

Species *Wolframiiraptor gerlachensis*^{TS}

Etymology

[ger.lach.en'sis] N.L. masc. adj. *gerlachensis*, of Gerlach, the region where Great Boiling Spring is located in Nevada, and this organism was obtained from

Nomenclatural type

[NCBI Assembly: GCA_021323375.2](#)^{TS}

Description

A MAG representing this species was recovered from metagenomic sequencing of a stable enrichment culture, established from an *in situ* corn stover enrichment from Great Boiling Spring, Nevada, USA. Enrichment and maintenance of this species within the mixed-culture community was optimal at an incubation temperature of 80 °C with lignocellulose and sugars, at circumneutral pH. This species is dependent on tungsten for growth, with significant decline in its abundance within the community without tungsten added to the growth medium. Additionally, several tungstoenzymes conserved within the genus were expressed at a higher rate during growth on corn stover, suggesting direct involvement of tungstoenzymes in complex carbohydrate metabolism. Cells of this organism showed significant isotope enrichment when grown on isotopically labeled xylose-amended medium, with limited isotope enrichment during growth on medium amended with amino acids, glucose, ribose, and starch, indicating preferential assimilation of xylose. The genome sequence for this organism is 1,277,965 bp in size, and consists of 27 contigs and has a G+C content of 52 %. Completeness is estimated at 98.06 % with 0.49 % contamination, as estimated with CheckM. ANI comparisons among this genome and those of closely related species were below 86 %, supporting the delineation of this taxon as unique and distinct to other species in the genus.

Classification

Incertae sedis (Archaea) » "Caldarchaeales" » *Wolframiiraptoraceae* » *Wolframiiraptor* » *Wolframiiraptor gerlachensis*^{TS}

References

Effective publication: Buessecker et al., 2022 [1]

Registry URL

<https://seqco.de/i:22816>

References

1. Buessecker et al. (2022). An essential role for tungsten in the ecology and evolution of a previously uncultivated lineage of anaerobic, thermophilic Archaea. *Nature Communications*. DOI:[10.1038/s41467-022-31452-8](https://doi.org/10.1038/s41467-022-31452-8)