

Supplementary Table 1: EcOH database information

Type	Gene	Allele	Accession	Function
H1	fliC	fliC-H1	AB028471.1	flagellin
H1	fliC	fliC-H1	L07387.1	flagellin
H10	fliC	fliC-H10	AY337482.1	flagellin
H10	fliC	fliC-H10	AY249995.1	flagellin
H11	fliC	fliC-H11	AY337465.1	flagellin
H11	fliC	fliC-H11	AY337472.1	flagellin
H11	fliC	fliC-H11	AY249996.1	flagellin
H12	fliC	fliC-H12	AY337471.1	flagellin
H12	fliC	fliC-H12	AY337474.1	flagellin
H12	fliC	fliC-H12	AY249997.1	flagellin
H14	fliC	fliC-H14	AY249998.1	flagellin
H15	fliC	fliC-H15	AY249999.1	flagellin
H16	fliC	fliC-H16	AY337475.1	flagellin
H16	fliC	fliC-H16	AY337476.1	flagellin
H16	fliC	fliC-H16	AY337477.1	flagellin
H16	fliC	fliC-H16	AY250000.1	flagellin
H18	fliC	fliC-H18	AY250001.1	flagellin
H19	fliC	fliC-H19	AY337479.1	flagellin
H19	fliC	fliC-H19	AY250002.1	flagellin
H2	fliC	fliC-H2	AF543692	flagellin
H2	fliC	fliC-H2	HQ116826	flagellin
H20	fliC	fliC-H20	AY250003.1	flagellin
H21	fliC	fliC-H21	AY250004.1	flagellin
H23	fliC	fliC-H23	AY250005.1	flagellin
H24	fliC	fliC-H24	AY250006.1	flagellin
H25	fliC	fliC-H25	AY250007.1	flagellin
H26	fliC	fliC-H26	AY250008.1	flagellin
H27	fliC	fliC-H27	AY250009.1	flagellin
H28	fliC	fliC-H28	AY250010.1	flagellin
H29	fliC	fliC-H29	AY250012.1	flagellin
H30	fliC	fliC-H30	AY250011.1	flagellin
H31	fliC	fliC-H31	AY250013.1	flagellin
H32	fliC	fliC-H32	AY250014.1	flagellin
H33	fliC	fliC-H33	AY250015.1	flagellin
H34	fliC	fliC-H34	AY250016.1	flagellin
H34	fliC	fliC-H34	AF34585	flagellin
H37	fliC	fliC-H37	AY250017.1	flagellin
H38	fliC	fliC-H38	AY337466.1	flagellin
H38	fliC	fliC-H38	AY337473.1	flagellin
H38	fliC	fliC-H38	AY250018.1	flagellin
H39	fliC	fliC-H39	AY250019.1	flagellin
H4	fliC	fliC-H4	AJ536600.1	flagellin
H4	fliC	fliC-H4	AJ605764.1	flagellin
H4	fliC	fliC-H4	AJ605765.1	flagellin
H4	fliC	fliC-H4	AY249989.1	flagellin
H40	fliC	fliC-H40	AJ865464.1	flagellin
H40	fliC	fliC-H40	AJ884568.1	flagellin
H41	fliC	fliC-H41	AY250020.1	flagellin
H42	fliC	fliC-H42	AY250021.1	flagellin
H43	fliC	fliC-H43	AY250022.1	flagellin
H45	fliC	fliC-H45	AY250023.1	flagellin
H46	fliC	fliC-H46	AB028478.1	flagellin
H46	fliC	fliC-H46	AY250024.1	flagellin
H48	fliC	fliC-H48	AY250025.1	flagellin
H49	fliC	fliC-H49	AB028480.1	flagellin

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Type	Gene	Allele	Accession	Function
H49	fliC	fliC-H49	AY250026.1	flagellin
H5	fliC	fliC-H5	AY337469.1	flagellin
H5	fliC	fliC-H5	AY249990.1	flagellin
H51	fliC	fliC-H51	AB028481.1	flagellin
H51	fliC	fliC-H51	AY250027.1	flagellin
H52	fliC	fliC-H52	AY250028.1	flagellin
H56	fliC	fliC-H56	AY250029.1	flagellin
H6	fliC	fliC-H6	AY249991.1	flagellin
H7	fliC	fliC-H7	AF228487.1	flagellin
H7	fliC	fliC-H7	AF228491.1	flagellin
H7	fliC	fliC-H7	AF228492.1	flagellin
H7	fliC	fliC-H7	AF228494.1	flagellin
H7	fliC	fliC-H7	AF228495.1	flagellin
H7	fliC	fliC-H7	AF228496.1	flagellin
H7	fliC	fliC-H7	AY337468.1	flagellin
H7	fliC	fliC-H7	AB334574.1	flagellin
H7	fliC	fliC-H7	AB334575.1	flagellin
H7	fliC	fliC-H7	AY249992.1	flagellin
H8	fliC	fliC-H8	AJ865465.1	flagellin
H8	fliC	fliC-H8	AJ884569.1	flagellin
H9	fliC	fliC-H9	AY249994.1	flagellin
H3	flkA	flkA-H3	AB128916	flagellin
H35	flkA	flkA-H35	EF392692	flagellin
H36	flkA	flkA-H36	EF392693	flagellin
H47	flkA	flkA-H47	EF392694	flagellin
H53	flkA	flkA-H53	AB128917	flagellin
H44	flIA	flIA-H44	#VALUE!	flagellin
H55	flIA	flIA-H55	AB269771	flagellin
H54	flmA	flmA-H54	AB128918	flagellin
H17	flnA	flnA-H17	CP002291	flagellin
O101	wzm	wzm-O101-Gp15	AB812046.1	O-antigen ABC transporter permease
O162	wzm	wzm-O162-Gp15	AB812067.1	O-antigen ABC transporter permease
O52	wzm	wzm-O52	AY528413.1	O-antigen ABC transporter permease
O60	wzm	wzm-O60	AB812022.1	O-antigen ABC transporter permease
O8	wzm	wzm-O8	AB010150.1	O-antigen ABC transporter permease
O8	wzm	wzm-O8	AB811598.1	O-antigen ABC transporter permease
O89	wzm	wzm-O89-Gp15	AB812038.1	O-antigen ABC transporter permease
O9	wzm	wzm-O9	AB010294.1	O-antigen ABC transporter permease
O9	wzm	wzm-O9	D43637	O-antigen ABC transporter permease
O92	wzm	wzm-O92	AB812040.1	O-antigen ABC transporter permease
O95	wzm	wzm-O95	AB812042.1	O-antigen ABC transporter permease
O97	wzm	wzm-O97	AB812044.1	O-antigen ABC transporter permease
O99	wzm	wzm-O99	FJ940773.1	O-antigen ABC transporter permease
O101	wzt	wzt-O101-Gp15	AB812046.1	ATP-binding protein
O162	wzt	wzt-O162-Gp15	AB812067.1	ATP-binding protein
O52	wzt	wzt-O52	AY528413.1	ATP-binding protein
O60	wzt	wzt-O60	AB812022.1	ATP-binding protein
O8	wzt	wzt-O8	AB010150.1	ATP-binding protein
O8	wzt	wzt-O8	AB811598.1	ATP-binding protein
O89	wzt	wzt-O89-Gp15	AB812038.1	ATP-binding protein
O9	wzt	wzt-O9	AB010294.1	ATP-binding protein
O9	wzt	wzt-O9	D43637	ATP-binding protein
O92	wzt	wzt-O92	AB812040.1	ATP-binding protein
O95	wzt	wzt-O95	AB812042.1	ATP-binding protein
O97	wzt	wzt-O97	AB812044.1	ATP-binding protein

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Type	Gene	Allele	Accession	Function
O99	wzt	wzt-O99	FJ940773.1	ATP-binding protein
O1	wzx	wzx-O1	GU299791.1	O antigen flippase
O10	wzx	wzx-O10	AB811599.1	O antigen flippase
O100	wzx	wzx-O100	AB812045.1	O antigen flippase
O102	wzx	wzx-O102	JX087966.1	O antigen flippase
O102	wzx	wzx-O102	AB812047.1	O antigen flippase
O103	wzx	wzx-O103	AY532664.1	O antigen flippase
O103	wzx	wzx-O103	EF027106.1	O antigen flippase
O103	wzx	wzx-O103	AB704860.1	O antigen flippase
O104	wzx	wzx-O104	AF361371.1	O antigen flippase
O104	wzx	wzx-O104	CP003301.1	O antigen flippase
O105	wzx	wzx-O105	EU294171.1	O antigen flippase
O106	wzx	wzx-O106-Gp9	DQ000315.1	O antigen flippase
O106	wzx	wzx-O106-Gp9	AB972417.1	O antigen flippase
O107	wzx	wzx-O107--Gp8	EU694095.1	O antigen flippase
O108	wzx	wzx-O108	AB812048.1	O antigen flippase
O109	wzx	wzx-O109	HM485572.1	O antigen flippase
O11	wzx	wzx-O11	HQ388393.1	O antigen flippase
O110	wzx	wzx-O110	AB812049.1	O antigen flippase
O111	wzx	wzx-O111	AF078736.1	O antigen flippase
O111	wzx	wzx-O111	AP010960	O antigen flippase
O112ab	wzx	wzx-O112	EU296413.1	O antigen flippase
O112ac	wzx	wzx-O112	AB812050.1	O antigen flippase
O113	wzx	wzx-O113	AF172324.1	O antigen flippase
O114	wzx	wzx-O114	AY573377.1	O antigen flippase
O115	wzx	wzx-O115	GU068041.1	O antigen flippase
O116	wzx	wzx-O116	AB812051.1	O antigen flippase
O117	wzx	wzx-O117-Gp8	DQ465247.1	O antigen flippase
O117	wzx	wzx-O117-Gp8	EU694096.1	O antigen flippase
O118	wzx	wzx-O118-Gp3	HM204927.1	O antigen flippase
O118	wzx	wzx-O118-Gp3	AB972418.1	O antigen flippase
O119	wzx	wzx-O119	GQ499368.1	O antigen flippase
O12	wzx	wzx-O12	AB811600.1	O antigen flippase
O120	wzx	wzx-O120	AB812052.1	O antigen flippase
O121	wzx	wzx-O121	AY208937.1	O antigen flippase
O121	wzx	wzx-O121	JN859209.1	O antigen flippase
O121	wzx	wzx-O121	JN859212.1	O antigen flippase
O121	wzx	wzx-O121	JN859216.1	O antigen flippase
O123	wzx	wzx-O123-Gp5	DQ676933.1	O antigen flippase
O123	wzx	wzx-O123-Gp5	DQ676934.1	O antigen flippase
O123	wzx	wzx-O123-Gp5	AB972419.1	O antigen flippase
O124	wzx	wzx-O124-Gp13	EU296419.1	O antigen flippase
O124	wzx	wzx-O124-Gp13	AB972420.1	O antigen flippase
O125	wzx	wzx-O125	AB812053.1	O antigen flippase
O126	wzx	wzx-O126	DQ465248.1	O antigen flippase
O126	wzx	wzx-O126	GU068042.1	O antigen flippase
O127	wzx	wzx-O127-Gp4	AY493508.1	O antigen flippase
O127	wzx	wzx-O127-Gp4	FM180568.1	O antigen flippase
O127	wzx	wzx-O127-Gp4	AB812054.1	O antigen flippase
O128	wzx	wzx-O128	AY217096.1	O antigen flippase
O129	wzx	wzx-O129-Gp10	EU296424.1	O antigen flippase
O129	wzx	wzx-O129-Gp10	AB972421.1	O antigen flippase
O13	wzx	wzx-O13-Gp10	AB972413.1	O antigen flippase
O130	wzx	wzx-O130	EU296421.1	O antigen flippase
O131	wzx	wzx-O131	AB812055.1	O antigen flippase

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Type	Gene	Allele	Accession	Function
O132	WZX	wzx-O132	AB812056.1	O antigen flippase
O133	WZX	wzx-O133	AB812057.1	O antigen flippase
O134	WZX	wzx-O134-Gp6	AB812058.1	O antigen flippase
O135	WZX	wzx-O135-Gp10	EU296423.1	O antigen flippase
O135	WZX	wzx-O135-Gp10	AB972422.1	O antigen flippase
O136	WZX	wzx-O136	AB812059.1	O antigen flippase
O137	WZX	wzx-O137-Gp1	AB972423.1	O antigen flippase
O138	WZX	wzx-O138	DQ109551.1	O antigen flippase
O139	WZX	wzx-O139	DQ109552.1	O antigen flippase
O140	WZX	wzx-O140	AB812060.1	O antigen flippase
O141	WZX	wzx-O141	DQ868765.1	O antigen flippase
O142	WZX	wzx-O142	AB812061.1	O antigen flippase
O143	WZX	wzx-O143	EU294164.1	O antigen flippase
O144	WZX	wzx-O144	AB812062.1	O antigen flippase
O145	WZX	wzx-O145	AY647260.1	O antigen flippase
O145	WZX	wzx-O145	CP006262.1	O antigen flippase
O145	WZX	wzx-O145	JN850039.1	O antigen flippase
O146	WZX	wzx-O146	DQ465249.1	O antigen flippase
O147	WZX	wzx-O147	DQ868766.1	O antigen flippase
O148	WZX	wzx-O148	DQ167407.1	O antigen flippase
O149	WZX	wzx-O149	DQ868764.1	O antigen flippase
O15	WZX	wzx-O15	AY647261.1	O antigen flippase
O150	WZX	wzx-O150	EU294168.1	O antigen flippase
O151	WZX	wzx-O151-Gp3	AB972424.1	O antigen flippase
O152	WZX	wzx-O152	EU294170.1	O antigen flippase
O153	WZX	wzx-O153-Gp11	AB812063.1	O antigen flippase
O154	WZX	wzx-O154	AB812064.1	O antigen flippase
O155	WZX	wzx-O155	AY657020.1	O antigen flippase
O156	WZX	wzx-O156	AB812065.1	O antigen flippase
O157	WZX	wzx-O157	AF061251.1	O antigen flippase
O157	WZX	wzx-O157	AB602249.1	O antigen flippase
O157	WZX	wzx-O157	AB602250.1	O antigen flippase
O157	WZX	wzx-O157	AB602252.1	O antigen flippase
O157	WZX	wzx-O157	AB602253.1	O antigen flippase
O158	WZX	wzx-O158	GU068044.1	O antigen flippase
O159	WZX	wzx-O159	EU294176.1	O antigen flippase
O16	WZX	wzx-O16	AB811601.1	O antigen flippase
O160	WZX	wzx-O160	AB812066.1	O antigen flippase
O161	WZX	wzx-O161	GU220361.1	O antigen flippase
O163	WZX	wzx-O163	AB812068.1	O antigen flippase
O164	WZX	wzx-O164-Gp13	EU296420.1	O antigen flippase
O164	WZX	wzx-O164-Gp13	AB972425.1	O antigen flippase
O165	WZX	wzx-O165	GU068045.1	O antigen flippase
O166	WZX	wzx-O166	GU299794.1	O antigen flippase
O167	WZX	wzx-O167	EU296408.1	O antigen flippase
O168	WZX	wzx-O168	EU296403.1	O antigen flippase
O169	WZX	wzx-O169-Gp16	AB812069.1	O antigen flippase
O17	WZX	wzx-O17-Gp9	AB812084.1	O antigen flippase
O170	WZX	wzx-O170	AB812070.1	O antigen flippase
O171	WZX	wzx-O171	AB812071.1	O antigen flippase
O172	WZX	wzx-O172	AY545992.1	O antigen flippase
O173	WZX	wzx-O173	GU068046.1	O antigen flippase
O174	WZX	wzx-O174	DQ008592.1	O antigen flippase
O174	WZX	wzx-O174	AB812072.1	O antigen flippase
O175	WZX	wzx-O175	AB812073.1	O antigen flippase

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Type	Gene	Allele	Accession	Function
O176	wzx	wzx-O176	AB812074.1	O antigen flippase
O177	wzx	wzx-O177	DQ008593.1	O antigen flippase
O178	wzx	wzx-O178-Gp11	AB812075.1	O antigen flippase
O179	wzx	wzx-O179	AB812076.1	O antigen flippase
O18	wzx	wzx-O18-Gp12	GU299793.1	O antigen flippase
O180	wzx	wzx-O180	JQ751058.1	O antigen flippase
O180	wzx	wzx-O180	AB812077.1	O antigen flippase
O181	wzx	wzx-O181	AB812078.1	O antigen flippase
O182	wzx	wzx-O182	AB812079.1	O antigen flippase
O183	wzx	wzx-O183-Gp16	AB627352.1	O antigen flippase
O184	wzx	wzx-O184	AB812080.1	O antigen flippase
O185	wzx	wzx-O185	AB812081.1	O antigen flippase
O186	wzx	wzx-O186-Gp5	AB812082.1	O antigen flippase
O187	wzx	wzx-O187	AB812083.1	O antigen flippase
O18ab	wzx	wzx-O18ab	AB811602.1	O antigen flippase
O18ac	wzx	wzx-O18ac	AB811603.1	O antigen flippase
O19	wzx	wzx-O19	AB811604.1	O antigen flippase
O2	wzx	wzx-O2-Gp7	EU549863.1	O antigen flippase
O2	wzx	wzx-O2-Gp7	GU299792.1	O antigen flippase
O20	wzx	wzx-O20-Gp1	AB811605.1	O antigen flippase
O21	wzx	wzx-O21	EU694098.1	O antigen flippase
O22	wzx	wzx-O22	DQ851855.1	O antigen flippase
O22	wzx	wzx-O22	AB811606.1	O antigen flippase
O23	wzx	wzx-O23	AB811607.1	O antigen flippase
O24	wzx	wzx-O24	DQ220292.1	O antigen flippase
O25	wzx	wzx-O25	GU014554.1	O antigen flippase
O26	wzx	wzx-O26	AF529080.1	O antigen flippase
O27	wzx	wzx-O27	GU014555.1	O antigen flippase
O28ab	wzx	wzx-O28ab	AB811608.1	O antigen flippase
O28ac	wzx	wzx-O28ac-Gp2	DQ462205.1	O antigen flippase
O28ac	wzx	wzx-O28ac-Gp2	AB811609.1	O antigen flippase
O29	wzx	wzx-O29	EU294173.1	O antigen flippase
O3	wzx	wzx-O3	EU694097.1	O antigen flippase
O30	wzx	wzx-O30	AB811610.1	O antigen flippase
O32	wzx	wzx-O32	EU296410.1	O antigen flippase
O33	wzx	wzx-O33	AB811611.1	O antigen flippase
O34	wzx	wzx-O34	AB811612.1	O antigen flippase
O35	wzx	wzx-O35	FJ940774.1	O antigen flippase
O36	wzx	wzx-O36	AB811613.1	O antigen flippase
O37	wzx	wzx-O37	AB811614.1	O antigen flippase
O38	wzx	wzx-O38	AB811615.1	O antigen flippase
O39	wzx	wzx-O39	AB811616.1	O antigen flippase
O4	wzx	wzx-O4	AY568960.1	O antigen flippase
O40	wzx	wzx-O40	EU296417.1	O antigen flippase
O41	wzx	wzx-O41	AB811617.1	O antigen flippase
O42	wzx	wzx-O42-Gp2	FJ539194.1	O antigen flippase
O42	wzx	wzx-O42-Gp2	AB811618.1	O antigen flippase
O43	wzx	wzx-O43	AB811619.1	O antigen flippase
O44	wzx	wzx-O44-Gp9	AB811620.1	O antigen flippase
O45	wzx	wzx-O45	AY771223.1	O antigen flippase
O45	wzx	wzx-O45	CU463050.1	O antigen flippase
O45	wzx	wzx-O45	JN859200.1	O antigen flippase
O45	wzx	wzx-O45	JN859205.1	O antigen flippase
O45	wzx	wzx-O45	JN859208.1	O antigen flippase
O46	wzx	wzx-O46-Gp6	AB811621.1	O antigen flippase

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Type	Gene	Allele	Accession	Function
O48	WZX	wzx-O48	AB811622.1	O antigen flippase
O49	WZX	wzx-O49	AB811623.1	O antigen flippase
O5	WZX	wzx-O5	AB811596.1	O antigen flippase
O50	WZX	wzx-O50-Gp7	AB811624.1	O antigen flippase
O51	WZX	wzx-O51	AB812020.1	O antigen flippase
O53	WZX	wzx-O53	AB812021.1	O antigen flippase
O54	WZX	wzx-O54	AB812085.1	O antigen flippase
O55	WZX	wzx-O55	AF461121.1	O antigen flippase
O55	WZX	wzx-O55	AB353132.1	O antigen flippase
O55	WZX	wzx-O55	AB353133.1	O antigen flippase
O56	WZX	wzx-O56	DQ220293.1	O antigen flippase
O58	WZX	wzx-O58	EU294175.1	O antigen flippase
O59	WZX	wzx-O59	AY654590.1	O antigen flippase
O6	WZX	wzx-O6	AJ426045.2	O antigen flippase
O6	WZX	wzx-O6	CP002185.1	O antigen flippase
O6	WZX	wzx-O6	AB811597.1	O antigen flippase
O61	WZX	wzx-O61	GU220362.1	O antigen flippase
O62	WZX	wzx-O62-Gp14	AB812023.1	O antigen flippase
O63	WZX	wzx-O63	FJ539195.1	O antigen flippase
O63	WZX	wzx-O63	AB812024.1	O antigen flippase
O64	WZX	wzx-O64	AB812025.1	O antigen flippase
O65	WZX	wzx-O65	AB812026.1	O antigen flippase
O66	WZX	wzx-O66	DQ069297.1	O antigen flippase
O68	WZX	wzx-O68-Gp14	AB812027.1	O antigen flippase
O69	WZX	wzx-O69	AB812028.1	O antigen flippase
O7	WZX	wzx-O7	AF125322.1	O antigen flippase
O7	WZX	wzx-O7	AB490074.1	O antigen flippase
O7	WZX	wzx-O7	CP003034.1	O antigen flippase
O7	WZX	wzx-O7	JN887675.1	O antigen flippase
O70	WZX	wzx-O70	AB812029.1	O antigen flippase
O71	WZX	wzx-O71	GU445927.1	O antigen flippase
O73	WZX	wzx-O73-Gp9	DQ000313.1	O antigen flippase
O74	WZX	wzx-O74	AB812030.1	O antigen flippase
O75	WZX	wzx-O75	GU299795.1	O antigen flippase
O76	WZX	wzx-O76	AB812031.1	O antigen flippase
O77	WZX	wzx-O77-Gp9	AB972416.1	O antigen flippase
O78	WZX	wzx-O78	FJ940775.1	O antigen flippase
O79	WZX	wzx-O79	EU294162.1	O antigen flippase
O8	WZX	wzx-O8	AF013583.1	O antigen flippase
O8	WZX	wzx-O8	AB811598.1	O antigen flippase
O80	WZX	wzx-O80	AB812032.1	O antigen flippase
O81	WZX	wzx-O81	AB812033.1	O antigen flippase
O82	WZX	wzx-O82	AB812034.1	O antigen flippase
O83	WZX	wzx-O83	AB812035.1	O antigen flippase
O84	WZX	wzx-O84	AB812036.1	O antigen flippase
O85	WZX	wzx-O85	GU299798.1	O antigen flippase
O86	WZX	wzx-O86	AY220982.1	O antigen flippase
O86	WZX	wzx-O86	AY667408.1	O antigen flippase
O86	WZX	wzx-O86	AY670704.1	O antigen flippase
O87	WZX	wzx-O87	EU294177.1	O antigen flippase
O88	WZX	wzx-O88	AB812037.1	O antigen flippase
O90	WZX	wzx-O90-Gp4	AB812039.1	O antigen flippase
O91	WZX	wzx-O91	AY035396.1	O antigen flippase
O93	WZX	wzx-O93	AB812041.1	O antigen flippase
O96	WZX	wzx-O96	AB812043.1	O antigen flippase

Supplementary Table 1: EcOH database information

Type	Gene	Allele	Accession	Function
O98	wzx	wzx-O98	DQ180602.1	O antigen flippase
O1	wzy	wzy-O1	GU299791.1	O antigen polymerase
O10	wzy	wzy-O10	AB811599.1	O antigen polymerase
O100	wzy	wzy-O100	AB812045.1	O antigen polymerase
O102	wzy	wzy-O102	JX087966.1	O antigen polymerase
O102	wzy	wzy-O102	AB812047.1	O antigen polymerase
O103	wzy	wzy-O103	AY532664.1	O antigen polymerase
O103	wzy	wzy-O103	EF027106.1	O antigen polymerase
O103	wzy	wzy-O103	EF027116.1	O antigen polymerase
O103	wzy	wzy-O103	EF027119.1	O antigen polymerase
O103	wzy	wzy-O103	AB704860.1	O antigen polymerase
O104	wzy	wzy-O104	AF361371.1	O antigen polymerase
O105	wzy	wzy-O105	EU294171.1	O antigen polymerase
O106	wzy	wzy-O106-Gp9	DQ000315.1	O antigen polymerase
O106	wzy	wzy-O106-Gp9	AB972417.1	O antigen polymerase
O107	wzy	wzy-O107-Gp8	EU694095.1	O antigen polymerase
O108	wzy	wzy-O108	AB812048.1	O antigen polymerase
O109	wzy	wzy-O109	HM485572.1	O antigen polymerase
O11	wzy	wzy-O11	HQ388393.1	O antigen polymerase
O110	wzy	wzy-O110	AB812049.1	O antigen polymerase
O111	wzy	wzy-O111	AF078736.1	O antigen polymerase
O111	wzy	wzy-O111	AP010960	O antigen polymerase
O112ac	wzy	wzy-O112	AB812050.1	O antigen polymerase
O112ab	wzy	wzy-O112	EU296413.1	O antigen polymerase
O113	wzy	wzy-O113	AF172324.1	O antigen polymerase
O114	wzy	wzy-O114	AY573377.1	O antigen polymerase
O115	wzy	wzy-O115	GU068041.1	O antigen polymerase
O116	wzy	wzy-O116	AB812051.1	O antigen polymerase
O117	wzy	wzy-O117-Gp8	DQ465247.1	O antigen polymerase
O117	wzy	wzy-O117-Gp8	EU694096.1	O antigen polymerase
O118	wzy	wzy-O118-Gp3	HM204927.1	O antigen polymerase
O118	wzy	wzy-O118-Gp3	AB972418.1	O antigen polymerase
O119	wzy	wzy-O119	GQ499368.1	O antigen polymerase
O12	wzy	wzy-O12	AB811600.1	O antigen polymerase
O120	wzy	wzy-O120	AB812052.1	O antigen polymerase
O121	wzy	wzy-O121	AY208937.1	O antigen polymerase
O121	wzy	wzy-O121	JN859209.1	O antigen polymerase
O121	wzy	wzy-O121	JN859212.1	O antigen polymerase
O121	wzy	wzy-O121	JN859216.1	O antigen polymerase
O123	wzy	wzy-O123-Gp5	DQ676933.1	O antigen polymerase
O123	wzy	wzy-O123-Gp5	DQ676934.1	O antigen polymerase
O123	wzy	wzy-O123-Gp5	AB972419.1	O antigen polymerase
O124	wzy	wzy-O124-Gp13	EU296419.1	O antigen polymerase
O124	wzy	wzy-O124-Gp13	AB972420.1	O antigen polymerase
O125	wzy	wzy-O125	AB812053.1	O antigen polymerase
O126	wzy	wzy-O126	DQ465248.1	O antigen polymerase
O126	wzy	wzy-O126	GU068042.1	O antigen polymerase
O127	wzy	wzy-O127-Gp4	AY493508.1	O antigen polymerase
O127	wzy	wzy-O127-Gp4	FM180568.1	O antigen polymerase
O127	wzy	wzy-O127-Gp4	AB812054.1	O antigen polymerase
O128	wzy	wzy-O128	AY217096.1	O antigen polymerase
O129	wzy	wzy-O129-Gp10	EU296424.1	O antigen polymerase
O129	wzy	wzy-O129-Gp10	AB972421.1	O antigen polymerase
O13	wzy	wzy-O13-Gp10	AB972413.1	O antigen polymerase
O130	wzy	wzy-O130	EU296421.1	O antigen polymerase

Supplementary Table 1: EcOH database information

Type	Gene	Allele	Accession	Function
O131	wzy	wzy-O131	AB812055.1	O antigen polymerase
O132	wzy	wzy-O132	AB812056.1	O antigen polymerase
O133	wzy	wzy-O133	AB812057.1	O antigen polymerase
O134	wzy	wzy-O134-Gp6	AB812058.1	O antigen polymerase
O135	wzy	wzy-O135-Gp10	EU296423.1	O antigen polymerase
O135	wzy	wzy-O135-Gp10	AB972422.1	O antigen polymerase
O136	wzy	wzy-O136	AB812059.1	O antigen polymerase
O137	wzy	wzy-O137-Gp1	AB972423.1	O antigen polymerase
O138	wzy	wzy-O138	DQ109551.1	O antigen polymerase
O139	wzy	wzy-O139	DQ109552.1	O antigen polymerase
O140	wzy	wzy-O140	AB812060.1	O antigen polymerase
O141	wzy	wzy-O141	DQ868765.1	O antigen polymerase
O142	wzy	wzy-O142	AB812061.1	O antigen polymerase
O143	wzy	wzy-O143	EU294164.1	O antigen polymerase
O144	wzy	wzy-O144	AB812062.1	O antigen polymerase
O145	wzy	wzy-O145	AY647260.1	O antigen polymerase
O145	wzy	wzy-O145	CP006262.1	O antigen polymerase
O145	wzy	wzy-O145	JN850039.1	O antigen polymerase
O146	wzy	wzy-O146	DQ465249.1	O antigen polymerase
O147	wzy	wzy-O147	DQ868766.1	O antigen polymerase
O148	wzy	wzy-O148	DQ167407.1	O antigen polymerase
O149	wzy	wzy-O149	DQ868764.1	O antigen polymerase
O15	wzy	wzy-O15	AY647261.1	O antigen polymerase
O150	wzy	wzy-O150	EU294168.1	O antigen polymerase
O151	wzy	wzy-O151-Gp3	AB972424.1	O antigen polymerase
O152	wzy	wzy-O152	EU294170.1	O antigen polymerase
O153	wzy	wzy-O153-Gp11	AB812063.1	O antigen polymerase
O154	wzy	wzy-O154	AB812064.1	O antigen polymerase
O155	wzy	wzy-O155	AY657020.1	O antigen polymerase
O156	wzy	wzy-O156	AB812065.1	O antigen polymerase
O157	wzy	wzy-O157	AF061251.1	O antigen polymerase
O157	wzy	wzy-O157	AB602249.1	O antigen polymerase
O157	wzy	wzy-O157	AB602250.1	O antigen polymerase
O157	wzy	wzy-O157	AB602252.1	O antigen polymerase
O157	wzy	wzy-O157	AB602253.1	O antigen polymerase
O158	wzy	wzy-O158	GU068044.1	O antigen polymerase
O159	wzy	wzy-O159	EU294176.1	O antigen polymerase
O16	wzy	wzy-O16	AB811601.1	O antigen polymerase
O160	wzy	wzy-O160	AB812066.1	O antigen polymerase
O161	wzy	wzy-O161	GU220361.1	O antigen polymerase
O163	wzy	wzy-O163	AB812068.1	O antigen polymerase
O164	wzy	wzy-O164-Gp13	EU296420.1	O antigen polymerase
O164	wzy	wzy-O164-Gp13	AB972425.1	O antigen polymerase
O165	wzy	wzy-O165	GU068045.1	O antigen polymerase
O166	wzy	wzy-O166	GU299794.1	O antigen polymerase
O167	wzy	wzy-O167	EU296408.1	O antigen polymerase
O168	wzy	wzy-O168	EU296403.1	O antigen polymerase
O169	wzy	wzy-O169-Gp16	AB812069.1	O antigen polymerase
O17	wzy	wzy-O17-Gp9	AB812084.1	O antigen polymerase
O170	wzy	wzy-O170	AB812070.1	O antigen polymerase
O171	wzy	wzy-O171	AB812071.1	O antigen polymerase
O172	wzy	wzy-O172	AY545992.1	O antigen polymerase
O173	wzy	wzy-O173	GU068046.1	O antigen polymerase
O174	wzy	wzy-O174	DQ008592.1	O antigen polymerase
O174	wzy	wzy-O174	AB812072.1	O antigen polymerase

Supplementary Table 1: EcOH database information

Type	Gene	Allele	Accession	Function
O175	wzy	wzy-O175	AB812073.1	O antigen polymerase
O176	wzy	wzy-O176	AB812074.1	O antigen polymerase
O177	wzy	wzy-O177	DQ008593.1	O antigen polymerase
O178	wzy	wzy-O178-Gp11	AB812075.1	O antigen polymerase
O179	wzy	wzy-O179	AB812076.1	O antigen polymerase
O18	wzy	wzy-O18-Gp12	GU299793.1	O antigen polymerase
O180	wzy	wzy-O180	JQ751058.1	O antigen polymerase
O180	wzy	wzy-O180	AB812077.1	O antigen polymerase
O181	wzy	wzy-O181	AB812078.1	O antigen polymerase
O182	wzy	wzy-O182	AB812079.1	O antigen polymerase
O183	wzy	wzy-O183-Gp16	AB627352.1	O antigen polymerase
O184	wzy	wzy-O184	AB812080.1	O antigen polymerase
O185	wzy	wzy-O185	AB812081.1	O antigen polymerase
O186	wzy	wzy-O186-Gp5	AB812082.1	O antigen polymerase
O187	wzy	wzy-O187	AB812083.1	O antigen polymerase
O18ab	wzy	wzy-O18ab	AB811602.1	O antigen polymerase
O18ac	wzy	wzy-O18ac	AB811603.1	O antigen polymerase
O19	wzy	wzy-O19	AB811604.1	O antigen polymerase
O2	wzy	wzy-O2-Gp7	EU549863.1	O antigen polymerase
O2	wzy	wzy-O2-Gp7	GU299792.1	O antigen polymerase
O20	wzy	wzy-O20-Gp1	AB811605.1	O antigen polymerase
O21	wzy	wzy-O21	EU694098.1	O antigen polymerase
O22	wzy	wzy-O22	DQ851855.1	O antigen polymerase
O22	wzy	wzy-O22	AB811606.1	O antigen polymerase
O23	wzy	wzy-O23	AB811607.1	O antigen polymerase
O24	wzy	wzy-O24	DQ220292.1	O antigen polymerase
O25	wzy	wzy-O25	GU014554.1	O antigen polymerase
O26	wzy	wzy-O26	AF529080.1	O antigen polymerase
O27	wzy	wzy-O27	GU014555.1	O antigen polymerase
O28ab	wzy	wzy-O28ab	AB811608.1	O antigen polymerase
O28ac	wzy	wzy-O28ac-Gp2	DQ462205.1	O antigen polymerase
O28ac	wzy	wzy-O28ac-Gp2	AB811609.1	O antigen polymerase
O29	wzy	wzy-O29	EU294173.1	O antigen polymerase
O3	wzy	wzy-O3	EU694097.1	O antigen polymerase
O30	wzy	wzy-O30	AB811610.1	O antigen polymerase
O32	wzy	wzy-O32	EU296410.1	O antigen polymerase
O33	wzy	wzy-O33	AB811611.1	O antigen polymerase
O34	wzy	wzy-O34	AB811612.1	O antigen polymerase
O35	wzy	wzy-O35	FJ940774.1	O antigen polymerase
O36	wzy	wzy-O36	AB811613.1	O antigen polymerase
O37	wzy	wzy-O37	AB811614.1	O antigen polymerase
O38	wzy	wzy-O38	AB811615.1	O antigen polymerase
O39	wzy	wzy-O39	AB811616.1	O antigen polymerase
O4	wzy	wzy-O4	AY568960.1	O antigen polymerase
O40	wzy	wzy-O40	EU296417.1	O antigen polymerase
O41	wzy	wzy-O41	AB811617.1	O antigen polymerase
O42	wzy	wzy-O42-Gp2	FJ539194.1	O antigen polymerase
O42	wzy	wzy-O42-Gp2	AB811618.1	O antigen polymerase
O43	wzy	wzy-O43	AB811619.1	O antigen polymerase
O44	wzy	wzy-O44-Gp9	AB811620.1	O antigen polymerase
O45	wzy	wzy-O45	AY771223.1	O antigen polymerase
O45	wzy	wzy-O45	CU463050.1	O antigen polymerase
O45	wzy	wzy-O45	JN859200.1	O antigen polymerase
O45	wzy	wzy-O45	JN859205.1	O antigen polymerase
O45	wzy	wzy-O45	JN859208.1	O antigen polymerase

Supplementary Table 1: EcOH database information

Type	Gene	Allele	Accession	Function
O46	wzy	wzy-O46-Gp6	AB811621.1	O antigen polymerase
O48	wzy	wzy-O48	AB811622.1	O antigen polymerase
O49	wzy	wzy-O49	AB811623.1	O antigen polymerase
O5	wzy	wzy-O5	AB811596.1	O antigen polymerase
O50	wzy	wzy-O50-Gp7	AB811624.1	O antigen polymerase
O51	wzy	wzy-O51	AB812020.1	O antigen polymerase
O53	wzy	wzy-O53	AB812021.1	O antigen polymerase
O54	wzy	wzy-O54	AB812085.1	O antigen polymerase
O55	wzy	wzy-O55	AF461121.1	O antigen polymerase
O55	wzy	wzy-O55	AB353132.1	O antigen polymerase
O55	wzy	wzy-O55	AB353133.1	O antigen polymerase
O56	wzy	wzy-O56	DQ220293.1	O antigen polymerase
O58	wzy	wzy-O58	EU294175.1	O antigen polymerase
O59	wzy	wzy-O59	AY654590.1	O antigen polymerase
O6	wzy	wzy-O6	AJ426045.2	O antigen polymerase
O6	wzy	wzy-O6	CP002185.1	O antigen polymerase
O6	wzy	wzy-O6	AB811597.1	O antigen polymerase
O61	wzy	wzy-O61	GU220362.1	O antigen polymerase
O62	wzy	wzy-O62-Gp14	AB812023.1	O antigen polymerase
O63	wzy	wzy-O63	FJ539195.1	O antigen polymerase
O63	wzy	wzy-O63	AB812024.1	O antigen polymerase
O64	wzy	wzy-O64	AB812025.1	O antigen polymerase
O65	wzy	wzy-O65	AB812026.1	O antigen polymerase
O66	wzy	wzy-O66	DQ069297.1	O antigen polymerase
O68	wzy	wzy-O68-Gp14	AB812027.1	O antigen polymerase
O69	wzy	wzy-O69	AB812028.1	O antigen polymerase
O7	wzy	wzy-O7	AF125322.1	O antigen polymerase
O7	wzy	wzy-O7	AB490074.1	O antigen polymerase
O7	wzy	wzy-O7	JN887675.1	O antigen polymerase
O70	wzy	wzy-O70	AB812029.1	O antigen polymerase
O71	wzy	wzy-O71	GU445927.1	O antigen polymerase
O73	wzy	wzy-O73-Gp9	DQ000313.1	O antigen polymerase
O74	wzy	wzy-O74	AB812030.1	O antigen polymerase
O75	wzy	wzy-O75	GU299795.1	O antigen polymerase
O76	wzy	wzy-O76	AB812031.1	O antigen polymerase
O77	wzy	wzy-O77-Gp9	AB972416.1	O antigen polymerase
O78	wzy	wzy-O78	FJ940775.1	O antigen polymerase
O79	wzy	wzy-O79	EU294162.1	O antigen polymerase
O8	wzy	wzy-O8	AF013583.1	O antigen polymerase
O8	wzy	wzy-O8	AB811598.1	O antigen polymerase
O80	wzy	wzy-O80	AB812032.1	O antigen polymerase
O81	wzy	wzy-O81	AB812033.1	O antigen polymerase
O82	wzy	wzy-O82	AB812034.1	O antigen polymerase
O83	wzy	wzy-O83	AB812035.1	O antigen polymerase
O84	wzy	wzy-O84	AB812036.1	O antigen polymerase
O85	wzy	wzy-O85	GU299798.1	O antigen polymerase
O86	wzy	wzy-O86	AY220982.1	O antigen polymerase
O86	wzy	wzy-O86	AY667408.1	O antigen polymerase
O86	wzy	wzy-O86	AY670704.1	O antigen polymerase
O87	wzy	wzy-O87	EU294177.1	O antigen polymerase
O88	wzy	wzy-O88	AB812037.1	O antigen polymerase
O90	wzy	wzy-O90-Gp4	AB812039.1	O antigen polymerase
O91	wzy	wzy-O91	AY035396.1	O antigen polymerase
O93	wzy	wzy-O93	AB812041.1	O antigen polymerase
O96	wzy	wzy-O96	AB812043.1	O antigen polymerase

Supplementary Table 1: EcOH database information

Type	Gene	Allele	Accession	Function
O98	wzy	wzy-O98	DQ180602.1	O antigen polymerase
O116var1	wzy	wzy-O116var1	ERS085345	O antigen polymerase
O116var1	wzx	wzx-O116var1	ERS085345	O antigen flippase
O124var1	wzy	wzy-O124var1	ERS085400	O antigen polymerase
O2var1	wzx	wzx-O2var1	ERS085421	O antigen flippase
O2var1	wzy	wzy-O2var1	ERS085421	O antigen polymerase
O153var1	wzx	wzx-O153var1	ERS139265	O antigen flippase
O153var1	wzy	wzy-O153var1	ERS139265	O antigen polymerase
O153var2	wzx	wzx-O153var2	ERS085437	O antigen flippase
O153var2	wzy	wzy-O153var2	ERS085437	O antigen polymerase
O108var1	wzx	wzx-O108var1	ERS150902	O antigen flippase
O108var1	wzy	wzy-O108var1	ERS150902	O antigen polymerase
Onovel32	wzm	wzm-Onovel32	SRR2544773	O-antigen ABC transporter permease
Onovel32	wzt	wzt-Onovel32	SRR2544773	ATP-binding protein
O174-like	wzx	wzx-O174	ERR119568	O antigen flippase
O174-like	wzy	wzy-O174	ERR119568	O antigen polymerase
O9-like	wzm	wzm-O9	SRR1181545	O-antigen ABC transporter permease
O9-like	wzt	wzt-O9	SRR1181545	ATP-binding protein
O22-like	wzx	wzx-O22	SRR1505391	O antigen flippase
O22-like	wzy	wzy-O22	SRR1505391	O antigen polymerase
Onovel31	wzx	wzx-Onovel31	SRR1982228	O antigen flippase
Onovel31	wzy	wzy-Onovel31	SRR1982228	O antigen polymerase
Onovel1	wzx	wzx-Onovel1	ERR178232	O antigen flippase
Onovel1	wzy	wzy-Onovel1	ERR178232	O antigen polymerase
Onovel1	wzy	wzy-Onovel1	SRR2960802	O antigen polymerase
Onovel1	wzx	wzx-Onovel1	SRR2960802	O antigen flippase
Onovel2	wzx	wzx-Onovel2	SRR1198904	O antigen flippase
Onovel2	wzy	wzy-Onovel2	SRR1198904	O antigen polymerase
Onovel3	wzx	wzx-Onovel3	SRR1570089	O antigen flippase
Onovel3	wzy	wzy-Onovel3	SRR1570089	O antigen polymerase
Onovel3	wzy	wzy-Onovel3	SRR2890038	O antigen polymerase
Onovel3	wzx	wzx-Onovel3	SRR2890038	O antigen flippase
Onovel4	wzy	wzy-Onovel4	SRR2085677	O antigen polymerase
Onovel4	wzx	wzx-Onovel4	SRR2085677	O antigen flippase
Onovel5	wzy	wzy-Onovel5	SRR2970275	O antigen polymerase
Onovel5	wzx	wzx-Onovel5	SRR2970275	O antigen flippase
Onovel6	wzy	wzy-Onovel6	SRR2970282	O antigen polymerase
Onovel6	wzx	wzx-Onovel6	SRR2970282	O antigen flippase
Onovel7	wzy	wzy-Onovel7	SRR2970285	O antigen polymerase
Onovel7	wzx	wzx-Onovel7	SRR2970285	O antigen flippase
O108var1	wzy	wzy-O108var1	SRR2133165	O antigen polymerase
O108var1	wzx	wzx-O108var1	SRR2133165	O antigen flippase
Onovel8	wzx	wzx-Onovel8	SRR2970151	O antigen flippase
Onovel8	wzy	wzy-Onovel8	SRR2970151	O antigen polymerase
Onovel9	wzy	wzy-Onovel9	SRR2970153	O antigen polymerase
Onovel9	wzx	wzx-Onovel9	SRR2970153	O antigen flippase
Onovel10	wzy	wzy-Onovel10	SRR2970219	O antigen polymerase
Onovel10	wzx	wzx-Onovel10	SRR2970219	O antigen flippase
Onovel11	wzy	wzy-Onovel11	SRR2970229	O antigen polymerase
Onovel11	wzx	wzx-Onovel11	SRR2970229	O antigen flippase
Onovel12	wzy	wzy-Onovel12	ERR084469	O antigen polymerase
Onovel12	wzx	wzx-Onovel12	ERR084469	O antigen flippase
Onovel13	wzx	wzx-Onovel13	ERR084477	O antigen flippase
Onovel13	wzy	wzy-Onovel13	ERR084477	O antigen polymerase
Onovel14	wzx	wzx-Onovel14	ERR089731	O antigen flippase

Supplementary Table 1: EcOH database information

Type	Gene	Allele	Accession	Function
Onovel14	wzy	wzy-Onovel14	ERR089731	O antigen polyermase
Onovel15	wzx	wzx-Onovel15	ERR119540	O antigen flippase
Onovel15	wzy	wzy-Onovel15	ERR119540	O antigen polyermase
Onovel16	wzy	wzy-Onovel16	ERR769193	O antigen polyermase
Onovel16	wzx	wzx-Onovel16	ERR769193	O antigen flippase
Onovel17	wzy	wzy-Onovel17	SRR1181555	O antigen polyermase
Onovel17	wzx	wzx-Onovel17	SRR1181555	O antigen flippase
Onovel18	wzy	wzy-Onovel18	SRR1269403	O antigen polyermase
Onovel18	wzx	wzx-Onovel18	SRR1269403	O antigen flippase
Onovel19	wzy	wzy-Onovel19	SRR1269405	O antigen polyermase
Onovel19	wzx	wzx-Onovel19	SRR1269405	O antigen flippase
Onovel20	wzx	wzx-Onovel20	SRR1272883	O antigen flippase
Onovel20	wzy	wzy-Onovel20	SRR1272883	O antigen polyermase
Onovel21	wzx	wzx-Onovel21	SRR1505461	O antigen flippase
Onovel21	wzy	wzy-Onovel21	SRR1505461	O antigen polyermase
Onovel22	wzy	wzy-Onovel22	SRR1918972	O antigen polyermase
Onovel22	wzx	wzx-Onovel22	SRR1918972	O antigen flippase
Onovel23	wzy	wzy-Onovel23	SRR2085700	O antigen polyermase
Onovel23	wzx	wzx-Onovel23	SRR2085700	O antigen flippase
Onovel24	wzx	wzx-Onovel24	SRR2724181	O antigen flippase
Onovel24	wzy	wzy-Onovel24	SRR2724181	O antigen polyermase
Onovel25	wzy	wzy-Onovel25	SRR2912311	O antigen polyermase
Onovel25	wzx	wzx-Onovel25	SRR2912311	O antigen flippase
Onovel26	wzx	wzx-Onovel26	SRR2960801	O antigen flippase
Onovel26	wzy	wzy-Onovel26	SRR2960801	O antigen polyermase
Onovel27	wzx	wzx-Onovel27	SRR2970162	O antigen flippase
Onovel27	wzy	wzy-Onovel27	SRR2970162	O antigen polyermase
Onovel28	wzy	wzy-Onovel28	SRR2970178	O antigen polyermase
Onovel28	wzx	wzx-Onovel28	SRR2970178	O antigen flippase
Onovel29	wzy	wzy-Onovel29	SRR2970183	O antigen polyermase
Onovel29	wzx	wzx-Onovel29	SRR2970183	O antigen flippase
Onovel30	wzy	wzy-Onovel30	SRR2970185	O antigen polyermase
Onovel30	wzx	wzx-Onovel30	SRR2970185	O antigen flippase