

TABLE S3. Clone library environmental data, including pH and geochemical concentrations and ratios.

Year Collected	Clone Library	Region	pH	Fe (μM)	Mn (μM)	Fe/Mn (mol ratio)	Si (μM)	Reference
Full-Length Sequences								
1991	Pele's Vents Bacteria (PVB)	Loihi Seamount	4.2-5.5†	603-1460†	20.6-48.4†	~47.9†	~667-1770†	Karl <i>et al.</i> , 1988; Sedwick <i>et al.</i> , 1992, 1994
1996	<i>M. ferrooxydans</i> strain PV-1	Loihi Seamount	6.5-7.6	270-664	4.6-11.9	55.9-59.1	661-1480	Wheat <i>et al.</i> , 2000
1998	<i>M. ferrooxydans</i> strain JV-1	Loihi Seamount	5.3	67	59.1	1.1	2490	Wheat <i>et al.</i> , 2000
2003	PV-549_X2	Loihi Seamount						
2004	PV-601_b18 (UHO)	Loihi Seamount	5.9-6.0	261-452	11.0-19.1	22.9-23.7	2206-3810	Wheat <i>et al.</i> , 2000
2004	PV-602_b14 (SPL)	Loihi Seamount	6.1	476	8.9	53.2	3892	Wheat <i>et al.</i> , 2000
2006	<i>Mariprofundus</i> sp. strain M34	Loihi Seamount	6.0	610	17.0	35.9	4226	Glazer and Rouxel, 2009
2006	Growth Chamber LoBT_24 (Loh)	Loihi Seamount	5.9	235	21.8	10.8	1558	Glazer and Rouxel, 2009
2006	Ula Nui Bacteria (UNB)	Loihi Seamount						
2007	J2-308_redgreen (UNH)	Loihi Seamount	6.7-6.8	576-578	24.1-24.5	23.6-23.9	4069-4131	Glazer and Rouxel, 2009
2007	J2-310_bluered (ULoh)	Loihi Seamount						
2008	J2-373_scoop1 (Poh)	Loihi Seamount	5.6-6.5	507-773	12.4-19.0	40.7-40.9	1553-2275	Glazer and Rouxel, 2009
1997	Red Sea KT-2	Red Sea	6.5					Eder <i>et al.</i> , 2001
1998	Guaymas Core B	Southern Guaymas vent field						
2002	Cleft Mound pushcore 23	Juan de Fuca Ridge	7.5	0.94	9.7	0.097	241	Davis <i>et al.</i> , 2009
2003	WSMO200	California	1.8					Moreau <i>et al.</i> , 2010
2003	1-WB	Southern Mariana Trough						
2003	2-WB	Southern Mariana Trough						
2004	Papm3	Southern Mariana Trough	7.3					Kato <i>et al.</i> , 2009b
2005	Tangaroa Flocc (TF)	Kermadec Arc	~5	6				Hodges and Olson, 2009
2005	Tangaroa Sediment (TS)	Kermadec Arc	~5	6				Hodges and Olson, 2009
2005	Clark Flocc (CF)	Kermadec Arc	~5	15				Hodges and Olson, 2009
2005	Vailulu'u Seamount (VS_CL)	Vailulu'u Seamount	7.5-8.4					Sudek <i>et al.</i> , 2009
2007	East Lau Spreading Center (ELSC)	ELSC						
2007	R1053 (V1F)	Tonga Arc						
2007	R1046 (AV19F)	Tonga Arc						
2008	<i>Mariprofundus</i> sp. strain GSB2	Maine	6.2					McBeth <i>et al.</i> , 2011
2009/10	Bigelow Enrichment Experiments	Maine						

† Averaged from samples from 1987-1992; data not used in analyses.