

Phylum (order)

Chloroflexota (Chloroflexales)

Chloroflexota (basal; non-phototrophic)

Chloroflexota (Ca. Chloroheliales)

0.2

III (A)

III (B)

III (C)

II

II/III

Rhodocyclidium vanniellii ATCC 17100

Nitrobacter winogradskyi Nb-255

Acidiphilium cryptum JF-5

Inguilinus limosus DSM 18000

Rhodovibrio salinarum DSM 9154

Aurantimonas sp. S185-9A1

Rhodopila globiformis DSM 161

Methylophilus stellata AF4

Methylobacterium petroleiphilum PM1

Xanthobacter autotrophicus Py2

Paraburkholderia xenovorans LB400

Beggiatoa alba B18LD

Chloroflexi bacterium CSP1-4

Thermithobacillus tepidarius DSM 3134

Salinisphaera shabanensis E1L3A

Odontella sinensis

Pleurochrysis carterae

Sulfuricoccus limicola HA5

Nitrosospora multiformis ATCC 251966

Nitrosococcus oceanii ATCC 19707

Hydrocarboniphaga effusa AP103

Dokdonella koreensis DS-123

Thiohalorhabdus denitrificans HL 19

Oscillochloris trichoides DG-6

Ca. Oscillochloris litoris ChuK17

Kouleothrix aurantia COOM-B

Nitrolancea hollandica Lb

Kyrpidia tusciae DSM 2912

Hydrogenibacillus schlegelii MA 48

Sulfatococcus thermosulfoxidans DSM 9293

Smaragdicosoccus niigatensis DSM 44881

Thermomonaspora curvata DSM 43183

Pseudonocardia thermophila DSM 43832

Ca. Chloroheliox aliphatica COOM-B L227-S17

Ca. Chloroheliales bin L227-5C

Methylococcus capsulatus ATCC 19069

Halorhodospira halophila SL1

Allochroa vinosum DSM 180

Ecotrichorhodospinus mongolicus M9

Acidihalobacter prosperus DSM 5130

Nitrobacter vulgaris

Thioalkalibrio versutus AL 2

Thiothrix nivea DSM 5205

Acidimicrobium ferrooxidans DSM 10331

Pararhodospirillum photometricum DSM 122

Hydrogenophilus thermotolerans

Rhodovulum sulfophilum DSM 1374

Thiohalospira halophila DSM 15071

Mariprofundus ferrooxydans PV-1

Thiohalomonas denitrificans HL D2

Grimontia holliae ATCC 33584

Sulfuricella denitrificans skB26

Bradyrhizobium sp. BTAi1

Prochlorococcus marinus str. CCMP1375

Nitrosococcus mobilis Nb-23

Thiomicrospira pelophila DSM 1534

Sulfurivirga caldicurvalii DSM 17737

Alterella atlantica CENA595

Anabaena variabilis ATCC 29413

Prochlorothrix hollandica PCC 9006

Nicotiana tabacum

Rubidobacter lacunae KORDI 51-2

Limnochorda pilosa HC45

Thermodesulfobium nanugense DSM 14796

Ammonifex degensii KC4

Archaeoglobus fulgidus DSM 4304

Thermococcus kodakarensis KOD1

Thermosphaera aggregans DSM 11486

Ignisphaera aggregans DSM 17230

Thermotium pendens Hrk 5

Hyperthermus butylicus DSM 5456

Pyrococcus furiosus DSM 3638

Pyrococcus horikoshii OT3

Methanoregula boonei GA8

Halomicrobium mukohataei DSM 12286

Halolifer volcanii DS2

Nitrosomonas pharaonis DSM 2160

Halodesulfurarchaeum formicicum HSR6

Methanocaldococcus jannaschii DSM 2661

Methanotortrix igneus Koli 5

Methanospirillum hungatei C2A

Methanoplanus limicola DSM 2279

Methanospirillum hungatei JF-1

Methanospirillum palustris E1-9c

Methanospirillum palustris S-NAE

Methanospirillum thermacetophila PT

Methanotrophon thermophilum AMET1

Methanomassiliicoccus luminis B10

Rhodospirillum rubrum JCM 7819

Rhodospirillum rubrum T118

Sulfuritalea hydrogenivorans sk43H

Thiobacillus brandeum Hiromi 1

Thiomicrospira crunigena XCL-2

Hydrogenovibrio marinus

Propionimonas paludicola

Magnetospirillum gryphiswaldense MSR-1 v2

Magnetospirillum magnetotacticum AMB-1

Rhodospirillum rubrum ATCC 11170

Symbiodinium sp.

Lingulodinium polyedrum

Leptonema illini DSM 21528

Methanohalobium evansii DSM 5219

Methanococcoides burtonii DSM 6242

Phylum (order)

Chloroflexota (Chloroflexales)

Chloroflexota (basal; non-phototrophic)

Chloroflexota (Ca. Chloroheliales)

0.2

III (A)

III (B)

III (C)

II

II/III

IC/ID

IA/IB

Rhodocyclidium vanniellii ATCC 17100

Nitrobacter winogradskyi Nb-255

Acidiphilium cryptum JF-5

Inguilinus limosus DSM 18000

Rhodocyclidium salinarum DSM 9154

Aurantimonas sp. S185-9A1

Rhodospila globiformis DSM 161

Methylophilus stellata AF4

Methylobacter petroleiphilum PM1

Xanthobacter autotrophicus Py2

Paraburkholderia xenovorans LB400

Beggiatoa alba B18LD

Chloroflexi bacterium CSP1-4

Thermithobacillus tepidarius DSM 3134

Salinisphaera shabanensis E1L3A

Odontella sinensis

Pleurochrysis carterae

Sulfuricoccus limicola HA5

Nitrosospora multiformis ATCC 251966

Nitrosococcus oceanus ATCC 19707

Hydrocarboniphaga effusa AP103

Dokdonella koreensis DS-123

Thiohalorhabdus denitrificans HL 19

Oscillochloris trichoides DG-6

Ca. Oscillochloris litoris ChuK17

Kouleothrix aurantia COOM-B

Nitrolancea hollandica Lb

Kyrpidia tusciae DSM 2912

Hydrogenibacillus schlegelii MA 48

Sulfatococcus thermosulfoxidans DSM 9293

Smaragdicospora niigatensis DSM 44881

Thermomonaspora curvata DSM 43183

Pseudonocardia thermophila DSM 43832

Ca. Chloroheliox aliphatica DSM 1227-S17

Ca. Chloroheliales bin L227-5C

Methylococcus capsulatus ATCC 19069

Halorhodospira halophila SL1

Allochroa vinosum DSM 180

Ecotrichorhodospinus mongolicus M9

Acidihalobacter prosperus DSM 5130

Nitrobacter vulgaris

Thioalkalibrio versutus AL 2

Thiothrix nivea DSM 5205

Acidimicrobium ferrooxidans DSM 10331

Pararhodospirillum photometricum DSM 122

Hydrogenophilus thermotolerans

Rhodovulum sulfophilum DSM 1374

Thiohalospira halophila DSM 15071

Mariprofundus ferrooxydans PV-1

Thiohalomonas denitrificans HLD2

Grimontia holliae ATCC 35854

Sulfuricella denitrificans skB26

Bradyrhizobium sp. BTAi1

Prochlorococcus marinus str. CCMP1375

Nitrosococcus mobilis Nb-23

Thiomicrospira pelophila DSM 1534

Sulfurivirga caldicurvalii DSM 17737

Alterella atlantica CENA595

Anabaena variabilis ATCC 29413

Prochlorothrix hollandica PCC 9006

Nicotiana tabacum

Rubidobacter lacunae KORDI 51-2

Limnochorda pilosa HC45

Thermodesulfobium nanugense DSM 14796

Ammonifex degensii KC4

Archaeoglobus fulgidus DSM 4304

Thermococcus kodakarensis KOD1

Thermosphaera aggregans DSM 11486

Ignisphaera aggregans DSM 17230

Thermotilus pendens Hrk 5

Hyperthermus butylicus DSM 5456

Proccoccus furiosus DSM 3638

Pyrococcus horikoshii OT3

Methanoregula boonei GA8

Halomicrobium mukohataei DSM 12286

Halolifer volcanii DS2

Thermomonas phaeodans DSM 2160

Halodesulfurarchaeum formicicum HSR6

Methanocaldococcus jannaschii DSM 2661

Methanotortrix igneus Koli 5

Methanospirillum acetivorans C2A

Methanoplanus limicola DSM 2279

Methanospirillum hungatei JF-1

Methanospirillum palustris E1-9c

Methanospirillum palustris S1-10

Methanospirillum thermophilum PT

Methanospirillum thermophilum AMET1

Methanospirillum thermophilum B10

Rhodospira fermentans JCM 7819

Rhodospira ferrireducens T118

Sulfuritalea hydrogenivorans sk43H

Thiobacillus brandeum Hiromi 1

Thiomicrospira crunigena XCL-2

Hydrogenovibrio marinus

Propionimonas paludicola

Magnetospirillum gryphiswaldense MSR-1 v2

Magnetospirillum magnetotacticum AMB-1

Rhodospirillum rubrum ATCC 11770

Symbiodinium sp.

Lingulodinium polyedrum

Leptonema illini DSM 21528

Methanohalobium magadii DSM 5219

Methanococcoides burtonii DSM 6242

Phylum (order)

Chloroflexota (Chloroflexales)

Chloroflexota (basal; non-phototrophic)

Chloroflexota (Ca. Chloroheliales)

0.2

III (A)

III (B)

III (C)

II

II/III

IC/ID

IA/IB

Rhodocyclidium vanniellii ATCC 17100

Nitrobacter winogradskyi Nb-255

Acidiphilium cryptum JF-5

Inguilinus limosus DSM 18000

Rhodocyclidium salinarum DSM 9154

Aurantimonas sp. S185-9A1

Rhodospila globiformis DSM 161

Methylophilus stellata AF4

Methylobacter petroleiphilum PM1

Xanthobacter autotrophicus Py2

Paraburkholderia xenovorans LB400

Beggiatoa alba B18LD

Chloroflexi bacterium CSP1-4

Thermithobacillus tepidarius DSM 3134

Salinisphaera shabanensis E1L3A

Odontella sinensis

Pleurochrysis carterae

Sulfuricoccus limicola HA5

Nitrosospora multiformis ATCC 251966

Nitrosococcus oceanus ATCC 19707

Hydrocarboniphaga effusa AP103

Dokdonella koreensis DS-123

Thiohalorhabdus denitrificans HL 19

Oscillochloris trichoides DG-6

Ca. Oscillochloris litoris ChuK17

Kouleothrix aurantia COOM-B

Nitrolancea hollandica Lb

Kyrpidia tusciae DSM 2912

Hydrogenibacillus schlegelii MA 48

Sulfatococcus thermosulfoxidans DSM 9293

Smaragdicospora niigatensis DSM 44881

Thermomonaspora curvata DSM 43183

Pseudonocardia thermophila DSM 43832

Ca. Chloroheliox aliphatica DSM 1227-S17

Ca. Chloroheliales bin L227-5C

Methylococcus capsulatus ATCC 19069

Halorhodospira halophila SL1

Allochroa vinosum DSM 180

Ecotrichorhodospinus mongolicus M9

Acidihalobacter prosperus DSM 5130

Nitrobacter vulgaris

Thioalkalibrio versutus AL 2

Thiothrix nivea DSM 5205

Acidimicrobium ferrooxidans DSM 10331

Pararhodospirillum photometricum DSM 122

Hydrogenophilus thermotolerans

Rhodovulum sulfophilum DSM 1374

Thiohalospira halophila DSM 15071

Mariprofundus ferrooxydans PV-1

Thiohalomonas denitrificans HLD2

Grimontia holliae ATCC 35854

Sulfuricella denitrificans skB26

Bradyrhizobium sp. BTAi1

Prochlorococcus marinus str. CCMP1375

Nitrosococcus mobilis Nb-23

Thiomicrospira pelophila DSM 1534

Sulfurivirga caldicurvalii DSM 17737

Alterella atlantica CENA595

Anabaena variabilis ATCC 29413

Prochlorothrix hollandica PCC 9006

Nicotiana tabacum

Rubidobacter lacunae KORDI 51-2

Limnochorda pilosa HC45

Thermodesulfobium nanugense DSM 14796

Ammonifex degensii KC4

Archaeoglobus fulgidus DSM 4304

Thermococcus kodakarensis KOD1

Thermosphaera aggregans DSM 11486

Ignisphaera aggregans DSM 17230

Thermotilus pendens Hrk 5

Hyperthermus butylicus DSM 5456

Proccoccus furiosus DSM 3638

Pyrococcus horikoshii OT3

Methanoregula boonei GA8

Halomicrobium mukohataei DSM 12286

Halolifer volcanii DS2

Thermomonas phaeodans DSM 2160

Halodesulfurarchaeum formicicum HSR6

Methanocaldococcus jannaschii DSM 2661

Methanotortrix igneus Koli 5

Methanospirillum acetivorans C2A

Methanoplanus limicola DSM 2279

Methanospirillum hungatei JF-1

Methanospirillum palustris E1-9c

Methanospirillum palustris S1-10

Methanospirillum thermophilum PT

Methanospirillum thermophilum AMET1

Methanospirillum thermophilum B10

Rhodospira fermentans JCM 7819

Rhodospira ferrireducens T118

Sulfuritalea hydrogenivorans sk43H

Thiobacillus brandeum Hiromi 1

Thiomicrospira crunigena XCL-2

Hydrogenovibrio marinus

Propionimonas paludicola

Magnetospirillum gryphiswaldense MSR-1 v2

Magnetospirillum magnetotacticum AMB-1

Rhodospirillum rubrum ATCC 11770

Symbiodinium sp.

Lingulodinium polyedrum

Leptonema illini DSM 21528

Methanohalobium magadii DSM 5219

Methanococcoides burtonii DSM 6242

Phylum (order)

Chloroflexota (Chloroflexales)

Chloroflexota (basal; non-phototrophic)

Chloroflexota (Ca. Chloroheliales)

0.2

III (A)

III (B)

III (C)

II

II/III

IC/ID

IA/IB

Rhodocyclidium vanniellii ATCC 17100

Nitrobacter winogradskyi Nb-255

Acidiphilium cryptum JF-5

Inguilinus limosus DSM 18000

Rhodocyclidium salinarum DSM 9154

Aurantimonas sp. S185-9A1

Rhodospila globiformis DSM 161

Methylophilus stellata AF4

Methylobacter petroleiphilum PM1

Xanthobacter autotrophicus Py2

Paraburkholderia xenovorans LB400

Beggiatoa alba B18LD

Chloroflexi bacterium CSP1-4

Thermithobacillus tepidarius DSM 3134

Salinisphaera shabanensis E1L3A

Odontella sinensis

Pleurochrysis carterae

Sulfuricoccus limicola HA5

Nitrosospora multiformis ATCC 251966

Nitrosococcus oceanus ATCC 19707

Hydrocarboniphaga effusa AP103

Dokdonella koreensis DS-123

Thiohalorhabdus denitrificans HL 19

Oscillochloris trichoides DG-6

Ca. Oscillochloris litoris ChuK17

Kouleothrix aurantia COOM-B

Nitrolancea hollandica Lb

Kyrpidia tusciae DSM 2912

Hydrogenibacillus schlegelii MA 48

Sulfatococcus thermosulfoxidans DSM 9293

Smaragdicospora niigatensis DSM 44881

Thermomonaspora curvata DSM 43183

Pseudonocardia thermophila DSM 43832

Ca. Chloroheliox aliphatica DSM 1227-S17

Ca. Chloroheliales bin L227-5C

Methylococcus capsulatus ATCC 19069

Halorhodospira halophila SL1

Allochroa vinosum DSM 180

Ecotrichorhodospinus mongolicus M9

Acidihalobacter prosperus DSM 5130

Nitrobacter vulgaris

Thioalkalibrio versutus AL 2

Thiothrix nivea DSM 5205

Acidimicrobium ferrooxidans DSM 10331

Pararhodospirillum photometricum DSM 122

Hydrogenophilus thermotolerans

Rhodovulum sulfophilum DSM 1374

Thiohalospira halophila DSM 15071

Mariprofundus ferrooxydans PV-1

Thiohalomonas denitrificans HLD2

Grimontia holliae ATCC 35854

Sulfuricella denitrificans skB26

Bradyrhizobium sp. BTAi1

Prochlorococcus marinus str. CCMP1375

Nitrosococcus mobilis Nb-23

Thiomicrospira pelophila DSM 1534

Sulfurivirga caldicurvalii DSM 17737

Alterella atlantica CENA595

Anabaena variabilis ATCC 29413

Prochlorothrix hollandica PCC 9006

Nicotiana tabacum

Rubidobacter lacunae KORDI 51-2

Limnochorda pilosa HC45

Thermodesulfobium nanugense DSM 14796

Ammonifex degensii KC4

Archaeoglobus fulgidus DSM 4304

Thermococcus kodakarensis KOD1

Thermosphaera aggregans DSM 11486

Ignisphaera aggregans DSM 17230

Thermotilus pendens Hrk 5

Hyperthermus butylicus DSM 5456

Proccoccus furiosus DSM 3638

Pyrococcus horikoshii OT3

Methanoregula boonei GA8

Halomicrobium mukohataei DSM 12286

Halolifer volcanii DS2

Thermomonas phaeodans DSM 2160

Halodesulfurarchaeum formicicum HSR6

Methanocaldococcus jannaschii DSM 2661

Methanotortrix igneus Koli 5

Methanospirillum acetivorans C2A

Methanoplanus limicola DSM 2279

Methanospirillum hungatei JF-1

Methanospirillum palustris E1-9c

Methanospirillum palustris S1-10

Methanospirillum thermophilum PT

Methanospirillum thermophilum AMET1

Methanospirillum thermophilum B10

Rhodospira fermentans JCM 7819

Rhodospira ferrireducens T118

Sulfuritalea hydrogenivorans sk43H

Thiobacillus brandeum Hiromi 1

Thiomicrospira crunigena XCL-2

Hydrogenovibrio marinus

Propionimonas paludicola

Magnetospirillum gryphiswaldense MSR-1 v2

Magnetospirillum magnetotacticum AMB-1

Rhodospirillum rubrum ATCC 11770

Symbiodinium sp.

Lingulodinium polyedrum

Leptonema illini DSM 21528

Methanohalobium magadii DSM 5219

Methanococcoides burtonii DSM 6242

