

Additional data file1: Detail informations about 69 archaea under study

Organism Name	Group	Class	Order	Genome Size (Mb)	GC Content (%)	Temp. range	habitat	oxygen requirement
<i>Aeropyrum pernix K1</i>	CR	TP	desulfurococcales	1.7	56.3	hyperthermophile	***	aerobic
<i>Desulfurococcus kamchatkensis 1221n</i>				1.4	45.3	Hyperthermophilic	Aquatic	Anaerobic
<i>Hyperthermus butylicus DSM 5456</i>				1.7	53.7	Hyperthermophilic	Aquatic	Anaerobic
<i>Staphylothermus marinus F1</i>				1.6	35.7	Hyperthermophilic	Specialized	Anaerobic
<i>Ignicoccus hospitalis KIN4/I</i>				1.3	56.5	Hyperthermophilic, Acidophilic	Aquatic	Anaerobic
<i>Caldivirga maquilingensis IC-167</i>			thermoproteales	2.1	43.1	Hyperthermophilic	Specialized	Micro-aerophilic
<i>Pyrobaculum aerophilum str. IM2</i>				2.2	51.4	Hyperthermophilic, Acidophilic	Aquatic	Facultative
<i>Pyrobaculum arsenaticum DSM 13514</i>				2.1	55.1	Hyperthermophilic	Aquatic	Anaerobic
<i>Pyrobaculum calidifontis JCM 11548</i>				2.0	57.2	Hyperthermophilic	Specialized	Facultative
<i>Pyrobaculum islandicum DSM 4184</i>				1.8	49.6	Thermophilic	Specialized	Anaerobic
<i>Thermofilum pendens Hrk 5</i>				1.8	57.6	Hyperthermophilic	Specialized	Anaerobic
<i>Thermoproteus neutrophilus V24Sta</i>				1.8	59.9	Hyperthermophilic	Specialized	Anaerobic
<i>Metallosphaera sedula DSM 5348</i>			sulfolobales	2.2	46.2	Thermophilic	Specialized	Aerobic
<i>Sulfolobus acidocaldarius DSM 639</i>				2.2	36.7	Thermophilic	Specialized	Aerobic
<i>Sulfolobus islandicus L.S.2.15</i>				2.7	35.1	Hyperthermophilic	Specialized	Aerobic
<i>Sulfolobus islandicus M.14.25</i>				2.6	35.1	Hyperthermophilic	Specialized	Aerobic
<i>Sulfolobus islandicus M.16.27</i>				2.7	35.0	Hyperthermophilic	Specialized	Aerobic
<i>Sulfolobus islandicus M.16.4</i>				2.6	35.0	Hyperthermophilic	Specialized	Aerobic
<i>Sulfolobus islandicus Y.G.57.14</i>				2.7	35.4	Hyperthermophilic	Specialized	Aerobic
<i>Sulfolobus islandicus Y.N.15.51</i>				2.8	35.3	Hyperthermophilic	Specialized	Aerobic
<i>Sulfolobus solfataricus P2</i>				3.0	35.8	Thermophilic	Specialized	Aerobic
<i>Sulfolobus tokodaii str. 7</i>				2.7	32.8	Thermophilic	Specialized	Aerobic
<i>Nitrosopumilus maritimus SCM1</i>	TH			1.6	34.2	Mesophilic	Aquatic	Aerobic
<i>Archaeoglobus fulgidus DSM 4304</i>	EU	AG		2.2	48.6	Hyperthermophilic	Aquatic	Anaerobic
<i>Haloarcula marismortui ATCC 43049</i>		HA		4.3	61.1	Mesophilic	Aquatic	Aerobic
<i>Halobacterium salinarum R1</i>				2.7	65.7	Mesophilic	Specialized	Anaerobic
<i>Halobacterium sp. NRC-1</i>				2.6	65.9	Mesophilic	Specialized	Facultative

<i>Halomicrobium mukohataei</i> DSM 12286				3.3	65.5	Mesophilic	Specialized	Facultative
<i>Haloquadratum walsbyi</i> DSM 16790				3.2	47.9	***	Aquatic	***
<i>Halorhabdus utahensis</i> DSM 12940				3.1	62.9	Mesophilic	Terrestrial	Aerobic
<i>Halorubrum lacusprofundi</i> ATCC 49239				3.7	64.0	Mesophilic	Aquatic	Aerobic
<i>Natronomonas pharaonis</i> DSM 2160				2.8	63.1	***	Aquatic	Aerobic
<i>Methanocaldococcus fervens</i> AG86		MC		1.5		Hyperthermophilic	Specialized	Anaerobic
<i>Methanocaldococcus jannaschii</i> DSM 2661				1.8	31.3	Thermophilic	Aquatic	Anaerobic
<i>Methanococcus aeolicus</i> Nankai- 3				1.6	30.0	Mesophilic	Aquatic	Anaerobic
<i>Methanocaldococcus vulcanius</i> M7				1.7	31.6	Hyperthermophilic	Specialized	Anaerobic
<i>Methanococcus maripaludis</i> C5				1.8	33.0	Mesophilic	Aquatic	Anaerobic
<i>Methanococcus maripaludis</i> C6				1.7	33.4	Mesophilic	Aquatic	Anaerobic
<i>Methanococcus maripaludis</i> C7				1.8	33.3	Mesophilic	Aquatic	Anaerobic
<i>Methanococcus maripaludis</i> S2				1.7	33.1	Mesophilic	Aquatic	Anaerobic
<i>Methanococcus vanniellii</i> SB				1.7	31.3	Mesophilic	Aquatic	Anaerobic
<i>Methanocella paludicola</i> SANA E				3.0	54.9	Mesophilic	***	***
<i>Candidatus Methanoregula</i> <i>boonei</i> 6A8		MM		2.5	54.5	Mesophilic	Terrestrial	Anaerobic
<i>Methanocorpusculum</i> <i>labreanum</i> Z				1.8	50.0	Mesophilic	Aquatic	Anaerobic
<i>Methanoculleus marisnigri</i> JR1				2.5	62.1	Mesophilic	Aquatic	Anaerobic
<i>Methanococcoides burtonii</i> DSM 6242				2.6	40.8	Mesophilic	Aquatic	Anaerobic
<i>Methanosaeta thermophila</i> PT				1.9	53.5	Thermophilic	***	Anaerobic
<i>Methanosarcina acetivorans</i> C2A				5.8	42.7	Mesophilic	Aquatic	Anaerobic
<i>Methanosarcina barkeri</i> str. <i>Fusaro</i>				4.8	39.2	Mesophilic	Multiple	Anaerobic
<i>Methanosarcina mazei</i> Go1				4.1	41.5	Mesophilic	Multiple	Anaerobic
<i>Methanosphaerula palustris</i> E1- 9c				2.9	55.4	Mesophilic	Specialized	Anaerobic
<i>Methanospirillum hungatei</i> JF-1				3.5	45.1	Mesophilic	Multiple	Anaerobic
<i>Methanobrevibacter smithii</i> ATCC 35061		MB		1.9	31.0	Mesophilic	Multiple	Anaerobic
<i>Methanosphaera stadtmanae</i> DSM 3091				1.8	27.6	Mesophilic	Host- associated	Anaerobic
<i>Methanothermobacter</i> <i>thermautotrophicus</i> str. Delta H				1.8	49.5	Thermophilic	Specialized	Anaerobic

<i>Methanopyrus kandleri</i> AV19		MP		1.7	61.2	Hyperthermophilic	Specialized	Anaerobic
<i>Pyrococcus abyssi</i> GE5		TC		1.8	44.7	Thermophilic	Aquatic	Anaerobic
<i>Pyrococcus furiosus</i> DSM 3638				1.9	40.8	Thermophilic	Aquatic	Anaerobic
<i>Pyrococcus horikoshii</i> OT3				1.7	41.9	Thermophilic	Aquatic	Anaerobic
<i>Thermococcus gammatolerans</i> EJ3				2.0	51.3	Hyperthermophilic	Specialized	Anaerobic
<i>Thermococcus kodakarensis</i> KOD1				2.1	52.0	Hyperthermophilic	Specialized	Anaerobic
<i>Thermococcus onnurineus</i> NA1				1.8	51.3	Hyperthermophilic	Terrestrial	Anaerobic
<i>Thermococcus sibiricus</i> MM 739				1.8	***	Hyperthermophilic		Anaerobic
<i>Thermoplasma acidophilum</i> DSM 1728		TL		1.6	46.0	Thermophilic	Specialized	Facultative
<i>Thermoplasma volcanium</i> GSS1				1.6	39.9	Thermophilic	Specialized	Facultative
<i>Picrophilus torridus</i> DSM 9790				1.5	36.0	Thermophilic	Specialized	Aerobic
<i>uncultured methanogenic archaeon</i> RC-I		UN		3.2	54.6	Mesophilic	Host-associated	***
<i>Nanoarchaeum equitans</i> Kin4-M	NA			0.5	31.6	Hyperthermophilic	Host-associated	Anaerobic
<i>Candidatus Korarchaeum cryptofilum</i> OPF8	KO			1.6	49.0	Thermophilic	Specialized	Anaerobic

CR- Crenarchaeota, TH- Thaumarchaeota, EU- Euryarchaeota, NA- Nanoarchaeota, KO- Korarchaeota, TP- Thermoprotei, AG- Archaeoglobus, HA- Halobacteria, MC- Methanococci, MM- Methanomicrobia, MB- Methanobacteria, MP- Methanopyri, TC- Thermococci, TL- Thermoplasmata, UN- Uncultured methanogen