

Supplemental Table S1. List of strains in genomic analysis

DAGA ID/Accession No.	Genus	Species	Subspecies	Strain	Genome size (Mbp)	GC%	No. of CDSs
SRR1151200	<i>Agrilactobacillus</i>	<i>composti</i>		DSM 18527	3.46	44.0	3,306
GCA_001436185.1	<i>Amylolactobacillus</i>	<i>amylophilus</i>		DSM 20533	1.56	43.6	1,561
ERR387486	<i>Amylolactobacillus</i>	<i>amylotrophicus</i>		DSM 20534	1.60	42.6	1,602
GCA_001281175.1	<i>Apilactobacillus</i>	<i>apinorum</i>		Fhon13	1.46	34.6	1,315
GCA_001281265.1	<i>Apilactobacillus</i>	<i>kunkeei</i>		YH-15	1.52	36.4	1,353
NZ_POSO000000000	<i>Apilactobacillus</i>	<i>micheneri</i>		Hlig3	1.46	30.7	1,485
ERR433479	<i>Apilactobacillus</i>	<i>ozensis</i>		DSM 23829	1.48	31.9	1,439
NZ_POSN000000000	<i>Apilactobacillus</i>	<i>quenuiae</i>		HV 6	1.58	30.3	1,553
NZ_POST000000000	<i>Apilactobacillus</i>	<i>timberlakei</i>		HV 12	1.54	30.5	1,570
GCA_000970795.1	<i>Bombilactobacillus</i>	<i>mellifer</i>		Bin4	1.82	39.3	1,661
GCA_000967245.1	<i>Bombilactobacillus</i>	<i>mellis</i>		Hon2	1.81	36.2	1,650
ERR387471	<i>Companilactobacillus</i>	<i>alimentarius</i>		DSM 20249	2.33	35.4	2,232
ERR387491	<i>Companilactobacillus</i>	<i>crustorum</i>		LMG 23699	2.22	35.0	2,165
GCA_001434775.1	<i>Companilactobacillus</i>	<i>farciminis</i>		DSM 20184	2.48	36.4	2,417
ERR387495	<i>Companilactobacillus</i>	<i>futsaii</i>		JCM 17355	2.49	35.6	2,449
GCA_001050475.1	<i>Companilactobacillus</i>	<i>ginsenosidimutans</i>		EMML 3141	2.59	36.7	2,558
GCA_000831645.3	<i>Companilactobacillus</i>	<i>heilongjiangensis</i>		DSM 28069	2.79	37.5	2,485
ERR387524	<i>Companilactobacillus</i>	<i>mindensis</i>		DSM 14500	2.33	38.2	2,205
ERR433477	<i>Companilactobacillus</i>	<i>nantensis</i>		DSM 16982	2.92	36.2	2,774
ERR387514	<i>Companilactobacillus</i>	<i>nodensis</i>		DSM 19682	2.68	37.6	2,651
ERR387521	<i>Companilactobacillus</i>	<i>paralimentarius</i>		DSM 13238	2.53	35.1	2,445
GCA_001434665.1	<i>Companilactobacillus</i>	<i>tucceti</i>		DSM 20183	2.17	34.1	2,103
GCA_001434295.1	<i>Companilactobacillus</i>	<i>versmoldensis</i>		DSM 14857	2.37	38.3	2,330
GCA_001434695.1	<i>Dellaglio</i>	<i>algida</i>		DSM 15638	1.59	36.0	1,531
GCA_001436645.1	<i>Fructilactobacillus</i>	<i>florum</i>		DSM 22689	1.35	41.1	1,302
SRR1151190	<i>Fructilactobacillus</i>	<i>fructivorans</i>		DSM 20203	1.37	38.9	1,336
GCA_001311115.1	<i>Fructilactobacillus</i>	<i>lindneri</i>		JCM 11027	1.44	34.1	1,632
GCA_000225325.1	<i>Fructilactobacillus</i>	<i>sanfranciscensis</i>		TMW 1.1304	1.38	34.8	1,402

NZ_FOLI00000000	<i>Fructobacillus</i>	<i>durionis</i>		DSM 19113	1.33	44.7	1,255
NZ_BBXQ00000000	<i>Fructobacillus</i>	<i>ficulneus</i>		JCM 12225	1.54	43.9	1,427
NZ_BBXR00000000	<i>Fructobacillus</i>	<i>fructosus</i>		NRIC 1058	1.49	44.5	1,465
NZ_FNWS00000000	<i>Fructobacillus</i>	<i>pseudoficulneus</i>		DSM 15468	1.41	44.5	1,323
NZ_BBXT00000000	<i>Fructobacillus</i>	<i>tropaeoli</i>		F214-1	1.69	44.2	1,625
GCA_000428925.1	<i>Furfurilactobacillus</i>	<i>rossiae</i>		DSM 15814	2.86	43.3	2,700
ERR387541	<i>Furfurilactobacillus</i>	<i>siliginis</i>		DSM 22696	2.04	44.1	1,980
GCA_001436605.1	<i>Holzapfelia</i>	<i>floricola</i>		DSM 23037	1.29	34.5	1,252
GCA_001436115.1	<i>Lactacaseibacillus</i>	<i>brantae</i>		DSM 23927	1.93	47.5	1,900
SRR1151192	<i>Lactacaseibacillus</i>	<i>camelliae</i>		DSM 22697	2.56	55.4	2,402
GCA_000829055.1	<i>Lactacaseibacillus</i>	<i>casei</i>		ATCC 393	2.95	47.9	2,890
ERR387460	<i>Lactacaseibacillus</i>	<i>manihotivorans</i>		DSM 13343	3.08	47.7	3,012
ERR387517	<i>Lactacaseibacillus</i>	<i>nasuensis</i>		JCM 17158	2.27	57.0	2,137
GCA_001311175.1	<i>Lactacaseibacillus</i>	<i>pantheris</i>		JCM 12539	2.53	52.8	3,068
ERR433482	<i>Lactacaseibacillus</i>	<i>paracasei</i>	<i>tolerans</i>	LMG 9191	2.45	46.3	2,455
GCA_000829035.1	<i>Lactacaseibacillus</i>	<i>paracasei</i>	<i>paracasei</i>	JCM 8130	3.02	46.6	2,945
GCA_000026505.1	<i>Lactacaseibacillus</i>	<i>rhamnosus</i>		GG (ATCC 53103)	3.01	46.7	2,817
GCA_001311785.1	<i>Lactacaseibacillus</i>	<i>saniviri</i>		JCM 17471	2.42	47.8	3,308
ERR387540	<i>Lactacaseibacillus</i>	<i>sharpeae</i>		DSM 20505	2.44	53.4	2,344
GCA_001436135.1	<i>Lactacaseibacillus</i>	<i>thailandensis</i>		DSM 22698	2.06	53.5	1,893
GCA_001433745.1	<i>Lactacaseibacillus</i>	<i>zeae</i>		DSM 20178	3.12	47.7	2,961
ERR387476	<i>Lactiplantibacillus</i>	<i>fabifermentans</i>		DSM 21115	3.27	45.0	3,111
GCA_001039045.1	<i>Lactiplantibacillus</i>	<i>herbarum</i>		TCF032-E4	2.90	43.5	2,805
GCA_000271445.1	<i>Lactiplantibacillus</i>	<i>pentosus</i>		KCA1	3.43	46.4	3,039
SRR1151228	<i>Lactiplantibacillus</i>	<i>plantarum</i>	<i>argentoratensis</i>	DSM 16365	3.17	45.0	2,936
GCA_000203855.3	<i>Lactiplantibacillus</i>	<i>plantarum</i>	<i>plantarum</i>	WCFS1	3.35	44.4	3,123
GCA_001438845.1	<i>Lactiplantibacillus</i>	<i>xiangfangensis</i>		LMG 26013	2.99	45.1	2,757
ERR387527	<i>Lactobacillus</i>	<i>acetotolerans</i>		DSM 20749	1.57	36.2	1,518
GCA_000011985.1	<i>Lactobacillus</i>	<i>acidophilus</i>		NCFM	1.99	34.7	1,875
GCA_000178475.1	<i>Lactobacillus</i>	<i>amylolyticus</i>		DSM 11664	1.54	38.3	1,567

GCA_000970735.1	<i>Lactobacillus</i>	<i>apis</i>		Hma11	1.72	36.6	1,564
GCA_001434005.1	<i>Lactobacillus</i>	<i>crispatus</i>		DSM 20584	2.06	36.6	2,017
ERR433469	<i>Lactobacillus</i>	<i>delbrueckii</i>	<i>lactis</i>	LMG 7942	1.86	49.7	1,802
ERR433470	<i>Lactobacillus</i>	<i>delbrueckii</i>	<i>indicus</i>	DSM 15996	1.85	49.6	1,804
ERR433468	<i>Lactobacillus</i>	<i>delbrueckii</i>	<i>delbrueckii</i>	DSM 20074	1.72	50.1	1,702
GCA_000014405.1	<i>Lactobacillus</i>	<i>delbrueckii</i>	<i>bulgaricus</i>	ATCC BAA-365	1.86	49.7	1,906
GCA_000387565.1	<i>Lactobacillus</i>	<i>delbrueckii</i>	<i>jakobsenii</i>	ZN7a-9	1.73	50.2	1,677
GCA_000312645.1	<i>Lactobacillus</i>	<i>equicursoris</i>		CIP 110162	2.15	47.8	1,996
ERR387508	<i>Lactobacillus</i>	<i>gallinarum</i>		DSM 10532	1.93	36.5	1,912
GCA_000014425.1	<i>Lactobacillus</i>	<i>gasseri</i>		ATCC 33323	1.89	35.3	1,808
GCA_000296855.1	<i>Lactobacillus</i>	<i>gigeriorum</i>		CRBIP 24.85	1.93	36.9	1,891
ERR387507	<i>Lactobacillus</i>	<i>hamsteri</i>		DSM 5661	1.79	35.1	1,712
GCA_000761135.1	<i>Lactobacillus</i>	<i>helsingborgensis</i>		wkB8	1.93	36.7	1,735
GCA_000422165.1	<i>Lactobacillus</i>	<i>helveticus</i>		CNRZ32	2.23	36.9	2,407
GCA_000160875.1	<i>Lactobacillus</i>	<i>iners</i>		DSM 13335	1.28	32.5	1,191
ERR387510	<i>Lactobacillus</i>	<i>intestinalis</i>		DSM 6629	1.99	35.3	1,838
SRR1151162	<i>Lactobacillus</i>	<i>jensenii</i>		DSM 20557	1.62	34.3	1,478
GCA_000008065.1	<i>Lactobacillus</i>	<i>johnsonii</i>		NCC 533	1.99	34.6	1,875
ERR387511	<i>Lactobacillus</i>	<i>kalixensis</i>		DSM 16043	2.07	36.1	1,937
ERR387484	<i>Lactobacillus</i>	<i>kefiranofaciens</i>	<i>kefirgranum</i>	DSM 10550	2.03	37.4	2,020
GCA_000214785.1	<i>Lactobacillus</i>	<i>kefiranofaciens</i>	<i>kefiranofaciens</i>	ZW3	2.35	37.4	2,420
GCA_000970755.1	<i>Lactobacillus</i>	<i>kimbladii</i>		Hma2	2.19	35.8	1,972
GCA_000615285.1	<i>Lactobacillus</i>	<i>kitasatonis</i>		JCM 1039	1.90	37.5	2,048
GCA_000967195.1	<i>Lactobacillus</i>	<i>kullabergensis</i>		Biut2	2.12	35.5	1,943
GCA_000970775.1	<i>Lactobacillus</i>	<i>melliventris</i>		Hma8	2.12	35.8	1,994
ERR433480	<i>Lactobacillus</i>	<i>panis</i>		DSM 6035	1.99	48.1	1,888
GCA_000297025.1	<i>Lactobacillus</i>	<i>pasteurii</i>		CRBIP 24.76	1.91	38.6	1,807
GCA_000425905.1	<i>Lactobacillus</i>	<i>psittaci</i>		DSM 15354	1.54	35.7	1,340
ERR387546	<i>Lactobacillus</i>	<i>taiwanensis</i>		DSM 21401	1.87	33.9	1,816
GCA_000159415.1	<i>Lactobacillus</i>	<i>ultunensis</i>		DSM 16047	2.25	36.0	2,117

ERR433467	<i>Lapidilactobacillus</i>	<i>concavus</i>		DSM 17758	1.88	43.3	1,747
SRR1151201	<i>Lapidilactobacillus</i>	<i>dextrinicus</i>		DSM 20335	1.81	38.0	1,725
SRR1151125	<i>Latilactobacillus</i>	<i>curvatus</i>		DSM 20019	1.81	42.0	1,814
ERR387479	<i>Latilactobacillus</i>	<i>fuchuensis</i>		DSM 14340	2.11	41.8	2,016
ERR387528	<i>Latilactobacillus</i>	<i>graminis</i>		DSM 20719	1.83	40.3	1,739
GCA_000026065.1	<i>Latilactobacillus</i>	<i>sakei</i>	<i>sakei</i>	23K	1.88	41.3	1,849
GCA_000298115.2	<i>Lentilactobacillus</i>	<i>buchneri</i>		CD034	2.56	44.2	2,424
GCA_001434255.1	<i>Lentilactobacillus</i>	<i>diolivorans</i>		DSM 14421	3.26	40.0	3,011
ERR387467	<i>Lentilactobacillus</i>	<i>farraginis</i>		DSM 18382	2.79	42.0	2,670
GCA_000159315.1	<i>Lentilactobacillus</i>	<i>hilgardii</i>		ATCC 8290	2.72	39.6	2,548
ERR387463	<i>Lentilactobacillus</i>	<i>kefiri</i>		DSM 20587	2.32	41.7	2,208
GCA_001434135.1	<i>Lentilactobacillus</i>	<i>kisonensis</i>		DSM 19906	3.01	41.7	2,758
GCA_001311395.1	<i>Lentilactobacillus</i>	<i>otakiensis</i>		JCM 15040	2.34	42.3	3,025
GCA_001435315.1	<i>Lentilactobacillus</i>	<i>parabuchneri</i>		DSM 5707	2.57	43.4	2,373
ERR387516	<i>Lentilactobacillus</i>	<i>rapi</i>		DSM 19907	2.85	42.9	2,643
GCA_001436555.1	<i>Lentilactobacillus</i>	<i>senioris</i>		DSM 24302	1.57	39.1	1,568
ERR387545	<i>Lentilactobacillus</i>	<i>sunkii</i>		DSM 19904	2.71	42.1	2,561
NC_018673-75,698-699	<i>Leuconostoc</i>	<i>carnosum</i>		JB16	1.77	37.1	1,699
NC_010466,67-71	<i>Leuconostoc</i>	<i>citreum</i>		KM20	1.77	38.9	1,856
NZ_AEIZ00000000	<i>Leuconostoc</i>	<i>fallax</i>		KCTC 357	1.64	37.5	1,890
NZ_AEMI00000000	<i>Leuconostoc</i>	<i>gelidum</i>		KCTC3527	1.96	36.6	1,900
NC_014131-36	<i>Leuconostoc</i>	<i>kimchii</i>		MSNU 1154	2.1	37.9	2,087
NZ_CP016598-601	<i>Leuconostoc</i>	<i>lactis</i>		Wikin40	1.79	43.1	1,695
NC_008531,496	<i>Leuconostoc</i>	<i>mesenteroides</i>		ATCC 8293	2.04	37.7	1,981
NZ_JAU100000000	<i>Leuconostoc</i>	<i>pseudomesenteroides</i>		1159	2.04	39.0	2,075
ERR387483	<i>Levilactobacillus</i>	<i>acidifarinae</i>		DSM 19394	2.91	51.6	2,738
GCA_000014465.1	<i>Levilactobacillus</i>	<i>brevis</i>		ATCC 367	2.34	46.1	2,281
ERR387482	<i>Levilactobacillus</i>	<i>hammesii</i>		DSM 16381	2.81	49.4	2,591
ERR433476	<i>Levilactobacillus</i>	<i>namurensis</i>		DSM 19117	2.47	52.0	2,227
GCA_001434055.1	<i>Levilactobacillus</i>	<i>parabrevis</i>		ATCC 53295	2.61	49.0	2,363

GCA_001437125.1	<i>Levilactobacillus</i>	<i>paucivorans</i>		DSM 22467	2.36	49.1	2,210
GCA_001436675.1	<i>Levilactobacillus</i>	<i>senmaizukei</i>		DSM 21775	2.22	48.6	2,122
ERR387543	<i>Levilactobacillus</i>	<i>spicheri</i>		DSM 15429	2.74	55.9	2,451
GCA_001434115.1	<i>Levilactobacillus</i>	<i>zymae</i>		DSM 19395	2.70	53.6	2,456
ERR387498	<i>Ligilactobacillus</i>	<i>agilis</i>		DSM 20509	2.05	41.7	2,015
ERR387553	<i>Ligilactobacillus</i>	<i>animalis</i>		DSM 20602	1.87	41.1	1,812
ERR433462	<i>Ligilactobacillus</i>	<i>apodemi</i>		DSM 16634	2.08	38.6	2,019
GCA_001435375.1	<i>Ligilactobacillus</i>	<i>araffinosus</i>		DSM 20653	1.48	38.1	1,414
ERR387530	<i>Ligilactobacillus</i>	<i>aviarius</i>		DSM 20655	1.67	40.1	1,585
ERR387509	<i>Ligilactobacillus</i>	<i>equi</i>		DSM 15833	2.24	39.0	2,159
ERR387461	<i>Ligilactobacillus</i>	<i>hayakitensis</i>		DSM 18933	1.64	34.0	1,543
ERR387504	<i>Ligilactobacillus</i>	<i>murinus</i>		DSM 20452	2.16	40.0	2,030
GCA_000349725.1	<i>Ligilactobacillus</i>	<i>pobuzihii</i>		E100301	2.35	37.7	2,127
GCA_000224985.1	<i>Ligilactobacillus</i>	<i>ruminis</i>		ATCC 27782	2.07	43.5	1,978
GCA_000008925.1	<i>Ligilactobacillus</i>	<i>salivarius</i>		UCC118	2.13	33.0	2,101
GCA_000160835.1	<i>Limosilactobacillus</i>	<i>antri</i>		DSM 16041	2.30	51.1	2,128
SRR1151138	<i>Limosilactobacillus</i>	<i>equigenerosi</i>		DSM 18793	1.60	42.7	1,545
GCA_000397165.1	<i>Limosilactobacillus</i>	<i>fermentum</i>		F-6	2.06	51.7	2,022
GCA_001436045.1	<i>Limosilactobacillus</i>	<i>frumenti</i>		DSM 13145	1.73	42.6	1,679
GCA_001434365.1	<i>Limosilactobacillus</i>	<i>gastricus</i>		DSM 16045	1.85	41.6	1,819
GCA_001293735.1	<i>Limosilactobacillus</i>	<i>gorillae</i>		KZ01	1.64	48.1	1,568
ERR387499	<i>Limosilactobacillus</i>	<i>ingluviei</i>		DSM 15946	2.14	49.9	2,086
GCA_001436025.1	<i>Limosilactobacillus</i>	<i>mucosae</i>		DSM 13345	2.25	46.4	2,014
GCA_001434465.1	<i>Limosilactobacillus</i>	<i>oris</i>		DSM 4864	2.03	50.0	1,925
SRR1151252	<i>Limosilactobacillus</i>	<i>pontis</i>		DSM 8475	1.66	53.5	1,614
GCA_000010005.1	<i>Limosilactobacillus</i>	<i>reuteri</i>		JCM 1112	2.04	38.9	2,020
GCA_001437055.1	<i>Limosilactobacillus</i>	<i>secaliphilus</i>		DSM 17896	1.65	47.7	1,503
SRR1151175	<i>Limosilactobacillus</i>	<i>vaginalis</i>		DSM 5837	1.78	40.5	1,733
GCA_001436755.1	<i>Liquorilactobacillus</i>	<i>aquaticus</i>		DSM 21051	2.41	37.4	2,213
GCA_001436735.1	<i>Liquorilactobacillus</i>	<i>cacaonum</i>		DSM 21116	1.92	33.9	1,824

GCA_001434915.1	<i>Liquorilactobacillus</i>	<i>capillatus</i>		DSM 19910	2.23	37.6	2,102
ERR387502	<i>Liquorilactobacillus</i>	<i>ghanensis</i>		DSM 18630	2.60	37.1	2,417
ERR387525	<i>Liquorilactobacillus</i>	<i>hordei</i>		DSM 19519	2.29	34.8	2,239
ERR387505	<i>Liquorilactobacillus</i>	<i>nagelii</i>		DSM 13675	2.49	36.7	2,409
ERR433495	<i>Liquorilactobacillus</i>	<i>satsumensis</i>		DSM 16230	2.63	39.9	2,441
ERR485115	<i>Liquorilactobacillus</i>	<i>sucicola</i>		DSM 21376	2.46	38.5	2,265
ERR387550	<i>Liquorilactobacillus</i>	<i>uvarum</i>		DSM 19971	2.67	36.9	2,525
GCA_001435395.1	<i>Liquorilactobacillus</i>	<i>vini</i>		DSM 20605	2.24	37.5	2,111
GCA_001433765.1	<i>Loigolactobacillus</i>	<i>coryniformis</i>	<i>coryniformis</i>	DSM 20001	2.71	42.9	2,579
ERR433491	<i>Loigolactobacillus</i>	<i>rennini</i>		DSM 20253	2.26	40.7	2,219
NZ_CM001398-9	<i>Oenococcus</i>	<i>kitaharae</i>		DSM 17330	1.84	42.7	1,835
NC_008528	<i>Oenococcus</i>	<i>oeni</i>		PSU-1	1.78	37.9	1,836
SRR1562044	<i>Paralactobacillus</i>	<i>selangorensis</i>		DSM 13344	2.08	46.4	2,065
GCA_000829395.1	<i>Paucilactobacillus</i>	<i>hokkaidonensis</i>		LOOC260	2.40	38.2	2,328
ERR387501	<i>Paucilactobacillus</i>	<i>vaccinostercus</i>		DSM 20634	2.55	43.5	2,440
GCA_000876205.1	<i>Paucilactobacillus</i>	<i>wasatchensis</i>		WDC04	1.90	39.8	1,807
GCA_000425885.1	<i>Schleiferilactobacillus</i>	<i>harbinensis</i>		DSM 16991	3.13	53.1	3,049
ERR387519	<i>Schleiferilactobacillus</i>	<i>perolens</i>		DSM 12744	3.27	49.2	3,103
GCA_000469325.1	<i>Schleiferilactobacillus</i>	<i>shenzhenensis</i>		LY-73	3.27	56.4	2,975
GCA_001435975.1	<i>Secundilactobacillus</i>	<i>collinoides</i>		DSM 20515	3.62	46.1	3,224
GCA_001433995.1	<i>Secundilactobacillus</i>	<i>kimchicus</i>		JCM 15530	2.59	46.6	2,522
SRR1151262	<i>Secundilactobacillus</i>	<i>malefermentans</i>		DSM 5705	2.05	41.0	2,013
ERR433478	<i>Secundilactobacillus</i>	<i>odoratitofui</i>		DSM 19909	2.75	44.2	2,403
GCA_001311525.1	<i>Secundilactobacillus</i>	<i>oryzae</i>		JCM 18671	1.84	42.8	2,559
ERR433483	<i>Secundilactobacillus</i>	<i>paracollinoides</i>		DSM 15502	3.40	46.9	3,146
ERR387542	<i>Secundilactobacillus</i>	<i>similis</i>		DSM 23365	3.45	47.0	3,084