

Electronema gen. nov.

Submitted by Schramm, Andreas

Genus *Electronema*

Etymology

[E.lec.tro.ne'ma] Gr. neut. n. *élektron*, amber; Gr. neut. n. *nêma*, a thread; N.L. neut. n. *Electronema*, an electric wire

Nomenclatural type

Species *Electronema aureum*^{Ts}

Description

Multicellular filaments, up to several centimeters in length, with 15–58 characteristic longitudinal ridges and shared periplasm across cells; electron-conducting; typically spanning the suboxic zone in surface sediments; individual cells are 0.4–3 µm × 1–3 µm in size; no sulfur inclusions; gliding motility; mostly freshwater-inhabiting.

Classification

Bacteria » *Desulfobacterota* » *Desulfobulbia* » *Desulfobales* » *Desulfobulbaceae* » *Electronema*

References

Proposed: Thorup et al., 2021

Assigned taxonomically: Trojan et al., 2016

Registry URL

<https://seqco.de/i:23721>

Species *Electronema aureum*^{Ts}

Etymology

[a.u.re'um] L. neut. adj. *aureum*, golden

Nomenclatural type

[NCBI Assembly: GCA_004284765.1](#)^{Ts}

Reference Strain

GS

Description

Filamentous bacteria of centimeter length that inhabit the surface of freshwater sediment and conduct electrons from sulfide-oxidizing cells to oxygen- or nitrate-reducing cells. Gliding motility. Gram-negative, with 40 distinct ridges running longitudinally along the filament. Width of individual cells is 1.7 ± 0.1 µm. Can assimilate acetate but not propionate; CO₂ fixation via the Wood-Ljungdahl pathway. Contains c-type cytochromes and type IV pili (PilA). Polyphosphate and polyglucose storage. Distinguishable by morphology and genome.

Classification

Bacteria » *Desulfobacterota* » *Desulfobulbia* » *Desulfobales* » *Desulfobulbaceae* » *Electronema* » *Electronema aureum*^{Ts}

References

Proposed: Thorup et al., 2021

Registry URL

<https://seqco.de/i:736>

References

1. Thorup et al. (2021). How to grow your cable bacteria: Establishment of a stable single-strain culture in sediment and proposal of Candidatus *Electronema aureum* GS. *Systematic and Applied Microbiology*. [DOI:10.1016/j.syapm.2021.126236](https://doi.org/10.1016/j.syapm.2021.126236)
2. Trojan et al. (2016). A taxonomic framework for cable bacteria and proposal of the candidate genera *Electrothrix* and *Electronema*. *Systematic and Applied Microbiology*. [DOI:10.1016/j.syapm.2016.05.006](https://doi.org/10.1016/j.syapm.2016.05.006)

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:zva8guc9 submitted by **Schramm, Andreas** and including 2 new names has been successfully validated.

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