

Table A1- Data table with major results. Each line corresponds to a genome with a given size and %G+C composition. and are indicated its number of tRNA genes (#tRNA). the number of tRNAs with different anticodons (# diff tRNA). the G+C composition of the first position of the anticodon (1st anticodon G+C). the average CAI of the genome. the average ENC' of the genome. the average Karlin's B. the difference in ENC' between the ribosomal proteins and the average gene of the genome (ENC' contrast). the growth rate class (μ). the optimal doubling time (1/ μ). the Observed/expected ratio of the models for all genes and for the difference in codon usage between ribosomal proteins and the other genes (O/E dif). One should note that doubling times are very dependent on experimental conditions and here are indicated the smallest that we were able to find. For some bacteria only doubling times of very closely related bacteria were found (and thus used).

bacteria	size	%GC	# tRNA	# diff tRNA	1st anticodon G+C	Average CAI	Average ENC'	Average Karlin's B	ENC' contrast	μ	1/ μ (h)	O/E stability All	O/E frequency All	O/E perfect match all	O/E stability dif	O/E frequency dif	O/E perfect match dif
<i>Agrobacterium tumefaciens C58</i>	5459232	60.1	53	39	67.9	0.54	49.4	0.405	0.141	S	3	1.00	1.26	1.22	1.80	1.26	1.38
<i>Aquifex aeolicus</i>	1551335	43.7	44	40	65.9	0.69	48.2	0.372	0.071	S	NA	1.33	1.08	1.28	1.78	1.14	1.44
<i>Bacillus anthracis Ames</i>	5227293	36.0	95	30	48.4	0.58	56.8	0.230	0.300	F	0.43	0.91	1.03	1.22	1.80	1.21	1.33
<i>Bacillus cereus ATCC14579</i>	5411809	35.9	107	30	46.7	0.54	52.9	0.308	0.253	F	0.43	0.91	1.03	1.26	1.80	1.21	1.60
<i>Bacillus halodurans</i>	4202353	44.3	78	31	47.4	0.56	57.4	0.174	0.223	F	0.43	0.91	0.94	1.14	2.00	1.19	1.49
<i>Bacillus subtilis</i>	4214630	44.2	86	33	47.7	0.43	57.3	0.224	0.312	F	0.43	0.44	0.96	1.14	1.80	1.21	1.60
<i>Bacteroides thetaiotaomicron VPI-5482</i>	6260361	43.9	70	39	62.9	0.62	53.9	0.243	0.115	S	3	1.20	1.09	1.07	1.80	1.02	1.17
<i>Bifidobacterium longum NCC2705</i>	2256646	60.8	56	43	75.0	0.53	47.5	0.411	0.185	F	2.1	1.20	1.26	1.46	1.80	1.26	1.38
<i>Bordetella bronchiseptica RB50</i>	5339179	68.5	55	40	70.9	0.68	54.8	0.231	0.204	S	6	1.20	1.24	1.47	1.20	1.12	1.19
<i>Borrelia burgdorferi</i>	910724	28.8	33	30	60.6	0.67	54.0	0.307	0.049	S	12	0.80	0.90	0.81	1.20	1.14	0.36
<i>Bordetella parapertussis</i>	4773551	68.5	53	40	69.8	0.67	55.4	0.260	0.208	S	6	1.20	1.24	1.47	1.20	1.12	1.19
<i>Bordetella pertussis 12822</i>	4086189	68.2	51	40	70.6	0.67	54.8	0.249	0.050	S	6	1.20	1.22	1.47	1.20	1.10	1.19

<i>Bradyrhizobium japonicum</i> USDA110	9105828	64.7	50	44	72.0	0.58	48.2	0.450	0.117	S	20	1.20	1.23	1.29	1.60	1.17	1.29
<i>Brucella melitensis</i> 16M	3294931	58.3	54	43	72.2	0.55	48.0	0.413	0.135	F	2	0.80	1.16	1.03	1.80	1.23	1.35
<i>Brucella suis</i> 1330	3315173	58.2	55	43	70.9	0.53	47.8	0.416	0.157	F	2	0.80	1.16	1.08	1.80	1.23	1.41
<i>Buchnera aphidicola</i> Sg	641454	26.3	32	30	59.4	0.71	51.3	0.418	0.045	S	36	0.80	1.08	0.73	1.64	1.14	0.82
<i>Buchnera aphidicola</i> Bp	615980	27.0	32	30	59.4	0.70	53.3	0.377	0.043	S	36	0.80	1.08	0.73	1.27	1.14	0.37
<i>Buchnera aphidicola</i> Ap	640681	27.4	32	30	59.4	0.69	52.0	0.395	0.061	S	36	0.80	1.08	0.73	1.20	1.14	0.55
<i>Candidatus Blochmannia floridanus</i>	705557	28.9	37	35	64.9	0.69	59.6	0.123	0.160	S	NA	0.91	0.90	0.74	1.20	1.21	0.41
<i>Caulobacter crescentus</i>	4016947	67.7	51	41	70.6	0.55	45.6	0.513	0.142	F	1.5	1.20	1.19	1.31	1.80	1.19	1.39
<i>Campylobacter jejuni</i>	1641481	30.8	44	33	56.8	0.68	56.3	0.239	0.134	F	1.5	0.80	1.02	0.72	1.78	0.89	1.97
<i>Chlamydomphila caviae</i> GPIC	1173390	39.8	38	36	63.2	0.65	54.8	0.250	0.036	S	NA	0.91	1.03	0.74	1.80	1.03	1.16
<i>Chlamydia muridarum</i>	1069412	40.7	37	35	62.2	0.63	54.6	0.268	0.065	S	NA	0.91	1.10	0.67	1.80	1.16	0.76
<i>Chlamydia pneumonia</i> A	1229853	41.3	38	36	63.2	0.60	55.8	0.224	0.089	S	NA	0.91	1.09	0.66	1.09	1.15	0.74
<i>Chlorobium tepidum</i> TLS	2154946	57.7	50	43	70.0	0.65	50.0	0.344	0.038	F	2	1.20	1.24	1.35	1.78	1.31	0.95
<i>Chlamydia trachomatis</i>	1042519	41.7	37	35	62.2	0.65	56.9	0.223	0.094	S	NA	0.91	1.10	0.67	2.00	1.16	0.92
<i>Chromobacterium violaceum</i> ATCC12472	4751080	65.7	98	41	67.3	0.62	43.6	0.530	0.048	F	0.8	1.20	1.34	1.51	1.60	1.27	1.75
<i>Clostridium acetobutylicum</i> ATCC824	3940880	31.5	72	37	54.2	0.66	53.4	0.292	0.084	F	0.58	0.80	0.76	1.10	1.60	0.76	1.54
<i>Clostridium perfringens</i> 13	3031430	29.5	96	32	47.9	0.65	49.9	0.374	0.159	F	0.2	0.80	0.87	1.05	1.60	0.99	1.75
<i>Clostridium tetani</i> E88	2799251	29.1	54	35	61.1	0.70	52.8	0.356	0.047	F	0.58	0.80	0.87	0.90	2.00	0.87	1.35
<i>Coxiella burnetii</i> RSA493	1995275	42.9	42	40	66.7	0.76	54.7	0.291	0.018	S	8	0.55	1.06	0.59	1.82	1.06	1.18
<i>Corynebacterium efficiens</i> YS-314	3147090	63.8	56	42	75.0	0.54	47.7	0.458	0.139	F	1.7	1.20	1.20	1.63	1.80	1.33	1.63
<i>Corynebacterium glutamicum</i>	3309400	54.8	60	42	73.3	0.45	52.3	0.305	0.290	F	1.7	1.60	1.04	1.57	1.80	1.25	1.77
<i>Deinococcus radiodurans</i>	3060986	67.6	49	42	73.5	0.55	48.2	0.470	0.153	F	1	1.20	1.14	1.33	1.40	1.14	1.33

<i>Enterococcus faecalis</i> V583	3218031	38.1	67	33	56.7	0.58	52.7	0.316	0.208	F	0.7	0.91	0.90	1.11	1.64	0.96	1.78
<i>Escherichia coli</i> K12	4639221	51.8	87	40	63.2	0.41	54.0	0.278	0.340	F	0.35	0.40	1.12	1.12	1.80	1.32	1.42
<i>Fusobacterium nucleatum</i>	2174500	27.4	47	28	42.6	0.72	53.4	0.308	0.128	S	3.5	0.80	0.88	1.06	1.80	0.94	1.38
<i>Geobacter sulfurreducens</i> PCA	3814139	61.6	49	41	65.3	0.72	56.0	0.238	0.052	S	6	1.20	1.10	1.28	1.40	1.10	0.51
<i>Gloeobacter violaceus</i>	4659019	62.9	44	43	70.5	0.60	50.4	0.378	0.089	S	73	1.20	1.16	1.30	1.20	1.22	1.30
<i>Haemophilus ducreyi</i> 35000HP	1698955	38.7	48	32	54.2	0.57	50.0	0.371	0.142	F	1.8	0.91	1.03	1.00	1.64	1.15	1.50
<i>Haemophilus influenzae</i>	1830138	38.8	57	33	50.9	0.56	48.8	0.393	0.184	F	0.5	0.91	1.05	1.02	1.82	1.25	1.36
<i>Helicobacter hepaticus</i> ATCC51449	1799146	36.3	36	34	63.9	0.69	51.7	0.359	-0.102	F	2.4	0.89	0.91	0.67	1.56	0.98	1.00
<i>Helicobacter pylori</i>	1667867	39.6	36	33	61.1	0.71	48.3	0.401	-0.013	F	2.4	0.60	0.95	0.87	1.60	0.95	1.30
<i>Lactococcus lactis</i> IL1403	2365589	36.2	61	34	45.9	0.50	51.5	0.349	0.269	F	0.9	0.91	0.96	1.09	1.80	1.01	1.75
<i>Lactobacillus plantarum</i> WCFSI	3308274	45.5	70	41	60.0	0.54	53.3	0.272	0.190	F	1.6	0.73	0.81	0.81	1.82	0.95	1.42
<i>Leptospira interrogans</i> lai	4691184	36.4	37	35	64.9	0.70	54.9	0.288	0.030	S	6	0.80	1.01	0.76	1.56	1.01	1.09
<i>Listeria innocua</i> Clip11262	3011208	37.8	66	34	54.5	0.57	53.4	0.301	0.229	F	0.6	0.91	1.00	1.14	1.80	1.06	1.60
<i>Listeria monocytogenes</i> EGD	2944528	38.4	67	34	55.2	0.57	53.4	0.296	0.225	F	1	0.91	1.00	1.14	1.80	1.06	1.60
<i>Mesorhizobium loti</i>	7036074	63.5	51	44	66.7	0.53	48.4	0.425	0.170	F	2.4	1.00	1.22	1.18	1.40	1.16	1.33
<i>Mycobacterium bovis</i> AF2122/97	4345492	65.9	45	43	71.1	0.61	52.2	0.361	0.055	S	14	1.20	1.22	1.30	1.20	1.16	1.30
<i>Mycoplasma</i> <i>gallisepticum</i>	996422	31.9	32	29	56.2	0.64	53.4	0.335	0.107	F	1	0.80	0.94	0.67	1.45	1.06	1.44
<i>Mycoplasma genitalium</i>	580074	31.6	36	34	61.1	0.72	54.1	0.328	0.000	S	12	0.80	0.87	0.51	1.20	1.10	0.94
<i>Mycobacterium leprae</i>	3268203	58.8	45	43	71.1	0.59	58.6	0.163	0.134	S	240	1.20	1.22	1.30	1.20	1.22	1.30
<i>Mycoplasma penetrans</i>	1358633	26.5	30	28	50.0	0.70	56.3	0.205	0.009	S	NA	0.80	0.91	0.67	1.45	1.02	1.14
<i>Mycoplasma pneumoniae</i>	816394	40.8	37	34	62.2	0.68	52.4	0.321	0.080	S	12	1.09	0.95	0.99	1.80	1.12	1.34

<i>Mycoplasma pulmonis</i> UABCTIP	963879	27.3	29	27	51.7	0.69	51.2	0.398	0.041	F	2	0.80	0.94	0.80	1.56	0.94	1.70
<i>Mycobacterium tuberculosis</i>	4411529	65.9	45	43	71.1	0.61	57.2	0.204	0.138	S	14	1.20	1.22	1.30	1.20	1.16	1.30
<i>Neisseria meningitidis A</i>	2184406	53.2	58	37	60.3	0.57	55.6	0.254	0.252	F	1	1.00	1.19	1.69	1.45	1.19	0.69
<i>Nitrosomonas europaea</i> ATCC19718	2812094	51.5	41	39	68.3	0.73	53.1	0.303	-0.018	S	18.5	0.40	1.07	1.01	0.80	1.07	0.55
<i>Nostoc sp. PCC7120</i>	6413771	42.4	47	39	68.1	0.70	55.3	0.264	0.062	S	10	0.91	0.95	0.57	2.00	1.20	1.22
<i>Oceanobacillus iheyensis</i>	3630528	36.1	69	32	49.3	0.62	59.3	0.141	0.250	F	0.43	0.91	0.94	1.29	1.80	1.25	1.50
<i>Onion yellows</i> <i>phytoplasma</i>	860631	29.0	32	28	56.2	0.69	51.4	0.394	0.048	S	NA	0.80	1.04	0.79	1.40	1.10	1.39
<i>Pasteurella multocida</i> PM70	2257487	41.0	57	32	50.9	0.57	49.3	0.362	0.159	F	1	0.91	0.96	1.13	1.64	1.15	1.70
<i>Photorhabdus luminescens TTO1</i>	5688987	44.2	85	38	55.3	0.58	54.9	0.258	0.172	F	0.5	1.00	1.13	1.02	2.00	1.34	1.36
<i>Pirellula sp</i>	7145576	55.5	70	43	58.6	0.64	52.9	0.301	0.091	S	10	1.09	1.02	1.35	1.60	1.02	1.55
<i>Porphyromonas gingivalis</i> W83	2343476	49.4	53	38	64.2	0.66	55.2	0.244	0.097	S	4.5	0.80	1.20	1.12	1.64	1.26	0.86
<i>Prochlorococcus marinus</i> CCMP1375	1751080	37.0	39	37	64.1	0.70	54.4	0.306	0.010	S	24	0.80	1.01	0.73	1.20	1.07	0.97
<i>Pseudomonas aeruginosa</i>	6264403	67.1	63	39	63.5	0.63	43.3	0.551	0.068	F	0.8	1.20	1.14	1.39	1.40	1.26	1.19
<i>Pseudomonas putida</i> KT2440	6181863	62.3	74	38	62.2	0.60	46.6	0.447	0.129	F	0.8	1.20	1.14	1.42	1.80	1.20	1.63
<i>Pseudomonas syringae</i> DC3000	6397126	59.3	64	36	62.5	0.59	49.1	0.367	0.122	F	0.8	1.20	1.09	1.44	1.80	1.21	1.64
<i>Ralstonia solanacearum</i> GMI1000	3716413	67.6	54	41	70.4	0.63	44.1	0.533	0.065	S	4	1.20	1.21	1.31	1.40	1.21	1.14
<i>Rhodopseudomonas palustris</i>	5459213	65.5	48	44	68.8	0.61	54.4	0.284	0.242	S	9	1.20	1.26	1.29	1.60	1.26	1.22
<i>Rickettsia conorii Malish7</i>	1268755	32.8	33	31	60.6	0.63	56.7	0.235	0.089	S	5	0.80	1.00	0.72	0.80	1.12	0.72

<i>Rickettsia prowazekii</i>	1111523	30.4	32	30	59.4	0.65	57.2	0.230	0.114	S	10	0.80	1.03	0.73	1.00	1.09	0.46
<i>Salmonella typhimurium</i> LT2	4857432	53.3	85	40	62.4	0.47	48.9	0.386	0.216	F	0.4	0.40	1.10	1.15	1.80	1.30	1.46
<i>Shewanella oneidensis</i> MR-1	4969803	46.9	101	35	53.5	0.52	52.7	0.297	0.204	F	2	0.55	1.04	1.05	2.00	1.24	1.40
<i>Sinorhizobium meliloti_1021</i>	3654135	63.5	52	41	67.3	0.58	48.0	0.435	0.132	F	1.5	1.00	1.27	1.25	1.60	1.20	1.25
<i>Streptococcus agalactiae</i>	2160267	36.1	80	31	45.0	0.48	52.7	0.308	0.287	F	0.5	0.91	0.94	1.05	1.80	1.06	1.75
<i>Staphylococcus aureus</i> N315	2814816	33.6	61	28	47.5	0.56	51.3	0.341	0.247	F	0.4	0.91	1.05	1.28	1.64	1.05	1.98
<i>Streptomyces avermitilis</i> MA-4680	9025608	71.1	68	43	80.9	0.64	48.2	0.520	0.089	F	2.2	1.20	1.15	1.61	1.60	1.22	1.61
<i>Streptomyces coelicolor</i> A3(2)	8667507	72.1	63	42	81.0	0.66	56.0	0.200	0.230	F	2.2	1.20	1.21	1.71	1.80	1.29	1.71
<i>Staphylococcus epidermidis</i> ATCC12228	2499279	33.0	58	28	46.6	0.58	52.6	0.333	0.213	F	0.5	0.80	0.99	1.17	1.64	1.05	1.98
<i>Streptococcus mutans</i> UA159	2030921	37.5	64	34	46.9	0.52	52.5	0.308	0.221	F	0.5	0.91	1.01	0.79	1.80	1.01	1.70
<i>Streptococcus pneumoniae</i> TIGR4	2160837	40.6	58	31	44.8	0.42	53.2	0.269	0.324	F	0.5	1.09	1.06	0.89	1.80	1.06	1.56
<i>Streptococcus pyogenes</i>	1852441	39.2	60	31	43.3	0.43	53.4	0.281	0.323	F	0.5	0.91	1.02	0.93	1.80	1.08	1.86
<i>Synechocystis sp</i>	3573470	48.6	41	39	68.3	0.68	54.4	0.254	0.129	S	8	0.36	1.09	0.96	1.80	1.15	1.36
<i>Synechococcus sp</i> WH8102	2434428	60.2	43	40	67.4	0.57	53.7	0.274	0.147	S	5	1.20	1.07	1.14	1.20	1.13	1.31
<i>Thermosynechococcus elongatus</i> BP-1	2593857	54.5	40	39	70.0	0.67	56.3	0.230	0.120	S	12	0.20	1.06	0.93	1.40	1.12	1.16
<i>Thermotoga maritima</i>	1860725	46.4	46	44	71.7	0.72	50.6	0.344	0.062	F	1.2	1.33	0.93	1.15	1.78	1.12	1.02
<i>Thermoanaerobacter tengcongensis</i>	2689445	37.8	55	42	69.1	0.76	54.6	0.226	0.037	F	1.1	0.80	0.86	0.83	1.80	1.06	1.24
<i>Treponema pallidum</i>	1138011	52.6	45	43	71.1	0.68	56.3	0.225	0.033	S	33	0.80	1.20	0.76	1.00	1.26	0.69

<i>Tropheryma whipplei</i> Twist	927303	46.5	50	43	70.0	0.70	57.4	0.203	0.043	S	28	0.89	0.90	0.64	1.27	1.22	0.57
<i>Ureaplasma urealyticum</i>	751719	25.7	30	28	50.0	0.68	48.7	0.453	0.089	F	0.9	0.91	0.96	0.86	1.80	1.08	1.62
<i>Vibrio cholerae</i>	4033464	48.3	98	33	57.1	0.43	51.8	0.302	0.279	F	0.2	0.80	1.03	0.86	2.00	1.23	1.39
<i>Vibrio parahaemolyticus</i>	5165770	46.2	126	32	52.4	0.52	51.8	0.295	0.227	F	0.16	1.27	1.10	1.17	2.00	1.16	1.40
<i>Vibrio vulnificus</i> CMCP6	5126798	47.6	111	33	53.2	0.52	52.5	0.288	0.200	F	0.16	1.27	0.96	1.01	2.00	1.15	1.46
<i>Wigglesworthia</i> <i>glossinidia brevipalpis</i>	697721	23.7	34	31	58.8	0.74	53.6	0.311	0.040	S	NA	0.80	1.01	0.99	1.40	1.01	0.90
<i>Wolinella succinogenes</i>	2110355	48.9	40	33	60.0	0.71	50.3	0.379	0.017	F	1	0.60	1.10	1.19	1.80	1.16	1.28
<i>Xanthomonas axonopodis</i>	5175554	65.1	54	43	68.5	0.60	45.8	0.475	0.097	S	4	1.20	1.22	1.55	1.80	1.29	1.55
<i>Xanthomonas campestris</i>	5076188	65.6	53	43	69.8	0.62	45.1	0.487	0.082	S	4	1.20	1.29	1.52	1.80	1.29	1.52
<i>Xylella fastidiosa</i>	2679306	53.1	49	43	69.4	0.57	57.1	0.206	0.192	S	96	1.00	1.07	1.25	1.27	1.27	0.47
<i>Yersinia pestis</i>	4653728	48.9	69	38	62.3	0.50	58.2	0.187	0.287	F	1.25	0.60	1.12	0.84	1.80	1.26	1.37