Analysis of 1,000 Type-Strain Genomes Improves Taxonomic Classification of Alphaproteobacteria

Supplementary File S2

List of Figures

Abbreviations

CCT constrained, comprehensive tree inferred with ML and MP using the bipartitions of the GBDP tree with $\geq$95% support as backbone constraint

GBDP Genome BLAST Distance Phylogeny

ML Maximum Likelihood

UCT unconstrained, comprehensive 16S rRNA gene tree

Type species

- ⬜ no
- 🟦 yes

Phylum

- 🟧 *Proteobacteria*
- 🟩 *Spirochaetes*-Phylum

Class

- 🟩 *Alphaproteobacteria*
- 🟧 *Mariprofundia*
- 🟪 *Spirochaetes*

Order

- 🟦 *Brachyspirales*
- 🟩 *Brevinematales*
- 🟪 *Caulobacterales*
- 🟩 *Emcibacterales*
- 🟪 *Kiloniellales*
- ⬛ *Kordiimonadales*
- 🟪 *Leptospirales*
- 🟩 *Magnetococcales*
- 🟥 *Mariprofundales*
- 🟦 *Parvularculales*
- 🟥 *Rhizobiales*
- 🟩 *Rhodobacterales*
- 🟨 *Rhodospirillales*
- 🟫 *Rhodothalassiales*
- 🟨 *Rickettsiales*
- 🟪 *Sneathiellales*
- 🟫 *Sphingomonadales*
- 🟥 *Spirochaetales*
- ⬜ NA

Family

- ○ *Acetobacteraceae*
- ● *Anaplasmataceae*
- ○ *Aurantimonadaceae*
- ● *Bartonellaceae*
- ○ *Beijerinckiaceae*
- ● *Borreliaceae*
- ○ *Brachyspiraceae*
- □ *Bradyrhizobiaceae*
- ■ *Brevinemataceae*
- □ *Brucellaceae*
- ■ *Caulobacteraceae*
- □ *Chelatococcaceae*
- ■ *Cohaesibacteraceae*
- □ *Emcibacteraceae*
- ◁ *Erythrobacteraceae*
- ◀ *Geminicoccaceae*
- ◁ *Hyphomicrobiaceae*
- ◀ *Hyphomonadaceae*
- ◁ *Kiloniellaceae*
- ◀ *Kordiimonadaceae*
- ◁ *Leptospiraceae*
- ▷ *Magnetococcaceae*
- ▶ *Mariprofundaceae*
- ▷ *Methylobacteriaceae*
- ▶ *Methylocystaceae*
- ▷ *Notoacmeibacteraceae*
- ▶ *Parvularculaceae*
- ▷ *Phyllobacteriaceae*
- ◇ *Rhizobiaceae*
- ◆ *Rhodobacteraceae*
- ◇ *Rhodobiaceae*
- ◆ *Rhodospirillaceae*
- ◇ *Rhodothalassiaceae*
- ◆ *Rickettsiaceae*
- ◇ *Roseiarcaceae*
- ⬡ *Salinarimonadaceae*
- ⬢ *Sneathiellaceae*
- ⬡ *Sphingomonadaceae*
- ⬢ *Spirochaetaceae*
- ⬡ *Xanthobacteraceae*
- ⬡ NA

Cell length

- ⬜ Min. (0.5)
- 🟩 Max. (125.0)

Cell width

- ⬜ Min. (0.1)
- 🟫 Max. (2.1)

Flagella

- 🟧 no
- 🟩 yes
- ⬜ NA

Oxygen

- 🟦 aerobic
- 🟦 anaerobic
- 🟩 facultatively aerobic
- 🟩 facultatively anaerobic
- 🟥 microaerophilic
- ⬜ NA

Carotenoids

- 🟧 no
- 🟩 yes
- ⬜ NA

Chlorophyll

- 🟧 no
- 🟩 yes
- ⬜ NA

Ubiquinones

- ⬜ Min. (8.0)
- 🟧 Max. (11.0)

Sphingolipids

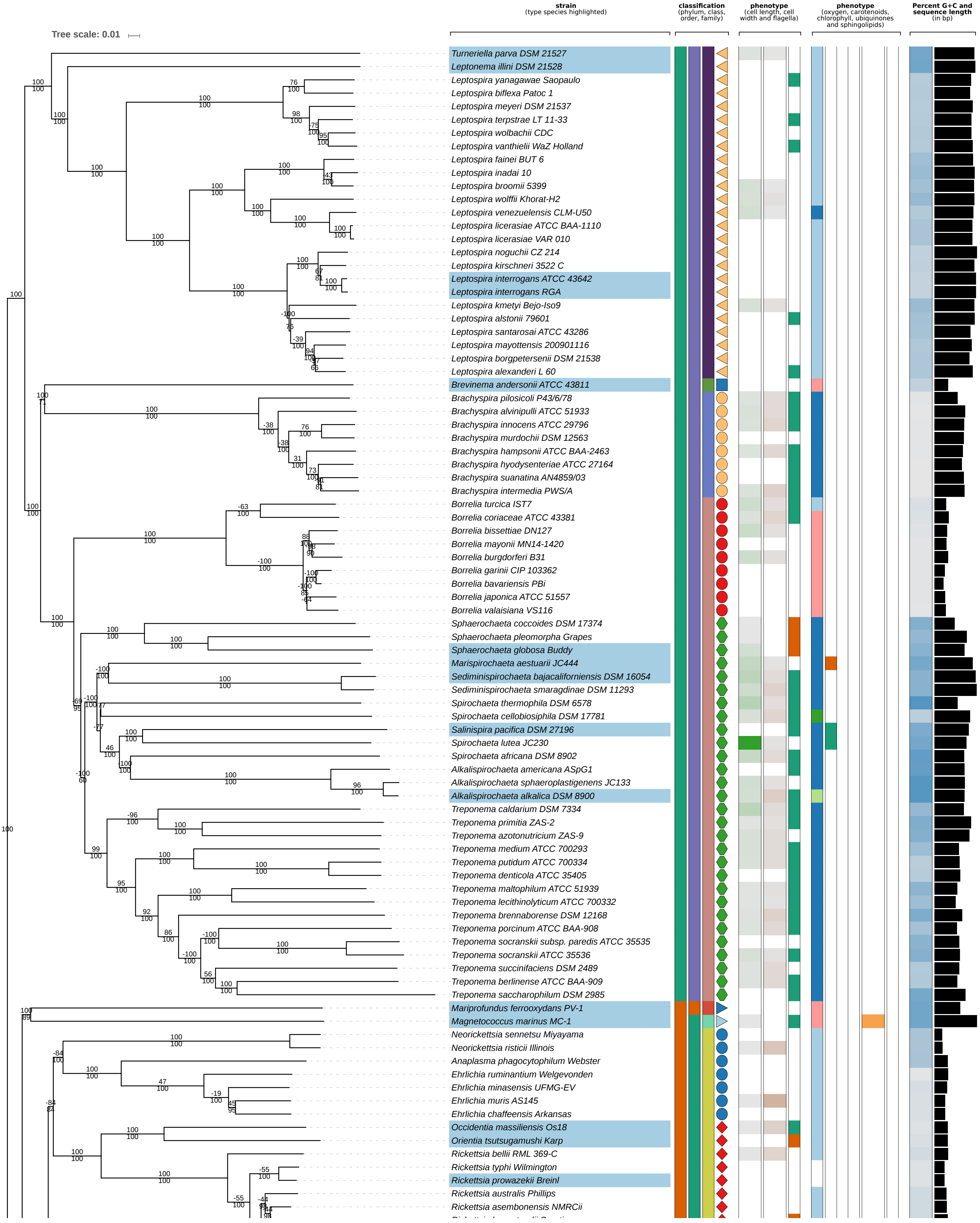
- 🟧 no
- 🟩 yes
- ⬜ NA

Percent G+C

- ⬜ Min. (26.9)
- 🟦 Max. (73.4)

Sequence length (in bp)

- ⬛ Min. (859,006)
Max. (9,792,874)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(type species highlighted)
classification
(phylum, class, order, family)
phenotype
(cell length, cell width and flagella)
phenotype
(oxygen, carotenoids, chlorophyll, ubiquinones and sphingolipids)
Percent G+C and sequence length
(in bp)
Turneriella parva DSM 21527
Leptonema illini DSM 21528
Leptospira yanagawae Saopaulo
Leptospira biflexa Patoc 1
Leptospira meyeri DSM 21537
Leptospira terpstrae LT 11-33
Leptospira wolbachii CDC
Leptospira vanthielii WaZ Holland
Leptospira fainei BUT 6
Leptospira inadai 10
Leptospira broomii 5399
Leptospira wolffii Khorat-H2
Leptospira venezuelensis CLM-U50
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Leptospira kirschneri 3522 C
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Leptospira alstonii 79601
Leptospira santarosai ATCC 43286
Leptospira mayottensis 200901116
Leptospira borgpetersenii DSM 21538
Leptospira alexanderi L 60
Brevinema andersonii ATCC 43811
Brachyspira pilosicoli P43/6/78
Brachyspira alvinipulli ATCC 51933
Brachyspira innocens ATCC 29796
Brachyspira murdochii DSM 12563
Brachyspira hampsonii ATCC BAA-2463
Brachyspira hyodysenteriae ATCC 27164
Brachyspira suanatina AN4859/03
Brachyspira intermedia PWS/A
Borrelia turcica IST7
Borrelia coriaceae ATCC 43381
Borrelia bissettiae DN127
Borrelia mayonii MN14-1420
Borrelia burgdorferi B31
Borrelia garinii CIP 103362
Borrelia bavariensis PBi
Borrelia japonica ATCC 51557
Borrelia valaisiana VS116
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Sphaerochaeta pleomorpha Grapes
Sphaerochaeta globosa Buddy
Marispirochaeta aestuarii JC444
Sediminispirochaeta bajacaliforniensis DSM 16054
Sediminispirochaeta smaragdinae DSM 11293
Spirochaeta thermophila DSM 6578
Spirochaeta cellobiosiphila DSM 17781
Salinispira pacifica DSM 27196
Spirochaeta lutea JC230
Spirochaeta africana DSM 8902
Alkalispirochaeta americana ASpG1
Alkalispirochaeta sphaeroplastigenens JC133
Alkalispirochaeta alkalica DSM 8900
Treponema caldarium DSM 7334
Treponema primitia ZAS-2
Treponema azotonutricium ZAS-9
Treponema medium ATCC 700293
Treponema putidum ATCC 700334
Treponema denticola ATCC 35405
Treponema maltophilum ATCC 51939
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Treponema brennaborense DSM 12168
Treponema porcinum ATCC BAA-908
Treponema socranskii subsp. paredis ATCC 35535
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Treponema succinifaciens DSM 2489
Treponema berlinense ATCC BAA-909
Treponema saccharophilum DSM 2985
Mariprofundus ferrooxydans PV-1
Magnetococcus marinus MC-1
Neorickettsia sennetsu Miyayama
Neorickettsia risticii Illinois
Anaplasma phagocytophilum Webster
Ehrlichia ruminantium Welgevonden
Ehrlichia minasensis UFMG-EV
Ehrlichia muris AS145
Ehrlichia chaffeensis Arkansas
Occidentia massiliensis Os18
Orientia tsutsugamushi Karp
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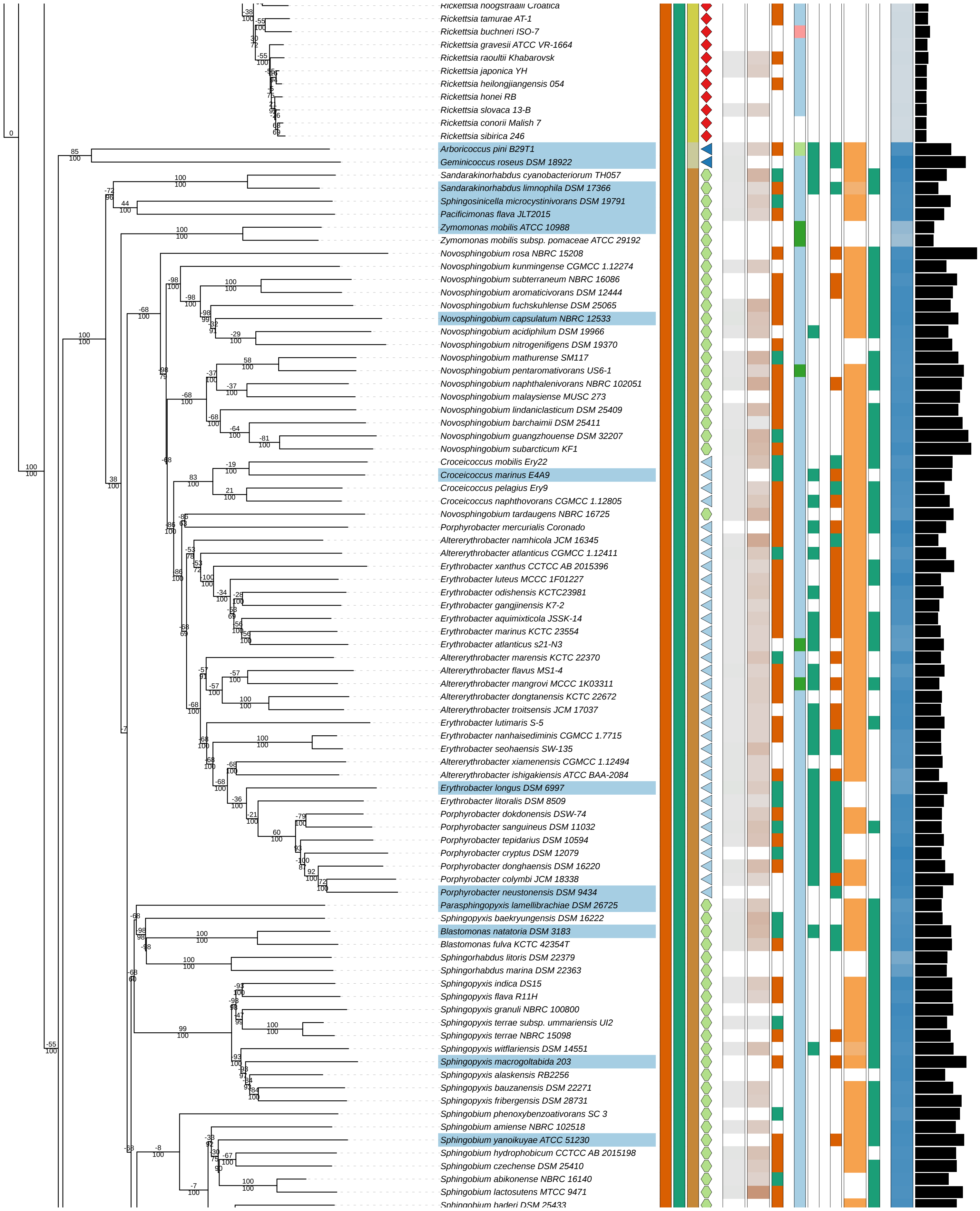
Rickettsia typhi Wilmington
Rickettsia prowazekii Breinl
Rickettsia australis Phillips
Rickettsia asembonensis NMRCii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Rickettsia japonica YH
Rickettsia heilongjiangensis 054
Rickettsia honei RB
Rickettsia slovaca 13-B
Rickettsia conorii Malish 7
Rickettsia sibirica 246
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Geminicoccus roseus DSM 18922
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Sphingosinicella microcystinivorans DSM 19791
Pacificimonas flava JLT2015
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Novosphingobium rosa NBRC 15208
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Novosphingobium aromaticivorans DSM 12444
Novosphingobium fuchskuhlense DSM 25065
Novosphingobium capsulatum NBRC 12533
Novosphingobium acidiphilum DSM 19966
Novosphingobium nitrogenifigens DSM 19370
Novosphingobium mathurense SM117
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Novosphingobium naphthalenivorans NBRC 102051
Novosphingobium malaysiense MUSC 273
Novosphingobium lindaniclasticum DSM 25409
Novosphingobium barchaimii DSM 25411
Novosphingobium guangzhouense DSM 32207
Novosphingobium subarcticum KF1
Croceicoccus mobilis Ery22
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Croceicoccus pelagius Ery9
Croceicoccus naphthovorans CGMCC 1.12805
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Porphyrobacter mercurialis Coronado
Altererythrobacter namhicola JCM 16345
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Erythrobacter xanthus CCTCC AB 2015396
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Erythrobacter odishensis KCTC23981
Erythrobacter gangjinensis K7-2
Erythrobacter aquimixticola JSSK-14
Erythrobacter marinus KCTC 23554
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Altererythrobacter flavus MS1-4
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Porphyrobacter cryptus DSM 12079
Porphyrobacter donghaensis DSM 16220
Porphyrobacter colymbi JCM 18338
Porphyrobacter neustonensis DSM 9434
Parasphingopyxis lamellibrachiae DSM 26725
Sphingopyxis baekryungensis DSM 16222
Blastomonas natatoria DSM 3183
Blastomonas fulva KCTC 42354T
Sphingorhabdus litoris DSM 22379
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Sphingopyxis indica DS15
Sphingopyxis flava R11H
Sphingopyxis granuli NBRC 100800
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Sphingopyxis macrogoltabida 203
Sphingopyxis alaskensis RB2256
Sphingopyxis bauzanensis DSM 22271
Sphingopyxis fribergensis DSM 28731
Sphingobium phenoxybenzoativorans SC 3
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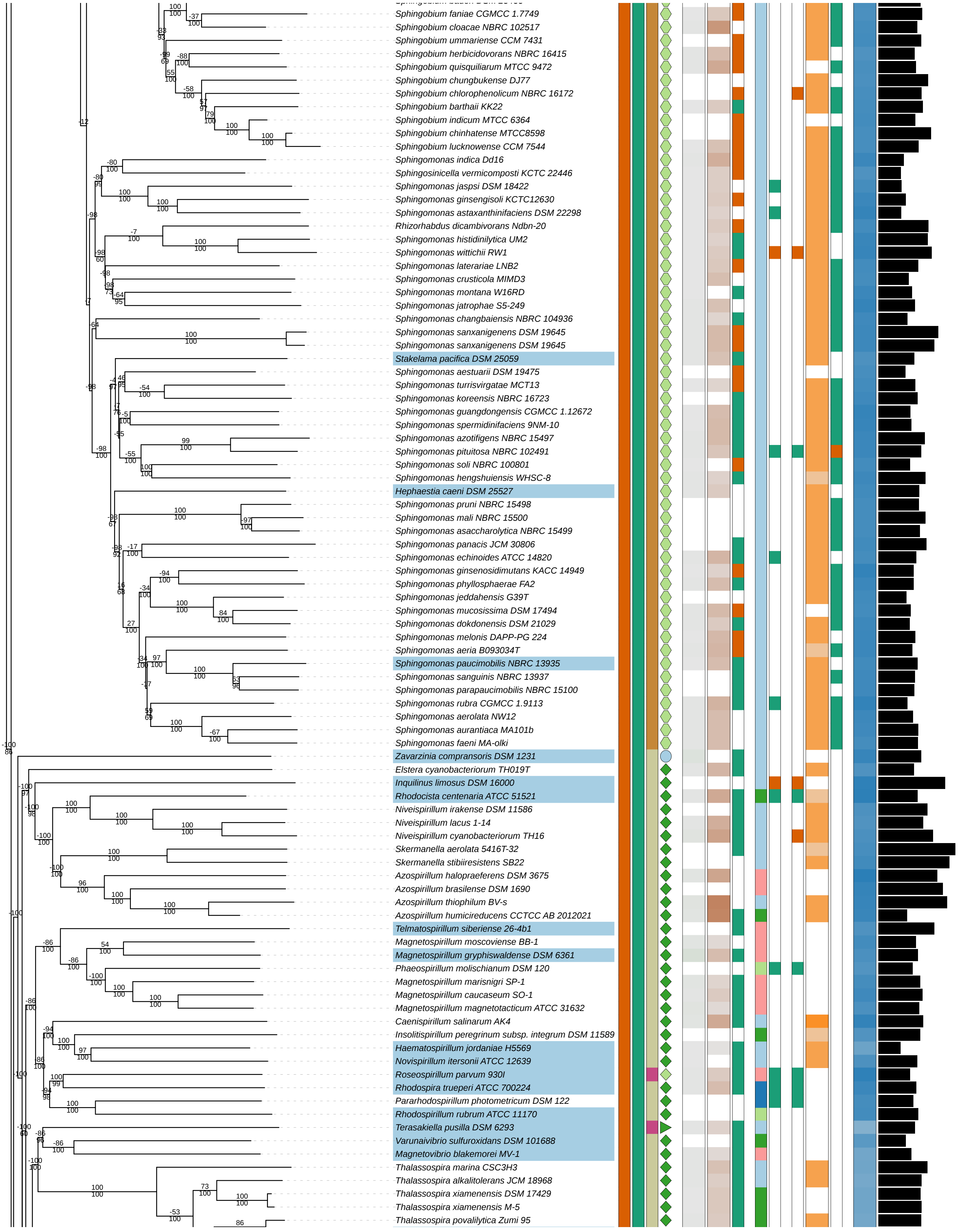
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Magnetospirillum moscoviense BB-1
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Novispirillum itersonii ATCC 12639
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Pararhodospirillum photometricum DSM 122
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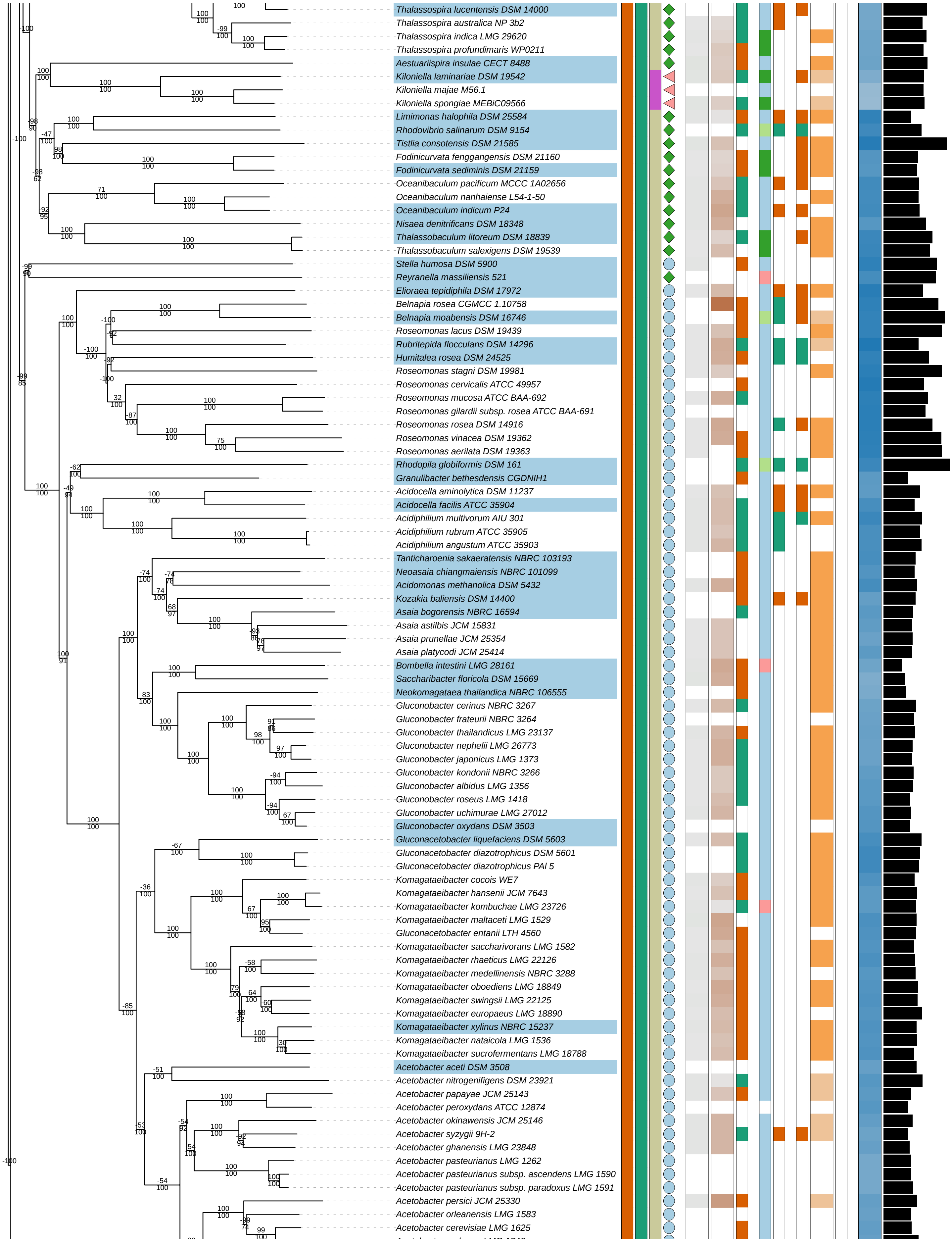
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Acidomonas methanolica DSM 5432
Kozakia baliensis DSM 14400
Asaia bogorensis NBRC 16594
Asaia astilbis JCM 15831
Asaia prunellae JCM 25354
Asaia platycodi JCM 25414
Bombella intestini LMG 28161
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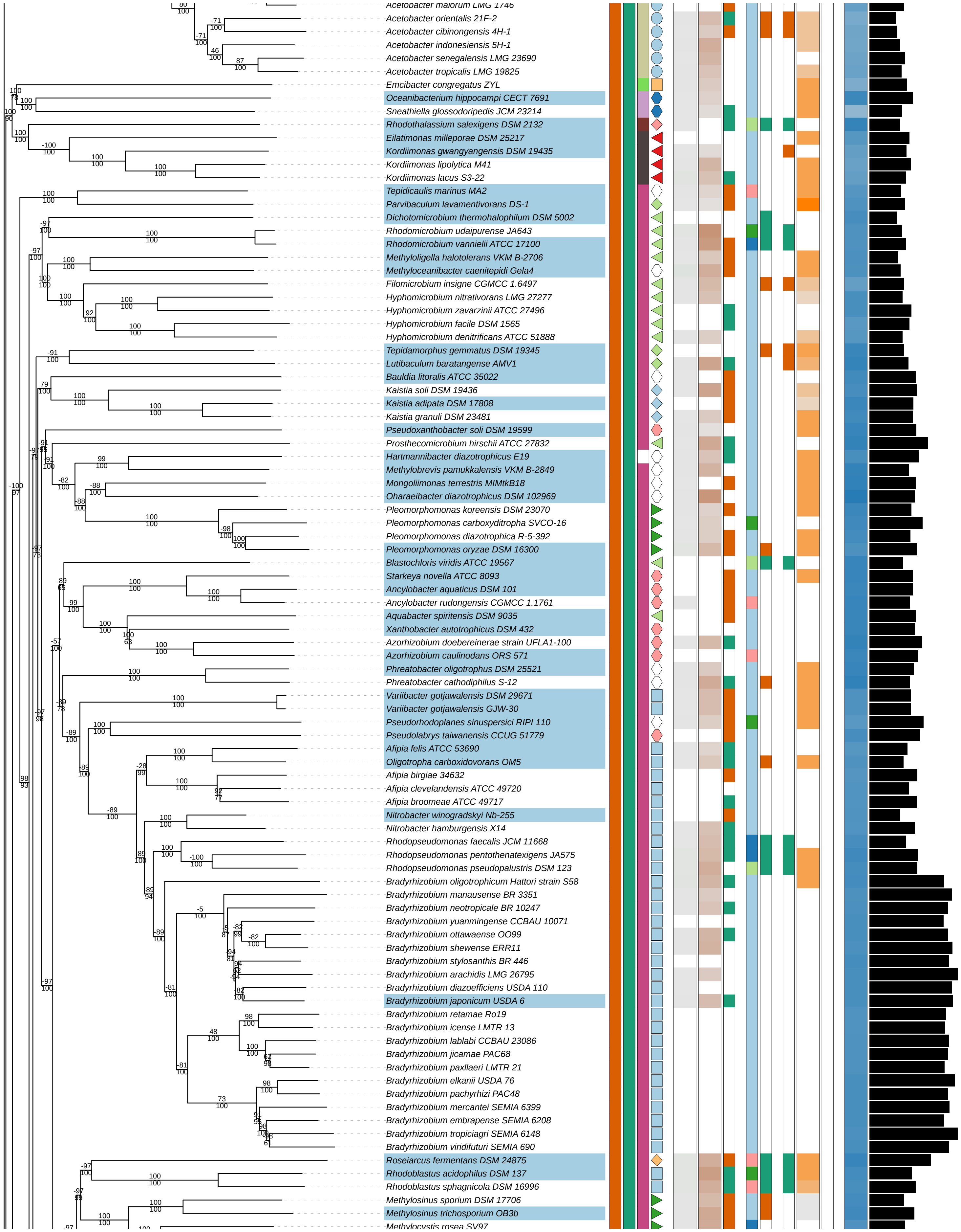
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Kaistia adipata DSM 17808
Kaistia granuli DSM 23481
Pseudoxanthobacter soli DSM 19599
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Pleomorphomonas koreensis DSM 23070
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Phreatobacter cathodiphilus S-12
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Pseudorhodoplanes sinuspersici RIPI 110
Pseudolabrys taiwanensis CCUG 51779
Afipia felis ATCC 53690
Oligotropha carboxidovorans OM5
Afipia birgiae 34632
Afipia clevelandensis ATCC 49720
Afipia broomeae ATCC 49717
Nitrobacter winogradskyi Nb-255
Nitrobacter hamburgensis X14
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Rhodopseudomonas pseudopalustris DSM 123
Bradyrhizobium oligotrophicum Hattori strain S58
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Bradyrhizobium paxllaeri LMTR 21
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Bradyrhizobium pachyrhizi PAC48
Bradyrhizobium mercantei SEMIA 6399
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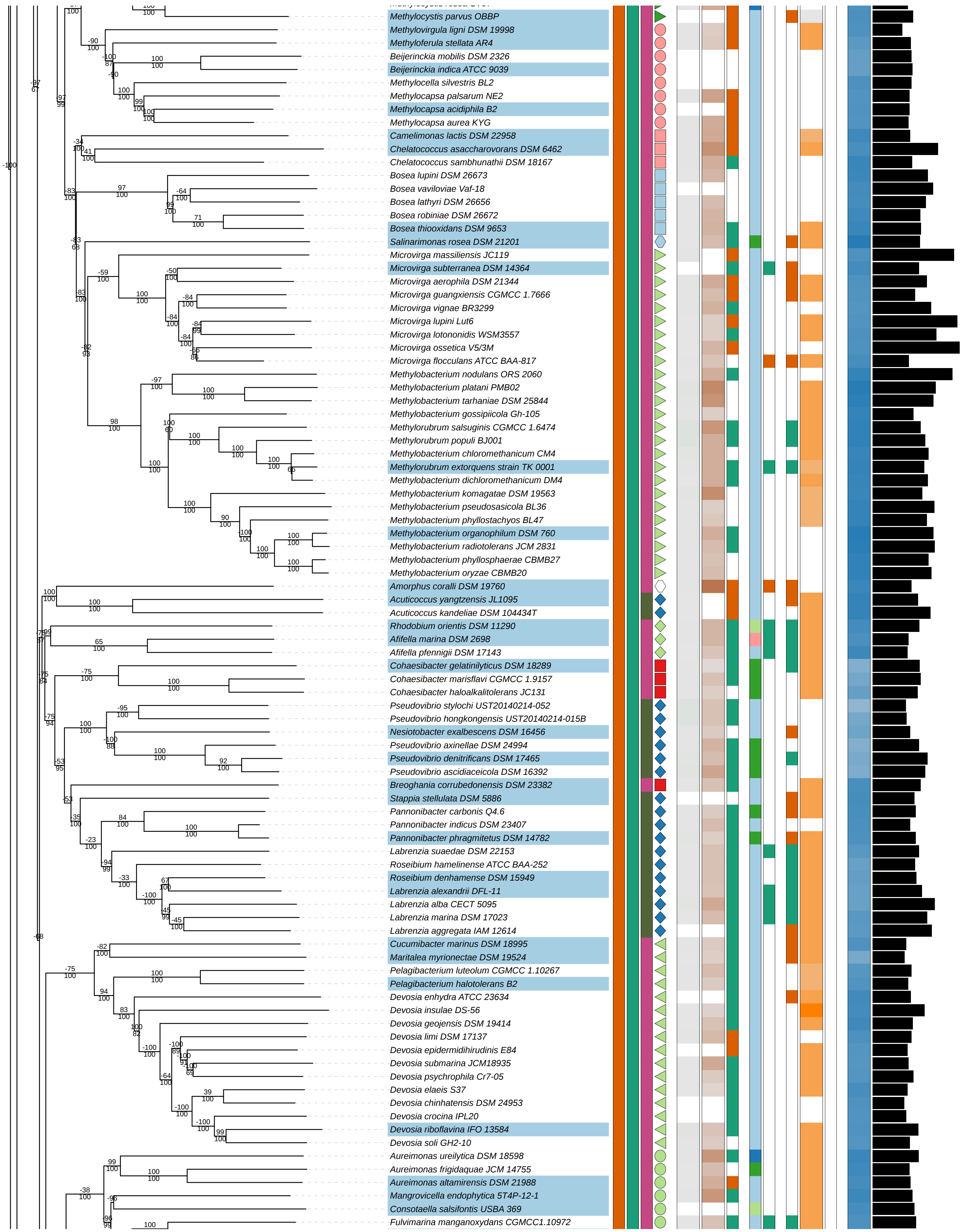
Bradyrhizobium tropiciagri SEMIA 6148
Bradyrhizobium viridifuturi SEMIA 690
Roseiarcus fermentans DSM 24875
Rhodoblastus acidophilus DSM 137
Rhodoblastus sphagnicola DSM 16996
Methylosinus sporium DSM 17706
Methylosinus trichosporium OB3b
Methylocystis rosea SV97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Methyloferula stellata AR4
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Beijerinckia indica ATCC 9039
Methylocella silvestris BL2
Methylocapsa palsarum NE2
Methylocapsa acidiphila B2
Methylocapsa aurea KYG
Camelimonas lactis DSM 22958
Chelatococcus asaccharovorans DSM 6462
Chelatococcus sambhunathii DSM 18167
Bosea lupini DSM 26673
Bosea vaviloviae Vaf-18
Bosea lathyri DSM 26656
Bosea robiniae DSM 26672
Bosea thiooxidans DSM 9653
Salinarimonas rosea DSM 21201
Microvirga massiliensis JC119
Microvirga subterranea DSM 14364
Microvirga aerophila DSM 21344
Microvirga guangxiensis CGMCC 1.7666
Microvirga vignae BR3299
Microvirga lupini Lut6
Microvirga lotononidis WSM3557
Microvirga ossetica V5/3M
Microvirga flocculans ATCC BAA-817
Methylobacterium nodulans ORS 2060
Methylobacterium platani PMB02
Methylobacterium tarhaniae DSM 25844
Methylobacterium gossipiicola Gh-105
Methylorubrum salsuginis CGMCC 1.6474
Methylorubrum populi BJ001
Methylobacterium chloromethanicum CM4
Methylorubrum extorquens strain TK 0001
Methylobacterium dichloromethanicum DM4
Methylobacterium komagatae DSM 19563
Methylobacterium pseudosasicola BL36
Methylobacterium phyllostachyos BL47
Methylobacterium organophilum DSM 760
Methylobacterium radiotolerans JCM 2831
Methylobacterium phyllosphaerae CBMB27
Methylobacterium oryzae CBMB20
Amorphus coralli DSM 19760
Acuticoccus yangtzensis JL1095
Acuticoccus kandeliae DSM 104434T
Rhodobium orientis DSM 11290
Afifella marina DSM 2698
Afifella pfennigii DSM 17143
Cohaesibacter gelatinilyticus DSM 18289
Cohaesibacter marisflavi CGMCC 1.9157
Cohaesibacter haloalkalitolerans JC131
Pseudovibrio stylochi UST20140214-052
Pseudovibrio hongkongensis UST20140214-015B
Nesiotobacter exalbescens DSM 16456
Pseudovibrio axinellae DSM 24994
Pseudovibrio denitrificans DSM 17465
Pseudovibrio ascidiaceicola DSM 16392
Breoghania corrubedonensis DSM 23382
Stappia stellulata DSM 5886
Pannonibacter carbonis Q4.6
Pannonibacter indicus DSM 23407
Pannonibacter phragmitetus DSM 14782
Labrenzia suaedae DSM 22153
Roseibium hamelinense ATCC BAA-252
Roseibium denhamense DSM 15949
Labrenzia alexandrii DFL-11
Labrenzia alba CECT 5095
Labrenzia marina DSM 17023
Labrenzia aggregata IAM 12614
Cucumibacter marinus DSM 18995
Maritalea myrionectae DSM 19524
Pelagibacterium luteolum CGMCC 1.10267
Pelagibacterium halotolerans B2
Devosia enhydra ATCC 23634
Devosia insulae DS-56
Devosia geojensis DSM 19414
Devosia limi DSM 17137
Devosia epidermidihirudinis E84
Devosia submarina JCM18935
Devosia psychrophila Cr7-05
Devosia elaeis S37
Devosia chinhatensis DSM 24953
Devosia crocina IPL20
Devosia riboflavina IFO 13584
Devosia soli GH2-10
Aureimonas ureilytica DSM 18598
Aureimonas frigidaquae JCM 14755
Aureimonas altamirensis DSM 21988
Mangrovicella endophytica 5T4P-12-1
Consotaella salsifontis USBA 369
Fulvimarina manganoxydans CGMCC1.10972
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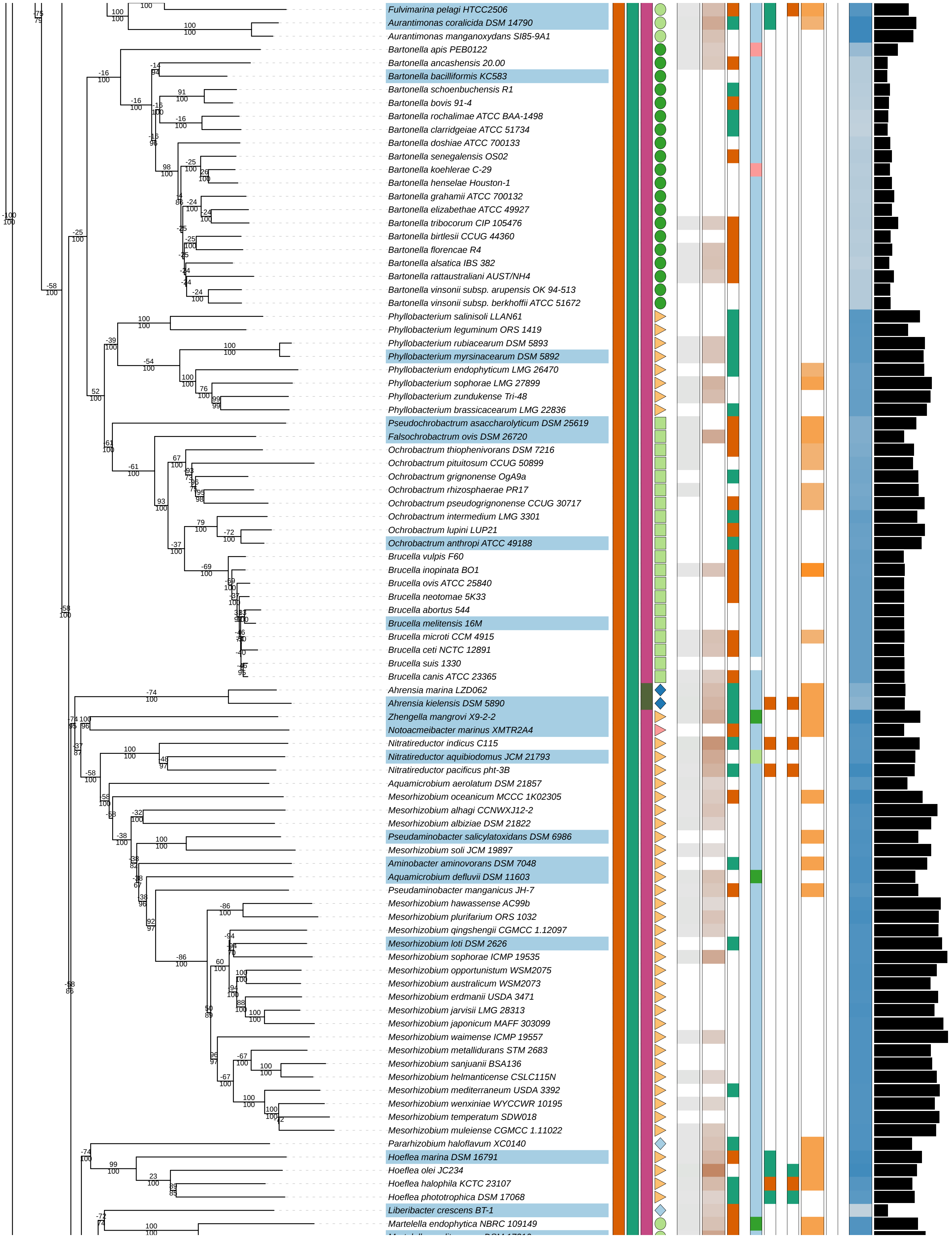
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Bartonella bacilliformis KC583
Bartonella schoenbuchensis R1
Bartonella bovis 91-4
Bartonella rochalimae ATCC BAA-1498
Bartonella clarridgeiae ATCC 51734
Bartonella doshiae ATCC 700133
Bartonella senegalensis OS02
Bartonella koehlerae C-29
Bartonella henselae Houston-1
Bartonella grahamii ATCC 700132
Bartonella elizabethae ATCC 49927
Bartonella tribocorum CIP 105476
Bartonella birtlesii CCUG 44360
Bartonella florencae R4
Bartonella alsatica IBS 382
Bartonella rattaustraliani AUST/NH4
Bartonella vinsonii subsp. arupensis OK 94-513
Bartonella vinsonii subsp. berkhoffii ATCC 51672
Phyllobacterium salinisoli LLAN61
Phyllobacterium leguminum ORS 1419
Phyllobacterium rubiacearum DSM 5893
Phyllobacterium myrsinacearum DSM 5892
Phyllobacterium endophyticum LMG 26470
Phyllobacterium sophorae LMG 27899
Phyllobacterium zundukense Tri-48
Phyllobacterium brassicacearum LMG 22836
Pseudochrobactrum asaccharolyticum DSM 25619
Falsochrobactrum ovis DSM 26720
Ochrobactrum thiophenivorans DSM 7216
Ochrobactrum pituitosum CCUG 50899
Ochrobactrum grignonense OgA9a
Ochrobactrum rhizosphaerae PR17
Ochrobactrum pseudogrignonense CCUG 30717
Ochrobactrum intermedium LMG 3301
Ochrobactrum lupini LUP21
Ochrobactrum anthropi ATCC 49188
Brucella vulpis F60
Brucella inopinata BO1
Brucella ovis ATCC 25840
Brucella neotomae 5K33
Brucella abortus 544
Brucella melitensis 16M
Brucella microti CCM 4915
Brucella ceti NCTC 12891
Brucella suis 1330
Brucella canis ATCC 23365
Ahrensia marina LZD062
Ahrensia kielensis DSM 5890
Zhengella mangrovi X9-2-2
Notoacmeibacter marinus XMTR2A4
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Nitratireductor aquibiodomus JCM 21793
Nitratireductor pacificus pht-3B
Aquamicrobium aerolatum DSM 21857
Mesorhizobium oceanicum MCCC 1K02305
Mesorhizobium alhagi CCNWXJ12-2
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Pseudaminobacter salicylatoxidans DSM 6986
Mesorhizobium soli JCM 19897
Aminobacter aminovorans DSM 7048
Aquamicrobium defluvii DSM 11603
Pseudaminobacter manganicus JH-7
Mesorhizobium hawassense AC99b
Mesorhizobium plurifarium ORS 1032
Mesorhizobium qingshengii CGMCC 1.12097
Mesorhizobium loti DSM 2626
Mesorhizobium sophorae ICMP 19535
Mesorhizobium opportunistum WSM2075
Mesorhizobium australicum WSM2073
Mesorhizobium erdmanii USDA 3471
Mesorhizobium jarvisii LMG 28313
Mesorhizobium japonicum MAFF 303099
Mesorhizobium waimense ICMP 19557
Mesorhizobium metallidurans STM 2683
Mesorhizobium sanjuanii BSA136
Mesorhizobium helmanticense CSLC115N
Mesorhizobium mediterraneum USDA 3392
Mesorhizobium wenxiniae WYCCWR 10195
Mesorhizobium temperatum SDW018
Mesorhizobium muleiense CGMCC 1.11022
Pararhizobium haloflavum XC0140
Hoeflea marina DSM 16791
Hoeflea olei JC234
Hoeflea halophila KCTC 23107
Hoeflea phototrophica DSM 17068
Liberibacter crescens BT-1
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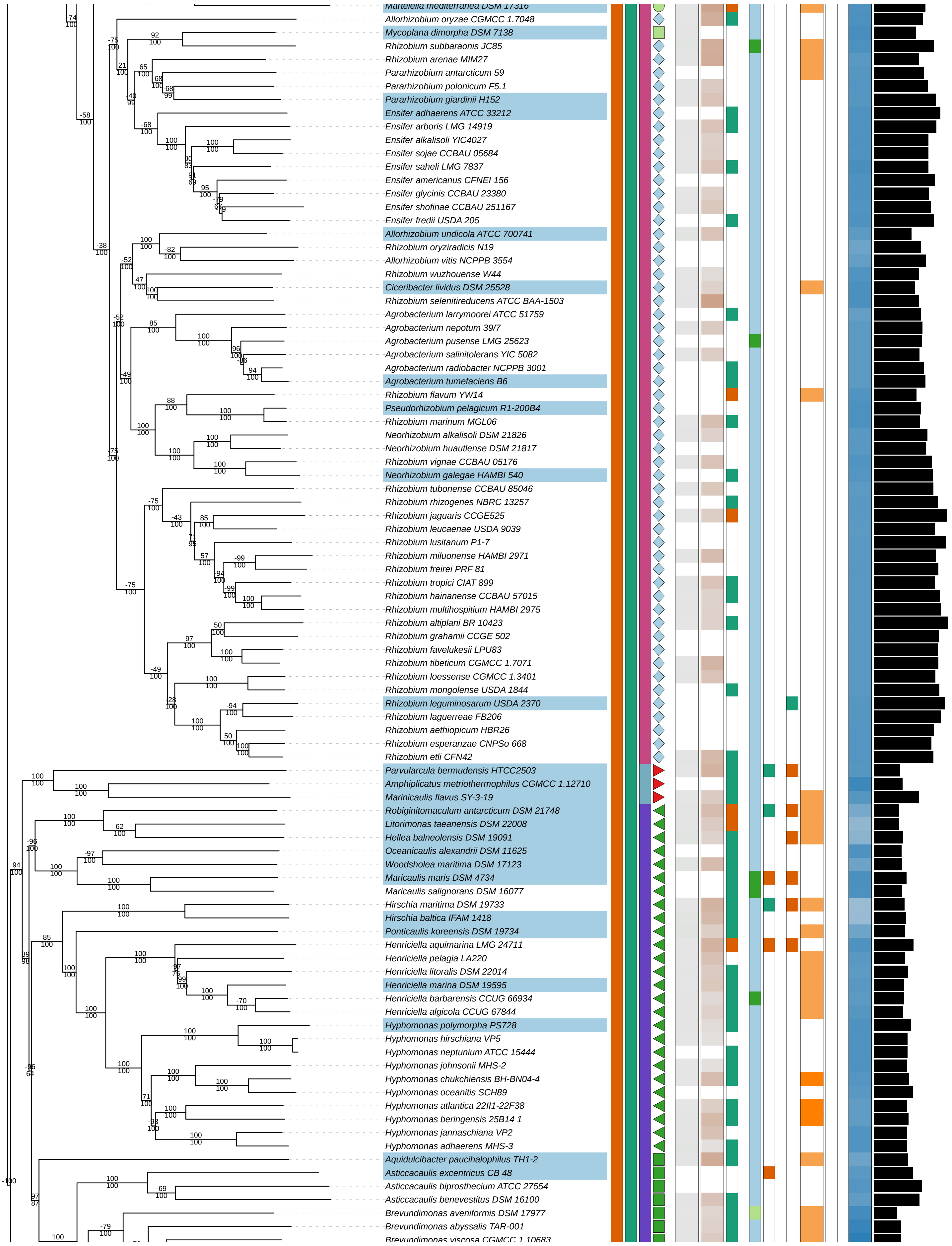
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Pararhizobium polonicum F5.1
Pararhizobium giardinii H152
Ensifer adhaerens ATCC 33212
Ensifer arboris LMG 14919
Ensifer alkalisoli YIC4027
Ensifer sojae CCBAU 05684
Ensifer saheli LMG 7837
Ensifer americanus CFNEI 156
Ensifer glycinis CCBAU 23380
Ensifer shofinae CCBAU 251167
Ensifer fredii USDA 205
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Allorhizobium vitis NCPPB 3554
Rhizobium wuzhouense W44
Ciceribacter lividus DSM 25528
Rhizobium selenitireducens ATCC BAA-1503
Agrobacterium larrymoorei ATCC 51759
Agrobacterium nepotum 39/7
Agrobacterium pusense LMG 25623
Agrobacterium salinitolerans YIC 5082
Agrobacterium radiobacter NCPPB 3001
Agrobacterium tumefaciens B6
Rhizobium flavum YW14
Pseudorhizobium pelagicum R1-200B4
Rhizobium marinum MGL06
Neorhizobium alkalisoli DSM 21826
Neorhizobium huautlense DSM 21817
Rhizobium vignae CCBAU 05176
Neorhizobium galegae HAMBI 540
Rhizobium tubonense CCBAU 85046
Rhizobium rhizogenes NBRC 13257
Rhizobium jaguaris CCGE525
Rhizobium leucaenae USDA 9039
Rhizobium lusitanum P1-7
Rhizobium miluonense HAMBI 2971
Rhizobium freirei PRF 81
Rhizobium tropici CIAT 899
Rhizobium hainanense CCBAU 57015
Rhizobium multihospitium HAMBI 2975
Rhizobium altiplani BR 10423
Rhizobium grahamii CCGE 502
Rhizobium favelukesii LPU83
Rhizobium tibeticum CGMCC 1.7071
Rhizobium loessense CGMCC 1.3401
Rhizobium mongolense USDA 1844
Rhizobium leguminosarum USDA 2370
Rhizobium laguerreae FB206
Rhizobium aethiopicum HBR26
Rhizobium esperanzae CNPSo 668
Rhizobium etli CFN42
Parvularcula bermudensis HTCC2503
Amphiplicatus metriothermophilus CGMCC 1.12710
Marinicaulis flavus SY-3-19
Robiginitomaculum antarcticum DSM 21748
Litorimonas taeanensis DSM 22008
Hellea balneolensis DSM 19091
Oceanicaulis alexandrii DSM 11625
Woodsholea maritima DSM 17123
Maricaulis maris DSM 4734
Maricaulis salignorans DSM 16077
Hirschia maritima DSM 19733
Hirschia baltica IFAM 1418
Ponticaulis koreensis DSM 19734
Henriciella aquimarina LMG 24711
Henriciella pelagia LA220
Henriciella litoralis DSM 22014
Henriciella marina DSM 19595
Henriciella barbarensis CCUG 66934
Henriciella algicola CCUG 67844
Hyphomonas polymorpha PS728
Hyphomonas hirschiana VP5
Hyphomonas neptunium ATCC 15444
Hyphomonas johnsonii MHS-2
Hyphomonas chukchiensis BH-BN04-4
Hyphomonas oceanitis SCH89
Hyphomonas atlantica 22II1-22F38
Hyphomonas beringensis 25B14 1
Hyphomonas jannaschiana VP2
Hyphomonas adhaerens MHS-3
Aquidulcibacter paucihalophilus TH1-2
Asticcacaulis excentricus CB 48
Asticcacaulis biprosthecium ATCC 27554
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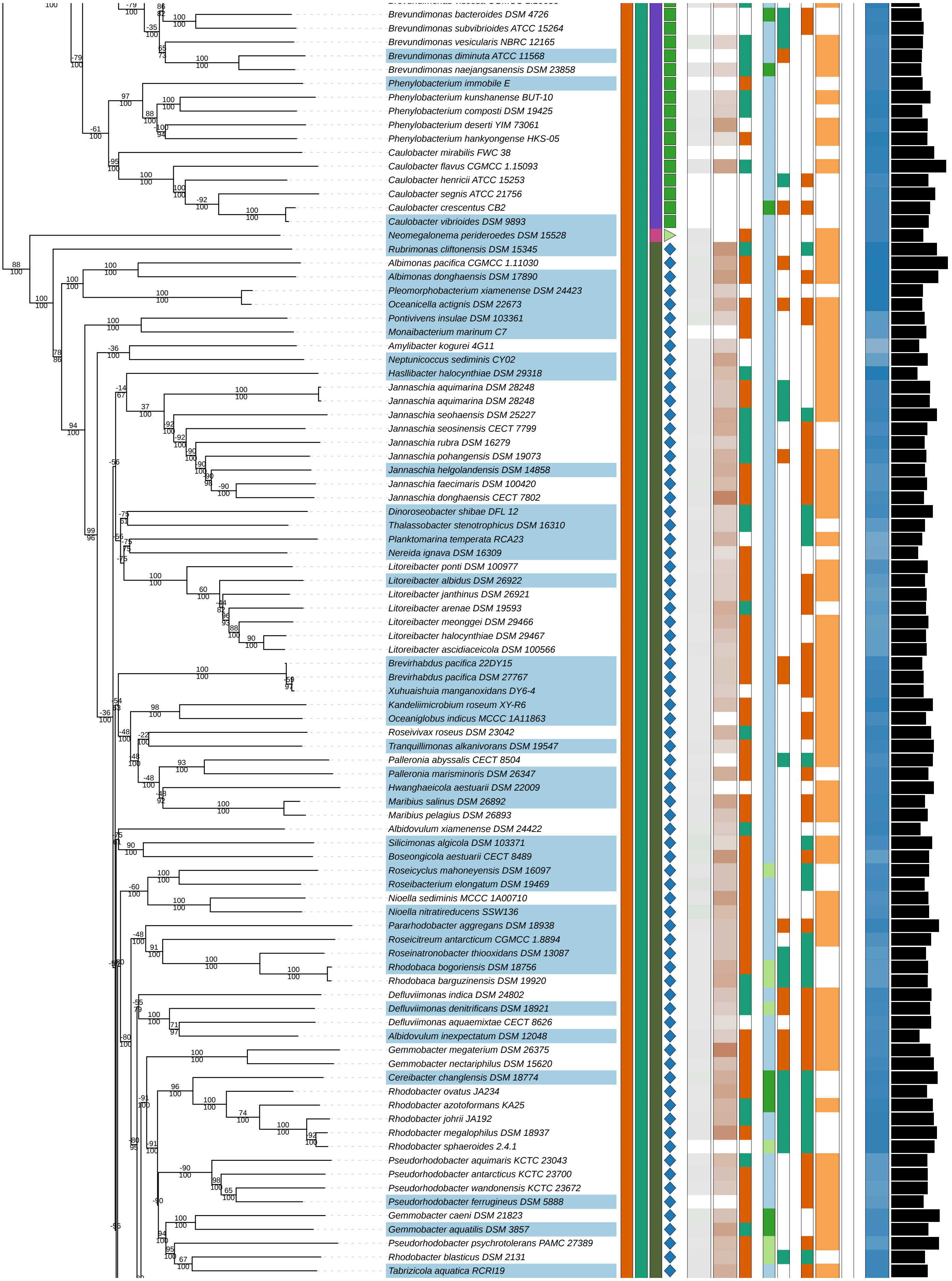
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Phenylobacterium immobile E
Phenylobacterium kunshanense BUT-10
Phenylobacterium composti DSM 19425
Phenylobacterium deserti YIM 73061
Phenylobacterium hankyongense HKS-05
Caulobacter mirabilis FWC 38
Caulobacter flavus CGMCC 1.15093
Caulobacter henricii ATCC 15253
Caulobacter segnis ATCC 21756
Caulobacter crescentus CB2
Caulobacter vibrioides DSM 9893
Neomegalonema perideroedes DSM 15528
Rubrimonas cliftonensis DSM 15345
Albimonas pacifica CGMCC 1.11030
Albimonas donghaensis DSM 17890
Pleomorphobacterium xiamenense DSM 24423
Oceanicella actignis DSM 22673
Pontivivens insulae DSM 103361
Monaibacterium marinum C7
Amylibacter kogurei 4G11
Neptunicoccus sediminis CY02
Hasllibacter halocynthiae DSM 29318
Jannaschia aquimarina DSM 28248
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Jannaschia pohangensis DSM 19073
Jannaschia helgolandensis DSM 14858
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Jannaschia donghaensis CECT 7802
Dinoroseobacter shibae DFL 12
Thalassobacter stenotrophicus DSM 16310
Planktomarina temperata RCA23
Nereida ignava DSM 16309
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Xuhuaishuia manganoxidans DY6-4
Kandeliimicrobium roseum XY-R6
Oceaniglobus indicus MCCC 1A11863
Roseivivax roseus DSM 23042
Tranquillimonas alkanivorans DSM 19547
Palleronia abyssalis CECT 8504
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Silicimonas algicola DSM 103371
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Nioella sediminis MCCC 1A00710
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Pararhodobacter aggregans DSM 18938
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Pseudorhodobacter antarcticus KCTC 23700
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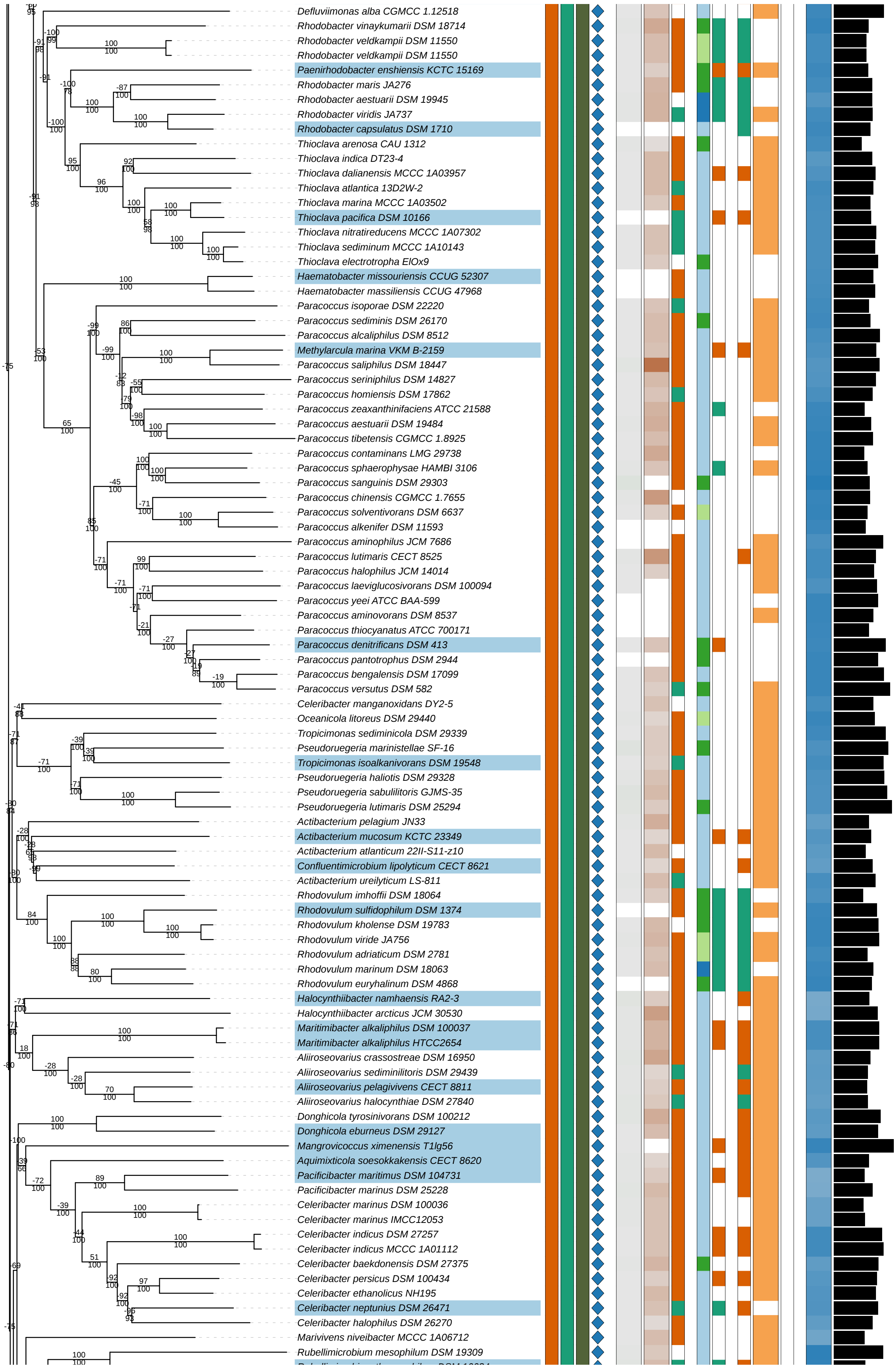

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Halocynthiibacter namhaensis RA2-3
Halocynthiibacter arcticus JCM 30530
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Celeribacter baekdonensis DSM 27375
Celeribacter persicus DSM 100434
Celeribacter ethanolicus NH195
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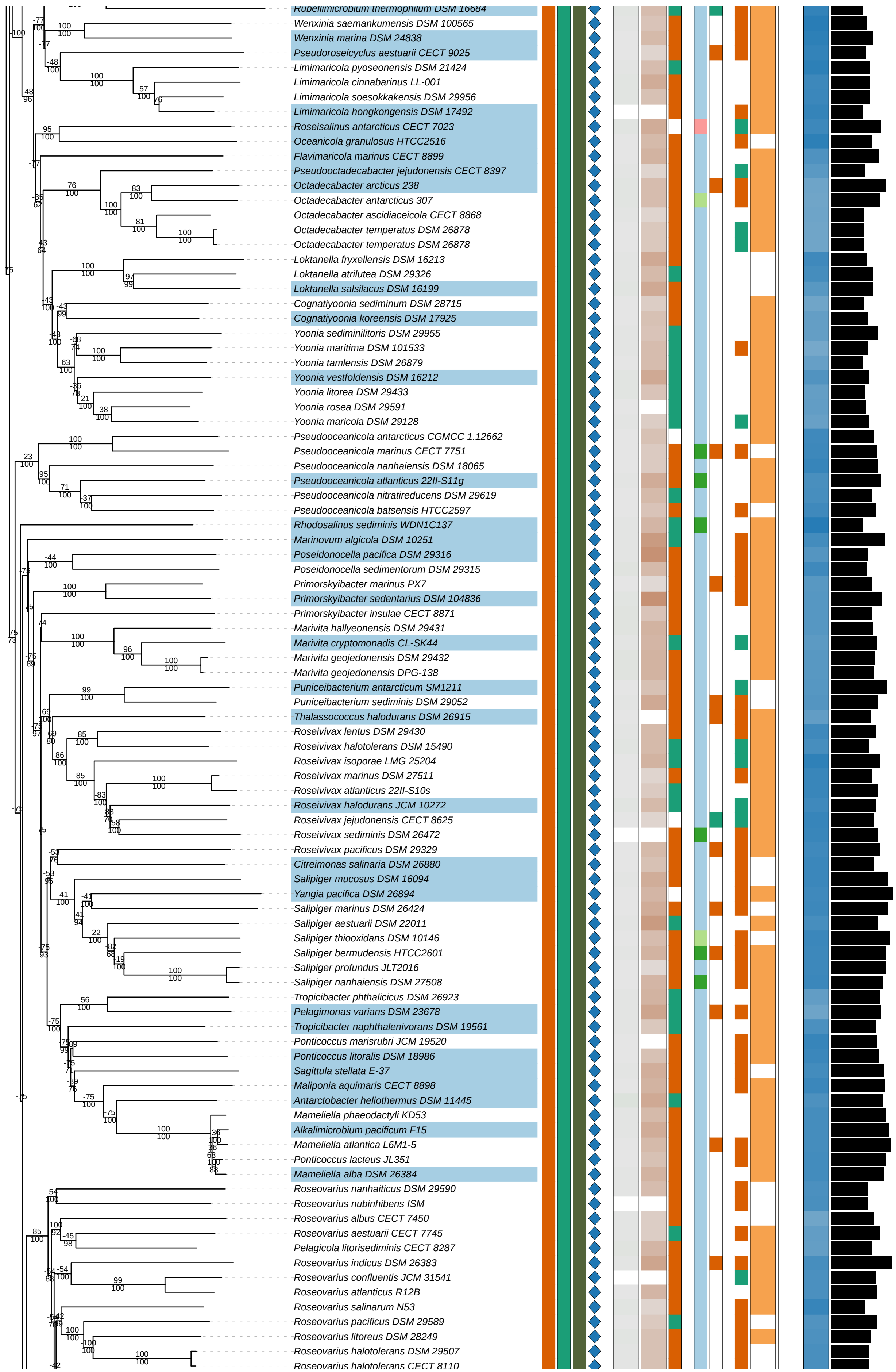
Rubellimicrobium mesophilum DSM 19309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Limimaricola cinnabarinus LL-001
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Limimaricola hongkongensis DSM 17492
Roseisalinus antarcticus CECT 7023
Oceanicola granulosus HTCC2516
Flavimaricola marinus CECT 8899
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Marivita hallyeonensis DSM 29431
Marivita cryptomonadis CL-SK44
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Thalassococcus halodurans DSM 26915
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Roseivivax halodurans JCM 10272
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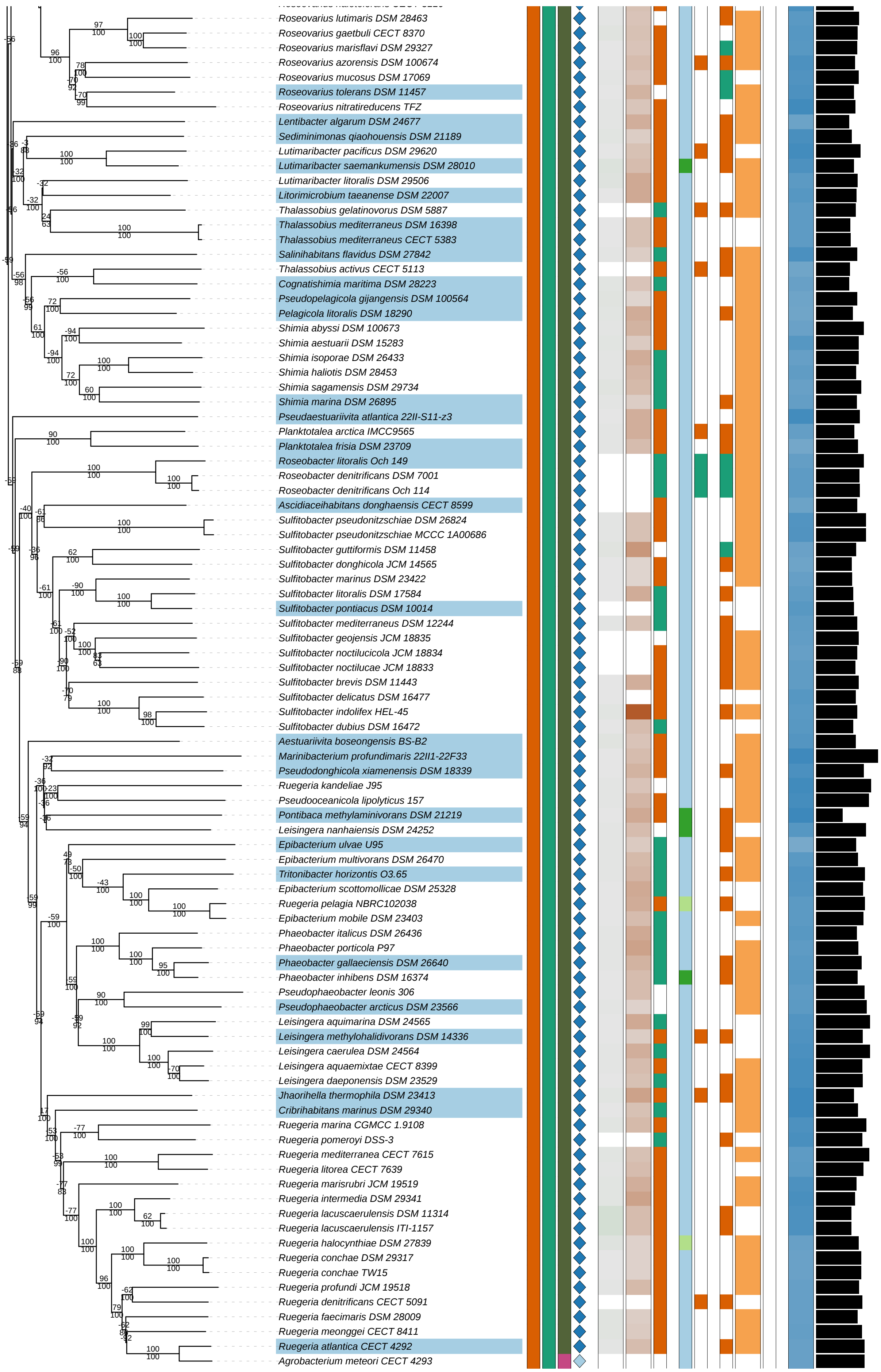
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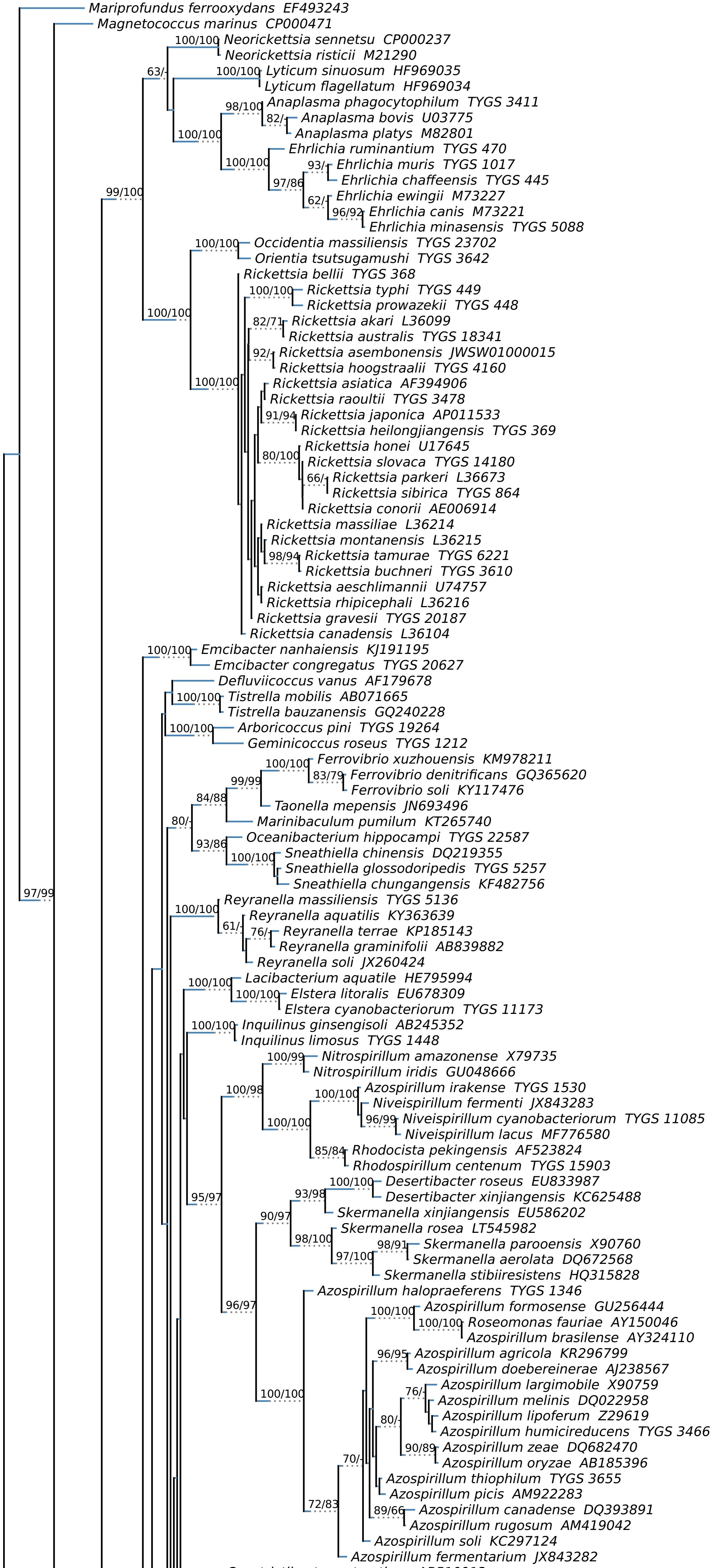
Figure 1: The figure shows the complete, uncollapsed GBDP tree of the *Alphaproteobacteria* genome dataset, which had to be distributed across Figures 1-9 in the main manuscript. Tree inferred with FastME from GBDP distances calculated from whole proteomes. The branches are scaled in terms of log-transformed intergenomic distances (GBDP formula d_5). The numbers below branches are GBDP pseudo-bootstrap support values from 100 replications. The numbers above branches are support (positive) or conflict (negative) values from the gene-content analysis. Tip colors indicate type species, colors to the right of the tips indicate, from left to right, phylum (1), class (2), order (3) and family (4). The blocks labelled as "phenotype" display phenotypic information (5-13), whereas the the blue gradient scale (14) indicates the exact G+C content as calculated from the genome sequences. Genome size (15) is displayed at the right-hand side. See the embedded legend for details. *Jannaschia aquimarina* DSM 28248 is represented by two distinct GenBank biosample accessions (above: SAMN05421775, below: SAMN03329626). The same holds true for *Octadecabacter temperatus* DSM 26878 (above: SAMN03891579, below: SAMN05444287), *Rhodobacter veldkampii* DSM 11550 (above: SAMN10866319, below: SAMN08535030) and *Sphingomonas sanxanigenens* DSM 19645 (above: SAMN02641489, below: SAMN02745820).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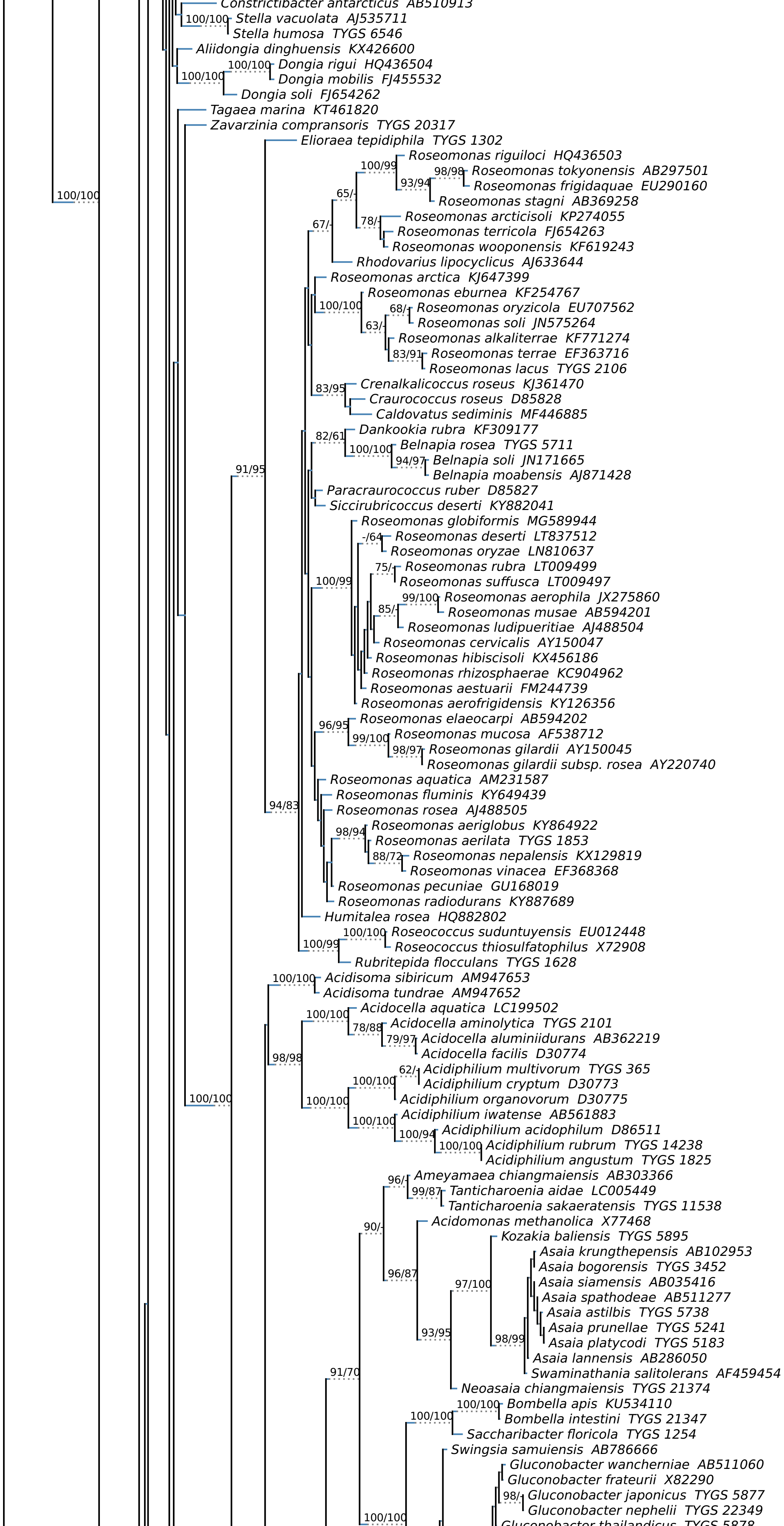
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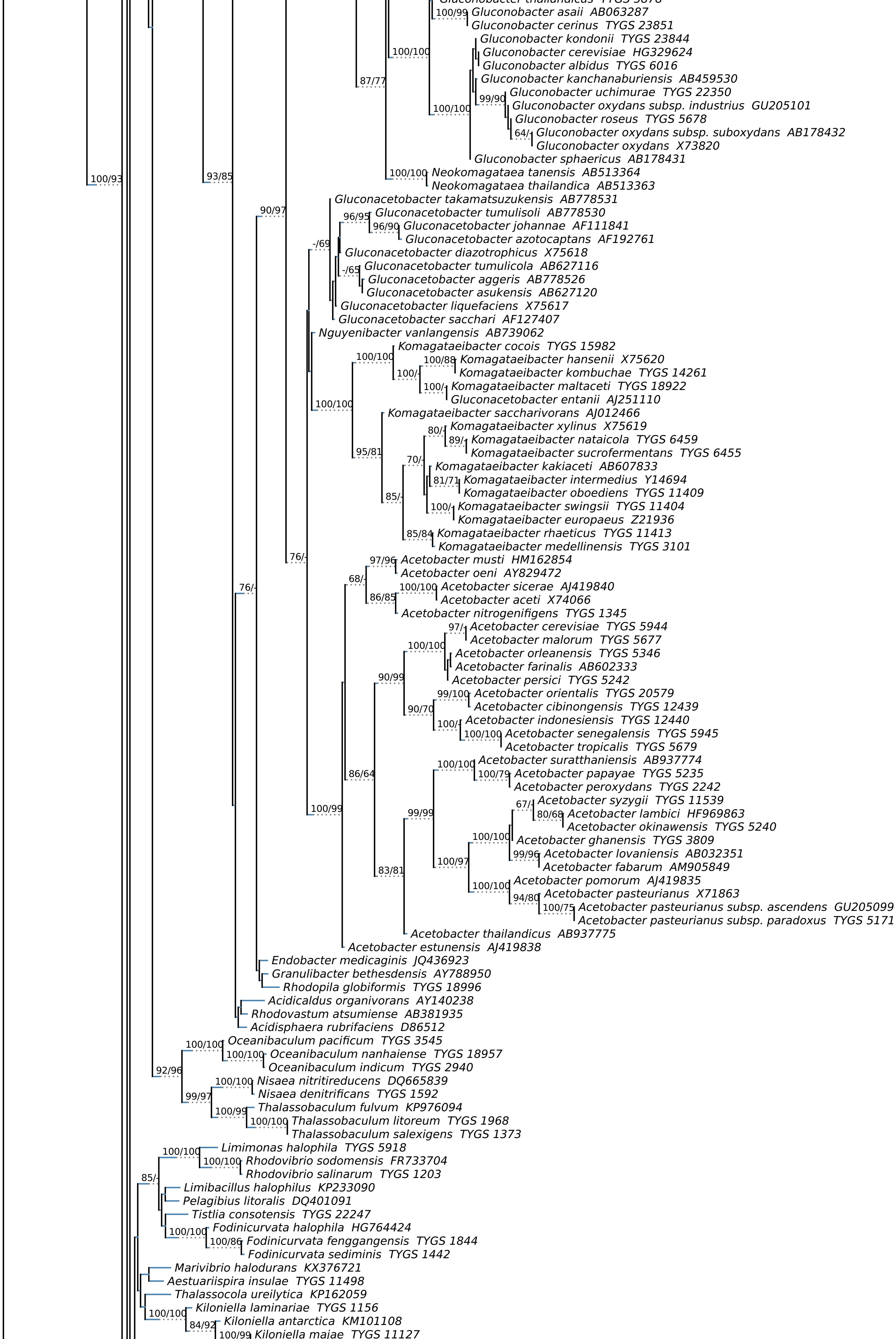
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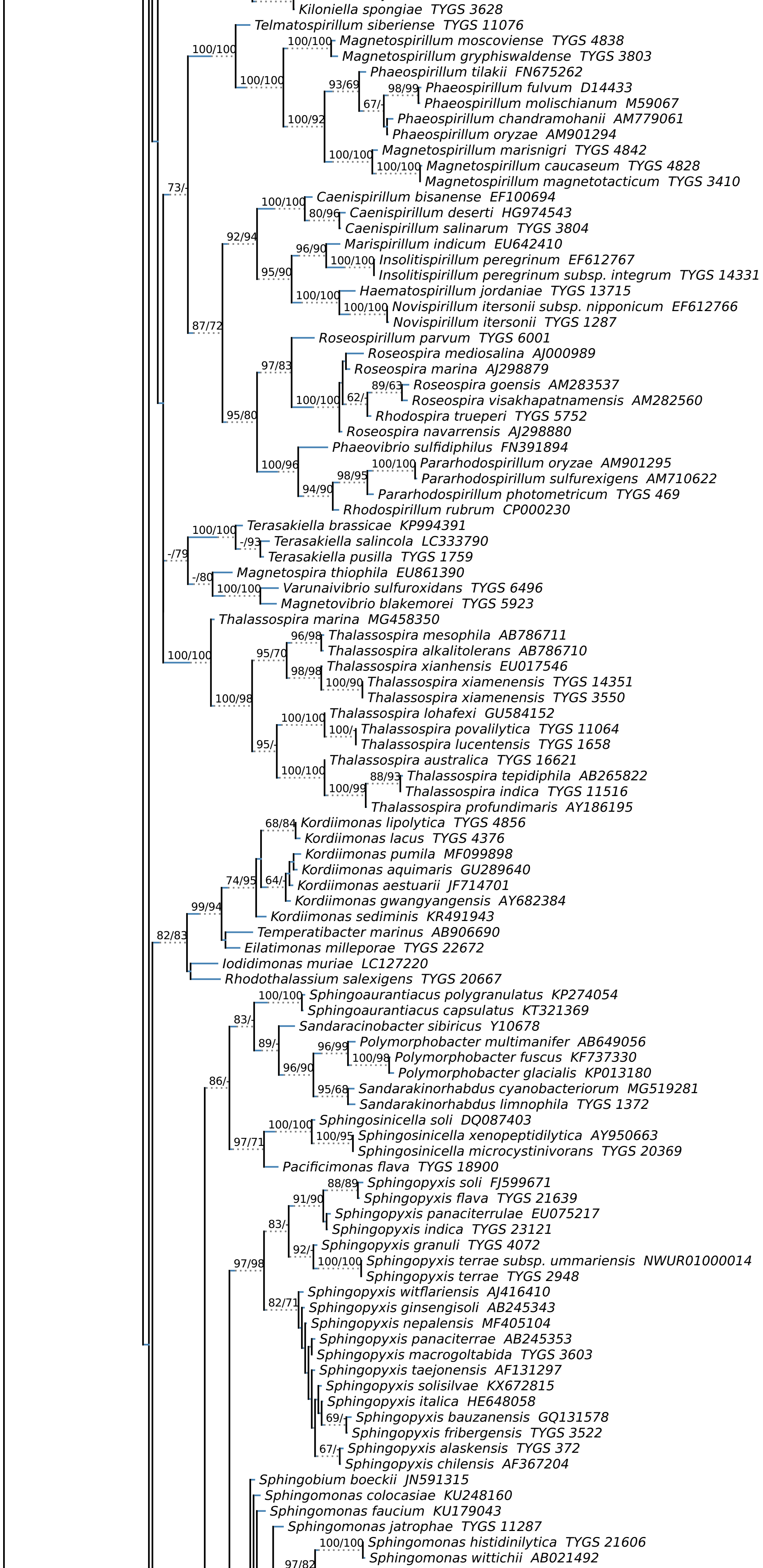
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Kordiimonas lacus TYGS 4376
Kordiimonas pumila MF099898
74/95
64/-
Kordiimonas aquimaris GU289640
Kordiimonas aestuarii JF714701
99/94
Kordiimonas gwangyangensis AY682384
Kordiimonas sediminis KR491943
82/83
Temperatibacter marinus AB906690
Eilatimonas milleporae TYGS 22672
Iodidimonas muriae LC127220
Rhodothalassium salexigens TYGS 20667
100/100
Sphingoaurantiacus polygranulatus KP274054
Sphingoaurantiacus capsulatus KT321369
83/-
Sandaracinobacter sibiricus Y10678
89/-
96/99
Polymorphobacter multimanifer AB649056
100/98
Polymorphobacter fuscus KF737330
86/-
96/90
Polymorphobacter glacialis KP013180
95/68
Sandarakinorhabdus cyanobacteriorum MG519281
Sandarakinorhabdus limnophila TYGS 1372
100/100
Sphingosinicella soli DQ087403
97/71
100/95
Sphingosinicella xenopeptidilytica AY950663
Sphingosinicella microcystinivorans TYGS 20369
Pacificimonas flava TYGS 18900
88/89
Sphingopyxis soli FJ599671
91/90
Sphingopyxis flava TYGS 21639
Sphingopyxis panaciterrulae EU075217
83/-
Sphingopyxis indica TYGS 23121
Sphingopyxis granuli TYGS 4072
92/-
100/100
Sphingopyxis terrae subsp. ummariensis NWUR01000014
97/98
Sphingopyxis terrae TYGS 2948
Sphingopyxis witflariensis AJ416410
82/71
Sphingopyxis ginsengisoli AB245343
Sphingopyxis nepalensis MF405104
Sphingopyxis panaciterrae AB245353
Sphingopyxis macrogoltabida TYGS 3603
Sphingopyxis taejonensis AF131297
Sphingopyxis solisilvae KX672815
Sphingopyxis italica HE648058
69/-
Sphingopyxis bauzanensis GQ131578
Sphingopyxis fribergensis TYGS 3522
67/-
Sphingopyxis alaskensis TYGS 372
Sphingopyxis chilensis AF367204
Sphingobium boeckii JN591315
Sphingomonas colocasiae KU248160
Sphingomonas faucium KU179043
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100/100
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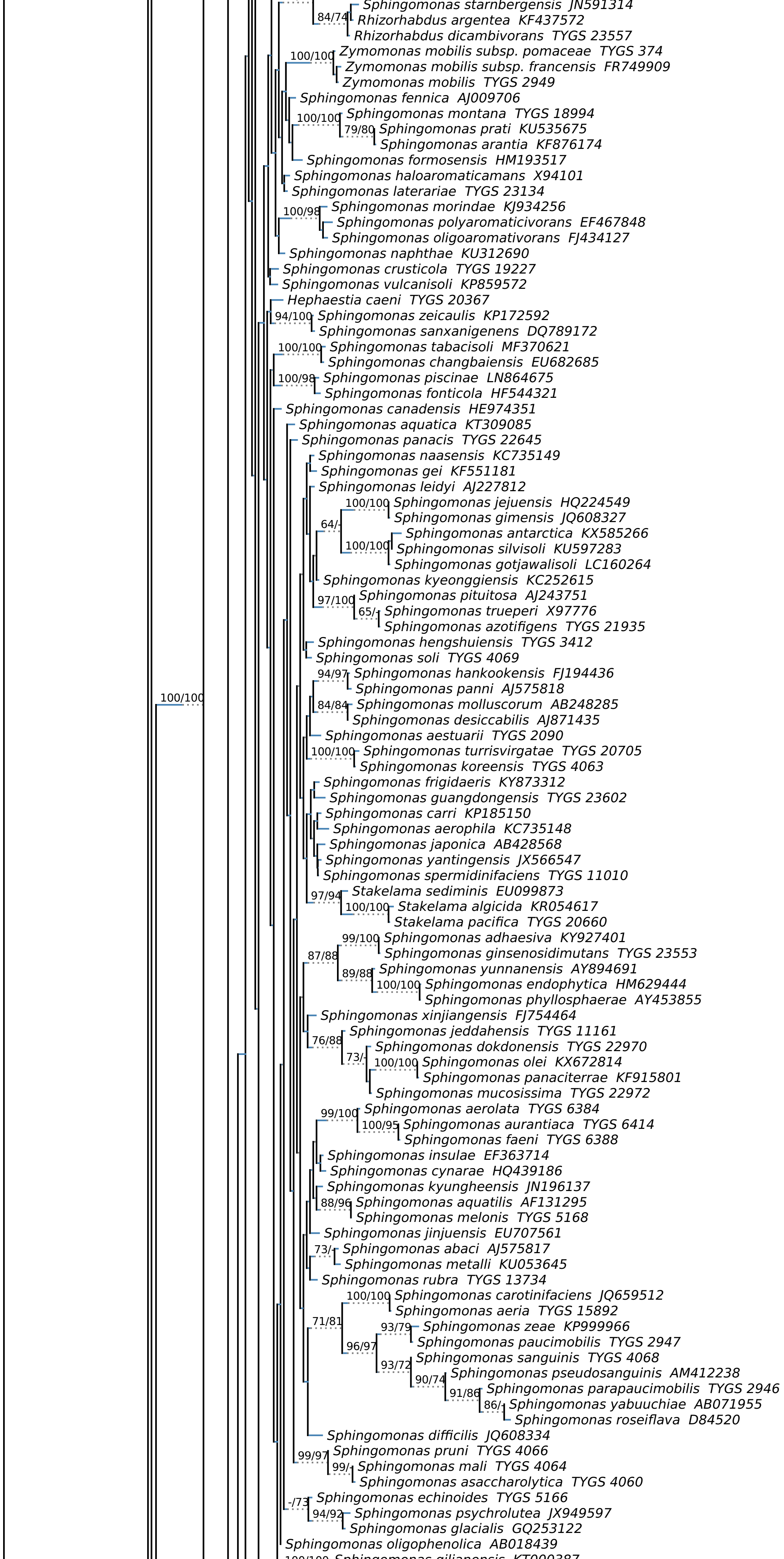
Sphingomonas wittichii AB021492
97/82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100/98
Sphingomonas morindae KJ934256
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Sphingomonas crusticola TYGS 19227
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Sphingomonas piscinae LN864675
Sphingomonas fonticola HF544321
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Sphingomonas aquatica KT309085
Sphingomonas panacis TYGS 22645
Sphingomonas naasensis KC735149
Sphingomonas gei KF551181
Sphingomonas leidyi AJ227812
100/100
Sphingomonas jejuensis HQ224549
64/-
Sphingomonas gimensis JQ608327
Sphingomonas antarctica KX585266
100/100
Sphingomonas silvisoli KU597283
Sphingomonas gotjawalisoli LC160264
Sphingomonas kyeonggiensis KC252615
97/100
Sphingomonas pituitosa AJ243751
65/-
Sphingomonas trueperi X97776
Sphingomonas azotifigens TYGS 21935
Sphingomonas hengshuiensis TYGS 3412
Sphingomonas soli TYGS 4069
94/97
Sphingomonas hankookensis FJ194436
Sphingomonas panni AJ575818
84/84
Sphingomonas molluscorum AB248285
Sphingomonas desiccabilis AJ871435
100/100
Sphingomonas aestuarii TYGS 2090
100/100
Sphingomonas turrisvirgatae TYGS 20705
Sphingomonas koreensis TYGS 4063
Sphingomonas frigidaeris KY873312
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Sphingomonas carri KP185150
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Sphingomonas spermidinifaciens TYGS 11010
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99/100
Sphingomonas adhaesiva KY927401
87/88
Sphingomonas ginsenosidimutans TYGS 23553
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100/100
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Sphingomonas phyllosphaerae AY453855
Sphingomonas xinjiangensis FJ754464
Sphingomonas jeddahensis TYGS 11161
76/88
Sphingomonas dokdonensis TYGS 22970
73/-
100/100
Sphingomonas olei KX672814
Sphingomonas panaciterrae KF915801
Sphingomonas mucosissima TYGS 22972
99/100
Sphingomonas aerolata TYGS 6384
100/95
Sphingomonas aurantiaca TYGS 6414
Sphingomonas faeni TYGS 6388
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Sphingomonas kyungheensis JN196137
88/96
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73/-
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Sphingomonas metalli KU053645
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100/100
Sphingomonas carotinifaciens JQ659512
Sphingomonas aeria TYGS 15892
71/81
93/79
Sphingomonas zeae KP999966
96/97
Sphingomonas paucimobilis TYGS 2947
93/72
Sphingomonas sanguinis TYGS 4068
90/74
Sphingomonas pseudosanguinis AM412238
91/86
Sphingomonas parapaucimobilis TYGS 2946
86/-
Sphingomonas yabuuchiae AB071955
Sphingomonas roseiflava D84520
Sphingomonas difficilis JQ608334
99/97
Sphingomonas pruni TYGS 4066
99/-
Sphingomonas mali TYGS 4064
Sphingomonas asaccharolytica TYGS 4060
-/73
Sphingomonas echinoides TYGS 5166
94/92
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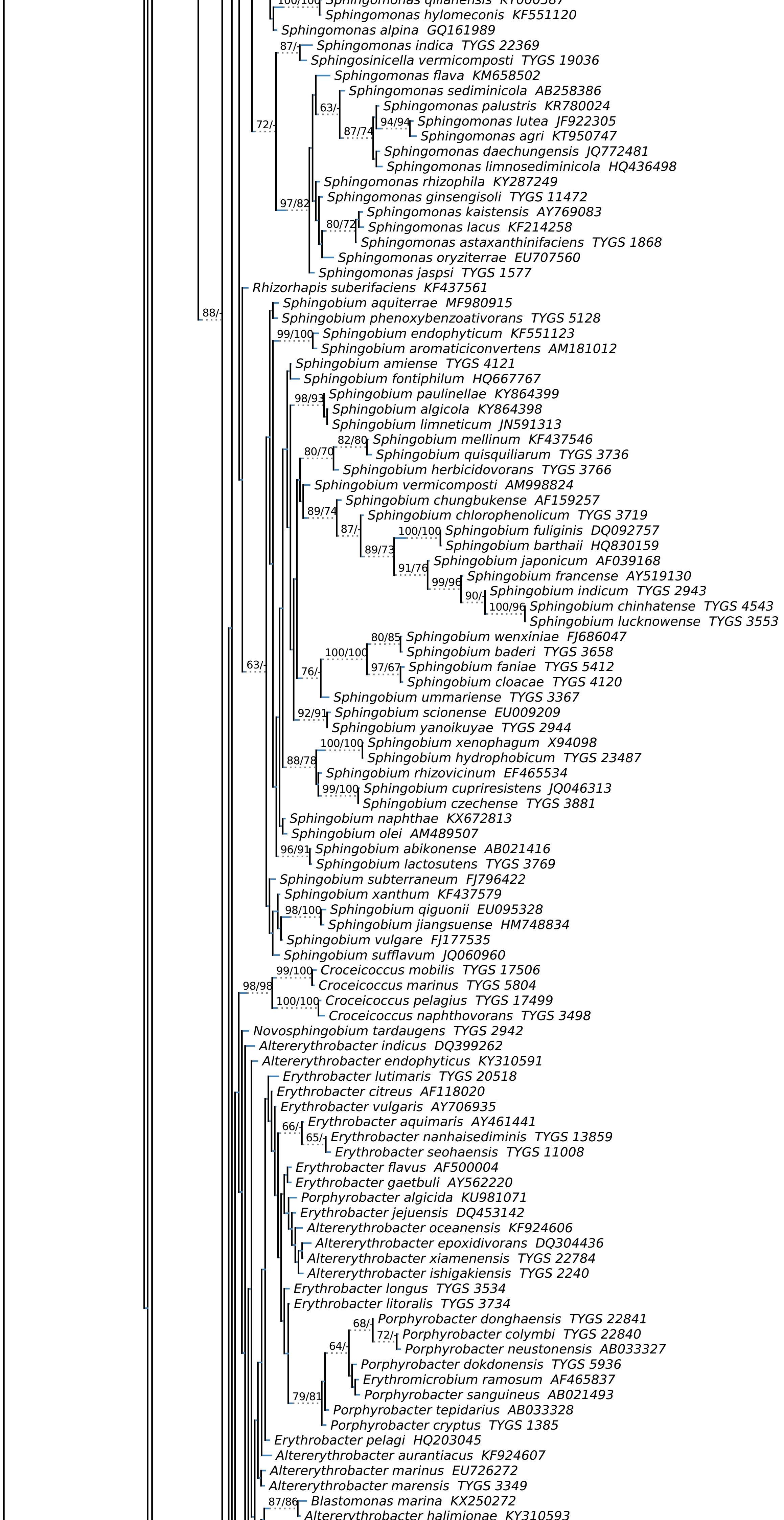
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Sphingomonas alpina GQ161989
87/- Sphingomonas indica TYGS 22369
Sphingosinicella vermicomposti TYGS 19036
Sphingomonas flava KM658502
Sphingomonas sediminicola AB258386
63/-
Sphingomonas palustris KR780024
94/94 Sphingomonas lutea JF922305
87/74 Sphingomonas agri KT950747
72/-
Sphingomonas daechungensis JQ772481
Sphingomonas limnosediminicola HQ436498
Sphingomonas rhizophila KY287249
Sphingomonas ginsengisoli TYGS 11472
97/82
Sphingomonas kaistensis AY769083
80/72 Sphingomonas lacus KF214258
Sphingomonas astaxanthinifaciens TYGS 1868
Sphingomonas oryziterrae EU707560
Sphingomonas jaspsi TYGS 1577
Rhizorhapis suberifaciens KF437561
88/-
Sphingobium aquiterrae MF980915
Sphingobium phenoxybenzoativorans TYGS 5128
99/100 Sphingobium endophyticum KF551123
Sphingobium aromaticiconvertens AM181012
Sphingobium amiense TYGS 4121
Sphingobium fontiphilum HQ667767
98/93 Sphingobium paulinellae KY864399
Sphingobium algicola KY864398
Sphingobium limneticum JN591313
82/80 Sphingobium mellinum KF437546
80/70
Sphingobium quisquiliarum TYGS 3736
Sphingobium herbicidovorans TYGS 3766
Sphingobium vermicomposti AM998824
Sphingobium chungbukense AF159257
89/74
Sphingobium chlorophenolicum TYGS 3719
87/-
100/100 Sphingobium fuliginis DQ092757
Sphingobium barthaii HQ830159
89/73
Sphingobium japonicum AF039168
91/76
Sphingobium francense AY519130
99/96
Sphingobium indicum TYGS 2943
90/-
100/96 Sphingobium chinhatense TYGS 4543
Sphingobium lucknowense TYGS 3553
80/85 Sphingobium wenxiniae FJ686047
100/100
Sphingobium baderi TYGS 3658
63/-
97/67 Sphingobium faniae TYGS 5412
76/-
Sphingobium cloacae TYGS 4120
Sphingobium ummariense TYGS 3367
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Sphingobium yanoikuyae TYGS 2944
100/100 Sphingobium xenophagum X94098
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88/78
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Sphingobium czechense TYGS 3881
Sphingobium naphthae KX672813
Sphingobium olei AM489507
96/91 Sphingobium abikonense AB021416
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Sphingobium xanthum KF437579
98/100 Sphingobium qiguonii EU095328
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99/100 Croceicoccus mobilis TYGS 17506
98/98
Croceicoccus marinus TYGS 5804
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Erythrobacter citreus AF118020
Erythrobacter vulgaris AY706935
66/- Erythrobacter aquimaris AY461441
65/- Erythrobacter nanhaisediminis TYGS 13859
Erythrobacter seohaensis TYGS 11008
Erythrobacter flavus AF500004
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Erythrobacter longus TYGS 3534
Erythrobacter litoralis TYGS 3734
68/- Porphyrobacter donghaensis TYGS 22841
72/- Porphyrobacter colymbi TYGS 22840
64/-
Porphyrobacter neustonensis AB033327
Porphyrobacter dokdonensis TYGS 5936
Erythromicrobium ramosum AF465837
Porphyrobacter sanguineus AB021493
79/81
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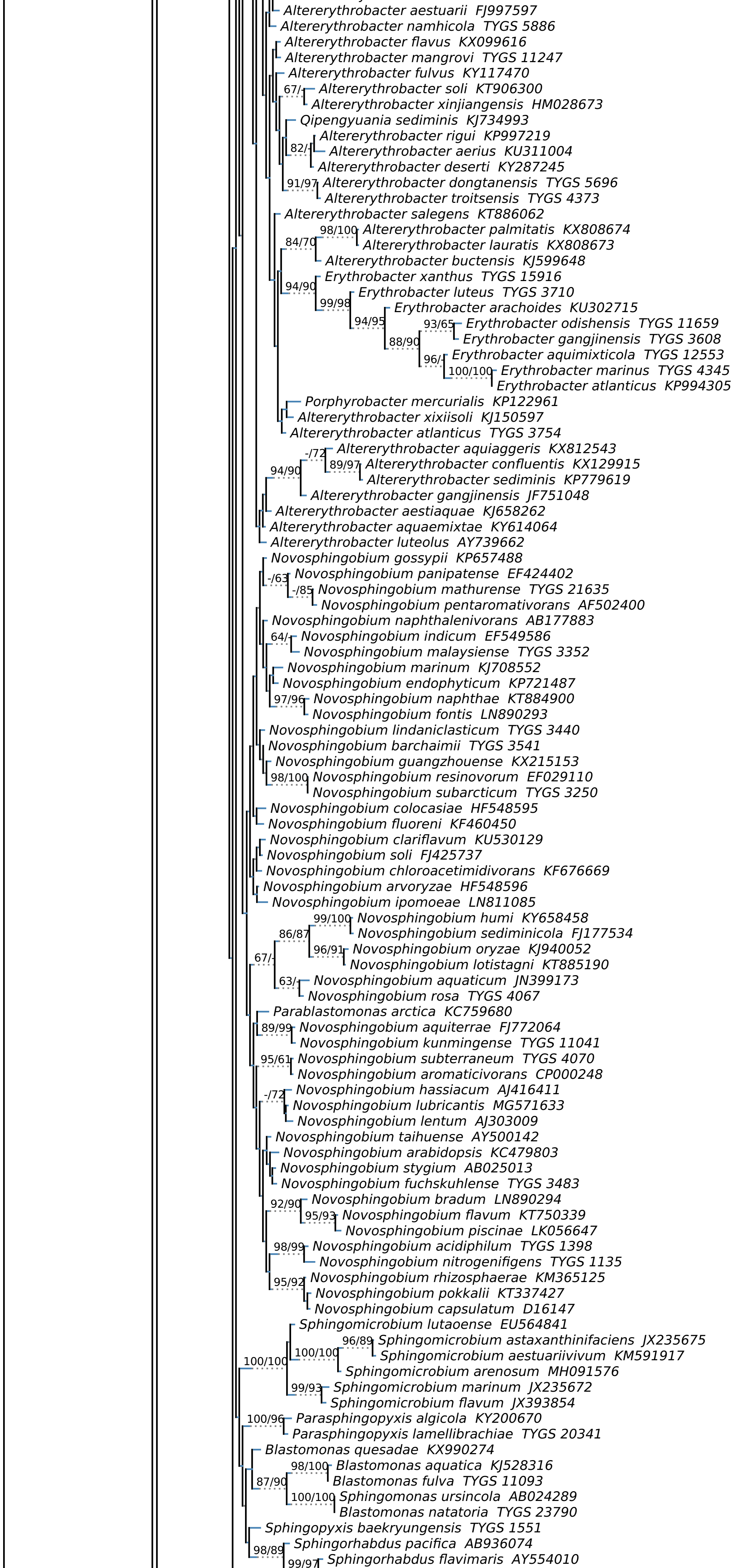
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Altererythrobacter aerius KU311004
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Altererythrobacter dongtanensis TYGS 5696
Altererythrobacter troitsensis TYGS 4373
Altererythrobacter salegens KT886062
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Altererythrobacter lauratis KX808673
Altererythrobacter buctensis KJ599648
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Erythrobacter luteus TYGS 3710
94/95
Erythrobacter arachoides KU302715
93/65
Erythrobacter odishensis TYGS 11659
88/90
Erythrobacter gangjinensis TYGS 3608
96/-
Erythrobacter aquimixticola TYGS 12553
100/100
Erythrobacter marinus TYGS 4345
Erythrobacter atlanticus KP994305
Porphyrobacter mercurialis KP122961
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Altererythrobacter aquiaggeris KX812543
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Novosphingobium naphthalenivorans AB177883
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Novosphingobium malaysiense TYGS 3352
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Novosphingobium naphthae KT884900
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Novosphingobium chloroacetimidivorans KF676669
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Novosphingobium ipomoeae LN811085
99/100
Novosphingobium humi KY658458
86/87
Novosphingobium sediminicola FJ177534
67/-
96/91
Novosphingobium oryzae KJ940052
Novosphingobium lotistagni KT885190
63/-
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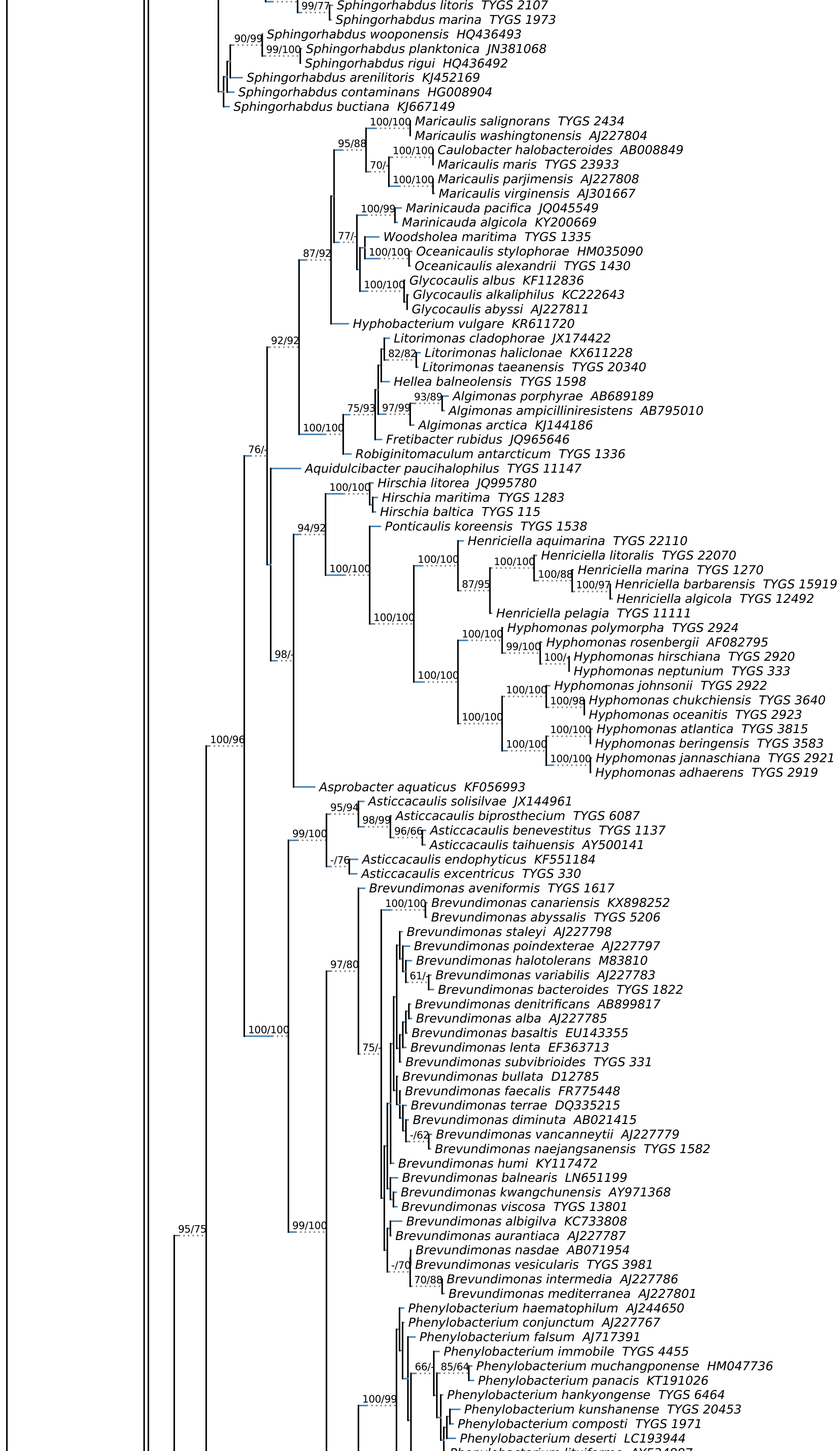
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Maricaulis salignorans TYGS 2434
Maricaulis washingtonensis AJ227804
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100/100
Caulobacter halobacteroides AB008849
70/-
Maricaulis maris TYGS 23933
100/100
Maricaulis parjimensis AJ227808
Maricaulis virginensis AJ301667
100/99
Marinicauda pacifica JQ045549
Marinicauda algicola KY200669
77/-
Woodsholea maritima TYGS 1335
100/100
Oceanicaulis stylophorae HM035090
Oceanicaulis alexandrii TYGS 1430
87/92
100/100
Glycocaulis albus KF112836
Glycocaulis alkaliphilus KC222643
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Hyphobacterium vulgare KR611720
92/92
Litorimonas cladophorae JX174422
82/82
Litorimonas haliclonae KX611228
Litorimonas taeanensis TYGS 20340
Hellea balneolensis TYGS 1598
93/89
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97/99
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Algimonas arctica KJ144186
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Fretibacter rubidus JQ965646
Robiginitomaculum antarcticum TYGS 1336
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Aquidulcibacter paucihalophilus TYGS 11147
100/100
Hirschia litorea JQ995780
Hirschia maritima TYGS 1283
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Hyphomonas hirschiana TYGS 2920
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Brevundimonas poindexterae AJ227797
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Brevundimonas variabilis AJ227783
Brevundimonas bacteroides TYGS 1822
Brevundimonas denitrificans AB899817
Brevundimonas alba AJ227785
100/100
Brevundimonas basaltis EU143355
75/-
Brevundimonas lenta EF363713
Brevundimonas subvibrioides TYGS 331
Brevundimonas bullata D12785
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-/62
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-/70
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Phenylobacterium haematophilum AJ244650
Phenylobacterium conjunctum AJ227767
Phenylobacterium falsum AJ717391
Phenylobacterium immobile TYGS 4455
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85/64
Phenylobacterium muchangponense HM047736
Phenylobacterium panacis KT191026
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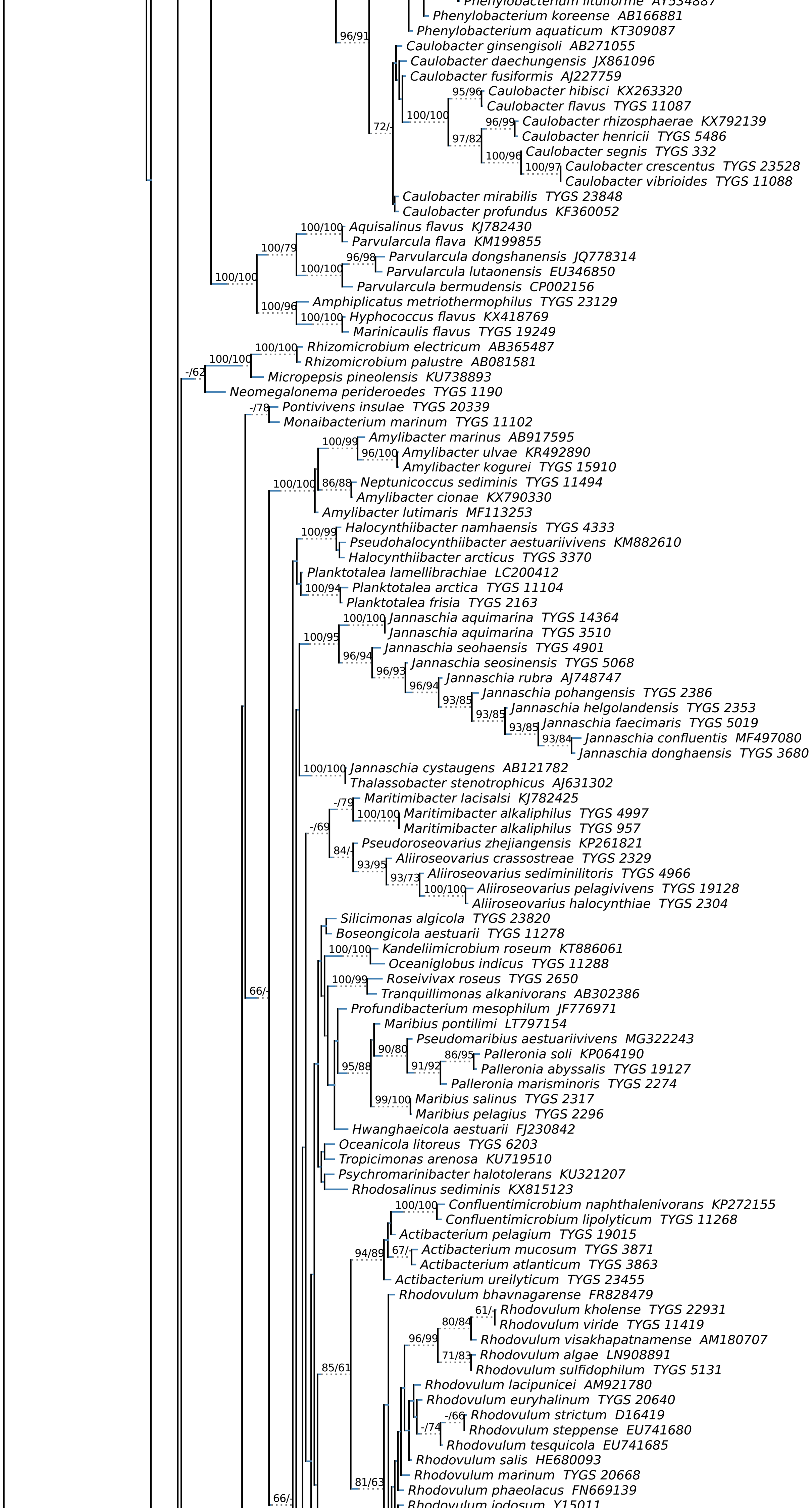
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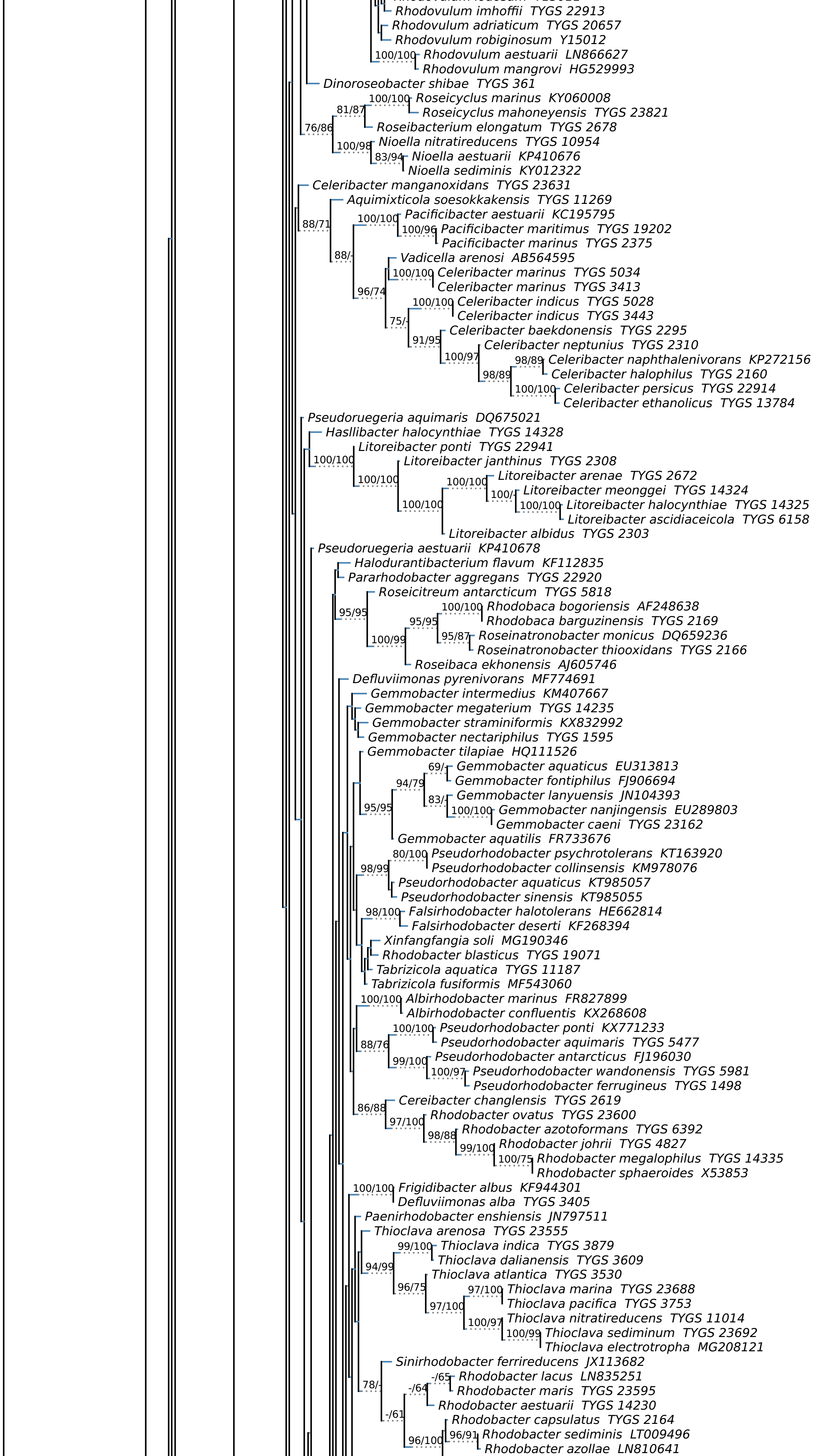
Caulobacter daechungensis JX861096
Caulobacter fusiformis AJ227759
95/96
Caulobacter hibisci KX263320
100/100
Caulobacter flavus TYGS 11087
72/-
96/99
Caulobacter rhizosphaerae KX792139
97/82
Caulobacter henricii TYGS 5486
100/96
Caulobacter segnis TYGS 332
100/97
Caulobacter crescentus TYGS 23528
Caulobacter vibrioides TYGS 11088
Caulobacter mirabilis TYGS 23848
Caulobacter profundus KF360052
100/100
Aquisalinus flavus KJ782430
100/79
Parvularcula flava KM199855
96/98
Parvularcula dongshanensis JQ778314
100/100
100/100
Parvularcula lutaonensis EU346850
Parvularcula bermudensis CP002156
100/96
Amphiplicatus metriothermophilus TYGS 23129
100/100
Hyphococcus flavus KX418769
Marinicaulis flavus TYGS 19249
100/100
Rhizomicrobium electricum AB365487
100/100
Rhizomicrobium palustre AB081581
-/62
Micropepsis pineolensis KU738893
Neomegalonema perideroedes TYGS 1190
-/78
Pontivivens insulae TYGS 20339
Monaibacterium marinum TYGS 11102
100/99
Amylibacter marinus AB917595
96/100
Amylibacter ulvae KR492890
Amylibacter kogurei TYGS 15910
100/100
86/88
Neptunicoccus sediminis TYGS 11494
Amylibacter cionae KX790330
Amylibacter lutimaris MF113253
100/99
Halocynthiibacter namhaensis TYGS 4333
Pseudohalocynthiibacter aestuariivivens KM882610
Halocynthiibacter arcticus TYGS 3370
Planktotalea lamellibrachiae LC200412
100/94
Planktotalea arctica TYGS 11104
Planktotalea frisia TYGS 2163
100/100
Jannaschia aquimarina TYGS 14364
100/95
Jannaschia aquimarina TYGS 3510
96/94
Jannaschia seohaensis TYGS 4901
96/93
Jannaschia seosinensis TYGS 5068
96/94
Jannaschia rubra AJ748747
93/85
Jannaschia pohangensis TYGS 2386
93/85
Jannaschia helgolandensis TYGS 2353
93/85
Jannaschia faecimaris TYGS 5019
93/84
Jannaschia confluentis MF497080
Jannaschia donghaensis TYGS 3680
100/100
Jannaschia cystaugens AB121782
Thalassobacter stenotrophicus AJ631302
-/79
Maritimibacter lacisalsi KJ782425
100/100
Maritimibacter alkaliphilus TYGS 4997
-/69
Maritimibacter alkaliphilus TYGS 957
84/-
Pseudoroseovarius zhejiangensis KP261821
93/95
Aliiroseovarius crassostreae TYGS 2329
93/73
Aliiroseovarius sediminilitoris TYGS 4966
100/100
Aliiroseovarius pelagivivens TYGS 19128
Aliiroseovarius halocynthiae TYGS 2304
Silicimonas algicola TYGS 23820
Boseongicola aestuarii TYGS 11278
100/100
Kandeliimicrobium roseum KT886061
Oceaniglobus indicus TYGS 11288
100/99
Roseivivax roseus TYGS 2650
66/-
Tranquillimonas alkanivorans AB302386
Profundibacterium mesophilum JF776971
Maribius pontilimi LT797154
90/80
Pseudomaribius aestuariivivens MG322243
86/95
Palleronia soli KP064190
95/88
91/92
Palleronia abyssalis TYGS 19127
Palleronia marisminoris TYGS 2274
99/100
Maribius salinus TYGS 2317
Maribius pelagius TYGS 2296
Hwanghaeicola aestuarii FJ230842
Oceanicola litoreus TYGS 6203
Tropicimonas arenosa KU719510
Psychromarinibacter halotolerans KU321207
Rhodosalinus sediminis KX815123
100/100
Confluentimicrobium naphthalenivorans KP272155
Confluentimicrobium lipolyticum TYGS 11268
Actibacterium pelagium TYGS 19015
94/89
67/-
Actibacterium mucosum TYGS 3871
Actibacterium atlanticum TYGS 3863
Actibacterium ureilyticum TYGS 23455
Rhodovulum bhavnagarense FR828479
61/-
Rhodovulum kholense TYGS 22931
80/84
Rhodovulum viride TYGS 11419
96/99
Rhodovulum visakhapatnamense AM180707
71/83
Rhodovulum algae LN908891
85/61
Rhodovulum sulfidophilum TYGS 5131
Rhodovulum lacipunicei AM921780
Rhodovulum euryhalinum TYGS 20640
-/66
Rhodovulum strictum D16419
-/74
Rhodovulum steppense EU741680
Rhodovulum tesquicola EU741685
Rhodovulum salis HE680093
81/63
Rhodovulum marinum TYGS 20668
Rhodovulum phaeolacus FN669139
66/-
Rhodovulum iodosum Y15011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Rhodovulum imhoffii TYGS 22913
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Rhodovulum aestuarii LN866627
Rhodovulum mangrovi HG529993
Dinoroseobacter shibae TYGS 361
100/100
Roseicyclus marinus KY060008
81/87
Roseicyclus mahoneyensis TYGS 23821
76/86
Roseibacterium elongatum TYGS 2678
100/98
Nioella nitratireducens TYGS 10954
83/94
Nioella aestuarii KP410676
Nioella sediminis KY012322
Celeribacter manganoxidans TYGS 23631
Aquimixticola soesokkakensis TYGS 11269
88/71
Pacificibacter aestuarii KC195795
100/100
100/96
Pacificibacter maritimus TYGS 19202
Pacificibacter marinus TYGS 2375
88/-
Vadicella arenosi AB564595
100/100
Celeribacter marinus TYGS 5034
Celeribacter marinus TYGS 3413
96/74
100/100
Celeribacter indicus TYGS 5028
Celeribacter indicus TYGS 3443
75/-
Celeribacter baekdonensis TYGS 2295
91/95
Celeribacter neptunius TYGS 2310
100/97
98/89
Celeribacter naphthalenivorans KP272156
98/89
Celeribacter halophilus TYGS 2160
100/100
Celeribacter persicus TYGS 22914
Celeribacter ethanolicus TYGS 13784
Pseudoruegeria aquimaris DQ675021
Hasllibacter halocynthiae TYGS 14328
100/100
Litoreibacter ponti TYGS 22941
100/100
Litoreibacter janthinus TYGS 2308
100/100
Litoreibacter arenae TYGS 2672
100/100
100/-
Litoreibacter meonggei TYGS 14324
100/100
Litoreibacter halocynthiae TYGS 14325
Litoreibacter ascidiaceicola TYGS 6158
Litoreibacter albidus TYGS 2303
Pseudoruegeria aestuarii KP410678
Halodurantibacterium flavum KF112835
Pararhodobacter aggregans TYGS 22920
95/95
Roseicitreum antarcticum TYGS 5818
100/100
Rhodobaca bogoriensis AF248638
95/95
Rhodobaca barguzinensis TYGS 2169
100/99
95/87
Roseinatronobacter monicus DQ659236
Roseinatronobacter thiooxidans TYGS 2166
Roseibaca ekhonensis AJ605746
Defluviimonas pyrenivorans MF774691
Gemmobacter intermedius KM407667
Gemmobacter megaterium TYGS 14235
Gemmobacter straminiformis KX832992
Gemmobacter nectariphilus TYGS 1595
Gemmobacter tilapiae HQ111526
69/-
Gemmobacter aquaticus EU313813
94/79
Gemmobacter fontiphilus FJ906694
83/-
Gemmobacter lanyuensis JN104393
95/95
100/100
Gemmobacter nanjingensis EU289803
Gemmobacter caeni TYGS 23162
Gemmobacter aquatilis FR733676
80/100
Pseudorhodobacter psychrotolerans KT163920
98/99
Pseudorhodobacter collinsensis KM978076
Pseudorhodobacter aquaticus KT985057
Pseudorhodobacter sinensis KT985055
98/100
Falsirhodobacter halotolerans HE662814
Falsirhodobacter deserti KF268394
Xinfangfangia soli MG190346
Rhodobacter blasticus TYGS 19071
Tabrizicola aquatica TYGS 11187
Tabrizicola fusiformis MF543060
100/100
Albirhodobacter marinus FR827899
Albirhodobacter confluentis KX268608
100/100
Pseudorhodobacter ponti KX771233
88/76
Pseudorhodobacter aquimaris TYGS 5477
99/100
Pseudorhodobacter antarcticus FJ196030
100/97
Pseudorhodobacter wandonensis TYGS 5981
Pseudorhodobacter ferrugineus TYGS 1498
86/88
Cereibacter changlensis TYGS 2619
97/100
Rhodobacter ovatus TYGS 23600
98/88
Rhodobacter azotoformans TYGS 6392
99/100
Rhodobacter johrii TYGS 4827
100/75
Rhodobacter megalophilus TYGS 14335
Rhodobacter sphaeroides X53853
100/100
Frigidibacter albus KF944301
Defluviimonas alba TYGS 3405
Paenirhodobacter enshiensis JN797511
Thioclava arenosa TYGS 23555
99/100
Thioclava indica TYGS 3879
94/99
Thioclava dalianensis TYGS 3609
96/75
Thioclava atlantica TYGS 3530
97/100
Thioclava marina TYGS 23688
97/100
Thioclava pacifica TYGS 3753
100/97
Thioclava nitratireducens TYGS 11014
100/99
Thioclava sediminum TYGS 23692
Thioclava electrotropha MG208121
Sinirhodobacter ferrireducens JX113682
78/-
-/65
Rhodobacter lacus LN835251
-/64
Rhodobacter maris TYGS 23595
-/61
Rhodobacter aestuarii TYGS 14230
Rhodobacter capsulatus TYGS 2164
96/100
96/91
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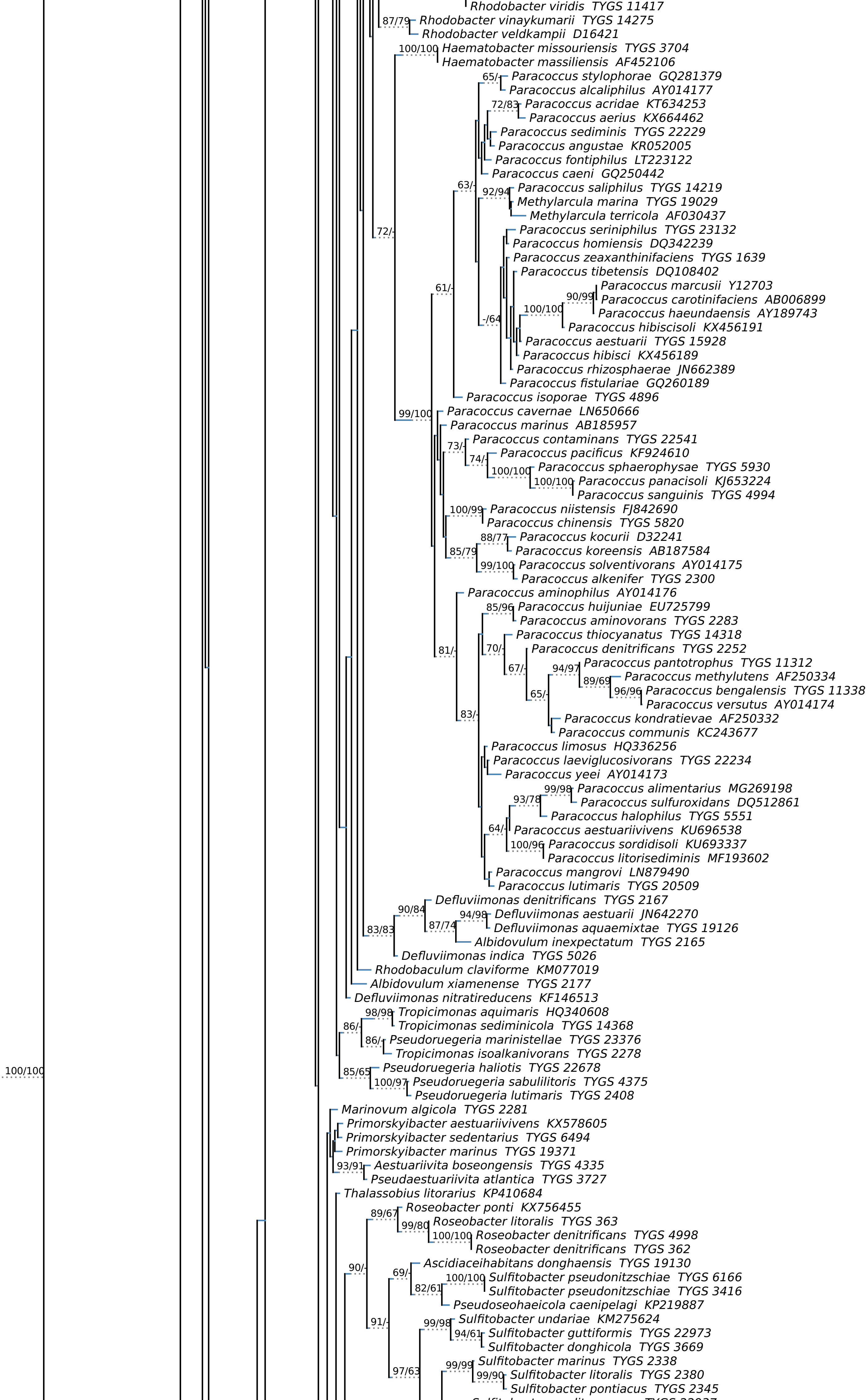
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Rhodobacter vinaykumarii TYGS 14275
Rhodobacter veldkampii D16421
100/100
Haematobacter missouriensis TYGS 3704
Haematobacter massiliensis AF452106
65/-
Paracoccus stylophorae GQ281379
Paracoccus alcaliphilus AY014177
72/83
Paracoccus acridae KT634253
Paracoccus aerius KX664462
Paracoccus sediminis TYGS 22229
Paracoccus angustae KR052005
Paracoccus fontiphilus LT223122
Paracoccus caeni GQ250442
63/-
92/94
Paracoccus saliphilus TYGS 14219
Methylarcula marina TYGS 19029
Methylarcula terricola AF030437
72/-
Paracoccus seriniphilus TYGS 23132
Paracoccus homiensis DQ342239
Paracoccus zeaxanthinifaciens TYGS 1639
Paracoccus tibetensis DQ108402
61/-
90/99
Paracoccus marcusii Y12703
Paracoccus carotinifaciens AB006899
100/100
Paracoccus haeundaensis AY189743
-/64
Paracoccus hibiscisoli KX456191
Paracoccus aestuarii TYGS 15928
Paracoccus hibisci KX456189
Paracoccus rhizosphaerae JN662389
Paracoccus fistulariae GQ260189
Paracoccus isoporae TYGS 4896
99/100
Paracoccus cavernae LN650666
Paracoccus marinus AB185957
73/-
Paracoccus contaminans TYGS 22541
74/-
Paracoccus pacificus KF924610
100/100
Paracoccus sphaerophysae TYGS 5930
100/100
Paracoccus panacisoli KJ653224
Paracoccus sanguinis TYGS 4994
100/99
Paracoccus niistensis FJ842690
Paracoccus chinensis TYGS 5820
88/77
Paracoccus kocurii D32241
85/79
Paracoccus koreensis AB187584
99/100
Paracoccus solventivorans AY014175
Paracoccus alkenifer TYGS 2300
Paracoccus aminophilus AY014176
85/96
Paracoccus huijuniae EU725799
Paracoccus aminovorans TYGS 2283
Paracoccus thiocyanatus TYGS 14318
70/-
Paracoccus denitrificans TYGS 2252
81/-
67/-
94/97
Paracoccus pantotrophus TYGS 11312
89/69
Paracoccus methylutens AF250334
96/96
Paracoccus bengalensis TYGS 11338
65/-
Paracoccus versutus AY014174
83/-
Paracoccus kondratievae AF250332
Paracoccus communis KC243677
Paracoccus limosus HQ336256
Paracoccus laeviglucosivorans TYGS 22234
Paracoccus yeei AY014173
99/98
Paracoccus alimentarius MG269198
93/78
Paracoccus sulfuroxidans DQ512861
Paracoccus halophilus TYGS 5551
64/-
Paracoccus aestuariivivens KU696538
100/96
Paracoccus sordidisoli KU693337
Paracoccus litorisediminis MF193602
Paracoccus mangrovi LN879490
Paracoccus lutimaris TYGS 20509
90/84
Defluviimonas denitrificans TYGS 2167
94/98
Defluviimonas aestuarii JN642270
83/83
87/74
Defluviimonas aquaemixtae TYGS 19126
Albidovulum inexpectatum TYGS 2165
Defluviimonas indica TYGS 5026
Rhodobaculum claviforme KM077019
Albidovulum xiamenense TYGS 2177
Defluviimonas nitratireducens KF146513
98/98
Tropicimonas aquimaris HQ340608
86/-
Tropicimonas sediminicola TYGS 14368
86/-
Pseudoruegeria marinistellae TYGS 23376
Tropicimonas isoalkanivorans TYGS 2278
100/100
85/65
Pseudoruegeria haliotis TYGS 22678
100/97
Pseudoruegeria sabulilitoris TYGS 4375
Pseudoruegeria lutimaris TYGS 2408
Marinovum algicola TYGS 2281
Primorskyibacter aestuariivivens KX578605
Primorskyibacter sedentarius TYGS 6494
Primorskyibacter marinus TYGS 19371
93/91
Aestuariivita boseongensis TYGS 4335
Pseudaestuariivita atlantica TYGS 3727
Thalassobius litorarius KP410684
89/67
Roseobacter ponti KX756455
99/80
Roseobacter litoralis TYGS 363
100/100
Roseobacter denitrificans TYGS 4998
Roseobacter denitrificans TYGS 362
90/-
Ascidiaceihabitans donghaensis TYGS 19130
69/-
100/100
Sulfitobacter pseudonitzschiae TYGS 6166
82/61
Sulfitobacter pseudonitzschiae TYGS 3416
Pseudoseohaeicola caenipelagi KP219887
91/-
99/98
Sulfitobacter undariae KM275624
94/61
Sulfitobacter guttiformis TYGS 22973
Sulfitobacter donghicola TYGS 3669
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Sulfitobacter marinus TYGS 2338
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99/90
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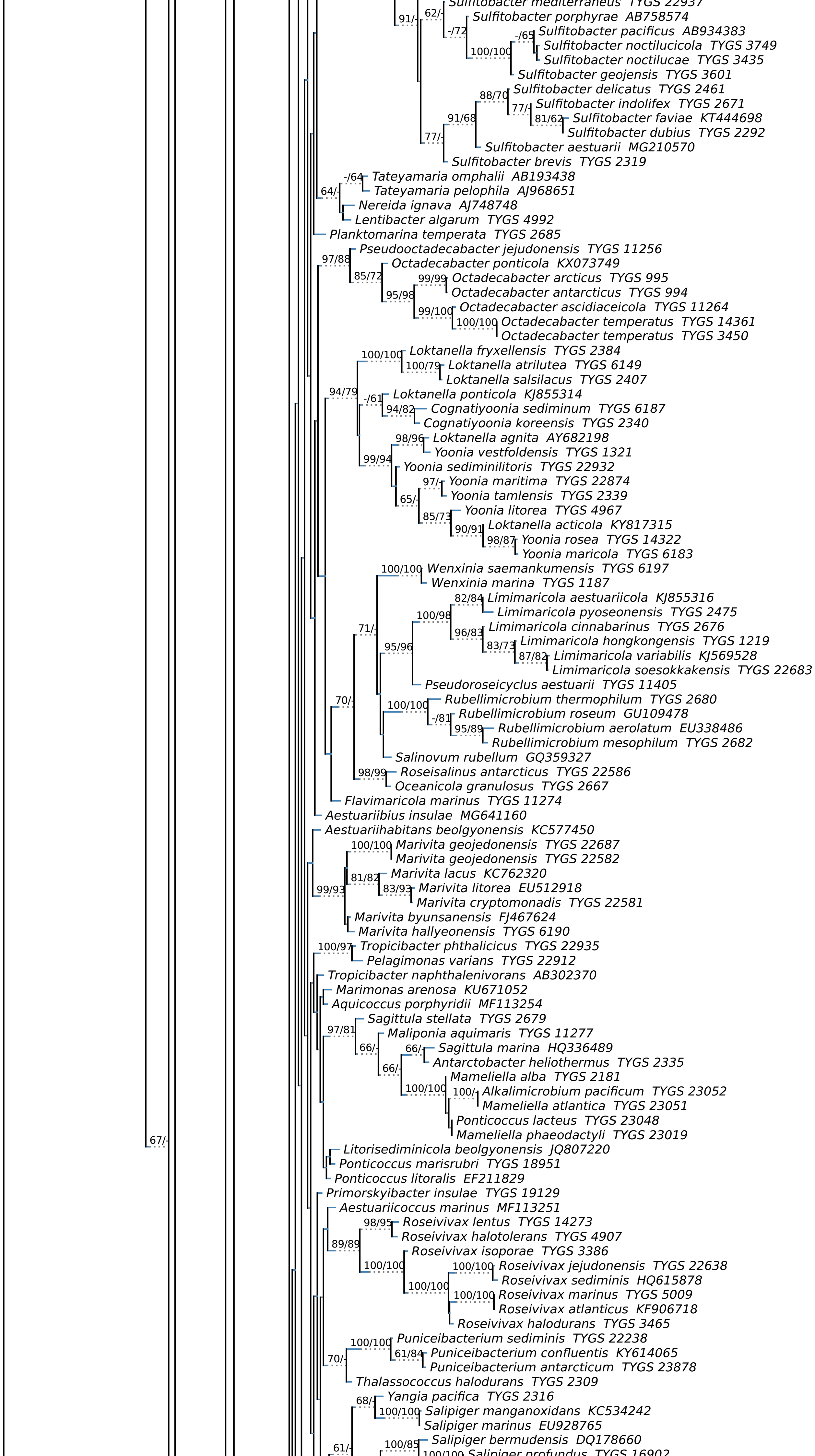
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91/-
62/-
Sulfitobacter porphyrae AB758574
-/72
-/65
Sulfitobacter pacificus AB934383
100/100
Sulfitobacter noctilucicola TYGS 3749
Sulfitobacter noctilucae TYGS 3435
Sulfitobacter geojensis TYGS 3601
88/70
Sulfitobacter delicatus TYGS 2461
77/-
Sulfitobacter indolifex TYGS 2671
91/68
81/62
Sulfitobacter faviae KT444698
Sulfitobacter dubius TYGS 2292
77/-
Sulfitobacter aestuarii MG210570
Sulfitobacter brevis TYGS 2319
-/64
Tateyamaria omphalii AB193438
64/-
Tateyamaria pelophila AJ968651
Nereida ignava AJ748748
Lentibacter algarum TYGS 4992
Planktomarina temperata TYGS 2685
97/88
Pseudooctadecabacter jejudonensis TYGS 11256
85/72
Octadecabacter ponticola KX073749
99/99
Octadecabacter arcticus TYGS 995
95/98
Octadecabacter antarcticus TYGS 994
99/100
Octadecabacter ascidiaceicola TYGS 11264
100/100
Octadecabacter temperatus TYGS 14361
Octadecabacter temperatus TYGS 3450
100/100
Loktanella fryxellensis TYGS 2384
100/79
Loktanella atrilutea TYGS 6149
Loktanella salsilacus TYGS 2407
94/79
-/61
Loktanella ponticola KJ855314
94/82
Cognatiyoonia sediminum TYGS 6187
Cognatiyoonia koreensis TYGS 2340
98/96
Loktanella agnita AY682198
99/94
Yoonia vestfoldensis TYGS 1321
Yoonia sediminilitoris TYGS 22932
97/-
Yoonia maritima TYGS 22874
65/-
Yoonia tamlensis TYGS 2339
85/73
Yoonia litorea TYGS 4967
90/91
Loktanella acticola KY817315
98/87
Yoonia rosea TYGS 14322
Yoonia maricola TYGS 6183
100/100
Wenxinia saemankumensis TYGS 6197
Wenxinia marina TYGS 1187
82/84
Limimaricola aestuariicola KJ855316
100/98
Limimaricola pyoseonensis TYGS 2475
71/-
Limimaricola cinnabarinus TYGS 2676
95/96
96/83
Limimaricola hongkongensis TYGS 1219
83/73
87/82
Limimaricola variabilis KJ569528
Limimaricola soesokkakensis TYGS 22683
Pseudoroseicyclus aestuarii TYGS 11405
70/-
Rubellimicrobium thermophilum TYGS 2680
100/100
Rubellimicrobium roseum GU109478
-/81
95/89
Rubellimicrobium aerolatum EU338486
Rubellimicrobium mesophilum TYGS 2682
Salinovum rubellum GQ359327
98/99
Roseisalinus antarcticus TYGS 22586
Oceanicola granulosus TYGS 2667
Flavimaricola marinus TYGS 11274
Aestuariibius insulae MG641160
Aestuariihabitans beolgyonensis KC577450
100/100
Marivita geojedonensis TYGS 22687
Marivita geojedonensis TYGS 22582
81/82
Marivita lacus KC762320
99/93
83/93
Marivita litorea EU512918
Marivita cryptomonadis TYGS 22581
Marivita byunsanensis FJ467624
Marivita hallyeonensis TYGS 6190
100/97
Tropicibacter phthalicicus TYGS 22935
Pelagimonas varians TYGS 22912
Tropicibacter naphthalenivorans AB302370
Marimonas arenosa KU671052
Aquicoccus porphyridii MF113254
97/81
Sagittula stellata TYGS 2679
66/-
Maliponia aquimaris TYGS 11277
66/-
Sagittula marina HQ336489
66/-
Antarctobacter heliothermus TYGS 2335
Mameliella alba TYGS 2181
100/100
100/-
Alkalimicrobium pacificum TYGS 23052
Mameliella atlantica TYGS 23051
67/-
Ponticoccus lacteus TYGS 23048
Mameliella phaeodactyli TYGS 23019
Litorisediminicola beolgyonensis JQ807220
Ponticoccus marisrubri TYGS 18951
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Roseivivax lentus TYGS 14273
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100/100
Roseivivax jejudonensis TYGS 22638
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Roseivivax sediminis HQ615878
100/100
Roseivivax marinus TYGS 5009
Roseivivax atlanticus KF906718
Roseivivax halodurans TYGS 3465
100/100
Puniceibacterium sediminis TYGS 22238
70/-
61/84
Puniceibacterium confluentis KY614065
Puniceibacterium antarcticum TYGS 23878
Thalassococcus halodurans TYGS 2309
68/-
Yangia pacifica TYGS 2316
100/100
Salipiger manganoxidans KC534242
Salipiger marinus EU928765
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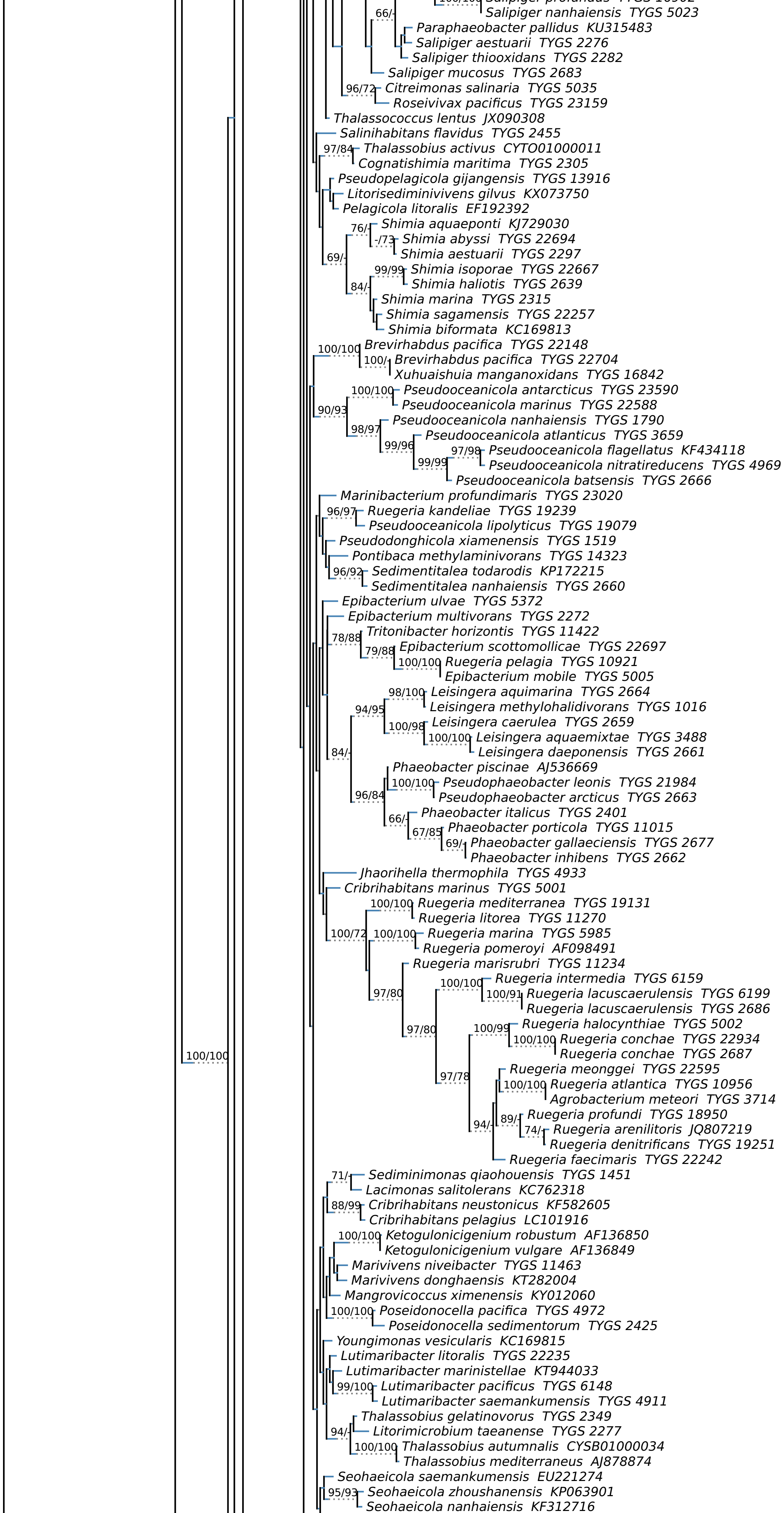
100/85
Salipiger bermudensis DQ178660
100/100
Salipiger profundus TYGS 16902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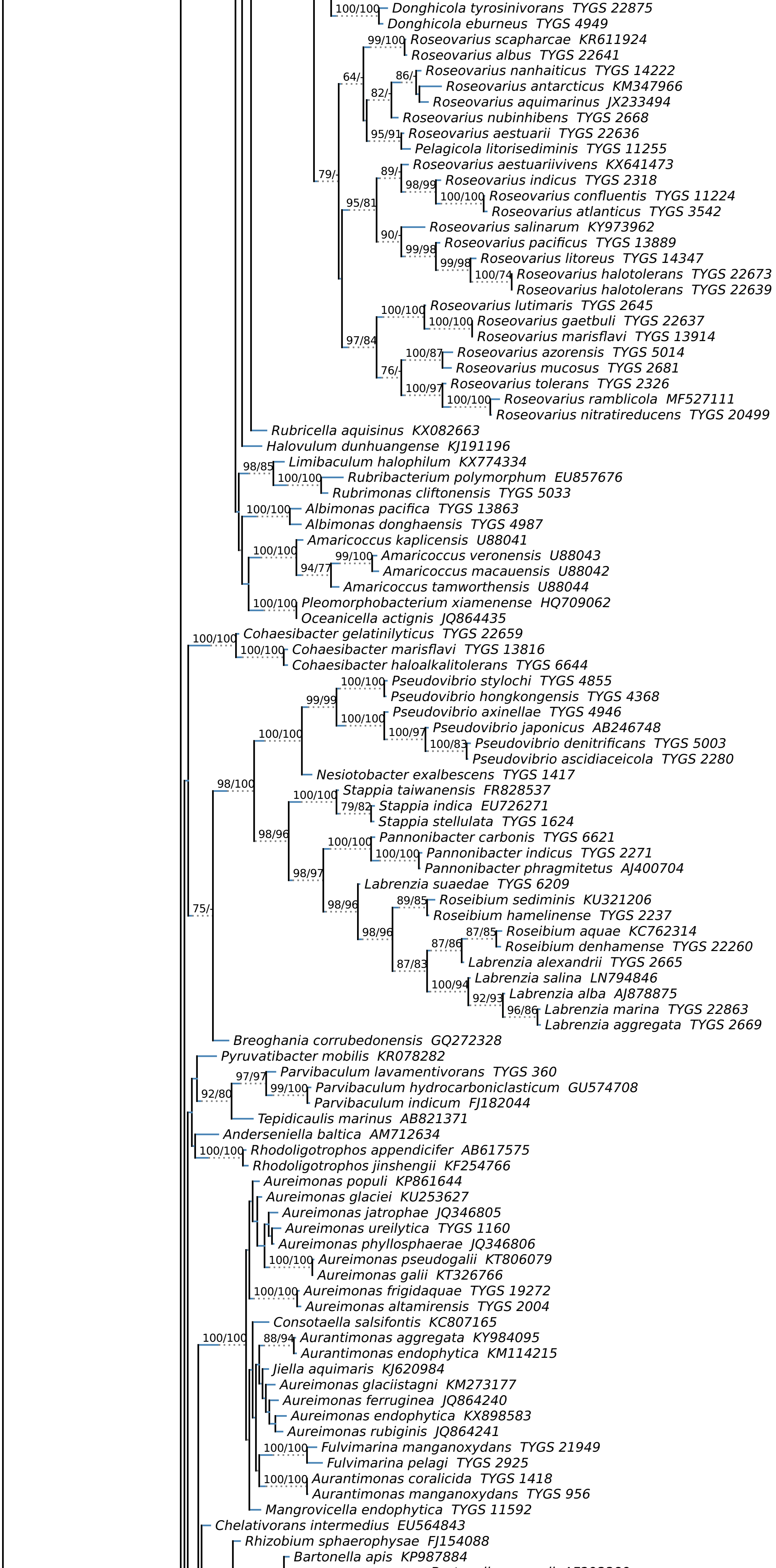
Paraphaeobacter pallidus KU315483
Salipiger aestuarii TYGS 2276
Salipiger thiooxidans TYGS 2282
Salipiger mucosus TYGS 2683
96/72 Citreimonas salinaria TYGS 5035
Roseivivax pacificus TYGS 23159
Thalassococcus lentus JX090308
Salinihabitans flavidus TYGS 2455
97/84 Thalassobius activus CYTO01000011
Cognatishimia maritima TYGS 2305
Pseudopelagicola gijangensis TYGS 13916
Litorisediminivivens gilvus KX073750
Pelagicola litoralis EF192392
76/- Shimia aquaeponti KJ729030
-/73 Shimia abyssi TYGS 22694
69/- Shimia aestuarii TYGS 2297
99/99 Shimia isoporae TYGS 22667
84/- Shimia haliotis TYGS 2639
Shimia marina TYGS 2315
Shimia sagamensis TYGS 22257
Shimia biformata KC169813
100/100 Brevirhabdus pacifica TYGS 22148
100/- Brevirhabdus pacifica TYGS 22704
Xuhuaishuia manganoxidans TYGS 16842
100/100 Pseudooceanicola antarcticus TYGS 23590
90/93 Pseudooceanicola marinus TYGS 22588
Pseudooceanicola nanhaiensis TYGS 1790
98/97
Pseudooceanicola atlanticus TYGS 3659
99/96
97/98 Pseudooceanicola flagellatus KF434118
99/99 Pseudooceanicola nitratireducens TYGS 4969
Pseudooceanicola batsensis TYGS 2666
Marinibacterium profundimaris TYGS 23020
96/97 Ruegeria kandeliae TYGS 19239
Pseudooceanicola lipolyticus TYGS 19079
Pseudodonghicola xiamenensis TYGS 1519
Pontibaca methylaminivorans TYGS 14323
96/92 Sedimentitalea todarodis KP172215
Sedimentitalea nanhaiensis TYGS 2660
Epibacterium ulvae TYGS 5372
Epibacterium multivorans TYGS 2272
Tritonibacter horizontis TYGS 11422
78/88
Epibacterium scottomollicae TYGS 22697
79/88
100/100 Ruegeria pelagia TYGS 10921
Epibacterium mobile TYGS 5005
98/100 Leisingera aquimarina TYGS 2664
94/95
Leisingera methylohalidivorans TYGS 1016
100/98 Leisingera caerulea TYGS 2659
100/100 Leisingera aquaemixtae TYGS 3488
84/- Leisingera daeponensis TYGS 2661
Phaeobacter piscinae AJ536669
100/100 Pseudophaeobacter leonis TYGS 21984
96/84 Pseudophaeobacter arcticus TYGS 2663
Phaeobacter italicus TYGS 2401
66/-
Phaeobacter porticola TYGS 11015
67/85
69/- Phaeobacter gallaeciensis TYGS 2677
Phaeobacter inhibens TYGS 2662
Jhaorihella thermophila TYGS 4933
Cribrihabitans marinus TYGS 5001
100/100 Ruegeria mediterranea TYGS 19131
Ruegeria litorea TYGS 11270
100/72 100/100 Ruegeria marina TYGS 5985
Ruegeria pomeroyi AF098491
Ruegeria marisrubri TYGS 11234
100/100 Ruegeria intermedia TYGS 6159
97/80
100/91 Ruegeria lacuscaerulensis TYGS 6199
Ruegeria lacuscaerulensis TYGS 2686
100/99 Ruegeria halocynthiae TYGS 5002
97/80
100/100 Ruegeria conchae TYGS 22934
100/100
Ruegeria conchae TYGS 2687
Ruegeria meonggei TYGS 22595
97/78
100/100 Ruegeria atlantica TYGS 10956
Agrobacterium meteori TYGS 3714
89/- Ruegeria profundi TYGS 18950
94/-
74/- Ruegeria arenilitoris JQ807219
Ruegeria denitrificans TYGS 19251
Ruegeria faecimaris TYGS 22242
71/- Sediminimonas qiaohouensis TYGS 1451
Lacimonas salitolerans KC762318
88/99 Cribrihabitans neustonicus KF582605
Cribrihabitans pelagius LC101916
100/100 Ketogulonicigenium robustum AF136850
Ketogulonicigenium vulgare AF136849
Marivivens niveibacter TYGS 11463
Marivivens donghaensis KT282004
Mangrovicoccus ximenensis KY012060
100/100 Poseidonocella pacifica TYGS 4972
Poseidonocella sedimentorum TYGS 2425
Youngimonas vesicularis KC169815
Lutimaribacter litoralis TYGS 22235
Lutimaribacter marinistellae KT944033
99/100 Lutimaribacter pacificus TYGS 6148
Lutimaribacter saemankumensis TYGS 4911
Thalassobius gelatinovorus TYGS 2349
94/- Litorimicrobium taeanense TYGS 2277
100/100 Thalassobius autumnalis CYSB01000034
Thalassobius mediterraneus AJ878874
Seohaeicola saemankumensis EU221274
95/93 Seohaeicola zhoushanensis KP063901
Seohaeicola nanhaiensis KF312716


100/100
Donghicola tyrosinivorans TYGS 22875
Donghicola eburneus TYGS 4949
99/100
Roseovarius scapharcae KR611924
Roseovarius albus TYGS 22641
64/-
86/-
Roseovarius nanhaiticus TYGS 14222
Roseovarius antarcticus KM347966
82/-
Roseovarius aquimarinus JX233494
Roseovarius nubinhibens TYGS 2668
95/91
Roseovarius aestuarii TYGS 22636
Pelagicola litorisediminis TYGS 11255
89/-
Roseovarius aestuariivivens KX641473
79/-
98/99
Roseovarius indicus TYGS 2318
100/100
Roseovarius confluentis TYGS 11224
95/81
Roseovarius atlanticus TYGS 3542
Roseovarius salinarum KY973962
90/-
Roseovarius pacificus TYGS 13889
99/98
Roseovarius litoreus TYGS 14347
99/98
100/74
Roseovarius halotolerans TYGS 22673
Roseovarius halotolerans TYGS 22639
100/100
Roseovarius lutimaris TYGS 2645
100/100
Roseovarius gaetbuli TYGS 22637
97/84
Roseovarius marisflavi TYGS 13914
100/87
Roseovarius azorensis TYGS 5014
76/-
Roseovarius mucosus TYGS 2681
100/97
Roseovarius tolerans TYGS 2326
100/100
Roseovarius ramblicola MF527111
Roseovarius nitratireducens TYGS 20499
Rubricella aquisinus KX082663
Halovulum dunhuangense KJ191196
98/85
Limibaculum halophilum KX774334
100/100
Rubribacterium polymorphum EU857676
Rubrimonas cliftonensis TYGS 5033
100/100
Albimonas pacifica TYGS 13863
Albimonas donghaensis TYGS 4987
Amaricoccus kaplicensis U88041
100/100
99/100
Amaricoccus veronensis U88043
94/77
Amaricoccus macauensis U88042
Amaricoccus tamworthensis U88044
100/100
Pleomorphobacterium xiamenense HQ709062
Oceanicella actignis JQ864435
100/100
Cohaesibacter gelatinilyticus TYGS 22659
100/100
Cohaesibacter marisflavi TYGS 13816
Cohaesibacter haloalkalitolerans TYGS 6644
100/100
Pseudovibrio stylochi TYGS 4855
99/99
Pseudovibrio hongkongensis TYGS 4368
100/100
Pseudovibrio axinellae TYGS 4946
100/97
Pseudovibrio japonicus AB246748
100/100
100/83
Pseudovibrio denitrificans TYGS 5003
Pseudovibrio ascidiaceicola TYGS 2280
Nesiotobacter exalbescens TYGS 1417
98/100
100/100
Stappia taiwanensis FR828537
79/82
Stappia indica EU726271
Stappia stellulata TYGS 1624
98/96
100/100
Pannonibacter carbonis TYGS 6621
100/100
Pannonibacter indicus TYGS 2271
98/97
Pannonibacter phragmitetus AJ400704
Labrenzia suaedae TYGS 6209
89/85
Roseibium sediminis KU321206
75/-
98/96
Roseibium hamelinense TYGS 2237
98/96
87/85
Roseibium aquae KC762314
87/86
Roseibium denhamense TYGS 22260
87/83
Labrenzia alexandrii TYGS 2665
100/94
Labrenzia salina LN794846
92/93
Labrenzia alba AJ878875
96/86
Labrenzia marina TYGS 22863
Labrenzia aggregata TYGS 2669
Breoghania corrubedonensis GQ272328
Pyruvatibacter mobilis KR078282
97/97
Parvibaculum lavamentivorans TYGS 360
99/100
Parvibaculum hydrocarboniclasticum GU574708
92/80
Parvibaculum indicum FJ182044
Tepidicaulis marinus AB821371
Anderseniella baltica AM712634
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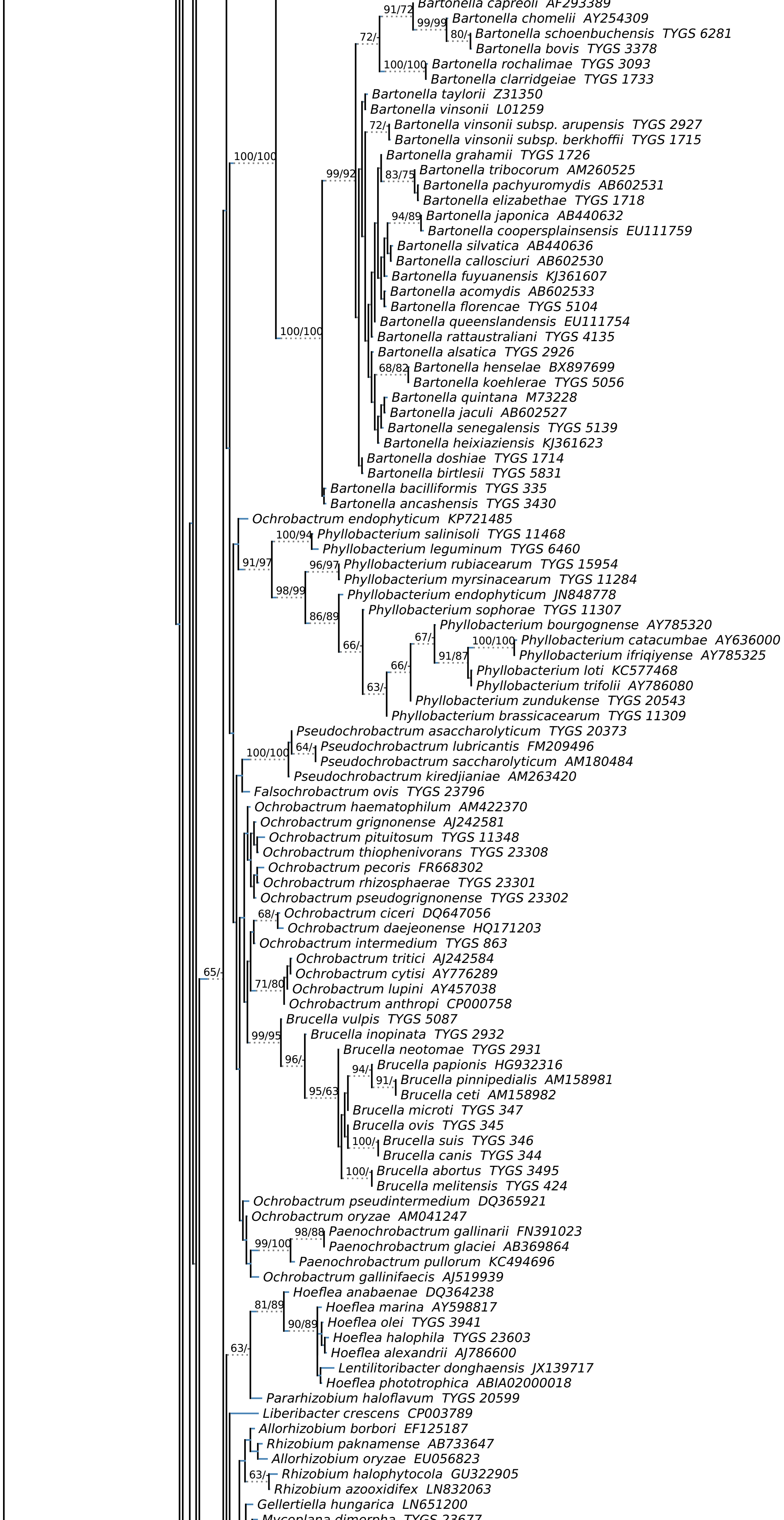
Rhodoligotrophos appendicifer AB617575
Rhodoligotrophos jinshengii KF254766
Aureimonas populi KP861644
Aureimonas glaciei KU253627
Aureimonas jatrophae JQ346805
Aureimonas ureilytica TYGS 1160
Aureimonas phyllosphaerae JQ346806
100/100
Aureimonas pseudogalii KT806079
Aureimonas galii KT326766
100/100
Aureimonas frigidaquae TYGS 19272
Aureimonas altamirensis TYGS 2004
Consotaella salsifontis KC807165
100/100
88/94
Aurantimonas aggregata KY984095
Aurantimonas endophytica KM114215
Jiella aquimaris KJ620984
Aureimonas glaciistagni KM273177
Aureimonas ferruginea JQ864240
Aureimonas endophytica KX898583
Aureimonas rubiginis JQ864241
100/100
Fulvimarina manganoxydans TYGS 21949
Fulvimarina pelagi TYGS 2925
100/100
Aurantimonas coralicida TYGS 1418
Aurantimonas manganoxydans TYGS 956
Mangrovicella endophytica TYGS 11592
Chelativorans intermedius EU564843
Rhizobium sphaerophysae FJ154088
Bartonella apis KP987884


91/72
Bartonella capreoli AF293389
99/99
Bartonella chomelii AY254309
80/-
Bartonella schoenbuchensis TYGS 6281
72/-
Bartonella bovis TYGS 3378
100/100
Bartonella rochalimae TYGS 3093
Bartonella clarridgeiae TYGS 1733
Bartonella taylorii Z31350
Bartonella vinsonii L01259
72/-
Bartonella vinsonii subsp. arupensis TYGS 2927
Bartonella vinsonii subsp. berkhoffii TYGS 1715
100/100
Bartonella grahamii TYGS 1726
99/92
Bartonella tribocorum AM260525
83/75
Bartonella pachyuromydis AB602531
Bartonella elizabethae TYGS 1718
94/89
Bartonella japonica AB440632
Bartonella coopersplainsensis EU111759
Bartonella silvatica AB440636
Bartonella callosciuri AB602530
Bartonella fuyuanensis KJ361607
Bartonella acomydis AB602533
Bartonella florencae TYGS 5104
Bartonella queenslandensis EU111754
100/100
Bartonella rattaustraliani TYGS 4135
Bartonella alsatica TYGS 2926
68/82
Bartonella henselae BX897699
Bartonella koehlerae TYGS 5056
Bartonella quintana M73228
Bartonella jaculi AB602527
Bartonella senegalensis TYGS 5139
Bartonella heixiaziensis KJ361623
Bartonella doshiae TYGS 1714
Bartonella birtlesii TYGS 5831
Bartonella bacilliformis TYGS 335
Bartonella ancashensis TYGS 3430
Ochrobactrum endophyticum KP721485
100/94
Phyllobacterium salinisoli TYGS 11468
Phyllobacterium leguminum TYGS 6460
91/97
96/97
Phyllobacterium rubiacearum TYGS 15954
Phyllobacterium myrsinacearum TYGS 11284
98/99
Phyllobacterium endophyticum JN848778
86/89
Phyllobacterium sophorae TYGS 11307
Phyllobacterium bourgognense AY785320
67/-
100/100
Phyllobacterium catacumbae AY636000
66/-
91/87
Phyllobacterium ifriqiyense AY785325
66/-
Phyllobacterium loti KC577468
63/-
Phyllobacterium trifolii AY786080
Phyllobacterium zundukense TYGS 20543
Phyllobacterium brassicacearum TYGS 11309
Pseudochrobactrum asaccharolyticum TYGS 20373
100/100
64/-
Pseudochrobactrum lubricantis FM209496
Pseudochrobactrum saccharolyticum AM180484
Pseudochrobactrum kiredjianiae AM263420
Falsochrobactrum ovis TYGS 23796
Ochrobactrum haematophilum AM422370
Ochrobactrum grignonense AJ242581
Ochrobactrum pituitosum TYGS 11348
Ochrobactrum thiophenivorans TYGS 23308
Ochrobactrum pecoris FR668302
Ochrobactrum rhizosphaerae TYGS 23301
Ochrobactrum pseudogrignonense TYGS 23302
68/-
Ochrobactrum ciceri DQ647056
Ochrobactrum daejeonense HQ171203
Ochrobactrum intermedium TYGS 863
Ochrobactrum tritici AJ242584
65/-
Ochrobactrum cytisi AY776289
71/80
Ochrobactrum lupini AY457038
Ochrobactrum anthropi CP000758
Brucella vulpis TYGS 5087
99/95
Brucella inopinata TYGS 2932
Brucella neotomae TYGS 2931
96/-
94/-
Brucella papionis HG932316
91/-
Brucella pinnipedialis AM158981
95/63
Brucella ceti AM158982
Brucella microti TYGS 347
Brucella ovis TYGS 345
100/-
Brucella suis TYGS 346
Brucella canis TYGS 344
100/-
Brucella abortus TYGS 3495
Brucella melitensis TYGS 424
Ochrobactrum pseudintermedium DQ365921
Ochrobactrum oryzae AM041247
98/88
Paenochrobactrum gallinarii FN391023
99/100
Paenochrobactrum glaciei AB369864
Paenochrobactrum pullorum KC494696
Ochrobactrum gallinifaecis AJ519939
Hoeflea anabaenae DQ364238
81/89
Hoeflea marina AY598817
90/89
Hoeflea olei TYGS 3941
Hoeflea halophila TYGS 23603
63/-
Hoeflea alexandrii AJ786600
Lentilitoribacter donghaensis JX139717
Hoeflea phototrophica ABIA02000018
Pararhizobium haloflavum TYGS 20599
Liberibacter crescens CP003789
Allorhizobium borbori EF125187
Rhizobium paknamense AB733647
Allorhizobium oryzae EU056823
63/-
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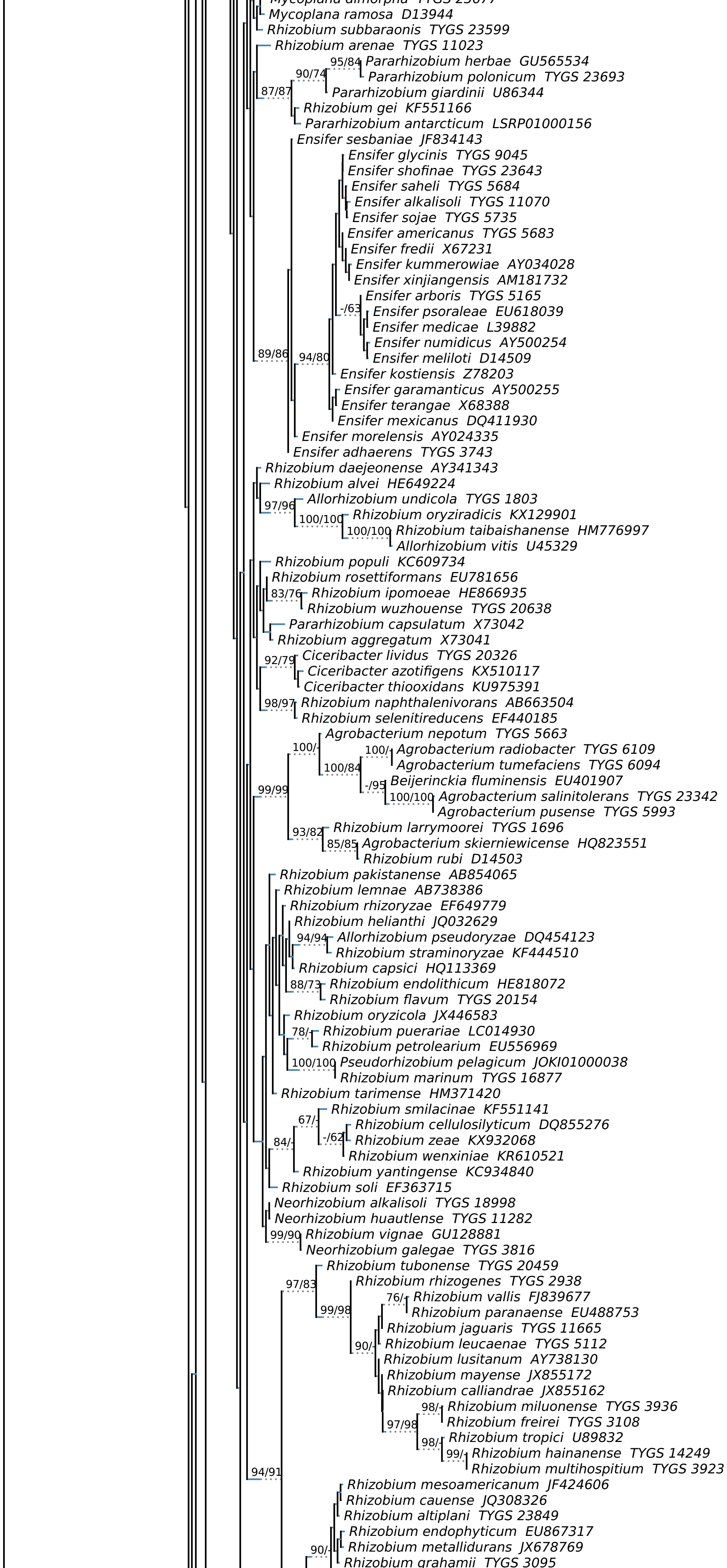
Rhizobium azooxidifex LN832063
Gellertiella hungarica LN651200
Mycoplana dimorpha TYGS 23677


Mycoplana dimorpha TYGS 23677
Mycoplana ramosa D13944
Rhizobium subbaraonis TYGS 23599
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Pararhizobium herbae GU565534
90/74
Pararhizobium polonicum TYGS 23693
87/87
Pararhizobium giardinii U86344
Rhizobium gei KF551166
Pararhizobium antarcticum LSRP01000156
Ensifer sesbaniae JF834143
Ensifer glycinis TYGS 9045
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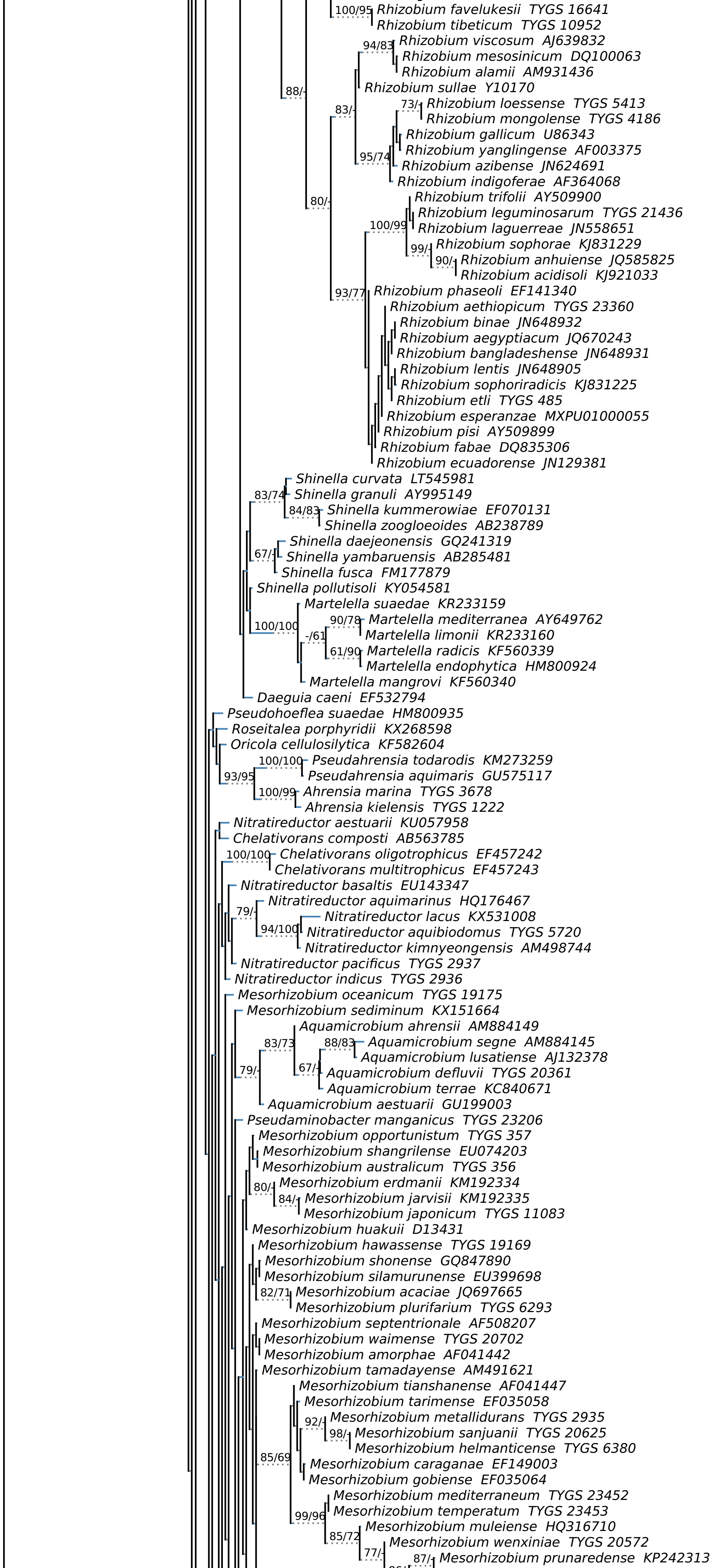
Ensifer alkalisoli TYGS 11070
Ensifer sojae TYGS 5735
Ensifer americanus TYGS 5683
Ensifer fredii X67231
Ensifer kummerowiae AY034028
Ensifer xinjiangensis AM181732
Ensifer arboris TYGS 5165
-/63
Ensifer psoraleae EU618039
Ensifer medicae L39882
Ensifer numidicus AY500254
89/86
94/80
Ensifer meliloti D14509
Ensifer kostiensis Z78203
Ensifer garamanticus AY500255
Ensifer terangae X68388
Ensifer mexicanus DQ411930
Ensifer morelensis AY024335
Ensifer adhaerens TYGS 3743
Rhizobium daejeonense AY341343
Rhizobium alvei HE649224
Allorhizobium undicola TYGS 1803
97/96
Rhizobium oryziradicis KX129901
100/100
100/100
Rhizobium taibaishanense HM776997
Allorhizobium vitis U45329
Rhizobium populi KC609734
Rhizobium rosettiformans EU781656
83/76
Rhizobium ipomoeae HE866935
Rhizobium wuzhouense TYGS 20638
Pararhizobium capsulatum X73042
Rhizobium aggregatum X73041
92/79
Ciceribacter lividus TYGS 20326
Ciceribacter azotifigens KX510117
Ciceribacter thiooxidans KU975391
98/97
Rhizobium naphthalenivorans AB663504
Rhizobium selenitireducens EF440185
Agrobacterium nepotum TYGS 5663
100/-
100/-
Agrobacterium radiobacter TYGS 6109
100/84
Agrobacterium tumefaciens TYGS 6094
Beijerinckia fluminensis EU401907
-/95
99/99
100/100
Agrobacterium salinitolerans TYGS 23342
Agrobacterium pusense TYGS 5993
93/82
Rhizobium larrymoorei TYGS 1696
85/85
Agrobacterium skierniewicense HQ823551
Rhizobium rubi D14503
Rhizobium pakistanense AB854065
Rhizobium lemnae AB738386
Rhizobium rhizoryzae EF649779
Rhizobium helianthi JQ032629
94/94
Allorhizobium pseudoryzae DQ454123
Rhizobium straminoryzae KF444510
Rhizobium capsici HQ113369
88/73
Rhizobium endolithicum HE818072
Rhizobium flavum TYGS 20154
Rhizobium oryzicola JX446583
78/-
Rhizobium puerariae LC014930
Rhizobium petrolearium EU556969
100/100
Pseudorhizobium pelagicum JOKI01000038
Rhizobium marinum TYGS 16877
Rhizobium tarimense HM371420
Rhizobium smilacinae KF551141
67/-
Rhizobium cellulosilyticum DQ855276
-/62
84/-
Rhizobium zeae KX932068
Rhizobium wenxiniae KR610521
Rhizobium yantingense KC934840
Rhizobium soli EF363715
Neorhizobium alkalisoli TYGS 18998
Neorhizobium huautlense TYGS 11282
99/90
Rhizobium vignae GU128881
Neorhizobium galegae TYGS 3816
Rhizobium tubonense TYGS 20459
97/83
Rhizobium rhizogenes TYGS 2938
76/-
Rhizobium vallis FJ839677
99/98
Rhizobium paranaense EU488753
Rhizobium jaguaris TYGS 11665
90/-
Rhizobium leucaenae TYGS 5112
Rhizobium lusitanum AY738130
Rhizobium mayense JX855172
Rhizobium calliandrae JX855162
98/-
Rhizobium miluonense TYGS 3936
97/98
Rhizobium freirei TYGS 3108
98/-
Rhizobium tropici U89832
99/-
Rhizobium hainanense TYGS 14249
94/91
Rhizobium multihospitium TYGS 3923
Rhizobium mesoamericanum JF424606
Rhizobium cauense JQ308326
Rhizobium altiplani TYGS 23849
Rhizobium endophyticum EU867317
90/-
Rhizobium metallidurans JX678769
Rhizobium grahamii TYGS 3095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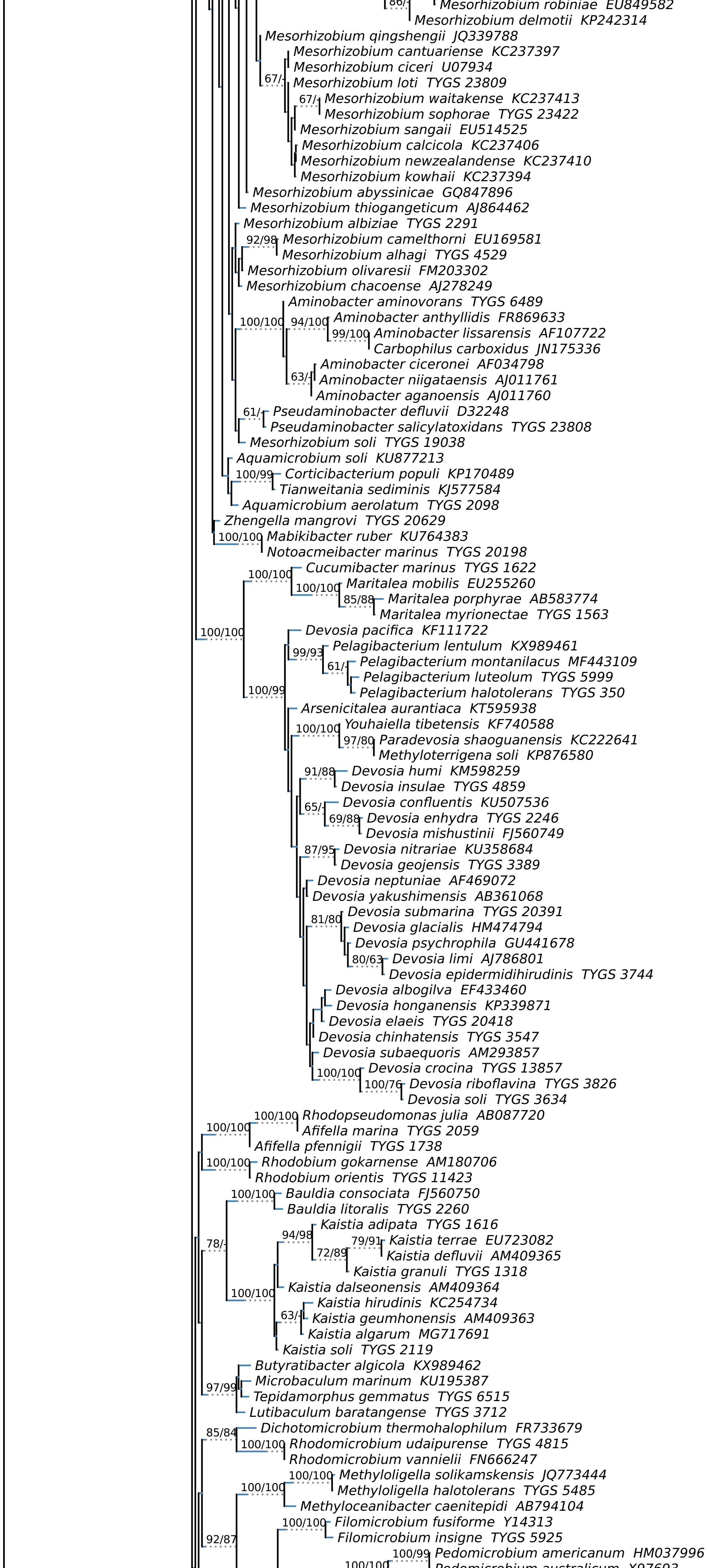
Rhizobium tibeticum TYGS 10952
94/83 Rhizobium viscosum AJ639832
Rhizobium mesosinicum DQ100063
Rhizobium alamii AM931436
88/- Rhizobium sullae Y10170
73/- Rhizobium loessense TYGS 5413
83/- Rhizobium mongolense TYGS 4186
Rhizobium gallicum U86343
Rhizobium yanglingense AF003375
95/74 Rhizobium azibense JN624691
Rhizobium indigoferae AF364068
80/- Rhizobium trifolii AY509900
Rhizobium leguminosarum TYGS 21436
100/99 Rhizobium laguerreae JN558651
99/- Rhizobium sophorae KJ831229
90/- Rhizobium anhuiense JQ585825
Rhizobium acidisoli KJ921033
93/77 Rhizobium phaseoli EF141340
Rhizobium aethiopicum TYGS 23360
Rhizobium binae JN648932
Rhizobium aegyptiacum JQ670243
Rhizobium bangladeshense JN648931
Rhizobium lentis JN648905
Rhizobium sophoriradicis KJ831225
Rhizobium etli TYGS 485
Rhizobium esperanzae MXPU01000055
Rhizobium pisi AY509899
Rhizobium fabae DQ835306
Rhizobium ecuadorense JN129381
Shinella curvata LT545981
83/74 Shinella granuli AY995149
84/83 Shinella kummerowiae EF070131
Shinella zoogloeoides AB238789
Shinella daejeonensis GQ241319
67/- Shinella yambaruensis AB285481
Shinella fusca FM177879
Shinella pollutisoli KY054581
Martelella suaedae KR233159
100/100 90/78 Martelella mediterranea AY649762
-/61 Martelella limonii KR233160
61/90 Martelella radicis KF560339
Martelella endophytica HM800924
Martelella mangrovi KF560340
Daeguia caeni EF532794
Pseudohoeflea suaedae HM800935
Roseitalea porphyridii KX268598
Oricola cellulosilytica KF582604
100/100 Pseudahrensia todarodis KM273259
93/95 Pseudahrensia aquimaris GU575117
100/99 Ahrensia marina TYGS 3678
Ahrensia kielensis TYGS 1222
Nitratireductor aestuarii KU057958
Chelativorans composti AB563785
100/100 Chelativorans oligotrophicus EF457242
Chelativorans multitrophicus EF457243
Nitratireductor basaltis EU143347
Nitratireductor aquimarinus HQ176467
79/- Nitratireductor lacus KX531008
94/100 Nitratireductor aquibiodomus TYGS 5720
Nitratireductor kimnyeongensis AM498744
Nitratireductor pacificus TYGS 2937
Nitratireductor indicus TYGS 2936
Mesorhizobium oceanicum TYGS 19175
Mesorhizobium sediminum KX151664
Aquamicrobium ahrensii AM884149
83/73 88/83 Aquamicrobium segne AM884145
Aquamicrobium lusatiense AJ132378
79/- 67/- Aquamicrobium defluvii TYGS 20361
Aquamicrobium terrae KC840671
Aquamicrobium aestuarii GU199003
Pseudaminobacter manganicus TYGS 23206
Mesorhizobium opportunistum TYGS 357
Mesorhizobium shangrilense EU074203
Mesorhizobium australicum TYGS 356
80/- Mesorhizobium erdmanii KM192334
84/- Mesorhizobium jarvisii KM192335
Mesorhizobium japonicum TYGS 11083
Mesorhizobium huakuii D13431
Mesorhizobium hawassense TYGS 19169
Mesorhizobium shonense GQ847890
Mesorhizobium silamurunense EU399698
82/71 Mesorhizobium acaciae JQ697665
Mesorhizobium plurifarium TYGS 6293
Mesorhizobium septentrionale AF508207
Mesorhizobium waimense TYGS 20702
Mesorhizobium amorphae AF041442
Mesorhizobium tamadayense AM491621
Mesorhizobium tianshanense AF041447
Mesorhizobium tarimense EF035058
92/- Mesorhizobium metallidurans TYGS 2935
98/- Mesorhizobium sanjuanii TYGS 20625
Mesorhizobium helmanticense TYGS 6380
85/69 Mesorhizobium caraganae EF149003
Mesorhizobium gobiense EF035064
Mesorhizobium mediterraneum TYGS 23452
Mesorhizobium temperatum TYGS 23453
99/96 Mesorhizobium muleiense HQ316710
85/72 Mesorhizobium wenxiniae TYGS 20572
77/- 87/- Mesorhizobium prunaredense KP242313


86/-
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Mesorhizobium qingshengii JQ339788
Mesorhizobium cantuariense KC237397
Mesorhizobium ciceri U07934
67/-
Mesorhizobium loti TYGS 23809
67/-
Mesorhizobium waitakense KC237413
Mesorhizobium sophorae TYGS 23422
Mesorhizobium sangaii EU514525
Mesorhizobium calcicola KC237406
Mesorhizobium newzealandense KC237410
Mesorhizobium kowhaii KC237394
Mesorhizobium abyssinicae GQ847896
Mesorhizobium thiogangeticum AJ864462
Mesorhizobium albiziae TYGS 2291
92/98
Mesorhizobium camelthorni EU169581
Mesorhizobium alhagi TYGS 4529
Mesorhizobium olivaresii FM203302
Mesorhizobium chacoense AJ278249
Aminobacter aminovorans TYGS 6489
100/100
94/100
Aminobacter anthyllidis FR869633
99/100
Aminobacter lissarensis AF107722
Carbophilus carboxidus JN175336
Aminobacter ciceronei AF034798
63/-
Aminobacter niigataensis AJ011761
Aminobacter aganoensis AJ011760
61/-
Pseudaminobacter defluvii D32248
Pseudaminobacter salicylatoxidans TYGS 23808
Mesorhizobium soli TYGS 19038
Aquamicrobium soli KU877213
100/99
Corticibacterium populi KP170489
Tianweitania sediminis KJ577584
Aquamicrobium aerolatum TYGS 2098
Zhengella mangrovi TYGS 20629
100/100
Mabikibacter ruber KU764383
Notoacmeibacter marinus TYGS 20198
100/100
Cucumibacter marinus TYGS 1622
100/100
Maritalea mobilis EU255260
85/88
Maritalea porphyrae AB583774
Maritalea myrionectae TYGS 1563
100/100
Devosia pacifica KF111722
99/93
Pelagibacterium lentulum KX989461
61/-
Pelagibacterium montanilacus MF443109
Pelagibacterium luteolum TYGS 5999
Pelagibacterium halotolerans TYGS 350
100/99
Arsenicitalea aurantiaca KT595938
100/100
Youhaiella tibetensis KF740588
97/80
Paradevosia shaoguanensis KC222641
Methyloterrigena soli KP876580
91/88
Devosia humi KM598259
Devosia insulae TYGS 4859
65/-
Devosia confluentis KU507536
69/88
Devosia enhydra TYGS 2246
Devosia mishustinii FJ560749
87/95
Devosia nitrariae KU358684
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Devosia yakushimensis AB361068
81/80
Devosia submarina TYGS 20391
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Devosia elaeis TYGS 20418
Devosia chinhatensis TYGS 3547
Devosia subaequoris AM293857
100/100
Devosia crocina TYGS 13857
100/76
Devosia riboflavina TYGS 3826
Devosia soli TYGS 3634
100/100
100/100
Rhodopseudomonas julia AB087720
Afifella marina TYGS 2059
Afifella pfennigii TYGS 1738
100/100
Rhodobium gokarnense AM180706
Rhodobium orientis TYGS 11423
100/100
Bauldia consociata FJ560750
Bauldia litoralis TYGS 2260
78/-
94/98
Kaistia adipata TYGS 1616
79/91
Kaistia terrae EU723082
72/89
Kaistia defluvii AM409365
Kaistia granuli TYGS 1318
100/100
Kaistia dalseonensis AM409364
Kaistia hirudinis KC254734
63/-
Kaistia geumhonensis AM409363
Kaistia algarum MG717691
Kaistia soli TYGS 2119
Butyratibacter algicola KX989462
97/99
Microbaculum marinum KU195387
Tepidamorphus gemmatus TYGS 6515
Lutibaculum baratangense TYGS 3712
85/84
Dichotomicrobium thermohalophilum FR733679
100/100
Rhodomicrobium udaipurense TYGS 4815
Rhodomicrobium vannielii FN666247
100/100
Methyloligella solikamskensis JQ773444
100/100
Methyloligella halotolerans TYGS 5485
Methyloceanibacter caenitepidi AB794104
100/100
Filomicrobium fusiforme Y14313
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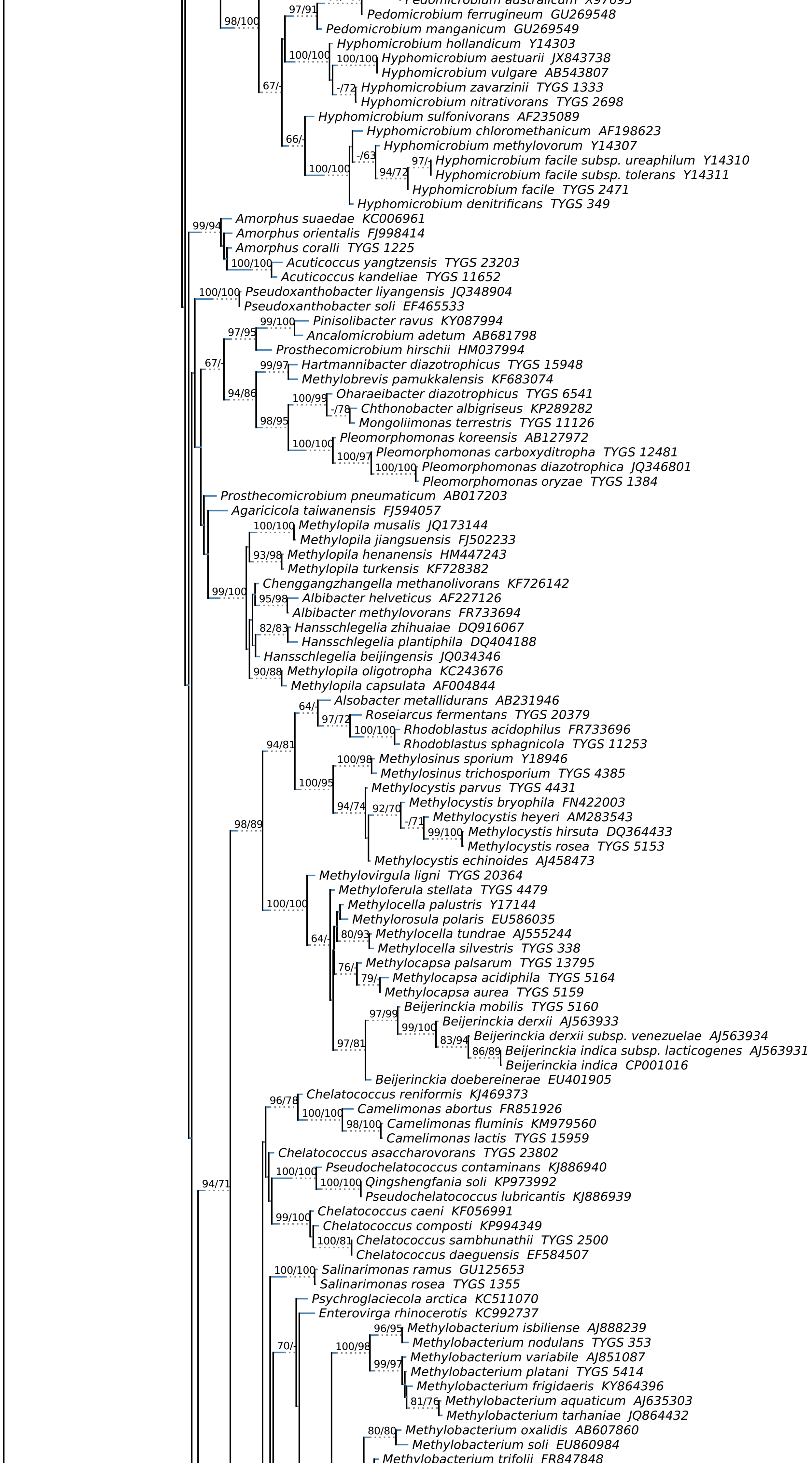
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Hyphomicrobium aestuarii JX843738
100/100
Hyphomicrobium vulgare AB543807
Hyphomicrobium zavarzinii TYGS 1333
67/-
-/72
Hyphomicrobium nitrativorans TYGS 2698
Hyphomicrobium sulfonivorans AF235089
Hyphomicrobium chloromethanicum AF198623
66/-
Hyphomicrobium methylovorum Y14307
-/63
97/-
Hyphomicrobium facile subsp. ureaphilum Y14310
100/100
94/72
Hyphomicrobium facile subsp. tolerans Y14311
Hyphomicrobium facile TYGS 2471
Hyphomicrobium denitrificans TYGS 349
Amorphus suaedae KC006961
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Amorphus orientalis FJ998414
Amorphus coralli TYGS 1225
100/100
Acuticoccus yangtzensis TYGS 23203
Acuticoccus kandeliae TYGS 11652
100/100
Pseudoxanthobacter liyangensis JQ348904
Pseudoxanthobacter soli EF465533
99/100
Pinisolibacter ravus KY087994
97/95
Ancalomicrobium adetum AB681798
Prosthecomicrobium hirschii HM037994
67/-
99/97
Hartmannibacter diazotrophicus TYGS 15948
Methylobrevis pamukkalensis KF683074
94/86
Oharaeibacter diazotrophicus TYGS 6541
100/99
-/78
Chthonobacter albigriseus KP289282
98/95
Mongoliimonas terrestris TYGS 11126
Pleomorphomonas koreensis AB127972
100/100
100/97
Pleomorphomonas carboxyditropha TYGS 12481
100/100
Pleomorphomonas diazotrophica JQ346801
Pleomorphomonas oryzae TYGS 1384
Prosthecomicrobium pneumaticum AB017203
Agaricicola taiwanensis FJ594057
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Methylopila musalis JQ173144
Methylopila jiangsuensis FJ502233
93/98
Methylopila henanensis HM447243
Methylopila turkensis KF728382
Chenggangzhangella methanolivorans KF726142
99/100
95/98
Albibacter helveticus AF227126
Albibacter methylovorans FR733694
82/83
Hansschlegelia zhihuaiae DQ916067
Hansschlegelia plantiphila DQ404188
Hansschlegelia beijingensis JQ034346
90/88
Methylopila oligotropha KC243676
Methylopila capsulata AF004844
64/-
Alsobacter metallidurans AB231946
Roseiarcus fermentans TYGS 20379
97/72
100/100
Rhodoblastus acidophilus FR733696
94/81
Rhodoblastus sphagnicola TYGS 11253
100/98
Methylosinus sporium Y18946
Methylosinus trichosporium TYGS 4385
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Methylocystis parvus TYGS 4431
94/74
92/70
Methylocystis bryophila FN422003
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-/71
Methylocystis heyeri AM283543
99/100
Methylocystis hirsuta DQ364433
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Methylovirgula ligni TYGS 20364
Methyloferula stellata TYGS 4479
100/100
Methylocella palustris Y17144
Methylorosula polaris EU586035
80/93
Methylocella tundrae AJ555244
64/-
Methylocella silvestris TYGS 338
76/-
Methylocapsa palsarum TYGS 13795
79/-
Methylocapsa acidiphila TYGS 5164
Methylocapsa aurea TYGS 5159
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Beijerinckia mobilis TYGS 5160
99/100
Beijerinckia derxii AJ563933
83/94
Beijerinckia derxii subsp. venezuelae AJ563934
97/81
86/89
Beijerinckia indica subsp. lacticogenes AJ563931
Beijerinckia indica CP001016
Beijerinckia doebereinerae EU401905
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Pseudochelatococcus contaminans KJ886940
94/71
100/100
Qingshengfania soli KP973992
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Chelatococcus caeni KF056991
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100/81
Chelatococcus sambhunathii TYGS 2500
Chelatococcus daeguensis EF584507
100/100
Salinarimonas ramus GU125653
Salinarimonas rosea TYGS 1355
Psychroglaciecola arctica KC511070
Enterovirga rhinocerotis KC992737
96/95
Methylobacterium isbiliense AJ888239
Methylobacterium nodulans TYGS 353
70/-
100/98
Methylobacterium variabile AJ851087
99/97
Methylobacterium platani TYGS 5414
Methylobacterium frigidaeris KY864396
81/76
Methylobacterium aquaticum AJ635303
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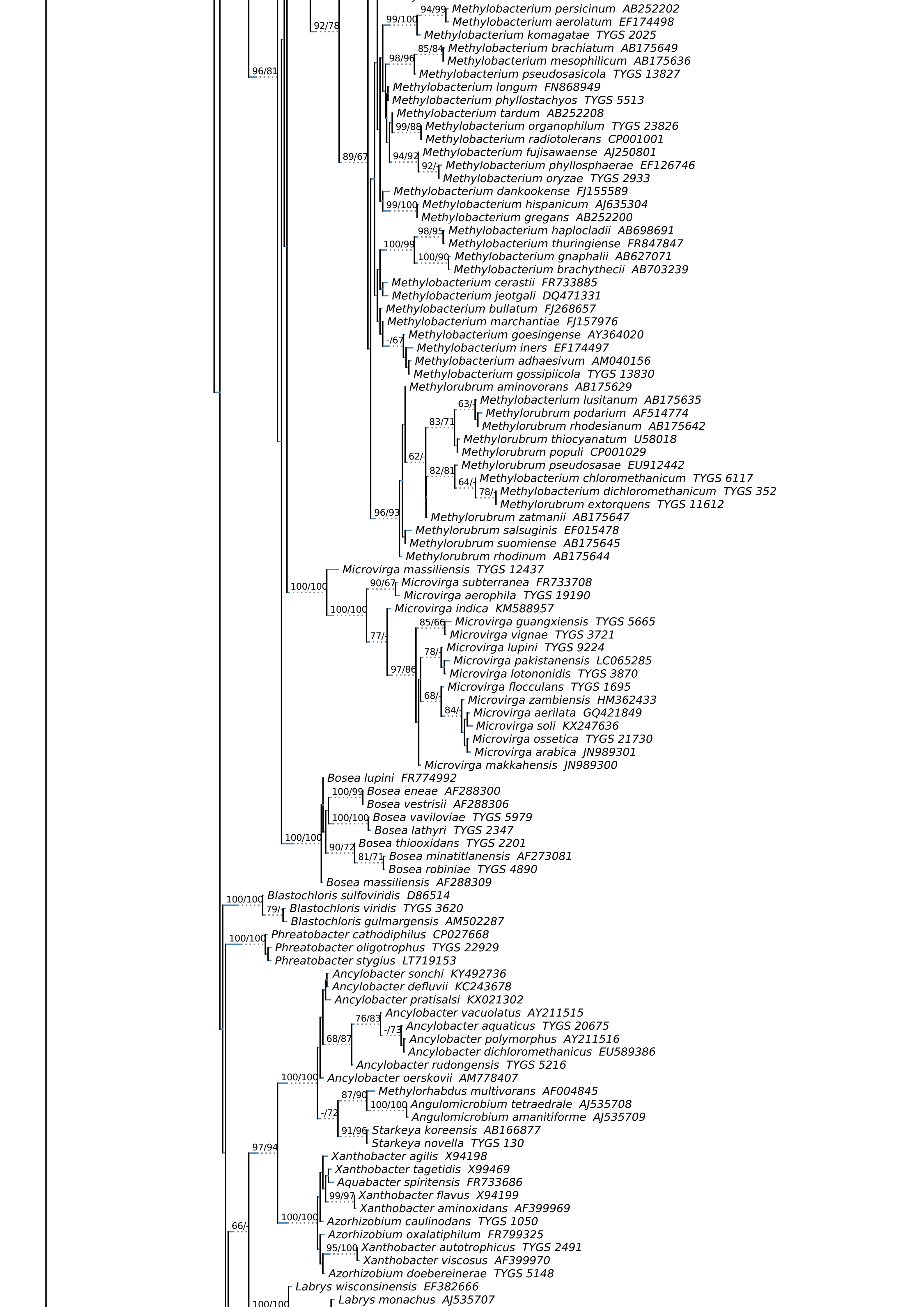
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Methylobacterium mesophilicum AB175636
Methylobacterium pseudosasicola TYGS 13827
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Methylobacterium phyllostachyos TYGS 5513
Methylobacterium tardum AB252208
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Methylobacterium organophilum TYGS 23826
Methylobacterium radiotolerans CP001001
89/67
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Methylobacterium fujisawaense AJ250801
92/-
Methylobacterium phyllosphaerae EF126746
Methylobacterium oryzae TYGS 2933
Methylobacterium dankookense FJ155589
99/100
Methylobacterium hispanicum AJ635304
Methylobacterium gregans AB252200
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Methylobacterium jeotgali DQ471331
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Methylobacterium goesingense AY364020
-/67
Methylobacterium iners EF174497
Methylobacterium adhaesivum AM040156
Methylobacterium gossipiicola TYGS 13830
Methylorubrum aminovorans AB175629
63/-
Methylobacterium lusitanum AB175635
Methylorubrum podarium AF514774
83/71
Methylorubrum rhodesianum AB175642
Methylorubrum thiocyanatum U58018
62/-
Methylorubrum populi CP001029
Methylorubrum pseudosasae EU912442
82/81
64/-
Methylobacterium chloromethanicum TYGS 6117
78/-
Methylobacterium dichloromethanicum TYGS 352
Methylorubrum extorquens TYGS 11612
96/93
Methylorubrum zatmanii AB175647
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Microvirga massiliensis TYGS 12437
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Microvirga subterranea FR733708
Microvirga aerophila TYGS 19190
100/100
Microvirga indica KM588957
85/66
Microvirga guangxiensis TYGS 5665
77/-
Microvirga vignae TYGS 3721
78/-
Microvirga lupini TYGS 9224
Microvirga pakistanensis LC065285
97/86
Microvirga lotononidis TYGS 3870
Microvirga flocculans TYGS 1695
68/-
Microvirga zambiensis HM362433
84/-
Microvirga aerilata GQ421849
Microvirga soli KX247636
Microvirga ossetica TYGS 21730
Microvirga arabica JN989301
Microvirga makkahensis JN989300
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Bosea eneae AF288300
Bosea vestrisii AF288306
100/100
Bosea vaviloviae TYGS 5979
Bosea lathyri TYGS 2347
100/100
Bosea thiooxidans TYGS 2201
90/72
81/71
Bosea minatitlanensis AF273081
Bosea robiniae TYGS 4890
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Blastochloris sulfoviridis D86514
79/-
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Phreatobacter cathodiphilus CP027668
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Phreatobacter stygius LT719153
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91/96
Starkeya koreensis AB166877
Starkeya novella TYGS 130
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Xanthobacter agilis X94198
Xanthobacter tagetidis X99469
Aquabacter spiritensis FR733686
99/97
Xanthobacter flavus X94199
Xanthobacter aminoxidans AF399969
66/-
100/100
Azorhizobium caulinodans TYGS 1050
Azorhizobium oxalatiphilum FR799325
95/100
Xanthobacter autotrophicus TYGS 2491
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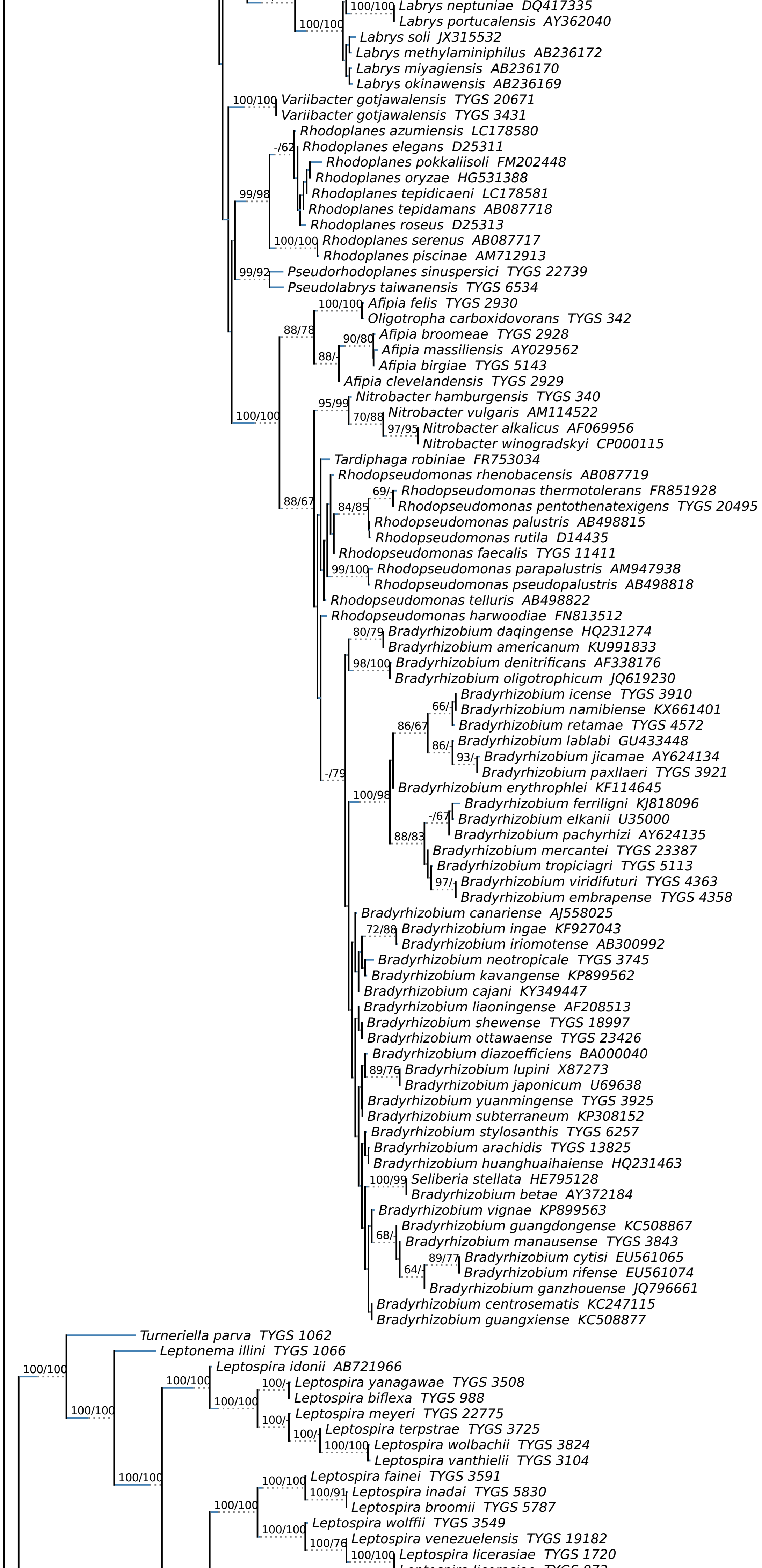
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Labrys soli JX315532
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Labrys okinawensis AB236169
100/100 Variibacter gotjawalensis TYGS 20671
Variibacter gotjawalensis TYGS 3431
Rhodoplanes azumiensis LC178580
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99/92 Pseudorhodoplanes sinuspersici TYGS 22739
Pseudolabrys taiwanensis TYGS 6534
100/100 Afipia felis TYGS 2930
Oligotropha carboxidovorans TYGS 342
88/78
90/80 Afipia broomeae TYGS 2928
Afipia massiliensis AY029562
88/-
Afipia birgiae TYGS 5143
Afipia clevelandensis TYGS 2929
95/99 Nitrobacter hamburgensis TYGS 340
100/100
70/88 Nitrobacter vulgaris AM114522
97/95 Nitrobacter alkalicus AF069956
Nitrobacter winogradskyi CP000115
Tardiphaga robiniae FR753034
Rhodopseudomonas rhenobacensis AB087719
69/- Rhodopseudomonas thermotolerans FR851928
88/67
84/85 Rhodopseudomonas pentothenatexigens TYGS 20495
Rhodopseudomonas palustris AB498815
Rhodopseudomonas rutila D14435
Rhodopseudomonas faecalis TYGS 11411
99/100 Rhodopseudomonas parapalustris AM947938
Rhodopseudomonas pseudopalustris AB498818
Rhodopseudomonas telluris AB498822
Rhodopseudomonas harwoodiae FN813512
80/79 Bradyrhizobium daqingense HQ231274
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98/100 Bradyrhizobium denitrificans AF338176
Bradyrhizobium oligotrophicum JQ619230
Bradyrhizobium icense TYGS 3910
66/- Bradyrhizobium namibiense KX661401
86/67 Bradyrhizobium retamae TYGS 4572
86/- Bradyrhizobium lablabi GU433448
93/- Bradyrhizobium jicamae AY624134
-/79
Bradyrhizobium paxllaeri TYGS 3921
100/98 Bradyrhizobium erythrophlei KF114645
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-/67 Bradyrhizobium elkanii U35000
88/83 Bradyrhizobium pachyrhizi AY624135
Bradyrhizobium mercantei TYGS 23387
Bradyrhizobium tropiciagri TYGS 5113
97/- Bradyrhizobium viridifuturi TYGS 4363
Bradyrhizobium embrapense TYGS 4358
Bradyrhizobium canariense AJ558025
72/88 Bradyrhizobium ingae KF927043
Bradyrhizobium iriomotense AB300992
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Bradyrhizobium kavangense KP899562
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Bradyrhizobium ottawaense TYGS 23426
Bradyrhizobium diazoefficiens BA000040
89/76 Bradyrhizobium lupini X87273
Bradyrhizobium japonicum U69638
Bradyrhizobium yuanmingense TYGS 3925
Bradyrhizobium subterraneum KP308152
Bradyrhizobium stylosanthis TYGS 6257
Bradyrhizobium arachidis TYGS 13825
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100/99 Seliberia stellata HE795128
Bradyrhizobium betae AY372184
Bradyrhizobium vignae KP899563
Bradyrhizobium guangdongense KC508867
68/- Bradyrhizobium manausense TYGS 3843
89/77 Bradyrhizobium cytisi EU561065
64/- Bradyrhizobium rifense EU561074
Bradyrhizobium ganzhouense JQ796661
Bradyrhizobium centrosematis KC247115
Bradyrhizobium guangxiense KC508877
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Leptonema illini TYGS 1066
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100/100
100/- Leptospira yanagawae TYGS 3508
100/100
Leptospira biflexa TYGS 988
100/100
Leptospira meyeri TYGS 22775
100/-
100/- Leptospira terpstrae TYGS 3725
100/100 Leptospira wolbachii TYGS 3824
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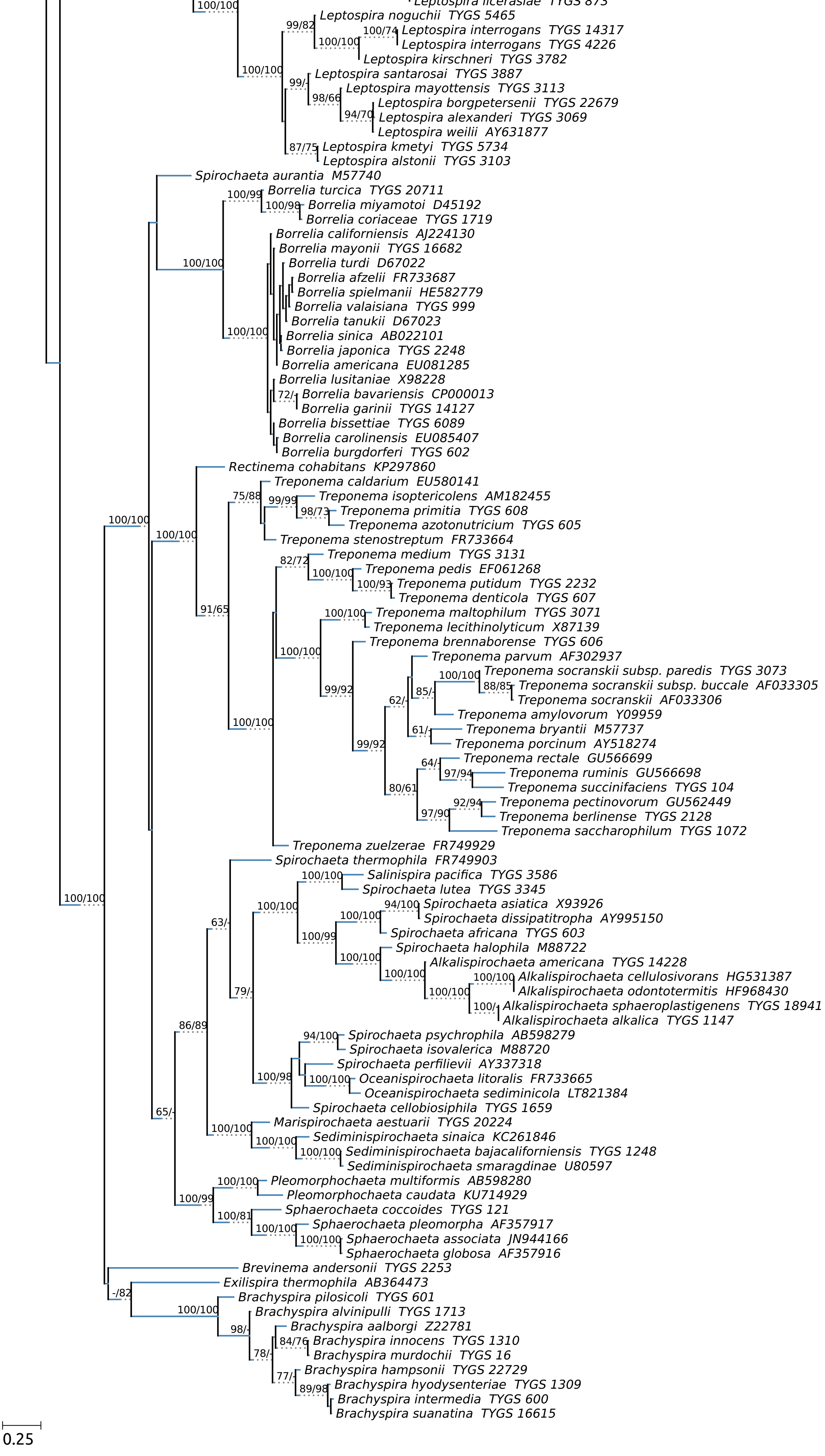
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Leptospira interrogans TYGS 4226
Leptospira kirschneri TYGS 3782
100/100
Leptospira santarosai TYGS 3887
99/-
Leptospira mayottensis TYGS 3113
98/66
Leptospira borgpetersenii TYGS 22679
94/70
Leptospira alexanderi TYGS 3069
Leptospira weilii AY631877
87/75
Leptospira kmetyi TYGS 5734
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Spirochaeta aurantia M57740
100/99
Borrelia turcica TYGS 20711
100/98
Borrelia miyamotoi D45192
Borrelia coriaceae TYGS 1719
Borrelia californiensis AJ224130
Borrelia mayonii TYGS 16682
100/100
Borrelia turdi D67022
Borrelia afzelii FR733687
Borrelia spielmanii HE582779
Borrelia valaisiana TYGS 999
Borrelia tanukii D67023
100/100
Borrelia sinica AB022101
Borrelia japonica TYGS 2248
Borrelia americana EU081285
Borrelia lusitaniae X98228
72/-
Borrelia bavariensis CP000013
Borrelia garinii TYGS 14127
Borrelia bissettiae TYGS 6089
Borrelia carolinensis EU085407
Borrelia burgdorferi TYGS 602
Rectinema cohabitans KP297860
Treponema caldarium EU580141
75/88
99/99
Treponema isoptericolens AM182455
98/73
Treponema primitia TYGS 608
100/100
Treponema azotonutricium TYGS 605
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Treponema stenostreptum FR733664
Treponema medium TYGS 3131
82/72
Treponema pedis EF061268
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Treponema denticola TYGS 607
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Treponema maltophilum TYGS 3071
Treponema lecithinolyticum X87139
Treponema brennaborense TYGS 606
100/100
Treponema parvum AF302937
100/100
Treponema socranskii subsp. paredis TYGS 3073
88/85
Treponema socranskii subsp. buccale AF033305
85/-
Treponema socranskii AF033306
99/92
Treponema amylovorum Y09959
62/-
100/100
Treponema bryantii M57737
61/-
Treponema porcinum AY518274
99/92
Treponema rectale GU566699
64/-
Treponema ruminis GU566698
97/94
Treponema succinifaciens TYGS 104
80/61
Treponema pectinovorum GU562449
92/94
Treponema berlinense TYGS 2128
97/90
Treponema saccharophilum TYGS 1072
Treponema zuelzerae FR749929
Spirochaeta thermophila FR749903
100/100
Salinispira pacifica TYGS 3586
Spirochaeta lutea TYGS 3345
100/100
94/100
Spirochaeta asiatica X93926
100/100
Spirochaeta dissipatitropha AY995150
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100/99
Spirochaeta africana TYGS 603
Spirochaeta halophila M88722
100/100
Alkalispirochaeta americana TYGS 14228
100/100
100/100
Alkalispirochaeta cellulosivorans HG531387
Alkalispirochaeta odontotermitis HF968430
79/-
100/100
100/-
Alkalispirochaeta sphaeroplastigenens TYGS 18941
Alkalispirochaeta alkalica TYGS 1147
86/89
94/100
Spirochaeta psychrophila AB598279
Spirochaeta isovalerica M88720
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100/98
100/100
Oceanispirochaeta litoralis FR733665
Oceanispirochaeta sediminicola LT821384
Spirochaeta cellobiosiphila TYGS 1659
65/-
100/100
Marispirochaeta aestuarii TYGS 20224
100/100
Sediminispirochaeta sinaica KC261846
100/100
Sediminispirochaeta bajacaliforniensis TYGS 1248
Sediminispirochaeta smaragdinae U80597
100/100
Pleomorphochaeta multiformis AB598280
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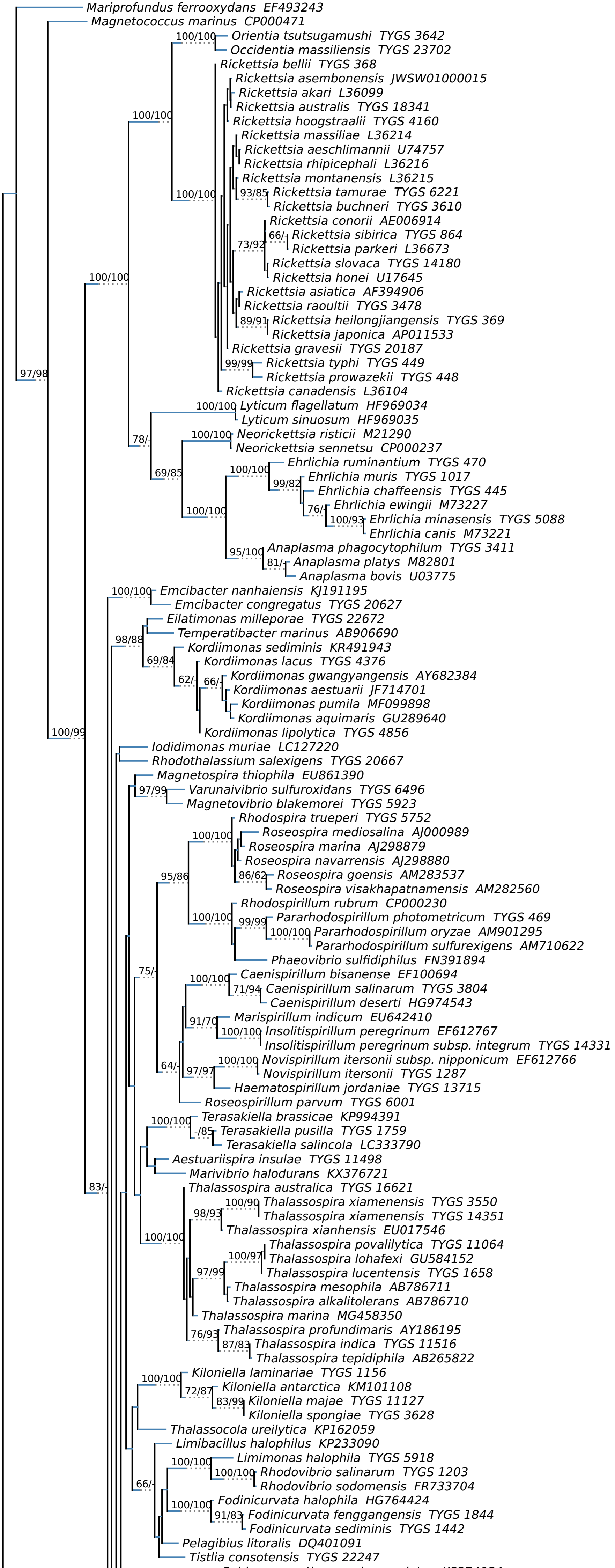
Pleomorphochaeta caudata KU714929
100/81
Sphaerochaeta coccoides TYGS 121
100/100
Sphaerochaeta pleomorpha AF357917
100/100
Sphaerochaeta associata JN944166
Sphaerochaeta globosa AF357916
Brevinema andersonii TYGS 2253
Exilispira thermophila AB364473
-/82
Brachyspira pilosicoli TYGS 601
100/100
Brachyspira alvinipulli TYGS 1713
98/-
Brachyspira aalborgi Z22781
84/76
Brachyspira innocens TYGS 1310
78/-
Brachyspira murdochii TYGS 16
Brachyspira hampsonii TYGS 22729
77/-
Brachyspira hyodysenteriae TYGS 1309
89/98
Brachyspira intermedia TYGS 600
Brachyspira suanatina TYGS 16615
0.25

Figure 2: Backbone-constrained comprehensive 16S rRNA gene ML tree (CCT) of *Alphaproteobacteria* inferred under the GTR+CAT model. The branches are scaled in terms of the expected number of substitutions per site. The numbers above the branches are support values when larger than 60% from ML (left) and MP (right) bootstrapping. Dotted parts of branches are filled in to allow proper placement of bootstrap values and are not part of the actual branch length. Numbers preceeded by the term 'TYGS' in labels refer to the genome IDs as found in Supplementary Table S1 (first sheet). Each tip label ends with the family of the respective taxon.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Rickettsia asembonensis JWSW01000015
Rickettsia akari L36099
Rickettsia australis TYGS 18341
100/100
Rickettsia hoogstraalii TYGS 4160
Rickettsia massiliae L36214
Rickettsia aeschlimannii U74757
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Rickettsia montanensis L36215
93/85
Rickettsia tamurae TYGS 6221
100/100
Rickettsia buchneri TYGS 3610
Rickettsia conorii AE006914
66/-
Rickettsia sibirica TYGS 864
73/92
Rickettsia parkeri L36673
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100/100
Rickettsia asiatica AF394906
Rickettsia raoultii TYGS 3478
89/91
Rickettsia heilongjiangensis TYGS 369
Rickettsia japonica AP011533
Rickettsia gravesii TYGS 20187
99/99
Rickettsia typhi TYGS 449
97/98
Rickettsia prowazekii TYGS 448
Rickettsia canadensis L36104
100/100
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Lyticum sinuosum HF969035
100/100
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78/-
Neorickettsia sennetsu CP000237
69/85
Ehrlichia ruminantium TYGS 470
100/100
Ehrlichia muris TYGS 1017
99/82
Ehrlichia chaffeensis TYGS 445
76/-
Ehrlichia ewingii M73227
100/100
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Ehrlichia minasensis TYGS 5088
Ehrlichia canis M73221
95/100
Anaplasma phagocytophilum TYGS 3411
81/-
Anaplasma platys M82801
Anaplasma bovis U03775
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Emcibacter congregatus TYGS 20627
Eilatimonas milleporae TYGS 22672
98/88
Temperatibacter marinus AB906690
Kordiimonas sediminis KR491943
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Kordiimonas lacus TYGS 4376
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Kordiimonas gwangyangensis AY682384
Kordiimonas aestuarii JF714701
Kordiimonas pumila MF099898
Kordiimonas aquimaris GU289640
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Kordiimonas lipolytica TYGS 4856
Iodidimonas muriae LC127220
Rhodothalassium salexigens TYGS 20667
Magnetospira thiophila EU861390
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Varunaivibrio sulfuroxidans TYGS 6496
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Roseospira marina AJ298879
Roseospira navarrensis AJ298880
95/86
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83/-
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66/-
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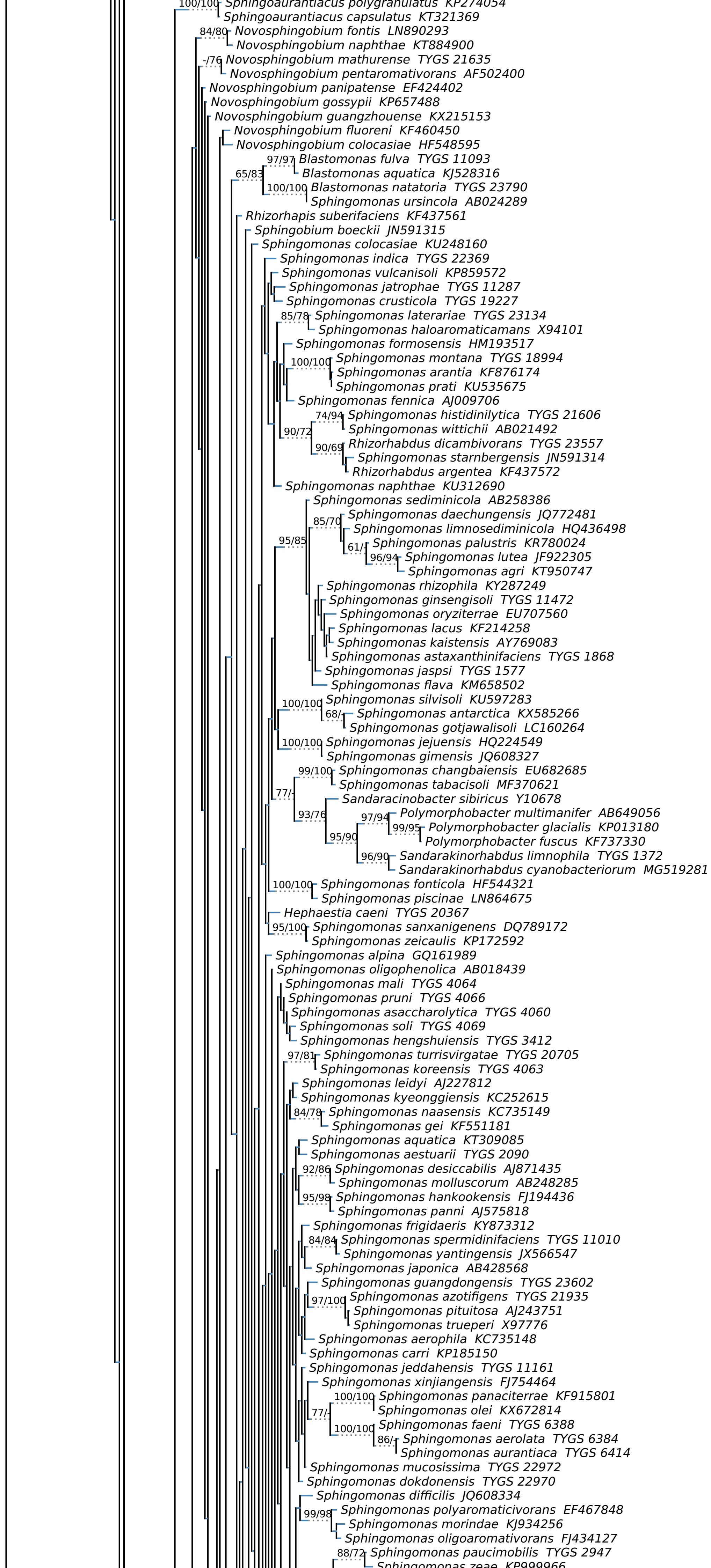
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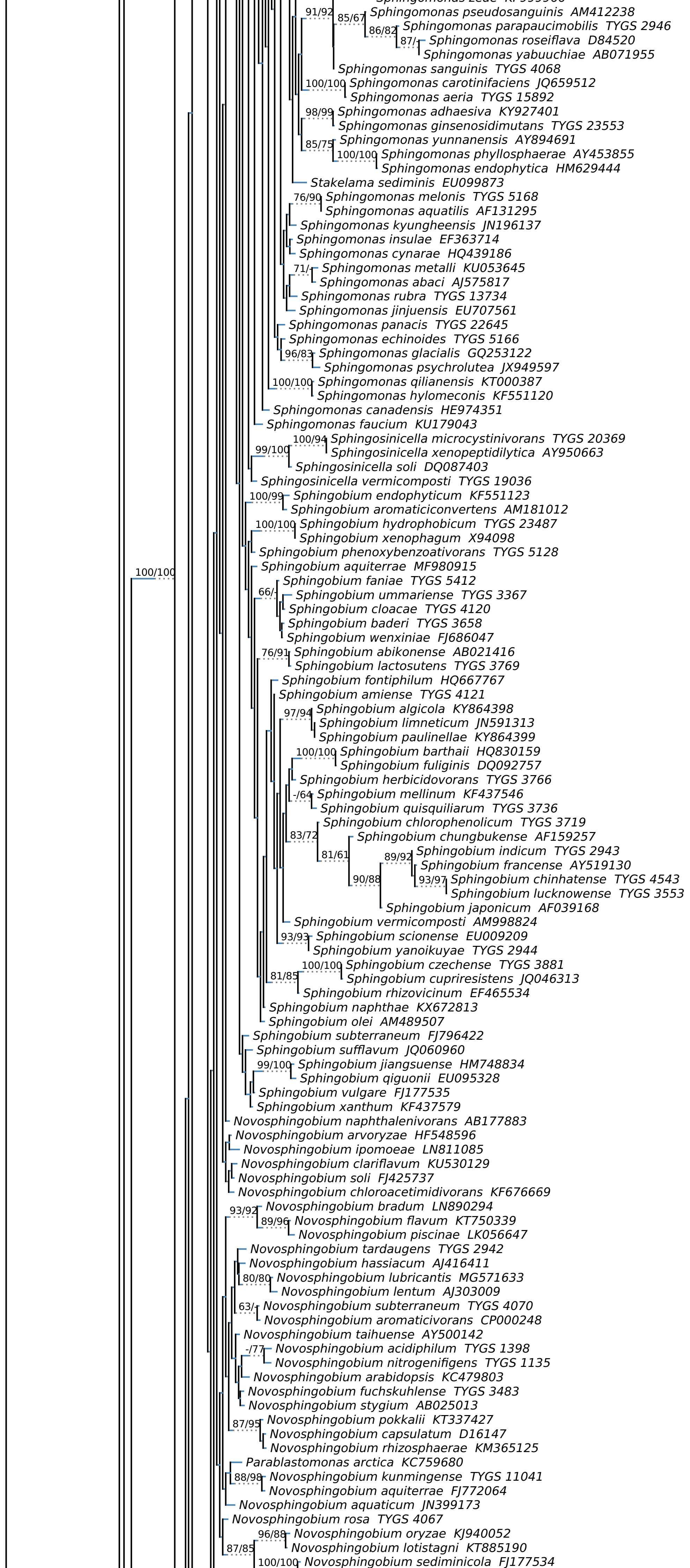
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71/-
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96/83
Sphingomonas glacialis GQ253122
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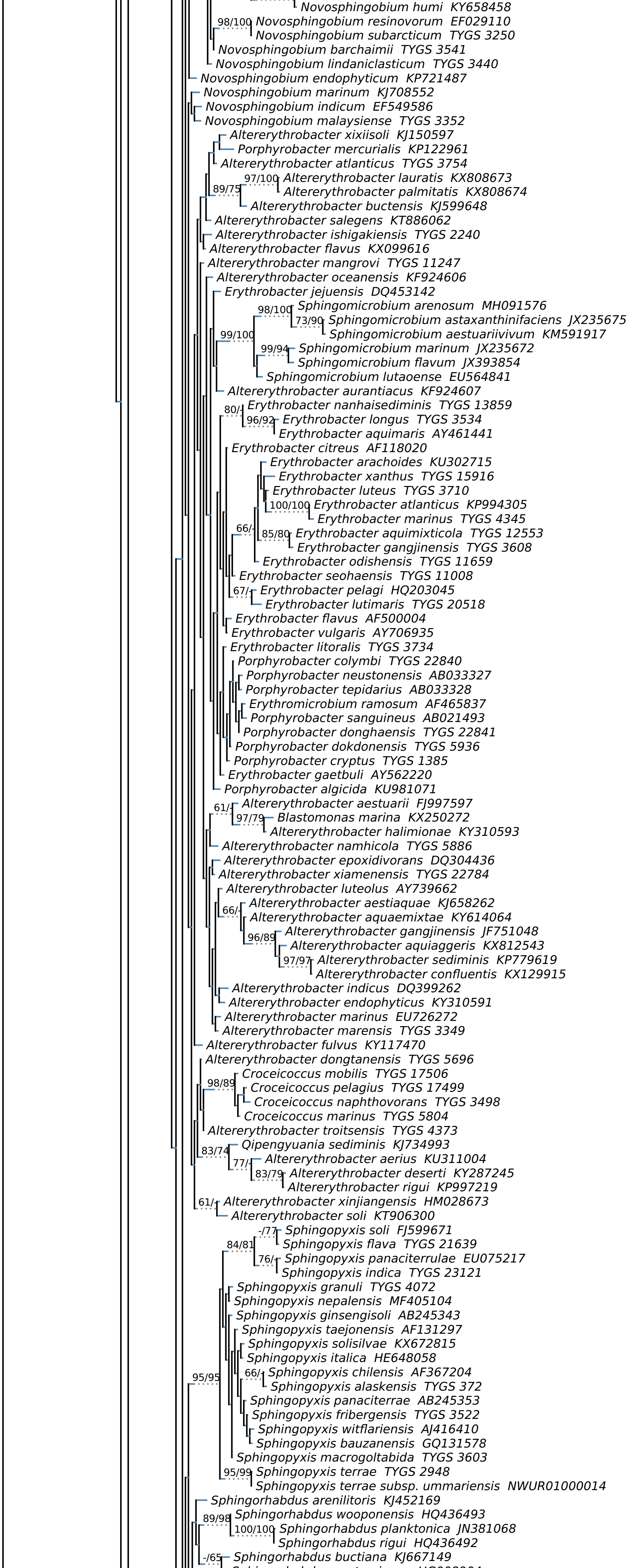
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Altererythrobacter deserti KY287245
Altererythrobacter rigui KP997219
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Altererythrobacter xinjiangensis HM028673
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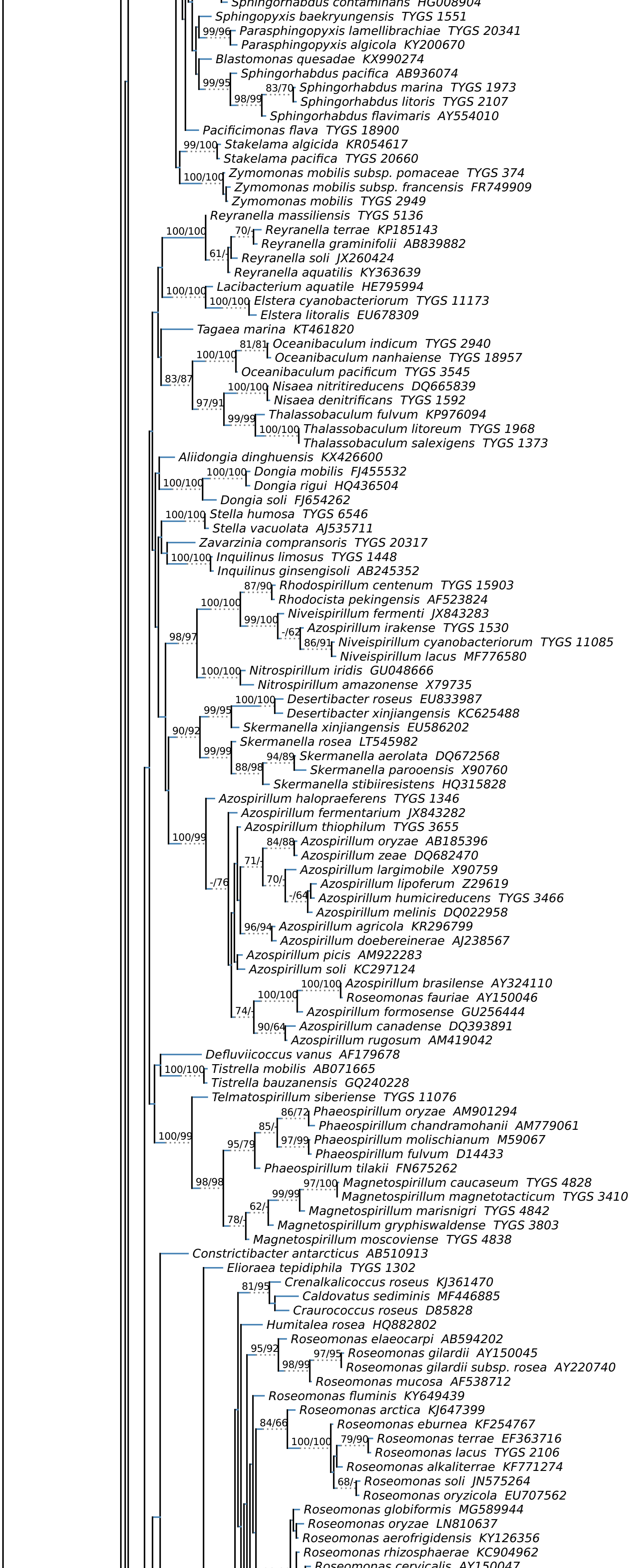
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100/100 Zymomonas mobilis subsp. francensis FR749909
Zymomonas mobilis TYGS 2949
Reyranella massiliensis TYGS 5136
100/100
70/- Reyranella terrae KP185143
Reyranella graminifolii AB839882
61/- Reyranella soli JX260424
Reyranella aquatilis KY363639
100/100 Lacibacterium aquatile HE795994
100/100 Elstera cyanobacteriorum TYGS 11173
Elstera litoralis EU678309
Tagaea marina KT461820
81/81 Oceanibaculum indicum TYGS 2940
100/100 Oceanibaculum nanhaiense TYGS 18957
83/87
Oceanibaculum pacificum TYGS 3545
100/100 Nisaea nitritireducens DQ665839
Nisaea denitrificans TYGS 1592
97/91
99/99 Thalassobaculum fulvum KP976094
100/100 Thalassobaculum litoreum TYGS 1968
Thalassobaculum salexigens TYGS 1373
Aliidongia dinghuensis KX426600
100/100 Dongia mobilis FJ455532
100/100
Dongia rigui HQ436504
Dongia soli FJ654262
100/100 Stella humosa TYGS 6546
Stella vacuolata AJ535711
Zavarzinia compransoris TYGS 20317
100/100 Inquilinus limosus TYGS 1448
Inquilinus ginsengisoli AB245352
87/90 Rhodospirillum centenum TYGS 15903
Rhodocista pekingensis AF523824
100/100
Niveispirillum fermenti JX843283
99/100
-/62 Azospirillum irakense TYGS 1530
98/97
86/91 Niveispirillum cyanobacteriorum TYGS 11085
Niveispirillum lacus MF776580
100/100 Nitrospirillum iridis GU048666
Nitrospirillum amazonense X79735
100/100 Desertibacter roseus EU833987
99/95
Desertibacter xinjiangensis KC625488
Skermanella xinjiangensis EU586202
90/92
Skermanella rosea LT545982
99/99
94/89 Skermanella aerolata DQ672568
88/98 Skermanella parooensis X90760
Skermanella stibiiresistens HQ315828
Azospirillum halopraeferens TYGS 1346
Azospirillum fermentarium JX843282
Azospirillum thiophilum TYGS 3655
100/99
84/88 Azospirillum oryzae AB185396
Azospirillum zeae DQ682470
71/-
Azospirillum largimobile X90759
70/-
Azospirillum lipoferum Z29619
-/64 Azospirillum humicireducens TYGS 3466
-/76
Azospirillum melinis DQ022958
96/94 Azospirillum agricola KR296799
Azospirillum doebereinerae AJ238567
Azospirillum picis AM922283
Azospirillum soli KC297124
100/100 Azospirillum brasilense AY324110
100/100
Roseomonas fauriae AY150046
Azospirillum formosense GU256444
74/-
90/64 Azospirillum canadense DQ393891
Azospirillum rugosum AM419042
Defluviicoccus vanus AF179678
100/100 Tistrella mobilis AB071665
Tistrella bauzanensis GQ240228
Telmatospirillum siberiense TYGS 11076
86/72 Phaeospirillum oryzae AM901294
85/-
Phaeospirillum chandramohanii AM779061
100/99
95/79
97/99 Phaeospirillum molischianum M59067
Phaeospirillum fulvum D14433
Phaeospirillum tilakii FN675262
98/98
97/100 Magnetospirillum caucaseum TYGS 4828
99/99
Magnetospirillum magnetotacticum TYGS 3410
62/-
Magnetospirillum marisnigri TYGS 4842
78/-
Magnetospirillum gryphiswaldense TYGS 3803
Magnetospirillum moscoviense TYGS 4838
Constrictibacter antarcticus AB510913
Elioraea tepidiphila TYGS 1302
81/95 Crenalkalicoccus roseus KJ361470
Caldovatus sediminis MF446885
Craurococcus roseus D85828
Humitalea rosea HQ882802
Roseomonas elaeocarpi AB594202
95/92
97/95 Roseomonas gilardii AY150045
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Roseomonas gilardii subsp. rosea AY220740
Roseomonas mucosa AF538712
Roseomonas fluminis KY649439
Roseomonas arctica KJ647399
84/66
Roseomonas eburnea KF254767
100/100
79/90 Roseomonas terrae EF363716
Roseomonas lacus TYGS 2106
Roseomonas alkaliterrae KF771274
68/- Roseomonas soli JN575264
Roseomonas oryzicola EU707562
Roseomonas globiformis MG589944
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Roseomonas rhizosphaerae KC904962
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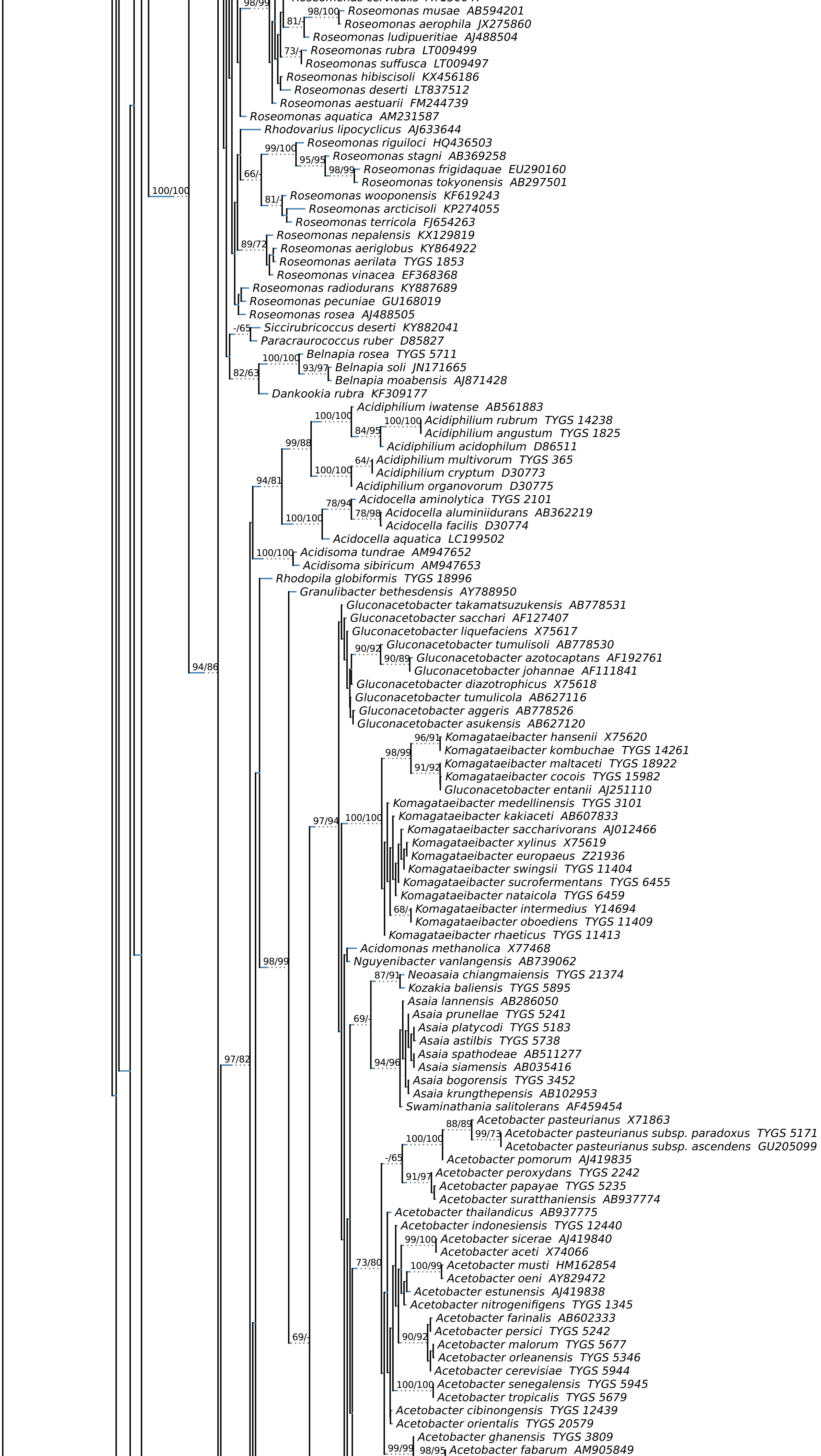
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73/- Roseomonas rubra LT009499
Roseomonas suffusca LT009497
Roseomonas hibiscisoli KX456186
Roseomonas deserti LT837512
Roseomonas aestuarii FM244739
Roseomonas aquatica AM231587
Rhodovarius lipocyclicus AJ633644
99/100 Roseomonas riguiloci HQ436503
95/95 Roseomonas stagni AB369258
98/99 Roseomonas frigidaquae EU290160
Roseomonas tokyonensis AB297501
100/100
66/-
81/- Roseomonas wooponensis KF619243
Roseomonas arcticisoli KP274055
Roseomonas terricola FJ654263
Roseomonas nepalensis KX129819
89/72 Roseomonas aeriglobus KY864922
Roseomonas aerilata TYGS 1853
Roseomonas vinacea EF368368
Roseomonas radiodurans KY887689
Roseomonas pecuniae GU168019
Roseomonas rosea AJ488505
-/65 Siccirubricoccus deserti KY882041
Paracraurococcus ruber D85827
100/100 Belnapia rosea TYGS 5711
93/97 Belnapia soli JN171665
82/63 Belnapia moabensis AJ871428
Dankookia rubra KF309177
Acidiphilium iwatense AB561883
100/100 100/100 Acidiphilium rubrum TYGS 14238
Acidiphilium angustum TYGS 1825
84/95
99/88 Acidiphilium acidophilum D86511
64/- Acidiphilium multivorum TYGS 365
100/100 Acidiphilium cryptum D30773
94/81 Acidiphilium organovorum D30775
78/94 Acidocella aminolytica TYGS 2101
78/98 Acidocella aluminiidurans AB362219
100/100 Acidocella facilis D30774
Acidocella aquatica LC199502
100/100 Acidisoma tundrae AM947652
Acidisoma sibiricum AM947653
Rhodopila globiformis TYGS 18996
Granulibacter bethesdensis AY788950
Gluconacetobacter takamatsuzukensis AB778531
Gluconacetobacter sacchari AF127407
Gluconacetobacter liquefaciens X75617
90/92 Gluconacetobacter tumulisoli AB778530
90/89 Gluconacetobacter azotocaptans AF192761
94/86 Gluconacetobacter johannae AF111841
Gluconacetobacter diazotrophicus X75618
Gluconacetobacter tumulicola AB627116
Gluconacetobacter aggeris AB778526
Gluconacetobacter asukensis AB627120
96/91 Komagataeibacter hansenii X75620
Komagataeibacter kombuchae TYGS 14261
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91/92 Komagataeibacter maltaceti TYGS 18922
Komagataeibacter cocois TYGS 15982
Gluconacetobacter entanii AJ251110
Komagataeibacter medellinensis TYGS 3101
97/94 100/100 Komagataeibacter kakiaceti AB607833
Komagataeibacter saccharivorans AJ012466
Komagataeibacter xylinus X75619
Komagataeibacter europaeus Z21936
Komagataeibacter swingsii TYGS 11404
Komagataeibacter sucrofermentans TYGS 6455
Komagataeibacter nataicola TYGS 6459
68/- Komagataeibacter intermedius Y14694
Komagataeibacter oboediens TYGS 11409
Komagataeibacter rhaeticus TYGS 11413
Acidomonas methanolica X77468
98/99 Nguyenibacter vanlangensis AB739062
87/91 Neoasaia chiangmaiensis TYGS 21374
Kozakia baliensis TYGS 5895
Asaia lannensis AB286050
69/- Asaia prunellae TYGS 5241
Asaia platycodi TYGS 5183
Asaia astilbis TYGS 5738
97/82 Asaia spathodeae AB511277
94/96 Asaia siamensis AB035416
Asaia bogorensis TYGS 3452
Asaia krungthepensis AB102953
Swaminathania salitolerans AF459454
88/89 Acetobacter pasteurianus X71863
99/73 Acetobacter pasteurianus subsp. paradoxus TYGS 5171
100/100 Acetobacter pasteurianus subsp. ascendens GU205099
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Acetobacter peroxydans TYGS 2242
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Acetobacter thailandicus AB937775
Acetobacter indonesiensis TYGS 12440
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Acetobacter aceti X74066
73/80 100/99 Acetobacter musti HM162854
Acetobacter oeni AY829472
Acetobacter estunensis AJ419838
Acetobacter nitrogenifigens TYGS 1345
Acetobacter farinalis AB602333
Acetobacter persici TYGS 5242
69/- 90/92 Acetobacter malorum TYGS 5677
Acetobacter orleanensis TYGS 5346
Acetobacter cerevisiae TYGS 5944
100/100 Acetobacter senegalensis TYGS 5945
Acetobacter tropicalis TYGS 5679
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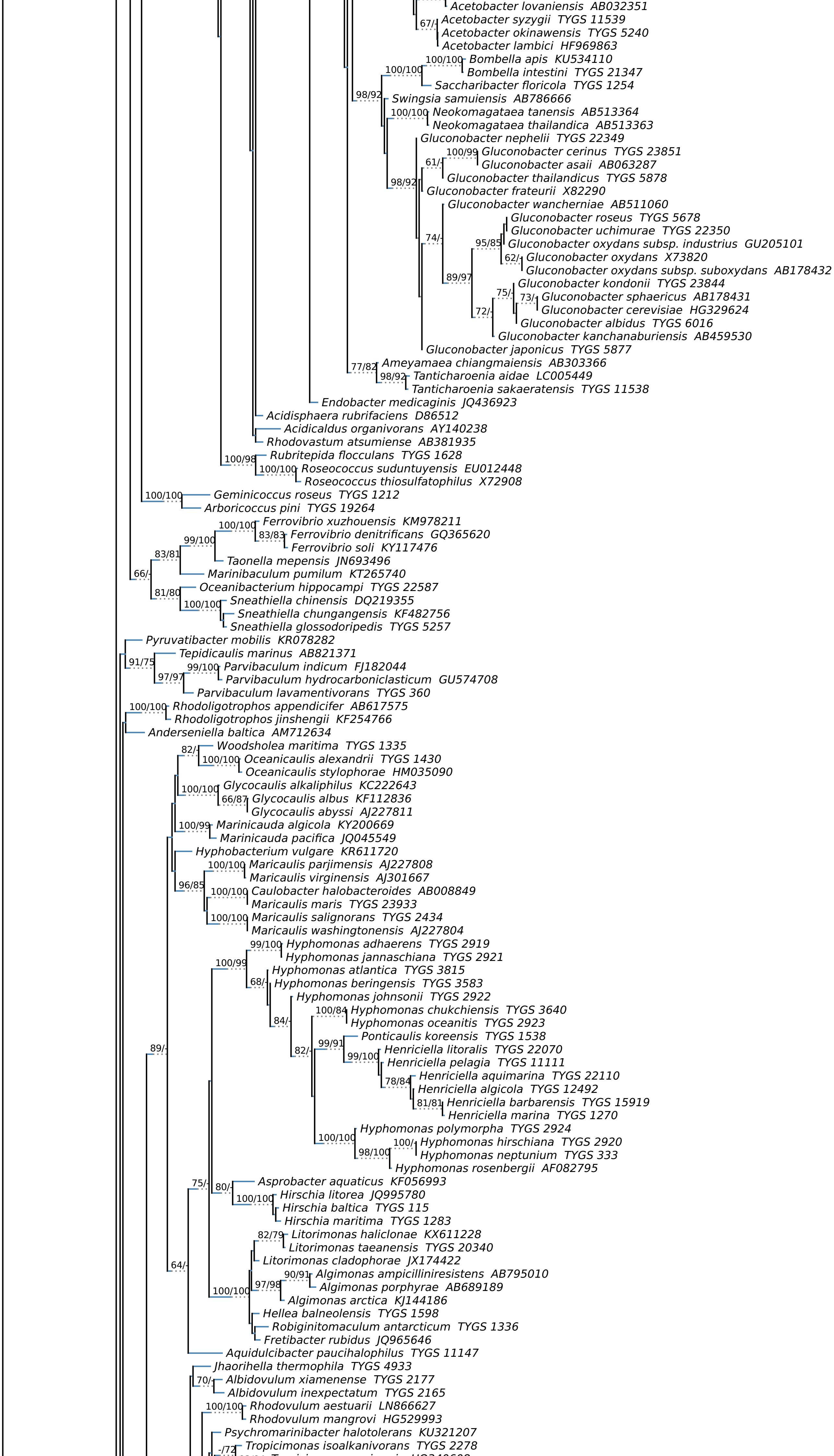
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Acetobacter syzygii TYGS 11539
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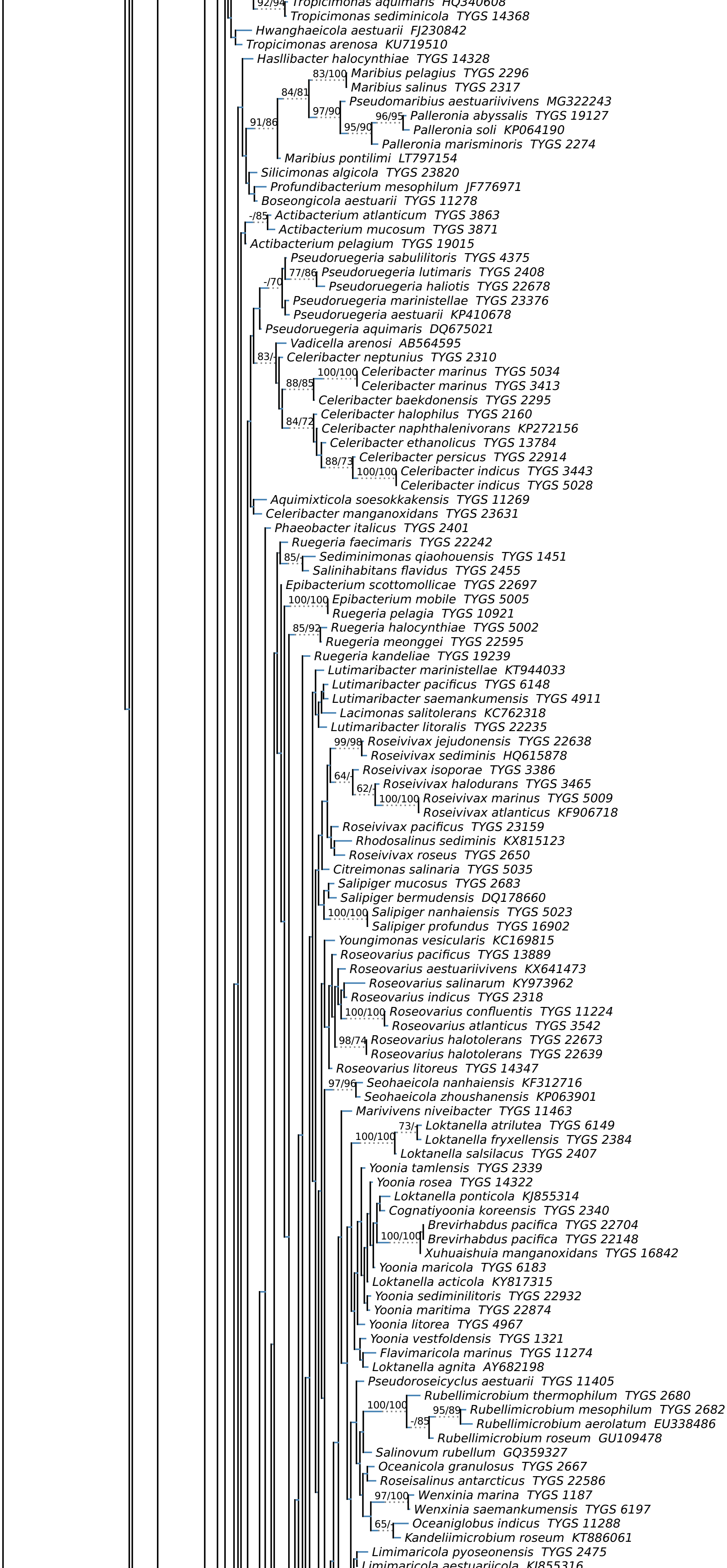
Acetobacter okinawensis TYGS 5240
Acetobacter lambici HF969863
100/100
Bombella apis KU534110
100/100
Bombella intestini TYGS 21347
Saccharibacter floricola TYGS 1254
98/92
Swingsia samuiensis AB786666
100/100
Neokomagataea tanensis AB513364
Neokomagataea thailandica AB513363
Gluconobacter nephelii TYGS 22349
100/99
Gluconobacter cerinus TYGS 23851
61/-
Gluconobacter asaii AB063287
Gluconobacter thailandicus TYGS 5878
98/92
Gluconobacter frateurii X82290
Gluconobacter wancherniae AB511060
Gluconobacter roseus TYGS 5678
Gluconobacter uchimurae TYGS 22350
74/-
95/85
Gluconobacter oxydans subsp. industrius GU205101
62/-
Gluconobacter oxydans X73820
Gluconobacter oxydans subsp. suboxydans AB178432
89/97
Gluconobacter kondonii TYGS 23844
75/-
73/-
Gluconobacter sphaericus AB178431
Gluconobacter cerevisiae HG329624
72/-
Gluconobacter albidus TYGS 6016
Gluconobacter kanchanaburiensis AB459530
Gluconobacter japonicus TYGS 5877
77/82
Ameyamaea chiangmaiensis AB303366
98/92
Tanticharoenia aidae LC005449
Tanticharoenia sakaeratensis TYGS 11538
Endobacter medicaginis JQ436923
Acidisphaera rubrifaciens D86512
Acidicaldus organivorans AY140238
Rhodovastum atsumiense AB381935
100/98
Rubritepida flocculans TYGS 1628
100/100
Roseococcus suduntuyensis EU012448
Roseococcus thiosulfatophilus X72908
100/100
Geminicoccus roseus TYGS 1212
Arboricoccus pini TYGS 19264
100/100
Ferrovibrio xuzhouensis KM978211
99/100
83/83
Ferrovibrio denitrificans GQ365620
83/81
Ferrovibrio soli KY117476
Taonella mepensis JN693496
66/-
Marinibaculum pumilum KT265740
Oceanibacterium hippocampi TYGS 22587
81/80
Sneathiella chinensis DQ219355
100/100
Sneathiella chungangensis KF482756
Sneathiella glossodoripedis TYGS 5257
Pyruvatibacter mobilis KR078282
Tepidicaulis marinus AB821371
91/75
99/100
Parvibaculum indicum FJ182044
97/97
Parvibaculum hydrocarboniclasticum GU574708
Parvibaculum lavamentivorans TYGS 360
100/100
Rhodoligotrophos appendicifer AB617575
Rhodoligotrophos jinshengii KF254766
Anderseniella baltica AM712634
Woodsholea maritima TYGS 1335
82/-
100/100
Oceanicaulis alexandrii TYGS 1430
Oceanicaulis stylophorae HM035090
Glycocaulis alkaliphilus KC222643
100/100
66/87
Glycocaulis albus KF112836
Glycocaulis abyssi AJ227811
100/99
Marinicauda algicola KY200669
Marinicauda pacifica JQ045549
Hyphobacterium vulgare KR611720
100/100
Maricaulis parjimensis AJ227808
Maricaulis virginensis AJ301667
96/85
100/100
Caulobacter halobacteroides AB008849
Maricaulis maris TYGS 23933
100/100
Maricaulis salignorans TYGS 2434
Maricaulis washingtonensis AJ227804
99/100
Hyphomonas adhaerens TYGS 2919
Hyphomonas jannaschiana TYGS 2921
100/99
Hyphomonas atlantica TYGS 3815
68/-
Hyphomonas beringensis TYGS 3583
Hyphomonas johnsonii TYGS 2922
100/84
Hyphomonas chukchiensis TYGS 3640
84/-
Hyphomonas oceanitis TYGS 2923
Ponticaulis koreensis TYGS 1538
99/91
Henriciella litoralis TYGS 22070
99/100
89/-
82/-
Henriciella pelagia TYGS 11111
Henriciella aquimarina TYGS 22110
78/84
Henriciella algicola TYGS 12492
81/81
Henriciella barbarensis TYGS 15919
Henriciella marina TYGS 1270
Hyphomonas polymorpha TYGS 2924
100/100
100/-
Hyphomonas hirschiana TYGS 2920
98/100
Hyphomonas neptunium TYGS 333
Hyphomonas rosenbergii AF082795
75/-
80/-
Asprobacter aquaticus KF056993
100/100
Hirschia litorea JQ995780
Hirschia baltica TYGS 115
Hirschia maritima TYGS 1283
82/79
Litorimonas haliclonae KX611228
Litorimonas taeanensis TYGS 20340
Litorimonas cladophorae JX174422
64/-
90/91
Algimonas ampicilliniresistens AB795010
97/98
Algimonas porphyrae AB689189
100/100
Algimonas arctica KJ144186
Hellea balneolensis TYGS 1598
Robiginitomaculum antarcticum TYGS 1336
Fretibacter rubidus JQ965646
Aquidulcibacter paucihalophilus TYGS 11147
Jhaorihella thermophila TYGS 4933
70/-
Albidovulum xiamenense TYGS 2177
Albidovulum inexpectatum TYGS 2165
100/100
Rhodovulum aestuarii LN866627
Rhodovulum mangrovi HG529993
Psychromarinibacter halotolerans KU321207
-/72
Tropicimonas isoalkanivorans TYGS 2278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Hasllibacter halocynthiae TYGS 14328
83/100
Maribius pelagius TYGS 2296
Maribius salinus TYGS 2317
84/81
Pseudomaribius aestuariivivens MG322243
97/90
96/95
Palleronia abyssalis TYGS 19127
95/90
Palleronia soli KP064190
Palleronia marisminoris TYGS 2274
91/86
Maribius pontilimi LT797154
Silicimonas algicola TYGS 23820
Profundibacterium mesophilum JF776971
Boseongicola aestuarii TYGS 11278
-/85
Actibacterium atlanticum TYGS 3863
Actibacterium mucosum TYGS 3871
Actibacterium pelagium TYGS 19015
Pseudoruegeria sabulilitoris TYGS 4375
77/86
Pseudoruegeria lutimaris TYGS 2408
-/70
Pseudoruegeria haliotis TYGS 22678
Pseudoruegeria marinistellae TYGS 23376
Pseudoruegeria aestuarii KP410678
Pseudoruegeria aquimaris DQ675021
Vadicella arenosi AB564595
83/-
Celeribacter neptunius TYGS 2310
100/100
Celeribacter marinus TYGS 5034
88/85
Celeribacter marinus TYGS 3413
Celeribacter baekdonensis TYGS 2295
Celeribacter halophilus TYGS 2160
84/72
Celeribacter naphthalenivorans KP272156
Celeribacter ethanolicus TYGS 13784
88/73
Celeribacter persicus TYGS 22914
100/100
Celeribacter indicus TYGS 3443
Celeribacter indicus TYGS 5028
Aquimixticola soesokkakensis TYGS 11269
Celeribacter manganoxidans TYGS 23631
Phaeobacter italicus TYGS 2401
Ruegeria faecimaris TYGS 22242
85/-
Sediminimonas qiaohouensis TYGS 1451
Salinihabitans flavidus TYGS 2455
Epibacterium scottomollicae TYGS 22697
100/100
Epibacterium mobile TYGS 5005
Ruegeria pelagia TYGS 10921
85/92
Ruegeria halocynthiae TYGS 5002
Ruegeria meonggei TYGS 22595
Ruegeria kandeliae TYGS 19239
Lutimaribacter marinistellae KT944033
Lutimaribacter pacificus TYGS 6148
Lutimaribacter saemankumensis TYGS 4911
Lacimonas salitolerans KC762318
Lutimaribacter litoralis TYGS 22235
99/98
Roseivivax jejudonensis TYGS 22638
Roseivivax sediminis HQ615878
64/-
Roseivivax isoporae TYGS 3386
62/-
Roseivivax halodurans TYGS 3465
100/100
Roseivivax marinus TYGS 5009
Roseivivax atlanticus KF906718
Roseivivax pacificus TYGS 23159
Rhodosalinus sediminis KX815123
Roseivivax roseus TYGS 2650
Citreimonas salinaria TYGS 5035
Salipiger mucosus TYGS 2683
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100/100
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Roseovarius atlanticus TYGS 3542
98/74
Roseovarius halotolerans TYGS 22673
Roseovarius halotolerans TYGS 22639
Roseovarius litoreus TYGS 14347
97/96
Seohaeicola nanhaiensis KF312716
Seohaeicola zhoushanensis KP063901
Marivivens niveibacter TYGS 11463
73/-
Loktanella atrilutea TYGS 6149
100/100
Loktanella fryxellensis TYGS 2384
Loktanella salsilacus TYGS 2407
Yoonia tamlensis TYGS 2339
Yoonia rosea TYGS 14322
Loktanella ponticola KJ855314
Cognatiyoonia koreensis TYGS 2340
Brevirhabdus pacifica TYGS 22704
100/100
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Yoonia vestfoldensis TYGS 1321
Flavimaricola marinus TYGS 11274
Loktanella agnita AY682198
Pseudoroseicyclus aestuarii TYGS 11405
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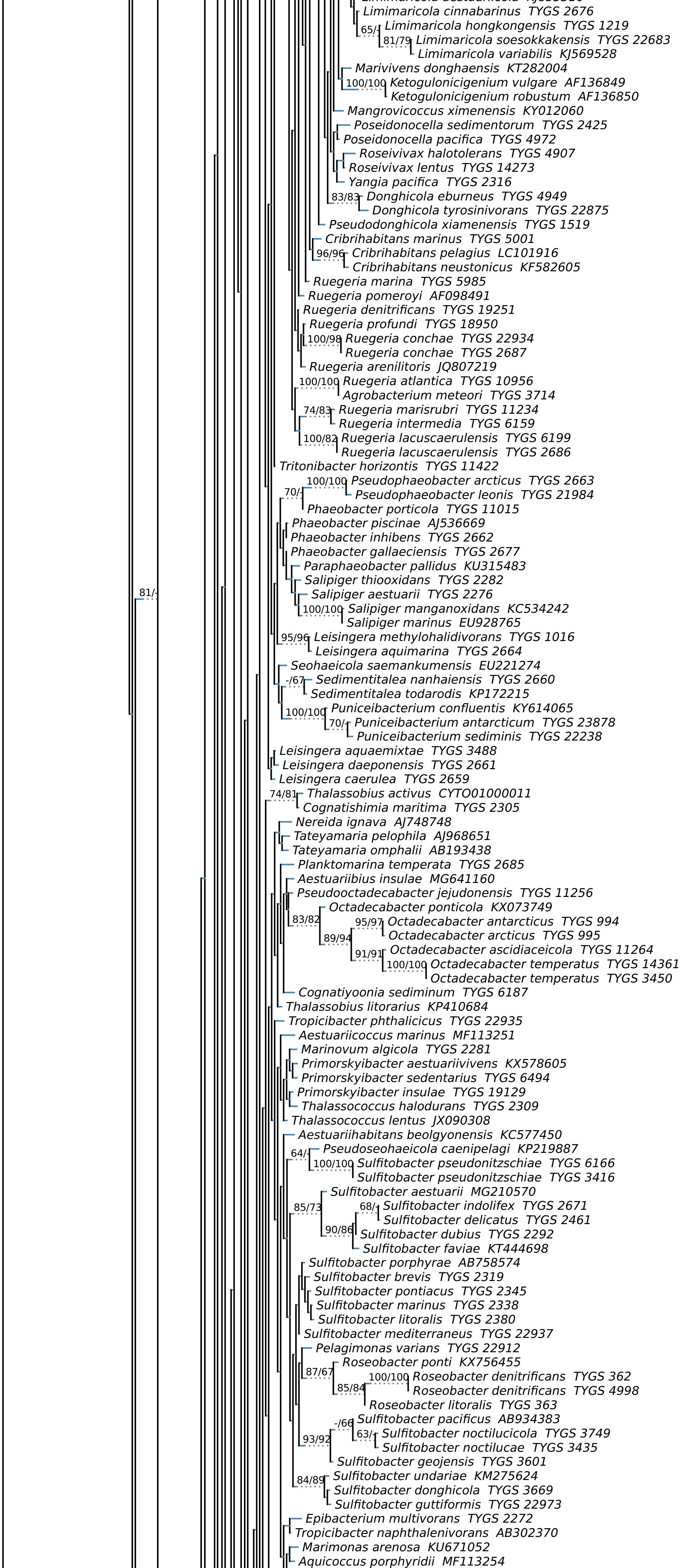
100/100
95/89
Rubellimicrobium mesophilum TYGS 2682
-/85
Rubellimicrobium aerolatum EU338486
Rubellimicrobium roseum GU109478
Salinovum rubellum GQ359327
Oceanicola granulosus TYGS 2667
Roseisalinus antarcticus TYGS 22586
97/100
Wenxinia marina TYGS 1187
Wenxinia saemankumensis TYGS 6197
65/-
Oceaniglobus indicus TYGS 11288
Kandeliimicrobium roseum KT886061
Limimaricola pyoseonensis TYGS 2475
Limimaricola aestuariicola KJ855316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Limimaricola hongkongensis TYGS 1219
81/79
Limimaricola soesokkakensis TYGS 22683
Limimaricola variabilis KJ569528
Marivivens donghaensis KT282004
100/100
Ketogulonicigenium vulgare AF136849
Ketogulonicigenium robustum AF136850
Mangrovicoccus ximenensis KY012060
Poseidonocella sedimentorum TYGS 2425
Poseidonocella pacifica TYGS 4972
Roseivivax halotolerans TYGS 4907
Roseivivax lentus TYGS 14273
Yangia pacifica TYGS 2316
83/83
Donghicola eburneus TYGS 4949
Donghicola tyrosinivorans TYGS 22875
Pseudodonghicola xiamenensis TYGS 1519
Cribrihabitans marinus TYGS 5001
96/96
Cribrihabitans pelagius LC101916
Cribrihabitans neustonicus KF582605
Ruegeria marina TYGS 5985
Ruegeria pomeroyi AF098491
Ruegeria denitrificans TYGS 19251
Ruegeria profundi TYGS 18950
100/98
Ruegeria conchae TYGS 22934
Ruegeria conchae TYGS 2687
Ruegeria arenilitoris JQ807219
100/100
Ruegeria atlantica TYGS 10956
Agrobacterium meteori TYGS 3714
74/83
Ruegeria marisrubri TYGS 11234
Ruegeria intermedia TYGS 6159
100/82
Ruegeria lacuscaerulensis TYGS 6199
Ruegeria lacuscaerulensis TYGS 2686
Tritonibacter horizontis TYGS 11422
100/100
Pseudophaeobacter arcticus TYGS 2663
70/-
Pseudophaeobacter leonis TYGS 21984
Phaeobacter porticola TYGS 11015
Phaeobacter piscinae AJ536669
Phaeobacter inhibens TYGS 2662
Phaeobacter gallaeciensis TYGS 2677
Paraphaeobacter pallidus KU315483
Salipiger thiooxidans TYGS 2282
81/-
Salipiger aestuarii TYGS 2276
100/100
Salipiger manganoxidans KC534242
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95/96
Leisingera methylohalidivorans TYGS 1016
Leisingera aquimarina TYGS 2664
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-/67
Sedimentitalea nanhaiensis TYGS 2660
Sedimentitalea todarodis KP172215
100/100
Puniceibacterium confluentis KY614065
70/-
Puniceibacterium antarcticum TYGS 23878
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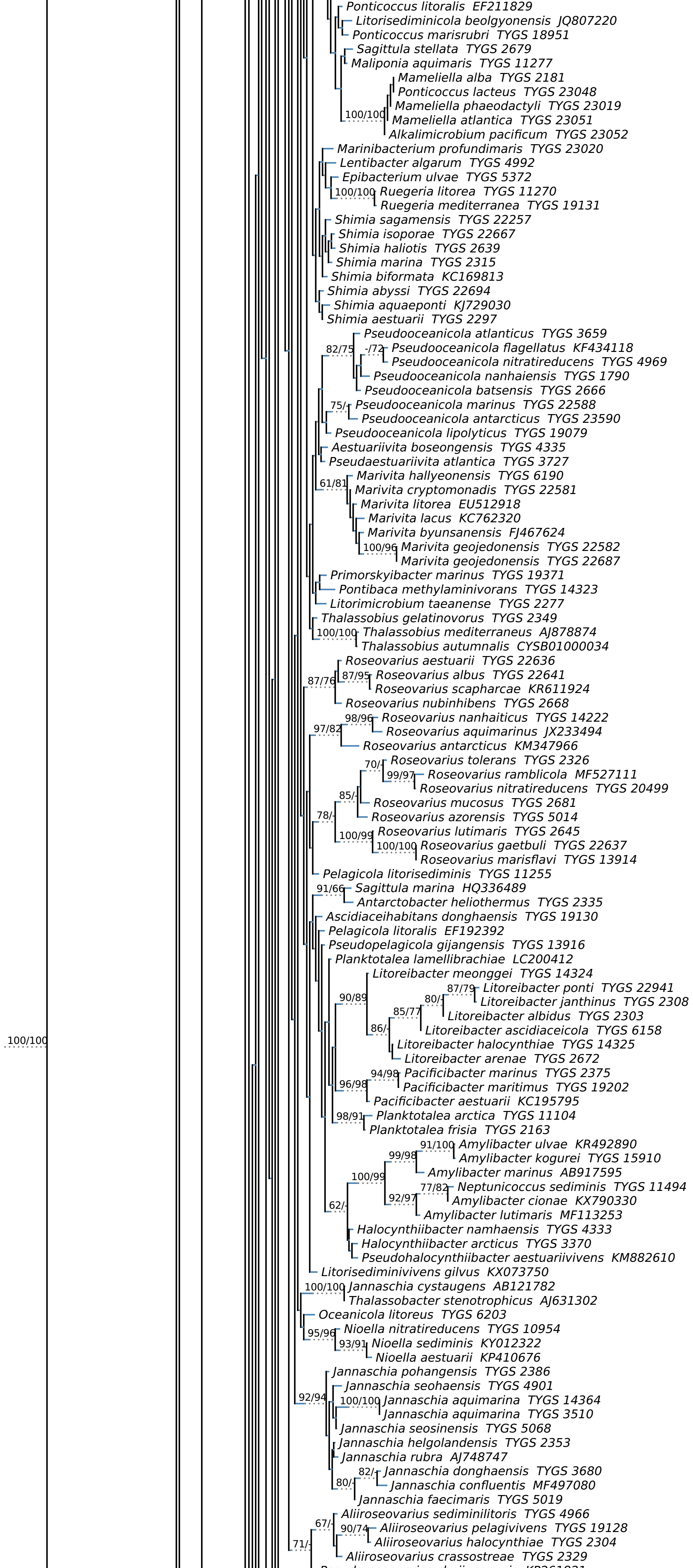
Leisingera daeponensis TYGS 2661
Leisingera caerulea TYGS 2659
74/81
Thalassobius activus CYTO01000011
Cognatishimia maritima TYGS 2305
Nereida ignava AJ748748
Tateyamaria pelophila AJ968651
Tateyamaria omphalii AB193438
Planktomarina temperata TYGS 2685
Aestuariibius insulae MG641160
Pseudooctadecabacter jejudonensis TYGS 11256
83/82
Octadecabacter ponticola KX073749
95/97
Octadecabacter antarcticus TYGS 994
89/94
Octadecabacter arcticus TYGS 995
91/91
Octadecabacter ascidiaceicola TYGS 11264
100/100
Octadecabacter temperatus TYGS 14361
Octadecabacter temperatus TYGS 3450
Cognatiyoonia sediminum TYGS 6187
Thalassobius litorarius KP410684
Tropicibacter phthalicicus TYGS 22935
Aestuariicoccus marinus MF113251
Marinovum algicola TYGS 2281
Primorskyibacter aestuariivivens KX578605
Primorskyibacter sedentarius TYGS 6494
Primorskyibacter insulae TYGS 19129
Thalassococcus halodurans TYGS 2309
Thalassococcus lentus JX090308
Aestuariihabitans beolgyonensis KC577450
Pseudoseohaeicola caenipelagi KP219887
64/-
100/100
Sulfitobacter pseudonitzschiae TYGS 6166
Sulfitobacter pseudonitzschiae TYGS 3416
Sulfitobacter aestuarii MG210570
85/73
68/-
Sulfitobacter indolifex TYGS 2671
Sulfitobacter delicatus TYGS 2461
90/86
Sulfitobacter dubius TYGS 2292
Sulfitobacter faviae KT444698
Sulfitobacter porphyrae AB758574
Sulfitobacter brevis TYGS 2319
Sulfitobacter pontiacus TYGS 2345
Sulfitobacter marinus TYGS 2338
Sulfitobacter litoralis TYGS 2380
Sulfitobacter mediterraneus TYGS 22937
Pelagimonas varians TYGS 22912
Roseobacter ponti KX756455
87/67
100/100
Roseobacter denitrificans TYGS 362
85/84
Roseobacter denitrificans TYGS 4998
Roseobacter litoralis TYGS 363
-/66
Sulfitobacter pacificus AB934383
63/-
Sulfitobacter noctilucicola TYGS 3749
93/92
Sulfitobacter noctilucae TYGS 3435
Sulfitobacter geojensis TYGS 3601
84/89
Sulfitobacter undariae KM275624
Sulfitobacter donghicola TYGS 3669
Sulfitobacter guttiformis TYGS 22973
Epibacterium multivorans TYGS 2272
Tropicibacter naphthalenivorans AB302370
Marimonas arenosa KU671052
Aquicoccus porphyridii MF113254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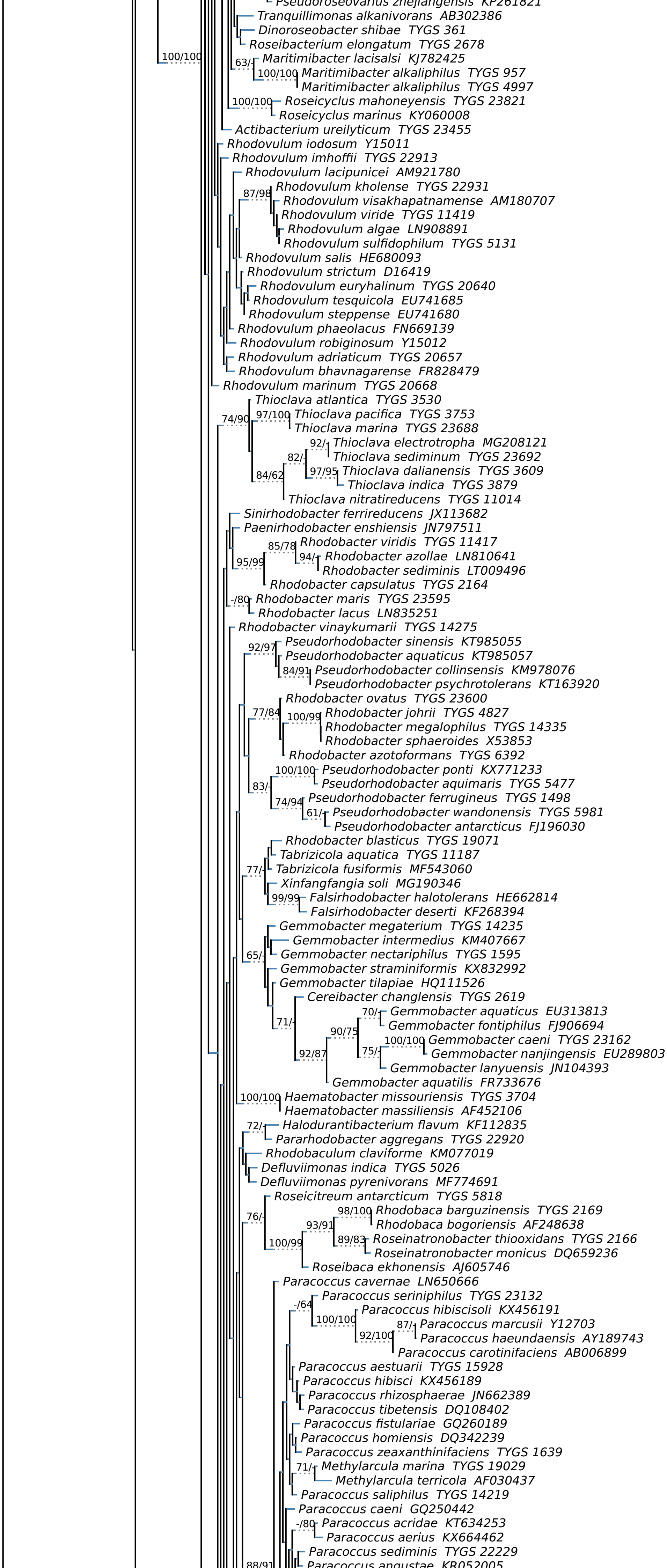
Sagittula stellata TYGS 2679
Maliponia aquimaris TYGS 11277
Mameliella alba TYGS 2181
Ponticoccus lacteus TYGS 23048
Mameliella phaeodactyli TYGS 23019
100/100
Mameliella atlantica TYGS 23051
Alkalimicrobium pacificum TYGS 23052
Marinibacterium profundimaris TYGS 23020
Lentibacter algarum TYGS 4992
Epibacterium ulvae TYGS 5372
100/100
Ruegeria litorea TYGS 11270
Ruegeria mediterranea TYGS 19131
Shimia sagamensis TYGS 22257
Shimia isoporae TYGS 22667
Shimia haliotis TYGS 2639
Shimia marina TYGS 2315
Shimia biformata KC169813
Shimia abyssi TYGS 22694
Shimia aquaeponti KJ729030
Shimia aestuarii TYGS 2297
Pseudooceanicola atlanticus TYGS 3659
82/75
-/72
Pseudooceanicola flagellatus KF434118
Pseudooceanicola nitratireducens TYGS 4969
Pseudooceanicola nanhaiensis TYGS 1790
Pseudooceanicola batsensis TYGS 2666
75/-
Pseudooceanicola marinus TYGS 22588
Pseudooceanicola antarcticus TYGS 23590
Pseudooceanicola lipolyticus TYGS 19079
Aestuariivita boseongensis TYGS 4335
Pseudaestuariivita atlantica TYGS 3727
61/81
Marivita hallyeonensis TYGS 6190
Marivita cryptomonadis TYGS 22581
Marivita litorea EU512918
Marivita lacus KC762320
Marivita byunsanensis FJ467624
100/96
Marivita geojedonensis TYGS 22582
Marivita geojedonensis TYGS 22687
Primorskyibacter marinus TYGS 19371
Pontibaca methylaminivorans TYGS 14323
Litorimicrobium taeanense TYGS 2277
Thalassobius gelatinovorus TYGS 2349
100/100
Thalassobius mediterraneus AJ878874
Thalassobius autumnalis CYSB01000034
Roseovarius aestuarii TYGS 22636
87/76
87/95
Roseovarius albus TYGS 22641
Roseovarius scapharcae KR611924
Roseovarius nubinhibens TYGS 2668
98/96
Roseovarius nanhaiticus TYGS 14222
97/82
Roseovarius aquimarinus JX233494
Roseovarius antarcticus KM347966
70/-
Roseovarius tolerans TYGS 2326
99/97
Roseovarius ramblicola MF527111
Roseovarius nitratireducens TYGS 20499
85/-
Roseovarius mucosus TYGS 2681
78/-
Roseovarius azorensis TYGS 5014
100/99
Roseovarius lutimaris TYGS 2645
100/100
Roseovarius gaetbuli TYGS 22637
Roseovarius marisflavi TYGS 13914
Pelagicola litorisediminis TYGS 11255
91/66
Sagittula marina HQ336489
Antarctobacter heliothermus TYGS 2335
Ascidiaceihabitans donghaensis TYGS 19130
Pelagicola litoralis EF192392
Pseudopelagicola gijangensis TYGS 13916
Planktotalea lamellibrachiae LC200412
Litoreibacter meonggei TYGS 14324
87/79
Litoreibacter ponti TYGS 22941
90/89
80/-
Litoreibacter janthinus TYGS 2308
85/77
Litoreibacter albidus TYGS 2303
86/-
Litoreibacter ascidiaceicola TYGS 6158
100/100
Litoreibacter halocynthiae TYGS 14325
Litoreibacter arenae TYGS 2672
94/98
Pacificibacter marinus TYGS 2375
96/98
Pacificibacter maritimus TYGS 19202
Pacificibacter aestuarii KC195795
98/91
Planktotalea arctica TYGS 11104
Planktotalea frisia TYGS 2163
91/100
Amylibacter ulvae KR492890
99/98
Amylibacter kogurei TYGS 15910
100/99
Amylibacter marinus AB917595
77/82
Neptunicoccus sediminis TYGS 11494
92/97
Amylibacter cionae KX790330
62/-
Amylibacter lutimaris MF113253
Halocynthiibacter namhaensis TYGS 4333
Halocynthiibacter arcticus TYGS 3370
Pseudohalocynthiibacter aestuariivivens KM882610
Litorisediminivivens gilvus KX073750
100/100
Jannaschia cystaugens AB121782
Thalassobacter stenotrophicus AJ631302
Oceanicola litoreus TYGS 6203
95/96
Nioella nitratireducens TYGS 10954
93/91
Nioella sediminis KY012322
Nioella aestuarii KP410676
Jannaschia pohangensis TYGS 2386
Jannaschia seohaensis TYGS 4901
92/94
100/100
Jannaschia aquimarina TYGS 14364
Jannaschia aquimarina TYGS 3510
Jannaschia seosinensis TYGS 5068
Jannaschia helgolandensis TYGS 2353
Jannaschia rubra AJ748747
82/-
Jannaschia donghaensis TYGS 3680
80/-
Jannaschia confluentis MF497080
Jannaschia faecimaris TYGS 5019
Aliiroseovarius sediminilitoris TYGS 4966
67/-
90/74
Aliiroseovarius pelagivivens TYGS 19128
71/-
Aliiroseovarius halocynthiae TYGS 2304
Aliiroseovarius crassostreae TYGS 2329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Tranquillimonas alkanivorans AB302386
Dinoroseobacter shibae TYGS 361
Roseibacterium elongatum TYGS 2678
100/100
Maritimibacter lacisalsi KJ782425
63/-
100/100
Maritimibacter alkaliphilus TYGS 957
Maritimibacter alkaliphilus TYGS 4997
100/100
Roseicyclus mahoneyensis TYGS 23821
Roseicyclus marinus KY060008
Actibacterium ureilyticum TYGS 23455
Rhodovulum iodosum Y15011
Rhodovulum imhoffii TYGS 22913
Rhodovulum lacipunicei AM921780
Rhodovulum kholense TYGS 22931
87/98
Rhodovulum visakhapatnamense AM180707
Rhodovulum viride TYGS 11419
Rhodovulum algae LN908891
Rhodovulum sulfidophilum TYGS 5131
Rhodovulum salis HE680093
Rhodovulum strictum D16419
Rhodovulum euryhalinum TYGS 20640
Rhodovulum tesquicola EU741685
Rhodovulum steppense EU741680
Rhodovulum phaeolacus FN669139
Rhodovulum robiginosum Y15012
Rhodovulum adriaticum TYGS 20657
Rhodovulum bhavnagarense FR828479
Rhodovulum marinum TYGS 20668
Thioclava atlantica TYGS 3530
74/90
97/100
Thioclava pacifica TYGS 3753
Thioclava marina TYGS 23688
92/-
Thioclava electrotropha MG208121
82/-
Thioclava sediminum TYGS 23692
97/95
Thioclava dalianensis TYGS 3609
84/62
Thioclava indica TYGS 3879
Thioclava nitratireducens TYGS 11014
Sinirhodobacter ferrireducens JX113682
Paenirhodobacter enshiensis JN797511
85/78
Rhodobacter viridis TYGS 11417
94/-
Rhodobacter azollae LN810641
95/99
Rhodobacter sediminis LT009496
Rhodobacter capsulatus TYGS 2164
-/80
Rhodobacter maris TYGS 23595
Rhodobacter lacus LN835251
Rhodobacter vinaykumarii TYGS 14275
92/97
Pseudorhodobacter sinensis KT985055
Pseudorhodobacter aquaticus KT985057
84/91
Pseudorhodobacter collinsensis KM978076
Pseudorhodobacter psychrotolerans KT163920
Rhodobacter ovatus TYGS 23600
77/84
Rhodobacter johrii TYGS 4827
100/99
Rhodobacter megalophilus TYGS 14335
Rhodobacter sphaeroides X53853
Rhodobacter azotoformans TYGS 6392
100/100
Pseudorhodobacter ponti KX771233
Pseudorhodobacter aquimaris TYGS 5477
83/-
Pseudorhodobacter ferrugineus TYGS 1498
74/94
Pseudorhodobacter wandonensis TYGS 5981
61/-
Pseudorhodobacter antarcticus FJ196030
Rhodobacter blasticus TYGS 19071
Tabrizicola aquatica TYGS 11187
77/-
Tabrizicola fusiformis MF543060
Xinfangfangia soli MG190346
99/99
Falsirhodobacter halotolerans HE662814
Falsirhodobacter deserti KF268394
Gemmobacter megaterium TYGS 14235
Gemmobacter intermedius KM407667
65/-
Gemmobacter nectariphilus TYGS 1595
Gemmobacter straminiformis KX832992
Gemmobacter tilapiae HQ111526
Cereibacter changlensis TYGS 2619
70/-
Gemmobacter aquaticus EU313813
71/-
Gemmobacter fontiphilus FJ906694
90/75
100/100
Gemmobacter caeni TYGS 23162
92/87
75/-
Gemmobacter nanjingensis EU289803
Gemmobacter lanyuensis JN104393
Gemmobacter aquatilis FR733676
100/100
Haematobacter missouriensis TYGS 3704
Haematobacter massiliensis AF452106
72/-
Halodurantibacterium flavum KF112835
Pararhodobacter aggregans TYGS 22920
Rhodobaculum claviforme KM077019
Defluviimonas indica TYGS 5026
Defluviimonas pyrenivorans MF774691
Roseicitreum antarcticum TYGS 5818
98/100
Rhodobaca barguzinensis TYGS 2169
76/-
Rhodobaca bogoriensis AF248638
93/91
89/83
Roseinatronobacter thiooxidans TYGS 2166
100/99
Roseinatronobacter monicus DQ659236
Roseibaca ekhonensis AJ605746
Paracoccus cavernae LN650666
Paracoccus seriniphilus TYGS 23132
-/64
Paracoccus hibiscisoli KX456191
100/100
87/-
Paracoccus marcusii Y12703
92/100
Paracoccus haeundaensis AY189743
Paracoccus carotinifaciens AB006899
Paracoccus aestuarii TYGS 15928
Paracoccus hibisci KX456189
Paracoccus rhizosphaerae JN662389
Paracoccus tibetensis DQ108402
Paracoccus fistulariae GQ260189
Paracoccus homiensis DQ342239
Paracoccus zeaxanthinifaciens TYGS 1639
71/-
Methylarcula marina TYGS 19029
Methylarcula terricola AF030437
Paracoccus saliphilus TYGS 14219
Paracoccus caeni GQ250442
-/80
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Paracoccus aerius KX664462
Paracoccus sediminis TYGS 22229
88/91
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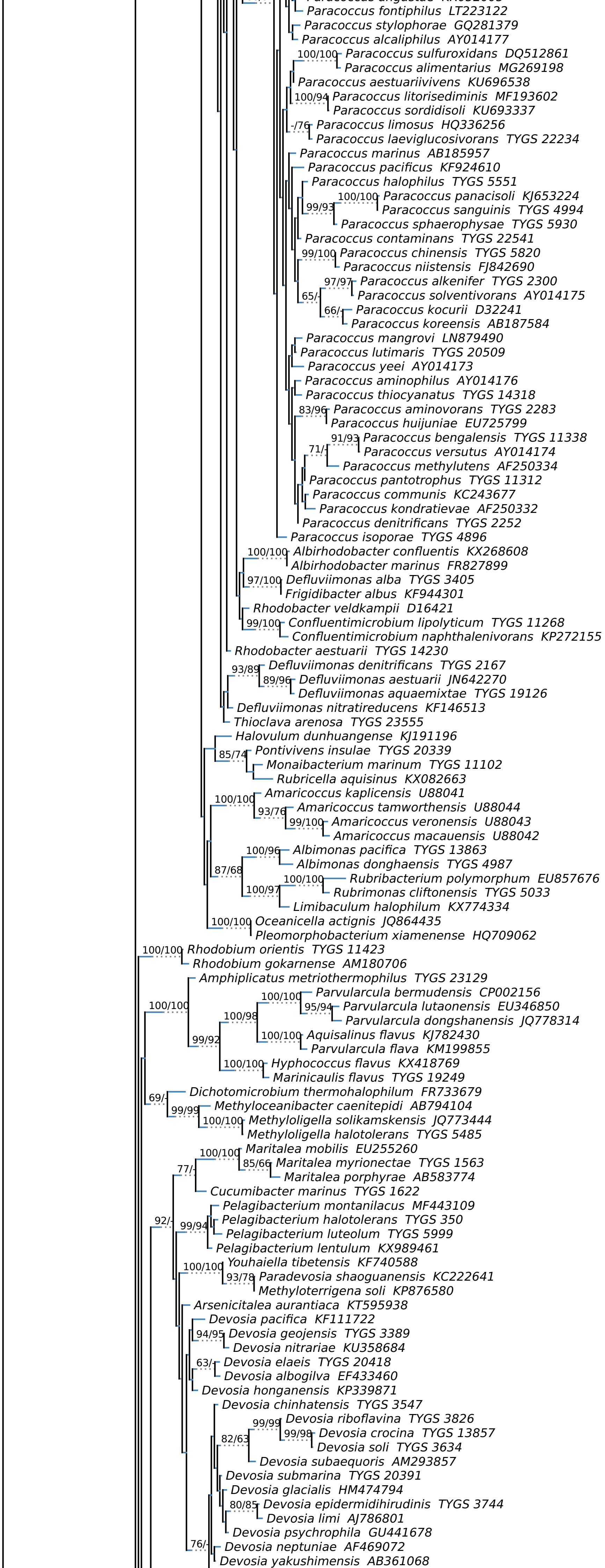
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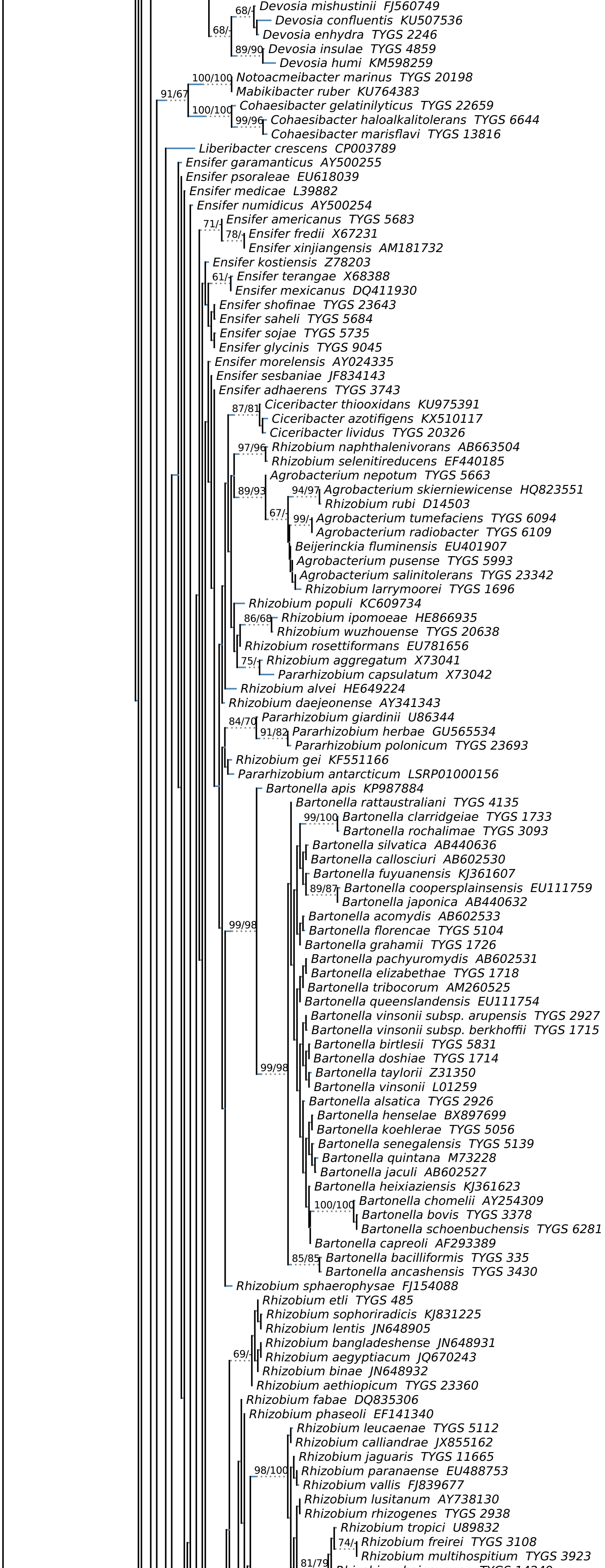
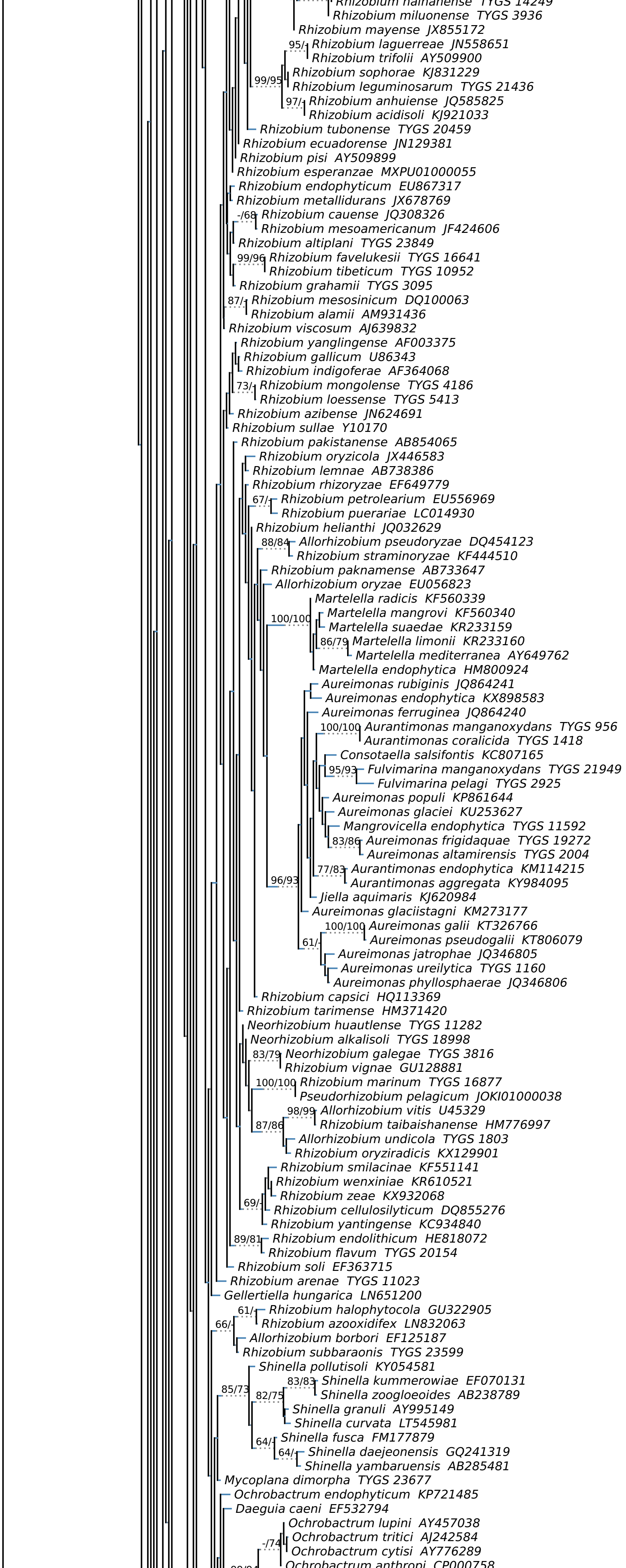
100/100 Paracoccus sulfuroxidans DQ512861
Paracoccus alimentarius MG269198
Paracoccus aestuariivivens KU696538
100/94 Paracoccus litorisediminis MF193602
Paracoccus sordidisoli KU693337
-/76 Paracoccus limosus HQ336256
Paracoccus laeviglucosivorans TYGS 22234
Paracoccus marinus AB185957
Paracoccus pacificus KF924610
Paracoccus halophilus TYGS 5551
100/100 Paracoccus panacisoli KJ653224
99/93 Paracoccus sanguinis TYGS 4994
Paracoccus sphaerophysae TYGS 5930
Paracoccus contaminans TYGS 22541
99/100 Paracoccus chinensis TYGS 5820
Paracoccus niistensis FJ842690
97/97 Paracoccus alkenifer TYGS 2300
65/- Paracoccus solventivorans AY014175
66/- Paracoccus kocurii D32241
Paracoccus koreensis AB187584
Paracoccus mangrovi LN879490
Paracoccus lutimaris TYGS 20509
Paracoccus yeei AY014173
Paracoccus aminophilus AY014176
Paracoccus thiocyanatus TYGS 14318
83/96 Paracoccus aminovorans TYGS 2283
Paracoccus huijuniae EU725799
91/93 Paracoccus bengalensis TYGS 11338
71/- Paracoccus versutus AY014174
Paracoccus methylutens AF250334
Paracoccus pantotrophus TYGS 11312
Paracoccus communis KC243677
Paracoccus kondratievae AF250332
Paracoccus denitrificans TYGS 2252
Paracoccus isoporae TYGS 4896
100/100 Albirhodobacter confluentis KX268608
Albirhodobacter marinus FR827899
97/100 Defluviimonas alba TYGS 3405
Frigidibacter albus KF944301
Rhodobacter veldkampii D16421
99/100 Confluentimicrobium lipolyticum TYGS 11268
Confluentimicrobium naphthalenivorans KP272155
Rhodobacter aestuarii TYGS 14230
93/89 Defluviimonas denitrificans TYGS 2167
89/96 Defluviimonas aestuarii JN642270
Defluviimonas aquaemixtae TYGS 19126
Defluviimonas nitratireducens KF146513
Thioclava arenosa TYGS 23555
Halovulum dunhuangense KJ191196
85/74 Pontivivens insulae TYGS 20339
Monaibacterium marinum TYGS 11102
Rubricella aquisinus KX082663
100/100 Amaricoccus kaplicensis U88041
93/76 Amaricoccus tamworthensis U88044
99/100 Amaricoccus veronensis U88043
Amaricoccus macauensis U88042
100/96 Albimonas pacifica TYGS 13863
Albimonas donghaensis TYGS 4987
87/68
100/100 Rubribacterium polymorphum EU857676
100/97 Rubrimonas cliftonensis TYGS 5033
Limibaculum halophilum KX774334
100/100 Oceanicella actignis JQ864435
Pleomorphobacterium xiamenense HQ709062
100/100 Rhodobium orientis TYGS 11423
Rhodobium gokarnense AM180706
Amphiplicatus metriothermophilus TYGS 23129
100/100 Parvularcula bermudensis CP002156
100/100
95/94 Parvularcula lutaonensis EU346850
100/98 Parvularcula dongshanensis JQ778314
100/100 Aquisalinus flavus KJ782430
99/92 Parvularcula flava KM199855
100/100 Hyphococcus flavus KX418769
Marinicaulis flavus TYGS 19249
Dichotomicrobium thermohalophilum FR733679
69/-
99/99 Methyloceanibacter caenitepidi AB794104
100/100 Methyloligella solikamskensis JQ773444
Methyloligella halotolerans TYGS 5485
100/100 Maritalea mobilis EU255260
85/66 Maritalea myrionectae TYGS 1563
77/- Maritalea porphyrae AB583774
Cucumibacter marinus TYGS 1622
Pelagibacterium montanilacus MF443109
92/- Pelagibacterium halotolerans TYGS 350
99/94 Pelagibacterium luteolum TYGS 5999
Pelagibacterium lentulum KX989461
100/100 Youhaiella tibetensis KF740588
93/78 Paradevosia shaoguanensis KC222641
Methyloterrigena soli KP876580
Arsenicitalea aurantiaca KT595938
Devosia pacifica KF111722
94/95 Devosia geojensis TYGS 3389
Devosia nitrariae KU358684
63/- Devosia elaeis TYGS 20418
Devosia albogilva EF433460
Devosia honganensis KP339871
Devosia chinhatensis TYGS 3547
99/99 Devosia riboflavina TYGS 3826
99/98 Devosia crocina TYGS 13857
82/63 Devosia soli TYGS 3634
Devosia subaequoris AM293857
Devosia submarina TYGS 20391
Devosia glacialis HM474794
80/85 Devosia epidermidihirudinis TYGS 3744
Devosia limi AJ786801
Devosia psychrophila GU441678
76/- Devosia neptuniae AF469072
Devosia yakushimensis AB361068


68/-
Devosia mishustinii FJ560749
Devosia confluentis KU507536
68/-
Devosia enhydra TYGS 2246
89/90
Devosia insulae TYGS 4859
Devosia humi KM598259
100/100
Notoacmeibacter marinus TYGS 20198
91/67
Mabikibacter ruber KU764383
100/100
Cohaesibacter gelatinilyticus TYGS 22659
99/96
Cohaesibacter haloalkalitolerans TYGS 6644
Cohaesibacter marisflavi TYGS 13816
Liberibacter crescens CP003789
Ensifer garamanticus AY500255
Ensifer psoraleae EU618039
Ensifer medicae L39882
Ensifer numidicus AY500254
71/-
Ensifer americanus TYGS 5683
78/-
Ensifer fredii X67231
Ensifer xinjiangensis AM181732
Ensifer kostiensis Z78203
61/-
Ensifer terangae X68388
Ensifer mexicanus DQ411930
Ensifer shofinae TYGS 23643
Ensifer saheli TYGS 5684
Ensifer sojae TYGS 5735
Ensifer glycinis TYGS 9045
Ensifer morelensis AY024335
Ensifer sesbaniae JF834143
Ensifer adhaerens TYGS 3743
87/81
Ciceribacter thiooxidans KU975391
Ciceribacter azotifigens KX510117
Ciceribacter lividus TYGS 20326
97/96
Rhizobium naphthalenivorans AB663504
Rhizobium selenitireducens EF440185
Agrobacterium nepotum TYGS 5663
89/93
94/97
Agrobacterium skierniewicense HQ823551
Rhizobium rubi D14503
67/-
99/-
Agrobacterium tumefaciens TYGS 6094
Agrobacterium radiobacter TYGS 6109
Beijerinckia fluminensis EU401907
Agrobacterium pusense TYGS 5993
Agrobacterium salinitolerans TYGS 23342
Rhizobium larrymoorei TYGS 1696
Rhizobium populi KC609734
86/68
Rhizobium ipomoeae HE866935
Rhizobium wuzhouense TYGS 20638
Rhizobium rosettiformans EU781656
75/-
Rhizobium aggregatum X73041
Pararhizobium capsulatum X73042
Rhizobium alvei HE649224
Rhizobium daejeonense AY341343
84/70
Pararhizobium giardinii U86344
91/82
Pararhizobium herbae GU565534
Pararhizobium polonicum TYGS 23693
Rhizobium gei KF551166
Pararhizobium antarcticum LSRP01000156
Bartonella apis KP987884
Bartonella rattaustraliani TYGS 4135
99/100
Bartonella clarridgeiae TYGS 1733
Bartonella rochalimae TYGS 3093
Bartonella silvatica AB440636
Bartonella callosciuri AB602530
Bartonella fuyuanensis KJ361607
89/87
Bartonella coopersplainsensis EU111759
Bartonella japonica AB440632
Bartonella acomydis AB602533
99/98
Bartonella florencae TYGS 5104
Bartonella grahamii TYGS 1726
Bartonella pachyuromydis AB602531
Bartonella elizabethae TYGS 1718
Bartonella tribocorum AM260525
Bartonella queenslandensis EU111754
Bartonella vinsonii subsp. arupensis TYGS 2927
Bartonella vinsonii subsp. berkhoffii TYGS 1715
Bartonella birtlesii TYGS 5831
Bartonella doshiae TYGS 1714
99/98
Bartonella taylorii Z31350
Bartonella vinsonii L01259
Bartonella alsatica TYGS 2926
Bartonella henselae BX897699
Bartonella koehlerae TYGS 5056
Bartonella senegalensis TYGS 5139
Bartonella quintana M73228
Bartonella jaculi AB602527
Bartonella heixiaziensis KJ361623
100/100
Bartonella chomelii AY254309
Bartonella bovis TYGS 3378
Bartonella schoenbuchensis TYGS 6281
Bartonella capreoli AF293389
85/85
Bartonella bacilliformis TYGS 335
Bartonella ancashensis TYGS 3430
Rhizobium sphaerophysae FJ154088
Rhizobium etli TYGS 485
Rhizobium sophoriradicis KJ831225
Rhizobium lentis JN648905
69/-
Rhizobium bangladeshense JN648931
Rhizobium aegyptiacum JQ670243
Rhizobium binae JN648932
Rhizobium aethiopicum TYGS 23360
Rhizobium fabae DQ835306
Rhizobium phaseoli EF141340
Rhizobium leucaenae TYGS 5112
Rhizobium calliandrae JX855162
Rhizobium jaguaris TYGS 11665
98/100
Rhizobium paranaense EU488753
Rhizobium vallis FJ839677
Rhizobium lusitanum AY738130
Rhizobium rhizogenes TYGS 2938
Rhizobium tropici U89832
74/-
Rhizobium freirei TYGS 3108
Rhizobium multihospitium TYGS 3923
81/79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Rhizobium miluonense TYGS 3936
Rhizobium mayense JX855172
95/-
Rhizobium laguerreae JN558651
Rhizobium trifolii AY509900
99/95
Rhizobium sophorae KJ831229
Rhizobium leguminosarum TYGS 21436
97/-
Rhizobium anhuiense JQ585825
Rhizobium acidisoli KJ921033
Rhizobium tubonense TYGS 20459
Rhizobium ecuadorense JN129381
Rhizobium pisi AY509899
Rhizobium esperanzae MXPU01000055
Rhizobium endophyticum EU867317
Rhizobium metallidurans JX678769
-/68
Rhizobium cauense JQ308326
Rhizobium mesoamericanum JF424606
Rhizobium altiplani TYGS 23849
99/96
Rhizobium favelukesii TYGS 16641
Rhizobium tibeticum TYGS 10952
Rhizobium grahamii TYGS 3095
87/-
Rhizobium mesosinicum DQ100063
Rhizobium alamii AM931436
Rhizobium viscosum AJ639832
Rhizobium yanglingense AF003375
Rhizobium gallicum U86343
Rhizobium indigoferae AF364068
73/-
Rhizobium mongolense TYGS 4186
Rhizobium loessense TYGS 5413
Rhizobium azibense JN624691
Rhizobium sullae Y10170
Rhizobium pakistanense AB854065
Rhizobium oryzicola JX446583
Rhizobium lemnae AB738386
Rhizobium rhizoryzae EF649779
67/-
Rhizobium petrolearium EU556969
Rhizobium puerariae LC014930
Rhizobium helianthi JQ032629
88/84
Allorhizobium pseudoryzae DQ454123
Rhizobium straminoryzae KF444510
Rhizobium paknamense AB733647
Allorhizobium oryzae EU056823
Martelella radicis KF560339
100/100
Martelella mangrovi KF560340
Martelella suaedae KR233159
86/79
Martelella limonii KR233160
Martelella mediterranea AY649762
Martelella endophytica HM800924
Aureimonas rubiginis JQ864241
Aureimonas endophytica KX898583
Aureimonas ferruginea JQ864240
100/100
Aurantimonas manganoxydans TYGS 956
Aurantimonas coralicida TYGS 1418
Consotaella salsifontis KC807165
95/93
Fulvimarina manganoxydans TYGS 21949
Fulvimarina pelagi TYGS 2925
Aureimonas populi KP861644
Aureimonas glaciei KU253627
Mangrovicella endophytica TYGS 11592
83/86
Aureimonas frigidaquae TYGS 19272
Aureimonas altamirensis TYGS 2004
77/83
Aurantimonas endophytica KM114215
96/93
Aurantimonas aggregata KY984095
Jiella aquimaris KJ620984
Aureimonas glaciistagni KM273177
100/100
Aureimonas galii KT326766
61/-
Aureimonas pseudogalii KT806079
Aureimonas jatrophae JQ346805
Aureimonas ureilytica TYGS 1160
Aureimonas phyllosphaerae JQ346806
Rhizobium capsici HQ113369
Rhizobium tarimense HM371420
Neorhizobium huautlense TYGS 11282
Neorhizobium alkalisoli TYGS 18998
83/79
Neorhizobium galegae TYGS 3816
Rhizobium vignae GU128881
100/100
Rhizobium marinum TYGS 16877
Pseudorhizobium pelagicum JOKI01000038
98/99
Allorhizobium vitis U45329
87/86
Rhizobium taibaishanense HM776997
Allorhizobium undicola TYGS 1803
Rhizobium oryziradicis KX129901
Rhizobium smilacinae KF551141
Rhizobium wenxiniae KR610521
69/-
Rhizobium zeae KX932068
Rhizobium cellulosilyticum DQ855276
Rhizobium yantingense KC934840
89/81
Rhizobium endolithicum HE818072
Rhizobium flavum TYGS 20154
Rhizobium soli EF363715
Rhizobium arenae TYGS 11023
Gellertiella hungarica LN651200
61/-
Rhizobium halophytocola GU322905
66/-
Rhizobium azooxidifex LN832063
Allorhizobium borbori EF125187
Rhizobium subbaraonis TYGS 23599
Shinella pollutisoli KY054581
83/83
Shinella kummerowiae EF070131
85/73
Shinella zoogloeoides AB238789
82/75
Shinella granuli AY995149
Shinella curvata LT545981
64/-
Shinella fusca FM177879
64/-
Shinella daejeonensis GQ241319
Shinella yambaruensis AB285481
Mycoplana dimorpha TYGS 23677
Ochrobactrum endophyticum KP721485
Daeguia caeni EF532794
Ochrobactrum lupini AY457038
Ochrobactrum tritici AJ242584
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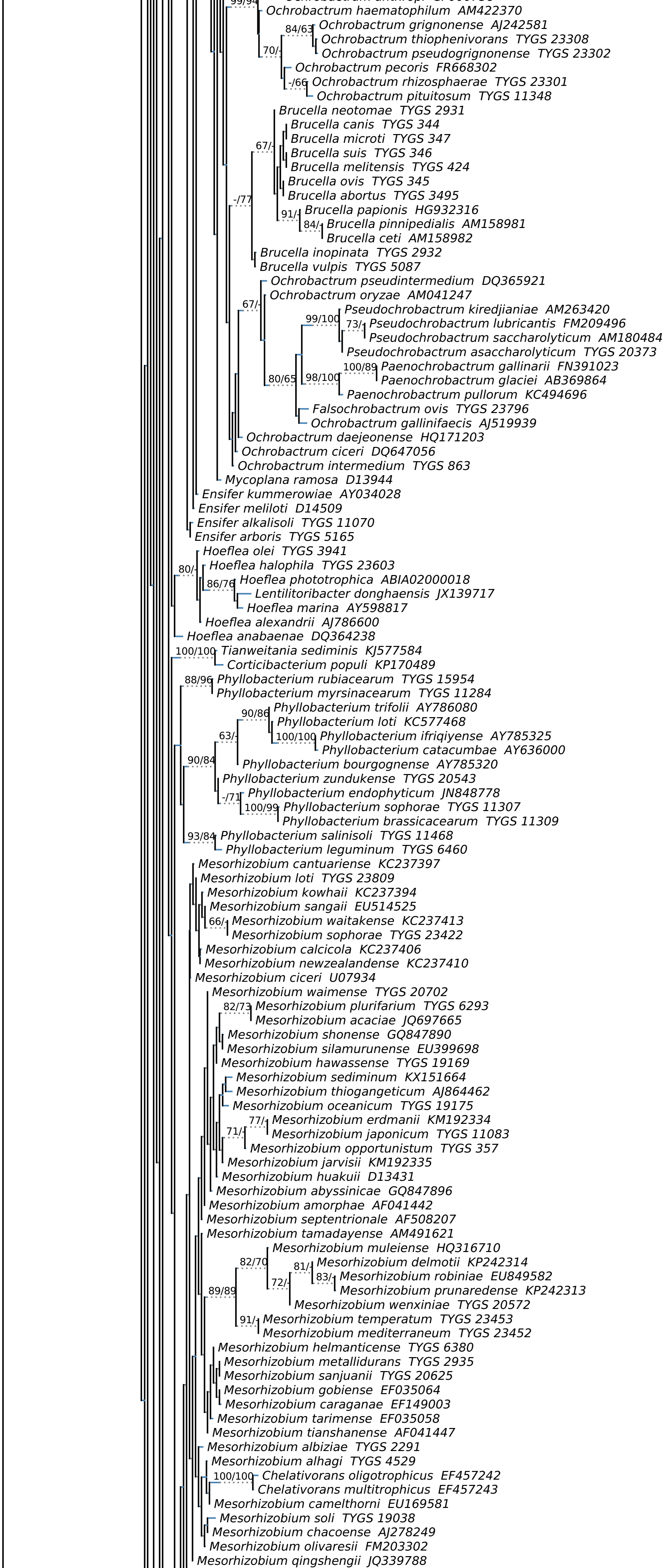
Ochrobactrum cytisi AY776289
Ochrobactrum anthropi CP000758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Ochrobactrum pseudogrignonense TYGS 23302
Ochrobactrum pecoris FR668302
-/66
Ochrobactrum rhizosphaerae TYGS 23301
Ochrobactrum pituitosum TYGS 11348
Brucella neotomae TYGS 2931
Brucella canis TYGS 344
Brucella microti TYGS 347
67/-
Brucella suis TYGS 346
Brucella melitensis TYGS 424
Brucella ovis TYGS 345
-/77
Brucella abortus TYGS 3495
91/-
Brucella papionis HG932316
84/-
Brucella pinnipedialis AM158981
Brucella ceti AM158982
Brucella inopinata TYGS 2932
Brucella vulpis TYGS 5087
Ochrobactrum pseudintermedium DQ365921
67/-
Ochrobactrum oryzae AM041247
99/100
Pseudochrobactrum kiredjianiae AM263420
73/-
Pseudochrobactrum lubricantis FM209496
Pseudochrobactrum saccharolyticum AM180484
Pseudochrobactrum asaccharolyticum TYGS 20373
100/89
Paenochrobactrum gallinarii FN391023
80/65
98/100
Paenochrobactrum glaciei AB369864
Paenochrobactrum pullorum KC494696
Falsochrobactrum ovis TYGS 23796
Ochrobactrum gallinifaecis AJ519939
Ochrobactrum daejeonense HQ171203
Ochrobactrum ciceri DQ647056
Ochrobactrum intermedium TYGS 863
Mycoplana ramosa D13944
Ensifer kummerowiae AY034028
Ensifer meliloti D14509
Ensifer alkalisoli TYGS 11070
Ensifer arboris TYGS 5165
Hoeflea olei TYGS 3941
80/-
Hoeflea halophila TYGS 23603
86/76
Hoeflea phototrophica ABIA02000018
Lentilitoribacter donghaensis JX139717
Hoeflea marina AY598817
Hoeflea alexandrii AJ786600
Hoeflea anabaenae DQ364238
100/100
Tianweitania sediminis KJ577584
Corticibacterium populi KP170489
88/96
Phyllobacterium rubiacearum TYGS 15954
Phyllobacterium myrsinacearum TYGS 11284
90/86
Phyllobacterium trifolii AY786080
Phyllobacterium loti KC577468
63/-
100/100
Phyllobacterium ifriqiyense AY785325
Phyllobacterium catacumbae AY636000
90/84
Phyllobacterium bourgognense AY785320
Phyllobacterium zundukense TYGS 20543
-/71
Phyllobacterium endophyticum JN848778
100/99
Phyllobacterium sophorae TYGS 11307
Phyllobacterium brassicacearum TYGS 11309
93/84
Phyllobacterium salinisoli TYGS 11468
Phyllobacterium leguminum TYGS 6460
Mesorhizobium cantuariense KC237397
Mesorhizobium loti TYGS 23809
Mesorhizobium kowhaii KC237394
Mesorhizobium sangaii EU514525
66/-
Mesorhizobium waitakense KC237413
Mesorhizobium sophorae TYGS 23422
Mesorhizobium calcicola KC237406
Mesorhizobium newzealandense KC237410
Mesorhizobium ciceri U07934
Mesorhizobium waimense TYGS 20702
82/73
Mesorhizobium plurifarium TYGS 6293
Mesorhizobium acaciae JQ697665
Mesorhizobium shonense GQ847890
Mesorhizobium silamurunense EU399698
Mesorhizobium hawassense TYGS 19169
Mesorhizobium sediminum KX151664
Mesorhizobium thiogangeticum AJ864462
Mesorhizobium oceanicum TYGS 19175
77/-
Mesorhizobium erdmanii KM192334
71/-
Mesorhizobium japonicum TYGS 11083
Mesorhizobium opportunistum TYGS 357
Mesorhizobium jarvisii KM192335
Mesorhizobium huakuii D13431
Mesorhizobium abyssinicae GQ847896
Mesorhizobium amorphae AF041442
Mesorhizobium septentrionale AF508207
Mesorhizobium tamadayense AM491621
Mesorhizobium muleiense HQ316710
82/70
81/-
Mesorhizobium delmotii KP242314
83/-
Mesorhizobium robiniae EU849582
72/-
Mesorhizobium prunaredense KP242313
89/89
Mesorhizobium wenxiniae TYGS 20572
91/-
Mesorhizobium temperatum TYGS 23453
Mesorhizobium mediterraneum TYGS 23452
Mesorhizobium helmanticense TYGS 6380
Mesorhizobium metallidurans TYGS 2935
Mesorhizobium sanjuanii TYGS 20625
Mesorhizobium gobiense EF035064
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Mesorhizobium tianshanense AF041447
Mesorhizobium albiziae TYGS 2291
Mesorhizobium alhagi TYGS 4529
100/100
Chelativorans oligotrophicus EF457242
Chelativorans multitrophicus EF457243
Mesorhizobium camelthorni EU169581
Mesorhizobium soli TYGS 19038
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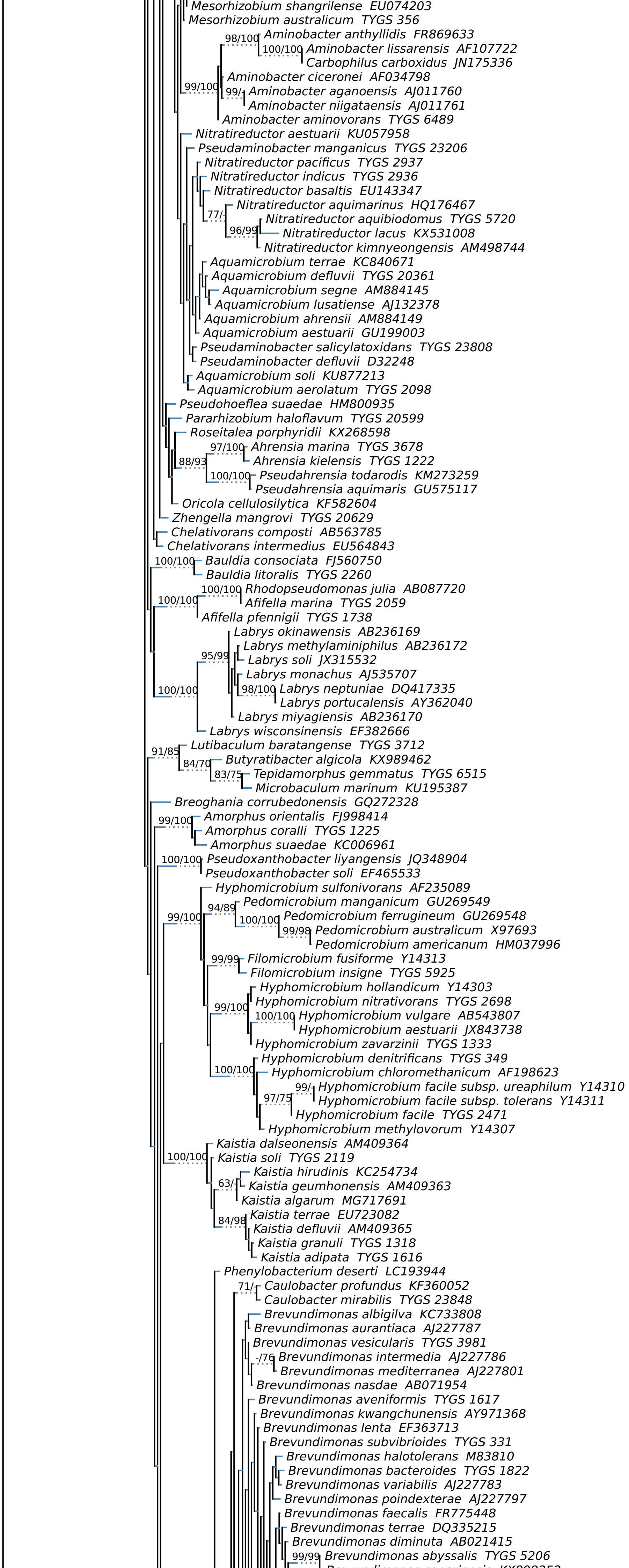
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100/100
Aminobacter lissarensis AF107722
Carbophilus carboxidus JN175336
Aminobacter ciceronei AF034798
99/100
99/-
Aminobacter aganoensis AJ011760
Aminobacter niigataensis AJ011761
Aminobacter aminovorans TYGS 6489
Nitratireductor aestuarii KU057958
Pseudaminobacter manganicus TYGS 23206
Nitratireductor pacificus TYGS 2937
Nitratireductor indicus TYGS 2936
Nitratireductor basaltis EU143347
Nitratireductor aquimarinus HQ176467
77/-
Nitratireductor aquibiodomus TYGS 5720
96/99
Nitratireductor lacus KX531008
Nitratireductor kimnyeongensis AM498744
Aquamicrobium terrae KC840671
Aquamicrobium defluvii TYGS 20361
Aquamicrobium segne AM884145
Aquamicrobium lusatiense AJ132378
Aquamicrobium ahrensii AM884149
Aquamicrobium aestuarii GU199003
Pseudaminobacter salicylatoxidans TYGS 23808
Pseudaminobacter defluvii D32248
Aquamicrobium soli KU877213
Aquamicrobium aerolatum TYGS 2098
Pseudohoeflea suaedae HM800935
Pararhizobium haloflavum TYGS 20599
Roseitalea porphyridii KX268598
97/100
Ahrensia marina TYGS 3678
88/93
Ahrensia kielensis TYGS 1222
100/100
Pseudahrensia todarodis KM273259
Pseudahrensia aquimaris GU575117
Oricola cellulosilytica KF582604
Zhengella mangrovi TYGS 20629
Chelativorans composti AB563785
Chelativorans intermedius EU564843
100/100
Bauldia consociata FJ560750
Bauldia litoralis TYGS 2260
100/100
Rhodopseudomonas julia AB087720
100/100
Afifella marina TYGS 2059
Afifella pfennigii TYGS 1738
Labrys okinawensis AB236169
Labrys methylaminiphilus AB236172
95/99
Labrys soli JX315532
Labrys monachus AJ535707
98/100
Labrys neptuniae DQ417335
100/100
Labrys portucalensis AY362040
Labrys miyagiensis AB236170
Labrys wisconsinensis EF382666
Lutibaculum baratangense TYGS 3712
91/85
Butyratibacter algicola KX989462
84/70
83/75
Tepidamorphus gemmatus TYGS 6515
Microbaculum marinum KU195387
Breoghania corrubedonensis GQ272328
99/100
Amorphus orientalis FJ998414
Amorphus coralli TYGS 1225
Amorphus suaedae KC006961
100/100
Pseudoxanthobacter liyangensis JQ348904
Pseudoxanthobacter soli EF465533
Hyphomicrobium sulfonivorans AF235089
94/89
Pedomicrobium manganicum GU269549
99/100
100/100
Pedomicrobium ferrugineum GU269548
99/98
Pedomicrobium australicum X97693
Pedomicrobium americanum HM037996
99/99
Filomicrobium fusiforme Y14313
Filomicrobium insigne TYGS 5925
Hyphomicrobium hollandicum Y14303
99/100
Hyphomicrobium nitrativorans TYGS 2698
100/100
Hyphomicrobium vulgare AB543807
Hyphomicrobium aestuarii JX843738
Hyphomicrobium zavarzinii TYGS 1333
100/100
Hyphomicrobium denitrificans TYGS 349
Hyphomicrobium chloromethanicum AF198623
99/-
Hyphomicrobium facile subsp. ureaphilum Y14310
97/75
Hyphomicrobium facile subsp. tolerans Y14311
Hyphomicrobium facile TYGS 2471
Hyphomicrobium methylovorum Y14307
Kaistia dalseonensis AM409364
100/100
Kaistia soli TYGS 2119
Kaistia hirudinis KC254734
63/-
Kaistia geumhonensis AM409363
Kaistia algarum MG717691
Kaistia terrae EU723082
84/98
Kaistia defluvii AM409365
Kaistia granuli TYGS 1318
Kaistia adipata TYGS 1616
Phenylobacterium deserti LC193944
71/-
Caulobacter profundus KF360052
Caulobacter mirabilis TYGS 23848
Brevundimonas albigilva KC733808
Brevundimonas aurantiaca AJ227787
Brevundimonas vesicularis TYGS 3981
-/76
Brevundimonas intermedia AJ227786
Brevundimonas mediterranea AJ227801
Brevundimonas nasdae AB071954
Brevundimonas aveniformis TYGS 1617
Brevundimonas kwangchunensis AY971368
Brevundimonas lenta EF363713
Brevundimonas subvibrioides TYGS 331
Brevundimonas halotolerans M83810
Brevundimonas bacteroides TYGS 1822
Brevundimonas variabilis AJ227783
Brevundimonas poindexterae AJ227797
Brevundimonas faecalis FR775448
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99/99
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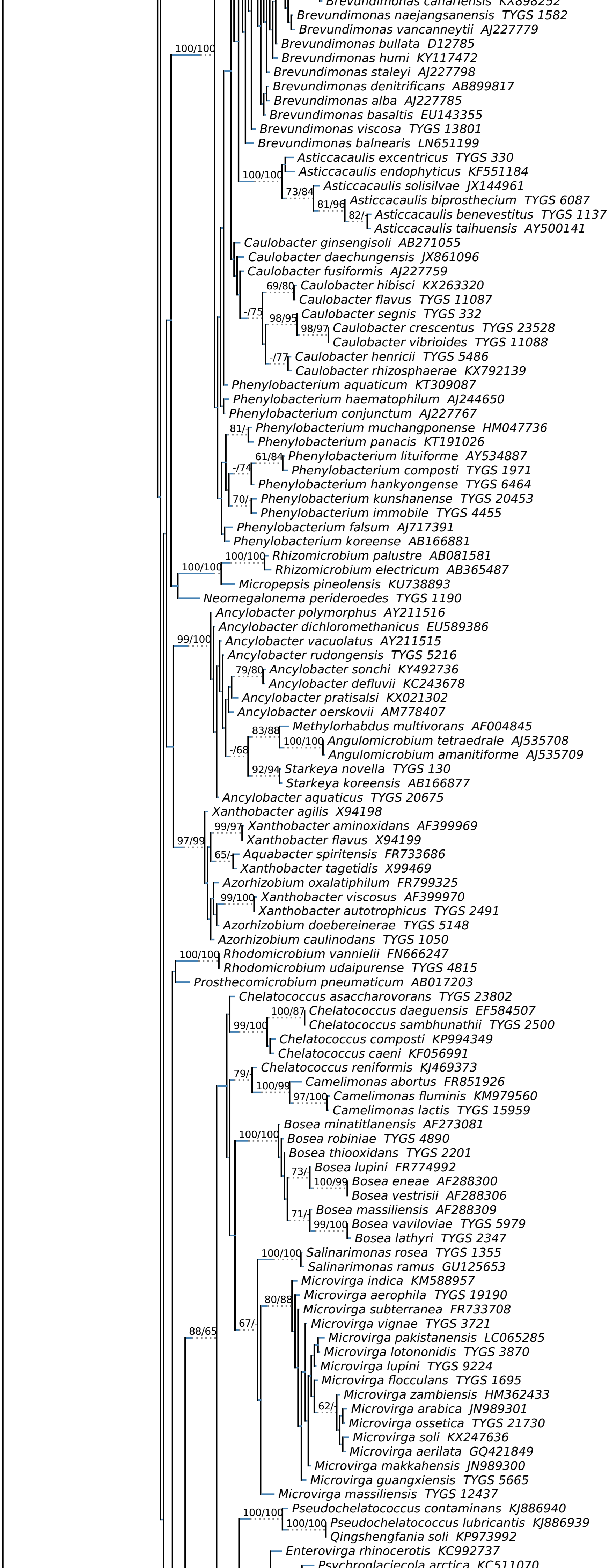
Brevundimonas canariensis KX898352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Brevundimonas humi KY117472
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Brevundimonas denitrificans AB899817
Brevundimonas alba AJ227785
Brevundimonas basaltis EU143355
Brevundimonas viscosa TYGS 13801
Brevundimonas balnearis LN651199
Asticcacaulis excentricus TYGS 330
100/100
Asticcacaulis endophyticus KF551184
73/84
Asticcacaulis solisilvae JX144961
81/96
Asticcacaulis biprosthecium TYGS 6087
82/-
Asticcacaulis benevestitus TYGS 1137
Asticcacaulis taihuensis AY500141
Caulobacter ginsengisoli AB271055
Caulobacter daechungensis JX861096
Caulobacter fusiformis AJ227759
69/80
Caulobacter hibisci KX263320
Caulobacter flavus TYGS 11087
-/75
98/95
Caulobacter segnis TYGS 332
98/97
Caulobacter crescentus TYGS 23528
Caulobacter vibrioides TYGS 11088
-/77
Caulobacter henricii TYGS 5486
Caulobacter rhizosphaerae KX792139
Phenylobacterium aquaticum KT309087
Phenylobacterium haematophilum AJ244650
Phenylobacterium conjunctum AJ227767
81/-
Phenylobacterium muchangponense HM047736
Phenylobacterium panacis KT191026
61/84
Phenylobacterium lituiforme AY534887
-/74
Phenylobacterium composti TYGS 1971
Phenylobacterium hankyongense TYGS 6464
70/-
Phenylobacterium kunshanense TYGS 20453
Phenylobacterium immobile TYGS 4455
Phenylobacterium falsum AJ717391
Phenylobacterium koreense AB166881
100/100
Rhizomicrobium palustre AB081581
100/100
Rhizomicrobium electricum AB365487
Micropepsis pineolensis KU738893
Neomegalonema perideroedes TYGS 1190
Ancylobacter polymorphus AY211516
Ancylobacter dichloromethanicus EU589386
99/100
Ancylobacter vacuolatus AY211515
Ancylobacter rudongensis TYGS 5216
79/80
Ancylobacter sonchi KY492736
Ancylobacter defluvii KC243678
Ancylobacter pratisalsi KX021302
Ancylobacter oerskovii AM778407
83/88
Methylorhabdus multivorans AF004845
100/100
Angulomicrobium tetraedrale AJ535708
-/68
Angulomicrobium amanitiforme AJ535709
92/94
Starkeya novella TYGS 130
Starkeya koreensis AB166877
Ancylobacter aquaticus TYGS 20675
Xanthobacter agilis X94198
99/97
Xanthobacter aminoxidans AF399969
97/99
Xanthobacter flavus X94199
65/-
Aquabacter spiritensis FR733686
Xanthobacter tagetidis X99469
Azorhizobium oxalatiphilum FR799325
99/100
Xanthobacter viscosus AF399970
Xanthobacter autotrophicus TYGS 2491
Azorhizobium doebereinerae TYGS 5148
Azorhizobium caulinodans TYGS 1050
100/100
Rhodomicrobium vannielii FN666247
Rhodomicrobium udaipurense TYGS 4815
Prosthecomicrobium pneumaticum AB017203
Chelatococcus asaccharovorans TYGS 23802
100/87
Chelatococcus daeguensis EF584507
99/100
Chelatococcus sambhunathii TYGS 2500
Chelatococcus composti KP994349
Chelatococcus caeni KF056991
79/-
Chelatococcus reniformis KJ469373
100/99
Camelimonas abortus FR851926
97/100
Camelimonas fluminis KM979560
Camelimonas lactis TYGS 15959
Bosea minatitlanensis AF273081
100/100
Bosea robiniae TYGS 4890
Bosea thiooxidans TYGS 2201
73/-
Bosea lupini FR774992
100/99
Bosea eneae AF288300
Bosea vestrisii AF288306
71/-
Bosea massiliensis AF288309
99/100
Bosea vaviloviae TYGS 5979
Bosea lathyri TYGS 2347
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Salinarimonas rosea TYGS 1355
Salinarimonas ramus GU125653
Microvirga indica KM588957
80/88
Microvirga aerophila TYGS 19190
Microvirga subterranea FR733708
67/-
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88/65
Microvirga pakistanensis LC065285
Microvirga lotononidis TYGS 3870
Microvirga lupini TYGS 9224
Microvirga flocculans TYGS 1695
Microvirga zambiensis HM362433
62/-
Microvirga arabica JN989301
Microvirga ossetica TYGS 21730
Microvirga soli KX247636
Microvirga aerilata GQ421849
Microvirga makkahensis JN989300
Microvirga guangxiensis TYGS 5665
Microvirga massiliensis TYGS 12437
100/100
Pseudochelatococcus contaminans KJ886940
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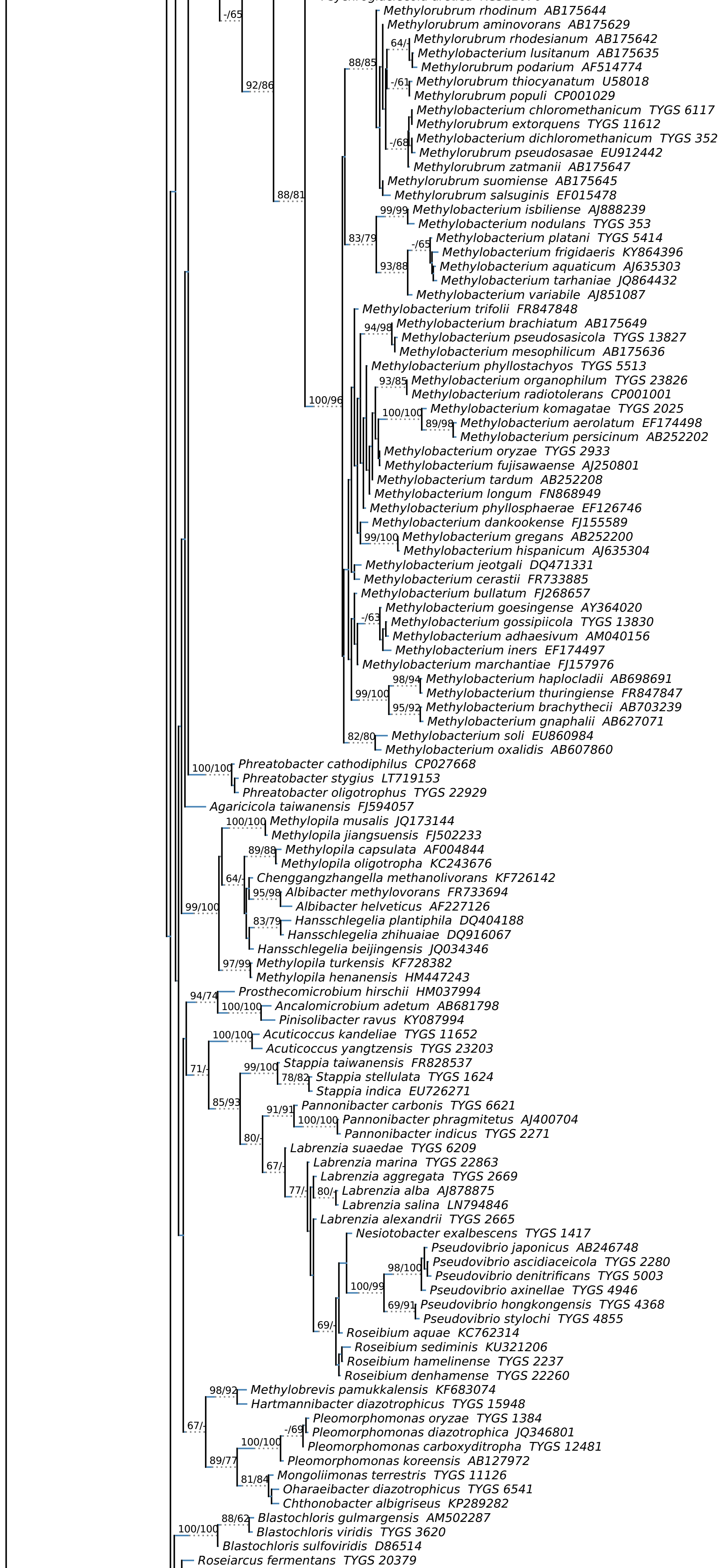
Qingshengfania soli KP973992
Enterovirga rhinocerotis KC992737
Psychroglaciecola arctica KC511070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Methylorubrum rhodesianum AB175642
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88/85
Methylorubrum podarium AF514774
92/86
-/61
Methylorubrum thiocyanatum U58018
Methylorubrum populi CP001029
Methylobacterium chloromethanicum TYGS 6117
Methylorubrum extorquens TYGS 11612
-/68
Methylobacterium dichloromethanicum TYGS 352
Methylorubrum pseudosasae EU912442
Methylorubrum zatmanii AB175647
Methylorubrum suomiense AB175645
88/81
Methylorubrum salsuginis EF015478
99/99
Methylobacterium isbiliense AJ888239
Methylobacterium nodulans TYGS 353
83/79
-/65
Methylobacterium platani TYGS 5414
Methylobacterium frigidaeris KY864396
93/88
Methylobacterium aquaticum AJ635303
Methylobacterium tarhaniae JQ864432
Methylobacterium variabile AJ851087
Methylobacterium trifolii FR847848
94/98
Methylobacterium brachiatum AB175649
Methylobacterium pseudosasicola TYGS 13827
Methylobacterium mesophilicum AB175636
Methylobacterium phyllostachyos TYGS 5513
93/85
Methylobacterium organophilum TYGS 23826
100/96
Methylobacterium radiotolerans CP001001
100/100
Methylobacterium komagatae TYGS 2025
89/98
Methylobacterium aerolatum EF174498
Methylobacterium persicinum AB252202
Methylobacterium oryzae TYGS 2933
Methylobacterium fujisawaense AJ250801
Methylobacterium tardum AB252208
Methylobacterium longum FN868949
Methylobacterium phyllosphaerae EF126746
Methylobacterium dankookense FJ155589
99/100
Methylobacterium gregans AB252200
Methylobacterium hispanicum AJ635304
Methylobacterium jeotgali DQ471331
Methylobacterium cerastii FR733885
Methylobacterium bullatum FJ268657
Methylobacterium goesingense AY364020
-/63
Methylobacterium gossipiicola TYGS 13830
Methylobacterium adhaesivum AM040156
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Methylobacterium marchantiae FJ157976
98/94
Methylobacterium haplocladii AB698691
99/100
Methylobacterium thuringiense FR847847
95/92
Methylobacterium brachythecii AB703239
Methylobacterium gnaphalii AB627071
82/80
Methylobacterium soli EU860984
Methylobacterium oxalidis AB607860
100/100
Phreatobacter cathodiphilus CP027668
Phreatobacter stygius LT719153
Phreatobacter oligotrophus TYGS 22929
Agaricicola taiwanensis FJ594057
100/100
Methylopila musalis JQ173144
Methylopila jiangsuensis FJ502233
89/88
Methylopila capsulata AF004844
Methylopila oligotropha KC243676
64/-
Chenggangzhangella methanolivorans KF726142
95/98
Albibacter methylovorans FR733694
99/100
Albibacter helveticus AF227126
83/79
Hansschlegelia plantiphila DQ404188
Hansschlegelia zhihuaiae DQ916067
Hansschlegelia beijingensis JQ034346
97/99
Methylopila turkensis KF728382
Methylopila henanensis HM447243
94/74
Prosthecomicrobium hirschii HM037994
100/100
Ancalomicrobium adetum AB681798
Pinisolibacter ravus KY087994
100/100
Acuticoccus kandeliae TYGS 11652
Acuticoccus yangtzensis TYGS 23203
99/100
Stappia taiwanensis FR828537
71/-
78/82
Stappia stellulata TYGS 1624
Stappia indica EU726271
85/93
91/91
Pannonibacter carbonis TYGS 6621
100/100
Pannonibacter phragmitetus AJ400704
Pannonibacter indicus TYGS 2271
80/-
Labrenzia suaedae TYGS 6209
67/-
Labrenzia marina TYGS 22863
Labrenzia aggregata TYGS 2669
77/-
80/-
Labrenzia alba AJ878875
Labrenzia salina LN794846
Labrenzia alexandrii TYGS 2665
Nesiotobacter exalbescens TYGS 1417
Pseudovibrio japonicus AB246748
98/100
Pseudovibrio ascidiaceicola TYGS 2280
Pseudovibrio denitrificans TYGS 5003
100/99
Pseudovibrio axinellae TYGS 4946
69/91
Pseudovibrio hongkongensis TYGS 4368
Pseudovibrio stylochi TYGS 4855
69/-
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Roseibium sediminis KU321206
Roseibium hamelinense TYGS 2237
Roseibium denhamense TYGS 22260
98/92
Methylobrevis pamukkalensis KF683074
Hartmannibacter diazotrophicus TYGS 15948
67/-
-/69
Pleomorphomonas oryzae TYGS 1384
Pleomorphomonas diazotrophica JQ346801
100/100
Pleomorphomonas carboxyditropha TYGS 12481
Pleomorphomonas koreensis AB127972
89/77
81/84
Mongoliimonas terrestris TYGS 11126
Oharaeibacter diazotrophicus TYGS 6541
Chthonobacter albigriseus KP289282
88/62
Blastochloris gulmargensis AM502287
100/100
Blastochloris viridis TYGS 3620
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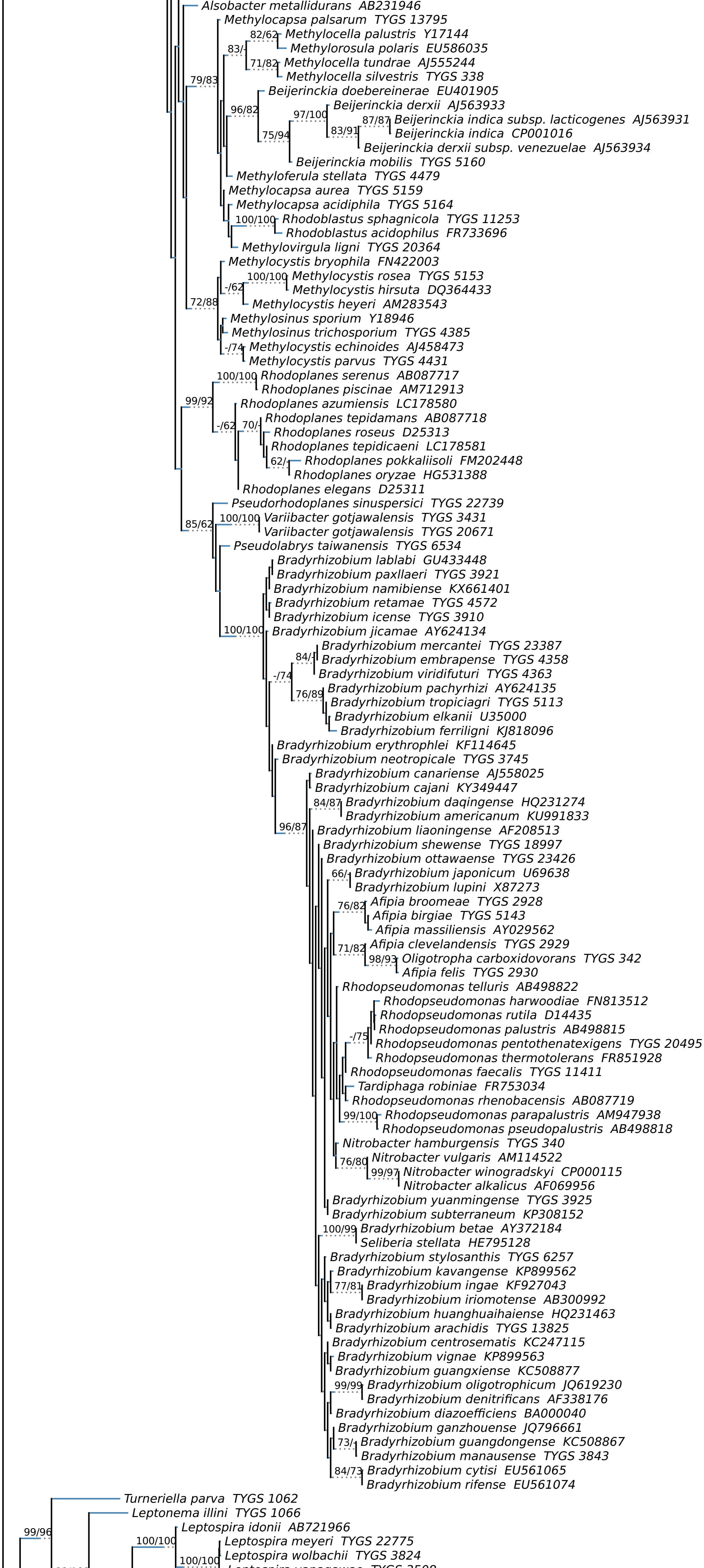
Roseiarcus fermentans TYGS 20379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79/83
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97/100
96/82
87/87
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75/94
Beijerinckia derxii subsp. venezuelae AJ563934
Beijerinckia mobilis TYGS 5160
Methyloferula stellata TYGS 4479
Methylocapsa aurea TYGS 5159
Methylocapsa acidiphila TYGS 5164
100/100
Rhodoblastus sphagnicola TYGS 11253
Rhodoblastus acidophilus FR733696
Methylovirgula ligni TYGS 20364
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Methylocystis rosea TYGS 5153
-/62
Methylocystis hirsuta DQ364433
72/88
Methylocystis heyeri AM283543
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Methylosinus trichosporium TYGS 4385
-/74
Methylocystis echinoides AJ458473
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Rhodoplanes piscinae AM712913
99/92
Rhodoplanes azumiensis LC178580
Rhodoplanes tepidamans AB087718
-/62
70/-
Rhodoplanes roseus D25313
Rhodoplanes tepidicaeni LC178581
62/-
Rhodoplanes pokkaliisoli FM202448
Rhodoplanes oryzae HG531388
Rhodoplanes elegans D25311
Pseudorhodoplanes sinuspersici TYGS 22739
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85/62
Variibacter gotjawalensis TYGS 20671
Pseudolabrys taiwanensis TYGS 6534
Bradyrhizobium lablabi GU433448
Bradyrhizobium paxllaeri TYGS 3921
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Bradyrhizobium retamae TYGS 4572
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84/-
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-/74
Bradyrhizobium viridifuturi TYGS 4363
Bradyrhizobium pachyrhizi AY624135
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96/87
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Bradyrhizobium ottawaense TYGS 23426
66/-
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71/82
98/93
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Rhodopseudomonas rutila D14435
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77/81
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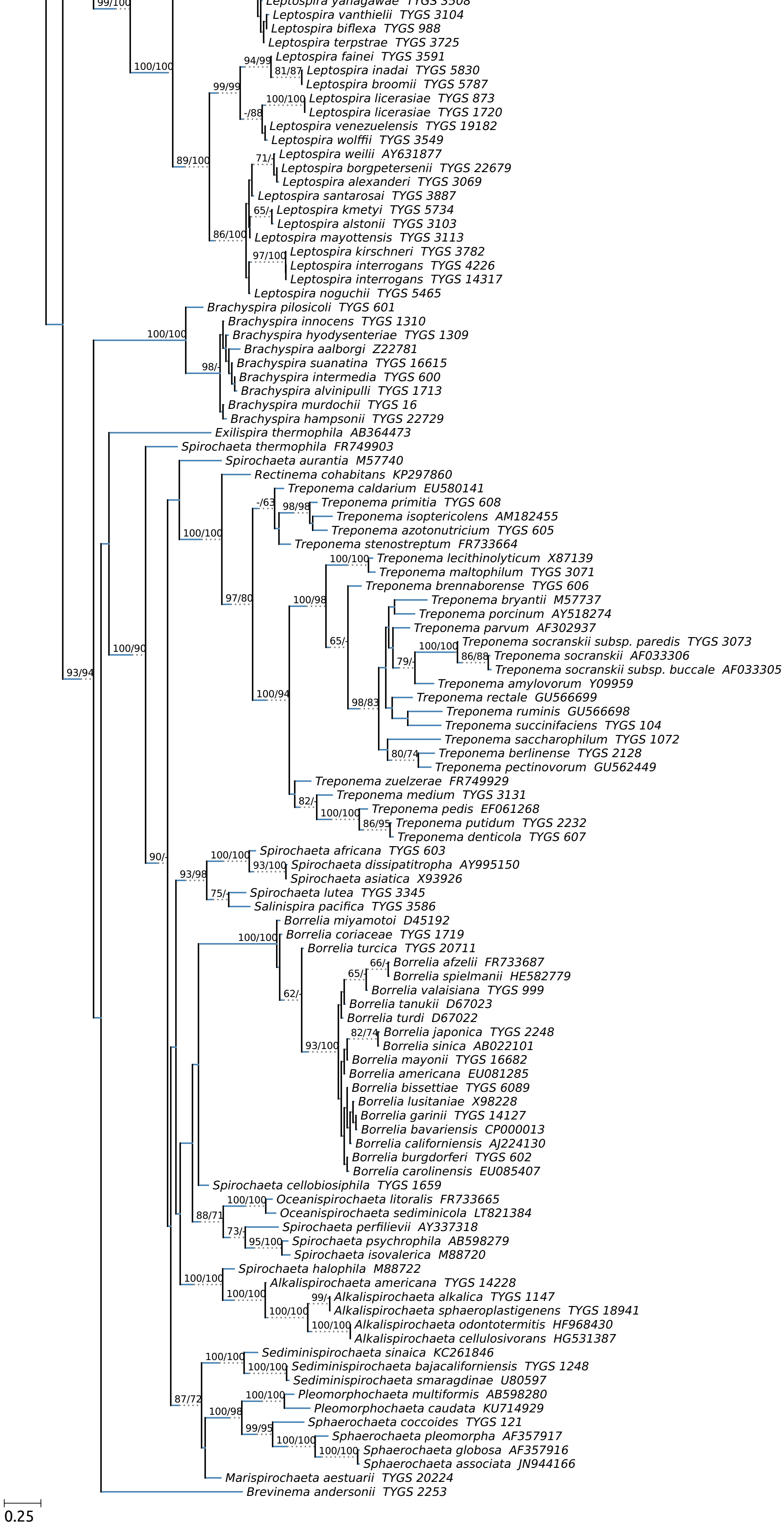
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Leptospira fainei TYGS 3591
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81/87
Leptospira inadai TYGS 5830
Leptospira broomii TYGS 5787
99/99
100/100
Leptospira licerasiae TYGS 873
Leptospira licerasiae TYGS 1720
-/88
Leptospira venezuelensis TYGS 19182
Leptospira wolffii TYGS 3549
71/-
Leptospira weilii AY631877
89/100
Leptospira borgpetersenii TYGS 22679
Leptospira alexanderi TYGS 3069
Leptospira santarosai TYGS 3887
65/-
Leptospira kmetyi TYGS 5734
Leptospira alstonii TYGS 3103
86/100
Leptospira mayottensis TYGS 3113
97/100
Leptospira kirschneri TYGS 3782
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Leptospira noguchii TYGS 5465
Brachyspira pilosicoli TYGS 601
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Brachyspira hyodysenteriae TYGS 1309
Brachyspira aalborgi Z22781
98/-
Brachyspira suanatina TYGS 16615
Brachyspira intermedia TYGS 600
Brachyspira alvinipulli TYGS 1713
Brachyspira murdochii TYGS 16
Brachyspira hampsonii TYGS 22729
Exilispira thermophila AB364473
Spirochaeta thermophila FR749903
Spirochaeta aurantia M57740
Rectinema cohabitans KP297860
Treponema caldarium EU580141
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98/98
Treponema primitia TYGS 608
Treponema isoptericolens AM182455
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Treponema azotonutricium TYGS 605
Treponema stenostreptum FR733664
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Treponema lecithinolyticum X87139
Treponema maltophilum TYGS 3071
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97/80
100/98
Treponema bryantii M57737
Treponema porcinum AY518274
Treponema parvum AF302937
65/-
100/100
Treponema socranskii subsp. paredis TYGS 3073
100/90
86/88
Treponema socranskii AF033306
79/-
Treponema socranskii subsp. buccale AF033305
93/94
Treponema amylovorum Y09959
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Treponema rectale GU566699
98/83
Treponema ruminis GU566698
Treponema succinifaciens TYGS 104
Treponema saccharophilum TYGS 1072
80/74
Treponema berlinense TYGS 2128
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Treponema zuelzerae FR749929
Treponema medium TYGS 3131
82/-
Treponema pedis EF061268
100/100
86/95
Treponema putidum TYGS 2232
Treponema denticola TYGS 607
100/100
Spirochaeta africana TYGS 603
90/-
93/100
Spirochaeta dissipatitropha AY995150
93/98
Spirochaeta asiatica X93926
Spirochaeta lutea TYGS 3345
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Salinispira pacifica TYGS 3586
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66/-
Borrelia afzelii FR733687
65/-
Borrelia spielmanii HE582779
Borrelia valaisiana TYGS 999
62/-
Borrelia tanukii D67023
Borrelia turdi D67022
82/74
Borrelia japonica TYGS 2248
Borrelia sinica AB022101
93/100
Borrelia mayonii TYGS 16682
Borrelia americana EU081285
Borrelia bissettiae TYGS 6089
Borrelia lusitaniae X98228
Borrelia garinii TYGS 14127
Borrelia bavariensis CP000013
Borrelia californiensis AJ224130
Borrelia burgdorferi TYGS 602
Borrelia carolinensis EU085407
Spirochaeta cellobiosiphila TYGS 1659
100/100
Oceanispirochaeta litoralis FR733665
Oceanispirochaeta sediminicola LT821384
88/71
Spirochaeta perfilievii AY337318
73/-
95/100
Spirochaeta psychrophila AB598279
Spirochaeta isovalerica M88720
Spirochaeta halophila M88722
100/100
Alkalispirochaeta americana TYGS 14228
100/100
99/-
Alkalispirochaeta alkalica TYGS 1147
100/100
Alkalispirochaeta sphaeroplastigenens TYGS 18941
100/100
Alkalispirochaeta odontotermitis HF968430
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100/100
Sediminispirochaeta sinaica KC261846
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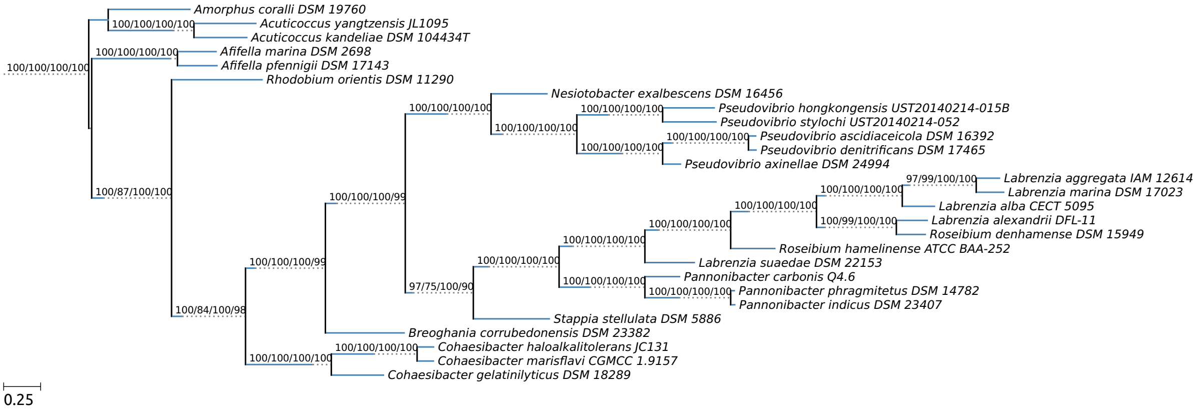
Sediminispirochaeta smaragdinae U80597
87/72
100/100
Pleomorphochaeta multiformis AB598280
100/98
Pleomorphochaeta caudata KU714929
Sphaerochaeta coccoides TYGS 121
99/95
100/100
Sphaerochaeta pleomorpha AF357917
100/100
Sphaerochaeta globosa AF357916
Sphaerochaeta associata JN944166
Marispirochaeta aestuarii TYGS 20224
Brevinema andersonii TYGS 2253
0.25

Figure 3: Unconstrained comprehensive 16S rRNA gene ML tree (UCT) of *Alphaproteobacteria* inferred under the GTR+CAT model. The branches are scaled in terms of the expected number of substitutions per site. The numbers above the branches are support values when larger than 60% from ML (left) and MP (right) bootstrapping. Dotted parts of branches are filled in to allow proper placement of bootstrap values and are not part of the actual branch length. Numbers preceeded by the term 'TYGS' in labels refer to the genome IDs as found in Supplementary Table S1 (first sheet). Each tip label ends with the family of the respective taxon.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100/100/100/100
Afifella pfennigii DSM 17143
Rhodobium orientis DSM 11290
Nesiotobacter exalbescens DSM 16456
100/100/100/100
100/100/100/100
Pseudovibrio hongkongensis UST20140214-015B
Pseudovibrio stylochi UST20140214-052
100/100/100/100
100/100/100/100
Pseudovibrio ascidiaceicola DSM 16392
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Pseudovibrio denitrificans DSM 17465
Pseudovibrio axinellae DSM 24994
97/99/100/100
Labrenzia aggregata IAM 12614
100/100/100/100
Labrenzia marina DSM 17023
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100/100/100/100
Labrenzia alba CECT 5095
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Labrenzia alexandrii DFL-11
100/100/100/100
Roseibium denhamense DSM 15949
100/100/100/100
Roseibium hamelinense ATCC BAA-252
100/100/100/99
100/100/100/100
Labrenzia suaedae DSM 22153
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Pannonibacter carbonis Q4.6
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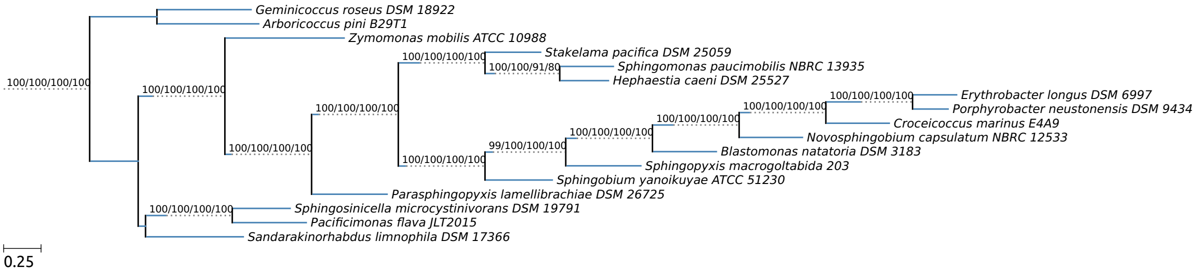
100/100/100/100
Pannonibacter phragmitetus DSM 14782
Pannonibacter indicus DSM 23407
100/84/100/98
Stappia stellulata DSM 5886
Breoghania corrubedonensis DSM 23382
100/100/100/100
Cohaesibacter haloalkalitolerans JC131
100/100/100/100
Cohaesibacter marisflavi CGMCC 1.9157
Cohaesibacter gelatinilyticus DSM 18289
0.25

Figure 4: Phylogenetic tree inferred with RAxML from the *Labrenzia* supermatrix including single-copy core genes. Branches are scaled in terms of the expected number of changes per site. The first two numbers above branches (left to right) are partition bootstrap support values from (i) RAxML (ML) analysis and (ii) TNT (MP) analysis of the supermatrix that included single-copy genes that occurred in all of the genomes. The last two numbers above branches are partition bootstrap support values from (iii) RAxML (ML) analysis and (iv) TNT (MP) analysis of the supermatrix that included single-copy genes that occurred in at least four of the genomes.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Sphingomonas paucimobilis NBRC 13935
Hephaestia caeni DSM 25527
Erythrobacter longus DSM 6997
Porphyrobacter neustonensis DSM 9434
Croceicoccus marinus E4A9
Novosphingobium capsulatum NBRC 12533
Blastomonas natatoria DSM 3183
Sphingopyxis macrogoltabida 203
Sphingobium yanoikuyae ATCC 51230
Parasphingopyxis lamellibrachiae DSM 26725
Sphingosinicella microcystinivorans DSM 19791
Pacificimonas flava JLT2015
Sandarakinorhabdus limnophila DSM 17366
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100/100/100/100
100/100/100/100
100/100/100/100
100/100/91/80
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99/100/100/100
100/100/100/100
100/100/100/100
100/100/100/100
100/100/100/100
0.25

Figure 5: Phylogenetic ML tree inferred with RAxML from the *Sphingomonadales* supermatrix including single-copy core genes. Branches are scaled in terms of the expected number of changes per site. The first two numbers above branches (left to right) are partition bootstrap support values from (i) RAxML (ML) analysis and (ii) TNT (MP) analysis of the supermatrix that included single-copy genes that occurred in all of the genomes. The last two numbers above branches are partition bootstrap support values from (iii) RAxML (ML) analysis and (iv) TNT (MP) analysis of the supermatrix that included single-copy genes that occurred in at least four of the genomes.