

Register list for *Penumbrarchaeum helgolandensis* gen. nov. sp. nov. and their lineage

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Table 1: Complete list of names proposed in the current register list.

Proposed Taxon	Etymology	Description	Parent Taxon	Type	Registry URL
Class <i>Penumbrarchaeia</i>	[Pe.num.brar.chae'i.a] N.L. neut. n. <i>Penumbrarchaeum</i> , referring to the type genus <i>Penumbrarchaeum</i> ; <i>-ia</i> , ending to denote a class; N.L. neut. pl. n. <i>Penumbrarchaeia</i> , the <i>Penumbrarchaeum</i> class	The description is the same as for <i>Candidatus</i> <i>Penumbrarchaeum</i> gen. nov. with the following additions: <i>Candidatus</i> <i>Penumbrarchaeia</i> class. nov. comprises the type order <i>Candidatus</i> <i>Penumbrarchaeales</i> ord. nov. and Order 2, Order 3 and Order 4, three previously unidentified orders in this class. Members of Order 3 and Order 4 are anaerobes inhabiting the water column of oxygen minimum and oxygen deficient zones, not capable of protein degradation based on metabolic potential.	<i>Thermoplasmatota</i>	<i>Penumbrarchaeum</i>	seqco.de/i:49913
Order <i>Penumbrarchaeales</i>	[Pe.num.brar.chae.a'les] N.L. neut. n. <i>Penumbrarchaeum</i> , referring to the type genus <i>Penumbrarchaeum</i> ; <i>-ales</i> , ending to denote an order; N.L. fem. pl. n. <i>Penumbrarchaeales</i> , the <i>Penumbrarchaeum</i> order	The description is the same as for <i>Candidatus</i> <i>Penumbrarchaeum</i> gen. nov. with the following additions: <i>Candidatus</i> <i>Penumbrarchaeales</i> ord. nov. was previously known as “EX4484-6” and comprises two families <i>Candidatus</i> <i>Penumbrarchaeaceae</i> fam. nov. and Family 1B, previously known as “EX4484-36”.	<i>Penumbrarchaeia</i>	<i>Penumbrarchaeum</i>	seqco.de/i:49914
Family <i>Penumbrarchaeaceae</i>	[Pe.num.brar.chae.a'ce.ae] N.L. neut. n. <i>Penumbrarchaeum</i> , referring to the type genus <i>Penumbrarchaeum</i> ; <i>-aceae</i> , ending to denote a family;	The description is the same as for <i>Candidatus</i> <i>Penumbrarchaeum</i> gen. nov. with the following additions: <i>Candidatus</i> <i>Penumbrarchaeaceae</i> was previously known as the family “EX4484-6”. Members of the	<i>Penumbrarchaeales</i>	<i>Penumbrarchaeum</i>	seqco.de/i:49915

Proposed Taxon	N.L. fem. pl. n. Etymology	Description	Parent Taxon	Type	Registry URL
	<i>Penumbrarchaeaceae</i> , the Penumbrarchaeum family	family were inferred to be found in sediments of marine and freshwater origin as well as cold seeps. Type genus: <i>Candidatus</i> Penumbrarchaeum gen. nov.			
Genus <i>Penumbrarchaeum</i>	[Pe.num.brar.chae'um] N.L. fem. n. <i>penumbra</i> , partial shadow as in partially hidden; N.L. neut. n. <i>archaeum</i> , ancient one, archaeon; N.L. neut. n. <i>Penumbrarchaeum</i> , the archaeon hidden in the biosphere at the edge of detection	Inferred to be of marine sediment origin, an anaerobe fermenting proteins, peptides and amino acids. Members were of low abundance (< 0.32%) and thus classified as rare biosphere.	<i>Penumbrarchaeaceae</i>	<i>Penumbrarchaeum</i> <i>helgolandense</i> ^{Ts}	seqco.de/i:49916
Species <i>Penumbrarchaeum</i> <i>helgolandense</i> ^{Ts}	[hel.go.lan.den'se] N.L. neut. adj. <i>helgolandense</i> , of Helgoland, the region where the Helgoland mud area is located in the North Sea, and this organism originated from	Inferred to be of marine sediment origin, an anaerobe fermenting proteins, peptides and amino acids. Members were of low abundance (< 0.32%) and thus classified as rare biosphere. The species is represented by the MAG (metagenome-assembled genome) E3_1_d157 (3.46 Mbp), obtained from metagenomic sequences retrieved from an enrichment of Helgoland mud area sediment (54°05'15.5''N, 7°58'05.5''E) from a sediment depth of 45-70cm.	<i>Penumbrarchaeum</i>	NCBI Assembly: GCA_965234725.1 ^{Ts}	seqco.de/i:49912