Register list for 38 new names from Eremiobacterota including Xenobiaceae fam. nov.

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Table 1: Complete list of names proposed in the current register list.

Proposed Taxon	Etymology	Description	Parent Taxon	Type	Registry URL
Class *Xenobiia*	[Xe.no.bi'ia] **N.L. neut. n.** *Xenobium*, foreign life, referencing the artificial environment from which it was recovered; *-ia*, ending to denote a class; **N.L. neut. pl. n.** *Xenobiia*, the Xenobium class	Class defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB. Defined as a class-level lineage based on UBP9 in Parks et al (2017).	*Eremiobacterota*	*Xenobium*	seqco.de/i:31316
Class *Eremiobacteria*	[E.re.mi.o.bac.te'ri.a] **N.L. masc. n.** *Eremiobacter*, a rod from a desert; *-ia*, ending to denote a class; **N.L. neut. pl. n.** *Eremiobacteria*, the Eremiobacter class	Class defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Eremiobacterota*	*Eremiobacter*	seqco.de/i:41723
Order *Eremiobacterales*	[E.re.mi.o.bac.te.ra'les] **N.L. masc. n.** *Eremiobacter*, a rod from a desert; *-ales*, ending to denote an order; **N.L. fem. pl. n.** *Eremiobacterales*, the Eremiobacter order	Order defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Eremiobacteria*	*Eremiobacter*	seqco.de/i:41907
Order *Xenobiales*	[Xe.no.bi.a'les] **N.L. neut. n.** *Xenobium*, foreign life, referencing the artificial environment from which it was recovered; *-ales*, ending to denote an order; **N.L. fem. pl. n.** *Xenobiales*, the Xenobium order	Order defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB. Defined as an order-level lineage based on UBA4705 in Parks et al (2017).	*Xenobiia*	*Xenobium*	seqco.de/i:31315

Proposed Taxon	Etymology	Description	Parent Taxon	Type	Registry URL
Family *Eremiobacteraceae*	[E.re.mi.o.bac.ter.a.ce'ae] **N.L. masc. n.** *Eremiobacter*, a rod from a desert; **N.L. suff.** *-aceae*, ending to denote a family; **N.L. fem. pl. n.** *Eremiobacteraceae*, the Eremiobacter family	Family defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Eremiobacterales*	*Eremiobacter*	seqco.de/i:41908
Family *Xenobiaceae*	[Xe.no.bi.a.ce'ae] **N.L. neut. n.** *Xenobium*, foreign life, referencing the artificial environment from which it was recovered; *-aceae*, ending to denote a family; **N.L. fem. pl. n.** *Xenobiaceae*, the Xenobium family	Family defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB. Defined as a family-level lineage based on UBA4705 in Parks et al (2017).	*Xenobiales*	*Xenobium*	seqco.de/i:41921
Genus *Xenobium*	[Xe.no'bi.um] **Gr. adj.** *xenos*, strange, foreign; **Gr. masc. n.** *bios*, life; **N.L. neut. n.** *Xenobium*, foreign life, referencing the artificial environment from which it was recovered	Genus defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Xenobiaceae*	*Xenobium occultum*^{Ts}	seqco.de/i:41922
Genus *Cybelea*	[Cy.be'le.a] **N.L. fem. n.** *Cybelea*, a bacterium named after Cybele, an ancient Anatolian earth goddess, in reference to the recovery from soil	Genus defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Baltobacteraceae*	*Cybelea septentrionalis*^{Ts}	seqco.de/i:42538
Genus *Erabacter*	[Era.bac'ter] **Gr. fem. n.** *era, -ae*, earth; **N.L. masc. n.** *bacter*, a rod; **N.L. masc. n.** *Erabacter*, earth bacterium, in reference to the recovery from soil	Genus defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Baltobacteraceae*	*Erabacter solicola*^{Ts}	seqco.de/i:43329

Proposed Taxon	Etymology	Description	Parent Taxon	Type	Registry URL
Genus *Tyrphobacter*	[Tyr.pho.ba'cter] **Gr. n.** *tyrpha, -ae*, peat; **N.L. masc. n.** *bacter*, a rod; **N.L. masc. n.** *Tyrphobacter*, bacterium from the peat, in reference to the recovery from peatlands	Genus defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Baltobacteraceae*	*Tyrphobacter aquilonaris*^{Ts}	seqco.de/i:43316
Genus *Nyctobacter*	[Nyc.to.ba'cter] **Gr. fem. n.** *Nyx*, primordial goddess of the night in Greek mythology; **N.L. masc. n.** *bacter*, a rod; **N.L. masc. n.** *Nyctobacter*, refering to a bacterium capable of 'dark' carbon fixation (chemolithoautotrophy), as well as the long and dark winter of Antarctica	Genus defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Baltobacteraceae*	*Nyctobacter psychrophilus*^{Ts}	seqco.de/i:42523
Genus *Velthaea*	[Vel.tha'ea] **N.L. fem. n.** *Velthaea*, bacterium named after ancient Etruscan earth god Veltha, in reference to to the recovery from soil	Genus defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Baltobacteraceae*	*Velthaea versatilis*^{Ts}	seqco.de/i:43525
Genus *Tumulicola*	[Tu.mu.li'co.la] **L. masc. n.** *tumulus*, mound, hill; **L. masc. / fem. suff.** *-cola*, inhabitant, dweller; **N.L. fem. n.** *Tumulicola*, mound-dweller, in reference to the recovery from a palsa (mound)	Genus defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Baltobacteraceae*	*Tumulicola scandinaviensis*^{Ts}	seqco.de/i:43732

Proposed Taxon	Etymology	Description	Parent Taxon	Type	Registry URL
Genus *Elarobacter*	[E.la.ro.bac'ter] **Gr. fem. n.** *Elara*, maiden in Greek mythology who was hidden beneath the earth, where she gave birth to Tityus; **N.L. masc. n.** *bacter*, a rod; **N.L. masc. n.** *Elarobacter*, in reference to a bacterium recovered from soil	Genus defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Baltobacteraceae*	*Elarobacter winogradskyi*^{Ts}	seqco.de/i:41726
Genus *Mawsoniella*	[Maw.so'ni.el.la] **N.L. fem. dim. n.** *Mawsoniella*, in honor of Sir Douglas Mawson, an Australian Antarctic explorer and pioneer	Genus defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Eremiobacteraceae*	*Mawsoniella australis*^{Ts}	seqco.de/i:42719
Genus *Eremiobacter*	[E.re.mi.o.bac'ter] **Gr. fem. n.** *eremia*, desert, wilderness; **N.L. masc. n.** *bacter*, a rod; **N.L. masc. n.** *Eremiobacter*, a rod from a desert	Type genus of Eremiobacterota. Genus defined based on phylogenomics of 38 conserved marker genes and the lack of any named close relative at the time.	*Eremiobacteraceae*	*Eremiobacter antarcticus*^{Ts}	seqco.de/i:42508
Genus *Bruticola*	[Bru.ti.co'la] **L. masc. n.** *brutus*, of animals, beasts; **L. masc. / fem. suff.** *-cola*, inhabitant, dweller; **N.L. fem. n.** *Bruticola*, animal-dweller, in reference to the mammal (baboon) fecal microbiome	Genus defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Xenobiaceae*	*Bruticola papionis*^{Ts}	seqco.de/i:41962
Genus *Meridianibacter*	[Me.ri.di.a.ni.bac'ter] **L. masc. adj.** *meridianus*, southern; **N.L. masc. n.** *bacter*, a rod; **N.L. masc. n.** *Meridianibacter*, southern bacterium, in reference to the recovery from Antarctic soil	Genus defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Baltobacteraceae*	*Meridianibacter frigidus*^{Ts}	seqco.de/i:43148

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Genus *Zemelea*	[Ze.me.le'a] **N.L. fem. n.** *Zemelea*, , named for Zemele, Lithuanian earth goddess, in reference to the recovery from soil	Genus defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Baltobacteraceae*	*Zemelea palustris*^{Ts}	seqco.de/i:48243
Genus *Lustribacter*	[Lus.tri.bac'ter] **L. neut. n.** *lustrum*, bog; **N.L. masc. n.** *bacter*, a rod; **N.L. masc. n.** *Lustribacter*, bacterium from the bog, in reference to the recovery from a bog	Genus defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Baltobacteraceae*	*Lustribacter telmatis*^{Ts}	seqco.de/i:42844
Genus *Tityobacter*	[Ti.ty.o.ba'cter] **Gr. masc. n.** *Tityos*, in Greek mythology, giant born from the earth, son of Elara; **N.L. masc. n.** *bacter*, a rod; **N.L. masc. n.** *Tityobacter*, bacterium named after Tityos (giant born from the earth), in reference to the recovery from soil	Genus defined based on 16S rRNA phylogeny and phylogenomic analysis of 15 ribosomal proteins and the GTDB.	*Baltobacteraceae*	*Tityobacter terrigena*^{Ts}	seqco.de/i:43379
Species *Cybelea septentrionalis*^{Ts}	[sep.ten.tri.o.na'lis] **L. fem. adj.** *septentrionalis*, northern	Obligate heterotroph. Hydrogen oxidation using Group 1h [NiFe] hydrogenase. Organic substrates include peptides, amino acids, carboxylates, taurine, urea, sarcosine, PVA, arylsulfates, poly- and oligosaccharides, sugars, fluoroacetate. Degradation of β-glucan (GH1, GH16), cellulose/β-glucan (GH5_40), chitin (GH18), β-D-galactoside (GH35), and xyloglucan (GH74). PHA storage. Polyphosphate storage. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Cybelea*	NCBI Assembly: GCA_003158175.1^{Ts}	seqco.de/i:43849
Species *Tyrphobacter aquilonaris*^{Ts}	[aqui.lo.na'ris] **L. masc. adj.** *aquilonaris*, northern, northernly	Obligate heterotroph. Organic substrates include peptides, amino acids, carboxylates, methanol, poly- and oligosaccharides, sugars. PHA storage. Polyphosphate storage. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Tyrphobacter*	NCBI Assembly: GCA_003133745.1^{Ts}	seqco.de/i:43739

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Species *Mawsoniella australis*^{Ts}	[aus.tra'lis] **L. fem. adj.** *australis*, southern, of the south wind, in reference to the recovery from the southern continent of Antarctica	Obligate heterotroph. Hydrogen oxidation using Group 1h [NiFe] hydrogenase. Organic substrates include peptides, amino acids, carboxylates, sarcosine, oligosaccharides, sugars, catechol, 4hydroxybenzoate. PHA storage. Polyphosphate storage. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Mawsoniella*	NCBI Assembly: GCA_014304875.1^{Ts}	seqco.de/i:42720
Species *Eremiobacter antarcticus*^{Ts}	[an.tar'cti.cus] **L. masc. adj.** *antarcticus*, southern, pertaining to Antarctica	Heterotroph and autotroph. Hydrogenotrophic chemolithoautotrophy using Group 1h [NiFe] hydrogenase and CBB cycle; capable of using atmospheric H2. Organic substrates include peptides, amino acids, carboxylates, acetate, sarcosine, formate, methanol, poly- and oligosaccharides, sugars, catechol, 4-hydroxybenzoate. Glycogen storage. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Eremiobacter*	NCBI Assembly: GCA_003244105.1^{Ts}	seqco.de/i:42509
Species *Bruticola papionis*^{Ts}	[pa.pi.o'nis] **N.L. gen. n.** *papionis*, pertaining to Papio, the primate genus that includes baboons	Obligate heterotroph. Fermentative (no respiration). Organic substrates include peptides, amino acids, citrate, starch, maltodextrin, glucose. Bidirectional Fe-only hydrogenases (for redox balance?). Glycogen storage. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Bruticola*	NCBI Assembly: GCA_002407045.1^{Ts}	seqco.de/i:41963
Species *Zemelea palustris*^{Ts}	[pa.lus'tris] **L. fem. adj.** *palustris*, marshy, swampy	Obligate heterotroph. Anaerobic respiration: nitrate. Organic substrates include peptides, amino acids, carboxylates, sarcosine, formate, poly- and oligosaccharides, sugars. PHA storage. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Zemelea*	NCBI Assembly: GCA_003134695.1^{Ts}	seqco.de/i:41948
Species *Meridianibacter frigidus*^{Ts}	[fri'gi.dus] **L. masc. adj.** *frigidus*, cold	Obligate heterotroph. Organic substrates include peptides, amino acids, carboxylates, poly- and oligosaccharides, sugars. Polyphosphate storage. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Meridianibacter*	NCBI Assembly: GCA_003243975.1^{Ts}	seqco.de/i:43149

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Species *Lustribacter telmatis*^{Ts}	[tel'ma.tis] **Gr. n.** *telma*, swamp; **N.L. gen. n.** *telmatis*, of the bog	Obligate heterotroph. Hydrogen oxidation using Group 1h [NiFe] hydrogenase. Anaerobic respiration: urocanate. Organic substrates include peptides, amino acids, carboxylates, taurine, urea, cyanate, acetate, formate, alcohols (including methanol, ethanol), arylsulfates, alkanesulfonates, oligosaccharides, sugars, fluoroacetate, halobenzoate, phenoxypropionate, ethylbenzene, 4-hydroxybenzoate, 4-sulfocatechol. PHA storage; glycogen storage. Motile by flagella. Polyphosphate storage. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Lustribacter*	NCBI Assembly: GCA_003164045.1^{Ts}	seqco.de/i:42845
Species *Cybelea palsarum*	[pal.sa'rum] **N.L. fem. n.** *palsa*, peat mound (from Finnish palsa); **N.L. gen. pl. n.** *palsarum*, from palsa wetlands	Obligate heterotroph. Organic substrates include peptides, amino acids, carboxylates, taurine, urea, sarcosine, PVA, arylsulfates, poly- and oligosaccharides, sugars, fluoroacetate. Degradation of β-glucan (GH1, GH16), cellulose/β-glucan (GH5_40), chitin (GH18), β-D-galactoside (GH35), and xyloglucan (GH74). PHA storage. Polyphosphate storage. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Cybelea*	NCBI Assembly: GCA_003166915.1^{Ts}	seqco.de/i:43705
Species *Xenobium occultum*^{Ts}	[oc.cul'tum] **L. neut. adj.** *occultum*, hidden	Obligate heterotroph. Microaerobic; anaerobic respiration by DNRA. Fermentative. Organic substrates include peptides, amino acids, carboxylates, glycerol, poly- and oligosaccharides, sugars, 4-hydroxybenzoate. Degradation of β-glucosides (GH3), cellulose (endoglucanase GH5_5), starch (cyclomaltodextrinase GH13, and GH13_2; 4-α-glucanotransferase GH77), maltodextrin (GH13_21), α-glucans (GH31), trehalose (GH37), and xyloglucan (GH74). PHA storage; glycogen storage. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Xenobium*	NCBI Assembly: GCA_002423485.1^{Ts}	seqco.de/i:43215
Species *Erabacter solicola*^{Ts}	[so.li.co'la] **L. neut. n.** *solum*, soil; **L. masc. / fem. suff.** *-cola*, inhabitant, dweller; **N.L. masc. n.** *solicola*, inhabitant of the soil	Obligate heterotroph. Organic substrates include peptides, amino acids, carboxylates, sarcosine, poly- and oligosaccharides, sugars. PHA storage. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Erabacter*	NCBI Assembly: GCA_003136895.1^{Ts}	seqco.de/i:43330

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Species *Nyctobacter psychrophilus*^{Ts}	[psy.chro'phi.lus] **Gr. adj.** *psychros*, cold; **Gr. adj.** *philos*, loving; **N.L. masc. adj.** *psychrophilus*, cold-loving	Heterotroph and autotroph. Hydrogenotrophic chemolithoautotrophy using Group 1h [NiFe] hydrogenase and CBB cycle; capable of using atmospheric H2. Organic substrates include peptides, amino acids, carboxylates, poly- and oligosaccharides, sugars. PHA storage; glycogen storage. Polyphosphate storage. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Nyctobacter*	NCBI Assembly: GCA_014305025.1^{Ts}	seqco.de/i:42524
Species *Velthaea versatilis*^{Ts}	[ver.sa'ti.lis] **L. fem. adj.** *versatilis*, versatile, in reference to metabolic versatility	Heterotroph and autotroph. Hydrogenotrophic chemolithoautotrophy using Group 1h [NiFe] hydrogenase and CBB cycle; capable of using atmospheric H2. Photoautotrophy; carboxysomes; photoreceptors. CO oxidation. Anaerobic respiration: sulfoxides. Assimilatory nitrate reduction. Organic substrates include peptides, amino acids, carboxylates, glycerol, taurine, urea, cyanate, sarcosine, alcohols (including methanol, ethanol), poly- and oligosaccharides, sugars, catechol, propane. PHA storage; glycogen storage. Motile by flagella (including phototaxis). Polyphosphate storage. Bidirectional [NiFe] hydrogenase (Group 3b). Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Velthaea*	NCBI Assembly: GCA_003134035.1^{Ts}	seqco.de/i:43526
Species *Tumulicola scandinaviensis*^{Ts}	[scan.di.na.vi.en'sis] **L. fem. n.** *Scandinavia*, region in northern Europe; *-ensis*, of or from (a place); **N.L. fem. adj.** *scandinaviensis*, from Scandinavia (Sweden)	Obligate heterotroph. CO oxidation. Organic substrates include peptides, amino acids, carboxylates, taurine, acetate, sarcosine, arylsulfates, poly- and oligosaccharides, sugars. PHA storage. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Tumulicola*	NCBI Assembly: GCA_003140835.1^{Ts}	seqco.de/i:43733
Species *Cybelea tumulisoli*	[tu.mu.li.so'li] **L. masc. n.** *tumulus*, mound, hill; **L. neut. n.** *solum*, soil; **N.L. gen. n.** *tumulisoli*, from the mound soil, in reference to palsa	Obligate heterotroph. Organic substrates include peptides, amino acids, carboxylates, taurine, urea, sarcosine, PVA, arylsulfates, poly- and oligosaccharides, sugars, fluoroacetate. Degradation of β-glucan (GH1), xylan (GH10), chitin (GH18), and xyloglucan (GH74). PHA storage. Polyphosphate storage. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Cybelea*	NCBI Assembly: GCA_003167155.1^{Ts}	seqco.de/i:43786

Proposed Taxon	Etymology	Description	Parent Taxon	Type	Registry URL
Species *Elarobacter winogradskyi*^{Ts}	[wi.no.grad'skyi] **N.L. gen. n.** *winogradskyi*, in honor of Sergei Winogradsky, Russian microbiologist and ecologist	Obligate heterotroph. CO oxidation. Organic substrates include peptides, amino acids, carboxylates, glycerol, urea, acetate, sarcosine, formate, ethanol, oligosaccharides, sugars, fluoroacetate. Degradation of trehalose (GH15), α-mannoside (GH38), and xyloglucan (GH74). PHA storage; glycogen storage. Polyphosphate storage. Motile by flagella. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Elarobacter*	NCBI Assembly: GCA_003134965.1^{Ts}	seqco.de/i:41727
Species *Tityobacter terrigena*^{Ts}	[ter.ri.ge'na] **L. masc. adj.** *terrigena*, born of or from the earth; **L. masc. adj.** *terrigena*, earth-born; in reference to the recovery from soil	Heterotroph and autotroph. CO oxidation. Hydrogenotrophic chemolithoautotrophy using Group 1h [NiFe] hydrogenase and CBB cycle; capable of using atmospheric H2. Organic substrates include peptides, amino acids, carboxylates, glycerol, taurine, acetate, alcohols (including methanol, ethanol, polyvinyl alcohol), aldehydes, poly- and oligosaccharides, sugars, fluoroacetate, catechol. Glycogen storage. Polyphosphate storage. BMC for sequestering toxic metabolites. Also defined based on ANI, and phylogenies of 16S rRNA gene, 15 ribosomal proteins, and the GTDB.	*Tityobacter*	NCBI Assembly: GCA_003156715.1^{Ts}	seqco.de/i:43380