

Table S1. Sequences used in phylogenetic analyses (those generated as part of this study are shown in bold).

Locus	Organism	GB/EMBL Acc.	GenInfo Id.	Nucleotide Sites*
vnfD	<i>Anabaena azotica</i> strain FACHB-118	AY422692.1	37694441	All
	<i>Anabaena</i> sp. CH1	DQ294215.1	83034994	All
	<i>Anabaena variabilis</i>	L20472.1	304058	All
	<i>Azospirillum brasilense</i> Sp245	HE577330.1	356881273	698710-700073
	<i>Azotobacter chroococcum</i>	X51756.1	38755	All
	<i>Azotobacter paspali</i> clone pTL4	AF058781.1	3065910	All
	<i>Azotobacter salinestris</i> clone pTL5	AF058782.1	3065914	All
	<i>Azotobacter vinelandii</i>	M32371.1	142401	All
	<i>Clostridium kluyveri</i> DSM 555	CP000673.1	152206095	1846666-1848054
	<i>Ethanoligenens harbinense</i> YUAN-3	CP002400.1	315468987	2483573-2484964
	<i>Methanosarcina acetivorans</i> str. C2A	AE010299.1	19918815	1447960-1449402
	<i>Methanosarcina barkeri</i>	AF254784.1	8099625	All
	<i>Methanosarcina barkeri</i> str. Fusaro	CP000099.1	72394721	2887882-2889279
	Nitrogen-fixing bacterium BR2	EF694562.1	152032161	All
	Nitrogen-fixing bacterium BR3	EF694563.1	152032163	All
	Nitrogen-fixing bacterium BR5	EF694564.1	152032165	All
	Nitrogen-fixing bacterium BR6	EF694565.1	152032167	All
	Nitrogen-fixing bacterium BR8	EF694567.1	152032171	All
	Nitrogen-fixing bacterium DP6	EF694569.1	152032175	All
	Nitrogen-fixing bacterium DP7	EF694570.1	152032177	All
	Nitrogen-fixing bacterium DU1	AF152909.1	5107307	All
	Nitrogen-fixing bacterium MU1	EF694573.1	152032183	All
	Nitrogen-fixing bacterium MU11	EF694578.1	152032193	All
	Nitrogen-fixing bacterium MU12	EF694579.1	152032195	All
	Nitrogen-fixing bacterium MU13	EF694580.1	152032197	All
	Nitrogen-fixing bacterium MU4	EF694575.1	152032187	All
	Nitrogen-fixing bacterium MU6	EF694576.1	152032189	All
	Nitrogen-fixing bacterium MU7	EF694577.1	152032191	All
	Nitrogen-fixing bacterium NC2	EF694581.1	152032199	All
	Nitrogen-fixing bacterium SM1	AF152911.1	5107315	All
	Nitrogen-fixing bacterium SM2	AF152912.1	5107319	All
	Nitrogen-fixing bacterium TP1	AF152908.1	5107303	All
	Nitrogen-fixing bacterium WA1	AF152910.1	5107311	All
	Nitrogen-fixing bacterium WC1	AF152914.1	5107327	All
	<i>Nostoc</i> sp. from <i>Peltigera dolichorhiza</i>	KF662362	-	All
	<i>Nostoc</i> sp. from <i>Peltigera malacea</i>	KF662359	-	All
	<i>Nostoc</i> sp. from <i>Peltigera membranacea</i>	KF662360	-	All
	<i>Nostoc</i> sp. from <i>Peltigera neopolydactyla</i>	KF662361	-	All
	<i>Rhodomicrobium vannielii</i> ATCC 17100	CP002292.1	311217923	588542-589960

	<i>Rhodopseudomonas palustris</i> CGA009	BX572597.1	39648199	128427-129789
	Uncultured bacterium clone BSC-vDG	AY422707.1	37694450	All
anfD	<i>Chloroherpeton thalassium</i> ATCC 35110	CP001100.1	193087197	2167725-2169269
	<i>Clostridium pasteurianum</i>	L09762.1	385204	All
	<i>Rhodobacter capsulatus</i> SB 1003	CP001312.1	294474377	626957-628540
vnfN	<i>Anabaena variabilis</i>	U51863.1	1263077	All
	<i>Clostridium kluyveri</i> DSM 555	CP000673.1	152206095	1841946-1843286
	<i>Ethanoligenens harbinense</i> YUAN-3	CP002400.1	315468987	2489271-2490617
	<i>Methanosarcina acetivorans</i> str. C2A	AE010299.1	19918815	1452846-1454219
	<i>Methanosarcina barkeri</i> str. Fusaro	CP000099.1	72394721	2882494-2883834
	<i>Nostoc</i> sp. from <i>Peltigera dolichorhiza</i>	KF662369	-	All
	<i>Nostoc</i> sp. from <i>Peltigera malacea</i>	KF662365	-	All
	<i>Nostoc</i> sp. from <i>Peltigera membranacea</i>	KF662370	-	All
	<i>Nostoc</i> sp. from <i>Peltigera neopolydactyla</i>	KF662368	-	All
	<i>Nostoc</i> sp. from <i>Peltigera praetextata</i>	KF662367	-	All

* For sequences found only as part of whole genomes, plasmids, or contigs, the particular nucleotide sites downloaded from GenBank are specified.