

Nitrosocosmicus gen. nov.

Submitted by Nicol, Graeme

Genus *Nitrosocosmicus*

Etymology

[Ni.tro.so.cos'mi.cus] **N.L. suff.** *nitroso-*, full of natron, here referring to nitrite; **L. masc. adj.** *cosmicus*, cosmopolitan; **N.L. masc. n.** *Nitrosocosmicus*, cosmopolitan producer of nitrite

Nomenclatural type

Species *Nitrosocosmicus franklandianus*^{Ts}

Description

A widely distributed genus of chemolithoautotrophic ammonia-oxidising archaea (AOA) within the validated family *Nitrososphaeraceae*. Cells are coccid. Able to use ammonia as a source of energy with some strains also ureolytic. A greater tolerance to high ammonia concentrations compared to other AOA may be a feature of all strains of this genus.

Classification

Archaea » Thermoproteota » Nitrososphaeria » Nitrososphaerales » Nitrososphaeraceae » *Nitrosocosmicus*

References

Effective publication: Lehtovirta-Morley et al., 2016 [1]
Assigned taxonomically: Stieglmeier et al., 2014 [2]

Registry URL

<https://seqco.de/i:56407>

Species *Nitrosocosmicus franklandianus*^{Ts}

Etymology

[fran.klan.di.a'nus] **N.L. masc. adj.** *franklandianus*, after Percy and Grace Faraday Frankland

Nomenclatural type

[NCBI Assembly: GCA_900696045.1](#)^{Ts}

Reference Strain

[Strain scj0041993](#): *Nitrosocosmicus franklandianus*

Description

In accordance with other members of Nitrososphaerales, *Nitrosocosmicus franklandianus* (formally franklandus) is an ammonia oxidising archaeon, isolated from a terrestrial environment, demonstrating the characteristic irregular coccoid cell morphology associated with this order. As with *Nitrososphaera viennensis*, it is able to grow on urea but it can tolerate higher ammonium concentrations, equivalent to those tolerated by chemolithoautotrophic bacterial ammonia oxidisers. It represents an ecologically relevant strain of the phylum Nitrososphaerota/Thermoproteota with the potential to compete successfully with ammonium oxidising bacteria in fertilised soils where ammonium concentrations are high.

Classification

Archaea » Thermoproteota » Nitrososphaeria » Nitrososphaerales » Nitrososphaeraceae » *Nitrosocosmicus* » *Nitrosocosmicus franklandianus*^{Ts}

References

Effective publication: Lehtovirta-Morley et al., 2016 [1]
Corrigendum: Oren et al., 2020 [3] (from “*Nitrosocosmicus franklandus*”)

Registry URL

<https://seqco.de/i:471>

References

1. Lehtovirta-Morley et al. (2016). Isolation of '*CandidatusNitrosocosmicus franklandus*', a novel ureolytic soil archaeal ammonia oxidiser with tolerance to high ammonia concentration. *FEMS Microbiology Ecology*. DOI:[10.1093/femsec/fiw057](https://doi.org/10.1093/femsec/fiw057)
2. Stieglmeier et al. (2014). *Nitrososphaera viennensis* gen. nov., sp. nov., an aerobic and mesophilic, ammonia-oxidizing archaeon from soil and a member of the archaeal phylum Thaumarchaeota. *International Journal of Systematic and Evolutionary Microbiology*. DOI:[10.1099/ijms.0.063172-0](https://doi.org/10.1099/ijms.0.063172-0)
3. Oren et al. (2020). Lists of names of prokaryotic Candidatus taxa. *International Journal of Systematic and Evolutionary Microbiology*. DOI:[10.1099/ijsem.0.003789](https://doi.org/10.1099/ijsem.0.003789)

Register List Certificate of Validation

On behalf of the *Committee on the Systematics of Prokaryotes Described from Sequence Data* (SeqCode Committee), we hereby certify that the Register List **seqco.de/r:uh3nyq42** submitted by **Nicol, Graeme** and including 2 new names has been successfully validated.

Date of Priority: 2026-07-24 04:19 UTC
DOI: 10.57973/seqcode.r:uh3nyq42

