Table 1. RecA and SS-rRNA sequences.

Species (by Phylum)	Abbr.	RecA.	#aa	SS-rRNA[1,2]	RecA Refs.
Proteobacteria					
Acetobacter polyoxogenes	*Act.po*	D13183	348	ABA.PASTER*	(Tayama et al. 1993)
Acidiphilium facilis	*Acd.f*	D16538	354	ACDP.FACI2	(Inagaki et al. 1993)
Acinetobacter calcoaceticus	*Acn.c*	L26100	349	ACN.CALCOA	(Gregg-Jolly and Ornston 1994)
Agrobacterium tumefaciens	*Ag.t*	L07902	363	AG.TUMEFAC	(Wardhan et al. 1992)
Azotobacter vinelandii	*Az.v*	S96898	349	F.LUTESCEN*	(Venkatesh and Das 1992)
Bordetella pertussis	*Bd.p*	X53457	352	BRD.PERTUS	(Favre et al. 1991, Favre and Viret 1990)
Brucella abortus	*Br.a*	L00679	360	BRU.ABORTS	(Tatum et al. 1993)
Burkholderia cepacia[3]	*Bu.c*	D90120	347	BUR.CEPACI	(Nakazawa et al. 1990)
Campylobacter jejuni	*Ca.j*	U03121	343	CAM.JEJUNI	(Guerry et al. 1994)
Enterobacter agglomerans[4]	*En.a*	P33037	354	ER.HERBICO	(Rappold and Klingmueller 1993)
Erwinia carotovara	*Er.c*	X55554	342	ER.CAROTOV	(Zhao and McEntee 1990)
Escherichia coli	*Es.c*	V00328	353	E.COLI	(Horii et al. 1980, Sancar et al. 1980)
Haemophilus influenzae	*Ha.i*	L07529	354	H.INFLUENZ	(Zulty and Barcak 1993)
Helicobacter pylori	*He.p*	Z35478	347	HLB.PYLOR3	(Haas 1994)
Legionella pneumophila	*Le.p*	X55453	348	LEG.PNEUMO	(Zhao and Dreyfus 1990)
Magnetospirillum magnetotacticum[5]	*Ma.m*	X17371	344	MAG.MAGNE2	(Berson et al. 1990)
Methylobacillus flagellatum	*Mb.f*	M35325	344	MBS.FLAGEL	(Gomelsky et al. 1990)
Methylomonas clara	*Mm.c*	X59514	342	MLM.METHYL*	(Ridder et al. 1991)
Methylophilus methylotrophus	*Mp.m*	unpub.	342	MLP.METHY1	(Emmerson 1995, pers. commun)
Myxococcus xanthus 1	*Mx.x1*	L40367	342	MYX.XANTHU	(Inouye 1995, pers. commun.)
Myxococcus xanthus 2	*Mx.x2*	L40368	358	n/a[6]	(Inouye 1995, pers. commun.)
Neisseria gonorrhoeae	*Ne.g*	X17374	348	NIS.GONORR	(Fyfe and Davies 1990)
Proteus mirabilis	*Pr.m*	X14870	355	ARS.NASONI*	(Akaboshi et al. 1989)
Proteus vulgaris	*Pr.v*	X55555	325	P.VULGARIS	(Zhao and McEntee 1990)
Pseudomonas aeruginosa	*Ps.a*	X52261	346	PS.AERUGIN	(Sano and Kageyama 1987)
Pseudomonas fluorescens	*Ps.f*	M96558	352	PS.FLAVESC*	(De Mot et al. 1993)
Pseudomonas putida	*Ps.p*	L12684	355	PS.PUTIDA	(Luo et al. 1993)
Rhizobium leg. phaseoli	*Rz.p*	X62479	360	RHB.LEGUM6*	(Michiels et al. 1991)
Rhizobium leg. viciae	*Rz.l*	X59956	351	RHB.LEGUM8	(Selbitschka et al. 1991)
Rhizobium meliloti	*Rz.m*	X59957	348	RHB.MELIL2	(Selbitschka et al. 1991)
Rhodobacter capsulatus	*Rh.c*	X82183	355	RB.CAPSUL2	(Fernandez de Henestrosa 1994)
Rhodobacter sphaeroides	*Rh.s*	X72705	343	RB.SPHAER2	(Calero et al. 1994)
Rickettsia prowazekii	*Ri.p*	U01959	340	RIC.PROWAZ	(Dunkin and Wood 1994)
Serratia marcescens	*Se.m*	M22935	354	SER.MARCES	(Ball et al. 1990)
Shigella flexneri	*Sh.f*	X55553	353	n/a	(Zhao and McEntee 1990)
Thiobacillus ferrooxidans	*Tb.f*	M26933	346	THB.CALDUS*	(Ramesar et al. 1989)
Vibrio anguillarum	*Vi.a*	M80525	348	V.ANGUILLA	(Gammie and Crosa 1991, Tolmasky et al. 1992)
Vibrio cholerae	*Vi.c*	U10162	354	V.CHOLERAE	(Margraf et al. 1995, Stroeher et al. 1994)
Xanthomonas oryzae	*Xa.o*	unpub.	355	XAN.ORYZAE	(Mongkolsuk 1995, pers. commun.)
Yersinia pestis	*Ye.p*	X75336	356	YER.PESTIS	(Kryukov et al. 1993)
Gram Positives					
Acholeplasma laidlawii	*Acp.l*	M81465	331	ACP.LAIDLA	(Dybvig and Woodard 1992)
Bacillus subtilis	*Ba.s*	X52132	347	B.SUBTILIS	(Stranathan et al. 1990)
Corynebacterium glutamicum	*Co.g*	X77384	376	Z46753	(Billman-Jacobe 1994, Kerins et al. 1994)
Lactococcus lactis	*La.l*	M88106	365	LCC.LACTIS	(Duwat et al. 1992a)
Mycobacterium leprae	*Myb.l*	X73822	711	MYB.LEPRAE	(Davis et al. 1994)
Mycobacterium tuberculosis	*Myb.t*	X58485	790	MYB.TUBER2	(Davis et al. 1991)
Mycoplasma mycoides	*Myp.m*	L22073	345	M.MYCOIDES	(King et al. 1994)
Mycoplasma pulmonis	*Myp.p*	L22074	339	M.PULMONIS	(King et al. 1994)
Staphylococcus aureus	*Sta.a*	L25893	347	STP.AUREUS	(Bayles et al. 1994)
Streptococcus pneumoniae	*Stc.p*	Z17307	388	STC.SALIVA*	(Martin et al. 1992)
Streptomyces ambofaciens	*Stm.a*	Z30324	372	STM.AMBOFA	(Aigle et al. 1994)
Streptomyces lividans	*Stm.l*	X76076	374	STM.LIVIDA	(Nussbaumer and Wohlleben 1994)
Streptomyces violaceus[7]	*Stm.v*	U04837	377	STM.COELI3*	(Yao and Vining 1994)
Cyanobacteria/Chloroplasts					
Arabidopsis thaliana	*Ar.t*	M98039	439	NICO.TAB_C*	(Binet et al. 1993, Cerutti et al. 1992)
Anabaena variabilis	*An.v*	M29680	358	X59559*	(Owttrim and Coleman 1989)
Synechococcus sp. PCC7942	*Sy.79*	unpub.	361	PHRM.MINUT*	(Coleman 1995)
Synechococcus sp. PCC7002	*Sy.70*	M29495	348	SYN.6301*	(Murphy et al. 1987, Murphy et al. 1990)
Deinococcus-Thermus Group					
Deinococcus radiodurans[8]	*De.r*	U01876	363	D.RADIODUR	(Gutman et al. 1994)
Thermus aquaticus	*Th.a*	L20095	340	T.AQUATICU	(Angov and Camerini-Otero 1994, Wetmur et al. 1994)
Thermus thermophilus	*Th.t*	D13792	340	T.THMOPHL	(Kato and Kuramitsu 1993, Wetmur et al. 1994)
Chlamydia/Planctomyces					
Chlamydia trachomatis	*Ch.t*	U16739	352	CLM.TRACHO	(Larsen 1994, Zhang et al. 1994)
Spirochaetes					
Borrelia burgdorferi	*Bo.b*	unpub.	365	BOR.BURGDO	(Huang 1995, pers. commun.)
Bacteroides					
Bacteroides fragilis	*Bct.f*	M63029	318	BAC.FRAGIL	(Goodman and Woods 1990)
Thermophilic O_2 Reducers					
Aquifex pyrophilus	*Aq.p*	L23135	348	AQU.PYROPH	(Wetmur et al. 1994)
Thermotogales					
Thermotoga maritima	*Tg.m*	L23425	356	TT.MARITIM	(Wetmur et al. 1994)

[1]Names refer to Ribosomal Database Project entries (Maidak et al. 1994). Numbers are Genbank entries.
[2]The SS-rRNA sequences that come from a different species than the RecA sequences are indicated by an asterix *. The species are ABA.PASTER (*Acetobacter pasteurianus*), F.LUTESCEN("*Flavobacterium*" *lutescens*, MLM.METHYL (*Methylomonas methylovora*), ARS.NASONI (*Arsenophonus nasoniae*), PS.FLAVESC (*Pseudomonas flavescens*), STM.COELI3 (*Streptomyces coelicolor*), STC.SALIVA (*Streptococcus salivarius*) NICO.TAB_C (*Nicotiana tabacum*), X59559 (*Anabaena* sp. PCC7120), PHRM.MINUT (*Phormidium minutum*), and SYN.6301 (*Synechococcus* sp. PCC 6301).
[3]also known as *Pseudomonas cepacia*
[4]also known as *Erwinia herbicola*
[5]also known as *Aquaspirillum magnetotacticum*
[6]For most of the analyses only one SS-rRNA was used for the two *M. xanthus* RecAs. For some analyses the SS-rRNA of *Cystobacter fuscus* (CYS.FUSCUS) was also used.
[7]Also known as *Streptomyces venezuelae*
[8]Also known as *Micrococcus radiodurans*