

# Register list for *Methyloquorum* cenaphilum gen. nov. sp. nov. and their lineage

Submitted by Glass, Jennifer

## Order *Methyloquorales*

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### Etymology

[Me.thy.lae.quo.ra'les] **N.L. neut. n.** *Methyloquor*, the type genus of the order; *-ales*, ending to denote an order; **N.L. fem. pl. n.** *Methyloquorales*, the *Methyloquor* order

### Nomenclatural type

Genus *Methyloquor*

### Description

Uncultivated bacteria in the order *Methyloquorales* (previously GTDB o\_\_TMED127) have small, streamlined genomes (~1.5 Mb) and appear to be obligate lanthanide-dependent methylotrophs that use the serine cycle for carbon assimilation.

### Classification

*Bacteria* » *Pseudomonadota* » *Alphaproteobacteria* » *Methyloquorales*

### References

Effective publication: Glass et al., 2025 [1]

### Registry URL

<https://seqco.de/i:51452>

## Family *Methyloquoraceae*

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### Etymology

[Me.thy.lae.quo.ra'ce.ae] **N.L. neut. n.** *Methyloquor*, the type genus of the family; *-aceae*, ending to denote a family; **N.L. fem. pl. n.** *Methyloquoraceae*, the *Methyloquor* family

### Nomenclatural type

Genus *Methyloquor*

### Description

Uncultivated bacteria in the order *Methyloquorales* (previously GTDB o\_\_TMED127) and family *Methyloquoraceae* (previously GTDB f\_\_TMED127) have small, streamlined genomes (~1.5 Mb) and appear to be obligate lanthanide-dependent methylotrophs that use the serine cycle for carbon assimilation.

### Classification

*Bacteria* » *Pseudomonadota* » *Alphaproteobacteria* » *Methyloquorales* » *Methyloquoraceae*

### References

Effective publication: Glass et al., 2025 [1]

### Registry URL

<https://seqco.de/i:51451>

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## Genus *Methyloaequor*

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### Etymology

[Me.thyl.æ'quor] **N.L. neut. n.** *methyl*, the methyl group; **L. neut. n.** *aequor*, surface of the sea; **N.L. neut. n.** *Methyloaequor*, a methyl group-oxidizing organism of the sea surface

### Nomenclatural type

Species *Methyloaequor ceniphilum*<sup>Ts</sup>

### Description

Uncultivated bacteria in the order *Methyloaequorales* (previously GTDB o\_\_TMED127) and family *Methyloaequoraceae* (previously GTDB f\_\_TMED127) have small, streamlined genomes (~1.5 Mb) and appear to be obligate lanthanide-dependent methylotrophs that use the serine cycle for carbon assimilation.

### Classification

*Bacteria* » *Pseudomonadota* » *Alphaproteobacteria* » *Methyloaequorales* » *Methyloaequoraceae* » *Methyloaequor*

### References

Effective publication: Glass et al., 2025 [1]

### Registry URL

<https://seqco.de/i:51450>

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## Species *Methyloaequor ceniphilum*<sup>Ts</sup>

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### Etymology

[ce.ni.phi'lum] **L. fem. n.** *cena*, the principal meal of the day in ancient Roman culture, originally taken in the afternoon; **N.L. masc. adj. suff.** *-philus*, loving; **N.L. neut. adj.** *ceniphilum*, late afternoon meal loving

### Nomenclatural type

[NCBI Assembly: GCA\\_902617375.1](#)<sup>Ts</sup>

### Description

Uncultivated bacteria in the order *Methyloaequorales* (previously GTDB o\_\_TMED127) and family *Methyloaequoraceae* (previously GTDB f\_\_TMED127) have small, streamlined genomes (~1.5 Mb) and appear to be obligate lanthanide-dependent methylotrophs that use the serine cycle for carbon assimilation. *Methyloaequor ceniphilum* showed a diel pattern of lanthanide-dependent methanol dehydrogenase (*xoxF5*) and glucose dehydrogenase (*gdh*) transcription, peaking in the late afternoon, in oligotrophic surface water of the Sargasso Sea.

### Classification

*Bacteria* » *Pseudomonadota* » *Alphaproteobacteria* » *Methyloaequorales* » *Methyloaequoraceae* » *Methyloaequor* » *Methyloaequor ceniphilum*<sup>Ts</sup>

### References

Effective publication: Glass et al., 2025 [1]

### Registry URL

<https://seqco.de/i:51448>

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## References

1. Glass et al. (2025). Diel cycle of lanthanide-dependent methylotrophy by TMED127/*Methyloaequorales* bacteria in oligotrophic surface seawater. *Applied and Environmental Microbiology*. DOI:10.1128/aem.01181-25

## 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:\_v7atfaf** submitted by **Glass, Jennifer** and including 4 new names has been successfully validated.

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