

Methanobacterium limaniae sp. nov. and Methanocella ebodensis sp. nov.

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Abstract

This Register List documents the genome-based description of two novel methanogenic archaeal species, *Methanobacterium limaniae* sp. nov. and *Methanocella ebodensis* sp. nov., in accordance with the SeqCode. Both taxa are represented by high-quality genome sequences recovered from enrichment cultures derived from arid desert biocrusts. Phylogenomic analyses place these lineages as distinct species within the genera *Methanobacterium* and *Methanocella*, respectively, clearly separated from all previously described taxa. These organisms expand the known ecological and genomic diversity of methanogens inhabiting oxic and desiccation-prone terrestrial environments.

Species *Methanobacterium limaniae*

Etymology

[li.ma'ni.æ] **N.L. gen. n.** *limaniae*, of a Liman, referring specifically to the Liman irrigation systems employed in the Negev Desert

Nomenclatural type

[NCBI Assembly: GCA_049677355.1](https://ncbi.nlm.nih.gov/assembly/GCA_049677355.1) ^{Ts}

Description

Phylogenetically affiliated with the genus *Methanobacterium*, phylum *Methanobacteriota*. The genome consists of one circular chromosome of 3,168,381 bp. The DNA G + C content is 33.45 mol%. Strain *Methanobacterium limaniae* EP was cultivated from biocrust of the Negev desert, Israel. Soil hydrogenotrophic methanogen with a rod-shaped morphology. Cells are slender and elongated, typically measuring ~0.5 µm in diameter and 4-5 µm in length. The strain was routinely cultured with 80% H₂ at 32°C in DSM17711 medium.

Classification

Archaea » *Methanobacteriota* » *Methanobacteria* » *Methanobacteriales* » *Methanobacteriaceae* » *Methanobacterium* » *Methanobacterium limaniae*

References

Effective publication: Tian et al., 2026 [1]

Corrigendum: Anonymous, 2026 [2] (from “*Methanobacterium limanae*”)

Registry URL

<https://seqco.de/i:50974>

Species *Methanocella ebodensis*

Etymology

[e.bo.den'sis] **N.L. fem. adj.** *ebodensis*, of Eboda, a significant ancient Nabataean city situated along the "Incense Route", close to the location where the strain was isolated.

Nomenclatural type

[NCBI Assembly: GCA_049676595.1](#) ^{Ts}

Description

Phylogenetically affiliated with the genus *Methanocella*, phylum *Halobacteriota*. The genome consists of one circular chromosome of 3,614,771 bp. The DNA G + C content is 54.73 mol%. Strain *Methanocella ebodensis* WT was cultivated from biocrust of the Negev desert, Israel. Soil hydrogenotrophic methanogen with a rod-shaped morphology. Cells typically measure ~0.8 µm in diameter and 7-8 µm in length. The strain was routinely cultured with 10% H₂ at 37°C in fresh water basal medium and subjected to 5% air regularly.

Classification

Archaea » Halobacteriota » Methanocellia » Methanocellales » Methanocellaceae »
Methanocella » *Methanocella ebodensis*

References

Effective publication: Tian et al., 2026 [1]
Assigned taxonomically: Sakai et al., 2008 [3]

Registry URL

<https://seqco.de/i:50976>

References

1. Tian et al. (2026). Cultivation and genomic characterization of novel methanogens from arid desert biocrust. *ISME Communications*. DOI:10.1093/ismeco/ycag013
2. Anonymous (2026). Correction to: Cultivation and genomic characterization of novel methanogens from arid desert biocrust. *ISME Communications*. DOI:10.1093/ismeco/ycag047
3. Sakai et al. (2008). *Methanocella paludicola* gen. nov., sp. nov., a methane-producing archaeon, the first isolate of the lineage 'Rice Cluster I', and proposal of the new archaeal order Methanocellales ord. nov. *INTERNATIONAL JOURNAL OF SYSTEMATIC AND EVOLUTIONARY MICROBIOLOGY*. DOI:10.1099/ijs.0.65571-0

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:lhm19uk7** submitted by **Tian, Weitao** and including 2 new names has been successfully validated.

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