

## Order *Nanopelagicales*

### Etymology

[Na.no.pe.la.gi.ca'les] **N.L. masc. n.** *Nanopelagicus*, referring to the type genus *Nanopelagicus*; **-ales**, ending to denote an order; **N.L. fem. pl. n.** *Nanopelagicales*, the *Nanopelagicus* order

### Nomenclatural type

Genus *Nanopelagicus*

### Description

The order *Nanopelagicales* was proposed as *Candidatus* order by Neuenschwander et al. (2018, ISMEJ, doi: 10.1038/ismej.2017.156). It contains the family *Nanopelagicaceae* and two genera, *Nanopelagicus* and *Planktophila*, type strain for the order is *Nanopelagicus abundans* MMS-IIB-91 (GCF\_002288305.1). Basis of the assignment is a phylogenetic tree of 48 conserved concatenated proteins of >100 complete genomes of all orders of Actinobacteria in Neuenschwander et al. (2018, ISMEJ, doi: 10.1038/ismej.2017.156). Aerobic chemoheterotrophs. Cells are tiny, non-motile, and inhabit the plankton of freshwaters. The order is also known as *acl* or *hgc1* (SILVA classification) from 16S rRNA based studies and is one of the most abundant microbes in freshwater lakes. *Nanopelagicaceae* can be recognized by the presence of the diagnostic oligonucleotide sequence 5'-AATGCGTTAGCTGCGTCGCA-3' in the 16S rRNA gene (positions 852-872, *E. coli* numbering). The initial pure cultures were lost after a few propagations to fresh medium, they were isolated in sterile lake water amended with minimal carbon medium, vitamins and amino acids, no growth was observed in rich medium or on agar plates. No growing culture of *Nanopelagicus* sp. is available, while some *Planktophila* sp. strains are actively growing in autoclaved lake water (Kim et al. 2019, ISMEJ, doi: 10.1038/s41396-019-0432-x) or artificial media (Salcher et al., in review). None of the isolated strains were yet submitted to a culture collection because these bacteria are hard to maintain, i.e., they are very slowly growing, reach low densities in liquid culture, and do not grow on agar plates.

### Classification

*Bacteria* » *Actinomycetota* » *Actinomycetes* » *Nanopelagicales*

### References

Effective publication: Neuenschwander et al., 2018 [1]

### Registry URL

<https://seqco.de/i:23833>

## References

1. Neuenschwander et al. (2018). Microdiversification in genome-streamlined ubiquitous freshwater Actinobacteria. *The ISME Journal*. DOI:10.1038/ismej.2017.156