
Supplementary Data

Genome-wide Mutational Diversity in an Evolving Population of *Escherichia coli*

J.E. Barrick and R.E. Lenski

*Department of Microbiology and Molecular Genetics
Michigan State University, East Lansing, Michigan 48824*

Correspondence: lenski@msu.edu

Tables S1-S7 | SNPs predicted in mixed-population samples

For all predicted SNPs in mixed-population samples, the negative base-10 logarithm of the E-value, maximum-likelihood prediction of the frequency of the derived allele in the population, 95% confidence limit on the frequency of the derived allele, nucleotide position, base change from the ancestral sequence, gene (e.g., *araJ*) or intergenic region (e.g., *rspA/ynfA*) containing the SNP, and amino acid change caused by the SNP are shown. Stop codons are represented by asterisks in the amino acid change column, and some SNPs do not have an amino acid change annotated because they occur within pseudogenes or intergenic regions. In the notes column, samples where the same mutation was fixed (within statistical resolution) in a mixed-population sample (M) or present in a sequenced clone (C) at a given generation are identified, with a plus sign further indicating that the mutation was also found in all later samples, and asterisks marking a few SNPs that appeared (erroneously, owing to statistical uncertainty) to have been fixed in earlier population samples. Some other mutations in the 2-20K samples that are likely to be beneficial because they are in the same gene or promoter region as mutations that later swept to fixation in this population (new allele), probably affect cellular processes known to be targets of selection in this experiment (cell wall, respiration, ribosome, regulation), or possibly improve growth on metabolic byproducts (acetate, SCFA) are marked. SNP predictions in the 2-20K samples that are of questionable biological and statistical significance and were not shown in Table 2 of the main text are also indicated (questionable).

Table S1 | SNPs predicted in 2K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
16.7	0.100	[0.045, 0.192]	648332	A→T	<i>mrdB</i>	V189E	cell wall
12.2	0.128	[0.054, 0.249]	3328657	G→A	<i>mreB</i>	P108S	cell wall
12.2	0.148	[0.062, 0.284]	2082685	G→A	<i>yegI</i>	A494V	M5K+ C5K+
6.4	0.069	[0.020, 0.178]	1734196	T→G	<i>pykF</i>	L411R	new allele
4.2	0.101	[0.026, 0.231]	4100655	C→T	<i>hslU</i>	M192I	M5K+ C5K+
0.6	0.044	[0.009, 0.122]	4201949	G→A	<i>iclR</i>	T204M	new allele
0.2	0.038	[0.008, 0.101]	4174746	T→C	<i>thiC</i>	Q322R	questionable

Table S2 | SNPs predicted in 5K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
5.1	0.944	[0.853, 0.984]	3248957	A→T	<i>infB</i>	D764E	M10K+ C5K+
3.9	0.929	[0.834, 0.982]	3483047	C→A	<i>malT</i>	R455S	M10K+ C5K+
2.5	0.068	[0.014, 0.191]	2268951	T→G	<i>atoC</i>	I129S	SCFA
1.7	0.949	[0.855, 0.990]	3762741	A→T	<i>spoT</i>	K662I	*M2K+ C2K+
1.2	0.045	[0.009, 0.130]	1485594	G→T	<i>ydcV</i>	L241L	questionable

Table S3 | SNPs predicted in 10K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
80.8	0.456	[0.324, 0.594]	3045069	G→T	<i>yghJ</i>	T312N	M20K+ C10K+
77.0	0.331	[0.232, 0.440]	4560632	T→C	<i>hsdM</i>	Y131C	C10K
72.8	0.616	[0.482, 0.739]	3370027	T→A	<i>rpsM</i>	K117M	M20K+ C10K+
69.9	0.432	[0.284, 0.590]	380188	A→C	<i>araJ</i>	F239L	M20K+ C10K+
65.2	0.538	[0.379, 0.684]	3339158	A→C	<i>yhdG/fis</i>	–	M20K+ C10K+
64.4	0.341	[0.215, 0.483]	4266356	G→C	<i>acs/nrfA</i>	–	acetate
60.1	0.573	[0.432, 0.714]	980180	A→G	<i>rpsA</i>	D365G	ribosome
49.0	0.390	[0.232, 0.556]	1976879	T→G	<i>yedW/yedX</i>	–	M20K+ C10K+
44.3	0.331	[0.209, 0.494]	2499315	G→A	<i>maeB/italA</i>	–	C10K
23.4	0.162	[0.085, 0.275]	2336064	T→G	<i>nuoM</i>	I168L	respiration
20.7	0.136	[0.060, 0.246]	2342867	T→G	<i>nuoG</i>	Q299P	respiration
20.3	0.230	[0.102, 0.394]	2329291	A→T	<i>elaD</i>	A22A	synonymous
4.9	0.098	[0.027, 0.232]	1004244	G→T	<i>ompF/asnS</i>	–	new allele
3.8	0.081	[0.022, 0.193]	4616396	G→A	<i>nadR</i>	G290S	M15K+ C15K+
3.8	0.103	[0.028, 0.237]	1004243	A→G	<i>ompF/asnS</i>	–	new allele
3.4	0.098	[0.027, 0.226]	4202659	T→C	<i>iclR/methH</i>	–	new allele
2.9	0.087	[0.025, 0.212]	88137	A→G	<i>leuO/ilvI</i>	–	regulation
2.3	0.055	[0.011, 0.147]	2267833	T→G	<i>atoS</i>	L364W	SCFA
1.2	0.069	[0.014, 0.180]	1708115	G→A	<i>lhr</i>	G612D	questionable
0.5	0.073	[0.009, 0.228]	1220098	G→C	<i>ycgH</i>	–	questionable

Table S4 | SNPs predicted in 15K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
31.3	0.828	[0.727, 0.903]	4201911	C→T	<i>iclR</i>	A217T	M20K+ C15K+
10.5	0.906	[0.811, 0.966]	3370027	T→A	<i>rpsM</i>	K117M	M20K+ C10K+
6.8	0.912	[0.799, 0.973]	161041	T→G	<i>pcnB</i>	N302H	M20K+ C15K+
5.2	0.903	[0.783, 0.967]	3288092	G→A	<i>arcB</i>	R57C	M20K+ C15K+
4.8	0.947	[0.868, 0.986]	3248957	A→T	<i>infB</i>	D764E	*M10K+ C5K+
4.6	0.919	[0.802, 0.979]	1248380	A→C	<i>dhaM</i>	D295E	M20K+ C15K+
4.0	0.945	[0.863, 0.986]	380188	A→C	<i>araJ</i>	F239L	M20K+ C10K+
3.9	0.913	[0.781, 0.978]	1286699	C→A	<i>narI/ychS</i>	–	M20K+ C15K+
2.3	0.041	[0.007, 0.128]	9972	T→G	<i>yaaH</i>	N174T	acetate
2.1	0.958	[0.872, 0.993]	3045069	G→T	<i>yghJ</i>	T312N	M20K+ C10K+
2.0	0.077	[0.016, 0.209]	1769363	G→T	<i>ydiV/nlpC</i>	–	regulation
1.8	0.912	[0.758, 0.984]	1004251	T→C	<i>ompF/asnS</i>	–	M20K+ C15K+
1.8	0.076	[0.021, 0.183]	1024698	G→A	<i>ycbX/ycbY</i>	–	ribosome
1.1	0.939	[0.842, 0.983]	3339158	A→C	<i>yhdG/fis</i>	–	M20K+ C10K+
1.0	0.959	[0.877, 0.992]	1976879	T→G	<i>yedW/yedX</i>	–	M20K+ C10K+
0.8	0.059	[0.013, 0.166]	3839556	T→C	<i>gyrB</i>	S309G	regulation
0.6	0.952	[0.859, 0.990]	2082685	G→A	<i>yegI</i>	A494V	*M5K+ C5K+
0.4	0.046	[0.010, 0.127]	1632389	T→C	<i>rspA/ynfA</i>	–	regulation
0.0	0.956	[0.868, 0.991]	3155168	G→A	<i>ebgR</i>	G296S	M20K+ C15K+

Table S5 | SNPs predicted in 20K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
40.0	0.353	[0.225, 0.507]	2732014	C→A	<i>hypF</i>	R91L	M30K+ C20K+
1.3	0.056	[0.010, 0.148]	1887465	G→T	<i>mgrB/yobH</i>	–	regulation
0.3	0.045	[0.010, 0.124]	3947797	A→G	<i>aslA</i>	S4P	questionable
0.2	0.111	[0.013, 0.309]	2193841	A→C	<i>yeiB</i>	V122G	questionable
0.1	0.099	[0.020, 0.264]	715754	A→T	<i>ybfC</i>	R121*	questionable
0.0	0.06	[0.014, 0.149]	1150654	T→C	<i>flgH</i>	G174G	questionable

Table S6 | SNPs predicted in 30K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
132.9	0.411	[0.322, 0.502]	2765159	T→G	<i>ygbO</i>	E336A	
117.7	0.353	[0.274, 0.447]	2754688	T→G	<i>pphB</i>	I23M	C40K
115.6	0.571	[0.466, 0.661]	2732014	C→A	<i>hypF</i>	R91L	C20K+
113.3	0.500	[0.388, 0.614]	3650528	A→C	<i>cspA</i>	I8L	C40K
106.2	0.513	[0.390, 0.638]	4139889	T→G	<i>udhA</i>	K255Q	C40K
104.4	0.315	[0.239, 0.401]	2740772	A→C	<i>hycE</i>	L187R	C40K
102.0	0.512	[0.396, 0.633]	3470129	T→G	<i>feoB</i>	L353R	C40K
98.3	0.512	[0.380, 0.635]	3724516	T→G	<i>secB</i>	N127H	C40K
95.0	0.509	[0.378, 0.623]	4029063	A→C	<i>yihA/yihI</i>	-	C40K
91.8	0.529	[0.394, 0.655]	3114886	T→G	<i>ygiC</i>	Y98*	C40K
88.0	0.499	[0.370, 0.631]	4064362	T→G	<i>fdhD</i>	L67R	C40K
87.4	0.555	[0.425, 0.682]	3507177	A→C	<i>gntU</i>	S446R	C40K
86.1	0.490	[0.366, 0.620]	1555678	T→G	<i>ydeN</i>	V266V	C40K
85.5	0.555	[0.426, 0.678]	3922213	A→C	<i>yifN</i>	-	C40K
85.2	0.510	[0.380, 0.637]	4353840	T→G	<i>yjeK</i>	W177G	C40K
78.8	0.529	[0.389, 0.662]	4570266	T→G	<i>hpaB</i>	C492G	C40K
78.0	0.557	[0.424, 0.689]	3575750	A→C	<i>prlC</i>	V41V	C40K
77.9	0.547	[0.415, 0.687]	2285933	T→G	<i>gyrA</i>	Y63S	C40K
77.7	0.539	[0.396, 0.674]	2333346	A→C	ECB_02200	K228Q	C40K
77.6	0.425	[0.306, 0.547]	3690416	T→G	<i>aldB</i>	I263M	
76.3	0.531	[0.386, 0.670]	2858322	A→C	<i>ppdB</i>	E5A	C40K
73.6	0.555	[0.404, 0.685]	4530188	A→C	<i>fimH</i>	N156T	C40K
72.5	0.573	[0.432, 0.703]	816306	A→C	<i>ybhO</i>	Y20S	C40K
72.3	0.509	[0.365, 0.656]	2489436	T→G	<i>eutG</i>	L302W	C40K
70.9	0.520	[0.375, 0.664]	424738	A→C	<i>yajG</i>	V45V	C40K
70.8	0.524	[0.374, 0.665]	931180	T→G	<i>ybjE</i>	L129V	C40K
70.4	0.524	[0.375, 0.665]	1477302	A→C	<i>ydcP</i>	I138L	C40K
69.8	0.523	[0.381, 0.679]	3716330	C→T	ECB_03460	K1114Q	C40K
68.2	0.562	[0.423, 0.702]	3911660	T→G	<i>yifB</i>	L47*	C40K
68.1	0.488	[0.345, 0.637]	3184072	A→C	<i>yqjG</i>	I5M	C40K
68.0	0.600	[0.458, 0.719]	181491	A→C	<i>pfs</i>	I169L	C40K
67.9	0.654	[0.530, 0.769]	1886192	A→C	<i>yobFlyebO</i>	-	C40K
66.8	0.583	[0.441, 0.706]	100218	T→G	<i>murD</i>	I110L	C40K
66.7	0.618	[0.483, 0.740]	728010	A→C	<i>abrB</i>	N182T	C40K
66.1	0.357	[0.250, 0.484]	2790674	T→G	<i>ygcE</i>	D93E	C40K
65.8	0.634	[0.495, 0.746]	1904444	T→G	<i>yobB</i>	F143L	C40K
65.4	0.559	[0.413, 0.696]	1642043	A→C	<i>ynfl</i>	I115L	C40K
65.4	0.629	[0.498, 0.750]	463771	T→G	<i>apt</i>	E98A	C40K
65.3	0.519	[0.359, 0.663]	4562591	G→T	<i>hsdR</i>	T716P	C40K
64.5	0.481	[0.340, 0.625]	3683249	A→C	ECB_03437	Y314D	C40K
64.4	0.567	[0.422, 0.703]	154388	A→C	<i>yadK</i>	L18R	C40K
63.7	0.555	[0.414, 0.692]	1902841	T→G	<i>yebZ</i>	L109L	C40K
63.4	0.600	[0.458, 0.715]	1966410	T→G	<i>yecR</i>	G65G	C40K
63.4	0.496	[0.353, 0.648]	2441230	T→G	<i>ypdG</i>	I297S	C40K
63.2	0.567	[0.423, 0.707]	1829798	A→C	<i>pncA/ydjE</i>	-	C40K
63.1	0.487	[0.344, 0.637]	4180045	T→G	<i>hupA</i>	K51N	C40K
62.7	0.406	[0.282, 0.536]	2413433	T→G	<i>dsdA</i>	E2A	
62.4	0.498	[0.348, 0.651]	4118298	A→C	<i>gldA</i>	Q282P	C40K
62.3	0.537	[0.379, 0.683]	1975162	T→G	<i>yedV</i>	K330N	C40K
61.8	0.517	[0.365, 0.681]	379334	T→G	<i>yajF</i>	N256K	C40K
61.8	0.597	[0.451, 0.731]	2920951	A→C	<i>prfB</i>	E362A	C40K
60.5	0.648	[0.509, 0.766]	1690600	T→G	<i>ydgR</i>	F213C	C40K
60.3	0.618	[0.478, 0.750]	1634870	T→G	<i>ynfD</i>	I37M	C40K
60.0	0.635	[0.496, 0.744]	3835234	A→C	<i>dgoR</i>	S96R	C40K
60.0	0.580	[0.423, 0.713]	2625494	T→G	<i>rncS</i>	E21A	C40K
60.0	0.479	[0.334, 0.629]	3187264	T→G	<i>yhaJ/yhaK</i>	-	C40K

Table S6 | SNPs predicted in 30K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
59.8	0.591	[0.433, 0.724]	1496171	A→C	<i>ansPlyncG</i>	-	C40K
59.5	0.551	[0.413, 0.701]	3976831	A→C	<i>metR</i>	E138A	C40K
59.1	0.544	[0.403, 0.700]	243156	G→T	<i>yhhI</i>	H115P	C40K
58.3	0.664	[0.528, 0.782]	2897800	A→C	<i>yqeA</i>	I195M	C40K
57.5	0.609	[0.463, 0.749]	1759732	T→G	<i>ydiS</i>	V357G	C40K
57.2	0.476	[0.327, 0.631]	4078976	T→G	<i>rhaR</i>	*313Y	C40K
56.6	0.545	[0.387, 0.699]	1098758	A→C	<i>ycdO</i>	E77D	C40K
56.5	0.410	[0.276, 0.550]	2480430	A→C	<i>amiA</i>	Q187P	C40K
56.2	0.536	[0.376, 0.691]	3865067	T→G	<i>bgfF</i>	F300C	C40K
54.5	0.560	[0.421, 0.704]	3303353	A→C	<i>dcuD</i>	Y196S	C40K
54.0	0.628	[0.472, 0.754]	1692302	A→C	<i>pdxY</i>	M261R	C40K
53.9	0.567	[0.398, 0.716]	2909993	A→C	<i>xdhDlygfO</i>	-	C40K
53.5	0.680	[0.552, 0.798]	3500952	T→G	<i>glgX</i>	L608V	C40K
53.4	0.568	[0.396, 0.722]	640290	T→G	<i>ccbB</i>	L77L	C40K
53.3	0.627	[0.477, 0.747]	4545297	T→G	<i>yjiL</i>	K103Q	C40K
53.2	0.632	[0.481, 0.760]	1909010	T→G	<i>yebF/yebG</i>	-	C40K
53.0	0.519	[0.359, 0.691]	3521505	T→G	<i>ugpA</i>	F28C	C40K
52.8	0.277	[0.184, 0.400]	4589980	T→G	<i>dnaC</i>	E77A	
52.4	0.653	[0.506, 0.776]	2988792	A→C	<i>mutY</i>	L40W	C40K
52.4	0.394	[0.265, 0.540]	2390130	A→C	<i>aroC</i>	V312V	
51.2	0.489	[0.325, 0.653]	438423	T→G	<i>ybaE</i>	Q319H	
50.8	0.502	[0.336, 0.662]	4332868	A→C	<i>lysU</i>	I190M	C40K
50.5	0.501	[0.335, 0.667]	3605645	T→G	<i>yhjElyhjG</i>	-	C40K
50.0	0.572	[0.410, 0.731]	970635	T→G	<i>pflB</i>	N5H	C40K
49.9	0.536	[0.374, 0.695]	714992	T→G	<i>ybfO</i>	K343N	C40K
49.7	0.525	[0.353, 0.702]	411430	A→C	<i>thillthiJ</i>	-	C40K
49.6	0.346	[0.230, 0.473]	125265	A→C	<i>pdhR</i>	K124Q	C40K
48.4	0.542	[0.368, 0.709]	1977296	T→G	<i>yedX</i>	N114K	C40K
48.2	0.511	[0.329, 0.673]	2594074	A→C	<i>yphA</i>	G34G	C40K
47.9	0.545	[0.387, 0.700]	4511435	T→G	<i>sgcX</i>	S119A	C40K
47.5	0.453	[0.303, 0.613]	2387080	A→C	<i>yfcK</i>	P575P	C40K
46.8	0.310	[0.200, 0.434]	3132740	T→G	<i>ygiF</i>	K354Q	
46.8	0.543	[0.370, 0.706]	1518024	A→C	<i>narU</i>	I63S	C40K
46.6	0.713	[0.573, 0.820]	3743455	T→G	<i>waaO</i>	T15P	C40K
46.3	0.358	[0.233, 0.496]	2914781	T→G	<i>ygfT</i>	D635E	
46.3	0.489	[0.308, 0.666]	940678	A→C	<i>clpA</i>	P189L	C40K
46.3	0.551	[0.381, 0.717]	2422436	A→C	<i>yfdE</i>	L320F	C40K
46.1	0.632	[0.476, 0.769]	4466019	A→C	<i>valS</i>	F284L	C40K
46.0	0.679	[0.534, 0.805]	3824042	A→C	<i>glvBC</i>	M1R	C40K
45.9	0.585	[0.422, 0.731]	1761548	A→C	<i>ydiD</i>	D435A	C40K
45.9	0.409	[0.265, 0.568]	4232744	T→G	<i>ubiA</i>	F266C	
45.3	0.660	[0.504, 0.784]	4613809	T→G	<i>serB</i>	K234T	C40K
44.4	0.542	[0.364, 0.721]	1016770	A→C	<i>ycbS</i>	I155S	C40K
44.2	0.395	[0.257, 0.540]	1470975	T→G	<i>tehA</i>	V98V	C40K
44.2	0.345	[0.222, 0.486]	2831467	T→G	<i>fucl</i>	Q422P	
44.0	0.430	[0.278, 0.604]	832307	T→G	<i>ybiL</i>	E617A	
43.9	0.607	[0.454, 0.750]	3722953	A→C	<i>cysE</i>	R126S	C40K
43.6	0.324	[0.211, 0.461]	946240	T→G	<i>cydC</i>	L5R	
43.1	0.345	[0.216, 0.483]	3468806	A→C	<i>yhgF/feoA</i>	-	
43.0	0.321	[0.206, 0.468]	1411992	T→G	<i>recE</i>	S855S	
42.7	0.637	[0.469, 0.780]	690209	A→C	<i>glnSlybfM</i>	-	C40K
42.6	0.324	[0.205, 0.467]	2366414	A→C	<i>yfcl</i>	K240Q	
42.6	0.713	[0.581, 0.826]	10269	T→G	<i>yaaH</i>	F75C	C40K
42.2	0.626	[0.459, 0.774]	4248845	A→C	<i>aphA</i>	F167C	C40K
42.1	0.230	[0.143, 0.340]	2717011	A→C	<i>recX</i>	N163T	
42.1	0.362	[0.234, 0.511]	4590702	A→C	<i>dnaT</i>	V17G	

Table S6 | SNPs predicted in 30K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
42.1	0.266	[0.168, 0.385]	556481	A→C	ECB_00513	I589S	
41.2	0.308	[0.196, 0.455]	1709400	A→C	<i>lhr</i>	A1040A	
41.1	0.434	[0.280, 0.619]	383083	A→C	<i>sbpC</i>	L365R	C40K
40.7	0.514	[0.330, 0.699]	3917503	T→G	<i>ilvA</i>	F124C	C40K
40.6	0.265	[0.158, 0.381]	4237765	A→C	<i>dinF</i>	I364M	
40.4	0.627	[0.458, 0.775]	918143	A→C	<i>artM</i>	F33L	C40K
40.3	0.250	[0.155, 0.374]	1492341	T→G	<i>yncD</i>	T279P	
40.1	0.669	[0.510, 0.800]	331559	T→G	<i>cynT</i>	S69A	C40K
40.1	0.353	[0.217, 0.496]	3376110	T→G	<i>rplNlrpsQ</i>	-	
40.1	0.221	[0.139, 0.332]	2718856	A→C	<i>ygaD</i>	V117G	
40.1	0.495	[0.303, 0.672]	393379	T→G	<i>yajB/queA</i>	-	C40K
39.9	0.583	[0.393, 0.746]	1129502	T→G	<i>yceE</i>	F186L	C40K
39.7	0.396	[0.246, 0.568]	1866742	T→G	<i>fadD</i>	K528T	
39.1	0.354	[0.219, 0.512]	4276594	A→C	<i>fdhF</i>	D532A	
38.7	0.273	[0.163, 0.403]	70484	T→G	<i>araA</i>	S220A	
38.5	0.719	[0.577, 0.835]	1880102	A→C	<i>yoaE</i>	I21M	C40K
38.3	0.321	[0.200, 0.475]	3798789	A→C	<i>yicL</i>	Y204D	
38.2	0.292	[0.182, 0.420]	647336	T→G	<i>rtpA</i>	S147A	
38.0	0.271	[0.169, 0.400]	428805	A→C	<i>clpX</i>	Q225H	
38.0	0.281	[0.171, 0.408]	4600949	A→C	<i>osmY</i>	K107T	
37.9	0.273	[0.169, 0.403]	618019	T→G	<i>ybdM</i>	S19R	
37.6	0.395	[0.241, 0.568]	4393997	T→G	<i>aidB</i>	L523W	
37.5	0.273	[0.169, 0.403]	3103666	T→G	<i>ygiW</i>	V61V	
37.2	0.272	[0.162, 0.402]	3050848	T→G	<i>glcG</i>	L92F	
37.2	0.296	[0.180, 0.436]	3868034	A→C	<i>pstB</i>	S234R	
37.2	0.193	[0.116, 0.294]	2745079	T→G	<i>hycA</i>	N73H	C40K
37.1	0.290	[0.173, 0.422]	416393	T→G	ECB_00376	K297Q	
37.0	0.284	[0.173, 0.414]	1499599	A→C	ECB_01413	N506H	
36.9	0.302	[0.181, 0.444]	2151088	T→G	<i>molR</i>	Y1140D	
36.8	0.693	[0.552, 0.810]	1570553	T→G	<i>ydeU</i>	-	C40K
36.8	0.324	[0.191, 0.472]	4075309	T→G	<i>rhaA</i>	E54D	
36.8	0.311	[0.189, 0.459]	3599999	T→G	<i>treF</i>	S306A	
36.8	0.733	[0.590, 0.845]	3962760	T→G	ECB_03690	E60D	C40K
35.7	0.353	[0.210, 0.510]	2671929	A→C	<i>grpE</i>	I25M	
35.6	0.238	[0.141, 0.354]	722463	T→G	<i>ybgH</i>	L293L	
35.6	0.360	[0.220, 0.523]	77302	A→C	<i>thiP</i>	L8F	
35.5	0.657	[0.502, 0.796]	1756840	T→G	<i>ydiP/ydiQ</i>	-	C40K
35.4	0.364	[0.222, 0.532]	3617683	T→G	<i>bcsC</i>	K328T	C40K
35.4	0.383	[0.234, 0.554]	1565184	A→C	ECB_01465	F91V	
35.3	0.330	[0.199, 0.475]	1379205	A→C	<i>ycjV</i>	L6*	
35.1	0.270	[0.161, 0.397]	3384606	T→G	<i>gspD</i>	S109A	
34.8	0.261	[0.158, 0.392]	4327207	A→C	<i>dcuB</i>	N85H	
34.7	0.517	[0.312, 0.726]	1456048	T→G	<i>hrpA</i>	R1200R	C40K
34.6	0.324	[0.190, 0.472]	215533	T→G	<i>tilS</i>	C121G	
34.5	0.244	[0.148, 0.360]	3102587	T→G	<i>ygiU</i>	N44H	
34.3	0.213	[0.129, 0.318]	362643	A→C	<i>yaiV</i>	N179K	
34.1	0.253	[0.153, 0.379]	4007617	A→C	<i>fadB</i>	F576L	
34.0	0.510	[0.313, 0.724]	506450	T→G	<i>gcl</i>	A123A	C40K
33.5	0.304	[0.176, 0.446]	4461911	A→C	<i>yjgD</i>	K103Q	
33.3	0.376	[0.225, 0.554]	1794984	T→G	<i>celF</i>	Y261S	C40K
33.1	0.740	[0.597, 0.854]	582155	T→G	<i>cusA</i>	K847Q	C40K
33.1	0.272	[0.161, 0.411]	4210330	T→G	<i>yjdB</i>	F78C	
33.0	0.293	[0.174, 0.450]	1709960	A→C	<i>lhr</i>	V1227G	
32.8	0.266	[0.155, 0.386]	2347515	A→C	<i>nuoC/nuoB</i>	-	
32.6	0.291	[0.169, 0.441]	1878335	T→G	<i>yoaD</i>	T444P	
32.4	0.263	[0.159, 0.403]	1331374	T→G	<i>topA</i>	E652A	

Table S6 | SNPs predicted in 30K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
32.1	0.240	[0.142, 0.367]	3411939	C→A	<i>yheT</i>	K278T	
32.1	0.304	[0.175, 0.452]	3535529	T→G	<i>yhhF</i>	D150A	
32.0	0.303	[0.176, 0.458]	3857041	A→C	<i>yieGlyieH</i>	-	
31.5	0.266	[0.158, 0.403]	1446984	A→C	<i>ynbA</i>	F10L	
31.3	0.247	[0.144, 0.373]	2317599	A→C	<i>arnT</i>	E60A	
31.1	0.242	[0.142, 0.368]	3823424	A→C	<i>glvBC</i>	F207C	
31.0	0.294	[0.172, 0.450]	2300176	A→C	<i>glpA</i>	D274E	
31.0	0.360	[0.206, 0.537]	516413	A→C	<i>allC</i>	Y349S	C40K
30.9	0.221	[0.122, 0.341]	2305044	T→G	<i>yfaU</i>	A105A	
30.7	0.265	[0.155, 0.402]	4228591	T→G	<i>maiM</i>	S36R	
30.6	0.241	[0.138, 0.362]	4171476	A→C	<i>thiH</i>	K2Q	
30.5	0.684	[0.502, 0.826]	1171882	A→C	<i>ycfH</i>	I179M	C40K
30.5	0.243	[0.141, 0.378]	3285688	T→G	<i>yhbL</i>	K3Q	
30.3	0.310	[0.186, 0.464]	3588297	A→C	<i>yhiE</i>	L147F	
30.1	0.312	[0.182, 0.467]	3544287	T→G	<i>acpT/nikA</i>	-	
29.6	0.303	[0.178, 0.454]	313193	A→C	<i>yahl</i>	H127P	
29.6	0.250	[0.141, 0.378]	1351809	A→C	<i>sapD</i>	V63V	
29.6	0.255	[0.144, 0.389]	1563353	A→C	<i>ydeT</i>	G200G	
29.0	0.301	[0.178, 0.458]	1539798	T→G	<i>yddV</i>	G314G	
29.0	0.267	[0.148, 0.396]	2686373	A→C	<i>gabD</i>	I141L	
28.9	0.237	[0.133, 0.365]	2360207	A→C	<i>pta</i>	G623G	
28.9	0.257	[0.144, 0.397]	4075029	T→G	<i>rhaA</i>	T148P	C40K
28.6	0.282	[0.155, 0.448]	2245963	T→G	<i>ccmC</i>	K116T	
28.3	0.231	[0.130, 0.364]	4321344	A→C	<i>melA</i>	I240M	
28.1	0.377	[0.211, 0.564]	14120	T→G	<i>dnaK/dnaJ</i>	-	
27.9	0.271	[0.156, 0.410]	1064164	T→G	<i>ymcA</i>	A291A	
27.9	0.309	[0.173, 0.471]	17424	A→C	<i>mokC/nhaA</i>	-	
27.4	0.683	[0.504, 0.822]	4180803	A→C	<i>yjaH</i>	E209A	C40K
26.6	0.305	[0.166, 0.465]	3574148	T→G	<i>prlC</i>	E575D	
26.5	0.443	[0.255, 0.648]	3252768	T→G	<i>nusAlyhbC</i>	-	C40K
26.4	0.212	[0.120, 0.342]	3271498	A→C	<i>murA</i>	N78H	
26.3	0.693	[0.531, 0.842]	3859873	T→G	<i>yieL</i>	K367N	C40K
26.3	0.259	[0.142, 0.402]	3170823	A→C	<i>ygjR</i>	S238R	
26.0	0.559	[0.322, 0.756]	3561248	A→C	<i>yhil</i>	L15V	C40K
25.7	0.274	[0.150, 0.428]	3290558	A→C	<i>gltB</i>	L231R	
25.6	0.187	[0.102, 0.297]	4498963	A→C	<i>fecB</i>	L126L	
25.5	0.196	[0.107, 0.308]	3982571	T→G	ECB_03712	I312L	
25.4	0.216	[0.115, 0.345]	3105335	T→G	<i>ygiY</i>	F227C	
25.4	0.410	[0.223, 0.613]	4339028	T→G	<i>cadB/cadC</i>	-	
25.4	0.313	[0.172, 0.471]	504190	A→C	<i>ybbS</i>	L66L	
25.1	0.242	[0.136, 0.382]	3174613	T→G	<i>ygjV</i>	S56R	
24.9	0.340	[0.185, 0.532]	1712380	A→C	<i>ydhO</i>	E251A	
24.8	0.323	[0.179, 0.520]	3739217	T→G	<i>waaW</i>	E250A	
24.5	0.378	[0.208, 0.578]	332980	T→G	<i>cynX</i>	W145G	C40K
24.4	0.233	[0.125, 0.369]	683151	T→G	<i>nagC</i>	E180A	
24.4	0.375	[0.210, 0.562]	635217	T→G	<i>citA</i>	E132A	C40K
24.3	0.195	[0.102, 0.313]	3816401	T→G	<i>yidI</i>	I19L	
24.3	0.194	[0.104, 0.314]	11293	T→G	<i>yaaW</i>	Q21P	
24.2	0.294	[0.154, 0.460]	2423302	T→G	<i>yfdE</i>	C32G	
23.8	0.297	[0.161, 0.455]	3256963	A→C	<i>yhbX/leuU</i>	-	
23.6	0.231	[0.124, 0.368]	1682683	T→G	<i>ydgK</i>	F80L	
23.4	0.301	[0.160, 0.480]	1087245	A→C	<i>ycdI/ycdJ</i>	-	
23.3	0.324	[0.174, 0.506]	1426046	T→G	<i>ynaE/ynaF</i>	-	
23.1	0.277	[0.146, 0.440]	1805515	A→C	<i>astB</i>	W4G	
22.9	0.174	[0.090, 0.290]	3668933	T→G	<i>malS</i>	Y327*	
22.7	0.290	[0.152, 0.460]	2235494	T→G	<i>yejL</i>	S60A	

Table S6 | SNPs predicted in 30K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
22.7	0.363	[0.183, 0.561]	2864911	T→G	<i>mutH</i>	G210G	C40K
22.6	0.339	[0.173, 0.529]	4081971	T→G	<i>kdgT</i>	V267G	
22.5	0.237	[0.121, 0.373]	4380214	A→C	<i>hflK</i>	N8H	
22.1	0.289	[0.151, 0.475]	1686279	A→C	<i>rnfC</i>	I723L	
21.5	0.174	[0.091, 0.292]	293270	A→C	<i>ykgD</i>	Q132P	
21.0	0.307	[0.164, 0.481]	460893	T→G	<i>kefA</i>	N764T	
20.7	0.244	[0.127, 0.412]	2122404	A→C	ECB_02012/ ECB_02013	-	
20.6	0.207	[0.111, 0.348]	3648741	A→C	<i>tkrA</i>	*325S	
20.6	0.244	[0.126, 0.388]	970292	T→G	<i>pfIB</i>	I119S	
20.2	0.700	[0.520, 0.841]	4096930	A→C	<i>glpF</i>	W215G	C40K
19.9	0.296	[0.151, 0.475]	546221	A→C	<i>ybcQ</i>	S126A	
19.8	0.286	[0.142, 0.453]	787877	A→C	<i>ybhC</i> /ECB_00726	-	
19.5	0.203	[0.103, 0.344]	1280359	A→C	<i>narG</i>	K116Q	
19.3	0.237	[0.122, 0.380]	4054046	A→C	<i>yihX</i>	F116C	
19.1	0.217	[0.111, 0.371]	4506667	T→G	<i>sgcR</i>	V120V	
18.7	0.269	[0.133, 0.432]	1536376	A→C	<i>yddS</i>	V15G	
18.3	0.314	[0.153, 0.509]	3498552	T→G	<i>glgA</i>	E312D	
18.2	0.167	[0.086, 0.294]	763784	A→C	<i>nadA</i> / <i>pnuC</i>	-	
18.0	0.236	[0.121, 0.381]	3152187	T→G	<i>aerlygjG</i>	-	
18.0	0.236	[0.117, 0.413]	1112671	A→C	<i>ycdW</i>	K73Q	
17.6	0.189	[0.104, 0.330]	3734087	T→G	<i>gumD</i>	F186C	
17.5	0.504	[0.260, 0.741]	3027011	T→G	ECB_02827	*220Y	C40K
17.5	0.290	[0.142, 0.481]	3495488	T→G	<i>yzgLI</i> / <i>glgP</i>	-	
17.2	0.201	[0.094, 0.339]	456451	A→C	<i>acrB</i>	D7A	
16.6	0.185	[0.085, 0.315]	3768014	A→C	<i>yicE</i>	N10H	
16.5	0.215	[0.110, 0.369]	2901848	A→C	<i>ygfK</i>	E12A	
16.3	0.182	[0.091, 0.309]	1953919	A→C	<i>cheA</i>	F59C	
16.3	0.376	[0.183, 0.594]	4089472	A→C	<i>cdh</i>	I21L	C40K
16.2	0.211	[0.100, 0.361]	1072719	T→G	<i>torT</i>	S57A	
15.5	0.238	[0.108, 0.413]	117940	A→C	<i>hofC</i>	T197P	
15.1	0.216	[0.106, 0.358]	4426361	T→G	<i>ytfM</i>	Y75D	
14.8	0.877	[0.769, 0.945]	4225047	T→G	<i>malE</i>	L102W	M40K C40K
14.8	0.148	[0.070, 0.266]	2795703	T→G	<i>eno</i>	A389A	
14.6	0.394	[0.191, 0.641]	1107473	T→G	<i>ycdS</i>	Y368D	
13.9	0.202	[0.090, 0.357]	733780	T→G	<i>ybgDI</i> / <i>gltA</i>	-	
13.8	0.886	[0.786, 0.952]	3857359	A→C	<i>yieH</i>	Y75D	M40K C40K
13.5	0.168	[0.079, 0.294]	4000813	A→C	<i>tatB</i>	L42R	
13.4	0.149	[0.064, 0.270]	3334254	A→C	<i>accC</i>	A149A	
13.4	0.156	[0.071, 0.290]	671725	T→G	<i>Int</i>	K418Q	
12.7	0.212	[0.088, 0.399]	2852765	T→G	<i>ptr</i>	M247L	
12.6	0.247	[0.104, 0.436]	1234875	T→G	<i>nhaBI</i> / <i>fadR</i>	-	
11.8	0.217	[0.099, 0.383]	3983415	A→C	ECB_03712	V30V	
11.7	0.212	[0.090, 0.390]	406765	A→C	<i>dxs</i>	E612A	
11.5	0.158	[0.069, 0.295]	1318784	A→C	<i>trpD</i>	G65G	
11.3	0.258	[0.105, 0.475]	825819	A→C	<i>dinG</i>	L42R	
11.1	0.181	[0.075, 0.335]	1992277	T→G	<i>shiA</i>	A212A	
11.0	0.182	[0.078, 0.343]	2240388	T→G	<i>yejO</i> / <i>narP</i>	-	
11.0	0.894	[0.779, 0.955]	2520902	A→C	<i>gcvR</i>	S57A	M40K C40K
10.3	0.128	[0.052, 0.245]	687583	T→G	<i>nagE</i>	V515V	
9.8	0.284	[0.113, 0.523]	3117354	A→C	<i>ygiE</i>	I211M	
9.1	0.126	[0.051, 0.240]	3832123	T→G	<i>dgoTI</i> / <i>dgoD</i>	-	
9.0	0.169	[0.064, 0.336]	3624614	T→G	<i>yhjO</i>	F39V	
8.9	0.211	[0.083, 0.410]	1011700	A→C	<i>ssuC</i>	I75S	
8.5	0.164	[0.062, 0.321]	4071050	T→G	<i>frvA</i> /ECB_03786	-	
8.3	0.158	[0.065, 0.299]	1921636	T→G	<i>znuC</i>	R133R	
8.2	0.894	[0.775, 0.960]	2853864	A→C	<i>recC</i>	S1062A	M40K C40K

Table S6 | SNPs predicted in 30K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
8.1	0.283	[0.115, 0.495]	1379337	A→C	<i>ycjV</i>	I50S	
8.0	0.114	[0.043, 0.230]	3514291	T→G	<i>yhhZ</i>	K326Q	
8.0	0.128	[0.053, 0.249]	3012650	A→C	ECB_02814	M112L	
7.7	0.103	[0.040, 0.199]	2572876	A→C	<i>yfhM</i>	L77L	
7.7	0.567	[0.199, 0.880]	3397902	A→C	<i>chiA/tuf</i>	–	
7.7	0.113	[0.042, 0.230]	1886123	T→G	<i>yobF</i>	V16V	
7.6	0.177	[0.065, 0.337]	1590239	T→G	<i>ydeE</i>	L381*	
7.4	0.145	[0.057, 0.267]	542707	T→G	<i>ybcKlybcL</i>	–	
7.2	0.062	[0.025, 0.128]	2737645	T→G	<i>hycl</i>	M87L	
7.2	0.909	[0.798, 0.971]	3006683	T→G	<i>yafZ</i>	G231G	M40K C40K
7.0	0.175	[0.056, 0.380]	1046680	A→C	<i>yccW</i>	Q98H	
6.9	0.136	[0.048, 0.271]	2397100	A→C	<i>yfcTU</i>	G522G	
6.0	0.904	[0.788, 0.970]	4163173	A→C	<i>rpoB</i>	L773R	M40K C40K
5.9	0.096	[0.033, 0.214]	2810544	A→C	<i>gudP</i>	A162A	
5.6	0.091	[0.031, 0.191]	1091376	G→A	<i>putA</i>	Q1264P	
5.0	0.211	[0.069, 0.422]	3922668	T→G	<i>rep</i>	K64Q	
4.9	0.073	[0.025, 0.168]	4215197	A→C	<i>yjbF</i>	K2Q	
4.6	0.095	[0.033, 0.215]	835404	T→G	<i>ybiN</i>	N150H	
4.5	0.077	[0.025, 0.168]	3199372	A→C	<i>tdcA</i>	L243*	
4.2	0.073	[0.025, 0.168]	2258388	A→C	<i>yojI</i>	L111*	
4.1	0.071	[0.023, 0.159]	3066786	T→G	<i>yghR</i>	M172L	
4.0	0.924	[0.813, 0.980]	156770	A→C	<i>htrE</i>	S501A	M40K C40K
4.0	0.075	[0.025, 0.168]	4227537	A→C	<i>lamB</i>	L212*	
4.0	0.936	[0.843, 0.983]	2870517	T→G	<i>aas</i>	I40L	M40K C40K
3.7	0.129	[0.036, 0.298]	3313333	T→G	<i>argR/lyhcN</i>	–	
3.7	0.080	[0.027, 0.182]	1473854	A→C	<i>ydcM</i>	F30V	
3.5	0.104	[0.029, 0.248]	538077	T→G	<i>intD</i>	R6R	
3.4	0.105	[0.030, 0.254]	1700237	A→C	<i>ydhK</i>	Y308S	
3.3	0.178	[0.052, 0.404]	4268795	A→C	<i>nrfC</i>	S19R	
3.1	0.087	[0.024, 0.209]	517246	T→G	<i>allC</i>	Y71*	
2.9	0.072	[0.018, 0.180]	2022902	A→C	<i>hisC</i>	F168C	
2.8	0.069	[0.019, 0.168]	4126750	T→G	<i>pflC</i>	L129*	
2.7	0.076	[0.022, 0.186]	3966663	T→G	ECB_03695	L9L	
2.6	0.100	[0.028, 0.242]	3046358	T→G	<i>yghJlyghK</i>	–	
2.6	0.065	[0.018, 0.149]	3422569	A→C	<i>nirB</i>	V218V	
2.6	0.071	[0.019, 0.179]	2478622	A→C	<i>yfeY/yfeZ</i>	–	
2.6	0.080	[0.019, 0.201]	1126492	A→C	<i>mdoH</i>	D354A	
2.5	0.060	[0.017, 0.139]	2391434	A→C	<i>yfcB</i>	Q200P	
2.5	0.060	[0.016, 0.144]	2147344	A→C	<i>metG</i>	I616M	
2.3	0.070	[0.018, 0.170]	3817133	T→G	<i>yidJ</i>	Y402D	
2.3	0.051	[0.014, 0.133]	3591837	A→C	<i>yhiV</i>	I645L	
2.3	0.071	[0.019, 0.165]	449976	A→C	<i>ylaB</i>	K237Q	
2.2	0.057	[0.018, 0.130]	3771357	A→C	<i>yicl</i>	V741V	
2.2	0.065	[0.018, 0.166]	2635904	A→C	<i>srmB/lyfiE</i>	–	
2.1	0.079	[0.021, 0.180]	3796133	A→C	ECB_03540/ ECB_03541	–	
2.0	0.075	[0.021, 0.180]	4342200	T→G	<i>dsbD</i>	K522Q	
2.0	0.061	[0.018, 0.153]	3044208	T→G	<i>yghJ</i>	K599T	
2.0	0.893	[0.699, 0.977]	2201029	T→G	<i>yeiH</i>	V25V	M40K C40K
1.9	0.938	[0.822, 0.988]	2290343	A→C	<i>yfaL</i>	Y176S	M40K C40K
1.7	0.059	[0.016, 0.142]	4357807	A→C	<i>frdD</i>	K91Q	
1.7	0.053	[0.015, 0.137]	1822917	T→G	<i>topB</i>	V424V	
1.7	0.906	[0.750, 0.981]	2937857	T→G	<i>visC</i>	L71R	M40K C40K
1.6	0.077	[0.022, 0.188]	4281477	A→C	<i>yjcQ</i>	F142V	
1.5	0.931	[0.830, 0.982]	3822363	A→C	<i>glvG</i>	M22R	M40K C40K
1.1	0.066	[0.014, 0.183]	2954535	C→A	<i>yggA</i>	L9F	
1.0	0.929	[0.797, 0.985]	1525072	A→C	<i>fdnH</i>	D154E	M40K C40K

Table S6 | SNPs predicted in 30K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
0.9	0.066	[0.017, 0.150]	1817611	A→C	<i>ynjE</i>	Q306P	
0.8	0.047	[0.008, 0.117]	18348	A→C	<i>nhaA</i>	I287M	
0.7	0.061	[0.017, 0.150]	4509167	A→C	<i>sgcC</i>	I405M	
0.7	0.939	[0.828, 0.988]	3781398	T→G	ECB_03521	L21L	M40K C40K
0.7	0.067	[0.014, 0.187]	1831257	T→G	<i>ydjE/ydjF</i>	–	
0.7	0.912	[0.758, 0.983]	1834004	T→G	<i>ydjH</i>	S52A	M40K C40K
0.5	0.077	[0.015, 0.218]	885973	T→G	ECB_00825	I28L	
0.5	0.067	[0.017, 0.173]	1650331	T→G	<i>ydgE</i>	E5A	
0.4	0.074	[0.019, 0.186]	2951405	T→G	<i>ygfH</i>	S285A	
0.4	0.071	[0.015, 0.196]	2163878	A→C	<i>yehT</i>	H94Q	
0.4	0.055	[0.011, 0.151]	1991993	T→G	<i>shiA</i>	S118A	
0.3	0.057	[0.011, 0.159]	2373344	A→C	<i>purF</i>	L163V	
0.3	0.059	[0.013, 0.175]	1172273	A→C	<i>ycfH/ptsG</i>	–	
0.3	0.064	[0.013, 0.169]	2207366	T→G	<i>yeiM</i>	E386A	
0.3	0.062	[0.016, 0.151]	96840	A→C	<i>murE</i>	S291R	
0.3	0.117	[0.026, 0.313]	4210659	T→G	<i>yjbD/lysC</i>	–	
0.2	0.055	[0.011, 0.154]	929203	T→G	<i>hcp</i>	K440T	
0.2	0.054	[0.012, 0.154]	4065369	A→C	<i>yiiG</i>	F74C	
0.2	0.059	[0.013, 0.166]	3201051	A→C	<i>yhaB</i>	E55A	
0.2	0.060	[0.012, 0.163]	4134580	A→C	<i>argE</i>	F43L	
0.2	0.050	[0.011, 0.146]	3684364	A→C	ECB_03438	Q215P	
0.1	0.074	[0.015, 0.191]	1212577	A→C	<i>ycgW/ycgX</i>	–	
0.1	0.050	[0.011, 0.139]	70783	A→C	<i>araA</i>	F120C	
0.1	0.054	[0.014, 0.138]	3933148	T→G	<i>wecC</i>	I30S	
0.1	0.065	[0.014, 0.184]	1224269	A→C	<i>ycgI/minE</i>	–	
0.1	0.048	[0.008, 0.132]	3364013	T→G	<i>rrmB</i>	Q301P	
0.1	0.050	[0.009, 0.132]	3039159	T→G	<i>yghF</i>	I232M	
0.1	0.049	[0.010, 0.133]	1575930	A→C	<i>uxaB</i>	V432V	

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
148.2	0.543	[0.444, 0.641]	3766861	A→C	<i>gltS</i>	L283V	
142.4	0.439	[0.343, 0.531]	2732014	C→A	<i>hypF</i>	R91L	C20K+
141.3	0.550	[0.453, 0.651]	3848250	A→C	<i>trmE</i>	L354F	
125.6	0.543	[0.442, 0.653]	3643009	A→C	<i>yhjY</i>	T128T	
121.6	0.485	[0.381, 0.589]	4038134	T→G	<i>bipA</i>	S490S	C40K
117.5	0.485	[0.380, 0.590]	301762	A→C	<i>betI</i>	N74K	C40K
116.6	0.522	[0.403, 0.633]	1476673	A→C	<i>ydcN</i>	Q131P	
116.5	0.515	[0.399, 0.627]	1051540	A→C	<i>hyaB</i>	K399T	
115.5	0.551	[0.436, 0.657]	3635650	T→G	<i>dppB</i>	D200A	
115.1	0.579	[0.473, 0.676]	70484	A→C	<i>araA</i>	S220A	
114.7	0.520	[0.404, 0.634]	1470975	T→G	<i>tehA</i>	V98V	C40K
114.6	0.527	[0.410, 0.639]	2482625	T→G	<i>yfeG</i>	K26T	
114.5	0.649	[0.556, 0.740]	3985016	T→G	ECB_03714	N460H	
113.5	0.507	[0.395, 0.632]	1342163	A→C	<i>yciT</i>	D185E	C40K
111.8	0.528	[0.410, 0.641]	274893	T→G	<i>yagV</i>	T165T	
111.5	0.477	[0.370, 0.587]	2745079	T→G	<i>hycA</i>	N73H	C40K
110.7	0.548	[0.429, 0.657]	2717011	T→G	<i>recX</i>	N163T	
110.5	0.510	[0.387, 0.626]	4328586	A→C	<i>dcuR</i>	L55R	
110.2	0.436	[0.337, 0.538]	2391445	T→G	<i>yfcB</i>	L196F	
110.1	0.532	[0.417, 0.641]	3622487	A→C	<i>yhjO</i>	L748V	
109.9	0.574	[0.465, 0.680]	3559403	A→C	<i>yhiH</i>	I275S	
109.1	0.465	[0.363, 0.574]	2733684	A→C	<i>ascG</i>	L148L	
108.4	0.537	[0.415, 0.652]	3950156	T→G	<i>hemX</i>	Q247H	
108.2	0.501	[0.388, 0.613]	1570155	T→G	<i>ydeU</i>	-	
108.2	0.571	[0.459, 0.677]	150410	T→G	<i>yadD</i>	Y214D	
107.8	0.508	[0.386, 0.629]	608267	T→G	<i>entC</i>	D225E	
107.5	0.445	[0.346, 0.553]	2754688	T→G	<i>pphB</i>	I23M	C40K
107.3	0.527	[0.407, 0.645]	750766	T→G	<i>ybgG</i>	F636C	
107.2	0.518	[0.393, 0.634]	4178224	T→G	<i>hemE</i>	A299A	
106.7	0.542	[0.422, 0.655]	835063	T→G	<i>ybiN</i>	L36R	
106.7	0.512	[0.394, 0.633]	779376	T→G	<i>ybhE</i>	V54V	
106.7	0.476	[0.368, 0.588]	3413924	T→G	<i>yhfA/crp</i>	-	
105.7	0.483	[0.368, 0.588]	1202149	A→C	<i>pepT</i>	E312D	
105.6	0.457	[0.348, 0.571]	2657995	T→C	<i>yfiO</i>	S148P	C40K
105.1	0.487	[0.373, 0.603]	1925689	A→C	<i>ruvC</i>	V153G	
105.1	0.500	[0.386, 0.614]	1452976	T→G	<i>hrpA</i>	I176M	
104.8	0.533	[0.416, 0.649]	3683129	T→G	ECB_03437	L274V	
104.2	0.501	[0.390, 0.624]	4196615	A→C	<i>aceA</i>	E21A	
104.1	0.495	[0.376, 0.601]	3985191	A→C	ECB_03714	D401E	
103.9	0.499	[0.380, 0.610]	4353481	A→C	<i>yjeK</i>	F296L	
103.8	0.594	[0.475, 0.688]	2581846	T→G	<i>iscS</i>	N129H	
103.3	0.392	[0.288, 0.497]	2083757	G→T	<i>yegl</i>	H137N	C40K
103.2	0.514	[0.390, 0.639]	2667587	T→G	<i>rpsP</i>	V2V	
102.8	0.547	[0.429, 0.657]	4313364	T→G	<i>yjdB</i>	Q314P	
102.3	0.465	[0.359, 0.583]	3955552	T→G	<i>cyaA/cyaY</i>	-	C40K
102.0	0.579	[0.465, 0.690]	4178271	T→G	<i>hemE</i>	F315C	
101.9	0.512	[0.389, 0.640]	2637769	T→G	<i>yfiD</i>	P58P	
101.8	0.501	[0.380, 0.609]	2333346	A→C	ECB_02200	K228Q	C40K
101.0	0.466	[0.355, 0.592]	4448669	G→T	<i>treB</i>	P263P	C40K
101.0	0.513	[0.383, 0.632]	3382408	A→C	<i>gspA</i>	L299*	
100.7	0.547	[0.421, 0.658]	2151897	A→C	<i>yehI</i>	V141V	
100.2	0.587	[0.467, 0.693]	788462	T→G	ECB_00726	K187N	
100.1	0.508	[0.385, 0.631]	3184511	A→C	<i>yqjG</i>	I152L	
100.0	0.495	[0.383, 0.617]	1569491	T→G	<i>ydeU</i>	-	
99.7	0.497	[0.382, 0.620]	1879113	T→G	<i>yoaE</i>	K351T	
99.6	0.517	[0.392, 0.636]	4124667	A→C	<i>pflD</i>	Y189S	

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
99.6	0.598	[0.484, 0.705]	311852	A→C	<i>yahG</i>	K293N	
99.1	0.573	[0.464, 0.683]	2341014	T→G	<i>nuoH</i>	E7A	
98.6	0.489	[0.372, 0.605]	3917503	T→G	<i>ilvA</i>	F124C	C40K
98.3	0.502	[0.383, 0.619]	1539153	A→C	<i>dos</i>	I173M	
98.2	0.522	[0.398, 0.647]	1987874	T→G	<i>yeeJ</i>	N1671K	C40K
98.1	0.551	[0.419, 0.666]	1866969	A→C	<i>fadD</i>	D452E	
97.5	0.561	[0.435, 0.673]	126070	T→G	<i>aceE</i>	S84A	
97.4	0.594	[0.478, 0.701]	1421493	T→G	ECB_01341	F258C	
97.2	0.481	[0.365, 0.599]	2861475	A→C	<i>ptsP</i>	I527S	
97.1	0.457	[0.349, 0.572]	4511435	A→C	<i>sgcX</i>	S119A	C40K
96.8	0.516	[0.391, 0.638]	1145382	T→G	<i>flgA</i>	L18F	
95.9	0.477	[0.361, 0.591]	771751	A→C	<i>galE</i>	W312G	
95.8	0.434	[0.322, 0.536]	466947	A→C	<i>recR</i>	E159A	
95.4	0.277	[0.205, 0.355]	2770060	T→G	<i>cysN</i>	E74A	
95.4	0.564	[0.447, 0.680]	274584	T→G	<i>ykgJ/yagV</i>	-	
94.7	0.639	[0.522, 0.734]	2506175	T→G	<i>aegA</i>	E60A	
94.4	0.531	[0.394, 0.652]	1544321	A→C	<i>xasA</i>	F40L	
94.3	0.454	[0.343, 0.572]	454759	A→C	<i>acrB</i>	V571G	
94.2	0.568	[0.454, 0.691]	2577786	A→C	<i>hscA</i>	*617E	
93.9	0.560	[0.441, 0.676]	4581674	A→C	<i>tsr</i>	G261G	
93.8	0.533	[0.396, 0.650]	4606447	A→C	<i>yjil/deoC</i>	-	
93.5	0.514	[0.388, 0.642]	3724516	T→G	<i>secB</i>	N127H	C40K
93.2	0.467	[0.353, 0.585]	3482156	T→G	<i>malT</i>	L158V	
93.1	0.475	[0.360, 0.592]	14590	A→C	<i>dnaJ</i>	E142A	
92.5	0.472	[0.355, 0.585]	2831467	A→C	<i>fucl</i>	Q422P	
92.5	0.548	[0.419, 0.670]	3829499	T→G	<i>yidR</i>	I47L	
92.3	0.515	[0.384, 0.646]	2663688	T→G	<i>yfiR</i>	I136S	
92.0	0.521	[0.378, 0.638]	3092844	T→G	<i>yqhH</i>	L16V	
92.0	0.547	[0.411, 0.664]	411119	T→G	<i>thil</i>	D383E	
91.9	0.536	[0.404, 0.652]	4119884	A→C	<i>ptsA</i>	V815V	
91.6	0.574	[0.454, 0.695]	2659676	T→G	<i>pheA</i>	H175Q	
91.4	0.478	[0.358, 0.592]	463771	A→C	<i>apt</i>	E98A	C40K
91.1	0.551	[0.420, 0.661]	3275625	T→G	<i>yrbG</i>	I39S	
91.0	0.589	[0.474, 0.704]	3288693	T→G	<i>yhcC</i>	Q198P	
91.0	0.510	[0.377, 0.640]	3478384	T→G	<i>malQ</i>	K96T	
90.7	0.485	[0.361, 0.600]	2387080	A→C	<i>yfcK</i>	P575P	C40K
90.5	0.475	[0.355, 0.593]	3932175	T→G	<i>wecB</i>	I81M	C40K
90.0	0.502	[0.378, 0.636]	4403583	A→C	<i>rpsF</i>	K104T	C40K
89.9	0.493	[0.370, 0.616]	214869	A→C	<i>yaeR</i>	N51H	
89.8	0.569	[0.440, 0.684]	3720948	T→G	<i>lldD</i>	T104T	
89.8	0.502	[0.378, 0.623]	3179466	A→C	<i>exuT</i>	L443F	
89.6	0.464	[0.351, 0.587]	1477302	A→C	<i>ydcP</i>	I138L	C40K
89.5	0.476	[0.360, 0.601]	90037	T→G	<i>ilvI</i>	V535G	
89.4	0.477	[0.361, 0.600]	471680	T→G	<i>aes</i>	I121L	C40K
89.4	0.541	[0.410, 0.664]	1715410	T→G	<i>purR</i>	N100K	
89.4	0.431	[0.321, 0.542]	1619782	T→G	<i>hokD/ECB_01533</i>	-	
89.0	0.447	[0.330, 0.561]	2739365	T→G	<i>hycF</i>	E83A	
88.6	0.512	[0.375, 0.642]	1726466	T→G	<i>ydhT</i>	S121R	
88.6	0.497	[0.376, 0.625]	1935892	C→A	<i>torY</i>	M337I	
88.5	0.583	[0.461, 0.696]	140021	A→C	<i>cueO</i>	N46H	
88.4	0.559	[0.433, 0.684]	1986212	T→G	<i>yeeJ</i>	F1117L	
88.0	0.516	[0.387, 0.645]	2644861	T→G	<i>pssA</i>	D214E	
87.9	0.546	[0.418, 0.673]	2892605	T→G	<i>ygeW</i>	Y197D	
87.8	0.485	[0.352, 0.616]	3938427	G→T	<i>wzxE</i>	G117V	
87.7	0.533	[0.403, 0.659]	116302	A→C	<i>guaC</i>	K19Q	
87.7	0.535	[0.411, 0.666]	3378700	T→G	<i>rplB</i>	A190A	

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
87.4	0.504	[0.377, 0.625]	1550111	A→C	<i>yddB</i>	F487C	
86.6	0.482	[0.359, 0.602]	3711747	A→C	<i>yibL/ECB_03459</i>	–	C40K
86.2	0.470	[0.346, 0.588]	2500146	A→C	<i>talA</i>	E218A	
86.0	0.534	[0.4, 0.664]	984510	T→G	<i>msbA</i>	V266V	
85.8	0.496	[0.375, 0.627]	1320730	A→C	<i>trpL/yciV</i>	–	
85.6	0.546	[0.410, 0.666]	3178270	A→C	<i>exuT</i>	K45Q	
85.6	0.491	[0.369, 0.619]	3998959	A→C	<i>ubiB</i>	D88A	C40K
85.5	0.528	[0.401, 0.664]	4280814	T→G	<i>yjcQ</i>	I363L	
85.4	0.510	[0.375, 0.643]	2084094	T→G	<i>yegI</i>	E24D	
85.1	0.581	[0.461, 0.689]	2826819	A→C	<i>ECB_02650</i>	S160A	
85.1	0.511	[0.371, 0.628]	2324823	T→G	<i>menD</i>	D317A	
84.5	0.618	[0.507, 0.725]	4318148	T→G	<i>adiA</i>	H364P	
84.4	0.567	[0.441, 0.689]	2192971	A→C	<i>galS/yeiB</i>	–	
84.3	0.543	[0.420, 0.671]	122775	T→G	<i>ampE</i>	S231A	
84.2	0.465	[0.348, 0.597]	3384665	A→C	<i>gspD</i>	R128R	
84.2	0.648	[0.530, 0.751]	1052737	T→G	<i>hyaC</i>	F194C	
83.7	0.576	[0.447, 0.698]	4179222	T→G	<i>yjaG</i>	F36C	
83.5	0.442	[0.325, 0.561]	1867570	A→C	<i>fadD</i>	L252R	
83.4	0.534	[0.400, 0.665]	1513007	T→G	<i>narZ</i>	K1245N	
83.4	0.583	[0.449, 0.701]	2948714	T→G	<i>sbm</i>	V705G	
83.2	0.476	[0.354, 0.604]	4033030	T→G	<i>glnG</i>	E169D	
83.0	0.503	[0.373, 0.644]	10269	A→C	<i>yaaH</i>	F75C	C40K
82.6	0.389	[0.284, 0.496]	808158	T→G	<i>uvrB</i>	F669L	C40K
82.3	0.509	[0.371, 0.647]	3614898	A→C	<i>yhjK</i>	A58A	
82.3	0.577	[0.441, 0.697]	161258	A→C	<i>pcnB</i>	D229E	
82.0	0.534	[0.389, 0.664]	1796383	A→C	<i>ceiD</i>	P110P	
81.9	0.397	[0.288, 0.502]	4238487	T→G	<i>zur</i>	E150A	
81.6	0.464	[0.338, 0.582]	1538251	A→C	<i>dos</i>	L474R	
81.6	0.585	[0.455, 0.703]	434661	T→G	<i>ppiD</i>	F231C	
81.5	0.362	[0.261, 0.466]	2759524	A→C	<i>ygbM</i>	E143A	C40K
81.2	0.472	[0.342, 0.588]	3375800	A→C	<i>rplN</i>	V85V	
81.2	0.534	[0.399, 0.668]	3500952	A→C	<i>glgX</i>	L608V	C40K
81.2	0.399	[0.285, 0.526]	3718728	G→T	<i>lldP</i>	G174C	C40K
81.1	0.458	[0.338, 0.581]	3106762	A→C	<i>mdaB</i>	N21H	
81.0	0.592	[0.464, 0.711]	2366449	A→C	<i>yfcl</i>	F228C	
80.9	0.516	[0.381, 0.654]	3888652	A→C	<i>yieM</i>	L438R	
79.6	0.437	[0.322, 0.560]	3281577	A→C	<i>yhbH</i>	N57T	C40K
79.6	0.536	[0.400, 0.663]	3540412	T→G	<i>yhhQ</i>	F170V	
79.4	0.457	[0.335, 0.582]	768010	T→G	<i>gpmA</i>	D72A	
79.3	0.482	[0.357, 0.613]	2146981	A→C	<i>metG</i>	V495V	
79.2	0.501	[0.370, 0.630]	1570553	A→C	<i>ydeU</i>	–	C40K
79.2	0.403	[0.289, 0.532]	3573398	C→A	<i>yhiQ</i>	W142L	
79.0	0.453	[0.335, 0.581]	3922213	A→C	<i>yifN</i>	–	C40K
79.0	0.579	[0.450, 0.706]	1087261	T→G	<i>ycdJ</i>	E263D	
78.9	0.591	[0.462, 0.703]	3030817	A→C	<i>yghE</i>	–	
78.9	0.557	[0.425, 0.685]	2229500	T→G	<i>yejG/bcr</i>	–	
78.8	0.468	[0.344, 0.599]	4268795	A→C	<i>nrfC</i>	S19R	
78.8	0.353	[0.256, 0.454]	125265	A→C	<i>pdhR</i>	K124Q	C40K
78.5	0.412	[0.307, 0.520]	1522293	A→C	<i>fdnG</i>	K248T	C40K
78.4	0.432	[0.315, 0.554]	3211263	T→G	<i>agaR</i>	I111L	C40K
78.4	0.509	[0.369, 0.650]	4413951	T→G	<i>fkIB</i>	F6L	
78.4	0.521	[0.379, 0.657]	643694	T→G	<i>ybeF</i>	M90L	C40K
78.4	0.511	[0.371, 0.647]	1870303	A→C	<i>yoaA</i>	L504W	
78.2	0.411	[0.300, 0.534]	383083	A→C	<i>sbcC</i>	L365R	C40K
78.1	0.613	[0.496, 0.729]	613568	T→G	<i>cstA</i>	–	
78.1	0.449	[0.324, 0.568]	1690600	T→G	<i>ydgR</i>	F213C	C40K

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
77.8	0.543	[0.398, 0.667]	4158399	T→G	<i>rplK</i>	A114A	
77.8	0.503	[0.371, 0.647]	618019	T→G	<i>ybdM</i>	S19R	
77.7	0.573	[0.448, 0.697]	532283	T→G	<i>sfmD</i>	L160W	
77.6	0.625	[0.502, 0.732]	3679502	A→C	<i>sgbH</i>	K157T	
77.5	0.467	[0.343, 0.598]	2181152	T→G	<i>yohl</i>	Q158P	
77.4	0.475	[0.348, 0.607]	103062	T→G	<i>murG</i>	A205A	
77.4	0.481	[0.352, 0.605]	1634870	T→G	<i>ynfD</i>	I37M	C40K
77.3	0.533	[0.387, 0.668]	1801265	A→C	<i>ydjQ</i>	E162D	
77.3	0.456	[0.340, 0.589]	3270765	A→C	<i>murA</i>	F322C	
77.3	0.500	[0.369, 0.632]	4613809	A→C	<i>serB</i>	K234T	C40K
77.2	0.507	[0.366, 0.654]	685932	A→C	<i>nagB/nagE</i>	-	
77.0	0.525	[0.377, 0.660]	2398568	A→C	<i>yfcTU</i>	I33S	
76.9	0.424	[0.317, 0.546]	2790674	T→G	<i>ygcE</i>	D93E	C40K
76.7	0.550	[0.416, 0.683]	3620566	T→G	<i>yhjN</i>	I512L	
76.6	0.450	[0.325, 0.575]	4590702	A→C	<i>dnaT</i>	V17G	
76.6	0.492	[0.351, 0.632]	3722953	G→T	<i>cysE</i>	R126S	C40K
76.6	0.387	[0.284, 0.501]	2159082	A→C	<i>yehM</i>	H731P	C40K
76.4	0.544	[0.406, 0.676]	1007123	T→G	<i>pncB</i>	I109L	
76.4	0.526	[0.386, 0.668]	2189980	T→G	<i>mglA</i>	K183T	
76.4	0.414	[0.301, 0.534]	1161679	A→C	<i>yceD</i>	Y106S	
76.3	0.516	[0.379, 0.637]	2503021	G→T	<i>ypfG</i>	L195L	C40K
76.1	0.486	[0.353, 0.617]	3967850	A→C	<i>rarD</i>	L255R	
75.9	0.545	[0.406, 0.679]	3945354	T→G	<i>aslB</i>	I199M	
75.9	0.554	[0.415, 0.683]	4538522	A→C	<i>yjiE</i>	S228A	
75.8	0.447	[0.326, 0.575]	3624864	A→C	<i>yhjQ</i>	-	
75.8	0.531	[0.388, 0.666]	1909010	A→C	<i>yebF/yebG</i>	-	C40K
75.6	0.543	[0.407, 0.674]	818258	A→C	<i>ybhR</i>	L159R	
75.5	0.462	[0.336, 0.591]	3190478	A→C	<i>yhaO</i>	L168R	
75.4	0.568	[0.432, 0.694]	1538177	A→C	<i>dos</i>	Y499D	
75.3	0.516	[0.374, 0.664]	1741713	A→C	<i>sufA/ydiH</i>	-	
75.0	0.545	[0.416, 0.680]	3601216	A→C	<i>yhjB</i>	D57E	
74.8	0.512	[0.380, 0.654]	59693	A→C	<i>imp</i>	S538A	
74.8	0.623	[0.499, 0.738]	4308047	T→G	<i>yjdA</i>	I733M	
74.8	0.587	[0.457, 0.715]	2920951	T→G	<i>prfB</i>	E362A	C40K
74.5	0.442	[0.321, 0.567]	1278683	A→C	<i>narK</i>	I193L	C40K
74.5	0.508	[0.367, 0.653]	1976045	T→G	<i>yedV</i>	E36A	
74.3	0.474	[0.347, 0.607]	1105099	T→G	<i>ycdR</i>	I348I	
74.2	0.468	[0.339, 0.591]	2240529	A→C	<i>narP</i>	D14A	
74.2	0.427	[0.310, 0.554]	2898260	T→G	<i>yqeA/yqeB</i>	-	
73.6	0.480	[0.343, 0.609]	2939257	T→G	<i>ubiH</i>	I5L	
73.6	0.532	[0.384, 0.672]	839969	T→G	<i>glnH</i>	K221Q	
73.5	0.420	[0.303, 0.545]	3016033	T→G	ECB_02816	I485S	
73.5	0.584	[0.449, 0.705]	1413982	T→G	<i>recE</i>	K192T	
73.4	0.554	[0.405, 0.683]	3855776	A→C	<i>yieG</i>	S399A	
73.3	0.526	[0.387, 0.668]	2083327	T→G	<i>yegl</i>	E280A	
73.1	0.396	[0.288, 0.520]	3492316	T→G	<i>glpD/yzgL</i>	-	
73.0	0.340	[0.240, 0.446]	342446	A→C	<i>mhpA</i>	E427A	C40K
72.5	0.454	[0.325, 0.584]	4353840	A→C	<i>yjeK</i>	W177G	C40K
72.3	0.454	[0.325, 0.576]	931180	A→C	<i>ybjE</i>	L129V	C40K
72.2	0.501	[0.366, 0.637]	326195	T→G	<i>prpE</i>	A280A	
72.1	0.525	[0.386, 0.668]	3574318	A→C	<i>prlC</i>	S519A	
72.0	0.576	[0.441, 0.701]	4355818	T→G	<i>sugE</i>	L78R	
71.9	0.482	[0.349, 0.618]	1738400	A→C	<i>sufD</i>	F220C	C40K
71.9	0.592	[0.457, 0.720]	1364451	A→C	<i>goaG</i>	S178S	
71.9	0.534	[0.396, 0.675]	4307275	T→G	<i>yjdA</i>	I476S	
71.8	0.461	[0.330, 0.594]	4058150	A→C	<i>yiiF/fdhE</i>	-	

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
71.7	0.519	[0.378, 0.661]	3768014	A→C	<i>yicE</i>	N10H	
71.7	0.570	[0.433, 0.703]	3096581	A→C	<i>sufI</i>	V87V	
71.7	0.508	[0.374, 0.644]	1966410	C→A	<i>yecR</i>	G65G	C40K
71.6	0.523	[0.373, 0.664]	941033	T→G	<i>clpA</i>	V307V	
71.4	0.508	[0.369, 0.650]	2075227	A→C	<i>dcd</i>	L65L	C40K
71.3	0.488	[0.360, 0.626]	1555678	A→C	<i>ydeN</i>	V266V	C40K
71.3	0.400	[0.284, 0.515]	3856914	A→C	<i>yieG</i>	F19L	C40K
71.3	0.484	[0.341, 0.625]	3574505	C→A	<i>prlC</i>	P456P	C40K
71.2	0.394	[0.281, 0.507]	3650528	A→C	<i>cspA</i>	I8L	C40K
71.2	0.547	[0.406, 0.680]	2625494	T→G	<i>rncS</i>	E21A	C40K
71.1	0.514	[0.376, 0.662]	1808909	T→G	<i>astC</i>	L113L	
70.8	0.492	[0.357, 0.628]	1543641	A→C	<i>xasA</i>	L267R	
70.6	0.565	[0.423, 0.698]	898853	T→G	ECB_00842	I84M	
70.3	0.393	[0.281, 0.513]	4552312	T→G	<i>yjiV</i>	-	C40K
70.1	0.414	[0.303, 0.546]	1331374	A→C	<i>topA</i>	E652A	
70.0	0.341	[0.240, 0.445]	3459043	A→C	<i>hslO</i>	K196Q	C40K
69.9	0.301	[0.215, 0.404]	2740772	A→C	<i>hycE</i>	L187R	C40K
69.8	0.558	[0.425, 0.699]	4275557	T→G	<i>yjcO</i>	N131H	
69.6	0.404	[0.289, 0.532]	424738	T→G	<i>yajG</i>	V45V	C40K
69.6	0.571	[0.433, 0.699]	801303	A→C	<i>bioA</i>	F194C	
69.5	0.560	[0.423, 0.698]	2079706	T→G	<i>yegE</i>	Y1079D	
69.3	0.594	[0.458, 0.720]	1680600	A→C	<i>ydjJ</i>	A301A	
69.2	0.493	[0.354, 0.629]	575344	A→C	<i>cusS</i>	F110L	C40K
69.1	0.447	[0.316, 0.577]	1332725	A→C	<i>cysB</i>	N167H	
69.0	0.449	[0.315, 0.577]	1798721	A→C	<i>celA</i>	L55*	
68.9	0.614	[0.471, 0.721]	2396548	A→C	<i>yfcTU</i>	V706V	
68.5	0.369	[0.261, 0.483]	4545297	T→G	<i>yjiL</i>	K103Q	C40K
68.4	0.395	[0.277, 0.517]	1411992	T→G	<i>recE</i>	S855S	
68.4	0.606	[0.472, 0.726]	370685	A→C	<i>phoA</i>	S431S	
68.4	0.612	[0.473, 0.731]	2992993	A→C	<i>speC</i>	F608C	
68.4	0.583	[0.450, 0.720]	3471921	T→G	<i>yhgA</i>	F30L	
68.3	0.595	[0.457, 0.720]	3428587	A→C	<i>yhfM</i>	K258T	
68.3	0.403	[0.289, 0.521]	3835234	A→C	<i>dgoR</i>	S96R	C40K
68.3	0.623	[0.497, 0.750]	3410000	A→C	<i>yheS</i>	K269N	
68.2	0.606	[0.468, 0.732]	4526090	T→G	<i>fimD</i>	F27L	
68.1	0.560	[0.423, 0.702]	1891498	T→G	<i>prc</i>	K632N	
68.0	0.381	[0.272, 0.501]	100218	A→C	<i>murD</i>	I110L	C40K
68.0	0.390	[0.272, 0.521]	1464880	C→A	<i>ydcl</i>	D101Y	C40K
67.7	0.592	[0.457, 0.707]	383324	G→T	<i>sbcC</i>	L285M	
67.7	0.405	[0.290, 0.537]	2479320	A→C	<i>ypeA</i>	M113R	
67.5	0.586	[0.450, 0.720]	1578876	A→C	<i>yneF/yneG</i>	-	
67.4	0.516	[0.358, 0.664]	3187264	A→C	<i>yhaJ/yhaK</i>	-	C40K
67.4	0.528	[0.383, 0.676]	4048871	A→C	<i>yihS</i>	W345G	
67.2	0.549	[0.405, 0.685]	1017850	A→C	<i>ycbS</i>	Q515P	
67.0	0.467	[0.333, 0.602]	298983	T→G	<i>betA</i>	Q305P	C40K
67.0	0.355	[0.242, 0.475]	47721	C→A	<i>fixB</i>	T113T	C40K
66.9	0.515	[0.369, 0.650]	1706773	C→A	<i>lhr</i>	R165S	C40K
66.9	0.516	[0.358, 0.664]	2062763	T→G	<i>wcaE</i>	I32L	
66.8	0.399	[0.284, 0.524]	3680670	T→G	<i>sgbE</i>	P43P	
66.7	0.476	[0.337, 0.613]	3499025	T→G	<i>glgA</i>	K155Q	C40K
66.5	0.610	[0.483, 0.740]	1837790	T→G	<i>ydjL</i>	I258L	
66.5	0.599	[0.450, 0.720]	2387986	A→C	<i>yfcM</i>	C120G	
66.4	0.508	[0.349, 0.652]	1586990	G→A	<i>marR</i>	P35P	
66.3	0.467	[0.318, 0.607]	704406	G→T	<i>kdpD</i>	R703S	
66.1	0.641	[0.505, 0.754]	3559434	T→G	<i>yhiH</i>	I265L	
66.1	0.457	[0.327, 0.594]	1599820	A→C	<i>ydfJ</i>	V78G	C40K

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
66.0	0.483	[0.341, 0.624]	261741	A→C	<i>yafA</i>	T242P	
66.0	0.543	[0.404, 0.690]	2010682	T→G	<i>yeeA</i>	Y118S	
65.9	0.580	[0.441, 0.714]	3184072	T→G	<i>yqjG</i>	I5M	C40K
65.9	0.388	[0.276, 0.512]	2587662	A→C	<i>hcaT</i>	V295G	C40K
65.8	0.459	[0.333, 0.593]	1174059	T→G	<i>fhuE</i>	T688P	
65.8	0.437	[0.305, 0.569]	837928	T→G	<i>ybiO</i>	T60P	
65.8	0.564	[0.414, 0.695]	2560912	T→G	<i>hisS</i>	V161V	
65.7	0.534	[0.399, 0.667]	3097048	C→A	<i>plsC</i>	P202P	
65.7	0.589	[0.450, 0.720]	4369596	T→G	<i>yjeQ</i>	K23N	
65.6	0.416	[0.289, 0.546]	1936718	T→G	<i>torY</i>	K62T	C40K
65.6	0.405	[0.291, 0.544]	1993134	A→C	<i>amn</i>	V25V	C40K
65.5	0.481	[0.339, 0.611]	1042577	A→C	<i>helD</i>	E339A	
65.4	0.640	[0.516, 0.757]	3530992	A→C	<i>rpoH</i>	R159R	
65.3	0.467	[0.330, 0.604]	154388	A→C	<i>yadK</i>	L18R	C40K
65.3	0.447	[0.312, 0.576]	2886673	T→G	<i>xdhA</i>	W192G	
65.3	0.585	[0.442, 0.710]	2962850	T→G	<i>yggP</i>	I120L	
65.2	0.387	[0.271, 0.517]	2489436	A→C	<i>eutG</i>	L302W	C40K
65.1	0.444	[0.321, 0.585]	332612	T→G	<i>cynX</i>	L22R	C40K
65.1	0.432	[0.306, 0.568]	3605645	T→G	<i>yhjE/yhjG</i>	-	C40K
65.0	0.451	[0.317, 0.586]	3661307	T→G	<i>xyIA/xyIF</i>	-	
64.9	0.575	[0.442, 0.713]	3945610	T→G	<i>aslB</i>	S285A	C40K
64.8	0.505	[0.354, 0.648]	4344081	C→T	<i>cutA/dcuA</i>	-	
64.8	0.439	[0.306, 0.569]	2361786	A→C	<i>yfcC</i>	N372H	C40K
64.7	0.612	[0.477, 0.741]	4393997	T→G	<i>aidB</i>	L523W	
64.7	0.608	[0.474, 0.730]	3655740	T→G	<i>glyQ</i>	I13L	
64.5	0.536	[0.391, 0.692]	1446528	T→G	<i>ydbD</i>	F684C	
64.4	0.671	[0.555, 0.777]	3924548	T→G	<i>gppA</i>	*495S	
64.3	0.559	[0.413, 0.702]	1476493	A→C	<i>ydcN</i>	Q71P	
64.3	0.402	[0.285, 0.537]	2744019	T→G	<i>hycC</i>	K28T	
64.2	0.396	[0.275, 0.522]	331559	T→G	<i>cynT</i>	S69A	C40K
64.1	0.561	[0.414, 0.696]	31535	T→G	<i>rihC</i>	N57K	
64.1	0.490	[0.350, 0.632]	439367	T→G	<i>ybaE</i>	N5H	
64.1	0.445	[0.308, 0.576]	2342242	A→C	<i>nuoG</i>	G507G	
64.0	0.472	[0.334, 0.614]	3786228	T→G	ECB_03524	N14H	
63.9	0.454	[0.314, 0.586]	3290769	A→C	<i>glfB</i>	A301A	
63.9	0.489	[0.350, 0.633]	1300941	T→G	<i>oppB</i>	L150*	
63.8	0.590	[0.450, 0.726]	2010638	A→C	<i>yeeA</i>	S133A	
63.8	0.535	[0.395, 0.679]	179508	T→G	<i>yadR</i>	V19V	C40K
63.7	0.427	[0.299, 0.553]	1904444	T→G	<i>yobB</i>	F143L	C40K
63.6	0.386	[0.271, 0.515]	3114886	T→G	<i>yqiC</i>	Y98*	C40K
63.4	0.447	[0.318, 0.585]	2811069	T→G	<i>gudP/yqcA</i>	-	
63.4	0.414	[0.285, 0.536]	3617683	T→G	<i>bcsC</i>	K328T	C40K
63.3	0.587	[0.442, 0.719]	184644	A→C	<i>degP</i>	K307Q	
63.1	0.565	[0.422, 0.698]	4452279	A→C	<i>mgtA</i>	T460P	
63.0	0.595	[0.457, 0.717]	3968878	T→G	<i>yigl</i>	E85D	
62.8	0.578	[0.432, 0.714]	3479626	T→G	<i>malP</i>	Q483P	
62.8	0.452	[0.320, 0.595]	3562858	T→G	<i>yhiJ</i>	N141H	
62.7	0.373	[0.257, 0.496]	1036240	T→G	<i>ompA</i>	E302A	C40K
62.6	0.611	[0.459, 0.730]	3902663	T→G	<i>yieP</i>	M158L	
62.6	0.369	[0.256, 0.482]	4139889	T→G	<i>udhA</i>	K255Q	C40K
62.6	0.439	[0.312, 0.576]	1748131	T→G	<i>ydiL</i>	L84V	
62.5	0.486	[0.341, 0.625]	1948158	A→C	<i>tap</i>	S533A	
62.4	0.519	[0.372, 0.668]	2541919	A→C	<i>upp/purM</i>	-	
62.3	0.624	[0.492, 0.751]	3483277	A→C	<i>malT</i>	L531F	
62.3	0.499	[0.356, 0.644]	2897800	T→G	<i>yqeA</i>	I195M	C40K
62.0	0.385	[0.267, 0.513]	4118298	T→G	<i>gldA</i>	Q282P	C40K

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
62.0	0.498	[0.353, 0.648]	3343513	A→C	<i>acrF</i>	K197T	
62.0	0.574	[0.441, 0.710]	3517253	G→A	<i>ggt</i>	L83L	
61.9	0.485	[0.338, 0.627]	3189084	T→G	<i>yhaM</i>	I201L	
61.8	0.496	[0.341, 0.625]	4334857	A→C	<i>yjdL</i>	L92R	
61.7	0.527	[0.379, 0.685]	1062586	T→G	<i>yccZ</i>	L103L	
61.5	0.628	[0.483, 0.746]	1930515	T→G	<i>yecE</i>	F117L	
61.4	0.513	[0.358, 0.663]	2602523	T→G	<i>yphG</i>	N308H	
61.4	0.566	[0.422, 0.713]	146285	A→C	<i>yadG</i>	D235A	
61.3	0.557	[0.402, 0.699]	4574169	A→C	<i>hpaX</i>	F33C	
61.3	0.482	[0.344, 0.637]	2921752	T→G	<i>prfB</i>	N95T	
61.3	0.457	[0.320, 0.596]	635217	A→C	<i>citA</i>	E132A	C40K
61.1	0.529	[0.377, 0.685]	2508339	T→G	<i>narQ/acrD</i>	-	
61.1	0.492	[0.341, 0.640]	2165584	G→T	<i>yehU</i>	V86V	C40K
60.8	0.439	[0.309, 0.586]	3991051	A→C	ECB_03719	G196G	
60.5	0.465	[0.329, 0.616]	4227464	T→G	<i>lamB</i>	Y188D	C40K
60.3	0.423	[0.292, 0.552]	3325845	T→G	<i>maf</i>	E142A	C40K
60.2	0.391	[0.272, 0.516]	1395417	T→G	<i>ydaA</i>	I126L	
60.2	0.525	[0.367, 0.676]	2410532	A→C	<i>yfdC</i>	N264H	
60.2	0.537	[0.382, 0.681]	4288775	A→C	<i>alsA</i>	I343S	
59.9	0.394	[0.276, 0.530]	1759732	T→G	<i>ydiS</i>	V357G	C40K
59.8	0.546	[0.391, 0.693]	558583	T→G	ECB_00517/appY	-	
59.8	0.411	[0.286, 0.544]	1547418	T→G	<i>pqqL</i>	E579A	C40K
59.8	0.470	[0.329, 0.615]	4048043	T→G	<i>yihR</i>	H169P	
59.7	0.578	[0.423, 0.708]	3493684	A→C	ECB_03279	D82E	
59.7	0.309	[0.205, 0.432]	3495915	G→T	<i>glgP</i>	G707G	C40K
59.6	0.410	[0.274, 0.569]	426998	C→A	<i>tig</i>	F387L	C40K
59.5	0.382	[0.267, 0.504]	3564485	T→G	<i>yhiKL</i>	G221G	
59.5	0.496	[0.350, 0.633]	4563802	T→G	<i>hsdR</i>	E312A	
59.1	0.629	[0.486, 0.751]	3123205	T→G	<i>yqiH</i>	N163K	
58.9	0.470	[0.325, 0.617]	4180803	A→C	<i>yjaH</i>	E209A	C40K
58.8	0.479	[0.332, 0.630]	98071	T→G	<i>murF</i>	F206L	C40K
58.8	0.473	[0.329, 0.616]	1308543	T→G	<i>ycil/tonB</i>	-	
58.8	0.376	[0.262, 0.507]	902709	T→G	<i>tfaE</i>	A126A	C40K
58.7	0.520	[0.372, 0.669]	4099603	T→G	<i>menA</i>	D77A	
58.6	0.479	[0.332, 0.629]	2285933	T→G	<i>gyrA</i>	Y63S	C40K
58.6	0.368	[0.246, 0.501]	399655	C→A	<i>yajD/tsx</i>	-	C40K
58.5	0.606	[0.460, 0.736]	1701303	A→C	<i>ydhK</i>	P663P	
58.4	0.493	[0.344, 0.639]	333953	T→G	<i>lacA</i>	N155T	
58.4	0.633	[0.502, 0.761]	1745953	T→G	<i>ydiJ/ydiK</i>	-	
58.3	0.366	[0.258, 0.500]	648307	A→C	<i>mrdB</i>	I197M	C40K
58.3	0.460	[0.325, 0.618]	847206	T→G	<i>ybiR</i>	L312*	C40K
58.3	0.451	[0.312, 0.598]	2925198	A→C	<i>xerD</i>	L100R	
58.1	0.525	[0.367, 0.676]	4519579	A→C	<i>yjhA</i>	S21A	
58.0	0.448	[0.317, 0.586]	1053748	A→C	<i>hyaE</i>	N102H	
58.0	0.544	[0.393, 0.684]	2978466	A→C	<i>gshB</i>	T280P	
57.8	0.311	[0.214, 0.426]	477305	T→G	<i>ushA</i>	Y109D	
57.6	0.526	[0.365, 0.682]	1310805	T→G	<i>yciC</i>	G151G	
57.4	0.296	[0.206, 0.402]	44987	T→G	<i>caiT</i>	N380H	
57.4	0.503	[0.352, 0.648]	4557027	T→G	<i>mcrB</i>	N86H	
57.3	0.675	[0.546, 0.788]	937322	T→G	<i>macB</i>	F90L	
57.2	0.593	[0.443, 0.730]	200258	A→C	<i>yaeL</i>	S291R	
56.8	0.400	[0.276, 0.543]	312970	A→C	<i>yahl</i>	N53H	
56.8	0.434	[0.303, 0.578]	1129502	A→C	<i>yceE</i>	F186L	C40K
56.5	0.490	[0.351, 0.633]	4326389	A→C	<i>dcuB</i>	S357S	
56.4	0.512	[0.358, 0.665]	1209825	T→G	<i>ymfC</i>	S166R	
56.4	0.390	[0.261, 0.512]	3716330	A→C	ECB_03460	K1114Q	C40K

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
56.2	0.457	[0.312, 0.597]	2480606	A→C	<i>amiA</i>	I246L	
56.2	0.489	[0.337, 0.642]	4332868	A→C	<i>lysU</i>	I190M	C40K
56.2	0.426	[0.289, 0.589]	1230389	C→A	<i>hlyE</i>	-	C40K
56.1	0.381	[0.262, 0.507]	44865	A→C	<i>caiT</i>	V420V	C40K
56.1	0.391	[0.261, 0.518]	2492626	A→C	<i>cchB</i>	V85G	
56.1	0.493	[0.346, 0.654]	3842724	T→G	<i>dnaA</i>	E456A	C40K
56.1	0.550	[0.388, 0.702]	797545	T→G	ECB_00738	I264S	
56.0	0.504	[0.348, 0.677]	1227428	T→G	<i>ycgK</i>	E69A	
55.9	0.592	[0.443, 0.731]	683582	A→C	<i>nagC</i>	I36M	
55.8	0.399	[0.280, 0.524]	3806477	A→C	<i>uhpT</i>	I208S	C40K
55.8	0.631	[0.501, 0.761]	1854584	T→G	<i>yoaF</i>	N60H	
55.6	0.538	[0.378, 0.689]	243788	A→C	<i>yhhI</i>	R326R	
55.6	0.374	[0.256, 0.511]	3824042	A→C	<i>glvBC</i>	M1R	C40K
55.5	0.478	[0.329, 0.616]	2784895	T→G	<i>ycgR</i>	Q54P	
55.5	0.476	[0.325, 0.617]	1424186	A→C	ECB_01344	L6F	
55.3	0.625	[0.468, 0.743]	2308503	A→C	<i>yfaX</i>	G74G	
55.2	0.609	[0.453, 0.743]	767623	T→G	<i>gpmA</i>	E201A	
55.2	0.604	[0.452, 0.737]	77408	A→C	<i>tbpA</i>	F293V	
55.2	0.361	[0.244, 0.490]	4064362	T→G	<i>fdhD</i>	L67R	C40K
55.1	0.279	[0.188, 0.384]	3031898	A→C	ECB_02831	F91L	
54.9	0.571	[0.433, 0.710]	1380965	A→C	<i>ompG</i>	Y217S	
54.8	0.334	[0.227, 0.454]	627805	T→G	<i>citT</i>	E276A	C40K
54.8	0.577	[0.422, 0.724]	3189699	A→C	<i>yhaM/yhaO</i>	-	
54.7	0.388	[0.265, 0.526]	3683249	T→G	ECB_03437	Y314D	C40K
54.7	0.410	[0.271, 0.557]	3341864	C→A	<i>acrE</i>	P37Q	C40K
54.6	0.429	[0.287, 0.568]	3333231	T→G	<i>yhdH/accB</i>	-	C40K
54.5	0.538	[0.373, 0.700]	3739217	T→G	<i>waaW</i>	E250A	
54.3	0.407	[0.280, 0.536]	2002639	A→C	<i>cobS</i>	L195*	C40K
54.0	0.388	[0.258, 0.518]	4078976	A→C	<i>rhaR</i>	*313Y	C40K
53.9	0.406	[0.275, 0.550]	4466019	A→C	<i>vaiS</i>	F284L	C40K
53.7	0.561	[0.401, 0.705]	4340009	T→G	<i>cadC</i>	Q216P	
53.7	0.480	[0.316, 0.639]	4612969	C→A	<i>smf</i>	R12L	
53.7	0.355	[0.243, 0.490]	2544260	A→C	<i>ppk</i>	Q133P	
53.6	0.425	[0.287, 0.568]	1714815	A→C	ECB_01628	L10V	C40K
53.6	0.378	[0.251, 0.510]	4116720	T→G	<i>yijE</i>	I169S	C40K
53.6	0.529	[0.362, 0.687]	1270802	T→G	<i>ldrC/chaA</i>	-	
53.6	0.371	[0.252, 0.504]	2258360	A→C	<i>yojI</i>	I120M	C40K
53.6	0.616	[0.470, 0.748]	487930	A→C	<i>ybbK</i>	F4L	
53.4	0.396	[0.266, 0.533]	1575413	A→C	<i>yneE</i>	F52C	C40K
53.3	0.498	[0.346, 0.656]	2027918	T→G	<i>wzzB</i>	Q130P	
53.2	0.444	[0.299, 0.590]	3414905	T→G	<i>yhfK</i>	G70G	C40K
53.2	0.477	[0.325, 0.634]	3521505	A→C	<i>ugpA</i>	F28C	C40K
53.2	0.376	[0.251, 0.509]	2947175	A→C	<i>sbm</i>	E192A	C40K
53.1	0.509	[0.358, 0.665]	3152780	C→A	<i>ygjG</i>	A166E	
53.1	0.611	[0.461, 0.743]	1782154	A→C	<i>arpB</i>	-	
53.1	0.547	[0.386, 0.708]	2678812	A→C	ECB_02509/ ECB_02510	-	
53.0	0.435	[0.285, 0.569]	181491	T→G	<i>pfs</i>	I169L	C40K
53.0	0.450	[0.306, 0.598]	507691	A→C	<i>gcl</i>	Q537P	
53.0	0.421	[0.282, 0.559]	4300648	A→C	<i>phnF</i>	L199L	
52.8	0.583	[0.433, 0.731]	4207000	T→G	<i>yjbB</i>	F113L	
52.7	0.464	[0.317, 0.621]	2839145	A→C	<i>csdA</i>	E397A	
52.6	0.459	[0.312, 0.610]	1171882	T→G	<i>ycfH</i>	I179M	C40K
52.6	0.447	[0.300, 0.588]	2073796	A→C	<i>asmA</i>	A341A	
52.5	0.589	[0.421, 0.724]	697270	A→C	<i>pgm</i>	S540R	
52.5	0.363	[0.247, 0.496]	2018771	A→C	<i>yeeZ</i>	D267E	C40K
52.5	0.397	[0.270, 0.542]	4622949	A→C	<i>rob</i>	I174M	

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
52.3	0.395	[0.270, 0.541]	3188952	A→C	<i>yhaM</i>	S245A	
52.3	0.472	[0.323, 0.636]	2245593	T→G	<i>ccmC</i>	I239I	
52.2	0.416	[0.276, 0.549]	3360344	A→C	<i>smg</i>	F9C	C40K
52.1	0.536	[0.377, 0.689]	866217	T→G	<i>yliE</i>	N145K	
52.1	0.444	[0.301, 0.588]	1101690	T→G	<i>phoH</i>	G138G	
52.0	0.316	[0.203, 0.441]	3384612	G→T	<i>gspD</i>	G111W	
51.9	0.639	[0.494, 0.771]	3312435	A→C	<i>mdh/argR</i>	-	
51.8	0.327	[0.221, 0.452]	4570266	A→C	<i>hpaB</i>	C492G	C40K
51.8	0.393	[0.258, 0.532]	3743455	T→G	<i>waaO</i>	T15P	C40K
51.6	0.286	[0.181, 0.402]	3103672	G→A	<i>ygiW</i>	T59T	C40K
51.6	0.602	[0.442, 0.739]	1567831	T→G	<i>hipA</i>	I305L	
51.6	0.392	[0.261, 0.525]	1642043	A→C	<i>ynfl</i>	I115L	C40K
51.5	0.360	[0.238, 0.487]	4577252	T→G	<i>hpaD</i>	Y17S	C40K
51.5	0.429	[0.288, 0.578]	3962760	T→G	ECB_03690	E60D	C40K
51.4	0.491	[0.329, 0.649]	3630897	A→C	<i>ldrD/yhjV</i>	-	
51.2	0.447	[0.302, 0.600]	178875	A→C	<i>yadQ</i>	A309A	
51.1	0.422	[0.287, 0.579]	1496171	A→C	<i>ansP/yncG</i>	-	C40K
51.1	0.622	[0.465, 0.756]	12527	A→C	<i>dnaK</i>	M123L	
50.7	0.499	[0.337, 0.664]	2233990	T→G	<i>rplY/yejK</i>	-	
50.7	0.325	[0.203, 0.450]	1107001	G→T	<i>ycdS</i>	S525*	C40K
50.6	0.271	[0.182, 0.382]	3766565	A→C	<i>gltS</i>	F381L	
50.5	0.592	[0.434, 0.744]	2784792	A→C	<i>ygcR</i>	A88A	
50.4	0.341	[0.218, 0.478]	1806589	C→A	<i>astD</i>	V137V	C40K
50.2	0.661	[0.526, 0.790]	4474802	T→G	<i>idnT</i>	V317V	
50.2	0.453	[0.304, 0.612]	1811352	T→G	<i>ydjX</i>	L229L	
50.2	0.647	[0.492, 0.771]	2558035	A→C	<i>yfgK</i>	I47M	
50.2	0.477	[0.320, 0.637]	1120708	T→G	<i>ymdB</i>	L107R	
50.1	0.365	[0.242, 0.494]	543845	T→G	<i>ybcM</i>	Y168D	
50.0	0.564	[0.411, 0.724]	4203274	A→C	<i>metH</i>	E172D	
50.0	0.521	[0.365, 0.679]	911501	G→T	<i>potF</i>	P337P	
50.0	0.475	[0.318, 0.622]	3123757	A→C	<i>yqil</i>	Y97S	C40K
49.9	0.443	[0.302, 0.600]	3487874	A→C	<i>rtcR</i>	Q336P	
49.9	0.352	[0.230, 0.474]	1311136	A→C	<i>yciC</i>	F41C	
49.8	0.593	[0.422, 0.731]	1035674	A→C	<i>ycbG</i>	E33D	
49.8	0.453	[0.301, 0.599]	4564414	A→C	<i>hsdR</i>	L108R	
49.7	0.200	[0.135, 0.283]	2765159	T→G	<i>ygbO</i>	E336A	
49.7	0.415	[0.282, 0.567]	4089838	A→C	<i>cdh</i>	I143L	
49.6	0.509	[0.339, 0.686]	1378904	T→G	<i>ycjU</i>	L130R	
49.5	0.614	[0.456, 0.758]	1886192	A→C	<i>yobF/yebO</i>	-	C40K
49.4	0.423	[0.282, 0.579]	4512147	A→C	<i>sgcX/yjhP</i>	-	
49.4	0.580	[0.421, 0.722]	440160	A→C	<i>cof</i>	I228L	
49.4	0.439	[0.296, 0.600]	728010	T→G	<i>abrB</i>	N182T	C40K
49.3	0.464	[0.313, 0.624]	67987	T→G	<i>polB</i>	S200R	
49.2	0.438	[0.290, 0.590]	3911660	A→C	<i>yifB</i>	L47*	C40K
49.0	0.532	[0.359, 0.692]	2070174	A→C	<i>wza</i>	V92V	
48.9	0.664	[0.533, 0.795]	2268244	A→C	<i>atoS</i>	K501T	
48.9	0.666	[0.521, 0.793]	4506667	T→G	<i>sgcR</i>	V120V	
48.8	0.341	[0.217, 0.457]	4202793	T→G	<i>metH</i>	L12*	
48.8	0.439	[0.290, 0.590]	3272110	A→C	<i>yrbA/yrbB</i>	-	C40K
48.7	0.579	[0.410, 0.729]	4204308	A→C	<i>metH</i>	E517A	
48.7	0.637	[0.483, 0.766]	1360208	A→C	<i>ycjL</i>	I241L	
48.7	0.574	[0.410, 0.732]	1992661	A→C	<i>shiA</i>	Q340H	
48.5	0.438	[0.288, 0.589]	1791600	A→C	<i>katE</i>	N157H	
48.5	0.459	[0.312, 0.625]	1822771	A→C	<i>topB</i>	L473W	
48.5	0.425	[0.283, 0.579]	1847878	A→C	<i>yeal</i>	N89H	
48.5	0.236	[0.153, 0.334]	4534381	T→G	<i>uxuB</i>	R189R	C40K

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
48.5	0.417	[0.276, 0.568]	2422436	T→G	<i>yfdE</i>	L320F	C40K
48.3	0.311	[0.200, 0.454]	289049	C→A	<i>ykgA</i>	G246W	C40K
48.2	0.390	[0.258, 0.540]	816306	T→G	<i>ybhO</i>	Y20S	C40K
48.0	0.617	[0.455, 0.757]	934017	T→G	<i>ybjD</i>	L280W	
47.9	0.564	[0.396, 0.730]	2794464	A→C	<i>ygcF/ygcG</i>	–	
47.9	0.430	[0.287, 0.568]	1812465	T→G	<i>ydjZ</i>	Y144D	
47.7	0.510	[0.344, 0.683]	1665858	A→C	<i>manA</i>	S30R	
47.7	0.276	[0.180, 0.390]	3470129	T→G	<i>feoB</i>	L353R	C40K
47.5	0.467	[0.307, 0.627]	731342	T→G	<i>ybgQ</i>	E540A	C40K
47.4	0.606	[0.455, 0.750]	3208531	A→C	<i>garD</i>	K107N	
47.3	0.360	[0.234, 0.496]	4562591	T→G	<i>hsdR</i>	T716P	C40K
47.2	0.524	[0.337, 0.693]	1754129	A→C	<i>ydiF</i>	T425T	
47.1	0.256	[0.166, 0.365]	3105742	A→C	<i>ygiY</i>	N363H	
47.0	0.477	[0.320, 0.635]	2230229	A→C	<i>bcr</i>	Y240*	
46.9	0.415	[0.270, 0.569]	1913540	A→C	<i>zwf</i>	S451A	C40K
46.9	0.340	[0.220, 0.464]	3243698	A→C	<i>nlpl</i>	L154R	C40K
46.8	0.604	[0.444, 0.751]	1555329	T→G	<i>ydeN</i>	K383Q	
46.7	0.410	[0.271, 0.569]	4070746	T→G	<i>frvA</i>	V75V	C40K
46.7	0.513	[0.335, 0.692]	3965377	A→C	ECB_03693	F65C	
46.7	0.520	[0.335, 0.692]	3696775	A→C	<i>yibF/rhsA</i>	–	
46.6	0.445	[0.296, 0.601]	2952759	T→G	<i>ygfl</i>	N56H	
46.5	0.187	[0.123, 0.264]	2761930	T→G	<i>rpoS</i>	Q161H	
46.3	0.514	[0.345, 0.682]	1392392	A→C	<i>mppA</i>	E266A	
46.3	0.472	[0.320, 0.636]	1394855	T→G	<i>ydaA</i>	E313A	
46.3	0.535	[0.351, 0.704]	970635	T→G	<i>pflB</i>	N5H	C40K
46.3	0.424	[0.282, 0.579]	92372	T→G	<i>fruR/yabB</i>	–	
46.1	0.268	[0.178, 0.386]	3992619	T→G	ECB_03721	K177T	C40K
46.1	0.387	[0.252, 0.537]	2858322	T→G	<i>ppdB</i>	E5A	C40K
46.0	0.582	[0.432, 0.727]	2864911	C→A	<i>mutH</i>	G210G	C40K
45.9	0.418	[0.277, 0.580]	576388	A→C	<i>cusR/cusC</i>	–	C40K
45.8	0.462	[0.306, 0.627]	1405097	T→G	<i>ydaM/ydaN</i>	–	
45.8	0.555	[0.381, 0.721]	2441578	A→C	<i>ypdG</i>	M181R	
45.7	0.254	[0.167, 0.361]	3333476	A→C	<i>accB</i>	A50A	
45.6	0.503	[0.330, 0.671]	2222411	T→G	<i>rtn</i>	N166K	C40K
45.6	0.346	[0.225, 0.482]	1661682	T→G	<i>tus</i>	L77V	C40K
45.6	0.382	[0.253, 0.530]	4367301	A→C	<i>yjeP</i>	N75K	
45.6	0.383	[0.246, 0.529]	4547935	T→G	<i>yjiN</i>	I76L	C40K
45.5	0.325	[0.216, 0.457]	1388180	T→G	<i>ycjG</i>	S294R	C40K
45.5	0.504	[0.329, 0.671]	3236743	A→C	<i>yhbU</i>	N9H	C40K
45.5	0.346	[0.220, 0.475]	731494	T→G	<i>ybgQ</i>	P489P	C40K
45.4	0.606	[0.446, 0.759]	1832346	T→G	<i>ydjG</i>	L285F	
45.3	0.682	[0.544, 0.805]	918143	A→C	<i>artM</i>	F33L	C40K
45.3	0.217	[0.134, 0.321]	3557298	C→A	<i>yhhJ</i>	R65L	C40K
45.2	0.369	[0.235, 0.512]	3859873	T→G	<i>yieL</i>	K367N	C40K
45.2	0.499	[0.331, 0.672]	788776	A→C	ECB_00726	Y83D	
45.1	0.444	[0.291, 0.601]	1687839	A→C	<i>rnfG</i>	K148Q	
45.0	0.301	[0.196, 0.422]	3658512	T→G	<i>xylB</i>	K440Q	
45.0	0.429	[0.289, 0.591]	2306072	A→C	<i>yfaV</i>	D198E	
45.0	0.329	[0.217, 0.466]	2441230	A→C	<i>ypdG</i>	I297S	C40K
44.9	0.352	[0.227, 0.494]	1692302	A→C	<i>pdxY</i>	M261R	C40K
44.6	0.365	[0.236, 0.510]	4446077	T→G	<i>nrdD/treC</i>	–	C40K
44.6	0.313	[0.203, 0.433]	3227037	T→G	<i>yraK</i>	Y155D	C40K
44.3	0.578	[0.410, 0.724]	4455831	C→A	<i>pyrL/yjgH</i>	–	
44.3	0.515	[0.330, 0.699]	3813583	A→C	<i>ivbL/emrD</i>	–	
44.3	0.580	[0.409, 0.730]	940678	C→T	<i>clpA</i>	P189L	C40K
44.2	0.489	[0.321, 0.657]	4493724	A→C	<i>yis1</i>	L84*	

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
44.2	0.446	[0.285, 0.602]	1712380	A→C	<i>vdhO</i>	E251A	
44.2	0.288	[0.190, 0.417]	4526771	A→C	<i>fimD</i>	I254I	C40K
44.1	0.531	[0.352, 0.702]	1791045	A→C	<i>cedA/katE</i>	-	
44.0	0.650	[0.502, 0.778]	35850	A→C	<i>carB</i>	K321N	C40K
44.0	0.316	[0.203, 0.441]	3623554	A→C	<i>yhjO</i>	F392C	
43.9	0.356	[0.231, 0.502]	1176345	T→G	<i>fhuE/ycfF</i>	-	
43.8	0.290	[0.183, 0.406]	4601064	A→C	<i>osmY</i>	K145N	C40K
43.8	0.369	[0.240, 0.520]	1756840	A→C	<i>ydiP/ydiQ</i>	-	C40K
43.7	0.348	[0.223, 0.486]	2419950	T→G	<i>evgS</i>	D450E	
43.7	0.399	[0.256, 0.557]	4029063	A→C	<i>yihA/yihI</i>	-	C40K
43.4	0.357	[0.231, 0.502]	3081137	T→G	<i>yghXY</i>	Y218S	
43.2	0.379	[0.249, 0.515]	2320133	A→C	<i>pmrD/menE</i>	-	C40K
43.1	0.391	[0.254, 0.531]	2988792	T→G	<i>mutY</i>	L40W	C40K
42.9	0.379	[0.239, 0.527]	3404580	T→G	<i>fkpA</i>	K249Q	C40K
42.6	0.339	[0.221, 0.487]	2873513	T→G	<i>lysA</i>	H3P	
42.4	0.441	[0.285, 0.604]	2850878	A→C	<i>ptr</i>	L876V	
42.3	0.432	[0.282, 0.593]	1829798	A→C	<i>pncA/ydjE</i>	-	C40K
42.1	0.408	[0.263, 0.558]	1112671	A→C	<i>ycdW</i>	K73Q	
42.1	0.427	[0.269, 0.581]	2466526	A→C	<i>yfeS</i>	I18L	
42.0	0.452	[0.306, 0.627]	1724002	T→G	<i>ydhR</i>	N12K	
41.8	0.377	[0.246, 0.529]	3865067	A→C	<i>bgfF</i>	F300C	C40K
41.8	0.270	[0.172, 0.391]	1649169	T→G	<i>ydgD</i>	I5M	C40K
41.7	0.440	[0.294, 0.603]	4404811	T→G	<i>rplI/ECB_04071</i>	-	C40K
41.5	0.332	[0.218, 0.479]	1880102	A→C	<i>yoaE</i>	I21M	C40K
41.5	0.431	[0.277, 0.592]	3121407	A→C	<i>yqiG</i>	D392A	C40K
41.5	0.423	[0.270, 0.579]	1794984	T→G	<i>celF</i>	Y261S	C40K
41.4	0.606	[0.446, 0.758]	598442	T→G	<i>entF</i>	V526V	
41.4	0.187	[0.115, 0.273]	2717916	A→C	<i>recA</i>	V238G	
41.2	0.355	[0.225, 0.500]	1902841	A→C	<i>yebZ</i>	L109L	C40K
41.2	0.351	[0.229, 0.509]	332980	T→G	<i>cynX</i>	W145G	C40K
41.2	0.600	[0.421, 0.762]	3252768	T→G	<i>nusA/yhbC</i>	-	C40K
41.1	0.295	[0.183, 0.420]	4237773	T→G	<i>dinF</i>	L367R	
41.0	0.498	[0.329, 0.671]	3956032	T→G	<i>yzcX/yifL</i>	-	
40.9	0.262	[0.167, 0.382]	3541981	A→C	<i>yhhS</i>	H147Q	C40K
40.9	0.390	[0.251, 0.547]	4530188	A→C	<i>fimH</i>	N156T	C40K
40.8	0.275	[0.176, 0.390]	4166668	A→C	<i>rpoC</i>	K570Q	C40K
40.7	0.434	[0.271, 0.593]	4143491	T→G	<i>trmA/btuB</i>	-	
40.7	0.313	[0.196, 0.445]	1633778	A→C	<i>speG</i>	I134L	C40K
40.6	0.414	[0.263, 0.569]	2414848	A→C	<i>dsdA/emrY</i>	-	
40.6	0.324	[0.210, 0.464]	1228779	T→G	<i>ycgM</i>	F180L	C40K
40.5	0.375	[0.239, 0.527]	597017	A→C	<i>entF</i>	G51G	C40K
40.3	0.644	[0.469, 0.779]	494082	A→C	<i>ybbP</i>	E500A	
40.2	0.479	[0.308, 0.665]	1761548	A→C	<i>ydiD</i>	D435A	C40K
40.1	0.267	[0.161, 0.411]	4046902	G→T	<i>yihQ</i>	P199Q	
40.1	0.464	[0.297, 0.652]	516413	T→G	<i>allC</i>	Y349S	C40K
40.0	0.579	[0.394, 0.738]	2239729	A→C	<i>yejO</i>	A120A	
40.0	0.585	[0.407, 0.748]	3023893	T→G	<i>ECB_02822/ insB-22</i>	-	C40K
40.0	0.683	[0.531, 0.810]	651095	T→G	<i>ybeA</i>	I69L	
40.0	0.431	[0.278, 0.604]	2511731	A→C	<i>acrD/yffB</i>	-	
39.9	0.457	[0.294, 0.632]	2155555	T→G	<i>yehK/yehL</i>	-	
39.7	0.600	[0.422, 0.754]	2858895	A→C	<i>ppdA/thyA</i>	-	
39.6	0.350	[0.216, 0.497]	679893	A→C	<i>asnB</i>	S460R	
39.6	0.329	[0.207, 0.467]	4180045	A→C	<i>hupA</i>	K51N	C40K
39.6	0.298	[0.187, 0.433]	1252845	T→G	<i>dhaR</i>	Y544D	C40K
39.4	0.380	[0.238, 0.535]	39986	T→G	<i>caiD</i>	N160T	
39.4	0.238	[0.147, 0.342]	3231794	A→C	<i>yraP</i>	E51A	

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
39.3	0.427	[0.272, 0.592]	653483	A→C	<i>holA</i>	L236R	
39.3	0.658	[0.501, 0.795]	256579	T→G	<i>yafN</i>	I4M	
39.1	0.249	[0.143, 0.373]	3713828	G→T	ECB_03460	G280*	C40K
39.0	0.248	[0.155, 0.366]	4058501	T→G	<i>fdhE</i>	E292A	C40K
39.0	0.295	[0.175, 0.440]	3984539	G→T	ECB_03713	P117Q	C40K
38.7	0.466	[0.289, 0.634]	3776874	A→C	ECB_03516/ ECB_03517	-	
38.7	0.250	[0.149, 0.375]	2914384	G→T	<i>ygfS</i>	A76D	C40K
38.4	0.271	[0.171, 0.397]	510546	T→G	<i>allP</i>	F250V	
38.4	0.351	[0.216, 0.497]	1280272	A→C	<i>narG</i>	N87H	
38.0	0.264	[0.170, 0.380]	4466781	T→G	<i>valS</i>	E30D	C40K
37.9	0.275	[0.168, 0.391]	540028	A→C	<i>renD</i>	E26A	C40K
37.9	0.343	[0.219, 0.492]	4142501	T→G	<i>trmA</i>	K211Q	C40K
37.8	0.448	[0.277, 0.624]	2404817	A→C	<i>yfcZ/fadL</i>	-	
37.7	0.336	[0.218, 0.475]	2497928	T→G	<i>maeB</i>	K426N	C40K
37.7	0.443	[0.279, 0.619]	828820	T→G	<i>ybiB</i>	V316V	C40K
37.5	0.371	[0.232, 0.526]	3781098	T→G	ECB_03520	M377R	C40K
37.4	0.556	[0.359, 0.732]	3788555	A→C	ECB_03531	G105G	
37.4	0.395	[0.247, 0.559]	1419306	T→G	<i>trkG</i>	C215W	C40K
37.2	0.309	[0.191, 0.448]	3611119	A→C	<i>yhjJ</i>	I105S	
37.2	0.641	[0.472, 0.789]	313891	A→C	<i>yahJ</i>	N40H	
37.1	0.630	[0.477, 0.769]	2450699	C→A	<i>yfeA</i>	E4*	
37.1	0.309	[0.188, 0.441]	3976831	T→G	<i>metR</i>	E138A	C40K
37.0	0.331	[0.206, 0.467]	2966498	T→G	<i>tktA</i>	K297Q	
36.8	0.354	[0.217, 0.496]	212537	T→G	<i>ldcC</i>	I6S	C40K
36.8	0.325	[0.206, 0.457]	2817492	T→G	<i>sdaC</i>	I112S	C40K
36.5	0.251	[0.155, 0.365]	842160	A→C	<i>ybiF</i>	L188*	C40K
36.4	0.265	[0.157, 0.381]	2833119	T→G	<i>fucK</i>	L355V	
36.4	0.471	[0.291, 0.653]	3775466	T→G	<i>selC</i> /ECB_03516	-	
36.3	0.344	[0.212, 0.489]	3507177	A→C	<i>gntU</i>	S446R	C40K
36.3	0.619	[0.422, 0.772]	2699368	T→G	<i>nrdF/proV</i>	-	
36.2	0.415	[0.256, 0.579]	506450	T→G	<i>gcl</i>	A123A	C40K
36.1	0.358	[0.219, 0.513]	3303353	A→C	<i>dcuD</i>	Y196S	C40K
35.9	0.380	[0.231, 0.535]	379334	T→G	<i>yajF</i>	N256K	C40K
35.9	0.410	[0.256, 0.569]	152863	T→G	<i>yadC</i>	N334T	
35.9	0.388	[0.244, 0.546]	1767478	T→G	<i>ydiU</i>	L345L	C40K
35.7	0.696	[0.543, 0.824]	4396603	A→C	<i>yjfQ</i>	T2T	
35.5	0.708	[0.539, 0.828]	1693534	T→G	<i>tyrS</i>	K295Q	
35.4	0.454	[0.293, 0.631]	3051023	A→C	<i>glcG</i>	V34G	
35.3	0.395	[0.248, 0.568]	2705690	A→C	<i>emrR</i>	D21A	C40K
35.3	0.336	[0.197, 0.495]	2537679	G→T	<i>yfgC</i>	A256S	C40K
35.2	0.287	[0.178, 0.421]	172675	T→G	<i>fhuC</i>	F19C	
35.1	0.333	[0.213, 0.471]	4262744	A→C	<i>actP</i>	A364A	C40K
35.1	0.326	[0.200, 0.464]	3712483	A→C	ECB_03459	K74Q	C40K
34.9	0.576	[0.391, 0.755]	231930	T→G	<i>aspU/dkgB</i>	-	
34.7	0.274	[0.170, 0.397]	1693251	T→G	<i>tyrS</i>	E389A	
34.5	0.600	[0.422, 0.772]	875009	T→G	<i>deoR</i>	D93A	
34.4	0.171	[0.099, 0.277]	468017	G→T	<i>htpG</i>	L277L	
34.2	0.285	[0.165, 0.432]	2063933	C→A	<i>wcaD</i>	S51I	
34.1	0.258	[0.154, 0.385]	1557591	A→C	<i>ydeO</i>	A16A	
33.9	0.422	[0.264, 0.607]	1977296	T→G	<i>yedX</i>	N114K	C40K
33.5	0.317	[0.192, 0.472]	3822784	A→C	<i>glvBC</i>	D420E	C40K
33.3	0.233	[0.138, 0.349]	2981152	A→C	<i>yggS</i>	T102P	
33.2	0.398	[0.240, 0.566]	749853	A→C	<i>ybgG</i>	I332L	C40K
33.2	0.565	[0.353, 0.745]	1298145	T→G	<i>yehE/oppA</i>	-	
33.2	0.621	[0.437, 0.790]	2837245	T→G	<i>gcvA/ygdI</i>	-	
33.1	0.553	[0.352, 0.748]	971637	T→G	<i>focA/ycaO</i>	-	C40K

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
33.1	0.346	[0.209, 0.494]	2003886	A→C	<i>cobU/yoeA</i>	-	
33.0	0.190	[0.114, 0.279]	4500312	T→G	<i>fecA</i>	S466S	
33.0	0.255	[0.150, 0.375]	597391	A→C	<i>entF</i>	D176A	
33.0	0.599	[0.406, 0.774]	3095365	A→C	<i>ygiQ/sufl</i>	-	
32.9	0.325	[0.195, 0.480]	1016770	T→G	<i>ycbS</i>	I155S	C40K
32.7	0.303	[0.179, 0.447]	2480430	A→C	<i>amiA</i>	Q187P	C40K
32.5	0.294	[0.177, 0.447]	405910	C→A	<i>yajO</i>	R216R	C40K
32.5	0.241	[0.133, 0.372]	3003485	C→A	<i>yeeR</i>	R319S	
32.3	0.203	[0.121, 0.312]	3748382	T→G	<i>coaD</i>	V68G	C40K
32.2	0.354	[0.197, 0.535]	1004193	C→A	<i>ompF/asnS</i>	-	C40K
32.0	0.307	[0.183, 0.454]	1098758	A→C	<i>ycdO</i>	E77D	C40K
32.0	0.128	[0.078, 0.196]	2746883	T→G	<i>hypC</i>	F54V	
31.9	0.577	[0.373, 0.756]	2863851	A→C	<i>ygdP/mutH</i>	-	
31.7	0.331	[0.196, 0.481]	3561248	A→C	<i>yhil</i>	L15V	C40K
31.6	0.364	[0.218, 0.541]	125630	T→G	<i>pdhR</i>	S245S	C40K
31.6	0.260	[0.155, 0.397]	4055073	A→C	<i>rbn</i>	I261L	
31.6	0.363	[0.211, 0.529]	2127664	A→C	<i>gatB</i>	I88S	C40K
31.5	0.302	[0.178, 0.436]	735533	T→G	<i>gltA/sdhC</i>	-	C40K
31.4	0.291	[0.171, 0.431]	2360181	A→C	<i>pta</i>	K615Q	C40K
31.4	0.345	[0.208, 0.517]	1975162	T→G	<i>yedV</i>	K330N	C40K
31.4	0.112	[0.068, 0.168]	2742589	A→C	<i>hycC</i>	L505V	
31.3	0.304	[0.187, 0.463]	3823644	T→G	<i>glvBC</i>	K134Q	
31.1	0.244	[0.146, 0.379]	909616	T→G	<i>rimK/ybjN</i>	-	C40K
31.0	0.375	[0.216, 0.541]	4089472	A→C	<i>cdh</i>	I21L	C40K
31.0	0.261	[0.155, 0.397]	2825941	A→C	ECB_02649	L93R	C40K
30.8	0.286	[0.168, 0.423]	4236967	A→C	<i>dinF</i>	K98N	
30.6	0.274	[0.152, 0.419]	1010683	C→A	<i>ssuB</i>	P151P	
30.5	0.250	[0.144, 0.373]	482985	T→G	<i>copA</i>	Q188P	
30.4	0.737	[0.589, 0.852]	3514291	A→C	<i>yhhZ</i>	K326Q	
30.4	0.311	[0.178, 0.457]	1785895	T→G	<i>yniA</i>	S279A	C40K
30.1	0.333	[0.194, 0.482]	4096930	A→C	<i>glpF</i>	W215G	C40K
30.0	0.412	[0.238, 0.594]	714992	A→C	<i>ybfO</i>	K343N	C40K
29.8	0.228	[0.128, 0.338]	4587518	A→C	<i>mdbB</i>	D386E	
29.6	0.406	[0.237, 0.595]	4628873	T→G	<i>yjyY/lasT</i>	-	C40K
29.5	0.418	[0.256, 0.594]	3612954	T→G	<i>dctA/yhjK</i>	-	C40K
29.4	0.379	[0.225, 0.553]	640290	T→G	<i>ccbB</i>	L77L	C40K
29.3	0.300	[0.174, 0.450]	2872152	T→G	<i>galR</i>	P311P	C40K
29.0	0.273	[0.156, 0.410]	1349424	T→G	<i>fabI/ycjD</i>	-	
29.0	0.341	[0.196, 0.514]	235495	T→G	<i>yafE/mltD</i>	-	C40K
29.0	0.375	[0.218, 0.540]	3089831	A→C	<i>yqhD</i>	K102T	C40K
28.8	0.713	[0.555, 0.843]	2168655	A→C	<i>yehY</i>	L367R	
28.8	0.305	[0.177, 0.458]	1707834	T→G	<i>lhr</i>	A518A	C40K
28.7	0.299	[0.165, 0.465]	475904	C→A	<i>fsr</i>	G287V	C40K
28.5	0.407	[0.237, 0.594]	1292879	A→C	<i>hns/tak</i>	-	
28.5	0.333	[0.191, 0.503]	1059834	T→G	<i>yccC</i>	N490H	
28.5	0.258	[0.147, 0.390]	531409	A→C	<i>sfmC</i>	N110H	
28.4	0.685	[0.508, 0.832]	1097604	T→G	<i>putP/ycdN</i>	-	
28.3	0.233	[0.132, 0.355]	2813416	A→C	<i>yqcC/syd</i>	-	
28.1	0.300	[0.178, 0.459]	4414202	A→C	<i>fkIB</i>	E90A	C40K
28.1	0.292	[0.165, 0.433]	2833343	A→C	<i>fucK</i>	V429V	
28.0	0.370	[0.215, 0.552]	1540242	A→C	<i>yddV</i>	I166M	
27.9	0.245	[0.142, 0.378]	2317986	T→G	<i>arnT</i>	L189*	
27.8	0.244	[0.141, 0.378]	447819	A→C	<i>ybaY</i>	N125T	
27.7	0.233	[0.134, 0.352]	2433065	T→G	<i>ypdA</i>	L57R	
27.7	0.161	[0.089, 0.263]	4465015	G→T	<i>valS</i>	A619E	
27.7	0.261	[0.143, 0.412]	492156	C→A	<i>ybbA</i>	R86S	C40K

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
27.6	0.370	[0.215, 0.551]	226275	A→C	<i>gmhB/rrsH</i>	–	C40K
27.5	0.280	[0.156, 0.427]	1599357	A→C	<i>ydfJ</i>	I232M	
27.4	0.292	[0.168, 0.453]	1221347	A→C	<i>ycgH</i>	–	
27.4	0.395	[0.229, 0.580]	1998939	T→G	<i>cbl/nac</i>	–	C40K
27.2	0.214	[0.123, 0.335]	4397695	T→G	<i>yjfR</i>	E29A	
27.1	0.433	[0.244, 0.629]	3046426	T→G	<i>yghJ/yghK</i>	–	
27.1	0.295	[0.173, 0.450]	582155	A→C	<i>cusA</i>	K847Q	C40K
26.9	0.195	[0.114, 0.306]	81102	A→C	<i>setA</i>	L226F	
26.8	0.247	[0.139, 0.391]	3083973	T→G	<i>yghA</i>	L47R	
26.5	0.162	[0.092, 0.249]	3377468	A→C	<i>rpsC</i>	R107R	
26.5	0.254	[0.142, 0.396]	4212457	A→C	<i>lysC/pgi</i>	–	
26.4	0.283	[0.160, 0.434]	2911292	A→C	<i>ygfO</i>	E396D	
26.3	0.373	[0.217, 0.580]	2582325	A→C	<i>iscS/iscR</i>	–	
26.3	0.246	[0.139, 0.389]	445446	T→G	<i>amtB</i>	V138V	
26.3	0.482	[0.278, 0.688]	3027011	T→G	ECB_02827	*220Y	C40K
26.1	0.612	[0.406, 0.799]	3792298	A→C	ECB_03532	H135P	C40K
26.0	0.185	[0.097, 0.310]	4493211	G→T	<i>yis2</i>	G142G	
26.0	0.386	[0.228, 0.581]	3313358	A→C	<i>argR/yhcN</i>	–	
25.9	0.199	[0.106, 0.319]	1509892	G→T	<i>yddE</i>	–	
25.7	0.235	[0.130, 0.365]	662133	T→G	<i>hscC</i>	E349D	
25.7	0.234	[0.130, 0.365]	876767	A→C	<i>cmr</i>	A181A	C40K
25.4	0.278	[0.158, 0.434]	2028307	T→G	<i>wzzB/ugd</i>	–	C40K
25.3	0.231	[0.130, 0.365]	2160319	A→C	<i>yehQ</i>	L8F	
25.0	0.268	[0.148, 0.428]	1541538	T→G	<i>yddW</i>	T413P	C40K
25.0	0.187	[0.106, 0.293]	4286188	A→C	<i>alsK</i>	F145C	
25.0	0.209	[0.115, 0.327]	4040455	T→G	<i>yihM/yihN</i>	–	
24.8	0.243	[0.139, 0.372]	2899609	A→C	<i>yqeB</i>	I129S	
24.8	0.418	[0.230, 0.634]	690209	T→G	<i>glnS/ybfM</i>	–	C40K
24.7	0.209	[0.115, 0.328]	2158593	T→G	<i>yehM</i>	F568C	
24.7	0.234	[0.128, 0.364]	3217222	A→C	<i>agaS</i>	Y5S	C40K
24.6	0.690	[0.508, 0.832]	2989164	T→G	<i>mutY</i>	L164*	
24.6	0.195	[0.111, 0.307]	814339	A→C	<i>ybhN</i>	V262G	
24.3	0.264	[0.143, 0.411]	1886806	T→G	<i>yobF/yebO</i>	–	C40K
24.3	0.312	[0.170, 0.476]	330492	T→G	<i>cynR</i>	K252T	C40K
24.2	0.403	[0.234, 0.612]	1520150	T→G	<i>yddL</i>	V10V	C40K
24.1	0.177	[0.097, 0.282]	320390	T→G	<i>prpR</i>	Y235S	
24.1	0.250	[0.147, 0.383]	3969200	T→G	<i>yigl/pldA</i>	–	C40K
24.1	0.294	[0.149, 0.450]	3089302	G→T	<i>yqhC</i>	A30E	
24.0	0.205	[0.114, 0.316]	4337791	T→G	<i>cadB</i>	K321Q	
23.9	0.189	[0.105, 0.293]	109022	A→C	<i>ftsZ</i>	E305A	
23.8	0.245	[0.131, 0.382]	3506469	A→C	<i>asd/yhgN</i>	–	C40K
23.7	0.729	[0.560, 0.863]	2070879	T→G	<i>wza/yegH</i>	–	
23.6	0.223	[0.123, 0.349]	128976	A→C	<i>aceF</i>	I160L	
23.6	0.430	[0.233, 0.631]	3528587	A→C	<i>livK/yhhK</i>	–	C40K
23.2	0.218	[0.118, 0.337]	3309945	A→C	<i>degQ</i>	K435N	
23.2	0.192	[0.103, 0.308]	1563306	T→G	<i>ydeT</i>	Q216P	
22.9	0.212	[0.110, 0.329]	1538945	T→G	<i>dos</i>	M243L	
22.8	0.202	[0.107, 0.323]	3993794	A→C	ECB_03722	F3L	
22.8	0.267	[0.150, 0.417]	4089879	A→C	<i>cdh</i>	K156N	C40K
22.6	0.197	[0.101, 0.342]	94003	G→T	<i>ftsL</i>	T56T	C40K
22.4	0.247	[0.130, 0.382]	2179354	A→C	<i>yohGH</i>	I191S	
22.4	0.303	[0.170, 0.477]	2511681	T→G	<i>acrD/yffB</i>	–	C40K
22.3	0.269	[0.151, 0.419]	3738290	T→G	<i>waaV</i>	Y189S	
22.0	0.381	[0.204, 0.579]	3253256	A→C	<i>yhbC/metZ</i>	–	C40K
22.0	0.645	[0.454, 0.809]	1836496	C→A	<i>ydjK</i>	L321L	
21.8	0.437	[0.233, 0.657]	541954	T→G	<i>ybcK</i>	I388S	

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
21.8	0.350	[0.185, 0.532]	3397769	T→G	<i>chiA/tuf</i>	-	
21.6	0.236	[0.126, 0.389]	1243473	A→C	<i>mltE</i>	A48A	C40K
21.6	0.172	[0.095, 0.289]	39023	T→G	<i>caiE</i>	E181D	
21.5	0.205	[0.110, 0.328]	3043941	T→G	<i>yghJ</i>	D688A	C40K
21.5	0.165	[0.082, 0.281]	2629329	G→T	<i>rseB</i>	R307S	C40K
21.3	0.247	[0.129, 0.381]	3498495	A→C	<i>glgA</i>	D331E	C40K
21.3	0.272	[0.146, 0.439]	4248845	T→G	<i>aphA</i>	F167C	C40K
21.1	0.448	[0.244, 0.653]	2909993	T→G	<i>xdhD/ygfO</i>	-	C40K
21.0	0.223	[0.115, 0.360]	4249870	A→C	<i>yjbR</i>	Y94S	
21.0	0.232	[0.123, 0.380]	3188042	T→G	<i>yhaK</i>	L231V	C40K
20.9	0.219	[0.105, 0.378]	747520	G→T	<i>hrsA</i>	V219F	
20.9	0.269	[0.143, 0.429]	3178868	A→C	<i>exuT</i>	N244T	C40K
20.9	0.149	[0.074, 0.261]	83321	G→T	<i>leuC</i>	G116G	
20.8	0.585	[0.337, 0.800]	3583174	A→C	<i>yhiS</i>	L398F	
20.8	0.767	[0.623, 0.881]	3581085	T→G	<i>arsC</i>	I53M	
20.7	0.176	[0.094, 0.285]	4424221	T→G	<i>ytfL</i>	E251A	
20.5	0.199	[0.105, 0.318]	493795	T→G	<i>ybbP</i>	L404L	C40K
20.5	0.214	[0.112, 0.354]	2149904	T→G	<i>molR</i>	L745*	
20.4	0.253	[0.135, 0.412]	1532839	A→C	<i>yddP</i>	G39G	C40K
20.1	0.312	[0.173, 0.471]	411430	T→G	<i>thiI/thiJ</i>	-	C40K
19.9	0.167	[0.090, 0.277]	1922855	A→C	<i>znuB/ruvB</i>	-	
19.2	0.153	[0.079, 0.249]	604005	A→C	<i>fepD</i>	I298S	
19.2	0.218	[0.113, 0.355]	3461005	A→C	<i>yhgE</i>	I40S	
19.0	0.281	[0.151, 0.449]	1803438	A→C	<i>astE</i>	Y251D	C40K
18.7	0.207	[0.104, 0.331]	4292123	A→C	<i>rpiR/rpiB</i>	-	C40K
18.6	0.275	[0.137, 0.440]	910282	T→G	<i>ybiN/potF</i>	-	
18.5	0.247	[0.123, 0.403]	3303212	T→G	<i>dcuD</i>	L149R	C40K
18.5	0.227	[0.115, 0.380]	2702200	A→C	<i>proX</i>	E106A	
18.5	0.134	[0.069, 0.232]	2436881	A→C	<i>ypdD</i>	I610M	
18.3	0.161	[0.082, 0.267]	4205306	T→G	<i>metH</i>	Y850D	
18.3	0.187	[0.098, 0.314]	2323662	A→C	<i>yfbB</i>	Y148*	C40K
18.2	0.226	[0.115, 0.379]	1463096	A→C	<i>trg</i>	D173A	C40K
18.1	0.218	[0.107, 0.357]	1207988	A→C	<i>ycfC</i>	Y5D	
18.0	0.233	[0.115, 0.379]	2166019	T→G	<i>yehU/yehV</i>	-	
17.9	0.174	[0.089, 0.294]	122923	A→C	<i>ampE</i>	Y280S	
17.9	0.206	[0.104, 0.350]	4516225	A→C	<i>yjhr/yjhs</i>	-	
17.9	0.268	[0.138, 0.441]	835729	A→C	<i>ybiN</i>	E258A	
17.9	0.154	[0.078, 0.258]	1391019	A→C	<i>ycjZ</i>	E220D	
17.8	0.196	[0.100, 0.319]	1189161	A→C	<i>ycfT</i>	L200L	
17.8	0.227	[0.114, 0.379]	2175153	A→C	<i>dld/pbpG</i>	-	
17.7	0.188	[0.095, 0.321]	3717819	T→G	ECB_03460	L1610R	
17.4	0.261	[0.133, 0.431]	2594074	A→C	<i>yphA</i>	G34G	C40K
17.3	0.354	[0.186, 0.559]	3586500	T→G	<i>hdeD</i>	D5E	
17.3	0.293	[0.142, 0.480]	2183839	A→C	<i>cdd</i>	D253A	C40K
17.1	0.254	[0.135, 0.420]	3779580	A→C	ECB_03519	L70R	
17.0	0.145	[0.073, 0.241]	389819	A→C	<i>proY</i>	V137V	
17.0	0.222	[0.113, 0.379]	1022287	T→G	<i>pyrD</i>	N143K	
16.9	0.119	[0.062, 0.208]	3808788	T→G	<i>uhpB</i>	K427N	
16.8	0.180	[0.087, 0.300]	118051	T→G	<i>hofC</i>	K160Q	
16.7	0.150	[0.073, 0.253]	216747	A→C	<i>rof</i>	C10G	
16.7	0.419	[0.197, 0.670]	3291356	A→C	<i>gltB</i>	E497A	
16.7	0.242	[0.115, 0.403]	1402836	A→C	<i>abgR/ydaL</i>	-	C40K
16.5	0.182	[0.090, 0.314]	1055171	T→G	<i>appC</i>	F114C	
16.5	0.251	[0.122, 0.422]	4490502	T→G	ECB_04147	I44S	C40K
16.2	0.254	[0.121, 0.422]	1166321	T→G	<i>acpP</i>	A46A	C40K
16.1	0.243	[0.118, 0.413]	2795341	T→G	<i>ygcG</i>	F235V	C40K

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
16.0	0.127	[0.062, 0.218]	2762605	T→G	<i>nlpD</i>	Q337P	
16.0	0.563	[0.299, 0.804]	3192262	T→G	<i>tdcG</i>	K141T	
15.9	0.216	[0.103, 0.368]	2444520	T→G	<i>yfeO</i>	D222E	
15.5	0.140	[0.070, 0.247]	1276107	T→G	<i>narX</i>	I554I	
15.4	0.122	[0.060, 0.212]	4418434	A→C	<i>ytfG</i>	D197E	
15.2	0.158	[0.084, 0.263]	3173476	A→C	<i>ygjU</i>	N167H	
15.1	0.104	[0.052, 0.187]	2730429	A→C	<i>hypF</i>	A619A	
14.9	0.231	[0.111, 0.393]	3737701	T→G	<i>waaL</i>	G42G	C40K
14.9	0.298	[0.125, 0.512]	393379	G→T	<i>yajB/queA</i>	-	C40K
14.8	0.743	[0.536, 0.891]	4140780	T→G	<i>udhA/yijC</i>	-	
14.4	0.169	[0.083, 0.286]	2876390	A→C	<i>araE</i>	S138S	
14.4	0.260	[0.124, 0.433]	494275	T→G	<i>ybbP</i>	G564G	
14.4	0.156	[0.079, 0.279]	1952123	T→G	<i>cheW/cheA</i>	-	C40K
14.1	0.135	[0.064, 0.243]	3857126	A→C	<i>yieG/yieH</i>	-	
14.0	0.156	[0.073, 0.260]	4247198	A→C	<i>tyrB</i>	N385H	
14.0	0.191	[0.091, 0.333]	3312654	A→C	<i>argR</i>	K19Q	
13.6	0.296	[0.143, 0.495]	1518024	A→C	<i>narU</i>	I63S	C40K
13.5	0.192	[0.089, 0.326]	3365940	T→G	<i>mscL</i>	I4M	
13.4	0.123	[0.060, 0.215]	2315295	T→G	<i>yfbG</i>	H248Q	
13.4	0.701	[0.459, 0.883]	1798556	A→C	<i>celB/celA</i>	-	
13.4	0.192	[0.084, 0.341]	4136696	T→G	<i>argB/argH</i>	-	
13.3	0.195	[0.093, 0.364]	1758779	T→G	<i>ydiS</i>	S39R	
13.3	0.189	[0.088, 0.348]	1835977	A→C	<i>ydjJ</i>	V29G	
13.1	0.173	[0.079, 0.314]	3041599	A→C	<i>yghJ</i>	Y1469D	
13.1	0.281	[0.121, 0.494]	2131826	C→A	<i>fbaB</i>	G290C	
13.1	0.122	[0.054, 0.207]	4618009	T→G	<i>yjjK</i>	N243H	
12.9	0.106	[0.046, 0.197]	2873005	G→T	<i>lysA</i>	P172P	
12.9	0.439	[0.198, 0.702]	4557948	A→C	<i>yjiW/hsdS</i>	-	
12.7	0.164	[0.079, 0.297]	703655	A→C	<i>kdpE</i>	G58G	
12.6	0.212	[0.099, 0.382]	1364853	T→G	<i>goaG</i>	N312K	C40K
12.5	0.396	[0.174, 0.642]	1732027	A→C	<i>ydhY/ydhZ</i>	-	C40K
12.5	0.154	[0.070, 0.286]	4484606	A→C	<i>insG</i>	Y240D	
12.3	0.167	[0.072, 0.291]	405415	T→G	<i>pgpA</i>	D135E	
12.2	0.175	[0.079, 0.320]	801906	A→C	<i>bioA/bioB</i>	-	
12.1	0.282	[0.127, 0.473]	1456048	A→C	<i>hrpA</i>	R1200R	C40K
12.0	0.170	[0.075, 0.303]	3417998	T→G	<i>argD</i>	K30Q	
11.9	0.216	[0.097, 0.382]	2691643	A→C	<i>yqaE</i>	W47G	
11.9	0.172	[0.076, 0.308]	3999534	T→G	<i>ubiB</i>	F280V	
11.8	0.146	[0.066, 0.255]	673660	T→G	<i>ybeX</i>	I74L	
11.8	0.169	[0.072, 0.302]	4216920	T→G	<i>yjbH</i>	W119G	
11.7	0.120	[0.055, 0.214]	3617602	A→C	<i>bcsC</i>	I355S	
11.5	0.131	[0.059, 0.246]	2973709	A→C	<i>metK/galP</i>	-	
11.3	0.132	[0.058, 0.242]	4413097	T→G	<i>ytfB</i>	S207R	
11.2	0.105	[0.045, 0.201]	817450	T→G	<i>ybhQ</i>	W66G	
10.9	0.120	[0.052, 0.224]	2301878	A→C	<i>glpB</i>	L302L	
10.8	0.127	[0.046, 0.248]	1380364	G→T	<i>ompG</i>	A17S	
10.8	0.148	[0.065, 0.267]	4406742	T→G	ECB_04072	V505V	
10.7	0.185	[0.080, 0.352]	2808644	A→C	<i>gudX</i>	D344E	
10.5	0.179	[0.073, 0.327]	1246198	A→C	<i>treA</i>	S443R	
10.5	0.106	[0.047, 0.200]	4367937	A→C	<i>psd</i>	F193L	
10.4	0.150	[0.064, 0.289]	3692783	T→G	<i>selB</i>	D591A	
10.4	0.162	[0.069, 0.315]	1278238	T→G	<i>narK</i>	C44W	
10.4	0.137	[0.060, 0.249]	3578670	A→C	<i>gor/arsR</i>	-	
10.4	0.166	[0.068, 0.307]	2180706	T→G	<i>yohl</i>	I307L	
10.3	0.162	[0.068, 0.307]	2792123	A→C	<i>ygcE/ECB_02621</i>	-	
10.3	0.092	[0.040, 0.172]	2483050	A→C	<i>yffI</i>	R66R	

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
10.2	0.153	[0.065, 0.295]	3696572	A→C	<i>yibF</i>	F26C	
10.1	0.124	[0.055, 0.232]	1036813	T→G	<i>ompA</i>	D111A	
10.1	0.157	[0.065, 0.296]	938865	T→G	<i>macB</i>	W605G	
10.1	0.110	[0.046, 0.215]	1672433	G→T	<i>uidA</i>	G278G	
10.0	0.177	[0.073, 0.328]	641854	T→G	<i>lipA</i>	K316Q	
10.0	0.216	[0.090, 0.389]	2133834	T→G	<i>yegT</i>	D295E	
9.9	0.158	[0.068, 0.308]	2962321	T→G	<i>yggP</i>	K296T	
9.7	0.178	[0.075, 0.335]	1288327	T→G	<i>purU</i>	E31A	
9.6	0.149	[0.061, 0.283]	393663	A→C	<i>queA</i>	K77T	
9.5	0.127	[0.053, 0.245]	1079282	T→G	<i>cbpA</i>	K262Q	
9.4	0.110	[0.048, 0.209]	2729727	A→C	<i>ygbD</i>	E319A	
9.4	0.140	[0.058, 0.268]	2813426	T→G	<i>yqcC/syd</i>	-	
9.3	0.132	[0.055, 0.258]	4094737	T→G	<i>glpX</i>	K109Q	
9.2	0.174	[0.076, 0.336]	3657614	A→C	<i>yiaA</i>	I69R	C40K
9.0	0.120	[0.048, 0.228]	3666491	A→C	<i>xylR</i>	I353L	
9.0	0.069	[0.025, 0.143]	74122	G→T	<i>araC/yabl</i>	-	
9.0	0.083	[0.037, 0.158]	2168204	T→G	<i>yehX</i>	Q134P	
8.9	0.103	[0.041, 0.199]	451643	T→G	<i>maa</i>	I115L	
8.8	0.184	[0.076, 0.344]	218211	A→C	<i>cutF</i>	Q34P	
8.7	0.086	[0.032, 0.175]	2338134	C→T	<i>nuoL</i>	M168I	
8.5	0.139	[0.057, 0.268]	556439	T→G	ECB_00513	M575R	
8.4	0.088	[0.036, 0.178]	4433618	T→G	<i>ytfQ</i>	L136W	
8.3	0.112	[0.045, 0.211]	1162917	A→C	<i>plsX</i>	E243A	
8.3	0.094	[0.040, 0.190]	1699783	A→C	<i>ydhK</i>	I157L	
8.3	0.141	[0.060, 0.278]	1471239	T→G	<i>tehA</i>	R186R	
8.2	0.091	[0.036, 0.174]	3771517	A→C	<i>yicl</i>	F688C	
8.2	0.158	[0.063, 0.289]	2016160	T→G	<i>yeeF</i>	E449A	
8.1	0.097	[0.039, 0.185]	1681829	T→G	<i>blr</i>	Y29D	
8.1	0.082	[0.033, 0.162]	4030951	A→C	<i>hemN</i>	T204P	
7.9	0.145	[0.059, 0.272]	895571	A→C	ECB_00834	E227A	
7.8	0.088	[0.034, 0.171]	468423	A→C	<i>htpG</i>	T413P	
7.7	0.076	[0.031, 0.153]	3988708	G→T	<i>ysgA</i>	V127V	
7.6	0.108	[0.045, 0.215]	1804366	T→G	<i>astB</i>	N387H	
7.4	0.175	[0.058, 0.358]	2600080	G→T	<i>yphF/yphG</i>	-	
7.3	0.137	[0.052, 0.274]	3047185	A→C	<i>yghK</i>	F329L	
7.2	0.081	[0.033, 0.161]	1706209	A→C	<i>rnt/lhr</i>	-	
7.2	0.124	[0.045, 0.247]	672941	A→C	<i>Int</i>	I12M	
7.1	0.178	[0.065, 0.337]	2575904	A→C	<i>pepB</i>	L425*	
7.1	0.089	[0.037, 0.176]	3650621	A→C	<i>cspA</i>	N39H	
6.9	0.120	[0.049, 0.223]	4046297	T→G	<i>yihQ</i>	T401P	
6.8	0.123	[0.047, 0.247]	2646159	T→G	<i>kgfP</i>	K361Q	
6.8	0.107	[0.039, 0.215]	1562913	A→C	<i>ydeT</i>	L347*	
6.7	0.114	[0.044, 0.234]	3670458	A→C	<i>avtA</i>	I100L	
6.7	0.135	[0.055, 0.258]	1778924	T→G	<i>thrS</i>	E305A	
6.5	0.134	[0.050, 0.262]	2755220	T→G	<i>pphB</i>	Y201D	
6.5	0.110	[0.041, 0.219]	1523598	A→C	<i>fdnG</i>	K683T	
6.4	0.093	[0.034, 0.190]	742964	A→C	<i>sucB</i>	K218Q	
6.4	0.082	[0.029, 0.177]	1319860	T→G	<i>trpE</i>	P227P	
6.4	0.137	[0.052, 0.273]	2293250	A→C	<i>nrdA</i>	Q562H	
6.3	0.138	[0.053, 0.279]	2959712	A→C	<i>epd/yggC</i>	-	
6.1	0.105	[0.038, 0.209]	4453550	A→C	<i>mgtA</i>	L883F	
6.0	0.072	[0.028, 0.139]	2719319	A→C	<i>ygaD/mltB</i>	-	
6.0	0.084	[0.032, 0.180]	4140162	A→C	<i>udhA</i>	Y164D	
5.9	0.105	[0.038, 0.209]	3383769	T→G	<i>gspC</i>	I96S	
5.8	0.097	[0.037, 0.203]	1988512	A→C	<i>yeeJ</i>	K1884T	
5.7	0.102	[0.037, 0.208]	1052834	T→G	<i>hyaC</i>	F226L	

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
5.7	0.089	[0.035, 0.176]	2016539	T→G	<i>yeeF</i>	K323Q	
5.7	0.092	[0.035, 0.193]	3191418	A→C	<i>tdcG</i>	D422E	
5.4	0.121	[0.050, 0.241]	250428	T→G	<i>yafK/yafQ</i>	-	
5.3	0.208	[0.067, 0.407]	2599497	A→C	<i>yphF</i>	V190V	
5.3	0.038	[0.013, 0.087]	2714813	C→A	<i>alaS</i>	S686S	
5.1	0.100	[0.037, 0.208]	3949700	T→G	<i>hemX</i>	Q399H	
5.1	0.136	[0.048, 0.272]	3554394	A→C	<i>yhhH</i>	Q103P	
5.0	0.073	[0.031, 0.135]	2731818	A→C	<i>hypF</i>	F156L	
4.9	0.131	[0.044, 0.282]	2499798	T→G	<i>talA</i>	F102C	
4.9	0.107	[0.035, 0.236]	308454	T→G	<i>yahD</i>	Y176D	
4.9	0.063	[0.020, 0.146]	3113151	C→A	<i>tolC</i>	R289S	
4.7	0.108	[0.036, 0.231]	4151984	A→C	<i>murB</i>	N106T	
4.7	0.093	[0.030, 0.201]	3845261	C→A	<i>yidD</i>	P29T	
4.6	0.102	[0.033, 0.214]	1869085	T→G	<i>yeaY</i>	K9T	
4.6	0.132	[0.043, 0.286]	4038587	G→T	<i>bipA/yihL</i>	-	
4.6	0.109	[0.038, 0.240]	466780	T→G	<i>recR</i>	G103G	
4.4	0.100	[0.033, 0.221]	3468712	A→C	<i>yhgF/feoA</i>	-	
4.3	0.107	[0.036, 0.233]	72188	A→C	<i>araB</i>	F222C	
4.3	0.111	[0.036, 0.236]	1020717	A→C	<i>ycbV</i>	N63T	
4.0	0.081	[0.029, 0.161]	1584279	T→G	<i>sotB</i>	L70*	
4.0	0.095	[0.030, 0.206]	4156793	T→G	<i>tuf/secE</i>	-	
3.9	0.109	[0.036, 0.236]	1055523	T→G	<i>appC</i>	I231M	
3.9	0.094	[0.030, 0.203]	922966	A→C	<i>ybjS</i>	I165M	
3.9	0.097	[0.032, 0.218]	3082322	T→G	<i>yghZ</i>	F85C	
3.9	0.071	[0.023, 0.169]	2686836	T→G	<i>gabD</i>	L295*	
3.8	0.074	[0.022, 0.158]	1579757	T→G	<i>yneH</i>	N180H	
3.8	0.314	[0.090, 0.613]	2793464	A→C	ECB_02621/ <i>ygcF</i>	-	
3.8	0.140	[0.047, 0.297]	33522	T→G	<i>dapB/carA</i>	-	
3.7	0.085	[0.027, 0.181]	355626	T→G	<i>tauB</i>	L171R	
3.7	0.069	[0.022, 0.149]	654574	T→G	<i>ripB</i>	E66A	
3.7	0.081	[0.026, 0.176]	3172721	A→C	<i>ygjT/ygjU</i>	-	
3.6	0.080	[0.025, 0.169]	1459135	A→C	<i>gapC</i>	L304*	
3.5	0.089	[0.029, 0.199]	3664231	T→G	<i>xylH</i>	F19C	
3.5	0.072	[0.022, 0.158]	1339936	A→C	<i>yciM</i>	E336A	
3.5	0.071	[0.020, 0.176]	1313641	C→A	<i>yciG/trpA</i>	-	
3.4	0.081	[0.025, 0.187]	3319800	A→C	<i>tldD</i>	F40L	
3.3	0.080	[0.027, 0.178]	2875812	A→C	<i>araE</i>	F331C	
3.3	0.334	[0.098, 0.654]	3397904	A→C	<i>chiA/tuf</i>	-	
3.3	0.109	[0.035, 0.231]	1090410	A→C	<i>ycdM/ycdC</i>	-	
3.2	0.040	[0.011, 0.101]	351184	G→T	<i>frmA</i>	L249M	
3.2	0.071	[0.023, 0.155]	2839535	T→G	<i>ygdK</i>	L125L	
3.1	0.107	[0.037, 0.240]	2134647	T→G	<i>yegU</i>	C142G	
3.1	0.074	[0.023, 0.166]	3556641	A→C	<i>yhhJ</i>	M284R	
3.0	0.154	[0.042, 0.338]	1142419	A→C	<i>mviN</i>	L3F	
3.0	0.144	[0.040, 0.326]	971773	A→C	<i>focA/ycaO</i>	-	
2.8	0.072	[0.020, 0.176]	1837688	C→A	<i>ydjL</i>	A292S	
2.6	0.117	[0.033, 0.275]	4320887	T→G	<i>melA</i>	I88S	
2.5	0.095	[0.026, 0.226]	3703283	T→G	<i>yibG</i>	L138R	
2.4	0.120	[0.034, 0.282]	2794265	A→C	<i>ygcF</i>	L28V	
2.3	0.094	[0.025, 0.230]	2989481	T→G	<i>mutY</i>	L270V	
2.2	0.086	[0.024, 0.204]	1005810	T→G	<i>asnS</i>	Q89H	
2.1	0.046	[0.011, 0.116]	1883142	G→T	<i>manZ</i>	T226T	
2.0	0.074	[0.021, 0.182]	4204758	T→G	<i>methH</i>	L667R	
2.0	0.778	[0.493, 0.954]	3942051	A→C	<i>wecG</i>	E99A	C40K
1.9	0.094	[0.025, 0.217]	3021700	T→G	ECB_02821	I329L	
1.9	0.075	[0.020, 0.175]	466436	A→C	<i>ybaB</i>	G98G	

Table S7 | SNPs predicted in 40K mixed-population sample

-log₁₀ E	fr new	95% CL	position	base	gene	aa	notes
1.9	0.090	[0.024, 0.208]	3590557	A→C	<i>yhiV</i>	Q218P	
1.9	0.145	[0.040, 0.326]	4419691	T→G	<i>cpdB</i>	K623N	
1.8	0.076	[0.020, 0.176]	1598388	A→C	<i>ydfI</i>	L98W	
1.8	0.052	[0.012, 0.152]	2877311	T→A	<i>kduD</i>	Y190F	
1.7	0.083	[0.024, 0.205]	4406285	T→G	ECB_04072	I658L	
1.7	0.103	[0.029, 0.248]	1517279	A→C	<i>narU</i>	D311E	
1.7	0.064	[0.017, 0.155]	2609986	A→C	<i>yfhG</i>	W74G	
1.6	0.087	[0.022, 0.200]	4155223	T→G	<i>tyrU/glyT</i>	-	
1.6	0.076	[0.021, 0.186]	449040	T→G	<i>ybaA</i>	F101C	
1.6	0.063	[0.018, 0.161]	1934678	A→C	<i>torZ</i>	M367R	
1.6	0.089	[0.021, 0.215]	3200806	A→C	<i>tdcR/yhaB</i>	-	
1.5	0.076	[0.016, 0.209]	3399298	C→A	<i>tuf/fusA</i>	-	
1.5	0.067	[0.020, 0.148]	2929893	T→G	<i>bglA</i>	F160C	
1.5	0.067	[0.019, 0.151]	3634666	A→C	<i>dppC</i>	L185R	
1.5	0.059	[0.016, 0.142]	1963803	T→G	<i>araF</i>	K107T	
1.5	0.086	[0.024, 0.203]	4209909	A→C	<i>yjbC</i>	M209L	
1.4	0.074	[0.021, 0.178]	814162	A→C	<i>ybhM/ybhN</i>	-	
1.4	0.063	[0.016, 0.148]	203759	A→C	<i>hlpA</i>	S146R	
1.3	0.067	[0.017, 0.150]	756377	T→G	<i>tolQ</i>	S115A	
1.3	0.058	[0.018, 0.139]	445257	A→C	<i>amtB</i>	A75A	
1.3	0.062	[0.016, 0.152]	4026617	T→G	<i>polA</i>	V452G	
1.3	0.042	[0.008, 0.117]	4336545	T→G	<i>cadA</i>	T265P	
1.2	0.064	[0.018, 0.147]	1051212	A→C	<i>hyaB</i>	S290R	
1.2	0.064	[0.017, 0.154]	3037779	C→A	ECB_02838	G406W	
1.2	0.060	[0.017, 0.151]	904280	A→C	ECB_00850	D118A	
1.2	0.052	[0.014, 0.124]	4423524	A→C	<i>ytfK</i>	E55A	
1.1	0.047	[0.010, 0.132]	181987	G→T	<i>pfs</i>	I3I	
1.1	0.072	[0.018, 0.172]	4172395	A→C	<i>thiS</i>	V18V	
1.1	0.054	[0.014, 0.130]	3797323	T→G	<i>yicK</i>	L147V	
1.1	0.057	[0.016, 0.139]	3658475	T→G	<i>xyiB</i>	E452A	
1.1	0.048	[0.013, 0.121]	1861066	A→C	<i>yeaU</i>	N193H	
1.1	0.057	[0.016, 0.142]	1253910	A→C	<i>ycgV</i>	D731E	
1.0	0.060	[0.017, 0.145]	3700904	T→G	<i>rhsA</i>	L1343R	
1.0	0.045	[0.009, 0.122]	4508445	C→A	<i>sgcQ</i>	R204L	
0.9	0.065	[0.017, 0.146]	3806810	A→G	<i>uhpT</i>	F97S	
0.9	0.053	[0.015, 0.132]	2028096	T→G	<i>wzzB</i>	I71L	
0.9	0.084	[0.024, 0.203]	4495466	A→C	ECB_04152/ <i>fecE</i>	-	
0.9	0.085	[0.022, 0.193]	3756427	A→C	<i>dinD</i>	A108A	
0.8	0.041	[0.010, 0.104]	2817899	T→G	<i>sdaC</i>	S248A	
0.8	0.069	[0.018, 0.165]	1680771	T→G	<i>ydgJ</i>	R244R	
0.7	0.063	[0.014, 0.180]	3675671	G→T	<i>yiaN</i>	G138W	
0.7	0.044	[0.009, 0.125]	163881	C→A	<i>sfsA</i>	V153F	
0.7	0.100	[0.020, 0.258]	2699214	G→T	<i>nrdF/proV</i>	-	
0.6	0.081	[0.023, 0.196]	4485694	T→G	<i>insG/yjhB</i>	-	
0.6	0.043	[0.009, 0.116]	2090101	G→A	<i>yegN</i>	P577P	
0.4	0.046	[0.013, 0.114]	2932829	A→C	<i>gcvP</i>	S655S	
0.4	0.104	[0.022, 0.273]	3570553	T→G	<i>yhiO/uspA</i>	-	
0.4	0.100	[0.019, 0.266]	498916	A→C	<i>rhsD</i>	G1163G	
0.2	0.073	[0.020, 0.176]	311428	A→C	<i>yahG</i>	D152A	
0.2	0.059	[0.016, 0.144]	3508874	T→G	<i>gntK</i>	N58H	
0.1	0.074	[0.017, 0.209]	33663	T→G	<i>dapB/carA</i>	-	
0.0	0.065	[0.008, 0.190]	1455359	C→A	<i>hrpA</i>	Q971K	
0.0	0.043	[0.008, 0.113]	3741971	T→A	<i>waaT</i>	-	
0.0	0.086	[0.022, 0.207]	719786	T→G	<i>ybfD/ybgA</i>	-	