol* **2018**, *68*, 2891–2899.

■ ■ ■

- [7] Suzuki, D.; Li, Z.; Cui, X.; Zhang, C.; Katayama, A. *Int J Syst Evol Microbiol* **2014**, *64*, 3081–3086.

■ ■ ■

- [8] Kuever, J.; Könneke, M.; Galushko, A.; Drzyzga, O. *Int J Syst Evol Microbiol* **2001**, *51*, 171–177.

■ ■ ■

- [9] Spring, S.; Sorokin, D. Y.; Verbarg, S.; Rohde, M.; Woyke, T.; Kyrpides, N. C. *Front*

Microbiol **2019**, *10*, 862.

■ ■ ■

- [10] Abildgaard, L.; Ramsing, N. B.; Finster, K. *Int J Syst Evol Microbiol* **2004**, *54*, 393–399.

■ ■ ■

- [11] Hippe, H.; Vainshtein, M.; Gogotova, G. I.; Stackebrandt, E. *Int J Syst Evol Microbiol* **2003**, *53*, 1127–1130.

■ ■ ■

- [12] Sharak Gentner, B. R.; Friedman, S. D.; Devreux, R. *Int J Syst Bacteriol* **1997**, *47*, 889–892.

■ ■ □

- [13] Stackebrandt, E.; Schumann, P.; Schüler, E.; Hippe, H. *Int J Syst Evol Microbiol* **2003**, *53*, 1439–1443.

■ ■ ■

- [14] Stackebrandt, E.; Spröer, C.; Rainey, F. A.; Burghardt, J.; Päuker, O.; Hippe, H. *Int J Syst Evol Microbiol* **1997**, *47*, 1134–1139.

■ ■ ■

- [15] Loubinoux, J.; Valente, F. M. A.; Pereira, I. A. C.; Costa, A.; Grimont, P. A. D.; Le Faou, A. E. *Int J Syst Evol Microbiol* **2002**, *52*, 1305–1308.

■ ■ ■

- [16] Park, S.; Jung, Y.-T.; Kim, S.; Yoon, J.-H. *Int J Syst Evol Microbiol* **2016**, *66*, 3935–3941.

■ ■ ■

- [17] Moore, L. V. H.; Moore, W. E. C. *Int J Syst Bacteriol* **1994**, *44*, 187–192.

■ ■ ■

- [18] Dewhirst, F. E.; Paster, B. J.; La Fontaine, S.;

Rood, J. I. *Int J Syst Bacteriol* **1990**, *40*, 426–433.

■ ■ □

- [19] Samson, R.; Legendre, J. B.; Christen, R.; Saux, M. F.-L.; Achouak, W.; Gardan, L. *Int J Syst Evol Microbiol* **2005**, *55*, 1415–1427.

■ ■ ■

- [20] Rainey, F. A.; Klatte, S.; Kroppenstedt, R. M.; Stackebrandt, E. *Int J Syst Bacteriol* **1995**, *45*, 32–36.

■ ■ ■

- [21] Yoon, J.-H.; Kang, S.-J.; Park, S.; Oh, T.-K. *Int J Syst Evol Microbiol* **2012**, *62*, 1896–1901.

■ ■ ■

- [22] Taras, D.; Simmering, R.; Collins, M. D.; Lawson, P. A.; Blaut, M. *Int J Syst Evol Microbiol*

2002, 52, 423–428.

■ ■ ■

6 E

Effusibacillus consociatus

← *Alicyclobacillus consociatus*¹

Effusibacillus pohliae

← *Alicyclobacillus pohliae*¹

***Eggerthella lenta*[†]**

← *Eubacterium lentum*²

***Eggerthia catenaformis*[†]**

← *Lactobacillus catenaformis*³

Ehrlichia ruminantium

← *Cowdria ruminantium*⁴

***Eikenella corrodens*[†]**

← *Bacteroides corrodens*⁵

***Elizabethkingia meningoseptica*[†]**

← *Chryseobacterium meningosepticum*⁶

Elizabethkingia miricola

← *Chryseobacterium miricola*⁶

***Embleya scabrispora*[†]**

← *Streptomyces scabrisporus*⁷

Empedobacter falsenii

← *Wautersiella falsenii*⁸

Ensifer americanus

← *Sinorhizobium americanum*⁹

Ensifer arboris

← *Sinorhizobium arboris*¹⁰

Ensifer fredii

← *Sinorhizobium fredii*¹⁰

Ensifer kostiensis

← *Sinorhizobium kostiense*¹⁰

Ensifer kummerowiae	← <i>Sinorhizobium kummerowiae</i> ¹⁰	← <i>Enterobacter muelleri</i> ¹²
Ensifer medicae	← <i>Sinorhizobium medicae</i> ¹⁰	Enterobacter cancerogenus
Ensifer meliloti	← <i>Sinorhizobium meliloti</i> ¹⁰	← <i>Erwinia cancerogena</i> ¹³
Ensifer morelensis	← <i>Sinorhizobium morelense</i> ⁹	Enterobacter dissolvens
Ensifer saheli	← <i>Sinorhizobium saheli</i> ¹⁰	← <i>Erwinia dissolvens</i> ¹⁴
Ensifer terangae	← <i>Sinorhizobium terangae</i> ¹⁰	Enterobacter nimipressuralis
Ensifer xinjiangensis	← <i>Sinorhizobium xinjiangense</i> ¹⁰	← <i>Erwinia nimipressuralis</i> ¹⁴
Enteractinococcus fodinae	← <i>Yaniella fodinae</i> ¹¹	Enterococcus durans
Enterobacter asburiae		← <i>Streptococcus durans</i> ¹⁵
		Enterococcus faecalis [†]
		← <i>Streptococcus faecalis</i> ¹⁶
		Enterococcus faecium
		← <i>Streptococcus faecium</i> ¹⁶
		Enterococcus gallinarum
		← <i>Streptococcus gallinarum</i> ¹⁵
		Enterovibrio calviensis
		← <i>Vibrio calviensis</i> ¹⁷

Epibacterium mobile

← Ruegeria mobilis¹⁸

Epibacterium scottomollicae

← Ruegeria scottomollicae¹⁸

Eubacterium barkeri

← Clostridium barkeri¹⁹

Eubacterium plautii

← Fusobacterium plautii²⁰

Eubacterium sulci

← Fusobacterium sulci²¹

References

- [1] Watanabe, M.; Kojima, H.; Fukui, M. *Int J Syst Evol Microbiol* **2014**, *64*, 2770–2774.

■ ■ ■

- [2] Kageyama, A.; Benno, Y.; Nakase, T. *Int J Syst*

Bacteriol **1999**, *49*, 1725–1732.

■ ■ ■

- [3] Salvetti, E.; Felis, G. E.; Dellaglio, F.; Castioni, A.; Torriani, S.; Lawson, P. A. *Int J Syst Evol Microbiol* **2011**, *61*, 2520–2524.

■ ■ ■

- [4] Dumler, J. S.; Barbet, A. F.; Bekker, C. P.; Dasch, G. A.; Palmer, G. H.; Ray, S. C.; Rikihisa, Y.; Rurangirwa, F. R. *Int J Syst Evol Microbiol* **2001**, *51*, 2145–2165.

■ ■ ■

- [5] Jackson, F. L.; Goodman, Y. E. *Int J Syst Bacteriol* **1972**, *22*, 73–77.

■ ■ □

- [6] Kim, K. K.; Kim, M. K.; Lim, J. H.; Park, H. Y.; Lee, S.-T. *Int J Syst Evol Microbiol* **2005**, *55*,

1287–1293.



- [7] Nouiou, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyriopoulos, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*, 2007.



- [8] Zhang, R.-G.; Tan, X.; Liang, Y.; Meng, T.-Y.; Liang, H.-Z.; Lv, J. *Int J Syst Evol Microbiol* **2014**, *64*, 2723–2728.



- [9] Wang, Y. C.; Wang, F.; Hou, B. C.; Wang, E. T.; Chen, W. F.; Sui, X. H.; Chen, W. X.; Li, Y.; Zhang, Y. B. *Syst Appl Microbiol* **2013**, *36*, 467–

473.



- [10] Young, J. M. *Int J Syst Evol Microbiol* **2003**, *53*, 2107–2110.



- [11] Cao, Y.-R.; Jiang, Y.; Jin, R.-X.; Han, L.; He, W.-X.; Li, Y.-L.; Huang, X.-S.; Xue, Q.-H. *Int J Syst Evol Microbiol* **2012**, *62*, 2710–2716.



- [12] Sutton, G. G.; Brinkac, L. M.; Clarke, T. H.; Fouts, D. E. *F1000Res* **2018**, *7*, 521.



- [13] Dickey, R. S.; Zumoff, C. H. *Int J Syst Bacteriol* **1988**, *38*, 371–374.



- [14] Brenner, D. J.; McWhorter, A. C.; Kai, A.; Steigerwalt, A. G.; Farmer, J. J. *J Clin Microbiol* **1986**, *23*, 1114–1120.
■ □ ■
- [15] Collins, M. D.; Jones, D.; Farrow, J. A. E.; Kilpper-Balz, R.; Schleifer, K. H. *Int J Syst Bacteriol* **1984**, *34*, 220–223.
■ ■ □
- [16] Schleifer, K. H.; Kilpper-Bälz, R. *Int J Syst Bacteriol* **1984**, *34*, 31–34.
■ ■ □
- [17] Pascual, J.; Macián, M. C.; Arahal, D. R.; Garay, E.; Pujalte, M. J. *Int J Syst Evol Microbiol* **2009**, *59*, 698–704.
■ ■ ■
- [18] Wirth, J. S.; Whitman, W. B. *Int J Syst Evol Microbiol* **2018**, *68*, 2393–2411.
■ ■ □
- [19] Collins, M. D.; Lawson, P. A.; Willems, A.; Cordoba, J. J.; Fernandez-Garayzabal, J.; Garcia, P.; Cai, J.; Hippe, H.; Farrow, J. A. E. *Int J Syst Bacteriol* **1994**, *44*, 812–826.
■ ■ □
- [20] Hofstad, T.; Aasjord, P. *Int J Syst Bacteriol* **1982**, *32*, 346–349.
■ ■ □
- [21] Jalava, J.; Eerola, E. *Int J Syst Bacteriol* **1999**, *49*, 1375–1379.
■ ■ ■

7 F

- Faecalibacterium prausnitzii[†]**
← *Fusobacterium prausnitzii*¹
- Faecalicatena contorta[†]**
← *Eubacterium contortum*²
- Faecalicatena fissicatena**
← *Eubacterium fissicatena*²
- Faecalicatena orotica**
← *Clostridium oroticum*²
- Faecalicoccus pleomorphus**
← *Streptococcus pleomorphus*³
- Faecalitalea cylindroides[†]**
← *Eubacterium cylindroides*³
- Faenia rectivirgula[†]**
← *Micropolyspora rectivirgula*⁴

- Falsarthrobacter nasiphocae[†]**
← *Arthrobacter nasiphocae*⁵
- Fannyhessea vaginae[†]**
← *Atopobium vaginae*⁶
- Fibrobacter succinogenes[†]**
← *Bacteroides succinogenes*⁷
- Filifactor alocis**
← *Fusobacterium alocis*⁸
- Filifactor villosus[†]**
← *Clostridium villosum*⁹
- Finegoldia magna[†]**
← *Peptostreptococcus magnus*¹⁰
- Flagellimonas flava**
← *Spongiibacterium flavum*^{†11}

Flagellimonas pacifica

← *Spongibacterium pacificum*¹¹

Flammeovirga aprica[†]

← *Cytophaga aprica*¹²

Flavimarincola marinus[†]

← *Loktanella marina*¹³

Flavimobilis marinus[†]

← *Sanguibacter marinus*⁶

Flavimobilis soli

← *Sanguibacter soli*⁶

Flavimonas oryzihabitans[†]

← *Pseudomonas oryzihabitans*¹⁴

Flavobacterium mizutaii

← *Sphingobacterium mizutaii*¹⁵

Flavonifractor plautii[†]

← *Clostridium orbiscindens*¹⁶

← *Eubacterium plautii*¹⁶

Fluoribacter dumoffii

← *Legionella dumoffii*¹⁷

Fluoribacter gormanii

← *Legionella gormanii*¹⁷

Francisella persica

← *Wolbachia persica*¹⁸

Franconibacter helveticus[†]

← *Enterobacter helveticus*¹⁹

Franconibacter pulveris

← *Enterobacter pulveris*¹⁹

Fructobacillus durionis

← *Leuconostoc durionis*²⁰

Fructobacillus ficulneus

← *Leuconostoc ficulneum*²⁰

Fructobacillus fructosus[†]

← *Leuconostoc fructosum*²⁰

Fructobacillus pseudoficulneus

← Leuconostoc pseudoficulneum²⁰

Fusobacterium mortiferum

← Clostridium rectum²¹

References

- [1] Duncan, S. H.; Hold, G. L.; Harmsen, H. J. M.; Stewart, C. S.; Flint, H. J. *Int J Syst Evol Microbiol* **2002**, *52*, 2141–2146.



- [2] Sakamoto, M.; Iino, T.; Ohkuma, M. *Int J Syst Evol Microbiol* **2017**, *67*, 1219–1227.



- [3] De Maesschalck, C.; Van Immerseel, F.; Eeckhaut, V.; De Baere, S.; Cnockaert, M.; Croubels, S.; Haesebrouck, F.; Ducatelle, R.; Vandamme, P. *Int J Syst Evol Microbiol* **2014**,

64, 3877–3884.



- [4] Kurup, V. P.; Agre, N. S. *Int J Syst Bacteriol* **1983**, *33*, 663–665.



- [5] Busse, H.-J.; Moore, E. R. B. *Int J Syst Evol Microbiol* **2018**, *68*, 1361–1364.



- [6] Nouiou, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyriopoulos, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*, 2007.



- [7] Montgomery, L.; Flesher, B.; Stahl, D. *Int J*

Syst Bacteriol **1988**, *38*, 430–435.

■ ■ □

- [8] Jalava, J.; Eerola, E. *Int J Syst Bacteriol* **1999**, *49*, 1375–1379.

■ ■ ■

- [9] Collins, M. D.; Lawson, P. A.; Willems, A.; Cordoba, J. J.; Fernandez-Garayzabal, J.; Garcia, P.; Cai, J.; Hippe, H.; Farrow, J. A. E. *Int J Syst Bacteriol* **1994**, *44*, 812–826.

■ ■ □

- [10] Murdoch, D. A.; Shah, H. N. *Anaerobe* **1999**, *5*, 555–559.

■ ■ □

- [11] Choi, S.; Lee, J. H.; Kang, J. W.; Choe, H. N.; Seong, C. N. *Int J Syst Evol Microbiol* **2018**, *68*,

3266–3272.

■ ■ ■

- [12] Nakagawa, Y.; Hamana, K.; Sakane, T.; Yamamoto, K. *Int J Syst Bacteriol* **1997**, *47*, 220–223.

■ ■ □

- [13] Wirth, J. S.; Whitman, W. B. *Int J Syst Evol Microbiol* **2018**, *68*, 2393–2411.

■ ■ □

- [14] Holmes, B.; Steigerwalt, A. G.; Weaver, R. E.; Brenner, D. J. *Int J Syst Bacteriol* **1987**, *37*, 245–250.

■ ■ □

- [15] Holmes, B.; Weaver, R. E.; Steigerwalt, A. G.; Brenner, D. J. *Int J Syst Bacteriol* **1988**, *38*, 348–

353.
■ ■ □
- [16] Carlier, J.-P.; Bedora-Faure, M.; K'ouas, G.; Alauzet, C.; Mory, F. *Int J Syst Evol Microbiol* **2010**, *60*, 585–590.
■ ■ □
- [17] Brown, A.; Garrity, G. M.; Vickers, R. M. *Int J Syst Bacteriol* **1981**, *31*, 111–115.
■ ■ □
- [18] Larson, M. A.; Nalbantoglu, U.; Sayood, K.; Zentz, E. B.; Cer, R. Z.; Iwen, P. C.; Francesconi, S. C.; Bishop-Lilly, K. A.; Mokashi, V. P.; Sjöstedt, A.; Hinrichs, S. H. *Int J Syst Evol Microbiol* **2016**, *66*, 1200–1205.
■ ■ ■
- [19] Stephan, R.; Grim, C. J.; Gopinath, G. R.; Mammel, M. K.; Sathyamoorthy, V.; Trach, L. H.; Chase, H. R.; Fanning, S.; Tall, B. D. *Int J Syst Evol Microbiol* **2014**, *64*, 3402–3410.
■ ■ □
- [20] Endo, A.; Okada, S. *Int J Syst Evol Microbiol* **2008**, *58*, 2195–2205.
■ ■ ■
- [21] De Witte, C.; Flahou, B.; Ducatelle, R.; Smet, A.; De Bruyne, E.; Cnockaert, M.; Taminiau, B.; Daube, G.; Vandamme, P.; Haesebrouck, F. *Syst Appl Microbiol* **2017**, *40*, 42–50.
■ ■ ■

8 G

Gallibacterium anatis[†]

← *Pasteurella anatis*¹

Gardnerella vaginalis[†]

← *Haemophilus vaginalis*²

Gemella morbillorum

← *Streptococcus morbillorum*³

Gemmobacter aquaticus

← *Catellibacterium aquatile*⁴

Gemmobacter caeni

← *Catellibacterium caeni*⁴

Gemmobacter changlensis

← *Catellibacterium changlense*⁴

Gemmobacter nanjingensis

← *Catellibacterium nanjingense*⁴

Gemmobacter nectariphilus

← *Catellibacterium nectariphilum*⁴

Geobacillus caldoxylosilyticus

← *Saccharococcus caldoxylosilyticus*⁵

Geobacillus kaustophilus

← *Bacillus kaustophilus*⁶

Geobacillus pallidus

← *Bacillus pallidus*⁷

Geobacillus stearothermophilus[†]

← *Bacillus stearothermophilus*⁶

Geobacillus thermantarcticus

← *Bacillus thermantarcticus*⁸

Geobacillus thermocatenulatus

← *Bacillus thermocatenulatus*⁶

Geobacillus thermodenitrificans
← *Bacillus thermodenitrificans*⁶

Geobacillus thermoglucosidasius
← *Bacillus thermoglucosidasius*⁶

Geobacillus thermoleovorans
← *Bacillus thermoleovorans*⁶

Geobacillus vulcani
← *Bacillus vulcani*⁹

Geobacter thiogenes
← *Trichlorobacter thiogenes*¹⁰

Giesbergeria anulus
← *Aquaspirillum anulus*¹¹

Giesbergeria giesbergeri
← *Aquaspirillum giesbergeri*¹¹

Giesbergeria sinuosa
← *Aquaspirillum sinuosum*¹¹

Gimesia maris[†]

← *Planctomyces maris*¹²

Glaciimonas alpina
← *Glaciimonas immobilis*¹³

Gleimia coleocanis
← *Actinomyces coleocanis*¹⁴

Gleimia europaea[†]
← *Actinomyces europaeus*¹⁴

Gleimia hominis
← *Actinomyces hominis*¹⁴

Gluconacetobacter intermedius
← *Acetobacter intermedius*¹⁵

Gluconacetobacter oboediens
← *Acetobacter oboediens*¹⁵

Glutamicibacter endophyticus
← *Arthrobacter endophyticus*¹⁶

Gordonia aichiensis
← *Rhodococcus aichiensis*¹⁷

Gordonia amarae
← *Nocardia amarae*^{17,18}

Gottschalkia acidurici[†]
← *Clostridium acidurici*¹⁹

Gottschalkia purinilytica
← *Clostridium purinilyticum*¹⁹

Gracilibacillus dipsosauri
← *Bacillus dipsosauri*²⁰

Granulicatella adiacens[†]
← *Granulicatella adiacens*²¹

Granulicatella balaenopterae
← *Granulicatella balaenopterae*²¹

Granulicatella elegans
← *Granulicatella elegans*²¹

Grimontia hollisae[†]
← *Vibrio hollisae*²²

Gryllotalpicola ginsengisoli

← *Curtobacterium ginsengisoli*²³

Gulosibacter bifidus
← *Zimmermannella bifida*¹⁴

Gulosibacter faecalis
← *Zimmermannella faecalis*¹⁴

Guyparkeria halophila
← *Halothiobacillus halophilus*²⁴

Guyparkeria hydrothermalis
← *Halothiobacillus hydrothermalis*²⁴

References

- [1] Christensen, H.; Bisgaard, M.; Bojesen, A. M.; Mutters, R.; Olsen, J. E. *Int J Syst Evol Microbiol* 2003, 53, 275–287.
- ■ ■
- [2] Greenwood, J. R.; Pickett, M. J. *Int J Syst Bact-*

teriol **1980**, *30*, 170–178.

■ ■ □

- [3] Kilpper-Bälz, R.; Schleifer, K. H. *Int J Syst Bacteriol* **1988**, *38*, 442–443.

■ ■ □

- [4] Chen, W.-M.; Cho, N.-T.; Huang, W.-C.; Young, C.-C.; Sheu, S.-Y. *Int J Syst Evol Microbiol* **2013**, *63*, 470–478.

■ ■ ■

- [5] Fortina, M. G.; Mora, D.; Schumann, P.; Parini, C.; Manachini, P. L.; Stackebrandt, E. *Int J Syst Evol Microbiol* **2001**, *51*, 2063–2071.

■ ■ ■

- [6] Nazina, T. N.; Tourova, T. P.; Polta-
raus, A. B.; Novikova, E. V.; Grigoryan, A. A.;

Ivanova, A. E.; Lysenko, A. M.; Petrunyaka, V. V.; Osipov, G. A.; Belyaev, S. S.; Ivanov, M. V. *Int J Syst Evol Microbiol* **2001**, *51*, 433–446.

■ ■ ■

- [7] Banat, I. M.; Marchant, R.; Rahman, T. J. *Int J Syst Evol Microbiol* **2004**, *54*, 2197–2201.

■ ■ ■

- [8] Coorevits, A.; Dinsdale, A. E.; Halket, G.; Lebbe, L.; De Vos, P.; Van Landschoot, A.; Logan, N. A. *Int J Syst Evol Microbiol* **2012**, *62*, 1470–1485.

■ ■ ■

- [9] Nazina, T. N.; Lebedeva, E. V.; Polta-
raus, A. B.; Tourova, T. P.; Grigoryan, A. A.;
Sokolova, D. S.; Lysenko, A. M.; Osipov, G. A.

■ ■ ■

- [10] Nevin, K. P.; Holmes, D. E.; Woodard, T. L.; Covalla, S. F.; Lovley, D. R. *Int J Syst Evol Microbiol* **2007**, *57*, 463–466.

■ ■ ■

- [11] Grabovich, M.; Gavrish, E.; Kuever, J.; Lysenko, A. M.; Podkopaeva, D.; Dubinina, G. *Int J Syst Evol Microbiol* **2006**, *56*, 569–576.

■ ■ □

- [12] Scheuner, C. et al. *Stand Genomic Sci* **2014**, *9*, 10.

■ ■ □

- [13] Frasson, D.; Udovičić, M.; Frey, B.; Lanpanje, A.; Zhang, D.-C.; Margesin, R.; Sievers, M. *Int J Syst Evol Microbiol* **2015**, *65*, 1779–

1785.

■ ■ ■

- [14] Nouiou, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyriopoulos, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*, 2007.

■ ■ □

- [15] Yamada, Y. *Int J Syst Evol Microbiol* **2000**, *50*, 2225–2227.

■ ■ ■

- [16] Busse, H.-J.; Schumann, P. *Int J Syst Evol Microbiol* **2019**, *69*, 1057–1059.

■ ■ ■

- [17] Klatte, S.; Rainey, F. A.; Kroppenstedt, R. M.

Int J Syst Bacteriol **1994**, *44*, 769–773.

■ ■ ■

- [18] Ruimy, R.; Boiron, P.; Boivin, V.; Christen, R. *FEMS Microbiol Lett* **1994**, *123*, 261–267.

■ ■ ■

- [19] Poehlein, A.; Yutin, N.; Daniel, R.; Galperin, M. Y. *Int J Syst Evol Microbiol* **2017**, *67*, 2711–2719.

■ ■ ■

- [20] Wainø, M.; Tindall, B. J.; Schumann, P.; Ingvorsen, K. *Int J Syst Bacteriol* **1999**, *49*, 821–831.

■ ■ □

- [21] Collins, M. D.; Lawson, P. A. *Int J Syst Evol Microbiol* **2000**, *50*, 365–369.

■ ■ ■

- [22] Thompson, F. L.; Hoste, B.; Vandemeulebroecke, K.; Swings, J. *Int J Syst Evol Microbiol* **2003**, *53*, 1615–1617.

■ ■ ■

- [23] Kim, H.; Park, D.-S.; Oh, H.-W.; Lee, K. H.; Chung, D.-H.; Park, H.-Y.; Park, H.-M.; Bae, K. S. *Int J Syst Evol Microbiol* **2012**, *62*, 2363–2370.

■ ■ ■

- [24] Boden, R. *Int J Syst Evol Microbiol* **2017**, *67*, 3919–3928.

■ ■ ■

9 H

Haematobacter massiliensis

← Rhodobacter massiliensis¹

Haematicrobium sanguinis[†]

← Arthrobacter sanguinis²

Haemophilus actinomycetemcomitans

← Actinobacillus actinomycetemcomitans³

Halobacillus halophilus[†]

← Sporosarcina halophila⁴

Halobacteriovorax litoralis

← Bacteriovorax litoralis⁵

Halobacteriovorax marinus[†]

← Bacteriovorax marinus⁵

Halochromatium glycolicum

← Chromatium glycolicum⁶

Halochromatium salexigens[†]

← Chromatium salexigens⁶

Halodesulfovibrio marinisediminis

← Desulfovibrio marinisediminis⁷

Halodesulfovibrio oceanii

← Desulfovibrio oceanii⁷

Haloechinothrix halophila

← Amycolatopsis halophila⁸

Haloechinothrix salitolerans

← Amycolatopsis salitolerans⁸

Halomonas eurihalina

← Volcaniella eurihalina⁹

Halopolyspora algeriensis

← Mzabimyces algeriensis¹⁰

Halothiobacillus halophilus
← Thiobacillus halophilus¹¹

Halothiobacillus hydrothermalis
← Thiobacillus hydrothermalis¹¹

Halothiobacillus neapolitanus[†]
← Thiobacillus neapolitanus¹¹

Hamadaea tsunoensis[†]
← Catellatospora tsunoense¹²

Helicobacter mustelae
← Campylobacter mustelae¹³

Helicobacter pylori[†]
← Campylobacter pylori¹³

Henriciella aquimarina
← Maribaculum marinum¹⁴

Herbaspirillum autotrophicum
← Aquaspirillum autotrophicum¹⁵

Herbaspirillum huttense

← Pseudomonas huttiensis¹⁵

Herbaspirillum rubrisubalbicans
← Pseudomonas rubrisubalbicans¹⁶

Herbiconiux ginsengi[†]
← Leifsonia ginsengi¹⁷

Herbidospora cretacea
← Streptosporangium claviforme¹⁸

Herbidospora mongoliensis
← Herbidospora osyris¹⁹

← Streptosporangium claviforme¹⁹

Hoeflea marina[†]
← Agrobacterium ferrugineum²⁰

Holdemanella biformis[†]
← Eubacterium biforme²¹

Hoyosella subflava
← Amycolacicoccus subflavus²²

Hungateiclostridium aldrichii

← *Clostridium aldrichii*²³

Hungateiclostridium alkalicellulosi

← *Clostridium alkalicellulosi*²³

Hungateiclostridium cellulolyticum

← *Acetivibrio cellulolyticus*²³

Hungateiclostridium clariflavum

← *Clostridium clariflavum*²³

Hungateiclostridium saccincola

← *Herbivorax saccincola*²³

Hungateiclostridium straminisolvans

← *Clostridium straminisolvans*²³

Hungateiclostridium thermocellum[†]

← *Clostridium thermocellum*²³

Hungatella hathewayi

← *Clostridium hathewayi*²⁴

Hydrogenibacillus schlegelii[†]

← *Bacillus schlegelii*²⁵

Hydrogenobacter hydrogenophilus

← *Calderobacterium hydrogenophilum*²⁶

Hydrogenobaculum acidophilum[†]

← *Hydrogenobacter acidophilus*²⁶

Hydrogenophaga flava[†]

← *Pseudomonas flava*²⁷

Hydrogenophaga palleronii

← *Pseudomonas palleronii*²⁷

Hydrogenophaga pseudoflava

← *Pseudomonas pseudoflava*²⁷

Hydrogenophaga taeniospiralis

← *Pseudomonas taeniospiralis*²⁷

Hydrogenovibrio crunogenus

← *Thiomicrospira crunogena*²⁸

Hydrogenovibrio halophilus

← *Thiomicrospira halophila*²⁸

Hydrogenovibrio kuenenii

- ← Thiomicrospira kuenenii²⁸
- Hydrogenovibrio thermophilus**
- ← Thiomicrospira thermophila²⁸
- Hylemonella gracilis[†]**
- ← Aquaspirillum gracile²⁹
- Hypomonas neptunium**
- ← Hyphomicrobium neptunium³⁰

References

[1] Helsel, L. O.; Hollis, D.; Steigerwalt, A. G.; Morey, R. E.; Jordan, J.; Aye, T.; Radosevic, J.; Jannat-Khah, D.; Thiry, D.; Lonsway, D. R.; Patel, J. B.; Daneshvar, M. I.; Levett, P. N. *J Clin Microbiol* **2007**, *45*, 1238–1243.



[2] Schumann, P.; Busse, H.-J. *Int J Syst Evol Mi-*

crobiol **2017**, *67*, 1052–1057.



[3] Potts, T. V.; Zambon, J. J.; Genco, R. J. *Int J Syst Bacteriol* **1985**, *35*, 337–341.



[4] Spring, S.; Ludwig, W.; Marquez, M. C.; Ventosa, A.; Schleifer, K.-H. *Int J Syst Bacteriol* **1996**, *46*, 492–496.



[5] Koval, S. F.; Williams, H. N.; Stine, O. C. *Int J Syst Evol Microbiol* **2015**, *65*, 593–597.



[6] Imhoff, J. F.; Süling, J.; Petri, R. *Int J Syst Bacteriol* **1998**, *48*, 1129–1143.



- [7] Shivani, Y.; Subhash, Y.; Sasikala, C.; Ramanan, C. V. *Int J Syst Evol Microbiol* **2017**, *67*, 87–93.
- ■ ■
- [8] Nouiou, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyrpides, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*, 2007.
- ■ □
- [9] Mellado, E.; Moore, E. R. B.; Nieto, J. J.; Ventosa, A. *Int J Syst Bacteriol* **1995**, *45*, 712–716.
- ■ ■
- [10] Lai, H.; Jiang, Y.; Saker, R.; Chen, X.; Bouras, N.; Klenk, H.-P.; Wei, X.; Jiang, Y.; Sabaou, N. *Int J Syst Evol Microbiol* **2017**, *67*, 2787–2790.
- ■ ■
- [11] Kelly, D. P.; Wood, A. P. *Int J Syst Evol Microbiol* **2000**, *50*, 511–516.
- ■ □
- [12] Ara, I.; Bakir, M. A.; Kudo, T. *Int J Syst Evol Microbiol* **2008**, *58*, 1950–1960.
- ■ ■
- [13] Goodwin, C. S.; Armstrong, J. A.; Chilvers, T.; Peters, M.; Collins, M. D.; Sly, L.; McConnell, W.; Harper, W. E. S. *Int J Syst Bacteriol* **1989**, *39*, 397–405.
- ■ □
- [14] Lee, S. H.; Shim, J. K.; Kim, J. M.; Choi, H.-K.; Jeon, C. O. *Int J Syst Evol Microbiol* **2011**, *61*,

722–727.

■ ■ ■

- [15] Ding, L.; Yokota, A. *Int J Syst Evol Microbiol* **2004**, *54*, 2223–2230.

■ ■ ■

- [16] Baldani, J. I.; Pot, B.; Kirchhof, G.; Falsen, E.; Baldani, V. L. D.; Olivares, F. L.; Hoste, B.; Kersters, K.; Hartmann, A.; Gillis, M.; Döbereiner, J. *Int J Syst Bacteriol* **1996**, *46*, 802–810.

■ ■ ■

- [17] Behrendt, U.; Schumann, P.; Hamada, M.; Suzuki, K.-i.; Spröer, C.; Ulrich, A. *Int J Syst Evol Microbiol* **2011**, *61*, 1039–1047.

■ ■ ■

- [18] Boondaeng, A.; Suriyachadkun, C.;

Ishida, Y.; Tamura, T.; Tokuyama, S.; Kitpreechavanich, V. *Int J Syst Evol Microbiol* **2011**, *61*, 777–780.

■ ■ ■

- [19] Ara, I.; Tsetseg, B.; Daram, D.; Suto, M.; Ando, K. *Int J Syst Evol Microbiol* **2012**, *62*, 2322–2329.

■ ■ ■

- [20] Peix, A.; Rivas, R.; Trujillo, M. E.; Vancanneyt, M.; Velázquez, E.; Willems, A. *Int J Syst Evol Microbiol* **2005**, *55*, 1163–1166.

■ ■ ■

- [21] De Maesschalck, C.; Van Immerseel, F.; Eeckhaut, V.; De Baere, S.; Cnockaert, M.; Croubels, S.; Haesebrouck, F.; Ducatelle, R.; Vandamme, P. *Int J Syst Evol Microbiol* **2014**,

64, 3877–3884.



- [22] Hamada, M.; Shibata, C.; Sakurai, K.; Hosoyama, A.; Oji, S.; Teramoto, K.; Tamura, T. *Int J Syst Evol Microbiol* **2016**, *66*, 4711–4715.



- [23] Zhang, X.; Tu, B.; Dai, L.-r.; Lawson, P. A.; Zheng, Z.-z.; Liu, L.-Y.; Deng, Y.; Zhang, H.; Cheng, L. *Int J Syst Evol Microbiol* **2018**, *68*, 3197–3211.



- [24] Kaur, S.; Yawar, M.; Kumar, P. A.; Suresh, K. *Int J Syst Evol Microbiol* **2014**, *64*, 710–718.



- [25] Kämpfer, P.; Glaeser, S. P.; Busse, H.-J. *Int J*

Syst Evol Microbiol **2013**, *63*, 1723–1727.



- [26] Stöhr, R.; Waberski, A.; Völker, H.; Tindall, B. J.; Thomm, M. *Int J Syst Evol Microbiol* **2001**, *51*, 1853–1862.



- [27] Willems, A.; Busse, J.; Goor, M.; Pot, B.; Falsen, E.; Jantzen, E.; Hoste, B.; Gillis, M.; Kersters, K.; Auling, G.; De Ley, J. *Int J Syst Bacteriol* **1989**, *39*, 319–333.



- [28] Boden, R.; Scott, K. M.; Williams, J.; Russell, S.; Antonen, K.; Rae, A. W.; Hutt, L. P. *Int J Syst Evol Microbiol* **2017**, *67*, 1140–1151.



- [29] Spring, S.; Jäckel, U.; Wagner, M.; Kämpfer, P.

Int J Syst Evol Microbiol **2004**, *54*, 99–106.

■ ■ ■

- [30] Moore, R. L.; Weiner, R. M.; Gebers, R. *Int J Syst Bacteriol* **1984**, *34*, 71–73.

■ ■ □

10 I

Idiomarina aestuarii

← *Pseudidiomarina aestuarii*¹

Idiomarina donghaiensis

← *Pseudidiomarina donghaiensis*²

Idiomarina marina

← *Pseudidiomarina marina*²

Idiomarina maritima

← *Pseudidiomarina maritima*²

Idiomarina sediminum

← *Pseudidiomarina sediminum*²

Idiomarina tainanensis

← *Pseudidiomarina tainanensis*²

Idiomarina taiwanensis

← *Pseudidiomarina taiwanensis*²

Imhoffiella bheemlica

← *Thiorhodococcus bheemlicus*³

***Insolitispirillum peregrinum*[†]**

← *Aquaspirillum peregrinum*⁴

***Intestinibacter bartlettii*[†]**

← *Clostridium bartlettii*⁵

Intrasporangium flavum

← *Monashia flava*[†]⁶

Intrasporangium oryzae

← *Humihabitans oryzae*⁷

***Iodobacter fluviatilis*[†]**

← *Chromobacterium fluviatile*⁸

***Isochromatium buderi*[†]**

← *Chromatium buderi*⁹

Isoptericola variabilis[†]

← Cellulosimicrobium variabile¹⁰

References

- [1] Wang, L.; Lai, Q.; Fu, Y.; Chen, H.; Wang, W.; Wang, J.; Sun, F.; Shao, Z. *Int J Syst Evol Microbiol* **2011**, *61*, 969–973.

■ ■ ■

- [2] Taborda, M.; Antunes, A.; Tiago, I.; Veríssimo, A.; Nobre, M. F.; da Costa, M. S. *Syst Appl Microbiol* **2009**, *32*, 371–378.

■ ■ ■

- [3] Nupur, N.; Saini, M. K.; Singh, P. K.; Korpole, S.; Srinivas Tanuku, N. R.; Takaichi, S.; Pinnaka, A. K. *Int J Syst Evol Microbiol* **2017**,

67, 1949–1956.

■ ■ ■

- [4] Yoon, J.-H.; Kang, S.-J.; Park, S.; Lee, S.-Y.; Oh, T.-K. *Int J Syst Evol Microbiol* **2007**, *57*, 2830–2835.

■ ■ ■

- [5] Gerritsen, J.; Fuentes, S.; Grievink, W.; van Niftrik, L.; Tindall, B. J.; Timmerman, H. M.; Rijkers, G. T.; Smidt, H. *Int J Syst Evol Microbiol* **2014**, *64*, 1600–1616.

■ ■ □

- [6] Nouiou, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyriopoulos, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*,

2007.

■ ■ □

- [7] Yang, L.-L.; Ao, T.; Wang, X.-H.; He, J.; Klenk, H.-P.; Tang, S.-K.; Li, W.-J. *Int J Syst Evol Microbiol* **2012**, *62*, 1037–1041.

■ ■ ■

- [8] Logan, N. A. *Int J Syst Bacteriol* **1989**, *39*, 450–456.

■ ■ □

- [9] Imhoff, J. F.; Süling, J.; Petri, R. *Int J Syst Bacteriol* **1998**, *48*, 1129–1143.

■ ■ □

- [10] Stackebrandt, E.; Schumann, P.; Cui, X.-L. *Int J Syst Evol Microbiol* **2004**, *54*, 685–688.

■ ■ ■

11 J

Jeotgalibacillus campisalis

← Marinibacillus campisalis¹

Jeotgalibacillus marinus

← Marinibacillus marinus¹

Jonesia denitrificans[†]

← Listeria denitrificans²

Jongsikchunia kroppenstedtii[†]

← Gordonia kroppenstedtii³

References

- [1] Yoon, J.-H.; Kang, S.-J.; Schumann, P.; Oh, T.-K. *Int J Syst Evol Microbiol* **2010**, *60*, 15–20.

■ ■ ■

- [2] Rocourt, J.; Wehmeyer, U.; Stackebrandt, E. *Int J Syst Bacteriol* **1987**, *37*, 266–270.

■ ■ □

- [3] Nouiou, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyriopoulos, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*, 2007.

■ ■ □

12 K

Kandleria vitulina[†]

← *Lactobacillus vitulinus*¹

Kingella kingae[†]

← *Moraxella kingae*²

Kitasatospora atroaurantiaca

← *Streptomyces atroaurantiacus*³

Kitasatospora indigofera

← *Streptomyces indigoferus*⁴

Kitasatospora kifunensis

← *Streptomyces kifunensis*⁵

Kitasatospora xanthocidica

← *Streptomyces xanthocidicus*⁴

Klebsiella aerogenes

← *Klebsiella mobilis*⁶

Klebsiella granulomatis

← *Calymmatobacterium granulomatis*⁷

Klenkia brasiliensis

← *Geodermatophilus brasiliensis*⁸

Klenkia soli

← *Geodermatophilus soli*⁸

Klenkia taihuensis

← *Geodermatophilus taihuensis*⁸

Klenkia terrae

← *Geodermatophilus terrae*⁸

Kluyvera intermedia

← *Enterobacter intermedium*⁹

← *Kluyvera cochleae*⁹

Knoellia remsis

← *Tetrasphaera remsis*⁴

Komagataeibacter europaeus

← *Acetobacter europaeus*¹⁰

Komagataeibacter hansenii

← *Acetobacter hansenii*¹⁰

← *Komagataeibacter kombuchae*¹¹

Komagataeibacter intermedius

← *Acetobacter intermedius*¹⁰

Komagataeibacter kakiaceti

← *Gluconacetobacter kakiaceti*¹²

Komagataeibacter kombuchae

← *Gluconacetobacter kombuchae*¹⁰

Komagataeibacter maltaceti

← *Gluconacetobacter maltaceti*¹²

Komagataeibacter medellinensis

← *Gluconacetobacter medellinensis*¹²

Komagataeibacter nataicola

← *Gluconacetobacter nataicola*¹⁰

Komagataeibacter oboediens

← *Acetobacter oboediens*¹⁰

Komagataeibacter rhaeticus

← *Gluconacetobacter rhaeticus*¹⁰

Komagataeibacter saccharivorans

← *Gluconacetobacter saccharivorans*¹⁰

Komagataeibacter swingsii

← *Gluconacetobacter swingsii*¹⁰

***Komagataeibacter xylinus*[†]**

← *Acetobacter xylinus*¹⁰

Kosakonia arachidis

← *Enterobacter arachidis*¹³

***Kosakonia cowanii*[†]**

← *Enterobacter cowanii*¹³

Kosakonia oryzae

← *Enterobacter oryzae*¹³

Kosakonia oryzendophytica
← Enterobacter oryzendophyticus¹⁴

Kosakonia oryziphila
← Enterobacter oryziphilus¹⁴

Kosakonia radicincitans
← Enterobacter radicincitans¹³

Kosakonia sacchari
← Enterobacter sacchari¹⁵

Kosmotoga shengliensis
← Thermococcoides shengliensis¹⁶

Krasilnikoviella flava
← Promicromonospora flava¹⁷

Kribbella koreensis
← Hongia koreensis¹⁸

Kushneria avicenniae
← Halomonas avicenniae¹⁹

Kushneria indalinina

← Halomonas indalinina¹⁹

Kushneria marisflavi
← Halomonas marisflavi¹⁹

Kutzneria albida
← Streptosporangium albidum²⁰

Kutzneria viridogrisea[†]
← Streptosporangium viridogriseum²⁰

Kyridia tusciae[†]
← Bacillus tusciae²¹

References

- [1] Salvetti, E.; Felis, G. E.; Dellaglio, F.; Castioni, A.; Torriani, S.; Lawson, P. A. *Int J Syst Evol Microbiol* **2011**, *61*, 2520–2524.

■ ■ ■

- [2] Henriksen, S. D.; Bøvre, K. *Int J Syst Bacteriol*

- 1976, 26, 447–450.
■ ■ □
- [3] Li, B.; Furihata, K.; Kudo, T.; Yokota, A. *J Gen Appl Microbiol* 2009, 55, 19–26.
■ ■ ■
- [4] Nouiou, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyripides, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* 2018, 9, 2007.
■ ■ □
- [5] Groth, I.; Schütze, B.; Boettcher, T.; Pullen, C. B.; Rodriguez, C.; Leistner, E.; Goodfellow, M. *Int J Syst Evol Microbiol* 2003, 53, 2033–2040.
■ ■ ■
- [6] Tindall, B. J.; Sutton, G.; Garrity, G. M. *Int J Syst Evol Microbiol* 2017, 67, 502–504.
■ ■ ■
- [7] Carter, J. S.; Bowden, F. J.; Bastian, I.; Myers, G. M.; Sriprakash, K. S.; Kemp, D. J. *Int J Syst Bacteriol* 1999, 49, 1695–1700.
■ ■ ■
- [8] Montero-Calasanz, M. d. C.; Meier-Kolthoff, J. P.; Zhang, D.-F.; Yaramis, A.; Rohde, M.; Woyke, T.; Kyripides, N. C.; Schumann, P.; Li, W.-J.; Göker, M. *Front Microbiol* 2017, 8, 2501.
■ ■ ■
- [9] Pavan, M. E.; Franco, R. J.; Rodriguez, J. M.; Gadaleta, P.; Abbott, S. L.; Janda, J. M.; Zorzópolos, J. *Int J Syst Evol Microbiol* 2005,

55, 437–442.



- [10] Yamada, Y.; Yukphan, P.; Vu, H. T. L.; Muramatsu, Y.; Ochaikul, D.; Tanasupawat, S.; Nakagawa, Y. *J Gen Appl Microbiol* **2012**, *58*, 397–404.



- [11] Škraban, J.; Cleenwerck, I.; Vandamme, P.; Fannedl, L.; Trček, J. *Syst Appl Microbiol* **2018**, *41*, 581–592.



- [12] Yamada, Y. *Int J Syst Evol Microbiol* **2014**, *64*, 1670–1672.



- [13] Brady, C.; Cleenwerck, I.; Venter, S.; Coutinho, T.; De Vos, P. *Syst Appl Microbiol*

2013, *36*, 309–319.



- [14] Li, C. Y.; Zhou, Y. L.; Ji, J.; Gu, C. T. *Int J Syst Evol Microbiol* **2016**, *66*, 2780–2783.



- [15] Gu, C. T.; Li, C. Y.; Yang, L. J.; Huo, G. C. *Int J Syst Evol Microbiol* **2014**, *64*, 2650–2656.



- [16] Nunoura, T.; Hirai, M.; Imachi, H.; Miyazaki, M.; Makita, H.; Hirayama, H.; Furushima, Y.; Yamamoto, H.; Takai, K. *Arch Microbiol* **2010**, *192*, 811–819.



- [17] Nishijima, M.; Tazato, N.; Handa, Y.; Umekawa, N.; Kigawa, R.; Sano, C.; Sugiyama, J. *Int J Syst Evol Microbiol* **2017**,

67, 294–300.

■ ■ ■

- [18] Sohn, K.; Hong, S. G.; Bae, K. S.; Chun, J. *Int J Syst Evol Microbiol* **2003**, *53*, 1005–1007.

■ ■ ■

- [19] Sánchez-Porro, C.; de la Haba, R. R.; Soto-Ramírez, N.; Márquez, M. C.; Montalvo-Rodríguez, R.; Ventosa, A. *Int J Syst Evol Microbiol* **2009**, *59*, 397–405.

■ ■ ■

- [20] Stackebrandt, E.; Kroppenstedt, R. M.; Jahnke, K.-D.; Kemmerling, C.; Gürtler, H. *Int J Syst Bacteriol* **1994**, *44*, 265–269.

■ ■ □

- [21] Klenk, H.-P. et al. *Stand Genomic Sci* **2011**, *5*,

121.

■ ■ ■

13 L

Labilibacter marinus

← *Saccharicrinis marinus*¹

Labrenzia aggregata

← *Stappia aggregata*²

Labrenzia alba

← *Stappia alba*²

Labrenzia marina

← *Stappia marina*²

Laceyella tengchongensis

← *Laceyella sediminis*³

Lachnoanaerobaculum saburreum

← *Eubacterium saburreum*⁴

Lacinutrix iliipiscaria

← *Flavirhabdus iliipiscaria*⁵

Lactobacillus dextrinicus

← *Pediococcus dextrinicu*s⁶

Lactobacillus metriopterae

← *Lactobacillus terrae*⁷

Lactobacillus selangorensis

← *Paralactobacillus selangorensis*⁸

Lactococcus garvieae

← *Streptococcus garvieae*⁹

Lactococcus lactis[†]

← *Streptococcus lactis*⁹

Lactococcus plantarum

← *Streptococcus plantarum*⁹

Lactococcus raffinolactis

← *Streptococcus raffinolactis*⁹

Lactosphaera pasteurii [†]	← Clavibacter xyli ¹⁶
← Ruminococcus pasteurii ¹⁰	
Lamprocystis purpurea	Leisingera aquaemixtae
← Pfennigia purpurea ¹¹	← Phaeobacter aquaemixtae ¹⁷
Lancefieldella parvula [†]	Leisingera caerulea
← Atopobium parvulum ¹²	← Phaeobacter caeruleus ¹⁷
Lancefieldella rimae	Leisingera daeponensis
← Atopobium rimae ¹²	← Phaeobacter daeponensis ¹⁷
Leclercia adecarboxylata [†]	Lelliottia amnigena
← Escherichia adecarboxylata ¹³	← Enterobacter amnigenus ¹⁸
Leeuwenhoekella marinoflava [†]	Lelliottia jeotgali
← Cytophaga marinoflava ¹⁴	← Lelliottia aquatilis ¹⁹
Legionella lytica	Lelliottia nimipressuralis [†]
← Sarcobium lyticum ¹⁵	← Enterobacter nimipressuralis ¹⁸
Leifsonia aquatica [†]	Lentzea aerocolonigenes
← Corynebacterium aquaticum ¹⁶	← Lechevalieria aerocolonigenes ^{† 12}
Leifsonia xyli	Lentzea atacamensis
	← Lechevalieria atacamensis ¹²

Lentzea deserti	← Lechevalieria deserti ¹²	← Herpetosiphon nigricans ²¹
Lentzea flava	← Lechevalieria flava ¹²	Lewinella persica
Lentzea fradiae	← Lechevalieria fradiae ¹²	← Herpetosiphon persicus ²¹
Lentzea nigeriaca	← Lechevalieria nigeriaca ¹²	Limimarincola aestuariicola
Lentzea roselynae	← Lechevalieria roselynae ¹²	← Loktanella aestuariicola ²²
Lentzea xinjiangensis	← Lechevalieria xinjiangensis ¹²	Limimarincola cinnabarinus
Leuconostoc fructosum	← Lactobacillus fructosus ²⁰	← Loktanella cinnabarinus ²²
Lewinella cohaerens[†]	← Herpetosiphon cohaerens ²¹	Limimarincola hongkongensis[†]
Lewinella nigricans		← Loktanella hongkongensis ²²
		Limimarincola pyoseonensis
		← Loktanella pyoseonensis ²²
		Limimarincola soekkakensis
		← Loktanella soekkakensis ²²
		Limimarincola variabilis
		← Loktanella variabilis ²²
		Litoreibacter arenae
		← Thalassobacter arenae ²³

Lonsdalea quercina[†]

← *Brenneria quercina*²⁴

Luteibacter yeojuensis

← *Dyella yeojuensis*²⁵

Lutimaribacter pacificus

← *Oceanicola pacificus*²⁶

Lutimonas saemankumensis

← *Aestuariicola saemankumensis*²⁷

Lysinibacillus fusiformis

← *Bacillus fusiformis*²⁸

Lysinibacillus massiliensis

← *Bacillus massiliensis*²⁹

Lysinibacillus odysseyi

← *Bacillus odysseyi*²⁹

Lysinibacillus sphaericus

← *Bacillus sphaericus*²⁸

Lysinimonas kribbensis

← *Leifsonia kribbensis*³⁰

Lysobacter tolerans

← *Luteimonas tolerans*³¹

References

- [1] Lu, D.-C.; Zhao, J.-X.; Wang, F.-Q.; Xie, Z.-H.; Du, Z.-J. *Int J Syst Evol Microbiol* **2017**, *67*, 441–446.

■ ■ ■

- [2] Biebl, H.; Pukall, R.; Lünsdorf, H.; Schulz, S.; Allgaier, M.; Tindall, B. J.; Wagner-Döbler, I. *Int J Syst Evol Microbiol* **2007**, *57*, 1095–1107.

■ ■ ■

- [3] Jiang, Z.; Xiao, M.; Yang, L.-L.; Zhi, X.-Y.; Li, W.-J. *Int J Syst Evol Microbiol* **2019**, *69*,

2028–2036.



- [4] Hedberg, M. E.; Moore, E. R. B.; Svensson-Stadler, L.; Hörstedt, P.; Baranov, V.; Hernell, O.; Wai, S. N.; Hammarström, S.; Hammarström, M.-L. *Int J Syst Evol Microbiol* **2012**, *62*, 2685–2690.



- [5] Nedashkovskaya, O. I.; Kim, S.-G.; Zhukova, N. V.; Lee, J.-S.; Mikhailov, V. V. *Int J Syst Evol Microbiol* **2016**, *66*, 4339–4346.



- [6] Haakensen, M.; Dobson, C. M.; Hill, J. E.; Ziola, B. *Int J Syst Evol Microbiol* **2009**, *59*, 615–621.



- [7] Zhao, W.; Gu, C. T. *Int J Syst Evol Microbiol* **2019**, *69*, 1597–1600.



- [8] Haakensen, M.; Pittet, V.; Ziola, B. *Int J Syst Evol Microbiol* **2011**, *61*, 2979–2983.



- [9] Schleifer, K. H.; Kraus, J.; Dvorak, C.; Kilpper-Bälz, R.; Collins, M. D.; Fischer, W. *Syst Appl Microbiol* **1985**, *6*, 183–195.



- [10] Janssen, P. H.; Evers, S.; Rainey, F. A.; Weiss, N.; Ludwig, W.; Harfoot, C. G.; Schink, B. *Int J Syst Bacteriol* **1995**, *45*, 565–571.



- [11] Imhoff, J. F. *Int J Syst Evol Microbiol* **2001**, *51*,

1699–1701.



- [12] Nouiouï, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyrpides, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*, 2007.



- [13] Tamura, K.; Sakazaki, R.; Kosako, Y.; Yoshizaki, E. *Curr Microbiol* **1986**, *13*, 179–184.



- [14] Nedashkovskaya, O. I.; Vancanneyt, M.; Dawyndt, P.; Engelbeen, K.; Vandemeulebroecke, K.; Cleenwerck, I.; Hoste, B.; Mergaert, J.; Tan, T.-L.; Frolova, G. M.;

Mikhailov, V. V.; Swings, J. *Int J Syst Evol Microbiol* **2005**, *55*, 1033–1038.



- [15] Hookey, J. V.; Saunders, N. A.; Fry, N. K.; Birtles, R. J.; Harrison, T. G. *Int J Syst Bacteriol* **1996**, *46*, 526–531.



- [16] Evtushenko, L. I.; Dorofeeva, L. V.; Subbotin, S. A.; Cole, J. R.; Tiedje, J. M. *Int J Syst Evol Microbiol* **2000**, *50*, 371–380.



- [17] Breider, S.; Scheuner, C.; Schumann, P.; Fiebig, A.; Petersen, J.; Pradella, S.; Klenk, H.-P.; Brinkhoff, T.; Göker, M. *Front Microbiol* **2014**, *5*, 416.



- [18] Brady, C.; Cleenwerck, I.; Venter, S.; Coutinho, T.; De Vos, P. *Syst Appl Microbiol* **2013**, *36*, 309–319.

■ ■ □

- [19] Wu, W.; Zong, Z. *Int J Syst Evol Microbiol* **2019**, *69*, 998–1000.

■ ■ ■

- [20] Antunes, A.; Rainey, F. A.; Nobre, M. F.; Schumann, P.; Ferreira, A. M.; Ramos, A.; Santos, H.; da Costa, M. S. *Int J Syst Evol Microbiol* **2002**, *52*, 647–655.

■ ■ ■

- [21] Sly, L. I.; Taghavit, M.; Fegan, M. *Int J Syst Bacteriol* **1998**, *48*, 731–737.

■ ■ ■

- [22] Wirth, J. S.; Whitman, W. B. *Int J Syst Evol*

Microbiol **2018**, *68*, 2393–2411.

■ ■ □

- [23] Kim, Y.-O.; Park, S.; Nam, B.-H.; Kang, S.-J.; Hur, Y.-B.; Kim, D.-G.; Oh, T.-K.; Yoon, J.-H. *Int J Syst Evol Microbiol* **2012**, *62*, 1825–1831.

■ ■ ■

- [24] Brady, C. L.; Cleenwerck, I.; Denman, S.; Venter, S. N.; Rodríguez-Palenzuela, P.; Coutinho, T. A.; De Vos, P. *Int J Syst Evol Microbiol* **2012**, *62*, 1592–1602.

■ ■ ■

- [25] Kämpfer, P.; Lodders, N.; Falsen, E. *Int J Syst Evol Microbiol* **2009**, *59*, 2884–2887.

■ ■ ■

- [26] Iwaki, H.; Yasukawa, N.; Fujioka, M.; Takada, K.; Hasegawa, Y. *Curr Microbiol* **2013**,

66, 588–593.

■ ■ ■

- [27] Kim, Y. O.; Park, S.; Nam, B. H.; Jung, Y. T.; Kim, D. G.; Bae, K. S.; Yoon, J. H. *Int J Syst Evol Microbiol* **2014**, *64*, 1984–1990.

■ ■ ■

- [28] Ahmed, I.; Yokota, A.; Yamazoe, A.; Fujiwara, T. *Int J Syst Evol Microbiol* **2007**, *57*, 1117–1125.

■ ■ ■

- [29] Jung, M. Y.; Kim, J.-S.; Paek, W. K.; Styrak, I.; Park, I.-S.; Sin, Y.; Paek, J.; Park, K. A.; Kim, H.; Kim, H. L.; Chang, Y.-H. *Int J Syst Evol Microbiol* **2012**, *62*, 2347–2355.

■ ■ ■

- [30] Jang, Y.-H.; Kim, S.-J.; Tamura, T.;

Hamada, M.; Weon, H.-Y.; Suzuki, K.-i.; Kwon, S.-W.; Kim, W.-G. *Int J Syst Evol Microbiol* **2013**, *63*, 1403–1410.

■ ■ ■

- [31] Margesin, R.; Zhang, D.-C.; Albuquerque, L.; Froufe, H. J. C.; Egas, C.; da Costa, M. S. *Int J Syst Evol Microbiol* **2018**, *68*, 1571–1577.

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14 M

Macrococcus caseolyticus

← *Staphylococcus caseolyticus*¹

Magnetospirillum magnetotacticum

← *Aquaspirillum magnetotacticum*²

Malacoplasm*a* iowae[†]

← *Mycoplasma iowae*³

Malacoplasm*a* microti

← *Mycoplasma microti*³

Malacoplasm*a* muris

← *Mycoplasma muris*³

Malacoplasm*a* penetrans

← *Mycoplasma penetrans*³

Maledivibacter halophilus[†]

← *Clostridium halophilum*⁴

Malikia spinosa

← *Pseudomonas spinosa*⁵

Mannheimia granulomatis

← *Pasteurella granulomatis*⁶

Mannheimia haemolytica[†]

← *Pasteurella haemolytica*⁶

Maricaulis maris[†]

← *Caulobacter halobacteroides*⁷

← *Caulobacter maris*⁷

Marichromatium gracile[†]

← *Chromatium gracile*⁸

Marichromatium purpuratum

← *Chromatium purpuratum*⁸

Marinibacillus marinus[†]

← *Bacillus marinus*⁹
Marinilabilia agarovorans
← *Cytophaga agarovorans*¹⁰
Marinilabilia salmonicolor[†]
← *Cytophaga salmonicolor*¹⁰
Marinobacterium jannaschii
← *Oceanospirillum jannaschii*¹¹
Marinobacterium stanieri
← *Pseudomonas stanieri*¹¹
Marinococcus halophilus[†]
← *Planococcus halophilus*¹²
Marinomonas communis[†]
← *Marinomonas basaltis*¹³
Marinospirillum minutulum[†]
← *Oceanospirillum minutulum*¹⁴
Marinovum algicola[†]
← *Ruegeria algicola*¹⁵

Maritalea mobilis
← *Zhangella mobilis*¹⁶
Marivirga hareniae
← *Flexibacter tractuosus*¹⁷
Marivirga tractuosa[†]
← *Flexibacter tractuosus*¹⁸
Marivita byunsanensis
← *Gaetbulicola byunsanensis*¹⁹
Marvinbryantia formatexigens[†]
← *Bryantella formatexigens*²⁰
Massilia alkalitolerans
← *Naxibacter alkalitolerans*²¹
Massilia haematophila
← *Naxibacter haematophilus*²¹
Massilia suwonensis
← *Naxibacter suwonensis*²¹
Massilia varians

← Naxibacter varians²¹

Mediterraneibacter faecis

← Ruminococcus faecis²²

Mediterraneibacter glycyrrhizinilyticus

← Clostridium glycyrrhizinilyticum²²

Mediterraneibacter gnavus

← Ruminococcus gnavus²²

Mediterraneibacter lactaris

← Ruminococcus lactaris²²

Mediterraneibacter torques

← Ruminococcus torques²²

Megamonas hypermegale[†]

← Bacteroides hypermegas²³

Megasphaera elsdenii[†]

← Peptostreptococcus elsdenii²⁴

Meiothermus chliarophilus

← Thermus chliarophilus²⁵

Meiothermus ruber[†]

← Thermus ruber²⁵

Meiothermus silvanus

← Thermus silvanus²⁵

Mesomycoplasma bovoculi

← Mycoplasma bovoculi^{3,26}

Mesomycoplasma conjunctivae

← Mycoplasma conjunctivae³

Mesomycoplasma dispar

← Mycoplasma dispar^{3,26}

Mesomycoplasma flocculare

← Mycoplasma flocculare³

Mesomycoplasma hyopneumoniae[†]

← Mycoplasma hyopneumoniae³

Mesomycoplasma hyorhinis

← Mycoplasma hyorhinis³

Mesomycoplasma lagogenitalium

← *Mycoplasma lagogenitalium*³

Mesomycoplasma moatsii

← *Mycoplasma moatsii*³

Mesomycoplasma molaris

← *Mycoplasma molare*³

Mesomycoplasma neurolyticum

← *Mesomycoplasma neurolyticum*³

Mesomycoplasma ovipneumoniae

← *Mycoplasma ovipneumoniae*³

Mesoplasma melaleucae

← *Entomoplasma melaleucae*²⁷

Mesorhizobium ciceri

← *Rhizobium ciceri*²⁸

Mesorhizobium huakuii

← *Rhizobium huakuii*²⁸

Mesorhizobium loti[†]

← *Rhizobium loti*²⁸

Mesorhizobium mediterraneum

← *Rhizobium mediterraneum*²⁸

Mesorhizobium tianshanense

← *Rhizobium tianshanense*²⁸

Metakosakonia massiliensis

← *Enterobacter massiliensis*²⁹

Metamycoplasma alkalescens

← *Mycoplasma alkalescens*³

Metamycoplasma arthritidis

← *Mycoplasma arthritidis*³

Metamycoplasma auris

← *Mycoplasma auris*³

Metamycoplasma buccale

← *Mycoplasma buccale*³

Metamycoplasma canadense

← *Mycoplasma canadense*³

Metamycoplasma cloacale

← *Mycoplasma cloacale*³
Metamycoplasma equirhinis
← *Mycoplasma equirhinis*³
Metamycoplasma faecium
← *Mycoplasma faecium*³
Metamycoplasma gateae
← *Mycoplasma gateae*³
Metamycoplasma hominis[†]
← *Mycoplasma hominis*³
Metamycoplasma hyosynoviae
← *Mycoplasma hyosynoviae*³
Metamycoplasma neophronis
← *Mycoplasma neophroni*³
Metamycoplasma orale
← *Mycoplasma orale*³
Metamycoplasma phocicerebrale
← *Mycoplasma phocicerebrale*³

Metamycoplasma salivarium
← *Mycoplasma salivarium*³
Metamycoplasma spumans
← *Mycoplasma spumans*³
Metamycoplasma sualvi
← *Mycoplasma sualvi*³
Metamycoplasma subdolum
← *Mycoplasma subdolum*^{3,26}
Methylobacterium extorquens
← *Protomonas extorquens*³⁰
Methylomicrobium lacus
← *Methylosarcina lacus*³¹
Methylovibrio aminovorans
← *Methylobacterium aminovorans*³²
Methylovibrio extorquens[†]
← *Methylobacterium extorquens*³²
Methylovibrio podarium

← *Methylobacterium podarium*³²

Methylobrum populi

← *Methylobacterium populi*³²

Methylobrum pseudosasae

← *Methylobacterium pseudosasae*³²

Methylobrum rhodesianum

← *Methylobacterium rhodesianum*³²

Methylobrum rhodinum

← *Methylobacterium rhodinum*³²

Methylobrum salsuginis

← *Methylobacterium salsuginis*³²

Methylobrum suomiense

← *Methylobacterium suomiense*³²

Methylobrum thiocyanatum

← *Methylobacterium thiocyanatum*³²

Methylobrum zatmanii

← *Methylobacterium zatmanii*³²

***Methylotuvimicrobium alcaliphilum*[†]**

← *Methylomicrobium alcaliphilum*³¹

Methylotuvimicrobium japanense

← *Methylomicrobium japanense*³¹

Methylotuvimicrobium kenyense

← *Methylomicrobium kenyense*³¹

Methylotuvimicrobium pelagicum

← *Methylomicrobium pelagicum*³¹

Microbacterium imperiale

← *Brevibacterium imperiale*³³

Microbacterium maritypicum

← *Flavobacterium marinotypicum*³⁴

Microbacterium oxydans

← *Brevibacterium oxydans*³⁵

Microbacterium resistens

← *Aureobacterium resistens*³⁶

Microbispore mesophila

← Thermomonospora mesophila³⁷
Microbulbifer elongatus
← Pseudomonas elongata³⁸
Microlunatus aerolatus
← Friedmanniella aerolata³⁹
Microlunatus antarcticus
← Friedmanniella antarctica^{† 39}
Microlunatus capsulatus
← Friedmanniella capsulata³⁹
Microlunatus flavus
← Friedmanniella flava³⁹
Microlunatus lacustris
← Friedmanniella lacustris³⁹
Microlunatus lucidus
← Friedmanniella lucida³⁹
Microlunatus luteolus
← Friedmanniella luteola³⁹

Microlunatus okinawensis
← Friedmanniella okinawensis³⁹
Microlunatus sagamiharensis
← Friedmanniella sagamiharensis³⁹
Microlunatus spumiculus
← Friedmanniella spumicola³⁹
Micromonas micros[†]
← Peptostreptococcus micros⁴⁰
Micromonospora andamanensis
← Verrucosispora andamanensis³⁹
Micromonospora endophytica
← Jishengella endophytica^{† 41}
Micromonospora fiedleri
← Verrucosispora fiedleri³⁹
Micromonospora gifhornensis
← Verrucosispora gifhornensis^{† 39}
Micromonospora lutea

← *Verrucosispora lutea*³⁹

Micromonospora maris

← *Verrucosispora maris*³⁹

Micromonospora matsumotoense

← *Catellatospora matsumotoens*⁴²

Micromonospora phaseoli

← *Xiangella phaseoli*[†]³⁹

Micromonospora qiuiae

← *Verrucosispora qiuiae*³⁹

Micromonospora sediminimaris

← *Verrucosispora sediminis*³⁹

Micromonospora trujilloniae

← *Verrucosispora wenchangensis*³⁹

Micromonospora zingiberis

← *Jishengella zingiberis*⁴³

Microterricola gilva

← *Phycicola gilvus*⁴⁴

Microterricola pindariensis

← *Leifsonia pindariensis*⁴⁴

Microvirga flocculans

← *Balneimonas flocculans*⁴⁵

***Mitsuokella multacida*[†]**

← *Bacteroides multiacidus*⁴⁶

Mogibacterium timidum

← *Eubacterium timidum*⁴⁷

***Moorella thermoacetica*[†]**

← *Clostridium thermoaceticum*⁴⁸

Moorella thermoautotrophica

← *Clostridium thermautrophicum*⁴⁸

***Moritella marina*[†]**

← *Vibrio marinus*⁴⁹

Moritella viscosa

← *Vibrio viscosus*⁵⁰

***Muribacter muris*[†]**

← *Actinobacillus muris*⁵¹

Mycobacterium chlorophenolicum

← *Rhodococcus chlorophenolicus*⁵²

Mycobacteroides abscessus[†]

← *Mycobacterium abscessus*⁵³

Mycobacteroides chelonae

← *Mycobacterium chelonae*⁵³

Mycobacteroides franklini

← *Mycobacterium franklinii*⁵³

Mycobacteroides immunogenum

← *Mycobacterium immunogenum*⁵³

Mycobacteroides salmoniphilum

← *Mycobacterium salmoniphilum*⁵³

Mycobacteroides saopaulense

← *Mycobacterium saopaulense*⁵³

Mycolicibacillus koreense

← *Mycobacterium koreense*⁵³

Mycolicibacillus parakoreensis

← *Mycobacterium parakoreense*⁵³

Mycolicibacillus trivialis[†]

← *Mycobacterium triviale*⁵³

Mycolicibacter algericus

← *Mycobacterium algericum*⁵³

Mycolicibacter arupensis

← *Mycobacterium arupense*⁵³

Mycolicibacter engbaekii

← *Mycobacterium engbaekii*⁵³

Mycolicibacter heraklionensis

← *Mycobacterium heraklionense*⁵³

Mycolicibacter hiberniae

← *Mycobacterium hiberniae*⁵³

Mycolicibacter kumamotonensis

← *Mycobacterium kumamotonense*⁵³

Mycolicibacter longobardus

← *Mycobacterium longobardum*⁵³

Mycolicibacter minnesotensis

← *Mycobacterium minnesotense*⁵³

Mycolicibacter nonchromogenicus

← *Mycobacterium nonchromogenicum*⁵³

Mycolicibacter paraterrae

← *Mycobacterium paraterrae*⁵³

Mycolicibacter senuensis

← *Mycobacterium senuense*⁵³

***Mycolicibacter terrae*[†]**

← *Mycobacterium terrae*⁵³

Mycolicibacter virginiensis

← *Mycobacterium virginicense*⁵³

Mycolicibacter agri

← *Mycobacterium agri*⁵³

Mycolicibacterium aichiense

← *Mycobacterium aichiense*⁵³

Mycolicibacterium alvei

← *Mycobacterium alvei*⁵³

Mycolicibacterium anyangense

← *Mycobacterium anyangense*⁵³

Mycolicibacterium arabiense

← *Mycobacterium arabiense*⁵³

Mycolicibacterium arcueilense

← *Mycobacterium arcueilense*⁵³

Mycolicibacterium aromaticivorans

← *Mycobacterium aromaticivorans*⁵³

Mycolicibacterium aubagnense

← *Mycobacterium aubagnense*⁵³

Mycolicibacterium aurum

← *Mycobacterium aurum*⁵³

Mycolicibacterium austroafricanum

← *Mycobacterium austroafricanum*⁵³

Mycolicibacterium bacteremicum

← *Mycobacterium bacteremicum*⁵³
Mycolicibacterium boenickei
← *Mycobacterium boenickei*⁵³
Mycolicibacterium brisbanense
← *Mycobacterium brisbanense*⁵³
Mycolicibacterium brumae
← *Mycobacterium brumae*⁵³
Mycolicibacterium canariasense
← *Mycobacterium canariasense*⁵³
Mycolicibacterium celeriflavum
← *Mycobacterium celeriflavum*⁵³
Mycolicibacterium chitae
← *Mycobacterium chitae*⁵³
Mycolicibacterium chlorophenolicum
← *Mycobacterium chlorophenolicum*⁵³
Mycolicibacterium chubuense
← *Mycobacterium chubuense*⁵³

Mycolicibacterium conceptionense
← *Mycobacterium conceptionense*⁵³
Mycolicibacterium confluentis
← *Mycobacterium confluentis*⁵³
Mycolicibacterium cosmeticum
← *Mycobacterium cosmeticum*⁵³
Mycolicibacterium crocinum
← *Mycobacterium crocinum*⁵³
Mycolicibacterium diernhoferi
← *Mycobacterium diernhoferi*⁵³
Mycolicibacterium doricum
← *Mycobacterium doricum*⁵³
Mycolicibacterium duvalii
← *Mycobacterium duvalii*⁵³
Mycolicibacterium elephantis
← *Mycobacterium elephantis*⁵³
Mycolicibacterium fallax

← *Mycobacterium fallax*⁵³
Mycolicibacterium farcinogenes
← *Mycobacterium farcinogenes*⁵³
Mycolicibacterium flavescens
← *Mycobacterium flavescens*⁵³
Mycolicibacterium fluoranthenivorans
← *Mycobacterium fluoranthenivorans*⁵³
***Mycolicibacterium fortuitum*[†]**
← *Mycobacterium fortuitum*⁵³
Mycolicibacterium frederiksbergense
← *Mycobacterium frederiksbergense*⁵³
Mycolicibacterium gadium
← *Mycobacterium gadium*⁵³
Mycolicibacterium gilvum
← *Mycobacterium gilvum*⁵³
Mycolicibacterium goodi
← *Mycobacterium goodii*⁵³

Mycolicibacterium hassiacum
← *Mycobacterium hassiacum*⁵³
Mycolicibacterium helvum
← *Mycobacterium helvum*⁵³
Mycolicibacterium hippocampi
← *Mycobacterium hippocampi*⁵³
Mycolicibacterium hodleri
← *Mycobacterium hodleri*⁵³
Mycolicibacterium holsaticum
← *Mycobacterium holsaticum*⁵³
Mycolicibacterium houstonense
← *Mycobacterium houstonense*⁵³
Mycolicibacterium insubricum
← *Mycobacterium insubricum*⁵³
Mycolicibacterium iranicum
← *Mycobacterium iranicum*⁵³
Mycolicibacterium komossense

← *Mycobacterium komossense*⁵³

Mycolicibacterium litorale

← *Mycobacterium litorale*⁵³

Mycolicibacterium llatzerense

← *Mycobacterium llatzerense*⁵³

Mycolicibacterium luteticense

← *Mycobacterium luteticense*⁵³

Mycolicibacterium madagascariense

← *Mycobacterium madagascariense*⁵³

Mycolicibacterium mageritense

← *Mycobacterium mageritense*⁵³

Mycolicibacterium malmesburyense

← *Mycobacterium malmesburyense*⁵³

Mycolicibacterium monacense

← *Mycobacterium monacense*⁵³

Mycolicibacterium montmartrense

← *Mycobacterium montmartrense*⁵³

Mycolicibacterium moriokaense

← *Mycobacterium moriokaense*⁵³

Mycolicibacterium mucogenicum

← *Mycobacterium mucogenicum*⁵³

Mycolicibacterium murale

← *Mycobacterium murale*⁵³

Mycolicibacterium neoaurum

← *Mycobacterium neoaurum*⁵³

Mycolicibacterium neworleansense

← *Mycobacterium neworleansense*⁵³

Mycolicibacterium novocastrense

← *Mycobacterium novocastrense*⁵³

Mycolicibacterium obuense

← *Mycobacterium obuense*⁵³

Mycolicibacterium oryzae

← *Mycobacterium oryzae*⁵³

Mycolicibacterium pallens

← *Mycobacterium pallens*⁵³

Mycolicibacterium parafortuitum

← *Mycobacterium parafortuitum*⁵³

Mycolicibacterium peregrinum

← *Mycobacterium peregrinum*⁵³

Mycolicibacterium phlei

← *Mycobacterium phlei*⁵³

Mycolicibacterium phocaicum

← *Mycobacterium phocaicum*⁵³

Mycolicibacterium porcinum

← *Mycobacterium porcinum*⁵³

Mycolicibacterium poriferae

← *Mycobacterium poriferae*⁵³

Mycolicibacterium psychrotolerans

← *Mycobacterium psychrotolerans*⁵³

Mycolicibacterium pulveris

← *Mycobacterium pulveris*⁵³

Mycolicibacterium pyrenivorans

← *Mycobacterium pyrenivorans*⁵³

Mycolicibacterium rhodesiae

← *Mycobacterium rhodesiae*⁵³

Mycolicibacterium rufum

← *Mycobacterium rufum*⁵³

Mycolicibacterium rutilum

← *Mycobacterium rutilum*⁵³

Mycolicibacterium sarraceniae

← *Mycobacterium sarraceniae*⁵³

Mycolicibacterium sediminis

← *Mycobacterium sediminis*⁵³

Mycolicibacterium senegalense

← *Mycobacterium senegalense*⁵³

Mycolicibacterium septicum

← *Mycobacterium septicum*⁵³

Mycolicibacterium setense

← *Mycobacterium setense*⁵³
Mycolicibacterium smegmatis
← *Mycobacterium smegmatis*⁵³
Mycolicibacterium sphagni
← *Mycobacterium sphagni*⁵³
Mycolicibacterium thermoresistibile
← *Mycobacterium thermoresistibile*⁵³
Mycolicibacterium tokaiense
← *Mycobacterium tokaiense*⁵³
Mycolicibacterium tusciae
← *Mycobacterium tusciae*⁵³
Mycolicibacterium vaccae
← *Mycobacterium vaccae*⁵³
Mycolicibacterium vanbaalenii
← *Mycobacterium vanbaalenii*⁵³
Mycolicibacterium vulneris
← *Mycobacterium vulneris*⁵³

Mycolicibacterium wolinskyi
← *Mycobacterium wolinskyi*⁵³
Mycoplasma ovis
← *Eperythrozoon ovis*⁵⁴
Mycoplasmooides alvi
← *Mycoplasma alvi*³
Mycoplasmooides fastidiosum
← *Mycoplasma fastidiosum*³
Mycoplasmooides gallisepticum
← *Mycoplasma gallisepticum*³
Mycoplasmooides genitalium
← *Mycoplasma genitalium*³
Mycoplasmooides pirum
← *Mycoplasma pirum*³
***Mycoplasmooides pneumoniae*[†]**
← *Mycoplasma pneumoniae*³
Mycoplasmopsis adleri

← *Mycoplasma adleri*³
Mycoplasmopsis agalactiae[†]
← *Mycoplasma agalactiae*³
Mycoplasmopsis agassizii
← *Mycoplasma agassizii*³
Mycoplasmopsis alligatoris
← *Mycoplasma alligatoris*³
Mycoplasmopsis anatis
← *Mycoplasma anatis*³
Mycoplasmopsis arginini
← *Mycoplasma arginini*³
Mycoplasmopsis bovigenitalium
← *Mycoplasma bovigenitalium*³
Mycoplasmopsis bovirhinis
← *Mycoplasma bovirhinis*³
Mycoplasmopsis bovis
← *Mycoplasma bovis*³

Mycoplasmopsis californica
← *Mycoplasma californicum*³
Mycoplasmopsis canis
← *Mycoplasma canis*³
Mycoplasmopsis caviae
← *Mycoplasma caviae*³
Mycoplasmopsis ciconiae
← *Mycoplasma ciconiae*³
Mycoplasmopsis citelli
← *Mycoplasma citelli*³
Mycoplasmopsis columbina
← *Mycoplasma columbinum*^{3,26}
Mycoplasmopsis columbinasalis
← *Mycoplasma columbinasale*³
Mycoplasmopsis columboralis
← *Mycoplasma columborale*³
Mycoplasmopsis cricetuli

← *Mycoplasma cricetuli*³

Mycoplasmopsis cynos

← *Mycoplasma cynos*³

Mycoplasmopsis edwardii

← *Mycoplasma edwardii*³

Mycoplasmopsis equigenitalium

← *Mycoplasma equigenitalium*³

Mycoplasmopsis felifaucium

← *Mycoplasma felifaucium*³

Mycoplasmopsis felis

← *Mycoplasma felis*^{3,26}

Mycoplasmopsis fermentans

← *Mycoplasma fermentans*³

Mycoplasmopsis gallinacea

← *Mycoplasma gallinaceum*³

Mycoplasmopsis gallinarum

← *Mycoplasma gallinarum*³

Mycoplasmopsis gallopavonis

← *Mycoplasma gallopavonis*³

Mycoplasmopsis glycophila

← *Mycoplasma glycophilum*³

Mycoplasmopsis hyopharyngis

← *Mycoplasma hyopharyngis*³

Mycoplasmopsis iners

← *Mycoplasma iners*³

Mycoplasmopsis lipofaciens

← *Mycoplasma lipofaciens*³

Mycoplasmopsis lipophila

← *Mycoplasma lipophilum*³

Mycoplasmopsis maculosa

← *Mycoplasma maculosum*³

Mycoplasmopsis meleagridis

← *Mycoplasma meleagridis*³

Mycoplasmopsis mucosicanis

← *Mycoplasma mucosicanis*³

Mycoplasmopsis mustelae

← *Mycoplasma mustelae*³

Mycoplasmopsis opalescens

← *Mycoplasma opalescens*³

Mycoplasmopsis phocirhinis

← *Mycoplasma phocirhinis*³

Mycoplasmopsis primatum

← *Mycoplasma primatum*³

Mycoplasmopsis pullorum

← *Mycoplasma pullorum*³

Mycoplasmopsis pulmonis

← *Mycoplasma pulmonis*³

Mycoplasmopsis sturni

← *Mycoplasma sturni*³

Mycoplasmopsis synoviae

← *Mycoplasma synoviae*³

Mycoplasmopsis verecunda

← *Mycoplasma verecundum*³

***Myroides odoratus*[†]**

← *Flavobacterium odoratum*⁵⁵

References

- [1] Kloos, W. E.; Ballard, D. N.; George, C. G.; Webster, J. A.; Hubner, R. J.; Ludwig, W.; Schleifer, K. H.; Fiedler, F.; Schubert, K. *Int J Syst Bacteriol* **1998**, *48*, 859–877.



- [2] Schleifer, K. H.; Schüler, D.; Spring, S.; Weizenegger, M.; Amann, R.; Ludwig, W.; Köhler, M. *Syst Appl Microbiol* **1991**, *14*, 379–385.



- [3] Gupta, R. S.; Sawnani, S.; Adeolu, M.; Alnajar, S.; Oren, A. *Antonie van Leeuwenhoek* **2018**, *111*, 1583–1630.

■ ■ ■

- [4] Li, G.; Zeng, X.; Liu, X.; Zhang, X.; Shao, Z. *Int J Syst Evol Microbiol* **2016**, *66*, 4355–4361.

■ ■ □

- [5] Spring, S.; Wagner, M.; Schumann, P.; Kämpfer, P. *Int J Syst Evol Microbiol* **2005**, *55*, 621–629.

■ ■ ■

- [6] Angen, Ø.; Mutters, R.; Caugant, D. A.; Olsen, J. E.; Bisgaard, M. *Int J Syst Bacteriol* **1999**, *49*, 67–86.

■ ■ ■

- [7] Abraham, W.-R.; Strömpl, C.; Meyer, H.;

- Lindholst, S.; Moore, E. R. B.; Christ, R.; Vancanneyt, M.; Tindall, B. J.; Bennasar, A.; Smit, J.; Tesar, M. *Int J Syst Bacteriol* **1999**, *49*, 1053–1073.

■ ■ ■

- [8] Imhoff, J. F.; Süling, J.; Petri, R. *Int J Syst Bacteriol* **1998**, *48*, 1129–1143.

■ ■ □

- [9] Yoon, J. H.; Weiss, N.; Lee, K. C.; Lee, I. S.; Kang, K. H.; Park, Y. H. *Int J Syst Evol Microbiol* **2001**, *51*, 2087–2093.

■ ■ ■

- [10] Nakagawa, Y.; Yamasato, K. *Int J Syst Bacteriol* **1996**, *46*, 599–603.

■ ■ ■

- [11] Satomi, M.; Kimura, B.; Hamada, T.;

- Harayama, S.; Fujii, T. *Int J Syst Evol Microbiol* **2002**, *52*, 739–747.
- ■ □
- [12] Hao, M. V.; Kocur, M.; Komagata, K. *J Gen Appl Microbiol* **1984**, *30*, 449–459.
- ■ □
- [13] Chimetto, L. A.; Cleenwerck, I.; Brocchi, M.; Willems, A.; De Vos, P.; Thompson, F. L. *Int J Syst Evol Microbiol* **2011**, *61*, 1170–1175.
- ■ ■
- [14] Satomi, M.; Kimura, B.; Hayashi, M.; Shouzen, Y.; Okuzumi, M.; Fujii, T. *Int J Syst Bacteriol* **1998**, *48*, 1341–1348.
- ■ ■
- [15] Martens, T.; Heidorn, T.; Pukall, R.; Simon, M.; Tindall, B. J.; Brinkhoff, T. *Int J Syst Evol Microbiol* **2006**, *56*, 1293–1304.
- ■ □
- [16] Fukui, Y.; Abe, M.; Kobayashi, M.; Ishihara, K.; Oikawa, H.; Yano, Y.; Satomi, M. *Int J Syst Evol Microbiol* **2012**, *62*, 43–48.
- ■ ■
- [17] Muramatsu, Y.; Kamakura, Y.; Takahashi, M.; Nakagawa, Y. *Int J Syst Evol Microbiol* **2017**, *67*, 1937–1942.
- ■ ■
- [18] Nedashkovskaya, O. I.; Vancanneyt, M.; Kim, S. B.; Bae, K. S. *Int J Syst Evol Microbiol* **2010**, *60*, 1858–1863.
- ■ ■
- [19] Yoon, J.-H.; Kang, S.-J.; Lee, S.-Y.; Jung, Y.-T.; Lee, J.-S.; Oh, T.-K. *Int J Syst Evol Microbiol*

2012, 62, 839–843.



- [20] Wolin, M. J.; Miller, T. L.; Lawson, P. A. *Int J Syst Evol Microbiol* 2008, 58, 742–744.



- [21] Kämpfer, P.; Lodders, N.; Martin, K.; Falsen, E. *Int J Syst Evol Microbiol* 2011, 61, 1528–1533.



- [22] Togo, A. H.; Diop, A.; Bittar, F.; Maraninch, M.; Valero, R.; Armstrong, N.; Dubourg, G.; Labas, N.; Richez, M.; Delerce, J.; Levasseur, A.; Fournier, P-E.; Raoult, D.; Million, M. *Antonie van Leeuwenhoek* 2018, 111, 2107–2128.



- [23] Shah, H. N.; Collins, M. D. *Zentralbl Bakteriol Parasitenkd Infektionskr Hyg Abt 1 Orig* 1982, 3, 394–398.



- [24] Rogosa, M. *Int J Syst Bacteriol* 1971, 21, 187–189.



- [25] Nobre, M. F.; Trüper, H. G.; da Costa, M. S. *Int J Syst Bacteriol* 1996, 46, 604–606.



- [26] Gupta, R. S.; Sawnani, S.; Adeolu, M.; Alnajar, S.; Oren, A. *Antonie van Leeuwenhoek* 2018, 111, 2485–2486.



- [27] Gupta, R. S.; Son, J.; Oren, A. *Antonie van*

Leeuwenhoek **2019**, *112*, 561–588.



- [28] Jarvis, B. D. W.; Van Berkum, P.; Chen, W. X.; Nour, S. M.; Fernandez, M. P.; Cleyet-Marel, J. C.; Gillis, M. *Int J Syst Bacteriol* **1997**, *47*, 895–898.



- [29] Alnajar, S.; Gupta, R. S. *Infect Genet Evol* **2017**, *54*, 108–127.



- [30] Bousfield, I. J.; Green, P. N. *Int J Syst Bacteriol* **1985**, *35*, 209–209.



- [31] Orata, F. D.; Meier-Kolthoff, J. P.; Sauvageau, D.; Stein, L. Y. *Front Micro-*

biol **2018**, *9*, 3162.



- [32] Green, P. N.; Ardley, J. K. *Int J Syst Evol Microbiol* **2018**, *68*, 2727–2748.



- [33] Collins, M. D.; Jones, D.; Kroppenstedt, R. M. *Syst Appl Microbiol* **1983**, *4*, 65–78.



- [34] Takeuchi, M.; Hatano, K. *Int J Syst Bacteriol* **1998**, *48*, 973–982.



- [35] Schumann, P.; Rainey, F. A.; Burghardt, J.; Stackebrandt, E.; Weiss, N. *Int J Syst Bacteriol* **1999**, *49*, 175–177.



- [36] Behrendt, U.; Ulrich, A.; Schumann, P. *Int J Syst Evol Microbiol* **2001**, *51*, 1267–1276.

■ ■ ■

- [37] Zhang, Z.; Wang, Y.; Ruan, J. *Int J Syst Bacteriol* **1998**, *48*, 411–422.

■ ■ □

- [38] Yoon, J.-H.; Kim, H.; Kang, K. H.; Oh, T.-K.; Park, Y.-H. *Int J Syst Evol Microbiol* **2003**, *53*, 1357–1361.

■ ■ ■

- [39] Nouiouï, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyrpides, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*, 2007.

■ ■ □

- [40] Murdoch, D. A.; Shah, H. N. *Anaerobe* **1999**, *5*, 555–559.

■ ■ □

- [41] Li, L.; Zhu, H.-r.; Xu, Q.-h.; Lin, H.-w.; Lu, Y.-h. *Int J Syst Evol Microbiol* **2019**, *69*, 715–720.

■ ■ ■

- [42] Lee, S. D.; Goodfellow, M.; Hah, Y. C. *FEMS Microbiol Lett* **1999**, *178*, 349–354.

■ ■ ■

- [43] Kuncharoen, N.; Kudo, T.; Yuki, M.; Okuma, M.; Pittayakhajonwut, P.; Tanasupawat, S. *Int J Syst Evol Microbiol* **2019**, *69*, 2884–2891.

■ ■ ■

- [44] Dhotre, D. P.; Rajabal, V.; Sharma, A.; Kulka-rni, G. J.; Prakash, O.; Vemuluri, V. R.;

- Joseph, N.; Rahi, P.; Shouche, Y. S. *Int J Syst Evol Microbiol* **2017**, *67*, 2766–2772.
- ■ ■
- [45] Weon, H.-Y.; Kwon, S.-W.; Son, J.-A.; Jo, E.-H.; Kim, S.-J.; Kim, Y.-S.; Kim, B.-Y.; Ka, J.-O. *Int J Syst Evol Microbiol* **2010**, *60*, 2596–2600.
- ■ ■
- [46] Shah, H. N.; Collins, M. D. *Zentralbl Bakteriol Parasitenkd Infektionskr Hyg I Abt Orig C* **1982**, *3*, 491–494.
- ■ □
- [47] Nakazawa, F.; Sato, M.; Poco, S. E.; Hashimura, T.; Ikeda, T.; Kalfas, S.; Sundqvist, G.; Hoshino, E. *Int J Syst Evol Microbiol* **2000**, *50*, 679–688.
- ■ ■
- [48] Collins, M. D.; Lawson, P. A.; Willems, A.; Cordoba, J. J.; Fernandez-Garayzabal, J.; Garcia, P.; Cai, J.; Hippe, H.; Farrow, J. A. E. *Int J Syst Bacteriol* **1994**, *44*, 812–826.
- ■ □
- [49] Xie, C.-H.; Yokota, A. *Int J Syst Evol Microbiol* **2005**, *55*, 331–334.
- ■ ■
- [50] Benediktsdóttir, E.; Verdonck, L.; Spröer, C.; Helgason, S.; Swings, J. *Int J Syst Evol Microbiol* **2000**, *50*, 479–488.
- ■ ■
- [51] Nicklas, W.; Bisgaard, M.; Aalbæk, B.; Kuhnert, P.; Christensen, H. *Int J Syst Evol Microbiol* **2015**, *65*, 3344–3351.
- ■ ■

- [52] Häggblom, M. M.; Nohynek, L. J.; Palleroni, N. J.; Kronqvist, K.; Nurmiaho-Lassila, E.-L.; Salkinoja-Salonen, M. S.; Klatte, S.; Kroppenstedt, R. M. *Int J Syst Bacteriol* **1994**, *44*, 485–493.
- ■ ■
- [53] Gupta, R. S.; Lo, B.; Son, J. *Front Microbiol* **2018**, *9*.
- ■ ■
- [54] Neimark, H.; Hoff, B.; Ganter, M. *Int J Syst Evol Microbiol* **2004**, *54*, 365–371.
- ■ ■
- [55] Vancanneyt, M.; Segers, P.; Torck, U.; Hoste, B.; Bernardet, J.-F.; Vandamme, P.; Kersters, K. *Int J Syst Bacteriol* **1996**, *46*, 926–932.
- ■ ■

15 N

Nakamurella flava

← Humicoccus flavidus¹

Nakamurella lactea

← Saxeibacter lacteus¹

Neomegalonema perideroedes[†]

← Meganema perideroedes^{†2}

Neomicrococcus aestuarii[†]

← Zhihengliuella aestuarii³

Neomicrococcus lactis

← Micrococcus lactis³

Neorickettsia risticii

← Ehrlichia risticii⁴

Neorickettsia sennetsu

← Ehrlichia sennetsu⁴

Nitrospirillum amazonense[†]

← Azospirillum amazonense⁵

Niveispirillum irakense

← Azospirillum irakense⁵

Nocardia mediterranei

← Streptomyces mediterranei⁶

Nocardioides jensenii

← Pimelobacter jensenii⁷

Nocardioides simplex

← Arthrobacter simplex⁸

Nocardiopsis africana

← Actinomadura africana⁹

Nocardiopsis coeruleofusca

← Actinomadura coeruleofusca⁹

- Nocardiopsis dassonvillei**[†]
← Nocardiopsis alborubida¹⁰
← Nocardiopsis antarctica¹⁰
- Nocardiopsis flava**
← Actinomadura flava⁹
- Nocardiopsis longispora**
← Actinomadura longispora⁹
- Nonomuraea africana**
← Actinomadura africana¹¹
- Nonomuraea angiospora**
← Actinomadura angiospora¹¹
- Nonomuraea fastidiosa**
← Actinomadura fastidiosa¹¹
- Nonomuraea ferruginea**
← Actinomadura ferruginea¹¹
- Nonomuraea flexuosa**
← Actinomadura flexuosa¹¹

- Nonomuraea helvata**
← Actinomadura helvata¹¹
- Nonomuraea polychroma**
← Actinomadura polychroma¹¹
- Nonomuraea pusilla**[†]
← Actinomadura pusilla¹¹
- Nonomuraea recticatena**
← Actinomadura recticatena¹¹
- Nonomuraea roseola**
← Actinomadura roseola¹¹
- Nonomuraea roseoviolacea**
← Actinomadura roseoviolacea¹¹
- Nonomuraea rubra**
← Actinomadura rubra¹¹
- Nonomuraea salmonea**
← Actinomadura salmonea¹¹
- Nonomuraea spiralis**

← *Actinomadura spiralis*¹¹

Nonomuraea turkmenica

← *Actinomadura turkmenica*¹¹

Noviherbaspirillum aurantiacum

← *Herbaspirillum aurantiacum*¹²

Noviherbaspirillum canariense

← *Herbaspirillum canariense*¹²

Noviherbaspirillum massiliense

← *Herbaspirillum massiliense*^{13,14}

Noviherbaspirillum psychrotolerans

← *Herbaspirillum psychrotolerans*¹²

Noviherbaspirillum soli

← *Herbaspirillum soli*¹²

***Novispirillum itersonii*†**

← *Aquaspirillum itersonii*¹⁵

Novosphingobium resinovorum

← *Flavobacterium resinovorum*¹⁶

References

- [1] Kim, K. K.; Lee, K. C.; Lee, J.-S. *Syst Appl Microbiol* **2012**, *35*, 291–296.
- ■ ■
- [2] Oren, A. *Int J Syst Evol Microbiol* **2017**, *67*, 4276–4278.
- ■ ■
- [3] Prakash, O.; Sharma, A.; Nimonkar, Y.; Shouche, Y. S. *Int J Syst Evol Microbiol* **2015**, *65*, 3771–3776.
- ■ ■
- [4] Dumler, J. S.; Barbet, A. F.; Bekker, C. P.; Dasch, G. A.; Palmer, G. H.; Ray, S. C.; Rikihisa, Y.; Rurangirwa, F. R. *Int J Syst Evol Microbiol* **2001**, *51*, 2145–2165.
- ■ ■

- [5] Lin, S.-Y.; Hameed, A.; Shen, F.-T.; Liu, Y.-C.; Hsu, Y.-H.; Shahina, M.; Lai, W.-A.; Young, C.-C. *Antonie van Leeuwenhoek* **2014**, *105*, 1149–1162.

■ ■ ■

- [6] Thiemann, J. E.; Zucco, G.; Pelizza, G. *Archiv Mikrobiol* **1969**, *67*, 147–155.

■ ■ ■

- [7] Collins, M. D.; Dorsch, M.; Stackebrandt, E. *Int J Syst Bacteriol* **1989**, *39*, 1–6.

■ ■ □

- [8] O'Donnell, A. G.; Goodfellow, M.; Minnikin, D. E. *Arch Microbiol* **1982**, *133*, 323–329.

■ ■ ■

- [9] Preobrazhenskaya, T. P.; Sveshnikova, M. A.;

Gauze, G. F. *Mikrobiologiya* **1982**, *51*, 111–113.

□ □ □

- [10] Yassin, A. F.; Rainey, F. A.; Burghardt, J.; Gierth, D.; Ungerechts, J.; Lux, I.; Seifert, P.; Bal, C.; Schaal, K. P. *Int J Syst Bacteriol* **1997**, *47*, 983–988.

■ ■ ■

- [11] Zhang, Z.; Wang, Y.; Ruan, J. *Int J Syst Bacteriol* **1998**, *48*, 411–422.

■ ■ □

- [12] Lin, S.-Y.; Hameed, A.; Arun, A. B.; Liu, Y.-C.; Hsu, Y.-H.; Lai, W.-A.; Rekha, P. D.; Young, C.-C. *Int J Syst Evol Microbiol* **2013**, *63*, 4100–4107.

■ ■ ■

- [13] Ishii, S.; Ashida, N.; Ohno, H.; Segawa, T.;

Yabe, S.; Otsuka, S.; Yokota, A.; Senoo, K. *Int J Syst Evol Microbiol* **2017**, *67*, 1841–1848.

■ ■ ■

- [14] Chaudhary, D. K.; Kim, J. *Int J Syst Evol Microbiol* **2017**, *67*, 1508–1515.

■ ■ ■

- [15] Yoon, J.-H.; Kang, S.-J.; Park, S.; Lee, S.-Y.; Oh, T.-K. *Int J Syst Evol Microbiol* **2007**, *57*, 2830–2835.

■ ■ ■

- [16] Lim, Y. W.; Moon, E. Y.; Chun, J. *Int J Syst Evol Microbiol* **2007**, *57*, 1906–1908.

■ ■ ■

16 O

Oceanimonas doudoroffii[†]

← *Pseudomonas doudoroffii*¹

Oceanispirochaeta litoralis

← *Spirochaeta litoralis*²

Oceanobacillus picturae

← *Virgibacillus picturae*³

Oceanospirillum commune

← *Alteromonas communis*⁴

Oceanospirillum hiroshimense

← *Spirillum hiroshimense*⁵

Oceanospirillum multiglobuliferum

← *Spirillum multiglobuliferum*⁵

Oceanospirillum pelagicum

← *Spirillum pelagicum*⁵

Oceanospirillum pusillum

← *Spirillum pusillum*⁵

Oceanospirillum vagum

← *Alteromonas vaga*⁴

Odoribacter splanchnicus[†]

← *Bacteroides splanchnicus*⁶

Oenococcus oeni[†]

← *Leuconostoc oenos*⁷

Oerskovia enterophila

← *Promicromonospora enterophila*⁸

Oligella urethralis[†]

← *Moraxella urethralis*⁹

Olivibacter domesticus

← *Pseudosphingobacterium domesticum*^{† 10}

Olsenella uli[†]

← Lactobacillus uli¹¹

Orientia tsutsugamushi[†]

← Rickettsia tsutsugamushi¹²

Oxalophagus oxalicus[†]

← Clostridium oxalicum¹³

Oxobacter pfennigii[†]

← Clostridium pfennigii¹³

References

- [1] Brown, G. R.; Sutcliffe, I. C.; Cummings, S. P. *Int J Syst Evol Microbiol* **2001**, *51*, 67–72.



- [2] Subhash, Y.; Lee, S.-S. *Int J Syst Evol Microbiol* **2017**, *67*, 3403–3409.



- [3] Lee, J.-S.; Lim, J.-M.; Lee, K. C.; Lee, J.-C.; Park, Y.-H.; Kim, C.-J. *Int J Syst Evol Microbiol* **2006**, *56*, 251–257.



- [4] Bowditch, R. D.; Baumann, L.; Baumann, P. *Curr Microbiol* **1984**, *10*, 221–229.



- [5] Terasaki, Y. *Int J Syst Bacteriol* **1979**, *29*, 130–144.



- [6] Hardham, J. M.; King, K. W.; Dreier, K.; Wong, J.; Strietzel, C.; Eversole, R. R.; Sfintescu, C.; Evans, R. T. *Int J Syst Evol Microbiol* **2008**, *58*, 103–109.



- [7] Dicks, L. M. T.; Dellaglio, F.; Collins, M. D.

Int J Syst Bacteriol **1995**, *45*, 395–397.

■ ■ ■

- [8] Stackebrandt, E.; Breymann, S.; Steiner, U.; Prauser, H.; Weiss, N.; Schumann, P. *Int J Syst Evol Microbiol* **2002**, *52*, 1105–1111.

■ ■ ■

- [9] Rossau, R.; Kersters, K.; Falsen, E.; Jantzen, E.; Segers, P.; Union, A.; Nehls, L.; De Ley, J. *Int J Syst Bacteriol* **1987**, *37*, 198–210.

■ ■ □

- [10] Siddiqi, M. Z.; Liu, Q.; Lee, S. Y.; Choi, k. D.; Im, W.-T. *Int J Syst Evol Microbiol* **2018**, *68*, 2509–2514.

■ ■ ■

- [11] Dewhirst, F. E.; Paster, B. J.; Tzellas, N.;

Coleman, B.; Downes, J.; Spratt, D. A.; Wade, W. G. *Int J Syst Evol Microbiol* **2001**, *51*, 1797–1804.

■ ■ ■

- [12] Tamura, A.; Ohashi, N.; Urakami, H.; Miyamura, S. *Int J Syst Bacteriol* **1995**, *45*, 589–591.

■ ■ ■

- [13] Collins, M. D.; Lawson, P. A.; Willems, A.; Cordoba, J. J.; Fernandez-Garayzabal, J.; Garcia, P.; Cai, J.; Hippe, H.; Farrow, J. A. E. *Int J Syst Bacteriol* **1994**, *44*, 812–826.

■ ■ □

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Pacificibacter marinus

← Roseovarius marinus¹

Paenactinomyces guangxiensis[†]

← Thermoactinomyces guangxiensis²

Paenibacillus alginolyticus

← Paenibacillus alginolyticus³

Paenibacillus chitinolyticus

← Bacillus chitinolyticus⁴

Paenibacillus chondroitinus

← Paenibacillus chondroitinus³

Paenibacillus curdlanolyticus

← Paenibacillus curdlanolyticus³

Paenibacillus durus

← Clostridium durum⁵

Paenibacillus edaphicus

← Bacillus edaphicus⁶

Paenibacillus ehimensis

← Bacillus ehimensis⁴

Paenibacillus glucanolyticus

← Paenibacillus glucanolyticus³

Paenibacillus kobensis

← Paenibacillus kobensis³

Paenibacillus laetus

← Bacillus laetus⁷

Paenibacillus lentimorbus

← Bacillus lentimorbus⁸

Paenibacillus mucilaginosus

← Bacillus mucilaginosus⁶

Paenibacillus peoriae

← *Bacillus peoriae*⁷

Paenibacillus popilliae

← *Bacillus popilliae*⁸

Paenibacillus thiaminolyticus

← *Paenibacillus thiaminolyticus*³

Paeniclostridium ghoni[†]

← *Clostridium ghoni*⁹

Paeniclostridium sordellii

← *Clostridium sordellii*⁹

Paenisporosarcina antarctica

← *Sporosarcina antarctica*¹⁰

Paenisporosarcina macmurdoensis

← *Sporosarcina macmurdoensis*¹¹

Paenochrobactrum glaciei

← *Pseudochrobactrum glaciei*¹²

Pandoraea norimbergensis

← *Burkholderia norimbergensis*¹³

Pantoea agglomerans[†]

← *Enterobacter agglomerans*¹⁴

Pantoea ananatis

← *Erwinia ananas*¹⁵

Pantoea cypripedii

← *Pectobacterium cypripedii*¹⁶

Pantoea stewartii

← *Erwinia stewartii*¹⁵

Parabacteroides distasonis[†]

← *Bacteroides distasonis*¹⁷

Parabacteroides goldsteinii

← *Bacteroides goldsteinii*¹⁷

Parabacteroides merdae

← *Bacteroides merdae*¹⁷

Paraburkholderia acidipaludis

← *Burkholderia acidipaludis*¹⁸

Paraburkholderia choica	← Burkholderia choica ¹⁸	← Burkholderia monticola ¹⁹
Paraburkholderia dipogonis	← Burkholderia dipogonis ¹⁹	← Burkholderia panaciterraе ¹⁹
Paraburkholderia ginsengiterrae	← Burkholderia ginsengiterrae ¹⁹	← Burkholderia rhizosphaerae ¹⁹
Paraburkholderia humisilvae	← Burkholderia humisilvae ¹⁹	← Burkholderia solisilvae ¹⁹
Paraburkholderia insulsa	← Burkholderia insulsa ¹⁹	← Burkholderia susongensis ¹⁹
Paraburkholderia jirisanensis	← Burkholderia jirisanensis ²⁰	← Burkholderia telluris ¹⁸
Paraburkholderia kirstenboschensis	← Burkholderia kirstenboschensis ¹⁹	← Burkholderia terrestris ¹⁸
Paraburkholderia metalliresistens	← Burkholderia metalliresistens ¹⁹	Paraburkholderia udeis
Paraburkholderia monticola		← Burkholderia udeis ¹⁸
		Paraclostridium bifermentans[†]
		← Clostridium bifermentans ⁹

Paracoccus versutus

← Thiobacillus versutus²¹

Paraeggerthella hongkongensis[†]

← Eggerthella hongkongensis²²

Parafrigoribacterium mesophilum[†]

← Frigoribacterium mesophilum²³

Paraglaciecola agarilytica

← Glaciecola agarilytica²⁴

Paraglaciecola aquimarina

← Glaciecola aquimarina²⁴

Paraglaciecola arctica

← Glaciecola arctica²⁴

Paraglaciecola chathamensis

← Glaciecola chathamensis²⁴

Paraglaciecola mesophila[†]

← Glaciecola mesophila²⁴

Paraglaciecola polaris

← Glaciecola polaris²⁴

Paraglaciecola psychrophila

← Glaciecola psychrophila²⁴

Parahaliea mediterranea[†]

← Haliea mediterranea²⁵

Paramaledivibacter caminithermalis[†]

← Clostridium caminithermale²⁶

Pararhizobium capsulatum

← Blastobacter capsulatus²⁷

Pararhizobium giardinii[†]

← Rhizobium giardinii²⁷

Pararhizobium herbae

← Rhizobium herbae²⁷

Pararhizobium sphaerophysae

← Rhizobium sphaerophysae²⁷

Pararhodospirillum oryzae[†]

← Rhodospirillum oryzae²⁸

Pararhodospirillum photometricum
← Rhodospirillum photometricum²⁸

Pararhodospirillum sulfurexigens
← Rhodospirillum sulfurexigens²⁸

Parascardovia denticolens[†]
← Bifidobacterium denticolens^{†29}

Parolsenella massiliensis
← Libanicoccus massiliensis^{†30}

Pasteurella avium
← Haemophilus avium³¹

Paucimonas lemoignei[†]
← Pseudomonas lemoignei³²

Pauljensenia hongkongensis[†]
← Actinomyces hongkongensis³³

Pedobacter antarcticus
← Sphingobacterium antarcticum³⁴

Pedobacter heparinus[†]

← Sphingobacterium heparinum³⁵

Pedobacter piscium
← Sphingobacterium piscium³⁵

Pedobacter zeaxanthinifaciens
← Nubsella zeaxanthinifaciens³⁶

Pedococcus aerophilus
← Phycicoccus aerophilus³³

Pedococcus badiiscoriae
← Phycicoccus badiiscoriae³³

Pedococcus bigeumensis
← Phycicoccus bigeumensis³³

Pedococcus cremeus
← Phycicoccus cremeus³³

Pedococcus dokdonensis[†]
← Phycicoccus dokdonensis³³

Pedococcus ginsenosidimutans
← Phycicoccus ginsenosidimutans³³

Pedococcus soli	← <i>Phycicoccus soli</i> ³³	← <i>Peptococcus indolicus</i> ⁴¹
Pelagirhabdus fermentum	← <i>Amphibacillus fermentum</i> ³⁷	Peptostreptococcus magnus
Pelomonas saccharophila [†]	← <i>Pseudomonas saccharophila</i> ³⁸	← <i>Peptococcus magnus</i> ⁴¹
Pelosinus propionicus	← <i>Sporotalea propionica</i> ³⁹	Peptostreptococcus prevotii
Peptoclostridium acidaminophilum	← <i>Eubacterium acidaminophilum</i> ⁴⁰	← <i>Peptococcus prevotii</i> ⁴¹
Peptoclostridium litorale [†]	← <i>Clostridium litorale</i> ⁴⁰	Peredibacter starrii [†]
Peptostreptococcus asaccharolyticus	← <i>Peptococcus asaccharolyticus</i> ⁴¹	← <i>Bacteriovorax starrii</i> ⁴³
Peptostreptococcus heliotrinireducens	← <i>Peptococcus heliotrinireducens</i> ⁴²	Persicivirga dokdonensis
Peptostreptococcus indolicus		← <i>Donghaeana dokdonensis</i> ⁴⁴
		Persicobacter diffluens [†]
		← <i>Cytophaga diffluens</i> ⁴⁵
		Pfennigia purpurea [†]
		← <i>Amoebobacter purpureus</i> ⁴⁶
		Phaeobacter gallaeiensis [†]
		← <i>Roseobacter gallaeiensis</i> ⁴⁷
		Phaeobacter italicus
		← <i>Nautella italicica</i> [†] ⁴⁸

Phaeochromatium fluminis[†]
← Marichromatium fluminis⁴⁹

Phaeospirillum fulvum[†]
← Rhodospirillum fulvum⁵⁰

Phaeospirillum molischianum
← Rhodospirillum molischianum⁵⁰

Phaseolibacter flectens[†]
← Pseudomonas flectens⁵¹

Photobacterium damselae
← Listonella damsela⁵²

Photobacterium iliopiscarium
← Vibrio iliopiscarius⁵³

Photorhabdus luminescens[†]
← Xenorhabdus luminescens⁵⁴

Phycicoccus duodecadis
← Tetrasphaera duodecadis³³

Phycicoccus elongatus

← Tetrasphaera elongata³³

Piscinibacter aquaticus[†]
← Methylibium aquaticum⁵⁵

Planctopirus limnophila[†]
← Planctomyces limnophilus⁵⁶

Planococcus okeanokoites
← Flavobacterium okeanokoites⁵⁷

Planomicrobium alkanoclasticum
← Planococcus alkanoclasticus⁵⁸

Planomicrobium mcmeekinii
← Planococcus mcmeekinii⁵⁹

Planomicrobium okeanokoites
← Planococcus okeanokoites⁵⁹

Planomicrobium psychrophilum
← Planococcus psychrophilus⁵⁸

Planomicrobium stackebrandtii
← Planococcus stackebrandtii⁶⁰

Plantactinospora endophytica
← *Actinaurispora siamensis*⁶¹

Pleomorphochaeta multiformis[†]
← *Sphaerochaeta multiformis*⁶²

Pluralibacter gergoviae[†]
← *Enterobacter gergoviae*⁶³

Pluralibacter lignolyticus
← *Enterobacter lignolyticus*⁶⁴

Pluralibacter pyrinus
← *Enterobacter pyrinus*⁶³

Polaribacter glomeratus
← *Flectobacillus glomeratus*⁶⁵

Pontibacter roseus
← *Effluviibacter roseus*⁶⁶

Porphyromonas asaccharolytica[†]
← *Bacteroides asaccharolyticus*⁶⁷

Porphyromonas catoniae

← *Oribaculum catoniae*⁶⁸

Porphyromonas endodontalis
← *Bacteroides endodontalis*⁶⁷

Porphyromonas gingivalis
← *Bacteroides gingivalis*⁶⁷

Porphyromonas levii
← *Bacteroides levii*⁶⁹

Porphyromonas macacae
← *Bacteroides macacae*⁷⁰

Prauserella rugosa[†]
← *Amycolatopsis rugosa*⁷¹

Prevotella dentalis
← *Mitsuokeflu dentalis*⁷²

Prevotella oryzae
← *Xylanibacter oryzae*⁷³

Prolinoborus fasciculus[†]
← *Aquaspirillum fasciculus*⁷⁴

Propionibacterium propionicum
← Arachnia propionica⁷⁵

Propioniferax innocua[†]
← Propionibacterium innocuum⁷⁶

Propionimicrobium lymphophilum[†]
← Propionibacterium lymphophilum⁷⁷

Propionispira paucivorans
← Zymophilus paucivorans⁷⁸

Propionispira raffinosivorans
← Zymophilus raffinosivorans⁷⁸

Propionivibrio pelophilus
← Propionibacter pelophilus⁷⁹

Pseudactinotalea suaedae
← Actinotalea suaedae⁸⁰

Pseudaeromonas sharmania[†]
← Aeromonas sharmania⁸¹

Pseudaestuariivita atlantica[†]

← Aestuariivita atlantica⁴⁸

Pseudidiomarina homiensis
← Idiomarina homiensis⁸²

Pseudidiomarina salinarum
← Idiomarina salinarum⁸²

Pseudoalteromonas atlantica
← Alteromonas atlantica⁸³

Pseudoalteromonas aurantia
← Alteromonas aurantia⁸³

Pseudoalteromonas carrageenovora
← Alteromonas carrageenovora⁸³

Pseudoalteromonas citrea
← Alteromonas citrea⁸³

Pseudoalteromonas denitrificans
← Alteromonas denitrificans⁸³

Pseudoalteromonas distincta
← Alteromonas distincta⁸⁴

Pseudoalteromonas elyakovii
← Alteromonas elyakovii⁸⁵

Pseudoalteromonas espejiana
← Alteromonas espejiana⁸³

Pseudoalteromonas fuliginea
← Alteromonas fuliginea⁸⁶

Pseudoalteromonas haloplanktis[†]
← Alteromonas haloplanktis⁸³

Pseudoalteromonas luteoviolacea
← Alteromonas luteoviolacea⁸³

Pseudoalteromonas nigrifaciens
← Alteromonas nigrifaciens⁸³

Pseudoalteromonas rubra
← Alteromonas rubra⁸³

Pseudoalteromonas tetraodonis
← Alteromonas tetraodonis⁸⁷

Pseudoalteromonas undina

← Alteromonas undina⁸³

Pseudobacteroides cellulosolvens[†]
← Bacteroides cellulosolvens⁸⁸

Pseudoclostridium thermosuccinogenes[†]
← Clostridium thermosuccinogenes⁸⁹

Pseudodesulfovibrio aespoensis
← Desulfovibrio aespoensis⁹⁰

Pseudodesulfovibrio piezophilus
← Desulfovibrio piezophilus⁹⁰

Pseudodesulfovibrio portus
← Desulfovibrio portus⁹⁰

Pseudodesulfovibrio profundus
← Desulfovibrio profundus⁹⁰

Pseudodonghicola xiamenensis[†]
← Donghicola xiamenensis⁹¹

Pseudoduganella violaceinigra[†]
← Duganella violaceinigra⁹²

Pseudoflavitalea soli

← Flavitalea soli⁹³

Pseudoflavanifractor capillosus[†]

← Bacteroides capillosus⁹⁴

Pseudohaliea rubra[†]

← Haliea rubra⁹⁵

Pseudohoeflea suaedae[†]

← Hoeflea suaedae⁹⁶

Pseudokineococcus marinus

← Kineococcus marinus⁹⁷

Pseudolysinimonas kribbensis[†]

← Lysinimonas kribbensis⁹⁸

Pseudomonas avellanae

← Pseudomonas syringae pv. avellanae⁹⁹

Pseudomonas flexibilis

← Serpens flexibilis¹⁰⁰

Pseudonocardia alaniniphila

← Actinobispora alaniniphila¹⁰¹

Pseudonocardia alni

← Amycolata alni¹⁰²

Pseudonocardia aurantiaca

← Actinobispora aurantiaca¹⁰¹

Pseudonocardia autotrophica

← Amycolata autotrophica¹⁰²

Pseudonocardia hydrocarbonoxydans

← Amycolata hydrocarbonoxydans¹⁰²

Pseudonocardia petroleophila

← Nocardia petroleophila¹⁰²

Pseudonocardia saturnea

← Amycolata saturnea¹⁰²

Pseudonocardia xinjiangensis

← Actinobispora xinjiangensis¹⁰¹

Pseudonocardia yunnanensis

← Actinobispora yunnanensis¹⁰¹

Pseudooceanicola antarcticus

← Oceanicola antarcticus¹⁰³

Pseudooceanicola batsensis

← Oceanicola batsensis¹⁰³

Pseudooceanicola flagellatus

← Oceanicola flagellatus^{103,104}

Pseudooceanicola marinus

← Oceanicola marinus¹⁰³

Pseudooceanicola nanhaiensis

← Oceanicola nanhaiensis¹⁰³

Pseudooceanicola nitratireducens

← Oceanicola nitratireducens¹⁰³

Pseudoctadecabacter jejudonensis[†]

← Octadecabacter jejudonensis¹⁰⁵

Pseudopedobacter saltans

← Pedobacter saltans¹⁰⁶

Pseudophaeobacter arcticus[†]

← Phaeobacter arcticus¹⁰⁷

Pseudophaeobacter leonis

← Phaeobacter leonis¹⁰⁷

Pseudopropionibacterium propionicum[†]

← Propionibacterium propionicum¹⁰⁸

Pseudoramibacter alactolyticus[†]

← Eubacterium alactolyticum¹⁰⁹

Pseudorhodobacter ferrugineus[†]

← Agrobacterium ferrugineum¹¹⁰

Pseudoroseovarius crassostreiae

← Roseovarius crassostreiae¹¹¹

Pseudoroseovarius halocynthiae

← Roseovarius halocynthiae¹¹¹

Pseudoroseovarius sediminilitoris

← Roseovarius sediminilitoris¹¹¹

Pseudoxanthomonas dokdonensis

← Stenotrophomonas dokdonensis¹¹²

Psychrobacillus insolitus[†]

← Bacillus insolitus¹¹³

Psychrobacillus psychrodurans

← Bacillus psychrodurans¹¹³

Psychrobacillus psychrotolerans

← Bacillus psychrotolerans¹¹³

Psychroflexus gondwanensis

← Flavobacterium gondwanense¹¹⁴

Pullulanibacillus naganoensis[†]

← Bacillus naganoensis¹¹⁵

References

- [1] Park, S.; Kang, C.-H.; Park, J.-M.; Yoon, J.-H. *Antonie van Leeuwenhoek* **2014**, *106*, 647–655.

■ ■ □

- [2] Jiang, Z.; Xiao, M.; Yang, L.-L.; Zhi, X.-Y.; Li, W.-J. *Int J Syst Evol Microbiol* **2019**, *69*,

2028–2036.

■ ■ □

- [3] Shida, O.; Takagi, H.; Kadokami, K.; Nakamura, L. K.; Komagata, K. *Int J Syst Bacteriol* **1997**, *47*, 289–298.

■ ■ □

- [4] Lee, J.-S.; Pyun, Y.-R.; Bae, K. S. *Int J Syst Evol Microbiol* **2004**, *54*, 929–933.

■ ■ □

- [5] Collins, M. D.; Lawson, P. A.; Willems, A.; Cordoba, J. J.; Fernandez-Garayzabal, J.; Garcia, P.; Cai, J.; Hippe, H.; Farrow, J. A. E. *Int J Syst Bacteriol* **1994**, *44*, 812–826.

■ ■ □

- [6] Hu, X.-F.; Li, S.-X.; Wu, J.-G.; Wang, J.-F.; Fang, Q.-L.; Chen, J.-S. *Int J Syst Evol Micro-*

biol **2010**, *60*, 8–14.



- [7] Heyndrickx, M.; Vandemeulebroecke, K.; Scheldeman, P.; Kersters, K.; De Vos, P.; Logan, N. A.; Aziz, A. M.; Ali, N.; Berkeley, R. C. W. *Int J Syst Bacteriol* **1996**, *46*, 988–1003.
- ■ □

- [8] Pettersson, B.; Rippere, K. E.; Yousten, A. A.; Priest, F. G. *Int J Syst Bacteriol* **1999**, *49*, 531–540.
- ■ □

- [9] Sasi Jyothsna, T. S.; Tushar, L.; Sasikala, C.; Ramana, C. V. *Int J Syst Evol Microbiol* **2016**, *66*, 1268–1274.
- ■ □

- [10] Reddy, G. S. N.; Manasa, B. P.; Singh, S. K.;

Shivaji, S. *Int J Syst Evol Microbiol* **2013**, *63*, 2927–2933.



- [11] Krishnamurthi, S.; Bhattacharya, A.; Mayilraj, S.; Saha, P.; Schumann, P.; Chakrabarti, T. *Int J Syst Evol Microbiol* **2009**, *59*, 1364–1370.



- [12] Kämpfer, P.; Martin, E.; Lodders, N.; Jäckel, U.; Huber, B. E.; Schumann, P.; Langer, S.; Busse, H.-J.; Scholz, H. *Int J Syst Evol Microbiol* **2010**, *60*, 1493–1498.
- ■ □

- [13] Coenye, T.; Falsen, E.; Hoste, B.; Ohlén, M.; Goris, J.; Govan, J. R.; Gillis, M.; Vandamme, P. *Int J Syst Evol Microbiol* **2000**, *50*,

887–899.



- [14] Gavini, F.; Mergaert, J.; Beji, A.; Mielcarek, C.; Izard, D.; Kersters, K.; De Ley, J. *Int J Syst Bacteriol* **1989**, *39*, 337–345.



- [15] Mergaert, J.; Verdonck, L.; Kersters, K. *Int J Syst Bacteriol* **1993**, *43*, 162–173.



- [16] Brady, C. L.; Cleenwerck, I.; Venter, S. N.; Engelbeen, K.; De Vos, P.; Coutinho, T. A. *Int J Syst Evol Microbiol* **2010**, *60*, 2430–2440.



- [17] Sakamoto, M.; Benno, Y. *Int J Syst Evol Microbiol* **2006**, *56*, 1599–1605.



- [18] Sawana, A.; Adeolu, M.; Gupta, R. S. *Front Genet* **2014**, *5*, 429.



- [19] Dobritsa, A. P.; Samadpour, M. *Int J Syst Evol Microbiol* **2016**, *66*, 2836–2846.



- [20] Dobritsa, A. P.; Linardopoulou, E. V.; Samadpour, M. *Int J Syst Evol Microbiol* **2017**, *67*, 3846–3853.



- [21] Katayama, Y.; Hiraishi, A.; Kuraishi, H. *Microbiology* **1995**, *141*, 1469–1477.



- [22] Würdemann, D.; Tindall, B. J.; Pukall, R.; Lünsdorf, H.; Strömpl, C.; Namuth, T.; Nahrstedt, H.; Wos-Oxley, M.; Ott, S.;

- Schreiber, S.; Timmis, K. N.; Oxley, A. P. A. *Int J Syst Evol Microbiol* **2009**, *59*, 1405–1415.
- [23] Kong, D.; Guo, X.; Zhou, S.; Wang, H.; Wang, Y.; Zhu, J.; Dong, W.; Li, Y.; He, M.; Hu, G.; Zhao, B.; Ruan, Z. *Int J Syst Evol Microbiol* **2016**, *66*, 5252–5259.
- [24] Shivaji, S.; Reddy, G. S. *Int J Syst Evol Microbiol* **2014**, *64*, 3264–3275.
- [25] Lin, C.-Y.; Zhang, X.-Y.; Liu, A.; Liu, C.; Song, X.-Y.; Su, H.-N.; Qin, Q.-L.; Xie, B.-B.; Zhang, Y.-Z.; Chen, X.-L. *Int J Syst Evol Microbiol* **2015**, *65*, 3413–3418.
- [26] Li, G.; Zeng, X.; Liu, X.; Zhang, X.; Shao, Z. *Int J Syst Evol Microbiol* **2016**, *66*, 4355–4361.
- [27] Mousavi, S. A.; Willems, A.; Nesme, X.; de Lajudie, P.; Lindström, K. *Syst Appl Microbiol* **2015**, *38*, 84–90.
- [28] Lakshmi, K. V. N. S.; Divyasree, B.; Ramprasad, E. V. V.; Sasikala, C.; Ramana, C. V. *Int J Syst Evol Microbiol* **2014**, *64*, 1154–1159.
- [29] Jian, W.; Dong, X. *Int J Syst Evol Microbiol* **2002**, *52*, 809–812.
- [30] Sakamoto, M.; Ikeyama, N.; Murakami, T.; Mori, H.; Yuki, M.; Ohkuma, M. *Int J Syst*

Evol Microbiol **2019**, *69*, 1123–1129.



- [31] Mutters, R.; Piechulla, K.; Hinz, K.-H.; Mannheim, W. *Int J Syst Bacteriol* **1985**, *35*, 5–9.



- [32] Jendrossek, D. *Int J Syst Evol Microbiol* **2001**, *51*, 905–908.



- [33] Nouiouï, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyripi-des, N. C.; Pukall, R.; Klenk, H.-P.; Goodfel-low, M.; Göker, M. *Front Microbiol* **2018**, *9*, 2007.



- [34] Farfán, M.; Montes, M. J.; Marqués, A. M.

Int J Syst Evol Microbiol **2014**, *64*, 863–868.



- [35] Steyn, P. L.; Segers, P.; Vancanneyt, M.; Sandra, P.; Kersters, K.; Joubert, J. J. *Int J Syst Bacteriol* **1998**, *48*, 165–177.



- [36] Kim, D.-U.; Kim, Y.-J.; Shin, D.-H.; Weon, H.-Y.; Kwon, S.-W.; Seong, C.-N.; Ka, J.-O. *J Microbiol* **2013**, *51*, 25–30.



- [37] Sultanpuram, V. R.; Mothe, T.; Chintalapati, S.; Chintalapati, V. R. *Int J Syst Evol Microbiol* **2016**, *66*, 84–90.



- [38] Xie, C.-H.; Yokota, A. *Int J Syst Evol Micro-*

biol **2005**, *55*, 2419–2425.



- [39] Moe, W. M.; Stebbing, R. E.; Rao, J. U.; Bowman, K. S.; Nobre, M. F.; da Costa, M. S.; Rainey, F. A. *Int J Syst Evol Microbiol* **2012**, *62*, 1369–1376.



- [40] Galperin, M. Y.; Brover, V.; Tolstoy, I.; Yutin, N. *Int J Syst Evol Microbiol* **2016**, *66*, 5506–5513.



- [41] Ezaki, T.; Yamamoto, N.; Ninomiya, K.; Suzuki, S.; Yabuuchi, E. *Int J Syst Bacteriol* **1983**, *33*, 683–698.



- [42] Ezaki, T.; Yabuuchi, E. *Int J Syst Bacteriol*

1986, *36*, 107–108.



- [43] Davidov, Y.; Jurkevitch, E. *Int J Syst Evol Microbiol* **2004**, *54*, 1439–1452.



- [44] Nedashkovskaya, O. I.; Kwon, K. K.; Kim, S.-J. *Int J Syst Evol Microbiol* **2009**, *59*, 824–827.



- [45] Nakagawa, Y.; Hamana, K.; Sakane, T.; Yamamoto, K. *Int J Syst Bacteriol* **1997**, *47*, 220–223.



- [46] Tindall, B. J. *Int J Syst Bacteriol* **1999**, *49*, 1307–1308.



- [47] Martens, T.; Heidorn, T.; Pukall, R.; Simon, M.; Tindall, B. J.; Brinkhoff, T. *Int J Syst Evol Microbiol* **2006**, *56*, 1293–1304.
■ ■ □
- [48] Wirth, J. S.; Whitman, W. B. *Int J Syst Evol Microbiol* **2018**, *68*, 2393–2411.
■ ■ □
- [49] Shivali, K.; Sasikala, C.; Ramana, C. V. *Syst Appl Microbiol* **2012**, *35*, 221–225.
■ ■ □
- [50] Imhoff, J. F.; Petri, R.; Süling, J. *Int J Syst Bacteriol* **1998**, *48*, 793–798.
■ ■ □
- [51] Halpern, M.; Fridman, S.; Aizenberg-Gershtein, Y.; Izhaki, I. *Int J Syst Evol Mi-*
crobiol **2013**, *63*, 268–273.
■ ■ □
- [52] Smith, S. K.; Sutton, D. C.; Fuerst, J. A.; Reichenelt, J. L. *Int J Syst Bacteriol* **1991**, *41*, 529–534.
■ ■ □
- [53] Urakawa, H.; Kita-Tsukamoto, K.; Ohwada, K. *Int J Syst Bacteriol* **1999**, *49*, 257–260.
■ ■ □
- [54] Boemare, N. E.; Akhurst, R. J.; Mourant, R. G. *Int J Syst Bacteriol* **1993**, *43*, 249–255.
■ ■ □
- [55] Stackebrandt, E.; Verbarg, S.; Frühling, A.; Busse, H.-J.; Tindall, B. J. *Int J Syst Evol Mi-*

- crobiol* **2009**, *59*, 2552–2560.
■ ■ □
- [56] Scheuner, C. et al. *Stand Genomic Sci* **2014**, *9*, 10.
■ ■ □
- [57] Nakagawa, Y.; Sakane, T.; Yokota, A. *Int J Syst Bacteriol* **1996**, *46*, 866–870.
■ ■ □
- [58] Dai, X.; Wang, Y.-N.; Wang, B.-J.; Liu, S.-J.; Zhou, Y.-G. *Int J Syst Evol Microbiol* **2005**, *55*, 699–702.
■ ■ □
- [59] Yoon, J. H.; Kang, S. S.; Lee, K. C.; Lee, E. S.; Kho, Y. H.; Kang, K. H.; Park, Y. H. *Int J Syst Evol Microbiol* **2001**, *51*, 1511–1520.
■ ■ □
- [60] Jung, Y.-T.; Kang, S.-J.; Oh, T.-K.; Yoon, J.-H.; Kim, B.-H. *Int J Syst Evol Microbiol* **2009**, *59*, 2929–2933.
■ ■ □
- [61] Zhu, W.-Y.; Zhao, L.-X.; Zhao, G.-Z.; Duan, X.-W.; Qin, S.; Li, J.; Xu, L.-H.; Li, W.-J. *Int J Syst Evol Microbiol* **2012**, *62*, 2435–2442.
■ ■ □
- [62] Arroua, B.; Ranchou-Peyruse, A.; Ranchou-Peyruse, M.; Magot, M.; Urios, L.; Grimaud, R. *Int J Syst Evol Microbiol* **2017**, *67*, 417–424.
■ ■ □
- [63] Brady, C.; Cleenwerck, I.; Venter, S.; Coutinho, T.; De Vos, P. *Syst Appl Microbiol*

- 2013, 36, 309–319.
■ ■ □
- [64] Alnajar, S.; Gupta, R. S. *Infect Genet Evol* 2017, 54, 108–127.
■ ■ □
- [65] Gosink, J. J.; Woese, C. R.; Staley, J. T. *Int J Syst Bacteriol* 1998, 48, 223–235.
■ ■ □
- [66] Wang, Y.; Zhang, K.; Cai, F.; Zhang, L.; Tang, Y.; Dai, J.; Fang, C. *Int J Syst Evol Microbiol* 2010, 60, 99–103.
■ ■ □
- [67] Shah, H. N.; Collins, M. D. *Int J Syst Bacteriol* 1988, 38, 128–131.
■ ■ □
- [68] Willems, A.; Collins, M. D. *Int J Syst Bacteriol* 1995, 45, 578–581.
■ ■ □
- [69] Shah, H. N.; Collins, M. D.; Olsen, I.; Paster, B. J.; Dewhirst, F. E. *Int J Syst Bacteriol* 1995, 45, 586–588.
■ ■ □
- [70] Love, D. N. *Int J Syst Bacteriol* 1995, 45, 90–92.
■ ■ □
- [71] Kim, S. B.; Goodfellow, M. *Int J Syst Bacteriol* 1999, 49, 507–512.
■ ■ □
- [72] Willems, A.; Collins, M. D. *Int J Syst Bacteriol* 1995, 45, 832–836.
■ ■ □

- [73] Sakamoto, M.; Ohkuma, M. *Int J Syst Evol Microbiol* **2012**, *62*, 2637–2642.

■ ■ □

- [74] Pot, B.; Willems, A.; Gillis, M.; De Ley, J. *Int J Syst Bacteriol* **1992**, *42*, 44–57.

■ ■ □

- [75] Charfreitag, O.; Collins, M. D.; Stackebrandt, E. *Int J Syst Bacteriol* **1988**, *38*, 354–357.

■ ■ □

- [76] Yokota, A.; Tamura, T.; Takeuchi, M.; Weiss, N.; Stackebrandt, E. *Int J Syst Bacteriol* **1994**, *44*, 579–582.

■ ■ □

- [77] Stackebrandt, E.; Schumann, P.; Schaal, K. P.; Weiss, N. *Int J Syst Evol Microbiol* **2002**, *52*, 1925–1927.

Microbiol **2002**, *52*, 1925–1927.

■ ■ □

- [78] Ueki, A.; Watanabe, M.; Ohtaki, Y.; Kaku, N.; Ueki, K. *Int J Syst Evol Microbiol* **2014**, *64*, 3571–3577.

■ ■ □

- [79] Brune, A.; Ludwig, W.; Schink, B. *Int J Syst Evol Microbiol* **2002**, *52*, 441–444.

■ ■ □

- [80] Cho, H.; Hamada, M.; Ahn, J.-H.; Weon, H.-Y.; Joa, J.-H.; Suzuki, K.-i.; Kwon, S.-W.; Kim, S.-J. *Int J Syst Evol Microbiol* **2017**, *67*, 704–709.

■ ■ □

- [81] Padakandla, S. R.; Chae, J.-C. *Int J Syst Evol Microbiol* **2017**, *67*, 704–709.

- Microbiol* **2017**, *67*, 1018–1023.
- ■ □
- [82] Jean, W. D.; Leu, T.-Y.; Lee, C.-Y.; Chu, T.-J.; Lin, S. Y.; Shieh, W. Y. *Int J Syst Evol Microbiol* **2009**, *59*, 53–59.
- ■ □
- [83] Gauthier, G.; Gauthier, M.; Christen, R. *Int J Syst Bacteriol* **1995**, *45*, 755–761.
- ■ □
- [84] Ivanova, E. P.; Chun, J.; Romanenko, L. A.; Matte, M. E.; Mikhailov, V. V.; Frolova, G. M.; Huq, A.; Colwell, R. R. *Int J Syst Evol Microbiol* **2000**, *50*, 141–144.
- ■ □
- [85] Sawabe, T.; Tanaka, R.; Iqbal, M. M.; Tajima, K.; Ezura, Y.; Ivanova, E. P.; Christen, R. *Int J Syst Evol Microbiol* **2000**, *50*, 265–271.
- ■ □
- [86] Machado, H.; Vynne, N. G.; Christiansen, G.; Gram, L. *Int J Syst Evol Microbiol* **2016**, *66*, 3737–3742.
- ■ □
- [87] Ivanova, E. P.; Romanenko, L. A.; Matté, M. H.; Matté, G. R.; Lysenko, A. M.; Simidu, U.; Kita-Tsukamoto, K.; Sawabe, T.; Vysotskii, M. V.; Frolova, G. M.; Mikhailov, V.; Christen, R.; Colwell, R. R. *Int J Syst Evol Microbiol* **2001**, *51*, 1071–1078.
- ■ □
- [88] Horino, H.; Fujita, T.; Tonouchi, A. *Int J Syst*

- Evol Microbiol* **2014**, *64*, 1296–1303.
■ ■ □
- [89] Zhang, X.; Tu, B.; Dai, L.-r.; Lawson, P. A.; Zheng, Z.-z.; Liu, L.-Y.; Deng, Y.; Zhang, H.; Cheng, L. *Int J Syst Evol Microbiol* **2018**, *68*, 3197–3211.
■ ■ □
- [90] Cao, J.; Gayet, N.; Zeng, X.; Shao, Z.; Jebbar, M.; Alain, K. *Int J Syst Evol Microbiol* **2016**, *66*, 3904–3911.
■ ■ □
- [91] Hameed, A.; Shahina, M.; Lin, S.-Y.; Nakayan, P.; Liu, Y.-C.; Lai, W.-A.; Hsu, Y.-H. *Int J Syst Evol Microbiol* **2014**, *64*, 2729–2737.
■ ■ □
- [92] Kämpfer, P.; Wellner, S.; Lohse, K.; Martin, K.; Lodders, N. *Syst Appl Microbiol* **2012**, *35*, 19–23.
■ ■ □
- [93] Kim, S.-J.; Cho, H.; Ahn, J.-H.; Weon, H.-Y.; Seok, S.-J.; Kim, J.-S.; Kwon, S.-W. *Int J Syst Evol Microbiol* **2016**, *66*, 4167–4171.
■ ■ □
- [94] Carlier, J.-P.; Bedora-Faure, M.; K'ouas, G.; Alauzet, C.; Mory, F. *Int J Syst Evol Microbiol* **2010**, *60*, 585–590.
■ ■ □
- [95] Spring, S.; Riedel, T.; Spröer, C.; Yan, S.; Harder, J.; Fuchs, B. M. *BMC Microbiol* **2013**, *13*, 118.
■ ■ □

- [96] Hyeon, J. W.; Jeong, S. E.; Baek, K.; Jeon, C. O. *Int J Syst Evol Microbiol* **2017**, *67*, 362–368.

■ ■ □

- [97] Jurado, V.; Laiz, L.; Ortiz-Martinez, A.; Groth, I.; Saiz-Jimenez, C. *Int J Syst Evol Microbiol* **2011**, *61*, 2515–2519.

■ ■ □

- [98] Heo, J.; Cho, H.; Kim, M. A.; Hamada, M.; Tamura, T.; Saitou, S.; Kim, S.-J.; Kwon, S.-W. *Int J Syst Evol Microbiol* **2019**, *69*, 2101–2107.

■ ■ □

- [99] Janse, J. D.; Rossi, P.; Angelucci, L.; Scorticchini, M.; Derkx, J. H. J.; Akkermans, A. D. L.; De Vrijer, R.; Psallidas, P. G. *Syst Appl Microbiol* **1996**, *19*, 589–595.

Microbiol **1996**, *19*, 589–595.

■ ■ □

- [100] Shin, S.-K.; Hwang, C. Y.; Cho, Y.-J.; Yi, H. *Syst Appl Microbiol* **2015**, *38*, 563–566.

■ ■ □

- [101] Huang, Y.; Wang, L.; Lu, Z.; Hong, L.; Liu, Z.; Tan, G. Y. A.; Goodfellow, M. *Int J Syst Evol Microbiol* **2002**, *52*, 977–982.

■ ■ □

- [102] Warwick, S.; Bowen, T.; McVeigh, H.; Embley, T. M. *Int J Syst Bacteriol* **1994**, *44*, 293–299.

■ ■ □

- [103] Lai, Q.; Li, G.; Liu, X.; Du, Y.; Sun, F.; Shao, Z. *Antonie van Leeuwenhoek* **2015**, *107*,

- 1065–1074.
■ ■ □
- [104] Huang, M.-M.; Guo, L.-L.; Wu, Y.-H.; Lai, Q.-L.; Shao, Z.-Z.; Wang, C.-S.; Wu, M.; Xu, X.-W. *Int J Syst Evol Microbiol* **2018**, *68*, 409–415.
■ ■ □
- [105] Billerbeck, S.; Orchard, J.; Tindall, B. J.; Giebel, H.-A.; Brinkhoff, T.; Simon, M. *Int J Syst Evol Microbiol* **2015**, *65*, 1967–1974.
■ ■ □
- [106] Cao, J.; Lai, Q.; Li, G.; Shao, Z. *Int J Syst Evol Microbiol* **2014**, *64*, 1853–1858.
■ ■ □
- [107] Breider, S.; Scheuner, C.; Schumann, P.; Fiebig, A.; Petersen, J.; Pradella, S.; Klenk, H.-P.; Brinkhoff, T.; Göker, M. *Front Microbiol* **2014**, *5*, 416.
■ ■ □
- [108] Scholz, C. F. P.; Kilian, M. *Int J Syst Evol Microbiol* **2016**, *66*, 4422–4432.
■ ■ □
- [109] Willems, A.; Collins, M. D. *Int J Syst Bacteriol* **1996**, *46*, 1083–1087.
■ ■ □
- [110] Uchino, Y.; Hamada, T.; Yokota, A. *J Gen Appl Microbiol* **2002**, *48*, 309–319.
■ ■ □
- [111] Sun, C.; Pan, J.; Zhang, X.-Q.; Su, Y.; Wu, M. *Antonie van Leeuwenhoek* **2015**, *108*, 291–299.
■ ■ □

- [112] Lee, D. S.; Ryu, S. H.; Hwang, H. W.; Kim, Y.-J.; Park, M.; Lee, J. R.; Lee, S.-S.; Jeon, C. O. *Int J Syst Evol Microbiol* **2008**, *58*, 2235–2240.
- ■ □
- [113] Krishnamurthi, S.; Ruckmani, A.; Pukall, R.; Chakrabarti, T. *Syst Appl Microbiol* **2010**, *33*, 367–373.
- ■ □
- [114] Bowman, J. P.; McCammon, S. A.; Lewis, T.; Skerratt, J. H.; Brown, J. L.; Nichols, D. S.; McMeekin, T. A. *Microbiology* **1998**, *144*, 1601–1609.
- ■ □
- [115] Hatayama, K.; Shoun, H.; Ueda, Y.; Nakamura, A. *Int J Syst Evol Microbiol* **2006**, *56*, 2545–2551.
- ■ □

18 R

Ralstonia eutropha

← *Alcaligenes eutrophus*¹

Ralstonia pickettii[†]

← *Burkholderia pickettii*¹

Ralstonia solanacearum

← *Burkholderia solanacearum*¹

Ralstonia syzygii

← *Pseudomonas syzygii*²

Raoultella ornithinolytica

← *Klebsiella ornithinolytica*³

Raoultella planticola[†]

← *Klebsiella planticola*³

Raoultella terrigena

← *Klebsiella terrigena*³

Rathayibacter iranicus

← *Clavibacter iranicus*⁴

Rathayibacter rathayi[†]

← *Clavibacter rathayi*[†]⁴

Rathayibacter toxicus

← *Clavibacter toxicus*⁵

Rathayibacter tritici

← *Clavibacter tritici*⁴

Rhizobacter fulvus

← *Methylibium fulvum*⁶

Rhizobium aggregatum

← *Blastobacter aggregatus*⁷

Rhizobium etli

← *Rhizobium leguminosarum*⁸

Rhizobium larrymoorei	← <i>Agrobacterium larrymoorei</i> ⁹	← <i>Rhodopseudomonas marina</i> ¹³
Rhizobium radiobacter	← <i>Agrobacterium radiobacter</i> ¹⁰	Rhodoblastus acidophilus [†]
Rhizobium rhizogenes	← <i>Agrobacterium rhizogenes</i> ¹⁰	← <i>Rhodopseudomonas acidophila</i> ¹⁴
Rhizobium rubi	← <i>Agrobacterium rubi</i> ¹⁰	Rhodococcus corynebacterioides
Rhizobium undicola	← <i>Allorhizobium undicola</i> ¹⁰	← <i>Nocardia corynebacterioides</i> ¹⁵
Rhizobium viscosum	← <i>Arthrobacter viscosus</i> ¹¹	Rhodococcus fascians
Rhizobium vitis	← <i>Agrobacterium vitis</i> ¹⁰	← <i>Corynebacterium fascians</i> ¹⁶
Rhizorhapis suberifaciens [†]	← <i>Rhizomonas suberifaciens</i> ¹²	Rhodococcus hoagii
Rhodobium marinum		← <i>Corynebacterium hoagii</i> ¹⁷
		Rhodococcus wratislaviensis
		← <i>Tsukamurella wratislaviensis</i> ¹⁸
		Rhodoglobus aureus
		← <i>Leifsonia aurea</i> ¹⁹
		Rhodoplanes roseus [†]
		← <i>Rhodopseudomonas rosea</i> ²⁰
		Rhodothalassium salexigens [†]
		← <i>Rhodospirillum salexigens</i> ²¹

Rhodovibrio salinarum[†]
← Rhodospirillum salinarum²¹

Rhodovibrio sodomensis
← Rhodospirillum sodomense²¹

Rhodovulum adriaticum
← Rhodobacter adriaticus²²

Rhodovulum euryhalinum
← Rhodobacter euryhalinus²²

Rhodovulum sulfidophilum[†]
← Rhodobacter sulfidophilus²²

Riemerella anatipestifer[†]
← Moraxella anatipestifer²³

Rikenella microfusus[†]
← Bacteroides microfusus²⁴

Rivibacter subsaxonicus[†]
← Methylibium subsaxonicum⁶

Robbsia andropogonis[†]

← Burkholderia andropogonis²⁵

Rodentibacter pneumotropicus[†]
← Pasteurella pneumotropica²⁶

Romboutsia lituseburensis
← Clostridium lituseburense²⁷

Roseivirga seohaensis
← Marinicola seohaensis^{† 28}

Roseomonas ludipueritiae
← Teichococcus ludipueritiae²⁹

Roseomonas rosea
← Muricoccus roseus²⁹

Roseospira mediosalina[†]
← Rhodospirillum mediosalinum²¹

Rothia halotolerans
← Kocuria halotolerans³⁰

Rothia koreensis
← Kocuria koreensis³⁰

Rothia kristinae

← *Kocuria kristinae*³⁰

Rothia mucilaginosa

← *Stomatococcus mucilaginosus*³¹

Rubinisphaera brasiliensis[†]

← *Planctomyces brasiliensis*³²

Rubrivivax gelatinosus[†]

← *Rhodocyclus gelatinosus*³³

Rubrobacter radiotolerans[†]

← *Arthrobacter radiotolerans*³⁴

Ruegeria algicola

← *Roseobacter algicola*³⁵

Ruegeria atlantica[†]

← *Agrobacterium atlanticum*³⁵

Ruegeria gelatinovorans

← *Agrobacterium gelatinovorum*³⁵

Ruegeria lacuscaerulensis

← *Silicibacter lacuscaerulensis*³⁶

Ruegeria litorea

← *Tropicibacter litoreus*³⁷

Ruegeria mediterranea

← *Tropicibacter mediterraneus*³⁷

Ruegeria pomeroyi

← *Silicibacter pomeroyi*³⁶

Ruminiclostridium cellobioparum[†]

← *Clostridium cellobioparum*³⁸

← *Clostridium termitidis*³⁸

Ruminiclostridium cellulolyticum

← *Clostridium cellulolyticum*³⁸

Ruminiclostridium hungatei

← *Clostridium hungatei*³⁸

Ruminiclostridium josui

← *Clostridium josui*³⁸

Ruminiclostridium papyrosolvens

← Clostridium papyrosolvens³⁸
Ruminiclostridium sufflavum
← Clostridium sufflavum³⁸
Ruminobacter amylophilus[†]
← Bacteroides amylophilus³⁹
Ruminococcus hansenii
← Streptococcus hansenii⁴⁰
Ruminococcus productus
← Peptostreptococcus productus⁴⁰
Rummeliibacillus pycnus
← Bacillus pycnus⁴¹

References

- [1] Yabuuchi, E.; Kosako, Y.; Yano, I.; Hotta, H.; Nishiuchi, Y. *Microbiol Immunol* **1995**, *39*, 897–904.
■ ■ □
- [2] Vanechoutte, M.; Kämpfer, P.; De Baere, T.; Falsen, E.; Verschraegen, G. *Int J Syst Evol Microbiol* **2004**, *54*, 317–327.
■ ■ □
- [3] Drancourt, M.; Bollet, C.; Carta, A.; Rousseau, P. *Int J Syst Evol Microbiol* **2001**, *51*, 925–932.
■ ■ □
- [4] Zgurskaya, H. I.; Evtushenko, L. I.; Akinov, V. N.; Kalakoutskii, L. V. *Int J Syst Bacteriol* **1993**, *43*, 143–149.
■ ■ □
- [5] Sasaki, J.; Chijimatsu, M.; Suzuki, K.-i. *Int J Syst Bacteriol* **1998**, *48*, 403–410.
■ ■ □
- [6] Stackebrandt, E.; Verborg, S.; Fröhling, A.;

- Busse, H.-J.; Tindall, B. J. *Int J Syst Evol Microbiol* **2009**, *59*, 2552–2560.
- ■ □
- [7] Kaur, J.; Verma, M.; Lal, R. *Int J Syst Evol Microbiol* **2011**, *61*, 1218–1225.
- ■ □
- [8] Segovia, L.; Young, J. P. W.; Martínez-Romero, E. *Int J Syst Bacteriol* **1993**, *43*, 374–377.
- ■ □
- [9] Young, J. M. *Int J Syst Evol Microbiol* **2004**, *54*, 149–149.
- ■ □
- [10] Young, J. M.; Kuykendall, L. D.; Martínez-Romero, E.; Kerr, A.; Sawada, H. *Int J Syst Evol Microbiol* **2001**, *51*, 89–103.
- ■ □
- [11] Flores-Félix, J. D.; Ramírez-Bahena, M. H.; Salazar, S.; Peix, A.; Velázquez, E. *Int J Syst Evol Microbiol* **2017**, *67*, 1789–1792.
- ■ □
- [12] Francis, I. M.; Jochimsen, K. N.; De Vos, P.; van Bruggen, A. H. C. *Int J Syst Evol Microbiol* **2014**, *64*, 1340–1350.
- ■ □
- [13] Hiraishi, A.; Urata, K.; Satoh, T. *Int J Syst Bacteriol* **1995**, *45*, 226–234.
- ■ □
- [14] Imhoff, J. F. *Int J Syst Evol Microbiol* **2001**, *51*, 1863–1866.
- ■ □

- [15] Yassin, A. F.; Schaal, K. P. *Int J Syst Evol Microbiol* **2005**, *55*, 1345–1348.

■ ■ □

- [16] Goodfellow, M. *Syst Appl Microbiol* **1984**, *5*, 225–229.

■ ■ □

- [17] Kämpfer, P.; Dott, W.; Martin, K.; Glaeser, S. P. *Int J Syst Evol Microbiol* **2014**, *64*, 755–761.

■ ■ □

- [18] Goodfellow, M.; Chun, J.; Stackebrandt, E.; Kroppenstedt, R. M. *Int J Syst Evol Microbiol* **2002**, *52*, 749–755.

■ ■ □

- [19] An, S.-Y.; Xiao, T.; Yokota, A. *J Gen Appl Microbiol* **2010**, *56*, 53–55.

■ ■ □

- [20] Hiraishi, A.; Ueda, Y. *Int J Syst Bacteriol* **1994**, *44*, 665–673.

■ ■ □

- [21] Imhoff, J. F.; Petri, R.; Süling, J. *Int J Syst Bacteriol* **1998**, *48*, 793–798.

■ ■ □

- [22] Hiraishi, A.; Ueda, Y. *Int J Syst Bacteriol* **1994**, *44*, 15–23.

■ ■ □

- [23] Segers, P.; Mannheim, W.; Vancanneyt, M.; De Brandt, K.; Hinz, K.-H.; Kersters, K.; Vandamme, P. *Int J Syst Bacteriol* **1993**, *43*, 768–776.

■ ■ □

- [24] Collins, M. D.; Shah, H. N.; Mitsuoka, T. *Syst*

Appl Microbiol **1985**, *6*, 79–81.



- [25] Lopes-Santos, L.; Castro, D. B. A.; Ferreira-Tonin, M.; Corrêa, D. B. A.; Weir, B. S.; Park, D.; Ottoboni, L. M. M.; Neto, J. R.; Destéfano, S. A. L. *Antonie van Leeuwenhoek* **2017**, *110*, 727–736.



- [26] Adhikary, S.; Nicklas, W.; Bisgaard, M.; Boot, R.; Kuhnert, P.; Waberschek, T.; Aalbæk, B.; Korczak, B.; Christensen, H. *Int J Syst Evol Microbiol* **2017**, *67*, 1793–1806.



- [27] Gerritsen, J.; Fuentes, S.; Grievink, W.; van Niftrik, L.; Tindall, B. J.; Timmerman, H. M.; Rijkers, G. T.; Smidt, H. *Int J Syst Evol Micro-*

biol **2014**, *64*, 1600–1616.



- [28] Lau, S. C. K.; Tsoi, M. M. Y.; Li, X.; Plakhotnikova, I.; Dobretsov, S.; Wu, M.; Wong, P.-K.; Pawlik, J. R.; Qian, P.-Y. *Int J Syst Evol Microbiol* **2006**, *56*, 1059–1065.



- [29] Sánchez-Porro, C.; Gallego, V.; Busse, H.-J.; Kämpfer, P.; Ventosa, A. *Int J Syst Evol Microbiol* **2009**, *59*, 1193–1198.



- [30] Nouiouï, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyriopoulos, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*,

2007.



- [31] Collins, M. D.; Hutson, R. A.; Båverud, V.; Falsen, E. *Int J Syst Evol Microbiol* **2000**, *50*, 1247–1251.



- [32] Scheuner, C. et al. *Stand Genomic Sci* **2014**, *9*, 10.



- [33] Willems, A.; Gillis, M.; De Ley, J. *Int J Syst Bacteriol* **1991**, *41*, 65–73.



- [34] Suzuki, K.-i.; Collins, M. D.; Iijima, E.; Komagata, K. *FEMS Microbiol Lett* **1988**, *52*, 33–39.



- [35] Uchino, Y.; Hirata, A.; Yokota, A.; Sugiyama, J. *J Gen Appl Microbiol* **1998**, *44*, 201–210.



- [36] Yi, H.; Lim, Y. W.; Chun, J. *Int J Syst Evol Microbiol* **2007**, *57*, 815–819.



- [37] Wirth, J. S.; Whitman, W. B. *Int J Syst Evol Microbiol* **2018**, *68*, 2393–2411.



- [38] Zhang, X.; Tu, B.; Dai, L.-r.; Lawson, P. A.; Zheng, Z.-z.; Liu, L.-Y.; Deng, Y.; Zhang, H.; Cheng, L. *Int J Syst Evol Microbiol* **2018**, *68*, 3197–3211.



- [39] Stärkebrandt, E.; Hippe, H. *Syst Appl Micro-*

biol **1986**, *8*, 204–207.

■ ■ □

- [40] Ezaki, T.; Li, N.; Hashimoto, Y.; Miura, H.; Yamamoto, H. *Int J Syst Bacteriol* **1994**, *44*, 130–136.

■ ■ □

- [41] Vaishampayan, P.; Miyashita, M.; Ohnishi, A.; Satomi, M.; Rooney, A.; La Duc, M. T.; Venkateswaran, K. *Int J Syst Evol Microbiol* **2009**, *59*, 1094–1099.

■ ■ □

19 S

Saccharicrinis fermentans[†]
← *Cytophaga fermentans*¹
Saccharomonospora halophila
← *Actinopolyspora iraqiensis*[?]
Saccharomonospora iraqiensis
← *Actinopolyspora iraqiensis*²
Saccharopolyspora rectivirgula
← *Faenia rectivirgula*³
Saccharothrix albidocapillata
← *Lentzea albidocapillata*⁴
Saccharothrix coeruleofusca
← *Nocardiopsis coeruleofusca*⁵
Saccharothrix flava
← *Nocardiopsis flava*⁵

Saccharothrix longispora
← *Nocardiopsis longispora*⁵
Saccharothrix mutabilis
← *Nocardiopsis mutabilis*⁶
Saccharothrix syringae
← *Nocardiopsis syringae*⁵
Salegentibacter salegens[†]
← *Flavobacterium salegens*⁷
Salibacillus marismortui
← *Bacillus marismortui*⁸
Salibacillus salexigens[†]
← *Bacillus salexigens*⁹
Salibacterium halochares
← *Bacillus halochares*¹⁰

Salibacterium qingdaonense

← *Bacillus qingdaonensis*¹⁰

Salimicrobium album[†]

← *Marinococcus albus*¹¹

Salimicrobium halophilum

← *Marinococcus halophilus*¹¹

Salinicoccus hispanicus

← *Marinococcus hispanicus*¹²

Salinicola halophilus

← *Chromohalobacter salarius*¹³

Salinicola salarius

← *Halomonas salaria*¹³

Salinifilum aidingsis

← *Saccharopolyspora aidingsis*¹⁴

Salinifilum ghardaiensis

← *Saccharopolyspora ghardaiensis*¹⁴

Salinimicrobium catena[†]

← *Salegentibacter catena*¹⁵

Salininema proteolyticum

← *Paraglycomyces xinjiangensis*¹⁶

Salinivibrio costicola[†]

← *Vibrio costicola*¹⁷

Salipaludibacillus agaradhaerens

← *Bacillus agaradhaerens*¹⁸

Salipaludibacillus neizhouensis

← *Bacillus neizhouensis*¹⁸

Salipiger aestuarii

← *Citreicella aestuarii*¹⁹

Salipiger bermudensis

← *Pelagibaca bermudensis*^{† 19}

Salipiger manganoxidans

← *Citreicella manganoxidans*¹⁹

Salipiger marinus

← *Citreicella marina*¹⁹

Salipiger thiooxidans	← <i>Actinomyces meyeri</i> ²
← <i>Citreicella thiooxidans</i> ^{† 19}	
Salisediminibacterium locisalis	Schaalia naturae
← <i>Bacillus locisalis</i> ²⁰	← <i>Actinomyces naturae</i> ²
Scardovia inopinata [†]	Schaalia odontolytica [†]
← <i>Bifidobacterium inopinatum</i> ²¹	← <i>Actinomyces odontolyticus</i> ²
Schaalia canis	Schaalia radingae
← <i>Actinomyces canis</i> ²	← <i>Actinomyces radingae</i> ²
Schaalia cardiffensis	Schaalia suimastitidis
← <i>Actinomyces cardiffensis</i> ²	← <i>Actinomyces suimastitidis</i> ²
Schaalia funkei	Schaalia turicensis
← <i>Actinomyces funkei</i> ²	← <i>Actinomyces turicensis</i> ²
Schaalia georgiae	Schaalia vaccimaxillae
← <i>Actinomyces georgiae</i> ²	← <i>Actinomyces vaccimaxillae</i> ²
Schaalia hyovaginalis	Sebaldella termitidis [†]
← <i>Actinomyces hyovaginalis</i> ²	← <i>Bacteroides termitidis</i> ²²
Schaalia meyeri	Sedimentibacter hydroxybenzoicus [†]
	← <i>Clostridium hydroxybenzoicum</i> ²³

Sedimentitalea nanhaiensis[†]

← *Leisingera nanhaiensis*²⁴

Sediminispirochaeta bajacaliforniensis[†]

← *Spirochaeta bajacaliforniensis*²⁵

Sediminispirochaeta sinaica

← *Spirochaeta sinaica*²⁵

Sediminispirochaeta smaragdinae

← *Spirochaeta smaragdinae*²⁵

Shewanella colwelliana

← *Alteromonas colwelliana*²⁶

Shewanella frigidimarina

← *Shewanella arctica*²⁷

Shimia abyssi

← *Thalassobius abyssi*¹⁹

Shimia aestuarii

← *Thalassobius aestuarii*¹⁹

Shimwellia blattae

← *Escherichia blattae*²⁸

Siccibacter turicensis[†]

← *Enterobacter turicensis*²⁹

Simplicispira metamorpha[†]

← *Aquaspirillum metamorphum*³⁰

Simplicispira psychrophila

← *Aquaspirillum psychrophilum*³⁰

Sinomonas albida

← *Arthrobacter albidus*³¹

Sinomonas atrocyanea

← *Arthrobacter atrocyaneus*³²

Sinomonas echigonensis

← *Arthrobacter echigonensis*³¹

Sinorhizobium meliloti

← *Rhizobium meliloti*³³

Skermania piniformis[†]

← *Nocardia pinensis*³⁴

Slackia exigua [†]	← <i>Eubacterium exiguum</i> ³⁵	← <i>Microbispora thailandensis</i> ⁴⁰
Slackia heliotrinireducens	← <i>Peptostreptococcus heliotrinireducens</i> ³⁵	Sphaerisporangium viridialbum
Solibacillus isronensis	← <i>Bacillus isronensis</i> ³⁶	← <i>Streptosporangium viridialbum</i> ⁴¹
Solibacillus silvestris [†]	← <i>Bacillus silvestris</i> ³⁷	Sphaerochaeta coccoides
Solimonas flava	← <i>Sinobacter flavus</i> ³⁸	← <i>Spirochaeta coccoides</i> ⁴²
Solimonas variicoloris	← <i>Singularimonas variicoloris</i> ³⁸	Sphingobacterium heparinum
Solitalea canadensis	← <i>Flexibacter canadensis</i> ³⁹	← <i>Cytophaga heparina</i> ⁴³
Sphaerimonospora mesophila	← <i>Microbispora mesophila</i> ⁴⁰	Sphingobacterium multivorum
Sphaerimonospora thailandensis		← <i>Flavobacterium multivorum</i> ⁴⁴
		Sphingobacterium spiritivorum [†]
		← <i>Flavobacterium spiritivorum</i> ⁴⁴
		Sphingobacterium thalpophilum
		← <i>Flavobacterium thalpophilum</i> ⁴³
		Sphingobium chungbukense
		← <i>Sphingomonas chungbukensis</i> ⁴⁵
		Sphingobium cloacae
		← <i>Sphingomonas cloacae</i> ⁴⁶

Sphingobium suberifaciens
← *Sphingomonas suberifaciens*⁴⁷

Sphingobium xenophagum
← *Sphingomonas xenophaga*⁴⁸

Sphingomonas capsulata
← *Flavobacterium capsulatum*⁴⁹

Sphingomonas echinoides
← *Pseudomonas echinoides*⁵⁰

Sphingomonas leidyi
← *Caulobacter leidyi*⁵¹

Sphingomonas natatoria
← *Blastomonas natatoria*⁵²

Sphingomonas paucimobilis[†]
← *Pseudomonas paucimobilis*⁴⁹

Sphingomonas suberifaciens
← *Rhizomonas suberifaciens*⁵²

Sphingomonas ursincola

← *Erythromonas ursincola*⁵²

Sphingopyxis alaskensis
← *Sphingomonas alaskensis*⁵³

Sphingopyxis taejonensis
← *Sphingomonas taejonensis*⁴⁸

Sphingorhabdus contaminans
← *Sphingopyxis contaminans*⁵⁴

Sphingorhabdus flavimaris
← *Sphingopyxis flavimaris*⁵⁵

Sphingorhabdus litoris
← *Sphingopyxis litoris*⁵⁵

Sphingorhabdus marina
← *Sphingopyxis marina*⁵⁵

Sphingorhabdus rigui
← *Sphingopyxis rigui*⁵⁶

Sphingorhabdus wooponensis
← *Sphingopyxis wooponensis*⁵⁶

Spongibacter marinus	← <i>Thiobacillus novellus</i> ⁶³
← <i>Melitea salexigens</i> ⁵⁷	
Sporohalobacter lortetii [†]	Stenotrophomonas pictorum
← <i>Clostridium lortetii</i> ⁵⁸	← <i>Pseudomonas pictorum</i> ⁶⁴
Sporolactobacillus laevolacticus	Streptacidiphilus griseoplanus
← <i>Bacillus laevolacticus</i> ⁵⁹	← <i>Streptomyces griseoplanus</i> ⁶⁵
Sporosarcina globispora	Streptococcus parvulus
← <i>Bacillus globisporus</i> ⁶⁰	← <i>Peptostreptococcus parvulus</i> ⁶⁶
Sporosarcina pasteurii	Streptomonospora arabica
← <i>Bacillus pasteurii</i> ⁶⁰	← <i>Nocardiopsis arabia</i> ⁶⁷
Sporosarcina psychrophila	Streptomyces armeniacus
← <i>Bacillus psychrophilus</i> ⁶⁰	← <i>Actinoplanes armeniacus</i> ⁶⁸
Stanierella latercula [†]	Streptomyces brasiliensis
← <i>Cytophaga] latercula</i> ⁶¹	← <i>Elytrosporangium brasiliense</i> ⁶⁹
Staphylococcus saccharolyticus	Streptomyces carpinensis
← <i>Peptococcus saccharolyticus</i> ⁶²	← <i>Elytrosporangium carpinense</i> ⁶⁹
Starkeya novella [†]	Streptomyces cinereus
	← <i>Microellobosporia cinerea</i> ⁶⁹

Streptomyces cystargineus
← Kitasatosporia cystarginea⁷⁰

Streptomyces flaveus
← Microellobosporia flavea⁶⁹

Streptomyces flaviscleroticus
← Chainia flava⁷¹

Streptomyces fumigatiscleroticus
← Chainia fumigata⁷¹

Streptomyces humiferus
← Actinopycnidium caeruleum⁷²

Streptomyces indiaensis
← Streptosporangium indianense⁷³

Streptomyces kunmingensis
← Chainia kunmingensis⁷¹

Streptomyces niger
← Chainia nigra⁷¹

Streptomyces paradoxus

← Actinosporangium violaceum⁷²

Streptomyces pseudoechinosporeus
← Microellobosporia grisea⁶⁹

Streptomyces purpureus
← Kitasatoa purpurea⁷⁴

Streptomyces ruber
← Chainia rubra⁷¹

Streptomyces spiralis
← Elytrosporangium spirale⁶⁹

Streptomyces violens
← Chainia violens⁷¹

Streptomyces vitaminophilus
← Actinosporangium vitaminophilum⁷²

Streptomyces yerevanensis
← Microellobosporia violacea⁶⁹

Sulfitobacter guttiformis
← Staleya guttiformis⁷⁵

Sulfitobacter indolifex

← Oceanibulbus indolifex⁷⁶

Sulfurimonas denitrificans

← Thiamicrospira denitrificans⁷⁷

Sulfurospirillum multivorans

← Dehalospirillum multivorans⁷⁸

Suttonella indologenes[†]

← Kingella indologenes⁷⁹

Syntrophomonas bryantii

← Syntrophospora bryantii⁸⁰

Syntrophospora bryantii[†]

← Clostridium bryantii⁸¹

References

- [1] Yang, S.-H.; Seo, H.-S.; Woo, J.-H.; Oh, H.-M.; Jang, H.; Lee, J.-H.; Kim, S.-J.; Kwon, K. K. *Int J Syst Evol Microbiol* **2014**, *64*, 1351–1358.



- [2] Nouiou, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyriopoulos, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*, 2007.



- [3] Korn-Wendisch, F.; Kempf, A.; Grund, E.; Kroppenstedt, R. M.; Kutzner, H. J. *Int J Syst Bacteriol* **1989**, *39*, 430–441.



- [4] Lee, S. D.; Kim, E. S.; Roe, J. H.; Kim, J.; Kang, S. O.; Hah, Y. C. *Int J Syst Evol Microbiol* **2000**, *50*, 1315–1323.



- [5] Grund, E.; Kroppenstedt, R. M. *Syst Appl*

- Microbiol* **1989**, *12*, 267–274.
■ ■ □
- [6] Labeda, D. P.; Lechevalier, M. P. *Int J Syst Bacteriol* **1989**, *39*, 420–423.
■ ■ □
- [7] McCammon, S. A.; Bowman, J. P. *Int J Syst Evol Microbiol* **2000**, *50*, 1055–1063.
■ ■ □
- [8] Arahal, D. R.; Márquez, M. C.; Volcani, B. E.; Schleifer, K. H.; Ventosa, A. *Int J Syst Evol Microbiol* **2000**, *50*, 1501–1503.
■ ■ □
- [9] Wainø, M.; Tindall, B. J.; Schumann, P.; Ingvorsen, K. *Int J Syst Bacteriol* **1999**, *49*, 821–831.
■ ■ □
- [10] Vishnuvardhan Reddy, S.; Thirumala, M.; Sasikala, C.; Venkata Ramana, C. *Int J Syst Evol Microbiol* **2015**, *65*, 4270–4275.
■ ■ □
- [11] Yoon, J.-H.; Kang, S.-J.; Oh, T.-K. *Int J Syst Evol Microbiol* **2007**, *57*, 2406–2411.
■ ■ □
- [12] Ventosa, A.; Marquez, M. C.; Weiss, N.; Tindall, B. J. *Syst Appl Microbiol* **1992**, *15*, 530–534.
■ ■ □
- [13] de la Haba, R. R.; Sánchez-Porro, C.; Márquez, M. C.; Ventosa, A. *Int J Syst Evol Microbiol* **2010**, *60*, 963–971.
■ ■ □
- [14] Moshtaghi Nikou, M.; Ramezani, M.;

- Harirchi, S.; Makzoom, S.; Amoozegar, M. A.; Shahzadeh Fazeli, S. A.; Schumann, P.; Ventosa, A. *Int J Syst Evol Microbiol* **2017**, *67*, 4221–4227.
- ■ □
- [15] Lim, J.-M.; Jeon, C. O.; Lee, S. S.; Park, D.-J.; Xu, L.-H.; Jiang, C.-L.; Kim, C.-J. *Int J Syst Evol Microbiol* **2008**, *58*, 438–442.
- ■ □
- [16] Li, X.-J.; Liu, J.-M.; Wu, Y.; Zhang, W.-M.; Li, J.; Liu, S.-W.; Wu, G.; Hu, L.; Chen, L.; Huang, D.-L.; Li, R.-F.; Sun, C.-H. *Int J Syst Evol Microbiol* **2016**, *66*, 2558–2565.
- ■ □
- [17] Mellado, E.; Moore, E. R. B.; Nieto, J. J.; Ventosa, A. *Int J Syst Bacteriol* **1996**, *46*, 817–821.
- ■ □
- [18] Sultanpuram, V. R.; Mothe, T. *Int J Syst Evol Microbiol* **2016**, *66*, 2747–2753.
- ■ □
- [19] Wirth, J. S.; Whitman, W. B. *Int J Syst Evol Microbiol* **2018**, *68*, 2393–2411.
- ■ □
- [20] Sultanpuram, V. R.; Mothe, T.; Mohammed, F. *Arch Microbiol* **2015**, *197*, 553–560.
- ■ □
- [21] Jian, W.; Dong, X. *Int J Syst Evol Microbiol* **2002**, *52*, 809–812.
- ■ □
- [22] Collins, M. D.; Shah, H. N. *Int J Syst Bacteriol*

- 1986, 36, 349–350.
■ ■ □
- [23] Breitenstein, A.; Wiegel, J.; Haertig, C.; Weiss, N.; Andreesen, J. R.; Lechner, U. *Int J Syst Evol Microbiol* 2002, 52, 801–807.
■ ■ □
- [24] Breider, S.; Scheuner, C.; Schumann, P.; Fiebig, A.; Petersen, J.; Pradella, S.; Klenk, H.-P.; Brinkhoff, T.; Göker, M. *Front Microbiol* 2014, 5, 416.
■ ■ □
- [25] Shivani, Y.; Subhash, Y.; Sasikala, C.; Ramana, C. V. *Int J Syst Evol Microbiol* 2016, 66, 5485–5492.
■ ■ □
- [26] Coyne, V. E.; Pillidge, C. J.; Sledjeski, D. D.; Hori, H.; Ortiz-Conde, B. A.; Muir, D. G.; Weiner, R. M.; Colwell, R. R. *Syst Appl Microbiol* 1989, 12, 275–279.
■ ■ □
- [27] Hwang, Y. J.; Jang, G. I.; Cho, B. C.; Lee, J. I.; Hwang, C. Y. *Int J Syst Evol Microbiol* 2019, 69, 2415–2423.
■ ■ □
- [28] Priest, F. G.; Barker, M. *Int J Syst Evol Microbiol* 2010, 60, 828–833.
■ ■ □
- [29] Stephan, R.; Grim, C. J.; Gopinath, G. R.; Mammel, M. K.; Sathyamoorthy, V.; Trach, L. H.; Chase, H. R.; Fanning, S.; Tall, B. D. *Int J Syst Evol Microbiol* 2014, 64,

3402–3410.



- [30] Grabovich, M.; Gavrish, E.; Kuever, J.; Lysenko, A. M.; Podkopaeva, D.; Dubinina, G. *Int J Syst Evol Microbiol* **2006**, *56*, 569–576.



- [31] Zhou, Y.; Chen, X.; Zhang, Y.; Wang, W.; Xu, J. *Int J Syst Evol Microbiol* **2012**, *62*, 764–769.



- [32] Zhou, Y.; Wei, W.; Wang, X.; Lai, R. *Int J Syst Evol Microbiol* **2009**, *59*, 259–263.



- [33] De Lajudie, P.; Willemans, A.; Pot, B.; Dewettinck, D.; Maestrojuan, G.; Neyra, M.; Collins, M. D.; Dreyfus, B.; Kersters, K.;

Gillis, M. *Int J Syst Bacteriol* **1994**, *44*, 715–733.



- [34] Chun, J.; Blackall, L. L.; Kang, S.-O.; Hah, Y. C.; Goodfellow, M. *Int J Syst Bacteriol* **1997**, *47*, 127–131.



- [35] Wade, W. G.; Downes, J.; Dymock, D.; Hiom, S. J.; Weightman, A. J.; Dewhurst, F. E.; Paster, B. J.; Tzellas, N.; Coleman, B. *Int J Syst Bacteriol* **1999**, *49*, 595–600.



- [36] Mual, P.; Singh, N. K.; Verma, A.; Schumann, P.; Krishnamurthi, S.; Dastager, S.; Mayilraj, S. *Int J Syst Evol Microbiol* **2016**, *66*,

2113–2120.



- [37] Krishnamurthi, S.; Chakrabarti, T.; Stackebrandt, E. *Int J Syst Evol Microbiol* **2009**, *59*, 1054–1058.



- [38] Sheu, S.-Y.; Cho, N.-T.; Arun, A. B.; Chen, W.-M. *Int J Syst Evol Microbiol* **2011**, *61*, 2284–2291.



- [39] Weon, H.-Y.; Kim, B.-Y.; Lee, C.-M.; Hong, S.-B.; Jeon, Y.-A.; Koo, B.-S.; Kwon, S.-W. *Int J Syst Evol Microbiol* **2009**, *59*, 1969–1975.



- [40] Mingma, R.; Duangmal, K.; Také, A.; Inahashi, Y.; Omura, S.; Takahashi, Y.; Mat-

sumoto, A. *Int J Syst Evol Microbiol* **2016**, *66*, 1735–1744.



- [41] Ara, I.; Kudo, T. *Actinomycetol* **2007**, *21*, 11–21.



- [42] Abt, B. et al. *Stand Genomic Sci* **2012**, *6*, 194–209.



- [43] Takeuchi, M.; Yokota, A. *J Gen Appl Microbiol* **1992**, *38*, 465–482.



- [44] Yabuuchi, E.; Kaneko, T.; Yano, I.; Moss, C. W.; Miyoshi, N. *Int J Syst Bacteriol* **1983**, *33*, 580–598.



- [45] Pal, R.; Bala, S.; Dadhwal, M.; Kumar, M.; Dhingra, G.; Prakash, O.; Prabagaran, S. R.; Shivaji, S.; Cullum, J.; Holliger, C.; Lal, R. *Int J Syst Evol Microbiol* **2005**, *55*, 1965–1972.
■ ■ □
- [46] Prakash, O.; Lal, R. *Int J Syst Evol Microbiol* **2006**, *56*, 2147–2152.
■ ■ □
- [47] Chen, H.; Jogler, M.; Rohde, M.; Klenk, H.-P.; Busse, H.-J.; Tindall, B. J.; Spröer, C.; Overmann, J. *Int J Syst Evol Microbiol* **2013**, *63*, 735–743.
■ ■ □
- [48] Pal, R.; Bhasin, V. K.; Lal, R. *Int J Syst Evol Microbiol* **2006**, *56*, 667–670.
■ ■ □
- [49] Yabuuchi, E.; Yano, I.; Oyaizu, H.; Hashimoto, Y.; Ezaki, T.; Yamamoto, H. *Microbiol Immunol* **1990**, *34*, 99–119.
■ ■ □
- [50] Denner, E. B. M.; Kämpfer, P.; Busse, H.-J.; Moore, E. R. B. *Int J Syst Bacteriol* **1999**, *49*, 1103–1109.
■ ■ □
- [51] Chen, H.; Jogler, M.; Rohde, M.; Klenk, H.-P.; Busse, H.-J.; Tindall, B. J.; Spröer, C.; Overmann, J. *Int J Syst Evol Microbiol* **2012**, *62*, 2835–2843.
■ ■ □
- [52] Yabuuchi, E.; Kosako, Y.; Naka, T.; Suzuki, S.; Yano, I. *Microbiol Immunol* **1999**, *43*, 339–349.
■ ■ □

- [53] Godoy, F.; Vancanneyt, M.; Martínez, M.; Steinbüchel, A.; Swings, J.; Rehm, B. H. A. *Int J Syst Evol Microbiol* **2003**, *53*, 473–477.
- ■ □
- [54] Yang, S.-Z.; Xiong, X.; Feng, G.-D.; Li, H.-P.; Zhu, H.-H. *Int J Syst Evol Microbiol* **2017**, *67*, 4328–4331.
- ■ □
- [55] Jogler, M.; Chen, H.; Simon, J.; Rohde, M.; Busse, H.-J.; Klenk, H.-P.; Tindall, B. J.; Overmann, J. *Int J Syst Evol Microbiol* **2013**, *63*, 1342–1349.
- ■ □
- [56] Park, J.-M.; Park, S.; Jung, Y.-T.; Kim, H.; Lee, J.-S.; Yoon, J.-H. *Int J Syst Evol Microbiol* **2014**, *64*, 2551–2557.
- ■ □
- [57] Jang, G. I.; Hwang, C. Y.; Choi, H.-G.; Kang, S.-H.; Cho, B. C. *Int J Syst Evol Microbiol* **2011**, *61*, 2895–2900.
- ■ □
- [58] Oren, A.; Pohla, H.; Stackebrandt, E. *Syst Appl Microbiol* **1987**, *9*, 239–246.
- ■ □
- [59] Hatayama, K.; Shoun, H.; Ueda, Y.; Nakamura, A. *Int J Syst Evol Microbiol* **2006**, *56*, 2545–2551.
- ■ □
- [60] Yoon, J. H.; Lee, K. C.; Weiss, N.; Kho, Y. H.; Kang, K. H.; Park, Y. H. *Int J Syst Evol Microbiol* **2014**, *64*, 2551–2557.

biol **2001**, *51*, 1079–1086.



- [61] Nedashkovskaya, O. I.; Kim, S. B.; Lysenko, A. M.; Frolova, G. M.; Mikhailov, V. V.; Lee, K. H.; Bae, K. S. *Int J Syst Evol Microbiol* **2005**, *55*, 225–229.



- [62] Kilpper-Bälz, R.; Schleifer, K. H. *Zentralbl Bakteriol Mikrobiol Hyg C* **1981**, *2*, 324–331.



- [63] Kelly, D. P.; McDonald, I. R.; Wood, A. P. *Int J Syst Evol Microbiol* **2000**, *50*, 1797–1802.



- [64] Ouattara, A. S.; Le Mer, J.; Joseph, M.; Macarie, H. *Int J Syst Evol Microbiol* **2017**, *67*,

1894–1900.



- [65] Nouiou, I.; Klenk, H.-P.; Igual, J. M.; Gulvik, C. A.; Lasker, B. A.; McQuiston, J. R. *Int J Syst Evol Microbiol* **2019**, *69*, 1047–1056.



- [66] Cato, E. P. *Int J Syst Bacteriol* **1983**, *33*, 82–84.



- [67] Zhang, D.-F.; Pan, H.-Q.; He, J.; Zhang, X.-M.; Zhang, Y.-G.; Klenk, H.-P.; Hu, J.-C.; Li, W.-J. *Int J Syst Evol Microbiol* **2013**, *63*, 4447–4455.



- [68] Wellington, E. M. H.; Williams, S. T. *Int J Syst Bacteriol* **1981**, *31*, 77–81.



- [69] Goodfellow, M.; Williams, S. T.; Alderson, G. *Syst Appl Microbiol* **1986**, *8*, 48–54.
■ ■ □
- [70] Nakagaito, Y.; Shimazu, A.; Yokota, A.; Hasegawa, T. *J Gen Appl Microbiol* **1992**, *38*, 627–633.
■ ■ □
- [71] Goodfellow, M.; Williams, S. T.; Alderson, G. *Syst Appl Microbiol* **1986**, *8*, 55–60.
■ ■ □
- [72] Goodfellow, M.; Williams, S. T.; Alderson, G. *Syst Appl Microbiol* **1986**, *8*, 61–64.
■ ■ □
- [73] Kudo, T.; Seino, A. *Int J Syst Bacteriol* **1987**, *37*, 241–244.
■ ■ □
- [74] Goodfellow, M.; Williams, S. T.; Alderson, G. *Syst Appl Microbiol* **1986**, *8*, 65–66.
■ ■ □
- [75] Yoon, J.-H.; Kang, S.-J.; Lee, M.-H.; Oh, T.-K. *Int J Syst Evol Microbiol* **2007**, *57*, 1788–1792.
■ ■ □
- [76] Liu, Y.; Lai, Q.; Shao, Z. *Int J Syst Evol Microbiol* **2017**, *67*, 2328–2331.
■ ■ □
- [77] Takai, K.; Suzuki, M.; Nakagawa, S.; Miyazaki, M.; Suzuki, Y.; Inagaki, F.; Horikoshi, K. *Int J Syst Evol Microbiol* **2006**, *56*, 1725–1733.
■ ■ □
- [78] Luijten, M. L. G. C.; de Weert, J.; Smidt, H.; Boschker, H. T. S.; de Vos, W. M.; Schraa, G.;

Stams, A. J. M. *Int J Syst Evol Microbiol* **2003**, *53*, 787–793.



[79] Dewhirst, F. E.; Paster, B. J.; La Fontaine, S.; Rood, J. I. *Int J Syst Bacteriol* **1990**, *40*, 426–433.



[80] Wu, C.; Liu, X.; Dong, X. *Int J Syst Evol Microbiol* **2006**, *56*, 2331–2335.



[81] Zhao, H.; Yang, D.; Woese, C. R.; Bryant, M. P. *Int J Syst Bacteriol* **1990**, *40*, 40–44.



20 T

Tannerella forsythia[†]

← *Bacteroides forsythus*¹

Tatlockia maceachernii

← *Legionella maceachernii*²

Tatumella citrea

← *Pantoea citrea*³

Tatumella punctata

← *Pantoea punctata*³

Tatumella terrea

← *Pantoea terrea*³

Taylorella equigenitalis[†]

← *Haemophilus equigenitalis*⁴

Telluria mixta[†]

← *Pseudomonas mixta*⁵

Tenacibaculum maritimum[†]

← *Flexibacter maritimus*⁶

Tenacibaculum ovolyticum

← *Flexibacter ovolyticus*⁶

Tepidiphilus succinatimandens

← *Petrobacter succinatimandens*⁷

Terrabacter tumescens[†]

← *Pimelobacter tumescens*⁸

Terribacillus goriensis

← *Pelagibacillus goriensis*⁹

Terrimonas ferruginea[†]

← *Flavobacterium ferrugineum*¹⁰

Terrisporobacter glycolicus[†]

← *Clostridium glycolicum*¹¹

Terrisporobacter mayombei
← Clostridium mayombei¹¹

Tetragenococcus solitarius
← Enterococcus solitarius¹²

Tetrasphaera duodecadis
← Arthrobacter duodecadis¹³

Thalassobius gelatinovorus
← Ruegeria gelatinovorans¹⁴

Thalassotalea agariperforans[†]
← Thalassomonas agariperforans¹⁵

Thalassotalea agarivorans
← Thalassomonas agarivorans¹⁵

Thalassotalea eurytherma
← Thalassomonas eurytherma¹⁶

Thalassotalea fusca
← Thalassomonas fusca¹⁷

Thalassotalea ganghwensis

← Thalassomonas ganghwensis¹⁵

Thalassotalea loyana
← Thalassomonas loyana¹⁵

Thermaaerovibrio acidaminovorans[†]
← Selenomonas acidaminovorans¹⁸

Thermithiobacillus tepidarius[†]
← Thiobacillus tepidarius¹⁹

Thermoanaerobacter acetoethylicus
← Thermobacteroides acetoethylicus²⁰

Thermoanaerobacter brockii
← Thermoanaerobium brockii²¹

Thermoanaerobacter kivui
← Acetogenium kivui²²

Thermoanaerobacter thermocopriae
← Clostridium thermocopriae²²

**Thermoanaerobacterium
thermosaccharolyticum**

← Clostridium thermosaccharolyticum²²
Thermoanaerobacterium thermosulfurigenes[†]
← Clostridium thermosulfurigenes²¹
Thermobifida alba[†]
← Thermomonospora alba²³
Thermobifida fusca
← Thermomonospora fusca²³
Thermobispora bispora[†]
← Microbispora bispora²⁴
Thermochromatium tepidum[†]
← Chromatium tepidum²⁵
Thermoclostridium caenicola
← Clostridium caenicola²⁶
Thermoclostridium stercorarium[†]
← Clostridium stercorarium²⁶
Thermodesulfobacterium thermophilum
← Desulfovibrio thermophilus²⁷

Thermomonospora amylolytica
← Actinomadura amylolytica²⁸
Thermomonospora cellulosilytica
← Actinomadura cellulosilytica²⁸
Thermomonospora echinospora
← Actinomadura echinospora²⁸
Thermomonospora umbrina
← Actinomadura umbrina²⁸
Thermopolyspora flexuosa[†]
← Nonomuraea flexuosa²⁹
Thermostaphylospora chromogena
← Thermomonospora chromogena³⁰
Thiococcus pfennigii[†]
← Thiocapsa pfennigii²⁵
Thiocystis minor
← Chromatium minus²⁵
Thiocystis violascens

- ← *Chromatium violascens*²⁵
- Thiofilum flexile*[†]**
- ← *Thiothrix flexilis*³¹
- Thiohalocapsa halophila*[†]**
- ← *Thiocapsa halophila*²⁵
- Thiolinea disciformis*[†]**
- ← *Thiothrix disciformis*³¹
- Thiomicrorhabdus arctica***
- ← *Thiomicrospira arctica*³²
- Thiomicrorhabdus chilensis***
- ← *Thiomicrospira chilensis*³²
- Thiomicrorhabdus frisia*[†]**
- ← *Thiomicrospira frisia*³²
- Thiomicrorhabdus hydrogenophila***
- ← *Thiomicrospira hydrogeniphila*³³
- Thiomicrorhabdus psychrophila***
- ← *Thiomicrospira psychrophila*³²

- Thiomicrospira aerophila***
- ← *Thioalkalimicrobium aerophila*³²
- Thiomicrospira cyclica***
- ← *Thioalkalimicrobium cyclica*³²
- Thiomicrospira microaerophila***
- ← *Thioalkalimicrobium microaerophila*³²
- Thiomicrospira sibirica***
- ← *Thioalkalimicrobium sibirica*³²
- Thiomicrospira thyasirae***
- ← *Thiobacillus thyasiris*³⁴
- Tissierella praeacuta*[†]**
- ← *Bacteroides praeacutus*³⁵
- Treponema caldarium***
- ← *Spirochaeta caldaria*³⁶
- Treponema stenostreptum***
- ← *Spirochaeta stenostrepta*³⁶
- Treponema zuelzerae***

- ← Spirochaeta zuelzerae³⁶
- Trichococcus palustris**
- ← Ruminococcus palustris³⁷
- Trichococcus pasteurii**
- ← Lactosphaera pasteurii³⁷
- Turneriella parva**[†]
- ← Leptospira parva³⁸

References

- [1] Sakamoto, M.; Suzuki, M.; Umeda, M.; Ishikawa, I.; Benno, Y. *Int J Syst Evol Microbiol* **2002**, *52*, 841–849.
■ ■ □
- [2] Fox, K. F.; Brown, A.; Fox, A.; Schnitzer, G. *Syst Appl Microbiol* **1991**, *14*, 52–56.
■ ■ □
- [3] Brady, C. L.; Venter, S. N.; Cleenwerck, I.; Vandemeulebroecke, K.; De Vos, P.; Coutinho, T. A. *Int J Syst Evol Microbiol* **2010**, *60*, 484–494.
■ ■ □
- [4] Sugimoto, C.; Isayama, Y.; Sakazaki, R.; Kuroamochi, S. *Curr Microbiol* **1983**, *9*, 155–162.
■ ■ □
- [5] Bowman, J. P.; Sly, L. I.; Hayward, A. C.; Spiegel, Y.; Stackebrandt, E. *Int J Syst Bacteriol* **1993**, *43*, 120–124.
■ ■ □
- [6] Suzuki, M.; Nakagawa, Y.; Harayama, S.; Yamamoto, S. *Int J Syst Evol Microbiol* **2001**, *51*, 1639–1652.
■ ■ □

- [7] Poddar, A.; Lepcha, R. T.; Das, S. K. *Int J Syst Evol Microbiol* **2014**, *64*, 228–235.
■ ■ □
- [8] Collins, M. D.; Dorsch, M.; Stackebrandt, E. *Int J Syst Bacteriol* **1989**, *39*, 1–6.
■ ■ □
- [9] Krishnamurthi, S.; Chakrabarti, T. *Int J Syst Evol Microbiol* **2008**, *58*, 2287–2291.
■ ■ □
- [10] Xie, C.-H.; Yokota, A. *Int J Syst Evol Microbiol* **2006**, *56*, 1117–1121.
■ ■ □
- [11] Gerritsen, J.; Fuentes, S.; Grievink, W.; van Niftrik, L.; Tindall, B. J.; Timmerman, H. M.; Rijkers, G. T.; Smidt, H. *Int J Syst Evol Microbiol* **2014**, *64*, 1600–1616.
■ ■ □
- [12] Ennahar, S.; Cai, Y. *Int J Syst Evol Microbiol* **2005**, *55*, 589–592.
■ ■ □
- [13] Ishikawa, T.; Yokota, A. *Int J Syst Evol Microbiol* **2006**, *56*, 1369–1373.
■ ■ □
- [14] Arahal, D. R.; Macián, M. C.; Garay, E.; Pujalte, M. J. *Int J Syst Evol Microbiol* **2005**, *55*, 2371–2376.
■ ■ □
- [15] Zhang, Y.; Tang, K.; Shi, X.; Zhang, X.-H. *Int J Syst Evol Microbiol* **2014**, *64*, 1223–1228.
■ ■ □

- [16] Hou, T.-T.; Liu, Y.; Zhong, Z.-P.; Liu, H.-C.; Liu, Z.-P. *Int J Syst Evol Microbiol* **2015**, *65*, 4710–4715.
■ ■ □
- [17] Park, S.; Jung, Y.-T.; Kang, C.-H.; Park, J.-M.; Yoon, J.-H. *Int J Syst Evol Microbiol* **2014**, *64*, 3676–3682.
■ ■ □
- [18] Baena, S.; Fardeau, M.-L.; Woo, T. H. S.; Olivier, B.; Labat, M.; Patel, B. K. C. *Int J Syst Bacteriol* **1999**, *49*, 969–974.
■ ■ □
- [19] Kelly, D. P.; Wood, A. P. *Int J Syst Evol Microbiol* **2000**, *50*, 511–516.
■ ■ □
- [20] Rainey, F. A.; Stackebrandt, E. *Int J Syst Bacteriol* **1993**, *43*, 857–859.
■ ■ □
- [21] Lee, Y.-E.; Jain, M. K.; Lee, C.; Zeikus, J. G. *Int J Syst Bacteriol* **1993**, *43*, 41–51.
■ ■ □
- [22] Collins, M. D.; Lawson, P. A.; Willems, A.; Cordoba, J. J.; Fernandez-Garayzabal, J.; Garcia, P.; Cai, J.; Hippe, H.; Farrow, J. A. E. *Int J Syst Bacteriol* **1994**, *44*, 812–826.
■ ■ □
- [23] Zhang, Z.; Wang, Y.; Ruan, J. *Int J Syst Bacteriol* **1998**, *48*, 411–422.
■ ■ □
- [24] Wang, Y.; Zhang, Z.; Ruan, J. *Int J Syst Bacteriol* **1996**, *46*, 933–938.
■ ■ □

- [25] Imhoff, J. F.; Süling, J.; Petri, R. *Int J Syst Bacteriol* **1998**, *48*, 1129–1143.

■ ■ □

- [26] Zhang, X.; Tu, B.; Dai, L.-r.; Lawson, P. A.; Zheng, Z.-z.; Liu, L.-Y.; Deng, Y.; Zhang, H.; Cheng, L. *Int J Syst Evol Microbiol* **2018**, *68*, 3197–3211.

■ ■ □

- [27] Rozanova, E. P.; Pivovarova, T. A. *Mikrobiologiya* **1988**, *57*, 102–106.

□ □ □

- [28] Nouiouï, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyrpides, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*,

2007.

■ ■ □

- [29] Goodfellow, M.; Maldonado, L. A.; Quintana, E. T. *Int J Syst Evol Microbiol* **2005**, *55*, 1979–1983.

■ ■ □

- [30] Wu, H.; Liu, B.; Shao, Y.; Ou, X.; Huang, F. *Int J Syst Evol Microbiol* **2018**, *68*, 602–608.

■ ■ □

- [31] Boden, R.; Scott, K. M. *Int J Syst Evol Microbiol* **2018**, *68*, 2226–2239.

■ ■ □

- [32] Boden, R.; Scott, K. M.; Williams, J.; Russell, S.; Antonen, K.; Rae, A. W.; Hutt, L. P. *Int J Syst Evol Microbiol* **2017**, *67*, 1140–1151.

■ ■ □

- [33] Boden, R.; Scott, K. M.; Rae, A. W.; Hutt, L. P. *Int J Syst Evol Microbiol* **2017**, *67*, 4205–4209.

■ ■ □

- [34] Wood, A. P.; Kelly, D. P. *Arch Microbiol* **1993**, *159*, 45–47.

■ ■ □

- [35] Collins, M. D.; Shah, H. N. *Int J Syst Bacteriol* **1986**, *36*, 461–463.

■ ■ □

- [36] Abt, B. et al. *Stand Genomic Sci* **2013**, *8*, 88.

■ ■ □

- [37] Liu, J.-R.; Tanner, R. S.; Schumann, P.; Weiss, N.; McKenzie, C. A.; Janssen, P. H.; Seviour, E. M.; Lawson, P. A.; Allen, T. D.; Seviour, R. J. *Int J Syst Evol Microbiol* **2002**, *52*,

1113–1126.

■ ■ □

- [38] Levett, P. N.; Morey, R. E.; Galloway, R.; Steigerwalt, A. G.; Ellis, W. A. *Int J Syst Evol Microbiol* **2005**, *55*, 1497–1499.

■ ■ □

21 U

Umezawaea tangerina[†]

← *Saccharothrix tangerinus*¹

References

- [1] Labeda, D. P.; Kroppenstedt, R. M. *Int J Syst Evol Microbiol* 2007, 57, 2758–2761.



22 V

Variovorax paradoxus[†]

← Alcaligenes paradoxus¹

Vasilyevaea enhydra[†]

← Prosthecomicrobium enhydrum²

Vasilyevaea mishustinii

← Prosthecomicrobium mishustinii²

Verticia sediminum[†]

← Achromobacter sediminum³

Vibrio panuliri

← Vibrio ponticus⁴

Virgibacillus halodenitrificans

← Bacillus halodenitrificans⁵

Virgibacillus marismortui

← Salibacillus marismortui⁶

Virgibacillus salexigens

← Salibacillus salexigens⁶

Viridibacillus arenosi

← Bacillus arenosi⁷

Viridibacillus arvi[†]

← Bacillus arvi⁷

Viridibacillus neidei

← Bacillus neidei⁷

Vogesella indigofera[†]

← Pseudomonas indigofera⁸

Vulcaniibacterium thermophilum

← Lysobacter thermophilus⁹

References

- [1] Willems, A.; De Ley, J.; Gillis, M.; Kersters, K. *Int J Syst Bacteriol* **1991**, *41*, 445–450.

■ ■ □

- [2] Yee, B.; Oertli, G. E.; Fuerst, J. A.; Staley, J. T. *Int J Syst Evol Microbiol* **2010**, *60*, 2960–2966.

■ ■ □

- [3] Vandamme, P. A.; Peeters, C.; Cnockaert, M.; Inganäs, E.; Falsen, E.; Moore, E. R. B.; Nunes, O. C.; Manaia, C. M.; Spilker, T.; LiPuma, J. J. *Int J Syst Evol Microbiol* **2015**, *65*, 3674–3682.

■ ■ □

- [4] Kumari, P.; Poddar, A.; Schumann, P.; Das, S. K. *Res Microbiol* **2014**, *165*, 826–835.

■ ■ □

- [5] Yoon, J.-H.; Oh, T.-K.; Park, Y.-H. *Int J Syst Evol Microbiol* **2004**, *54*, 2163–2167.

■ ■ □

- [6] Heyrman, J.; Logan, N. A.; Busse, H.-J.; Balcaen, A.; Lebbe, L.; Rodriguez-Diaz, M.; Swings, J.; De Vos, P. *Int J Syst Evol Microbiol* **2003**, *53*, 501–511.

■ ■ □

- [7] Albert, R. A.; Archambault, J.; Lempa, M.; Hurst, B.; Richardson, C.; Gruenloh, S.; Duran, M.; Worliczek, H. L.; Huber, B. E.; Rosselló-Mora, R.; Schumann, P.; Busse, H.-J. *Int J Syst Evol Microbiol* **2007**, *57*, 2729–2737.

■ ■ □

- [8] Grimes, D. J.; Woese, C. R.; MacDonell, M. T.; Colwell, R. R. *Int J Syst Bacteriol* **1997**, *47*, 19–

27.

■ ■ □

- [9] Yu, T.-T.; Zhou, E.-M.; Yin, Y.-R.; Yao, J.-C.;
Ming, H.; Dong, L.; Li, S.; Nie, G.-X.; Li, W.-J.
Antonie van Leeuwenhoek **2013**, *104*, 369–376.

■ ■ □

23 W

Wautersia basilensis

← Ralstonia basilensis¹

Wautersia campinensis

← Ralstonia campinensis¹

Wautersia eutropha[†]

← Ralstonia eutropha¹

Wautersia gilardii

← Ralstonia gilardii¹

Wautersia metallidurans

← Ralstonia metallidurans¹

Wautersia oxalatica

← Ralstonia oxalatica¹

Wautersia paucula

← Ralstonia paucula¹

Wautersia respiraculi

← Ralstonia respiraculi¹

Wautersia taiwanensis

← Ralstonia taiwanensis¹

Williamsoniplasma lucivorax[†]

← Entomoplasma lucivorax²

Williamsoniplasma luminosum

← Entomoplasma luminosum²

Williamsoniplasma somnilux

← Entomoplasma somnilux²

Winkia neuii[†]

← Actinomyces neuii³

Wolinella succinogenes[†]

← Vibrio succinogenes⁴

References

- [1] Vaneechoutte, M.; Kämpfer, P.; De Baere, T.; Falsen, E.; Verschraegen, G. *Int J Syst Evol Microbiol* **2004**, *54*, 317–327.
- ■ □
- [2] Gupta, R. S.; Son, J.; Oren, A. *Antonie van Leeuwenhoek* **2019**, *112*, 561–588.
- ■ □
- [3] Nouioui, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyrpides, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*, 2007.
- ■ □
- [4] Tanner, A. C. R.; Badger, S.; Lai, C.-H.; Listgarten, M. A.; Visconti, R. A.; Socransky, S. S.

Int J Syst Bacteriol **1981**, *31*, 432–445.



24 X

- Xanthobacter autotrophicus[†]**
← *Corynebacterium autotrophicum*¹
- Xanthomonas maltophilia**
← *Pseudomonas maltophilia*²
- Xylanimicrobium pachnodae[†]**
← *Promicromonospora pachnodae*³
- Xylophilus ampelinus[†]**
← *Xanthomonas ampelina*⁴

References

- [1] Wiegel, J.; Wilke, D.; Baumgarten, J.; Opitz, R.; Schlegel, H. G. *Int J Syst Bacteriol* **1978**, *28*, 573–581.

■ ■ □

- [2] Swings, J.; De Vos, P.; Van den Mooter, M.; De Ley, J. *Int J Syst Bacteriol* **1983**, *33*, 409–413.
■ ■ □
- [3] Stackebrandt, E.; Schumann, P. *Int J Syst Evol Microbiol* **2004**, *54*, 1383–1386.
■ ■ □
- [4] Willems, A.; Gillis, M.; Kersters, K.; Van Den Broecke, L.; De Ley, J. *Int J Syst Bacteriol* **1987**, *37*, 422–430.
■ ■ □

25 Y

Yersinia philomiragia

← *Francisella philomiragia*[?]

Yinghuangia aomiensis[†]

← *Streptomyces aomiensis*¹

Yoonia litorea

← *Loktanella litorea*²

Yoonia maricola

← *Loktanella maricola*²

Yoonia maritima

← *Loktanella maritima*²

Yoonia rosea

← *Loktanella rosea*²

Yoonia sediminilitoris

← *Loktanella sediminilitoris*²

Yoonia tamlensis

← *Loktanella tamlensis*²

Yoonia vestfoldensis[†]

← *Loktanella vestfoldensis*²

Youngiibacter multivorans

← *Acetivibrio multivorans*³

References

- [1] Nouiou, I.; Carro, L.; García-López, M.; Meier-Kolthoff, J. P.; Woyke, T.; Kyrpides, N. C.; Pukall, R.; Klenk, H.-P.; Goodfellow, M.; Göker, M. *Front Microbiol* **2018**, *9*, 2007.



- [2] Wirth, J. S.; Whitman, W. B. *Int J Syst Evol Microbiol* **2018**, *68*, 2393–2411.

■ ■ □

- [3] Lawson, P. A.; Wawrik, B.; Allen, T. D.; Johnson, C. N.; Marks, C. R.; Tanner, R. S.; Harriman, B. H.; Strąpoć, D.; Callaghan, A. V. *Int J Syst Evol Microbiol* **2014**, *64*, 198–205.

■ ■ □

Zhongshania borealis

← Spongiibacter borealis¹

Zobellia uliginosa

← Cytophaga uliginosa²

References

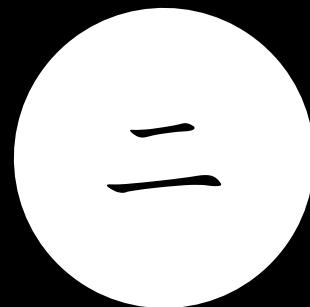
- [1] LO, N.; Kang, H. J.; Jeon, C. O. *Int J Syst Evol Microbiol* 2014, 64, 3768–3774.

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- [2] Barbeyron, T.; L'Haridon, S.; Corre, E.; Kloareg, B.; Potin, P. *Int J Syst Evol Microbiol* 2001, 51, 985–997.

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BACTERIA



TAXONOMY
Reclassified Species