

Table 1: Sequences used in the study^{a,b,c,d,e}

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
Bacteria (663)	79/609	244/484	115/558	99/566	316/426	188/373	158/539	416/175
Acidobacteria (2)	2/0	2/0	2/0	2/0	2/0	2/0	2/0	2/0
Acidobacteria (class) (1)	1/0	1/0	1/0	1/0	1/0	1/0	1/0	1/0
Acidobacteria bacterium Ellin345	C+	C+	^h C+	C+	C+	C+	C+	^h C+
Solibacteres (1)	C+	C+	1/0	1/0	1/0	1/0	1/0	^h C+
Solibacter usitatus Ellin6076	C+	C+	^h C+	C+	C+	C+	C+	^h C+
Actinobacteria (54)	6/50	38/38	31/42	32/47	37/34	12/9	36/41	43/0
Actinobacteria (class) (54)	6/50	38/38	31/42	32/47	37/34	12/9	36/41	43/0
Actidothermus cellulolyticus 11B	C+	C+	^h C+	C+	C+	C+	C+	^h C+
Arthrobacter aureusens TC1	4C-	4C-	4C-	3C-	4C-	4C-	4C-	^h C+
Arthrobacter sp. FB24	4C-	4C-	4C-	3C-	4C-	4C-	4C-	^h C+
Bifidobacterium adolescentis ATCC 15703	4C-	C+	4C-	C+	C+	C+	C+	^h C+
Bifidobacterium longum								
Bifidobacterium longum DJO10A	4C-	C+	4C-	C+	C+	C+	C+	^h C+
Bifidobacterium longum NCC2705	4C-	C+	4C-	C+	C+	C+	C+	^h C+
Clavibacter michiganensis								
Clavibacter michiganensis subsp. michiganensis NCPPB 382	4C-	4C-	4C-	3C-	4C-	4C-	4C-	^h C+
Clavibacter michiganensis subsp. sepedonicus	4C-	4C-	4C-	3C-	4C-	4C-	4C-	^h C+
Corynebacterium diphtheriae NCTC 13129	4C-	4C-	4C-	3C-	4C-	4C-	4C-	^h C+
Corynebacterium efficiens YS-314	4C-	4C-	4C-	3C-	4C-	4C-	4C-	^h C+
Corynebacterium glutamicum								
Corynebacterium glutamicum ATCC 13032	4C-	4C-/4C-	4C-/4C-	3C-/3C-	4C-/4C-	4C-/4C-	4C-/4C-	^h C+
Corynebacterium glutamicum ATCC 13032 Bielefeld	4C-	4C-	4C-	3C-	4C-	4C-	4C-	^h C+
Corynebacterium glutamicum ATCC 13032 Kitasato	4C-	4C-	4C-	3C-	4C-	4C-	4C-	^h C+
Corynebacterium glutamicum R	4C-	4C-	4C-	3C-	4C-	4C-	4C-	^h C+
Corynebacterium jeikeium K411	C+	C+	^h C+/4C-	C+	C+	C+	C+	^h C+
Corynebacterium urealyticum DSM 7109	C+	C+	^h C+	C+	C+	C+	C+	^h C+
Frankia alni ACN14a	C+/4C-	C+	^h C+	C+	C+	C+	C+	^h C+
Frankia sp. CcI3	4C-	C+/4C-	4C-	C+/3C-	C+	C+	C+/4C-	^h C+
Frankia sp. EAN1pec	4C-	4C-	4C-	3C-	4C-	4C-	4C-	^h C+
Kineococcus radiotolerans SRS30216	4C-	C+/4C-	^h C+/4C-	C+/3C-	C+/4C-	4C-	C+/4C-	^h C+
Leifsonia xyli subsp. xyli str. CTCB07	4C-	4C-	4C-	3C-	4C-	4C-	4C-	^h C+
Mycobacterium abscessus	4C-	C+/4C-	^h C+/4C-	C+/3C-	C+/4C-	4C-	C+/4C-	^h C+
Mycobacterium avium								
Mycobacterium avium 104	4C-	C+	^h C+	C+/3C-	C+	C+	C+/4C-	^h C+
Mycobacterium avium subsp. paratuberculosis K-10	4C-	C+/4C-	^h C+/4C-	C+/3C-	C+/4C-	4C-	C+/4C-	^h C+
Mycobacterium bovis								
Mycobacterium bovis AF2122/97	4C-	C+/4C-	^h C+/4C-	3C-/3C-	C+	C+	C+	^h C+
Mycobacterium bovis BCG str. Pasteur 1173P2	4C-	C+/4C-	^h C+/4C-	3C-/3C-	C+	C+	C+	^h C+
Mycobacterium gilvum PYR-GCK	4C-	C+/4C-	^h C+/4C-	C+/3C-	C+	C+	C+/4C-	^h C+
Mycobacterium leprae TN	4C-	C+	^h C+	C+/3C-	C+	C+	C+	^h C+
Mycobacterium marinum M	4C-	C+/4C-	^h C+/4C-	C+/3C-	C+/4C-	C+/4C-	C+/4C-	^h C+
Mycobacterium smegmatis str. MC2 155	4C-	C+	^h C+	C+/3C-	C+/4C-	C+/4C-	C+/4C-	^h C+
Mycobacterium sp. JLS	4C-	C+	^h C+	C+/3C-	C+	C+	C+/4C-	^h C+
Mycobacterium sp. KMS	4C-	C+	^h C+	C+/3C-	C+	C+	C+/4C-	^h C+
Mycobacterium sp. MCS	4C-	C+	^h C+	C+/3C-	C+	C+	C+/4C-	^h C+

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
Mycobacterium tuberculosis								
Mycobacterium tuberculosis CDC1551	4C-	C+/ ^A C-	^h C+/ ^h C-	C+/ ^β C-/ ^β C-	C+		C+	^h C+
Mycobacterium tuberculosis F11	4C-	C+/ ^A C-	^h C+/ ^h C-	^β C-/ ^β C-	C+		C+	^h C+
Mycobacterium tuberculosis H37Ra	4C-	C+/ ^A C-	^h C+/ ^h C-	^β C-/ ^β C-	C+		C+	^h C+
Mycobacterium tuberculosis H37Rv	4C-	C+/ ^A C-	^h C+/ ^h C-	^β C-/ ^β C-	C+		C+	^h C+
Mycobacterium ulcerans Agy99	4C-	C+/ ^A C-	^h C+/ ^h C-	C+/ ^β C-	C+/ ^A C-		C+/ ^A C-	^h C+
Mycobacterium vanbaalenii PYR-1	4C-	C+/ ^A C-	^h C+/ ^h C-	C+/ ^β C-	C+/ ^A C-		C+/ ^A C-	^h C+
Nocardia farcinica IFM 10152	4C-	C+/ ^A C-	^h C+/ ^h C-	C+/ ^β C-	C+/ ^A C-		C+/ ^A C-	^h C+
Nocardioides sp. JS614	4C-	C+	^h C+	C+	C+		C+	^h C+
Propionibacterium acnes KPA171202	4C-	C+/ ^A C-	4C-	^β C-	C+/ ^A C-		C+/ ^A C-	^h C+
Renibacterium salmoninarum ATCC 33209	4C-	4C-	4C-	^β C-	4C-	4C-	4C-	^h C+
Rhodococcus sp. RHAI	4C-	C+/ ^A C-	^h C+/ ^h C-	C+/ ^β C-	C+/ ^A C-		C+/ ^A C-	^h C+
Rubrobacter xylanophilus DSM 9941	4C-	C+	^h C+	C+	C+		C+	^h C+
Saccharopolyspora erythraea NRRRL 2338	4C-	C+/ ^A C-	^h C+/ ^h C-	C+/ ^β C-	C+/ ^A C-		C+/ ^A C-	^h C+
Salinispora arenicola CNS-205	C+/ ^A C-	C+/ ^A C-	4C-	C+/ ^β C-	C+/ ^A C-		1C+/ ^A C-	^h C+
Salinispora tropica CNB-440	C+/ ^A C-	C+/ ^A C-	4C-	C+/ ^β C-	C+/ ^A C-		4C-/1C-	^h C+
Streptomyces avermitilis MA-4680	4C-	C+/ ^A C-	^h C+/ ^h C-	C+/ ^A C-	C+/ ^A C-		C+/ ^A C-	^h C+
Streptomyces coelicolor A3(2)	4C-	C+/ ^A C-	^h C+/ ^h C-	C+/ ^β C-	C+/ ^A C-		C+/ ^A C-	^h C+
Streptomyces griseus subsp. griseus NBRC 13350	4C-	C+/ ^A C-	^h C+/ ^h C-	C+/ ^β C-	C+/ ^A C-		C+/ ^A C-	^h C+
Thermobifida fusca YX	4C-	C+	^h C+	C+	C+		C+	^h C+
Tropheryma whipplei								
Tropheryma whipplei TW08/27	4C-	4C-	4C-	^β C-	4C-	4C-	4C-	^h C+
Tropheryma whipplei str. Twist	4C-	4C-	4C-	^β C-	4C-	4C-	4C-	^h C+
Aquificae (2)	0/2	2/0	2/0	2/0	2/0	2/0	2/0	2/0
Aquificae (class) (2)	0/2	2/0	2/0	2/0	2/0	2/0	2/0	2/0
Aquifex aeolicus VF5	4C-	C+	^h C+	^s C+	C+	C+	C+	^h C+
Sulfurithydrogenibium sp. YO3AOP1	4C-	C+	^h C+	C+	C+	C+	C+	^h C+
Bacteroidetes (13)	0/13	1/12	0/13	0/13	0/13	6/4	0/10	0/7
Bacteroidetes (class) (7)	0/7	0/7	0/7	0/7	0/7	4/0	0/5	0/4
Bacteroides fragilis								
Bacteroides fragilis NCTC 9343	4C-	3C-	3C-	2C-	4C-		3C-	3C-
Bacteroides fragilis YCH46	4C-	3C-	3C-	2C-	4C-	C+	3C-	3C-
Bacteroides thetaiotaomicron VPI-5482	4C-	3C-	3C-	2C-	4C-	C+	3C-	3C-
Bacteroides vulgatus ATCC 8482	4C-	3C-	3C-	2C-	4C-	C+	3C-	3C-
Parabacteroides distasonis ATCC 8503	4C-	3C-	3C-	3C-	4C-		3C-	3C-
Porphyromonas gingivalis								
Porphyromonas gingivalis ATCC 33277	4C-	3C-	3C-	3C-	4C-	C+	3C-	3C-
Porphyromonas gingivalis W83	4C-	3C-	3C-	3C-	4C-	C+	3C-	3C-
Flavobacteria (4)	0/4	0/4	0/4	0/4	0/4	0/4	0/4	0/3
Candidatus Sulcia muelleri GWSS	4C-	3C-	3C-	3C-	4C-	4C-	3C-	3C-
Flavobacterium johnsoniae UW101	4C-	3C-	3C-	3C-	4C-	3C-	3C-	3C-
Flavobacterium psychrophilum JIP02/86	4C-	3C-	3C-	3C-	4C-	3C-	3C-	3C-
Gramella forsetii KT0803	4C-	3C-	3C-	2C-	4C-	4C-	3C-	3C-
Sphingobacteria (2)	0/2	1/1	0/2	0/2	0/2	2/0	0/1	0/0
Cytophaga hutchinsonii ATCC 33406	4C-	3C-	3C-	3C-	4C-	C+	3C-	3C-
Salinibacter ruber DSM 13855	4C-	C+	4C-	4C-	4C-	C+	3C-	3C-

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
Prochlorococcus marinus								
Prochlorococcus marinus str. AS9601	4C-	2C-	4C-	3C-	4C-	4C-	1C-	<i>h</i> C+
Prochlorococcus marinus str. MIT 9211	4C-	2C-	4C-	3C-	4C-	4C-		
Prochlorococcus marinus str. MIT 9215	4C-	2C-	4C-	3C-	4C-	4C-		
Prochlorococcus marinus str. MIT 9301	4C-	2C-	4C-	3C-	4C-	4C-	C+	<i>h</i> C+
Prochlorococcus marinus str. MIT 9303	4C-	2C-	4C-	3C-	4C-	4C-	C+	4C-
Prochlorococcus marinus str. MIT 9312	4C-	2C-	4C-	3C-	4C-	4C-	C+	<i>h</i> C+
Prochlorococcus marinus str. MIT 9313	4C-	2C-	4C-	3C-	4C-	4C-	C+	4C-
Prochlorococcus marinus str. MIT 9515	4C-	2C-	4C-	3C-	4C-	4C-	2C-	<i>h</i> C+
Prochlorococcus marinus str. NATL1A	4C-	2C-	4C-	3C-	4C-	4C-	1C-	<i>h</i> C+
Prochlorococcus marinus str. NATL2A	4C-	2C-	4C-	3C-	4C-	4C-	1C-	<i>h</i> C+
Prochlorococcus marinus subsp. marinus str. CCMP1375	4C-	2C-	4C-	3C-	4C-	4C-		4C-
Prochlorococcus marinus subsp. pastoris str. CCMP1986	4C-	2C-	4C-	3C-	4C-	4C-		<i>h</i> C+
Synechococcus elongatus								
Synechococcus elongatus PCC 6301	4C-	2C-	4C-	3C-	4C-	4C-	C+	<i>h</i> C+
Synechococcus elongatus PCC 7942	4C-	2C-	4C-	3C-	4C-	4C-	C+	<i>h</i> C+
Synechococcus sp. CC9311	4C-	2C-	4C-	3C-	4C-	4C-	1C-	<i>h</i> C+
Synechococcus sp. CC9605	4C-	2C-	4C-	3C-	4C-	4C-	C+ ¹ C-	<i>h</i> C+
Synechococcus sp. CC9902	4C-	2C-	4C-	3C-	4C-	4C-	1C-	<i>h</i> C+
Synechococcus sp. JA-2-3B ^a (2-13)	4C-	2C-	4C-	3C-	4C-	4C-		<i>h</i> C+
Synechococcus sp. JA-3-3Ab	4C-	2C-	4C-	3C-	4C-	4C-	C+	<i>h</i> C+
Synechococcus sp. PCC 7002	4C-	2C-	4C-	3C-	4C-	4C-	1C-	<i>h</i> C+
Synechococcus sp. RCC307	4C-	2C-	4C-	3C-	4C-	4C-	C+	<i>h</i> C+
Synechococcus sp. WH 7803	4C-	2C-	4C-	3C-	4C-	4C-	1C-	<i>h</i> C+
Synechococcus sp. WH 8102	4C-	2C-	4C-	3C-	4C-	4C-	1C-	<i>h</i> C+
Synechocystis sp. PCC 6803	4C-	2C-	4C-	3C-	4C-	4C-	C+	<i>h</i> C+
Thermosynechococcus elongatus BP-1	4C-	2C-	4C-	3C-	4C-	4C-	C+	<i>h</i> C+
Trichodesmium erythraeum IMS101	4C-	3C-	4C-	3C-	4C-	4C-	C+	<i>h</i> C+
Deinococcus-Thermus (4)								
Deinococi (4)	2/2	3/1	0/4	1/4	2/2	4/0	2/2	4/0
Deinococcus geothermalis DSM 11300	2/2	3/1	0/4	1/4	2/2	4/0	2/2	4/0
Deinococcus radiodurans R1	4C-	C+	4C-	C+/ ³ C-	4C-	C+	4C-	<i>h</i> C+
4C-	4C-	4C-	3C-	3C-	4C-	C+	4C-	<i>h</i> C+
Thermus thermophilus								
Thermus thermophilus HB27	C+	C+	4C-	3C-	C+	C+	C+	<i>h</i> C+
Thermus thermophilus HB8	C+	C+	4C-	3C-	C+	C+	C+	<i>h</i> C+
Firmicutes (127)								
Bacilli (93)								
Bacillus amyloliquefaciens FZB42	4C-	C+/ ³ C-	3C-	3C-	C+/ ⁴ C-	C+	C+/ ¹ C-/ ³ C-	<i>h</i> C+
Bacillus anthracis								
Bacillus anthracis str. 'Ames Ancestor'	4C-	C+	3C-	3C-	4C-	C+	1C-/ ¹ C-	<i>h</i> C+
Bacillus anthracis str. Ames	4C-	C+	3C-	3C-	4C-	C+	1C-/ ¹ C-	<i>h</i> C+
Bacillus anthracis str. Sterne	4C-	C+	3C-	3C-	4C-	C+	1C-/ ¹ C-	<i>h</i> C+
Bacillus cereus								
Bacillus cereus ATCC 10987	4C-	C+	3C-	3C-	4C-	C+	1C-/ ¹ C-	<i>h</i> C+
Bacillus cereus ATCC 14579	4C-	C+	3C-	3C-	4C-	C+	1C-/ ¹ C-	<i>h</i> C+
Bacillus cereus E33L	4C-	C+	3C-	3C-	4C-	C+		

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
<i>Bacillus cereus</i> subsp. cytotoxis NVH 391-98	4C-	C+	3C-	3C-	4C-	C+	1C-/1C-	hC+
<i>Bacillus clausii</i> KSM-K16	4C-	C+/ β C-	3C-	3C-	4C-	C+	3C-	hC+
<i>Bacillus halodurans</i> C-125	4C-	C+	3C-	3C-	4C-	C+	C+	hC+
Bacillus licheniformis								
<i>Bacillus licheniformis</i> ATCC 14580	4C-	C+/C+/C+/C+/ β C-/ β C-	3C-/ β C-/ β C-	3C-/ β C-	C+/C+/ β C-/ β C-	C+/C+	C+/C+/1C-/ β C-/1C-/ β C-	hC+/hC+
<i>Bacillus licheniformis</i> DSM 13	4C-							
<i>Bacillus pumilus</i> SAFR-032	4C-	C+/ β C-	3C-	3C-	C+/ β C-	C+	C+/ β C-/ β C-	hC+
<i>Bacillus subtilis</i> subsp. subtilis str. 168	4C-	C+/ β C-	3C-	3C-	C+/ β C-	C+	C+/1C-	hC+
Bacillus thuringiensis								
<i>Bacillus thuringiensis</i> serovar konkukian str. 97-27	4C-	C+	3C-	3C-	4C-	C+		
<i>Bacillus thuringiensis</i> str. AI Hakam	4C-	C+	3C-	3C-	4C-	C+		
<i>Bacillus weihenstephanensis</i> KBAB4	4C-	C+	3C-	3C-	4C-	C+	1C-	hC+
<i>Enterococcus faecalis</i> V583	4C-	C+/ β C-/ β C-	4C-	3C-	4C-	C+/ β C-	1C-/ β C-	hC+
<i>Exiguobacterium sibiricum</i> 255-15	4C-	3C-	3C-	3C-	4C-	C+	C+/ β C-	hC+
<i>Geobacillus kaustophilus</i> HTA426	4C-	C+	3C-	3C-	C+	C+	C+/1C-	hC+
<i>Geobacillus thermodenitrificans</i> NG80-2	4C-	C+	3C-	3C-	C+	C+	C+/1C-	hC+
<i>Lactobacillus acidophilus</i> NCFM	4C-	4C-	4C-	4C-	4C-	4C-	1C-	hC+
<i>Lactobacillus brevis</i> ATCC 367	4C-	C+/ β C-	4C-	4C-	4C-	C+	C+/1C-	hC+
<i>Lactobacillus casei</i> ATCC 334	4C-	C+/ β C-/ β C-	4C-	4C-	4C-	4C-	4C-	hC+
Lactobacillus delbrueckii								
<i>Lactobacillus delbrueckii</i> subsp. bulgaricus ATCC 11842	4C-	C+	4C-	4C-	4C-	4C-	C+/1C-	hC+
<i>Lactobacillus delbrueckii</i> subsp. bulgaricus ATCC BAA-365	4C-	C+	4C-	4C-	4C-	4C-	C+/1C-	hC+
<i>Lactobacillus fermentum</i> IFO 3956	4C-	C+/ β C-	4C-	4C-	4C-	C+	C+/1C-	hC+
<i>Lactobacillus gasseri</i> ATCC 33223	4C-	4C-	4C-	4C-	4C-	4C-	C+/1C-	hC+
<i>Lactobacillus helveticus</i> DPC 4571	4C-	C+/C+	4C-	4C-	4C-	4C-	1C-	hC+
<i>Lactobacillus johnsonii</i> NCC 533	4C-	C+/ β C-	4C-	4C-	4C-	4C-	C+/1C-	hC+
<i>Lactobacillus plantarum</i> WCFSI	4C-	C+/ β C-	4C-	4C-	4C-	C+	C+	hC+
<i>Lactobacillus reuteri</i> F275	4C-	C+/C+/ β C-/ β C-	4C-/ β C-	4C-/ β C-	4C-/ β C-	C+/C+	1C-/1C-	hC+
<i>Lactobacillus sakei</i> subsp. sakei 23K	4C-	4C-	4C-	4C-	4C-	4C-	C+/1C-	hC+
<i>Lactobacillus salivarius</i> UCC118	4C-	C+/ β C-	4C-	4C-	4C-	C+	C+/1C-	hC+
Lactococcus lactis								
<i>Lactococcus lactis</i> subsp. cremoris MG1363	4C-	C+	4C-	3C-	4C-	4C-	C+/1C-	hC+
<i>Lactococcus lactis</i> subsp. cremoris SK11	4C-	C+	4C-	3C-	4C-	4C-	C+/1C-/ β C-	hC+
<i>Lactococcus lactis</i> subsp. lactis III403	4C-	C+/ β C-	4C-	3C-	4C-	4C-	C+/1C-/ β C-	hC+
<i>Leuconostoc citreum</i> KM20	4C-	4C-	4C-	4C-	4C-	4C-	C+/ β C-	hC+
<i>Leuconostoc mesenteroides</i> subsp. mesenteroides ATCC 8293	4C-	4C-	4C-	4C-	4C-	4C-	C+/ β C-	hC+
<i>Listeria innocua</i> Clip11262	4C-	C+/ β C-	3C-	3C-	4C-	C+/ β C-	C+/1C-	hC+
Listeria monocytogenes								
<i>Listeria monocytogenes</i> EGD-e	4C-	C+/ β C-	3C-	3C-	4C-	C+/ β C-	C+/1C-	hC+
<i>Listeria monocytogenes</i> str. 4b F2365	4C-	C+/ β C-	3C-	3C-	4C-	C+/ β C-	C+/1C-	hC+
<i>Listeria welshimeri</i> serovar 6b str. SLCC5334	4C-	C+	3C-	3C-	4C-	C+	3C-	hC+
<i>Lysinibacillus sphaericus</i> C3-41	4C-	C+/ β C-	3C-	3C-	4C-	C+	C+/ β C-	hC+
<i>Oceanobacillus ihyensensis</i> HTE831	4C-	4C-	3C-	3C-	4C-	C+	C+/ β C-	hC+
<i>Oenococcus oeni</i> PSU-1	4C-	4C-	4C-	4C-	4C-	4C-	4C-	hC+
<i>Pediococcus pentosaceus</i> ATCC 25745	4C-	C+/ β C-	4C-	4C-	4C-	C+	C+/1C-	hC+
Staphylococcus aureus								

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
Staphylococcus aureus RF122	4C-	C+ ^β C-	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus aureus subsp. aureus COL	4C-	C+ ^β C-	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus aureus subsp. aureus JH1	4C-	C+ ^β C-	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus aureus subsp. aureus JH9	4C-	C+ ^β C-	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus aureus subsp. aureus MRSA252	4C-	C+ ^β C-	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus aureus subsp. aureus MSSA476	4C-	C+ ^β C-	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus aureus subsp. aureus MW2	4C-	C+ ^β C-	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus aureus subsp. aureus Mu3	4C-	C+ ^β C-	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus aureus subsp. aureus Mu50	4C-	C+ ^β C-	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus aureus subsp. aureus N315	4C-	C+ ^β C-	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus aureus subsp. aureus NCTC 8325	4C-	C+ ^β C-	3C-	3C-	4C-	1C-	1C-/1C-	hC+
Staphylococcus aureus subsp. aureus USA300	4C-	C+ ^β C-	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus aureus subsp. aureus USA300 TCH1516	4C-	C+	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus aureus subsp. aureus str. Newman	4C-	C+ ^β C-	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus epidermidis								
Staphylococcus epidermidis ATCC 12228	4C-	C+ ^β C-	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus epidermidis RP62A	4C-	C+ ^β C-	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus haemolyticus JCSC1435	4C-	C+ ^β C-	3C-	3C-	4C-	C+	1C-/1C-	hC+
Staphylococcus saprophyticus subsp. saprophyticus ATCC 15305	4C-	C+ ^β C-	3C-	3C-	4C-	C+	C+ ^β 1C- /1C-	hC+
Streptococcus agalactiae								
Streptococcus agalactiae 2603V/R	4C-	C+ ^β C-	4C-	3C-	4C-	4C-	C+ ^β 1C- /4C-	hC+
Streptococcus agalactiae A909	4C-	C+ ^β C-	4C-	3C-	4C-	4C-	4C-	hC+
Streptococcus agalactiae NEM316	4C-	C+ ^β C-	4C-	3C-	4C-	4C-	4C-	hC+
Streptococcus gordonii str. Challis substr. CHI	4C-	C+	4C-	3C-	4C-	4C-	4C-	hC+
Streptococcus mutans UA159	4C-	C+	4C-	3C-	4C-	4C-	1C-	hC+
Streptococcus pneumoniae								
Streptococcus pneumoniae CGSP14	4C-	3C-	4C-	3C-	4C-	4C-	4C-	hC+
Streptococcus pneumoniae D39	4C-	3C-	4C-	3C-	4C-	4C-	4C-	hC+
Streptococcus pneumoniae Hungary19A-6	4C-	3C-	4C-	3C-	4C-	4C-	1C-/4C-	hC+
Streptococcus pneumoniae R6	4C-	3C-	4C-	3C-	4C-	4C-	1C-/4C-	hC+
Streptococcus pneumoniae TIGR4	4C-	3C-	4C-	3C-	4C-	4C-	1C-/4C-	hC+
Streptococcus pyogenes								
Streptococcus pyogenes M1 GAS	4C-	C+ ^β C-	4C-	3C-	4C-	4C-	4C-	hC+
Streptococcus pyogenes MGAS10270	4C-	C+ ^β C-	4C-	3C-	4C-	4C-	1C-/4C-	hC+
Streptococcus pyogenes MGAS10394	4C-	C+ ^β C-	4C-	3C-	4C-	4C-	1C-/4C-	hC+
Streptococcus pyogenes MGAS10750	4C-	C+ ^β C-	4C-	3C-	4C-	4C-	1C-/4C-	hC+
Streptococcus pyogenes MGAS2096	4C-	4C-	4C-	3C-	4C-	4C-	1C-/4C-	hC+
Streptococcus pyogenes MGAS315	4C-	C+ ^β C-	4C-	3C-	4C-	4C-	4C-	hC+
Streptococcus pyogenes MGAS5005	4C-	C+ ^β C-	4C-	3C-	4C-	4C-	1C-/4C-	hC+
Streptococcus pyogenes MGAS6180	4C-	C+ ^β C-	4C-	3C-	4C-	4C-	1C-/4C-	hC+
Streptococcus pyogenes MGAS8232	4C-	C+ ^β C-	4C-	3C-	4C-	4C-	4C-	hC+
Streptococcus pyogenes MGAS9429	4C-	C+ ^β C-	4C-	3C-	4C-	4C-	1C-/4C-	hC+
Streptococcus pyogenes SSI-1	4C-	C+ ^β C-	4C-	3C-	4C-	4C-	1C-/4C-	hC+
Streptococcus pyogenes str. Manfredo	4C-	C+ ^β C-	4C-	3C-	4C-	4C-	1C-/4C-	hC+
Streptococcus sanguinis SK36	4C-	C+	4C-	3C-	4C-	4C-	4C-	hC+
Streptococcus suis								

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
Streptococcus suis 05ZYH33	4C-	4C-	4C-	3C-	4C-	4C-	4C-	
Streptococcus suis 98HAH33	4C-	4C-	4C-	3C-	4C-	4C-	4C-	
Streptococcus thermophilus								
Streptococcus thermophilus CNRZ1066	4C-	C+	4C-	3C-	4C-	4C-	1C-/4C-	hC+
Streptococcus thermophilus LMD-9	4C-	C+	4C-	3C-	4C-	4C-	C+/1C- /4C-	hC+
Streptococcus thermophilus LMG 18311	4C-	C+	4C-	3C-	4C-	4C-	1C-/4C-	hC+
Clostridia (34)	32/19	32/0	32/1	31/0	33/0	29/0	30/0	32/0
Alkaliphilus metalliredigens QYMF	C+/4C- /3C-	C+	hC+	C+	C+	C+	C+	hC+
Alkaliphilus oremlandii OhLAs	C+/4C-	C+	hC+	C+	C+	C+	C+	hC+
Caldicellulosiruptor saccharolyticus DSM 8903	C+	C+	hC+	C+	C+	C+	C+	hC+
Candidatus Desulforudis audaxviator MP104C	C+	C+	hC+	C+	C+	C+	C+	hC+
Carboxydotherrnus hydrogenoformans Z-2901	C+	C+	hC+	C+	C+	C+	C+	hC+
Clostridium acetobutylicum ATCC 824	C+/4C- /4C-	C+	hC+	C+	C+	C+	C+	hC+
Clostridium beijerinckii NCIMB 8052	C+	C+	hC+	C+	C+	C+	C+	hC+
Clostridium botulinum								
Clostridium botulinum A str. ATCC 19397	C+/4C-	C+	hC+	C+	C+	C+	C+	hC+
Clostridium botulinum A str. ATCC 3502	C+/4C-	C+	hC+	C+	C+	C+	C+	hC+
Clostridium botulinum A str. Hall	C+/4C-	C+	hC+	C+	C+	C+	C+	hC+
Clostridium botulinum A3 str. Loch Maree	C+/4C-	C+	hC+	C+	C+	C+	C+	hC+
Clostridium botulinum B str. Eklund 17B	C+	C+	hC+	C+	C+	C+	C+	hC+
Clostridium botulinum B1 str. Okra	C+/4C-	C+	hC+	C+	C+	C+	C+	hC+
Clostridium botulinum F str. Langeland	C+/4C-	C+	hC+	C+	C+	C+	C+	hC+
Clostridium difficile 630	C+/3C-	C+	hC+	C+	C+	C+	C+	hC+
Clostridium kluyveri DSM 555	C+/4C-	C+	hC+	C+	C+	C+	C+	hC+
Clostridium novyi NT	C+/4C-	C+	hC+	C+	C+	C+	C+	hC+
Clostridium perfringens								
Clostridium perfringens ATCC 13124	C+/3C-	C+	hC+	C+	C+	C+	C+	hC+
Clostridium perfringens SM101	C+/3C-	C+	hC+	C+	C+	C+	C+	hC+
Clostridium perfringens str. 13	C+/3C-	C+	hC+	C+	C+	C+	C+	hC+
Clostridium phytofermentans ISDg	3C-	C+	hC+	C+	C+	C+	C+	hC+
Clostridium tetani E88	C+	C+	hC+	C+	C+	C+	C+	hC+
Clostridium thermocellum ATCC 27405	C+	C+	hC+	C+	C+	C+	C+	hC+
Desulfitobacterium hafniense Y51	C+	C+	hC+	C+	C+	C+	C+	hC+
Desulfotomaculum reducens MI-1	C+	C+	hC+	C+	C+	C+	C+	hC+
Finegoldia magna ATCC 29328	4C-	C+	4C-	C+	C+	C+	C+	hC+
Hellobacterium modesticaldium Ice1	C+	C+	hC+	C+	C+	C+	C+	hC+
Moorella thermoacetica ATCC 39073	C+	C+	hC+	C+	C+	C+	C+	hC+
Pelotomaculum thermopropionicum SI	C+	C+	hC+	C+	C+	C+	C+	hC+
Symbiobacterium thermophilum IAM 14863	C+/3C-	C+	hC+	C+	C+	C+	C+	hC+
Syntrophomonas wolfei subsp. wolfei str. Goettingen	C+	C+	hC+	C+	C+	C+	C+	hC+
Thermoanaerobacter pseudethanolicus ATCC 33223	C+	C+	hC+	C+	C+	C+	C+	hC+
Thermoanaerobacter sp. X514	C+	C+	hC+	C+	C+	C+	C+	hC+
Thermoanaerobacter tengcongensis MB4	C+	C+	hC+	C+	C+	C+	C+	hC+
Fusobacteria (6)	0/6	0/1	0/1	0/1	0/1	1/0	0/1	0/0
Fusobacterium nucleatum	0/6	0/1	0/1	0/1	0/1	1/0	0/1	0/0

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
Fusobacterium nucleatum subsp. nucleatum ATCC 25586	3C-	3C-	4C-	2C-	4C-	C+	3C-	L36
Fusobacterium nucleatum subsp. polymorphum ATCC 10953 *	3C-							
Fusobacterium nucleatum subsp. vincentii ATCC 49256 *	3C-							
Leptotrichia buccalis DSM 1135 *	3C-							
Sebaldella termitidis ATCC 33386 *	3C-							
Streptobacillus moniliformis DSM 12112 *	3C-							
Planctomycetes (4)	1/4	1/0	0/1	0/1	1/0	0/0	0/1	0/1
Planctomycetacia (4)	1/4	1/0	0/1	0/1	1/0	0/0	0/1	0/1
Blastopirellula marina DSM 3645 *	4C-							
Gemmata obscuriglobus UQM 2246 *	C+/ ^h C-							
Planctomyces maris DSM 8797 *	4C-		4C-	4C-	C+		3C-	2C-
Rhodopirellula baltica SH 1	4C-							
Proteobacteria (347)	27/325	41/308	21/329	16/325	186/234	31/260	14/310	188/152
Alphaproteobacteria (87)	0/87	0/89	0/89	0/86	0/89	18/67	0/74	0/84
Acidiphilium cryptum JF-5	4C-	2C-	3C-	3C-	4C-	C+	4C-	3C-
Agrobacterium tumefaciens str. C58	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
Anaplasma marginale str. St. Maries	4C-	3C-	3C-	3C-	4C-	3C-	4C-	3C-
Anaplasma phagocytophilum HZ	4C-	3C-	3C-	3C-	4C-	3C-	4C-	3C-
Azorhizobium caulinodans ORS 571	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
Bartonella bacilliformis KC583	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
Bartonella henselae str. Houston-1	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
Bartonella quintana str. Toulouse	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
Bartonella tribocorum CIP 105476	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
Bejerinckia indica subsp. indica ATCC 9039	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
Bradyrhizobium japonicum USDA 110	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
Bradyrhizobium sp. BTA1	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
Bradyrhizobium sp. ORS278	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
Brucella abortus								
Brucella abortus S19	4C-	3C-	3C-	3C-	4C-	4C-	4C-	3C-
Brucella abortus bv. 1 str. 9-941	4C-	3C-	3C-	3C-	4C-	4C-	4C-	3C-
Brucella melitensis biovar Abortus 2308	4C-	3C-	3C-	3C-	4C-	4C-	4C-	3C-
Brucella canis ATCC 23365	4C-	3C-	3C-	3C-	4C-	4C-	4C-	3C-
Brucella melitensis 16M	4C-	3C-	3C-	3C-	4C-	4C-	4C-	3C-
Brucella ovis ATCC 25840	4C-	3C-	3C-	3C-	4C-	4C-	4C-	3C-
Brucella suis								
Brucella suis 1330	4C-	3C-	3C-	3C-	4C-	4C-	4C-	3C-
Brucella suis ATCC 23445	4C-	3C-	3C-	3C-	4C-	4C-	4C-	3C-
Candidatus Pelagibacter ubique HTCC1062	4C-	3C-	3C-	3C-	4C-	4C-	4C-	3C-
Caulobacter sp. K31	4C-	3C-	3C-	3C-	4C-	4C-	4C-	3C-
Caulobacter crescentus CB 15	4C-	3C-	3C-	3C-	4C-	4C-	4C-	3C-
Dinoroseobacter shibbae DFL 12	4C-	3C-	3C-	3C-	4C-	C+	4C-	3C-
Ehrlichia canis str. Jake	4C-	3C-	3C-	3C-	4C-	3C-	4C-	3C-
Ehrlichia chaffeensis str. Arkansas	4C-	3C-	3C-	3C-	4C-	3C-	4C-	3C-
Ehrlichia ruminantium								
Ehrlichia ruminantium str. Gardel	4C-	3C-	3C-	3C-	4C-	3C-	4C-	3C-
Ehrlichia ruminantium str. Welgevonden	4C-	3C-/ ^h C-	3C-/ ^h C-	3C-/ ^h C-	4C-/ ^h C-	3C-/ ^h C-	4C-/ ^h C-	3C-/ ^h C-
		3C-/ ^h C-	3C-/ ^h C-	3C-/ ^h C-	4C-/ ^h C-	3C-/ ^h C-	4C-/ ^h C-	3C-/ ^h C-

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
<i>Ehrlichia ruminantium</i> str. Welgevonden CIRAD	4C-							
<i>Erythrobacter litoralis</i> HTCC2594	4C-	3C-	3C-	3C-	4C-	C+	4C-	3C-
<i>Gluconacetobacter diazotrophicus</i> PAI 5	4C-	2C-	3C-	3C-	4C-	C+	4C-	3C-
<i>Gluconobacter oxydans</i> 621H	4C-	3C-	3C-	3C-	4C-	C+	4C-	3C-
<i>Granulifactor betshedsensis</i> CGDNIHI	4C-	2C-	3C-	3C-	4C-	C+	4C-	3C-
<i>Hyphomonas neptunium</i> ATCC 15444	4C-	3C-	4C-	3C-	4C-	4C-	4C-	3C-
<i>Jannaschia</i> sp. CCS1	4C-	4C-	4C-	3C-	4C-	C+	4C-	3C-
<i>Magnetospirillum magneticum</i> AMB-1	4C-	2C-	3C-	3C-	4C-	C+	4C-	3C-
<i>Mariacaulis maris</i> MCS10	4C-	3C-	3C-	3C-	4C-	4C-	4C-	3C-
<i>Mesorhizobium loti</i> MAFF303099	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Mesorhizobium</i> sp. BNC1	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Methylobacterium extorquens</i> PAI	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Methylobacterium radiotolerans</i> JCM 2831	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Methylobacterium</i> sp. 4-46	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Neorickettsia sennetsu</i> str. Miyayama	4C-	3C-	4C-	3C-	4C-	4C-	4C-	4C-
<i>Nitrobacter hamburgensis</i> X14	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Nitrobacter winogradskyi</i> Nb-255	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Novosphingobium aromaticivorans</i> DSM 12444	4C-	2C-	3C-	3C-	4C-	C+	4C-	4C-
<i>Ochrobactrum anthropi</i> ATCC 49188	4C-	3C-	3C-	3C-	4C-	4C-	4C-	3C-
Orientia tsutsugamushi								
<i>Orientia tsutsugamushi</i> str. Boryong	4C-	2C-	2C-	3C-	4C-	3C-	4C-	3C-
<i>Orientia tsutsugamushi</i> str. Ikeda	4C-	2C-	2C-	3C-	4C-	3C-	4C-	3C-
<i>Paracoccus denitrificans</i> PD1222	4C-	3C-	3C-	3C-	4C-	C+	4C-	3C-
<i>Parvibaculum lavamentivorans</i> DS-1	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
Rhizobium etli								
<i>Rhizobium etli</i> CFN 42	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Rhizobium etli</i> CIAT 652	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Rhizobium leguminosarum</i> bv. <i>viciae</i> 3841	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
Rhodobacter sphaeroides								
<i>Rhodobacter sphaeroides</i> 2.4.1	4C-	3C-	3C-	3C-	4C-	C+	4C-	3C-
<i>Rhodobacter sphaeroides</i> ATCC 17025	4C-	3C-	3C-	3C-	4C-	C+	4C-	3C-
<i>Rhodobacter sphaeroides</i> ATCC 17029	4C-	3C-	3C-	3C-	4C-	C+	4C-	3C-
Rhodopseudomonas palustris								
<i>Rhodopseudomonas palustris</i> BisA53	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Rhodopseudomonas palustris</i> BisB 18	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Rhodopseudomonas palustris</i> BisB5	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Rhodopseudomonas palustris</i> CGA009	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Rhodopseudomonas palustris</i> Haa2	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Rhodospirillum rubrum</i> ATCC 11170	4C-	3C-	3C-	3C-	4C-	C+	4C-	3C-
<i>Rickettsia akari</i> str. Hartford	4C-	3C-	2C-	2C-	4C-	4C-	4C-	3C-
Rickettsia bellii								
<i>Rickettsia bellii</i> OSU 85-389	4C-	3C-	2C-	2C-	4C-	4C-	4C-	3C-
<i>Rickettsia bellii</i> RML369-C	4C-	3C-	2C-	2C-	4C-	4C-	4C-	3C-
<i>Rickettsia canadensis</i> str. McKiel	4C-	3C-	2C-	2C-	4C-	4C-	4C-	3C-
<i>Rickettsia conorii</i> str. Malish 7	4C-	3C-	2C-	2C-	4C-	4C-	4C-	3C-
<i>Rickettsia felis</i> URRWXCal2	4C-	3C-	2C-	2C-	4C-	4C-	4C-	3C-

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
<i>Rickettsia massilliae</i> MTU5	4C-	3C-	2C-	2C-	4C-	4C-		3C-
<i>Rickettsia prowazekii</i> str. Madrid E	4C-	3C-	2C-	2C-	4C-	4C-	4C-	3C-
<i>Rickettsia rickettsii</i>								
<i>Rickettsia rickettsii</i> str. 'Sheila Smith'	4C-	3C-	2C-	2C-	4C-	4C-		3C-
<i>Rickettsia rickettsii</i> str. Iowa	4C-	3C-	2C-	2C-	4C-	4C-		3C-
<i>Rickettsia typhi</i> str. Wilmington	4C-	3C-	2C-	2C-	4C-	4C-		3C-
<i>Roseobacter denitrificans</i> OCh 114	4C-	3C-	3C-	3C-	4C-	C+	4C-	
<i>Silicibacter pomeroyi</i> DSS-3	4C-	3C-	3C-	3C-	4C-	C+	4C-	3C-
<i>Silicibacter</i> sp. TM1040	4C-	3C-	3C-	3C-	4C-	C+	4C-	3C-
<i>Sinorhizobium medicae</i> WSM419	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Sinorhizobium meliloti</i> 1021	4C-	3C-	3C-	3C-	4C-	4C-	4C-	4C-
<i>Sphingomonas wittichii</i> RW1	4C-	2C-	3C-	3C-	4C-	C+	4C-	4C-
<i>Sphingopyxis alaskensis</i> RB2256	4C-	2C-	3C-	3C-	4C-	C+	4C-	4C-
Wolbachia endosymbiont strain TRS of <i>Brugia malayi</i>	4C-	2C-	2C-	3C-	4C-	3C-		2C-
Wolbachia endosymbiont of <i>Drosophila melanogaster</i>	4C-	2C-	2C-	3C-	4C-	3C-		2C-
<i>Wolbachia pipientis</i>	4C-	2C-	2C-	3C-	4C-	3C-	4C-	4C-
<i>Xanthobacter autotrophicus</i> Py2	4C-	3C-	3C-	3C-	4C-	4C-		4C-
<i>Zymomonas mobilis</i> subsp. <i>mobilis</i> ZM4	4C-	2C-	3C-	3C-	4C-	4C-		4C-
Betaproteobacteria (55)	7/50	0/56	0/57	0/56	12/48	0/56	0/56	46/77
<i>Acidovorax avenae</i> subsp. <i>citrulli</i> AAC00-1	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
<i>Acidovorax</i> sp. JS42	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
<i>Azoarcus</i> sp. BH72	C+	2C-	3C-	3C-	C+	4C-	4C-	<i>hC+</i>
<i>Azoarcus</i> sp. EbN1	C+	2C-	3C-	3C-	C+	4C-	4C-	<i>hC+</i>
<i>Bordetella avium</i> 197N	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
<i>Bordetella bronchiseptica</i> RB50	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
<i>Bordetella parapertussis</i> 12822	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
<i>Bordetella pertussis</i> Tohama I	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
<i>Bordetella petrii</i> DSM 12804	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
Burkholderia ambifaria								
<i>Burkholderia ambifaria</i> AMMD	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
<i>Burkholderia ambifaria</i> MC40-6	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
Burkholderia cenocepacia								
<i>Burkholderia cenocepacia</i> AU 1054	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
<i>Burkholderia cenocepacia</i> HI2424	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
<i>Burkholderia cenocepacia</i> MC0-3	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
Burkholderia mallei								
<i>Burkholderia mallei</i> ATCC 23344	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
<i>Burkholderia mallei</i> NCTC 10229	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
<i>Burkholderia mallei</i> NCTC 10247	C-(1)	3C-	3C-	4C-	4C-	4C-	4C-	<i>hC+</i>
<i>Burkholderia mallei</i> SAVPI	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
<i>Burkholderia multivorans</i> ATCC 17616	C-(1)	3C- ^β C-	3C- ^β C-	3C- ^β C-	4C- ^β C-	4C- ^β C-	4C- ^β C-	<i>hC+</i>
<i>Burkholderia phymatum</i> STM815	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
Burkholderia pseudomallei								
<i>Burkholderia pseudomallei</i> 1106a	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
<i>Burkholderia pseudomallei</i> 1710b	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>
<i>Burkholderia pseudomallei</i> 668	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	<i>hC+</i>

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
Burkholderia pseudomallei K96243	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Burkholderia sp. 383	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Burkholderia thailandensis E264	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Burkholderia vietnamiensis G4	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Burkholderia xenovorans LB400	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Chromobacterium violaceum ATCC 12472	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
Ralstonia metallidurans CH34	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Cupriavidus necator								
Ralstonia eutropha H16	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Ralstonia eutropha JMP134	C-(1)	3C-	3C-/3C-	3C-	3C-	4C-	4C-	hC+
Dechloromonas aromatica RCB	C+	2C-	3C-	3C-	C+	4C-	4C-	hC+
Delftia acidovorans SPH-1	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	2C-
Hermiimonas arsenicoxydans	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Janthinobacterium sp. Marseille	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Leptothrix cholodnii SP-6	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Methylolibium petroleiphilum PM1	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Methylobacillus flagellatus KT	4C-/4C-	3C-	3C-	3C-	4C-	4C-	4C-	hC+/2C-
Neisseria gonorrhoeae FA 1090	C-(1)	3C-	3C-	3C-	C+/4C-	4C-	4C-	2C-
Neisseria meningitidis								
Neisseria meningitidis 053442	C-(1)	3C-	3C-	3C-	C+/4C-	4C-	4C-	hC+/2C-
Neisseria meningitidis FAM18	C-(1)	3C-	3C-	3C-	C+/4C-	4C-	4C-	hC+/2C-
Neisseria meningitidis MC58	C-(1)	3C-	3C-	3C-	C+/4C-	4C-	4C-	hC+/2C-
Neisseria meningitidis Z2491	C-(1)	3C-	3C-	3C-	C+/4C-	4C-	4C-	hC+/2C-
Nitrosomonas europaea ATCC 19718	C+/4C-	3C-	3C-	3C-	C+	4C-	4C-	hC+/2C-
Nitrosomonas eutropha C91	C+	3C-	3C-	3C-	C+	4C-	4C-	hC+
Nitrosospora multififormis ATCC 25196	C+	3C-	3C-	3C-	C+	4C-	4C-	hC+
Polaromonas naphthalenivorans CJ2	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Polaromonas sp. JS666	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Polynuclеobacter necessarius STIR1	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Polynuclеobacter sp. QLW-PIDMWA-1	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Ralstonia solanacearum GMI1000	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Rhodoferrax ferrireducens T118	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Thiobacillus denitrificans ATCC 25259	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Verminephrobacter eiseniae EF01-2	C+	3C-	3C-	3C-	C+	4C-	4C-	hC+
Deltaproteobacteria (19)	19/3	17/1	17/1	16/2	17/1	12/1	11/5	12/0
Anaeromyxobacter dehalogenans 2CP-C	C+	C+	hC+	C+	C+	C+	C+	hC+
Anaeromyxobacter sp. Fw109-5	C+	C+	hC+	C+	C+	C+	C+	hC+
Bdellovibrio bacteriovorus HD100	C+/4C-	C+	4C-	C+	3C-	4C-	C+	hC+
Desulfococcus oleovorans Hxd3	C+	C+	hC+	C+	C+	C+	C+	hC+
Desulfotalea psychrophila LSY54	C+	C+	hC+	C+	C+	C+	C+	hC+
Desulfovibrio desulfuricans subsp. desulfuricans str. G20	C+	C+	hC+	C+	C+	C+	C+	hC+
Desulfovibrio vulgaris								
Desulfovibrio vulgaris subsp. vulgaris DP4	C+	C+	hC+	C+	C+	C+	1C-	hC+
Desulfovibrio vulgaris subsp. vulgaris str. Hildenborough	C+	C+	hC+	C+	C+	C+	1C-	hC+
Geobacter lovleyi SZ	C+	C+	hC+	C+	C+	C+	C+	hC+
Geobacter metallireducens GS-15	C+	C+	hC+	C+	C+	C+	C+	hC+

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
<i>Geobacter sulfurreducens</i> PCA	C+	C+	<i>h</i> C+	C+	C+	C+	C+	
<i>Geobacter uraniireducens</i> Rf4	C+	C+	<i>h</i> C+	C+	C+	C+	C+	
<i>Lawsonia intracellularis</i> PHE/MN1-00	C+	C+	<i>h</i> C+	C+	C+	C+	C+	
<i>Mycococcus xanthus</i> DK 1622	C+/ ^β C-	C+/ ^β C-	<i>h</i> C+	C+/ ^β C-	C+	C+	C+/ ^β C-	<i>h</i> C+
<i>Pelobacter carbinolicus</i> DSM 2380	C+	C+	<i>h</i> C+	C+	C+	C+	C+	<i>h</i> C+
<i>Pelobacter propionicus</i> DSM 2379	C+	C+	<i>h</i> C+	C+	C+	C+	C+	
<i>Sorangium cellulosum</i> 'So ce 56'	C+/ ^β C-	C+	<i>h</i> C+	4C-	C+	C+	4C-/1C-	<i>h</i> C+
<i>Syntrophobacter fumaroxidans</i> MPOB	C+	C+	<i>h</i> C+	C+	C+	C+	C+	
<i>Syntrophus aciditrophicus</i> SB	C+	C+	<i>h</i> C+	C+	C+	C+	C+	
Epsilonproteobacteria (19)	0/19	16/0	3/16	0/19	13/6	0/17	2/12	11/0
<i>Arcobacter butzleri</i> RM4018	C-(II)	C+	3C-	3C-	C+	4C-	2C-	<i>h</i> C+
<i>Campylobacter concisus</i> 13826	C-(II)	C+	3C-	3C-	C+	4C-		
<i>Campylobacter curvus</i> 525:92	C-(II)	C+	3C-	3C-	C+			
<i>Campylobacter fetus</i> subsp. fetus 82-40	C-(II)	C+	3C-	3C-	C+	4C-		
<i>Campylobacter hominis</i> ATCC BAA-381	C-(II)	C+	3C-	3C-	C+	4C-	1C-	
Campylobacter jejuni								
<i>Campylobacter jejuni</i> RM1221	C-(II)	C+	3C-	3C-	C+	4C-	1C-	<i>h</i> C+
<i>Campylobacter jejuni</i> subsp. doylei 269:97	C-(II)	C+	3C-	3C-	C+	4C-	1C-	
<i>Campylobacter jejuni</i> subsp. jejuni 81-176	C-(II)	C+	3C-	3C-	C+	4C-	1C-	<i>h</i> C+
<i>Campylobacter jejuni</i> subsp. jejuni 81116	C-(II)	C+	3C-	3C-	C+	4C-	1C-	<i>h</i> C+
<i>Campylobacter jejuni</i> subsp. jejuni NCTC 11168	C-(II)	C+	3C-	3C-	C+	4C-	1C-	<i>h</i> C+
<i>Helicobacter acinonychis</i> str. Sheeba	C-(II)	C+	3C-	3C-	2C-	4C-	1C-	
<i>Helicobacter hepaticus</i> ATCC 51449	C-(II)	C+	3C-	3C-	2C-	4C-	2C-	
Helicobacter pylori								
<i>Helicobacter pylori</i> 26695	C-(II)	C+	3C-	3C-	2C-	4C-	1C-	<i>h</i> C+
<i>Helicobacter pylori</i> HPAG1	C-(II)	C+	3C-	3C-	2C-	4C-	1C-	<i>h</i> C+
<i>Helicobacter pylori</i> J99	C-(II)	C+	3C-	3C-	2C-	4C-	1C-	<i>h</i> C+
<i>Nitratiruptor</i> sp. SB155-2	C-(II)	C+	<i>h</i> C+	3C-	C+	4C-	C+	<i>h</i> C+
<i>Sulfurimonas denitrificans</i> DSM 1251	C-(II)	C+	<i>h</i> C+	3C-	C+	4C-	C+	<i>h</i> C+
<i>Sulfurovum</i> sp. NBC37-1	C-(II)	C+	<i>h</i> C+	3C-	C+	4C-	C+	<i>h</i> C+
<i>Wolinella succinogenes</i> DSM 1740	C-(II)	C+	3C-	3C-	2C-	4C-	2C-	<i>h</i> C+
Gamma proteobacteria (166)	0/166	7/162	0/166	0/161	143/90	0/136	0/163	118/61
Acinetobacter baumannii								
<i>Acinetobacter baumannii</i> ACICU	C-(I)	3C-	3C-	3C-	C+/ ^β C-	4C-	4C-	<i>h</i> C+
<i>Acinetobacter baumannii</i> ATCC 17978	C-(I)	3C-	3C-	3C-	C+/ ^β C-	4C-	4C-	<i>h</i> C+
<i>Acinetobacter baumannii</i> AYE	C-(I)	3C-/ ^β C-	3C-/ ^β C-	3C-/ ^β C-	C+/ ^β C-/ ^β C-	4C-/ ^β C-	4C-/ ^β C-	<i>h</i> C+
<i>Acinetobacter baumannii</i> SDF	C-(I)	3C-	3C-	3C-	C+/ ^β C-	4C-	4C-	<i>h</i> C+
<i>Acinetobacter</i> sp. ADP1	C-(I)	3C-	3C-	3C-	C+/ ^β C-	4C-	4C-	<i>h</i> C+
Actinobacillus pleuropneumoniae								
<i>Actinobacillus pleuropneumoniae</i> L20	C-(I)	3C-	3C-	3C-	C+/ ^β C-	4C-	4C-	<i>h</i> C+/ ^β C-
<i>Actinobacillus pleuropneumoniae</i> serovar 3 str. JL03	C-(I)	3C-	3C-	3C-	C+/ ^β C-	4C-	4C-	<i>h</i> C+/ ^β C-
<i>Actinobacillus pleuropneumoniae</i> serovar 7 str. AP76	C-(I)	3C-	3C-	3C-	C+/ ^β C-	4C-	4C-	<i>h</i> C+/ ^β C-
<i>Actinobacillus succinogenes</i> 130Z	C-(I)	3C-	3C-	3C-	C+	4C-	4C-	<i>h</i> C+
<i>Aeromonas hydrophila</i> subsp. hydrophila ATCC 7966	C-(I)	3C-	3C-	3C-	C+/ ^β C-	4C-	4C-	2C-
<i>Aeromonas salmonicida</i> subsp. salmonicida A449	C-(I)	3C-	3C-	3C-	C+/ ^β C-	4C-	4C-	<i>h</i> C+/ ^β C-
<i>Alcanivorax borkumensis</i> SK2	C-(I)	3C-	3C-	3C-	C+	4C-	4C-	<i>h</i> C+

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
<i>Vibrio fischeri</i> ES114	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Alkalinimicrobia ehrlichei</i> MLHE-1	C-(0)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Buchnera aphidicola								
<i>Buchnera aphidicola</i> str. APS (Acyrthosiphon pisum)	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Buchnera aphidicola</i> str. Bp (Baizongia pistaciae)	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Buchnera aphidicola</i> str. Cc (Cinara cedri)	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Buchnera aphidicola</i> str. Sg (Schizaphis graminum)	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Candidatus Vesicosocius okutanii</i> HA	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Baumannia cicadellimicola</i> str. Hc (Homalodisca coagulata)	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Candidatus Blochmannia floridanus</i>	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Candidatus Blochmannia pennsylvanicus</i> str. BPEN	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Candidatus Carsonella ruddii</i> PV	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Candidatus Ruthia magnifica</i> str. Cm (Calyptogenia magnifica)	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Chromohalobacter salexigenus</i> DSM 3043	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Citrobacter koseri</i> ATCC BAA-895	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	2C-
<i>Colwellia psychroerythraea</i> 34H	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
Coxiella burnetii								
<i>Coxiella burnetii</i> Dugway 5J1108-111	C-(0)	hC+	2C-	3C-	C+	4C-	4C-	hC+
<i>Coxiella burnetii</i> RSA 331	C-(1)	hC+	2C-	3C-	C+	4C-	4C-	hC+
<i>Coxiella burnetii</i> RSA 493	C-(1)	hC+	2C-	3C-	C+	4C-	4C-	hC+
<i>Dichelobacter nodosus</i> VCS1703A	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
<i>Enterobacter sakazakii</i> ATCC BAA-894	C-(1)	3C-	3C-	3C-	C+/4C-	4C-	4C-	hC+/2C-
<i>Enterobacter</i> sp. 638	C-(1)	3C-	3C-	3C-	C+/4C-	4C-	4C-	hC+/2C-
<i>Erwinia tasmaniensis</i>	C-(1)	3C-	3C-	3C-	C+/4C-	4C-	4C-	hC+/2C-
Escherichia coli								
<i>Escherichia coli</i> 536	C-(1)	3C-	3C-	3C-	C+/4C-	4C-	4C-	hC+/2C-
<i>Escherichia coli</i> APEC O1	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+/2C-
<i>Escherichia coli</i> ATCC 8739	C-(1)	3C-	3C-	3C-	C+/4C-	4C-	4C-	hC+/2C-
<i>Escherichia coli</i> CFT073	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	2C-
<i>Escherichia coli</i> E24377A	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+/2C-
<i>Escherichia coli</i> HS	C-(1)	3C-	3C-	3C-	C+/4C-	4C-	4C-	hC+/2C-
<i>Escherichia coli</i> O157:H7 EDL933	C-(1)	3C-	3C-	3C-	C+/4C-	4C-	4C-	hC+
<i>Escherichia coli</i> O157:H7 str. Sakai	C-(1)	3C-	3C-	3C-	C+/4C-	4C-	4C-	hC+/2C-
<i>Escherichia coli</i> SMS-3-5	C-(1)	3C-	3C-	3C-	/4C-	4C-	4C-	hC+/2C-
<i>Escherichia coli</i> UTI89	C-(1)	3C-	3C-	3C-	C+/4C-	4C-	4C-	hC+/2C-
<i>Escherichia coli</i> str. K12 substr. DH10B	C-(1)	3C-/3C-	3C-/3C-	3C-/3C-	4C-	4C-/4C-	4C-/4C-	hC+/2C-
<i>Escherichia coli</i> str. K12 substr. MG1655	C-(1)	3C-/3C-	3C-/3C-	3C-/3C-	C+/4C-	4C-/4C-	4C-/4C-	hC+/2C-
<i>Escherichia coli</i> str. K12 substr. W3110	C-(1)	3C-	3C-	3C-	/4C-	4C-	4C-	hC+/2C-
<i>Francisella tularensis</i> subsp. novicida U112	C-(1)	2C-	3C-	3C-	C+/4C-	4C-	4C-	hC+/2C-
<i>Francisella philomiragia</i> subsp. philomiragia ATCC 25017	C-(1)	2C-	3C-	3C-	C+	4C-	4C-	hC+
Francisella tularensis								
<i>Francisella tularensis</i> subsp. holarctica	C-(1)	2C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Francisella tularensis</i> subsp. holarctica FTNF002-00	C-(1)	2C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Francisella tularensis</i> subsp. holarctica OSU18	C-(1)	2C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Francisella tularensis</i> subsp. mediasiatica FSC147	C-(1)	2C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Francisella tularensis</i> subsp. tularensis FSC198	C-(1)	2C-	3C-	3C-	C+	4C-	4C-	hC+

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
<i>Francisella tularensis</i> subsp. <i>tularensis</i> SCHU S4	C-(1)	2C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Francisella tularensis</i> subsp. <i>tularensis</i> WY96-3418	C-(1)	2C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Haemophilus ducreyi</i> 35000HP	C-(1)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	hC+/ ² C-
Haemophilus influenzae								
<i>Haemophilus influenzae</i> 86-028NP	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Haemophilus influenzae</i> PittEE	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Haemophilus influenzae</i> PittGG	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Haemophilus influenzae</i> Rd KW20	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Hahella chejuensis</i> KCTC 2396	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Halorhodospira halophila</i> SL1	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
Histophilus somni								
<i>Haemophilus somnus</i> 129PT	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Haemophilus somnus</i> 2336	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Idiomarina loihiensis</i> L2TR	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i> MGH 78578	C-(1)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	2C-
Legionella pneumophila								
<i>Legionella pneumophila</i> str. Corby	C-(1)	C+	3C-	3C-	C+	4C-	4C-	hC+
<i>Legionella pneumophila</i> str. Lens	C-(1)	C+	3C-	3C-	C+	4C-	4C-	hC+
<i>Legionella pneumophila</i> str. Paris	C-(1)	C+	3C-	3C-	C+	4C-	4C-	hC+
<i>Legionella pneumophila</i> subsp. <i>pneumophila</i> str. Philadelphia 1	C-(1)	C+	3C-	3C-	C+	4C-	4C-	hC+
<i>Mannheimia succiniciproducens</i> MBEL55E	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Marinobacter aquaeolei</i> VT8	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Marinomonas</i> sp. MWYL1	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Methylococcus capsulatus</i> str. Bath	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Nitrosococcus oceanus</i> ATCC 19707	C-(1)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	hC+
<i>Pasteurella multocida</i> subsp. <i>multocida</i> str. Pm70	C-(1)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	hC+
<i>Pectobacterium atrosepticum</i> SCRI1043	C-(1)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	hC+
<i>Photobacterium profundum</i> SS9	C-(1)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	hC+
<i>Photorhabdus luminescens</i> subsp. <i>laumondii</i> T101	C-(1)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	hC+
<i>Pseudoalteromonas atlantica</i> T6c	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Pseudoalteromonas haloplanktis</i> TAC125	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	2C-
Pseudomonas aeruginosa								
<i>Pseudomonas aeruginosa</i> PA7	C-(1)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	hC+/ ² C-
<i>Pseudomonas aeruginosa</i> PAO1	C-(1)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	hC+/ ² C-
<i>Pseudomonas aeruginosa</i> UCBCPP-PA14	C-(1)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	hC+/ ² C-
<i>Pseudomonas entomophila</i> L48	C-(1)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	hC+
Pseudomonas fluorescens								
<i>Pseudomonas fluorescens</i> Pf-5	C-(1)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	2C-
<i>Pseudomonas fluorescens</i> PfO-1	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Pseudomonas mendocina</i> ymp	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
Pseudomonas putida								
<i>Pseudomonas putida</i> F1	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Pseudomonas putida</i> GB-1	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Pseudomonas putida</i> KT2440	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Pseudomonas putida</i> W619	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Pseudomonas syringae</i> pv. <i>phaseolicola</i> 1448A	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
<i>Pseudomonas stutzeri</i> A1501	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
<i>Pseudomonas syringae</i> pv. <i>syringae</i> B728a	C-(1)	3C-	3C-	3C-	C+ ^A C-	4C-	4C-	hC+
<i>Pseudomonas syringae</i> pv. <i>tomato</i> str. DC3000	C-(1)	3C-	3C-	3C-	C+ ^A C-	4C-	4C-	hC+
<i>Psychrobacter arcticus</i> 273-4	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
<i>Psychrobacter cryohalolentis</i> K5	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
<i>Psychrobacter</i> sp. PRwf-1	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	hC+
<i>Psychromonas ingrahamii</i> 37	C-(1)	3C-	2C-	3C-	C+	4C-	4C-	hC+ ^h C+
<i>Saccharophagus degradans</i> 2-40	C-(1)	2C-	3C-	3C-	C+	4C-	4C-	hC+
Salmonella enterica								
<i>Salmonella enterica</i> subsp. <i>arizonae</i> serovar 62:z4,z23:-	C-(1)	3C-	3C-	3C-	C+ ^A C-	4C-	4C-	hC+ ^h C-
<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Choleraesuis</i> str. SC-B67	C-(1)	3C-	3C-	3C-	C+ ^A C-	4C-	4C-	2C-
<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Paratyphi B</i> str. SPB7	C-(1)	3C-	3C-	4C-	C+ ^A C-	4C-	4C-	hC+ ^h C-
<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> str. CT18	C-(1)	3C-	3C-	3C-	C+ ^A C-	4C-	4C-	hC+ ^h C-
<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> str. Ty2	C-(1)	3C-	3C-	3C-	C+ ^A C-	4C-	4C-	hC+ ^h C-
<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhi</i> str. ATCC 9150	C-(1)	3C-	3C-	3C-	C+ ^A C-	4C-	4C-	2C-
<i>Salmonella typhimurium</i> LT2	C-(1)	3C-	3C-	3C-	C+ ^A C-	4C-	4C-	hC+
<i>Serratia proteamaculans</i> 568	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella amazonensis</i> SB2B	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
Shewanella baltica								
<i>Shewanella baltica</i> OS155	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella baltica</i> OS185	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella baltica</i> OS195	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella denitrificans</i> OS217	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella frigidimarina</i> NCIMB 400	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella halifaxensis</i> HAW-EB4	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella loihica</i> PV-4	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella oneidensis</i> MR-1	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella pealeana</i> ATCC 700345	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella putrefaciens</i> CN-32	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella sediminis</i> HAW-EB3	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella</i> sp. ANA-3	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella</i> sp. MR-4	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella</i> sp. MR-7	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella</i> sp. W3-18-1	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shewanella woodyi</i> ATCC 51908	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
Shigella boydii								
<i>Shigella boydii</i> CDC 3083-94	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shigella boydii</i> Sb227	C-(1)	3C-	3C-	3C-	C+ ^A C-	4C-	4C-	hC+
<i>Shigella dysenteriae</i> Sd197	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
Shigella flexneri								
<i>Shigella flexneri</i> 2a str. 2457T	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shigella flexneri</i> 2a str. 301	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shigella flexneri</i> 5 str. 8401	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Shigella sonnei</i> Ss046	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Sodalis glossinidius</i> str. 'morsitans'	C-(1)	3C-	3C-	3C-	C+	4C-	4C-	hC+
<i>Stenotrophomonas maltophilia</i> K279a	C-(1)	3C-	3C-	3C-	4C-	4C-	4C-	2C-

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
<i>Thiomicrospira crunogena</i> XCL-2	C-(0)	3C-	3C-	3C-	4C-	4C-	4C-	3C-
Vibrio cholerae								
Vibrio cholerae O1 biovar El Tor str. N16961	C-(0)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	<i>h</i> C+/ ² C-
Vibrio cholerae O395	C-(0)	3C-	3C-	3C-	C+/ ^d C-	4C-	4C-	<i>h</i> C+/ ² C-
Vibrio harveyi ATCC BAA-1116	C-(0)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	<i>h</i> C+/ ² C-
Vibrio parahaemolyticus RIMD 2210633	C-(0)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	<i>h</i> C+
Vibrio vulnificus								
Vibrio vulnificus CMCP6	C-(0)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	2C-
Vibrio vulnificus YJ016	C-(0)	3C-	3C-	3C-	C+/ ^d C-	4C-	4C-	<i>h</i> C+
Wigglesworthia glossinidia endosymbiont of Glossina brevipalpis	C-(0)	3C-	3C-	3C-	C+	4C-	4C-	2C-
Xanthomonas axonopodis pv. citri str. 306	C-(0)	3C-	3C-	3C-	4C-	4C-	4C-	2C-
Xanthomonas campestris								
Xanthomonas campestris pv. campestris	C-(0)	3C-	3C-	3C-	4C-	4C-	4C-	2C-
Xanthomonas campestris pv. campestris str. 8004	C-(0)	3C-	3C-	3C-	4C-	4C-	4C-	2C-
Xanthomonas campestris pv. campestris str. ATCC 33913	C-(0)	3C-	3C-	3C-	4C-	4C-	4C-	2C-
Xanthomonas campestris pv. vesicatoria str. 85-10	C-(0)	3C-	3C-	3C-	4C-	4C-	4C-	2C-
Xanthomonas oryzae								
Xanthomonas oryzae pv. oryzae KACC10331	C-(0)	3C-	3C-	3C-	4C-	4C-	4C-	2C-
Xanthomonas oryzae pv. oryzae MAFF 311018	C-(0)	3C-	3C-	3C-	4C-	4C-	4C-	2C-
Xylella fastidiosa								
Xylella fastidiosa 9a5c	C-(0)	3C-	3C-	3C-	4C-	4C-	4C-	2C-
Xylella fastidiosa M12	C-(0)	3C-	3C-	3C-	4C-	4C-	4C-	2C-
Xylella fastidiosa M23	C-(0)	3C-	3C-	3C-	4C-	4C-	4C-	2C-
Xylella fastidiosa Temecula 1	C-(0)	3C-	3C-	3C-	4C-	4C-	4C-	2C-
Yersinia enterocolitica subsp. enterocolitica 8081	C-(0)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	<i>h</i> C+/ ² C-
Yersinia pestis								
Yersinia pestis Angola	C-(0)	3C-	3C-	3C-	C+	4C-	4C-	2C-
Yersinia pestis Antiqua	C-(0)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	2C-
Yersinia pestis CO92	C-(0)	3C-	3C-	3C-	C+/ ^d C-	4C-	4C-	<i>h</i> C+/ ² C-
Yersinia pestis KIM	C-(0)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	2C-
Yersinia pestis Nepal516	C-(0)	3C-	3C-	3C-	C+/ ^d C-	4C-	4C-	2C-
Yersinia pestis Pestoides F	C-(0)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	2C-
Yersinia pestis biovar Microtus str. 91001	C-(0)	3C-	3C-	3C-	C+/ ^d C-	4C-	4C-	<i>h</i> C+/ ² C-
Yersinia pseudotuberculosis								
Yersinia pseudotuberculosis IP 31758	C-(0)	3C-	3C-	3C-	C+/ ^A C-	4C-	4C-	2C-
Yersinia pseudotuberculosis IP 32953	C-(0)	3C-	3C-	3C-	C+/ ^d C-	4C-	4C-	<i>h</i> C+/ ² C-
Yersinia pseudotuberculosis YPIII	C-(0)	3C-	3C-	3C-	C+/ ^d C-	4C-	4C-	<i>h</i> C+/ ² C-
Unknown (class) (1)	1/0	1/0	1/0	0/1	1/0	1/0	1/0	1/0
Magnetococcus sp. MC-1	C+	C+	<i>h</i> C+	4C-	C+	C+	C+	<i>h</i> C+
Spirochaetes (12)	0/13	12/0	5/7	3/9	9/3	7/0	0/6	11/0
Spirochaetes (class) (12)	0/13	12/0	5/7	3/9	9/3	7/0	0/6	11/0
Borrelia afzelii PKo	4C-	C+	2C-	3C-	4C-	2C-	2C-	<i>h</i> C+
Borrelia burgdorferi B31	4C-	C+	2C-	3C-	4C-	2C-	2C-	<i>h</i> C+
Borrelia garinii PBI	4C-	C+	2C-	3C-	4C-	2C-	2C-	<i>h</i> C+
Leptospira biflexa								
Leptospira biflexa serovar Patoc strain 'Patoc 1 (Ames)'	C-(III)	C+	<i>h</i> C+	3C-	C+			<i>h</i> C+

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
Leptospira biflexa serovar Patoc strain 'Patoc 1 (Paris)'			<i>h</i> C+	³ C-	C+			
Leptospira borgpetersenii								
Leptospira borgpetersenii serovar Hardjo-bovis JB197	C-(III)	C+	³ C-	³ C-	C+	C+		<i>h</i> C+
Leptospira borgpetersenii serovar Hardjo-bovis L550	C-(III)/C-(III)	C+/C+	³ C-	³ C-	C+	C+		<i>h</i> C+/ <i>h</i> C+
Leptospira interrogans								
Leptospira interrogans serovar Copenhageni str. Fiocruz L1-130	C-(III)	C+	³ C-	³ C-	C+	C+		<i>h</i> C+
Leptospira interrogans serovar Lai str. 56601	C-(III)	C+	³ C-	³ C-	C+	C+		<i>h</i> C+
Treponema denticola ATCC 35405	⁴ C-	C+	<i>h</i> C+	C+	C+	C+	¹ C-	<i>h</i> C+
Treponema pallidum								
Treponema pallidum subsp. pallidum SS14	⁴ C-	C+	<i>h</i> C+	C+	C+	C+	¹ C-	<i>h</i> C+
Treponema pallidum subsp. pallidum str. Nichols	⁴ C-	C+	<i>h</i> C+	C+	C+	C+	¹ C-	<i>h</i> C+
Tenericutes (19)	0/18	15/3	10/9	0/19	18/1	15/3	17/1	12/3
Mollicutes (19)	0/18	15/3	10/9	0/19	18/1	15/3	17/1	12/3
Acholeplasma laidlawii PG-8A	⁴ C-	⁴ C-	³ C-	³ C-	⁴ C-	⁴ C-	C+/ ¹ C-	⁴ C-
Aster yellows witches'-broom phytoplasma AYWB	⁴ C-	⁴ C-	³ C-	³ C-	C+	³ C-	^s C+	⁴ C-
Mesoplasma florum L1	⁴ C-	C+	⁴ C-	⁴ C-	C+	C+	C+	<i>h</i> C+
Mycoplasma agalactiae PG2	⁴ C-	C+	<i>h</i> C+	⁴ C-	C+	C+	C+	<i>h</i> C+
Mycoplasma capricolum subsp. capricolum ATCC 27343	⁴ C-	C+	⁴ C-	⁴ C-	C+	C+	C+	<i>h</i> C+
Mycoplasma gallisepticum R	⁴ C-	C+	⁴ C-	⁴ C-	C+	C+	C+	<i>h</i> C+
Mycoplasma genitalium G37	⁴ C-	C+	<i>h</i> C+	⁴ C-	C+	C+	C+	<i>h</i> C+
Mycoplasma hyopneumoniae								
Mycoplasma hyopneumoniae 232	⁴ C-	C+	<i>h</i> C+	⁴ C-	C+	C+		<i>h</i> C+
Mycoplasma hyopneumoniae 7448	⁴ C-	C+	<i>h</i> C+	⁴ C-	C+	C+		<i>h</i> C+
Mycoplasma hyopneumoniae J	⁴ C-	C+	<i>h</i> C+	⁴ C-	C+	C+		<i>h</i> C+
Mycoplasma mobile 163K	⁴ C-	C+	^{2h} C+	⁴ C-	C+	C+	C+	<i>h</i> C+
Mycoplasma mycoides subsp. mycoides SC str. PG1	⁴ C-	C+	⁴ C-	⁴ C-	C+	C+		<i>h</i> C+
Mycoplasma penetrans HF-2	⁴ C-	C+	<i>h</i> C+	⁴ C-	C+	C+	C+	<i>h</i> C+
Mycoplasma pneumoniae M129	⁴ C-	C+	<i>h</i> C+	⁴ C-	C+	C+	C+/C+	<i>h</i> C+
Mycoplasma pulmonis UAB CTIP	⁴ C-	C+	⁴ C-	⁴ C-	C+	C+	C+	<i>h</i> C+
Mycoplasma synoviae 53	⁴ C-	C+	<i>h</i> C+	⁴ C-	C+	C+	C+	<i>h</i> C+
Onion yellows phytoplasma OY-M	⁴ C-	⁴ C-	³ C-	³ C-	C+	³ C-	^s C+/C+	⁴ C-
Ureaplasma parvum								
Ureaplasma parvum serovar 3 str. ATCC 27815	⁴ C-	C+	³ C-	⁴ C-	C+	C+	^s C+	<i>h</i> C+
Ureaplasma parvum serovar 3 str. ATCC 700970	⁴ C-	C+	³ C-	⁴ C-	C+	C+	^s C+/C+	<i>h</i> C+
Thermotogae (7)	6/1	7/0	7/0	7/0	7/0	7/0	7/0	7/0
Thermotogae (class) (7)								
Fervidobacterium nodosum Rt17-B1	C+	C+	<i>h</i> C+	C+	C+	C+	C+	<i>h</i> C+
Petrogoga mobilis SJ95	C-(I)	C+	<i>h</i> C+	C+	C+	C+	C+	<i>h</i> C+
Thermosiphon melanesiensis B1429	C+	C+	<i>h</i> C+	C+	C+	C+	C+	<i>h</i> C+
Thermotoga lettingae TMO	C+	C+	<i>h</i> C+	C+	C+	C+	C+	<i>h</i> C+
Thermotoga maritima MSB8	C+	C+	<i>h</i> C+	C+	C+	C+	C+	<i>h</i> C+
Thermotoga petrophila RRU-1	C+	C+	<i>h</i> C+	C+	C+	C+	C+	<i>h</i> C+
Thermotoga sp. RQ2	C+	C+	<i>h</i> C+	C+	C+	C+	C+	<i>h</i> C+
Verrucomicrobia (7)	0/7	0/1	0/1	0/1	0/1	0/1	0/1	0/1
Opitutae (2)	0/2	0/1	0/1	0/1	0/1	0/1	0/1	0/1
Opitutaceae bacterium TAV2 *	⁴ C-							

Table 1: (cont) Sequences used in the study

Taxon	S4	S14	S18	L28	L31	L32	L33	L36
<i>Opitutus terrae</i> PB90-1	⁴ C-	³ C-	⁴ C-	³ C-	⁴ C-	⁴ C-	³ C-	³ C-
<i>Spartobacteria</i> (1)	0/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0
<i>Chthoniobacter flavus</i> Ellin428 *	⁴ C-							
Unknown (class) (1)	0/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0
<i>Methylacidiphilum infernorum</i> V4 *	⁴ C-							
<i>Verrucomicrobiae</i> (3)	0/3	0/0	0/0	0/0	0/0	0/0	0/0	0/0
<i>Akkermansia muciniphila</i> ATCC BAA-835 *	⁴ C-							
<i>Verrucomicrobium spinosum</i> DSM 4136 *	⁴ C-							
<i>Bacterium</i> Ellin514 *	⁴ C-							

a) numbers in the parenthesis indicate the number of genomes in this level of taxonomy; b) pairs of numbers in bold indicate number of C+/C- genes detected, including all the paralogs; c) ^hC+ indicates a zinc binding motif with three cysteines and one histidine, similar for ^sC+; d) ⁴C- indicates that the r-protein detected is missing four cysteines, ³C- indicates that the r-protein is missing three cysteines, similar for ²C- and ¹C-; e) organisms with an (*) asterisk after their names are draft genomes, which are only used in the S4 analysis.