

Caldarchaeum subterraneum gen. nov. sp. nov.

Submitted by Rasmussen, Ejnar

Genus *Caldarchaeum*

Etymology

[Cald.ar.chae'um] **L. masc. adj.** *calidus*, warm; **N.L. neut. n.** *archaeum*, archaeon; **N.L. neut. n.** *Caldarchaeum*, a warm archaeon

Nomenclatural type

Species *Caldarchaeum subterraneum*^{Ts}

Description

Nunoura et al., 2011: Here, we show the genome sequence of *Candidatus* 'Caldiarchaeum subterraneum' that represents an uncultivated crenarchaeotic group. A composite genome was reconstructed from a metagenomic library previously prepared from a microbial mat at a geothermal water stream of a sub surface gold mine. The genome was found to be clearly distinct from those of the known phyla/divisions, *Crenarchaeota* (hyperthermophiles), *Euryarchaeota*, *Thaumarchaeota* and *Korarchaeota*. The unique traits suggest that this crenarchaeotic group can be considered as a novel archaeal phylum/division. Moreover, *C. subterraneum* harbors an ubiquitin-like protein modifier system consisting of Ub, E1, E2 and small Zn RING finger family protein with structural motifs specific to eukaryotic system proteins, a system clearly distinct from the prokaryote-type system recently identified in *Haloferax* and *Mycobacterium*. The presence of such a eukaryote-type system is unprecedented in prokaryotes, and indicates that a prototype of the eukaryotic protein modifier system is present in the *Archaea*.

Classification

Archaea » *Thermoproteota* » "Caldarchaeia" » "Caldarchaeales" » "Caldarchaeaceae" » *Caldarchaeum*

References

Effective publication: Nunoura et al., 2011 [1]
Corrigendum: Oren, 2017 [2] (from "Caldiarchaeum")

Registry URL

<https://seqco.de/i:32064>

Species *Caldarchaeum subterraneum*^{Ts}

Etymology

[sub.ter.ra'ne.um] **L. neut. adj.** *subterraneum*, underground

Nomenclatural type

[Genome sc|0006251](#) ^{Is}

Description

C. subterraneum harbors an ubiquitin-like protein modifier system consisting of Ub, E1, E2 and small Zn RING finger family protein with structural motifs specific to eukaryotic system proteins, a system clearly distinct from the prokaryote-type system. A composite genome was reconstructed from a metagenomic library previously prepared from a microbial mat at a geothermal water stream of a sub-surface gold mine.

Classification

Archaea » Thermoproteota » “Caldarchaeia” » “Caldarchaeales” » “Caldarchaeaceae” » *Caldarchaeum* » *Caldarchaeum subterraneum*^{Ts}

References

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Assigned taxonomically: Nunoura et al., 2011 [1]

Registry URL

<https://seqco.de/i:32063>

References

1. Nunoura et al. (2011). Insights into the evolution of Archaea and eukaryotic protein modifier systems revealed by the genome of a novel archaeal group. *Nucleic Acids Research*. DOI: [10.1093/nar/gkq1228](https://doi.org/10.1093/nar/gkq1228)
2. Oren (2017). A plea for linguistic accuracy – also for Candidatus taxa. *International Journal of Systematic and Evolutionary Microbiology*. DOI: [10.1099/ijsem.0.001715](https://doi.org/10.1099/ijsem.0.001715)

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:uafpbeg4** submitted by **Rasmussen, Ejnar** and including 2 new names has been successfully validated.

Date of Priority: 2026-08-24 12:19 UTC
DOI: 10.57973/seqcode.r:uafpbeg4

