

Supplementary Table 13. Metabolic gene content of endosymbionts and simulated minimal genomes

Presence (+) or absence (-) in endosymbiotic genomes of 904 genes annotated in the stoichiometric model of *E. coli*.

Figure 1c in the main text is based on results of the general simulations (column 7).

Four genes (b1416, b1417, b3767, b3768) are not annotated appropriately in the NCBI genome database, and therefore these genes were excluded from all analysis.

Blattner names (<i>E.coli</i>)	Gene name (<i>E.coli</i>)	Presence/Absence of the ortholog in endosymbiont genomes				Fraction of simulated minimal gene sets with the presence of the gene		
		<i>Buchnera aphidicola</i>	<i>Buchnera aphidicola</i> Sg	<i>Buchnera</i> sp	<i>Wigglesworthia brevipalpis</i>	General (nutrient rich) conditions	<i>Wigglesworthia</i> conditions	<i>Buchnera</i> conditions
b0002	thrA	+	+	+	+	0.34	0.36	0.498
b0003	thrB	+	+	+	-	0.342	0.092	0.606
b0004	thrC	+	+	+	-	0.342	0.092	0.606
b0007	yaaJ	-	-	-	-	0.01	0.008	0
b0008	talB	-	-	-	-	0.494	0.444	0.512
b0019	nhaA	-	-	-	+	0.268	0.004	0
b0025	ribF	-	+	+	+	1	1	1
b0029	lytB	+	+	+	+	0	1	0
b0031	dapB	+	+	+	+	0.704	1	1
b0032	carA	+	+	+	+	0	0	0.012
b0033	carB	+	+	+	+	0	0	0.012
b0036	caiD	-	-	-	-	0	0	0
b0038	caiB	-	-	-	-	0	0	0
b0040	caiT	-	-	-	-	0	0	0
b0048	folA	+	+	+	+	1	1	1
b0049	apaH	+	+	+	+	0	0	0
b0052	pdxA	-	-	-	+	0	1	0
b0061	araD	-	-	-	-	0	0	0
b0062	araA	-	-	-	-	0	0	0
b0063	araB	-	-	-	-	0	0	0
b0066	sfuC	-	-	-	-	0	0	0
b0067	sfuB	-	-	-	-	0	0	0
b0068	sfuA	-	-	-	-	0	0	0
b0071	leuD	+	-	+	-	0.802	0.744	1
b0072	leuC	+	-	+	-	0.802	0.744	1
b0073	leuB	+	-	+	-	0.802	0.744	1
b0074	leuA	+	-	+	-	0.802	0.744	1
b0077	ilvI	+	+	+	-	0.368	0.406	0.414

b0078	ilvH	+	+	+	-	0.368	0.406	0.414
b0085	murE	+	-	+	+	1	1	1
b0086	murF	+	-	+	+	1	1	1
b0087	mraY	+	-	+	+	1	1	1
b0088	murD	+	+	+	+	1	1	1
b0090	murG	+	+	+	+	1	1	1
b0091	murC	+	-	+	+	1	1	1
b0092	ddlB	+	+	-	-	0.53	0.492	0.51
b0096	lpxC	-	-	-	+	1	1	1
b0099	mutT	-	+	+	-	0.488	0.498	0.48
b0104	guaC	+	+	+	-	0	0	0
b0109	nadC	-	-	-	+	0.198	0.188	1
b0112	aroP	-	-	-	-	0.636	0.7	0
b0114	aceE	+	+	+	+	0	0.002	1
b0115	aceF	+	+	+	+	0	0.002	1
b0116	lpdA	+	+	+	+	1	0.934	1
b0118	acnB	-	-	-	-	0.478	0.458	0.484
b0120	speD	-	+	+	-	0.184	1	1
b0121	speE	-	+	+	-	0.186	1	1
b0124	gcd	-	-	-	-	0	0	0
b0125	hpt	-	+	+	-	0.03	0.088	0.054
b0126	yadF	-	-	-	-	0.514	0.506	0.536
b0131	panD	-	-	-	-	0.27	1	1
b0133	panC	-	+	+	+	0.27	1	1
b0134	panB	-	+	+	+	0.27	1	1
b0142	folK	-	-	-	+	1	1	1
b0154	hemL	-	-	-	+	0	1	0
b0158	yadT	-	-	-	-	0	0	0
b0159	mtn	+	+	+	+	0.184	1	1
b0160	dgt	-	-	-	-	0	0	0
b0166	dapD	+	+	+	+	0.704	1	1
b0171	pyrH	+	+	+	+	0.668	0.6	0.618
b0173	dxr	-	+	+	+	0	1	0
b0174	uppS	+	+	+	+	0	0	0
b0175	cdsA	-	-	-	+	1	1	1
b0179	lpxD	-	-	-	+	1	1	1
b0180	fabZ	+	+	-	-	1	1	1
b0181	lpxA	-	-	-	+	1	1	1
b0182	lpxB	-	-	-	+	1	1	1
b0185	accA	-	-	-	+	1	1	1
b0186	ldcC	-	-	-	-	0	0	0

b0197	yaeC	-	-	-	-	0.858	0.808	0
b0198	yaeE	-	-	-	-	0.858	0.808	0
b0199	abc	-	-	-	-	0.858	0.808	0
b0200	yaeD	-	-	-	-	1	1	1
b0207	yafB	-	-	-	-	0	0	0
b0212	gloB	+	+	+	+	0	0	0
b0221	fadF	-	-	-	-	0	0	0
b0222	gmhA	-	+	+	-	1	1	1
b0238	gpt	+	+	+	-	0.032	0.104	0.046
b0242	proB	-	-	-	-	0.766	0.728	0.388
b0243	proA	-	-	-	-	0.766	0.728	0.388
b0273	argF	+	+	+	-	0.4	0.388	0.502
b0312	betB	-	-	-	-	0	0	0
b0314	betT	-	-	-	-	0	0	0
b0323	yahI	-	-	-	-	0.314	0.378	0.302
b0331	prpB	-	-	-	-	0	0	0.002
b0333	prpC	-	-	-	-	0	0	0.002
b0334	prpD	-	-	-	-	0	0	0.002
b0335	prpE	-	-	-	-	0	0.04	0.014
b0336	codB	-	-	-	-	0.08	0.088	0
b0337	codA	-	-	-	-	0.094	0.122	0.122
b0339	cynT	-	-	-	-	0.486	0.494	0.464
b0340	cynS	-	-	-	-	0	0	0
b0341	cynX	-	-	-	-	0	0	0
b0343	lacY	-	-	-	-	0	0	0
b0344	lacZ	-	-	-	-	0	0	0
b0347	mhpA	-	-	-	-	0	0	0
b0348	mhpB	-	-	-	-	0	0	0
b0349	mhpC	-	-	-	-	0	0	0
b0350	mhpD	-	-	-	-	0	0	0
b0351	mhpF	-	-	-	-	0.02	0	0.044
b0352	mhpE	-	-	-	-	0	0	0
b0353	mhpT	-	-	-	-	0	0	0
b0356	adhC	-	-	-	-	0.01	0.016	0.008
b0365	tauA	-	-	-	-	0	0	0
b0366	tauB	-	-	-	-	0	0	0
b0367	tauC	-	-	-	-	0	0	0
b0368	tauD	-	-	-	-	0	0	0
b0369	hemB	-	-	-	+	0	1	0
b0381	ddlA	-	-	-	+	0.47	0.508	0.49
b0386	proC	-	-	-	+	0.912	0.892	1

b0388	aroL	-	-	-	-	0.49	0.514	0.52
b0401	brnQ	-	-	-	+	0.84	0.856	0
b0403	malZ	-	-	-	-	0.004	0	0
b0414	ribD	+	+	+	+	1	1	1
b0415	ribH	+	+	+	+	1	1	1
b0417	thiL	-	+	+	+	0	0	0
b0418	pgpA	-	-	-	+	0.524	0.49	0.46
b0420	dxs	-	+	+	+	0	1	0
b0421	ispA	-	+	+	+	0	1	0
b0423	thiI	-	-	-	-	0	1	0
b0425	panE	-	-	-	+	0.002	0.03	0
b0428	cyoE	+	+	+	+	0	1	0
b0429	cyoD	+	+	+	+	1	1	1
b0430	cyoC	+	+	+	+	1	1	1
b0431	cyoB	+	+	+	+	1	1	1
b0432	cyoA	+	+	+	+	1	1	1
b0451	amtB	-	-	-	-	1	1	1
b0469	apt	-	-	-	-	0.036	0.186	0.126
b0474	adk	+	+	+	+	1	1	1
b0475	hemH	-	-	-	+	0	1	0
b0477	gsk	-	-	-	-	0.314	0.224	0
b0480	ushA	-	-	-	-	1	1	1
b0485	ybaS	-	-	-	-	0	0	0
b0505	allA	-	-	-	-	0	0	0
b0507	gcl	-	-	-	-	0	0.012	0.014
b0508	hyi	-	-	-	-	0	0	0.004
b0509	glxR	-	-	-	-	0	0.006	0.008
b0511	allP	-	-	-	-	0	0	0
b0512	allB	-	-	-	-	0	0	0
b0514	glxK	-	-	-	-	0	0.01	0.012
b0516	allC	-	-	-	-	0	0	0
b0521	arcC	-	-	-	-	0.35	0.272	0.354
b0522	purK	-	-	-	+	0.72	0.846	1
b0523	purE	-	-	-	+	0.72	0.846	1
b0529	folD	+	+	+	+	1	1	1
b0576	pheP	-	-	-	-	0.038	0.04	0
b0583	entD	-	-	-	-	0	0	0
b0586	entF	-	-	-	-	0	0	0
b0593	entC	-	-	-	-	0	0	0
b0594	entE	-	-	-	-	0	0	0
b0595	entB	-	-	-	-	0	0	0

b0596	entA	-	-	-	-	0	0	0
b0612	citT	-	-	-	-	0	0	0
b0615	citF	-	-	-	-	0	0	0
b0616	citE	-	-	-	-	0	0	0
b0617	citD	-	-	-	-	0	0	0
b0621	dcuC	-	-	-	-	0	0	0
b0638	phpB	-	-	-	-	0	0	0
b0639	nadD	-	+	+	+	1	1	1
b0652	gltL	-	-	-	+	0	0	0
b0653	gltK	-	-	-	+	0	0	0
b0654	gltJ	-	-	-	+	0	0	0
b0655	gltI	-	-	-	-	0	0	0
b0662	ubiF	-	-	-	+	0	1	0
b0674	asnB	-	-	-	+	0.066	0.086	0.306
b0677	nagA	-	-	-	-	0.028	0	0
b0678	nagB	-	-	+	-	0	0	0
b0679	nagE	-	-	-	-	0.02	0	0
b0688	pgm	-	-	-	+	0.504	0.548	0.476
b0692	potE	-	-	-	-	0.686	0.372	0
b0693	speF	-	-	-	-	0.014	0.45	0.45
b0696	kdpC	-	-	-	-	0	0	0
b0697	kdpB	-	-	-	-	0	0	0
b0698	kdpA	-	-	-	-	0	0	0
b0720	gltA	-	-	-	-	1	1	1
b0721	sdhC	-	-	-	+	1	1	1
b0722	sdhD	-	-	-	+	1	1	1
b0723	sdhA	-	-	-	+	1	1	1
b0724	sdhB	-	-	-	+	1	1	1
b0726	sucA	+	+	+	+	1	0.932	1
b0727	sucB	+	+	+	+	1	0.932	1
b0728	sucC	-	-	-	+	0.956	0.908	0.692
b0729	sucD	-	-	-	+	0.956	0.908	0.692
b0733	cydA	-	-	-	-	0	0	0
b0734	cydB	-	-	-	-	0	0	0
b0750	nadA	-	-	-	+	0.198	0.188	1
b0751	pnuC	-	-	-	-	0.546	0.67	0
b0754	aroG	-	-	-	-	0.312	0.304	0.326
b0755	gpmA	+	+	+	+	0.34	0.362	0.32
b0757	galK	-	-	-	-	0	0	0
b0758	galT	-	-	-	-	0.002	0.002	0
b0759	galE	-	-	-	-	0.002	0.002	0

b0774	bioA	+	+	+	+	0	1	0
b0775	bioB	+	+	+	+	0	1	0
b0776	bioF	+	-	-	+	0	1	0
b0778	bioD	+	-	+	+	0	1	0
b0809	glnQ	-	-	-	-	0	0	0
b0810	glnP	-	-	-	-	0	0	0
b0811	glnH	-	-	-	-	0	0	0
b0825	fsa	-	-	-	-	0.248	0.212	0.138
b0828	ybiK	-	-	-	-	0	0	0
b0854	potF	-	-	-	-	0.01	0	0
b0855	potG	-	-	-	-	0.01	0	0
b0856	potH	-	-	-	-	0.01	0	0
b0857	potI	-	-	-	-	0.01	0	0
b0860	artJ	-	-	-	-	0.024	0.02	0
b0861	artM	-	-	-	-	0.024	0.02	0
b0862	artQ	-	-	-	-	0.024	0.02	0
b0864	artP	-	-	-	-	0.024	0.02	0
b0870	ltaA	-	-	-	-	0	0	0
b0871	poxB	-	-	-	-	0	0	0
b0888	trxB	+	+	+	+	1	1	1
b0894	dmsA	-	-	-	-	0	0	0
b0895	dmsB	-	-	-	-	0	0	0
b0896	dmsC	-	-	-	-	0	0	0
b0902	pflA	-	-	-	-	0	0	0.064
b0903	pflB	-	-	-	-	0	0	0.064
b0904	focA	-	-	-	-	0.008	0.012	0.08
b0907	serC	+	+	+	+	1	1	1
b0908	aroA	+	+	+	-	1	1	1
b0910	cmk	+	-	-	+	0.968	0.942	0.792
b0915	lpxK	-	-	-	+	1	1	1
b0918	kdsB	-	-	-	+	1	1	1
b0928	aspC	-	-	-	+	1	1	1
b0931	pncB	-	+	+	-	0.256	0.142	0
b0945	pyrD	-	+	+	+	0.892	0.82	1
b0954	fabA	-	-	-	+	1	1	1
b0963	mgsA	-	-	-	-	0	0	0
b0972	hyaA	-	-	-	-	0	0	0
b0973	hyaB	-	-	-	-	0	0	0
b0974	hyaC	-	-	-	-	0	0	0
b0996	torC	-	-	-	-	0	0	0
b0997	torA	-	-	-	-	0	0	0

b1002	agp	-	-	-	-	0	0	0
b1006	ycdG	-	-	-	-	0.016	0.052	0
b1014	putA	-	-	-	+	0	0.002	0
b1015	putP	-	-	-	-	0.036	0.034	0
b1033	ycdW	-	-	-	-	0	0	0.002
b1054	lpxL	-	-	-	-	1	1	1
b1062	pyrC	-	+	+	+	0.892	0.82	1
b1091	fabH	-	-	-	-	0.904	0.888	0.558
b1092	fabD	+	+	-	+	1	1	1
b1093	fabG	+	+	+	+	1	1	1
b1095	fabF	-	-	-	-	1	1	1
b1096	pabC	-	-	-	-	1	1	1
b1098	tmk	+	+	+	+	1	1	1
b1101	ptsG	+	+	+	-	0.002	0	0.374
b1109	ndh	-	-	-	+	0	0	0
b1123	potD	-	-	-	-	0.366	0	0
b1124	potC	-	-	-	-	0.366	0	0
b1125	potB	-	-	-	-	0.366	0	0
b1126	potA	-	-	-	-	0.366	0	0
b1131	purB	+	+	+	+	0.794	0.888	1
b1136	icdA	-	-	-	-	1	1	1
b1186	nhaB	-	-	-	-	0.204	0.006	0.002
b1189	dadA	-	-	-	-	0	0.002	0
b1190	dadX	-	-	-	+	0.506	0.474	0.528
b1197	treA	-	-	-	-	0	0	0
b1198	dhaH	-	-	-	-	0.01	0.012	0.106
b1199	dhaK2	-	-	-	-	0.01	0.012	0.106
b1200	dhaK1	-	-	-	-	0.01	0.012	0.106
b1207	prsA	+	+	+	+	1	1	1
b1208	ispE	-	+	+	+	0	1	0
b1210	hemA	-	-	-	+	0	1	0
b1215	kdsA	-	-	-	+	1	1	1
b1216	chaA	-	-	-	-	0.27	0.024	0.004
b1223	narK	-	-	-	-	0	0	0.002
b1224	narG	-	-	-	-	0	0	0
b1225	narH	-	-	-	-	0	0	0
b1226	narJ	-	-	-	-	0	0	0
b1227	narI	-	-	-	-	0	0	0
b1232	purU	-	-	-	+	0.85	0.86	0.494
b1236	galU	-	-	-	+	0.55	0.464	0.526
b1238	tdk	-	-	-	-	0.212	0.286	0.13

b1241	adhE	-	-	-	-	1	1	0
b1249	cls	+	+	+	+	1	1	1
b1260	trpA	+	+	+	-	0.176	0.176	1
b1261	trpB	+	+	+	-	0.176	0.176	1
b1262	trpC	+	+	+	-	0.026	0.042	1
b1263	trpD	+	+	+	-	0.026	0.042	1
b1264	trpE	+	-	+	-	0.026	0.042	1
b1270	btuR	-	-	-	-	0	0	0
b1276	acnA	-	-	-	-	0.522	0.542	0.516
b1277	ribA	+	+	+	+	1	1	1
b1278	pgpB	-	-	-	-	0.476	0.51	0.54
b1281	pyrF	+	+	+	+	0.892	0.82	1
b1288	fabI	+	+	+	+	1	1	1
b1297	ycjK	-	-	-	-	0.528	0.532	0.51
b1300	aldH	-	-	-	-	0.002	0	0.002
b1302	goaG	-	-	-	-	0.112	0.062	0.058
b1363	trkG	-	-	-	-	0	0	0
b1380	ldhA	-	-	-	-	0	0	0
b1385	feaB	-	-	-	-	0	0	0
b1386	tynA	-	-	-	-	0	0	0
b1398	paaK	-	-	-	-	0	0	0
b1415	aldA	-	-	-	-	1	1	1
b1416	gapC_2	?	?	?	?	0.348	0.302	0.298
b1417	gapC_1	?	?	?	?	0.348	0.302	0.298
b1440	ydcS	-	-	-	-	0.45	0	0
b1441	ydcT	-	-	-	-	0.45	0	0
b1442	ydcU	-	-	-	-	0.45	0	0
b1443	ydcV	-	-	-	-	0.45	0	0
b1469	narU	-	-	-	-	0	0	0
b1474	fdnG	-	-	-	-	0.158	0.186	0.082
b1475	fdnH	-	-	-	-	0.158	0.186	0.082
b1476	fdnI	-	-	-	-	0.158	0.186	0.082
b1479	sfcA	-	-	-	-	0.014	0.014	0.044
b1492	xasA	-	-	-	-	0	0	0.006
b1493	gadB	-	-	-	-	0.02	0.066	0.056
b1519	tam	-	-	-	-	0	0	0
b1521	uxaB	-	-	-	-	0	0	0
b1524	yneH	-	-	-	-	0	0	0
b1584	speG	-	-	-	+	0	0	0
b1602	pntB	-	-	-	-	0.068	0.122	0.03
b1603	pntA	-	-	-	-	0.068	0.122	0.03

b1605	arcD	-	-	-	-	0.114	0.176	0
b1611	fumC	-	-	-	+	0.354	0.354	0.338
b1612	fumA	-	-	-	-	0.3	0.362	0.342
b1613	manA	-	-	-	-	0	0	0
b1621	malX	-	-	-	-	0	0.004	0.328
b1622	malY	-	-	-	-	0.056	0.094	0.49
b1623	add	-	-	-	-	0	0.002	0
b1636	pdxY	-	-	-	-	0	0	0
b1638	pdxH	-	-	-	+	0	0	0
b1646	sodC	-	-	-	-	0	0	0
b1651	gloA	-	-	-	-	0	0	0
b1656	sodB	-	-	-	-	0	0	0
b1662	ribE	+	+	+	+	1	1	1
b1676	pykF	-	-	-	-	0.426	0.528	0.362
b1692	ydiB	-	-	-	-	0.526	0.542	0.466
b1693	aroD	-	-	-	-	1	1	1
b1702	pps	-	-	-	-	0	0	0
b1704	aroH	+	+	+	-	0.336	0.334	0.34
b1709	btuD	-	-	-	-	0	0	0
b1711	btuC	-	-	-	-	0	0	0
b1723	pfkB	-	-	-	-	0	0	0.44
b1732	katE	-	-	-	-	0	0	0
b1740	nadE	-	+	+	+	0.454	0.33	1
b1744	astE	-	-	-	-	0	0	0
b1745	astB	-	-	-	-	0	0	0
b1746	astD	-	-	-	-	0	0	0
b1747	astA	-	-	-	-	0	0	0
b1748	astC	-	-	-	-	0	0	0
b1761	gdhA	-	-	-	-	1	1	1
b1764	selD	-	-	-	-	0	0	0
b1767	ansA	-	-	-	-	0	0	0
b1768	pncA	-	-	-	-	0	0.142	0
b1773	b1773	-	-	-	-	0.296	0.274	0.348
b1779	gapA	+	+	+	+	0.652	0.698	0.702
b1801	yeaV	-	-	-	-	0.014	0.004	0.012
b1805	fadD	-	-	-	-	0	0	0
b1812	pabB	-	-	-	-	1	1	1
b1814	sdaA	-	-	-	-	0.064	0.038	0.258
b1817	manX	-	-	-	-	0.052	0	0.298
b1818	manY	-	-	-	-	0.052	0	0.298
b1819	manZ	-	-	-	-	0.052	0	0.298

b1849	purT	-	-	-	+	0.342	0.382	0.568
b1850	eda	-	-	-	-	0	0	0
b1851	edd	-	-	-	-	0	0	0
b1852	zwf	+	+	+	-	0.018	0.142	1
b1854	pykA	+	+	+	+	0.554	0.44	0.42
b1855	msbB	-	-	-	-	1	1	1
b1865	ntpA	-	-	-	-	0.512	0.502	0.52
b1872	torZ	-	-	-	-	0	0	0
b1873	torY	-	-	-	-	0	0	0
b1896	otsA	-	-	-	-	0	0	0
b1897	otsB	-	-	-	-	0	0	0
b1898	araH_2	-	-	-	-	0	0	0
b1899	araH_1	-	-	-	-	0	0	0
b1900	araG	-	-	-	-	0	0	0
b1901	araF	-	-	-	-	0	0	0
b1907	tyrP	-	-	-	-	0.008	0.006	0
b1912	pgsA	-	-	-	+	1	1	1
b1982	amn	-	-	-	-	0	0	0.002
b1991	cobT	-	-	-	-	0	0	0
b1992	cobS	-	-	-	-	0	0	0
b1993	cobU	-	-	-	-	0	0	0
b2019	hisG	+	+	+	-	0.292	0.228	1
b2020	hisD	+	+	+	-	0.292	0.228	1
b2021	hisC	+	+	+	-	0.292	0.228	1
b2022	hisB	+	+	+	-	0.292	0.228	1
b2023	hisH	+	+	+	-	0.292	0.228	1
b2024	hisA	+	+	+	-	0.292	0.228	1
b2025	hisF	+	+	+	-	0.292	0.228	1
b2026	hisI	+	+	+	-	0.292	0.228	1
b2028	ugd	-	-	-	+	0	0	0
b2029	gnd	+	+	+	-	0.018	0.142	1
b2036	glf	-	-	-	-	0	0	0
b2038	rfbC	-	-	-	-	0	0	0
b2039	rfbA	-	-	-	-	0	0	0
b2040	rfbD	-	-	-	-	0	0	0
b2041	rfbB	-	-	-	-	0	0	0
b2042	galF	-	-	-	-	0.45	0.536	0.474
b2045	wcaK	-	-	-	-	0.002	0.002	0
b2048	epsG	-	-	-	-	0	0	0
b2049	manC	-	-	-	-	0	0	0
b2052	fcl	-	-	-	-	0	0	0

b2053	gmd	-	-	-	-	0	0	0
b2065	dcd	+	+	+	+	0	0	0
b2066	udk	-	-	-	-	0.156	0.264	0.142
b2091	gatD	-	-	-	-	0	0	0
b2092	gatC	-	-	-	-	0	0	0
b2093	gatB	-	-	-	-	0	0	0
b2094	gatA	-	-	-	-	0	0	0
b2095	gatZ	-	-	-	-	0	0	0
b2096	gatY	-	-	-	-	0	0	0
b2097	fbaB	-	-	-	-	0.264	0.28	0.322
b2103	thiD	-	-	-	+	0	1	0
b2104	thiM	-	-	-	-	0	0	0
b2128	yehW	-	-	-	-	0	0	0
b2129	yehX	-	-	-	-	0	0	0
b2130	yehY	-	-	-	-	0	0	0
b2131	yehZ	-	-	-	-	0	0	0
b2132	bglX	-	-	-	-	0	0	0
b2133	dld	-	-	-	-	0	0	0
b2143	cdd	-	-	-	-	0.042	0.06	0.172
b2148	mglC	-	-	-	-	0	0	0
b2149	mglA	-	-	-	-	0	0	0
b2150	mglB	-	-	-	-	0	0	0
b2153	folE	-	+	-	+	1	1	1
b2156	lysP	-	-	-	-	0.388	0.356	0
b2167	fruA	-	-	-	-	0	0	0
b2168	fruK	-	-	-	-	0	0	0
b2169	fruB	-	-	-	-	0	0	0
b2210	mgo	-	-	-	+	0	0	0
b2221	atoD	-	-	-	-	0	0	0
b2222	atoA	-	-	-	-	0	0	0
b2223	atoE	-	-	-	-	0	0	0
b2224	atoB	-	-	-	-	0	0	0
b2232	ubiG	-	-	-	+	0	1	0
b2234	nrdA	+	+	+	-	0.366	0.364	0.312
b2235	nrdB	+	+	+	-	0.366	0.364	0.312
b2239	glpQ	-	-	-	-	0	0	0.006
b2240	glpT	-	-	-	-	1	1	0
b2241	glpA	-	-	-	-	0	0.002	0
b2242	glpB	-	-	-	-	0	0.002	0
b2243	glpC	-	-	-	-	0	0.002	0
b2260	menE	-	-	-	-	0	0	0

b2261	menC	-	-	-	-	0	0	0
b2262	menB	-	-	-	-	0	0	0
b2264	menD	-	-	-	-	0	0	0
b2265	menF	-	-	-	-	0	0	0
b2276	nuoN	+	+	+	-	1	1	1
b2277	nuoM	+	+	+	-	1	1	1
b2278	nuoL	+	+	+	-	1	1	1
b2279	nuoK	+	+	+	-	1	1	1
b2280	nuoJ	+	+	+	-	1	1	1
b2281	nuoI	+	+	+	-	1	1	1
b2282	nuoH	+	+	+	-	1	1	1
b2283	nuoG	+	+	+	-	1	1	1
b2284	nuoF	+	+	+	-	1	1	1
b2285	nuoE	+	+	+	-	1	1	1
b2286	nuoC	+	+	+	-	1	1	1
b2287	nuoB	+	+	+	-	1	1	1
b2288	nuoA	+	+	+	-	1	1	1
b2296	ackA	+	+	+	+	0.294	0.256	0.16
b2297	pta	+	+	+	+	0.464	0.438	0.466
b2306	hisP	-	-	-	-	0.12	0.104	0
b2307	hisM	-	-	-	-	0.12	0.104	0
b2308	hisQ	-	-	-	-	0.12	0.104	0
b2309	hisJ	-	-	-	-	0.098	0.086	0
b2310	argT	-	-	-	-	0.028	0.03	0
b2311	ubiX	-	-	-	+	0	0.514	0
b2312	purF	-	-	-	+	0.72	1	1
b2315	folC	+	+	+	+	1	1	1
b2316	accD	-	-	-	+	1	1	1
b2320	pdxB	-	-	-	+	0	1	0
b2323	fabB	+	+	+	+	1	1	1
b2329	aroC	+	+	+	-	1	1	1
b2344	fadL	-	-	-	-	0.934	0	0
b2366	dsdA	-	-	-	-	0	0	0
b2378	lpxP	-	-	-	-	0	0	0
b2388	glk	-	-	-	-	0.008	0.006	0.026
b2393	nupC	-	-	-	-	0.046	0.102	0
b2400	gltX	+	+	+	+	0	1	0
b2406	xapB	-	-	-	-	0.062	0.088	0
b2407	xapA	-	-	-	-	0.208	0.352	0.38
b2411	lig	+	-	+	+	0	0	0
b2413	cysZ	-	-	-	-	0	0	0.348

b2414	cysK	-	+	+	-	0	0	0.514
b2415	ptsH	+	+	+	-	0.084	0.016	1
b2416	ptsI	+	+	+	-	0.084	0.016	1
b2417	crr	+	+	+	-	0.002	0.004	0.702
b2418	pdxK	-	-	-	-	0	0	0
b2421	cysM	-	-	-	-	0	0	0.486
b2422	cysA	-	-	-	-	0	0	1
b2423	cysW	-	-	-	-	0	0	1
b2424	cysU	-	-	-	-	0	0	1
b2425	cysP	-	-	-	-	0	0	0.652
b2429	yfeV	-	-	-	-	0	0	0
b2436	hemF	-	-	-	+	0	1	0
b2440	eutC	-	-	-	-	0	0	0.006
b2441	eutB	-	-	-	-	0	0	0.006
b2458	eutD	-	-	-	-	0.426	0.452	0.422
b2463	maeB	-	-	-	-	0.054	0.09	0.094
b2464	talA	+	+	+	+	0.504	0.5	0.482
b2465	tktB	+	-	-	-	0.502	0.542	0.53
b2472	dapE	+	+	+	+	0.704	1	1
b2476	purC	-	-	-	+	0.72	0.846	1
b2478	dapA	+	+	+	+	0.704	1	1
b2492	focB	-	-	-	-	0.018	0.018	0.072
b2497	uraA	-	-	-	-	0.012	0.042	0
b2498	upp	-	-	-	-	0.018	0.038	0.118
b2499	purM	-	-	-	+	0.72	1	1
b2500	purN	-	-	-	-	0.668	0.846	0.736
b2507	guaA	-	-	-	+	0.674	0.758	1
b2508	guaB	-	-	-	+	0.674	0.758	1
b2515	gcpE	-	+	+	+	0	1	0
b2518	ndk	-	-	-	+	1	1	1
b2530	iscS	+	+	+	+	0	1	0
b2533	suhB	+	+	+	+	0	0	0
b2536	hcaT	-	-	-	-	0	0	0
b2538	hcaE	-	-	-	-	0	0	0
b2539	hcaF	-	-	-	-	0	0	0
b2540	hcaC	-	-	-	-	0	0	0
b2541	hcaB	-	-	-	-	0	0	0
b2542	hcaD	-	-	-	-	0	0	0
b2551	glyA	+	+	+	+	1	1	1
b2557	purL	-	-	-	+	0.72	1	1
b2563	acpS	+	+	+	+	0	0	0

b2564	pdxJ	-	-	-	+	0	1	0
b2574	nadB	-	-	-	-	0.198	0.188	1
b2585	pssA	-	-	-	+	1	1	1
b2587	kgtP	-	-	-	-	0	0	0
b2599	pheA	+	+	+	-	0.906	0.872	1
b2600	tyrA	-	-	-	-	0.94	0.92	1
b2601	aroF	-	-	-	+	0.352	0.362	0.334
b2615	yfjB	+	+	+	+	1	1	1
b2661	gabD	-	-	-	-	0.196	0.116	0.064
b2662	gabT	-	-	-	-	0.11	0.056	0.052
b2663	gabP	-	-	-	-	0	0	0.006
b2675	nrdE	-	-	-	+	0	0	0
b2676	nrdF	-	-	-	+	0	0	0
b2677	proV	-	-	-	-	0	0.002	0
b2678	proW	-	-	-	-	0	0.002	0
b2679	proX	-	-	-	-	0	0.002	0
b2687	luxS	-	-	-	-	0	0	0
b2688	gshA	+	+	+	+	0	1	0
b2690	yqaB	-	-	-	-	0.494	0.45	0.524
b2702	srIA	-	-	-	-	0	0	0
b2703	srIE	-	-	-	-	0	0	0
b2704	srIB	-	-	-	-	0	0	0
b2705	srID	-	-	-	-	0	0	0
b2719	hycG	-	-	-	-	0	0	0
b2720	hycF	-	-	-	-	0	0	0
b2721	hycE	-	-	-	-	0	0	0
b2722	hycD	-	-	-	-	0	0	0
b2723	hycC	-	-	-	-	0	0	0
b2724	hycB	-	-	-	-	0	0	0
b2738	ygbL	-	-	-	-	0	0	0
b2746	ispF	-	+	+	+	0	1	0
b2747	ispD	-	+	+	+	0	1	0
b2750	cysC	-	+	+	-	0	0	1
b2751	cysN	-	-	+	-	0	0	1
b2752	cysD	-	-	+	-	0	0	1
b2762	cysH	-	-	+	-	0	0	1
b2763	cysI	-	-	+	-	0	0	1
b2764	cysJ	-	+	+	-	0	0	1
b2779	eno	+	+	+	+	0.984	0.978	1
b2780	pyrG	+	+	+	+	0.946	0.918	1
b2781	mazG	-	-	-	-	0	0	0

b2787	gudD	-	-	-	-	0	0	0
b2788	ygcY	-	-	-	-	0	0	0
b2789	gudP	-	-	-	-	0	0	0
b2796	sdaC	-	-	-	+	0	0	0
b2797	sdaB	-	-	-	-	0.06	0.05	0.262
b2799	fucO	-	-	-	-	0	0	0
b2800	fucA	-	-	-	-	0	0	0
b2801	fucP	-	-	-	-	0	0	0
b2802	fucI	-	-	-	-	0	0	0
b2803	fucK	-	-	-	-	0	0	0
b2818	argA	-	+	+	-	0.678	0.652	1
b2827	thyA	+	+	+	+	0.874	0.784	1
b2836	aas	-	-	-	-	0.934	0	0.006
b2838	lysA	+	+	+	-	0.644	0.71	1
b2841	araE	-	-	-	-	0	0	0
b2874	yqeA	-	-	-	-	0.336	0.326	0.332
b2883	ygfP	-	-	-	-	0	0	0
b2889	idi	-	-	-	-	0	0	0
b2901	bglA	-	-	-	-	0	0	0
b2903	gcvP	-	-	-	-	0	0.004	0.11
b2904	gcvH	-	-	-	-	0	0.004	0.11
b2905	gcvT	-	-	-	-	0	0.004	0.11
b2907	ubiH	-	-	-	+	0	1	0
b2913	serA	-	-	-	-	1	1	1
b2914	rpiA	+	+	+	+	0.5	0.496	0.462
b2917	sbm	-	-	-	-	0	0	0.002
b2919	ygfG	-	-	-	-	0	0	0.002
b2920	ygfH	-	-	-	-	0	0.04	0.014
b2925	fbaA	+	+	+	+	0.31	0.336	0.304
b2926	pgk	+	+	+	+	1	1	1
b2927	epd	-	-	-	-	0	1	0
b2935	tktA	-	+	+	+	0.498	0.458	0.47
b2937	speB	-	-	-	-	0	0.018	0.098
b2938	speA	-	-	-	-	0	0.006	0.064
b2942	metK	-	+	+	+	0.184	1	1
b2943	galP	-	-	-	-	0.004	0.006	0.026
b2947	gshB	+	+	+	+	0	1	0
b2957	ansB	-	-	-	-	0	0	0
b2964	nupG	-	-	-	-	0.074	0.1	0
b2965	speC	-	-	-	-	0.014	0.532	0.452
b2975	glcA	-	-	-	-	0.08	0.088	0.276

b2976	glcB	-	-	-	-	0.452	0.484	0.354
b2978	glcF	-	-	-	-	0.82	0.804	0.412
b2979	glcD	-	-	-	-	0.82	0.804	0.412
b2987	pitB	-	-	-	-	0.5	0.486	0.494
b2988	gsp	-	-	-	-	0	0	0
b2994	hybC	-	-	-	-	0	0	0
b2997	hybO	-	-	-	-	0	0	0
b3008	metC	-	-	-	-	0.086	0.098	0.51
b3012	yqhE	-	-	-	-	0	0	0
b3018	plsC	-	-	-	+	1	1	1
b3041	ribB	+	+	+	+	1	1	1
b3052	rfaE	-	+	+	-	1	1	1
b3058	folB	-	-	-	+	1	1	1
b3061	ttdA	-	-	-	-	0	0	0
b3062	ttdB	-	-	-	-	0	0	0
b3063	ygjE	-	-	-	-	0	0	0
b3073	ygjG	-	-	-	-	0.002	0.004	0
b3089	sstT	-	-	-	-	0.002	0	0
b3091	uxaA	-	-	-	-	0	0	0
b3092	uxaC	-	-	-	-	0	0	0
b3093	exuT	-	-	-	-	0	0	0
b3111	tdcGa	-	-	-	-	0	0	0
b3112	tdcGb	-	-	-	-	0	0	0
b3114	tdcE	-	-	-	-	0	0.002	0.138
b3115	tdcD	-	-	-	-	0.264	0.258	0.202
b3116	tdcC	-	-	-	-	0.004	0.008	0
b3117	tdcB	-	-	-	-	0.044	0.036	0.246
b3124	garK	-	-	-	-	0	0.002	0.002
b3125	garR	-	-	-	-	0	0.006	0.002
b3126	garL	-	-	-	-	0	0	0
b3127	garP	-	-	-	-	0	0	0
b3128	garD	-	-	-	-	0	0	0
b3132	agaZ	-	-	-	-	0	0	0
b3137	agaY	-	-	-	-	0	0	0
b3161	mtr	-	-	-	-	0.87	0.842	0
b3172	argG	+	+	+	-	0.884	0.824	1
b3176	mrsA	+	-	+	+	1	1	1
b3177	folP	-	-	-	+	1	1	1
b3187	ispB	-	-	-	+	0	1	0
b3189	murA	+	+	+	+	1	1	1
b3212	gltB	-	-	-	-	0	0	0

b3213	gltD	-	-	-	-	0	0	0
b3222	nanK	-	-	-	-	0.006	0	0
b3223	nanE	-	-	-	-	0.006	0	0
b3224	nanT	-	-	-	-	0.006	0	0
b3225	nanA	-	-	-	-	0.006	0	0
b3236	mdh	-	-	-	-	1	1	1
b3255	accB	-	-	-	+	1	1	1
b3256	accC	-	-	-	+	1	1	1
b3258	panF	-	-	-	-	0.73	0	0
b3281	aroE	+	+	+	-	0.474	0.458	0.534
b3359	argD	-	+	+	-	0.668	0.644	1
b3360	pabA	-	-	-	-	1	1	1
b3365	nirB	-	-	-	-	0	0	0
b3366	nirD	-	-	-	-	0	0	0
b3367	nirC	-	-	-	-	0	0	0
b3368	cysG	-	-	+	-	0	0	0
b3380	yhfW	-	-	-	-	0.256	0.346	0.102
b3385	gph	-	-	-	-	0	0	0
b3386	rpe	+	+	+	+	0.504	0.508	0.498
b3389	aroB	+	+	+	-	1	1	1
b3390	aroK	+	+	+	+	0.51	0.486	0.48
b3403	pckA	-	-	-	+	0.016	0.032	0.03
b3409	feoB	-	-	-	-	0	1	0
b3415	gntT	-	-	-	-	0	0	0
b3416	malQ	-	-	-	-	0.006	0.002	0
b3417	malP	-	-	-	-	0.006	0.002	0
b3425	glpE	-	-	-	-	0	0	0
b3426	glpD	-	-	-	-	0	0	0
b3428	glgP	-	-	-	-	0	0	0
b3429	glgA	-	-	-	-	1	1	1
b3430	glgC	-	-	-	-	1	1	1
b3433	asd	+	+	+	+	0.864	1	1
b3437	gntK	-	-	-	-	0	0	0
b3450	ugpC	-	-	-	-	0	0.004	0
b3451	ugpE	-	-	-	-	0	0.004	0
b3452	ugpA	-	-	-	-	0	0.004	0
b3453	ugpB	-	-	-	-	0	0.004	0
b3454	livF	-	-	-	-	0.02	0.018	0
b3455	livG	-	-	-	-	0.02	0.018	0
b3456	livM	-	-	-	-	0.02	0.018	0
b3457	livH	-	-	-	-	0.02	0.018	0

b3458	livK	-	-	-	-	0.002	0	0
b3460	livJ	-	-	-	-	0.018	0.018	0
b3493	pitA	+	+	+	+	0.5	0.506	0.482
b3500	gor	-	-	-	-	0	0	0
b3517	gadA	-	-	-	-	0.024	0.052	0.054
b3519	treF	-	-	-	-	0	0	0
b3526	kdgK	-	-	-	-	0	0	0
b3528	dctA	-	-	-	-	0	0	0
b3551	bisC	-	-	-	-	0	0	0
b3553	yiaE	-	-	-	-	0	0	0.002
b3564	xylB	-	-	-	-	0	0	0
b3565	xylA	-	-	-	-	0	0	0
b3566	xylF	-	-	-	-	0	0	0
b3567	xylG	-	-	-	-	0	0	0
b3568	xylH	-	-	-	-	0	0	0
b3572	avtA	-	-	-	-	0.296	0.328	0
b3575	yiaK	-	-	-	-	0	0	0
b3579	yiaO	-	-	-	-	0	0	0
b3581	sgbH	-	-	-	-	0	0	0
b3583	sgbE	-	-	-	-	0	0	0
b3588	aldB	-	-	-	-	0	0	0
b3599	mtlA	+	+	+	-	0	0	0
b3600	mtlD	+	+	+	-	0	0	0
b3603	lldP	-	-	-	-	0.1	0.108	0.312
b3605	lldD	-	-	-	-	0	0	0
b3607	cysE	+	+	+	-	0	0	1
b3608	gpsA	-	-	-	+	1	1	1
b3612	yibO	-	-	-	-	0.31	0.284	0.32
b3616	tdh	-	-	-	-	0.01	0	0.012
b3617	kbl	-	-	-	-	0.01	0	0.012
b3619	rfaD	-	-	-	-	1	1	1
b3620	rfaF	-	-	-	-	1	1	1
b3621	rfaC	-	-	-	-	1	1	1
b3622	rfaL	-	-	-	-	1	1	1
b3626	rfaJ	-	-	-	-	1	1	1
b3627	rfaI	-	-	-	-	1	1	1
b3631	rfaG	-	-	-	-	1	1	1
b3633	kdtA	-	-	-	+	1	1	1
b3634	coaD	-	+	+	+	1	0	1
b3640	dut	+	+	+	+	0.124	0.13	0.252
b3642	pyrE	+	-	+	+	0.892	0.82	1

b3648	gmk	+	+	+	+	1	1	1
b3653	gltS	-	-	-	-	0	0	0.006
b3654	yicE	-	-	-	-	0.284	0.198	0.046
b3665	yicP	-	-	-	-	0.018	0.11	0.098
b3666	uhpT	-	-	-	-	0.056	0.032	0
b3670	ilvN	-	-	-	-	0.358	0.322	0.36
b3671	ilvB	-	-	-	-	0.358	0.322	0.36
b3691	dgoT	-	-	-	-	0	0	0
b3692	dgoA	-	-	-	-	0	0	0
b3693	dgoK	-	-	-	-	0	0	0
b3708	tnaA	-	-	-	-	0.742	0.742	0.278
b3709	tnaB	-	-	-	-	0.028	0.018	0
b3725	pstB	-	-	-	-	0	0.004	0.024
b3726	pstA	-	-	-	-	0	0.004	0.024
b3727	pstC	-	-	-	-	0	0.004	0.024
b3728	pstS	-	-	-	-	0	0.004	0.024
b3729	glmS	+	+	+	+	0.92	1	1
b3730	glmU	+	+	+	+	1	1	1
b3731	atpC	+	+	+	+	1	1	1
b3732	atpD	+	+	+	+	1	1	1
b3733	atpG	+	+	+	+	1	1	1
b3734	atpA	+	+	+	+	1	1	1
b3735	atpH	+	+	+	+	1	1	1
b3736	atpF	+	+	+	+	1	1	1
b3737	atpE	+	+	+	+	1	1	1
b3738	atpB	+	+	+	+	1	1	1
b3739	atpI	-	-	-	-	1	1	1
b3744	asnA	-	-	-	-	0.934	0.914	0.694
b3748	rbsD	-	-	-	-	0	0	0
b3749	rbsA	-	-	-	-	0	0	0
b3750	rbsC	-	-	-	-	0	0	0
b3751	rbsB	-	-	-	-	0	0	0
b3752	rbsK	-	-	-	-	0	0	0
b3767	ilvG_1	?	?	?	?	0.216	0.23	0.226
b3768	ilvG_2	?	?	?	?	0.216	0.23	0.226
b3769	ilvM	-	-	-	-	0.216	0.23	0.226
b3770	ilvE	-	-	-	-	0.65	0.67	1
b3771	ilvD	+	+	+	-	0.942	0.958	1
b3772	ilvA	-	-	-	-	0.04	0.036	0.234
b3774	ilvC	+	+	+	-	0.944	0.97	1
b3784	wecA	-	-	-	-	0	0	0

b3786	wecB	-	-	-	-	0	0	0
b3787	wecC	-	-	-	-	0	0	0
b3788	rffG	-	-	-	-	0	0	0
b3789	rffH	-	-	-	-	0	0	0
b3790	wecD	-	-	-	-	0	0	0
b3791	wecE	-	-	-	+	0	0	0
b3793	wecF	-	-	-	-	0	0	0
b3794	wecG	-	-	-	-	0	0	0
b3803	hemX	-	-	-	-	0	0	0
b3804	hemD	-	-	-	+	0	1	0
b3805	hemC	-	-	+	+	0	1	0
b3806	cyaA	-	-	-	-	0	0	0
b3809	dapF	+	+	+	+	0.704	1	1
b3821	pldA	-	-	-	-	0	0	0.006
b3825	pldB	-	-	-	-	0	0	0.006
b3829	metE	+	+	+	-	0.08	0.52	0.51
b3831	udp	-	-	-	-	0.16	0.214	0.17
b3833	ubiE	-	-	-	+	0	1	0
b3835	ubiB	-	-	-	+	0	1	0
b3843	yigC	-	-	-	+	0	0.486	0
b3845	fadA	-	-	-	-	0	0	0
b3846	fadB	-	-	-	-	0	0	0
b3849	trkH	-	-	-	+	0	0	0
b3850	hemG	-	-	-	+	0	1	0
b3870	glnA	-	-	-	+	0.472	0.468	0.49
b3892	fdoI	-	-	-	-	0.174	0.146	0.06
b3893	fdoH	-	-	-	-	0.174	0.146	0.06
b3894	fdoG	-	-	-	-	0.174	0.146	0.06
b3902	rhaD	-	-	-	-	0	0	0
b3903	rhaA	-	-	-	-	0	0	0
b3904	rhaB	-	-	-	-	0	0	0
b3907	rhaT	-	-	-	-	0	0	0
b3908	sodA	+	+	+	+	0	0	0
b3909	kdgT	-	-	-	-	0	0	0
b3916	pfkA	+	+	+	-	0	0	0.534
b3917	sbp	-	-	-	-	0	0	0.348
b3918	cdh	-	-	-	-	0	0	0
b3919	tpiA	+	+	+	+	1	1	1
b3926	glpK	-	-	-	-	0.418	0.416	0.398
b3927	glpF	-	+	+	-	0.212	0.21	0.276
b3929	menG	-	-	-	-	0	0	0

b3930	menA	-	-	-	-	0	0	0
b3939	metB	-	-	-	-	0.142	0.192	1
b3940	metL	-	-	-	-	0.37	0.386	0.502
b3941	metF	+	+	+	-	1	1	1
b3942	katG	-	-	-	-	0	0	0
b3945	gldA	-	-	-	-	0.52	0.5	0.362
b3946	talC	-	-	-	-	0.246	0.234	0.102
b3951	pflD	-	-	-	-	0	0	0.054
b3952	pflC	-	-	-	-	0	0	0.054
b3956	ppc	-	-	-	-	0.098	0.526	0.482
b3957	argE	-	+	+	-	0.678	0.652	1
b3958	argC	-	+	+	-	0.678	0.652	1
b3959	argB	-	+	+	-	0.678	0.652	1
b3960	argH	+	+	+	-	0.884	0.824	1
b3962	sthA	-	-	-	-	0.072	0.024	0.032
b3966	btuB	-	-	-	-	0	0	0
b3967	murI	+	+	+	+	1	1	1
b3972	murB	+	+	+	+	1	1	1
b3974	coaA	-	-	-	+	1	0	1
b3990	thiH	-	-	-	+	0	1	0
b3991	thiG	-	-	-	+	0	1	0
b3992	thiF	-	-	-	-	0	1	0
b3993	thiE	-	-	-	+	0	1	0
b3994	thiC	-	-	-	+	0	1	0
b3997	hemE	-	-	-	+	0	1	0
b4005	purD	-	-	-	+	0.72	1	1
b4006	purH	+	+	+	+	0.8	0.886	1
b4013	metA	-	-	-	-	0.142	0.192	1
b4014	aceB	-	-	-	-	0.546	0.488	0.28
b4015	aceA	-	-	-	-	0.978	0.95	0.544
b4019	metH	-	-	-	-	0.062	0.48	0.49
b4024	lysC	-	-	-	-	0.154	0.254	0
b4025	pgi	+	+	+	+	0.934	0.956	0.92
b4031	xylE	-	-	-	-	0	0	0
b4032	malG	-	-	-	-	0.006	0.002	0
b4033	malF	-	-	-	-	0.006	0.002	0
b4034	malE	-	-	-	-	0.006	0.002	0
b4035	malK	-	-	-	-	0.006	0.002	0
b4036	lamB	-	-	-	-	0.006	0.002	0
b4039	ubiC	-	-	-	-	0	1	0
b4040	ubiA	-	-	-	+	0	1	0

b4041	plsB	-	-	-	+	1	1	1
b4042	dgkA	-	-	-	-	1	1	1
b4053	alr	-	-	-	-	0.494	0.506	0.472
b4054	tyrB	-	-	-	-	0.224	0.23	0
b4069	acs	-	-	-	-	0.082	0.068	0.112
b4077	glfP	-	-	-	-	0	0	0.01
b4079	fdhF	-	-	-	-	0.634	0.638	0.338
b4090	rpiB	-	-	-	-	0.5	0.504	0.538
b4111	proP	-	-	-	-	0.052	0.082	0
b4117	adiA	-	-	-	-	0	0.012	0.034
b4119	melA	-	-	-	-	0	0	0
b4120	melB	-	-	-	-	0	0	0
b4122	fumB	-	-	-	-	0.346	0.284	0.32
b4123	dcuB	-	-	-	-	0	0	0
b4131	cadA	-	-	-	-	0	0	0
b4132	cadB	-	-	-	-	0	0	0
b4138	dcuA	-	-	-	-	0	0	0
b4139	aspA	-	-	-	+	0.088	0.016	0.03
b4151	frdD	-	-	-	-	0	0	0
b4152	frdC	-	-	-	-	0	0	0
b4153	frdB	-	-	-	-	0	0	0
b4154	frdA	-	-	-	-	0	0	0
b4160	psd	-	-	-	+	1	1	1
b4177	purA	+	+	+	+	0.764	0.836	1
b4196	sgaH	-	-	-	-	0	0	0
b4197	sgaU	-	-	-	-	0	0	0
b4198	sgaE	-	-	-	-	0	0	0
b4208	cycA	-	-	-	-	0.008	0.032	0.014
b4226	ppa	+	+	+	+	1	1	1
b4227	ytfQ	-	-	-	-	0	0	0
b4228	ytfR	-	-	-	-	0	0	0
b4229	ytfS	-	-	-	-	0	0	0
b4230	ytfT	-	-	-	-	0	0	0
b4231	yjfF	-	-	-	-	0	0	0
b4232	fbp	-	-	-	+	0.87	0.89	0
b4238	nrdD	-	-	-	-	0.634	0.636	0.688
b4239	treC	-	-	-	-	0	0	0
b4240	treB	-	-	-	-	0	0	0
b4244	pyrI	-	+	+	+	0.892	0.82	1
b4245	pyrB	-	+	+	+	0.892	0.82	1
b4254	argI	-	-	-	-	0.484	0.436	0.498

b4265	idnT	-	-	-	-	0	0	0
b4266	idnO	-	-	-	-	0	0	0
b4267	idnD	-	-	-	-	0.09	0.036	0.032
b4268	idnK	-	-	-	-	0	0	0
b4301	sgcE	-	-	-	-	0.494	0.482	0.486
b4321	gntP	-	-	-	-	0	0	0
b4322	uxuA	-	-	-	-	0	0	0
b4323	uxuB	-	-	-	-	0	0	0
b4381	deoC	-	-	-	-	0.006	0.006	0.55
b4382	deoA	-	-	-	-	0.006	0.004	0.082
b4383	deoB	+	+	+	-	0.252	0.302	0.6
b4384	deoD	+	+	+	-	0.254	0.34	0.352
b4388	serB	-	-	-	-	1	1	1
b4395	gpmB	-	-	-	-	0.334	0.332	0.36
b4407	thiS	-	-	-	-	0	1	0