

Table S4. MAGs used for the phylogenomic trees (Fig. 5, Fig. S6, Fig. S7) including the blue hole MAG of interest and the source of all other MAGs included in the phylogeny.

Phylogeny					# single-copy	
Figure	Blue Hole MAG	Database	Accession #/Taxon ID	Source	genes used	Outgroup?
4	Nitrosopumilus sp. (BH19)	FigShare (Aylward Lab)	HMT_AABW	marine water (>4K m depth)	35	
4	Nitrosopumilus sp. (BH19)	FigShare (Aylward Lab)	HMT_AAIW	marine water (>4K m depth)	35	
4	Nitrosopumilus sp. (BH19)	FigShare (Aylward Lab)	HMT_ATL	marine water (>4K m depth)	35	
4	Nitrosopumilus sp. (BH19)	FigShare (Aylward Lab)	HMT_NADW	marine water (>4K m depth)	35	
4	Nitrosopumilus sp. (BH19)	FigShare (Aylward Lab)	HMT_PAC	marine water (>4K m depth)	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_011058825.1	hot spring sediment	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_002906215.1	hot spring biofilm	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_900248165.1	terrestrial hot spring	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_001627015.1	Red Sea water column	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_001627075.1	Red Sea water column	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_001627095.1	Red Sea water column	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_001627105.1	Red Sea water column	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_001627165.1	Red Sea water column	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_001627235.1	Red Sea water column	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_001437625.1	brackish water	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_001438895.1	brackish water	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_001541925.1	cold seep sponge	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_001543015.1	glass sponge	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_001674955.1	marine water	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_000018465	isolate	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_000242875	coastal sediments	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_002494985	deep-sea sponge	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_002506665	deep-sea sponge	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_002508395	water	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_002690535	marine water	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_002763195	groundwater	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_000299365	isolate	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_000299395	isolate	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_003175215	isolate	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_003331425	marine water	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_003702495	marine water	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_003702525	marine water	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_003702545	marine water	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_003724235	isolate	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_003724255	isolate	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_003724285	isolate	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_003724325	isolate	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_006740685	marine water	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_007571005	PNG CO2 seep-seep site	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_007571135	PNG CO2 seep-control site	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_008080815	marine water	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_008080855	marine water	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_000875775	surface seawater	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_000956175	marine water	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_009694705	freshwater	35	
4	Nitrosopumilus sp. (BH19)	FigShare (Patin)	Nitrosopumilus_manual	Amberjack hole (this study)	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_000328945.1	marine sediment	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_000698785.1	isolate	35	
4	Nitrosopumilus sp. (BH19)	GenBank	GCA_000189555.1	isolate	35	X
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_001281385.1	Puget Sound water	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_001293165.1	Effingham Inlet water	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_001628345.1	Red Sea water	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_001628365.1	Red Sea water	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_001628405.1	Red Sea water	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_001682155.1	Puget Sound water	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_000205985.2	Saanich Inlet	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_002169705.1	marine water	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_002456985.1	marine water	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_002456995.1	marine water	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_002689885.1	marine water	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_002909145.1	Peruvian upwelling	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_003326015.1	marine water	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_003332345.1	marine water	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_003978155.1	hydrothermal vent	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_003978165.1	hydrothermal vent	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_003978175.1	hydrothermal vent	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_003978185.1	hydrothermal vent	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_003978205.1	hydrothermal vent	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_003978255.1	hydrothermal vent	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_003978285.1	hydrothermal vent	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_003978295.1	hydrothermal vent	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_004212795.1	marine water	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_004212825.1	marine water	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_000424685.1	isolate	31	X
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_008364125.1	hydrothermal vent sponge	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_008364135.1	hydrothermal vent sponge	31	
S4	SUP05 (Thioglobaceae) (BH20)	FigShare (Patin)	BH_Deeps_001	Amberjack hole (this study)	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_900180385.1	gill tissue	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_900180335.1	gill tissue	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_900180375.1	sponge tissue	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_900180405.1	sponge tissue	31	
S4	SUP05 (Thioglobaceae) (BH20)	GenBank	GCA_900180365.1	sponge tissue	31	
S5	Woesearchaeota (BH21)	GenBank	GCA_000018465	isolate	45	X
S5	Woesearchaeota (BH21)	GenBank	GCA_902529885.1	hot spring sediment	45	
S5	Woesearchaeota (BH21)	GenBank	GCA_011045925.1	hot spring sediment	45	

S5	Woeseearchaeota (BH21)	GenBank	GCA_011331795.1	mud sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_011333755.1	mud sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_011333955.1	hot spring sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_011368255.1	deep-sea hydrothermal vent sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_011372335.1	mud sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_011374165.1	contaminated sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_001791825.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_001871415.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_001872765.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_001872825.1	soil	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002498125.1	water	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002503425.1	waste water	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002503705.1	marine water	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002503745.1	marine OMZ (Arabian Sea)	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002505585.1	marine water	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002505845.1	crude oil	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002505945.1	marine OMZ (Arabian Sea)	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002506165.1	marine water	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002685855.1	marine water	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002686215.1	marine water	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002686295.1	marine water	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002686855.1	marine water	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002687275.1	marine water	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002687795.1	marine water	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002688315.1	marine water	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002688775.1	marine water	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002690055.1	marine water	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002725495.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002762695.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002762705.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002762765.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002762785.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002762795.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002762845.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002762855.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002762865.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002762915.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002762925.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002762985.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002763025.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002763335.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002779235.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002780105.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002784405.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002792055.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002792075.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002792115.1	groundwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002794135.1	enrichment from estuary sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_002867475.1	hypersaline soda lake sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003555225.1	hypersaline soda lake sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003558875.1	hypersaline soda lake sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003560545.1	hypersaline soda lake sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003561825.1	hypersaline soda lake sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003564925.1	subsurface aquifer	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003599055.1	subsurface aquifer	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003599145.1	deep-sea hydrothermal vent sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003649025.1	deep-sea hydrothermal vent sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003649035.1	deep-sea hydrothermal vent sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003650545.1	deep-sea hydrothermal vent sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003650585.1	iron-rich hot spring	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003694385.1	iron-rich hot spring	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003694495.1	iron-rich hot spring	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003694805.1	iron-rich hot spring	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003695045.1	iron-rich hot spring	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003695265.1	iron-rich hot spring	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_003695435.1	marine sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_005222965.1	hypersaline soda lake brine	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_007116295.1	hypersaline soda lake brine	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_007116315.1	hypersaline soda lake brine	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_007116645.1	hypersaline soda lake brine	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_007116655.1	hypersaline soda lake brine	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_007116795.1	hypersaline soda lake brine	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_007117065.1	hypersaline soda lake brine	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_007117145.1	hypersaline soda lake brine	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_007117405.1	hypersaline soda lake brine	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_007117735.1	hypersaline soda lake sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_007128245.1	hypersaline soda lake sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_007130955.1	hypersaline soda lake sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_007131205.1	hypersaline soda lake sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_007133845.1	hypersaline soda lake sediment	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_009691355.1	freshwater	45
S5	Woeseearchaeota (BH21)	GenBank	GCA_902385765.1	groundwater	45
S5	Woeseearchaeota (BH21)	IMG	2806311055	Black Sea water	45
S5	Woeseearchaeota (BH21)	IMG	2806311056	Black Sea water	45
S5	Woeseearchaeota (BH21)	IMG	2785511131	Black Sea water	45
S5	Woeseearchaeota (BH21)	IMG	2785511134	Black Sea water	45
S5	Woeseearchaeota (BH21)	IMG	2811994887	Black Sea water	45
S5	Woeseearchaeota (BH21)	FigShare (Patin)	BH_Deeps_002	Amberjack hole (this study)	45