

**Table S1.** *Rhodobacter* genomes used for the comparative study.

Genome ID	Genome Name	Strain	NCBI Taxon ID	Genome Status
1054202.4	<i>Rhodobacter viridis</i> strain JA737	JA737	1054202	WGS
1061.5	<i>Rhodobacter capsulatus</i> strain B41	B41	1061	WGS
1061.6	<i>Rhodobacter capsulatus</i> strain A52	A52	1061	WGS
1061.9	<i>Rhodobacter capsulatus</i> strain DSM 1710	DSM 1710	1061	WGS
1062.4	<i>Rhodobacter</i> sp. strain UBA9917	UBA9917	1062	WGS
1062.5	<i>Rhodobacter</i> sp. strain UBA12248	UBA12248	1062	WGS
1062.6	<i>Rhodobacter</i> sp. strain UBA9318	UBA9318	1062	WGS
1062.8	<i>Rhodobacter</i> sp. strain UBA10365	UBA10365	1062	WGS
1063.1	<i>Rhodobacter sphaeroides</i> strain MBTLJ-13	MBTLJ-13	1063	Complete
1063.13	<i>Rhodobacter sphaeroides</i> strain MBTLJ-20	MBTLJ-20	1063	Complete
1063.28	<i>Rhodobacter sphaeroides</i> strain YL101	YL101	1063	WGS
1063.31	<i>Rhodobacter sphaeroides</i> strain org#2181 strain 28/5	28/5	1063	Complete
1063.32	<i>Rhodobacter sphaeroides</i> strain S2_003_000_R2_11	S2_003_000	1063	WGS
1063.33	<i>Rhodobacter sphaeroides</i> strain EBL0706	EBL0706	1063	Complete
1063.34	<i>Rhodobacter sphaeroides</i> strain FY	FY	1063	WGS
1063.35	<i>Rhodobacter sphaeroides</i> strain SCJ	SCJ	1063	WGS
1063.4	<i>Rhodobacter sphaeroides</i> strain AB25	AB25	1063	Complete
1063.41	<i>Rhodobacter sphaeroides</i> strain AB27	AB27	1063	Complete
1063.42	<i>Rhodobacter sphaeroides</i> strain AB29	AB29	1063	Complete
1063.43	<i>Rhodobacter sphaeroides</i> strain AB24	AB24	1063	Complete
1063.9	<i>Rhodobacter sphaeroides</i> strain MBTLJ-8	MBTLJ-8	1063	Complete
1185920.4	<i>Rhodobacter veldkampii</i> DSM 11550	DSM 11550	1185920	WGS
1188249.3	<i>Cereibacter changlensis</i> JA139	JA139	1188249	WGS
1188250.3	<i>Rhodobacter blasticus</i> DSM 2131	DSM 2131	1188250	WGS
1247725.3	<i>Rhodobacter</i> sp. AKP1	AKP1	1247725	WGS
1414586.3	<i>Rhodobacter capsulatus</i> YW1	YW1	1414586	WGS
1415159.3	<i>Rhodobacter capsulatus</i> YW2	YW2	1415159	WGS
1415160.3	<i>Rhodobacter capsulatus</i> DE442	DE442	1415160	WGS
1415161.3	<i>Rhodobacter capsulatus</i> Y262	Y262	1415161	WGS
1415162.4	<i>Rhodobacter capsulatus</i> B6	B6	1415162	WGS
1415163.3	<i>Rhodobacter capsulatus</i> R121	R121	1415163	WGS
1655557.3	<i>Rhodobacter</i> sp. BACL10 MAG-120419-bin15	BACL10 MAG	1655557	WGS
1786003.4	<i>Rhodobacter</i> sp. CCB-MM2	CCB-MM2	1786003	WGS
1850250.3	<i>Rhodobacter</i> sp. LPB0142	LPB0142	1850250	Complete
1884310.3	<i>Rhodobacter</i> sp. 24-YEA-8	24-YEA-8	1884310	WGS
1985673.3	<i>Rhodobacter</i> sp. CCP-1	CCP-1	1985673	WGS
2029399.6	<i>Rhodobacter</i> sp. TJ_12	TJ_12	2029399	WGS
2033869.3	<i>Rhodobacter</i> sp. CZR27	CZR27	2033869	Complete
2183910.3	<i>Rhodobacter</i> sp. 140A	140A	2183910	WGS
2249421.3	<i>Rhodobacter</i> sp. YIM 73036	YIM 73036	2670345	WGS
2294033.3	<i>Rhodobacter</i> sp. BO-81	BO-81	2294033	WGS
2528036.3	<i>Rhodobacter</i> sp. YIM 73028	YIM 73028	2528036	WGS
2562317.3	<i>Rhodobacter</i> sp. SY28-1	SY28-1	2562317	WGS
2584941.3	<i>Rhodobacter</i> sp. JA983	JA983	2584941	WGS
2593019.3	<i>Rhodobacter</i> sp. SYSU G02092	SYSU G0209	2593019	WGS
2593020.3	<i>Rhodobacter</i> sp. SYSU G02094	SYSU G0209	2593020	WGS
2593021.3	<i>Rhodobacter</i> sp. SYSU G03088	SYSU G0308	2593021	WGS
2593022.3	<i>Rhodobacter</i> sp. SYSU G02214	SYSU G0221	2593022	WGS
2715277.3	<i>Rhodobacter</i> sp. M37P	M37P	2715277	WGS
272942.6	<i>Rhodobacter capsulatus</i> SB 1003	SB1003	272942	Complete
272943.71	<i>Rhodobacter sphaeroides</i> 2.4.1	2.4.1	272943	Complete
2759676.3	<i>Rhodobacter</i> sp. NTK016B	NTK016B	2759676	WGS
2807096.3	<i>Rhodobacter</i> sp. N10	N10	2807096	Complete
2852097.3	<i>Rhodobacter</i> sp. HSP-20	HSP-20	2852097	WGS
2883999.5	<i>Rhodobacter</i> sp. Har01	Har01	2883999	WGS
349101.6	<i>Rhodobacter sphaeroides</i> ATCC 17029	ATCC 17029	349101	Complete
349102.13	<i>Rhodobacter sphaeroides</i> ATCC 17025	ATCC 17025	349102	Complete
371731.3	<i>Rhodobacter</i> sp. SW2	SW2	371731	WGS
39723.4	<i>Rhodobacter sphaeroides</i> f. sp. denitrificans strain IL106	IL106	39723	WGS
407234.3	<i>Rhodobacter vinaykumarii</i> strain DSM 18714	DSM 18714	407234	WGS
407234.6	<i>Rhodobacter vinaykumarii</i> strain JA123	JA123	407234	WGS
418630.3	<i>Rhodobacter megalophilus</i> strain DSM 18937	DSM 18937	418630	WGS
43057.4	<i>Rhodobacter azotoformans</i> strain YLK20	YLK20	43057	WGS
43057.6	<i>Rhodobacter azotoformans</i> strain KA25	KA25	43057	WGS
439529.3	<i>Rhodobacter ovatus</i> strain JA234	JA234	439529	WGS
445629.8	<i>Rhodobacter johrii</i> strain JA192	JA192	445629	WGS
445629.9	<i>Rhodobacter johrii</i> strain CDR-SL 7Cii	CDR-SL 7Cii	445629	WGS
446682.3	<i>Rhodobacter maris</i> strain JA276	JA276	446682	WGS
449393.3	<i>Rhodobacter</i> sp. Q27b	Q27b	1408890	WGS
453582.3	<i>Rhodobacter aestuarii</i> strain DSM 19945	DSM 19945	453582	WGS
453582.5	<i>Rhodobacter aestuarii</i> strain JA296	JA296	453582	WGS
557760.5	<i>Rhodobacter sphaeroides</i> KD131	KD131	557760	Complete
570013.3	<i>Rhodobacter</i> sp. JA431	JA431	570013	WGS
992186.3	<i>Rhodobacter sphaeroides</i> WS8N	WS8N	992186	WGS