

● mRNA expression

6.5-8.0 = Low mRNA expression

8.0-12.0 = Moderate mRNA expression

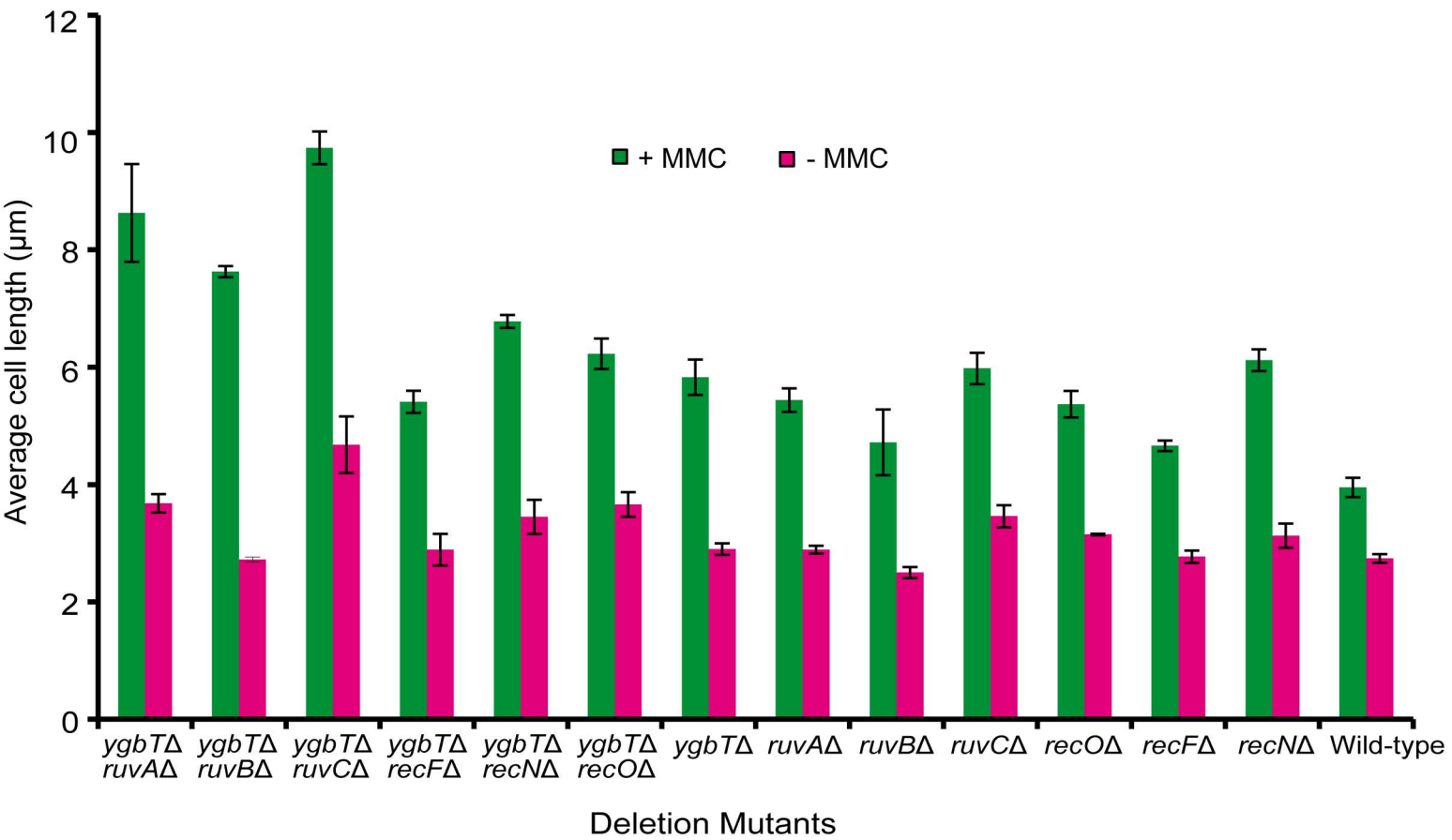
>12.0 = High mRNA expression

■ Codon Adaptation Index scores

0.4-0.5 = Low CAI

0.5-0.7 = Moderate CAI

>0.7 = High CAI



## Supplementary Figure Legends

**Suppl. Fig. 1. Nuclease activity of YgbT.** (**A,B**), Effect of metal cations on the cleavage of ssDNA (**A**) or ssRNA (**B**) by YgbT. 5'-labeled DNA19 or RNA1 substrates were incubated without (**C**) or with YgbT (100 µg/ml) under indicated conditions (37°C, 30 min) and reaction products were analyzed by denaturing PAGE/autoradiography. Lane M shows the 5'-<sup>32</sup>P-labeled marker oligonucleotides. (**C**) Cleavage of dsDNA (61 nt) by YgbT (denaturing PAGE/autoradiography). The 5'-[<sup>32</sup>P]-labeled ssDNA in a complex with complementary oligonucleotide was incubated without protein (**C**), with YgbT for the indicated times (37 °C) or in the presence of 10 mM EDTA for 60 min (EDTA). (**D**) Alanine replacement mutagenesis of YgbT: cleavage of [5'-<sup>32</sup>P]-labeled ssRNA by purified mutant proteins (30 min at 37 °C; denaturing PAGE/autoradiography). (**E, F**) Nuclease activity of the purified C-terminal domain of YgbT. [5'-<sup>32</sup>P]-labeled HJ3 (**E**) or DNA19 (**F**) were incubated (30 min at 37°C) with the full-length YgbT (80 µg/ml; Lane 1) or its C-terminal fragment (96-278 aa; 80 µg/ml; Lane 2) and the reaction products were analyzed by native (**E**) or denaturing (**F**) PAGE/autoradiography. Lanes C show the substrates incubated without protein addition. (**G**) SDS-PAGE analysis of purified wild type and mutant YgbT proteins.

**Suppl. Fig. 2. Structure-based sequence alignment of the *E. coli* YgbT and other Cas1 proteins with solved crystal structures.** The secondary structure elements of YgbT and aq\_369 are shown above and below the alignment, respectively. The conserved residues are boxed, and the YgbT residues mutated to Ala in this study are marked with

an arrowhead above the alignment. The alignment was prepared as individual alignments against YgbT using the SDSC Biology Workbench and the ALIGN software with default settings.

**Suppl. Fig. 3. mRNA expression and codon adaptation indices of *ygbT* and other *cas* genes.** The primary y-axis represents the log-scale mRNA expression level of each gene; while the secondary y-axis represents the codon adaptation index (CAI) score. For details see Suppl. Materials.

**Suppl. Fig. 4. Cell lengths of the MMC-treated *ygbT* and *ruv* deletion strains.** The cell length of various deletion mutants was measured in the presence (green bars) or absence (red bars) of MMC treatment. In each case, cell lengths were averaged for 150 different cells from five independent biological replicates (30 cells per replicate). Error bars indicate standard deviation from mean.

**Table S1.** Oligonucleotides used for preparation of DNA and RNA substrates.

DNA	Nucleotide sequence (5' 3')
1	GAACTGAGCAAACCTATTCTTGCCAGCACAATGAA (HJ1)
2	TTCATTGTGCTGCCAAGAATAGTGTCACTCGATC (HJ1)
3	GATCGAGTGACACTATTCTTGCGACTTGAGCGG (HJ1)
4	CCGCTCAAGTCGCCAAGAATAGTTTGCAGAGTTC (HJ1)
5	TTTGAGTCCGGTTTATCCCTGCTGGCGCGGGGAAGTCCAG (HJ2)
6	CTGGAGTCCCCGCGCCGACAGGGATAAACCGGCA (HJ2)
7	GTTCCCCGCGCCGACAGGGATAAACCGGCAACGAC (HJ2)
8	CGAGAGTCCCCGCGCCAGCAGGGATAAACCGGACTCAA (HJ2)
9	TTTGAGTCCGGTTTATCCCTGCTGGCGCGGGGAAGTCCAG (HJ3, YJ, HL, RF, 5/F, 3/F, SA)
10	CTGGAGTCCCCGCGCCGACAGGGATAAACCGGCAACGAC (HJ3)
11	GTCGTTGACGGTTTATCCCTGCTGGCGCGGGGAAGTCTCG (HJ3)
12	CTGGAGTCCCCGCGCCAGCAGCCACAAGGGGAAGTCCAG (HJ3, YJ, RF, 5/F, 3/F, SA)
13	CTGGAGTCCCCGCGCCGACAGGGATAAACCGGACTCAA (YJ)
14	AGCGTCGTAAGCAAGATAAATCGTGCGACCGATAAGCAGCTTCGGC (HL)
15	GCCGAAGCTGCTTATCGGTATCTTGCTTACGACGCT (HL)
16	CTGGAGTCCCCGCGCCGAC (RF, 5/F)
17	AGGGATAAACCGGACTCAA (RF, 3/F)
18	GTCGTTGCCGGTTTATGGGGCTAGTGCCCCAACACCAGCGTCAGGC (CF1)
19	GCCTGACGCTGGTGTGGGGCTGATGCCCCATAAACCGGCAACGAC (CF1)
20	GACGGTCGTTGCCGGTTTATGGGGCTAGTGCCCCAACACCAGCGTCAGGCGCTC (CF2)
21	GAGCGCTGACGCTGGTGTGGGGCTGATGCCCCATAAACCGGCAACGACCGTC (CF2)
22	GTCCGGTTTATCCCTGCTGGCGCGGGGAAGTCCA (ssDNA, dsDNA 34 nt)
23	TGGAGTCCCCGCGCCAGCAGGGATAAACCGGAC (dsDNA 34 nt)
24	GACGCTGCCGAATTCTACCAGTGCCTTGCTAGGACATCTTGCCACCTGCAGGTTACCC (dsDNA 61 nt)
25	GGGTGAACCTGCAGGTGGGCAAAGATGTCCTAGCAAGGCACTGGTAGAATTCGGCAGCGTC (dsDNA 61 nt)
RNA1	AAAUACGUUUUCUCAUUGUCAUUAUUGCGCAUAAGUUUGA (ssRNA, dsRNA)
RNA2	UCAACUUAUGCGCAAUAUGACAAUGGAGAAAACGUUUUU (dsRNA)
RNA3	AAACUAUUCUUGCCAG
RNA4	CUGGCAAGAAUAGUUU

**Table S2.** Proteins Identified by Mass Spectrometry after Sequential Peptide Affinity Tag Purifications of YgbT and Other *E. coli* Cas and DNA Repair/Recombination Proteins

Bait <sup>a</sup>	Prey	Confidence Scores <sup>b</sup>		
		MALDITOF-MS <sup>c</sup> (Z-score > 0.7)	LCMS <sup>d</sup> (Probability score > 40%)	TSC <sup>e</sup>
RecB	flu	-	62.36	1
RecB	recB	18.89656198	-	-
RecB	recC	19.01218388	-	-
RecB	surA	-	80.33	1
RecB	uvrC	-	99.58	1
RecB	ygbT	-	45.63	1
RecC	ygbT	-	45.63	1
RuvB	hupA	-	99.47	1
RuvB	ihfA	-	57.82	1
RuvB	intA	-	88	1
RuvB	ruvB	38.48352546	99.6	19
RuvB	ydgH	-	91.92	1
RuvB	ygbT	-	45.91	1
UvrC	dps	-	99.58	2
UvrC	hupA	-	99.6	1
UvrC	paaK	-	90	1
UvrC	uvrC	28.51501786	99.6	20
UvrC	ygbT	-	42.87	1
YgbT	dps	-	99.6	1
YgbT	flu	-	62.12	1
YgbT	hofQ	1.254553526	-	-
YgbT	hupA	-	99.6	2
YgbT	ihfA	-	91.6	1
YgbT	intB	0.722530337	-	-
YgbT	paaK	-	83.3	1
YgbT	recB	0.784273707	-	-
YgbT	recC	-	45.91	1
YgbT	ruvB	-	48.84	1
YgbT	surA	-	88.03	1
YgbT	uvrC	-	53.6	1



YgbT	ydgH	-	88	4
YgbT	ygcJ	-	45.91	1
YgbT	ygcH	-	45.98	1
YgcH	hofQ	1.034943477	-	-
YgcH	ygbT	-	55.98	1
YgcH	ygcH	24.26470319	99.24	1
YgcJ	ygbT	-	45.76	1
YgcJ	ygcJ	28.56401287	-	-

<sup>a</sup> C-terminally SPA (Sequential Peptide Affinity)-tagged affinity proteins were used as baits and were purified without altering its endogenous expression.

The purified interacting proteins were then detected by mass spectrometry.

<sup>b</sup>STATQUEST [1] and ProFound search engine programs [2] were used to evaluate and assign confidence scores to putative spectral matches for LCMS and MALDITOF-MS, respectively. In LCMS, all peptides for listed proteins were detected at a confidence of at least 40% and above. In the case of MALDITOF-MS, proteins were detected at a confidence of Z-score 0.7 and above.

<sup>c</sup>MALDITOF-MS, Matirx assisted laser desorption/ionization -time-of-flight mass spectrometry.

<sup>d</sup>LCMS, liquid chromatography-tandem mass spectrometry.

<sup>e</sup>Total number of spectral counts (TSC) from LCMS that showed correct spectral matches.

-, unable to detect the protein by MALDITOF-MS or by LCMS.

Note: Shown here are only the proteins that co-purified with YgbT also co-purified with one or more of the other affinity-tagged DNA repair/recombination or Cas proteins.

#### References:

1. Kislinger, T. et al., 2003. PRISM, a generic large scale proteomic investigation strategy for mammals. *Mol Cell Proteomics* 2, 96-106.
2. Babu, M. et al. (2009). Sequential peptide affinity purification system for the systematic isolation and identification of protein complexes from Escherichia coli. *Methods Mol Biol* 564, 373-400.

**Table S3.** Genetic Interaction Scores (*S*) of an Hfr *ygbTA* Deletion Mutant used as a Donor in a Screen against the F- Keio Non-Essential Single Gene Knock-out Library and 149 Potentially Hypomorphic Strains with Essential Genes C-Terminally Tagged with Sequential Peptide Affinity Tags

b-number <sup>a</sup> of recipient mutant strains	Gene names of recipient <sup>b</sup> F <sup>-</sup> mutant strains	Strain versions <sup>c</sup>	Essential <sup>d</sup> / Non-essential <sup>e</sup>	Description	<i>S</i> - score for <i>ygbTA</i> screen <sup>f</sup>
b0001	thrL	Isolate 1	non-essential	thr operon leader peptide	-1.23
b0001	thrL	Isolate 2	non-essential	thr operon leader peptide	-1.14
b0002	thrA	Isolate 1	non-essential	fused aspartokinase I -!- homoserine dehydrogenase I	-0.29
b0002	thrA	Isolate 2	non-essential	fused aspartokinase I -!- homoserine dehydrogenase I	-2.27
b0003	thrB	Isolate 1	non-essential	homoserine kinase	1.65
b0003	thrB	Isolate 2	non-essential	homoserine kinase	0.78
b0004	thrC	Isolate 1	non-essential	threonine synthase	1.00
b0004	thrC	Isolate 2	non-essential	threonine synthase	1.04
b0005	yaaX	Isolate 1	non-essential	predicted protein	-1.81
b0005	yaaX	Isolate 2	non-essential	predicted protein	0.05
b0006	yaaA	Isolate 1	non-essential	conserved protein	-1.34
b0006	yaaA	Isolate 2	non-essential	conserved protein	1.88
b0007	yaaJ	Isolate 1	non-essential	predicted transporter	0.00
b0007	yaaJ	Isolate 2	non-essential	predicted transporter	2.39
b0008	talB	Isolate 1	non-essential	transaldolase B	-1.39
b0008	talB	Isolate 2	non-essential	transaldolase B	-1.17
b0009	mog	Isolate 1	non-essential	predicted molybdochelatase	0.02
b0009	mog	Isolate 2	non-essential	predicted molybdochelatase	0.71
b0010	yaaH	Isolate 1	non-essential	conserved inner membrane protein associated with acetate transport	-1.90
b0010	yaaH	Isolate 2	non-essential	conserved inner membrane protein associated with acetate transport	-0.78
b0011	yaaW	Isolate 1	non-essential	conserved protein	0.06
b0011	yaaW	Isolate 2	non-essential	conserved protein	-2.11
b0012	htgA	Isolate 1	non-essential	predicted protein	1.34
b0012	htgA	Isolate 2	non-essential	predicted protein	-0.90
b0013	yaaI	Isolate 1	non-essential	predicted protein	-1.69
b0013	yaaI	Isolate 2	non-essential	predicted protein	-1.90
b0014	dnaK	Isolate 1	non-essential	chaperone Hsp70, co-chaperone with DnaJ	-1.99
b0014	dnaK	Isolate 2	non-essential	chaperone Hsp70, co-chaperone with DnaJ	0.79
b0015	dnaJ	Isolate 1	non-essential	chaperone Hsp40, co-chaperone with DnaK	1.71
b0015	dnaJ	Isolate 2	non-essential	chaperone Hsp40, co-chaperone with DnaK	1.51
b0019	nhaA	Isolate 1	non-essential	sodium-proton antiporter	0.99
b0019	nhaA	Isolate 2	non-essential	sodium-proton antiporter	0.87
b0020	nhaR	Isolate 1	non-essential	DNA-binding transcriptional activator	-0.82
b0020	nhaR	Isolate 2	non-essential	DNA-binding transcriptional activator	1.94
b0023	rpsT	Isolate 1	non-essential	30S ribosomal subunit protein S20	-0.27
b0023	rpsT	Isolate 2	non-essential	30S ribosomal subunit protein S20	0.75
b0024	yaaY	Isolate 1	non-essential	predicted protein	-0.64

b0024	yaaY	Isolate 2	non-essential	predicted protein	-1.10
b0025	ribF	Isolate 1	essential	bifunctional riboflavin kinase -!- FAD synthetase	-1.01
b0026	ileS	Isolate 1	non-essential	isoleucyl-tRNA synthetase	-2.39
b0026	ileS	Isolate 2	non-essential	isoleucyl-tRNA synthetase	3.39
b0028	fkpB	Isolate 1	non-essential	FKBP-type peptidyl-prolyl cis-trans isomerase (rotamase)	0.87
b0028	fkpB	Isolate 2	non-essential	FKBP-type peptidyl-prolyl cis-trans isomerase (rotamase)	0.03
b0029	ispH	Isolate 1	essential	1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate reductase, 4Fe-4S protein	0.33
b0030	rihC	Isolate 1	non-essential	ribonucleoside hydrolase 3	0.99
b0030	rihC	Isolate 2	non-essential	ribonucleoside hydrolase 3	0.96
b0032	carA	Isolate 1	non-essential	carbamoyl phosphate synthetase small subunit, glutamine amidotransferase	-0.44
b0032	carA	Isolate 2	non-essential	carbamoyl phosphate synthetase small subunit, glutamine amidotransferase	-0.30
b0033	carB	Isolate 1	non-essential	carbamoyl-phosphate synthase large subunit	-4.81
b0033	carB	Isolate 2	non-essential	carbamoyl-phosphate synthase large subunit	-2.34
b0033.1	*	Isolate 1	*	*	1.65
b0033.1	*	Isolate 2	*	*	-8.38
b0034	caiF	Isolate 1	non-essential	DNA-binding transcriptional activator	-1.45
b0034	caiF	Isolate 2	non-essential	DNA-binding transcriptional activator	0.03
b0035	caiE	Isolate 1	non-essential	predicted acyl transferase	1.46
b0035	caiE	Isolate 2	non-essential	predicted acyl transferase	-0.26
b0036	caiD	Isolate 1	non-essential	crotonobetainyl CoA hydratase	-0.10
b0036	caiD	Isolate 2	non-essential	crotonobetainyl CoA hydratase	-0.80
b0037	caiC	Isolate 1	non-essential	predicted crotonobetaine CoA ligase:carnitine CoA ligase	0.81
b0037	caiC	Isolate 2	non-essential	predicted crotonobetaine CoA ligase:carnitine CoA ligase	0.38
b0038	caiB	Isolate 1	non-essential	crotonobetainyl CoA:carnitine CoA transferase	2.01
b0038	caiB	Isolate 2	non-essential	crotonobetainyl CoA:carnitine CoA transferase	0.11
b0039	caiA	Isolate 1	non-essential	crotonobetaine reductase subunit II, FAD-binding	-1.72
b0039	caiA	Isolate 2	non-essential	crotonobetaine reductase subunit II, FAD-binding	0.29
b0040	caiT	Isolate 1	non-essential	predicted transporter	1.87
b0040	caiT	Isolate 2	non-essential	predicted transporter	-0.75
b0041	fixA	Isolate 1	non-essential	predicted electron transfer flavoprotein subunit, ETFP adenine nucleotide-binding domain	-0.94
b0041	fixA	Isolate 2	non-essential	predicted electron transfer flavoprotein subunit, ETFP adenine nucleotide-binding domain	-0.59
b0042	fixB	Isolate 1	non-essential	predicted electron transfer flavoprotein, NAD/FAD-binding domain and ETFP adenine nucleotide-binding domain-like	-1.08
b0042	fixB	Isolate 2	non-essential	predicted electron transfer flavoprotein, NAD/FAD-binding domain and ETFP adenine nucleotide-binding domain-like	-1.51
b0043	fixC	Isolate 1	non-essential	predicted oxidoreductase, FAD/NAD(P)-binding domain	0.58
b0043	fixC	Isolate 2	non-essential	predicted oxidoreductase, FAD/NAD(P)-binding domain	-3.02
b0044	fixX	Isolate 1	non-essential	predicted 4Fe-4S ferredoxin-type protein	-0.22
b0044	fixX	Isolate 2	non-essential	predicted 4Fe-4S ferredoxin-type protein	-1.43
b0045	yaaU	Isolate 1	non-essential	predicted transporter	-0.05
b0045	yaaU	Isolate 2	non-essential	predicted transporter	1.18
b0046	kefF	Isolate 1	non-essential	flavoprotein subunit for the KefC potassium efflux system	-1.12
b0046	kefF	Isolate 2	non-essential	flavoprotein subunit for the KefC potassium efflux system	-0.12
b0047	kefC	Isolate 1	non-essential	potassium:proton antiporter	0.14
b0047	kefC	Isolate 2	non-essential	potassium:proton antiporter	-1.02

b0048	folA	Isolate 1	essential	dihydrofolate reductase	-1.57
b0049	apaH	Isolate 1	non-essential	diadenosine tetraphosphatase	0.97
b0049	apaH	Isolate 2	non-essential	diadenosine tetraphosphatase	-0.89
b0050	apaG	Isolate 1	non-essential	protein associated with Co2+ and Mg2+ efflux	-0.25
b0050	apaG	Isolate 2	non-essential	protein associated with Co2+ and Mg2+ efflux	-0.33
b0051	ksgA	Isolate 1	non-essential	S-adenosylmethionine-6-N',N'-adenosyl (rRNA) dimethyltransferase	-1.25
b0051	ksgA	Isolate 2	non-essential	S-adenosylmethionine-6-N',N'-adenosyl (rRNA) dimethyltransferase	-1.57
b0052	pdxA	Isolate 1	non-essential	4-hydroxy-L-threonine phosphate dehydrogenase, NAD-dependent	0.03
b0052	pdxA	Isolate 2	non-essential	4-hydroxy-L-threonine phosphate dehydrogenase, NAD-dependent	-0.81
b0053	surA	Isolate 1	non-essential	peptidyl-prolyl cis-trans isomerase (PPIase)	2.49
b0053	surA	Isolate 2	non-essential	peptidyl-prolyl cis-trans isomerase (PPIase)	2.83
b0055	djlA	Isolate 1	non-essential	DnaJ-like protein, membrane anchored	0.16
b0055	djlA	Isolate 2	non-essential	DnaJ-like protein, membrane anchored	-0.83
b0056	yabP	Isolate 1	non-essential	predicted protein	0.00
b0056	yabP	Isolate 2	non-essential	predicted protein	1.21
b0058	rluA	Isolate 1	non-essential	pseudouridine synthase for 23S rRNA (position 746) and tRNAphe(position 32)	1.43
b0058	rluA	Isolate 2	non-essential	pseudouridine synthase for 23S rRNA (position 746) and tRNAphe(position 32)	-0.30
b0059	hepA	Isolate 1	non-essential	RNA polymerase-associated helicase protein (ATPase and RNA polymerase recycling factor)	-1.33
b0059	hepA	Isolate 2	non-essential	RNA polymerase-associated helicase protein (ATPase and RNA polymerase recycling factor)	0.70
b0060	polB	Isolate 1	non-essential	DNA polymerase II	-0.54
b0060	polB	Isolate 2	non-essential	DNA polymerase II	1.02
b0064	araC	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	2.47
b0064	araC	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	2.85
b0065	yabI	Isolate 1	non-essential	conserved inner membrane protein	-1.77
b0065	yabI	Isolate 2	non-essential	conserved inner membrane protein	-0.72
b0066	thiQ	Isolate 1	non-essential	thiamin transporter subunit -!- ATP-binding component of ABC superfamily	0.19
b0066	thiQ	Isolate 2	non-essential	thiamin transporter subunit -!- ATP-binding component of ABC superfamily	-0.11
b0067	thiP	Isolate 1	non-essential	fused subunits of thiamin transporter -!- membrane components of ABC superfamily	1.46
b0067	thiP	Isolate 2	non-essential	fused subunits of thiamin transporter -!- membrane components of ABC superfamily	-2.27
b0068	tbpA	Isolate 1	non-essential	thiamin transporter subunit -!- periplasmic-binding component of ABC superfamily	1.66
b0068	tbpA	Isolate 2	non-essential	thiamin transporter subunit -!- periplasmic-binding component of ABC superfamily	1.47
b0069	sgrR	Isolate 1	non-essential	DNA-binding transcriptional regulator	0.03
b0069	sgrR	Isolate 2	non-essential	DNA-binding transcriptional regulator	-1.10
b0070	setA	Isolate 1	non-essential	broad specificity sugar efflux system	1.00
b0070	setA	Isolate 2	non-essential	broad specificity sugar efflux system	-0.90
b0071	leuD	Isolate 1	non-essential	3-isopropylmalate isomerase subunit	-0.84
b0071	leuD	Isolate 2	non-essential	3-isopropylmalate isomerase subunit	0.11
b0072	leuC	Isolate 1	non-essential	3-isopropylmalate isomerase subunit, dehydratase component	-0.70
b0072	leuC	Isolate 2	non-essential	3-isopropylmalate isomerase subunit, dehydratase component	1.18
b0073	leuB	Isolate 1	non-essential	3-isopropylmalate dehydrogenase	2.10
b0073	leuB	Isolate 2	non-essential	3-isopropylmalate dehydrogenase	-0.38
b0074	leuA	Isolate 1	non-essential	2-isopropylmalate synthase	-0.42
b0074	leuA	Isolate 2	non-essential	2-isopropylmalate synthase	1.38

b0075	leuL	Isolate 1	non-essential	leu operon leader peptide	0.57
b0075	leuL	Isolate 2	non-essential	leu operon leader peptide	1.06
b0076	leuO	Isolate 1	non-essential	DNA-binding transcriptional activator	0.35
b0076	leuO	Isolate 2	non-essential	DNA-binding transcriptional activator	1.65
b0077	ilvI	Isolate 1	non-essential	acetolactate synthase III, large subunit	1.33
b0077	ilvI	Isolate 2	non-essential	acetolactate synthase III, large subunit	1.35
b0078	ilvH	Isolate 1	non-essential	acetolactate synthase III, thiamin-dependent, small subunit	1.22
b0078	ilvH	Isolate 2	non-essential	acetolactate synthase III, thiamin-dependent, small subunit	-0.70
b0080	fruR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	-0.47
b0080	fruR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	0.72
b0081	mraZ	Isolate 1	non-essential	conserved protein	1.26
b0081	mraZ	Isolate 2	non-essential	conserved protein	-1.17
b0082	mraW	Isolate 1	non-essential	S-adenosyl-dependent methyltransferase activity on membrane-located substrates	0.34
b0082	mraW	Isolate 2	non-essential	S-adenosyl-dependent methyltransferase activity on membrane-located substrates	0.77
b0085	murE	Isolate 1	essential	UDP-N-acetylmuramoyl-L-alanyl-D-glutamate:meso-diaminopimelate ligase	-0.48
b0086	murF	Isolate 1	essential	UDP-N-acetylmuramoyl-tripeptide:D-alanyl-D-alanine ligase	-0.48
b0088	murD	Isolate 1	essential	UDP-N-acetylmuramoyl-L-alanine:D-glutamate ligase	0.58
b0090	murG	Isolate 1	essential	N-acetylglucosaminyl transferase	0.74
b0091	murC	Isolate 1	essential	UDP-N-acetylmuramate:L-alanine ligase	-1.70
b0094	ftsA	Isolate 1	essential	ATP-binding cell division protein involved in recruitment of FtsK to Z ring	0.54
b0095	ftsZ	Isolate 1	essential	GTP-binding tubulin-like cell division protein	0.74
b0096	lpxC	Isolate 1	essential	UDP-3-O-acyl N-acetylglucosamine deacetylase	1.74
b0098	secA	Isolate 1	essential	preprotein translocase subunit, ATPase that targets protein precursors to the SecYE core translocon	0.74
b0099	mutT	Isolate 1	non-essential	nucleoside triphosphate pyrophosphohydrolase, marked preference for dGTP	-1.37
b0099	mutT	Isolate 2	non-essential	nucleoside triphosphate pyrophosphohydrolase, marked preference for dGTP	-0.85
b0101	yacG	Isolate 1	non-essential	conserved protein	0.40
b0101	yacG	Isolate 2	non-essential	conserved protein	-0.12
b0102	yacF	Isolate 1	non-essential	conserved protein	-1.61
b0102	yacF	Isolate 2	non-essential	conserved protein	-1.89
b0103	coaE	Isolate 1	non-essential	dephospho-CoA kinase	-2.01
b0103	coaE	Isolate 2	non-essential	dephospho-CoA kinase	-1.62
b0104	guaC	Isolate 1	non-essential	GMP reductase	0.18
b0104	guaC	Isolate 2	non-essential	GMP reductase	-1.57
b0106	hofC	Isolate 1	non-essential	assembly protein in type IV pilin biogenesis, transmembrane protein	0.36
b0106	hofC	Isolate 2	non-essential	assembly protein in type IV pilin biogenesis, transmembrane protein	-1.10
b0107	hofB	Isolate 1	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	-0.96
b0107	hofB	Isolate 2	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	0.23
b0108	ppdD	Isolate 1	non-essential	predicted major pilin subunit	-0.86
b0108	ppdD	Isolate 2	non-essential	predicted major pilin subunit	-12.77
b0109	nadC	Isolate 1	non-essential	quinolinate phosphoribosyltransferase	-1.42
b0109	nadC	Isolate 2	non-essential	quinolinate phosphoribosyltransferase	-2.06
b0110	ampD	Isolate 1	non-essential	N-acetyl-anhydromuranmyl-L-alanine amidase	-0.90
b0110	ampD	Isolate 2	non-essential	N-acetyl-anhydromuranmyl-L-alanine amidase	-0.43

b0111	ampE	Isolate 1	non-essential	predicted inner membrane protein	-0.04
b0111	ampE	Isolate 2	non-essential	predicted inner membrane protein	0.84
b0112	aroP	Isolate 1	non-essential	aromatic amino acid transporter	0.27
b0112	aroP	Isolate 2	non-essential	aromatic amino acid transporter	-0.09
b0113	pdhR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	1.33
b0113	pdhR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	0.76
b0114	aceE	Isolate 1	non-essential	pyruvate dehydrogenase, decarboxylase component E1, thiamin-binding	-0.52
b0114	aceE	Isolate 2	non-essential	pyruvate dehydrogenase, decarboxylase component E1, thiamin-binding	-0.62
b0115	aceF	Isolate 1	non-essential	pyruvate dehydrogenase, dihydrolipoyltransacetylase component E2	0.65
b0115	aceF	Isolate 2	non-essential	pyruvate dehydrogenase, dihydrolipoyltransacetylase component E2	1.33
b0116	lpd	Isolate 1	non-essential	lipoamide dehydrogenase, E3 component is part of three enzyme complexes	-10.76
b0116	lpd	Isolate 2	non-essential	lipoamide dehydrogenase, E3 component is part of three enzyme complexes	0.66
b0117	yacH	Isolate 1	non-essential	predicted protein	0.17
b0117	yacH	Isolate 2	non-essential	predicted protein	-0.85
b0118	acnB	Isolate 1	non-essential	bifunctional aconitate hydratase 2 -!- 2-methylisocitrate dehydratase	-9.58
b0118	acnB	Isolate 2	non-essential	bifunctional aconitate hydratase 2 -!- 2-methylisocitrate dehydratase	0.97
b0119	yacL	Isolate 1	non-essential	conserved protein	-0.18
b0119	yacL	Isolate 2	non-essential	conserved protein	0.89
b0120	speD	Isolate 1	non-essential	S-adenosylmethionine decarboxylase	1.84
b0120	speD	Isolate 2	non-essential	S-adenosylmethionine decarboxylase	0.57
b0121	speE	Isolate 1	non-essential	spermidine synthase (putrescine aminopropyltransferase)	0.13
b0121	speE	Isolate 2	non-essential	spermidine synthase (putrescine aminopropyltransferase)	-0.31
b0122	yacC	Isolate 1	non-essential	predicted protein	-1.17
b0122	yacC	Isolate 2	non-essential	predicted protein	-1.55
b0123	cueO	Isolate 1	non-essential	multicopper oxidase (laccase)	0.92
b0123	cueO	Isolate 2	non-essential	multicopper oxidase (laccase)	1.76
b0124	gcd	Isolate 1	non-essential	glucose dehydrogenase	0.09
b0124	gcd	Isolate 2	non-essential	glucose dehydrogenase	1.63
b0125	hpt	Isolate 1	non-essential	hypoxanthine phosphoribosyltransferase	0.79
b0125	hpt	Isolate 2	non-essential	hypoxanthine phosphoribosyltransferase	-0.81
b0126	can	Isolate 1	essential	carbonic anhydrase	2.48
b0127	yadG	Isolate 1	non-essential	predicted transporter subunit -!- ATP-binding component of ABC superfamily	-0.48
b0127	yadG	Isolate 2	non-essential	predicted transporter subunit -!- ATP-binding component of ABC superfamily	-1.88
b0128	yadH	Isolate 1	non-essential	predicted transporter subunit -!- membrane component of ABC superfamily	0.89
b0128	yadH	Isolate 2	non-essential	predicted transporter subunit -!- membrane component of ABC superfamily	0.24
b0129	yadI	Isolate 1	non-essential	predicted PTS Enzyme IIA	0.28
b0129	yadI	Isolate 2	non-essential	predicted PTS Enzyme IIA	-1.27
b0130	yadE	Isolate 1	non-essential	predicted polysaccharide deacetylase lipoprotein	0.74
b0130	yadE	Isolate 2	non-essential	predicted polysaccharide deacetylase lipoprotein	1.17
b0131	panD	Isolate 1	non-essential	aspartate 1-decarboxylase	-0.55
b0131	panD	Isolate 2	non-essential	aspartate 1-decarboxylase	0.48
b0132	yadD	Isolate 1	non-essential	predicted transposase	-0.28
b0132	yadD	Isolate 2	non-essential	predicted transposase	-2.13

b0133	panC	Isolate 1	non-essential	pantothenate synthetase	0.06
b0133	panC	Isolate 2	non-essential	pantothenate synthetase	1.19
b0134	panB	Isolate 1	non-essential	3-methyl-2-oxobutanoate hydroxymethyltransferase	-1.68
b0134	panB	Isolate 2	non-essential	3-methyl-2-oxobutanoate hydroxymethyltransferase	-1.04
b0135	yadC	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	-0.98
b0135	yadC	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	-2.16
b0136	yadK	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	-1.97
b0136	yadK	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	-0.98
b0137	yadL	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	-1.06
b0137	yadL	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	0.30
b0138	yadM	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	0.72
b0138	yadM	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	0.05
b0139	htrE	Isolate 1	non-essential	predicted outer membrane usher protein	-0.77
b0139	htrE	Isolate 2	non-essential	predicted outer membrane usher protein	0.62
b0140	ecpD	Isolate 1	non-essential	predicted periplasmic pilin chaperone	2.61
b0140	ecpD	Isolate 2	non-essential	predicted periplasmic pilin chaperone	-0.41
b0141	yadN	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	-1.14
b0141	yadN	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	-2.22
b0143	pcnB	Isolate 1	non-essential	poly(A) polymerase I	-1.17
b0143	pcnB	Isolate 2	non-essential	poly(A) polymerase I	0.14
b0144	yadB	Isolate 1	non-essential	glutamyl-Q tRNA(Asp) synthetase	0.11
b0144	yadB	Isolate 2	non-essential	glutamyl-Q tRNA(Asp) synthetase	0.26
b0145	dksA	Isolate 1	non-essential	transcriptional regulator of rRNA transcription, DnaK suppressor protein	0.79
b0145	dksA	Isolate 2	non-essential	transcriptional regulator of rRNA transcription, DnaK suppressor protein	1.08
b0146	sfsA	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	1.77
b0146	sfsA	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-2.15
b0147	ligT	Isolate 1	non-essential	2'-5' RNA ligase	1.62
b0147	ligT	Isolate 2	non-essential	2'-5' RNA ligase	0.72
b0148	hrpB	Isolate 1	non-essential	predicted ATP-dependent helicase	-0.98
b0148	hrpB	Isolate 2	non-essential	predicted ATP-dependent helicase	-0.24
b0149	mrcB	Isolate 1	non-essential	fused glycosyl transferase -!- transpeptidase	-1.89
b0149	mrcB	Isolate 2	non-essential	fused glycosyl transferase -!- transpeptidase	-0.23
b0150	fhuA	Isolate 1	non-essential	ferrichrome outer membrane transporter	-1.88
b0150	fhuA	Isolate 2	non-essential	ferrichrome outer membrane transporter	-2.50
b0151	fhuC	Isolate 1	non-essential	iron-hydroxamate transporter subunit -!- ATP-binding component of ABC superfamily	-0.98
b0151	fhuC	Isolate 2	non-essential	iron-hydroxamate transporter subunit -!- ATP-binding component of ABC superfamily	0.99
b0152	fhuD	Isolate 1	non-essential	iron-hydroxamate transporter subunit -!- periplasmic-binding component of ABC superfamily	0.93
b0152	fhuD	Isolate 2	non-essential	iron-hydroxamate transporter subunit -!- periplasmic-binding component of ABC superfamily	1.09
b0153	fhuB	Isolate 1	non-essential	fused subunits of iron-hydroxamate transporter -!- membrane components of ABC superfamily transporter	-0.30
b0153	fhuB	Isolate 2	non-essential	fused subunits of iron-hydroxamate transporter -!- membrane components of ABC superfamily transporter	-0.61
b0155	clcA	Isolate 1	non-essential	chloride channel, voltage-gated	0.26
b0155	clcA	Isolate 2	non-essential	chloride channel, voltage-gated	-1.32
b0156	yadR	Isolate 1	essential	conserved protein	-0.96

b0157	yadS	Isolate 1	non-essential	conserved inner membrane protein	-13.68
b0157	yadS	Isolate 2	non-essential	conserved inner membrane protein	-0.42
b0158	btuF	Isolate 1	non-essential	vitamin B12 transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.40
b0158	btuF	Isolate 2	non-essential	vitamin B12 transporter subunit -!- periplasmic-binding component of ABC superfamily	-2.50
b0159	pfs	Isolate 1	non-essential	5'-methylthioadenosine/S-adenosylhomocysteine nucleosidase	-0.04
b0159	pfs	Isolate 2	non-essential	5'-methylthioadenosine/S-adenosylhomocysteine nucleosidase	-0.90
b0160	dgt	Isolate 1	non-essential	deoxyguanosine triphosphate triphosphohydrolase	2.23
b0160	dgt	Isolate 2	non-essential	deoxyguanosine triphosphate triphosphohydrolase	1.80
b0161	degP	Isolate 1	non-essential	serine endoprotease (protease Do), membrane-associated	0.29
b0161	degP	Isolate 2	non-essential	serine endoprotease (protease Do), membrane-associated	-1.59
b0162	cdaR	Isolate 1	non-essential	DNA-binding transcriptional regulator	-0.16
b0162	cdaR	Isolate 2	non-essential	DNA-binding transcriptional regulator	-1.36
b0163	yaeH	Isolate 1	non-essential	conserved protein	0.61
b0163	yaeH	Isolate 2	non-essential	conserved protein	-0.99
b0164	yaeI	Isolate 1	non-essential	predicted phosphatase	0.08
b0164	yaeI	Isolate 2	non-essential	predicted phosphatase	0.60
b0167	glnD	Isolate 1	non-essential	uridylyltransferase	-0.76
b0167	glnD	Isolate 2	non-essential	uridylyltransferase	-1.00
b0168	map	Isolate 1	essential	methionine aminopeptidase	2.40
b0170	tsf	Isolate 1	essential	protein chain elongation factor EF-Ts	-1.04
b0171	pyrH	Isolate 1	essential	uridylyltransferase	-0.64
b0172	frf	Isolate 1	essential	ribosome recycling factor	3.80
b0174	ispU	Isolate 1	essential	undecaprenyl pyrophosphate synthase	1.15
b0177	yaeT	Isolate 1	essential	conserved protein	2.35
b0178	hlpA	Isolate 1	non-essential	periplasmic chaperone	1.14
b0178	hlpA	Isolate 2	non-essential	periplasmic chaperone	1.59
b0179	lpxD	Isolate 1	essential	UDP-3-O-(3-hydroxymyristoyl)-glucosamine N-acyltransferase	2.26
b0180	fabZ	Isolate 1	essential	(3R)-hydroxymyristol acyl carrier protein dehydratase	3.39
b0181	lpxA	Isolate 1	essential	UDP-N-acetylglucosamine acetyltransferase	4.33
b0182	lpxB	Isolate 1	essential	tetraacyldisaccharide-1-P synthase	1.15
b0183	rnhB	Isolate 1	non-essential	ribonuclease HII, degrades RNA of DNA-RNA hybrids	-0.54
b0183	rnhB	Isolate 2	non-essential	ribonuclease HII, degrades RNA of DNA-RNA hybrids	0.36
b0184	dnaE	Isolate 1	essential	DNA polymerase III alpha subunit	0.70
b0186	ldcC	Isolate 1	non-essential	lysine decarboxylase 2, constitutive	0.73
b0186	ldcC	Isolate 2	non-essential	lysine decarboxylase 2, constitutive	-0.26
b0187	yaeR	Isolate 1	non-essential	predicted lyase	0.60
b0187	yaeR	Isolate 2	non-essential	predicted lyase	1.46
b0189	rof	Isolate 1	non-essential	modulator of Rho-dependent transcription termination	2.18
b0189	rof	Isolate 2	non-essential	modulator of Rho-dependent transcription termination	0.13
b0190	yaeQ	Isolate 1	non-essential	conserved protein	-0.50
b0190	yaeQ	Isolate 2	non-essential	conserved protein	-1.69
b0191	yaeJ	Isolate 1	non-essential	conserved protein	0.52
b0191	yaeJ	Isolate 2	non-essential	conserved protein	-0.36



b0192	nlpE	Isolate 1	non-essential	lipoprotein involved with copper homeostasis and adhesion	1.46
b0192	nlpE	Isolate 2	non-essential	lipoprotein involved with copper homeostasis and adhesion	-2.18
b0193	yaeF	Isolate 1	non-essential	predicted lipoprotein	0.90
b0193	yaeF	Isolate 2	non-essential	predicted lipoprotein	-0.38
b0194	proS	Isolate 1	essential	prolyl-tRNA synthetase	1.17
b0195	yaeB	Isolate 1	non-essential	conserved protein	-1.47
b0195	yaeB	Isolate 2	non-essential	conserved protein	0.13
b0196	rscF	Isolate 1	non-essential	predicted outer membrane protein, signal	-0.83
b0196	rscF	Isolate 2	non-essential	predicted outer membrane protein, signal	0.01
b0197	metQ	Isolate 1	non-essential	DL-methionine transporter subunit -!- periplasmic-binding component of ABC superfamily	0.68
b0197	metQ	Isolate 2	non-essential	DL-methionine transporter subunit -!- periplasmic-binding component of ABC superfamily	0.17
b0198	metI	Isolate 1	non-essential	DL-methionine transporter subunit -!- membrane component protein of ABC superfamily	-1.96
b0198	metI	Isolate 2	non-essential	DL-methionine transporter subunit -!- membrane component protein of ABC superfamily	0.05
b0199	metN	Isolate 1	non-essential	DL-methionine transporter subunit -!- ATP-binding component of ABC superfamily	0.73
b0199	metN	Isolate 2	non-essential	DL-methionine transporter subunit -!- ATP-binding component of ABC superfamily	-1.20
b0200	gmhB	Isolate 1	non-essential	D,D-heptose 1,7-bisphosphate phosphatase	-1.77
b0200	gmhB	Isolate 2	non-essential	D,D-heptose 1,7-bisphosphate phosphatase	0.11
b0207	dkgB	Isolate 1	non-essential	2,5-diketo-D-gluconate reductase B	0.19
b0207	dkgB	Isolate 2	non-essential	2,5-diketo-D-gluconate reductase B	1.87
b0208	yafC	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.67
b0208	yafC	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.05
b0209	yafD	Isolate 1	non-essential	conserved protein	-0.08
b0209	yafD	Isolate 2	non-essential	conserved protein	0.88
b0210	yafE	Isolate 1	non-essential	predicted S-adenosyl-L-methionine-dependent methyltransferase	-0.61
b0210	yafE	Isolate 2	non-essential	predicted S-adenosyl-L-methionine-dependent methyltransferase	1.29
b0211	mltD	Isolate 1	non-essential	predicted membrane-bound lytic murein transglycosylase D	1.76
b0211	mltD	Isolate 2	non-essential	predicted membrane-bound lytic murein transglycosylase D	3.00
b0212	gloB	Isolate 1	non-essential	predicted hydroxyacylglutathione hydrolase	-1.89
b0212	gloB	Isolate 2	non-essential	predicted hydroxyacylglutathione hydrolase	-1.02
b0213	yafS	Isolate 1	non-essential	predicted S-adenosyl-L-methionine-dependent methyltransferase	0.42
b0213	yafS	Isolate 2	non-essential	predicted S-adenosyl-L-methionine-dependent methyltransferase	1.42
b0214	rnhA	Isolate 1	non-essential	ribonuclease HI, degrades RNA of DNA-RNA hybrids	1.59
b0214	rnhA	Isolate 2	non-essential	ribonuclease HI, degrades RNA of DNA-RNA hybrids	1.27
b0215	dnaQ	Isolate 1	non-essential	DNA polymerase III epsilon subunit	-0.17
b0215	dnaQ	Isolate 2	non-essential	DNA polymerase III epsilon subunit	0.90
b0217	yafT	Isolate 1	non-essential	predicted aminopeptidase	-2.00
b0217	yafT	Isolate 2	non-essential	predicted aminopeptidase	-0.43
b0218	yafU	Isolate 1	non-essential	predicted inner membrane protein	1.78
b0218	yafU	Isolate 2	non-essential	predicted inner membrane protein	0.24
b0219	yafV	Isolate 1	non-essential	predicted C-N hydrolase family amidase, NAD(P)-binding	0.37
b0219	yafV	Isolate 2	non-essential	predicted C-N hydrolase family amidase, NAD(P)-binding	0.53
b0220	ivy	Isolate 1	non-essential	inhibitor of vertebrate C-lysozyme	0.48
b0220	ivy	Isolate 2	non-essential	inhibitor of vertebrate C-lysozyme	-0.30

b0221	fadE	Isolate 1	non-essential	acyl coenzyme A dehydrogenase	-0.79
b0221	fadE	Isolate 2	non-essential	acyl coenzyme A dehydrogenase	0.48
b0222	lpcA	Isolate 1	non-essential	D-sedoheptulose 7-phosphate isomerase	-2.06
b0222	lpcA	Isolate 2	non-essential	D-sedoheptulose 7-phosphate isomerase	-2.04
b0223	yafJ	Isolate 1	non-essential	predicted amidotransferase	0.77
b0223	yafJ	Isolate 2	non-essential	predicted amidotransferase	2.09
b0224	yafK	Isolate 1	non-essential	conserved protein	0.69
b0224	yafK	Isolate 2	non-essential	conserved protein	-1.56
b0225	yafQ	Isolate 1	non-essential	predicted toxin of the YafQ-DinJ toxin-antitoxin system	0.10
b0225	yafQ	Isolate 2	non-essential	predicted toxin of the YafQ-DinJ toxin-antitoxin system	-0.56
b0226	dinJ	Isolate 1	non-essential	predicted antitoxin of YafQ-DinJ toxin-antitoxin system	0.47
b0226	dinJ	Isolate 2	non-essential	predicted antitoxin of YafQ-DinJ toxin-antitoxin system	0.59
b0227	yafL	Isolate 1	non-essential	predicted lipoprotein and C40 family peptidase	0.69
b0227	yafL	Isolate 2	non-essential	predicted lipoprotein and C40 family peptidase	-0.05
b0228	yafM	Isolate 1	non-essential	conserved protein	-1.88
b0228	yafM	Isolate 2	non-essential	conserved protein	-0.79
b0229	fhiA	Isolate 1	*	flagellar system protein, promoterless fragment (pseudogene)	-4.08
b0229	fhiA	Isolate 2	*	flagellar system protein, promoterless fragment (pseudogene)	1.16
b0230	mbhA	Isolate 1	*	flagellar system protein, promoterless fragment (pseudogene)	0.63
b0230	mbhA	Isolate 2	*	flagellar system protein, promoterless fragment (pseudogene)	-0.58
b0231	dinB	Isolate 1	non-essential	DNA polymerase IV	3.74
b0231	dinB	Isolate 2	non-essential	DNA polymerase IV	0.62
b0232	yafN	Isolate 1	non-essential	predicted antitoxin of the YafO-YafN toxin-antitoxin system	1.25
b0232	yafN	Isolate 2	non-essential	predicted antitoxin of the YafO-YafN toxin-antitoxin system	5.58
b0233	yafO	Isolate 1	non-essential	predicted toxin of the YafO-YafN toxin-antitoxin system	1.11
b0233	yafO	Isolate 2	non-essential	predicted toxin of the YafO-YafN toxin-antitoxin system	-0.76
b0234	yafP	Isolate 1	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	-1.09
b0234	yafP	Isolate 2	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	-0.71
b0235	ykfJ	Isolate 1	non-essential	conserved protein	-2.21
b0235	ykfJ	Isolate 2	non-essential	conserved protein	1.73
b0236	prfH	Isolate 1	non-essential	predicted peptide chain release factor	1.29
b0236	prfH	Isolate 2	non-essential	predicted peptide chain release factor	-0.06
b0237	pepD	Isolate 1	non-essential	aminoacyl-histidine dipeptidase (peptidase D)	0.86
b0237	pepD	Isolate 2	non-essential	aminoacyl-histidine dipeptidase (peptidase D)	-0.44
b0238	gpt	Isolate 1	non-essential	guanine-hypoxanthine phosphoribosyltransferase	1.38
b0238	gpt	Isolate 2	non-essential	guanine-hypoxanthine phosphoribosyltransferase	2.07
b0239	frsA	Isolate 1	non-essential	hydrolase, binds to enzyme IIA(Glc)	-0.14
b0239	frsA	Isolate 2	non-essential	hydrolase, binds to enzyme IIA(Glc)	0.39
b0240	crl	Isolate 1	non-essential	DNA-binding transcriptional regulator	-1.45
b0240	crl	Isolate 2	non-essential	DNA-binding transcriptional regulator	-0.01
b0241	phoE	Isolate 1	non-essential	outer membrane phosphoprotein E	-0.20
b0241	phoE	Isolate 2	non-essential	outer membrane phosphoprotein E	-2.10
b0242	proB	Isolate 1	non-essential	gamma-glutamate kinase	0.06

b0242	proB	Isolate 2	non-essential	gamma-glutamate kinase	0.30
b0243	proA	Isolate 1	non-essential	gamma-glutamylphosphate reductase	3.04
b0243	proA	Isolate 2	non-essential	gamma-glutamylphosphate reductase	3.12
b0245	ykfI	Isolate 1	non-essential	CP4-6 prophage; toxin of the YkfI-YafW toxin-antitoxin system	3.75
b0245	ykfI	Isolate 2	non-essential	CP4-6 prophage; toxin of the YkfI-YafW toxin-antitoxin system	0.89
b0246	yafW	Isolate 1	non-essential	CP4-6 prophage; antitoxin of the YkfI-YafW toxin-antitoxin system	-0.88
b0246	yafW	Isolate 2	non-essential	CP4-6 prophage; antitoxin of the YkfI-YafW toxin-antitoxin system	-2.42
b0247	ykfG	Isolate 1	non-essential	CP4-6 prophage; predicted DNA repair protein	0.26
b0247	ykfG	Isolate 2	non-essential	CP4-6 prophage; predicted DNA repair protein	-1.79
b0248	yafX	Isolate 1	non-essential	CP4-6 prophage; predicted protein	-0.35
b0248	yafX	Isolate 2	non-essential	CP4-6 prophage; predicted protein	-0.88
b0249	ykfF	Isolate 1	non-essential	CP4-6 prophage; predicted protein	-0.35
b0249	ykfF	Isolate 2	non-essential	CP4-6 prophage; predicted protein	-0.15
b0250	ykfB	Isolate 1	non-essential	CP4-6 prophage; predicted protein	-0.11
b0250	ykfB	Isolate 2	non-essential	CP4-6 prophage; predicted protein	-0.47
b0251	yafY	Isolate 1	non-essential	CP4-6 prophage; predicted DNA-binding transcriptional regulator	3.70
b0251	yafY	Isolate 2	non-essential	CP4-6 prophage; predicted DNA-binding transcriptional regulator	1.24
b0252	yafZ	Isolate 1	non-essential	CP4-6 prophage; conserved protein	-2.30
b0252	yafZ	Isolate 2	non-essential	CP4-6 prophage; conserved protein	2.43
b0253	ykfA	Isolate 1	non-essential	CP4-6 prophage; predicted GTP-binding protein	-1.41
b0253	ykfA	Isolate 2	non-essential	CP4-6 prophage; predicted GTP-binding protein	-0.71
b0254	perR	Isolate 1	non-essential	CP4-6 prophage; predicted DNA-binding transcriptional regulator	0.69
b0254	perR	Isolate 2	non-essential	CP4-6 prophage; predicted DNA-binding transcriptional regulator	1.08
b0258	ykfC	Isolate 1	non-essential	CP4-6 prophage; conserved protein	-0.36
b0258	ykfC	Isolate 2	non-essential	CP4-6 prophage; conserved protein	0.88
b0260	mmuP	Isolate 1	non-essential	CP4-6 prophage; predicted S-methylmethionine transporter	1.26
b0260	mmuP	Isolate 2	non-essential	CP4-6 prophage; predicted S-methylmethionine transporter	2.56
b0261	mmuM	Isolate 1	non-essential	CP4-6 prophage; S-methylmethionine:homocysteine methyltransferase	-1.84
b0261	mmuM	Isolate 2	non-essential	CP4-6 prophage; S-methylmethionine:homocysteine methyltransferase	-0.84
b0262	afuC	Isolate 1	non-essential	CP4-6 prophage; predicted ferric transporter subunit -!- ATP-binding component of ABC superfamily	0.15
b0262	afuC	Isolate 2	non-essential	CP4-6 prophage; predicted ferric transporter subunit -!- ATP-binding component of ABC superfamily	0.16
b0263	afuB	Isolate 1	non-essential	CP4-6 prophage; predicted ferric transporter subunit -!- membrane component of ABC superfamily	1.51
b0263	afuB	Isolate 2	non-essential	CP4-6 prophage; predicted ferric transporter subunit -!- membrane component of ABC superfamily	0.65
b0266	yagB	Isolate 1	non-essential	CP4-6 prophage; conserved protein	-1.49
b0266	yagB	Isolate 2	non-essential	CP4-6 prophage; conserved protein	0.03
b0267	yagA	Isolate 1	non-essential	CP4-6 prophage; predicted DNA-binding transcriptional regulator	-0.48
b0267	yagA	Isolate 2	non-essential	CP4-6 prophage; predicted DNA-binding transcriptional regulator	0.89
b0268	yagE	Isolate 1	non-essential	CP4-6 prophage; predicted lyase/synthase	-1.78
b0268	yagE	Isolate 2	non-essential	CP4-6 prophage; predicted lyase/synthase	-0.48
b0269	yagF	Isolate 1	non-essential	CP4-6 prophage; predicted dehydratase	0.61
b0269	yagF	Isolate 2	non-essential	CP4-6 prophage; predicted dehydratase	0.38
b0271	yagH	Isolate 1	non-essential	CP4-6 prophage; predicted xylosidase/arabinosidase	-0.67
b0271	yagH	Isolate 2	non-essential	CP4-6 prophage; predicted xylosidase/arabinosidase	-1.10

b0272	yagI	Isolate 1	non-essential	CP4-6 prophage; predicted DNA-binding transcriptional regulator	-1.70
b0272	yagI	Isolate 2	non-essential	CP4-6 prophage; predicted DNA-binding transcriptional regulator	-0.20
b0273	argF	Isolate 1	non-essential	CP4-6 prophage; ornithine carbamoyltransferase 2, chain F	0.16
b0273	argF	Isolate 2	non-essential	CP4-6 prophage; ornithine carbamoyltransferase 2, chain F	-0.41
b0276	yagJ	Isolate 1	non-essential	CP4-6 prophage; predicted protein	-0.09
b0276	yagJ	Isolate 2	non-essential	CP4-6 prophage; predicted protein	-0.19
b0277	yagK	Isolate 1	non-essential	CP4-6 prophage; conserved protein	-1.35
b0277	yagK	Isolate 2	non-essential	CP4-6 prophage; conserved protein	-0.22
b0278	yagL	Isolate 1	non-essential	CP4-6 prophage; DNA-binding protein	0.49
b0278	yagL	Isolate 2	non-essential	CP4-6 prophage; DNA-binding protein	-0.04
b0279	yagM	Isolate 1	non-essential	CP4-6 prophage; predicted protein	0.29
b0279	yagM	Isolate 2	non-essential	CP4-6 prophage; predicted protein	0.69
b0280	yagN	Isolate 1	non-essential	CP4-6 prophage; predicted protein	0.18
b0280	yagN	Isolate 2	non-essential	CP4-6 prophage; predicted protein	-0.48
b0281	intF	Isolate 1	non-essential	CP4-6 prophage; predicted phage integrase	-0.02
b0281	intF	Isolate 2	non-essential	CP4-6 prophage; predicted phage integrase	0.78
b0282	yagP	Isolate 1	non-essential	predicted transcriptional regulator	2.06
b0282	yagP	Isolate 2	non-essential	predicted transcriptional regulator	-0.86
b0283	yagQ	Isolate 1	non-essential	conserved protein	0.72
b0283	yagQ	Isolate 2	non-essential	conserved protein	-0.17
b0284	yagR	Isolate 1	non-essential	predicted oxidoreductase with molybdenum-binding domain	0.70
b0284	yagR	Isolate 2	non-essential	predicted oxidoreductase with molybdenum-binding domain	0.89
b0285	yagS	Isolate 1	non-essential	predicted oxidoreductase with FAD-binding domain	0.47
b0285	yagS	Isolate 2	non-essential	predicted oxidoreductase with FAD-binding domain	0.34
b0286	yagT	Isolate 1	non-essential	predicted xanthine dehydrogenase, 2Fe-2S subunit	-0.16
b0286	yagT	Isolate 2	non-essential	predicted xanthine dehydrogenase, 2Fe-2S subunit	2.57
b0287	yagU	Isolate 1	non-essential	conserved inner membrane protein	-0.55
b0287	yagU	Isolate 2	non-essential	conserved inner membrane protein	0.63
b0288	ykgJ	Isolate 1	non-essential	predicted ferredoxin	-0.42
b0288	ykgJ	Isolate 2	non-essential	predicted ferredoxin	-0.46
b0289	yagV	Isolate 1	non-essential	conserved protein	1.50
b0289	yagV	Isolate 2	non-essential	conserved protein	1.76
b0290	yagW	Isolate 1	non-essential	predicted receptor	1.00
b0290	yagW	Isolate 2	non-essential	predicted receptor	-0.96
b0291	yagX	Isolate 1	non-essential	predicted aromatic compound dioxygenase	-1.15
b0291	yagX	Isolate 2	non-essential	predicted aromatic compound dioxygenase	-0.01
b0292	yagY	Isolate 1	non-essential	predicted protein	0.96
b0292	yagY	Isolate 2	non-essential	predicted protein	-0.41
b0293	yagZ	Isolate 1	non-essential	conserved protein	-1.76
b0293	yagZ	Isolate 2	non-essential	conserved protein	1.15
b0294	ykgK	Isolate 1	non-essential	predicted regulator	-0.85
b0294	ykgK	Isolate 2	non-essential	predicted regulator	0.09
b0295	ykgL	Isolate 1	non-essential	predicted protein	-0.30

b0295	ykgL	Isolate 2	non-essential	predicted protein	0.27
b0297	eaeH	Isolate 1	non-essential	attaching and effacing protein, pathogenesis factor	-2.48
b0297	eaeH	Isolate 2	non-essential	attaching and effacing protein, pathogenesis factor	0.64
b0300	ykgA	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.33
b0300	ykgA	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.14
b0301	ykgB	Isolate 1	non-essential	conserved inner membrane protein	-1.07
b0301	ykgB	Isolate 2	non-essential	conserved inner membrane protein	-0.98
b0303	ykgI	Isolate 1	non-essential	predicted protein	-0.37
b0303	ykgI	Isolate 2	non-essential	predicted protein	0.75
b0304	ykgC	Isolate 1	non-essential	predicted oxidoreductase with FAD/NAD(P)-binding domain and dimerization domain	3.00
b0304	ykgC	Isolate 2	non-essential	predicted oxidoreductase with FAD/NAD(P)-binding domain and dimerization domain	1.53
b0305	ykgD	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	1.17
b0305	ykgD	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.45
b0306	ykgE	Isolate 1	non-essential	predicted oxidoreductase	-0.19
b0306	ykgE	Isolate 2	non-essential	predicted oxidoreductase	0.03
b0307	ykgF	Isolate 1	non-essential	predicted amino acid dehydrogenase with NAD(P)-binding domain and ferridoxin-like domain	-0.58
b0307	ykgF	Isolate 2	non-essential	predicted amino acid dehydrogenase with NAD(P)-binding domain and ferridoxin-like domain	-0.93
b0308	ykgG	Isolate 1	non-essential	predicted transporter	0.06
b0308	ykgG	Isolate 2	non-essential	predicted transporter	-0.19
b0310	ykgH	Isolate 1	non-essential	predicted inner membrane protein	0.34
b0310	ykgH	Isolate 2	non-essential	predicted inner membrane protein	1.32
b0311	betA	Isolate 1	non-essential	choline dehydrogenase, a flavoprotein	-0.49
b0311	betA	Isolate 2	non-essential	choline dehydrogenase, a flavoprotein	1.16
b0312	betB	Isolate 1	non-essential	betaine aldehyde dehydrogenase, NAD-dependent	0.81
b0312	betB	Isolate 2	non-essential	betaine aldehyde dehydrogenase, NAD-dependent	-1.98
b0313	betI	Isolate 1	non-essential	DNA-binding transcriptional repressor	1.33
b0313	betI	Isolate 2	non-essential	DNA-binding transcriptional repressor	-0.09
b0314	betT	Isolate 1	non-essential	choline transporter of high affinity	0.49
b0314	betT	Isolate 2	non-essential	choline transporter of high affinity	-1.13
b0315	yahA	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.52
b0315	yahA	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.98
b0316	yahB	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.52
b0316	yahB	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	1.07
b0317	yahC	Isolate 1	non-essential	predicted inner membrane protein	-0.01
b0317	yahC	Isolate 2	non-essential	predicted inner membrane protein	-0.56
b0318	yahD	Isolate 1	non-essential	predicted transcriptional regulator with ankyrin domain	0.90
b0318	yahD	Isolate 2	non-essential	predicted transcriptional regulator with ankyrin domain	0.39
b0319	yahE	Isolate 1	non-essential	predicted protein	2.01
b0319	yahE	Isolate 2	non-essential	predicted protein	0.07
b0320	yahF	Isolate 1	non-essential	predicted acyl-CoA synthetase with NAD(P)-binding domain and succinyl-CoA synthetase domain	-0.08
b0320	yahF	Isolate 2	non-essential	predicted acyl-CoA synthetase with NAD(P)-binding domain and succinyl-CoA synthetase domain	-0.36
b0321	yahG	Isolate 1	non-essential	conserved protein	1.02
b0321	yahG	Isolate 2	non-essential	conserved protein	-1.61

b0322	yahH	Isolate 1	non-essential	predicted protein	-0.27
b0322	yahH	Isolate 2	non-essential	predicted protein	-0.47
b0323	yahI	Isolate 1	non-essential	predicted carbamate kinase-like protein	0.39
b0323	yahI	Isolate 2	non-essential	predicted carbamate kinase-like protein	0.54
b0324	yahJ	Isolate 1	non-essential	predicted deaminase with metallo-dependent hydrolase domain	0.37
b0324	yahJ	Isolate 2	non-essential	predicted deaminase with metallo-dependent hydrolase domain	0.89
b0325	yahK	Isolate 1	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	1.89
b0325	yahK	Isolate 2	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	-0.58
b0326	yahL	Isolate 1	non-essential	predicted protein	-1.18
b0326	yahL	Isolate 2	non-essential	predicted protein	-12.64
b0327	yahM	Isolate 1	non-essential	predicted protein	0.89
b0327	yahM	Isolate 2	non-essential	predicted protein	1.91
b0328	yahN	Isolate 1	non-essential	neutral amino-acid efflux system	0.62
b0328	yahN	Isolate 2	non-essential	neutral amino-acid efflux system	0.36
b0329	yahO	Isolate 1	non-essential	predicted protein	-1.41
b0329	yahO	Isolate 2	non-essential	predicted protein	-1.33
b0330	prpR	Isolate 1	non-essential	DNA-binding transcriptional regulator	1.36
b0330	prpR	Isolate 2	non-essential	DNA-binding transcriptional regulator	-1.36
b0331	prpB	Isolate 1	non-essential	2-methylisocitrate lyase	-1.40
b0331	prpB	Isolate 2	non-essential	2-methylisocitrate lyase	-1.56
b0333	prpC	Isolate 1	non-essential	2-methylcitrate synthase	-2.08
b0333	prpC	Isolate 2	non-essential	2-methylcitrate synthase	-2.28
b0334	prpD	Isolate 1	non-essential	2-methylcitrate dehydratase	-0.49
b0334	prpD	Isolate 2	non-essential	2-methylcitrate dehydratase	-3.65
b0335	prpE	Isolate 1	non-essential	predicted propionyl-CoA synthetase with ATPase domain	-0.10
b0335	prpE	Isolate 2	non-essential	predicted propionyl-CoA synthetase with ATPase domain	-0.49
b0336	codB	Isolate 1	non-essential	cytosine transporter	-0.76
b0336	codB	Isolate 2	non-essential	cytosine transporter	-0.35
b0337	codA	Isolate 1	non-essential	cytosine deaminase	0.60
b0337	codA	Isolate 2	non-essential	cytosine deaminase	1.19
b0338	cynR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	0.46
b0338	cynR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	-0.84
b0339	cynT	Isolate 1	non-essential	carbonic anhydrase	0.14
b0339	cynT	Isolate 2	non-essential	carbonic anhydrase	0.71
b0340	cynS	Isolate 1	non-essential	cyanate aminohydrolase	-0.22
b0340	cynS	Isolate 2	non-essential	cyanate aminohydrolase	0.46
b0341	cynX	Isolate 1	non-essential	predicted cyanate transporter	-0.15
b0341	cynX	Isolate 2	non-essential	predicted cyanate transporter	-1.12
b0342	lacA	Isolate 1	non-essential	thiogalactoside acetyltransferase	-0.36
b0342	lacA	Isolate 2	non-essential	thiogalactoside acetyltransferase	0.20
b0343	lacY	Isolate 1	non-essential	lactose/galactose transporter	0.86
b0343	lacY	Isolate 2	non-essential	lactose/galactose transporter	-1.11
b0345	lacI	Isolate 1	non-essential	DNA-binding transcriptional repressor	-1.28

b0345	lacI	Isolate 2	non-essential	DNA-binding transcriptional repressor	-1.27
b0346	mhpR	Isolate 1	non-essential	DNA-binding transcriptional activator, 3HPP-binding	-13.93
b0346	mhpR	Isolate 2	non-essential	DNA-binding transcriptional activator, 3HPP-binding	1.62
b0347	mhpA	Isolate 1	non-essential	3-(3-hydroxyphenyl)propionate hydroxylase	-0.16
b0347	mhpA	Isolate 2	non-essential	3-(3-hydroxyphenyl)propionate hydroxylase	0.58
b0348	mhpB	Isolate 1	non-essential	2,3-dihydroxyphenylpropionate 1,2-dioxygenase	-0.56
b0348	mhpB	Isolate 2	non-essential	2,3-dihydroxyphenylpropionate 1,2-dioxygenase	-0.34
b0349	mhpC	Isolate 1	non-essential	2-hydroxy-6-ketono-2,4-dienedioic acid hydrolase	-1.18
b0349	mhpC	Isolate 2	non-essential	2-hydroxy-6-ketono-2,4-dienedioic acid hydrolase	3.25
b0350	mhpD	Isolate 1	non-essential	2-keto-4-pentenoate hydratase	0.00
b0350	mhpD	Isolate 2	non-essential	2-keto-4-pentenoate hydratase	-0.90
b0351	mhpF	Isolate 1	non-essential	acetaldehyde-CoA dehydrogenase II, NAD-binding	1.89
b0351	mhpF	Isolate 2	non-essential	acetaldehyde-CoA dehydrogenase II, NAD-binding	-0.50
b0352	mhpE	Isolate 1	non-essential	4-hydroxy-2-oxovalerate/4-hydroxy-2-oxopentanoic acid aldolase, class I	0.29
b0352	mhpE	Isolate 2	non-essential	4-hydroxy-2-oxovalerate/4-hydroxy-2-oxopentanoic acid aldolase, class I	-1.53
b0353	mhpT	Isolate 1	non-essential	predicted 3-hydroxyphenylpropionic transporter	2.30
b0353	mhpT	Isolate 2	non-essential	predicted 3-hydroxyphenylpropionic transporter	-0.57
b0354	yaiL	Isolate 1	non-essential	nucleoprotein/polynucleotide-associated enzyme	0.84
b0354	yaiL	Isolate 2	non-essential	nucleoprotein/polynucleotide-associated enzyme	-0.02
b0355	frmB	Isolate 1	non-essential	predicted esterase	2.06
b0355	frmB	Isolate 2	non-essential	predicted esterase	0.88
b0356	frmA	Isolate 1	non-essential	alcohol dehydrogenase class III/glutathione-dependent formaldehyde dehydrogenase	-1.07
b0356	frmA	Isolate 2	non-essential	alcohol dehydrogenase class III/glutathione-dependent formaldehyde dehydrogenase	0.81
b0357	frmR	Isolate 1	non-essential	regulator protein that represses frmRAB operon	1.53
b0357	frmR	Isolate 2	non-essential	regulator protein that represses frmRAB operon	-0.54
b0358	yaiO	Isolate 1	non-essential	predicted protein	1.85
b0358	yaiO	Isolate 2	non-essential	predicted protein	1.97
b0359	yaiX	Isolate 1	*	predicted acyl transferase (pseudogene)	0.45
b0359	yaiX	Isolate 2	*	predicted acyl transferase (pseudogene)	1.70
b0362	yaiF	Isolate 1	non-essential	predicted protein	0.00
b0362	yaiF	Isolate 2	non-essential	predicted protein	-1.90
b0363	yaiP	Isolate 1	non-essential	predicted glucosyltransferase	1.25
b0363	yaiP	Isolate 2	non-essential	predicted glucosyltransferase	0.19
b0364	yaiS	Isolate 1	non-essential	conserved protein	0.59
b0364	yaiS	Isolate 2	non-essential	conserved protein	2.46
b0365	tauA	Isolate 1	non-essential	taurine transporter subunit -!- periplasmic-binding component of ABC superfamily	0.01
b0365	tauA	Isolate 2	non-essential	taurine transporter subunit -!- periplasmic-binding component of ABC superfamily	-1.44
b0366	tauB	Isolate 1	non-essential	taurine transporter subunit -!- ATP-binding component of ABC superfamily	-0.04
b0366	tauB	Isolate 2	non-essential	taurine transporter subunit -!- ATP-binding component of ABC superfamily	-0.58
b0367	tauC	Isolate 1	non-essential	taurine transporter subunit -!- membrane component of ABC superfamily	0.30
b0367	tauC	Isolate 2	non-essential	taurine transporter subunit -!- membrane component of ABC superfamily	-0.58
b0368	tauD	Isolate 1	non-essential	taurine dioxygenase, 2-oxoglutarate-dependent	-1.21
b0368	tauD	Isolate 2	non-essential	taurine dioxygenase, 2-oxoglutarate-dependent	-0.42

b0370	ykiB	Isolate 1	non-essential	predicted protein	0.30
b0370	ykiB	Isolate 2	non-essential	predicted protein	2.35
b0371	yaiT	Isolate 1	non-essential	predicted protein	0.91
b0371	yaiT	Isolate 2	non-essential	predicted protein	-0.67
b0374	yaiU	Isolate 1	non-essential	predicted protein	-0.45
b0374	yaiU	Isolate 2	non-essential	predicted protein	0.76
b0375	yaiV	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.93
b0375	yaiV	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.79
b0376	ampH	Isolate 1	non-essential	beta-lactamase/D-alanine carboxypeptidase	1.18
b0376	ampH	Isolate 2	non-essential	beta-lactamase/D-alanine carboxypeptidase	0.05
b0377	sbmA	Isolate 1	non-essential	predicted transporter	1.70
b0377	sbmA	Isolate 2	non-essential	predicted transporter	2.55
b0378	yaiW	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.34
b0378	yaiW	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.83
b0379	yaiY	Isolate 1	non-essential	predicted inner membrane protein	-0.97
b0379	yaiY	Isolate 2	non-essential	predicted inner membrane protein	1.43
b0380	yaiZ	Isolate 1	non-essential	predicted inner membrane protein	0.01
b0380	yaiZ	Isolate 2	non-essential	predicted inner membrane protein	0.59
b0381	ddlA	Isolate 1	non-essential	D-alanine-D-alanine ligase A	0.07
b0381	ddlA	Isolate 2	non-essential	D-alanine-D-alanine ligase A	0.38
b0382	yaiB	Isolate 1	non-essential	predicted protein	1.36
b0382	yaiB	Isolate 2	non-essential	predicted protein	1.70
b0383	phoA	Isolate 1	non-essential	alkaline phosphatase	1.01
b0383	phoA	Isolate 2	non-essential	alkaline phosphatase	0.90
b0384	psiF	Isolate 1	non-essential	conserved protein	2.74
b0384	psiF	Isolate 2	non-essential	conserved protein	0.72
b0385	yaiC	Isolate 1	non-essential	predicted diguanylate cyclase	1.71
b0385	yaiC	Isolate 2	non-essential	predicted diguanylate cyclase	0.13
b0386	proC	Isolate 1	non-essential	pyrroline-5-carboxylate reductase, NAD(P)-binding	1.07
b0386	proC	Isolate 2	non-essential	pyrroline-5-carboxylate reductase, NAD(P)-binding	-0.50
b0387	yaiI	Isolate 1	non-essential	conserved protein	1.27
b0387	yaiI	Isolate 2	non-essential	conserved protein	0.33
b0388	aroL	Isolate 1	non-essential	shikimate kinase II	1.97
b0388	aroL	Isolate 2	non-essential	shikimate kinase II	-0.02
b0389	yaiA	Isolate 1	non-essential	predicted protein	1.82
b0389	yaiA	Isolate 2	non-essential	predicted protein	0.76
b0390	aroM	Isolate 1	non-essential	conserved protein	0.26
b0390	aroM	Isolate 2	non-essential	conserved protein	0.92
b0391	yaiE	Isolate 1	non-essential	conserved protein	-0.57
b0391	yaiE	Isolate 2	non-essential	conserved protein	-1.13
b0392	ykiA	Isolate 1	non-essential	predicted protein	-0.90
b0392	ykiA	Isolate 2	non-essential	predicted protein	0.26
b0393	rdgC	Isolate 1	non-essential	DNA-binding protein, non-specific	1.02



b0393	rdgC	Isolate 2	non-essential	DNA-binding protein, non-specific	-1.92
b0394	mak	Isolate 1	non-essential	manno(fructo)kinase	0.53
b0394	mak	Isolate 2	non-essential	manno(fructo)kinase	0.02
b0396	araJ	Isolate 1	non-essential	predicted transporter	0.60
b0396	araJ	Isolate 2	non-essential	predicted transporter	0.80
b0397	sbcC	Isolate 1	non-essential	exonuclease, dsDNA, ATP-dependent	0.50
b0397	sbcC	Isolate 2	non-essential	exonuclease, dsDNA, ATP-dependent	0.14
b0398	sbcD	Isolate 1	non-essential	exonuclease, dsDNA, ATP-dependent	-0.26
b0398	sbcD	Isolate 2	non-essential	exonuclease, dsDNA, ATP-dependent	2.55
b0399	phoB	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with PhoR (or CreC)	0.11
b0399	phoB	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with PhoR (or CreC)	0.41
b0400	phoR	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory system with PhoB	-1.68
b0400	phoR	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory system with PhoB	0.91
b0401	brnQ	Isolate 1	non-essential	predicted branched chain amino acid transporter (LIV-II)	-1.48
b0401	brnQ	Isolate 2	non-essential	predicted branched chain amino acid transporter (LIV-II)	1.10
b0402	proY	Isolate 1	non-essential	predicted cryptic proline transporter	-0.02
b0402	proY	Isolate 2	non-essential	predicted cryptic proline transporter	0.41
b0403	malZ	Isolate 1	non-essential	maltodextrin glucosidase	-1.99
b0403	malZ	Isolate 2	non-essential	maltodextrin glucosidase	-0.93
b0404	yajB	Isolate 1	non-essential	conserved protein	0.67
b0404	yajB	Isolate 2	non-essential	conserved protein	-1.50
b0405	queA	Isolate 1	non-essential	S-adenosylmethionine:tRNA ribosyltransferase-isomerase	2.14
b0405	queA	Isolate 2	non-essential	S-adenosylmethionine:tRNA ribosyltransferase-isomerase	-0.30
b0406	tgt	Isolate 1	non-essential	tRNA-guanine transglycosylase	1.29
b0406	tgt	Isolate 2	non-essential	tRNA-guanine transglycosylase	0.93
b0407	yajC	Isolate 1	non-essential	SecYEG protein translocase auxillary subunit	0.17
b0407	yajC	Isolate 2	non-essential	SecYEG protein translocase auxillary subunit	-1.27
b0410	yajD	Isolate 1	non-essential	conserved protein	0.93
b0410	yajD	Isolate 2	non-essential	conserved protein	0.40
b0411	tsx	Isolate 1	non-essential	nucleoside channel, receptor of phage T6 and colicin K	-1.18
b0411	tsx	Isolate 2	non-essential	nucleoside channel, receptor of phage T6 and colicin K	0.94
b0412	yajI	Isolate 1	non-essential	predicted lipoprotein	0.19
b0412	yajI	Isolate 2	non-essential	predicted lipoprotein	-0.77
b0413	ybaD	Isolate 1	non-essential	conserved protein	-0.48
b0413	ybaD	Isolate 2	non-essential	conserved protein	0.51
b0414	ribD	Isolate 1	essential	fused diaminoxyphosphoribosylaminopyrimidine deaminase -!- 5-amino-6-(5-phosphoribosylamino) uracil reductase	2.41
b0415	ribE	Isolate 1	essential	riboflavin synthase beta chain	14.62
b0416	nusB	Isolate 1	non-essential	transcription antitermination protein	-2.28
b0416	nusB	Isolate 2	non-essential	transcription antitermination protein	-1.42
b0418	pgpA	Isolate 1	non-essential	phosphatidylglycerophosphatase A	-1.94
b0418	pgpA	Isolate 2	non-essential	phosphatidylglycerophosphatase A	-1.46
b0419	yajO	Isolate 1	non-essential	predicted oxidoreductase, NAD(P)-binding	-0.91
b0419	yajO	Isolate 2	non-essential	predicted oxidoreductase, NAD(P)-binding	1.59

b0420	dxs	Isolate 1	essential	1-deoxyxylulose-5-phosphate synthase, thiamine-requiring, FAD-requiring	1.59
b0421	ispA	Isolate 1	essential	geranyltranstransferase	1.49
b0422	xseB	Isolate 1	non-essential	exonuclease VII small subunit	0.70
b0422	xseB	Isolate 2	non-essential	exonuclease VII small subunit	-1.16
b0423	thiI	Isolate 1	non-essential	sulfurtransferase required for thiamine and 4-thiouridine biosynthesis	-0.83
b0423	thiI	Isolate 2	non-essential	sulfurtransferase required for thiamine and 4-thiouridine biosynthesis	-0.01
b0424	yajL	Isolate 1	non-essential	conserved protein	-1.11
b0424	yajL	Isolate 2	non-essential	conserved protein	0.28
b0425	panE	Isolate 1	non-essential	2-dehydropantoate reductase, NADPH-specific	-0.34
b0425	panE	Isolate 2	non-essential	2-dehydropantoate reductase, NADPH-specific	-0.11
b0426	yajQ	Isolate 1	non-essential	predicted nucleotide binding protein	-0.89
b0426	yajQ	Isolate 2	non-essential	predicted nucleotide binding protein	-1.13
b0427	yajR	Isolate 1	non-essential	predicted transporter	0.54
b0427	yajR	Isolate 2	non-essential	predicted transporter	0.09
b0428	cyoE	Isolate 1	non-essential	protoheme IX farnesyltransferase	1.05
b0428	cyoE	Isolate 2	non-essential	protoheme IX farnesyltransferase	2.73
b0429	cyoD	Isolate 1	non-essential	cytochrome o ubiquinol oxidase subunit IV	-0.25
b0429	cyoD	Isolate 2	non-essential	cytochrome o ubiquinol oxidase subunit IV	0.07
b0430	cyoC	Isolate 1	non-essential	cytochrome o ubiquinol oxidase subunit III	1.05
b0430	cyoC	Isolate 2	non-essential	cytochrome o ubiquinol oxidase subunit III	0.18
b0431	cyoB	Isolate 1	non-essential	cytochrome o ubiquinol oxidase subunit I	0.71
b0431	cyoB	Isolate 2	non-essential	cytochrome o ubiquinol oxidase subunit I	-0.21
b0432	cyoA	Isolate 1	non-essential	cytochrome o ubiquinol oxidase subunit II	1.41
b0432	cyoA	Isolate 2	non-essential	cytochrome o ubiquinol oxidase subunit II	1.20
b0433	ampG	Isolate 1	non-essential	muropeptide transporter	1.22
b0433	ampG	Isolate 2	non-essential	muropeptide transporter	0.86
b0434	yajG	Isolate 1	non-essential	predicted lipoprotein	0.76
b0434	yajG	Isolate 2	non-essential	predicted lipoprotein	0.62
b0435	bolA	Isolate 1	non-essential	regulator of penicillin binding proteins and beta lactamase transcription (morphogene)	-0.30
b0435	bolA	Isolate 2	non-essential	regulator of penicillin binding proteins and beta lactamase transcription (morphogene)	-0.17
b0436	tig	Isolate 1	non-essential	peptidyl-prolyl cis/trans isomerase (trigger factor)	-0.44
b0436	tig	Isolate 2	non-essential	peptidyl-prolyl cis/trans isomerase (trigger factor)	0.28
b0437	clpP	Isolate 1	non-essential	proteolytic subunit of ClpA-ClpP and ClpX-ClpP ATP-dependent serine proteases	-0.32
b0437	clpP	Isolate 2	non-essential	proteolytic subunit of ClpA-ClpP and ClpX-ClpP ATP-dependent serine proteases	-0.04
b0438	clpX	Isolate 1	non-essential	ATPase and specificity subunit of ClpX-ClpP ATP-dependent serine protease	-0.53
b0438	clpX	Isolate 2	non-essential	ATPase and specificity subunit of ClpX-ClpP ATP-dependent serine protease	0.02
b0439	lon	Isolate 1	non-essential	DNA-binding ATP-dependent protease La	-1.82
b0439	lon	Isolate 2	non-essential	DNA-binding ATP-dependent protease La	1.21
b0440	hupB	Isolate 1	non-essential	HU, DNA-binding transcriptional regulator, beta subunit	0.74
b0440	hupB	Isolate 2	non-essential	HU, DNA-binding transcriptional regulator, beta subunit	2.20
b0441	ppiD	Isolate 1	non-essential	peptidyl-prolyl cis-trans isomerase (rotamase D)	2.42
b0441	ppiD	Isolate 2	non-essential	peptidyl-prolyl cis-trans isomerase (rotamase D)	3.12
b0442	ybaV	Isolate 1	non-essential	conserved protein	-0.09

b0442	ybaV	Isolate 2	non-essential	conserved protein	-1.89
b0443	ybaW	Isolate 1	non-essential	conserved protein	0.96
b0443	ybaW	Isolate 2	non-essential	conserved protein	-0.53
b0444	ybaX	Isolate 1	non-essential	predicted aluminum resistance protein	-0.64
b0444	ybaX	Isolate 2	non-essential	predicted aluminum resistance protein	-0.29
b0445	ybaE	Isolate 1	non-essential	predicted transporter subunit -!- periplasmic-binding component of ABC superfamily	0.99
b0445	ybaE	Isolate 2	non-essential	predicted transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.06
b0446	cof	Isolate 1	non-essential	thiamin pyrimidine pyrophosphate hydrolase	2.46
b0446	cof	Isolate 2	non-essential	thiamin pyrimidine pyrophosphate hydrolase	1.08
b0447	ybaO	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.26
b0447	ybaO	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	3.10
b0448	mdlA	Isolate 1	non-essential	fused predicted multidrug transporter subunits -!- ATP-binding components of ABC superfamily	1.66
b0448	mdlA	Isolate 2	non-essential	fused predicted multidrug transporter subunits -!- ATP-binding components of ABC superfamily	0.55
b0449	mdlB	Isolate 1	non-essential	fused predicted multidrug transporter subunits -!- ATP binding components of ABC superfamily	2.51
b0449	mdlB	Isolate 2	non-essential	fused predicted multidrug transporter subunits -!- ATP binding components of ABC superfamily	1.11
b0450	glnK	Isolate 1	non-essential	nitrogen assimilation regulatory protein for GlnL, GlnE, and AmtB	1.31
b0450	glnK	Isolate 2	non-essential	nitrogen assimilation regulatory protein for GlnL, GlnE, and AmtB	-0.72
b0451	amtB	Isolate 1	non-essential	ammonium transporter	0.82
b0451	amtB	Isolate 2	non-essential	ammonium transporter	0.85
b0452	tesB	Isolate 1	non-essential	acyl-CoA thioesterase II	1.38
b0452	tesB	Isolate 2	non-essential	acyl-CoA thioesterase II	1.52
b0453	ybaY	Isolate 1	non-essential	predicted outer membrane lipoprotein	1.41
b0453	ybaY	Isolate 2	non-essential	predicted outer membrane lipoprotein	2.59
b0454	ybaZ	Isolate 1	non-essential	predicted methyltransferase	0.77
b0454	ybaZ	Isolate 2	non-essential	predicted methyltransferase	0.44
b0456	ybaA	Isolate 1	non-essential	conserved protein	2.10
b0456	ybaA	Isolate 2	non-essential	conserved protein	1.97
b0457	ylaB	Isolate 1	non-essential	conserved inner membrane protein	0.37
b0457	ylaB	Isolate 2	non-essential	conserved inner membrane protein	0.50
b0458	ylaC	Isolate 1	non-essential	predicted inner membrane protein	-0.33
b0458	ylaC	Isolate 2	non-essential	predicted inner membrane protein	0.83
b0459	maa	Isolate 1	non-essential	maltose O-acetyltransferase	0.99
b0459	maa	Isolate 2	non-essential	maltose O-acetyltransferase	0.70
b0460	hha	Isolate 1	non-essential	modulator of gene expression, with H-NS	2.18
b0460	hha	Isolate 2	non-essential	modulator of gene expression, with H-NS	-1.04
b0461	ybaJ	Isolate 1	non-essential	predicted protein	4.09
b0461	ybaJ	Isolate 2	non-essential	predicted protein	0.11
b0462	acrB	Isolate 1	non-essential	multidrug efflux system protein	5.46
b0462	acrB	Isolate 2	non-essential	multidrug efflux system protein	3.54
b0463	acrA	Isolate 1	non-essential	multidrug efflux system	3.75
b0463	acrA	Isolate 2	non-essential	multidrug efflux system	4.29
b0464	acrR	Isolate 1	non-essential	DNA-binding transcriptional regulator	-0.60
b0464	acrR	Isolate 2	non-essential	DNA-binding transcriptional regulator	2.34

b0465	kefA	Isolate 1	non-essential	fused mechanosensitive channel proteins	2.62
b0465	kefA	Isolate 2	non-essential	fused mechanosensitive channel proteins	0.80
b0466	ybaM	Isolate 1	non-essential	predicted protein	0.68
b0466	ybaM	Isolate 2	non-essential	predicted protein	0.52
b0467	priC	Isolate 1	non-essential	primosomal replication protein N"	0.26
b0467	priC	Isolate 2	non-essential	primosomal replication protein N"	0.44
b0468	ybaN	Isolate 1	non-essential	conserved inner membrane protein	1.03
b0468	ybaN	Isolate 2	non-essential	conserved inner membrane protein	1.34
b0469	apt	Isolate 1	non-essential	adenine phosphoribosyltransferase	1.66
b0469	apt	Isolate 2	non-essential	adenine phosphoribosyltransferase	-0.89
b0470	dnaX	Isolate 1	essential	DNA polymerase III/DNA elongation factor III, tau and gamma subunits	-1.37
b0471	ybaB	Isolate 1	non-essential	conserved protein	1.98
b0471	ybaB	Isolate 2	non-essential	conserved protein	0.35
b0472	recR	Isolate 1	non-essential	gap repair protein	-0.06
b0472	recR	Isolate 2	non-essential	gap repair protein	-0.78
b0473	htpG	Isolate 1	non-essential	molecular chaperone HSP90 family	0.51
b0473	htpG	Isolate 2	non-essential	molecular chaperone HSP90 family	-0.37
b0474	adk	Isolate 1	essential	adenylate kinase	1.23
b0476	aes	Isolate 1	non-essential	acetyl esterase	0.79
b0476	aes	Isolate 2	non-essential	acetyl esterase	-0.33
b0477	gsk	Isolate 1	non-essential	inosine/guanosine kinase	-0.20
b0477	gsk	Isolate 2	non-essential	inosine/guanosine kinase	-1.97
b0478	ybaL	Isolate 1	non-essential	predicted transporter with NAD(P)-binding Rossmann-fold domain	1.54
b0478	ybaL	Isolate 2	non-essential	predicted transporter with NAD(P)-binding Rossmann-fold domain	0.48
b0479	fsr	Isolate 1	non-essential	predicted fosmidomycin efflux system	-0.32
b0479	fsr	Isolate 2	non-essential	predicted fosmidomycin efflux system	-0.48
b0480	ushA	Isolate 1	non-essential	bifunctional UDP-sugar hydrolase -!- 5'-nucleotidase	1.81
b0480	ushA	Isolate 2	non-essential	bifunctional UDP-sugar hydrolase -!- 5'-nucleotidase	0.00
b0481	ybaK	Isolate 1	non-essential	conserved protein	-0.53
b0481	ybaK	Isolate 2	non-essential	conserved protein	1.74
b0482	ybaP	Isolate 1	non-essential	conserved protein	-1.42
b0482	ybaP	Isolate 2	non-essential	conserved protein	-0.79
b0483	ybaQ	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-4.00
b0483	ybaQ	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.56
b0484	copA	Isolate 1	non-essential	copper transporter	-0.46
b0484	copA	Isolate 2	non-essential	copper transporter	-0.89
b0485	ybaS	Isolate 1	non-essential	predicted glutaminase	1.82
b0485	ybaS	Isolate 2	non-essential	predicted glutaminase	-0.30
b0486	ybaT	Isolate 1	non-essential	predicted transporter	0.90
b0486	ybaT	Isolate 2	non-essential	predicted transporter	-0.53
b0487	cueR	Isolate 1	non-essential	DNA-binding transcriptional activator	-0.21
b0487	cueR	Isolate 2	non-essential	DNA-binding transcriptional activator	-0.34
b0488	ybbJ	Isolate 1	non-essential	conserved inner membrane protein	-9.60

b0488	ybbJ	Isolate 2	non-essential	conserved inner membrane protein	-0.68
b0489	ybbK	Isolate 1	non-essential	predicted protease, membrane anchored	1.96
b0489	ybbK	Isolate 2	non-essential	predicted protease, membrane anchored	0.59
b0490	ybbL	Isolate 1	non-essential	predicted transporter subunit -!- ATP-binding component of ABC superfamily	-0.77
b0490	ybbL	Isolate 2	non-essential	predicted transporter subunit -!- ATP-binding component of ABC superfamily	-1.52
b0491	ybbM	Isolate 1	non-essential	predicted inner membrane protein	-0.31
b0491	ybbM	Isolate 2	non-essential	predicted inner membrane protein	-0.72
b0492	ybbN	Isolate 1	non-essential	predicted thioredoxin domain-containing protein	0.17
b0492	ybbN	Isolate 2	non-essential	predicted thioredoxin domain-containing protein	-1.74
b0493	ybbO	Isolate 1	non-essential	predicted oxidoreductase with NAD(P)-binding Rossmann-fold domain	0.60
b0493	ybbO	Isolate 2	non-essential	predicted oxidoreductase with NAD(P)-binding Rossmann-fold domain	0.19
b0494	tesA	Isolate 1	non-essential	multifunctional acyl-CoA thioesterase I -!- protease I -!- lysophospholipase L1	1.29
b0494	tesA	Isolate 2	non-essential	multifunctional acyl-CoA thioesterase I -!- protease I -!- lysophospholipase L1	-0.33
b0495	ybbA	Isolate 1	non-essential	predicted transporter subunit -!- ATP-binding component of ABC superfamily	0.12
b0495	ybbA	Isolate 2	non-essential	predicted transporter subunit -!- ATP-binding component of ABC superfamily	-0.05
b0496	ybbP	Isolate 1	non-essential	predicted inner membrane protein	0.81
b0496	ybbP	Isolate 2	non-essential	predicted inner membrane protein	0.41
b0497	rhsD	Isolate 1	non-essential	rhsD element protein	0.79
b0497	rhsD	Isolate 2	non-essential	rhsD element protein	-0.31
b0498	ybbC	Isolate 1	non-essential	predicted protein	-1.55
b0498	ybbC	Isolate 2	non-essential	predicted protein	-1.66
b0499	ylbH	Isolate 1	non-essential	conserved protein, rhs-like	-0.94
b0499	ylbH	Isolate 2	non-essential	conserved protein, rhs-like	-0.72
b0500	ybbD	Isolate 1	non-essential	predicted protein	-0.83
b0500	ybbD	Isolate 2	non-essential	predicted protein	0.14
b0503	ybbB	Isolate 1	non-essential	tRNA 2-selenouridine synthase, selenophosphate-dependent	0.29
b0503	ybbB	Isolate 2	non-essential	tRNA 2-selenouridine synthase, selenophosphate-dependent	-1.49
b0504	ybbS	Isolate 1	non-essential	transcriptional activator of the allD operon	-0.16
b0504	ybbS	Isolate 2	non-essential	transcriptional activator of the allD operon	1.47
b0505	allA	Isolate 1	non-essential	ureidoglycolate hydrolase	1.14
b0505	allA	Isolate 2	non-essential	ureidoglycolate hydrolase	-2.21
b0506	allR	Isolate 1	non-essential	DNA-binding transcriptional regulator	0.73
b0506	allR	Isolate 2	non-essential	DNA-binding transcriptional regulator	-0.58
b0507	gcl	Isolate 1	non-essential	glyoxylate carbonylase	1.54
b0507	gcl	Isolate 2	non-essential	glyoxylate carbonylase	0.34
b0508	hyi	Isolate 1	non-essential	hydroxypyruvate isomerase	-1.24
b0508	hyi	Isolate 2	non-essential	hydroxypyruvate isomerase	-0.37
b0509	glxR	Isolate 1	non-essential	tartronate semialdehyde reductase, NADH-dependent	-3.37
b0509	glxR	Isolate 2	non-essential	tartronate semialdehyde reductase, NADH-dependent	1.12
b0510	ybbV	Isolate 1	non-essential	predicted protein	0.34
b0510	ybbV	Isolate 2	non-essential	predicted protein	0.23
b0511	ybbW	Isolate 1	non-essential	predicted allantoin transporter	0.79
b0511	ybbW	Isolate 2	non-essential	predicted allantoin transporter	0.93

b0512	allB	Isolate 1	non-essential	allantoinase	-0.06
b0512	allB	Isolate 2	non-essential	allantoinase	-1.39
b0513	ybbY	Isolate 1	non-essential	predicted uracil/xanthine transporter	3.30
b0513	ybbY	Isolate 2	non-essential	predicted uracil/xanthine transporter	0.72
b0514	glxK	Isolate 1	non-essential	glycerate kinase II	0.88
b0514	glxK	Isolate 2	non-essential	glycerate kinase II	1.08
b0515	ylbA	Isolate 1	non-essential	conserved protein	-0.26
b0515	ylbA	Isolate 2	non-essential	conserved protein	-1.73
b0516	allC	Isolate 1	non-essential	allantoate amidohydrolase	1.58
b0516	allC	Isolate 2	non-essential	allantoate amidohydrolase	-1.34
b0517	allD	Isolate 1	non-essential	ureidoglycolate dehydrogenase	0.70
b0517	allD	Isolate 2	non-essential	ureidoglycolate dehydrogenase	1.57
b0518	fdrA	Isolate 1	non-essential	predicted acyl-CoA synthetase with NAD(P)-binding Rossmann-fold domain	0.66
b0518	fdrA	Isolate 2	non-essential	predicted acyl-CoA synthetase with NAD(P)-binding Rossmann-fold domain	-10.16
b0519	ylbE	Isolate 1	*	predicted protein, C-ter fragment (pseudogene)	0.19
b0519	ylbE	Isolate 2	*	predicted protein, C-ter fragment (pseudogene)	1.49
b0520	ylbF	Isolate 1	non-essential	conserved protein	0.97
b0520	ylbF	Isolate 2	non-essential	conserved protein	1.04
b0521	ybcF	Isolate 1	non-essential	predicted carbamate kinase	-0.96
b0521	ybcF	Isolate 2	non-essential	predicted carbamate kinase	-0.51
b0522	purK	Isolate 1	non-essential	N5-carboxyaminoimidazole ribonucleotide synthase	0.81
b0522	purK	Isolate 2	non-essential	N5-carboxyaminoimidazole ribonucleotide synthase	0.27
b0523	purE	Isolate 1	non-essential	N5-carboxyaminoimidazole ribonucleotide mutase	0.00
b0523	purE	Isolate 2	non-essential	N5-carboxyaminoimidazole ribonucleotide mutase	-1.31
b0524	lpxH	Isolate 1	essential	UDP-2,3-diacylglucosamine pyrophosphatase	-2.11
b0525	ppiB	Isolate 1	non-essential	peptidyl-prolyl cis-trans isomerase B (rotamase B)	-0.02
b0525	ppiB	Isolate 2	non-essential	peptidyl-prolyl cis-trans isomerase B (rotamase B)	-1.94
b0526	cysS	Isolate 1	essential	cysteinyl-tRNA synthetase	-0.43
b0527	ybcI	Isolate 1	non-essential	conserved inner membrane protein	1.99
b0527	ybcI	Isolate 2	non-essential	conserved inner membrane protein	-0.98
b0528	ybcJ	Isolate 1	non-essential	predicted RNA-binding protein	-0.90
b0528	ybcJ	Isolate 2	non-essential	predicted RNA-binding protein	1.28
b0530	sfmA	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	1.30
b0530	sfmA	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	0.54
b0531	sfmC	Isolate 1	non-essential	pilin chaperone, periplasmic	0.27
b0531	sfmC	Isolate 2	non-essential	pilin chaperone, periplasmic	1.51
b0532	sfmD	Isolate 1	non-essential	predicted outer membrane export usher protein	0.21
b0532	sfmD	Isolate 2	non-essential	predicted outer membrane export usher protein	1.80
b0533	sfmH	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	2.12
b0533	sfmH	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	1.31
b0534	sfmF	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	0.00
b0534	sfmF	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	-0.54
b0535	fimZ	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.56

b0535	fimZ	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.82
b0537	intD	Isolate 1	non-essential	DLP12 prophage; predicted integrase	-1.03
b0537	intD	Isolate 2	non-essential	DLP12 prophage; predicted integrase	-1.51
b0539	ybcC	Isolate 1	non-essential	DLP12 prophage; predicted exonuclease	0.34
b0539	ybcC	Isolate 2	non-essential	DLP12 prophage; predicted exonuclease	1.16
b0542	renD	Isolate 1	non-essential	DLP12 prophage; predicted protein	1.56
b0542	renD	Isolate 2	non-essential	DLP12 prophage; predicted protein	-0.03
b0543	emrE	Isolate 1	non-essential	DLP12 prophage; multidrug resistance protein	1.66
b0543	emrE	Isolate 2	non-essential	DLP12 prophage; multidrug resistance protein	0.80
b0544	ybcK	Isolate 1	non-essential	DLP12 prophage; predicted recombinase	0.84
b0544	ybcK	Isolate 2	non-essential	DLP12 prophage; predicted recombinase	-1.65
b0545	ybcL	Isolate 1	non-essential	DLP12 prophage; predicted kinase inhibitor	-1.36
b0545	ybcL	Isolate 2	non-essential	DLP12 prophage; predicted kinase inhibitor	0.12
b0546	ybcM	Isolate 1	non-essential	DLP12 prophage; predicted DNA-binding transcriptional regulator	-0.16
b0546	ybcM	Isolate 2	non-essential	DLP12 prophage; predicted DNA-binding transcriptional regulator	-1.45
b0547	ybcN	Isolate 1	non-essential	DLP12 prophage; predicted protein	0.49
b0547	ybcN	Isolate 2	non-essential	DLP12 prophage; predicted protein	0.55
b0548	ninE	Isolate 1	non-essential	DLP12 prophage; conserved protein	1.23
b0548	ninE	Isolate 2	non-essential	DLP12 prophage; conserved protein	0.91
b0549	ybcO	Isolate 1	non-essential	DLP12 prophage; predicted protein	-0.83
b0549	ybcO	Isolate 2	non-essential	DLP12 prophage; predicted protein	1.73
b0550	rusA	Isolate 1	non-essential	DLP12 prophage; endonuclease RUS	0.61
b0550	rusA	Isolate 2	non-essential	DLP12 prophage; endonuclease RUS	0.66
b0551	ybcQ	Isolate 1	non-essential	DLP12 prophage; predicted antitermination protein	-1.09
b0551	ybcQ	Isolate 2	non-essential	DLP12 prophage; predicted antitermination protein	1.03
b0553	nmpC	Isolate 1	*	DLP12 prophage; truncated outer membrane porin (pseudogene)	-0.88
b0553	nmpC	Isolate 2	*	DLP12 prophage; truncated outer membrane porin (pseudogene)	0.72
b0554	essD	Isolate 1	non-essential	DLP12 prophage; predicted phage lysis protein	-1.11
b0554	essD	Isolate 2	non-essential	DLP12 prophage; predicted phage lysis protein	-1.26
b0555	ybcS	Isolate 1	non-essential	DLP12 prophage; predicted lysozyme	2.71
b0555	ybcS	Isolate 2	non-essential	DLP12 prophage; predicted lysozyme	-0.35
b0556	rzpD	Isolate 1	non-essential	DLP12 prophage; predicted murein endopeptidase	-2.57
b0556	rzpD	Isolate 2	non-essential	DLP12 prophage; predicted murein endopeptidase	-0.66
b0557	borD	Isolate 1	non-essential	DLP12 prophage; predicted lipoprotein	1.71
b0557	borD	Isolate 2	non-essential	DLP12 prophage; predicted lipoprotein	0.79
b0558	ybcV	Isolate 1	non-essential	DLP12 prophage; predicted protein	2.27
b0558	ybcV	Isolate 2	non-essential	DLP12 prophage; predicted protein	2.60
b0559	ybcW	Isolate 1	non-essential	DLP12 prophage; predicted protein	-1.27
b0559	ybcW	Isolate 2	non-essential	DLP12 prophage; predicted protein	-1.72
b0560	nohB	Isolate 1	non-essential	DLP12 prophage; DNA packaging protein	1.34
b0560	nohB	Isolate 2	non-essential	DLP12 prophage; DNA packaging protein	-1.29
b0561	tfaD	Isolate 1	*	DLP12 prophage; predicted tail fiber assembly protein (pseudogene)	0.00
b0561	tfaD	Isolate 2	*	DLP12 prophage; predicted tail fiber assembly protein (pseudogene)	0.54

b0562	ybcY	Isolate 1	non-essential	DLP12 prophage; predicted SAM-dependent methyltransferase	-1.22
b0562	ybcY	Isolate 2	non-essential	DLP12 prophage; predicted SAM-dependent methyltransferase	-1.02
b0563	ylcE	Isolate 1	non-essential	DLP12 prophage; predicted protein	-0.39
b0563	ylcE	Isolate 2	non-essential	DLP12 prophage; predicted protein	1.09
b0564	appY	Isolate 1	non-essential	DLP12 prophage; DNA-binding transcriptional activator	0.19
b0564	appY	Isolate 2	non-essential	DLP12 prophage; DNA-binding transcriptional activator	1.77
b0565	ompT	Isolate 1	non-essential	DLP12 prophage; outer membrane protease VII (outer membrane protein 3b)	0.25
b0565	ompT	Isolate 2	non-essential	DLP12 prophage; outer membrane protease VII (outer membrane protein 3b)	-0.20
b0566	envY	Isolate 1	non-essential	DNA-binding transcriptional activator	0.85
b0566	envY	Isolate 2	non-essential	DNA-binding transcriptional activator	0.26
b0567	ybcH	Isolate 1	non-essential	predicted protein	-0.09
b0567	ybcH	Isolate 2	non-essential	predicted protein	0.87
b0568	nfrA	Isolate 1	non-essential	bacteriophage N4 receptor, outer membrane subunit	0.54
b0568	nfrA	Isolate 2	non-essential	bacteriophage N4 receptor, outer membrane subunit	1.10
b0569	nfrB	Isolate 1	non-essential	bacteriophage N4 receptor, inner membrane subunit	2.21
b0569	nfrB	Isolate 2	non-essential	bacteriophage N4 receptor, inner membrane subunit	2.23
b0570	cusS	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory system with CusR, senses copper ions	0.72
b0570	cusS	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory system with CusR, senses copper ions	-1.28
b0571	cusR	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with CusS	-0.76
b0571	cusR	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with CusS	-0.79
b0572	cusC	Isolate 1	non-essential	copper/silver efflux system, outer membrane component	0.95
b0572	cusC	Isolate 2	non-essential	copper/silver efflux system, outer membrane component	-0.48
b0573	cusF	Isolate 1	non-essential	periplasmic copper-binding protein	1.11
b0573	cusF	Isolate 2	non-essential	periplasmic copper-binding protein	1.10
b0574	cusB	Isolate 1	non-essential	copper/silver efflux system, membrane fusion protein	1.98
b0574	cusB	Isolate 2	non-essential	copper/silver efflux system, membrane fusion protein	0.82
b0575	cusA	Isolate 1	non-essential	copper/silver efflux system, membrane component	-0.72
b0575	cusA	Isolate 2	non-essential	copper/silver efflux system, membrane component	-0.58
b0576	pheP	Isolate 1	non-essential	phenylalanine transporter	2.91
b0576	pheP	Isolate 2	non-essential	phenylalanine transporter	1.88
b0577	ybdG	Isolate 1	non-essential	predicted mechanosensitive channel	0.26
b0577	ybdG	Isolate 2	non-essential	predicted mechanosensitive channel	1.43
b0578	nfnB	Isolate 1	non-essential	dihydropteridine reductase, NAD(P)H-dependent, oxygen-insensitive	-0.88
b0578	nfnB	Isolate 2	non-essential	dihydropteridine reductase, NAD(P)H-dependent, oxygen-insensitive	0.02
b0579	ybdF	Isolate 1	non-essential	conserved protein	1.32
b0579	ybdF	Isolate 2	non-essential	conserved protein	2.69
b0580	ybdJ	Isolate 1	non-essential	predicted inner membrane protein	1.75
b0580	ybdJ	Isolate 2	non-essential	predicted inner membrane protein	0.70
b0581	ybdK	Isolate 1	non-essential	gamma-glutamyl:cysteine ligase	-0.08
b0581	ybdK	Isolate 2	non-essential	gamma-glutamyl:cysteine ligase	-1.08
b0584	fepA	Isolate 1	non-essential	iron-enterobactin outer membrane transporter	2.02
b0584	fepA	Isolate 2	non-essential	iron-enterobactin outer membrane transporter	3.13
b0585	fes	Isolate 1	non-essential	enterobactin/ferric enterobactin esterase	0.67



b0585	fes	Isolate 2	non-essential	enterobactin/ferric enterobactin esterase	-3.75
b0586	entF	Isolate 1	non-essential	enterobactin synthase multienzyme complex component, ATP-dependent	0.01
b0586	entF	Isolate 2	non-essential	enterobactin synthase multienzyme complex component, ATP-dependent	0.00
b0587	fepE	Isolate 1	non-essential	regulator of length of O-antigen component of lipopolysaccharide chains	1.39
b0587	fepE	Isolate 2	non-essential	regulator of length of O-antigen component of lipopolysaccharide chains	0.73
b0588	fepC	Isolate 1	non-essential	iron-enterobactin transporter subunit -!- ATP-binding component of ABC superfamily	-1.73
b0588	fepC	Isolate 2	non-essential	iron-enterobactin transporter subunit -!- ATP-binding component of ABC superfamily	-3.65
b0589	fepG	Isolate 1	non-essential	iron-enterobactin transporter subunit -!- membrane component of ABC superfamily	-1.64
b0589	fepG	Isolate 2	non-essential	iron-enterobactin transporter subunit -!- membrane component of ABC superfamily	-2.23
b0590	fepD	Isolate 1	non-essential	iron-enterobactin transporter subunit -!- membrane component of ABC superfamily	-1.61
b0590	fepD	Isolate 2	non-essential	iron-enterobactin transporter subunit -!- membrane component of ABC superfamily	-0.10
b0592	fepB	Isolate 1	non-essential	iron-enterobactin transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.13
b0592	fepB	Isolate 2	non-essential	iron-enterobactin transporter subunit -!- periplasmic-binding component of ABC superfamily	-1.28
b0593	entC	Isolate 1	non-essential	isochorismate synthase 1	0.37
b0593	entC	Isolate 2	non-essential	isochorismate synthase 1	0.67
b0594	entE	Isolate 1	non-essential	2,3-dihydroxybenzoate-AMP ligase component of enterobactin synthase multienzyme complex	-1.04
b0594	entE	Isolate 2	non-essential	2,3-dihydroxybenzoate-AMP ligase component of enterobactin synthase multienzyme complex	-2.25
b0595	entB	Isolate 1	non-essential	isochorismatase	-0.98
b0595	entB	Isolate 2	non-essential	isochorismatase	-2.31
b0596	entA	Isolate 1	non-essential	2,3-dihydro-2,3-dihydroxybenzoate dehydrogenase	0.16
b0596	entA	Isolate 2	non-essential	2,3-dihydro-2,3-dihydroxybenzoate dehydrogenase	-0.96
b0597	ybdB	Isolate 1	non-essential	conserved protein	0.38
b0597	ybdB	Isolate 2	non-essential	conserved protein	0.10
b0598	cstA	Isolate 1	non-essential	carbon starvation protein	1.25
b0598	cstA	Isolate 2	non-essential	carbon starvation protein	0.05
b0599	ybdH	Isolate 1	non-essential	predicted oxidoreductase	0.78
b0599	ybdH	Isolate 2	non-essential	predicted oxidoreductase	1.53
b0600	ybdL	Isolate 1	non-essential	methionine aminotransferase, PLP-dependent	-1.49
b0600	ybdL	Isolate 2	non-essential	methionine aminotransferase, PLP-dependent	0.59
b0601	ybdM	Isolate 1	non-essential	conserved protein	-0.92
b0601	ybdM	Isolate 2	non-essential	conserved protein	-1.22
b0602	ybdN	Isolate 1	non-essential	conserved protein	-0.81
b0602	ybdN	Isolate 2	non-essential	conserved protein	-1.60
b0603	ybdO	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-1.21
b0603	ybdO	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.80
b0604	dsbG	Isolate 1	non-essential	periplasmic disulfide isomerase/thiol-disulphide oxidase	2.36
b0604	dsbG	Isolate 2	non-essential	periplasmic disulfide isomerase/thiol-disulphide oxidase	1.36
b0605	ahpC	Isolate 1	non-essential	alkyl hydroperoxide reductase, C22 subunit	-1.11
b0605	ahpC	Isolate 2	non-essential	alkyl hydroperoxide reductase, C22 subunit	-0.38
b0606	ahpF	Isolate 1	non-essential	alkyl hydroperoxide reductase, F52a subunit, FAD/NAD(P)-binding	-1.02
b0606	ahpF	Isolate 2	non-essential	alkyl hydroperoxide reductase, F52a subunit, FAD/NAD(P)-binding	1.23
b0607	uspG	Isolate 1	non-essential	universal stress protein UPI2	0.92
b0607	uspG	Isolate 2	non-essential	universal stress protein UPI2	0.25

b0608	ybdR	Isolate 1	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	-0.21
b0608	ybdR	Isolate 2	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	-1.51
b0610	rnk	Isolate 1	non-essential	regulator of nucleoside diphosphate kinase	0.09
b0610	rnk	Isolate 2	non-essential	regulator of nucleoside diphosphate kinase	-1.28
b0611	rna	Isolate 1	non-essential	ribonuclease I	-2.07
b0611	rna	Isolate 2	non-essential	ribonuclease I	0.89
b0612	citT	Isolate 1	non-essential	citrate:succinate antiporter	1.80
b0612	citT	Isolate 2	non-essential	citrate:succinate antiporter	0.29
b0613	citG	Isolate 1	non-essential	triphosphoribosyl-dephospho-CoA transferase	0.45
b0613	citG	Isolate 2	non-essential	triphosphoribosyl-dephospho-CoA transferase	-0.90
b0614	citX	Isolate 1	non-essential	apo-citrate lyase phosphoribosyl-dephospho-CoA transferase	-2.68
b0614	citX	Isolate 2	non-essential	apo-citrate lyase phosphoribosyl-dephospho-CoA transferase	-1.64
b0615	citF	Isolate 1	non-essential	citrate lyase, citrate-ACP transferase (alpha) subunit	1.55
b0615	citF	Isolate 2	non-essential	citrate lyase, citrate-ACP transferase (alpha) subunit	0.17
b0616	citE	Isolate 1	non-essential	citrate lyase, citryl-ACP lyase (beta) subunit	-0.63
b0616	citE	Isolate 2	non-essential	citrate lyase, citryl-ACP lyase (beta) subunit	0.18
b0617	citD	Isolate 1	non-essential	citrate lyase, acyl carrier (gamma) subunit	0.88
b0617	citD	Isolate 2	non-essential	citrate lyase, acyl carrier (gamma) subunit	1.01
b0618	citC	Isolate 1	non-essential	citrate lyase synthetase	0.58
b0618	citC	Isolate 2	non-essential	citrate lyase synthetase	-0.46
b0619	citA	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory system with citB	-1.06
b0619	citA	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory system with citB	0.70
b0620	citB	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with citA	1.64
b0620	citB	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with citA	0.02
b0621	dcuC	Isolate 1	unknown	anaerobic C4-dicarboxylate transport	-1.12
b0621	dcuC	Isolate 2	unknown	anaerobic C4-dicarboxylate transport	1.42
b0622	crcA	Isolate 1	non-essential	palmitoyl transferase for Lipid A	-0.17
b0622	crcA	Isolate 2	non-essential	palmitoyl transferase for Lipid A	0.86
b0623	cspE	Isolate 1	non-essential	DNA-binding transcriptional repressor	0.44
b0623	cspE	Isolate 2	non-essential	DNA-binding transcriptional repressor	-0.34
b0624	crcB	Isolate 1	non-essential	predicted inner membrane protein associated with chromosome condensation	0.00
b0624	crcB	Isolate 2	non-essential	predicted inner membrane protein associated with chromosome condensation	-0.16
b0625	ybeH	Isolate 1	non-essential	predicted protein	-1.81
b0625	ybeH	Isolate 2	non-essential	predicted protein	0.02
b0626	ybeM	Isolate 1	non-essential	predicted C-N hydrolase superfamily, NAD(P)-binding amidase/nitrilase	0.78
b0626	ybeM	Isolate 2	non-essential	predicted C-N hydrolase superfamily, NAD(P)-binding amidase/nitrilase	-1.51
b0627	tatE	Isolate 1	non-essential	TatABCE protein translocation system subunit	1.42
b0627	tatE	Isolate 2	non-essential	TatABCE protein translocation system subunit	0.22
b0628	lipA	Isolate 1	non-essential	lipoate synthase	4.60
b0628	lipA	Isolate 2	non-essential	lipoate synthase	5.87
b0629	ybeF	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.87
b0629	ybeF	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.47
b0630	lipB	Isolate 1	non-essential	lipoyl-protein ligase	2.25

b0630	lipB	Isolate 2	non-essential	lipoyl-protein ligase	2.38
b0631	ybeD	Isolate 1	non-essential	conserved protein	1.41
b0631	ybeD	Isolate 2	non-essential	conserved protein	0.74
b0632	dacA	Isolate 1	non-essential	D-alanyl-D-alanine carboxypeptidase (penicillin-binding protein 5)	-0.89
b0632	dacA	Isolate 2	non-essential	D-alanyl-D-alanine carboxypeptidase (penicillin-binding protein 5)	0.08
b0633	rlpA	Isolate 1	non-essential	minor lipoprotein	0.83
b0633	rlpA	Isolate 2	non-essential	minor lipoprotein	0.64
b0636	ybeA	Isolate 1	non-essential	conserved protein	1.09
b0636	ybeA	Isolate 2	non-essential	conserved protein	-0.40
b0637	ybeB	Isolate 1	non-essential	predicted protein	-0.92
b0637	ybeB	Isolate 2	non-essential	predicted protein	-1.94
b0638	cobC	Isolate 1	non-essential	predicted alpha-ribazole-5'-P phosphatase	0.60
b0638	cobC	Isolate 2	non-essential	predicted alpha-ribazole-5'-P phosphatase	2.96
b0640	holA	Isolate 1	essential	DNA polymerase III, delta subunit	-1.94
b0642	leuS	Isolate 1	essential	leucyl-tRNA synthetase	0.85
b0643	ybeL	Isolate 1	non-essential	conserved protein	0.61
b0643	ybeL	Isolate 2	non-essential	conserved protein	-1.05
b0644	ybeQ	Isolate 1	non-essential	conserved protein	1.53
b0644	ybeQ	Isolate 2	non-essential	conserved protein	0.37
b0645	ybeR	Isolate 1	non-essential	predicted protein	-0.32
b0645	ybeR	Isolate 2	non-essential	predicted protein	-1.68
b0646	djIB	Isolate 1	non-essential	predicted chaperone	0.37
b0646	djIB	Isolate 2	non-essential	predicted chaperone	1.14
b0647	ybeT	Isolate 1	non-essential	conserved outer membrane protein	0.14
b0647	ybeT	Isolate 2	non-essential	conserved outer membrane protein	-1.81
b0648	ybeU	Isolate 1	non-essential	predicted tRNA ligase	0.77
b0648	ybeU	Isolate 2	non-essential	predicted tRNA ligase	0.00
b0649	djIC	Isolate 1	non-essential	Hsc56 co-chaperone of HscC	0.35
b0649	djIC	Isolate 2	non-essential	Hsc56 co-chaperone of HscC	-0.35
b0650	hscC	Isolate 1	non-essential	Hsp70 family chaperone Hsc62, binds to RpoD and inhibits transcription	1.21
b0650	hscC	Isolate 2	non-essential	Hsp70 family chaperone Hsc62, binds to RpoD and inhibits transcription	0.61
b0651	rihA	Isolate 1	non-essential	ribonucleoside hydrolase 1	-0.80
b0651	rihA	Isolate 2	non-essential	ribonucleoside hydrolase 1	0.81
b0652	gltL	Isolate 1	non-essential	glutamate and aspartate transporter subunit -!- ATP-binding component of ABC superfamily	-0.26
b0652	gltL	Isolate 2	non-essential	glutamate and aspartate transporter subunit -!- ATP-binding component of ABC superfamily	-0.69
b0653	gltK	Isolate 1	non-essential	glutamate and aspartate transporter subunit -!- membrane component of ABC superfamily	-2.17
b0653	gltK	Isolate 2	non-essential	glutamate and aspartate transporter subunit -!- membrane component of ABC superfamily	-1.88
b0654	gltJ	Isolate 1	non-essential	glutamate and aspartate transporter subunit -!- membrane component of ABC superfamily	0.20
b0654	gltJ	Isolate 2	non-essential	glutamate and aspartate transporter subunit -!- membrane component of ABC superfamily	0.72
b0655	gltI	Isolate 1	non-essential	glutamate and aspartate transporter subunit -!- periplasmic-binding component of ABC superfamily	0.83
b0655	gltI	Isolate 2	non-essential	glutamate and aspartate transporter subunit -!- periplasmic-binding component of ABC superfamily	2.18
b0658	ybeX	Isolate 1	non-essential	predicted ion transport	1.82
b0658	ybeX	Isolate 2	non-essential	predicted ion transport	1.09

b0659	ybeY	Isolate 1	non-essential	conserved protein	2.66
b0659	ybeY	Isolate 2	non-essential	conserved protein	6.38
b0660	ybeZ	Isolate 1	non-essential	predicted protein with nucleoside triphosphate hydrolase domain	1.54
b0660	ybeZ	Isolate 2	non-essential	predicted protein with nucleoside triphosphate hydrolase domain	1.33
b0661	miaB	Isolate 1	non-essential	isopentenyl-adenosine A37 tRNA methylthiolase	0.21
b0661	miaB	Isolate 2	non-essential	isopentenyl-adenosine A37 tRNA methylthiolase	0.70
b0662	ubiF	Isolate 1	non-essential	2-octaprenyl-3-methyl-6-methoxy-1,4-benzoquinol oxygenase	2.49
b0662	ubiF	Isolate 2	non-essential	2-octaprenyl-3-methyl-6-methoxy-1,4-benzoquinol oxygenase	1.91
b0674	asnB	Isolate 1	non-essential	asparagine synthetase B	-0.46
b0674	asnB	Isolate 2	non-essential	asparagine synthetase B	-0.80
b0675	nagD	Isolate 1	non-essential	UMP phosphatase	-0.15
b0675	nagD	Isolate 2	non-essential	UMP phosphatase	-0.52
b0676	nagC	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	-0.02
b0676	nagC	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	0.41
b0677	nagA	Isolate 1	non-essential	N-acetylglucosamine-6-phosphate deacetylase	-1.05
b0677	nagA	Isolate 2	non-essential	N-acetylglucosamine-6-phosphate deacetylase	-1.46
b0678	nagB	Isolate 1	non-essential	glucosamine-6-phosphate deaminase	-2.92
b0678	nagB	Isolate 2	non-essential	glucosamine-6-phosphate deaminase	-0.04
b0679	nagE	Isolate 1	non-essential	fused N-acetyl glucosamine specific PTS enzyme IICBA components	-1.14
b0679	nagE	Isolate 2	non-essential	fused N-acetyl glucosamine specific PTS enzyme IICBA components	0.47
b0680	glnS	Isolate 1	essential	glutamyl-tRNA synthetase	-0.19
b0681	ybfM	Isolate 1	non-essential	predicted outer membrane porin	0.18
b0681	ybfM	Isolate 2	non-essential	predicted outer membrane porin	5.25
b0682	ybfN	Isolate 1	non-essential	predicted lipoprotein	0.69
b0682	ybfN	Isolate 2	non-essential	predicted lipoprotein	0.35
b0683	fur	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	2.31
b0683	fur	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	3.47
b0683.1	*	Isolate 1	*	*	2.67
b0683.1	*	Isolate 2	*	*	0.16
b0684	fldA	Isolate 1	essential	flavodoxin 1	1.36
b0685	ybfE	Isolate 1	non-essential	LexA regulated protein	0.03
b0685	ybfE	Isolate 2	non-essential	LexA regulated protein	-0.69
b0686	ybfF	Isolate 1	non-essential	conserved protein	1.13
b0686	ybfF	Isolate 2	non-essential	conserved protein	1.25
b0687	seqA	Isolate 1	non-essential	regulatory protein for replication initiation	0.11
b0687	seqA	Isolate 2	non-essential	regulatory protein for replication initiation	1.00
b0688	pgm	Isolate 1	non-essential	phosphoglucomutase	-0.89
b0688	pgm	Isolate 2	non-essential	phosphoglucomutase	0.41
b0689	ybfP	Isolate 1	non-essential	predicted protein	-0.11
b0689	ybfP	Isolate 2	non-essential	predicted protein	-1.59
b0690	ybfG	Isolate 1	non-essential	predicted protein	-1.96
b0690	ybfG	Isolate 2	non-essential	predicted protein	0.12
b0691	ybfH	Isolate 1	non-essential	predicted protein	-0.33

b0691	ybfH	Isolate 2	non-essential	predicted protein	-1.57
b0692	potE	Isolate 1	non-essential	putrescine/proton symporter -!- putrescine/ornithine antiporter	0.27
b0692	potE	Isolate 2	non-essential	putrescine/proton symporter -!- putrescine/ornithine antiporter	-0.42
b0693	speF	Isolate 1	non-essential	ornithine decarboxylase isozyme, inducible	-1.33
b0693	speF	Isolate 2	non-essential	ornithine decarboxylase isozyme, inducible	-0.82
b0693.1	*	Isolate 1	*	*	0.38
b0693.1	*	Isolate 2	*	*	0.85
b0694	kdpE	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with KdpD	1.58
b0694	kdpE	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with KdpD	0.43
b0695	kdpD	Isolate 1	non-essential	fused sensory histidine kinase in two-component regulatory system with KdpE	1.01
b0695	kdpD	Isolate 2	non-essential	fused sensory histidine kinase in two-component regulatory system with KdpE	0.53
b0696	kdpC	Isolate 1	non-essential	potassium translocating ATPase, subunit C	-0.09
b0696	kdpC	Isolate 2	non-essential	potassium translocating ATPase, subunit C	2.09
b0697	kdpB	Isolate 1	non-essential	potassium translocating ATPase, subunit B	-0.22
b0697	kdpB	Isolate 2	non-essential	potassium translocating ATPase, subunit B	-0.10
b0698	kdpA	Isolate 1	non-essential	potassium translocating ATPase, subunit A	2.33
b0698	kdpA	Isolate 2	non-essential	potassium translocating ATPase, subunit A	1.35
b0699	ybfA	Isolate 1	non-essential	predicted protein	0.55
b0699	ybfA	Isolate 2	non-essential	predicted protein	-0.08
b0700	rhsC	Isolate 1	non-essential	rhsC element core protein RshC	1.10
b0700	rhsC	Isolate 2	non-essential	rhsC element core protein RshC	-1.48
b0702	ybfB	Isolate 1	non-essential	predicted inner membrane protein	0.41
b0702	ybfB	Isolate 2	non-essential	predicted inner membrane protein	0.77
b0703	ybfO	Isolate 1	non-essential	conserved protein, rhs-like	-1.11
b0703	ybfO	Isolate 2	non-essential	conserved protein, rhs-like	0.27
b0704	ybfC	Isolate 1	non-essential	predicted protein	1.26
b0704	ybfC	Isolate 2	non-essential	predicted protein	-0.05
b0705	ybfL	Isolate 1	*	predicted transposase (pseudogene)	0.18
b0705	ybfL	Isolate 2	*	predicted transposase (pseudogene)	1.21
b0706	ybfD	Isolate 1	non-essential	conserved protein	1.35
b0706	ybfD	Isolate 2	non-essential	conserved protein	0.93
b0707	ybgA	Isolate 1	non-essential	conserved protein	1.67
b0707	ybgA	Isolate 2	non-essential	conserved protein	0.61
b0708	phr	Isolate 1	non-essential	deoxyribodipyrimidine photolyase, FAD-binding	0.25
b0708	phr	Isolate 2	non-essential	deoxyribodipyrimidine photolyase, FAD-binding	0.00
b0709	ybgH	Isolate 1	non-essential	predicted transporter	1.24
b0709	ybgH	Isolate 2	non-essential	predicted transporter	0.40
b0710	ybgI	Isolate 1	non-essential	conserved metal-binding protein	-1.15
b0710	ybgI	Isolate 2	non-essential	conserved metal-binding protein	0.52
b0711	ybgJ	Isolate 1	non-essential	predicted enzyme subunit	0.72
b0711	ybgJ	Isolate 2	non-essential	predicted enzyme subunit	1.11
b0712	ybgK	Isolate 1	non-essential	predicted enzyme subunit	-0.48
b0712	ybgK	Isolate 2	non-essential	predicted enzyme subunit	-0.13

b0713	ybgL	Isolate 1	non-essential	predicted lactam utilization protein	-0.35
b0713	ybgL	Isolate 2	non-essential	predicted lactam utilization protein	-0.65
b0714	nei	Isolate 1	non-essential	endonuclease VIII -!- 5-formyluracil/5-hydroxymethyluracil DNA glycosylase	-1.21
b0714	nei	Isolate 2	non-essential	endonuclease VIII -!- 5-formyluracil/5-hydroxymethyluracil DNA glycosylase	-0.77
b0715	abrB	Isolate 1	non-essential	predicted regulator	1.16
b0715	abrB	Isolate 2	non-essential	predicted regulator	0.24
b0716	ybgO	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	1.67
b0716	ybgO	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	0.19
b0717	ybgP	Isolate 1	non-essential	predicted assembly protein	-0.01
b0717	ybgP	Isolate 2	non-essential	predicted assembly protein	0.43
b0718	ybgQ	Isolate 1	non-essential	predicted outer membrane protein	0.24
b0718	ybgQ	Isolate 2	non-essential	predicted outer membrane protein	-0.03
b0719	ybgD	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	-0.82
b0719	ybgD	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	-0.20
b0720	gltA	Isolate 1	non-essential	citrate synthase	-0.46
b0720	gltA	Isolate 2	non-essential	citrate synthase	-2.05
b0721	sdhC	Isolate 1	non-essential	succinate dehydrogenase, membrane subunit, binds cytochrome b556	0.69
b0721	sdhC	Isolate 2	non-essential	succinate dehydrogenase, membrane subunit, binds cytochrome b556	1.32
b0722	sdhD	Isolate 1	non-essential	succinate dehydrogenase, membrane subunit, binds cytochrome b556	0.49
b0722	sdhD	Isolate 2	non-essential	succinate dehydrogenase, membrane subunit, binds cytochrome b556	2.60
b0723	sdhA	Isolate 1	non-essential	succinate dehydrogenase, flavoprotein subunit	-1.59
b0723	sdhA	Isolate 2	non-essential	succinate dehydrogenase, flavoprotein subunit	-0.19
b0724	sdhB	Isolate 1	non-essential	succinate dehydrogenase, FeS subunit	-1.78
b0724	sdhB	Isolate 2	non-essential	succinate dehydrogenase, FeS subunit	-1.00
b0726	sucA	Isolate 1	non-essential	2-oxoglutarate decarboxylase, thiamin-requiring	0.30
b0726	sucA	Isolate 2	non-essential	2-oxoglutarate decarboxylase, thiamin-requiring	1.31
b0727	sucB	Isolate 1	non-essential	dihydrolipoyltranssuccinase	0.82
b0727	sucB	Isolate 2	non-essential	dihydrolipoyltranssuccinase	0.71
b0728	sucC	Isolate 1	non-essential	succinyl-CoA synthetase, beta subunit	1.40
b0728	sucC	Isolate 2	non-essential	succinyl-CoA synthetase, beta subunit	-0.96
b0729	sucD	Isolate 1	non-essential	succinyl-CoA synthetase, NAD(P)-binding, alpha subunit	1.20
b0729	sucD	Isolate 2	non-essential	succinyl-CoA synthetase, NAD(P)-binding, alpha subunit	1.71
b0730	mngR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator, fatty-acyl-binding	0.51
b0730	mngR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator, fatty-acyl-binding	0.50
b0731	mngA	Isolate 1	non-essential	fused 2-O-a-mannosyl-D-glycerate specific PTS enzyme IIABC components	-0.88
b0731	mngA	Isolate 2	non-essential	fused 2-O-a-mannosyl-D-glycerate specific PTS enzyme IIABC components	-0.30
b0732	mngB	Isolate 1	non-essential	alpha-mannosidase	0.76
b0732	mngB	Isolate 2	non-essential	alpha-mannosidase	-0.37
b0733	cydA	Isolate 1	essential	cytochrome d terminal oxidase, subunit I	0.51
b0734	cydB	Isolate 1	non-essential	cytochrome d terminal oxidase, subunit II	2.36
b0734	cydB	Isolate 2	non-essential	cytochrome d terminal oxidase, subunit II	0.35
b0735	ybgE	Isolate 1	non-essential	conserved inner membrane protein	-2.20
b0735	ybgE	Isolate 2	non-essential	conserved inner membrane protein	-0.83

b0736	ybgC	Isolate 1	non-essential	predicted acyl-CoA thioesterase	5.02
b0736	ybgC	Isolate 2	non-essential	predicted acyl-CoA thioesterase	1.13
b0737	tolQ	Isolate 1	non-essential	membrane spanning protein in TolA-TolQ-TolR complex	-1.25
b0737	tolQ	Isolate 2	non-essential	membrane spanning protein in TolA-TolQ-TolR complex	0.75
b0738	tolR	Isolate 1	non-essential	membrane spanning protein in TolA-TolQ-TolR complex	0.24
b0738	tolR	Isolate 2	non-essential	membrane spanning protein in TolA-TolQ-TolR complex	2.03
b0739	tolA	Isolate 1	non-essential	membrane anchored protein in TolA-TolQ-TolR complex	-1.44
b0739	tolA	Isolate 2	non-essential	membrane anchored protein in TolA-TolQ-TolR complex	2.02
b0740	tolB	Isolate 1	non-essential	periplasmic protein	0.49
b0740	tolB	Isolate 2	non-essential	periplasmic protein	2.04
b0741	pal	Isolate 1	non-essential	peptidoglycan-associated outer membrane lipoprotein	-1.63
b0741	pal	Isolate 2	non-essential	peptidoglycan-associated outer membrane lipoprotein	-1.09
b0742	ybgF	Isolate 1	non-essential	predicted protein	0.60
b0742	ybgF	Isolate 2	non-essential	predicted protein	-0.77
b0750	nadA	Isolate 1	non-essential	quinolinate synthase, subunit A	-0.42
b0750	nadA	Isolate 2	non-essential	quinolinate synthase, subunit A	-0.02
b0751	pnuC	Isolate 1	non-essential	predicted nicotinamide mononucleotide transporter	0.77
b0751	pnuC	Isolate 2	non-essential	predicted nicotinamide mononucleotide transporter	0.94
b0752	zitB	Isolate 1	non-essential	zinc efflux system	0.87
b0752	zitB	Isolate 2	non-essential	zinc efflux system	0.59
b0753	ybgS	Isolate 1	non-essential	conserved protein	-1.07
b0753	ybgS	Isolate 2	non-essential	conserved protein	0.53
b0754	aroG	Isolate 1	non-essential	3-deoxy-D-arabino-heptulosonate-7-phosphate synthase, phenylalanine repressible	-0.25
b0754	aroG	Isolate 2	non-essential	3-deoxy-D-arabino-heptulosonate-7-phosphate synthase, phenylalanine repressible	0.01
b0756	galM	Isolate 1	non-essential	galactose-1-epimerase (mutarotase)	2.15
b0756	galM	Isolate 2	non-essential	galactose-1-epimerase (mutarotase)	-1.12
b0757	galK	Isolate 1	non-essential	galactokinase	-0.13
b0757	galK	Isolate 2	non-essential	galactokinase	0.45
b0758	galT	Isolate 1	non-essential	galactose-1-phosphate uridylyltransferase	1.95
b0758	galT	Isolate 2	non-essential	galactose-1-phosphate uridylyltransferase	0.47
b0759	galE	Isolate 1	non-essential	UDP-galactose-4-epimerase	-0.72
b0759	galE	Isolate 2	non-essential	UDP-galactose-4-epimerase	-1.66
b0760	modF	Isolate 1	non-essential	fused subunits of molybdate transporter -!- ATP-binding components of ABC superfamily	-0.22
b0760	modF	Isolate 2	non-essential	fused subunits of molybdate transporter -!- ATP-binding components of ABC superfamily	-1.36
b0761	modE	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	-0.05
b0761	modE	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	-0.55
b0762	ybhT	Isolate 1	non-essential	predicted protein	-0.09
b0762	ybhT	Isolate 2	non-essential	predicted protein	1.48
b0763	modA	Isolate 1	non-essential	molybdate transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.03
b0763	modA	Isolate 2	non-essential	molybdate transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.32
b0764	modB	Isolate 1	non-essential	molybdate transporter subunit -!- membrane component of ABC superfamily	-0.13
b0764	modB	Isolate 2	non-essential	molybdate transporter subunit -!- membrane component of ABC superfamily	-0.53
b0765	modC	Isolate 1	non-essential	molybdate transporter subunit -!- ATP-binding component of ABC superfamily	3.56

b0765	modC	Isolate 2	non-essential	molybdate transporter subunit -!- ATP-binding component of ABC superfamily	-1.22
b0766	ybhA	Isolate 1	non-essential	predicted hydrolase	-0.65
b0766	ybhA	Isolate 2	non-essential	predicted hydrolase	-2.55
b0767	ybhE	Isolate 1	non-essential	6-phosphogluconolactonase	-0.27
b0767	ybhE	Isolate 2	non-essential	6-phosphogluconolactonase	0.55
b0768	ybhD	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.94
b0768	ybhD	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.19
b0769	ybhH	Isolate 1	non-essential	conserved protein	-0.23
b0769	ybhH	Isolate 2	non-essential	conserved protein	-0.81
b0770	ybhI	Isolate 1	non-essential	predicted transporter	1.86
b0770	ybhI	Isolate 2	non-essential	predicted transporter	0.07
b0771	ybhJ	Isolate 1	non-essential	predicted hydratase	2.37
b0771	ybhJ	Isolate 2	non-essential	predicted hydratase	-0.18
b0772	ybhC	Isolate 1	non-essential	predicted pectinesterase	-1.30
b0772	ybhC	Isolate 2	non-essential	predicted pectinesterase	1.32
b0773	ybhB	Isolate 1	non-essential	predicted kinase inhibitor	-3.36
b0773	ybhB	Isolate 2	non-essential	predicted kinase inhibitor	-2.54
b0774	bioA	Isolate 1	non-essential	7,8-diaminopelargonic acid synthase, PLP-dependent	-0.01
b0774	bioA	Isolate 2	non-essential	7,8-diaminopelargonic acid synthase, PLP-dependent	-1.87
b0775	bioB	Isolate 1	non-essential	biotin synthase	2.04
b0775	bioB	Isolate 2	non-essential	biotin synthase	1.21
b0776	bioF	Isolate 1	non-essential	8-amino-7-oxononanoate synthase	0.86
b0776	bioF	Isolate 2	non-essential	8-amino-7-oxononanoate synthase	0.53
b0777	bioC	Isolate 1	non-essential	predicted methyltransferase, enzyme of biotin synthesis	-0.43
b0777	bioC	Isolate 2	non-essential	predicted methyltransferase, enzyme of biotin synthesis	1.46
b0778	bioD	Isolate 1	non-essential	dethiobiotin synthetase	-1.08
b0778	bioD	Isolate 2	non-essential	dethiobiotin synthetase	1.88
b0779	uvrB	Isolate 1	non-essential	excinulease of nucleotide excision repair, DNA damage recognition component	-0.12
b0779	uvrB	Isolate 2	non-essential	excinulease of nucleotide excision repair, DNA damage recognition component	0.97
b0780	ybhK	Isolate 1	non-essential	predicted transferase with NAD(P)-binding Rossmann-fold domain	-0.23
b0780	ybhK	Isolate 2	non-essential	predicted transferase with NAD(P)-binding Rossmann-fold domain	-0.81
b0781	moaA	Isolate 1	non-essential	molybdopterin biosynthesis protein A	-0.21
b0781	moaA	Isolate 2	non-essential	molybdopterin biosynthesis protein A	-1.12
b0782	moaB	Isolate 1	non-essential	molybdopterin biosynthesis protein B	0.61
b0782	moaB	Isolate 2	non-essential	molybdopterin biosynthesis protein B	-0.79
b0783	moaC	Isolate 1	non-essential	molybdopterin biosynthesis, protein C	0.17
b0783	moaC	Isolate 2	non-essential	molybdopterin biosynthesis, protein C	0.30
b0784	moaD	Isolate 1	non-essential	molybdopterin synthase, small subunit	0.22
b0784	moaD	Isolate 2	non-essential	molybdopterin synthase, small subunit	1.01
b0785	moaE	Isolate 1	non-essential	molybdopterin synthase, large subunit	0.22
b0785	moaE	Isolate 2	non-essential	molybdopterin synthase, large subunit	0.94
b0786	ybhL	Isolate 1	non-essential	predicted inner membrane protein	2.34
b0786	ybhL	Isolate 2	non-essential	predicted inner membrane protein	0.53



b0787	ybhM	Isolate 1	non-essential	conserved inner membrane protein	-0.59
b0787	ybhM	Isolate 2	non-essential	conserved inner membrane protein	1.56
b0788	ybhN	Isolate 1	non-essential	conserved inner membrane protein	0.39
b0788	ybhN	Isolate 2	non-essential	conserved inner membrane protein	-0.50
b0789	ybhO	Isolate 1	non-essential	cardiolipin synthase 2	-0.57
b0789	ybhO	Isolate 2	non-essential	cardiolipin synthase 2	2.40
b0790	ybhP	Isolate 1	non-essential	predicted DNase	-2.92
b0790	ybhP	Isolate 2	non-essential	predicted DNase	0.44
b0791	ybhQ	Isolate 1	non-essential	predicted inner membrane protein	0.64
b0791	ybhQ	Isolate 2	non-essential	predicted inner membrane protein	-0.56
b0792	ybhR	Isolate 1	non-essential	predicted transporter subunit -!- membrane component of ABC superfamily	-1.33
b0792	ybhR	Isolate 2	non-essential	predicted transporter subunit -!- membrane component of ABC superfamily	-0.06
b0793	ybhS	Isolate 1	non-essential	predicted transporter subunit -!- membrane component of ABC superfamily	-1.78
b0793	ybhS	Isolate 2	non-essential	predicted transporter subunit -!- membrane component of ABC superfamily	-0.39
b0794	ybhF	Isolate 1	non-essential	fused predicted transporter subunits -!- ATP-binding components of ABC superfamily	0.22
b0794	ybhF	Isolate 2	non-essential	fused predicted transporter subunits -!- ATP-binding components of ABC superfamily	0.14
b0795	ybhG	Isolate 1	non-essential	predicted membrane fusion protein (MFP) component of efflux pump, membrane anchor	1.04
b0795	ybhG	Isolate 2	non-essential	predicted membrane fusion protein (MFP) component of efflux pump, membrane anchor	1.71
b0796	ybiH	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.22
b0796	ybiH	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.28
b0797	rhIE	Isolate 1	non-essential	RNA helicase	2.39
b0797	rhIE	Isolate 2	non-essential	RNA helicase	0.89
b0798	ybiA	Isolate 1	non-essential	conserved protein	-0.82
b0798	ybiA	Isolate 2	non-essential	conserved protein	-0.59
b0799	dinG	Isolate 1	non-essential	ATP-dependent DNA helicase	-1.41
b0799	dinG	Isolate 2	non-essential	ATP-dependent DNA helicase	-0.08
b0800	ybiB	Isolate 1	non-essential	predicted transferase/phosphorylase	1.19
b0800	ybiB	Isolate 2	non-essential	predicted transferase/phosphorylase	0.70
b0801	ybiC	Isolate 1	non-essential	predicted dehydrogenase	-0.49
b0801	ybiC	Isolate 2	non-essential	predicted dehydrogenase	-0.53
b0802	ybiJ	Isolate 1	non-essential	predicted protein	0.86
b0802	ybiJ	Isolate 2	non-essential	predicted protein	-1.02
b0803	ybiI	Isolate 1	non-essential	conserved protein	-0.19
b0803	ybiI	Isolate 2	non-essential	conserved protein	-0.03
b0804	ybiX	Isolate 1	non-essential	conserved protein	-0.60
b0804	ybiX	Isolate 2	non-essential	conserved protein	-1.70
b0805	fiu	Isolate 1	non-essential	predicted iron outer membrane transporter	-1.62
b0805	fiu	Isolate 2	non-essential	predicted iron outer membrane transporter	0.57
b0806	ybiM	Isolate 1	non-essential	predicted protein	0.37
b0806	ybiM	Isolate 2	non-essential	predicted protein	-0.20
b0807	ybiN	Isolate 1	non-essential	predicted SAM-dependent methyltransferase	-0.18
b0807	ybiN	Isolate 2	non-essential	predicted SAM-dependent methyltransferase	-0.51
b0808	ybiO	Isolate 1	non-essential	predicted mechanosensitive channel	-1.32

b0808	ybiO	Isolate 2	non-essential	predicted mechanosensitive channel	0.64
b0809	glnQ	Isolate 1	non-essential	glutamine transporter subunit -!- ATP-binding component of ABC superfamily	1.13
b0809	glnQ	Isolate 2	non-essential	glutamine transporter subunit -!- ATP-binding component of ABC superfamily	0.19
b0810	glnP	Isolate 1	non-essential	glutamine transporter subunit -!- membrane component of ABC superfamily	0.53
b0810	glnP	Isolate 2	non-essential	glutamine transporter subunit -!- membrane component of ABC superfamily	1.21
b0811	glnH	Isolate 1	non-essential	glutamine transporter subunit -!- periplasmic binding component of ABC superfamily	0.15
b0811	glnH	Isolate 2	non-essential	glutamine transporter subunit -!- periplasmic binding component of ABC superfamily	0.21
b0812	dps	Isolate 1	non-essential	Fe-binding and storage protein	3.57
b0812	dps	Isolate 2	non-essential	Fe-binding and storage protein	-0.91
b0813	rhtA	Isolate 1	non-essential	threonine and homoserine efflux system	-1.34
b0813	rhtA	Isolate 2	non-essential	threonine and homoserine efflux system	0.94
b0814	ompX	Isolate 1	non-essential	outer membrane protein	0.88
b0814	ompX	Isolate 2	non-essential	outer membrane protein	3.68
b0815	ybiP	Isolate 1	non-essential	predicted hydrolase, inner membrane	1.36
b0815	ybiP	Isolate 2	non-essential	predicted hydrolase, inner membrane	1.35
b0817	mntR	Isolate 1	non-essential	transcriptional regulator of mntH	-0.46
b0817	mntR	Isolate 2	non-essential	transcriptional regulator of mntH	1.69
b0818	ybiR	Isolate 1	non-essential	predicted transporter	-0.48
b0818	ybiR	Isolate 2	non-essential	predicted transporter	1.73
b0819	ybiS	Isolate 1	non-essential	conserved protein	-0.58
b0819	ybiS	Isolate 2	non-essential	conserved protein	0.72
b0820	ybiT	Isolate 1	non-essential	fused predicted transporter subunits -!- ATP-binding components of ABC superfamily	-1.94
b0820	ybiT	Isolate 2	non-essential	fused predicted transporter subunits -!- ATP-binding components of ABC superfamily	-0.97
b0821	ybiU	Isolate 1	non-essential	predicted protein	0.16
b0821	ybiU	Isolate 2	non-essential	predicted protein	2.59
b0822	ybiV	Isolate 1	non-essential	predicted hydrolase	1.08
b0822	ybiV	Isolate 2	non-essential	predicted hydrolase	2.16
b0823	ybiW	Isolate 1	non-essential	predicted pyruvate formate lyase	-0.06
b0823	ybiW	Isolate 2	non-essential	predicted pyruvate formate lyase	0.40
b0824	ybiY	Isolate 1	non-essential	predicted pyruvate formate lyase activating enzyme	-0.74
b0824	ybiY	Isolate 2	non-essential	predicted pyruvate formate lyase activating enzyme	-0.84
b0825	fsaA	Isolate 1	non-essential	fructose-6-phosphate aldolase 1	0.50
b0825	fsaA	Isolate 2	non-essential	fructose-6-phosphate aldolase 1	0.72
b0826	moeB	Isolate 1	non-essential	molybdopterin synthase sulfurylase	-0.05
b0826	moeB	Isolate 2	non-essential	molybdopterin synthase sulfurylase	0.22
b0827	moeA	Isolate 1	non-essential	molybdopterin biosynthesis protein	1.78
b0827	moeA	Isolate 2	non-essential	molybdopterin biosynthesis protein	0.57
b0828	iaaA	Isolate 1	non-essential	L-asparaginase	-0.44
b0828	iaaA	Isolate 2	non-essential	L-asparaginase	-0.82
b0829	yliA	Isolate 1	non-essential	fused predicted peptide transport subunits -!- ATP-binding components of ABC superfamily	-1.87
b0829	yliA	Isolate 2	non-essential	fused predicted peptide transport subunits -!- ATP-binding components of ABC superfamily	-3.26
b0830	yliB	Isolate 1	non-essential	predicted peptide transporter subunit -!- periplasmic-binding component of ABC superfamily	1.09
b0830	yliB	Isolate 2	non-essential	predicted peptide transporter subunit -!- periplasmic-binding component of ABC superfamily	0.22

b0831	yliC	Isolate 1	non-essential	predicted peptide transporter subunit -!- membrane component of ABC superfamily	-0.25
b0831	yliC	Isolate 2	non-essential	predicted peptide transporter subunit -!- membrane component of ABC superfamily	0.33
b0832	yliD	Isolate 1	non-essential	predicted peptide transporter subunit -!- membrane component of ABC superfamily	0.15
b0832	yliD	Isolate 2	non-essential	predicted peptide transporter subunit -!- membrane component of ABC superfamily	-0.42
b0833	yliE	Isolate 1	non-essential	conserved inner membrane protein	0.11
b0833	yliE	Isolate 2	non-essential	conserved inner membrane protein	1.28
b0834	yliF	Isolate 1	non-essential	predicted diguanylate cyclase	1.09
b0834	yliF	Isolate 2	non-essential	predicted diguanylate cyclase	-0.11
b0835	yliG	Isolate 1	non-essential	predicted SAM-dependent methyltransferase	-1.39
b0835	yliG	Isolate 2	non-essential	predicted SAM-dependent methyltransferase	0.93
b0836	yliH	Isolate 1	non-essential	conserved protein	0.91
b0836	yliH	Isolate 2	non-essential	conserved protein	0.13
b0837	yliI	Isolate 1	non-essential	predicted dehydrogenase	-0.53
b0837	yliI	Isolate 2	non-essential	predicted dehydrogenase	-0.61
b0838	yliJ	Isolate 1	non-essential	predicted glutathione S-transferase	1.06
b0838	yliJ	Isolate 2	non-essential	predicted glutathione S-transferase	-0.41
b0839	dacC	Isolate 1	non-essential	D-alanyl-D-alanine carboxypeptidase (penicillin-binding protein 6a)	1.45
b0839	dacC	Isolate 2	non-essential	D-alanyl-D-alanine carboxypeptidase (penicillin-binding protein 6a)	-1.22
b0840	deoR	Isolate 1	non-essential	DNA-binding transcriptional repressor	1.21
b0840	deoR	Isolate 2	non-essential	DNA-binding transcriptional repressor	1.46
b0841	ybjG	Isolate 1	non-essential	undecaprenyl pyrophosphate phosphatase	-1.18
b0841	ybjG	Isolate 2	non-essential	undecaprenyl pyrophosphate phosphatase	1.02
b0842	cmr	Isolate 1	non-essential	multidrug efflux system protein	-0.34
b0842	cmr	Isolate 2	non-essential	multidrug efflux system protein	0.88
b0843	ybjH	Isolate 1	non-essential	predicted protein	-1.30
b0843	ybjH	Isolate 2	non-essential	predicted protein	0.28
b0844	ybjI	Isolate 1	non-essential	conserved protein	0.72
b0844	ybjI	Isolate 2	non-essential	conserved protein	0.48
b0845	ybjJ	Isolate 1	non-essential	predicted transporter	1.21
b0845	ybjJ	Isolate 2	non-essential	predicted transporter	1.41
b0846	ybjK	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	2.27
b0846	ybjK	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.63
b0847	ybjL	Isolate 1	non-essential	predicted transporter	-1.27
b0847	ybjL	Isolate 2	non-essential	predicted transporter	0.07
b0848	ybjM	Isolate 1	non-essential	predicted inner membrane protein	1.22
b0848	ybjM	Isolate 2	non-essential	predicted inner membrane protein	-1.18
b0849	grxA	Isolate 1	non-essential	glutaredoxin 1, redox coenzyme for ribonucleotide reductase (RNR1a)	1.29
b0849	grxA	Isolate 2	non-essential	glutaredoxin 1, redox coenzyme for ribonucleotide reductase (RNR1a)	0.83
b0850	ybjC	Isolate 1	non-essential	predicted inner membrane protein	-1.53
b0850	ybjC	Isolate 2	non-essential	predicted inner membrane protein	0.15
b0851	nfsA	Isolate 1	non-essential	nitroreductase A, NADPH-dependent, FMN-dependent	0.68
b0851	nfsA	Isolate 2	non-essential	nitroreductase A, NADPH-dependent, FMN-dependent	0.56
b0852	rimK	Isolate 1	non-essential	ribosomal protein S6 modification protein	-0.09

b0852	rimK	Isolate 2	non-essential	ribosomal protein S6 modification protein	1.66
b0853	ybjN	Isolate 1	non-essential	predicted oxidoreductase	-1.80
b0853	ybjN	Isolate 2	non-essential	predicted oxidoreductase	2.16
b0854	potF	Isolate 1	non-essential	putrescine transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.67
b0854	potF	Isolate 2	non-essential	putrescine transporter subunit -!- periplasmic-binding component of ABC superfamily	0.59
b0855	potG	Isolate 1	non-essential	putrescine transporter subunit -!- ATP-binding component of ABC superfamily	0.20
b0855	potG	Isolate 2	non-essential	putrescine transporter subunit -!- ATP-binding component of ABC superfamily	-0.18
b0856	potH	Isolate 1	non-essential	putrescine transporter subunit -!- membrane component of ABC superfamily	0.25
b0856	potH	Isolate 2	non-essential	putrescine transporter subunit -!- membrane component of ABC superfamily	-0.22
b0857	potI	Isolate 1	non-essential	putrescine transporter subunit -!- membrane component of ABC superfamily	0.13
b0857	potI	Isolate 2	non-essential	putrescine transporter subunit -!- membrane component of ABC superfamily	-0.08
b0858	ybjO	Isolate 1	non-essential	predicted inner membrane protein	0.15
b0858	ybjO	Isolate 2	non-essential	predicted inner membrane protein	-0.40
b0859	rumB	Isolate 1	non-essential	23S rRNA m(5)U747 methyltransferase	2.34
b0859	rumB	Isolate 2	non-essential	23S rRNA m(5)U747 methyltransferase	1.65
b0860	artJ	Isolate 1	non-essential	arginine transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.81
b0860	artJ	Isolate 2	non-essential	arginine transporter subunit -!- periplasmic-binding component of ABC superfamily	-1.05
b0861	artM	Isolate 1	non-essential	arginine transporter subunit -!- membrane component of ABC superfamily	0.83
b0861	artM	Isolate 2	non-essential	arginine transporter subunit -!- membrane component of ABC superfamily	1.88
b0862	artQ	Isolate 1	non-essential	arginine transporter subunit -!-membrane component of ABC superfamily	1.39
b0862	artQ	Isolate 2	non-essential	arginine transporter subunit -!-membrane component of ABC superfamily	0.72
b0863	artI	Isolate 1	non-essential	arginine transporter subunit -!- periplasmic-binding component of ABC superfamily	1.78
b0863	artI	Isolate 2	non-essential	arginine transporter subunit -!- periplasmic-binding component of ABC superfamily	1.00
b0864	artP	Isolate 1	non-essential	arginine transporter subunit -!- ATP-binding component of ABC superfamily	-0.53
b0864	artP	Isolate 2	non-essential	arginine transporter subunit -!- ATP-binding component of ABC superfamily	-0.77
b0865	ybjP	Isolate 1	non-essential	predicted lipoprotein	0.19
b0865	ybjP	Isolate 2	non-essential	predicted lipoprotein	0.86
b0866	ybjQ	Isolate 1	non-essential	conserved protein	0.14
b0866	ybjQ	Isolate 2	non-essential	conserved protein	0.02
b0867	ybjR	Isolate 1	non-essential	predicted amidase and lipoprotein	-0.39
b0867	ybjR	Isolate 2	non-essential	predicted amidase and lipoprotein	-0.05
b0868	ybjS	Isolate 1	non-essential	predicted NAD(P)H oxidoreductase with NAD(P)-binding Rossmann-fold domain	-0.29
b0868	ybjS	Isolate 2	non-essential	predicted NAD(P)H oxidoreductase with NAD(P)-binding Rossmann-fold domain	1.87
b0869	ybjT	Isolate 1	non-essential	conserved protein with NAD(P)-binding Rossmann-fold domain	-0.16
b0869	ybjT	Isolate 2	non-essential	conserved protein with NAD(P)-binding Rossmann-fold domain	1.48
b0870	ltaE	Isolate 1	non-essential	L-allo-threonine aldolase, PLP-dependent	-0.40
b0870	ltaE	Isolate 2	non-essential	L-allo-threonine aldolase, PLP-dependent	0.21
b0871	poxB	Isolate 1	non-essential	pyruvate dehydrogenase (pyruvate oxidase), thiamin-dependent, FAD-binding	-2.78
b0871	poxB	Isolate 2	non-essential	pyruvate dehydrogenase (pyruvate oxidase), thiamin-dependent, FAD-binding	-1.29
b0872	hcr	Isolate 1	non-essential	HCP oxidoreductase, NADH-dependent	1.31
b0872	hcr	Isolate 2	non-essential	HCP oxidoreductase, NADH-dependent	0.60
b0873	hcp	Isolate 1	non-essential	hybrid-cluster [4Fe-2S-2O] protein in anaerobic terminal reductases	0.10
b0873	hcp	Isolate 2	non-essential	hybrid-cluster [4Fe-2S-2O] protein in anaerobic terminal reductases	1.21

b0874	ybjE	Isolate 1	non-essential	predicted transporter	-0.38
b0874	ybjE	Isolate 2	non-essential	predicted transporter	-0.92
b0875	aqpZ	Isolate 1	non-essential	aquaporin	0.13
b0875	aqpZ	Isolate 2	non-essential	aquaporin	-0.08
b0876	ybjD	Isolate 1	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	-1.31
b0876	ybjD	Isolate 2	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	-0.06
b0877	ybjX	Isolate 1	non-essential	conserved protein	-0.69
b0877	ybjX	Isolate 2	non-essential	conserved protein	0.21
b0878	macA	Isolate 1	non-essential	macrolide transporter subunit, membrane fusion protein (MFP) component	1.13
b0878	macA	Isolate 2	non-essential	macrolide transporter subunit, membrane fusion protein (MFP) component	-0.07
b0879	macB	Isolate 1	non-essential	fused macrolide transporter subunits -!- ATP-binding component and membrane component of ABC superfamily	1.00
b0879	macB	Isolate 2	non-essential	fused macrolide transporter subunits -!- ATP-binding component and membrane component of ABC superfamily	0.08
b0880	cspD	Isolate 1	non-essential	cold shock protein homolog	-1.05
b0880	cspD	Isolate 2	non-essential	cold shock protein homolog	1.62
b0881	clpS	Isolate 1	non-essential	regulatory protein for ClpA substrate specificity	-0.60
b0881	clpS	Isolate 2	non-essential	regulatory protein for ClpA substrate specificity	-0.57
b0882	clpA	Isolate 1	non-essential	ATPase and specificity subunit of ClpA-ClpP ATP-dependent serine protease, chaperone activity	-1.33
b0882	clpA	Isolate 2	non-essential	ATPase and specificity subunit of ClpA-ClpP ATP-dependent serine protease, chaperone activity	-0.56
b0884	infA	Isolate 1	essential	translation initiation factor IF-1	-0.25
b0885	aat	Isolate 1	non-essential	leucyl/phenylalanyl-tRNA-protein transferase	0.52
b0885	aat	Isolate 2	non-essential	leucyl/phenylalanyl-tRNA-protein transferase	1.81
b0886	cydC	Isolate 1	essential	fused cysteine transporter subunits -!- membrane component and ATP-binding component of ABC superfamily	-0.08
b0887	cydD	Isolate 1	non-essential	fused cysteine transporter subunits -!- membrane component and ATP-binding component of ABC superfamily	-0.11
b0887	cydD	Isolate 2	non-essential	fused cysteine transporter subunits -!- membrane component and ATP-binding component of ABC superfamily	-1.32
b0888	trxB	Isolate 1	non-essential	thioredoxin reductase, FAD/NAD(P)-binding	3.00
b0888	trxB	Isolate 2	non-essential	thioredoxin reductase, FAD/NAD(P)-binding	-0.72
b0889	lrp	Isolate 1	non-essential	DNA-binding transcriptional dual regulator, leucine-binding	0.56
b0889	lrp	Isolate 2	non-essential	DNA-binding transcriptional dual regulator, leucine-binding	1.20
b0890	ftsK	Isolate 1	essential	DNA-binding membrane protein required for chromosome resolution and partitioning	-1.41
b0891	lolA	Isolate 1	essential	chaperone for lipoproteins	-2.25
b0892	ycaJ	Isolate 1	non-essential	recombination protein	0.39
b0892	ycaJ	Isolate 2	non-essential	recombination protein	-0.90
b0893	serS	Isolate 1	essential	seryl-tRNA synthetase, also charges selenocysteinyl-tRNA with serine	-1.68
b0894	dmsA	Isolate 1	non-essential	dimethyl sulfoxide reductase, anaerobic, subunit A	-2.03
b0894	dmsA	Isolate 2	non-essential	dimethyl sulfoxide reductase, anaerobic, subunit A	1.45
b0895	dmsB	Isolate 1	non-essential	dimethyl sulfoxide reductase, anaerobic, subunit B	-2.36
b0895	dmsB	Isolate 2	non-essential	dimethyl sulfoxide reductase, anaerobic, subunit B	-0.15
b0896	dmsC	Isolate 1	non-essential	dimethyl sulfoxide reductase, anaerobic, subunit C	-1.95
b0896	dmsC	Isolate 2	non-essential	dimethyl sulfoxide reductase, anaerobic, subunit C	0.96
b0897	ycaC	Isolate 1	non-essential	predicted hydrolase	-0.40
b0897	ycaC	Isolate 2	non-essential	predicted hydrolase	-0.90
b0898	ycaD	Isolate 1	non-essential	predicted transporter	1.38
b0898	ycaD	Isolate 2	non-essential	predicted transporter	-0.09

b0899	ycaM	Isolate 1	non-essential	predicted transporter	0.64
b0899	ycaM	Isolate 2	non-essential	predicted transporter	-0.09
b0900	ycaN	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	2.78
b0900	ycaN	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.69
b0901	ycaK	Isolate 1	non-essential	conserved protein	0.30
b0901	ycaK	Isolate 2	non-essential	conserved protein	1.30
b0902	pflA	Isolate 1	non-essential	pyruvate formate lyase activating enzyme 1	0.45
b0902	pflA	Isolate 2	non-essential	pyruvate formate lyase activating enzyme 1	2.39
b0903	pflB	Isolate 1	non-essential	pyruvate formate lyase I	2.00
b0903	pflB	Isolate 2	non-essential	pyruvate formate lyase I	2.27
b0904	focA	Isolate 1	non-essential	formate transporter	-0.44
b0904	focA	Isolate 2	non-essential	formate transporter	-0.43
b0905	ycaO	Isolate 1	non-essential	conserved protein	0.91
b0905	ycaO	Isolate 2	non-essential	conserved protein	0.88
b0906	ycaP	Isolate 1	non-essential	conserved inner membrane protein	-1.46
b0906	ycaP	Isolate 2	non-essential	conserved inner membrane protein	-0.46
b0907	serC	Isolate 1	non-essential	3-phosphoserine/phosphohydroxythreonine aminotransferase	3.84
b0907	serC	Isolate 2	non-essential	3-phosphoserine/phosphohydroxythreonine aminotransferase	-0.40
b0908	aroA	Isolate 1	non-essential	5-enolpyruvylshikimate-3-phosphate synthetase	-1.25
b0908	aroA	Isolate 2	non-essential	5-enolpyruvylshikimate-3-phosphate synthetase	-0.94
b0909	ycaL	Isolate 1	non-essential	predicted peptidase with chaperone function	1.13
b0909	ycaL	Isolate 2	non-essential	predicted peptidase with chaperone function	0.95
b0910	cmk	Isolate 1	non-essential	cytidylate kinase	3.06
b0910	cmk	Isolate 2	non-essential	cytidylate kinase	-0.27
b0912	ihfB	Isolate 1	non-essential	integration host factor (IHF), DNA-binding protein, beta subunit	1.76
b0912	ihfB	Isolate 2	non-essential	integration host factor (IHF), DNA-binding protein, beta subunit	2.35
b0913	ycaI	Isolate 1	non-essential	conserved inner membrane protein	0.15
b0913	ycaI	Isolate 2	non-essential	conserved inner membrane protein	-4.61
b0916	ycaQ	Isolate 1	non-essential	conserved protein	1.80
b0916	ycaQ	Isolate 2	non-essential	conserved protein	-0.28
b0917	ycaR	Isolate 1	non-essential	conserved protein	1.53
b0917	ycaR	Isolate 2	non-essential	conserved protein	-2.61
b0918	kdsB	Isolate 1	essential	3-deoxy-manno-octulosonate cytidyltransferase	-1.40
b0919	ycbJ	Isolate 1	non-essential	conserved protein	0.72
b0919	ycbJ	Isolate 2	non-essential	conserved protein	0.38
b0920	ycbC	Isolate 1	non-essential	conserved inner membrane protein	1.98
b0920	ycbC	Isolate 2	non-essential	conserved inner membrane protein	-0.01
b0921	smtA	Isolate 1	non-essential	S-adenosylmethionine-dependent methyltransferase	1.73
b0921	smtA	Isolate 2	non-essential	S-adenosylmethionine-dependent methyltransferase	-0.72
b0922	mukF	Isolate 1	essential	Involved in chromosome partitioning, Ca <sup>2+</sup> binding protein	12.47
b0923	mukE	Isolate 1	essential	protein involved in chromosome partitioning	0.39
b0924	mukB	Isolate 1	essential	fused chromosome partitioning proteins	-4.26
b0925	ycbB	Isolate 1	non-essential	predicted carboxypeptidase	0.31

b0925	ycbB	Isolate 2	non-essential	predicted carboxypeptidase	1.00
b0926	ycbK	Isolate 1	non-essential	conserved protein	-0.34
b0926	ycbK	Isolate 2	non-essential	conserved protein	-1.49
b0927	ycbL	Isolate 1	non-essential	predicted metal-binding enzyme	-0.13
b0927	ycbL	Isolate 2	non-essential	predicted metal-binding enzyme	-0.16
b0928	aspC	Isolate 1	non-essential	aspartate aminotransferase, PLP-dependent	0.75
b0928	aspC	Isolate 2	non-essential	aspartate aminotransferase, PLP-dependent	1.81
b0929	ompF	Isolate 1	non-essential	outer membrane porin 1a (Ia;b;F)	0.84
b0929	ompF	Isolate 2	non-essential	outer membrane porin 1a (Ia;b;F)	-1.08
b0931	pncB	Isolate 1	non-essential	nicotinate phosphoribosyltransferase	1.99
b0931	pncB	Isolate 2	non-essential	nicotinate phosphoribosyltransferase	2.40
b0932	pepN	Isolate 1	non-essential	aminopeptidase N	-0.01
b0932	pepN	Isolate 2	non-essential	aminopeptidase N	0.71
b0933	ssuB	Isolate 1	non-essential	alkanesulfonate transporter subunit -!- ATP-binding component of ABC superfamily	-0.90
b0933	ssuB	Isolate 2	non-essential	alkanesulfonate transporter subunit -!- ATP-binding component of ABC superfamily	-1.53
b0934	ssuC	Isolate 1	non-essential	alkanesulfonate transporter subunit -!- membrane component of ABC superfamily	-0.68
b0934	ssuC	Isolate 2	non-essential	alkanesulfonate transporter subunit -!- membrane component of ABC superfamily	0.69
b0935	ssuD	Isolate 1	non-essential	alkanesulfonate monooxygenase, FMNH(2)-dependent	1.00
b0935	ssuD	Isolate 2	non-essential	alkanesulfonate monooxygenase, FMNH(2)-dependent	1.86
b0936	ssuA	Isolate 1	non-essential	alkanesulfonate transporter subunit -!- periplasmic-binding component of ABC superfamily	0.10
b0936	ssuA	Isolate 2	non-essential	alkanesulfonate transporter subunit -!- periplasmic-binding component of ABC superfamily	1.31
b0937	ssuE	Isolate 1	non-essential	NAD(P)H-dependent FMN reductase	-0.21
b0937	ssuE	Isolate 2	non-essential	NAD(P)H-dependent FMN reductase	2.26
b0938	ycbQ	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	0.88
b0938	ycbQ	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	0.25
b0939	ycbR	Isolate 1	non-essential	predicted periplasmic pilin chaperone	-1.14
b0939	ycbR	Isolate 2	non-essential	predicted periplasmic pilin chaperone	0.23
b0940	ycbS	Isolate 1	non-essential	predicted outer membrane usher protein	1.87
b0940	ycbS	Isolate 2	non-essential	predicted outer membrane usher protein	2.59
b0941	ycbT	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	-1.25
b0941	ycbT	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	-0.10
b0942	ycbU	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	1.19
b0942	ycbU	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	-0.10
b0943	ycbV	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	-2.15
b0943	ycbV	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	-2.18
b0944	ycbF	Isolate 1	non-essential	predicted periplasmic pilini chaperone	1.22
b0944	ycbF	Isolate 2	non-essential	predicted periplasmic pilini chaperone	0.28
b0945	pyrD	Isolate 1	non-essential	dihydro-orotate oxidase, FMN-linked	-3.24
b0945	pyrD	Isolate 2	non-essential	dihydro-orotate oxidase, FMN-linked	-0.48
b0946	ycbW	Isolate 1	non-essential	predicted protein	0.36
b0946	ycbW	Isolate 2	non-essential	predicted protein	1.05
b0947	ycbX	Isolate 1	non-essential	predicted 2Fe-2S cluster-containing protein	-1.78
b0947	ycbX	Isolate 2	non-essential	predicted 2Fe-2S cluster-containing protein	-1.53

b0948	ycbY	Isolate 1	non-essential	predicted methyltransferase	-0.45
b0948	ycbY	Isolate 2	non-essential	predicted methyltransferase	1.53
b0949	uup	Isolate 1	non-essential	fused predicted transporter subunits -!- ATP-binding components of ABC superfamily	1.48
b0949	uup	Isolate 2	non-essential	fused predicted transporter subunits -!- ATP-binding components of ABC superfamily	-0.37
b0950	pqiA	Isolate 1	non-essential	paraquat-inducible membrane protein A	0.47
b0950	pqiA	Isolate 2	non-essential	paraquat-inducible membrane protein A	1.82
b0951	pqiB	Isolate 1	non-essential	paraquat-inducible protein B	1.56
b0951	pqiB	Isolate 2	non-essential	paraquat-inducible protein B	2.16
b0952	ymbA	Isolate 1	non-essential	conserved protein	0.44
b0952	ymbA	Isolate 2	non-essential	conserved protein	1.83
b0953	rmf	Isolate 1	non-essential	ribosome modulation factor	1.20
b0953	rmf	Isolate 2	non-essential	ribosome modulation factor	1.10
b0954	fabA	Isolate 1	essential	beta-hydroxydecanoyl thioester dehydrase	-3.42
b0955	ycbZ	Isolate 1	non-essential	predicted peptidase	-0.14
b0955	ycbZ	Isolate 2	non-essential	predicted peptidase	0.44
b0956	ycbG	Isolate 1	non-essential	conserved protein	3.06
b0956	ycbG	Isolate 2	non-essential	conserved protein	-0.29
b0957	ompA	Isolate 1	non-essential	outer membrane protein A (3a;II*;G;d)	0.41
b0957	ompA	Isolate 2	non-essential	outer membrane protein A (3a;II*;G;d)	-0.51
b0958	sulA	Isolate 1	non-essential	SOS cell division inhibitor	2.25
b0958	sulA	Isolate 2	non-essential	SOS cell division inhibitor	0.00
b0959	yccR	Isolate 1	non-essential	conserved protein	-2.74
b0959	yccR	Isolate 2	non-essential	conserved protein	-1.24
b0960	yccS	Isolate 1	non-essential	predicted inner membrane protein	0.95
b0960	yccS	Isolate 2	non-essential	predicted inner membrane protein	1.76
b0961	yccF	Isolate 1	non-essential	conserved inner membrane protein	-2.06
b0961	yccF	Isolate 2	non-essential	conserved inner membrane protein	-3.53
b0962	helD	Isolate 1	non-essential	DNA helicase IV	2.45
b0962	helD	Isolate 2	non-essential	DNA helicase IV	2.23
b0963	mgsA	Isolate 1	non-essential	methylglyoxal synthase	-0.31
b0963	mgsA	Isolate 2	non-essential	methylglyoxal synthase	0.36
b0964	yccT	Isolate 1	non-essential	conserved protein	-0.50
b0964	yccT	Isolate 2	non-essential	conserved protein	-2.51
b0965	yccU	Isolate 1	non-essential	predicted CoA-binding protein with NAD(P)-binding Rossmann-fold domain	2.10
b0965	yccU	Isolate 2	non-essential	predicted CoA-binding protein with NAD(P)-binding Rossmann-fold domain	-0.02
b0966	yccV	Isolate 1	non-essential	DNA-binding protein, hemimethylated	0.58
b0966	yccV	Isolate 2	non-essential	DNA-binding protein, hemimethylated	0.96
b0967	yccW	Isolate 1	non-essential	predicted methyltransferase	-0.56
b0967	yccW	Isolate 2	non-essential	predicted methyltransferase	1.85
b0968	yccX	Isolate 1	non-essential	predicted acylphosphatase	0.70
b0968	yccX	Isolate 2	non-essential	predicted acylphosphatase	0.94
b0969	yccK	Isolate 1	non-essential	predicted sulfite reductase subunit	-0.20
b0969	yccK	Isolate 2	non-essential	predicted sulfite reductase subunit	0.74



b0970	yccA	Isolate 1	non-essential	inner membrane protein	0.53
b0970	yccA	Isolate 2	non-essential	inner membrane protein	0.12
b0972	hyaA	Isolate 1	non-essential	hydrogenase 1, small subunit	-0.97
b0972	hyaA	Isolate 2	non-essential	hydrogenase 1, small subunit	0.03
b0973	hyaB	Isolate 1	non-essential	hydrogenase 1, large subunit	-0.81
b0973	hyaB	Isolate 2	non-essential	hydrogenase 1, large subunit	1.71
b0974	hyaC	Isolate 1	non-essential	hydrogenase 1, b-type cytochrome subunit	-0.23
b0974	hyaC	Isolate 2	non-essential	hydrogenase 1, b-type cytochrome subunit	-1.41
b0975	hyaD	Isolate 1	non-essential	protein involved in processing of HyaA and HyaB proteins	-1.28
b0975	hyaD	Isolate 2	non-essential	protein involved in processing of HyaA and HyaB proteins	-13.06
b0976	hyaE	Isolate 1	non-essential	protein involved in processing of HyaA and HyaB proteins	-0.42
b0976	hyaE	Isolate 2	non-essential	protein involved in processing of HyaA and HyaB proteins	-0.17
b0977	hyaF	Isolate 1	non-essential	protein involved in nickel incorporation into hydrogenase-1 proteins	-1.79
b0977	hyaF	Isolate 2	non-essential	protein involved in nickel incorporation into hydrogenase-1 proteins	-0.04
b0978	appC	Isolate 1	non-essential	cytochrome bd-II oxidase, subunit I	-1.11
b0978	appC	Isolate 2	non-essential	cytochrome bd-II oxidase, subunit I	0.71
b0979	appB	Isolate 1	non-essential	cytochrome bd-II oxidase, subunit II	0.82
b0979	appB	Isolate 2	non-essential	cytochrome bd-II oxidase, subunit II	-0.22
b0979.1	*	Isolate 1	*	*	0.55
b0979.1	*	Isolate 2	*	*	0.21
b0980	appA	Isolate 1	non-essential	phosphoanhydride phosphorylase	-0.18
b0980	appA	Isolate 2	non-essential	phosphoanhydride phosphorylase	0.13
b0981	yccC	Isolate 1	non-essential	cryptic autophosphorylating protein tyrosine kinase Etk	1.81
b0981	yccC	Isolate 2	non-essential	cryptic autophosphorylating protein tyrosine kinase Etk	0.13
b0982	etp	Isolate 1	non-essential	phosphotyrosine-protein phosphatase	-0.71
b0982	etp	Isolate 2	non-essential	phosphotyrosine-protein phosphatase	-0.22
b0983	yccZ	Isolate 1	non-essential	predicted exopolysaccharide export protein	0.95
b0983	yccZ	Isolate 2	non-essential	predicted exopolysaccharide export protein	-0.44
b0984	ymcA	Isolate 1	non-essential	conserved protein	0.96
b0984	ymcA	Isolate 2	non-essential	conserved protein	0.16
b0985	ymcB	Isolate 1	non-essential	conserved protein	-0.57
b0985	ymcB	Isolate 2	non-essential	conserved protein	0.82
b0986	ymcC	Isolate 1	non-essential	predicted outer membrane lipoprotein	-0.78
b0986	ymcC	Isolate 2	non-essential	predicted outer membrane lipoprotein	-0.22
b0987	ymcD	Isolate 1	non-essential	predicted protein	0.84
b0987	ymcD	Isolate 2	non-essential	predicted protein	0.05
b0989	cspH	Isolate 1	non-essential	stress protein, member of the CspA-family	-0.06
b0989	cspH	Isolate 2	non-essential	stress protein, member of the CspA-family	-0.33
b0990	cspG	Isolate 1	non-essential	DNA-binding transcriptional regulator	-0.09
b0990	cspG	Isolate 2	non-essential	DNA-binding transcriptional regulator	-0.09
b0991	ymcE	Isolate 1	non-essential	cold shock gene	0.70
b0991	ymcE	Isolate 2	non-essential	cold shock gene	0.65
b0992	yccM	Isolate 1	non-essential	predicted 4Fe-4S membrane protein	0.54

b0992	yccM	Isolate 2	non-essential	predicted 4Fe-4S membrane protein	0.61
b0993	torS	Isolate 1	non-essential	hybrid sensory histidine kinase in two-component regulatory system with TorR	0.25
b0993	torS	Isolate 2	non-essential	hybrid sensory histidine kinase in two-component regulatory system with TorR	0.84
b0994	torT	Isolate 1	non-essential	periplasmic sensory protein associated with the TorRS two-component regulatory system	3.32
b0994	torT	Isolate 2	non-essential	periplasmic sensory protein associated with the TorRS two-component regulatory system	-0.16
b0995	torR	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with TorS	1.82
b0995	torR	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with TorS	0.23
b0996	torC	Isolate 1	non-essential	trimethylamine N-oxide (TMAO) reductase I, cytochrome c-type subunit	0.78
b0996	torC	Isolate 2	non-essential	trimethylamine N-oxide (TMAO) reductase I, cytochrome c-type subunit	0.69
b0997	torA	Isolate 1	non-essential	trimethylamine N-oxide (TMAO) reductase I, catalytic subunit	-0.28
b0997	torA	Isolate 2	non-essential	trimethylamine N-oxide (TMAO) reductase I, catalytic subunit	-0.72
b0998	torD	Isolate 1	non-essential	chaperone involved in maturation of TorA subunit of trimethylamine N-oxide reductase system I	2.39
b0998	torD	Isolate 2	non-essential	chaperone involved in maturation of TorA subunit of trimethylamine N-oxide reductase system I	2.17
b0999	cbpM	Isolate 1	non-essential	modulator of CbpA co-chaperone	1.33
b0999	cbpM	Isolate 2	non-essential	modulator of CbpA co-chaperone	-0.37
b1000	cbpA	Isolate 1	non-essential	curved DNA-binding protein, DnaJ homologue that functions as a co-chaperone of DnaK	0.49
b1000	cbpA	Isolate 2	non-essential	curved DNA-binding protein, DnaJ homologue that functions as a co-chaperone of DnaK	-1.12
b1001	yccE	Isolate 1	non-essential	predicted protein	-0.40
b1001	yccE	Isolate 2	non-essential	predicted protein	0.96
b1002	agp	Isolate 1	non-essential	glucose-1-phosphatase/inositol phosphatase	2.38
b1002	agp	Isolate 2	non-essential	glucose-1-phosphatase/inositol phosphatase	2.61
b1003	yccJ	Isolate 1	non-essential	predicted protein	1.46
b1003	yccJ	Isolate 2	non-essential	predicted protein	0.21
b1004	wrbA	Isolate 1	non-essential	predicted flavoprotein in Trp regulation	-0.07
b1004	wrbA	Isolate 2	non-essential	predicted flavoprotein in Trp regulation	0.98
b1006	ycdG	Isolate 1	non-essential	predicted transporter	-0.69
b1006	ycdG	Isolate 2	non-essential	predicted transporter	-0.65
b1007	ycdH	Isolate 1	non-essential	predicted oxidoreductase, flavin:NADH component	0.31
b1007	ycdH	Isolate 2	non-essential	predicted oxidoreductase, flavin:NADH component	-0.12
b1008	ycdI	Isolate 1	non-essential	predicted oxidoreductase	1.44
b1008	ycdI	Isolate 2	non-essential	predicted oxidoreductase	-0.77
b1009	rarA	Isolate 1	non-essential	predicted hydrolase	0.19
b1009	rarA	Isolate 2	non-essential	predicted hydrolase	-0.14
b1010	ycdK	Isolate 1	non-essential	conserved protein	0.99
b1010	ycdK	Isolate 2	non-essential	conserved protein	-0.81
b1011	ycdL	Isolate 1	non-essential	predicted enzyme	0.19
b1011	ycdL	Isolate 2	non-essential	predicted enzyme	-0.48
b1012	ycdM	Isolate 1	non-essential	predicted monooxygenase	-0.29
b1012	ycdM	Isolate 2	non-essential	predicted monooxygenase	0.21
b1013	ycdC	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.33
b1013	ycdC	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.91
b1014	putA	Isolate 1	non-essential	fused DNA-binding transcriptional regulator -!- proline dehydrogenase -!- pyrroline-5-carboxylate dehydrogenase	0.13
b1014	putA	Isolate 2	non-essential	fused DNA-binding transcriptional regulator -!- proline dehydrogenase -!- pyrroline-5-carboxylate dehydrogenase	0.10

b1015	putP	Isolate 1	non-essential	proline:sodium symporter	0.63
b1015	putP	Isolate 2	non-essential	proline:sodium symporter	-0.16
b1016	ycdN	Isolate 1	*	predicted protein, N-ter fragment (pseudogene)	-2.19
b1016	ycdN	Isolate 2	*	predicted protein, N-ter fragment (pseudogene)	0.74
b1018	ycdO	Isolate 1	non-essential	conserved protein	-0.06
b1018	ycdO	Isolate 2	non-essential	conserved protein	1.56
b1019	ycdB	Isolate 1	non-essential	conserved protein	-1.86
b1019	ycdB	Isolate 2	non-essential	conserved protein	0.62
b1020	phoH	Isolate 1	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	0.00
b1020	phoH	Isolate 2	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	0.63
b1021	ycdP	Isolate 1	non-essential	predicted inner membrane protein	-0.76
b1021	ycdP	Isolate 2	non-essential	predicted inner membrane protein	0.39
b1022	ycdQ	Isolate 1	non-essential	predicted glycosyl transferase	2.83
b1022	ycdQ	Isolate 2	non-essential	predicted glycosyl transferase	0.47
b1023	ycdR	Isolate 1	non-essential	predicted enzyme associated with biofilm formation	-0.01
b1023	ycdR	Isolate 2	non-essential	predicted enzyme associated with biofilm formation	-0.19
b1024	ycdS	Isolate 1	non-essential	predicted outer membrane protein	-1.50
b1024	ycdS	Isolate 2	non-essential	predicted outer membrane protein	-0.49
b1025	ycdT	Isolate 1	non-essential	predicted diguanylate cyclase	0.20
b1025	ycdT	Isolate 2	non-essential	predicted diguanylate cyclase	0.91
b1028	ymdE	Isolate 1	*	predicted protein (pseudogene)	0.95
b1028	ymdE	Isolate 2	*	predicted protein (pseudogene)	2.23
b1029	ycdU	Isolate 1	non-essential	predicted inner membrane protein	0.19
b1029	ycdU	Isolate 2	non-essential	predicted inner membrane protein	0.36
b1033	ycdW	Isolate 1	non-essential	2-ketoacid reductase	0.47
b1033	ycdW	Isolate 2	non-essential	2-ketoacid reductase	-3.17
b1034	ycdX	Isolate 1	non-essential	predicted zinc-binding hydrolase	-0.67
b1034	ycdX	Isolate 2	non-essential	predicted zinc-binding hydrolase	0.51
b1035	ycdY	Isolate 1	non-essential	conserved protein	0.90
b1035	ycdY	Isolate 2	non-essential	conserved protein	0.57
b1036	ycdZ	Isolate 1	non-essential	predicted inner membrane protein	0.20
b1036	ycdZ	Isolate 2	non-essential	predicted inner membrane protein	-0.06
b1037	csgG	Isolate 1	non-essential	outer membrane lipoprotein	0.08
b1037	csgG	Isolate 2	non-essential	outer membrane lipoprotein	-0.34
b1038	csgF	Isolate 1	non-essential	predicted transport protein	-0.98
b1038	csgF	Isolate 2	non-essential	predicted transport protein	0.26
b1039	csgE	Isolate 1	non-essential	predicted transport protein	1.23
b1039	csgE	Isolate 2	non-essential	predicted transport protein	2.42
b1040	csgD	Isolate 1	non-essential	DNA-binding transcriptional activator in two-component regulatory system	1.57
b1040	csgD	Isolate 2	non-essential	DNA-binding transcriptional activator in two-component regulatory system	0.84
b1041	csgB	Isolate 1	non-essential	curlin nucleator protein, minor subunit in curli complex	0.25
b1041	csgB	Isolate 2	non-essential	curlin nucleator protein, minor subunit in curli complex	2.39
b1042	csgA	Isolate 1	non-essential	cryptic curlin major subunit	0.72

b1042	csgA	Isolate 2	non-essential	cryptic curlin major subunit	0.47
b1045	ymdB	Isolate 1	non-essential	conserved protein	1.25
b1045	ymdB	Isolate 2	non-essential	conserved protein	-0.85
b1046	ymdC	Isolate 1	non-essential	predicted hydrolase	2.54
b1046	ymdC	Isolate 2	non-essential	predicted hydrolase	3.02
b1047	mdoC	Isolate 1	non-essential	membrane protein required for modification of periplasmic glucan	3.56
b1047	mdoC	Isolate 2	non-essential	membrane protein required for modification of periplasmic glucan	1.67
b1048	mdoG	Isolate 1	non-essential	glucan biosynthesis protein, periplasmic	-0.86
b1048	mdoG	Isolate 2	non-essential	glucan biosynthesis protein, periplasmic	2.11
b1049	mdoH	Isolate 1	non-essential	glucan biosynthesis: glycosyl transferase	-1.06
b1049	mdoH	Isolate 2	non-essential	glucan biosynthesis: glycosyl transferase	4.01
b1050	yceK	Isolate 1	non-essential	predicted lipoprotein	0.64
b1050	yceK	Isolate 2	non-essential	predicted lipoprotein	-0.79
b1051	msyB	Isolate 1	non-essential	predicted protein	1.79
b1051	msyB	Isolate 2	non-essential	predicted protein	1.46
b1053	mdtG	Isolate 1	non-essential	predicted drug efflux system	2.08
b1053	mdtG	Isolate 2	non-essential	predicted drug efflux system	2.24
b1054	lpxL	Isolate 1	non-essential	lauryl-acyl carrier protein (ACP)-dependent acyltransferase	-0.70
b1054	lpxL	Isolate 2	non-essential	lauryl-acyl carrier protein (ACP)-dependent acyltransferase	-0.58
b1055	yceA	Isolate 1	non-essential	conserved protein	0.26
b1055	yceA	Isolate 2	non-essential	conserved protein	1.49
b1056	yceI	Isolate 1	non-essential	predicted protein	-0.60
b1056	yceI	Isolate 2	non-essential	predicted protein	-0.49
b1057	yceJ	Isolate 1	non-essential	predicted cytochrome b561	-0.10
b1057	yceJ	Isolate 2	non-essential	predicted cytochrome b561	0.07
b1058	yceO	Isolate 1	non-essential	predicted protein	-0.02
b1058	yceO	Isolate 2	non-essential	predicted protein	-0.16
b1059	solA	Isolate 1	non-essential	N-methyltryptophan oxidase, FAD-binding	-0.05
b1059	solA	Isolate 2	non-essential	N-methyltryptophan oxidase, FAD-binding	1.04
b1060	yceP	Isolate 1	non-essential	predicted protein	1.15
b1060	yceP	Isolate 2	non-essential	predicted protein	1.55
b1061	dinI	Isolate 1	non-essential	DNA damage-inducible protein I	0.45
b1061	dinI	Isolate 2	non-essential	DNA damage-inducible protein I	-0.34
b1062	pyrC	Isolate 1	non-essential	dihydro-orotase	0.23
b1062	pyrC	Isolate 2	non-essential	dihydro-orotase	-2.95
b1063	yceB	Isolate 1	non-essential	predicted lipoprotein	0.60
b1063	yceB	Isolate 2	non-essential	predicted lipoprotein	1.30
b1064	grxB	Isolate 1	non-essential	glutaredoxin 2 (Grx2)	1.27
b1064	grxB	Isolate 2	non-essential	glutaredoxin 2 (Grx2)	0.51
b1065	mdtH	Isolate 1	non-essential	predicted drug efflux system	-2.57
b1065	mdtH	Isolate 2	non-essential	predicted drug efflux system	-0.81
b1066	rimJ	Isolate 1	non-essential	ribosomal-protein-S5-alanine N-acetyltransferase	-0.15
b1066	rimJ	Isolate 2	non-essential	ribosomal-protein-S5-alanine N-acetyltransferase	3.18

b1067	yceH	Isolate 1	non-essential	conserved protein	1.52
b1067	yceH	Isolate 2	non-essential	conserved protein	1.25
b1068	mviM	Isolate 1	non-essential	predicted oxidoreductase, NAD(P)-binding Rossmann-fold domain	-0.59
b1068	mviM	Isolate 2	non-essential	predicted oxidoreductase, NAD(P)-binding Rossmann-fold domain	1.74
b1070	flgN	Isolate 1	non-essential	export chaperone for FlgK and FlgL	1.25
b1070	flgN	Isolate 2	non-essential	export chaperone for FlgK and FlgL	1.74
b1071	flgM	Isolate 1	non-essential	anti-sigma factor for FliA (sigma 28)	0.44
b1071	flgM	Isolate 2	non-essential	anti-sigma factor for FliA (sigma 28)	0.54
b1072	flgA	Isolate 1	non-essential	assembly protein for flagellar basal-body periplasmic P ring	0.67
b1072	flgA	Isolate 2	non-essential	assembly protein for flagellar basal-body periplasmic P ring	1.20
b1073	flgB	Isolate 1	non-essential	flagellar component of cell-proximal portion of basal-body rod	0.08
b1073	flgB	Isolate 2	non-essential	flagellar component of cell-proximal portion of basal-body rod	-0.55
b1074	flgC	Isolate 1	non-essential	flagellar component of cell-proximal portion of basal-body rod	-0.40
b1074	flgC	Isolate 2	non-essential	flagellar component of cell-proximal portion of basal-body rod	0.40
b1075	flgD	Isolate 1	non-essential	flagellar hook assembly protein	0.28
b1075	flgD	Isolate 2	non-essential	flagellar hook assembly protein	-0.07
b1076	flgE	Isolate 1	non-essential	flagellar hook protein	1.20
b1076	flgE	Isolate 2	non-essential	flagellar hook protein	1.59
b1077	flgF	Isolate 1	non-essential	flagellar component of cell-proximal portion of basal-body rod	1.70
b1077	flgF	Isolate 2	non-essential	flagellar component of cell-proximal portion of basal-body rod	1.93
b1078	flgG	Isolate 1	non-essential	flagellar component of cell-distal portion of basal-body rod	0.88
b1078	flgG	Isolate 2	non-essential	flagellar component of cell-distal portion of basal-body rod	0.20
b1079	flgH	Isolate 1	non-essential	flagellar protein of basal-body outer-membrane L ring	-2.81
b1079	flgH	Isolate 2	non-essential	flagellar protein of basal-body outer-membrane L ring	-0.41
b1080	flgI	Isolate 1	non-essential	predicted flagellar basal body protein	0.26
b1080	flgI	Isolate 2	non-essential	predicted flagellar basal body protein	0.47
b1081	flgJ	Isolate 1	non-essential	muramidase	-0.65
b1081	flgJ	Isolate 2	non-essential	muramidase	0.89
b1082	flgK	Isolate 1	non-essential	flagellar hook-filament junction protein 1	-0.93
b1082	flgK	Isolate 2	non-essential	flagellar hook-filament junction protein 1	0.15
b1083	flgL	Isolate 1	non-essential	flagellar hook-filament junction protein	-0.13
b1083	flgL	Isolate 2	non-essential	flagellar hook-filament junction protein	-1.68
b1084	rne	Isolate 1	essential	fused ribonucleaseE endoribonuclease -!- scaffold for formation of degradosome	0.38
b1086	rluC	Isolate 1	non-essential	23S rRNA pseudouridylate synthase	-0.93
b1086	rluC	Isolate 2	non-essential	23S rRNA pseudouridylate synthase	3.03
b1087	yceF	Isolate 1	non-essential	predicted protein	-0.10
b1087	yceF	Isolate 2	non-essential	predicted protein	-0.31
b1088	yceD	Isolate 1	non-essential	conserved protein	-13.33
b1088	yceD	Isolate 2	non-essential	conserved protein	0.18
b1089	rpmF	Isolate 1	non-essential	50S ribosomal subunit protein L32	-1.10
b1089	rpmF	Isolate 2	non-essential	50S ribosomal subunit protein L32	1.72
b1090	plsX	Isolate 1	non-essential	fatty acid/phospholipid synthesis protein	-0.46
b1090	plsX	Isolate 2	non-essential	fatty acid/phospholipid synthesis protein	-1.10

b1091	fabH	Isolate 1	non-essential	3-oxoacyl-[acyl-carrier-protein] synthase III	-2.61
b1091	fabH	Isolate 2	non-essential	3-oxoacyl-[acyl-carrier-protein] synthase III	1.71
b1092	fabD	Isolate 1	essential	malonyl-CoA-[acyl-carrier-protein] transacylase	0.89
b1094	acpP	Isolate 1	essential	acyl carrier protein (ACP)	-3.40
b1095	fabF	Isolate 1	non-essential	3-oxoacyl-[acyl-carrier-protein] synthase II	-1.07
b1095	fabF	Isolate 2	non-essential	3-oxoacyl-[acyl-carrier-protein] synthase II	-1.18
b1096	pabC	Isolate 1	non-essential	4-amino-4-deoxychorismate lyase component of para-aminobenzoate synthase multienzyme complex	0.25
b1096	pabC	Isolate 2	non-essential	4-amino-4-deoxychorismate lyase component of para-aminobenzoate synthase multienzyme complex	0.93
b1097	yceG	Isolate 1	non-essential	predicted aminodeoxychorismate lyase	1.49
b1097	yceG	Isolate 2	non-essential	predicted aminodeoxychorismate lyase	-0.12
b1098	tmk	Isolate 1	essential	thymidylate kinase	2.56
b1099	holB	Isolate 1	essential	DNA polymerase III, delta prime subunit	-1.76
b1100	ycfH	Isolate 1	non-essential	predicted metallodependent hydrolase	-0.74
b1100	ycfH	Isolate 2	non-essential	predicted metallodependent hydrolase	1.56
b1101	ptsG	Isolate 1	non-essential	fused glucose-specific PTS enzyme IIBC components	1.41
b1101	ptsG	Isolate 2	non-essential	fused glucose-specific PTS enzyme IIBC components	-0.14
b1102	fhuE	Isolate 1	non-essential	ferric-rhodotorulic acid outer membrane transporter	0.60
b1102	fhuE	Isolate 2	non-essential	ferric-rhodotorulic acid outer membrane transporter	0.70
b1103	hinT	Isolate 1	non-essential	purine nucleoside phosphoramidase	-0.70
b1103	hinT	Isolate 2	non-essential	purine nucleoside phosphoramidase	-0.30
b1104	ycfL	Isolate 1	non-essential	predicted protein	0.27
b1104	ycfL	Isolate 2	non-essential	predicted protein	5.39
b1105	ycfM	Isolate 1	non-essential	predicted outer membrane lipoprotein	-0.36
b1105	ycfM	Isolate 2	non-essential	predicted outer membrane lipoprotein	-0.21
b1106	ycfN	Isolate 1	non-essential	thiamin kinase	0.39
b1106	ycfN	Isolate 2	non-essential	thiamin kinase	-1.32
b1107	nagZ	Isolate 1	non-essential	beta N-acetyl-glucosaminidase	0.41
b1107	nagZ	Isolate 2	non-essential	beta N-acetyl-glucosaminidase	0.77
b1108	ycfP	Isolate 1	non-essential	conserved protein	-0.80
b1108	ycfP	Isolate 2	non-essential	conserved protein	-0.66
b1109	ndh	Isolate 1	non-essential	respiratory NADH dehydrogenase 2/cupric reductase	1.00
b1109	ndh	Isolate 2	non-essential	respiratory NADH dehydrogenase 2/cupric reductase	2.28
b1110	ycfJ	Isolate 1	non-essential	predicted protein	0.08
b1110	ycfJ	Isolate 2	non-essential	predicted protein	-0.49
b1111	ycfQ	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.53
b1111	ycfQ	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.08
b1112	ycfR	Isolate 1	non-essential	predicted protein	-0.27
b1112	ycfR	Isolate 2	non-essential	predicted protein	2.26
b1113	ycfS	Isolate 1	non-essential	conserved protein	3.70
b1113	ycfS	Isolate 2	non-essential	conserved protein	1.57
b1114	mfd	Isolate 1	non-essential	transcription-repair coupling factor	1.51
b1114	mfd	Isolate 2	non-essential	transcription-repair coupling factor	0.73
b1115	ycfT	Isolate 1	non-essential	predicted inner membrane protein	0.44

b1115	ycfT	Isolate 2	non-essential	predicted inner membrane protein	2.00
b1119	ycfX	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	1.82
b1119	ycfX	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	1.49
b1120	cobB	Isolate 1	non-essential	deacetylase of acetyl-CoA synthetase, NAD-dependent	1.10
b1120	cobB	Isolate 2	non-essential	deacetylase of acetyl-CoA synthetase, NAD-dependent	-0.98
b1122	ymfA	Isolate 1	non-essential	predicted inner membrane protein	0.18
b1122	ymfA	Isolate 2	non-essential	predicted inner membrane protein	1.21
b1123	potD	Isolate 1	non-essential	polyamine transporter subunit -!- periplasmic-binding component of ABC superfamily	-1.60
b1123	potD	Isolate 2	non-essential	polyamine transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.44
b1124	potC	Isolate 1	non-essential	polyamine transporter subunit -!- membrane component of ABC superfamily	-0.09
b1124	potC	Isolate 2	non-essential	polyamine transporter subunit -!- membrane component of ABC superfamily	1.85
b1125	potB	Isolate 1	non-essential	polyamine transporter subunit -!- membrane component of ABC superfamily	3.39
b1125	potB	Isolate 2	non-essential	polyamine transporter subunit -!- membrane component of ABC superfamily	1.09
b1126	potA	Isolate 1	non-essential	polyamine transporter subunit -!- ATP-binding component of ABC superfamily	1.97
b1126	potA	Isolate 2	non-essential	polyamine transporter subunit -!- ATP-binding component of ABC superfamily	0.74
b1127	pepT	Isolate 1	non-essential	peptidase T	0.00
b1127	pepT	Isolate 2	non-essential	peptidase T	1.55
b1128	ycfD	Isolate 1	non-essential	conserved protein	0.33
b1128	ycfD	Isolate 2	non-essential	conserved protein	0.49
b1129	phoQ	Isolate 1	non-essential	sensory histidine kinase in two-compoent regulatory system with PhoP	0.44
b1129	phoQ	Isolate 2	non-essential	sensory histidine kinase in two-compoent regulatory system with PhoP	-8.35
b1130	phoP	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with PhoQ	1.78
b1130	phoP	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with PhoQ	0.64
b1131	purB	Isolate 1	essential	adenylosuccinate lyase	-2.67
b1132	hflD	Isolate 1	non-essential	predicted lysogenization regulator	0.64
b1132	hflD	Isolate 2	non-essential	predicted lysogenization regulator	0.46
b1133	trmU	Isolate 1	non-essential	tRNA (5-methylaminomethyl-2-thiouridylate)-methyltransferase	0.14
b1133	trmU	Isolate 2	non-essential	tRNA (5-methylaminomethyl-2-thiouridylate)-methyltransferase	2.12
b1134	ymfB	Isolate 1	non-essential	bifunctional thiamin pyrimidine pyrophosphate hydrolase -!- thiamin pyrophosphate hydrolase	1.46
b1134	ymfB	Isolate 2	non-essential	bifunctional thiamin pyrimidine pyrophosphate hydrolase -!- thiamin pyrophosphate hydrolase	0.95
b1135	ymfC	Isolate 1	non-essential	23S rRNA pseudouridine synthase	0.25
b1135	ymfC	Isolate 2	non-essential	23S rRNA pseudouridine synthase	0.32
b1136	icd	Isolate 1	non-essential	e14 prophage; isocitrate dehydrogenase, specific for NADP+	0.78
b1136	icd	Isolate 2	non-essential	e14 prophage; isocitrate dehydrogenase, specific for NADP+	1.19
b1137	ymfD	Isolate 1	non-essential	e14 prophage; predicted SAM-dependent methyltransferase	0.87
b1137	ymfD	Isolate 2	non-essential	e14 prophage; predicted SAM-dependent methyltransferase	0.24
b1138	ymfE	Isolate 1	non-essential	e14 prophage; predicted inner membrane protein	-0.03
b1138	ymfE	Isolate 2	non-essential	e14 prophage; predicted inner membrane protein	0.47
b1139	lit	Isolate 1	non-essential	e14 prophage; cell death peptidase, inhibitor of T4 late gene expression	1.97
b1139	lit	Isolate 2	non-essential	e14 prophage; cell death peptidase, inhibitor of T4 late gene expression	1.05
b1140	intE	Isolate 1	non-essential	e14 prophage; predicted integrase	3.97
b1140	intE	Isolate 2	non-essential	e14 prophage; predicted integrase	0.23
b1141	ymfG	Isolate 1	non-essential	e14 prophage; predicted excisionase	0.75

b1141	yfmG	Isolate 2	non-essential	e14 prophage; predicted excisionase	0.31
b1142	yfmH	Isolate 1	non-essential	e14 prophage; predicted protein	0.25
b1142	yfmH	Isolate 2	non-essential	e14 prophage; predicted protein	0.82
b1143	yfmI	Isolate 1	non-essential	e14 prophage; predicted protein	0.58
b1143	yfmI	Isolate 2	non-essential	e14 prophage; predicted protein	-1.06
b1144	yfmJ	Isolate 1	non-essential	e14 prophage; predicted protein	0.83
b1144	yfmJ	Isolate 2	non-essential	e14 prophage; predicted protein	-1.03
b1146	yfmT	Isolate 1	non-essential	e14 prophage; predicted DNA-binding transcriptional regulator	0.18
b1146	yfmT	Isolate 2	non-essential	e14 prophage; predicted DNA-binding transcriptional regulator	1.35
b1147	yfmL	Isolate 1	non-essential	e14 prophage; predicted DNA-binding transcriptional regulator	1.90
b1147	yfmL	Isolate 2	non-essential	e14 prophage; predicted DNA-binding transcriptional regulator	-0.04
b1148	yfmM	Isolate 1	non-essential	e14 prophage; predicted protein	0.15
b1148	yfmM	Isolate 2	non-essential	e14 prophage; predicted protein	-0.23
b1149	yfmN	Isolate 1	non-essential	e14 prophage; predicted DNA-binding transcriptional regulator	0.03
b1149	yfmN	Isolate 2	non-essential	e14 prophage; predicted DNA-binding transcriptional regulator	0.21
b1150	yfmR	Isolate 1	non-essential	e14 prophage; predicted protein	1.59
b1150	yfmR	Isolate 2	non-essential	e14 prophage; predicted protein	-0.11
b1151	yfmO	Isolate 1	non-essential	e14 prophage; conserved protein	-0.91
b1151	yfmO	Isolate 2	non-essential	e14 prophage; conserved protein	1.33
b1152	yfmP	Isolate 1	non-essential	e14 prophage; conserved protein	-1.16
b1152	yfmP	Isolate 2	non-essential	e14 prophage; conserved protein	-0.22
b1153	yfmQ	Isolate 1	non-essential	e14 prophage; conserved protein	0.52
b1153	yfmQ	Isolate 2	non-essential	e14 prophage; conserved protein	0.67
b1154	ycfK	Isolate 1	non-essential	e14 prophage; predicted protein	2.23
b1154	ycfK	Isolate 2	non-essential	e14 prophage; predicted protein	-1.00
b1155	yfmS	Isolate 1	non-essential	e14 prophage; predicted protein	-0.93
b1155	yfmS	Isolate 2	non-essential	e14 prophage; predicted protein	-0.33
b1156	tfaE	Isolate 1	non-essential	e14 prophage; predicted tail fiber assembly protein	0.75
b1156	tfaE	Isolate 2	non-essential	e14 prophage; predicted tail fiber assembly protein	0.52
b1157	stfE	Isolate 1	*	e14 prophage; predicted side tail fiber protein fragment (pseudogene)	1.45
b1157	stfE	Isolate 2	*	e14 prophage; predicted side tail fiber protein fragment (pseudogene)	0.83
b1158	pin	Isolate 1	non-essential	e14 prophage; site-specific DNA recombinase	0.27
b1158	pin	Isolate 2	non-essential	e14 prophage; site-specific DNA recombinase	0.62
b1159	mcrA	Isolate 1	non-essential	e14 prophage; 5-methylcytosine-specific restriction endonuclease B	0.17
b1159	mcrA	Isolate 2	non-essential	e14 prophage; 5-methylcytosine-specific restriction endonuclease B	0.77
b1160	elbA	Isolate 1	non-essential	predicted protein	1.02
b1160	elbA	Isolate 2	non-essential	predicted protein	1.79
b1161	ycgX	Isolate 1	non-essential	predicted protein	-0.76
b1161	ycgX	Isolate 2	non-essential	predicted protein	-1.59
b1162	ycgE	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.63
b1162	ycgE	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	1.36
b1163	ycgF	Isolate 1	non-essential	predicted FAD-binding phosphodiesterase	5.02
b1163	ycgF	Isolate 2	non-essential	predicted FAD-binding phosphodiesterase	1.30



b1164	ycgZ	Isolate 1	non-essential	predicted protein	1.02
b1164	ycgZ	Isolate 2	non-essential	predicted protein	-0.58
b1165	ymgA	Isolate 1	non-essential	predicted protein	0.67
b1165	ymgA	Isolate 2	non-essential	predicted protein	0.04
b1166	ymgB	Isolate 1	non-essential	predicted protein	0.04
b1166	ymgB	Isolate 2	non-essential	predicted protein	-1.16
b1167	ymgC	Isolate 1	non-essential	predicted protein	0.01
b1167	ymgC	Isolate 2	non-essential	predicted protein	1.62
b1168	ycgG	Isolate 1	non-essential	conserved inner membrane protein	0.44
b1168	ycgG	Isolate 2	non-essential	conserved inner membrane protein	-0.07
b1169	ycgH	Isolate 1	*	predicted protein, N-ter fragment (pseudogene)	2.00
b1169	ycgH	Isolate 2	*	predicted protein, N-ter fragment (pseudogene)	4.01
b1170	ycgH	Isolate 1	*	predicted protein, C-ter fragment (pseudogene)	-0.63
b1170	ycgH	Isolate 2	*	predicted protein, C-ter fragment (pseudogene)	1.08
b1171	ymgD	Isolate 1	non-essential	predicted protein	-0.69
b1171	ymgD	Isolate 2	non-essential	predicted protein	1.24
b1172	ymgG	Isolate 1	non-essential	predicted protein	0.43
b1172	ymgG	Isolate 2	non-essential	predicted protein	1.76
b1173	ycgI	Isolate 1	non-essential	predicted protein	-0.22
b1173	ycgI	Isolate 2	non-essential	predicted protein	0.44
b1176	minC	Isolate 1	non-essential	cell division inhibitor	1.35
b1176	minC	Isolate 2	non-essential	cell division inhibitor	0.22
b1177	ycgJ	Isolate 1	non-essential	predicted protein	0.20
b1177	ycgJ	Isolate 2	non-essential	predicted protein	0.81
b1178	ycgK	Isolate 1	non-essential	predicted protein	-3.09
b1178	ycgK	Isolate 2	non-essential	predicted protein	1.78
b1179	ycgL	Isolate 1	non-essential	conserved protein	0.83
b1179	ycgL	Isolate 2	non-essential	conserved protein	2.28
b1180	ycgM	Isolate 1	non-essential	predicted isomerase/hydrolase	-0.74
b1180	ycgM	Isolate 2	non-essential	predicted isomerase/hydrolase	-0.33
b1181	ycgN	Isolate 1	non-essential	conserved protein	1.30
b1181	ycgN	Isolate 2	non-essential	conserved protein	1.54
b1182	hlyE	Isolate 1	non-essential	hemolysin E	-0.05
b1182	hlyE	Isolate 2	non-essential	hemolysin E	0.09
b1183	umuD	Isolate 1	non-essential	DNA polymerase V, subunit D	-1.02
b1183	umuD	Isolate 2	non-essential	DNA polymerase V, subunit D	0.80
b1184	umuC	Isolate 1	non-essential	DNA polymerase V, subunit C	-0.24
b1184	umuC	Isolate 2	non-essential	DNA polymerase V, subunit C	0.23
b1185	dsbB	Isolate 1	non-essential	oxidoreductase that catalyzes reoxidation of DsbA protein disulfide isomerase I	-2.48
b1185	dsbB	Isolate 2	non-essential	oxidoreductase that catalyzes reoxidation of DsbA protein disulfide isomerase I	0.03
b1186	nhaB	Isolate 1	non-essential	sodium:proton antiporter	0.29
b1186	nhaB	Isolate 2	non-essential	sodium:proton antiporter	1.36
b1187	fadR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	-0.84

b1187	fadR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	0.78
b1188	ycgB	Isolate 1	non-essential	conserved protein	0.25
b1188	ycgB	Isolate 2	non-essential	conserved protein	-0.28
b1189	dadA	Isolate 1	non-essential	D-amino acid dehydrogenase	-0.49
b1189	dadA	Isolate 2	non-essential	D-amino acid dehydrogenase	-1.32
b1190	dadX	Isolate 1	non-essential	alanine racemase 2, PLP-binding	0.61
b1190	dadX	Isolate 2	non-essential	alanine racemase 2, PLP-binding	0.09
b1191	cvrA	Isolate 1	non-essential	predicted cation/proton antiporter	-0.29
b1191	cvrA	Isolate 2	non-essential	predicted cation/proton antiporter	-1.28
b1192	ldcA	Isolate 1	non-essential	L,D-carboxypeptidase A	-0.54
b1192	ldcA	Isolate 2	non-essential	L,D-carboxypeptidase A	-0.22
b1193	emtA	Isolate 1	non-essential	lytic murein endotransglycosylase E	1.29
b1193	emtA	Isolate 2	non-essential	lytic murein endotransglycosylase E	1.35
b1194	ycgR	Isolate 1	non-essential	protein involved in flagellar function	-0.63
b1194	ycgR	Isolate 2	non-essential	protein involved in flagellar function	1.38
b1195	ymgE	Isolate 1	non-essential	predicted inner membrane protein	-0.20
b1195	ymgE	Isolate 2	non-essential	predicted inner membrane protein	1.29
b1196	ycgY	Isolate 1	non-essential	predicted protein	0.90
b1196	ycgY	Isolate 2	non-essential	predicted protein	-0.82
b1197	treA	Isolate 1	non-essential	periplasmic trehalase	0.51
b1197	treA	Isolate 2	non-essential	periplasmic trehalase	1.37
b1198	dhaH	Isolate 1	non-essential	fused predicted dihydroxyacetone-specific PTS enzyme HPr component -!- EI component	1.56
b1198	dhaH	Isolate 2	non-essential	fused predicted dihydroxyacetone-specific PTS enzyme HPr component -!- EI component	0.23
b1199	dhaL	Isolate 1	non-essential	dihydroxyacetone kinase, C-terminal domain	1.94
b1199	dhaL	Isolate 2	non-essential	dihydroxyacetone kinase, C-terminal domain	-0.12
b1200	dhaK	Isolate 1	non-essential	dihydroxyacetone kinase, N-terminal domain	0.03
b1200	dhaK	Isolate 2	non-essential	dihydroxyacetone kinase, N-terminal domain	-0.28
b1201	dhaR	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator, dihydroxyacetone	-1.30
b1201	dhaR	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator, dihydroxyacetone	-2.17
b1202	ycgV	Isolate 1	non-essential	predicted adhesin	2.33
b1202	ycgV	Isolate 2	non-essential	predicted adhesin	0.59
b1203	ychF	Isolate 1	non-essential	predicted GTP-binding protein	0.38
b1203	ychF	Isolate 2	non-essential	predicted GTP-binding protein	0.78
b1204	pth	Isolate 1	essential	peptidyl-tRNA hydrolase	-0.45
b1205	ychH	Isolate 1	non-essential	predicted inner membrane protein	-9.11
b1205	ychH	Isolate 2	non-essential	predicted inner membrane protein	0.57
b1206	ychM	Isolate 1	non-essential	predicted transporter	1.29
b1206	ychM	Isolate 2	non-essential	predicted transporter	2.79
b1207	prsA	Isolate 1	essential	phosphoribosylpyrophosphate synthase	0.08
b1208	ispE	Isolate 1	essential	4-diphosphocytidyl-2-C-methylerythritol kinase	5.43
b1209	lolB	Isolate 1	essential	chaperone for lipoproteins	-1.58
b1211	prfA	Isolate 1	essential	peptide chain release factor RF-1	-0.47
b1213	ychQ	Isolate 1	non-essential	predicted transcriptional regulator	-1.17

b1213	ychQ	Isolate 2	non-essential	predicted transcriptional regulator	2.01
b1214	ychA	Isolate 1	non-essential	predicted transcriptional regulator	1.53
b1214	ychA	Isolate 2	non-essential	predicted transcriptional regulator	-1.12
b1215	kdsA	Isolate 1	essential	3-deoxy-D-manno-octulosonate 8-phosphate synthase	0.78
b1216	chaA	Isolate 1	non-essential	calcium/sodium:proton antiporter	2.68
b1216	chaA	Isolate 2	non-essential	calcium/sodium:proton antiporter	1.35
b1217	chaB	Isolate 1	non-essential	predicted cation regulator	0.19
b1217	chaB	Isolate 2	non-essential	predicted cation regulator	0.13
b1218	chaC	Isolate 1	non-essential	regulatory protein for cation transport	0.10
b1218	chaC	Isolate 2	non-essential	regulatory protein for cation transport	0.92
b1219	ychN	Isolate 1	non-essential	conserved protein	0.56
b1219	ychN	Isolate 2	non-essential	conserved protein	3.48
b1220	ychP	Isolate 1	non-essential	predicted invasin	1.78
b1220	ychP	Isolate 2	non-essential	predicted invasin	-0.18
b1221	narL	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with NarX (or NarQ)	0.00
b1221	narL	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with NarX (or NarQ)	0.81
b1222	narX	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory system with NarL	0.58
b1222	narX	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory system with NarL	0.40
b1223	narK	Isolate 1	non-essential	nitrate/nitrite transporter	0.92
b1223	narK	Isolate 2	non-essential	nitrate/nitrite transporter	1.33
b1224	narG	Isolate 1	non-essential	nitrate reductase 1, alpha subunit	0.32
b1224	narG	Isolate 2	non-essential	nitrate reductase 1, alpha subunit	-1.24
b1225	narH	Isolate 1	non-essential	nitrate reductase 1, beta (Fe-S) subunit	2.50
b1225	narH	Isolate 2	non-essential	nitrate reductase 1, beta (Fe-S) subunit	1.26
b1226	narJ	Isolate 1	non-essential	molybdenum-cofactor-assembly chaperone subunit (delta subunit) of nitrate reductase 1	-2.03
b1226	narJ	Isolate 2	non-essential	molybdenum-cofactor-assembly chaperone subunit (delta subunit) of nitrate reductase 1	-1.25
b1227	narI	Isolate 1	non-essential	nitrate reductase 1, gamma (cytochrome b(NR)) subunit	-0.07
b1227	narI	Isolate 2	non-essential	nitrate reductase 1, gamma (cytochrome b(NR)) subunit	0.26
b1229	tpr	Isolate 1	non-essential	predicted protamine-like protein	-1.94
b1229	tpr	Isolate 2	non-essential	predicted protamine-like protein	-1.75
b1232	purU	Isolate 1	non-essential	formyltetrahydrofolate hydrolase	0.76
b1232	purU	Isolate 2	non-essential	formyltetrahydrofolate hydrolase	1.27
b1233	ychJ	Isolate 1	non-essential	conserved protein	-1.64
b1233	ychJ	Isolate 2	non-essential	conserved protein	-0.33
b1234	rssA	Isolate 1	non-essential	conserved protein	-0.18
b1234	rssA	Isolate 2	non-essential	conserved protein	2.92
b1235	rssB	Isolate 1	non-essential	response regulator of RpoS	0.76
b1235	rssB	Isolate 2	non-essential	response regulator of RpoS	2.03
b1236	galU	Isolate 1	non-essential	glucose-1-phosphate uridylyltransferase	2.46
b1236	galU	Isolate 2	non-essential	glucose-1-phosphate uridylyltransferase	-1.66
b1237	hns	Isolate 1	non-essential	global DNA-binding transcriptional dual regulator H-NS	0.21
b1237	hns	Isolate 2	non-essential	global DNA-binding transcriptional dual regulator H-NS	0.82
b1238	tdk	Isolate 1	non-essential	thymidine kinase/deoxyuridine kinase	0.65

b1238	tdk	Isolate 2	non-essential	thymidine kinase/deoxyuridine kinase	-4.67
b1241	adhE	Isolate 1	non-essential	fused acetaldehyde-CoA dehydrogenase -!- iron-dependent alcohol dehydrogenase -!- pyruvate-formate lyase deactivase	0.44
b1241	adhE	Isolate 2	non-essential	fused acetaldehyde-CoA dehydrogenase -!- iron-dependent alcohol dehydrogenase -!- pyruvate-formate lyase deactivase	-0.42
b1242	ychE	Isolate 1	non-essential	predicted inner membrane protein	-0.45
b1242	ychE	Isolate 2	non-essential	predicted inner membrane protein	-0.18
b1243	oppA	Isolate 1	non-essential	oligopeptide transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.85
b1243	oppA	Isolate 2	non-essential	oligopeptide transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.14
b1244	oppB	Isolate 1	non-essential	oligopeptide transporter subunit -!- membrane component of ABC superfamily	1.18
b1244	oppB	Isolate 2	non-essential	oligopeptide transporter subunit -!- membrane component of ABC superfamily	0.88
b1245	oppC	Isolate 1	non-essential	oligopeptide transporter subunit -!- membrane component of ABC superfamily	0.06
b1245	oppC	Isolate 2	non-essential	oligopeptide transporter subunit -!- membrane component of ABC superfamily	0.69
b1246	oppD	Isolate 1	non-essential	oligopeptide transporter subunit -!- ATP-binding component of ABC superfamily	0.90
b1246	oppD	Isolate 2	non-essential	oligopeptide transporter subunit -!- ATP-binding component of ABC superfamily	1.35
b1247	oppF	Isolate 1	non-essential	oligopeptide transporter subunit -!- ATP-binding component of ABC superfamily	0.82
b1247	oppF	Isolate 2	non-essential	oligopeptide transporter subunit -!- ATP-binding component of ABC superfamily	2.57
b1248	yciU	Isolate 1	non-essential	predicted protein	-2.67
b1248	yciU	Isolate 2	non-essential	predicted protein	-0.47
b1249	cls	Isolate 1	non-essential	cardiolipin synthase 1	2.09
b1249	cls	Isolate 2	non-essential	cardiolipin synthase 1	0.47
b1250	kch	Isolate 1	non-essential	voltage-gated potassium channel	1.96
b1250	kch	Isolate 2	non-essential	voltage-gated potassium channel	2.50
b1251	yciI	Isolate 1	non-essential	predicted enzyme	0.74
b1251	yciI	Isolate 2	non-essential	predicted enzyme	-0.28
b1252	tonB	Isolate 1	non-essential	membrane spanning protein in TonB-ExbB-ExbD complex	-0.21
b1252	tonB	Isolate 2	non-essential	membrane spanning protein in TonB-ExbB-ExbD complex	-2.13
b1253	yciA	Isolate 1	non-essential	predicted hydrolase	0.28
b1253	yciA	Isolate 2	non-essential	predicted hydrolase	0.04
b1254	yciB	Isolate 1	non-essential	predicted inner membrane protein	1.19
b1254	yciB	Isolate 2	non-essential	predicted inner membrane protein	0.07
b1255	yciC	Isolate 1	non-essential	predicted inner membrane protein	-11.53
b1255	yciC	Isolate 2	non-essential	predicted inner membrane protein	0.03
b1256	ompW	Isolate 1	non-essential	outer membrane protein W	2.44
b1256	ompW	Isolate 2	non-essential	outer membrane protein W	-0.59
b1257	yciE	Isolate 1	non-essential	conserved protein	-0.73
b1257	yciE	Isolate 2	non-essential	conserved protein	-0.33
b1258	yciF	Isolate 1	non-essential	conserved protein	-0.16
b1258	yciF	Isolate 2	non-essential	conserved protein	0.09
b1259	yciG	Isolate 1	non-essential	predicted protein	-12.55
b1259	yciG	Isolate 2	non-essential	predicted protein	-0.19
b1260	trpA	Isolate 1	non-essential	tryptophan synthase, alpha subunit	1.60
b1260	trpA	Isolate 2	non-essential	tryptophan synthase, alpha subunit	1.28
b1261	trpB	Isolate 1	non-essential	tryptophan synthase, beta subunit	1.04
b1261	trpB	Isolate 2	non-essential	tryptophan synthase, beta subunit	0.07

b1262	trpC	Isolate 1	non-essential	fused indole-3-glycerolphosphate synthetase -!- N-(5-phosphoribosyl)anthranilate isomerase	0.87
b1262	trpC	Isolate 2	non-essential	fused indole-3-glycerolphosphate synthetase -!- N-(5-phosphoribosyl)anthranilate isomerase	-0.59
b1263	trpD	Isolate 1	non-essential	fused glutamine amidotransferase (component II) of anthranilate synthase -!- anthranilate phosphoribosyl transferase	4.69
b1263	trpD	Isolate 2	non-essential	fused glutamine amidotransferase (component II) of anthranilate synthase -!- anthranilate phosphoribosyl transferase	0.00
b1264	trpE	Isolate 1	non-essential	component I of anthranilate synthase	1.12
b1264	trpE	Isolate 2	non-essential	component I of anthranilate synthase	1.06
b1265	trpL	Isolate 1	non-essential	trp operon leader peptide	0.18
b1265	trpL	Isolate 2	non-essential	trp operon leader peptide	0.80
b1266	yciV	Isolate 1	non-essential	conserved protein	-1.14
b1266	yciV	Isolate 2	non-essential	conserved protein	0.13
b1267	yciO	Isolate 1	non-essential	conserved protein	-1.04
b1267	yciO	Isolate 2	non-essential	conserved protein	-0.52
b1268	yciQ	Isolate 1	non-essential	predicted inner membrane protein	0.48
b1268	yciQ	Isolate 2	non-essential	predicted inner membrane protein	1.95
b1269	rluB	Isolate 1	non-essential	23S rRNA pseudouridylate synthase	1.89
b1269	rluB	Isolate 2	non-essential	23S rRNA pseudouridylate synthase	0.02
b1270	btuR	Isolate 1	non-essential	cob(D)alamin adenolsyltransferase/cobinamide ATP-dependent adenolsyltransferase	1.58
b1270	btuR	Isolate 2	non-essential	cob(D)alamin adenolsyltransferase/cobinamide ATP-dependent adenolsyltransferase	1.02
b1271	yciK	Isolate 1	non-essential	predicted oxoacyl-(acyl carrier protein) reductase, EmrKY-TolC system	-0.52
b1271	yciK	Isolate 2	non-essential	predicted oxoacyl-(acyl carrier protein) reductase, EmrKY-TolC system	1.61
b1272	sohB	Isolate 1	non-essential	predicted inner membrane peptidase	-1.33
b1272	sohB	Isolate 2	non-essential	predicted inner membrane peptidase	1.28
b1273	yciN	Isolate 1	non-essential	predicted protein	0.37
b1273	yciN	Isolate 2	non-essential	predicted protein	2.04
b1274	topA	Isolate 1	essential	DNA topoisomerase I, omega subunit	-0.67
b1275	cysB	Isolate 1	non-essential	DNA-binding transcriptional dual regulator, O-acetyl-L-serine-binding	-2.25
b1275	cysB	Isolate 2	non-essential	DNA-binding transcriptional dual regulator, O-acetyl-L-serine-binding	1.26
b1275.1	*	Isolate 1	*	*	-0.85
b1275.1	*	Isolate 2	*	*	0.37
b1276	acnA	Isolate 1	non-essential	aconitate hydratase 1	1.41
b1276	acnA	Isolate 2	non-essential	aconitate hydratase 1	1.22
b1278	pgpB	Isolate 1	non-essential	phosphatidylglycerophosphate phosphatase B	2.26
b1278	pgpB	Isolate 2	non-essential	phosphatidylglycerophosphate phosphatase B	2.51
b1279	yciS	Isolate 1	non-essential	conserved inner membrane protein	1.05
b1279	yciS	Isolate 2	non-essential	conserved inner membrane protein	3.58
b1280	yciM	Isolate 1	non-essential	conserved protein	0.38
b1280	yciM	Isolate 2	non-essential	conserved protein	6.05
b1281	pyrF	Isolate 1	non-essential	orotidine-5'-phosphate decarboxylase	0.46
b1281	pyrF	Isolate 2	non-essential	orotidine-5'-phosphate decarboxylase	-1.67
b1282	yciH	Isolate 1	non-essential	conserved protein	-0.56
b1282	yciH	Isolate 2	non-essential	conserved protein	3.19
b1283	osmB	Isolate 1	non-essential	lipoprotein	-0.87
b1283	osmB	Isolate 2	non-essential	lipoprotein	-1.55

b1284	yciT	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	1.40
b1284	yciT	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.79
b1285	gmr	Isolate 1	non-essential	modulator of Rnase II stability	-0.59
b1285	gmr	Isolate 2	non-essential	modulator of Rnase II stability	-11.57
b1286	rnb	Isolate 1	non-essential	ribonuclease II	0.36
b1286	rnb	Isolate 2	non-essential	ribonuclease II	-0.60
b1287	yciW	Isolate 1	non-essential	predicted oxidoreductase	0.76
b1287	yciW	Isolate 2	non-essential	predicted oxidoreductase	1.59
b1288	fabI	Isolate 1	essential	enoyl-[acyl-carrier-protein] reductase, NADH-dependent	2.33
b1289	ycjD	Isolate 1	non-essential	conserved protein	-0.62
b1289	ycjD	Isolate 2	non-essential	conserved protein	-3.10
b1290	sapF	Isolate 1	non-essential	predicted antimicrobial peptide transporter subunit -!- ATP-binding component of ABC superfamily	3.35
b1290	sapF	Isolate 2	non-essential	predicted antimicrobial peptide transporter subunit -!- ATP-binding component of ABC superfamily	-2.62
b1291	sapD	Isolate 1	non-essential	predicted antimicrobial peptide transporter subunit -!- ATP-binding component of ABC superfamily	-1.62
b1291	sapD	Isolate 2	non-essential	predicted antimicrobial peptide transporter subunit -!- ATP-binding component of ABC superfamily	-0.37
b1292	sapC	Isolate 1	non-essential	predicted antimicrobial peptide transporter subunit -!- membrane component of ABC superfamily	-0.39
b1292	sapC	Isolate 2	non-essential	predicted antimicrobial peptide transporter subunit -!- membrane component of ABC superfamily	1.29
b1293	sapB	Isolate 1	non-essential	predicted antimicrobial peptide transporter subunit -!- membrane component of ABC superfamily	-1.41
b1293	sapB	Isolate 2	non-essential	predicted antimicrobial peptide transporter subunit -!- membrane component of ABC superfamily	2.23
b1294	sapA	Isolate 1	non-essential	predicted antimicrobial peptide transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.51
b1294	sapA	Isolate 2	non-essential	predicted antimicrobial peptide transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.16
b1295	ymjA	Isolate 1	non-essential	predicted protein	-0.02
b1295	ymjA	Isolate 2	non-essential	predicted protein	-0.91
b1296	puuP	Isolate 1	non-essential	putrescine importer	1.14
b1296	puuP	Isolate 2	non-essential	putrescine importer	-1.75
b1297	puuA	Isolate 1	non-essential	gamma-Glu-putrescine synthase	1.97
b1297	puuA	Isolate 2	non-essential	gamma-Glu-putrescine synthase	-0.67
b1298	puuD	Isolate 1	non-essential	gamma-Glu-GABA hydrolase	0.59
b1298	puuD	Isolate 2	non-essential	gamma-Glu-GABA hydrolase	0.25
b1299	puuR	Isolate 1	non-essential	DNA-binding transcriptional repressor	-0.32
b1299	puuR	Isolate 2	non-essential	DNA-binding transcriptional repressor	-0.37
b1300	puuC	Isolate 1	non-essential	gamma-Glu-gamma-aminobutyraldehyde dehydrogenase, NAD(P)H-dependent	-0.03
b1300	puuC	Isolate 2	non-essential	gamma-Glu-gamma-aminobutyraldehyde dehydrogenase, NAD(P)H-dependent	-0.18
b1301	puuB	Isolate 1	non-essential	gamma-Glu-putrescine oxidase, FAD/NAD(P)-binding	1.24
b1301	puuB	Isolate 2	non-essential	gamma-Glu-putrescine oxidase, FAD/NAD(P)-binding	-0.69
b1302	puuE	Isolate 1	non-essential	GABA aminotransferase, PLP-dependent	1.13
b1302	puuE	Isolate 2	non-essential	GABA aminotransferase, PLP-dependent	0.85
b1303	pspF	Isolate 1	non-essential	DNA-binding transcriptional activator	-1.66
b1303	pspF	Isolate 2	non-essential	DNA-binding transcriptional activator	1.75
b1304	pspA	Isolate 1	non-essential	regulatory protein for phage-shock-protein operon	-0.10
b1304	pspA	Isolate 2	non-essential	regulatory protein for phage-shock-protein operon	1.23
b1305	pspB	Isolate 1	non-essential	transcriptional regulator of psp operon	0.83
b1305	pspB	Isolate 2	non-essential	transcriptional regulator of psp operon	3.28

b1306	pspC	Isolate 1	non-essential	transcriptional activator	3.44
b1306	pspC	Isolate 2	non-essential	transcriptional activator	0.95
b1307	pspD	Isolate 1	non-essential	peripheral inner membrane phage-shock protein	3.13
b1307	pspD	Isolate 2	non-essential	peripheral inner membrane phage-shock protein	-1.80
b1308	pspE	Isolate 1	non-essential	thiosulfate:cyanide sulfurtransferase (rhodanese)	4.52
b1308	pspE	Isolate 2	non-essential	thiosulfate:cyanide sulfurtransferase (rhodanese)	3.01
b1309	ycjM	Isolate 1	non-essential	predicted glucosyltransferase	0.21
b1309	ycjM	Isolate 2	non-essential	predicted glucosyltransferase	-1.37
b1310	ycjN	Isolate 1	non-essential	predicted sugar transporter subunit -!- periplasmic-binding component of ABC superfamily	0.84
b1310	ycjN	Isolate 2	non-essential	predicted sugar transporter subunit -!- periplasmic-binding component of ABC superfamily	1.72
b1311	ycjO	Isolate 1	non-essential	predicted sugar transporter subunit -!- membrane component of ABC superfamily	0.09
b1311	ycjO	Isolate 2	non-essential	predicted sugar transporter subunit -!- membrane component of ABC superfamily	0.02
b1312	ycjP	Isolate 1	non-essential	predicted sugar transporter subunit -!- membrane component of ABC superfamily	-1.61
b1312	ycjP	Isolate 2	non-essential	predicted sugar transporter subunit -!- membrane component of ABC superfamily	1.58
b1313	ycjQ	Isolate 1	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	-0.18
b1313	ycjQ	Isolate 2	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	0.28
b1314	ycjR	Isolate 1	non-essential	predicted enzyme	-0.53
b1314	ycjR	Isolate 2	non-essential	predicted enzyme	3.78
b1315	ycjS	Isolate 1	non-essential	predicted oxidoreductase, NADH-binding	-0.85
b1315	ycjS	Isolate 2	non-essential	predicted oxidoreductase, NADH-binding	-0.90
b1316	ycjT	Isolate 1	non-essential	predicted hydrolase	0.85
b1316	ycjT	Isolate 2	non-essential	predicted hydrolase	0.31
b1317	ycjU	Isolate 1	non-essential	predicted beta-phosphoglucomutase	1.13
b1317	ycjU	Isolate 2	non-essential	predicted beta-phosphoglucomutase	-0.71
b1318	ycjV	Isolate 1	non-essential	predicted sugar transporter subunit -!- ATP-binding component of ABC superfamily	0.53
b1318	ycjV	Isolate 2	non-essential	predicted sugar transporter subunit -!- ATP-binding component of ABC superfamily	1.89
b1319	ompG	Isolate 1	non-essential	outer membrane porin	-1.02
b1319	ompG	Isolate 2	non-essential	outer membrane porin	0.18
b1320	ycjW	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.20
b1320	ycjW	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	1.69
b1321	ycjX	Isolate 1	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	0.45
b1321	ycjX	Isolate 2	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	0.18
b1322	ycjF	Isolate 1	non-essential	conserved inner membrane protein	-0.01
b1322	ycjF	Isolate 2	non-essential	conserved inner membrane protein	0.90
b1323	tyrR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator, tyrosine-binding	0.03
b1323	tyrR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator, tyrosine-binding	0.09
b1324	tpx	Isolate 1	non-essential	lipid hydroperoxide peroxidase	0.28
b1324	tpx	Isolate 2	non-essential	lipid hydroperoxide peroxidase	-0.06
b1325	ycjG	Isolate 1	non-essential	L-Ala-D/L-Glu epimerase	-0.25
b1325	ycjG	Isolate 2	non-essential	L-Ala-D/L-Glu epimerase	0.57
b1326	mpaA	Isolate 1	non-essential	murein peptide amidase A	-0.38
b1326	mpaA	Isolate 2	non-essential	murein peptide amidase A	-3.04
b1327	ycjY	Isolate 1	non-essential	predicted hydrolase	0.05

b1327	ycjY	Isolate 2	non-essential	predicted hydrolase	-0.38
b1328	ycjZ	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.75
b1328	ycjZ	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.06
b1329	mppA	Isolate 1	non-essential	murein tripeptide (L-ala-gamma-D-glutamyl-meso-DAP) transporter subunit -!- periplasmic-binding component of ABC superfam	1.06
b1329	mppA	Isolate 2	non-essential	murein tripeptide (L-ala-gamma-D-glutamyl-meso-DAP) transporter subunit -!- periplasmic-binding component of ABC superfam	0.23
b1330	ynaI	Isolate 1	non-essential	conserved inner membrane protein	1.06
b1330	ynaI	Isolate 2	non-essential	conserved inner membrane protein	-1.44
b1332	ynaJ	Isolate 1	non-essential	predicted inner membrane protein	0.16
b1332	ynaJ	Isolate 2	non-essential	predicted inner membrane protein	-2.17
b1333	uspE	Isolate 1	non-essential	stress-induced protein	1.28
b1333	uspE	Isolate 2	non-essential	stress-induced protein	1.47
b1334	fnr	Isolate 1	non-essential	DNA-binding transcriptional dual regulator, global regulator of anaerobic growth	-0.78
b1334	fnr	Isolate 2	non-essential	DNA-binding transcriptional dual regulator, global regulator of anaerobic growth	-1.64
b1335	ogt	Isolate 1	non-essential	O-6-alkylguanine-DNA:cysteine-protein methyltransferase	-0.95
b1335	ogt	Isolate 2	non-essential	O-6-alkylguanine-DNA:cysteine-protein methyltransferase	0.22
b1336	abgT	Isolate 1	non-essential	predicted cryptic aminobenzoyl-glutamate transporter	1.21
b1336	abgT	Isolate 2	non-essential	predicted cryptic aminobenzoyl-glutamate transporter	-0.23
b1337	abgB	Isolate 1	non-essential	predicted peptidase, aminobenzoyl-glutamate utilization protein	5.00
b1337	abgB	Isolate 2	non-essential	predicted peptidase, aminobenzoyl-glutamate utilization protein	2.20
b1338	abgA	Isolate 1	non-essential	predicted peptidase, aminobenzoyl-glutamate utilization protein	0.45
b1338	abgA	Isolate 2	non-essential	predicted peptidase, aminobenzoyl-glutamate utilization protein	0.30
b1339	abgR	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.22
b1339	abgR	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	1.42
b1340	ydaL	Isolate 1	non-essential	conserved protein	0.58
b1340	ydaL	Isolate 2	non-essential	conserved protein	0.94
b1341	ydaM	Isolate 1	non-essential	predicted diguanylate cyclase, GGDEF domain signalling protein	1.23
b1341	ydaM	Isolate 2	non-essential	predicted diguanylate cyclase, GGDEF domain signalling protein	-2.13
b1342	ydaN	Isolate 1	non-essential	predicted Zn(II) transporter	-1.69
b1342	ydaN	Isolate 2	non-essential	predicted Zn(II) transporter	0.37
b1343	dbpA	Isolate 1	non-essential	ATP-dependent RNA helicase specific for 23S rRNA	-2.67
b1343	dbpA	Isolate 2	non-essential	ATP-dependent RNA helicase specific for 23S rRNA	-1.67
b1344	ydaO	Isolate 1	non-essential	predicted C32 tRNA thiolase	0.05
b1344	ydaO	Isolate 2	non-essential	predicted C32 tRNA thiolase	-0.55
b1345	intR	Isolate 1	non-essential	Rac prophage; integrase	1.60
b1345	intR	Isolate 2	non-essential	Rac prophage; integrase	0.57
b1346	ydaQ	Isolate 1	non-essential	Rac prophage; conserved protein	0.11
b1346	ydaQ	Isolate 2	non-essential	Rac prophage; conserved protein	-0.02
b1347	ydaC	Isolate 1	non-essential	Rac prophage; predicted protein	0.64
b1347	ydaC	Isolate 2	non-essential	Rac prophage; predicted protein	-9.97
b1348	lar	Isolate 1	non-essential	Rac prophage; restriction alleviation protein	-0.43
b1348	lar	Isolate 2	non-essential	Rac prophage; restriction alleviation protein	-2.20
b1349	recT	Isolate 1	non-essential	Rac prophage; recombination and repair protein	0.92
b1349	recT	Isolate 2	non-essential	Rac prophage; recombination and repair protein	-0.39



b1350	recE	Isolate 1	non-essential	Rac prophage; exonuclease VIII, 5' -> 3' specific dsDNA exonuclease	-0.02
b1350	recE	Isolate 2	non-essential	Rac prophage; exonuclease VIII, 5' -> 3' specific dsDNA exonuclease	1.40
b1351	racC	Isolate 1	non-essential	Rac prophage; predicted protein	0.29
b1351	racC	Isolate 2	non-essential	Rac prophage; predicted protein	-1.98
b1352	kil	Isolate 1	non-essential	Rac prophage; inhibitor of ftsZ, killing protein	0.75
b1352	kil	Isolate 2	non-essential	Rac prophage; inhibitor of ftsZ, killing protein	2.58
b1353	sieB	Isolate 1	non-essential	Rac prophage; phage superinfection exclusion protein	-0.77
b1353	sieB	Isolate 2	non-essential	Rac prophage; phage superinfection exclusion protein	0.67
b1355	ydaG	Isolate 1	non-essential	Rac prophage; predicted protein	0.64
b1355	ydaG	Isolate 2	non-essential	Rac prophage; predicted protein	-0.37
b1357	ydaS	Isolate 1	non-essential	Rac prophage; predicted DNA-binding transcriptional regulator	0.37
b1357	ydaS	Isolate 2	non-essential	Rac prophage; predicted DNA-binding transcriptional regulator	1.96
b1358	ydaT	Isolate 1	non-essential	Rac prophage; predicted protein	-0.02
b1358	ydaT	Isolate 2	non-essential	Rac prophage; predicted protein	0.23
b1359	ydaU	Isolate 1	non-essential	Rac prophage; conserved protein	0.50
b1359	ydaU	Isolate 2	non-essential	Rac prophage; conserved protein	0.02
b1360	ydaV	Isolate 1	non-essential	Rac prophage; predicted DNA replication protein	0.27
b1360	ydaV	Isolate 2	non-essential	Rac prophage; predicted DNA replication protein	-0.31
b1361	ydaW	Isolate 1	non-essential	Rac prophage; predicted DNA-binding protein	0.48
b1361	ydaW	Isolate 2	non-essential	Rac prophage; predicted DNA-binding protein	2.41
b1362	rzpR	Isolate 1	non-essential	Rac prophage; predicted defective peptidase	-1.32
b1362	rzpR	Isolate 2	non-essential	Rac prophage; predicted defective peptidase	-1.12
b1363	trkG	Isolate 1	non-essential	Rac prophage; potassium transporter subunit	0.14
b1363	trkG	Isolate 2	non-essential	Rac prophage; potassium transporter subunit	-0.53
b1365	ynaK	Isolate 1	non-essential	Rac prophage; conserved protein	2.43
b1365	ynaK	Isolate 2	non-essential	Rac prophage; conserved protein	2.22
b1366	ydaY	Isolate 1	non-essential	Rac prophage; predicted protein	0.16
b1366	ydaY	Isolate 2	non-essential	Rac prophage; predicted protein	-0.26
b1368	ynaA	Isolate 1	non-essential	Rac prophage; predicted tail protein	1.62
b1368	ynaA	Isolate 2	non-essential	Rac prophage; predicted tail protein	0.25
b1371	lomR	Isolate 1	*	Rac prophage; predicted protein, C-ter fragment (pseudogene)	-0.05
b1371	lomR	Isolate 2	*	Rac prophage; predicted protein, C-ter fragment (pseudogene)	0.07
b1372	stfR	Isolate 1	non-essential	Rac prophage; predicted tail fiber protein	1.43
b1372	stfR	Isolate 2	non-essential	Rac prophage; predicted tail fiber protein	1.01
b1373	tfaR	Isolate 1	non-essential	Rac prophage; predicted tail fiber assembly protein	1.05
b1373	tfaR	Isolate 2	non-essential	Rac prophage; predicted tail fiber assembly protein	1.32
b1374	pinR	Isolate 1	non-essential	Rac prophage; predicted site-specific recombinase	-1.13
b1374	pinR	Isolate 2	non-essential	Rac prophage; predicted site-specific recombinase	-0.58
b1375	ynaE	Isolate 1	non-essential	Rac prophage; predicted DNA-binding transcriptional regulator	0.21
b1375	ynaE	Isolate 2	non-essential	Rac prophage; predicted DNA-binding transcriptional regulator	-0.63
b1376	uspF	Isolate 1	non-essential	stress-induced protein, ATP-binding protein	0.70
b1376	uspF	Isolate 2	non-essential	stress-induced protein, ATP-binding protein	0.44
b1377	ompN	Isolate 1	non-essential	outer membrane pore protein N, non-specific	1.19

b1377	ompN	Isolate 2	non-essential	outer membrane pore protein N, non-specific	-0.62
b1378	ydbK	Isolate 1	non-essential	fused predicted Fe-S subunit of pyruvate-flavodoxin oxidoreductase	0.58
b1378	ydbK	Isolate 2	non-essential	fused predicted Fe-S subunit of pyruvate-flavodoxin oxidoreductase	0.87
b1379	hslJ	Isolate 1	non-essential	heat-inducible protein	1.62
b1379	hslJ	Isolate 2	non-essential	heat-inducible protein	0.98
b1380	ldhA	Isolate 1	non-essential	fermentative D-lactate dehydrogenase, NAD-dependent	0.69
b1380	ldhA	Isolate 2	non-essential	fermentative D-lactate dehydrogenase, NAD-dependent	-0.55
b1381	ydbH	Isolate 1	non-essential	predicted protein	0.27
b1381	ydbH	Isolate 2	non-essential	predicted protein	0.60
b1382	ynbE	Isolate 1	non-essential	predicted lipoprotein	1.57
b1382	ynbE	Isolate 2	non-essential	predicted lipoprotein	1.86
b1383	ydbL	Isolate 1	non-essential	conserved protein	0.33
b1383	ydbL	Isolate 2	non-essential	conserved protein	1.08
b1384	feaR	Isolate 1	non-essential	DNA-binding transcriptional regulator	-1.01
b1384	feaR	Isolate 2	non-essential	DNA-binding transcriptional regulator	0.41
b1385	feaB	Isolate 1	non-essential	phenylacetaldehyde dehydrogenase	1.43
b1385	feaB	Isolate 2	non-essential	phenylacetaldehyde dehydrogenase	3.20
b1386	tynA	Isolate 1	non-essential	tyramine oxidase, copper-requiring	1.71
b1386	tynA	Isolate 2	non-essential	tyramine oxidase, copper-requiring	0.64
b1387	maoC	Isolate 1	non-essential	fused aldehyde dehydrogenase -!- enoyl-CoA hydratase	1.34
b1387	maoC	Isolate 2	non-essential	fused aldehyde dehydrogenase -!- enoyl-CoA hydratase	0.89
b1388	paaA	Isolate 1	non-essential	predicted multicomponent oxygenase/reductase subunit for phenylacetic acid degradation	1.92
b1388	paaA	Isolate 2	non-essential	predicted multicomponent oxygenase/reductase subunit for phenylacetic acid degradation	2.65
b1389	paaB	Isolate 1	non-essential	predicted multicomponent oxygenase/reductase subunit for phenylacetic acid degradation	0.75
b1389	paaB	Isolate 2	non-essential	predicted multicomponent oxygenase/reductase subunit for phenylacetic acid degradation	-0.46
b1390	paaC	Isolate 1	non-essential	predicted multicomponent oxygenase/reductase subunit for phenylacetic acid degradation	3.34
b1390	paaC	Isolate 2	non-essential	predicted multicomponent oxygenase/reductase subunit for phenylacetic acid degradation	0.77
b1391	paaD	Isolate 1	non-essential	predicted multicomponent oxygenase/reductase subunit for phenylacetic acid degradation	0.33
b1391	paaD	Isolate 2	non-essential	predicted multicomponent oxygenase/reductase subunit for phenylacetic acid degradation	0.27
b1392	paaE	Isolate 1	non-essential	predicted multicomponent oxygenase/reductase subunit for phenylacetic acid degradation	-0.95
b1392	paaE	Isolate 2	non-essential	predicted multicomponent oxygenase/reductase subunit for phenylacetic acid degradation	0.03
b1393	paaF	Isolate 1	non-essential	enoyl-CoA hydratase-isomerase	0.96
b1393	paaF	Isolate 2	non-essential	enoyl-CoA hydratase-isomerase	1.45
b1394	paaG	Isolate 1	non-essential	acyl-CoA hydratase	1.65
b1394	paaG	Isolate 2	non-essential	acyl-CoA hydratase	0.02
b1395	paaH	Isolate 1	non-essential	3-hydroxybutyryl-CoA dehydrogenase	0.89
b1395	paaH	Isolate 2	non-essential	3-hydroxybutyryl-CoA dehydrogenase	-0.89
b1396	paaI	Isolate 1	non-essential	predicted thioesterase	0.03
b1396	paaI	Isolate 2	non-essential	predicted thioesterase	-0.24
b1397	paaJ	Isolate 1	non-essential	predicted beta-ketoadipyl CoA thiolase	-0.67
b1397	paaJ	Isolate 2	non-essential	predicted beta-ketoadipyl CoA thiolase	-1.10
b1398	paaK	Isolate 1	non-essential	phenylacetyl-CoA ligase	-4.53
b1398	paaK	Isolate 2	non-essential	phenylacetyl-CoA ligase	1.70

b1399	paaX	Isolate 1	non-essential	DNA-binding transcriptional regulator, aryl-CoA responsive	1.91
b1399	paaX	Isolate 2	non-essential	DNA-binding transcriptional regulator, aryl-CoA responsive	0.58
b1400	paaY	Isolate 1	non-essential	predicted hexapeptide repeat acetyltransferase	-0.64
b1400	paaY	Isolate 2	non-essential	predicted hexapeptide repeat acetyltransferase	0.05
b1401	ydbA	Isolate 1	*	predicted outer membrane protein, N-ter fragment (pseudogene)	0.22
b1401	ydbA	Isolate 2	*	predicted outer membrane protein, N-ter fragment (pseudogene)	0.84
b1405	ydbA	Isolate 1	*	predicted outer membrane protein, C-ter fragment (pseudogene)	1.25
b1405	ydbA	Isolate 2	*	predicted outer membrane protein, C-ter fragment (pseudogene)	2.13
b1406	ydbC	Isolate 1	non-essential	predicted oxidoreductase, NAD(P)-binding	-0.92
b1406	ydbC	Isolate 2	non-essential	predicted oxidoreductase, NAD(P)-binding	-0.16
b1407	ydbD	Isolate 1	non-essential	predicted protein	0.32
b1407	ydbD	Isolate 2	non-essential	predicted protein	-0.04
b1408	ynbA	Isolate 1	non-essential	predicted inner membrane protein	3.51
b1408	ynbA	Isolate 2	non-essential	predicted inner membrane protein	0.64
b1409	ynbB	Isolate 1	non-essential	predicted CDP-diglyceride synthase	-0.53
b1409	ynbB	Isolate 2	non-essential	predicted CDP-diglyceride synthase	-1.32
b1410	ynbC	Isolate 1	non-essential	predicted hydrolase	-0.57
b1410	ynbC	Isolate 2	non-essential	predicted hydrolase	0.55
b1411	ynbD	Isolate 1	non-essential	predicted phosphatase, inner membrane protein	1.16
b1411	ynbD	Isolate 2	non-essential	predicted phosphatase, inner membrane protein	-0.18
b1412	azoR	Isolate 1	non-essential	NADH-azoreductase, FMN-dependent	-1.48
b1412	azoR	Isolate 2	non-essential	NADH-azoreductase, FMN-dependent	-0.01
b1413	hrpA	Isolate 1	non-essential	ATP-dependent helicase	1.90
b1413	hrpA	Isolate 2	non-essential	ATP-dependent helicase	0.32
b1414	ydcF	Isolate 1	non-essential	conserved protein	-1.10
b1414	ydcF	Isolate 2	non-essential	conserved protein	-0.25
b1415	aldA	Isolate 1	non-essential	aldehyde dehydrogenase A, NAD-linked	-1.16
b1415	aldA	Isolate 2	non-essential	aldehyde dehydrogenase A, NAD-linked	0.12
b1416	gapC	Isolate 1	*	glyceraldehyde-3-phosphate dehydrogenase C, N-ter fragment (pseudogene)	1.97
b1416	gapC	Isolate 2	*	glyceraldehyde-3-phosphate dehydrogenase C, N-ter fragment (pseudogene)	2.29
b1417	gapC	Isolate 1	*	glyceraldehyde-3-phosphate dehydrogenase C, C-ter fragment (pseudogene)	-1.27
b1417	gapC	Isolate 2	*	glyceraldehyde-3-phosphate dehydrogenase C, C-ter fragment (pseudogene)	-1.83
b1418	cybB	Isolate 1	non-essential	cytochrome b561	-0.29
b1418	cybB	Isolate 2	non-essential	cytochrome b561	-0.97
b1419	ydcA	Isolate 1	non-essential	predicted protein	0.64
b1419	ydcA	Isolate 2	non-essential	predicted protein	-1.45
b1421	trg	Isolate 1	non-essential	methyl-accepting chemotaxis protein III, ribose and galactose sensor receptor	0.09
b1421	trg	Isolate 2	non-essential	methyl-accepting chemotaxis protein III, ribose and galactose sensor receptor	2.29
b1422	ydcI	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	1.08
b1422	ydcI	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.99
b1423	ydcJ	Isolate 1	non-essential	conserved protein	0.84
b1423	ydcJ	Isolate 2	non-essential	conserved protein	-1.29
b1424	mdoD	Isolate 1	non-essential	glucan biosynthesis protein, periplasmic	1.13

b1424	mdoD	Isolate 2	non-essential	glucan biosynthesis protein, periplasmic	1.29
b1426	ydcH	Isolate 1	non-essential	predicted protein	0.70
b1426	ydcH	Isolate 2	non-essential	predicted protein	0.03
b1427	rimL	Isolate 1	non-essential	ribosomal-protein-L7/L12-serine acetyltransferase	1.64
b1427	rimL	Isolate 2	non-essential	ribosomal-protein-L7/L12-serine acetyltransferase	1.69
b1428	ydcK	Isolate 1	non-essential	predicted enzyme	1.74
b1428	ydcK	Isolate 2	non-essential	predicted enzyme	0.21
b1429	tehA	Isolate 1	non-essential	potassium-tellurite ethidium and proflavin transporter	0.86
b1429	tehA	Isolate 2	non-essential	potassium-tellurite ethidium and proflavin transporter	1.15
b1430	tehB	Isolate 1	non-essential	predicted S-adenosyl-L-methionine-dependent methyltransferase	2.64
b1430	tehB	Isolate 2	non-essential	predicted S-adenosyl-L-methionine-dependent methyltransferase	1.13
b1431	ydcL	Isolate 1	non-essential	predicted lipoprotein	0.89
b1431	ydcL	Isolate 2	non-essential	predicted lipoprotein	1.21
b1432	ydcM	Isolate 1	non-essential	predicted transposase	-1.09
b1432	ydcM	Isolate 2	non-essential	predicted transposase	0.78
b1433	ydcO	Isolate 1	non-essential	predicted benzoate transporter	1.10
b1433	ydcO	Isolate 2	non-essential	predicted benzoate transporter	0.62
b1434	ydcN	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.14
b1434	ydcN	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.88
b1435	ydcP	Isolate 1	non-essential	predicted peptidase	-0.15
b1435	ydcP	Isolate 2	non-essential	predicted peptidase	0.94
b1436	yncJ	Isolate 1	non-essential	predicted protein	1.03
b1436	yncJ	Isolate 2	non-essential	predicted protein	-0.10
b1438	ydcQ	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.51
b1438	ydcQ	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.03
b1439	ydcR	Isolate 1	non-essential	fused predicted DNA-binding transcriptional regulator -!- predicted amino transferase	-0.43
b1439	ydcR	Isolate 2	non-essential	fused predicted DNA-binding transcriptional regulator -!- predicted amino transferase	-0.73
b1440	ydcS	Isolate 1	non-essential	predicted spermidine/putrescine transporter subunit -!- periplasmic-binding component of ABC superfamily	1.56
b1440	ydcS	Isolate 2	non-essential	predicted spermidine/putrescine transporter subunit -!- periplasmic-binding component of ABC superfamily	0.48
b1441	ydcT	Isolate 1	non-essential	predicted spermidine/putrescine transporter subunit -!- ATP-binding component of ABC superfamily	1.05
b1441	ydcT	Isolate 2	non-essential	predicted spermidine/putrescine transporter subunit -!- ATP-binding component of ABC superfamily	0.98
b1442	ydcU	Isolate 1	non-essential	predicted spermidine/putrescine transporter subunit -!- membrane component of ABC superfamily	-2.13
b1442	ydcU	Isolate 2	non-essential	predicted spermidine/putrescine transporter subunit -!- membrane component of ABC superfamily	-0.84
b1443	ydcV	Isolate 1	non-essential	predicted spermidine/putrescine transporter subunit -!- membrane component of ABC superfamily	-0.21
b1443	ydcV	Isolate 2	non-essential	predicted spermidine/putrescine transporter subunit -!- membrane component of ABC superfamily	1.01
b1444	ydcW	Isolate 1	non-essential	medium chain aldehyde dehydrogenase	1.38
b1444	ydcW	Isolate 2	non-essential	medium chain aldehyde dehydrogenase	0.35
b1445	ydcX	Isolate 1	non-essential	predicted inner membrane protein	-0.67
b1445	ydcX	Isolate 2	non-essential	predicted inner membrane protein	-0.70
b1446	ydcY	Isolate 1	non-essential	predicted protein	2.77
b1446	ydcY	Isolate 2	non-essential	predicted protein	-1.63
b1447	ydcZ	Isolate 1	non-essential	predicted inner membrane protein	1.21
b1447	ydcZ	Isolate 2	non-essential	predicted inner membrane protein	-0.58

b1448	yncA	Isolate 1	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	-0.23
b1448	yncA	Isolate 2	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	2.32
b1449	yncB	Isolate 1	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	1.20
b1449	yncB	Isolate 2	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	1.34
b1450	yncC	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.27
b1450	yncC	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-2.45
b1451	yncD	Isolate 1	non-essential	predicted iron outer membrane transporter	-1.52
b1451	yncD	Isolate 2	non-essential	predicted iron outer membrane transporter	0.62
b1452	yncE	Isolate 1	non-essential	conserved protein	-0.01
b1452	yncE	Isolate 2	non-essential	conserved protein	0.78
b1453	ansP	Isolate 1	non-essential	L-asparagine transporter	-1.26
b1453	ansP	Isolate 2	non-essential	L-asparagine transporter	-0.30
b1454	yncG	Isolate 1	non-essential	predicted enzyme	-0.14
b1454	yncG	Isolate 2	non-essential	predicted enzyme	0.26
b1455	yncH	Isolate 1	non-essential	predicted protein	-0.17
b1455	yncH	Isolate 2	non-essential	predicted protein	0.75
b1456	rhsE	Isolate 1	non-essential	rhsE element core protein RshE	-0.01
b1456	rhsE	Isolate 2	non-essential	rhsE element core protein RshE	-0.29
b1457	ydcD	Isolate 1	non-essential	predicted protein	1.48
b1457	ydcD	Isolate 2	non-essential	predicted protein	0.96
b1458	yncI	Isolate 1	non-essential	predicted protein	1.15
b1458	yncI	Isolate 2	non-essential	predicted protein	2.45
b1459	yncM	Isolate 1	non-essential	predicted protein	0.02
b1459	yncM	Isolate 2	non-essential	predicted protein	0.83
b1460	ydcC	Isolate 1	non-essential	conserved protein	-0.70
b1460	ydcC	Isolate 2	non-essential	conserved protein	1.16
b1461	ydcE	Isolate 1	non-essential	4-oxalocrotonate tautomerase	7.44
b1461	ydcE	Isolate 2	non-essential	4-oxalocrotonate tautomerase	0.41
b1462	yddH	Isolate 1	non-essential	conserved protein	-0.45
b1462	yddH	Isolate 2	non-essential	conserved protein	0.11
b1463	nhoA	Isolate 1	non-essential	N-hydroxyarylamine O-acetyltransferase	4.61
b1463	nhoA	Isolate 2	non-essential	N-hydroxyarylamine O-acetyltransferase	0.37
b1464	yddE	Isolate 1	non-essential	conserved protein	0.49
b1464	yddE	Isolate 2	non-essential	conserved protein	1.17
b1465	narV	Isolate 1	non-essential	nitrate reductase 2 (NRZ), gamma subunit	0.36
b1465	narV	Isolate 2	non-essential	nitrate reductase 2 (NRZ), gamma subunit	0.58
b1466	narW	Isolate 1	non-essential	nitrate reductase 2 (NRZ), delta subunit (assembly subunit)	0.86
b1466	narW	Isolate 2	non-essential	nitrate reductase 2 (NRZ), delta subunit (assembly subunit)	1.76
b1467	narY	Isolate 1	non-essential	nitrate reductase 2 (NRZ), beta subunit	0.98
b1467	narY	Isolate 2	non-essential	nitrate reductase 2 (NRZ), beta subunit	0.81
b1468	narZ	Isolate 1	non-essential	nitrate reductase 2 (NRZ), alpha subunit	-2.09
b1468	narZ	Isolate 2	non-essential	nitrate reductase 2 (NRZ), alpha subunit	1.15
b1469	narU	Isolate 1	non-essential	nitrate/nitrite transporter	-1.89

b1469	narU	Isolate 2	non-essential	nitrate/nitrite transporter	-0.23
b1470	yddJ	Isolate 1	non-essential	predicted protein	-0.94
b1470	yddJ	Isolate 2	non-essential	predicted protein	-2.19
b1471	yddK	Isolate 1	non-essential	predicted protein	0.43
b1471	yddK	Isolate 2	non-essential	predicted protein	0.58
b1472	yddL	Isolate 1	non-essential	predicted lipoprotein	1.24
b1472	yddL	Isolate 2	non-essential	predicted lipoprotein	-0.33
b1473	yddG	Isolate 1	non-essential	predicted methyl viologen efflux pump	-0.85
b1473	yddG	Isolate 2	non-essential	predicted methyl viologen efflux pump	1.15
b1474	fdnG	Isolate 1	non-essential	formate dehydrogenase-N, alpha subunit, nitrate-inducible	-0.35
b1474	fdnG	Isolate 2	non-essential	formate dehydrogenase-N, alpha subunit, nitrate-inducible	1.45
b1475	fdnH	Isolate 1	non-essential	formate dehydrogenase-N, Fe-S (beta) subunit, nitrate-inducible	-0.17
b1475	fdnH	Isolate 2	non-essential	formate dehydrogenase-N, Fe-S (beta) subunit, nitrate-inducible	-0.54
b1476	fdnI	Isolate 1	non-essential	formate dehydrogenase-N, cytochrome B556 (gamma) subunit, nitrate-inducible	-0.40
b1476	fdnI	Isolate 2	non-essential	formate dehydrogenase-N, cytochrome B556 (gamma) subunit, nitrate-inducible	-2.77
b1477	yddM	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-2.00
b1477	yddM	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.52
b1478	adhP	Isolate 1	non-essential	alcohol dehydrogenase, 1-propanol preferring	0.95
b1478	adhP	Isolate 2	non-essential	alcohol dehydrogenase, 1-propanol preferring	2.45
b1479	sfcA	Isolate 1	non-essential	malate dehydrogenase, NAD-requiring (malic enzyme)	0.26
b1479	sfcA	Isolate 2	non-essential	malate dehydrogenase, NAD-requiring (malic enzyme)	0.49
b1480	sra	Isolate 1	non-essential	30S ribosomal subunit protein S22	0.98
b1481	bdm	Isolate 1	non-essential	biofilm-dependent modulation protein	-0.06
b1481	bdm	Isolate 2	non-essential	biofilm-dependent modulation protein	-0.30
b1482	osmC	Isolate 1	non-essential	osmotically inducible, stress-inducible membrane protein	0.77
b1482	osmC	Isolate 2	non-essential	osmotically inducible, stress-inducible membrane protein	-1.41
b1483	ddpF	Isolate 1	non-essential	D-Ala-D-Ala transporter subunit -!- ATP-binding component of ABC superfamily	0.67
b1483	ddpF	Isolate 2	non-essential	D-Ala-D-Ala transporter subunit -!- ATP-binding component of ABC superfamily	-0.49
b1484	ddpD	Isolate 1	non-essential	D-Ala-D-Ala transporter subunit -!- ATP-binding component of ABC superfamily	0.54
b1484	ddpD	Isolate 2	non-essential	D-Ala-D-Ala transporter subunit -!- ATP-binding component of ABC superfamily	-0.79
b1485	ddpC	Isolate 1	non-essential	D-Ala-D-Ala transporter subunit -!- membrane component of ABC superfamily	-0.62
b1485	ddpC	Isolate 2	non-essential	D-Ala-D-Ala transporter subunit -!- membrane component of ABC superfamily	1.36
b1486	ddpB	Isolate 1	non-essential	D-Ala-D-Ala transporter subunit -!- membrane component of ABC superfamily	0.62
b1486	ddpB	Isolate 2	non-essential	D-Ala-D-Ala transporter subunit -!- membrane component of ABC superfamily	0.67
b1487	ddpA	Isolate 1	non-essential	D-Ala-D-Ala transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.69
b1487	ddpA	Isolate 2	non-essential	D-Ala-D-Ala transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.86
b1488	ddpX	Isolate 1	non-essential	D-Ala-D-Ala dipeptidase, Zn-dependent	-0.17
b1488	ddpX	Isolate 2	non-essential	D-Ala-D-Ala dipeptidase, Zn-dependent	1.81
b1489	dos	Isolate 1	non-essential	cAMP phosphodiesterase, heme-regulated	0.88
b1489	dos	Isolate 2	non-essential	cAMP phosphodiesterase, heme-regulated	2.08
b1490	yddV	Isolate 1	non-essential	predicted diguanylate cyclase	1.20
b1490	yddV	Isolate 2	non-essential	predicted diguanylate cyclase	0.29
b1491	yddW	Isolate 1	non-essential	predicted liprotein	-0.99

b1491	yddW	Isolate 2	non-essential	predicted lipoprotein	2.20
b1492	gadC	Isolate 1	non-essential	predicted glutamate:gamma-aminobutyric acid antiporter	1.82
b1492	gadC	Isolate 2	non-essential	predicted glutamate:gamma-aminobutyric acid antiporter	2.56
b1493	gadB	Isolate 1	non-essential	glutamate decarboxylase B, PLP-dependent	1.38
b1493	gadB	Isolate 2	non-essential	glutamate decarboxylase B, PLP-dependent	-0.69
b1494	pqqL	Isolate 1	non-essential	predicted peptidase	0.03
b1494	pqqL	Isolate 2	non-essential	predicted peptidase	0.67
b1495	yddB	Isolate 1	non-essential	predicted porin protein	0.80
b1495	yddB	Isolate 2	non-essential	predicted porin protein	-0.42
b1496	yddA	Isolate 1	non-essential	fused predicted multidrug transporter subunits -!- membrane component and ATP-binding component of ABC superfamily	-0.35
b1496	yddA	Isolate 2	non-essential	fused predicted multidrug transporter subunits -!- membrane component and ATP-binding component of ABC superfamily	2.44
b1497	ydeM	Isolate 1	non-essential	conserved protein	0.68
b1497	ydeM	Isolate 2	non-essential	conserved protein	1.70
b1498	ydeN	Isolate 1	non-essential	conserved protein	-0.66
b1498	ydeN	Isolate 2	non-essential	conserved protein	-0.80
b1499	ydeO	Isolate 1	non-essential	predicted DNA-binding transcriptional activator	0.59
b1499	ydeO	Isolate 2	non-essential	predicted DNA-binding transcriptional activator	-0.06
b1501	ydeP	Isolate 1	non-essential	predicted oxidoreductase	-0.08
b1501	ydeP	Isolate 2	non-essential	predicted oxidoreductase	-0.39
b1502	ydeQ	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	1.21
b1502	ydeQ	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	0.80
b1503	ydeR	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	1.12
b1503	ydeR	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	1.57
b1504	ydeS	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	-0.20
b1504	ydeS	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	1.50
b1505	ydeT	Isolate 1	non-essential	predicted protein	-1.97
b1505	ydeT	Isolate 2	non-essential	predicted protein	-1.62
b1506	yneL	Isolate 1	non-essential	predicted transcriptional regulator	1.40
b1506	yneL	Isolate 2	non-essential	predicted transcriptional regulator	0.62
b1507	hipA	Isolate 1	non-essential	regulator with hipB	-2.09
b1507	hipA	Isolate 2	non-essential	regulator with hipB	-0.89
b1508	hipB	Isolate 1	non-essential	DNA-binding transcriptional regulator	-0.65
b1508	hipB	Isolate 2	non-essential	DNA-binding transcriptional regulator	0.05
b1509	ydeU	Isolate 1	*	conserved protein, predicted pseudogene	-0.58
b1509	ydeU	Isolate 2	*	conserved protein, predicted pseudogene	-1.24
b1510	ydeK	Isolate 1	non-essential	predicted lipoprotein	-0.57
b1510	ydeK	Isolate 2	non-essential	predicted lipoprotein	1.02
b1511	ydeV	Isolate 1	non-essential	predicted sugar kinase	0.78
b1511	ydeV	Isolate 2	non-essential	predicted sugar kinase	0.32
b1512	ydeW	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-1.25
b1512	ydeW	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	1.29
b1513	ego	Isolate 1	non-essential	fused AI2 transporter subunits -!- ATP-binding components of ABC superfamily	0.63
b1513	ego	Isolate 2	non-essential	fused AI2 transporter subunits -!- ATP-binding components of ABC superfamily	-1.38

b1514	lsrC	Isolate 1	non-essential	AI2 transporter -!- membrane component of ABC superfamily	-1.19
b1514	lsrC	Isolate 2	non-essential	AI2 transporter -!- membrane component of ABC superfamily	-0.37
b1515	lsrD	Isolate 1	non-essential	AI2 transporter -!- membrane component of ABC superfamily	1.50
b1515.1	*	Isolate 1	*	*	1.13
b1516	lsrB	Isolate 1	non-essential	AI2 transporter -!- periplasmic-binding component of ABC superfamily	-0.58
b1516	lsrB	Isolate 2	non-essential	AI2 transporter -!- periplasmic-binding component of ABC superfamily	-0.13
b1517	lsrF	Isolate 1	non-essential	predicted aldolase	0.08
b1517	lsrF	Isolate 2	non-essential	predicted aldolase	-0.57
b1518	lsrG	Isolate 1	non-essential	conserved protein	-1.32
b1518	lsrG	Isolate 2	non-essential	conserved protein	0.57
b1519	tam	Isolate 1	non-essential	trans-aconitate methyltransferase	-1.98
b1519	tam	Isolate 2	non-essential	trans-aconitate methyltransferase	0.32
b1520	yneE	Isolate 1	non-essential	conserved inner membrane protein	-0.29
b1520	yneE	Isolate 2	non-essential	conserved inner membrane protein	-0.82
b1521	uxaB	Isolate 1	non-essential	altronate oxidoreductase, NAD-dependent	-1.66
b1521	uxaB	Isolate 2	non-essential	altronate oxidoreductase, NAD-dependent	-0.92
b1522	yneF	Isolate 1	non-essential	predicted diguanylate cyclase	-2.23
b1522	yneF	Isolate 2	non-essential	predicted diguanylate cyclase	-2.09
b1523	yneG	Isolate 1	non-essential	conserved protein	-0.58
b1523	yneG	Isolate 2	non-essential	conserved protein	2.29
b1524	yneH	Isolate 1	non-essential	predicted glutaminase	-0.31
b1524	yneH	Isolate 2	non-essential	predicted glutaminase	-0.45
b1525	yneI	Isolate 1	non-essential	predicted aldehyde dehydrogenase	1.09
b1525	yneI	Isolate 2	non-essential	predicted aldehyde dehydrogenase	-1.12
b1526	yneJ	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.65
b1526	yneJ	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.27
b1527	yneK	Isolate 1	non-essential	predicted protein	-1.37
b1527	yneK	Isolate 2	non-essential	predicted protein	-1.56
b1528	ydeA	Isolate 1	non-essential	predicted arabinose transporter	0.84
b1528	ydeA	Isolate 2	non-essential	predicted arabinose transporter	0.00
b1529	marC	Isolate 1	non-essential	predicted transporter	-2.55
b1529	marC	Isolate 2	non-essential	predicted transporter	0.68
b1530	marR	Isolate 1	non-essential	DNA-binding transcriptional repressor	-0.87
b1530	marR	Isolate 2	non-essential	DNA-binding transcriptional repressor	-0.47
b1531	marA	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	0.59
b1531	marA	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	0.81
b1532	marB	Isolate 1	non-essential	predicted protein	2.01
b1532	marB	Isolate 2	non-essential	predicted protein	1.98
b1533	eamA	Isolate 1	non-essential	cysteine and O-acetyl-L-serine efflux system	-2.40
b1533	eamA	Isolate 2	non-essential	cysteine and O-acetyl-L-serine efflux system	-0.45
b1534	ydeE	Isolate 1	non-essential	predicted transporter	0.12
b1534	ydeE	Isolate 2	non-essential	predicted transporter	-0.01
b1535	ydeH	Isolate 1	non-essential	conserved protein	0.58



b1535	ydeH	Isolate 2	non-essential	conserved protein	0.01
b1536	ydeI	Isolate 1	non-essential	conserved protein	1.44
b1536	ydeI	Isolate 2	non-essential	conserved protein	-0.05
b1537	ydeJ	Isolate 1	non-essential	conserved protein	-1.72
b1537	ydeJ	Isolate 2	non-essential	conserved protein	-0.53
b1538	dcp	Isolate 1	non-essential	dipeptidyl carboxypeptidase II	-0.87
b1538	dcp	Isolate 2	non-essential	dipeptidyl carboxypeptidase II	0.46
b1539	ydfG	Isolate 1	non-essential	L-allo-threonine dehydrogenase, NAD(P)-binding	-2.99
b1539	ydfG	Isolate 2	non-essential	L-allo-threonine dehydrogenase, NAD(P)-binding	-1.38
b1540	ydfH	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.81
b1540	ydfH	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.92
b1541	ydfZ	Isolate 1	non-essential	conserved protein	-1.58
b1541	ydfZ	Isolate 2	non-essential	conserved protein	-0.74
b1542	ydfI	Isolate 1	non-essential	predicted mannonate dehydrogenase	1.24
b1542	ydfI	Isolate 2	non-essential	predicted mannonate dehydrogenase	-0.72
b1543	ydfJ	Isolate 1	non-essential	predicted transporter	-0.32
b1543	ydfJ	Isolate 2	non-essential	predicted transporter	-0.04
b1545	pinQ	Isolate 1	non-essential	Qin prophage; predicted site-specific recombinase	0.13
b1545	pinQ	Isolate 2	non-essential	Qin prophage; predicted site-specific recombinase	1.96
b1546	tfaQ	Isolate 1	non-essential	Qin prophage; predicted tail fibre assembly protein	0.59
b1546	tfaQ	Isolate 2	non-essential	Qin prophage; predicted tail fibre assembly protein	1.79
b1547	stfQ	Isolate 1	non-essential	Qin prophage; predicted side tail fibre assembly protein	1.39
b1547	stfQ	Isolate 2	non-essential	Qin prophage; predicted side tail fibre assembly protein	1.62
b1548	nohA	Isolate 1	non-essential	Qin prophage; predicted packaging protein	-0.28
b1548	nohA	Isolate 2	non-essential	Qin prophage; predicted packaging protein	1.35
b1549	ydfO	Isolate 1	non-essential	Qin prophage; predicted protein	1.02
b1549	ydfO	Isolate 2	non-essential	Qin prophage; predicted protein	-2.91
b1550	gnsB	Isolate 1	non-essential	Qin prophage; predicted protein	-0.12
b1550	gnsB	Isolate 2	non-essential	Qin prophage; predicted protein	-1.68
b1551	ynfN	Isolate 1	non-essential	Qin prophage; predicted protein	1.25
b1551	ynfN	Isolate 2	non-essential	Qin prophage; predicted protein	-0.34
b1552	cspI	Isolate 1	non-essential	Qin prophage; cold shock protein	0.80
b1552	cspI	Isolate 2	non-essential	Qin prophage; cold shock protein	-0.13
b1553	ydfP	Isolate 1	non-essential	Qin prophage; conserved protein	1.21
b1553	ydfP	Isolate 2	non-essential	Qin prophage; conserved protein	1.52
b1554	ydfQ	Isolate 1	non-essential	Qin prophage; predicted lysozyme	-0.16
b1554	ydfQ	Isolate 2	non-essential	Qin prophage; predicted lysozyme	-0.25
b1555	ydfR	Isolate 1	non-essential	Qin prophage; predicted protein	-2.02
b1555	ydfR	Isolate 2	non-essential	Qin prophage; predicted protein	-0.95
b1556	essQ	Isolate 1	non-essential	Qin prophage; predicted S lysis protein	0.43
b1556	essQ	Isolate 2	non-essential	Qin prophage; predicted S lysis protein	1.67
b1557	cspB	Isolate 1	non-essential	Qin prophage; cold shock protein	1.13
b1557	cspB	Isolate 2	non-essential	Qin prophage; cold shock protein	0.60

b1558	cspF	Isolate 1	non-essential	Qin prophage; cold shock protein	1.26
b1558	cspF	Isolate 2	non-essential	Qin prophage; cold shock protein	3.22
b1559	ydfT	Isolate 1	non-essential	Qin prophage; predicted antitermination protein Q	-0.12
b1559	ydfT	Isolate 2	non-essential	Qin prophage; predicted antitermination protein Q	-0.46
b1560	ydfU	Isolate 1	non-essential	Qin prophage; predicted protein	-0.72
b1560	ydfU	Isolate 2	non-essential	Qin prophage; predicted protein	0.26
b1561	rem	Isolate 1	non-essential	Qin prophage; predicted protein	-0.52
b1561	rem	Isolate 2	non-essential	Qin prophage; predicted protein	-1.18
b1562	hokD	Isolate 1	non-essential	Qin prophage; small toxic polypeptide	-0.98
b1562	hokD	Isolate 2	non-essential	Qin prophage; small toxic polypeptide	-0.23
b1563	relE	Isolate 1	non-essential	Qin prophage; toxin of the RelE-RelB toxin-antitoxin system	-1.53
b1563	relE	Isolate 2	non-essential	Qin prophage; toxin of the RelE-RelB toxin-antitoxin system	-0.16
b1564	relB	Isolate 1	non-essential	Qin prophage; bifunctional antitoxin of the RelE-RelB toxin-antitoxin system -!- transcriptional repressor	-1.29
b1564	relB	Isolate 2	non-essential	Qin prophage; bifunctional antitoxin of the RelE-RelB toxin-antitoxin system -!- transcriptional repressor	-0.07
b1565	ydfV	Isolate 1	non-essential	Qin prophage; predicted protein	-0.95
b1565	ydfV	Isolate 2	non-essential	Qin prophage; predicted protein	-0.83
b1566	flxA	Isolate 1	non-essential	Qin prophage; predicted protein	0.14
b1566	flxA	Isolate 2	non-essential	Qin prophage; predicted protein	0.82
b1567	ydfW	Isolate 1	non-essential	Qin prophage; predicted protein	-1.09
b1567	ydfW	Isolate 2	non-essential	Qin prophage; predicted protein	-0.30
b1568	ydfX	Isolate 1	non-essential	Qin prophage; predicted protein	0.38
b1568	ydfX	Isolate 2	non-essential	Qin prophage; predicted protein	-0.81
b1569	dicC	Isolate 1	non-essential	Qin prophage; DNA-binding transcriptional regulator	-3.75
b1569	dicC	Isolate 2	non-essential	Qin prophage; DNA-binding transcriptional regulator	-1.59
b1571	ydfA	Isolate 1	non-essential	Qin prophage; predicted protein	-1.18
b1571	ydfA	Isolate 2	non-essential	Qin prophage; predicted protein	1.03
b1573	ydfC	Isolate 1	non-essential	Qin prophage; predicted protein	-1.30
b1573	ydfC	Isolate 2	non-essential	Qin prophage; predicted protein	0.06
b1575	dicB	Isolate 1	non-essential	Qin prophage; cell division inhibition protein	-1.64
b1575	dicB	Isolate 2	non-essential	Qin prophage; cell division inhibition protein	-0.95
b1576	ydfD	Isolate 1	non-essential	Qin prophage; predicted protein	-1.00
b1576	ydfD	Isolate 2	non-essential	Qin prophage; predicted protein	-0.94
b1577	ydfE	Isolate 1	non-essential	Qin prophage; predicted protein	-0.21
b1577	ydfE	Isolate 2	non-essential	Qin prophage; predicted protein	-2.10
b1579	intQ	Isolate 1	non-essential	Qin prophage; predicted defective integrase	-1.91
b1579	intQ	Isolate 2	non-essential	Qin prophage; predicted defective integrase	0.91
b1580	rspB	Isolate 1	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	0.61
b1580	rspB	Isolate 2	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	1.37
b1581	rspA	Isolate 1	non-essential	predicted dehydratase	1.67
b1581	rspA	Isolate 2	non-essential	predicted dehydratase	1.05
b1582	ynfA	Isolate 1	non-essential	conserved inner membrane protein	-1.51
b1582	ynfA	Isolate 2	non-essential	conserved inner membrane protein	-1.31
b1583	ynfB	Isolate 1	non-essential	predicted protein	0.59

b1583	ynfB	Isolate 2	non-essential	predicted protein	-0.19
b1584	speG	Isolate 1	non-essential	spermidine N1-acetyltransferase	0.71
b1584	speG	Isolate 2	non-essential	spermidine N1-acetyltransferase	1.85
b1585	ynfC	Isolate 1	non-essential	predicted protein	-0.58
b1585	ynfC	Isolate 2	non-essential	predicted protein	-0.10
b1586	ynfD	Isolate 1	non-essential	predicted protein	0.64
b1586	ynfD	Isolate 2	non-essential	predicted protein	0.49
b1587	ynfE	Isolate 1	non-essential	oxidoreductase subunit	2.22
b1587	ynfE	Isolate 2	non-essential	oxidoreductase subunit	-0.09
b1588	ynfF	Isolate 1	non-essential	oxidoreductase subunit	-2.46
b1588	ynfF	Isolate 2	non-essential	oxidoreductase subunit	-0.88
b1589	ynfG	Isolate 1	non-essential	oxidoreductase, Fe-S subunit	-0.34
b1589	ynfG	Isolate 2	non-essential	oxidoreductase, Fe-S subunit	-2.62
b1590	ynfH	Isolate 1	non-essential	oxidoreductase, membrane subunit	0.90
b1590	ynfH	Isolate 2	non-essential	oxidoreductase, membrane subunit	1.14
b1591	dmsD	Isolate 1	non-essential	twin-arginine leader-binding protein for DmsA and TorA	-1.88
b1591	dmsD	Isolate 2	non-essential	twin-arginine leader-binding protein for DmsA and TorA	-1.42
b1592	clcB	Isolate 1	non-essential	predicted voltage-gated chloride channel	-1.47
b1592	clcB	Isolate 2	non-essential	predicted voltage-gated chloride channel	-0.50
b1593	ynfK	Isolate 1	non-essential	predicted dethiobiotin synthetase	-0.96
b1593	ynfK	Isolate 2	non-essential	predicted dethiobiotin synthetase	0.05
b1594	dgsA	Isolate 1	non-essential	DNA-binding transcriptional repressor	2.45
b1594	dgsA	Isolate 2	non-essential	DNA-binding transcriptional repressor	5.98
b1595	ynfL	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.11
b1595	ynfL	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.30
b1596	ynfM	Isolate 1	non-essential	predicted transporter	0.34
b1596	ynfM	Isolate 2	non-essential	predicted transporter	1.15
b1597	asr	Isolate 1	non-essential	acid shock-inducible periplasmic protein	-1.84
b1597	asr	Isolate 2	non-essential	acid shock-inducible periplasmic protein	1.00
b1598	ydgD	Isolate 1	non-essential	predicted peptidase	0.05
b1598	ydgD	Isolate 2	non-essential	predicted peptidase	-1.51
b1599	mdtI	Isolate 1	non-essential	multidrug efflux system transporter	-1.27
b1599	mdtI	Isolate 2	non-essential	multidrug efflux system transporter	0.20
b1600	mdtJ	Isolate 1	non-essential	multidrug efflux system transporter	-0.92
b1600	mdtJ	Isolate 2	non-essential	multidrug efflux system transporter	0.80
b1601	ydgG	Isolate 1	non-essential	predicted inner membrane protein	-0.57
b1601	ydgG	Isolate 2	non-essential	predicted inner membrane protein	-0.23
b1602	pntB	Isolate 1	non-essential	pyridine nucleotide transhydrogenase, beta subunit	-0.20
b1602	pntB	Isolate 2	non-essential	pyridine nucleotide transhydrogenase, beta subunit	0.80
b1603	pntA	Isolate 1	non-essential	pyridine nucleotide transhydrogenase, alpha subunit	0.38
b1603	pntA	Isolate 2	non-essential	pyridine nucleotide transhydrogenase, alpha subunit	-0.58
b1604	ydgH	Isolate 1	non-essential	predicted protein	-0.74
b1604	ydgH	Isolate 2	non-essential	predicted protein	-1.06

b1605	ydgI	Isolate 1	non-essential	predicted arginine/ornithine antiporter transporter	-1.42
b1605	ydgI	Isolate 2	non-essential	predicted arginine/ornithine antiporter transporter	1.00
b1606	folM	Isolate 1	non-essential	dihydrofolate reductase isozyme	0.70
b1606	folM	Isolate 2	non-essential	dihydrofolate reductase isozyme	-0.55
b1607	ydgC	Isolate 1	non-essential	conserved inner membrane protein associated with alginate biosynthesis	0.97
b1607	ydgC	Isolate 2	non-essential	conserved inner membrane protein associated with alginate biosynthesis	0.82
b1608	rstA	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with RstB	1.47
b1608	rstA	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with RstB	-0.77
b1609	rstB	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory system with RstA	0.59
b1609	rstB	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory system with RstA	0.86
b1610	dps	Isolate 1	non-essential	inhibitor of replication at Ter, DNA-binding protein	-0.57
b1610	tus	Isolate 2	non-essential	inhibitor of replication at Ter, DNA-binding protein	-0.30
b1611	fumC	Isolate 1	non-essential	fumarate hydratase (fumarase C), aerobic Class II	2.15
b1611	fumC	Isolate 2	non-essential	fumarate hydratase (fumarase C), aerobic Class II	2.35
b1612	fumA	Isolate 1	non-essential	aerobic Class I fumarate hydratase (fumarase A)	1.65
b1612	fumA	Isolate 2	non-essential	aerobic Class I fumarate hydratase (fumarase A)	-0.45
b1613	manA	Isolate 1	non-essential	mannose-6-phosphate isomerase	0.37
b1613	manA	Isolate 2	non-essential	mannose-6-phosphate isomerase	0.49
b1614	ydgA	Isolate 1	non-essential	conserved protein	-0.58
b1614	ydgA	Isolate 2	non-essential	conserved protein	1.28
b1615	uidC	Isolate 1	non-essential	predicted outer membrane porin protein	0.15
b1615	uidC	Isolate 2	non-essential	predicted outer membrane porin protein	0.32
b1616	uidB	Isolate 1	non-essential	glucuronide transporter	-0.28
b1616	uidB	Isolate 2	non-essential	glucuronide transporter	0.55
b1617	uidA	Isolate 1	non-essential	beta-D-glucuronidase	-0.09
b1617	uidA	Isolate 2	non-essential	beta-D-glucuronidase	-0.82
b1618	uidR	Isolate 1	non-essential	DNA-binding transcriptional repressor	0.30
b1618	uidR	Isolate 2	non-essential	DNA-binding transcriptional repressor	3.82
b1619	hdhA	Isolate 1	non-essential	7alpha-hydroxysteroid dehydrogenase, NAD-dependent	-1.99
b1619	hdhA	Isolate 2	non-essential	7alpha-hydroxysteroid dehydrogenase, NAD-dependent	1.02
b1620	malI	Isolate 1	non-essential	DNA-binding transcriptional repressor	-0.44
b1620	malI	Isolate 2	non-essential	DNA-binding transcriptional repressor	-0.25
b1621	malX	Isolate 1	non-essential	fused maltose and glucose-specific PTS enzyme IIBC components	-0.53
b1621	malX	Isolate 2	non-essential	fused maltose and glucose-specific PTS enzyme IIBC components	0.00
b1622	malY	Isolate 1	non-essential	bifunctional beta-cystathionase, PLP-dependent -!- regulator of maltose regulon	-0.73
b1622	malY	Isolate 2	non-essential	bifunctional beta-cystathionase, PLP-dependent -!- regulator of maltose regulon	-2.03
b1623	add	Isolate 1	non-essential	adenosine deaminase	2.74
b1623	add	Isolate 2	non-essential	adenosine deaminase	0.48
b1624	ydgJ	Isolate 1	non-essential	predicted oxidoreductase	0.34
b1624	ydgJ	Isolate 2	non-essential	predicted oxidoreductase	-1.01
b1625	ydgT	Isolate 1	non-essential	predicted regulator	-0.81
b1625	ydgT	Isolate 2	non-essential	predicted regulator	-0.16
b1626	ydgK	Isolate 1	non-essential	conserved inner membrane protein	0.13

b1626	ydgK	Isolate 2	non-essential	conserved inner membrane protein	-1.76
b1627	rsxA	Isolate 1	non-essential	predicted inner membrane subunit	-0.08
b1627	rsxA	Isolate 2	non-essential	predicted inner membrane subunit	0.11
b1628	rsxB	Isolate 1	non-essential	predicted iron-sulfur protein	-1.02
b1628	rsxB	Isolate 2	non-essential	predicted iron-sulfur protein	-3.07
b1629	rsxC	Isolate 1	non-essential	fused predicted 4Fe-4S ferredoxin-type protein	-0.53
b1629	rsxC	Isolate 2	non-essential	fused predicted 4Fe-4S ferredoxin-type protein	-0.50
b1630	rsxD	Isolate 1	non-essential	predicted inner membrane oxidoreductase	0.17
b1630	rsxD	Isolate 2	non-essential	predicted inner membrane oxidoreductase	0.13
b1631	rsxG	Isolate 1	non-essential	predicted oxidoreductase	-1.42
b1631	rsxG	Isolate 2	non-essential	predicted oxidoreductase	0.17
b1632	rsxE	Isolate 1	non-essential	predicted inner membrane NADH-quinone reductase	-0.21
b1632	rsxE	Isolate 2	non-essential	predicted inner membrane NADH-quinone reductase	-1.08
b1633	nth	Isolate 1	non-essential	DNA glycosylase and apyrimidinic (AP) lyase (endonuclease III)	1.90
b1633	nth	Isolate 2	non-essential	DNA glycosylase and apyrimidinic (AP) lyase (endonuclease III)	-0.13
b1634	ydgR	Isolate 1	non-essential	predicted transporter	0.50
b1634	ydgR	Isolate 2	non-essential	predicted transporter	-0.72
b1635	gst	Isolate 1	non-essential	glutathionine S-transferase	-0.45
b1635	gst	Isolate 2	non-essential	glutathionine S-transferase	0.77
b1636	pdxY	Isolate 1	non-essential	pyridoxal kinase 2/pyridoxine kinase	-0.41
b1636	pdxY	Isolate 2	non-essential	pyridoxal kinase 2/pyridoxine kinase	3.92
b1637	tyrS	Isolate 1	essential	tyrosyl-tRNA synthetase	-0.93
b1638	pdxH	Isolate 1	non-essential	pyridoxine 5'-phosphate oxidase	0.01
b1638	pdxH	Isolate 2	non-essential	pyridoxine 5'-phosphate oxidase	-1.42
b1639	ydhA	Isolate 1	non-essential	predicted lipoprotein	0.86
b1639	ydhA	Isolate 2	non-essential	predicted lipoprotein	2.77
b1640	ydhH	Isolate 1	non-essential	conserved protein	0.42
b1640	ydhH	Isolate 2	non-essential	conserved protein	0.56
b1641	slyB	Isolate 1	non-essential	outer membrane lipoprotein	2.93
b1641	slyB	Isolate 2	non-essential	outer membrane lipoprotein	1.99
b1642	slyA	Isolate 1	non-essential	DNA-binding transcriptional activator	1.60
b1642	slyA	Isolate 2	non-essential	DNA-binding transcriptional activator	1.31
b1643	ydhI	Isolate 1	non-essential	predicted inner membrane protein	-0.46
b1643	ydhI	Isolate 2	non-essential	predicted inner membrane protein	-1.65
b1644	ydhJ	Isolate 1	non-essential	undecaprenyl pyrophosphate phosphatase	0.18
b1644	ydhJ	Isolate 2	non-essential	undecaprenyl pyrophosphate phosphatase	1.31
b1645	ydhK	Isolate 1	non-essential	conserved inner membrane protein	-0.65
b1645	ydhK	Isolate 2	non-essential	conserved inner membrane protein	-1.67
b1646	sodC	Isolate 1	non-essential	superoxide dismutase, Cu, Zn	1.32
b1646	sodC	Isolate 2	non-essential	superoxide dismutase, Cu, Zn	-0.29
b1647	ydhF	Isolate 1	non-essential	predicted oxidoreductase	0.00
b1647	ydhF	Isolate 2	non-essential	predicted oxidoreductase	-1.18
b1648	ydhL	Isolate 1	non-essential	conserved protein	-0.28

b1648	ydhL	Isolate 2	non-essential	conserved protein	-0.26
b1649	ydhM	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-1.55
b1649	ydhM	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.59
b1650	nemA	Isolate 1	non-essential	N-ethylmaleimide reductase, FMN-linked	1.65
b1650	nemA	Isolate 2	non-essential	N-ethylmaleimide reductase, FMN-linked	0.03
b1651	gloA	Isolate 1	non-essential	glyoxalase I, Ni-dependent	-0.06
b1651	gloA	Isolate 2	non-essential	glyoxalase I, Ni-dependent	0.25
b1652	rnt	Isolate 1	non-essential	ribonuclease T (RNase T)	-0.21
b1652	rnt	Isolate 2	non-essential	ribonuclease T (RNase T)	-0.45
b1653	lhr	Isolate 1	non-essential	predicted ATP-dependent helicase	-1.15
b1653	lhr	Isolate 2	non-essential	predicted ATP-dependent helicase	-0.46
b1654	ydhD	Isolate 1	non-essential	conserved protein	0.64
b1654	ydhD	Isolate 2	non-essential	conserved protein	-0.20
b1655	ydhO	Isolate 1	non-essential	predicted lipoprotein	-2.05
b1655	ydhO	Isolate 2	non-essential	predicted lipoprotein	-0.05
b1656	sodB	Isolate 1	non-essential	superoxide dismutase, Fe	1.57
b1656	sodB	Isolate 2	non-essential	superoxide dismutase, Fe	0.84
b1657	ydhP	Isolate 1	non-essential	predicted transporter	0.80
b1657	ydhP	Isolate 2	non-essential	predicted transporter	0.02
b1658	purR	Isolate 1	non-essential	DNA-binding transcriptional repressor, hypoxanthine-binding	0.25
b1658	purR	Isolate 2	non-essential	DNA-binding transcriptional repressor, hypoxanthine-binding	-1.51
b1659	ydhB	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	2.87
b1659	ydhB	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.04
b1660	ydhC	Isolate 1	non-essential	predicted transporter	-1.72
b1660	ydhC	Isolate 2	non-essential	predicted transporter	-4.06
b1661	cfa	Isolate 1	non-essential	cyclopropane fatty acyl phospholipid synthase (unsaturated-phospholipid methyltransferase)	-0.68
b1661	cfa	Isolate 2	non-essential	cyclopropane fatty acyl phospholipid synthase (unsaturated-phospholipid methyltransferase)	-2.81
b1663	mdtK	Isolate 1	non-essential	multidrug efflux system transporter	-1.48
b1663	mdtK	Isolate 2	non-essential	multidrug efflux system transporter	1.57
b1664	ydhQ	Isolate 1	non-essential	conserved protein	0.25
b1664	ydhQ	Isolate 2	non-essential	conserved protein	0.03
b1667	ydhR	Isolate 1	non-essential	predicted protein	0.92
b1667	ydhR	Isolate 2	non-essential	predicted protein	-0.80
b1668	ydhS	Isolate 1	non-essential	conserved protein with FAD/NAD(P)-binding domain	-0.06
b1668	ydhS	Isolate 2	non-essential	conserved protein with FAD/NAD(P)-binding domain	1.28
b1669	ydhT	Isolate 1	non-essential	conserved protein	1.22
b1669	ydhT	Isolate 2	non-essential	conserved protein	0.71
b1670	ydhU	Isolate 1	non-essential	predicted cytochrome	1.12
b1670	ydhU	Isolate 2	non-essential	predicted cytochrome	1.18
b1671	ydhX	Isolate 1	non-essential	predicted 4Fe-4S ferridoxin-type protein	1.08
b1671	ydhX	Isolate 2	non-essential	predicted 4Fe-4S ferridoxin-type protein	0.56
b1672	ydhW	Isolate 1	non-essential	predicted protein	-0.91
b1672	ydhW	Isolate 2	non-essential	predicted protein	0.90

b1673	ydhV	Isolate 1	non-essential	predicted oxidoreductase	-0.04
b1673	ydhV	Isolate 2	non-essential	predicted oxidoreductase	0.36
b1674	ydhY	Isolate 1	non-essential	predicted 4Fe-4S ferridoxin-type protein	-2.05
b1674	ydhY	Isolate 2	non-essential	predicted 4Fe-4S ferridoxin-type protein	-0.44
b1675	ydhZ	Isolate 1	non-essential	predicted protein	0.33
b1675	ydhZ	Isolate 2	non-essential	predicted protein	1.07
b1676	pykF	Isolate 1	non-essential	pyruvate kinase I	1.46
b1676	pykF	Isolate 2	non-essential	pyruvate kinase I	0.36
b1677	lpp	Isolate 1	non-essential	murein lipoprotein	0.81
b1677	lpp	Isolate 2	non-essential	murein lipoprotein	1.19
b1678	ynhG	Isolate 1	non-essential	conserved protein	-0.02
b1678	ynhG	Isolate 2	non-essential	conserved protein	0.90
b1679	sufE	Isolate 1	non-essential	sulfur acceptor protein	0.07
b1679	sufE	Isolate 2	non-essential	sulfur acceptor protein	-0.97
b1680	sufS	Isolate 1	non-essential	selenocysteine lyase, PLP-dependent	1.90
b1680	sufS	Isolate 2	non-essential	selenocysteine lyase, PLP-dependent	2.23
b1681	sufD	Isolate 1	non-essential	component of SufBCD complex	0.96
b1681	sufD	Isolate 2	non-essential	component of SufBCD complex	-0.41
b1682	sufC	Isolate 1	non-essential	component of SufBCD complex, ATP-binding component of ABC superfamily	-0.40
b1682	sufC	Isolate 2	non-essential	component of SufBCD complex, ATP-binding component of ABC superfamily	-0.04
b1683	sufB	Isolate 1	non-essential	component of SufBCD complex	-0.20
b1683	sufB	Isolate 2	non-essential	component of SufBCD complex	-1.64
b1684	sufA	Isolate 1	non-essential	Fe-S cluster assembly protein	1.88
b1684	sufA	Isolate 2	non-essential	Fe-S cluster assembly protein	0.03
b1685	ydiH	Isolate 1	non-essential	predicted protein	-0.73
b1685	ydiH	Isolate 2	non-essential	predicted protein	-0.57
b1686	ydiI	Isolate 1	non-essential	conserved protein	-0.60
b1686	ydiI	Isolate 2	non-essential	conserved protein	-0.74
b1687	ydiJ	Isolate 1	non-essential	predicted FAD-linked oxidoreductase	-0.17
b1687	ydiJ	Isolate 2	non-essential	predicted FAD-linked oxidoreductase	-0.52
b1688	ydiK	Isolate 1	non-essential	predicted inner membrane protein	0.05
b1688	ydiK	Isolate 2	non-essential	predicted inner membrane protein	0.63
b1690	ydiM	Isolate 1	non-essential	predicted transporter	2.49
b1690	ydiM	Isolate 2	non-essential	predicted transporter	1.76
b1691	ydiN	Isolate 1	non-essential	predicted transporter	1.18
b1691	ydiN	Isolate 2	non-essential	predicted transporter	1.15
b1692	ydiB	Isolate 1	non-essential	quininate/shikimate 5-dehydrogenase, NAD(P)-binding	0.66
b1692	ydiB	Isolate 2	non-essential	quininate/shikimate 5-dehydrogenase, NAD(P)-binding	1.55
b1693	aroD	Isolate 1	non-essential	3-dehydroquininate dehydratase	2.54
b1693	aroD	Isolate 2	non-essential	3-dehydroquininate dehydratase	1.29
b1694	ydiF	Isolate 1	non-essential	fused predicted acetyl-CoA:acetoacetyl-CoA transferase: alpha subunit -!- beta subunit	-0.97
b1694	ydiF	Isolate 2	non-essential	fused predicted acetyl-CoA:acetoacetyl-CoA transferase: alpha subunit -!- beta subunit	0.88
b1695	ydiO	Isolate 1	non-essential	predicted acyl-CoA dehydrogenase	-0.01

b1695	ydiO	Isolate 2	non-essential	predicted acyl-CoA dehydrogenase	-0.88
b1696	ydiP	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	1.42
b1696	ydiP	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.27
b1697	ydiQ	Isolate 1	non-essential	conserved protein	0.53
b1697	ydiQ	Isolate 2	non-essential	conserved protein	0.60
b1698	ydiR	Isolate 1	non-essential	predicted electron transfer flavoprotein, FAD-binding	0.57
b1698	ydiR	Isolate 2	non-essential	predicted electron transfer flavoprotein, FAD-binding	1.48
b1699	ydiS	Isolate 1	non-essential	predicted oxidoreductase, FAD/NAD(P)-binding domain	0.01
b1699	ydiS	Isolate 2	non-essential	predicted oxidoreductase, FAD/NAD(P)-binding domain	0.18
b1700	ydiT	Isolate 1	non-essential	predicted 4Fe-4S ferredoxin-type protein	-0.56
b1700	ydiT	Isolate 2	non-essential	predicted 4Fe-4S ferredoxin-type protein	-0.20
b1701	ydiD	Isolate 1	non-essential	short chain acyl-CoA synthetase, anaerobic	-0.55
b1701	ydiD	Isolate 2	non-essential	short chain acyl-CoA synthetase, anaerobic	0.88
b1702	pps	Isolate 1	non-essential	phosphoenolpyruvate synthase	0.72
b1702	pps	Isolate 2	non-essential	phosphoenolpyruvate synthase	-0.76
b1703	ydiA	Isolate 1	non-essential	conserved protein	0.82
b1703	ydiA	Isolate 2	non-essential	conserved protein	-0.95
b1704	aroH	Isolate 1	non-essential	3-deoxy-D-arabino-heptulosonate-7-phosphate synthase, tryptophan repressible	1.18
b1704	aroH	Isolate 2	non-essential	3-deoxy-D-arabino-heptulosonate-7-phosphate synthase, tryptophan repressible	1.81
b1705	ydiE	Isolate 1	non-essential	conserved protein	1.21
b1705	ydiE	Isolate 2	non-essential	conserved protein	-1.19
b1706	ydiU	Isolate 1	non-essential	conserved protein	0.46
b1706	ydiU	Isolate 2	non-essential	conserved protein	-0.58
b1707	ydiV	Isolate 1	non-essential	conserved protein	0.08
b1707	ydiV	Isolate 2	non-essential	conserved protein	-0.43
b1708	nlpC	Isolate 1	non-essential	predicted lipoprotein	2.58
b1708	nlpC	Isolate 2	non-essential	predicted lipoprotein	1.58
b1709	btuD	Isolate 1	non-essential	vitamin B12 transporter subunit -!- ATP-binding component of ABC superfamily	0.35
b1709	btuD	Isolate 2	non-essential	vitamin B12 transporter subunit -!- ATP-binding component of ABC superfamily	0.32
b1710	btuE	Isolate 1	non-essential	predicted glutathione peroxidase	0.69
b1710	btuE	Isolate 2	non-essential	predicted glutathione peroxidase	1.63
b1711	btuC	Isolate 1	non-essential	vitamin B12 transporter subunit -!- membrane component of ABC superfamily	1.54
b1711	btuC	Isolate 2	non-essential	vitamin B12 transporter subunit -!- membrane component of ABC superfamily	1.40
b1712	ihfA	Isolate 1	non-essential	integration host factor (IHF), DNA-binding protein, alpha subunit	-0.05
b1712	ihfA	Isolate 2	non-essential	integration host factor (IHF), DNA-binding protein, alpha subunit	2.45
b1713	pheT	Isolate 1	essential	phenylalanine tRNA synthetase, beta subunit	2.51
b1714	pheS	Isolate 1	essential	phenylalanine tRNA synthetase, alpha subunit	-6.19
b1715	pheM	Isolate 1	non-essential	phenylalanyl-tRNA synthetase operon leader peptide	-0.82
b1715	pheM	Isolate 2	non-essential	phenylalanyl-tRNA synthetase operon leader peptide	-0.04
b1717	rpmI	Isolate 1	non-essential	50S ribosomal subunit protein L35	0.39
b1717	rpmI	Isolate 2	non-essential	50S ribosomal subunit protein L35	0.51
b1718	infC	Isolate 1	essential	protein chain initiation factor IF-3	0.65
b1719	thrS	Isolate 1	essential	threonyl-tRNA synthetase	-3.36



b1720	arpB	Isolate 1	*	predicted protein, N-ter fragment (pseudogene)	-0.77
b1720	arpB	Isolate 2	*	predicted protein, N-ter fragment (pseudogene)	1.60
b1722	ydiY	Isolate 1	non-essential	conserved protein	-0.54
b1722	ydiY	Isolate 2	non-essential	conserved protein	0.73
b1723	pfkB	Isolate 1	non-essential	6-phosphofructokinase II	0.35
b1723	pfkB	Isolate 2	non-essential	6-phosphofructokinase II	-0.18
b1724	ydiZ	Isolate 1	non-essential	predicted protein	0.47
b1724	ydiZ	Isolate 2	non-essential	predicted protein	4.01
b1725	yniA	Isolate 1	non-essential	predicted phosphotransferase/kinase	-1.29
b1725	yniA	Isolate 2	non-essential	predicted phosphotransferase/kinase	0.14
b1726	yniB	Isolate 1	non-essential	predicted inner membrane protein	-0.28
b1726	yniB	Isolate 2	non-essential	predicted inner membrane protein	-2.12
b1727	yniC	Isolate 1	non-essential	predicted hydrolase	0.89
b1727	yniC	Isolate 2	non-essential	predicted hydrolase	0.21
b1728	ydjM	Isolate 1	non-essential	predicted inner membrane protein regulated by LexA	0.53
b1728	ydjM	Isolate 2	non-essential	predicted inner membrane protein regulated by LexA	0.92
b1729	ydjN	Isolate 1	non-essential	predicted transporter	1.59
b1729	ydjN	Isolate 2	non-essential	predicted transporter	1.46
b1730	ydjO	Isolate 1	non-essential	predicted protein	1.23
b1730	ydjO	Isolate 2	non-essential	predicted protein	-1.45
b1731	cedA	Isolate 1	non-essential	cell division modulator	-0.28
b1731	cedA	Isolate 2	non-essential	cell division modulator	-0.03
b1732	katE	Isolate 1	non-essential	hydroperoxidase HP(II)(III) (catalase)	-0.04
b1732	katE	Isolate 2	non-essential	hydroperoxidase HP(II)(III) (catalase)	2.52
b1733	chbG	Isolate 1	non-essential	conserved protein	0.32
b1733	chbG	Isolate 2	non-essential	conserved protein	-0.72
b1734	chbF	Isolate 1	non-essential	cryptic phospho-beta-glucosidase, NAD(P)-binding	-1.77
b1734	chbF	Isolate 2	non-essential	cryptic phospho-beta-glucosidase, NAD(P)-binding	-1.11
b1735	chbR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	1.23
b1735	chbR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	2.03
b1736	chbA	Isolate 1	non-essential	N,N'-diacetylchitobiose-specific enzyme IIA component of PTS	1.29
b1736	chbA	Isolate 2	non-essential	N,N'-diacetylchitobiose-specific enzyme IIA component of PTS	-0.53
b1737	chbC	Isolate 1	non-essential	N,N'-diacetylchitobiose-specific enzyme IIC component of PTS	0.55
b1737	chbC	Isolate 2	non-essential	N,N'-diacetylchitobiose-specific enzyme IIC component of PTS	0.01
b1738	chbB	Isolate 1	non-essential	N,N'-diacetylchitobiose-specific enzyme IIB component of PTS	1.50
b1738	chbB	Isolate 2	non-essential	N,N'-diacetylchitobiose-specific enzyme IIB component of PTS	0.15
b1739	osmE	Isolate 1	non-essential	DNA-binding transcriptional regulator	0.98
b1739	osmE	Isolate 2	non-essential	DNA-binding transcriptional regulator	0.93
b1740	nadE	Isolate 1	essential	NAD synthetase, NH <sub>3</sub> /glutamine-dependent	-2.51
b1741	ydjQ	Isolate 1	non-essential	endonuclease of nucleotide excision repair	0.27
b1741	ydjQ	Isolate 2	non-essential	endonuclease of nucleotide excision repair	0.03
b1743	spy	Isolate 1	non-essential	envelope stress induced periplasmic protein	-1.03
b1743	spy	Isolate 2	non-essential	envelope stress induced periplasmic protein	-0.25

b1744	astE	Isolate 1	non-essential	succinylglutamate desuccinylase	-0.36
b1744	astE	Isolate 2	non-essential	succinylglutamate desuccinylase	1.72
b1745	astB	Isolate 1	non-essential	succinylarginine dihydrolase	3.51
b1745	astB	Isolate 2	non-essential	succinylarginine dihydrolase	-1.36
b1746	astD	Isolate 1	non-essential	succinylglutamic semialdehyde dehydrogenase	1.01
b1746	astD	Isolate 2	non-essential	succinylglutamic semialdehyde dehydrogenase	0.22
b1747	astA	Isolate 1	non-essential	arginine succinyltransferase	0.60
b1747	astA	Isolate 2	non-essential	arginine succinyltransferase	0.69
b1748	astC	Isolate 1	non-essential	succinylornithine transaminase, PLP-dependent	1.96
b1748	astC	Isolate 2	non-essential	succinylornithine transaminase, PLP-dependent	1.77
b1749	xthA	Isolate 1	non-essential	exonuclease III	-0.73
b1749	xthA	Isolate 2	non-essential	exonuclease III	-0.98
b1750	ydjX	Isolate 1	non-essential	predicted inner membrane protein	0.35
b1750	ydjX	Isolate 2	non-essential	predicted inner membrane protein	-1.51
b1751	ydjY	Isolate 1	non-essential	predicted protein	-0.18
b1751	ydjY	Isolate 2	non-essential	predicted protein	-0.77
b1752	ydjZ	Isolate 1	non-essential	conserved inner membrane protein	-0.09
b1752	ydjZ	Isolate 2	non-essential	conserved inner membrane protein	-0.05
b1753	ynjA	Isolate 1	non-essential	conserved protein	0.49
b1753	ynjA	Isolate 2	non-essential	conserved protein	-0.39
b1754	ynjB	Isolate 1	non-essential	conserved protein	0.09
b1754	ynjB	Isolate 2	non-essential	conserved protein	-0.47
b1755	ynjC	Isolate 1	non-essential	fused transporter subunits -!- membrane component of ABC superfamily	0.26
b1755	ynjC	Isolate 2	non-essential	fused transporter subunits -!- membrane component of ABC superfamily	-0.20
b1756	ynjD	Isolate 1	non-essential	predicted transporter subunit -!- ATP-binding component of ABC superfamily	-1.09
b1756	ynjD	Isolate 2	non-essential	predicted transporter subunit -!- ATP-binding component of ABC superfamily	-0.20
b1757	ynjE	Isolate 1	non-essential	predicted thiosulfate sulfur transferase	0.72
b1757	ynjE	Isolate 2	non-essential	predicted thiosulfate sulfur transferase	0.70
b1758	ynjF	Isolate 1	non-essential	predicted phosphatidyl transferase, inner membrane protein	0.83
b1758	ynjF	Isolate 2	non-essential	predicted phosphatidyl transferase, inner membrane protein	1.34
b1759	nudG	Isolate 1	non-essential	pyrimidine (deoxy)nucleoside triphosphate pyrophosphohydrolase	-1.87
b1759	nudG	Isolate 2	non-essential	pyrimidine (deoxy)nucleoside triphosphate pyrophosphohydrolase	-0.94
b1760	ynjH	Isolate 1	non-essential	predicted protein	-1.97
b1760	ynjH	Isolate 2	non-essential	predicted protein	-2.05
b1761	gdhA	Isolate 1	non-essential	glutamate dehydrogenase, NADP-specific	0.11
b1761	gdhA	Isolate 2	non-essential	glutamate dehydrogenase, NADP-specific	1.95
b1762	ynjI	Isolate 1	non-essential	predicted inner membrane protein	-0.45
b1762	ynjI	Isolate 2	non-essential	predicted inner membrane protein	-2.28
b1763	topB	Isolate 1	non-essential	DNA topoisomerase III	0.19
b1763	topB	Isolate 2	non-essential	DNA topoisomerase III	0.90
b1764	selD	Isolate 1	non-essential	selenophosphate synthase	1.12
b1764	selD	Isolate 2	non-essential	selenophosphate synthase	-0.28
b1765	ydjA	Isolate 1	non-essential	predicted oxidoreductase	1.77

b1765	ydjA	Isolate 2	non-essential	predicted oxidoreductase	0.60
b1766	sppA	Isolate 1	non-essential	protease IV (signal peptide peptidase)	-1.45
b1766	sppA	Isolate 2	non-essential	protease IV (signal peptide peptidase)	-0.43
b1767	ansA	Isolate 1	non-essential	cytoplasmic L-asparaginase I	-0.21
b1767	ansA	Isolate 2	non-essential	cytoplasmic L-asparaginase I	-0.13
b1768	pncA	Isolate 1	non-essential	nicotinamidase/pyrazinamidase	1.66
b1768	pncA	Isolate 2	non-essential	nicotinamidase/pyrazinamidase	-0.53
b1769	ydjE	Isolate 1	non-essential	predicted transporter	-0.54
b1769	ydjE	Isolate 2	non-essential	predicted transporter	0.30
b1770	ydjF	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.19
b1770	ydjF	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.96
b1771	ydjG	Isolate 1	non-essential	predicted oxidoreductase	-0.20
b1771	ydjG	Isolate 2	non-essential	predicted oxidoreductase	0.12
b1772	ydjH	Isolate 1	non-essential	predicted kinase	-0.61
b1772	ydjH	Isolate 2	non-essential	predicted kinase	-0.52
b1773	ydjI	Isolate 1	non-essential	predicted aldolase	3.16
b1773	ydjI	Isolate 2	non-essential	predicted aldolase	2.21
b1774	ydjJ	Isolate 1	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	0.01
b1774	ydjJ	Isolate 2	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	0.80
b1775	ydjK	Isolate 1	non-essential	predicted transporter	0.67
b1775	ydjK	Isolate 2	non-essential	predicted transporter	0.62
b1776	ydjL	Isolate 1	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	-0.68
b1776	ydjL	Isolate 2	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	1.56
b1777	yeaC	Isolate 1	non-essential	conserved protein	-1.49
b1777	yeaC	Isolate 2	non-essential	conserved protein	0.42
b1778	yeaA	Isolate 1	non-essential	methionine sulfoxide reductase B	3.00
b1778	yeaA	Isolate 2	non-essential	methionine sulfoxide reductase B	0.94
b1779	gapA	Isolate 1	essential	glyceraldehyde-3-phosphate dehydrogenase A	-2.18
b1780	yeaD	Isolate 1	non-essential	conserved protein	0.72
b1780	yeaD	Isolate 2	non-essential	conserved protein	-1.21
b1781	yeaE	Isolate 1	non-essential	predicted oxidoreductase	-0.90
b1781	yeaE	Isolate 2	non-essential	predicted oxidoreductase	-0.04
b1782	mipA	Isolate 1	non-essential	scaffolding protein for murein synthesizing machinery	-3.30
b1782	mipA	Isolate 2	non-essential	scaffolding protein for murein synthesizing machinery	1.29
b1783	yeaG	Isolate 1	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	2.21
b1783	yeaG	Isolate 2	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	0.60
b1784	yeaH	Isolate 1	non-essential	conserved protein	-0.44
b1784	yeaH	Isolate 2	non-essential	conserved protein	0.10
b1785	yeaI	Isolate 1	non-essential	predicted diguanylate cyclase	-1.31
b1785	yeaI	Isolate 2	non-essential	predicted diguanylate cyclase	-2.38
b1786	yeaJ	Isolate 1	non-essential	predicted diguanylate cyclase	0.33
b1786	yeaJ	Isolate 2	non-essential	predicted diguanylate cyclase	0.46
b1787	yeaK	Isolate 1	non-essential	conserved protein	0.30

b1787	yeaK	Isolate 2	non-essential	conserved protein	-0.41
b1789	yeaL	Isolate 1	non-essential	conserved inner membrane protein	0.48
b1789	yeaL	Isolate 2	non-essential	conserved inner membrane protein	1.99
b1790	yeaM	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-1.80
b1790	yeaM	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.73
b1791	yeaN	Isolate 1	non-essential	predicted transporter	-0.89
b1791	yeaN	Isolate 2	non-essential	predicted transporter	-3.49
b1792	yeaO	Isolate 1	non-essential	conserved protein	0.75
b1792	yeaO	Isolate 2	non-essential	conserved protein	0.28
b1793	yoaF	Isolate 1	non-essential	conserved outer membrane protein	-0.48
b1793	yoaF	Isolate 2	non-essential	conserved outer membrane protein	-7.24
b1794	yeaP	Isolate 1	non-essential	predicted diguanylate cyclase	-0.13
b1794	yeaP	Isolate 2	non-essential	predicted diguanylate cyclase	-1.15
b1795	yeaQ	Isolate 1	non-essential	conserved inner membrane protein	0.32
b1795	yeaQ	Isolate 2	non-essential	conserved inner membrane protein	-0.73
b1796	yoaG	Isolate 1	non-essential	predicted protein	-0.40
b1796	yoaG	Isolate 2	non-essential	predicted protein	-0.61
b1797	yeaR	Isolate 1	non-essential	conserved protein	-0.13
b1797	yeaR	Isolate 2	non-essential	conserved protein	1.13
b1798	yeaS	Isolate 1	non-essential	neutral amino-acid efflux system	4.01
b1798	yeaS	Isolate 2	non-essential	neutral amino-acid efflux system	0.65
b1799	yeaT	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.70
b1799	yeaT	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	2.80
b1800	yeaU	Isolate 1	non-essential	predicted dehydrogenase	4.95
b1800	yeaU	Isolate 2	non-essential	predicted dehydrogenase	4.99
b1801	yeaV	Isolate 1	non-essential	predicted transporter	-0.01
b1801	yeaV	Isolate 2	non-essential	predicted transporter	-0.64
b1802	yeaW	Isolate 1	non-essential	predicted 2Fe-2S cluster-containing protein	-0.51
b1802	yeaW	Isolate 2	non-essential	predicted 2Fe-2S cluster-containing protein	0.82
b1803	yeaX	Isolate 1	non-essential	predicted oxidoreductase	1.80
b1803	yeaX	Isolate 2	non-essential	predicted oxidoreductase	0.04
b1804	rnd	Isolate 1	non-essential	ribonuclease D	1.12
b1804	rnd	Isolate 2	non-essential	ribonuclease D	0.27
b1805	fadD	Isolate 1	non-essential	acyl-CoA synthetase (long-chain-fatty-acid--CoA ligase)	0.28
b1805	fadD	Isolate 2	non-essential	acyl-CoA synthetase (long-chain-fatty-acid--CoA ligase)	0.44
b1806	yeaY	Isolate 1	non-essential	predicted lipoprotein	-0.38
b1806	yeaY	Isolate 2	non-essential	predicted lipoprotein	-0.70
b1807	yeaZ	Isolate 1	essential	predicted peptidase	-4.60
b1808	yoaA	Isolate 1	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	0.37
b1808	yoaA	Isolate 2	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	-0.02
b1809	yoaB	Isolate 1	non-essential	conserved protein	-0.77
b1809	yoaB	Isolate 2	non-essential	conserved protein	-0.98
b1810	yoaC	Isolate 1	non-essential	predicted protein	-0.64

b1810	yoaC	Isolate 2	non-essential	predicted protein	-0.33
b1811	yoaH	Isolate 1	non-essential	conserved protein	1.03
b1811	yoaH	Isolate 2	non-essential	conserved protein	-0.39
b1812	pabB	Isolate 1	non-essential	aminodeoxychorismate synthase, subunit I	0.83
b1812	pabB	Isolate 2	non-essential	aminodeoxychorismate synthase, subunit I	1.60
b1813	yeaB	Isolate 1	non-essential	predicted NUDIX hydrolase	0.83
b1813	yeaB	Isolate 2	non-essential	predicted NUDIX hydrolase	2.71
b1814	sdaA	Isolate 1	non-essential	L-serine deaminase I	-0.36
b1814	sdaA	Isolate 2	non-essential	L-serine deaminase I	0.61
b1815	yoaD	Isolate 1	non-essential	predicted phosphodiesterase	2.18
b1815	yoaD	Isolate 2	non-essential	predicted phosphodiesterase	0.34
b1816	yoaE	Isolate 1	non-essential	fused predicted membrane proteins	0.37
b1816	yoaE	Isolate 2	non-essential	fused predicted membrane proteins	0.54
b1817	manX	Isolate 1	non-essential	fused mannose-specific PTS enzyme IIAB components	0.49
b1817	manX	Isolate 2	non-essential	fused mannose-specific PTS enzyme IIAB components	0.10
b1818	manY	Isolate 1	non-essential	mannose-specific enzyme IIC component of PTS	-0.02
b1818	manY	Isolate 2	non-essential	mannose-specific enzyme IIC component of PTS	1.86
b1819	manZ	Isolate 1	non-essential	mannose-specific enzyme IID component of PTS	1.57
b1819	manZ	Isolate 2	non-essential	mannose-specific enzyme IID component of PTS	1.24
b1820	yobD	Isolate 1	non-essential	conserved inner membrane protein	2.10
b1820	yobD	Isolate 2	non-essential	conserved inner membrane protein	-0.29
b1821	yebN	Isolate 1	non-essential	conserved inner membrane protein	-1.12
b1821	yebN	Isolate 2	non-essential	conserved inner membrane protein	0.68
b1822	rrmA	Isolate 1	non-essential	23S rRNA m1G745 methyltransferase	-0.15
b1822	rrmA	Isolate 2	non-essential	23S rRNA m1G745 methyltransferase	-0.14
b1823	cspC	Isolate 1	non-essential	stress protein, member of the CspA-family	2.54
b1823	cspC	Isolate 2	non-essential	stress protein, member of the CspA-family	3.74
b1824	yobF	Isolate 1	non-essential	predicted protein	0.03
b1824	yobF	Isolate 2	non-essential	predicted protein	1.77
b1825	yebO	Isolate 1	non-essential	predicted protein	-1.32
b1825	yebO	Isolate 2	non-essential	predicted protein	-1.31
b1826	yobG	Isolate 1	non-essential	predicted protein	-0.21
b1826	yobG	Isolate 2	non-essential	predicted protein	-0.45
b1827	kdgR	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.37
b1827	kdgR	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.47
b1828	yebQ	Isolate 1	non-essential	predicted transporter	-0.38
b1828	yebQ	Isolate 2	non-essential	predicted transporter	0.58
b1829	htpX	Isolate 1	non-essential	predicted endopeptidase	-0.62
b1829	htpX	Isolate 2	non-essential	predicted endopeptidase	-0.18
b1830	prc	Isolate 1	non-essential	carboxy-terminal protease for penicillin-binding protein 3	-0.29
b1830	prc	Isolate 2	non-essential	carboxy-terminal protease for penicillin-binding protein 3	2.80
b1831	proQ	Isolate 1	non-essential	predicted structural transport element	-0.09
b1831	proQ	Isolate 2	non-essential	predicted structural transport element	0.60

b1832	yebR	Isolate 1	non-essential	conserved protein	0.97
b1832	yebR	Isolate 2	non-essential	conserved protein	0.56
b1833	yebS	Isolate 1	non-essential	conserved inner membrane protein	-2.15
b1833	yebS	Isolate 2	non-essential	conserved inner membrane protein	-0.68
b1834	yebT	Isolate 1	non-essential	conserved protein	-0.68
b1834	yebT	Isolate 2	non-essential	conserved protein	-0.62
b1835	yebU	Isolate 1	non-essential	predicted methyltransferase	0.32
b1835	yebU	Isolate 2	non-essential	predicted methyltransferase	0.09
b1836	yebV	Isolate 1	non-essential	predicted protein	-0.71
b1836	yebV	Isolate 2	non-essential	predicted protein	-1.54
b1837	yebW	Isolate 1	non-essential	predicted protein	0.99
b1837	yebW	Isolate 2	non-essential	predicted protein	-0.88
b1838	pphA	Isolate 1	non-essential	serine/threonine-specific protein phosphatase 1	1.66
b1838	pphA	Isolate 2	non-essential	serine/threonine-specific protein phosphatase 1	0.27
b1839	yebY	Isolate 1	non-essential	predicted protein	0.36
b1839	yebY	Isolate 2	non-essential	predicted protein	-0.71
b1840	yebZ	Isolate 1	non-essential	predicted inner membrane protein	-0.04
b1840	yebZ	Isolate 2	non-essential	predicted inner membrane protein	0.32
b1841	yobA	Isolate 1	non-essential	conserved protein	2.28
b1841	yobA	Isolate 2	non-essential	conserved protein	1.97
b1842	holE	Isolate 1	non-essential	DNA polymerase III, theta subunit	-0.05
b1842	holE	Isolate 2	non-essential	DNA polymerase III, theta subunit	0.39
b1843	yobB	Isolate 1	non-essential	conserved protein	0.32
b1843	yobB	Isolate 2	non-essential	conserved protein	0.37
b1844	exoX	Isolate 1	non-essential	DNA exonuclease X	-1.87
b1844	exoX	Isolate 2	non-essential	DNA exonuclease X	0.14
b1845	ptrB	Isolate 1	non-essential	protease II	0.06
b1845	ptrB	Isolate 2	non-essential	protease II	0.69
b1846	yebE	Isolate 1	non-essential	conserved protein	1.18
b1846	yebE	Isolate 2	non-essential	conserved protein	0.84
b1847	yebF	Isolate 1	non-essential	predicted protein	0.46
b1847	yebF	Isolate 2	non-essential	predicted protein	-0.59
b1848	yebG	Isolate 1	non-essential	conserved protein regulated by LexA	-0.05
b1848	yebG	Isolate 2	non-essential	conserved protein regulated by LexA	0.84
b1849	purT	Isolate 1	non-essential	phosphoribosylglycinamide formyltransferase 2	0.28
b1849	purT	Isolate 2	non-essential	phosphoribosylglycinamide formyltransferase 2	0.87
b1850	eda	Isolate 1	non-essential	multifunctional 2-keto-3-deoxygluconate 6-phosphate aldolase -!- 2-keto-4-hydroxyglutarate aldolase -!- oxaloacetate decarboxyla	-0.28
b1850	eda	Isolate 2	non-essential	multifunctional 2-keto-3-deoxygluconate 6-phosphate aldolase -!- 2-keto-4-hydroxyglutarate aldolase -!- oxaloacetate decarboxyla	2.25
b1851	edd	Isolate 1	non-essential	6-phosphogluconate dehydratase	-0.24
b1851	edd	Isolate 2	non-essential	6-phosphogluconate dehydratase	0.06
b1852	zwf	Isolate 1	non-essential	glucose-6-phosphate dehydrogenase	1.24
b1852	zwf	Isolate 2	non-essential	glucose-6-phosphate dehydrogenase	0.27
b1853	yebK	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.12

b1853	yebK	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	1.09
b1854	pykA	Isolate 1	non-essential	pyruvate kinase II	0.93
b1854	pykA	Isolate 2	non-essential	pyruvate kinase II	1.61
b1855	lpxM	Isolate 1	non-essential	myristoyl-acyl carrier protein (ACP)-dependent acyltransferase	0.66
b1855	lpxM	Isolate 2	non-essential	myristoyl-acyl carrier protein (ACP)-dependent acyltransferase	-1.08
b1856	yebA	Isolate 1	non-essential	predicted peptidase	-0.22
b1856	yebA	Isolate 2	non-essential	predicted peptidase	-0.46
b1857	znuA	Isolate 1	non-essential	zinc transporter subunit -!- periplasmic-binding component of ABC superfamily	1.42
b1857	znuA	Isolate 2	non-essential	zinc transporter subunit -!- periplasmic-binding component of ABC superfamily	0.30
b1858	znuC	Isolate 1	non-essential	zinc transporter subunit -!- ATP-binding component of ABC superfamily	0.68
b1858	znuC	Isolate 2	non-essential	zinc transporter subunit -!- ATP-binding component of ABC superfamily	1.59
b1859	znuB	Isolate 1	non-essential	zinc transporter subunit -!- membrane component of ABC superfamily	1.34
b1859	znuB	Isolate 2	non-essential	zinc transporter subunit -!- membrane component of ABC superfamily	0.49
b1860	ruvB	Isolate 1	non-essential	ATP-dependent DNA helicase, component of RuvABC resolvasome	0.87
b1860	ruvB	Isolate 2	non-essential	ATP-dependent DNA helicase, component of RuvABC resolvasome	4.90
b1861	ruvA	Isolate 1	non-essential	component of RuvABC resolvasome, regulatory subunit	3.08
b1861	ruvA	Isolate 2	non-essential	component of RuvABC resolvasome, regulatory subunit	1.37
b1862	yebB	Isolate 1	non-essential	predicted protein	-0.10
b1862	yebB	Isolate 2	non-essential	predicted protein	-0.40
b1863	ruvC	Isolate 1	non-essential	component of RuvABC resolvasome, endonuclease	2.23
b1863	ruvC	Isolate 2	non-essential	component of RuvABC resolvasome, endonuclease	3.45
b1864	yebC	Isolate 1	non-essential	conserved protein	-0.79
b1864	yebC	Isolate 2	non-essential	conserved protein	0.08
b1865	nudB	Isolate 1	non-essential	dATP pyrophosphohydrolase	-0.10
b1865	nudB	Isolate 2	non-essential	dATP pyrophosphohydrolase	0.48
b1866	aspS	Isolate 1	essential	aspartyl-tRNA synthetase	0.24
b1867	yecD	Isolate 1	non-essential	predicted hydrolase	-3.12
b1867	yecD	Isolate 2	non-essential	predicted hydrolase	0.27
b1868	yecE	Isolate 1	non-essential	conserved protein	-1.75
b1868	yecE	Isolate 2	non-essential	conserved protein	-1.68
b1869	yecN	Isolate 1	non-essential	predicted inner membrane protein	-0.03
b1869	yecN	Isolate 2	non-essential	predicted inner membrane protein	1.40
b1870	yecO	Isolate 1	non-essential	predicted methyltransferase	1.00
b1870	yecO	Isolate 2	non-essential	predicted methyltransferase	-0.18
b1871	yecP	Isolate 1	non-essential	predicted methyltransferase	2.42
b1871	yecP	Isolate 2	non-essential	predicted methyltransferase	-1.87
b1872	torZ	Isolate 1	non-essential	trimethylamine N-oxide reductase system III, catalytic subunit	0.94
b1872	torZ	Isolate 2	non-essential	trimethylamine N-oxide reductase system III, catalytic subunit	0.65
b1873	torY	Isolate 1	non-essential	TMAO reductase III (TorYZ), cytochrome c-type subunit	-0.19
b1873	torY	Isolate 2	non-essential	TMAO reductase III (TorYZ), cytochrome c-type subunit	0.68
b1874	cutC	Isolate 1	non-essential	copper homeostasis protein	1.59
b1874	cutC	Isolate 2	non-essential	copper homeostasis protein	0.07
b1875	yecM	Isolate 1	non-essential	predicted metal-binding enzyme	-0.15

b1875	yecM	Isolate 2	non-essential	predicted metal-binding enzyme	-0.76
b1877	yecT	Isolate 1	non-essential	predicted protein	1.53
b1877	yecT	Isolate 2	non-essential	predicted protein	2.55
b1878	flhE	Isolate 1	non-essential	flagellar protein	0.15
b1878	flhE	Isolate 2	non-essential	flagellar protein	-1.76
b1879	flhA	Isolate 1	non-essential	predicted flagellar export pore protein	0.37
b1879	flhA	Isolate 2	non-essential	predicted flagellar export pore protein	-0.79
b1880	flhB	Isolate 1	non-essential	predicted flagellar export pore protein	-0.57
b1880	flhB	Isolate 2	non-essential	predicted flagellar export pore protein	-0.34
b1881	cheZ	Isolate 1	non-essential	chemotaxis regulator	0.69
b1881	cheZ	Isolate 2	non-essential	chemotaxis regulator	0.67
b1882	cheY	Isolate 1	non-essential	chemotaxis regulator transmitting signal to flagellar motor component	-10.03
b1882	cheY	Isolate 2	non-essential	chemotaxis regulator transmitting signal to flagellar motor component	0.92
b1883	cheB	Isolate 1	non-essential	fused chemotaxis regulator -!- protein-glutamate methylesterase, in two-component regulatory system with CheA	-0.62
b1883	cheB	Isolate 2	non-essential	fused chemotaxis regulator -!- protein-glutamate methylesterase, in two-component regulatory system with CheA	0.50
b1884	cheR	Isolate 1	non-essential	chemotaxis regulator	0.31
b1884	cheR	Isolate 2	non-essential	chemotaxis regulator	1.49
b1885	tap	Isolate 1	non-essential	methyl-accepting protein IV	-0.63
b1885	tap	Isolate 2	non-essential	methyl-accepting protein IV	-2.03
b1886	tar	Isolate 1	non-essential	methyl-accepting chemotaxis protein II	1.06
b1886	tar	Isolate 2	non-essential	methyl-accepting chemotaxis protein II	1.53
b1887	cheW	Isolate 1	non-essential	purine-binding chemotaxis protein	0.63
b1887	cheW	Isolate 2	non-essential	purine-binding chemotaxis protein	-0.26
b1888	cheA	Isolate 1	non-essential	fused chemotactic sensory histidine kinase (soluble) in two-component regulatory system with CheB and CheY	-11.56
b1888	cheA	Isolate 2	non-essential	fused chemotactic sensory histidine kinase (soluble) in two-component regulatory system with CheB and CheY	0.12
b1889	motB	Isolate 1	non-essential	protein that enables flagellar motor rotation	0.09
b1889	motB	Isolate 2	non-essential	protein that enables flagellar motor rotation	-0.11
b1890	motA	Isolate 1	non-essential	proton conductor component of flagella motor	0.21
b1890	motA	Isolate 2	non-essential	proton conductor component of flagella motor	0.11
b1891	flhC	Isolate 1	non-essential	DNA-binding transcriptional regulator with FlhD	0.44
b1891	flhC	Isolate 2	non-essential	DNA-binding transcriptional regulator with FlhD	1.35
b1892	flhD	Isolate 1	non-essential	DNA-binding transcriptional dual regulator with FlhC	1.47
b1892	flhD	Isolate 2	non-essential	DNA-binding transcriptional dual regulator with FlhC	-0.42
b1895	yecG	Isolate 1	non-essential	universal stress protein	0.53
b1895	yecG	Isolate 2	non-essential	universal stress protein	1.00
b1896	otsA	Isolate 1	non-essential	trehalose-6-phosphate synthase	-0.09
b1896	otsA	Isolate 2	non-essential	trehalose-6-phosphate synthase	0.91
b1897	otsB	Isolate 1	non-essential	trehalose-6-phosphate phosphatase, biosynthetic	0.14
b1897	otsB	Isolate 2	non-essential	trehalose-6-phosphate phosphatase, biosynthetic	-0.80
b1900	araG	Isolate 1	non-essential	fused L-arabinose transporter subunits -!- ATP-binding components of ABC superfamily	0.86
b1900	araG	Isolate 2	non-essential	fused L-arabinose transporter subunits -!- ATP-binding components of ABC superfamily	-1.19
b1901	araF	Isolate 1	non-essential	L-arabinose transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.36
b1901	araF	Isolate 2	non-essential	L-arabinose transporter subunit -!- periplasmic-binding component of ABC superfamily	-1.85



b1902	yecI	Isolate 1	non-essential	predicted ferritin-like protein	0.91
b1902	yecI	Isolate 2	non-essential	predicted ferritin-like protein	1.71
b1904	yecR	Isolate 1	non-essential	predicted protein	-0.18
b1904	yecR	Isolate 2	non-essential	predicted protein	-0.65
b1905	ftn	Isolate 1	non-essential	ferritin iron storage protein (cytoplasmic)	-0.67
b1905	ftn	Isolate 2	non-essential	ferritin iron storage protein (cytoplasmic)	-1.47
b1906	yecH	Isolate 1	non-essential	predicted protein	-0.41
b1906	yecH	Isolate 2	non-essential	predicted protein	1.86
b1907	tyrP	Isolate 1	non-essential	tyrosine transporter	-0.29
b1907	tyrP	Isolate 2	non-essential	tyrosine transporter	-0.48
b1908	yecA	Isolate 1	non-essential	conserved metal-binding protein	-1.45
b1908	yecA	Isolate 2	non-essential	conserved metal-binding protein	-2.21
b1913	uvrC	Isolate 1	non-essential	excinuclease UvrABC, endonuclease subunit	-0.46
b1913	uvrC	Isolate 2	non-essential	excinuclease UvrABC, endonuclease subunit	1.39
b1914	uvrY	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with BarA	-0.12
b1914	uvrY	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with BarA	-0.01
b1915	yecF	Isolate 1	non-essential	predicted protein	0.00
b1915	yecF	Isolate 2	non-essential	predicted protein	-1.34
b1916	sdiA	Isolate 1	non-essential	DNA-binding transcriptional activator	0.90
b1916	sdiA	Isolate 2	non-essential	DNA-binding transcriptional activator	-0.89
b1917	yecC	Isolate 1	non-essential	predicted transporter subunit -!- ATP-binding component of ABC superfamily	-0.28
b1917	yecC	Isolate 2	non-essential	predicted transporter subunit -!- ATP-binding component of ABC superfamily	2.79
b1918	yecS	Isolate 1	non-essential	predicted transporter subunit -!- membrane component of ABC superfamily	2.86
b1918	yecS	Isolate 2	non-essential	predicted transporter subunit -!- membrane component of ABC superfamily	-0.85
b1919	yedO	Isolate 1	non-essential	D-cysteine desulphydrase, PLP-dependent	1.25
b1919	yedO	Isolate 2	non-essential	D-cysteine desulphydrase, PLP-dependent	1.74
b1920	fliY	Isolate 1	non-essential	cystine transporter subunit -!- periplasmic-binding component of ABC superfamily	1.04
b1920	fliY	Isolate 2	non-essential	cystine transporter subunit -!- periplasmic-binding component of ABC superfamily	1.20
b1921	fliZ	Isolate 1	non-essential	predicted regulator of FliA activity	1.22
b1921	fliZ	Isolate 2	non-essential	predicted regulator of FliA activity	0.72
b1922	fliA	Isolate 1	non-essential	RNA polymerase, sigma 28 (sigma F) factor	-0.29
b1922	fliA	Isolate 2	non-essential	RNA polymerase, sigma 28 (sigma F) factor	2.97
b1923	fliC	Isolate 1	non-essential	flagellar filament structural protein (flagellin)	1.40
b1923	fliC	Isolate 2	non-essential	flagellar filament structural protein (flagellin)	0.06
b1924	fliD	Isolate 1	non-essential	flagellar filament capping protein	-0.99
b1924	fliD	Isolate 2	non-essential	flagellar filament capping protein	-0.27
b1925	fliS	Isolate 1	non-essential	flagellar protein potentiates polymerization	-0.32
b1925	fliS	Isolate 2	non-essential	flagellar protein potentiates polymerization	1.79
b1926	fliT	Isolate 1	non-essential	predicted chaperone	1.49
b1926	fliT	Isolate 2	non-essential	predicted chaperone	1.32
b1927	amyA	Isolate 1	non-essential	cytoplasmic alpha-amylase	-0.37
b1927	amyA	Isolate 2	non-essential	cytoplasmic alpha-amylase	0.63
b1928	yedD	Isolate 1	non-essential	predicted protein	0.71

b1928	yedD	Isolate 2	non-essential	predicted protein	-1.48
b1929	yedE	Isolate 1	non-essential	predicted inner membrane protein	-1.09
b1929	yedE	Isolate 2	non-essential	predicted inner membrane protein	-0.91
b1930	yedF	Isolate 1	non-essential	conserved protein	-0.17
b1930	yedF	Isolate 2	non-essential	conserved protein	1.04
b1931	yedK	Isolate 1	non-essential	predicted protein	3.58
b1931	yedK	Isolate 2	non-essential	predicted protein	1.21
b1932	yedL	Isolate 1	non-essential	predicted acyltransferase	-0.52
b1932	yedL	Isolate 2	non-essential	predicted acyltransferase	-0.97
b1933	yedN	Isolate 1	*	predicted protein, N-ter fragment (pseudogene)	0.19
b1933	yedN	Isolate 2	*	predicted protein, N-ter fragment (pseudogene)	1.73
b1935	yedM	Isolate 1	non-essential	conserved protein	-1.38
b1935	yedM	Isolate 2	non-essential	conserved protein	1.35
b1936	intG	Isolate 1	*	predicted defective phage integrase (pseudogene)	-0.15
b1936	intG	Isolate 2	*	predicted defective phage integrase (pseudogene)	-0.69
b1937	fliE	Isolate 1	non-essential	flagellar basal-body component	-0.84
b1937	fliE	Isolate 2	non-essential	flagellar basal-body component	-0.17
b1938	fliF	Isolate 1	non-essential	flagellar basal-body MS-ring and collar protein	0.09
b1938	fliF	Isolate 2	non-essential	flagellar basal-body MS-ring and collar protein	0.88
b1939	fliG	Isolate 1	non-essential	flagellar motor switching and energizing component	0.07
b1939	fliG	Isolate 2	non-essential	flagellar motor switching and energizing component	-0.22
b1940	fliH	Isolate 1	non-essential	flagellar biosynthesis protein	0.35
b1940	fliH	Isolate 2	non-essential	flagellar biosynthesis protein	-1.34
b1941	fliI	Isolate 1	non-essential	flagellum-specific ATP synthase	0.53
b1941	fliI	Isolate 2	non-essential	flagellum-specific ATP synthase	-0.67
b1942	fliJ	Isolate 1	non-essential	flagellar protein	-2.42
b1942	fliJ	Isolate 2	non-essential	flagellar protein	-0.57
b1943	fliK	Isolate 1	non-essential	flagellar hook-length control protein	-1.08
b1943	fliK	Isolate 2	non-essential	flagellar hook-length control protein	0.58
b1944	fliL	Isolate 1	non-essential	flagellar biosynthesis protein	-1.16
b1944	fliL	Isolate 2	non-essential	flagellar biosynthesis protein	-0.94
b1945	fliM	Isolate 1	non-essential	flagellar motor switching and energizing component	-1.34
b1945	fliM	Isolate 2	non-essential	flagellar motor switching and energizing component	-1.77
b1946	fliN	Isolate 1	non-essential	flagellar motor switching and energizing component	0.60
b1946	fliN	Isolate 2	non-essential	flagellar motor switching and energizing component	1.22
b1947	fliO	Isolate 1	non-essential	flagellar biosynthesis protein	5.26
b1947	fliO	Isolate 2	non-essential	flagellar biosynthesis protein	2.94
b1948	fliP	Isolate 1	non-essential	flagellar biosynthesis protein	-0.43
b1948	fliP	Isolate 2	non-essential	flagellar biosynthesis protein	0.20
b1949	fliQ	Isolate 1	non-essential	flagellar biosynthesis protein	1.29
b1949	fliQ	Isolate 2	non-essential	flagellar biosynthesis protein	2.27
b1950	fliR	Isolate 1	non-essential	flagellar export pore protein	0.57
b1950	fliR	Isolate 2	non-essential	flagellar export pore protein	-0.49

b1951	rcsA	Isolate 1	non-essential	DNA-binding transcriptional co-regulator with RcsB	-0.42
b1951	rcsA	Isolate 2	non-essential	DNA-binding transcriptional co-regulator with RcsB	0.41
b1952	dsrB	Isolate 1	non-essential	predicted protein	-0.72
b1952	dsrB	Isolate 2	non-essential	predicted protein	0.81
b1953	yodD	Isolate 1	non-essential	predicted protein	-1.50
b1953	yodD	Isolate 2	non-essential	predicted protein	-1.31
b1955	yedP	Isolate 1	non-essential	conserved protein	-0.44
b1955	yedP	Isolate 2	non-essential	conserved protein	-0.65
b1956	yedQ	Isolate 1	non-essential	predicted diguanylate cyclase	0.54
b1956	yedQ	Isolate 2	non-essential	predicted diguanylate cyclase	1.19
b1957	yodC	Isolate 1	non-essential	predicted protein	-1.83
b1957	yodC	Isolate 2	non-essential	predicted protein	1.78
b1958	yedI	Isolate 1	non-essential	conserved inner membrane protein	-0.61
b1958	yedI	Isolate 2	non-essential	conserved inner membrane protein	-0.47
b1959	yedA	Isolate 1	non-essential	predicted inner membrane protein	-0.90
b1959	yedA	Isolate 2	non-essential	predicted inner membrane protein	-1.21
b1960	vsr	Isolate 1	non-essential	DNA mismatch endonuclease of very short patch repair	-0.09
b1960	vsr	Isolate 2	non-essential	DNA mismatch endonuclease of very short patch repair	0.19
b1961	dcm	Isolate 1	non-essential	DNA cytosine methylase	0.06
b1961	dcm	Isolate 2	non-essential	DNA cytosine methylase	-0.57
b1962	yedJ	Isolate 1	non-essential	predicted phosphohydrolase	0.17
b1962	yedJ	Isolate 2	non-essential	predicted phosphohydrolase	0.66
b1963	yedR	Isolate 1	non-essential	predicted inner membrane protein	0.33
b1963	yedR	Isolate 2	non-essential	predicted inner membrane protein	-1.74
b1965	yedS	Isolate 1	*	predicted protein, middle fragment (pseudogene)	-1.21
b1965	yedS	Isolate 2	*	predicted protein, middle fragment (pseudogene)	-0.54
b1966	yedS	Isolate 1	*	predicted protein, C-ter fragment (pseudogene)	-0.78
b1966	yedS	Isolate 2	*	predicted protein, C-ter fragment (pseudogene)	-0.39
b1967	hchA	Isolate 1	non-essential	Hsp31 molecular chaperone	-0.02
b1967	hchA	Isolate 2	non-essential	Hsp31 molecular chaperone	-0.05
b1968	yedV	Isolate 1	non-essential	predicted sensory kinase in two-component regulatory system with YedW	-0.82
b1968	yedV	Isolate 2	non-essential	predicted sensory kinase in two-component regulatory system with YedW	0.04
b1969	yedW	Isolate 1	non-essential	predicted DNA-binding response regulator in two-component system with YedV	0.73
b1969	yedW	Isolate 2	non-essential	predicted DNA-binding response regulator in two-component system with YedV	1.32
b1970	yedX	Isolate 1	non-essential	conserved protein	-0.55
b1970	yedX	Isolate 2	non-essential	conserved protein	0.19
b1971	yedY	Isolate 1	non-essential	predicted reductase	-0.38
b1971	yedY	Isolate 2	non-essential	predicted reductase	0.68
b1972	yedZ	Isolate 1	non-essential	conserved inner membrane protein	0.12
b1972	yedZ	Isolate 2	non-essential	conserved inner membrane protein	-1.01
b1973	yodA	Isolate 1	non-essential	conserved metal-binding protein	0.72
b1973	yodA	Isolate 2	non-essential	conserved metal-binding protein	-12.22
b1974	yodB	Isolate 1	non-essential	predicted cytochrome	-0.54

b1974	yodB	Isolate 2	non-essential	predicted cytochrome	-0.85
b1976	yeeI	Isolate 1	non-essential	conserved protein	0.10
b1976	yeeI	Isolate 2	non-essential	conserved protein	1.33
b1978	yeeJ	Isolate 1	non-essential	adhesin	-1.59
b1978	yeeJ	Isolate 2	non-essential	adhesin	-0.15
b1979	yeeL	Isolate 1	*	predicted protein, C-ter fragment (pseudogene)	0.08
b1979	yeeL	Isolate 2	*	predicted protein, C-ter fragment (pseudogene)	0.06
b1981	shiA	Isolate 1	non-essential	shikimate transporter	3.52
b1981	shiA	Isolate 2	non-essential	shikimate transporter	0.68
b1982	amn	Isolate 1	non-essential	AMP nucleosidase	0.97
b1982	amn	Isolate 2	non-essential	AMP nucleosidase	0.96
b1983	yeeN	Isolate 1	non-essential	conserved protein	0.65
b1983	yeeN	Isolate 2	non-essential	conserved protein	0.42
b1985	yeeO	Isolate 1	non-essential	predicted multidrug efflux system	-0.63
b1985	yeeO	Isolate 2	non-essential	predicted multidrug efflux system	0.19
b1987	cbl	Isolate 1	non-essential	DNA-binding transcriptional activator	0.44
b1987	cbl	Isolate 2	non-essential	DNA-binding transcriptional activator	1.18
b1988	nac	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	0.91
b1988	nac	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	0.07
b1990	erfK	Isolate 1	non-essential	conserved protein with NAD(P)-binding Rossmann-fold domain	1.03
b1990	erfK	Isolate 2	non-essential	conserved protein with NAD(P)-binding Rossmann-fold domain	0.48
b1991	cobT	Isolate 1	non-essential	nicotinate-nucleotide dimethylbenzimidazole-P phosphoribosyl transferase	-0.28
b1991	cobT	Isolate 2	non-essential	nicotinate-nucleotide dimethylbenzimidazole-P phosphoribosyl transferase	3.19
b1992	cobS	Isolate 1	non-essential	cobalamin 5'-phosphate synthase	1.70
b1992	cobS	Isolate 2	non-essential	cobalamin 5'-phosphate synthase	-1.31
b1993	cobU	Isolate 1	non-essential	bifunctional cobinamide kinase -!- cobinamide phosphate guanylyltransferase	0.24
b1993	cobU	Isolate 2	non-essential	bifunctional cobinamide kinase -!- cobinamide phosphate guanylyltransferase	3.07
b1995	yoeA	Isolate 1	*	CP4-44 prophage; predicted disrupted hemin or colicin receptor (pseudogene)	0.71
b1995	yoeA	Isolate 2	*	CP4-44 prophage; predicted disrupted hemin or colicin receptor (pseudogene)	0.62
b1998	yoeE	Isolate 1	non-essential	CP4-44 prophage; predicted disrupted hemin or colicin receptor	0.60
b1998	yoeE	Isolate 2	non-essential	CP4-44 prophage; predicted disrupted hemin or colicin receptor	1.93
b1999	yeeP	Isolate 1	*	CP4-44 prophage; predicted GTP-binding protein (pseudogene)	1.26
b1999	yeeP	Isolate 2	*	CP4-44 prophage; predicted GTP-binding protein (pseudogene)	0.17
b2000	flu	Isolate 1	non-essential	CP4-44 prophage; antigen 43 (Ag43) phase-variable biofilm formation autotransporter	-0.16
b2000	flu	Isolate 2	non-essential	CP4-44 prophage; antigen 43 (Ag43) phase-variable biofilm formation autotransporter	-0.59
b2001	yeeR	Isolate 1	non-essential	CP4-44 prophage; predicted membrane protein	-1.34
b2001	yeeR	Isolate 2	non-essential	CP4-44 prophage; predicted membrane protein	0.18
b2002	yeeS	Isolate 1	non-essential	CP4-44 prophage; predicted DNA repair protein	2.58
b2002	yeeS	Isolate 2	non-essential	CP4-44 prophage; predicted DNA repair protein	-0.21
b2003	yeeT	Isolate 1	non-essential	CP4-44 prophage; predicted protein	-1.51
b2003	yeeT	Isolate 2	non-essential	CP4-44 prophage; predicted protein	-0.23
b2004	yeeU	Isolate 1	non-essential	CP4-44 prophage; antitoxin of the YeeV-YeeU toxin-antitoxin system	-1.25
b2004	yeeU	Isolate 2	non-essential	CP4-44 prophage; antitoxin of the YeeV-YeeU toxin-antitoxin system	-2.37

b2005	yeeV	Isolate 1	non-essential	CP4-44 prophage; toxin of the YeeV-YeeU toxin-antitoxin system	0.59
b2005	yeeV	Isolate 2	non-essential	CP4-44 prophage; toxin of the YeeV-YeeU toxin-antitoxin system	-0.45
b2006	yeeW	Isolate 1	non-essential	CP4-44 prophage; predicted protein	1.83
b2006	yeeW	Isolate 2	non-essential	CP4-44 prophage; predicted protein	0.21
b2007	yeeX	Isolate 1	non-essential	conserved protein	-0.17
b2007	yeeX	Isolate 2	non-essential	conserved protein	-2.21
b2008	yeeA	Isolate 1	non-essential	conserved inner membrane protein	0.71
b2008	yeeA	Isolate 2	non-essential	conserved inner membrane protein	2.77
b2009	sbmC	Isolate 1	non-essential	DNA gyrase inhibitor	0.65
b2009	sbmC	Isolate 2	non-essential	DNA gyrase inhibitor	0.31
b2010	dacD	Isolate 1	non-essential	D-alanyl-D-alanine carboxypeptidase (penicillin-binding protein 6b)	1.56
b2010	dacD	Isolate 2	non-essential	D-alanyl-D-alanine carboxypeptidase (penicillin-binding protein 6b)	1.19
b2011	sbcB	Isolate 1	non-essential	exonuclease I	0.16
b2011	sbcB	Isolate 2	non-essential	exonuclease I	0.56
b2012	yeeD	Isolate 1	non-essential	conserved protein	3.08
b2012	yeeD	Isolate 2	non-essential	conserved protein	0.80
b2013	yeeE	Isolate 1	non-essential	predicted inner membrane protein	-0.25
b2013	yeeE	Isolate 2	non-essential	predicted inner membrane protein	0.65
b2014	yeeF	Isolate 1	non-essential	predicted amino-acid transporter	0.82
b2014	yeeF	Isolate 2	non-essential	predicted amino-acid transporter	2.16
b2015	yeeY	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	1.99
b2015	yeeY	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.67
b2016	yeeZ	Isolate 1	non-essential	predicted epimerase, with NAD(P)-binding Rossmann-fold domain	-0.73
b2016	yeeZ	Isolate 2	non-essential	predicted epimerase, with NAD(P)-binding Rossmann-fold domain	0.60
b2017	yefM	Isolate 1	essential	antitoxin of the YoeB-YefM toxin-antitoxin system	-4.14
b2018	hisL	Isolate 1	non-essential	his operon leader peptide	-1.01
b2018	hisL	Isolate 2	non-essential	his operon leader peptide	-2.82
b2019	hisG	Isolate 1	non-essential	ATP phosphoribosyltransferase	1.82
b2019	hisG	Isolate 2	non-essential	ATP phosphoribosyltransferase	0.86
b2020	hisD	Isolate 1	non-essential	bifunctional histidinal dehydrogenase -!- histidinol dehydrogenase	0.48
b2020	hisD	Isolate 2	non-essential	bifunctional histidinal dehydrogenase -!- histidinol dehydrogenase	2.78
b2021	hisC	Isolate 1	non-essential	histidinol-phosphate aminotransferase	3.82
b2021	hisC	Isolate 2	non-essential	histidinol-phosphate aminotransferase	1.15
b2022	hisB	Isolate 1	non-essential	fused histidinol-phosphatase -!- imidazoleglycerol-phosphate dehydratase	1.11
b2022	hisB	Isolate 2	non-essential	fused histidinol-phosphatase -!- imidazoleglycerol-phosphate dehydratase	1.65
b2023	hisH	Isolate 1	non-essential	imidazole glycerol phosphate synthase, glutamine amidotransferase subunit	0.86
b2023	hisH	Isolate 2	non-essential	imidazole glycerol phosphate synthase, glutamine amidotransferase subunit	0.14
b2024	hisA	Isolate 1	non-essential	N-(5'-phospho-L-ribosyl-formimino)-5-amino-1-(5'-phosphoribosyl)-4-imidazolecarboxamide isomerase	2.85
b2024	hisA	Isolate 2	non-essential	N-(5'-phospho-L-ribosyl-formimino)-5-amino-1-(5'-phosphoribosyl)-4-imidazolecarboxamide isomerase	3.54
b2025	hisF	Isolate 1	non-essential	imidazole glycerol phosphate synthase, catalytic subunit with HisF	2.18
b2025	hisF	Isolate 2	non-essential	imidazole glycerol phosphate synthase, catalytic subunit with HisF	-2.02
b2026	hisI	Isolate 1	non-essential	fused phosphoribosyl-AMP cyclohydrolase -!- phosphoribosyl-ATP pyrophosphatase	0.33
b2026	hisI	Isolate 2	non-essential	fused phosphoribosyl-AMP cyclohydrolase -!- phosphoribosyl-ATP pyrophosphatase	-1.75

b2027	cld	Isolate 1	non-essential	regulator of length of O-antigen component of lipopolysaccharide chains	1.34
b2027	cld	Isolate 2	non-essential	regulator of length of O-antigen component of lipopolysaccharide chains	0.71
b2028	ugd	Isolate 1	non-essential	UDP-glucose 6-dehydrogenase	0.07
b2028	ugd	Isolate 2	non-essential	UDP-glucose 6-dehydrogenase	1.35
b2029	gnd	Isolate 1	non-essential	gluconate-6-phosphate dehydrogenase, decarboxylating	2.62
b2029	gnd	Isolate 2	non-essential	gluconate-6-phosphate dehydrogenase, decarboxylating	1.43
b2031	wbbL	Isolate 1	*	lipopolysaccharide biosynthesis protein, N-ter fragment (pseudogene)	1.06
b2031	wbbL	Isolate 2	*	lipopolysaccharide biosynthesis protein, N-ter fragment (pseudogene)	3.61
b2032	wbbK	Isolate 1	non-essential	lipopolysaccharide biosynthesis protein	-0.09
b2032	wbbK	Isolate 2	non-essential	lipopolysaccharide biosynthesis protein	1.74
b2033	wbbJ	Isolate 1	non-essential	predicted acyl transferase	-0.79
b2033	wbbJ	Isolate 2	non-essential	predicted acyl transferase	-0.11
b2034	wbbI	Isolate 1	non-essential	conserved protein	0.32
b2034	wbbI	Isolate 2	non-essential	conserved protein	-0.95
b2035	wbbH	Isolate 1	non-essential	O-antigen polymerase	-1.80
b2035	wbbH	Isolate 2	non-essential	O-antigen polymerase	-0.02
b2036	glf	Isolate 1	non-essential	UDP-galactopyranose mutase, FAD/NAD(P)-binding	-1.05
b2036	glf	Isolate 2	non-essential	UDP-galactopyranose mutase, FAD/NAD(P)-binding	-0.78
b2037	rfbX	Isolate 1	non-essential	predicted polisoprenol-linked O-antigen transporter	0.40
b2037	rfbX	Isolate 2	non-essential	predicted polisoprenol-linked O-antigen transporter	0.15
b2038	rfbC	Isolate 1	non-essential	dTDP-4-deoxyrhamnose-3,5-epimerase	-0.65
b2038	rfbC	Isolate 2	non-essential	dTDP-4-deoxyrhamnose-3,5-epimerase	0.45
b2039	rfbA	Isolate 1	non-essential	glucose-1-phosphate thymidyltransferase	1.86
b2039	rfbA	Isolate 2	non-essential	glucose-1-phosphate thymidyltransferase	1.55
b2040	rfbD	Isolate 1	non-essential	dTDP-4-dehydrorhamnose reductase subunit, NAD(P)-binding, of dTDP-L-rhamnose synthase	0.29
b2040	rfbD	Isolate 2	non-essential	dTDP-4-dehydrorhamnose reductase subunit, NAD(P)-binding, of dTDP-L-rhamnose synthase	2.70
b2041	rfbB	Isolate 1	non-essential	dTDP-glucose 4,6 dehydratase, NAD(P)-binding	-0.75
b2041	rfbB	Isolate 2	non-essential	dTDP-glucose 4,6 dehydratase, NAD(P)-binding	0.34
b2042	galF	Isolate 1	non-essential	predicted subunit with GalU	0.65
b2042	galF	Isolate 2	non-essential	predicted subunit with GalU	0.94
b2043	wcaM	Isolate 1	non-essential	predicted colanic acid biosynthesis protein	1.22
b2043	wcaM	Isolate 2	non-essential	predicted colanic acid biosynthesis protein	0.23
b2044	wcaL	Isolate 1	non-essential	predicted glycosyl transferase	0.06
b2044	wcaL	Isolate 2	non-essential	predicted glycosyl transferase	2.12
b2045	wcaK	Isolate 1	non-essential	predicted pyruvyl transferase	0.39
b2045	wcaK	Isolate 2	non-essential	predicted pyruvyl transferase	0.36
b2046	wzxC	Isolate 1	non-essential	colanic acid exporter	-1.56
b2046	wzxC	Isolate 2	non-essential	colanic acid exporter	2.96
b2047	wcaJ	Isolate 1	non-essential	predicted UDP-glucose lipid carrier transferase	0.53
b2047	wcaJ	Isolate 2	non-essential	predicted UDP-glucose lipid carrier transferase	0.81
b2048	cpsG	Isolate 1	non-essential	phosphomannomutase	1.02
b2048	cpsG	Isolate 2	non-essential	phosphomannomutase	-1.88
b2049	cpsB	Isolate 1	non-essential	mannose-1-phosphate guanyltransferase	1.22

b2049	cpsB	Isolate 2	non-essential	mannose-1-phosphate guanyltransferase	-0.72
b2050	wcaI	Isolate 1	non-essential	predicted glycosyl transferase	-0.41
b2050	wcaI	Isolate 2	non-essential	predicted glycosyl transferase	2.15
b2051	nudD	Isolate 1	non-essential	GDP-mannose mannosyl hydrolase	0.19
b2051	nudD	Isolate 2	non-essential	GDP-mannose mannosyl hydrolase	0.15
b2052	fcl	Isolate 1	non-essential	bifunctional GDP-fucose synthetase: GDP-4-dehydro-6-deoxy-D-mannose epimerase and GDP-4-dehydro-6-L-deoxygalactose red	-0.79
b2052	fcl	Isolate 2	non-essential	bifunctional GDP-fucose synthetase: GDP-4-dehydro-6-deoxy-D-mannose epimerase and GDP-4-dehydro-6-L-deoxygalactose red	-1.74
b2053	gmd	Isolate 1	non-essential	GDP-D-mannose dehydratase, NAD(P)-binding	0.16
b2053	gmd	Isolate 2	non-essential	GDP-D-mannose dehydratase, NAD(P)-binding	-0.36
b2054	wcaF	Isolate 1	non-essential	predicted acyl transferase	-0.54
b2054	wcaF	Isolate 2	non-essential	predicted acyl transferase	1.13
b2055	wcaE	Isolate 1	non-essential	predicted glycosyl transferase	-0.37
b2055	wcaE	Isolate 2	non-essential	predicted glycosyl transferase	0.09
b2056	wcaD	Isolate 1	non-essential	predicted colanic acid polymerase	1.75
b2056	wcaD	Isolate 2	non-essential	predicted colanic acid polymerase	2.18
b2057	wcaC	Isolate 1	non-essential	predicted glycosyl transferase	-0.59
b2057	wcaC	Isolate 2	non-essential	predicted glycosyl transferase	0.79
b2058	wcaB	Isolate 1	non-essential	predicted acyl transferase	3.76
b2058	wcaB	Isolate 2	non-essential	predicted acyl transferase	1.83
b2059	wcaA	Isolate 1	non-essential	predicted glycosyl transferase	2.81
b2059	wcaA	Isolate 2	non-essential	predicted glycosyl transferase	0.25
b2060	wzc	Isolate 1	non-essential	protein-tyrosine kinase	-1.07
b2060	wzc	Isolate 2	non-essential	protein-tyrosine kinase	-0.75
b2061	wzb	Isolate 1	non-essential	protein-tyrosine phosphatase	2.10
b2061	wzb	Isolate 2	non-essential	protein-tyrosine phosphatase	0.13
b2062	wza	Isolate 1	non-essential	lipoprotein required for capsular polysaccharide translocation through the outer membrane	1.10
b2062	wza	Isolate 2	non-essential	lipoprotein required for capsular polysaccharide translocation through the outer membrane	-0.13
b2063	yegH	Isolate 1	non-essential	fused predicted membrane proteins	0.26
b2063	yegH	Isolate 2	non-essential	fused predicted membrane proteins	0.03
b2064	asmA	Isolate 1	non-essential	predicted assembly protein	-0.26
b2064	asmA	Isolate 2	non-essential	predicted assembly protein	1.12
b2065	dcd	Isolate 1	non-essential	2'-deoxycytidine 5'-triphosphate deaminase	0.33
b2065	dcd	Isolate 2	non-essential	2'-deoxycytidine 5'-triphosphate deaminase	-0.14
b2066	udk	Isolate 1	non-essential	uridine/cytidine kinase	-0.10
b2066	udk	Isolate 2	non-essential	uridine/cytidine kinase	1.69
b2067	yegE	Isolate 1	non-essential	predicted diguanylate cyclase, GGDEF domain signalling protein	2.11
b2067	yegE	Isolate 2	non-essential	predicted diguanylate cyclase, GGDEF domain signalling protein	-0.48
b2068	alkA	Isolate 1	non-essential	3-methyl-adenine DNA glycosylase II	2.34
b2068	alkA	Isolate 2	non-essential	3-methyl-adenine DNA glycosylase II	-0.42
b2069	yegD	Isolate 1	non-essential	predicted chaperone	0.50
b2069	yegD	Isolate 2	non-essential	predicted chaperone	0.97
b2070	yegI	Isolate 1	non-essential	conserved protein	-0.01
b2070	yegI	Isolate 2	non-essential	conserved protein	-0.57

b2071	yegJ	Isolate 1	non-essential	predicted protein	-0.18
b2071	yegJ	Isolate 2	non-essential	predicted protein	-1.55
b2072	yegK	Isolate 1	non-essential	predicted protein	0.81
b2072	yegK	Isolate 2	non-essential	predicted protein	-3.05
b2073	yegL	Isolate 1	non-essential	conserved protein	-0.96
b2073	yegL	Isolate 2	non-essential	conserved protein	-0.32
b2074	mdtA	Isolate 1	non-essential	multidrug efflux system, subunit A	-2.12
b2074	mdtA	Isolate 2	non-essential	multidrug efflux system, subunit A	-1.94
b2075	mdtB	Isolate 1	non-essential	multidrug efflux system, subunit B	-1.93
b2075	mdtB	Isolate 2	non-essential	multidrug efflux system, subunit B	-0.08
b2076	mdtC	Isolate 1	non-essential	multidrug efflux system, subunit C	2.00
b2076	mdtC	Isolate 2	non-essential	multidrug efflux system, subunit C	1.09
b2077	mdtD	Isolate 1	non-essential	multidrug efflux system protein	1.57
b2077	mdtD	Isolate 2	non-essential	multidrug efflux system protein	0.88
b2078	baeS	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory system with BaeR	-0.90
b2078	baeS	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory system with BaeR	0.72
b2079	baeR	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with BaeS	-0.48
b2079	baeR	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with BaeS	-0.32
b2080	yegP	Isolate 1	non-essential	predicted protein	0.27
b2080	yegP	Isolate 2	non-essential	predicted protein	-3.32
b2081	yegQ	Isolate 1	non-essential	predicted peptidase	-0.16
b2081	yegQ	Isolate 2	non-essential	predicted peptidase	1.18
b2082	ogrK	Isolate 1	non-essential	DNA-binding transcriptional regulator -!-prophage P2 remnant	-0.12
b2082	ogrK	Isolate 2	non-essential	DNA-binding transcriptional regulator -!-prophage P2 remnant	1.62
b2085	yegR	Isolate 1	non-essential	predicted protein	0.17
b2085	yegR	Isolate 2	non-essential	predicted protein	-1.52
b2086	yegS	Isolate 1	non-essential	conserved protein	-0.36
b2086	yegS	Isolate 2	non-essential	conserved protein	1.49
b2090	gatR	Isolate 1	*	DNA-binding transcriptional regulator, C-ter fragment (pseudogene)	-0.86
b2090	gatR	Isolate 2	*	DNA-binding transcriptional regulator, C-ter fragment (pseudogene)	1.81
b2091	gatD	Isolate 1	non-essential	galactitol-1-phosphate dehydrogenase, Zn-dependent and NAD(P)-binding	0.59
b2091	gatD	Isolate 2	non-essential	galactitol-1-phosphate dehydrogenase, Zn-dependent and NAD(P)-binding	-0.73
b2092	gatC	Isolate 1	non-essential	galactitol-specific enzyme IIC component of PTS	1.22
b2092	gatC	Isolate 2	non-essential	galactitol-specific enzyme IIC component of PTS	1.58
b2093	gatB	Isolate 1	non-essential	galactitol-specific enzyme IIB component of PTS	0.77
b2093	gatB	Isolate 2	non-essential	galactitol-specific enzyme IIB component of PTS	-0.01
b2095	gatZ	Isolate 1	non-essential	D-tagatose 1,6-bisphosphate aldolase 2, subunit	-0.25
b2095	gatZ	Isolate 2	non-essential	D-tagatose 1,6-bisphosphate aldolase 2, subunit	0.03
b2096	gatY	Isolate 1	non-essential	D-tagatose 1,6-bisphosphate aldolase 2, catalytic subunit	2.64
b2096	gatY	Isolate 2	non-essential	D-tagatose 1,6-bisphosphate aldolase 2, catalytic subunit	1.76
b2097	fbaB	Isolate 1	non-essential	fructose-bisphosphate aldolase class I	-0.94
b2097	fbaB	Isolate 2	non-essential	fructose-bisphosphate aldolase class I	-0.43
b2098	yegT	Isolate 1	non-essential	predicted nucleoside transporter	-0.44



b2098	yegT	Isolate 2	non-essential	predicted nucleoside transporter	0.53
b2099	yegU	Isolate 1	non-essential	predicted hydrolase	-0.28
b2099	yegU	Isolate 2	non-essential	predicted hydrolase	-0.52
b2100	yegV	Isolate 1	non-essential	predicted kinase	-1.56
b2100	yegV	Isolate 2	non-essential	predicted kinase	1.70
b2101	yegW	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	2.18
b2101	yegW	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	2.31
b2102	yegX	Isolate 1	non-essential	predicted hydrolase	-0.95
b2102	yegX	Isolate 2	non-essential	predicted hydrolase	-0.12
b2103	thiD	Isolate 1	non-essential	bifunctional hydroxy-methylpyrimidine kinase -!- hydroxy-phosphomethylpyrimidine kinase	0.80
b2103	thiD	Isolate 2	non-essential	bifunctional hydroxy-methylpyrimidine kinase -!- hydroxy-phosphomethylpyrimidine kinase	-0.10
b2104	thiM	Isolate 1	non-essential	hydroxyethylthiazole kinase	1.33
b2104	thiM	Isolate 2	non-essential	hydroxyethylthiazole kinase	-0.02
b2105	yohL	Isolate 1	non-essential	conserved protein	-0.10
b2105	yohL	Isolate 2	non-essential	conserved protein	-0.13
b2106	yohM	Isolate 1	non-essential	membrane protein conferring nickel and cobalt resistance	-1.95
b2106	yohM	Isolate 2	non-essential	membrane protein conferring nickel and cobalt resistance	-0.13
b2107	yohN	Isolate 1	non-essential	predicted protein	-0.77
b2107	yohN	Isolate 2	non-essential	predicted protein	-1.16
b2108	yehA	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	1.96
b2108	yehA	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	2.91
b2109	yehB	Isolate 1	non-essential	predicted outer membrane protein	0.90
b2109	yehB	Isolate 2	non-essential	predicted outer membrane protein	0.12
b2110	yehC	Isolate 1	non-essential	predicted periplasmic pilin chaperone	2.86
b2110	yehC	Isolate 2	non-essential	predicted periplasmic pilin chaperone	3.93
b2111	yehD	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	-0.84
b2111	yehD	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	-1.74
b2112	yehE	Isolate 1	non-essential	predicted protein	-0.57
b2112	yehE	Isolate 2	non-essential	predicted protein	0.71
b2113	mrp	Isolate 1	non-essential	antiporter inner membrane protein	1.86
b2113	mrp	Isolate 2	non-essential	antiporter inner membrane protein	-1.01
b2115	molR	Isolate 1	*	DNA-binding transcriptional regulator, N-ter fragment (pseudogene)	1.60
b2115	molR	Isolate 2	*	DNA-binding transcriptional regulator, N-ter fragment (pseudogene)	1.00
b2117	molR	Isolate 1	*	DNA-binding transcriptional regulator, C-ter fragment (pseudogene)	-0.88
b2117	molR	Isolate 2	*	DNA-binding transcriptional regulator, C-ter fragment (pseudogene)	-0.82
b2118	yehI	Isolate 1	non-essential	conserved protein	0.75
b2118	yehI	Isolate 2	non-essential	conserved protein	0.09
b2119	yehL	Isolate 1	non-essential	predicted transporter subunit -!- ATP-binding components of ABC superfamily	-0.03
b2119	yehL	Isolate 2	non-essential	predicted transporter subunit -!- ATP-binding components of ABC superfamily	-0.28
b2120	yehM	Isolate 1	non-essential	predicted protein	0.46
b2120	yehM	Isolate 2	non-essential	predicted protein	-1.36
b2121	yehP	Isolate 1	non-essential	conserved protein	0.27
b2121	yehP	Isolate 2	non-essential	conserved protein	0.80

b2122	yehQ	Isolate 1	non-essential	predicted protein	-0.14
b2122	yehQ	Isolate 2	non-essential	predicted protein	-0.36
b2123	yehR	Isolate 1	non-essential	conserved protein	-1.21
b2123	yehR	Isolate 2	non-essential	conserved protein	-0.58
b2124	yehS	Isolate 1	non-essential	conserved protein	1.06
b2124	yehS	Isolate 2	non-essential	conserved protein	-0.72
b2125	yehT	Isolate 1	non-essential	predicted response regulator in two-component system with YehU	-1.45
b2125	yehT	Isolate 2	non-essential	predicted response regulator in two-component system with YehU	-1.02
b2126	yehU	Isolate 1	non-essential	predicted sensory kinase in two-component system with YehT	-0.64
b2126	yehU	Isolate 2	non-essential	predicted sensory kinase in two-component system with YehT	0.36
b2127	mlrA	Isolate 1	non-essential	DNA-binding transcriptional regulator	1.03
b2127	mlrA	Isolate 2	non-essential	DNA-binding transcriptional regulator	0.73
b2128	yehW	Isolate 1	non-essential	predicted transporter subunit -!- membrane component of ABC superfamily	-1.35
b2128	yehW	Isolate 2	non-essential	predicted transporter subunit -!- membrane component of ABC superfamily	-0.92
b2129	yehX	Isolate 1	non-essential	predicted transporter subunit -!- ATP-binding component of ABC superfamily	-0.93
b2129	yehX	Isolate 2	non-essential	predicted transporter subunit -!- ATP-binding component of ABC superfamily	0.00
b2130	yehY	Isolate 1	non-essential	predicted transporter subunit -!- membrane component of ABC superfamily	-0.27
b2130	yehY	Isolate 2	non-essential	predicted transporter subunit -!- membrane component of ABC superfamily	0.50
b2131	yehZ	Isolate 1	non-essential	predicted transporter subunit -!- periplasmic-binding component of ABC superfamily	0.77
b2131	yehZ	Isolate 2	non-essential	predicted transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.10
b2132	bglX	Isolate 1	non-essential	beta-D-glucoside glucohydrolase, periplasmic	2.49
b2132	bglX	Isolate 2	non-essential	beta-D-glucoside glucohydrolase, periplasmic	1.82
b2133	dld	Isolate 1	non-essential	D-lactate dehydrogenase, FAD-binding, NADH independent	-0.24
b2133	dld	Isolate 2	non-essential	D-lactate dehydrogenase, FAD-binding, NADH independent	0.36
b2134	pbpG	Isolate 1	non-essential	D-alanyl-D-alanine endopeptidase	-0.91
b2134	pbpG	Isolate 2	non-essential	D-alanyl-D-alanine endopeptidase	-2.07
b2135	yohC	Isolate 1	non-essential	predicted inner membrane protein	-0.45
b2135	yohC	Isolate 2	non-essential	predicted inner membrane protein	-0.21
b2136	yohD	Isolate 1	non-essential	conserved inner membrane protein	-0.76
b2136	yohD	Isolate 2	non-essential	conserved inner membrane protein	1.12
b2137	yohF	Isolate 1	non-essential	predicted oxidoreductase with NAD(P)-binding Rossmann-fold domain	0.36
b2137	yohF	Isolate 2	non-essential	predicted oxidoreductase with NAD(P)-binding Rossmann-fold domain	1.35
b2138	yohG	Isolate 1	non-essential	predicted outer membrane protein	0.38
b2138	yohG	Isolate 2	non-essential	predicted outer membrane protein	0.54
b2139	yohH	Isolate 1	non-essential	conserved protein	-0.30
b2139	yohH	Isolate 2	non-essential	conserved protein	-1.62
b2140	dusC	Isolate 1	non-essential	tRNA-dihydrouridine synthase C	-0.74
b2140	dusC	Isolate 2	non-essential	tRNA-dihydrouridine synthase C	1.09
b2141	yohJ	Isolate 1	non-essential	conserved inner membrane protein	0.68
b2141	yohJ	Isolate 2	non-essential	conserved inner membrane protein	1.14
b2142	yohK	Isolate 1	non-essential	predicted inner membrane protein	-0.36
b2142	yohK	Isolate 2	non-essential	predicted inner membrane protein	1.81
b2143	cdd	Isolate 1	non-essential	cytidine/deoxycytidine deaminase	0.29

b2143	cdd	Isolate 2	non-essential	cytidine/deoxycytidine deaminase	-0.76
b2144	sanA	Isolate 1	non-essential	predicted protein	1.77
b2144	sanA	Isolate 2	non-essential	predicted protein	1.70
b2145	yeiS	Isolate 1	non-essential	predicted inner membrane protein	1.85
b2145	yeiS	Isolate 2	non-essential	predicted inner membrane protein	0.77
b2146	yeiT	Isolate 1	non-essential	predicted oxidoreductase	-0.36
b2146	yeiT	Isolate 2	non-essential	predicted oxidoreductase	-1.50
b2147	yeiA	Isolate 1	non-essential	predicted oxidoreductase	0.11
b2147	yeiA	Isolate 2	non-essential	predicted oxidoreductase	0.15
b2148	mglC	Isolate 1	non-essential	methyl-galactoside transporter subunit -!- membrane component of ABC superfamily	1.19
b2148	mglC	Isolate 2	non-essential	methyl-galactoside transporter subunit -!- membrane component of ABC superfamily	-0.32
b2149	mglA	Isolate 1	non-essential	fused methyl-galactoside transporter subunits! -!- ATP-binding components of ABC superfamily	0.63
b2149	mglA	Isolate 2	non-essential	fused methyl-galactoside transporter subunits! -!- ATP-binding components of ABC superfamily	-0.65
b2150	mglB	Isolate 1	non-essential	methyl-galactoside transporter subunit -!- periplasmic-binding component of ABC superfamily	0.21
b2150	mglB	Isolate 2	non-essential	methyl-galactoside transporter subunit -!- periplasmic-binding component of ABC superfamily	0.05
b2151	galS	Isolate 1	non-essential	DNA-binding transcriptional repressor	2.99
b2151	galS	Isolate 2	non-essential	DNA-binding transcriptional repressor	1.82
b2152	yeiB	Isolate 1	non-essential	conserved inner membrane protein	0.63
b2152	yeiB	Isolate 2	non-essential	conserved inner membrane protein	-0.65
b2154	yeiG	Isolate 1	non-essential	predicted esterase	1.17
b2154	yeiG	Isolate 2	non-essential	predicted esterase	2.43
b2155	cirA	Isolate 1	non-essential	ferric iron-catecholate outer membrane transporter	-0.73
b2155	cirA	Isolate 2	non-essential	ferric iron-catecholate outer membrane transporter	-0.78
b2156	lysP	Isolate 1	non-essential	lysine transporter	1.12
b2156	lysP	Isolate 2	non-essential	lysine transporter	1.20
b2157	yeiE	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.23
b2157	yeiE	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	1.43
b2158	yeiH	Isolate 1	non-essential	conserved inner membrane protein	0.23
b2158	yeiH	Isolate 2	non-essential	conserved inner membrane protein	0.02
b2159	nfo	Isolate 1	non-essential	endonuclease IV with intrinsic 3'-5' exonuclease activity	0.54
b2159	nfo	Isolate 2	non-essential	endonuclease IV with intrinsic 3'-5' exonuclease activity	-0.41
b2160	yeiI	Isolate 1	non-essential	predicted kinase	0.27
b2160	yeiI	Isolate 2	non-essential	predicted kinase	0.45
b2161	yeiJ	Isolate 1	non-essential	predicted nucleoside transporter	1.18
b2161	yeiJ	Isolate 2	non-essential	predicted nucleoside transporter	-0.53
b2162	rihB	Isolate 1	non-essential	ribonucleoside hydrolase 2	-0.15
b2162	rihB	Isolate 2	non-essential	ribonucleoside hydrolase 2	0.52
b2163	yeiL	Isolate 1	non-essential	DNA-binding transcriptional activator	-12.69
b2163	yeiL	Isolate 2	non-essential	DNA-binding transcriptional activator	-2.65
b2164	yeiM	Isolate 1	non-essential	predicted nucleoside transporter	-1.19
b2164	yeiM	Isolate 2	non-essential	predicted nucleoside transporter	0.58
b2165	yeiN	Isolate 1	non-essential	conserved protein	0.01
b2165	yeiN	Isolate 2	non-essential	conserved protein	-1.68

b2166	yeiC	Isolate 1	non-essential	predicted kinase	0.17
b2166	yeiC	Isolate 2	non-essential	predicted kinase	5.08
b2167	fruA	Isolate 1	non-essential	fused fructose-specific PTS enzyme IIB'BC components	1.55
b2167	fruA	Isolate 2	non-essential	fused fructose-specific PTS enzyme IIB'BC components	0.92
b2168	fruK	Isolate 1	non-essential	fructose-1-phosphate kinase	-0.88
b2168	fruK	Isolate 2	non-essential	fructose-1-phosphate kinase	-0.35
b2169	fruB	Isolate 1	non-essential	fused fructose-specific PTS enzyme IIA component -!- HPr component	-0.19
b2169	fruB	Isolate 2	non-essential	fused fructose-specific PTS enzyme IIA component -!- HPr component	1.28
b2170	setB	Isolate 1	non-essential	lactose/glucose efflux system	-1.25
b2170	setB	Isolate 2	non-essential	lactose/glucose efflux system	-0.34
b2171	yeiP	Isolate 1	non-essential	predicted elongtion factor	3.30
b2171	yeiP	Isolate 2	non-essential	predicted elongtion factor	-0.74
b2172	yeiQ	Isolate 1	non-essential	predicted dehydrogenase, NAD-dependent	-0.08
b2172	yeiQ	Isolate 2	non-essential	predicted dehydrogenase, NAD-dependent	0.42
b2173	yeiR	Isolate 1	non-essential	predicted enzyme	1.91
b2173	yeiR	Isolate 2	non-essential	predicted enzyme	0.38
b2174	yeiU	Isolate 1	non-essential	undecaprenyl pyrophosphate phosphatase	-1.79
b2174	yeiU	Isolate 2	non-essential	undecaprenyl pyrophosphate phosphatase	0.10
b2175	spr	Isolate 1	non-essential	predicted peptidase, outer membrane lipoprotein	-1.95
b2175	spr	Isolate 2	non-essential	predicted peptidase, outer membrane lipoprotein	-2.48
b2176	rtn	Isolate 1	non-essential	conserved protein	0.46
b2176	rtn	Isolate 2	non-essential	conserved protein	0.04
b2177	yejA	Isolate 1	non-essential	predicted oligopeptide transporter subunit -!- periplasmic-binding component of ABC superfamily	0.16
b2177	yejA	Isolate 2	non-essential	predicted oligopeptide transporter subunit -!- periplasmic-binding component of ABC superfamily	0.74
b2178	yejB	Isolate 1	non-essential	predicted oligopeptide transporter subunit -!- membrane component of ABC superfamily	2.62
b2178	yejB	Isolate 2	non-essential	predicted oligopeptide transporter subunit -!- membrane component of ABC superfamily	0.60
b2179	yejE	Isolate 1	non-essential	predicted oligopeptide transporter subunit -!- membrane component of ABC superfamily	-0.79
b2179	yejE	Isolate 2	non-essential	predicted oligopeptide transporter subunit -!- membrane component of ABC superfamily	1.66
b2180	yejF	Isolate 1	non-essential	fused predicted oligopeptide transporter subunits -!- ATP-binding components of ABC superfamily	-3.90
b2180	yejF	Isolate 2	non-essential	fused predicted oligopeptide transporter subunits -!- ATP-binding components of ABC superfamily	-1.00
b2181	yejG	Isolate 1	non-essential	predicted protein	0.43
b2181	yejG	Isolate 2	non-essential	predicted protein	-0.28
b2182	bcr	Isolate 1	non-essential	bicyclomycin/multidrug efflux system	2.66
b2182	bcr	Isolate 2	non-essential	bicyclomycin/multidrug efflux system	0.05
b2183	rsuA	Isolate 1	non-essential	16S rRNA pseudouridylate 516 synthase	-0.15
b2183	rsuA	Isolate 2	non-essential	16S rRNA pseudouridylate 516 synthase	0.75
b2184	yejH	Isolate 1	non-essential	predicted ATP-dependet helicase	-0.14
b2184	yejH	Isolate 2	non-essential	predicted ATP-dependet helicase	-1.36
b2185	rplY	Isolate 1	non-essential	50S ribosomal subunit protein L25	1.95
b2185	rplY	Isolate 2	non-essential	50S ribosomal subunit protein L25	-0.03
b2186	yejK	Isolate 1	non-essential	nucleotide associated protein	-0.31
b2186	yejK	Isolate 2	non-essential	nucleotide associated protein	-1.51
b2187	yejL	Isolate 1	non-essential	conserved protein	-0.80

b2187	yejL	Isolate 2	non-essential	conserved protein	-1.64
b2188	yejM	Isolate 1	essential	predicted hydrolase, inner membrane	-1.49
b2190	yejO	Isolate 1	non-essential	predicted autotransporter outer membrane protein	-1.88
b2190	yejO	Isolate 2	non-essential	predicted autotransporter outer membrane protein	-1.49
b2193	narP	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with NarQ or NarX	-13.74
b2193	narP	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with NarQ or NarX	-0.45
b2194	ccmH	Isolate 1	non-essential	heme lyase, CcmH subunit	0.41
b2194	ccmH	Isolate 2	non-essential	heme lyase, CcmH subunit	-0.22
b2195	ccmG	Isolate 1	non-essential	periplasmic thioredoxin of cytochrome c-type biogenesis	-0.43
b2195	ccmG	Isolate 2	non-essential	periplasmic thioredoxin of cytochrome c-type biogenesis	0.66
b2196	ccmF	Isolate 1	non-essential	heme lyase, CcmF subunit	-5.19
b2196	ccmF	Isolate 2	non-essential	heme lyase, CcmF subunit	-4.83
b2197	ccmE	Isolate 1	non-essential	periplasmic heme chaperone	-0.09
b2197	ccmE	Isolate 2	non-essential	periplasmic heme chaperone	0.63
b2198	ccmD	Isolate 1	non-essential	cytochrome c biogenesis protein	-1.20
b2198	ccmD	Isolate 2	non-essential	cytochrome c biogenesis protein	1.21
b2199	ccmC	Isolate 1	non-essential	heme exporter subunit -!- membrane component of ABC superfamily	0.50
b2199	ccmC	Isolate 2	non-essential	heme exporter subunit -!- membrane component of ABC superfamily	0.13
b2200	ccmB	Isolate 1	non-essential	heme exporter subunit -!- membrane component of ABC superfamily	0.79
b2200	ccmB	Isolate 2	non-essential	heme exporter subunit -!- membrane component of ABC superfamily	0.27
b2201	ccmA	Isolate 1	non-essential	heme exporter subunit -!- ATP-binding component of ABC superfamily	0.94
b2201	ccmA	Isolate 2	non-essential	heme exporter subunit -!- ATP-binding component of ABC superfamily	0.34
b2202	napC	Isolate 1	non-essential	nitrate reductase, cytochrome c-type,periplasmic	1.85
b2202	napC	Isolate 2	non-essential	nitrate reductase, cytochrome c-type,periplasmic	0.22
b2203	napB	Isolate 1	non-essential	nitrate reductase, small, cytochrome C550 subunit, periplasmic	-0.01
b2203	napB	Isolate 2	non-essential	nitrate reductase, small, cytochrome C550 subunit, periplasmic	0.44
b2204	napH	Isolate 1	non-essential	ferredoxin-type protein essential for electron transfer from ubiquinol to periplasmic nitrate reductase (NapAB)	1.20
b2204	napH	Isolate 2	non-essential	ferredoxin-type protein essential for electron transfer from ubiquinol to periplasmic nitrate reductase (NapAB)	-0.38
b2205	napG	Isolate 1	non-essential	ferredoxin-type protein essential for electron transfer from ubiquinol to periplasmic nitrate reductase (NapAB)	0.44
b2205	napG	Isolate 2	non-essential	ferredoxin-type protein essential for electron transfer from ubiquinol to periplasmic nitrate reductase (NapAB)	-0.74
b2206	napA	Isolate 1	non-essential	nitrate reductase, periplasmic, large subunit	2.04
b2206	napA	Isolate 2	non-essential	nitrate reductase, periplasmic, large subunit	2.14
b2207	napD	Isolate 1	non-essential	assembly protein for periplasmic nitrate reductase	1.20
b2207	napD	Isolate 2	non-essential	assembly protein for periplasmic nitrate reductase	1.22
b2208	napF	Isolate 1	non-essential	ferredoxin-type protein, predicted role in electron transfer to periplasmic nitrate reductase (NapA)	1.95
b2208	napF	Isolate 2	non-essential	ferredoxin-type protein, predicted role in electron transfer to periplasmic nitrate reductase (NapA)	0.65
b2209	eco	Isolate 1	non-essential	ecotin, a serine protease inhibitor	1.32
b2209	eco	Isolate 2	non-essential	ecotin, a serine protease inhibitor	1.70
b2210	mgo	Isolate 1	non-essential	malate dehydrogenase, FAD/NAD(P)-binding domain	0.55
b2210	mgo	Isolate 2	non-essential	malate dehydrogenase, FAD/NAD(P)-binding domain	0.98
b2211	yojI	Isolate 1	non-essential	fused predicted multidrug transport subunits -!- membrane component and ATP-binding component of ABC superfamily	-0.46
b2211	yojI	Isolate 2	non-essential	fused predicted multidrug transport subunits -!- membrane component and ATP-binding component of ABC superfamily	1.00
b2212	alkB	Isolate 1	non-essential	oxidative demethylase of N1-methyladenine or N3-methylcytosine DNA lesions	-0.57

b2212	alkB	Isolate 2	non-essential	oxidative demethylase of N1-methyladenine or N3-methylcytosine DNA lesions	-0.77
b2213	ada	Isolate 1	non-essential	fused DNA-binding transcriptional dual regulator -!- O6-methylguanine-DNA methyltransferase	1.37
b2213	ada	Isolate 2	non-essential	fused DNA-binding transcriptional dual regulator -!- O6-methylguanine-DNA methyltransferase	-0.31
b2214	yojL	Isolate 1	non-essential	predicted thiamine biosynthesis lipoprotein	0.77
b2214	yojL	Isolate 2	non-essential	predicted thiamine biosynthesis lipoprotein	2.48
b2215	ompC	Isolate 1	non-essential	outer membrane porin protein C	-1.29
b2215	ompC	Isolate 2	non-essential	outer membrane porin protein C	-2.04
b2216	rcsD	Isolate 1	non-essential	phosphotransfer intermediate protein in two-component regulatory system with RcsBC	-0.85
b2216	rcsD	Isolate 2	non-essential	phosphotransfer intermediate protein in two-component regulatory system with RcsBC	2.20
b2217	rcsB	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with RcsC and YojN	-1.10
b2217	rcsB	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with RcsC and YojN	1.69
b2218	rcsC	Isolate 1	unknown	hybrid sensory kinase in two-component regulatory system with RcsB and YojN	0.72
b2218	rcsC	Isolate 2	unknown	hybrid sensory kinase in two-component regulatory system with RcsB and YojN	-1.32
b2219	atoS	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory system with AtoC	0.05
b2219	atoS	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory system with AtoC	-0.25
b2220	atoC	Isolate 1	non-essential	fused response regulator of ato opeon, in two-component system with AtoS	2.26
b2220	atoC	Isolate 2	non-essential	fused response regulator of ato opeon, in two-component system with AtoS	5.15
b2221	atoD	Isolate 1	non-essential	acetyl-CoA:acetoacetyl-CoA transferase, alpha subunit	1.67
b2221	atoD	Isolate 2	non-essential	acetyl-CoA:acetoacetyl-CoA transferase, alpha subunit	0.83
b2222	atoA	Isolate 1	non-essential	acetyl-CoA:acetoacetyl-CoA transferase, beta subunit	-0.41
b2222	atoA	Isolate 2	non-essential	acetyl-CoA:acetoacetyl-CoA transferase, beta subunit	1.04
b2223	atoE	Isolate 1	non-essential	short chain fatty acid transporter	0.17
b2223	atoE	Isolate 2	non-essential	short chain fatty acid transporter	0.20
b2224	atoB	Isolate 1	non-essential	acetyl-CoA acetyltransferase	-0.58
b2224	atoB	Isolate 2	non-essential	acetyl-CoA acetyltransferase	-1.27
b2225	yfaP	Isolate 1	non-essential	conserved protein	0.95
b2225	yfaP	Isolate 2	non-essential	conserved protein	0.53
b2226	yfaQ	Isolate 1	non-essential	predicted protein	1.31
b2226	yfaQ	Isolate 2	non-essential	predicted protein	-2.11
b2227	yfaS	Isolate 1	*	predicted protein, C-ter fragment (pseudogene)	-1.40
b2227	yfaS	Isolate 2	*	predicted protein, C-ter fragment (pseudogene)	-0.91
b2229	yfaT	Isolate 1	non-essential	predicted protein	-0.86
b2229	yfaT	Isolate 2	non-essential	predicted protein	1.11
b2230	yfaA	Isolate 1	non-essential	predicted protein	-1.17
b2230	yfaA	Isolate 2	non-essential	predicted protein	-0.60
b2231	gyrA	Isolate 1	essential	DNA gyrase (type II topoisomerase), subunit A	0.40
b2232	ubiG	Isolate 1	non-essential	bifunctional 3-demethylubiquinone-9 3-methyltransferase -!- 2-octaprenyl-6-hydroxy phenol methylase	1.75
b2232	ubiG	Isolate 2	non-essential	bifunctional 3-demethylubiquinone-9 3-methyltransferase -!- 2-octaprenyl-6-hydroxy phenol methylase	0.59
b2233	yfaL	Isolate 1	non-essential	adhesin	-0.52
b2233	yfaL	Isolate 2	non-essential	adhesin	2.50
b2236	yfaE	Isolate 1	non-essential	predicted 2Fe-2S cluster-containing protein	-0.91
b2236	yfaE	Isolate 2	non-essential	predicted 2Fe-2S cluster-containing protein	-0.30
b2237	inaA	Isolate 1	non-essential	conserved protein	-1.69

b2237	inaA	Isolate 2	non-essential	conserved protein	0.08
b2238	yfaH	Isolate 1	non-essential	conserved protein	0.52
b2238	yfaH	Isolate 2	non-essential	conserved protein	-0.15
b2239	glpQ	Isolate 1	non-essential	periplasmic glycerophosphodiester phosphodiesterase	-0.16
b2239	glpQ	Isolate 2	non-essential	periplasmic glycerophosphodiester phosphodiesterase	0.03
b2240	glpT	Isolate 1	non-essential	sn-glycerol-3-phosphate transporter	0.11
b2240	glpT	Isolate 2	non-essential	sn-glycerol-3-phosphate transporter	-1.24
b2241	glpA	Isolate 1	non-essential	sn-glycerol-3-phosphate dehydrogenase (anaerobic), large subunit, FAD/NAD(P)-binding	-0.88
b2241	glpA	Isolate 2	non-essential	sn-glycerol-3-phosphate dehydrogenase (anaerobic), large subunit, FAD/NAD(P)-binding	0.69
b2242	glpB	Isolate 1	non-essential	sn-glycerol-3-phosphate dehydrogenase (anaerobic), membrane anchor subunit	-1.10
b2242	glpB	Isolate 2	non-essential	sn-glycerol-3-phosphate dehydrogenase (anaerobic), membrane anchor subunit	0.46
b2243	glpC	Isolate 1	non-essential	sn-glycerol-3-phosphate dehydrogenase (anaerobic), small subunit	3.03
b2243	glpC	Isolate 2	non-essential	sn-glycerol-3-phosphate dehydrogenase (anaerobic), small subunit	0.99
b2244	yfaD	Isolate 1	non-essential	conserved protein	-1.43
b2244	yfaD	Isolate 2	non-essential	conserved protein	-0.68
b2245	yfaU	Isolate 1	non-essential	predicted 2,4-dihydroxyhept-2-ene-1,7-dioic acid aldolase	-1.89
b2245	yfaU	Isolate 2	non-essential	predicted 2,4-dihydroxyhept-2-ene-1,7-dioic acid aldolase	-0.86
b2246	yfaV	Isolate 1	non-essential	predicted transporter	0.21
b2246	yfaV	Isolate 2	non-essential	predicted transporter	0.39
b2247	yfaW	Isolate 1	non-essential	predicted enolase	1.60
b2247	yfaW	Isolate 2	non-essential	predicted enolase	-0.10
b2248	yfaX	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	1.18
b2248	yfaX	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.44
b2249	yfaY	Isolate 1	non-essential	conserved protein	-0.61
b2249	yfaY	Isolate 2	non-essential	conserved protein	1.97
b2250	yfaZ	Isolate 1	non-essential	predicted outer membrane porin protein	-1.46
b2250	yfaZ	Isolate 2	non-essential	predicted outer membrane porin protein	-0.92
b2251	yfaO	Isolate 1	non-essential	predicted NUDIX hydrolase	1.61
b2251	yfaO	Isolate 2	non-essential	predicted NUDIX hydrolase	-0.39
b2252	ais	Isolate 1	non-essential	conserved protein	1.07
b2252	ais	Isolate 2	non-essential	conserved protein	-0.36
b2253	yfbE	Isolate 1	non-essential	uridine 5'-(beta-1-threo-pentapyranosyl-4-ulose diphosphate) aminotransferase, PLP-dependent	-0.16
b2253	yfbE	Isolate 2	non-essential	uridine 5'-(beta-1-threo-pentapyranosyl-4-ulose diphosphate) aminotransferase, PLP-dependent	0.12
b2254	yfbF	Isolate 1	non-essential	undecaprenyl phosphate-L-Ara4FN transferase	1.25
b2254	yfbF	Isolate 2	non-essential	undecaprenyl phosphate-L-Ara4FN transferase	-0.60
b2255	yfbG	Isolate 1	non-essential	fused UDP-L-Ara4N formyltransferase -!- UDP-GlcA C-4'-decarboxylase	-0.09
b2255	yfbG	Isolate 2	non-essential	fused UDP-L-Ara4N formyltransferase -!- UDP-GlcA C-4'-decarboxylase	3.24
b2256	yfbH	Isolate 1	non-essential	conserved protein	1.53
b2256	yfbH	Isolate 2	non-essential	conserved protein	1.60
b2257	arnT	Isolate 1	non-essential	4-amino-4-deoxy-L-arabinose transferase	-1.06
b2257	arnT	Isolate 2	non-essential	4-amino-4-deoxy-L-arabinose transferase	-1.25
b2258	yfbJ	Isolate 1	non-essential	predicted inner membrane protein	-1.91
b2258	yfbJ	Isolate 2	non-essential	predicted inner membrane protein	-2.02

b2259	pmrD	Isolate 1	non-essential	polymyxin resistance protein B	0.35
b2259	pmrD	Isolate 2	non-essential	polymyxin resistance protein B	-1.01
b2260	menE	Isolate 1	non-essential	o-succinylbenzoate-CoA ligase	0.68
b2260	menE	Isolate 2	non-essential	o-succinylbenzoate-CoA ligase	1.73
b2261	menC	Isolate 1	non-essential	o-succinylbenzoyl-CoA synthase	3.10
b2261	menC	Isolate 2	non-essential	o-succinylbenzoyl-CoA synthase	1.13
b2262	menB	Isolate 1	non-essential	dihydroxynaphthoic acid synthetase	0.41
b2262	menB	Isolate 2	non-essential	dihydroxynaphthoic acid synthetase	1.00
b2263	yfbB	Isolate 1	non-essential	predicted peptidase	2.79
b2263	yfbB	Isolate 2	non-essential	predicted peptidase	0.59
b2264	menD	Isolate 1	non-essential	bifunctional 2-oxoglutarate decarboxylase -!- SHCHC synthase	0.97
b2264	menD	Isolate 2	non-essential	bifunctional 2-oxoglutarate decarboxylase -!- SHCHC synthase	0.73
b2265	menF	Isolate 1	non-essential	isochorismate synthase 2	0.02
b2265	menF	Isolate 2	non-essential	isochorismate synthase 2	-0.99
b2266	elaB	Isolate 1	non-essential	conserved protein	3.41
b2266	elaB	Isolate 2	non-essential	conserved protein	0.31
b2267	elaA	Isolate 1	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	1.35
b2267	elaA	Isolate 2	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	0.04
b2268	elaC	Isolate 1	non-essential	binuclear zinc phosphodiesterase	-1.00
b2268	elaC	Isolate 2	non-essential	binuclear zinc phosphodiesterase	0.23
b2269	elaD	Isolate 1	non-essential	predicted enzyme	2.19
b2269	elaD	Isolate 2	non-essential	predicted enzyme	2.16
b2270	yfbK	Isolate 1	non-essential	conserved protein	-2.27
b2270	yfbK	Isolate 2	non-essential	conserved protein	0.47
b2271	yfbL	Isolate 1	non-essential	predicted peptidase	-0.09
b2271	yfbL	Isolate 2	non-essential	predicted peptidase	3.52
b2272	yfbM	Isolate 1	non-essential	predicted protein	-1.12
b2272	yfbM	Isolate 2	non-essential	predicted protein	-0.94
b2273	yfbN	Isolate 1	non-essential	predicted protein	0.27
b2273	yfbN	Isolate 2	non-essential	predicted protein	0.85
b2274	yfbO	Isolate 1	non-essential	predicted protein	-0.33
b2274	yfbO	Isolate 2	non-essential	predicted protein	0.42
b2275	yfbP	Isolate 1	non-essential	predicted protein	0.80
b2275	yfbP	Isolate 2	non-essential	predicted protein	-0.13
b2276	nuoN	Isolate 1	non-essential	NADH:ubiquinone oxidoreductase, membrane subunit N	1.75
b2276	nuoN	Isolate 2	non-essential	NADH:ubiquinone oxidoreductase, membrane subunit N	1.02
b2277	nuoM	Isolate 1	non-essential	NADH:ubiquinone oxidoreductase, membrane subunit M	-0.06
b2277	nuoM	Isolate 2	non-essential	NADH:ubiquinone oxidoreductase, membrane subunit M	2.38
b2278	nuoL	Isolate 1	non-essential	NADH:ubiquinone oxidoreductase, membrane subunit L	1.48
b2278	nuoL	Isolate 2	non-essential	NADH:ubiquinone oxidoreductase, membrane subunit L	1.49
b2279	nuoK	Isolate 1	non-essential	NADH:ubiquinone oxidoreductase, membrane subunit K	-1.20
b2279	nuoK	Isolate 2	non-essential	NADH:ubiquinone oxidoreductase, membrane subunit K	-0.50
b2280	nuoJ	Isolate 1	non-essential	NADH:ubiquinone oxidoreductase, membrane subunit J	3.04



b2280	nuoJ	Isolate 2	non-essential	NADH:ubiquinone oxidoreductase, membrane subunit J	-0.46
b2281	nuoI	Isolate 1	non-essential	NADH:ubiquinone oxidoreductase, chain I	3.14
b2281	nuoI	Isolate 2	non-essential	NADH:ubiquinone oxidoreductase, chain I	1.00
b2282	nuoH	Isolate 1	non-essential	NADH:ubiquinone oxidoreductase, membrane subunit H	1.10
b2282	nuoH	Isolate 2	non-essential	NADH:ubiquinone oxidoreductase, membrane subunit H	2.03
b2283	nuoG	Isolate 1	non-essential	NADH:ubiquinone oxidoreductase, chain G	4.35
b2283	nuoG	Isolate 2	non-essential	NADH:ubiquinone oxidoreductase, chain G	3.35
b2284	nuoF	Isolate 1	non-essential	NADH:ubiquinone oxidoreductase, chain F	1.15
b2284	nuoF	Isolate 2	non-essential	NADH:ubiquinone oxidoreductase, chain F	2.26
b2285	nuoE	Isolate 1	non-essential	NADH:ubiquinone oxidoreductase, chain E	2.81
b2285	nuoE	Isolate 2	non-essential	NADH:ubiquinone oxidoreductase, chain E	4.57
b2286	nuoC	Isolate 1	non-essential	NADH:ubiquinone oxidoreductase, chain C,D	0.22
b2286	nuoC	Isolate 2	non-essential	NADH:ubiquinone oxidoreductase, chain C,D	2.67
b2287	nuoB	Isolate 1	non-essential	NADH:ubiquinone oxidoreductase, chain B	-0.62
b2287	nuoB	Isolate 2	non-essential	NADH:ubiquinone oxidoreductase, chain B	1.51
b2288	nuoA	Isolate 1	non-essential	NADH:ubiquinone oxidoreductase, membrane subunit A	2.73
b2288	nuoA	Isolate 2	non-essential	NADH:ubiquinone oxidoreductase, membrane subunit A	0.66
b2289	lrhA	Isolate 1	non-essential	DNA-binding transcriptional repressor	-0.77
b2289	lrhA	Isolate 2	non-essential	DNA-binding transcriptional repressor	-0.11
b2290	yfbQ	Isolate 1	non-essential	predicted aminotransferase	1.13
b2290	yfbQ	Isolate 2	non-essential	predicted aminotransferase	-0.55
b2291	yfbR	Isolate 1	non-essential	deoxyribonucleoside 5'-monophosphatase	0.50
b2291	yfbR	Isolate 2	non-essential	deoxyribonucleoside 5'-monophosphatase	-2.40
b2292	yfbS	Isolate 1	non-essential	predicted transporter	-0.34
b2292	yfbS	Isolate 2	non-essential	predicted transporter	-0.82
b2293	yfbT	Isolate 1	non-essential	predicted hydrolase or phosphatase	2.32
b2293	yfbT	Isolate 2	non-essential	predicted hydrolase or phosphatase	-2.59
b2294	yfbU	Isolate 1	non-essential	conserved protein	0.53
b2294	yfbU	Isolate 2	non-essential	conserved protein	-1.34
b2295	yfbV	Isolate 1	non-essential	conserved inner membrane protein	-1.46
b2295	yfbV	Isolate 2	non-essential	conserved inner membrane protein	-0.69
b2296	ackA	Isolate 1	non-essential	acetate kinase A and propionate kinase 2	-0.42
b2296	ackA	Isolate 2	non-essential	acetate kinase A and propionate kinase 2	-1.59
b2297	pta	Isolate 1	non-essential	phosphate acetyltransferase	-1.19
b2297	pta	Isolate 2	non-essential	phosphate acetyltransferase	0.61
b2298	yfcC	Isolate 1	non-essential	predicted inner membrane protein	-0.97
b2298	yfcC	Isolate 2	non-essential	predicted inner membrane protein	3.55
b2299	yfcD	Isolate 1	non-essential	predicted NUDIX hydrolase	-0.52
b2299	yfcD	Isolate 2	non-essential	predicted NUDIX hydrolase	-1.15
b2300	yfcE	Isolate 1	non-essential	predicted phosphatase	-0.32
b2300	yfcE	Isolate 2	non-essential	predicted phosphatase	-0.79
b2301	yfcF	Isolate 1	non-essential	predicted enzyme	1.19
b2301	yfcF	Isolate 2	non-essential	predicted enzyme	0.10

b2302	yfcG	Isolate 1	non-essential	predicted glutathione S-transferase	0.93
b2302	yfcG	Isolate 2	non-essential	predicted glutathione S-transferase	-2.23
b2303	folX	Isolate 1	non-essential	D-erythro-7,8-dihydroneopterin triphosphate 2'-epimerase and dihydroneopterin aldolase	-0.10
b2303	folX	Isolate 2	non-essential	D-erythro-7,8-dihydroneopterin triphosphate 2'-epimerase and dihydroneopterin aldolase	-0.32
b2304	yfcH	Isolate 1	non-essential	conserved protein with NAD(P)-binding Rossmann-fold domain	0.21
b2304	yfcH	Isolate 2	non-essential	conserved protein with NAD(P)-binding Rossmann-fold domain	-0.46
b2305	yfcI	Isolate 1	non-essential	conserved protein	-0.50
b2305	yfcI	Isolate 2	non-essential	conserved protein	-1.47
b2306	hisP	Isolate 1	non-essential	histidine/lysine/arginine/ornithine transporter subunit -!- ATP-binding component of ABC superfamily	-3.29
b2306	hisP	Isolate 2	non-essential	histidine/lysine/arginine/ornithine transporter subunit -!- ATP-binding component of ABC superfamily	-1.74
b2307	hisM	Isolate 1	non-essential	histidine/lysine/arginine/ornithine transporter subunit -!- membrane component of ABC superfamily	-0.12
b2307	hisM	Isolate 2	non-essential	histidine/lysine/arginine/ornithine transporter subunit -!- membrane component of ABC superfamily	0.47
b2308	hisQ	Isolate 1	non-essential	histidine/lysine/arginine/ornithine transporter subunit -!- membrane component of ABC superfamily	0.61
b2308	hisQ	Isolate 2	non-essential	histidine/lysine/arginine/ornithine transporter subunit -!- membrane component of ABC superfamily	0.33
b2309	hisJ	Isolate 1	non-essential	histidine/lysine/arginine/ornithine transporter subunit -!- periplasmic-binding component of ABC superfamily	0.71
b2309	hisJ	Isolate 2	non-essential	histidine/lysine/arginine/ornithine transporter subunit -!- periplasmic-binding component of ABC superfamily	0.87
b2310	argT	Isolate 1	non-essential	lysine/arginine/ornithine transporter subunit -!- periplasmic-binding component of ABC superfamily	0.47
b2310	argT	Isolate 2	non-essential	lysine/arginine/ornithine transporter subunit -!- periplasmic-binding component of ABC superfamily	0.02
b2311	ubiX	Isolate 1	non-essential	3-octaprenyl-4-hydroxybenzoate carboxy-lyase	2.05
b2311	ubiX	Isolate 2	non-essential	3-octaprenyl-4-hydroxybenzoate carboxy-lyase	3.61
b2312	purF	Isolate 1	non-essential	amidophosphoribosyltransferase	-1.17
b2312	purF	Isolate 2	non-essential	amidophosphoribosyltransferase	-1.56
b2313	cvpA	Isolate 1	non-essential	membrane protein required for colicin V production	2.37
b2313	cvpA	Isolate 2	non-essential	membrane protein required for colicin V production	0.88
b2314	dedD	Isolate 1	non-essential	conserved protein	1.28
b2314	dedD	Isolate 2	non-essential	conserved protein	4.72
b2315	folC	Isolate 1	essential	bifunctional folylpolyglutamate synthase -!- dihydrofolate synthase	-1.20
b2316	accD	Isolate 1	essential	acetylCoA carboxylase, beta (carboxyltransferase) subunit	0.77
b2317	dedA	Isolate 1	non-essential	conserved inner membrane protein	0.46
b2317	dedA	Isolate 2	non-essential	conserved inner membrane protein	0.23
b2318	truA	Isolate 1	non-essential	pseudouridylate synthase I	0.41
b2318	truA	Isolate 2	non-essential	pseudouridylate synthase I	2.53
b2319	usg	Isolate 1	non-essential	predicted semialdehyde dehydrogenase	1.28
b2319	usg	Isolate 2	non-essential	predicted semialdehyde dehydrogenase	1.57
b2320	pdxB	Isolate 1	non-essential	erythronate-4-phosphate dehydrogenase	2.19
b2320	pdxB	Isolate 2	non-essential	erythronate-4-phosphate dehydrogenase	1.24
b2321	flk	Isolate 1	non-essential	predicted flagella assembly protein	-0.64
b2321	flk	Isolate 2	non-essential	predicted flagella assembly protein	0.77
b2322	yfcJ	Isolate 1	non-essential	predicted transporter	-0.16
b2322	yfcJ	Isolate 2	non-essential	predicted transporter	-10.45
b2323	fabB	Isolate 1	essential	3-oxoacyl-[acyl-carrier-protein] synthase I	-1.93
b2324	trmC	Isolate 1	non-essential	fused 5-methylaminomethyl-2-thiouridine forming enzyme methyltransferase -!- FAD-dependent demodification enzyme	0.95
b2324	trmC	Isolate 2	non-essential	fused 5-methylaminomethyl-2-thiouridine forming enzyme methyltransferase -!- FAD-dependent demodification enzyme	1.92

b2325	yfcL	Isolate 1	non-essential	predicted protein	-0.35
b2325	yfcL	Isolate 2	non-essential	predicted protein	-1.86
b2326	yfcM	Isolate 1	non-essential	conserved protein	-1.71
b2326	yfcM	Isolate 2	non-essential	conserved protein	-0.48
b2327	yfcA	Isolate 1	non-essential	conserved inner membrane protein	-0.69
b2327	yfcA	Isolate 2	non-essential	conserved inner membrane protein	-0.78
b2328	mepA	Isolate 1	non-essential	murein DD-endopeptidase	2.06
b2328	mepA	Isolate 2	non-essential	murein DD-endopeptidase	-1.58
b2329	aroC	Isolate 1	non-essential	chorismate synthase	6.15
b2329	aroC	Isolate 2	non-essential	chorismate synthase	-1.20
b2330	prmB	Isolate 1	non-essential	N5-glutamine methyltransferase	1.14
b2330	prmB	Isolate 2	non-essential	N5-glutamine methyltransferase	0.08
b2331	yfcN	Isolate 1	non-essential	conserved protein	-5.04
b2331	yfcN	Isolate 2	non-essential	conserved protein	0.82
b2332	yfcO	Isolate 1	non-essential	predicted protein	-0.97
b2332	yfcO	Isolate 2	non-essential	predicted protein	-0.32
b2333	yfcP	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	-0.47
b2333	yfcP	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	-2.00
b2334	yfcQ	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	1.29
b2334	yfcQ	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	0.74
b2335	yfcR	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	0.96
b2335	yfcR	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	-0.65
b2336	yfcS	Isolate 1	non-essential	predicted periplasmic pilus chaperone	0.97
b2336	yfcS	Isolate 2	non-essential	predicted periplasmic pilus chaperone	2.00
b2337	yfcT	Isolate 1	non-essential	predicted outer membrane export usher protein	-0.76
b2337	yfcT	Isolate 2	non-essential	predicted outer membrane export usher protein	0.29
b2338	yfcU	Isolate 1	non-essential	predicted export usher protein	-1.83
b2338	yfcU	Isolate 2	non-essential	predicted export usher protein	-2.00
b2339	yfcV	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	-0.64
b2339	yfcV	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	0.84
b2340	sixA	Isolate 1	non-essential	phosphohistidine phosphatase	2.28
b2340	sixA	Isolate 2	non-essential	phosphohistidine phosphatase	0.64
b2341	yfcX	Isolate 1	non-essential	fused enoyl-CoA hydratase-!-epimerase-!-isomerase -!- 3-hydroxyacyl-CoA dehydrogenase, subunit of anaerobic fatty acid oxidati	-1.05
b2341	yfcX	Isolate 2	non-essential	fused enoyl-CoA hydratase-!-epimerase-!-isomerase -!- 3-hydroxyacyl-CoA dehydrogenase, subunit of anaerobic fatty acid oxidati	1.17
b2342	yfcY	Isolate 1	non-essential	beta-ketoacyl-CoA thiolase, anaerobic, subunit	-1.62
b2342	yfcY	Isolate 2	non-essential	beta-ketoacyl-CoA thiolase, anaerobic, subunit	2.33
b2343	yfcZ	Isolate 1	non-essential	conserved protein	0.11
b2343	yfcZ	Isolate 2	non-essential	conserved protein	0.78
b2344	fadL	Isolate 1	non-essential	long-chain fatty acid outer membrane transporter	-0.78
b2344	fadL	Isolate 2	non-essential	long-chain fatty acid outer membrane transporter	-0.11
b2345	yfdF	Isolate 1	non-essential	predicted protein	2.46
b2345	yfdF	Isolate 2	non-essential	predicted protein	-0.80
b2346	vacJ	Isolate 1	non-essential	predicted lipoprotein	2.99

b2346	vacJ	Isolate 2	non-essential	predicted lipoprotein	2.56
b2347	yfdC	Isolate 1	non-essential	predicted inner membrane protein	-0.03
b2347	yfdC	Isolate 2	non-essential	predicted inner membrane protein	0.58
b2349	intS	Isolate 1	non-essential	CPS-53 (KpLE1) prophage; predicted prophage CPS-53 integrase	1.24
b2349	intS	Isolate 2	non-essential	CPS-53 (KpLE1) prophage; predicted prophage CPS-53 integrase	-0.90
b2350	yfdG	Isolate 1	non-essential	CPS-53 (KpLE1) prophage; bactoprenol-linked glucose translocase (flippase)	-1.38
b2350	yfdG	Isolate 2	non-essential	CPS-53 (KpLE1) prophage; bactoprenol-linked glucose translocase (flippase)	0.47
b2351	yfdH	Isolate 1	non-essential	CPS-53 (KpLE1) prophage; bactoprenol glucosyl transferase	0.83
b2351	yfdH	Isolate 2	non-essential	CPS-53 (KpLE1) prophage; bactoprenol glucosyl transferase	2.14
b2352	yfdI	Isolate 1	non-essential	CPS-53 (KpLE1) prophage; predicted inner membrane protein	-2.45
b2352	yfdI	Isolate 2	non-essential	CPS-53 (KpLE1) prophage; predicted inner membrane protein	-1.22
b2353	tfaS	Isolate 1	*	CPS-53 (KpLE1) prophage; tail fiber assembly protein fragment (pseudogene)	0.75
b2353	tfaS	Isolate 2	*	CPS-53 (KpLE1) prophage; tail fiber assembly protein fragment (pseudogene)	0.37
b2354	yfdK	Isolate 1	non-essential	CPS-53 (KpLE1) prophage; conserved protein	-2.23
b2354	yfdK	Isolate 2	non-essential	CPS-53 (KpLE1) prophage; conserved protein	-1.33
b2355	yfdL	Isolate 1	non-essential	CPS-53 (KpLE1) prophage; conserved protein	0.60
b2355	yfdL	Isolate 2	non-essential	CPS-53 (KpLE1) prophage; conserved protein	-4.18
b2356	yfdM	Isolate 1	non-essential	CPS-53 (KpLE1) prophage; predicted methyltransferase	-0.83
b2356	yfdM	Isolate 2	non-essential	CPS-53 (KpLE1) prophage; predicted methyltransferase	-2.36
b2357	yfdN	Isolate 1	non-essential	CPS-53 (KpLE1) prophage; predicted protein	-1.82
b2357	yfdN	Isolate 2	non-essential	CPS-53 (KpLE1) prophage; predicted protein	0.48
b2358	yfdO	Isolate 1	non-essential	CPS-53 (KpLE1) prophage; predicted defective phage replication protein O	-0.49
b2358	yfdO	Isolate 2	non-essential	CPS-53 (KpLE1) prophage; predicted defective phage replication protein O	-0.57
b2359	yfdP	Isolate 1	non-essential	CPS-53 (KpLE1) prophage; predicted protein	-1.24
b2359	yfdP	Isolate 2	non-essential	CPS-53 (KpLE1) prophage; predicted protein	-2.58
b2360	yfdQ	Isolate 1	non-essential	CPS-53 (KpLE1) prophage; predicted protein	-1.51
b2360	yfdQ	Isolate 2	non-essential	CPS-53 (KpLE1) prophage; predicted protein	-0.27
b2361	yfdR	Isolate 1	non-essential	CPS-53 (KpLE1) prophage; conserved protein	-0.79
b2361	yfdR	Isolate 2	non-essential	CPS-53 (KpLE1) prophage; conserved protein	1.32
b2362	yfdS	Isolate 1	non-essential	CPS-53 (KpLE1) prophage; predicted protein	0.84
b2362	yfdS	Isolate 2	non-essential	CPS-53 (KpLE1) prophage; predicted protein	-0.69
b2364	dsdC	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	1.10
b2364	dsdC	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	3.30
b2365	dsdX	Isolate 1	non-essential	predicted transporter	-0.63
b2365	dsdX	Isolate 2	non-essential	predicted transporter	0.07
b2366	dsdA	Isolate 1	non-essential	D-serine ammonia-lyase	-0.53
b2366	dsdA	Isolate 2	non-essential	D-serine ammonia-lyase	1.07
b2367	emrY	Isolate 1	non-essential	predicted multidrug efflux system	1.22
b2367	emrY	Isolate 2	non-essential	predicted multidrug efflux system	0.37
b2368	emrK	Isolate 1	non-essential	EmrKY-TolC multidrug resistance efflux pump, membrane fusion protein component	0.43
b2368	emrK	Isolate 2	non-essential	EmrKY-TolC multidrug resistance efflux pump, membrane fusion protein component	-0.29
b2369	evgA	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with EvgS	-2.18
b2369	evgA	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with EvgS	0.20

b2370	evgS	Isolate 1	non-essential	hybrid sensory histidine kinase in two-component regulatory system with EvgA	-1.31
b2370	evgS	Isolate 2	non-essential	hybrid sensory histidine kinase in two-component regulatory system with EvgA	-0.39
b2371	yfdE	Isolate 1	non-essential	predicted CoA-transferase, NAD(P)-binding	0.09
b2371	yfdE	Isolate 2	non-essential	predicted CoA-transferase, NAD(P)-binding	0.32
b2372	yfdV	Isolate 1	non-essential	predicted transporter	-0.33
b2372	yfdV	Isolate 2	non-essential	predicted transporter	-0.83
b2373	oxc	Isolate 1	non-essential	predicted oxalyl-CoA decarboxylase	0.12
b2373	oxc	Isolate 2	non-essential	predicted oxalyl-CoA decarboxylase	0.70
b2374	frc	Isolate 1	non-essential	formyl-CoA transferase, NAD(P)-binding	-11.79
b2374	frc	Isolate 2	non-essential	formyl-CoA transferase, NAD(P)-binding	0.52
b2375	yfdX	Isolate 1	non-essential	predicted protein	0.41
b2375	yfdX	Isolate 2	non-essential	predicted protein	0.41
b2376	ypdI	Isolate 1	non-essential	predicted lipoprotein involved in colanic acid biosynthesis	-11.11
b2376	ypdI	Isolate 2	non-essential	predicted lipoprotein involved in colanic acid biosynthesis	-0.55
b2377	yfdY	Isolate 1	non-essential	predicted inner membrane protein	-1.00
b2377	yfdY	Isolate 2	non-essential	predicted inner membrane protein	0.02
b2378	ddg	Isolate 1	non-essential	palmitoleoyl-acyl carrier protein (ACP)-dependent acyltransferase	-0.52
b2378	ddg	Isolate 2	non-essential	palmitoleoyl-acyl carrier protein (ACP)-dependent acyltransferase	2.52
b2379	yfdZ	Isolate 1	non-essential	predicted aminotransferase, PLP-dependent	2.29
b2379	yfdZ	Isolate 2	non-essential	predicted aminotransferase, PLP-dependent	-0.73
b2380	ypdA	Isolate 1	non-essential	predicted sensory kinase in two-component system with YpdB	-1.78
b2380	ypdA	Isolate 2	non-essential	predicted sensory kinase in two-component system with YpdB	-0.45
b2381	ypdB	Isolate 1	non-essential	predicted response regulator in two-component system with YpdA	1.97
b2381	ypdB	Isolate 2	non-essential	predicted response regulator in two-component system with YpdA	-0.14
b2382	ypdC	Isolate 1	non-essential	predicted DNA-binding protein	-0.94
b2382	ypdC	Isolate 2	non-essential	predicted DNA-binding protein	-2.22
b2383	ypdD	Isolate 1	non-essential	fused predicted PTS enzymes Hpr component -!- enzyme I component -!- enzyme IIA component	1.86
b2383	ypdD	Isolate 2	non-essential	fused predicted PTS enzymes Hpr component -!- enzyme I component -!- enzyme IIA component	0.08
b2384	ypdE	Isolate 1	non-essential	predicted peptidase	-0.75
b2384	ypdE	Isolate 2	non-essential	predicted peptidase	2.00
b2385	ypdF	Isolate 1	non-essential	predicted peptidase	0.73
b2385	ypdF	Isolate 2	non-essential	predicted peptidase	-0.44
b2386	ypdG	Isolate 1	non-essential	predicted enzyme IIC component of PTS	-0.26
b2386	ypdG	Isolate 2	non-essential	predicted enzyme IIC component of PTS	-0.29
b2387	ypdH	Isolate 1	non-essential	predicted enzyme IIB component of PTS	-0.10
b2387	ypdH	Isolate 2	non-essential	predicted enzyme IIB component of PTS	0.56
b2388	glk	Isolate 1	non-essential	glucokinase	2.07
b2388	glk	Isolate 2	non-essential	glucokinase	2.67
b2389	yfeO	Isolate 1	non-essential	predicted ion channel protein	0.59
b2389	yfeO	Isolate 2	non-essential	predicted ion channel protein	-0.14
b2390	ypeC	Isolate 1	non-essential	conserved protein	2.87
b2390	ypeC	Isolate 2	non-essential	conserved protein	0.12
b2392	mntH	Isolate 1	non-essential	manganese/divalent cation transporter	0.23

b2392	mntH	Isolate 2	non-essential	manganese/divalent cation transporter	2.53
b2393	nupC	Isolate 1	non-essential	nucleoside (except guanosine) transporter	1.20
b2393	nupC	Isolate 2	non-essential	nucleoside (except guanosine) transporter	-1.13
b2395	yfeA	Isolate 1	non-essential	predicted diguanylate cyclase	-1.61
b2395	yfeA	Isolate 2	non-essential	predicted diguanylate cyclase	-0.94
b2398	yfeC	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	1.64
b2398	yfeC	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.96
b2399	yfeD	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.60
b2399	yfeD	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.62
b2400	gltX	Isolate 1	essential	glutamyl-tRNA synthetase	0.80
b2405	xapR	Isolate 1	non-essential	DNA-binding transcriptional activator	0.61
b2405	xapR	Isolate 2	non-essential	DNA-binding transcriptional activator	-0.01
b2406	xapB	Isolate 1	non-essential	xanthosine transporter	0.69
b2406	xapB	Isolate 2	non-essential	xanthosine transporter	3.43
b2407	xapA	Isolate 1	non-essential	purine nucleoside phosphorylase II	0.41
b2407	xapA	Isolate 2	non-essential	purine nucleoside phosphorylase II	0.49
b2408	yfeN	Isolate 1	non-essential	conserved outer membrane protein	2.19
b2408	yfeN	Isolate 2	non-essential	conserved outer membrane protein	1.25
b2409	yfeR	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-1.40
b2409	yfeR	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.25
b2410	yfeH	Isolate 1	non-essential	predicted inner membrane protein	-0.08
b2410	yfeH	Isolate 2	non-essential	predicted inner membrane protein	0.15
b2411	ligA	Isolate 1	essential	DNA ligase, NAD(+)-dependent	-0.13
b2413	cysZ	Isolate 1	non-essential	predicted inner membrane protein	1.18
b2413	cysZ	Isolate 2	non-essential	predicted inner membrane protein	0.98
b2414	cysK	Isolate 1	non-essential	cysteine synthase A, O-acetylserine sulfhydrylase A subunit	-0.97
b2414	cysK	Isolate 2	non-essential	cysteine synthase A, O-acetylserine sulfhydrylase A subunit	-1.87
b2415	ptsH	Isolate 1	non-essential	phosphohistidinoprotein-hexose phosphotransferase component of PTS system (Hpr)	-0.78
b2415	ptsH	Isolate 2	non-essential	phosphohistidinoprotein-hexose phosphotransferase component of PTS system (Hpr)	0.57
b2416	ptsI	Isolate 1	non-essential	PEP-protein phosphotransferase of PTS system (enzyme I)	1.14
b2416	ptsI	Isolate 2	non-essential	PEP-protein phosphotransferase of PTS system (enzyme I)	-2.14
b2417	crr	Isolate 1	non-essential	glucose-specific enzyme IIA component of PTS	-1.23
b2417	crr	Isolate 2	non-essential	glucose-specific enzyme IIA component of PTS	-1.63
b2418	pdxK	Isolate 1	non-essential	pyridoxal-pyridoxamine kinase/hydroxymethylpyrimidine kinase	0.34
b2418	pdxK	Isolate 2	non-essential	pyridoxal-pyridoxamine kinase/hydroxymethylpyrimidine kinase	0.45
b2419	yfeK	Isolate 1	non-essential	predicted protein	0.83
b2419	yfeK	Isolate 2	non-essential	predicted protein	-1.67
b2420	yfeS	Isolate 1	non-essential	conserved protein	0.22
b2420	yfeS	Isolate 2	non-essential	conserved protein	1.59
b2421	cysM	Isolate 1	non-essential	cysteine synthase B (O-acetylserine sulfhydrylase B)	-2.07
b2421	cysM	Isolate 2	non-essential	cysteine synthase B (O-acetylserine sulfhydrylase B)	-5.23
b2422	cysA	Isolate 1	non-essential	sulfate/thiosulfate transporter subunit -!- ATP-binding component of ABC superfamily	0.72
b2422	cysA	Isolate 2	non-essential	sulfate/thiosulfate transporter subunit -!- ATP-binding component of ABC superfamily	0.47

b2423	cysW	Isolate 1	non-essential	sulfate/thiosulfate transporter subunit -!- membrane component of ABC superfamily	-0.54
b2423	cysW	Isolate 2	non-essential	sulfate/thiosulfate transporter subunit -!- membrane component of ABC superfamily	0.08
b2424	cysU	Isolate 1	non-essential	sulfate/thiosulfate transporter subunit -!- membrane component of ABC superfamily	1.64
b2424	cysU	Isolate 2	non-essential	sulfate/thiosulfate transporter subunit -!- membrane component of ABC superfamily	1.73
b2425	cysP	Isolate 1	non-essential	thiosulfate transporter subunit -!- periplasmic-binding component of ABC superfamily	-1.28
b2425	cysP	Isolate 2	non-essential	thiosulfate transporter subunit -!- periplasmic-binding component of ABC superfamily	1.46
b2426	ucpA	Isolate 1	non-essential	predicted oxidoreductase, sulfate metabolism protein	0.81
b2426	ucpA	Isolate 2	non-essential	predicted oxidoreductase, sulfate metabolism protein	0.60
b2427	yfeT	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.36
b2427	yfeT	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	2.21
b2428	yfeU	Isolate 1	non-essential	predicted PTS component	-0.14
b2428	yfeU	Isolate 2	non-essential	predicted PTS component	1.15
b2429	murP	Isolate 1	non-essential	fused predicted enzyme IIBC components of PTS	-0.68
b2429	murP	Isolate 2	non-essential	fused predicted enzyme IIBC components of PTS	0.04
b2430	yfeW	Isolate 1	non-essential	predicted periplasmic esterase	-0.46
b2430	yfeW	Isolate 2	non-essential	predicted periplasmic esterase	-0.60
b2431	yfeX	Isolate 1	non-essential	conserved protein	-0.14
b2431	yfeX	Isolate 2	non-essential	conserved protein	1.07
b2432	yfeY	Isolate 1	non-essential	predicted protein	-0.47
b2432	yfeY	Isolate 2	non-essential	predicted protein	0.54
b2433	yfeZ	Isolate 1	non-essential	predicted inner membrane protein	-1.21
b2433	yfeZ	Isolate 2	non-essential	predicted inner membrane protein	-1.75
b2434	ypeA	Isolate 1	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	-0.89
b2434	ypeA	Isolate 2	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	-0.01
b2435	amiA	Isolate 1	non-essential	N-acetylmuramoyl-l-alanine amidase I	0.80
b2435	amiA	Isolate 2	non-essential	N-acetylmuramoyl-l-alanine amidase I	-1.63
b2436	hemF	Isolate 1	non-essential	coproporphyrinogen III oxidase	-0.03
b2436	hemF	Isolate 2	non-essential	coproporphyrinogen III oxidase	-0.25
b2437	yfeG	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.90
b2437	yfeG	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	1.35
b2438	yffI	Isolate 1	non-essential	predicted carboxysome structural protein with predicted role in ethanolamine utilization	0.54
b2438	yffI	Isolate 2	non-essential	predicted carboxysome structural protein with predicted role in ethanolamine utilization	1.48
b2439	eutL	Isolate 1	non-essential	predicted carboxysome structural protein with predicted role in ethanolamine utilization	-5.95
b2439	eutL	Isolate 2	non-essential	predicted carboxysome structural protein with predicted role in ethanolamine utilization	-0.08
b2440	eutC	Isolate 1	non-essential	ethanolamine ammonia-lyase, small subunit (light chain)	-0.45
b2440	eutC	Isolate 2	non-essential	ethanolamine ammonia-lyase, small subunit (light chain)	-1.76
b2441	eutB	Isolate 1	non-essential	ethanolamine ammonia-lyase, large subunit, heavy chain	-0.43
b2441	eutB	Isolate 2	non-essential	ethanolamine ammonia-lyase, large subunit, heavy chain	-0.16
b2451	eutA	Isolate 1	non-essential	reactivating factor for ethanolamine ammonia lyase	-0.09
b2451	eutA	Isolate 2	non-essential	reactivating factor for ethanolamine ammonia lyase	-1.65
b2452	eutH	Isolate 1	non-essential	predicted inner membrane protein	-2.53
b2452	eutH	Isolate 2	non-essential	predicted inner membrane protein	0.60
b2453	eutG	Isolate 1	non-essential	predicted alcohol dehydrogenase in ethanolamine utilization	0.39

b2453	eutG	Isolate 2	non-essential	predicted alcohol dehydrogenase in ethanolamine utilization	-0.64
b2454	eutJ	Isolate 1	non-essential	predicted chaperonin, ethanolamine utilization protein	1.84
b2454	eutJ	Isolate 2	non-essential	predicted chaperonin, ethanolamine utilization protein	0.66
b2455	eutE	Isolate 1	non-essential	predicted aldehyde dehydrogenase, ethanolamine utilization protein	-1.20
b2455	eutE	Isolate 2	non-essential	predicted aldehyde dehydrogenase, ethanolamine utilization protein	-0.33
b2456	cchB	Isolate 1	non-essential	predicted carboxysome structural protein, ethanolamine utilization protein	0.73
b2456	cchB	Isolate 2	non-essential	predicted carboxysome structural protein, ethanolamine utilization protein	-0.60
b2457	cchA	Isolate 1	non-essential	predicted carboxysome structural protein, ethanolamine utilization protein	0.38
b2457	cchA	Isolate 2	non-essential	predicted carboxysome structural protein, ethanolamine utilization protein	1.97
b2458	eutI	Isolate 1	non-essential	predicted phosphotransacetylase subunit	2.08
b2458	eutI	Isolate 2	non-essential	predicted phosphotransacetylase subunit	-0.71
b2459	eutT	Isolate 1	non-essential	predicted cobalamin adenosyltransferase in ethanolamine utilization	0.97
b2459	eutT	Isolate 2	non-essential	predicted cobalamin adenosyltransferase in ethanolamine utilization	-1.84
b2460	eutQ	Isolate 1	non-essential	conserved protein	-0.13
b2460	eutQ	Isolate 2	non-essential	conserved protein	-0.95
b2461	eutP	Isolate 1	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	2.00
b2461	eutP	Isolate 2	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	-0.41
b2462	ypfE	Isolate 1	non-essential	predicted carboxysome structural protein with predicted role in ethanol utilization	1.02
b2462	ypfE	Isolate 2	non-essential	predicted carboxysome structural protein with predicted role in ethanol utilization	-1.21
b2463	maeB	Isolate 1	non-essential	fused malic enzyme predicted oxidoreductase -!- predicted phosphotransacetylase	1.37
b2463	maeB	Isolate 2	non-essential	fused malic enzyme predicted oxidoreductase -!- predicted phosphotransacetylase	1.93
b2464	talA	Isolate 1	non-essential	transaldolase A	0.09
b2464	talA	Isolate 2	non-essential	transaldolase A	0.14
b2465	tktB	Isolate 1	non-essential	transketolase 2, thiamin-binding	-0.03
b2465	tktB	Isolate 2	non-essential	transketolase 2, thiamin-binding	-0.32
b2466	ypfG	Isolate 1	non-essential	predicted protein	-0.68
b2466	ypfG	Isolate 2	non-essential	predicted protein	-1.29
b2467	yffH	Isolate 1	non-essential	predicted NUDIX hydrolase	-0.19
b2467	yffH	Isolate 2	non-essential	predicted NUDIX hydrolase	-0.14
b2468	aegA	Isolate 1	non-essential	fused predicted FeS binding subunit -!- predicted NAD/FAD-binding subunit of oxidoreductase	0.63
b2468	aegA	Isolate 2	non-essential	fused predicted FeS binding subunit -!- predicted NAD/FAD-binding subunit of oxidoreductase	-0.06
b2469	narQ	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory system with NarP (NarL)	0.57
b2469	narQ	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory system with NarP (NarL)	-2.28
b2470	acrD	Isolate 1	non-essential	aminoglycoside/multidrug efflux system	0.11
b2470	acrD	Isolate 2	non-essential	aminoglycoside/multidrug efflux system	0.89
b2471	yffB	Isolate 1	non-essential	conserved protein	1.39
b2471	yffB	Isolate 2	non-essential	conserved protein	0.10
b2473	ypfH	Isolate 1	non-essential	predicted hydrolase	-1.63
b2473	ypfH	Isolate 2	non-essential	predicted hydrolase	-0.25
b2474	ypfI	Isolate 1	non-essential	predicted hydrolase	-1.95
b2474	ypfI	Isolate 2	non-essential	predicted hydrolase	1.50
b2475	ypfJ	Isolate 1	non-essential	conserved protein	0.53
b2475	ypfJ	Isolate 2	non-essential	conserved protein	0.79



b2476	purC	Isolate 1	non-essential	phosphoribosylaminoimidazole-succinocarboxamide synthetase	-2.82
b2476	purC	Isolate 2	non-essential	phosphoribosylaminoimidazole-succinocarboxamide synthetase	-1.99
b2477	nlpB	Isolate 1	non-essential	lipoprotein	-0.54
b2477	nlpB	Isolate 2	non-essential	lipoprotein	-1.36
b2479	gcvR	Isolate 1	non-essential	DNA-binding transcriptional repressor, regulatory protein accessory to GcvA	-0.39
b2479	gcvR	Isolate 2	non-essential	DNA-binding transcriptional repressor, regulatory protein accessory to GcvA	-0.49
b2480	bcp	Isolate 1	non-essential	thiol peroxidase, thioredoxin-dependent	-0.46
b2480	bcp	Isolate 2	non-essential	thiol peroxidase, thioredoxin-dependent	-0.51
b2481	hyfA	Isolate 1	non-essential	hydrogenase 4, 4Fe-4S subunit	1.03
b2481	hyfA	Isolate 2	non-essential	hydrogenase 4, 4Fe-4S subunit	0.62
b2482	hyfB	Isolate 1	non-essential	hydrogenase 4, membrane subunit	0.82
b2482	hyfB	Isolate 2	non-essential	hydrogenase 4, membrane subunit	0.37
b2483	hyfC	Isolate 1	non-essential	hydrogenase 4, membrane subunit	0.49
b2483	hyfC	Isolate 2	non-essential	hydrogenase 4, membrane subunit	1.20
b2484	hyfD	Isolate 1	non-essential	hydrogenase 4, membrane subunit	-2.03
b2484	hyfD	Isolate 2	non-essential	hydrogenase 4, membrane subunit	-1.07
b2485	hyfE	Isolate 1	non-essential	hydrogenase 4, membrane subunit	0.37
b2485	hyfE	Isolate 2	non-essential	hydrogenase 4, membrane subunit	-1.56
b2486	hyfF	Isolate 1	non-essential	hydrogenase 4, membrane subunit	-0.52
b2486	hyfF	Isolate 2	non-essential	hydrogenase 4, membrane subunit	0.62
b2487	hyfG	Isolate 1	non-essential	hydrogenase 4, subunit	1.07
b2487	hyfG	Isolate 2	non-essential	hydrogenase 4, subunit	0.88
b2488	hyfH	Isolate 1	non-essential	hydrogenase 4, Fe-S subunit	2.02
b2488	hyfH	Isolate 2	non-essential	hydrogenase 4, Fe-S subunit	0.08
b2489	hyfI	Isolate 1	non-essential	hydrogenase 4, Fe-S subunit	1.89
b2489	hyfI	Isolate 2	non-essential	hydrogenase 4, Fe-S subunit	-0.32
b2490	hyfJ	Isolate 1	non-essential	predicted processing element hydrogenase 4	1.07
b2490	hyfJ	Isolate 2	non-essential	predicted processing element hydrogenase 4	-0.97
b2491	hyfR	Isolate 1	non-essential	DNA-binding transcriptional activator, formate sensing	1.07
b2491	hyfR	Isolate 2	non-essential	DNA-binding transcriptional activator, formate sensing	-2.32
b2492	focB	Isolate 1	non-essential	predicted formate transporter	0.03
b2492	focB	Isolate 2	non-essential	predicted formate transporter	1.89
b2493	yfgO	Isolate 1	non-essential	predicted inner membrane protein	-1.57
b2493	yfgO	Isolate 2	non-essential	predicted inner membrane protein	-2.90
b2494	yfgC	Isolate 1	non-essential	predicted peptidase	0.71
b2494	yfgC	Isolate 2	non-essential	predicted peptidase	0.43
b2495	yfgD	Isolate 1	non-essential	predicted oxidoreductase	1.94
b2495	yfgD	Isolate 2	non-essential	predicted oxidoreductase	-0.32
b2496	hda	Isolate 1	non-essential	ATPase regulatory factor involved in DnaA inactivation	-0.52
b2496	hda	Isolate 2	non-essential	ATPase regulatory factor involved in DnaA inactivation	3.63
b2497	uraA	Isolate 1	non-essential	uracil transporter	0.68
b2497	uraA	Isolate 2	non-essential	uracil transporter	1.29
b2498	upp	Isolate 1	non-essential	uracil phosphoribosyltransferase	2.94

b2498	upp	Isolate 2	non-essential	uracil phosphoribosyltransferase	0.21
b2499	purM	Isolate 1	non-essential	phosphoribosylaminoimidazole synthetase	-4.14
b2499	purM	Isolate 2	non-essential	phosphoribosylaminoimidazole synthetase	0.47
b2500	purN	Isolate 1	non-essential	phosphoribosylglycinamide formyltransferase 1	-0.38
b2500	purN	Isolate 2	non-essential	phosphoribosylglycinamide formyltransferase 1	1.05
b2501	ppk	Isolate 1	non-essential	polyphosphate kinase, component of RNA degradosome	0.72
b2501	ppk	Isolate 2	non-essential	polyphosphate kinase, component of RNA degradosome	-1.83
b2502	ppx	Isolate 1	non-essential	exopolyphosphatase	1.15
b2502	ppx	Isolate 2	non-essential	exopolyphosphatase	0.17
b2503	yfgF	Isolate 1	non-essential	predicted inner membrane protein	1.60
b2503	yfgF	Isolate 2	non-essential	predicted inner membrane protein	3.43
b2504	yfgG	Isolate 1	non-essential	predicted protein	3.44
b2504	yfgG	Isolate 2	non-essential	predicted protein	1.64
b2505	yfgH	Isolate 1	non-essential	predicted outer membrane lipoprotein	-0.61
b2505	yfgH	Isolate 2	non-essential	predicted outer membrane lipoprotein	-0.15
b2506	yfgI	Isolate 1	non-essential	conserved protein	1.34
b2506	yfgI	Isolate 2	non-essential	conserved protein	0.42
b2507	guaA	Isolate 1	non-essential	GMP synthetase (glutamine aminotransferase)	-2.64
b2507	guaA	Isolate 2	non-essential	GMP synthetase (glutamine aminotransferase)	-1.94
b2508	guaB	Isolate 1	non-essential	IMP dehydrogenase	-5.13
b2508	guaB	Isolate 2	non-essential	IMP dehydrogenase	-5.48
b2509	xseA	Isolate 1	non-essential	exonuclease VII, large subunit	2.96
b2509	xseA	Isolate 2	non-essential	exonuclease VII, large subunit	0.92
b2510	yfgJ	Isolate 1	non-essential	predicted protein	0.35
b2510	yfgJ	Isolate 2	non-essential	predicted protein	-0.43
b2511	der	Isolate 1	essential	predicted GTP-binding protein	1.08
b2512	yfgL	Isolate 1	non-essential	protein assembly complex, lipoprotein component	3.56
b2512	yfgL	Isolate 2	non-essential	protein assembly complex, lipoprotein component	-0.45
b2513	yfgM	Isolate 1	non-essential	conserved protein	0.44
b2513	yfgM	Isolate 2	non-essential	conserved protein	-1.07
b2514	hisS	Isolate 1	essential	histidyl tRNA synthetase	3.24
b2515	ispG	Isolate 1	essential	1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate synthase	0.95
b2516	yfgA	Isolate 1	non-essential	conserved protein	0.39
b2516	yfgA	Isolate 2	non-essential	conserved protein	1.35
b2517	yfgB	Isolate 1	non-essential	predicted enzyme	0.64
b2517	yfgB	Isolate 2	non-essential	predicted enzyme	0.81
b2518	ndk	Isolate 1	non-essential	multifunctional nucleoside diphosphate kinase -!- apyrimidinic endonuclease -!- 3'-phosphodiesterase	-0.58
b2518	ndk	Isolate 2	non-essential	multifunctional nucleoside diphosphate kinase -!- apyrimidinic endonuclease -!- 3'-phosphodiesterase	-1.35
b2519	pbpC	Isolate 1	non-essential	fused transglycosylase -!- transpeptidase	0.72
b2519	pbpC	Isolate 2	non-essential	fused transglycosylase -!- transpeptidase	1.66
b2520	yfhM	Isolate 1	non-essential	conserved protein	-0.39
b2520	yfhM	Isolate 2	non-essential	conserved protein	-0.08
b2521	sseA	Isolate 1	non-essential	3-mercaptopyruvate sulfurtransferase	0.29

b2521	sseA	Isolate 2	non-essential	3-mercaptopyruvate sulfurtransferase	0.52
b2522	sseB	Isolate 1	non-essential	rhodanase-like enzyme, sulfur transfer from thiosulfate	-0.43
b2522	sseB	Isolate 2	non-essential	rhodanase-like enzyme, sulfur transfer from thiosulfate	-1.75
b2523	pepB	Isolate 1	non-essential	aminopeptidase B	0.28
b2523	pepB	Isolate 2	non-essential	aminopeptidase B	-1.45
b2524	yfhJ	Isolate 1	non-essential	conserved protein	-0.62
b2524	yfhJ	Isolate 2	non-essential	conserved protein	-2.97
b2525	fdx	Isolate 1	non-essential	[2Fe-2S] ferredoxin	0.63
b2525	fdx	Isolate 2	non-essential	[2Fe-2S] ferredoxin	1.18
b2526	hscA	Isolate 1	non-essential	DnaK-like molecular chaperone specific for IscU	-0.13
b2526	hscA	Isolate 2	non-essential	DnaK-like molecular chaperone specific for IscU	2.48
b2527	hscB	Isolate 1	non-essential	DnaJ-like molecular chaperone specific for IscU	0.69
b2527	hscB	Isolate 2	non-essential	DnaJ-like molecular chaperone specific for IscU	1.52
b2528	iscA	Isolate 1	non-essential	FeS cluster assembly protein	1.26
b2528	iscA	Isolate 2	non-essential	FeS cluster assembly protein	-1.71
b2529	iscU	Isolate 1	non-essential	scaffold protein	0.72
b2529	iscU	Isolate 2	non-essential	scaffold protein	0.18
b2530	iscS	Isolate 1	non-essential	cysteine desulfurase (tRNA sulfurtransferase), PLP-dependent	-0.66
b2530	iscS	Isolate 2	non-essential	cysteine desulfurase (tRNA sulfurtransferase), PLP-dependent	1.96
b2531	iscR	Isolate 1	non-essential	DNA-binding transcriptional activator	-0.44
b2531	iscR	Isolate 2	non-essential	DNA-binding transcriptional activator	-0.05
b2532	yfhQ	Isolate 1	non-essential	predicted methyltransferase	0.71
b2532	yfhQ	Isolate 2	non-essential	predicted methyltransferase	2.16
b2534	yfhR	Isolate 1	non-essential	predicted peptidase	-0.44
b2534	yfhR	Isolate 2	non-essential	predicted peptidase	2.97
b2535	csiE	Isolate 1	non-essential	stationary phase inducible protein	0.66
b2535	csiE	Isolate 2	non-essential	stationary phase inducible protein	-0.31
b2536	hcaT	Isolate 1	non-essential	predicted 3-phenylpropionic transporter	-0.03
b2536	hcaT	Isolate 2	non-essential	predicted 3-phenylpropionic transporter	0.13
b2537	hcaR	Isolate 1	non-essential	DNA-binding transcriptional regulator	1.38
b2537	hcaR	Isolate 2	non-essential	DNA-binding transcriptional regulator	1.54
b2538	hcaE	Isolate 1	non-essential	3-phenylpropionate dioxygenase, large (alpha) subunit	0.15
b2538	hcaE	Isolate 2	non-essential	3-phenylpropionate dioxygenase, large (alpha) subunit	-0.95
b2539	hcaF	Isolate 1	non-essential	3-phenylpropionate dioxygenase, small (beta) subunit	2.28
b2539	hcaF	Isolate 2	non-essential	3-phenylpropionate dioxygenase, small (beta) subunit	1.92
b2540	hcaC	Isolate 1	non-essential	3-phenylpropionate dioxygenase, predicted ferredoxin subunit	-1.65
b2540	hcaC	Isolate 2	non-essential	3-phenylpropionate dioxygenase, predicted ferredoxin subunit	-0.50
b2541	hcaB	Isolate 1	non-essential	2,3-dihydroxy-2,3-dihydrophenylpropionate dehydrogenase	-1.55
b2541	hcaB	Isolate 2	non-essential	2,3-dihydroxy-2,3-dihydrophenylpropionate dehydrogenase	-0.41
b2542	hcaD	Isolate 1	non-essential	phenylpropionate dioxygenase, ferredoxin reductase subunit	-2.81
b2542	hcaD	Isolate 2	non-essential	phenylpropionate dioxygenase, ferredoxin reductase subunit	-0.62
b2543	yphA	Isolate 1	non-essential	predicted inner membrane protein	-0.05
b2543	yphA	Isolate 2	non-essential	predicted inner membrane protein	0.73

b2544	yphB	Isolate 1	non-essential	conserved protein	-0.48
b2544	yphB	Isolate 2	non-essential	conserved protein	-10.36
b2545	yphC	Isolate 1	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	0.37
b2545	yphC	Isolate 2	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	-0.01
b2546	yphD	Isolate 1	non-essential	predicted sugar transporter subunit -!- membrane component of ABC superfamily	-0.43
b2546	yphD	Isolate 2	non-essential	predicted sugar transporter subunit -!- membrane component of ABC superfamily	1.90
b2547	yphE	Isolate 1	non-essential	fused predicted sugar transporter subunits -!- ATP-binding components of ABC superfamily	-1.61
b2547	yphE	Isolate 2	non-essential	fused predicted sugar transporter subunits -!- ATP-binding components of ABC superfamily	1.40
b2548	yphF	Isolate 1	non-essential	predicted sugar transporter subunit -!- periplasmic-binding component of ABC superfamily	-1.57
b2548	yphF	Isolate 2	non-essential	predicted sugar transporter subunit -!- periplasmic-binding component of ABC superfamily	-1.67
b2549	yphG	Isolate 1	non-essential	conserved protein	-1.91
b2549	yphG	Isolate 2	non-essential	conserved protein	-0.57
b2550	yphH	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.81
b2550	yphH	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.20
b2551	glyA	Isolate 1	non-essential	serine hydroxymethyltransferase	1.59
b2551	glyA	Isolate 2	non-essential	serine hydroxymethyltransferase	1.18
b2552	hmp	Isolate 1	non-essential	fused nitric oxide dioxygenase -!- dihydropteridine reductase 2	0.31
b2552	hmp	Isolate 2	non-essential	fused nitric oxide dioxygenase -!- dihydropteridine reductase 2	-0.50
b2553	glnB	Isolate 1	non-essential	regulatory protein P-II for glutamine synthetase	2.53
b2553	glnB	Isolate 2	non-essential	regulatory protein P-II for glutamine synthetase	4.28
b2554	yfhA	Isolate 1	non-essential	predicted DNA-binding response regulator in two-component system	0.52
b2554	yfhA	Isolate 2	non-essential	predicted DNA-binding response regulator in two-component system	0.77
b2555	yfhG	Isolate 1	non-essential	conserved protein	-0.69
b2555	yfhG	Isolate 2	non-essential	conserved protein	0.00
b2556	yfhK	Isolate 1	non-essential	predicted sensory kinase in two-component system	-2.97
b2556	yfhK	Isolate 2	non-essential	predicted sensory kinase in two-component system	-0.11
b2557	purL	Isolate 1	non-essential	phosphoribosylformyl-glycineamide synthetase	-0.72
b2557	purL	Isolate 2	non-essential	phosphoribosylformyl-glycineamide synthetase	-2.17
b2558	yfhD	Isolate 1	non-essential	predicted transglycosylase	-0.54
b2558	yfhD	Isolate 2	non-essential	predicted transglycosylase	-0.89
b2559	tadA	Isolate 1	essential	tRNA-specific adenosine deaminase	3.72
b2560	yfhB	Isolate 1	non-essential	conserved protein	0.32
b2560	yfhB	Isolate 2	non-essential	conserved protein	-0.52
b2561	yfhH	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-2.09
b2561	yfhH	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.45
b2562	yfhL	Isolate 1	non-essential	predicted 4Fe-4S cluster-containing protein	0.72
b2562	yfhL	Isolate 2	non-essential	predicted 4Fe-4S cluster-containing protein	0.52
b2563	acpS	Isolate 1	essential	holo-[acyl-carrier-protein] synthase 1	0.61
b2564	pdxJ	Isolate 1	non-essential	pyridoxine 5'-phosphate synthase	-1.58
b2564	pdxJ	Isolate 2	non-essential	pyridoxine 5'-phosphate synthase	-0.87
b2565	recO	Isolate 1	non-essential	gap repair protein	-0.89
b2565	recO	Isolate 2	non-essential	gap repair protein	-0.52
b2566	era	Isolate 1	essential	membrane-associated, 16S rRNA-binding GTPase	-1.73

b2567	rnc	Isolate 1	essential	RNase III	-2.85
b2569	lepA	Isolate 1	non-essential	GTP binding membrane protein	-0.62
b2569	lepA	Isolate 2	non-essential	GTP binding membrane protein	0.10
b2570	rseC	Isolate 1	non-essential	RseC protein involved in reduction of the SoxR iron-sulfur cluster	0.57
b2570	rseC	Isolate 2	non-essential	RseC protein involved in reduction of the SoxR iron-sulfur cluster	0.45
b2571	rseB	Isolate 1	non-essential	anti-sigma factor	1.34
b2571	rseB	Isolate 2	non-essential	anti-sigma factor	-0.25
b2572	rseA	Isolate 1	non-essential	anti-sigma factor	-0.82
b2572	rseA	Isolate 2	non-essential	anti-sigma factor	1.73
b2574	nadB	Isolate 1	non-essential	quinolinate synthase, L-aspartate oxidase (B protein) subunit	-0.12
b2574	nadB	Isolate 2	non-essential	quinolinate synthase, L-aspartate oxidase (B protein) subunit	0.50
b2575	yfiC	Isolate 1	non-essential	predicted methyltransferase	-0.18
b2575	yfiC	Isolate 2	non-essential	predicted methyltransferase	-0.16
b2576	srmB	Isolate 1	non-essential	ATP-dependent RNA helicase	0.14
b2576	srmB	Isolate 2	non-essential	ATP-dependent RNA helicase	-0.62
b2577	yfiE	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	1.04
b2577	yfiE	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.47
b2578	yfiK	Isolate 1	non-essential	neutral amino-acid efflux system	0.73
b2578	yfiK	Isolate 2	non-essential	neutral amino-acid efflux system	0.19
b2579	yfiD	Isolate 1	non-essential	pyruvate formate lyase subunit	-0.16
b2579	yfiD	Isolate 2	non-essential	pyruvate formate lyase subunit	0.10
b2580	ung	Isolate 1	non-essential	uracil-DNA-glycosylase	-1.01
b2580	ung	Isolate 2	non-essential	uracil-DNA-glycosylase	-0.71
b2581	yfiF	Isolate 1	non-essential	predicted methyltransferase	2.84
b2581	yfiF	Isolate 2	non-essential	predicted methyltransferase	-0.53
b2582	trxC	Isolate 1	non-essential	thioredoxin 2	1.08
b2582	trxC	Isolate 2	non-essential	thioredoxin 2	-1.59
b2583	yfiP	Isolate 1	non-essential	conserved protein	-1.19
b2583	yfiP	Isolate 2	non-essential	conserved protein	-0.13
b2584	yfiQ	Isolate 1	non-essential	fused predicted acyl-CoA synthetase NAD(P)-binding subunit -!- ATP-binding subunit	-0.88
b2584	yfiQ	Isolate 2	non-essential	fused predicted acyl-CoA synthetase NAD(P)-binding subunit -!- ATP-binding subunit	-0.64
b2586	yfiM	Isolate 1	non-essential	predicted protein	-0.26
b2586	yfiM	Isolate 2	non-essential	predicted protein	-1.22
b2587	kgtP	Isolate 1	non-essential	alpha-ketoglutarate transporter	0.29
b2587	kgtP	Isolate 2	non-essential	alpha-ketoglutarate transporter	-0.59
b2592	clpB	Isolate 1	non-essential	protein disaggregation chaperone	-1.06
b2592	clpB	Isolate 2	non-essential	protein disaggregation chaperone	-0.60
b2593	yfiH	Isolate 1	non-essential	conserved protein	-0.54
b2593	yfiH	Isolate 2	non-essential	conserved protein	0.06
b2594	rluD	Isolate 1	non-essential	23S rRNA pseudouridine synthase	-2.10
b2594	rluD	Isolate 2	non-essential	23S rRNA pseudouridine synthase	-3.46
b2597	yfiA	Isolate 1	non-essential	cold shock protein associated with 30S ribosomal subunit	-1.67
b2597	yfiA	Isolate 2	non-essential	cold shock protein associated with 30S ribosomal subunit	0.28

b2598	pheL	Isolate 1	non-essential	pheA gene leader peptide	1.22
b2598	pheL	Isolate 2	non-essential	pheA gene leader peptide	0.33
b2599	pheA	Isolate 1	non-essential	fused chorismate mutase P -!- prephenate dehydratase	0.85
b2599	pheA	Isolate 2	non-essential	fused chorismate mutase P -!- prephenate dehydratase	3.57
b2600	tyrA	Isolate 1	non-essential	fused chorismate mutase T -!- prephenate dehydrogenase	3.95
b2600	tyrA	Isolate 2	non-essential	fused chorismate mutase T -!- prephenate dehydrogenase	2.39
b2601	aroF	Isolate 1	non-essential	3-deoxy-D-arabinoheptulosonate-7-phosphate synthase, tyrosine-repressible	1.44
b2601	aroF	Isolate 2	non-essential	3-deoxy-D-arabinoheptulosonate-7-phosphate synthase, tyrosine-repressible	0.99
b2602	yfiL	Isolate 1	non-essential	predicted protein	-0.32
b2602	yfiL	Isolate 2	non-essential	predicted protein	-0.56
b2603	yfiR	Isolate 1	non-essential	predicted protein	-2.97
b2603	yfiR	Isolate 2	non-essential	predicted protein	-1.39
b2604	yfiN	Isolate 1	non-essential	predicted diguanylate cyclase	-0.60
b2604	yfiN	Isolate 2	non-essential	predicted diguanylate cyclase	-0.45
b2605	yfiB	Isolate 1	non-essential	predicted outer membrane lipoprotein	1.91
b2605	yfiB	Isolate 2	non-essential	predicted outer membrane lipoprotein	0.11
b2607	trmD	Isolate 1	essential	tRNA (guanine-1-)-methyltransferase	3.45
b2608	rimM	Isolate 1	non-essential	16S rRNA processing protein	0.00
b2608	rimM	Isolate 2	non-essential	16S rRNA processing protein	1.28
b2610	ffh	Isolate 1	essential	Signal Recognition Particle (SRP) component with 4.5S RNA (ffs)	3.26
b2611	ypjD	Isolate 1	non-essential	predicted inner membrane protein	-0.61
b2611	ypjD	Isolate 2	non-essential	predicted inner membrane protein	-2.62
b2615	uppS	Isolate 1	essential	NAD kinase	-1.24
b2616	recN	Isolate 1	non-essential	recombination and repair protein	-2.35
b2616	recN	Isolate 2	non-essential	recombination and repair protein	-2.20
b2617	smpA	Isolate 1	non-essential	small membrane lipoprotein	0.55
b2617	smpA	Isolate 2	non-essential	small membrane lipoprotein	-0.35
b2618	yfjF	Isolate 1	non-essential	predicted protein	4.95
b2618	yfjF	Isolate 2	non-essential	predicted protein	-1.96
b2619	yfjG	Isolate 1	non-essential	conserved protein	-2.50
b2619	yfjG	Isolate 2	non-essential	conserved protein	0.25
b2620	smpB	Isolate 1	non-essential	trans-translation protein	-0.06
b2620	smpB	Isolate 2	non-essential	trans-translation protein	0.23
b2622	intA	Isolate 1	non-essential	CP4-57 prophage; integrase	1.00
b2622	intA	Isolate 2	non-essential	CP4-57 prophage; integrase	-0.24
b2623	yfjH	Isolate 1	non-essential	CP4-57 prophage; predicted protein	-0.76
b2623	yfjH	Isolate 2	non-essential	CP4-57 prophage; predicted protein	0.64
b2624	alpA	Isolate 1	non-essential	CP4-57 prophage; DNA-binding transcriptional activator	2.32
b2624	alpA	Isolate 2	non-essential	CP4-57 prophage; DNA-binding transcriptional activator	1.18
b2625	yfjI	Isolate 1	non-essential	CP4-57 prophage; predicted protein	-2.43
b2625	yfjI	Isolate 2	non-essential	CP4-57 prophage; predicted protein	-2.30
b2626	yfjJ	Isolate 1	non-essential	CP4-57 prophage; predicted protein	-1.68
b2626	yfjJ	Isolate 2	non-essential	CP4-57 prophage; predicted protein	-0.40

b2627	yfjK	Isolate 1	non-essential	CP4-57 prophage; conserved protein	0.96
b2627	yfjK	Isolate 2	non-essential	CP4-57 prophage; conserved protein	0.37
b2628	yfjL	Isolate 1	non-essential	CP4-57 prophage; predicted protein	-1.33
b2628	yfjL	Isolate 2	non-essential	CP4-57 prophage; predicted protein	-0.09
b2629	yfjM	Isolate 1	non-essential	CP4-57 prophage; predicted protein	-0.03
b2629	yfjM	Isolate 2	non-essential	CP4-57 prophage; predicted protein	-0.92
b2630	yfjN	Isolate 1	non-essential	CP4-57 prophage; predicted protein	-2.48
b2630	yfjN	Isolate 2	non-essential	CP4-57 prophage; predicted protein	1.33
b2631	yfjO	Isolate 1	non-essential	CP4-57 prophage; predicted protein	-2.80
b2631	yfjO	Isolate 2	non-essential	CP4-57 prophage; predicted protein	-1.06
b2632	yfjP	Isolate 1	non-essential	CP4-57 prophage; predicted GTP-binding protein	-0.63
b2632	yfjP	Isolate 2	non-essential	CP4-57 prophage; predicted GTP-binding protein	-0.26
b2633	yfjQ	Isolate 1	non-essential	CP4-57 prophage; predicted protein	0.11
b2633	yfjQ	Isolate 2	non-essential	CP4-57 prophage; predicted protein	-3.22
b2634	yfjR	Isolate 1	non-essential	CP4-57 prophage; predicted DNA-binding transcriptional regulator	-0.10
b2634	yfjR	Isolate 2	non-essential	CP4-57 prophage; predicted DNA-binding transcriptional regulator	0.21
b2635	ypjK	Isolate 1	unknown	CP4-57 prophage; predicted inner membrane protein	-0.29
b2635	ypjK	Isolate 2	unknown	CP4-57 prophage; predicted inner membrane protein	0.38
b2636	yfjS	Isolate 1	non-essential	CP4-57 prophage; predicted protein	-1.39
b2636	yfjS	Isolate 2	non-essential	CP4-57 prophage; predicted protein	-0.91
b2637	yfjT	Isolate 1	non-essential	CP4-57 prophage; predicted protein	-1.94
b2637	yfjT	Isolate 2	non-essential	CP4-57 prophage; predicted protein	0.07
b2638	yfjU	Isolate 1	non-essential	CP4-57 prophage; conserved protein	-1.53
b2638	yfjU	Isolate 2	non-essential	CP4-57 prophage; conserved protein	-1.00
b2640	yfjV	Isolate 1	non-essential	CP4-57 prophage; predicted protein	-0.11
b2640	yfjV	Isolate 2	non-essential	CP4-57 prophage; predicted protein	-0.51
b2641	ypjM	Isolate 1	*	CP4-57 prophage; predicted protein (pseudogene)	-0.75
b2641	ypjM	Isolate 2	*	CP4-57 prophage; predicted protein (pseudogene)	-0.61
b2642	yfjW	Isolate 1	non-essential	CP4-57 prophage; predicted inner membrane protein	-1.36
b2642	yfjW	Isolate 2	non-essential	CP4-57 prophage; predicted inner membrane protein	-1.98
b2643	yfjX	Isolate 1	non-essential	CP4-57 prophage; predicted antirestriction protein	1.72
b2643	yfjX	Isolate 2	non-essential	CP4-57 prophage; predicted antirestriction protein	-0.19
b2644	yfjY	Isolate 1	non-essential	CP4-57 prophage; predicted DNA repair protein	-0.95
b2644	yfjY	Isolate 2	non-essential	CP4-57 prophage; predicted DNA repair protein	-1.21
b2645	yfjZ	Isolate 1	non-essential	CP4-57 prophage; antitoxin of the YpjF-YfjZ toxin-antitoxin system	-0.55
b2645	yfjZ	Isolate 2	non-essential	CP4-57 prophage; antitoxin of the YpjF-YfjZ toxin-antitoxin system	-1.84
b2646	ypjF	Isolate 1	non-essential	CP4-57 prophage; toxin of the YpjF-YfjZ toxin-antitoxin system	-1.72
b2646	ypjF	Isolate 2	non-essential	CP4-57 prophage; toxin of the YpjF-YfjZ toxin-antitoxin system	-2.16
b2647	ypjA	Isolate 1	non-essential	adhesin-like autotransporter	-0.87
b2647	ypjA	Isolate 2	non-essential	adhesin-like autotransporter	-1.48
b2648	pinH	Isolate 1	*	predicted invertase fragment (pseudogene)	-3.01
b2648	pinH	Isolate 2	*	predicted invertase fragment (pseudogene)	-2.98
b2649	ypjB	Isolate 1	non-essential	predicted protein	-1.31

b2649	ypjB	Isolate 2	non-essential	predicted protein	0.36
b2650	ypjC	Isolate 1	non-essential	predicted protein	0.00
b2650	ypjC	Isolate 2	non-essential	predicted protein	-1.16
b2654	ygaQ	Isolate 1	non-essential	predicted protein	1.57
b2654	ygaQ	Isolate 2	non-essential	predicted protein	-2.26
b2657	yqaC	Isolate 1	*	conserved protein (pseudogene)	-0.62
b2657	yqaC	Isolate 2	*	conserved protein (pseudogene)	0.16
b2658	yqaD	Isolate 1	non-essential	conserved protein	-1.34
b2658	yqaD	Isolate 2	non-essential	conserved protein	-2.42
b2659	ygaT	Isolate 1	non-essential	predicted protein	0.48
b2659	ygaT	Isolate 2	non-essential	predicted protein	-0.74
b2660	ygaF	Isolate 1	non-essential	predicted enzyme	-0.07
b2660	ygaF	Isolate 2	non-essential	predicted enzyme	0.25
b2661	gabD	Isolate 1	non-essential	succinate-semialdehyde dehydrogenase I, NADP-dependent	0.88
b2661	gabD	Isolate 2	non-essential	succinate-semialdehyde dehydrogenase I, NADP-dependent	-0.22
b2662	gabT	Isolate 1	non-essential	4-aminobutyrate aminotransferase, PLP-dependent	-0.50
b2662	gabT	Isolate 2	non-essential	4-aminobutyrate aminotransferase, PLP-dependent	0.11
b2663	gabP	Isolate 1	non-essential	gamma-aminobutyrate transporter	-0.66
b2663	gabP	Isolate 2	non-essential	gamma-aminobutyrate transporter	-0.21
b2664	csiR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	1.58
b2664	csiR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	-0.71
b2665	ygaU	Isolate 1	non-essential	predicted protein	-1.05
b2665	ygaU	Isolate 2	non-essential	predicted protein	-0.61
b2666	yqaE	Isolate 1	non-essential	predicted membrane protein	-0.21
b2666	yqaE	Isolate 2	non-essential	predicted membrane protein	-3.01
b2667	ygaV	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.21
b2667	ygaV	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.43
b2668	ygaP	Isolate 1	non-essential	predicted inner membrane protein with hydrolase activity	0.34
b2668	ygaP	Isolate 2	non-essential	predicted inner membrane protein with hydrolase activity	-0.36
b2669	stpA	Isolate 1	non-essential	DNA binding protein, nucleoid-associated	0.84
b2669	stpA	Isolate 2	non-essential	DNA binding protein, nucleoid-associated	1.54
b2670	ygaW	Isolate 1	non-essential	predicted inner membrane protein	-0.92
b2670	ygaW	Isolate 2	non-essential	predicted inner membrane protein	0.09
b2671	ygaC	Isolate 1	non-essential	predicted protein	-0.71
b2671	ygaC	Isolate 2	non-essential	predicted protein	-1.79
b2672	ygaM	Isolate 1	non-essential	predicted protein	-2.12
b2672	ygaM	Isolate 2	non-essential	predicted protein	-0.01
b2673	nrdH	Isolate 1	non-essential	glutaredoxin-like protein	2.49
b2673	nrdH	Isolate 2	non-essential	glutaredoxin-like protein	-1.69
b2674	nrdI	Isolate 1	non-essential	protein that stimulates ribonucleotide reduction	-0.65
b2674	nrdI	Isolate 2	non-essential	protein that stimulates ribonucleotide reduction	0.63
b2675	nrdE	Isolate 1	non-essential	ribonucleoside-diphosphate reductase 2, alpha subunit	-0.49
b2675	nrdE	Isolate 2	non-essential	ribonucleoside-diphosphate reductase 2, alpha subunit	-1.39



b2676	nrdF	Isolate 1	non-essential	ribonucleoside-diphosphate reductase 2, beta subunit, ferritin-like	-0.89
b2676	nrdF	Isolate 2	non-essential	ribonucleoside-diphosphate reductase 2, beta subunit, ferritin-like	-0.19
b2677	proV	Isolate 1	non-essential	glycine betaine transporter subunit -!- ATP-binding compoent of ABC superfamily	0.03
b2677	proV	Isolate 2	non-essential	glycine betaine transporter subunit -!- ATP-binding compoent of ABC superfamily	2.06
b2678	proW	Isolate 1	non-essential	glycine betaine transporter subunit -!- membrane component of ABC superfamily	6.85
b2678	proW	Isolate 2	non-essential	glycine betaine transporter subunit -!- membrane component of ABC superfamily	-0.50
b2679	proX	Isolate 1	non-essential	glycine betaine transporter subunit -!- periplasmic-binding component of ABC superfamily	0.54
b2679	proX	Isolate 2	non-essential	glycine betaine transporter subunit -!- periplasmic-binding component of ABC superfamily	-2.11
b2680	ygaX	Isolate 1	non-essential	predicted transporter	-0.24
b2680	ygaX	Isolate 2	non-essential	predicted transporter	-0.19
b2681	ygaY	Isolate 1	*	predicted transporter (pseudogene)	1.11
b2681	ygaY	Isolate 2	*	predicted transporter (pseudogene)	0.68
b2682	ygaZ	Isolate 1	non-essential	predicted transporter	-0.52
b2682	ygaZ	Isolate 2	non-essential	predicted transporter	-0.89
b2683	ygaH	Isolate 1	non-essential	predicted inner membrane protein	-0.54
b2683	ygaH	Isolate 2	non-essential	predicted inner membrane protein	-1.92
b2684	mprA	Isolate 1	non-essential	DNA-binding transcriptional regulator	0.21
b2684	mprA	Isolate 2	non-essential	DNA-binding transcriptional regulator	-1.38
b2685	emrA	Isolate 1	non-essential	multidrug efflux system	0.34
b2685	emrA	Isolate 2	non-essential	multidrug efflux system	1.38
b2686	emrB	Isolate 1	non-essential	multidrug efflux system protein	0.04
b2686	emrB	Isolate 2	non-essential	multidrug efflux system protein	0.46
b2687	luxS	Isolate 1	non-essential	S-ribosylhomocysteinase	0.00
b2687	luxS	Isolate 2	non-essential	S-ribosylhomocysteinase	-0.44
b2688	gshA	Isolate 1	non-essential	gamma-glutamate-cysteine ligase	0.38
b2688	gshA	Isolate 2	non-essential	gamma-glutamate-cysteine ligase	-2.28
b2689	yqaA	Isolate 1	non-essential	conserved inner membrane protein	1.10
b2689	yqaA	Isolate 2	non-essential	conserved inner membrane protein	0.24
b2690	yqaB	Isolate 1	non-essential	predicted hydrolase	0.13
b2690	yqaB	Isolate 2	non-essential	predicted hydrolase	-7.47
b2697	alaS	Isolate 1	non-essential	alanyl-tRNA synthetase	-3.46
b2697	alaS	Isolate 2	non-essential	alanyl-tRNA synthetase	-1.66
b2698	recX	Isolate 1	non-essential	regulatory protein for RecA	-0.80
b2698	recX	Isolate 2	non-essential	regulatory protein for RecA	-0.74
b2699	recA	Isolate 1	non-essential	DNA strand exchange and recombination protein with protease and nuclease activity	0.19
b2699	recA	Isolate 2	non-essential	DNA strand exchange and recombination protein with protease and nuclease activity	1.92
b2700	ygaD	Isolate 1	non-essential	conserved protein	-0.89
b2700	ygaD	Isolate 2	non-essential	conserved protein	-1.68
b2701	mltB	Isolate 1	non-essential	membrane-bound lytic murein transglycosylase B	-1.08
b2701	mltB	Isolate 2	non-essential	membrane-bound lytic murein transglycosylase B	-2.54
b2702	srlA	Isolate 1	non-essential	glucitol/sorbitol-specific enzyme IIC component of PTS	-1.54
b2702	srlA	Isolate 2	non-essential	glucitol/sorbitol-specific enzyme IIC component of PTS	-0.49
b2703	srlE	Isolate 1	non-essential	glucitol/sorbitol-specific enzyme IIB component of PTS	-0.36

b2703	srIE	Isolate 2	non-essential	glucitol/sorbitol-specific enzyme IIB component of PTS	0.00
b2704	srIB	Isolate 1	non-essential	glucitol/sorbitol-specific enzyme IIA component of PTS	-1.16
b2704	srIB	Isolate 2	non-essential	glucitol/sorbitol-specific enzyme IIA component of PTS	-0.29
b2705	srID	Isolate 1	non-essential	sorbitol-6-phosphate dehydrogenase	-0.50
b2705	srID	Isolate 2	non-essential	sorbitol-6-phosphate dehydrogenase	-4.31
b2706	gutM	Isolate 1	non-essential	DNA-binding transcriptional activator	0.02
b2706	gutM	Isolate 2	non-essential	DNA-binding transcriptional activator	0.56
b2707	srIR	Isolate 1	non-essential	DNA-binding transcriptional repressor	3.49
b2707	srIR	Isolate 2	non-essential	DNA-binding transcriptional repressor	-1.78
b2708	gutQ	Isolate 1	non-essential	predicted phosphosugar-binding protein	-1.53
b2708	gutQ	Isolate 2	non-essential	predicted phosphosugar-binding protein	-1.30
b2709	norR	Isolate 1	non-essential	DNA-binding transcriptional activator	-1.48
b2709	norR	Isolate 2	non-essential	DNA-binding transcriptional activator	-2.87
b2710	norV	Isolate 1	non-essential	flavorubredoxin oxidoreductase	-4.08
b2710	norV	Isolate 2	non-essential	flavorubredoxin oxidoreductase	-1.58
b2711	norW	Isolate 1	non-essential	NADH:flavorubredoxin oxidoreductase	-2.30
b2711	norW	Isolate 2	non-essential	NADH:flavorubredoxin oxidoreductase	0.59
b2712	hypF	Isolate 1	non-essential	carbamoyl phosphate phosphatase and maturation protein for [NiFe] hydrogenases	-0.50
b2712	hypF	Isolate 2	non-essential	carbamoyl phosphate phosphatase and maturation protein for [NiFe] hydrogenases	0.85
b2713	hydN	Isolate 1	non-essential	formate dehydrogenase-H, [4Fe-4S] ferredoxin subunit	-0.06
b2713	hydN	Isolate 2	non-essential	formate dehydrogenase-H, [4Fe-4S] ferredoxin subunit	0.10
b2714	ascG	Isolate 1	non-essential	DNA-binding transcriptional regulator	0.28
b2714	ascG	Isolate 2	non-essential	DNA-binding transcriptional regulator	0.01
b2715	ascF	Isolate 1	non-essential	fused cellobiose/arbutin/salicin-specific enzyme IIBC component of PTS	1.45
b2715	ascF	Isolate 2	non-essential	fused cellobiose/arbutin/salicin-specific enzyme IIBC component of PTS	-0.34
b2716	ascB	Isolate 1	non-essential	cryptic 6-phospho-beta-glucosidase	0.20
b2716	ascB	Isolate 2	non-essential	cryptic 6-phospho-beta-glucosidase	0.37
b2717	hycI	Isolate 1	non-essential	protease involved in processing C-terminal end of HycE	-4.04
b2717	hycI	Isolate 2	non-essential	protease involved in processing C-terminal end of HycE	-2.40
b2718	hycH	Isolate 1	non-essential	protein required for maturation of hydrogenase 3	-0.55
b2718	hycH	Isolate 2	non-essential	protein required for maturation of hydrogenase 3	-2.84
b2719	hycG	Isolate 1	non-essential	hydrogenase 3 and formate hydrogenase complex, HycG subunit	-2.62
b2719	hycG	Isolate 2	non-essential	hydrogenase 3 and formate hydrogenase complex, HycG subunit	-2.49
b2720	hycF	Isolate 1	non-essential	formate hydrogenlyase complex iron-sulfur protein	-1.78
b2720	hycF	Isolate 2	non-essential	formate hydrogenlyase complex iron-sulfur protein	0.12
b2721	hycE	Isolate 1	non-essential	hydrogenase 3, large subunit	-2.01
b2721	hycE	Isolate 2	non-essential	hydrogenase 3, large subunit	-2.29
b2722	hycD	Isolate 1	non-essential	hydrogenase 3, membrane subunit	-1.21
b2722	hycD	Isolate 2	non-essential	hydrogenase 3, membrane subunit	-1.68
b2723	hycC	Isolate 1	non-essential	hydrogenase 3, membrane subunit	-1.76
b2723	hycC	Isolate 2	non-essential	hydrogenase 3, membrane subunit	-3.98
b2724	hycB	Isolate 1	non-essential	hydrogenase 3, Fe-S subunit	-2.56
b2724	hycB	Isolate 2	non-essential	hydrogenase 3, Fe-S subunit	-2.49

b2725	hycA	Isolate 1	non-essential	regulator of the transcriptional regulator FhlA	1.27
b2725	hycA	Isolate 2	non-essential	regulator of the transcriptional regulator FhlA	-1.23
b2726	hypA	Isolate 1	non-essential	protein involved in nickel insertion into hydrogenases 3	-2.82
b2726	hypA	Isolate 2	non-essential	protein involved in nickel insertion into hydrogenases 3	-0.26
b2727	hypB	Isolate 1	non-essential	GTP hydrolase involved in nickel liganding into hydrogenases	-3.65
b2727	hypB	Isolate 2	non-essential	GTP hydrolase involved in nickel liganding into hydrogenases	-2.20
b2728	hypC	Isolate 1	non-essential	protein required for maturation of hydrogenases 1 and 3	-2.03
b2728	hypC	Isolate 2	non-essential	protein required for maturation of hydrogenases 1 and 3	-0.70
b2729	hypD	Isolate 1	non-essential	protein required for maturation of hydrogenases	-3.27
b2729	hypD	Isolate 2	non-essential	protein required for maturation of hydrogenases	1.08
b2730	hypE	Isolate 1	non-essential	carbamoyl phosphate phosphatase, hydrogenase 3 maturation protein	-1.22
b2730	hypE	Isolate 2	non-essential	carbamoyl phosphate phosphatase, hydrogenase 3 maturation protein	-1.16
b2731	fhlA	Isolate 1	non-essential	DNA-binding transcriptional activator	-2.10
b2731	fhlA	Isolate 2	non-essential	DNA-binding transcriptional activator	-5.07
b2732	ygbA	Isolate 1	non-essential	predicted protein	-1.22
b2732	ygbA	Isolate 2	non-essential	predicted protein	-2.40
b2733	mutS	Isolate 1	non-essential	methyl-directed mismatch repair protein	-3.10
b2733	mutS	Isolate 2	non-essential	methyl-directed mismatch repair protein	-0.75
b2734	pphB	Isolate 1	non-essential	serine/threonine-specific protein phosphatase 2	-1.92
b2734	pphB	Isolate 2	non-essential	serine/threonine-specific protein phosphatase 2	-3.41
b2735	ygbI	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.08
b2735	ygbI	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-2.86
b2736	ygbJ	Isolate 1	non-essential	predicted dehydrogenase, with NAD(P)-binding Rossmann-fold domain	-3.10
b2736	ygbJ	Isolate 2	non-essential	predicted dehydrogenase, with NAD(P)-binding Rossmann-fold domain	-2.09
b2737	ygbK	Isolate 1	non-essential	conserved protein	-4.80
b2737	ygbK	Isolate 2	non-essential	conserved protein	-2.37
b2738	ygbL	Isolate 1	non-essential	predicted class II aldolase	-2.92
b2738	ygbL	Isolate 2	non-essential	predicted class II aldolase	-0.20
b2739	ygbM	Isolate 1	non-essential	conserved protein	-2.58
b2739	ygbM	Isolate 2	non-essential	conserved protein	-2.00
b2740	ygbN	Isolate 1	non-essential	predicted transporter	-1.64
b2740	ygbN	Isolate 2	non-essential	predicted transporter	-3.93
b2741	rpoS	Isolate 1	non-essential	RNA polymerase, sigma S (sigma 38) factor	-0.59
b2741	rpoS	Isolate 2	non-essential	RNA polymerase, sigma S (sigma 38) factor	-1.56
b2742	nlpD	Isolate 1	non-essential	predicted outer membrane lipoprotein	-1.47
b2742	nlpD	Isolate 2	non-essential	predicted outer membrane lipoprotein	-1.40
b2743	pcm	Isolate 1	non-essential	L-isoaspartate protein carboxylmethyltransferase type II	-2.51
b2743	pcm	Isolate 2	non-essential	L-isoaspartate protein carboxylmethyltransferase type II	-4.33
b2744	surE	Isolate 1	non-essential	broad specificity 5'(3')-nucleotidase and polyphosphatase	-0.68
b2744	surE	Isolate 2	non-essential	broad specificity 5'(3')-nucleotidase and polyphosphatase	0.00
b2745	truD	Isolate 1	non-essential	pseudouridine synthase	-2.05
b2745	truD	Isolate 2	non-essential	pseudouridine synthase	-3.31
b2746	ispF	Isolate 1	essential	2C-methyl-D-erythritol 2,4-cyclodiphosphate synthase	3.87

b2749	ygbE	Isolate 1	non-essential	conserved inner membrane protein	-4.34
b2749	ygbE	Isolate 2	non-essential	conserved inner membrane protein	-6.53
b2750	cysC	Isolate 1	non-essential	adenosine 5'-phosphosulfate kinase	-6.49
b2750	cysC	Isolate 2	non-essential	adenosine 5'-phosphosulfate kinase	-6.68
b2751	cysN	Isolate 1	non-essential	sulfate adenyltransferase, subunit 1	-2.78
b2751	cysN	Isolate 2	non-essential	sulfate adenyltransferase, subunit 1	-2.74
b2752	cysD	Isolate 1	non-essential	sulfate adenyltransferase, subunit 2	-1.75
b2752	cysD	Isolate 2	non-essential	sulfate adenyltransferase, subunit 2	-5.59
b2753	iap	Isolate 1	non-essential	aminopeptidase in alkaline phosphatase isozyme conversion	-10.72
b2753	iap	Isolate 2	non-essential	aminopeptidase in alkaline phosphatase isozyme conversion	-9.89
b2754	ygbF	Isolate 1	non-essential	predicted protein	-10.07
b2754	ygbF	Isolate 2	non-essential	predicted protein	-11.36
b2755	ygbT	Isolate 1	non-essential	conserved protein	-9.27
b2755	ygbT	Isolate 2	non-essential	conserved protein	-2.80
b2756	ygcH	Isolate 1	non-essential	predicted protein	-7.11
b2756	ygcH	Isolate 2	non-essential	predicted protein	-8.02
b2757	ygcI	Isolate 1	non-essential	predicted protein	-10.77
b2757	ygcI	Isolate 2	non-essential	predicted protein	-12.43
b2758	ygcJ	Isolate 1	non-essential	predicted protein	-12.16
b2758	ygcJ	Isolate 2	non-essential	predicted protein	-6.77
b2759	ygcK	Isolate 1	non-essential	predicted protein	-6.61
b2759	ygcK	Isolate 2	non-essential	predicted protein	-6.98
b2760	ygcL	Isolate 1	non-essential	predicted protein	-8.02
b2760	ygcL	Isolate 2	non-essential	predicted protein	-5.97
b2761	ygcB	Isolate 1	non-essential	conserved protein, member of DEAD box family	-2.36
b2761	ygcB	Isolate 2	non-essential	conserved protein, member of DEAD box family	-3.63
b2762	cysH	Isolate 1	non-essential	3'-phosphoadenosine 5'-phosphosulfate reductase	-5.19
b2762	cysH	Isolate 2	non-essential	3'-phosphoadenosine 5'-phosphosulfate reductase	-4.51
b2763	cysI	Isolate 1	non-essential	sulfite reductase, beta subunit, NAD(P)-binding	-4.12
b2763	cysI	Isolate 2	non-essential	sulfite reductase, beta subunit, NAD(P)-binding	0.46
b2764	cysJ	Isolate 1	non-essential	sulfite reductase, alpha subunit, flavoprotein	-2.34
b2764	cysJ	Isolate 2	non-essential	sulfite reductase, alpha subunit, flavoprotein	-2.52
b2765	ygcM	Isolate 1	non-essential	6-pyruvoyl tetrahydrobiopterin synthase (PTPS)	-0.96
b2765	ygcM	Isolate 2	non-essential	6-pyruvoyl tetrahydrobiopterin synthase (PTPS)	-1.03
b2766	ygcN	Isolate 1	non-essential	predicted oxidoreductase, FAD/NAD(P)-binding domain	0.01
b2766	ygcN	Isolate 2	non-essential	predicted oxidoreductase, FAD/NAD(P)-binding domain	-4.95
b2767	ygcO	Isolate 1	non-essential	predicted 4Fe-4S cluster-containing protein	2.64
b2767	ygcO	Isolate 2	non-essential	predicted 4Fe-4S cluster-containing protein	-3.52
b2768	ygcP	Isolate 1	non-essential	predicted anti-terminator regulatory protein	1.83
b2768	ygcP	Isolate 2	non-essential	predicted anti-terminator regulatory protein	1.01
b2769	ygcQ	Isolate 1	non-essential	predicted flavoprotein	-1.69
b2769	ygcQ	Isolate 2	non-essential	predicted flavoprotein	-2.68
b2770	ygcR	Isolate 1	non-essential	predicted flavoprotein	-4.77

b2770	ygcR	Isolate 2	non-essential	predicted flavoprotein	-3.35
b2771	ygcS	Isolate 1	non-essential	predicted transporter	-1.21
b2771	ygcS	Isolate 2	non-essential	predicted transporter	-0.46
b2774	ygcW	Isolate 1	non-essential	predicted deoxygluconate dehydrogenase	-1.50
b2774	ygcW	Isolate 2	non-essential	predicted deoxygluconate dehydrogenase	-1.31
b2775	yqcE	Isolate 1	non-essential	predicted transporter	-3.47
b2775	yqcE	Isolate 2	non-essential	predicted transporter	-1.00
b2776	ygcE	Isolate 1	non-essential	predicted kinase	-1.98
b2776	ygcE	Isolate 2	non-essential	predicted kinase	0.11
b2777	ygcF	Isolate 1	non-essential	conserved protein	-0.21
b2777	ygcF	Isolate 2	non-essential	conserved protein	-0.91
b2778	ygcG	Isolate 1	non-essential	predicted protein	-3.78
b2778	ygcG	Isolate 2	non-essential	predicted protein	-0.37
b2779	eno	Isolate 1	essential	enolase	0.86
b2781	mazG	Isolate 1	non-essential	nucleoside triphosphate pyrophosphohydrolase	-2.69
b2781	mazG	Isolate 2	non-essential	nucleoside triphosphate pyrophosphohydrolase	-1.06
b2782	chpA	Isolate 1	non-essential	toxin of the ChpA-ChpR toxin-antitoxin system, endoribonuclease	-2.82
b2782	chpA	Isolate 2	non-essential	toxin of the ChpA-ChpR toxin-antitoxin system, endoribonuclease	0.53
b2784	relA	Isolate 1	non-essential	(p)ppGpp synthetase I/GTP pyrophosphokinase	-1.05
b2784	relA	Isolate 2	non-essential	(p)ppGpp synthetase I/GTP pyrophosphokinase	0.00
b2785	rumA	Isolate 1	non-essential	23S rRNA (uracil-5)-methyltransferase	-2.93
b2785	rumA	Isolate 2	non-essential	23S rRNA (uracil-5)-methyltransferase	-2.03
b2786	barA	Isolate 1	non-essential	hybrid sensory histidine kinase, in two-component regulatory system with UvrY	-1.13
b2786	barA	Isolate 2	non-essential	hybrid sensory histidine kinase, in two-component regulatory system with UvrY	-1.42
b2787	gudD	Isolate 1	non-essential	(D)-glucarate dehydratase 1	-2.45
b2787	gudD	Isolate 2	non-essential	(D)-glucarate dehydratase 1	-0.66
b2788	gudX	Isolate 1	non-essential	predicted glucarate dehydratase	-1.46
b2788	gudX	Isolate 2	non-essential	predicted glucarate dehydratase	-1.28
b2789	gudP	Isolate 1	non-essential	predicted D-glucarate transporter	-2.40
b2789	gudP	Isolate 2	non-essential	predicted D-glucarate transporter	-0.09
b2790	yqcA	Isolate 1	non-essential	predicted flavoprotein	-1.78
b2790	yqcA	Isolate 2	non-essential	predicted flavoprotein	-1.65
b2791	yqcB	Isolate 1	non-essential	tRNA pseudouridine synthase	-3.08
b2791	yqcB	Isolate 2	non-essential	tRNA pseudouridine synthase	-3.49
b2792	yqcC	Isolate 1	non-essential	conserved protein	-2.75
b2792	yqcC	Isolate 2	non-essential	conserved protein	-2.04
b2793	syd	Isolate 1	non-essential	predicted protein	-0.88
b2793	syd	Isolate 2	non-essential	predicted protein	-1.68
b2794	yqcD	Isolate 1	non-essential	conserved protein	-2.84
b2794	yqcD	Isolate 2	non-essential	conserved protein	-0.27
b2795	ygdH	Isolate 1	non-essential	conserved protein	-3.33
b2795	ygdH	Isolate 2	non-essential	conserved protein	-0.03
b2796	sdaC	Isolate 1	non-essential	predicted serine transporter	-2.14

b2796	sdaC	Isolate 2	non-essential	predicted serine transporter	-0.88
b2797	sdaB	Isolate 1	non-essential	L-serine deaminase II	-0.91
b2797	sdaB	Isolate 2	non-essential	L-serine deaminase II	-0.80
b2798	exo	Isolate 1	non-essential	exonuclease IX (5'-3' exonuclease)	0.75
b2798	exo	Isolate 2	non-essential	exonuclease IX (5'-3' exonuclease)	0.79
b2799	fucO	Isolate 1	non-essential	L-1,2-propanediol oxidoreductase	0.00
b2799	fucO	Isolate 2	non-essential	L-1,2-propanediol oxidoreductase	-1.74
b2800	fucA	Isolate 1	non-essential	L-fucose-1-phosphate aldolase	-4.65
b2800	fucA	Isolate 2	non-essential	L-fucose-1-phosphate aldolase	-0.98
b2801	fucP	Isolate 1	non-essential	L-fucose transporter	-1.12
b2801	fucP	Isolate 2	non-essential	L-fucose transporter	-0.96
b2802	fucI	Isolate 1	non-essential	L-fucose isomerase	-2.98
b2802	fucI	Isolate 2	non-essential	L-fucose isomerase	-2.27
b2803	fucK	Isolate 1	non-essential	L-fuculokinase	-1.49
b2803	fucK	Isolate 2	non-essential	L-fuculokinase	-2.65
b2804	fucU	Isolate 1	non-essential	L-fucose mutarotase	-2.39
b2804	fucU	Isolate 2	non-essential	L-fucose mutarotase	-3.89
b2805	fucR	Isolate 1	non-essential	DNA-binding transcriptional activator	0.03
b2805	fucR	Isolate 2	non-essential	DNA-binding transcriptional activator	-1.10
b2806	ygdE	Isolate 1	non-essential	predicted methyltransferase	-1.61
b2806	ygdE	Isolate 2	non-essential	predicted methyltransferase	-0.27
b2807	ygdD	Isolate 1	non-essential	conserved inner membrane protein	-7.69
b2807	ygdD	Isolate 2	non-essential	conserved inner membrane protein	-3.15
b2808	gcvA	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	1.36
b2808	gcvA	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	-2.45
b2809	ygdI	Isolate 1	non-essential	predicted protein	0.21
b2809	ygdI	Isolate 2	non-essential	predicted protein	-0.50
b2810	csdA	Isolate 1	non-essential	cysteine sulfinatase desulfinate	-1.16
b2810	csdA	Isolate 2	non-essential	cysteine sulfinatase desulfinate	0.64
b2811	ygdK	Isolate 1	non-essential	predicted Fe-S metabolism protein	2.87
b2811	ygdK	Isolate 2	non-essential	predicted Fe-S metabolism protein	1.84
b2812	ygdL	Isolate 1	non-essential	conserved protein	-0.15
b2812	ygdL	Isolate 2	non-essential	conserved protein	-2.72
b2813	mltA	Isolate 1	non-essential	membrane-bound lytic murein transglycosylase A	-1.05
b2813	mltA	Isolate 2	non-essential	membrane-bound lytic murein transglycosylase A	-2.45
b2817	amiC	Isolate 1	non-essential	N-acetylmuramoyl-L-alanine amidase	2.66
b2817	amiC	Isolate 2	non-essential	N-acetylmuramoyl-L-alanine amidase	-0.60
b2818	argA	Isolate 1	non-essential	fused acetylglutamate kinase homolog (inactive) -!- amino acid N-acetyltransferase	0.73
b2818	argA	Isolate 2	non-essential	fused acetylglutamate kinase homolog (inactive) -!- amino acid N-acetyltransferase	0.55
b2819	recD	Isolate 1	non-essential	exonuclease V (RecBCD complex), alpha chain	3.70
b2819	recD	Isolate 2	non-essential	exonuclease V (RecBCD complex), alpha chain	0.67
b2820	recB	Isolate 1	non-essential	exonuclease V (RecBCD complex), beta subunit	-1.84
b2820	recB	Isolate 2	non-essential	exonuclease V (RecBCD complex), beta subunit	-1.95

b2821	ptr	Isolate 1	non-essential	protease III	-0.87
b2821	ptr	Isolate 2	non-essential	protease III	-1.49
b2822	recC	Isolate 1	non-essential	exonuclease V (RecBCD complex), gamma chain	-1.53
b2822	recC	Isolate 2	non-essential	exonuclease V (RecBCD complex), gamma chain	-0.78
b2823	ppdC	Isolate 1	non-essential	predicted protein	-2.34
b2823	ppdC	Isolate 2	non-essential	predicted protein	-0.96
b2824	ygdB	Isolate 1	non-essential	predicted protein	-4.68
b2824	ygdB	Isolate 2	non-essential	predicted protein	-1.48
b2825	ppdB	Isolate 1	non-essential	conserved protein	-1.64
b2825	ppdB	Isolate 2	non-essential	conserved protein	-2.19
b2826	ppdA	Isolate 1	non-essential	conserved protein	-0.95
b2826	ppdA	Isolate 2	non-essential	conserved protein	-1.22
b2827	thyA	Isolate 1	non-essential	thymidylate synthetase	0.05
b2827	thyA	Isolate 2	non-essential	thymidylate synthetase	0.02
b2829	ptsP	Isolate 1	non-essential	fused PEP-protein phosphotransferase (enzyme I) of PTS system	0.70
b2829	ptsP	Isolate 2	non-essential	fused PEP-protein phosphotransferase (enzyme I) of PTS system	0.92
b2830	nudH	Isolate 1	non-essential	nucleotide hydrolase	-9.35
b2830	nudH	Isolate 2	non-essential	nucleotide hydrolase	-4.23
b2831	mutH	Isolate 1	non-essential	methyl-directed mismatch repair protein	-0.27
b2831	mutH	Isolate 2	non-essential	methyl-directed mismatch repair protein	-1.17
b2832	ygdQ	Isolate 1	non-essential	predicted inner membrane protein	-0.34
b2832	ygdQ	Isolate 2	non-essential	predicted inner membrane protein	2.03
b2833	ygdR	Isolate 1	non-essential	predicted protein	-1.60
b2833	ygdR	Isolate 2	non-essential	predicted protein	0.79
b2834	tas	Isolate 1	non-essential	predicted oxidoreductase, NADP(H)-dependent aldo-keto reductase	-0.26
b2834	tas	Isolate 2	non-essential	predicted oxidoreductase, NADP(H)-dependent aldo-keto reductase	-0.05
b2835	ygeD	Isolate 1	non-essential	predicted inner membrane protein	1.34
b2835	ygeD	Isolate 2	non-essential	predicted inner membrane protein	-0.64
b2836	aas	Isolate 1	non-essential	fused 2-acylglycerophospho-ethanolamine acyl transferase -!- acyl-acyl carrier protein synthetase	0.76
b2836	aas	Isolate 2	non-essential	fused 2-acylglycerophospho-ethanolamine acyl transferase -!- acyl-acyl carrier protein synthetase	0.90
b2837	galR	Isolate 1	non-essential	DNA-binding transcriptional repressor	0.62
b2837	galR	Isolate 2	non-essential	DNA-binding transcriptional repressor	1.77
b2838	lysA	Isolate 1	non-essential	diaminopimelate decarboxylase, PLP-binding	0.02
b2838	lysA	Isolate 2	non-essential	diaminopimelate decarboxylase, PLP-binding	-0.89
b2839	lysR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	0.46
b2839	lysR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	-0.79
b2840	ygeA	Isolate 1	non-essential	predicted racemase	1.60
b2840	ygeA	Isolate 2	non-essential	predicted racemase	-0.76
b2841	araE	Isolate 1	non-essential	arabinose transporter	0.21
b2841	araE	Isolate 2	non-essential	arabinose transporter	1.81
b2842	kduD	Isolate 1	non-essential	2-deoxy-D-gluconate 3-dehydrogenase	-10.37
b2842	kduD	Isolate 2	non-essential	2-deoxy-D-gluconate 3-dehydrogenase	-1.02
b2843	kduI	Isolate 1	non-essential	predicted 5-keto 4-deoxyuronate isomerase	-0.57

b2843	kduI	Isolate 2	non-essential	predicted 5-keto 4-deoxyuronate isomerase	0.45
b2844	yqeF	Isolate 1	non-essential	predicted acyltransferase	0.10
b2844	yqeF	Isolate 2	non-essential	predicted acyltransferase	0.43
b2845	yqeG	Isolate 1	non-essential	predicted transporter	-0.52
b2845	yqeG	Isolate 2	non-essential	predicted transporter	-2.67
b2846	yqeH	Isolate 1	non-essential	conserved protein with bipartite regulator domain	-0.24
b2846	yqeH	Isolate 2	non-essential	conserved protein with bipartite regulator domain	-0.90
b2847	yqeI	Isolate 1	non-essential	predicted transcriptional regulator	0.66
b2847	yqeI	Isolate 2	non-essential	predicted transcriptional regulator	-2.61
b2848	yqeJ	Isolate 1	non-essential	predicted protein	-0.13
b2848	yqeJ	Isolate 2	non-essential	predicted protein	-1.12
b2849	yqeK	Isolate 1	non-essential	predicted protein	-0.69
b2849	yqeK	Isolate 2	non-essential	predicted protein	-0.44
b2850	ygeF	Isolate 1	non-essential	predicted protein	-2.26
b2850	ygeF	Isolate 2	non-essential	predicted protein	-0.67
b2851	ygeG	Isolate 1	non-essential	predicted chaperone	-1.15
b2851	ygeG	Isolate 2	non-essential	predicted chaperone	-2.52
b2852	ygeH	Isolate 1	non-essential	predicted transcriptional regulator	1.07
b2852	ygeH	Isolate 2	non-essential	predicted transcriptional regulator	-0.12
b2853	ygeI	Isolate 1	non-essential	predicted protein	-2.53
b2853	ygeI	Isolate 2	non-essential	predicted protein	-1.31
b2854	pbl	Isolate 1	*	predicted peptidoglycan-binding enzyme (pseudogene)	0.36
b2854	pbl	Isolate 2	*	predicted peptidoglycan-binding enzyme (pseudogene)	-1.68
b2855	ygeK	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	1.92
b2855	ygeK	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.48
b2856	ygeL	Isolate 1	non-essential	predicted protein	-0.68
b2856	ygeL	Isolate 2	non-essential	predicted protein	0.18
b2857	ygeM	Isolate 1	non-essential	predicted protein	0.26
b2857	ygeM	Isolate 2	non-essential	predicted protein	1.35
b2858	ygeN	Isolate 1	*	predicted protein (pseudogene)	-1.29
b2858	ygeN	Isolate 2	*	predicted protein (pseudogene)	-1.29
b2859	ygeO	Isolate 1	non-essential	predicted protein	-1.03
b2859	ygeO	Isolate 2	non-essential	predicted protein	-1.30
b2862	ygeP	Isolate 1	non-essential	predicted protein	-1.43
b2862	ygeP	Isolate 2	non-essential	predicted protein	0.41
b2863	ygeQ	Isolate 1	non-essential	predicted protein	0.18
b2863	ygeQ	Isolate 2	non-essential	predicted protein	0.23
b2865	ygeR	Isolate 1	non-essential	Tetratricopeptide repeat transcriptional regulator	0.71
b2865	ygeR	Isolate 2	non-essential	Tetratricopeptide repeat transcriptional regulator	-0.16
b2866	xdhA	Isolate 1	non-essential	xanthine dehydrogenase, molybdenum binding subunit	-0.78
b2866	xdhA	Isolate 2	non-essential	xanthine dehydrogenase, molybdenum binding subunit	-1.16
b2867	xdhB	Isolate 1	non-essential	xanthine dehydrogenase, FAD-binding subunit	-0.07
b2867	xdhB	Isolate 2	non-essential	xanthine dehydrogenase, FAD-binding subunit	-1.10



b2868	xdhC	Isolate 1	non-essential	xanthine dehydrogenase, Fe-S binding subunit	-1.54
b2868	xdhC	Isolate 2	non-essential	xanthine dehydrogenase, Fe-S binding subunit	-1.25
b2869	ygeV	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	1.93
b2869	ygeV	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	2.81
b2870	ygeW	Isolate 1	non-essential	conserved protein	-0.47
b2870	ygeW	Isolate 2	non-essential	conserved protein	-0.32
b2871	ygeX	Isolate 1	non-essential	2,3-diaminopropionate ammonia-lyase	-0.03
b2871	ygeX	Isolate 2	non-essential	2,3-diaminopropionate ammonia-lyase	-1.20
b2872	ygeY	Isolate 1	non-essential	predicted peptidase	-0.69
b2872	ygeY	Isolate 2	non-essential	predicted peptidase	-1.63
b2873	hyuA	Isolate 1	non-essential	D-stereospecific phenylhydantoinase	0.85
b2873	hyuA	Isolate 2	non-essential	D-stereospecific phenylhydantoinase	-0.53
b2874	yqeA	Isolate 1	non-essential	predicted amino acid kinase	-2.46
b2874	yqeA	Isolate 2	non-essential	predicted amino acid kinase	-0.40
b2875	yqeB	Isolate 1	non-essential	conserved protein with NAD(P)-binding Rossmann fold	-0.42
b2875	yqeB	Isolate 2	non-essential	conserved protein with NAD(P)-binding Rossmann fold	-1.70
b2876	yqeC	Isolate 1	non-essential	conserved protein	-1.85
b2876	yqeC	Isolate 2	non-essential	conserved protein	-1.35
b2877	ygfJ	Isolate 1	non-essential	conserved protein	-1.19
b2877	ygfJ	Isolate 2	non-essential	conserved protein	-1.03
b2878	ygfK	Isolate 1	non-essential	predicted oxidoreductase, Fe-S subunit	-0.43
b2878	ygfK	Isolate 2	non-essential	predicted oxidoreductase, Fe-S subunit	-0.89
b2879	ssnA	Isolate 1	non-essential	predicted chlorohydrolase/aminohydrolase	2.28
b2879	ssnA	Isolate 2	non-essential	predicted chlorohydrolase/aminohydrolase	2.21
b2880	ygfM	Isolate 1	non-essential	predicted oxidoreductase	-2.01
b2880	ygfM	Isolate 2	non-essential	predicted oxidoreductase	-2.00
b2881	xdhD	Isolate 1	non-essential	fused predicted xanthine/hypoxanthine oxidase, molybdopterin-binding subunit -!- Fe-S binding subunit	-0.12
b2881	xdhD	Isolate 2	non-essential	fused predicted xanthine/hypoxanthine oxidase, molybdopterin-binding subunit -!- Fe-S binding subunit	1.32
b2882	ygfO	Isolate 1	non-essential	predicted transporter	0.19
b2882	ygfO	Isolate 2	non-essential	predicted transporter	0.00
b2883	guaD	Isolate 1	non-essential	guanine deaminase	-0.10
b2883	guaD	Isolate 2	non-essential	guanine deaminase	0.14
b2886	ygfS	Isolate 1	non-essential	predicted oxidoreductase, 4Fe-4S ferredoxin-type subunit	0.81
b2886	ygfS	Isolate 2	non-essential	predicted oxidoreductase, 4Fe-4S ferredoxin-type subunit	-3.46
b2887	ygfT	Isolate 1	non-essential	fused predicted oxidoreductase Fe-S subunit -!- nucleotide-binding subunit	-0.08
b2887	ygfT	Isolate 2	non-essential	fused predicted oxidoreductase Fe-S subunit -!- nucleotide-binding subunit	-0.27
b2888	ygfU	Isolate 1	non-essential	predicted transporter	1.11
b2888	ygfU	Isolate 2	non-essential	predicted transporter	0.42
b2889	idi	Isolate 1	non-essential	isopentenyl diphosphate isomerase	4.53
b2889	idi	Isolate 2	non-essential	isopentenyl diphosphate isomerase	1.20
b2890	lysS	Isolate 1	non-essential	lysine tRNA synthetase, constitutive	-2.21
b2890	lysS	Isolate 2	non-essential	lysine tRNA synthetase, constitutive	1.10
b2891	prfB	Isolate 1	non-essential	peptide chain release factor RF-2	-1.11

b2891	prfB	Isolate 2	non-essential	peptide chain release factor RF-2	-2.56
b2892	recJ	Isolate 1	non-essential	ssDNA exonuclease, 5' --> 3'-specific	1.50
b2892	recJ	Isolate 2	non-essential	ssDNA exonuclease, 5' --> 3'-specific	0.41
b2893	dsbC	Isolate 1	non-essential	protein disulfide isomerase II	0.13
b2893	dsbC	Isolate 2	non-essential	protein disulfide isomerase II	-0.24
b2894	xerD	Isolate 1	non-essential	site-specific tyrosine recombinase	-1.92
b2894	xerD	Isolate 2	non-essential	site-specific tyrosine recombinase	-5.94
b2895	fldB	Isolate 1	non-essential	flavodoxin 2	4.29
b2895	fldB	Isolate 2	non-essential	flavodoxin 2	0.57
b2896	ygfX	Isolate 1	non-essential	predicted protein	2.30
b2896	ygfX	Isolate 2	non-essential	predicted protein	0.35
b2897	ygfY	Isolate 1	non-essential	conserved protein	0.68
b2897	ygfY	Isolate 2	non-essential	conserved protein	2.61
b2898	ygfZ	Isolate 1	non-essential	predicted folate-dependent regulatory protein	-0.84
b2898	ygfZ	Isolate 2	non-essential	predicted folate-dependent regulatory protein	0.44
b2899	yqfA	Isolate 1	non-essential	predicted oxidoreductase, inner membrane subunit	-0.58
b2899	yqfA	Isolate 2	non-essential	predicted oxidoreductase, inner membrane subunit	-0.47
b2900	yqfB	Isolate 1	non-essential	conserved protein	-0.28
b2900	yqfB	Isolate 2	non-essential	conserved protein	0.34
b2901	bglA	Isolate 1	non-essential	6-phospho-beta-glucosidase A	0.73
b2901	bglA	Isolate 2	non-essential	6-phospho-beta-glucosidase A	-0.31
b2902	ygfF	Isolate 1	non-essential	predicted NAD(P)-binding oxidoreductase with NAD(P)-binding Rossmann-fold domain	-0.21
b2902	ygfF	Isolate 2	non-essential	predicted NAD(P)-binding oxidoreductase with NAD(P)-binding Rossmann-fold domain	0.19
b2903	gcvP	Isolate 1	non-essential	glycine decarboxylase, PLP-dependent, subunit (protein P) of glycine cleavage complex	0.50
b2903	gcvP	Isolate 2	non-essential	glycine decarboxylase, PLP-dependent, subunit (protein P) of glycine cleavage complex	1.29
b2904	gcvH	Isolate 1	non-essential	glycine cleavage complex lipoylprotein	0.15
b2904	gcvH	Isolate 2	non-essential	glycine cleavage complex lipoylprotein	-0.85
b2905	gcvT	Isolate 1	non-essential	aminomethyltransferase, tetrahydrofolate-dependent, subunit (T protein) of glycine cleavage complex	0.04
b2905	gcvT	Isolate 2	non-essential	aminomethyltransferase, tetrahydrofolate-dependent, subunit (T protein) of glycine cleavage complex	1.15
b2906	visC	Isolate 1	non-essential	predicted oxidoreductase, FAD/NAD(P)-binding domain	0.63
b2906	visC	Isolate 2	non-essential	predicted oxidoreductase, FAD/NAD(P)-binding domain	2.04
b2907	ubiH	Isolate 1	non-essential	2-octaprenyl-6-methoxyphenol hydroxylase, FAD/NAD(P)-binding	-1.50
b2907	ubiH	Isolate 2	non-essential	2-octaprenyl-6-methoxyphenol hydroxylase, FAD/NAD(P)-binding	-1.95
b2908	pepP	Isolate 1	non-essential	proline aminopeptidase P II	1.05
b2908	pepP	Isolate 2	non-essential	proline aminopeptidase P II	2.23
b2909	ygfB	Isolate 1	non-essential	predicted protein	0.40
b2909	ygfB	Isolate 2	non-essential	predicted protein	0.46
b2910	zapA	Isolate 1	non-essential	protein that localizes to the cytokinetic ring	-0.70
b2910	zapA	Isolate 2	non-essential	protein that localizes to the cytokinetic ring	-0.78
b2912	ygfA	Isolate 1	non-essential	predicted ligase	0.12
b2912	ygfA	Isolate 2	non-essential	predicted ligase	0.36
b2913	serA	Isolate 1	non-essential	D-3-phosphoglycerate dehydrogenase	1.06
b2913	serA	Isolate 2	non-essential	D-3-phosphoglycerate dehydrogenase	2.28

b2914	rpiA	Isolate 1	non-essential	ribosephosphate isomerase, constitutive	-2.24
b2914	rpiA	Isolate 2	non-essential	ribosephosphate isomerase, constitutive	-2.28
b2915	yqfE	Isolate 1	non-essential	conserved protein	0.16
b2915	yqfE	Isolate 2	non-essential	conserved protein	1.22
b2916	argP	Isolate 1	non-essential	DNA-binding transcriptional activator, replication initiation inhibitor	-0.35
b2916	argP	Isolate 2	non-essential	DNA-binding transcriptional activator, replication initiation inhibitor	2.65
b2917	yliK	Isolate 1	non-essential	methylmalonyl-CoA mutase	0.52
b2917	yliK	Isolate 2	non-essential	methylmalonyl-CoA mutase	-0.74
b2918	argK	Isolate 1	non-essential	membrane ATPase/protein kinase	0.65
b2918	argK	Isolate 2	non-essential	membrane ATPase/protein kinase	-1.24
b2919	ygfG	Isolate 1	non-essential	methylmalonyl-CoA decarboxylase, biotin-independent	0.14
b2919	ygfG	Isolate 2	non-essential	methylmalonyl-CoA decarboxylase, biotin-independent	0.32
b2920	ygfH	Isolate 1	non-essential	propionyl-CoA:succinate-CoA transferase	-0.75
b2920	ygfH	Isolate 2	non-essential	propionyl-CoA:succinate-CoA transferase	0.19
b2921	ygfI	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.78
b2921	ygfI	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.61
b2922	yggE	Isolate 1	non-essential	conserved protein	-1.07
b2922	yggE	Isolate 2	non-essential	conserved protein	0.65
b2923	argO	Isolate 1	non-essential	arginine transporter	1.09
b2923	argO	Isolate 2	non-essential	arginine transporter	-1.68
b2924	mscS	Isolate 1	non-essential	mechanosensitive channel	0.00
b2924	mscS	Isolate 2	non-essential	mechanosensitive channel	0.95
b2925	fbaA	Isolate 1	essential	fructose-bisphosphate aldolase, class II	1.33
b2926	pgk	Isolate 1	essential	phosphoglycerate kinase	-0.46
b2927	epd	Isolate 1	non-essential	D-erythrose 4-phosphate dehydrogenase	1.07
b2927	epd	Isolate 2	non-essential	D-erythrose 4-phosphate dehydrogenase	2.72
b2928	yggC	Isolate 1	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	-1.65
b2928	yggC	Isolate 2	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	-1.42
b2929	yggD	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.66
b2929	yggD	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.03
b2930	yggF	Isolate 1	non-essential	predicted hexoseP phosphatase	-0.24
b2930	yggF	Isolate 2	non-essential	predicted hexoseP phosphatase	-3.25
b2933	cmtA	Isolate 1	non-essential	predicted fused mannitol-specific enzyme IIBC component of PTS	-0.28
b2933	cmtA	Isolate 2	non-essential	predicted fused mannitol-specific enzyme IIBC component of PTS	-1.97
b2934	cmtB	Isolate 1	non-essential	predicted mannitol-specific enzyme IIA component of PTS	0.86
b2934	cmtB	Isolate 2	non-essential	predicted mannitol-specific enzyme IIA component of PTS	1.76
b2935	tktA	Isolate 1	non-essential	transketolase 1, thiamin-binding	0.29
b2935	tktA	Isolate 2	non-essential	transketolase 1, thiamin-binding	0.33
b2936	yggG	Isolate 1	non-essential	predicted peptidase	-3.10
b2936	yggG	Isolate 2	non-essential	predicted peptidase	-2.07
b2937	speB	Isolate 1	non-essential	agmatinase	-0.15
b2937	speB	Isolate 2	non-essential	agmatinase	0.17
b2938	speA	Isolate 1	non-essential	biosynthetic arginine decarboxylase, PLP-binding	0.79

b2938	speA	Isolate 2	non-essential	biosynthetic arginine decarboxylase, PLP-binding	-1.04
b2939	yqgB	Isolate 1	non-essential	predicted protein	0.16
b2939	yqgB	Isolate 2	non-essential	predicted protein	1.22
b2940	yqgC	Isolate 1	non-essential	predicted protein	-3.52
b2940	yqgC	Isolate 2	non-essential	predicted protein	0.83
b2942	metK	Isolate 1	essential	methionine adenosyltransferase 1	-0.24
b2943	galP	Isolate 1	non-essential	D-galactose transporter	1.17
b2943	galP	Isolate 2	non-essential	D-galactose transporter	-0.65
b2944	sprT	Isolate 1	non-essential	conserved protein	-0.18
b2944	sprT	Isolate 2	non-essential	conserved protein	0.61
b2945	endA	Isolate 1	non-essential	DNA-specific endonuclease I	-0.02
b2945	endA	Isolate 2	non-essential	DNA-specific endonuclease I	0.41
b2946	yggJ	Isolate 1	non-essential	predicted protein	-0.13
b2946	yggJ	Isolate 2	non-essential	predicted protein	-1.95
b2947	gshB	Isolate 1	non-essential	glutathione synthetase	-0.03
b2947	gshB	Isolate 2	non-essential	glutathione synthetase	-0.97
b2948	yqgE	Isolate 1	non-essential	predicted protein	-1.37
b2948	yqgE	Isolate 2	non-essential	predicted protein	-1.11
b2949	yqgF	Isolate 1	essential	predicted Holliday junction resolvase	-0.41
b2950	yggR	Isolate 1	non-essential	predicted transporter	0.56
b2950	yggR	Isolate 2	non-essential	predicted transporter	1.57
b2951	yggS	Isolate 1	non-essential	predicted enzyme	-1.76
b2951	yggS	Isolate 2	non-essential	predicted enzyme	0.28
b2952	yggT	Isolate 1	non-essential	predicted inner membrane protein	1.59
b2952	yggT	Isolate 2	non-essential	predicted inner membrane protein	2.29
b2953	yggU	Isolate 1	non-essential	conserved protein	1.54
b2953	yggU	Isolate 2	non-essential	conserved protein	1.73
b2954	yggV	Isolate 1	non-essential	dITP/XTP pyrophosphatase	0.17
b2954	yggV	Isolate 2	non-essential	dITP/XTP pyrophosphatase	0.27
b2955	yggW	Isolate 1	non-essential	predicted oxidoreductase	-0.29
b2955	yggW	Isolate 2	non-essential	predicted oxidoreductase	1.08
b2956	yggM	Isolate 1	non-essential	conserved protein	0.25
b2956	yggM	Isolate 2	non-essential	conserved protein	1.03
b2957	ansB	Isolate 1	non-essential	periplasmic L-asparaginase II	-1.07
b2957	ansB	Isolate 2	non-essential	periplasmic L-asparaginase II	1.04
b2958	yggN	Isolate 1	non-essential	predicted protein	-0.49
b2958	yggN	Isolate 2	non-essential	predicted protein	-0.27
b2959	yggL	Isolate 1	non-essential	predicted protein	0.22
b2959	yggL	Isolate 2	non-essential	predicted protein	-0.45
b2960	yggH	Isolate 1	non-essential	tRNA (m7G46) methyltransferase, SAM-dependent	-0.73
b2960	yggH	Isolate 2	non-essential	tRNA (m7G46) methyltransferase, SAM-dependent	0.24
b2961	mutY	Isolate 1	non-essential	adenine DNA glycosylase	-0.66
b2961	mutY	Isolate 2	non-essential	adenine DNA glycosylase	-1.35

b2962	yggX	Isolate 1	non-essential	protein that protects iron-sulfur proteins against oxidative damage	0.57
b2962	yggX	Isolate 2	non-essential	protein that protects iron-sulfur proteins against oxidative damage	0.42
b2963	mltC	Isolate 1	non-essential	membrane-bound lytic murein transglycosylase C	-0.52
b2963	mltC	Isolate 2	non-essential	membrane-bound lytic murein transglycosylase C	-0.10
b2964	nupG	Isolate 1	non-essential	nucleoside transporter	4.53
b2964	nupG	Isolate 2	non-essential	nucleoside transporter	1.63
b2965	speC	Isolate 1	non-essential	ornithine decarboxylase, constitutive	0.93
b2965	speC	Isolate 2	non-essential	ornithine decarboxylase, constitutive	1.24
b2966	yqgA	Isolate 1	non-essential	predicted inner membrane protein	0.06
b2966	yqgA	Isolate 2	non-essential	predicted inner membrane protein	-1.18
b2968	yghD	Isolate 1	non-essential	predicted secretion pathway M-type protein, membrane anchored	-0.81
b2968	yghD	Isolate 2	non-essential	predicted secretion pathway M-type protein, membrane anchored	-3.73
b2969	yghE	Isolate 1	*	predicted secretion pathway protein, L-type protein (pseudogene)	0.94
b2969	yghE	Isolate 2	*	predicted secretion pathway protein, L-type protein (pseudogene)	-0.44
b2970	yghF	Isolate 1	non-essential	predicted secretion pathway protein, C-type protein	0.13
b2970	yghF	Isolate 2	non-essential	predicted secretion pathway protein, C-type protein	0.48
b2971	yghG	Isolate 1	non-essential	predicted protein	1.45
b2971	yghG	Isolate 2	non-essential	predicted protein	-2.27
b2972	pppA	Isolate 1	non-essential	bifunctional prepilin leader peptidase -!- methylase	0.60
b2972	pppA	Isolate 2	non-essential	bifunctional prepilin leader peptidase -!- methylase	-0.32
b2975	yghK	Isolate 1	non-essential	glycolate transporter	0.06
b2975	yghK	Isolate 2	non-essential	glycolate transporter	0.88
b2976	glcB	Isolate 1	non-essential	malate synthase G	1.24
b2976	glcB	Isolate 2	non-essential	malate synthase G	0.72
b2977	glcG	Isolate 1	non-essential	conserved protein	-1.83
b2977	glcG	Isolate 2	non-essential	conserved protein	-1.39
b2979	glcD	Isolate 1	non-essential	glycolate oxidase subunit, FAD-linked	-0.20
b2979	glcD	Isolate 2	non-essential	glycolate oxidase subunit, FAD-linked	1.36
b2980	glcC	Isolate 1	non-essential	DNA-binding transcriptional dual regulator, glycolate-binding	0.32
b2980	glcC	Isolate 2	non-essential	DNA-binding transcriptional dual regulator, glycolate-binding	-1.50
b2981	yghO	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.73
b2981	yghO	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.40
b2983	yghQ	Isolate 1	non-essential	predicted inner membrane protein	0.31
b2983	yghQ	Isolate 2	non-essential	predicted inner membrane protein	0.29
b2984	yghR	Isolate 1	non-essential	predicted protein with nucleoside triphosphate hydrolase domain	-0.03
b2984	yghR	Isolate 2	non-essential	predicted protein with nucleoside triphosphate hydrolase domain	-1.53
b2985	yghS	Isolate 1	non-essential	predicted protein with nucleoside triphosphate hydrolase domain	1.30
b2985	yghS	Isolate 2	non-essential	predicted protein with nucleoside triphosphate hydrolase domain	1.70
b2986	yghT	Isolate 1	non-essential	predicted protein with nucleoside triphosphate hydrolase domain	-0.31
b2986	yghT	Isolate 2	non-essential	predicted protein with nucleoside triphosphate hydrolase domain	0.63
b2987	pitB	Isolate 1	non-essential	phosphate transporter	1.07
b2987	pitB	Isolate 2	non-essential	phosphate transporter	0.03
b2988	gss	Isolate 1	non-essential	fused glutathionylspermidine amidase -!- glutathionylspermidine synthetase	-1.95

b2988	gss	Isolate 2	non-essential	fused glutathionylspermidine amidase -/- glutathionylspermidine synthetase	-0.84
b2989	yghU	Isolate 1	non-essential	predicted S-transferase	1.58
b2989	yghU	Isolate 2	non-essential	predicted S-transferase	0.18
b2990	hybG	Isolate 1	non-essential	hydrogenase 2 accessory protein	1.50
b2990	hybG	Isolate 2	non-essential	hydrogenase 2 accessory protein	-0.81
b2991	hybF	Isolate 1	non-essential	protein involved with the maturation of hydrogenases 1 and 2	0.89
b2991	hybF	Isolate 2	non-essential	protein involved with the maturation of hydrogenases 1 and 2	-1.35
b2992	hybE	Isolate 1	non-essential	hydrogenase 2-specific chaperone	-1.50
b2992	hybE	Isolate 2	non-essential	hydrogenase 2-specific chaperone	-0.94
b2993	hybD	Isolate 1	non-essential	predicted maturation element for hydrogenase 2	-1.23
b2993	hybD	Isolate 2	non-essential	predicted maturation element for hydrogenase 2	0.62
b2994	hybC	Isolate 1	non-essential	hydrogenase 2, large subunit	-0.84
b2994	hybC	Isolate 2	non-essential	hydrogenase 2, large subunit	-1.29
b2995	hybB	Isolate 1	non-essential	predicted hydrogenase 2 cytochrome b type component	1.02
b2995	hybB	Isolate 2	non-essential	predicted hydrogenase 2 cytochrome b type component	-0.81
b2996	hybA	Isolate 1	non-essential	hydrogenase 2 4Fe-4S ferredoxin-type component	-1.60
b2996	hybA	Isolate 2	non-essential	hydrogenase 2 4Fe-4S ferredoxin-type component	-1.81
b2997	hybO	Isolate 1	non-essential	hydrogenase 2, small subunit	2.53
b2997	hybO	Isolate 2	non-essential	hydrogenase 2, small subunit	0.40
b2998	yghW	Isolate 1	non-essential	predicted protein	-0.59
b2998	yghW	Isolate 2	non-essential	predicted protein	0.72
b2999	yghX	Isolate 1	*	predicted hydrolase (pseudogene)	0.58
b2999	yghX	Isolate 2	*	predicted hydrolase (pseudogene)	2.14
b3000	yghY	Isolate 1	*	predicted dienlactone hydrolase (pseudogene)	2.88
b3000	yghY	Isolate 2	*	predicted dienlactone hydrolase (pseudogene)	2.06
b3001	yghZ	Isolate 1	non-essential	aldo-keto reductase	-0.82
b3001	yghZ	Isolate 2	non-essential	aldo-keto reductase	0.28
b3002	yqhA	Isolate 1	non-essential	conserved inner membrane protein	5.82
b3002	yqhA	Isolate 2	non-essential	conserved inner membrane protein	0.86
b3003	yghA	Isolate 1	non-essential	predicted glutathionylspermidine synthase, with NAD(P)-binding Rossmann-fold domain	0.17
b3003	yghA	Isolate 2	non-essential	predicted glutathionylspermidine synthase, with NAD(P)-binding Rossmann-fold domain	-0.23
b3005	exbD	Isolate 1	non-essential	membrane spanning protein in TonB-ExbB-ExbD complex	0.35
b3005	exbD	Isolate 2	non-essential	membrane spanning protein in TonB-ExbB-ExbD complex	-0.45
b3006	exbB	Isolate 1	non-essential	membrane spanning protein in TonB-ExbB-ExbD complex	-0.36
b3006	exbB	Isolate 2	non-essential	membrane spanning protein in TonB-ExbB-ExbD complex	5.13
b3008	metC	Isolate 1	non-essential	cystathionine beta-lyase, PLP-dependent	2.99
b3008	metC	Isolate 2	non-essential	cystathionine beta-lyase, PLP-dependent	2.20
b3009	yghB	Isolate 1	non-essential	conserved inner membrane protein	1.17
b3009	yghB	Isolate 2	non-essential	conserved inner membrane protein	-0.75
b3010	yqhC	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-7.04
b3010	yqhC	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.53
b3011	yqhD	Isolate 1	non-essential	alcohol dehydrogenase, NAD(P)-dependent	-3.98
b3011	yqhD	Isolate 2	non-essential	alcohol dehydrogenase, NAD(P)-dependent	-0.47

b3012	dkgA	Isolate 1	non-essential	2,5-diketo-D-gluconate reductase A	-1.33
b3012	dkgA	Isolate 2	non-essential	2,5-diketo-D-gluconate reductase A	0.93
b3013	yqhG	Isolate 1	non-essential	conserved protein	1.26
b3013	yqhG	Isolate 2	non-essential	conserved protein	-0.07
b3014	yqhH	Isolate 1	non-essential	predicted outer membrane lipoprotein	0.31
b3014	yqhH	Isolate 2	non-essential	predicted outer membrane lipoprotein	-1.83
b3017	sufI	Isolate 1	non-essential	repressor protein for FtsI	-0.25
b3017	sufI	Isolate 2	non-essential	repressor protein for FtsI	-1.67
b3018	plsC	Isolate 1	essential	1-acyl-sn-glycerol-3-phosphate acyltransferase	-0.39
b3019	parC	Isolate 1	non-essential	DNA topoisomerase IV, subunit A	-1.72
b3019	parC	Isolate 2	non-essential	DNA topoisomerase IV, subunit A	-0.73
b3020	ygiS	Isolate 1	non-essential	predicted transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.37
b3020	ygiS	Isolate 2	non-essential	predicted transporter subunit -!- periplasmic-binding component of ABC superfamily	0.80
b3021	ygiT	Isolate 1	essential	predicted DNA-binding transcriptional regulator	-0.46
b3022	ygiU	Isolate 1	non-essential	predicted cyanide hydratase	1.19
b3022	ygiU	Isolate 2	non-essential	predicted cyanide hydratase	3.34
b3023	ygiV	Isolate 1	non-essential	predicted transcriptional regulator	-1.47
b3023	ygiV	Isolate 2	non-essential	predicted transcriptional regulator	-1.03
b3024	ygiW	Isolate 1	non-essential	conserved protein	-0.88
b3024	ygiW	Isolate 2	non-essential	conserved protein	-0.56
b3025	qseB	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with QseC	-1.49
b3025	qseB	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with QseC	-1.30
b3026	qseC	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory system with QseB	-0.03
b3026	qseC	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory system with QseB	0.40
b3027	ygiZ	Isolate 1	non-essential	conserved inner membrane protein	-0.53
b3027	ygiZ	Isolate 2	non-essential	conserved inner membrane protein	-0.95
b3028	mdaB	Isolate 1	non-essential	NADPH quinone reductase	1.47
b3028	mdaB	Isolate 2	non-essential	NADPH quinone reductase	0.89
b3029	ygiN	Isolate 1	non-essential	quinol monooxygenase	-0.96
b3029	ygiN	Isolate 2	non-essential	quinol monooxygenase	-0.26
b3030	parE	Isolate 1	essential	DNA topoisomerase IV, subunit B	0.65
b3031	yqiA	Isolate 1	non-essential	predicted esterase	-0.26
b3031	yqiA	Isolate 2	non-essential	predicted esterase	-1.18
b3032	cpdA	Isolate 1	non-essential	cyclic 3',5'-adenosine monophosphate phosphodiesterase	0.50
b3032	cpdA	Isolate 2	non-essential	cyclic 3',5'-adenosine monophosphate phosphodiesterase	-1.07
b3033	yqiB	Isolate 1	non-essential	predicted dehydrogenase	-0.22
b3033	yqiB	Isolate 2	non-essential	predicted dehydrogenase	-0.87
b3034	nudF	Isolate 1	non-essential	ADP-ribose pyrophosphatase	1.04
b3034	nudF	Isolate 2	non-essential	ADP-ribose pyrophosphatase	0.01
b3035	tolC	Isolate 1	non-essential	transport channel	1.08
b3035	tolC	Isolate 2	non-essential	transport channel	5.17
b3037	ygiB	Isolate 1	non-essential	conserved outer membrane protein	1.95
b3037	ygiB	Isolate 2	non-essential	conserved outer membrane protein	1.70

b3038	ygiC	Isolate 1	non-essential	predicted enzyme	0.28
b3038	ygiC	Isolate 2	non-essential	predicted enzyme	-0.68
b3039	zupT	Isolate 1	non-essential	predicted dioxygenase	0.00
b3039	zupT	Isolate 2	non-essential	predicted dioxygenase	1.43
b3041	ribB	Isolate 1	essential	3,4 dihydroxy-2-butanone-4-phosphate synthase	0.37
b3042	yqiC	Isolate 1	non-essential	conserved protein	1.11
b3042	yqiC	Isolate 2	non-essential	conserved protein	0.35
b3043	ygiL	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	0.61
b3043	ygiL	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	0.35
b3046	yqiG	Isolate 1	non-essential	predicted outer membrane usher protein	-0.22
b3046	yqiG	Isolate 2	non-essential	predicted outer membrane usher protein	0.19
b3047	yqiH	Isolate 1	non-essential	predicted periplasmic pilin chaperone	-0.97
b3047	yqiH	Isolate 2	non-essential	predicted periplasmic pilin chaperone	0.37
b3048	yqiI	Isolate 1	non-essential	conserved protein	-1.28
b3048	yqiI	Isolate 2	non-essential	conserved protein	0.58
b3049	glgS	Isolate 1	non-essential	predicted glycogen synthesis protein	-0.16
b3049	glgS	Isolate 2	non-essential	predicted glycogen synthesis protein	-2.41
b3050	yqiJ	Isolate 1	non-essential	predicted inner membrane protein	0.67
b3050	yqiJ	Isolate 2	non-essential	predicted inner membrane protein	0.54
b3051	yqiK	Isolate 1	non-essential	conserved protein	0.98
b3051	yqiK	Isolate 2	non-essential	conserved protein	0.47
b3052	rfaE	Isolate 1	non-essential	fused heptose 7-phosphate kinase -!- heptose 1-phosphate adenylyltransferase	-1.26
b3052	rfaE	Isolate 2	non-essential	fused heptose 7-phosphate kinase -!- heptose 1-phosphate adenylyltransferase	-3.27
b3053	glnE	Isolate 1	non-essential	fused deadenylyltransferase -!- adenylyltransferase for glutamine synthetase	1.01
b3053	glnE	Isolate 2	non-essential	fused deadenylyltransferase -!- adenylyltransferase for glutamine synthetase	1.22
b3054	ygiF	Isolate 1	non-essential	predicted adenylate cyclase	0.63
b3054	ygiF	Isolate 2	non-essential	predicted adenylate cyclase	0.39
b3055	htrG	Isolate 1	non-essential	predicted signal transduction protein (SH3 domain)	1.59
b3055	htrG	Isolate 2	non-essential	predicted signal transduction protein (SH3 domain)	0.94
b3056	cca	Isolate 1	essential	fused tRNA nucleotidyl transferase -!- 2'3'-cyclic phosphodiesterase/2'nucleotidase/phosphatase	-1.98
b3057	bacA	Isolate 1	non-essential	undecaprenyl pyrophosphate phosphatase	-0.10
b3057	bacA	Isolate 2	non-essential	undecaprenyl pyrophosphate phosphatase	-1.28
b3058	folB	Isolate 1	non-essential	bifunctional dihydroneopterin aldolase -!- dihydroneopterin triphosphate 2'-epimerase	2.10
b3058	folB	Isolate 2	non-essential	bifunctional dihydroneopterin aldolase -!- dihydroneopterin triphosphate 2'-epimerase	0.19
b3059	ygiH	Isolate 1	non-essential	conserved inner membrane protein	-0.07
b3059	ygiH	Isolate 2	non-essential	conserved inner membrane protein	-0.55
b3060	ygiP	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.01
b3060	ygiP	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.58
b3061	ttdA	Isolate 1	non-essential	L-tartrate dehydratase, alpha subunit	0.03
b3061	ttdA	Isolate 2	non-essential	L-tartrate dehydratase, alpha subunit	-0.44
b3062	ttdB	Isolate 1	non-essential	L-tartrate dehydratase, beta subunit	-1.00
b3062	ttdB	Isolate 2	non-essential	L-tartrate dehydratase, beta subunit	-0.06
b3063	ygjE	Isolate 1	non-essential	predicted tartrate:succinate antiporter	-1.65



b3063	ygjE	Isolate 2	non-essential	predicted tartrate:succinate antiporter	0.46
b3064	ygjD	Isolate 1	essential	predicted peptidase	-0.50
b3065	rpsU	Isolate 1	non-essential	30S ribosomal subunit protein S21	1.58
b3065	rpsU	Isolate 2	non-essential	30S ribosomal subunit protein S21	-4.23
b3066	dnaG	Isolate 1	non-essential	DNA primase	-1.80
b3066	dnaG	Isolate 2	non-essential	DNA primase	-1.17
b3067	rpoD	Isolate 1	non-essential	RNA polymerase, sigma 70 (sigma D) factor	-0.98
b3067	rpoD	Isolate 2	non-essential	RNA polymerase, sigma 70 (sigma D) factor	-2.25
b3068	ygjF	Isolate 1	non-essential	G/U mismatch-specific DNA glycosylase	-0.22
b3068	ygjF	Isolate 2	non-essential	G/U mismatch-specific DNA glycosylase	-1.21
b3070	yqjH	Isolate 1	non-essential	predicted siderophore interacting protein	3.41
b3070	yqjH	Isolate 2	non-essential	predicted siderophore interacting protein	1.12
b3071	yqjI	Isolate 1	non-essential	predicted transcriptional regulator	-0.49
b3071	yqjI	Isolate 2	non-essential	predicted transcriptional regulator	-0.94
b3072	aer	Isolate 1	non-essential	fused signal transducer for aerotaxis sensory component -!- methyl accepting chemotaxis component	-0.15
b3072	aer	Isolate 2	non-essential	fused signal transducer for aerotaxis sensory component -!- methyl accepting chemotaxis component	-0.97
b3073	ygjG	Isolate 1	non-essential	putrescine:2-oxoglutaric acid aminotransferase, PLP-dependent	-0.09
b3073	ygjG	Isolate 2	non-essential	putrescine:2-oxoglutaric acid aminotransferase, PLP-dependent	0.89
b3074	ygjH	Isolate 1	non-essential	conserved protein	1.70
b3074	ygjH	Isolate 2	non-essential	conserved protein	1.69
b3075	ebgR	Isolate 1	non-essential	DNA-binding transcriptional repressor	-0.59
b3075	ebgR	Isolate 2	non-essential	DNA-binding transcriptional repressor	0.79
b3076	ebgA	Isolate 1	non-essential	cryptic beta-D-galactosidase, alpha subunit	1.05
b3076	ebgA	Isolate 2	non-essential	cryptic beta-D-galactosidase, alpha subunit	1.43
b3077	ebgC	Isolate 1	non-essential	cryptic beta-D-galactosidase, beta subunit	-0.58
b3077	ebgC	Isolate 2	non-essential	cryptic beta-D-galactosidase, beta subunit	1.82
b3078	ygjI	Isolate 1	non-essential	predicted transporter	1.71
b3078	ygjI	Isolate 2	non-essential	predicted transporter	0.93
b3079	ygjJ	Isolate 1	non-essential	conserved protein	0.92
b3079	ygjJ	Isolate 2	non-essential	conserved protein	-0.03
b3080	ygjK	Isolate 1	non-essential	predicted glycosyl hydrolase	1.14
b3080	ygjK	Isolate 2	non-essential	predicted glycosyl hydrolase	-0.65
b3081	fadH	Isolate 1	non-essential	2,4-dienoyl-CoA reductase, NADH and FMN-linked	-1.19
b3081	fadH	Isolate 2	non-essential	2,4-dienoyl-CoA reductase, NADH and FMN-linked	1.67
b3082	ygjM	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-1.79
b3082	ygjM	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.08
b3083	ygjN	Isolate 1	non-essential	conserved protein	1.01
b3083	ygjN	Isolate 2	non-essential	conserved protein	0.80
b3084	ygjO	Isolate 1	non-essential	predicted methyltransferase small domain	1.05
b3084	ygjO	Isolate 2	non-essential	predicted methyltransferase small domain	0.31
b3085	ygjP	Isolate 1	non-essential	predicted metal dependent hydrolase	0.88
b3085	ygjP	Isolate 2	non-essential	predicted metal dependent hydrolase	-0.32
b3086	ygjQ	Isolate 1	non-essential	predicted thioredoxin-like	1.12

b3086	ygjQ	Isolate 2	non-essential	predicted thioredoxin-like	-0.46
b3087	ygjR	Isolate 1	non-essential	predicted NAD(P)-binding dehydrogenase	-0.08
b3087	ygjR	Isolate 2	non-essential	predicted NAD(P)-binding dehydrogenase	-0.06
b3088	alx	Isolate 1	non-essential	predicted inner membrane protein, part of terminus	-1.64
b3088	alx	Isolate 2	non-essential	predicted inner membrane protein, part of terminus	-2.01
b3089	sstT	Isolate 1	non-essential	sodium:serine/threonine symporter	0.05
b3089	sstT	Isolate 2	non-essential	sodium:serine/threonine symporter	1.35
b3090	ygjV	Isolate 1	non-essential	conserved inner membrane protein	1.83
b3090	ygjV	Isolate 2	non-essential	conserved inner membrane protein	-1.78
b3091	uxaA	Isolate 1	non-essential	altronate hydrolase	-2.12
b3091	uxaA	Isolate 2	non-essential	altronate hydrolase	-0.42
b3092	uxaC	Isolate 1	non-essential	uronate isomerase	-1.21
b3092	uxaC	Isolate 2	non-essential	uronate isomerase	-1.59
b3093	exuT	Isolate 1	non-essential	hexuronate transporter	-0.08
b3093	exuT	Isolate 2	non-essential	hexuronate transporter	0.70
b3094	exuR	Isolate 1	non-essential	DNA-binding transcriptional repressor	3.06
b3094	exuR	Isolate 2	non-essential	DNA-binding transcriptional repressor	3.67
b3095	yqjA	Isolate 1	non-essential	conserved inner membrane protein	0.43
b3095	yqjA	Isolate 2	non-essential	conserved inner membrane protein	0.46
b3096	yqjB	Isolate 1	non-essential	conserved protein	1.18
b3096	yqjB	Isolate 2	non-essential	conserved protein	0.33
b3097	yqjC	Isolate 1	non-essential	conserved protein	2.77
b3097	yqjC	Isolate 2	non-essential	conserved protein	1.42
b3098	yqjD	Isolate 1	non-essential	conserved protein	-0.08
b3098	yqjD	Isolate 2	non-essential	conserved protein	1.05
b3099	yqjE	Isolate 1	non-essential	conserved inner membrane protein	1.13
b3099	yqjE	Isolate 2	non-essential	conserved inner membrane protein	1.36
b3100	yqjK	Isolate 1	non-essential	conserved protein	-2.13
b3100	yqjK	Isolate 2	non-essential	conserved protein	-0.37
b3101	yqjF	Isolate 1	non-essential	predicted quinol oxidase subunit	-0.33
b3101	yqjF	Isolate 2	non-essential	predicted quinol oxidase subunit	-3.20
b3102	yqjG	Isolate 1	non-essential	predicted S-transferase	1.04
b3102	yqjG	Isolate 2	non-essential	predicted S-transferase	-1.33
b3103	yhaH	Isolate 1	non-essential	predicted inner membrane protein	1.17
b3103	yhaH	Isolate 2	non-essential	predicted inner membrane protein	0.23
b3104	yhaI	Isolate 1	non-essential	predicted inner membrane protein	1.13
b3104	yhaI	Isolate 2	non-essential	predicted inner membrane protein	0.42
b3105	yhaJ	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-1.14
b3105	yhaJ	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	1.30
b3106	yhaK	Isolate 1	non-essential	predicted pirin-related protein	-1.46
b3106	yhaK	Isolate 2	non-essential	predicted pirin-related protein	0.92
b3107	yhaL	Isolate 1	non-essential	predicted protein	-0.87
b3107	yhaL	Isolate 2	non-essential	predicted protein	-1.20

b3110	yhaO	Isolate 1	non-essential	predicted transporter	-0.57
b3110	yhaO	Isolate 2	non-essential	predicted transporter	1.79
b3114	tdcE	Isolate 1	non-essential	pyruvate formate-lyase 4/2-ketobutyrate formate-lyase	-2.64
b3114	tdcE	Isolate 2	non-essential	pyruvate formate-lyase 4/2-ketobutyrate formate-lyase	-0.36
b3115	tdcD	Isolate 1	non-essential	propionate kinase/acetate kinase C, anaerobic	2.18
b3115	tdcD	Isolate 2	non-essential	propionate kinase/acetate kinase C, anaerobic	3.14
b3116	tdcC	Isolate 1	non-essential	L-threonine/L-serine transporter	0.10
b3116	tdcC	Isolate 2	non-essential	L-threonine/L-serine transporter	0.36
b3117	tdcB	Isolate 1	non-essential	catabolic threonine dehydratase, PLP-dependent	-0.01
b3117	tdcB	Isolate 2	non-essential	catabolic threonine dehydratase, PLP-dependent	3.73
b3118	tdcA	Isolate 1	non-essential	DNA-binding transcriptional activator	0.19
b3118	tdcA	Isolate 2	non-essential	DNA-binding transcriptional activator	0.84
b3119	tdcR	Isolate 1	non-essential	DNA-binding transcriptional activator	-1.99
b3119	tdcR	Isolate 2	non-essential	DNA-binding transcriptional activator	0.91
b3120	yhaB	Isolate 1	non-essential	predicted protein	-1.13
b3120	yhaB	Isolate 2	non-essential	predicted protein	-0.70
b3121	yhaC	Isolate 1	non-essential	predicted protein	-1.70
b3121	yhaC	Isolate 2	non-essential	predicted protein	-0.85
b3124	garK	Isolate 1	non-essential	glycerate kinase I	1.06
b3124	garK	Isolate 2	non-essential	glycerate kinase I	-0.22
b3125	garR	Isolate 1	non-essential	tartronate semialdehyde reductase	-0.63
b3125	garR	Isolate 2	non-essential	tartronate semialdehyde reductase	2.41
b3126	garL	Isolate 1	non-essential	alpha-dehydro-beta-deoxy-D-glucarate aldolase	0.91
b3126	garL	Isolate 2	non-essential	alpha-dehydro-beta-deoxy-D-glucarate aldolase	1.60
b3127	garP	Isolate 1	non-essential	predicted (D)-galactarate transporter	1.32
b3127	garP	Isolate 2	non-essential	predicted (D)-galactarate transporter	0.19
b3128	garD	Isolate 1	non-essential	(D)-galactarate dehydrogenase	0.24
b3128	garD	Isolate 2	non-essential	(D)-galactarate dehydrogenase	0.57
b3129	sohA	Isolate 1	non-essential	predicted regulator	-1.67
b3129	sohA	Isolate 2	non-essential	predicted regulator	-2.37
b3130	yhaV	Isolate 1	non-essential	conserved protein	0.89
b3130	yhaV	Isolate 2	non-essential	conserved protein	0.52
b3131	agaR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	-1.38
b3131	agaR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	-0.23
b3132	kbaZ	Isolate 1	non-essential	tagatose 6-phosphate aldolase 1, kbaZ subunit	-1.10
b3132	kbaZ	Isolate 2	non-essential	tagatose 6-phosphate aldolase 1, kbaZ subunit	0.19
b3133	agaV	Isolate 1	non-essential	N-acetylgalactosamine-specific enzyme IIB component of PTS	0.21
b3133	agaV	Isolate 2	non-essential	N-acetylgalactosamine-specific enzyme IIB component of PTS	1.54
b3134	agaW	Isolate 1	*	N-acetylgalactosamine-specific enzyme IIC component of PTS, fragment (pseudogene)	0.65
b3134	agaW	Isolate 2	*	N-acetylgalactosamine-specific enzyme IIC component of PTS, fragment (pseudogene)	-1.06
b3135	agaA	Isolate 1	non-essential	predicted truncated N-acetylgalactosamine-6-phosphate deacetylase	2.14
b3135	agaA	Isolate 2	non-essential	predicted truncated N-acetylgalactosamine-6-phosphate deacetylase	0.15
b3136	agaS	Isolate 1	non-essential	tagatose-6-phosphate ketose/aldose isomerase	-1.67

b3136	agaS	Isolate 2	non-essential	tagatose-6-phosphate ketose/aldose isomerase	0.51
b3137	kbaY	Isolate 1	non-essential	tagatose 6-phosphate aldolase 1, kbaY subunit	0.94
b3137	kbaY	Isolate 2	non-essential	tagatose 6-phosphate aldolase 1, kbaY subunit	-1.73
b3138	agaB	Isolate 1	non-essential	N-acetylgalactosamine-specific enzyme IIB component of PTS	0.31
b3138	agaB	Isolate 2	non-essential	N-acetylgalactosamine-specific enzyme IIB component of PTS	-1.11
b3139	agaC	Isolate 1	non-essential	N-acetylgalactosamine-specific enzyme IIC component of PTS	1.60
b3139	agaC	Isolate 2	non-essential	N-acetylgalactosamine-specific enzyme IIC component of PTS	1.17
b3140	agaD	Isolate 1	non-essential	N-acetylgalactosamine-specific enzyme IID component of PTS	0.48
b3140	agaD	Isolate 2	non-essential	N-acetylgalactosamine-specific enzyme IID component of PTS	0.51
b3141	agaI	Isolate 1	non-essential	galactosamine-6-phosphate isomerase	-1.43
b3141	agaI	Isolate 2	non-essential	galactosamine-6-phosphate isomerase	0.12
b3142	yraH	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	-0.16
b3142	yraH	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	0.45
b3143	yraI	Isolate 1	non-essential	predicted periplasmic pilin chaperone	0.04
b3143	yraI	Isolate 2	non-essential	predicted periplasmic pilin chaperone	-0.44
b3144	yraJ	Isolate 1	non-essential	predicted outer membrane protein	-2.50
b3144	yraJ	Isolate 2	non-essential	predicted outer membrane protein	-1.11
b3145	yraK	Isolate 1	non-essential	predicted fimbrial-like adhesin protein	-0.89
b3145	yraK	Isolate 2	non-essential	predicted fimbrial-like adhesin protein	-0.31
b3146	yraL	Isolate 1	essential	predicted methyltransferase	-1.07
b3147	yraM	Isolate 1	non-essential	conserved protein	1.45
b3147	yraM	Isolate 2	non-essential	conserved protein	1.51
b3148	yraN	Isolate 1	non-essential	conserved protein	2.89
b3148	yraN	Isolate 2	non-essential	conserved protein	-0.55
b3149	yraO	Isolate 1	non-essential	DnaA initiator-associating factor for replication initiation	-0.19
b3149	yraO	Isolate 2	non-essential	DnaA initiator-associating factor for replication initiation	-0.49
b3150	yraP	Isolate 1	non-essential	predicted protein	2.04
b3150	yraP	Isolate 2	non-essential	predicted protein	-0.19
b3151	yraQ	Isolate 1	non-essential	predicted permease	0.78
b3151	yraQ	Isolate 2	non-essential	predicted permease	1.06
b3152	yraR	Isolate 1	non-essential	predicted nucleoside-diphosphate-sugar epimerase	1.84
b3152	yraR	Isolate 2	non-essential	predicted nucleoside-diphosphate-sugar epimerase	1.07
b3153	yhbO	Isolate 1	non-essential	predicted intracellular protease	-0.76
b3153	yhbO	Isolate 2	non-essential	predicted intracellular protease	-1.60
b3154	yhbP	Isolate 1	non-essential	conserved protein	0.38
b3154	yhbP	Isolate 2	non-essential	conserved protein	1.54
b3155	yhbQ	Isolate 1	non-essential	predicted endonuclease	-0.81
b3155	yhbQ	Isolate 2	non-essential	predicted endonuclease	0.32
b3156	yhbS	Isolate 1	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	0.84
b3156	yhbS	Isolate 2	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	-0.27
b3157	yhbT	Isolate 1	non-essential	predicted lipid carrier protein	0.12
b3157	yhbT	Isolate 2	non-essential	predicted lipid carrier protein	-0.05
b3158	yhbU	Isolate 1	non-essential	predicted peptidase (collagenase-like)	-2.37

b3158	yhbU	Isolate 2	non-essential	predicted peptidase (collagenase-like)	-0.13
b3159	yhbV	Isolate 1	essential	predicted protease	-1.79
b3160	yhbW	Isolate 1	non-essential	predicted enzyme	2.26
b3160	yhbW	Isolate 2	non-essential	predicted enzyme	0.77
b3161	mtr	Isolate 1	non-essential	tryptophan transporter of high affinity	1.04
b3161	mtr	Isolate 2	non-essential	tryptophan transporter of high affinity	1.97
b3162	deaD	Isolate 1	non-essential	ATP-dependent RNA helicase	-0.23
b3162	deaD	Isolate 2	non-essential	ATP-dependent RNA helicase	-1.81
b3163	nlpI	Isolate 1	non-essential	conserved protein	0.44
b3163	nlpI	Isolate 2	non-essential	conserved protein	1.30
b3164	pnp	Isolate 1	non-essential	polynucleotide phosphorylase/polyadenylase	0.33
b3164	pnp	Isolate 2	non-essential	polynucleotide phosphorylase/polyadenylase	1.11
b3165	rpsO	Isolate 1	non-essential	30S ribosomal subunit protein S15	-0.57
b3165	rpsO	Isolate 2	non-essential	30S ribosomal subunit protein S15	-2.35
b3166	truB	Isolate 1	non-essential	tRNA pseudouridine synthase	2.72
b3166	truB	Isolate 2	non-essential	tRNA pseudouridine synthase	-0.06
b3167	rbfA	Isolate 1	non-essential	30s ribosome binding factor	8.16
b3167	rbfA	Isolate 2	non-essential	30s ribosome binding factor	0.75
b3169	nusA	Isolate 1	essential	transcription terminatio*ntermination L factor	0.19
b3170	yhbC	Isolate 1	non-essential	conserved protein	0.82
b3170	yhbC	Isolate 2	non-essential	conserved protein	2.63
b3172	argG	Isolate 1	non-essential	argininosuccinate synthetase	-0.35
b3172	argG	Isolate 2	non-essential	argininosuccinate synthetase	-1.10
b3173	yhbX	Isolate 1	non-essential	predicted hydrolase, inner membrane	0.12
b3173	yhbX	Isolate 2	non-essential	predicted hydrolase, inner membrane	-0.51
b3175	secG	Isolate 1	non-essential	preprotein translocase membrane subunit	-0.35
b3175	secG	Isolate 2	non-essential	preprotein translocase membrane subunit	-0.03
b3176	glmM	Isolate 1	non-essential	phosphoglucosamine mutase	-0.42
b3176	glmM	Isolate 2	non-essential	phosphoglucosamine mutase	-1.09
b3177	folP	Isolate 1	non-essential	7,8-dihydropteroate synthase	1.63
b3177	folP	Isolate 2	non-essential	7,8-dihydropteroate synthase	0.94
b3178	ftsH	Isolate 1	essential	protease, ATP-dependent zinc-metallo	-0.12
b3179	rrmJ	Isolate 1	non-essential	23S rRNA methyltransferase	0.24
b3179	rrmJ	Isolate 2	non-essential	23S rRNA methyltransferase	-0.96
b3180	yhbY	Isolate 1	non-essential	predicted RNA-binding protein	0.48
b3180	yhbY	Isolate 2	non-essential	predicted RNA-binding protein	0.86
b3181	greA	Isolate 1	non-essential	transcription elongation factor	0.35
b3181	greA	Isolate 2	non-essential	transcription elongation factor	0.59
b3182	dacB	Isolate 1	non-essential	D-alanyl-D-alanine carboxypeptidase	2.43
b3182	dacB	Isolate 2	non-essential	D-alanyl-D-alanine carboxypeptidase	-0.32
b3183	obgE	Isolate 1	essential	GTPase involved in cell partitioning and DNA repair	0.57
b3184	yhbE	Isolate 1	non-essential	conserved inner membrane protein	1.46
b3184	yhbE	Isolate 2	non-essential	conserved inner membrane protein	1.31

b3188	sfsB	Isolate 1	non-essential	DNA-binding transcriptional regulator	-0.49
b3188	sfsB	Isolate 2	non-essential	DNA-binding transcriptional regulator	1.80
b3189	murA	Isolate 1	essential	UDP-N-acetylglucosamine 1-carboxyvinyltransferase	0.70
b3190	yrbA	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	1.92
b3190	yrbA	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	1.82
b3192	yrbC	Isolate 1	non-essential	predicted ABC-type organic solvent transporter	1.19
b3192	yrbC	Isolate 2	non-essential	predicted ABC-type organic solvent transporter	3.13
b3193	yrbD	Isolate 1	non-essential	predicted ABC-type organic solvent transporter	1.33
b3193	yrbD	Isolate 2	non-essential	predicted ABC-type organic solvent transporter	1.36
b3194	yrbE	Isolate 1	non-essential	predicted toluene transporter subunit-!- membrane component of ABC superfamily	1.26
b3194	yrbE	Isolate 2	non-essential	predicted toluene transporter subunit-!- membrane component of ABC superfamily	2.06
b3195	yrbF	Isolate 1	non-essential	predicted toluene transporter subunit -!- ATP-binding component of ABC superfamily	1.74
b3195	yrbF	Isolate 2	non-essential	predicted toluene transporter subunit -!- ATP-binding component of ABC superfamily	1.80
b3196	yrbG	Isolate 1	non-essential	predicted calcium/sodium:proton antiporter	0.01
b3196	yrbG	Isolate 2	non-essential	predicted calcium/sodium:proton antiporter	-0.16
b3197	kdsD	Isolate 1	non-essential	D-arabinose 5-phosphate isomerase	-1.29
b3197	kdsD	Isolate 2	non-essential	D-arabinose 5-phosphate isomerase	2.20
b3198	kdsC	Isolate 1	non-essential	3-deoxy-D-manno-octulosonate 8-phosphate phosphatase	-0.89
b3198	kdsC	Isolate 2	non-essential	3-deoxy-D-manno-octulosonate 8-phosphate phosphatase	-0.09
b3200	yhbN	Isolate 1	essential	predicted transporter subunit -!- periplasmic-binding component of ABC superfamily	2.14
b3201	yhbG	Isolate 1	non-essential	predicted transporter subunit -!- ATP-binding component of ABC superfamily	-2.21
b3201	yhbG	Isolate 2	non-essential	predicted transporter subunit -!- ATP-binding component of ABC superfamily	1.02
b3202	rpoN	Isolate 1	non-essential	RNA polymerase, sigma 54 (sigma N) factor	0.12
b3202	rpoN	Isolate 2	non-essential	RNA polymerase, sigma 54 (sigma N) factor	-0.36
b3203	yhbH	Isolate 1	non-essential	predicted ribosome-associated, sigma 54 modulation protein	-0.33
b3203	yhbH	Isolate 2	non-essential	predicted ribosome-associated, sigma 54 modulation protein	1.16
b3204	ptsN	Isolate 1	non-essential	sugar-specific enzyme IIA component of PTS	-0.46
b3204	ptsN	Isolate 2	non-essential	sugar-specific enzyme IIA component of PTS	0.90
b3205	yhbJ	Isolate 1	non-essential	predicted protein with nucleoside triphosphate hydrolase domain	0.30
b3205	yhbJ	Isolate 2	non-essential	predicted protein with nucleoside triphosphate hydrolase domain	0.03
b3206	npr	Isolate 1	non-essential	phosphohistidinoprotein-hexose phosphotransferase component of N-regulated PTS system (Npr)	1.33
b3206	npr	Isolate 2	non-essential	phosphohistidinoprotein-hexose phosphotransferase component of N-regulated PTS system (Npr)	1.89
b3207	yrbL	Isolate 1	non-essential	predicted protein	-0.28
b3207	yrbL	Isolate 2	non-essential	predicted protein	1.07
b3208	mtgA	Isolate 1	non-essential	biosynthetic peptidoglycan transglycosylase	-0.87
b3208	mtgA	Isolate 2	non-essential	biosynthetic peptidoglycan transglycosylase	-0.76
b3209	elbB	Isolate 1	non-essential	isoprenoid biosynthesis protein with amidotransferase-like domain	2.12
b3209	elbB	Isolate 2	non-essential	isoprenoid biosynthesis protein with amidotransferase-like domain	-0.06
b3210	arcB	Isolate 1	non-essential	hybrid sensory histidine kinase in two-component regulatory system with ArcA	-0.92
b3210	arcB	Isolate 2	non-essential	hybrid sensory histidine kinase in two-component regulatory system with ArcA	-1.57
b3211	yhcC	Isolate 1	non-essential	predicted Fe-S oxidoreductase	1.59
b3211	yhcC	Isolate 2	non-essential	predicted Fe-S oxidoreductase	1.95
b3212	gltB	Isolate 1	non-essential	glutamate synthase, large subunit	-1.40

b3212	gltB	Isolate 2	non-essential	glutamate synthase, large subunit	-0.67
b3213	gltD	Isolate 1	non-essential	glutamate synthase, 4Fe-4S protein, small subunit	-0.88
b3213	gltD	Isolate 2	non-essential	glutamate synthase, 4Fe-4S protein, small subunit	-0.91
b3214	gltF	Isolate 1	non-essential	periplasmic protein	-1.31
b3214	gltF	Isolate 2	non-essential	periplasmic protein	-0.06
b3215	yhcA	Isolate 1	non-essential	predicted periplasmic chaperone protein	0.52
b3215	yhcA	Isolate 2	non-essential	predicted periplasmic chaperone protein	-1.28
b3216	yhcD	Isolate 1	non-essential	predicted outer membrane protein	0.52
b3216	yhcD	Isolate 2	non-essential	predicted outer membrane protein	0.42
b3217	yhcE	Isolate 1	*	predicted protein, N-ter fragment (pseudogene)	-0.17
b3217	yhcE	Isolate 2	*	predicted protein, N-ter fragment (pseudogene)	-2.63
b3219	yhcF	Isolate 1	non-essential	predicted transcriptional regulator	0.06
b3219	yhcF	Isolate 2	non-essential	predicted transcriptional regulator	0.83
b3220	yhcG	Isolate 1	non-essential	conserved protein	0.44
b3220	yhcG	Isolate 2	non-essential	conserved protein	0.61
b3221	yhcH	Isolate 1	non-essential	conserved protein	0.19
b3221	yhcH	Isolate 2	non-essential	conserved protein	0.80
b3222	nanK	Isolate 1	non-essential	predicted N-acetylmannosamine kinase	0.30
b3222	nanK	Isolate 2	non-essential	predicted N-acetylmannosamine kinase	1.37
b3223	nanE	Isolate 1	non-essential	predicted N-acetylmannosamine-6-P epimerase	-0.95
b3223	nanE	Isolate 2	non-essential	predicted N-acetylmannosamine-6-P epimerase	1.69
b3224	nanT	Isolate 1	non-essential	sialic acid transporter	4.74
b3224	nanT	Isolate 2	non-essential	sialic acid transporter	2.59
b3225	nanA	Isolate 1	non-essential	N-acetylneuraminate lyase	2.84
b3225	nanA	Isolate 2	non-essential	N-acetylneuraminate lyase	-0.21
b3226	nanR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	0.16
b3226	nanR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	-0.91
b3227	dcuD	Isolate 1	non-essential	predicted transporter	0.38
b3227	dcuD	Isolate 2	non-essential	predicted transporter	-0.66
b3228	sspB	Isolate 1	non-essential	ClpXP protease specificity-enhancing factor	-0.52
b3228	sspB	Isolate 2	non-essential	ClpXP protease specificity-enhancing factor	-0.97
b3229	sspA	Isolate 1	non-essential	stringent starvation protein A	-0.82
b3229	sspA	Isolate 2	non-essential	stringent starvation protein A	-1.10
b3232	yhcM	Isolate 1	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	0.01
b3232	yhcM	Isolate 2	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	0.41
b3233	yhcB	Isolate 1	non-essential	conserved protein	2.76
b3233	yhcB	Isolate 2	non-essential	conserved protein	1.86
b3234	degQ	Isolate 1	non-essential	serine endoprotease, periplasmic	-2.06
b3234	degQ	Isolate 2	non-essential	serine endoprotease, periplasmic	-1.50
b3236	mdh	Isolate 1	non-essential	malate dehydrogenase, NAD(P)-binding	-0.35
b3236	mdh	Isolate 2	non-essential	malate dehydrogenase, NAD(P)-binding	2.01
b3237	argR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator, L-arginine-binding	0.02
b3237	argR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator, L-arginine-binding	-0.41

b3238	yhcN	Isolate 1	non-essential	conserved protein	0.85
b3238	yhcN	Isolate 2	non-essential	conserved protein	0.28
b3239	yhcO	Isolate 1	non-essential	predicted barnase inhibitor	-0.11
b3239	yhcO	Isolate 2	non-essential	predicted barnase inhibitor	2.72
b3240	aaeB	Isolate 1	non-essential	p-hydroxybenzoic acid efflux system component	0.27
b3240	aaeB	Isolate 2	non-essential	p-hydroxybenzoic acid efflux system component	-0.41
b3241	aaeA	Isolate 1	non-essential	p-hydroxybenzoic acid efflux system component	1.43
b3241	aaeA	Isolate 2	non-essential	p-hydroxybenzoic acid efflux system component	2.66
b3242	aaeX	Isolate 1	non-essential	membrane protein of efflux system	1.29
b3242	aaeX	Isolate 2	non-essential	membrane protein of efflux system	-0.62
b3243	aaeR	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator, efflux system	0.32
b3243	aaeR	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator, efflux system	0.40
b3244	tldD	Isolate 1	non-essential	predicted peptidase	0.62
b3244	tldD	Isolate 2	non-essential	predicted peptidase	2.73
b3247	rng	Isolate 1	non-essential	ribonuclease G	0.27
b3247	rng	Isolate 2	non-essential	ribonuclease G	3.77
b3248	yhdE	Isolate 1	non-essential	conserved protein	0.75
b3248	yhdE	Isolate 2	non-essential	conserved protein	0.41
b3251	mreB	Isolate 1	essential	cell wall structural complex MreBCD, actin-like component MreB	-0.07
b3252	yhdA	Isolate 1	non-essential	conserved inner membrane protein	-0.71
b3252	yhdA	Isolate 2	non-essential	conserved inner membrane protein	-0.49
b3253	yhdH	Isolate 1	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	-0.59
b3253	yhdH	Isolate 2	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	0.73
b3257	yhdT	Isolate 1	non-essential	conserved inner membrane protein	1.31
b3257	yhdT	Isolate 2	non-essential	conserved inner membrane protein	-0.18
b3258	panF	Isolate 1	non-essential	pantothenate:sodium symporter	-0.82
b3258	panF	Isolate 2	non-essential	pantothenate:sodium symporter	0.46
b3259	prmA	Isolate 1	non-essential	methylase for 50S ribosomal subunit protein L11	2.40
b3259	prmA	Isolate 2	non-essential	methylase for 50S ribosomal subunit protein L11	0.52
b3260	dusB	Isolate 1	non-essential	tRNA-dihydrouridine synthase B	-0.16
b3260	dusB	Isolate 2	non-essential	tRNA-dihydrouridine synthase B	-0.15
b3261	fis	Isolate 1	non-essential	global DNA-binding transcriptional dual regulator	0.48
b3261	fis	Isolate 2	non-essential	global DNA-binding transcriptional dual regulator	1.49
b3262	yhdJ	Isolate 1	non-essential	predicted methyltransferase	0.72
b3262	yhdJ	Isolate 2	non-essential	predicted methyltransferase	3.05
b3263	yhdU	Isolate 1	non-essential	predicted membrane protein	1.13
b3263	yhdU	Isolate 2	non-essential	predicted membrane protein	1.17
b3264	envR	Isolate 1	non-essential	DNA-binding transcriptional regulator	1.74
b3264	envR	Isolate 2	non-essential	DNA-binding transcriptional regulator	1.93
b3265	acrE	Isolate 1	non-essential	cytoplasmic membrane lipoprotein	0.17
b3265	acrE	Isolate 2	non-essential	cytoplasmic membrane lipoprotein	-1.32
b3266	acrF	Isolate 1	non-essential	multidrug efflux system protein	1.67
b3266	acrF	Isolate 2	non-essential	multidrug efflux system protein	-1.24



b3267	yhdV	Isolate 1	non-essential	predicted outer membrane protein	0.21
b3267	yhdV	Isolate 2	non-essential	predicted outer membrane protein	1.32
b3268	yhdW	Isolate 1	non-essential	predicted amino-acid transporter subunit -!- periplasmic-binding component of ABC superfamily	0.04
b3268	yhdW	Isolate 2	non-essential	predicted amino-acid transporter subunit -!- periplasmic-binding component of ABC superfamily	0.53
b3269	yhdX	Isolate 1	non-essential	predicted amino-acid transporter subunit -!- membrane component of ABC superfamily	-0.60
b3269	yhdX	Isolate 2	non-essential	predicted amino-acid transporter subunit -!- membrane component of ABC superfamily	0.62
b3270	yhdY	Isolate 1	non-essential	predicted amino-acid transporter subunit -!- membrane component of ABC superfamily	1.45
b3270	yhdY	Isolate 2	non-essential	predicted amino-acid transporter subunit -!- membrane component of ABC superfamily	0.63
b3271	yhdZ	Isolate 1	non-essential	predicted amino-acid transporter subunit -!- ATP-binding component of ABC superfamily	-2.98
b3271	yhdZ	Isolate 2	non-essential	predicted amino-acid transporter subunit -!- ATP-binding component of ABC superfamily	-0.09
b3279	yrdA	Isolate 1	non-essential	conserved protein	-1.72
b3279	yrdA	Isolate 2	non-essential	conserved protein	0.12
b3280	yrdB	Isolate 1	non-essential	conserved protein	-0.54
b3280	yrdB	Isolate 2	non-essential	conserved protein	1.07
b3281	aroE	Isolate 1	non-essential	dehydroshikimate reductase, NAD(P)-binding	0.88
b3281	aroE	Isolate 2	non-essential	dehydroshikimate reductase, NAD(P)-binding	1.95
b3282	yrdC	Isolate 1	essential	dsRNA-binding protein	0.82
b3283	yrdD	Isolate 1	non-essential	predicted DNA topoisomerase	0.50
b3283	yrdD	Isolate 2	non-essential	predicted DNA topoisomerase	0.25
b3284	smg	Isolate 1	non-essential	conserved protein	0.44
b3284	smg	Isolate 2	non-essential	conserved protein	0.75
b3287	def	Isolate 1	essential	peptide deformylase	0.78
b3289	rsmB	Isolate 1	non-essential	16S rRNA m5C967 methyltransferase, S-adenosyl-L-methionine-dependent	0.71
b3289	rsmB	Isolate 2	non-essential	16S rRNA m5C967 methyltransferase, S-adenosyl-L-methionine-dependent	-1.28
b3290	trkA	Isolate 1	non-essential	NAD-binding component of Trk potassium transporter	1.09
b3290	trkA	Isolate 2	non-essential	NAD-binding component of Trk potassium transporter	0.39
b3291	mscL	Isolate 1	non-essential	mechanosensitive channel	1.33
b3291	mscL	Isolate 2	non-essential	mechanosensitive channel	0.72
b3292	zntR	Isolate 1	non-essential	DNA-binding transcriptional activator	1.32
b3292	zntR	Isolate 2	non-essential	DNA-binding transcriptional activator	0.63
b3293	yhdN	Isolate 1	non-essential	conserved protein	-0.41
b3293	yhdN	Isolate 2	non-essential	conserved protein	0.44
b3295	rpoA	Isolate 1	essential	RNA polymerase, alpha subunit	2.23
b3299	rpmJ	Isolate 1	non-essential	50S ribosomal subunit protein L36	-0.58
b3299	rpmJ	Isolate 2	non-essential	50S ribosomal subunit protein L36	2.19
b3303	rpsE	Isolate 1	essential	30S ribosomal subunit protein S5	2.98
b3318	rplW	Isolate 1	essential	50S ribosomal subunit protein L23	1.19
b3319	rplD	Isolate 1	essential	50S ribosomal subunit protein L4	4.85
b3322	pioO	Isolate 1	non-essential	part of gsp divergon involved in type II protein secretion	1.86
b3322	pioO	Isolate 2	non-essential	part of gsp divergon involved in type II protein secretion	0.73
b3323	gspA	Isolate 1	non-essential	general secretory pathway component, cryptic	-0.24
b3323	gspA	Isolate 2	non-essential	general secretory pathway component, cryptic	-1.65
b3324	gspC	Isolate 1	non-essential	general secretory pathway component, cryptic	-0.34

b3324	gspC	Isolate 2	non-essential	general secretory pathway component, cryptic	2.10
b3325	gspD	Isolate 1	non-essential	general secretory pathway component, cryptic	1.71
b3325	gspD	Isolate 2	non-essential	general secretory pathway component, cryptic	0.56
b3326	gspE	Isolate 1	non-essential	general secretory pathway component, cryptic	1.08
b3326	gspE	Isolate 2	non-essential	general secretory pathway component, cryptic	-0.82
b3327	gspF	Isolate 1	non-essential	general secretory pathway component, cryptic	-0.36
b3327	gspF	Isolate 2	non-essential	general secretory pathway component, cryptic	-0.97
b3328	gspG	Isolate 1	non-essential	pseudopilin, cryptic, general secretion pathway	0.79
b3328	gspG	Isolate 2	non-essential	pseudopilin, cryptic, general secretion pathway	0.96
b3329	gspH	Isolate 1	non-essential	predicted general secretory pathway component, cryptic	-0.07
b3329	gspH	Isolate 2	non-essential	predicted general secretory pathway component, cryptic	2.74
b3330	gspI	Isolate 1	non-essential	general secretory pathway component, cryptic	1.48
b3330	gspI	Isolate 2	non-essential	general secretory pathway component, cryptic	-0.63
b3331	gspJ	Isolate 1	non-essential	predicted general secretory pathway component, cryptic	1.65
b3331	gspJ	Isolate 2	non-essential	predicted general secretory pathway component, cryptic	2.36
b3332	gspK	Isolate 1	non-essential	general secretory pathway component, cryptic	-0.73
b3332	gspK	Isolate 2	non-essential	general secretory pathway component, cryptic	-0.36
b3333	gspL	Isolate 1	non-essential	general secretory pathway component, cryptic	-1.91
b3333	gspL	Isolate 2	non-essential	general secretory pathway component, cryptic	-0.22
b3334	gspM	Isolate 1	non-essential	general secretory pathway component, cryptic	1.47
b3334	gspM	Isolate 2	non-essential	general secretory pathway component, cryptic	1.20
b3335	gspO	Isolate 1	non-essential	bifunctional prepilin leader peptidase -!- methylase	-0.15
b3335	gspO	Isolate 2	non-essential	bifunctional prepilin leader peptidase -!- methylase	-0.44
b3336	bfr	Isolate 1	non-essential	bacterioferritin, iron storage and detoxification protein	0.30
b3336	bfr	Isolate 2	non-essential	bacterioferritin, iron storage and detoxification protein	-0.37
b3337	bfd	Isolate 1	non-essential	bacterioferritin-associated ferredoxin	-0.12
b3337	bfd	Isolate 2	non-essential	bacterioferritin-associated ferredoxin	-0.56
b3338	chiA	Isolate 1	non-essential	periplasmic endochitinase	0.29
b3338	chiA	Isolate 2	non-essential	periplasmic endochitinase	-0.02
b3339	tufA	Isolate 1	non-essential	protein chain elongation factor EF-Tu (duplicate of tufB)	-1.85
b3339	tufA	Isolate 2	non-essential	protein chain elongation factor EF-Tu (duplicate of tufB)	-9.66
b3340	fusA	Isolate 1	essential	protein chain elongation factor EF-G	6.79
b3343	yheL	Isolate 1	non-essential	predicted intracellular sulfur oxidation protein	-1.47
b3343	yheL	Isolate 2	non-essential	predicted intracellular sulfur oxidation protein	5.44
b3344	yheM	Isolate 1	non-essential	predicted intracellular sulfur oxidation protein	-1.80
b3344	yheM	Isolate 2	non-essential	predicted intracellular sulfur oxidation protein	-1.29
b3345	yheN	Isolate 1	non-essential	predicted intracellular sulfur oxidation protein	0.70
b3345	yheN	Isolate 2	non-essential	predicted intracellular sulfur oxidation protein	-0.84
b3346	yheO	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	2.30
b3346	yheO	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	1.57
b3347	fkpA	Isolate 1	non-essential	FKBP-type peptidyl-prolyl cis-trans isomerase (rotamase)	0.16
b3347	fkpA	Isolate 2	non-essential	FKBP-type peptidyl-prolyl cis-trans isomerase (rotamase)	1.67
b3348	slyX	Isolate 1	non-essential	conserved protein	1.27

b3348	slyX	Isolate 2	non-essential	conserved protein	-0.12
b3349	slyD	Isolate 1	non-essential	FKBP-type peptidyl prolyl cis-trans isomerase (rotamase)	0.89
b3349	slyD	Isolate 2	non-essential	FKBP-type peptidyl prolyl cis-trans isomerase (rotamase)	2.23
b3350	kefB	Isolate 1	non-essential	potassium:proton antiporter	-0.93
b3350	kefB	Isolate 2	non-essential	potassium:proton antiporter	1.48
b3351	kefG	Isolate 1	non-essential	component of potassium efflux complex with KefB	0.36
b3351	kefG	Isolate 2	non-essential	component of potassium efflux complex with KefB	-0.45
b3352	yheS	Isolate 1	non-essential	fused predicted transporter subunits -!- ATP-binding components of ABC superfamily	1.91
b3352	yheS	Isolate 2	non-essential	fused predicted transporter subunits -!- ATP-binding components of ABC superfamily	-0.76
b3353	yheT	Isolate 1	non-essential	predicted hydrolase	0.27
b3353	yheT	Isolate 2	non-essential	predicted hydrolase	0.84
b3354	yheU	Isolate 1	non-essential	conserved protein	-0.59
b3354	yheU	Isolate 2	non-essential	conserved protein	0.33
b3355	prkB	Isolate 1	non-essential	predicted phosphoribulokinase	2.68
b3355	prkB	Isolate 2	non-essential	predicted phosphoribulokinase	0.44
b3356	yhfA	Isolate 1	non-essential	conserved protein	2.73
b3356	yhfA	Isolate 2	non-essential	conserved protein	1.83
b3357	crp	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	1.05
b3357	crp	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	-1.04
b3358	yhfK	Isolate 1	non-essential	conserved inner membrane protein	3.32
b3358	yhfK	Isolate 2	non-essential	conserved inner membrane protein	0.71
b3359	argD	Isolate 1	non-essential	bifunctional acetylmornithine aminotransferase -!- succinyldiaminopimelate aminotransferase	-0.06
b3359	argD	Isolate 2	non-essential	bifunctional acetylmornithine aminotransferase -!- succinyldiaminopimelate aminotransferase	-1.21
b3360	pabA	Isolate 1	non-essential	aminodeoxychorismate synthase, subunit II	1.10
b3360	pabA	Isolate 2	non-essential	aminodeoxychorismate synthase, subunit II	1.67
b3361	fic	Isolate 1	non-essential	stationary-phase protein, cell division	2.71
b3361	fic	Isolate 2	non-essential	stationary-phase protein, cell division	1.93
b3362	yhfG	Isolate 1	non-essential	predicted protein	0.57
b3362	yhfG	Isolate 2	non-essential	predicted protein	-1.91
b3363	ppiA	Isolate 1	non-essential	peptidyl-prolyl cis-trans isomerase A (rotamase A)	2.28
b3363	ppiA	Isolate 2	non-essential	peptidyl-prolyl cis-trans isomerase A (rotamase A)	5.28
b3364	tsgA	Isolate 1	non-essential	predicted transporter	-0.29
b3364	tsgA	Isolate 2	non-essential	predicted transporter	0.27
b3365	nirB	Isolate 1	non-essential	nitrite reductase, large subunit, NAD(P)H-binding	0.23
b3365	nirB	Isolate 2	non-essential	nitrite reductase, large subunit, NAD(P)H-binding	-0.84
b3366	nirD	Isolate 1	non-essential	nitrite reductase, NAD(P)H-binding, small subunit	-0.27
b3366	nirD	Isolate 2	non-essential	nitrite reductase, NAD(P)H-binding, small subunit	-0.96
b3367	nirC	Isolate 1	non-essential	nitrite transporter	1.71
b3367	nirC	Isolate 2	non-essential	nitrite transporter	0.00
b3368	cysG	Isolate 1	non-essential	fused siroheme synthase 1,3-dimethyluroporphyriongen III dehydrogenase/siroheme ferrochelatase -!- uroporphyrinogen methyltra	-2.69
b3368	cysG	Isolate 2	non-essential	fused siroheme synthase 1,3-dimethyluroporphyriongen III dehydrogenase/siroheme ferrochelatase -!- uroporphyrinogen methyltra	-1.21
b3369	yhfL	Isolate 1	non-essential	conserved secreted peptide	-0.05
b3369	yhfL	Isolate 2	non-essential	conserved secreted peptide	0.23

b3370	frlA	Isolate 1	non-essential	predicted fructoselysine transporter	-1.64
b3370	frlA	Isolate 2	non-essential	predicted fructoselysine transporter	2.42
b3371	frlB	Isolate 1	non-essential	fructoselysine-6-P-deglycase	-0.42
b3371	frlB	Isolate 2	non-essential	fructoselysine-6-P-deglycase	1.00
b3374	frlD	Isolate 1	non-essential	fructoselysine 6-kinase	-0.18
b3374	frlD	Isolate 2	non-essential	fructoselysine 6-kinase	-0.32
b3375	frlR	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.65
b3375	frlR	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	1.60
b3376	yhfS	Isolate 1	non-essential	conserved protein	1.00
b3376	yhfS	Isolate 2	non-essential	conserved protein	-1.93
b3377	yhfT	Isolate 1	non-essential	predicted inner membrane protein	-0.51
b3377	yhfT	Isolate 2	non-essential	predicted inner membrane protein	-2.78
b3378	yhfU	Isolate 1	non-essential	predicted protein	1.45
b3378	yhfU	Isolate 2	non-essential	predicted protein	0.97
b3379	php	Isolate 1	non-essential	predicted hydrolase	0.67
b3379	php	Isolate 2	non-essential	predicted hydrolase	2.21
b3380	yhfW	Isolate 1	non-essential	predicted mutase	1.89
b3380	yhfW	Isolate 2	non-essential	predicted mutase	0.20
b3381	yhfX	Isolate 1	non-essential	predicted amino acid racemase	-0.89
b3381	yhfX	Isolate 2	non-essential	predicted amino acid racemase	-0.53
b3382	yhfY	Isolate 1	non-essential	conserved protein	-0.44
b3382	yhfY	Isolate 2	non-essential	conserved protein	1.00
b3383	yhfZ	Isolate 1	non-essential	conserved protein	-0.74
b3383	yhfZ	Isolate 2	non-essential	conserved protein	1.74
b3384	trpS	Isolate 1	essential	tryptophanyl-tRNA synthetase	0.43
b3385	gph	Isolate 1	non-essential	phosphoglycolate phosphatase	3.56
b3385	gph	Isolate 2	non-essential	phosphoglycolate phosphatase	1.03
b3386	rpe	Isolate 1	non-essential	D-ribulose-5-phosphate 3-epimerase	3.52
b3386	rpe	Isolate 2	non-essential	D-ribulose-5-phosphate 3-epimerase	0.51
b3387	dam	Isolate 1	non-essential	DNA adenine methylase	2.75
b3387	dam	Isolate 2	non-essential	DNA adenine methylase	2.38
b3388	damX	Isolate 1	non-essential	predicted protein	-1.55
b3388	damX	Isolate 2	non-essential	predicted protein	-0.48
b3389	aroB	Isolate 1	non-essential	3-dehydroquinate synthase	2.49
b3389	aroB	Isolate 2	non-essential	3-dehydroquinate synthase	-0.79
b3390	aroK	Isolate 1	non-essential	shikimate kinase I	-0.68
b3390	aroK	Isolate 2	non-essential	shikimate kinase I	-1.65
b3391	hofQ	Isolate 1	non-essential	predicted fimbrial transporter	0.09
b3391	hofQ	Isolate 2	non-essential	predicted fimbrial transporter	-1.35
b3392	yrfA	Isolate 1	non-essential	predicted protein	2.39
b3392	yrfA	Isolate 2	non-essential	predicted protein	1.45
b3393	yrfB	Isolate 1	non-essential	conserved membrane protein	0.79
b3393	yrfB	Isolate 2	non-essential	conserved membrane protein	0.16

b3394	yrfC	Isolate 1	non-essential	predicted fimbrial assembly protein	0.39
b3394	yrfC	Isolate 2	non-essential	predicted fimbrial assembly protein	0.46
b3395	yrfD	Isolate 1	non-essential	predicted pilus assembly protein	-1.43
b3395	yrfD	Isolate 2	non-essential	predicted pilus assembly protein	-1.58
b3396	mrcA	Isolate 1	non-essential	fused penicillin-binding protein 1a murein transglycosylase -!- murein transpeptidase	-0.22
b3396	mrcA	Isolate 2	non-essential	fused penicillin-binding protein 1a murein transglycosylase -!- murein transpeptidase	-1.05
b3397	nudE	Isolate 1	non-essential	ADP-ribose diphosphatase	0.22
b3397	nudE	Isolate 2	non-essential	ADP-ribose diphosphatase	-0.66
b3399	yrfG	Isolate 1	non-essential	predicted hydrolase	-0.28
b3399	yrfG	Isolate 2	non-essential	predicted hydrolase	-1.63
b3400	hslR	Isolate 1	non-essential	ribosome-associated heat shock protein Hsp15	3.19
b3400	hslR	Isolate 2	non-essential	ribosome-associated heat shock protein Hsp15	2.12
b3401	hslO	Isolate 1	non-essential	heat shock protein Hsp33	4.16
b3401	hslO	Isolate 2	non-essential	heat shock protein Hsp33	0.50
b3402	yhgE	Isolate 1	non-essential	predicted inner membrane protein	-0.58
b3402	yhgE	Isolate 2	non-essential	predicted inner membrane protein	-0.16
b3403	pck	Isolate 1	non-essential	phosphoenolpyruvate carboxykinase	-0.42
b3403	pck	Isolate 2	non-essential	phosphoenolpyruvate carboxykinase	1.77
b3404	envZ	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory system with OmpR	-0.79
b3404	envZ	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory system with OmpR	-1.57
b3405	ompR	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with EnvZ	-1.10
b3405	ompR	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with EnvZ	-2.00
b3406	greB	Isolate 1	non-essential	transcription elongation factor	3.20
b3406	greB	Isolate 2	non-essential	transcription elongation factor	2.25
b3407	yhgF	Isolate 1	non-essential	predicted transcriptional accessory protein	6.18
b3407	yhgF	Isolate 2	non-essential	predicted transcriptional accessory protein	1.68
b3408	feoA	Isolate 1	non-essential	ferrous iron transporter, protein A	-0.88
b3408	feoA	Isolate 2	non-essential	ferrous iron transporter, protein A	-1.94
b3409	feoB	Isolate 1	non-essential	fused ferrous iron transporter, protein B	-0.52
b3409	feoB	Isolate 2	non-essential	fused ferrous iron transporter, protein B	2.37
b3410	yhgG	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.88
b3410	yhgG	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.76
b3411	yhgA	Isolate 1	non-essential	predicted transposase	-2.03
b3411	yhgA	Isolate 2	non-essential	predicted transposase	-0.23
b3412	bioH	Isolate 1	non-essential	carboxylesterase of pimeloyl-CoA synthesis	1.23
b3412	bioH	Isolate 2	non-essential	carboxylesterase of pimeloyl-CoA synthesis	0.57
b3413	gntX	Isolate 1	non-essential	gluconate periplasmic binding protein with phosphoribosyltransferase domain, GNT I system	-11.62
b3413	gntX	Isolate 2	non-essential	gluconate periplasmic binding protein with phosphoribosyltransferase domain, GNT I system	1.75
b3414	gntY	Isolate 1	non-essential	predicted gluconate transport associated protein	-0.90
b3414	gntY	Isolate 2	non-essential	predicted gluconate transport associated protein	-0.54
b3415	gntT	Isolate 1	non-essential	gluconate transporter, high-affinity GNT I system	0.17
b3415	gntT	Isolate 2	non-essential	gluconate transporter, high-affinity GNT I system	-0.15
b3416	malQ	Isolate 1	non-essential	4-alpha-glucanotransferase (amylomaltase)	0.21

b3416	malQ	Isolate 2	non-essential	4-alpha-glucanotransferase (amylomaltase)	3.12
b3417	malP	Isolate 1	non-essential	maltodextrin phosphorylase	-1.59
b3417	malP	Isolate 2	non-essential	maltodextrin phosphorylase	1.44
b3418	malT	Isolate 1	non-essential	DNA-binding transcriptional activator, maltotriose-ATP-binding	-0.96
b3418	malT	Isolate 2	non-essential	DNA-binding transcriptional activator, maltotriose-ATP-binding	-1.43
b3421	rtcB	Isolate 1	non-essential	conserved protein	-0.92
b3421	rtcB	Isolate 2	non-essential	conserved protein	0.76
b3422	rtcR	Isolate 1	non-essential	sigma 54-dependent transcriptional regulator of rtcBA expression	-0.25
b3422	rtcR	Isolate 2	non-essential	sigma 54-dependent transcriptional regulator of rtcBA expression	0.76
b3423	glpR	Isolate 1	non-essential	DNA-binding transcriptional repressor	0.41
b3423	glpR	Isolate 2	non-essential	DNA-binding transcriptional repressor	0.61
b3424	glpG	Isolate 1	non-essential	predicted intramembrane serine protease	1.60
b3424	glpG	Isolate 2	non-essential	predicted intramembrane serine protease	0.01
b3425	glpE	Isolate 1	non-essential	thiosulfate:cyanide sulfurtransferase (rhodanese)	-1.65
b3425	glpE	Isolate 2	non-essential	thiosulfate:cyanide sulfurtransferase (rhodanese)	0.14
b3426	glpD	Isolate 1	non-essential	sn-glycerol-3-phosphate dehydrogenase, aerobic, FAD/NAD(P)-binding	-1.70
b3426	glpD	Isolate 2	non-essential	sn-glycerol-3-phosphate dehydrogenase, aerobic, FAD/NAD(P)-binding	-0.67
b3427	yzgL	Isolate 1	non-essential	predicted protein	0.81
b3427	yzgL	Isolate 2	non-essential	predicted protein	-0.48
b3428	glgP	Isolate 1	non-essential	glycogen phosphorylase	-0.55
b3428	glgP	Isolate 2	non-essential	glycogen phosphorylase	0.35
b3429	glgA	Isolate 1	non-essential	glycogen synthase	-1.70
b3429	glgA	Isolate 2	non-essential	glycogen synthase	0.04
b3430	glgC	Isolate 1	non-essential	glucose-1-phosphate adenylyltransferase	-1.69
b3430	glgC	Isolate 2	non-essential	glucose-1-phosphate adenylyltransferase	-1.34
b3431	glgX	Isolate 1	non-essential	glycogen debranching enzyme	-0.64
b3431	glgX	Isolate 2	non-essential	glycogen debranching enzyme	0.35
b3432	glgB	Isolate 1	non-essential	1,4-alpha-glucan branching enzyme	-1.90
b3432	glgB	Isolate 2	non-essential	1,4-alpha-glucan branching enzyme	0.65
b3434	yhgN	Isolate 1	non-essential	predicted antibiotic transporter	-0.04
b3434	yhgN	Isolate 2	non-essential	predicted antibiotic transporter	0.01
b3437	gntK	Isolate 1	non-essential	gluconate kinase 2 -!- gluconate transport, GNT I system	0.86
b3437	gntK	Isolate 2	non-essential	gluconate kinase 2 -!- gluconate transport, GNT I system	-1.57
b3438	gntR	Isolate 1	non-essential	DNA-binding transcriptional repressor	-0.51
b3438	gntR	Isolate 2	non-essential	DNA-binding transcriptional repressor	1.32
b3439	yhhW	Isolate 1	non-essential	predicted protein	-0.57
b3439	yhhW	Isolate 2	non-essential	predicted protein	1.41
b3440	yhhX	Isolate 1	non-essential	predicted oxidoreductase with NAD(P)-binding Rossmann-fold domain	0.08
b3440	yhhX	Isolate 2	non-essential	predicted oxidoreductase with NAD(P)-binding Rossmann-fold domain	1.66
b3441	yhhY	Isolate 1	non-essential	predicted acetyltransferase	0.70
b3441	yhhY	Isolate 2	non-essential	predicted acetyltransferase	-0.43
b3442	yhhZ	Isolate 1	non-essential	conserved protein	0.91
b3442	yhhZ	Isolate 2	non-essential	conserved protein	-1.89

b3443	yrhA	Isolate 1	non-essential	conserved protein	-1.55
b3443	yrhA	Isolate 2	non-essential	conserved protein	0.43
b3445.1	*	Isolate 1	*	*	1.45
b3445.1	*	Isolate 2	*	*	1.10
b3446	yrhB	Isolate 1	non-essential	predicted protein	2.53
b3446	yrhB	Isolate 2	non-essential	predicted protein	0.06
b3447	ggt	Isolate 1	non-essential	gamma-glutamyltranspeptidase	1.77
b3447	ggt	Isolate 2	non-essential	gamma-glutamyltranspeptidase	-0.63
b3448	yhhA	Isolate 1	non-essential	conserved protein	-0.22
b3448	yhhA	Isolate 2	non-essential	conserved protein	-0.30
b3449	ugpQ	Isolate 1	non-essential	glycerophosphodiester phosphodiesterase, cytosolic	1.22
b3449	ugpQ	Isolate 2	non-essential	glycerophosphodiester phosphodiesterase, cytosolic	-2.00
b3450	ugpC	Isolate 1	non-essential	glycerol-3-phosphate transporter subunit -!- ATP-binding component of ABC superfamily	-0.75
b3450	ugpC	Isolate 2	non-essential	glycerol-3-phosphate transporter subunit -!- ATP-binding component of ABC superfamily	0.32
b3451	ugpE	Isolate 1	non-essential	glycerol-3-phosphate transporter subunit -!- membrane component of ABC superfamily	-2.07
b3451	ugpE	Isolate 2	non-essential	glycerol-3-phosphate transporter subunit -!- membrane component of ABC superfamily	-0.04
b3452	ugpA	Isolate 1	non-essential	glycerol-3-phosphate transporter subunit -!- membrane component of ABC superfamily	0.04
b3452	ugpA	Isolate 2	non-essential	glycerol-3-phosphate transporter subunit -!- membrane component of ABC superfamily	-1.73
b3453	ugpB	Isolate 1	non-essential	glycerol-3-phosphate transporter subunit -!- periplasmic-binding component of ABC superfamily	1.63
b3453	ugpB	Isolate 2	non-essential	glycerol-3-phosphate transporter subunit -!- periplasmic-binding component of ABC superfamily	4.98
b3454	livF	Isolate 1	non-essential	leucine/isoleucine/valine transporter subunit -!- ATP-binding component of ABC superfamily	1.01
b3454	livF	Isolate 2	non-essential	leucine/isoleucine/valine transporter subunit -!- ATP-binding component of ABC superfamily	-0.29
b3455	livG	Isolate 1	non-essential	leucine/isoleucine/valine transporter subunit -!- ATP-binding component of ABC superfamily	0.96
b3455	livG	Isolate 2	non-essential	leucine/isoleucine/valine transporter subunit -!- ATP-binding component of ABC superfamily	2.09
b3456	livM	Isolate 1	non-essential	leucine/isoleucine/valine transporter subunit -!- membrane component of ABC superfamily	3.10
b3456	livM	Isolate 2	non-essential	leucine/isoleucine/valine transporter subunit -!- membrane component of ABC superfamily	2.47
b3457	livH	Isolate 1	non-essential	leucine/isoleucine/valine transporter subunit -!- membrane component of ABC superfamily	-1.44
b3457	livH	Isolate 2	non-essential	leucine/isoleucine/valine transporter subunit -!- membrane component of ABC superfamily	-0.87
b3458	livK	Isolate 1	non-essential	leucine transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.37
b3458	livK	Isolate 2	non-essential	leucine transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.01
b3459	yhhK	Isolate 1	non-essential	conserved protein	0.22
b3459	yhhK	Isolate 2	non-essential	conserved protein	-0.57
b3460	livJ	Isolate 1	non-essential	leucine/isoleucine/valine transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.01
b3460	livJ	Isolate 2	non-essential	leucine/isoleucine/valine transporter subunit -!- periplasmic-binding component of ABC superfamily	0.99
b3461	rpoH	Isolate 1	essential	RNA polymerase, sigma 32 (sigma H) factor	-0.56
b3462	ftsX	Isolate 1	essential	predicted transporter subunit -!- membrane component of ABC superfamily	-0.24
b3463	ftsE	Isolate 1	essential	predicted transporter subunit -!- ATP-binding component of ABC superfamily	0.38
b3465	yhhF	Isolate 1	non-essential	predicted methyltransferase	-0.17
b3465	yhhF	Isolate 2	non-essential	predicted methyltransferase	-0.35
b3466	yhhL	Isolate 1	non-essential	conserved inner membrane protein	1.82
b3466	yhhL	Isolate 2	non-essential	conserved inner membrane protein	2.14
b3467	yhhM	Isolate 1	non-essential	conserved protein	-1.68
b3467	yhhM	Isolate 2	non-essential	conserved protein	1.23

b3468	yhhN	Isolate 1	non-essential	conserved inner membrane protein	1.83
b3468	yhhN	Isolate 2	non-essential	conserved inner membrane protein	-0.53
b3469	zntA	Isolate 1	non-essential	zinc, cobalt and lead efflux system	-0.34
b3469	zntA	Isolate 2	non-essential	zinc, cobalt and lead efflux system	-0.35
b3470	yhhP	Isolate 1	non-essential	conserved protein required for cell growth	0.04
b3470	yhhP	Isolate 2	non-essential	conserved protein required for cell growth	0.04
b3472	dcrB	Isolate 1	non-essential	periplasmic protein	1.64
b3472	dcrB	Isolate 2	non-essential	periplasmic protein	2.03
b3473	yhhS	Isolate 1	non-essential	predicted transporter	-0.48
b3473	yhhS	Isolate 2	non-essential	predicted transporter	0.61
b3474	yhhT	Isolate 1	non-essential	predicted inner membrane protein	1.47
b3474	yhhT	Isolate 2	non-essential	predicted inner membrane protein	-0.53
b3475	acpT	Isolate 1	non-essential	holo-(acyl carrier protein) synthase 2	2.31
b3475	acpT	Isolate 2	non-essential	holo-(acyl carrier protein) synthase 2	2.81
b3476	nikA	Isolate 1	non-essential	nickel transporter subunit -!- periplasmic-binding component of ABC superfamily	2.39
b3476	nikA	Isolate 2	non-essential	nickel transporter subunit -!- periplasmic-binding component of ABC superfamily	0.86
b3477	nikB	Isolate 1	non-essential	nickel transporter subunit -!- membrane component of ABC superfamily	-1.02
b3477	nikB	Isolate 2	non-essential	nickel transporter subunit -!- membrane component of ABC superfamily	-1.50
b3478	nikC	Isolate 1	non-essential	nickel transporter subunit -!- membrane component of ABC superfamily	0.66
b3478	nikC	Isolate 2	non-essential	nickel transporter subunit -!- membrane component of ABC superfamily	2.08
b3479	nikD	Isolate 1	non-essential	nickel transporter subunit -!- ATP-binding component of ABC superfamily	1.86
b3479	nikD	Isolate 2	non-essential	nickel transporter subunit -!- ATP-binding component of ABC superfamily	-1.44
b3480	nikE	Isolate 1	non-essential	nickel transporter subunit -!- ATP-binding component of ABC superfamily	-1.91
b3480	nikE	Isolate 2	non-essential	nickel transporter subunit -!- ATP-binding component of ABC superfamily	0.28
b3481	nikR	Isolate 1	non-essential	DNA-binding transcriptional regulator, Ni-binding	-0.93
b3481	nikR	Isolate 2	non-essential	DNA-binding transcriptional regulator, Ni-binding	0.71
b3482	rhsB	Isolate 1	non-essential	rhsB element core protein RshB	-0.38
b3482	rhsB	Isolate 2	non-essential	rhsB element core protein RshB	-0.74
b3483	yhhH	Isolate 1	non-essential	predicted protein	0.65
b3483	yhhH	Isolate 2	non-essential	predicted protein	-2.12
b3484	yhhI	Isolate 1	non-essential	predicted transposase	-0.05
b3484	yhhI	Isolate 2	non-essential	predicted transposase	1.39
b3485	yhhJ	Isolate 1	non-essential	predicted transporter subunit -!- membrane component of ABC superfamily	3.36
b3485	yhhJ	Isolate 2	non-essential	predicted transporter subunit -!- membrane component of ABC superfamily	2.61
b3486	rbbA	Isolate 1	non-essential	fused ribosome-associated ATPases	0.99
b3486	rbbA	Isolate 2	non-essential	fused ribosome-associated ATPases	3.18
b3487	yhiI	Isolate 1	non-essential	predicted HlyD family secretion protein	-0.58
b3487	yhiI	Isolate 2	non-essential	predicted HlyD family secretion protein	1.00
b3488	yhiJ	Isolate 1	non-essential	predicted protein	0.50
b3488	yhiJ	Isolate 2	non-essential	predicted protein	1.58
b3489	yhiK	Isolate 1	*	predicted protein (pseudogene)	2.53
b3489	yhiK	Isolate 2	*	predicted protein (pseudogene)	1.68
b3490	yhiL	Isolate 1	non-essential	predicted protein	0.96



b3490	yhiL	Isolate 2	non-essential	predicted protein	-0.38
b3491	yhiM	Isolate 1	non-essential	conserved inner membrane protein	1.30
b3491	yhiM	Isolate 2	non-essential	conserved inner membrane protein	-1.17
b3492	yhiN	Isolate 1	non-essential	predicted oxidoreductase, FAD/NAD(P)-binding domain	1.27
b3492	yhiN	Isolate 2	non-essential	predicted oxidoreductase, FAD/NAD(P)-binding domain	0.21
b3493	pitA	Isolate 1	non-essential	phosphate transporter, low-affinity	0.33
b3493	pitA	Isolate 2	non-essential	phosphate transporter, low-affinity	0.10
b3494	yhiO	Isolate 1	non-essential	predicted universal stress (ethanol tolerance) protein B	1.25
b3494	yhiO	Isolate 2	non-essential	predicted universal stress (ethanol tolerance) protein B	0.67
b3495	uspA	Isolate 1	non-essential	universal stress global response regulator	1.68
b3495	uspA	Isolate 2	non-essential	universal stress global response regulator	1.25
b3496	yhiP	Isolate 1	non-essential	predicted transporter	-0.10
b3496	yhiP	Isolate 2	non-essential	predicted transporter	0.21
b3497	yhiQ	Isolate 1	non-essential	predicted SAM-dependent methyltransferase	1.32
b3497	yhiQ	Isolate 2	non-essential	predicted SAM-dependent methyltransferase	0.68
b3498	prlC	Isolate 1	non-essential	oligopeptidase A	0.40
b3498	prlC	Isolate 2	non-essential	oligopeptidase A	-1.07
b3499	yhiR	Isolate 1	non-essential	predicted DNA (exogenous) processing protein	0.03
b3499	yhiR	Isolate 2	non-essential	predicted DNA (exogenous) processing protein	0.05
b3500	gor	Isolate 1	non-essential	glutathione oxidoreductase	0.43
b3500	gor	Isolate 2	non-essential	glutathione oxidoreductase	-2.56
b3501	arsR	Isolate 1	non-essential	DNA-binding transcriptional regulator	-0.42
b3501	arsR	Isolate 2	non-essential	DNA-binding transcriptional regulator	-1.41
b3502	arsB	Isolate 1	non-essential	arsenite/antimonite transporter	0.90
b3502	arsB	Isolate 2	non-essential	arsenite/antimonite transporter	-0.21
b3503	arsC	Isolate 1	non-essential	arsenate reductase	-1.65
b3503	arsC	Isolate 2	non-essential	arsenate reductase	0.92
b3504	yhiS	Isolate 1	non-essential	predicted protein	0.10
b3504	yhiS	Isolate 2	non-essential	predicted protein	-3.01
b3506	slp	Isolate 1	non-essential	outer membrane lipoprotein	-1.96
b3506	slp	Isolate 2	non-essential	outer membrane lipoprotein	-3.16
b3507	yhiF	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.10
b3507	yhiF	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.22
b3508	yhiD	Isolate 1	non-essential	predicted Mg(2+) transport ATPase inner membrane protein	-0.12
b3508	yhiD	Isolate 2	non-essential	predicted Mg(2+) transport ATPase inner membrane protein	1.19
b3509	hdeB	Isolate 1	non-essential	acid-resistance protein	0.18
b3509	hdeB	Isolate 2	non-essential	acid-resistance protein	0.59
b3510	hdeA	Isolate 1	non-essential	stress response protein acid-resistance protein	-0.72
b3510	hdeA	Isolate 2	non-essential	stress response protein acid-resistance protein	-0.49
b3511	hdeD	Isolate 1	non-essential	acid-resistance membrane protein	-0.13
b3511	hdeD	Isolate 2	non-essential	acid-resistance membrane protein	2.09
b3512	gadE	Isolate 1	non-essential	DNA-binding transcriptional activator	0.73
b3512	gadE	Isolate 2	non-essential	DNA-binding transcriptional activator	0.91

b3513	mdtE	Isolate 1	non-essential	multidrug resistance efflux transporter	0.31
b3513	mdtE	Isolate 2	non-essential	multidrug resistance efflux transporter	-2.35
b3514	mdtF	Isolate 1	non-essential	multidrug transporter, RpoS-dependent	0.04
b3514	mdtF	Isolate 2	non-essential	multidrug transporter, RpoS-dependent	2.00
b3515	gadW	Isolate 1	non-essential	DNA-binding transcriptional activator	0.01
b3515	gadW	Isolate 2	non-essential	DNA-binding transcriptional activator	-0.26
b3516	gadX	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	-0.86
b3516	gadX	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	-0.32
b3517	gadA	Isolate 1	non-essential	glutamate decarboxylase A, PLP-dependent	4.93
b3517	gadA	Isolate 2	non-essential	glutamate decarboxylase A, PLP-dependent	0.75
b3518	yhjA	Isolate 1	non-essential	predicted cytochrome C peroxidase	0.67
b3518	yhjA	Isolate 2	non-essential	predicted cytochrome C peroxidase	0.33
b3519	treF	Isolate 1	non-essential	cytoplasmic trehalase	-1.86
b3519	treF	Isolate 2	non-essential	cytoplasmic trehalase	2.10
b3520	yhjB	Isolate 1	non-essential	predicted DNA-binding response regulator in two-component regulatory system	0.93
b3520	yhjB	Isolate 2	non-essential	predicted DNA-binding response regulator in two-component regulatory system	0.46
b3521	yhjC	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-2.05
b3521	yhjC	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.95
b3522	yhjD	Isolate 1	non-essential	conserved inner membrane protein	-0.56
b3522	yhjD	Isolate 2	non-essential	conserved inner membrane protein	0.70
b3523	yhjE	Isolate 1	non-essential	predicted transporter	1.50
b3523	yhjE	Isolate 2	non-essential	predicted transporter	-0.96
b3524	yhjG	Isolate 1	non-essential	predicted outer membrane biogenesis protein	0.54
b3524	yhjG	Isolate 2	non-essential	predicted outer membrane biogenesis protein	0.61
b3525	yhjH	Isolate 1	non-essential	EAL domain containing protein involved in flagellar function	2.35
b3525	yhjH	Isolate 2	non-essential	EAL domain containing protein involved in flagellar function	1.15
b3526	kdgK	Isolate 1	non-essential	ketodeoxygluconokinase	0.58
b3526	kdgK	Isolate 2	non-essential	ketodeoxygluconokinase	0.87
b3527	yhjJ	Isolate 1	non-essential	predicted zinc-dependent peptidase	1.41
b3527	yhjJ	Isolate 2	non-essential	predicted zinc-dependent peptidase	-0.58
b3528	dctA	Isolate 1	non-essential	C4-dicarboxylic acid, orotate and citrate transporter	1.60
b3528	dctA	Isolate 2	non-essential	C4-dicarboxylic acid, orotate and citrate transporter	0.69
b3529	yhjK	Isolate 1	non-essential	predicted diguanylate cyclase	1.28
b3529	yhjK	Isolate 2	non-essential	predicted diguanylate cyclase	-0.65
b3530	bcsC	Isolate 1	non-essential	cellulose synthase subunit	0.10
b3530	bcsC	Isolate 2	non-essential	cellulose synthase subunit	-0.99
b3531	bcsZ	Isolate 1	non-essential	endo-1,4-D-glucanase	2.54
b3531	bcsZ	Isolate 2	non-essential	endo-1,4-D-glucanase	1.77
b3533	bcsA	Isolate 1	non-essential	cellulose synthase, catalytic subunit	0.73
b3533	bcsA	Isolate 2	non-essential	cellulose synthase, catalytic subunit	0.54
b3534	yhjQ	Isolate 1	*	cell division protein (chromosome partitioning ATPase) (pseudogene)	0.52
b3534	yhjQ	Isolate 2	*	cell division protein (chromosome partitioning ATPase) (pseudogene)	0.40
b3535	yhjR	Isolate 1	non-essential	conserved protein	-0.51

b3535	yhjR	Isolate 2	non-essential	conserved protein	0.02
b3536	bcsE	Isolate 1	non-essential	conserved protein	-1.37
b3536	bcsE	Isolate 2	non-essential	conserved protein	-0.93
b3537	bcsF	Isolate 1	non-essential	predicted protein	-1.03
b3537	bcsF	Isolate 2	non-essential	predicted protein	-0.54
b3538	bcsG	Isolate 1	non-essential	predicted inner membrane protein	1.63
b3538	bcsG	Isolate 2	non-essential	predicted inner membrane protein	0.11
b3539	yhjV	Isolate 1	non-essential	predicted transporter	0.62
b3539	yhjV	Isolate 2	non-essential	predicted transporter	-0.18
b3540	dppF	Isolate 1	non-essential	dipeptide transporter -!- ATP-binding component of ABC superfamily	0.81
b3540	dppF	Isolate 2	non-essential	dipeptide transporter -!- ATP-binding component of ABC superfamily	-1.10
b3541	dppD	Isolate 1	non-essential	dipeptide transporter -!- ATP-binding component of ABC superfamily	0.79
b3541	dppD	Isolate 2	non-essential	dipeptide transporter -!- ATP-binding component of ABC superfamily	0.06
b3542	dppC	Isolate 1	non-essential	dipeptide transporter -!- membrane component of ABC superfamily	0.66
b3542	dppC	Isolate 2	non-essential	dipeptide transporter -!- membrane component of ABC superfamily	-1.51
b3543	dppB	Isolate 1	non-essential	dipeptide transporter-!- membrane component of ABC superfamily	4.21
b3543	dppB	Isolate 2	non-essential	dipeptide transporter-!- membrane component of ABC superfamily	1.44
b3544	dppA	Isolate 1	non-essential	dipeptide transporter -!- periplasmic-binding component of ABC superfamily	2.24
b3544	dppA	Isolate 2	non-essential	dipeptide transporter -!- periplasmic-binding component of ABC superfamily	-0.49
b3546	eptB	Isolate 1	non-essential	predicted metal dependent hydrolase	0.50
b3546	eptB	Isolate 2	non-essential	predicted metal dependent hydrolase	-0.39
b3547	yhjX	Isolate 1	non-essential	predicted transporter	0.64
b3547	yhjX	Isolate 2	non-essential	predicted transporter	-0.74
b3548	yhjY	Isolate 1	non-essential	conserved protein	1.06
b3548	yhjY	Isolate 2	non-essential	conserved protein	1.48
b3549	tag	Isolate 1	non-essential	3-methyl-adenine DNA glycosylase I, constitutive	0.13
b3549	tag	Isolate 2	non-essential	3-methyl-adenine DNA glycosylase I, constitutive	-2.66
b3550	yiaC	Isolate 1	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	1.81
b3550	yiaC	Isolate 2	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	-1.02
b3551	bisC	Isolate 1	non-essential	biotin sulfoxide reductase	0.24
b3551	bisC	Isolate 2	non-essential	biotin sulfoxide reductase	1.18
b3552	yiaD	Isolate 1	non-essential	predicted outer membrane lipoprotien	-0.08
b3552	yiaD	Isolate 2	non-essential	predicted outer membrane lipoprotien	-1.18
b3553	tiaE	Isolate 1	non-essential	2-keto-D-gluconate reductase (glyoxalate reductase) (2-ketoaldonate reductase)	2.77
b3553	tiaE	Isolate 2	non-essential	2-keto-D-gluconate reductase (glyoxalate reductase) (2-ketoaldonate reductase)	0.98
b3554	yiaF	Isolate 1	non-essential	conserved protein	0.39
b3554	yiaF	Isolate 2	non-essential	conserved protein	-0.14
b3555	yiaG	Isolate 1	non-essential	predicted transcriptional regulator	-0.40
b3555	yiaG	Isolate 2	non-essential	predicted transcriptional regulator	-0.84
b3556	cspA	Isolate 1	non-essential	major cold shock protein	0.57
b3556	cspA	Isolate 2	non-essential	major cold shock protein	0.09
b3559	glyS	Isolate 1	non-essential	glycine tRNA synthetase, beta subunit	0.88
b3559	glyS	Isolate 2	non-essential	glycine tRNA synthetase, beta subunit	0.12

b3560	glyQ	Isolate 1	essential	glycine tRNA synthetase, alpha subunit	3.08
b3561	yiaH	Isolate 1	non-essential	conserved inner membrane protein	-0.37
b3561	yiaH	Isolate 2	non-essential	conserved inner membrane protein	0.86
b3562	yiaA	Isolate 1	non-essential	conserved inner membrane protein	0.83
b3562	yiaA	Isolate 2	non-essential	conserved inner membrane protein	1.22
b3563	yiaB	Isolate 1	non-essential	conserved inner membrane protein	0.34
b3563	yiaB	Isolate 2	non-essential	conserved inner membrane protein	0.33
b3564	xylB	Isolate 1	non-essential	xylulokinase	0.53
b3564	xylB	Isolate 2	non-essential	xylulokinase	0.56
b3565	xylA	Isolate 1	non-essential	D-xylose isomerase	-1.02
b3565	xylA	Isolate 2	non-essential	D-xylose isomerase	-1.53
b3566	xylF	Isolate 1	non-essential	D-xylose transporter subunit -!- periplasmic-binding component of ABC superfamily	0.84
b3566	xylF	Isolate 2	non-essential	D-xylose transporter subunit -!- periplasmic-binding component of ABC superfamily	0.20
b3567	xylG	Isolate 1	non-essential	fused subunits of D-xylose transporter -!- ATP-binding components of ABC superfamily	0.56
b3567	xylG	Isolate 2	non-essential	fused subunits of D-xylose transporter -!- ATP-binding components of ABC superfamily	1.92
b3568	xylH	Isolate 1	non-essential	D-xylose transporter subunit -!- membrane component of ABC superfamily	2.17
b3568	xylH	Isolate 2	non-essential	D-xylose transporter subunit -!- membrane component of ABC superfamily	0.19
b3569	xylR	Isolate 1	non-essential	DNA-binding transcriptional activator, xylose-binding	-0.91
b3569	xylR	Isolate 2	non-essential	DNA-binding transcriptional activator, xylose-binding	-3.54
b3570	bax	Isolate 1	non-essential	conserved protein	-0.17
b3570	bax	Isolate 2	non-essential	conserved protein	-0.11
b3571	malS	Isolate 1	non-essential	alpha-amylase	-1.20
b3571	malS	Isolate 2	non-essential	alpha-amylase	-1.30
b3572	avtA	Isolate 1	non-essential	valine-pyruvate aminotransferase	-1.25
b3572	avtA	Isolate 2	non-essential	valine-pyruvate aminotransferase	1.02
b3573	yiaI	Isolate 1	non-essential	predicted hydrogenase, 4Fe-4S ferredoxin-type component	-0.99
b3573	yiaI	Isolate 2	non-essential	predicted hydrogenase, 4Fe-4S ferredoxin-type component	0.69
b3574	yiaJ	Isolate 1	non-essential	predicted DNA-binding transcriptional repressor	0.79
b3574	yiaJ	Isolate 2	non-essential	predicted DNA-binding transcriptional repressor	0.36
b3575	yiaK	Isolate 1	non-essential	2,3-diketo-L-gulonate dehydrogenase, NADH-dependent	-1.70
b3575	yiaK	Isolate 2	non-essential	2,3-diketo-L-gulonate dehydrogenase, NADH-dependent	-0.84
b3576	yiaL	Isolate 1	non-essential	conserved protein	-0.68
b3576	yiaL	Isolate 2	non-essential	conserved protein	-0.93
b3577	yiaM	Isolate 1	non-essential	predicted transporter	-1.04
b3577	yiaM	Isolate 2	non-essential	predicted transporter	0.29
b3578	yiaN	Isolate 1	non-essential	predicted transporter	1.24
b3578	yiaN	Isolate 2	non-essential	predicted transporter	-0.15
b3579	yiaO	Isolate 1	non-essential	predicted transporter	-0.30
b3579	yiaO	Isolate 2	non-essential	predicted transporter	-1.23
b3580	lyxK	Isolate 1	non-essential	L-xylulose kinase	-1.29
b3580	lyxK	Isolate 2	non-essential	L-xylulose kinase	-0.25
b3581	sgbH	Isolate 1	non-essential	3-keto-L-gulonate 6-phosphate decarboxylase	-1.31
b3581	sgbH	Isolate 2	non-essential	3-keto-L-gulonate 6-phosphate decarboxylase	-2.10

b3582	sgbU	Isolate 1	non-essential	predicted L-xylulose 5-phosphate 3-epimerase	-1.38
b3582	sgbU	Isolate 2	non-essential	predicted L-xylulose 5-phosphate 3-epimerase	0.74
b3583	sgbE	Isolate 1	non-essential	L-ribulose-5-phosphate 4-epimerase	-1.45
b3583	sgbE	Isolate 2	non-essential	L-ribulose-5-phosphate 4-epimerase	-2.24
b3584	yiaT	Isolate 1	non-essential	predicted protein	-1.22
b3584	yiaT	Isolate 2	non-essential	predicted protein	-0.66
b3585	yiaU	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.14
b3585	yiaU	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-2.60
b3586	yiaV	Isolate 1	non-essential	membrane fusion protein (MFP) component of efflux pump, signal anchor	0.41
b3586	yiaV	Isolate 2	non-essential	membrane fusion protein (MFP) component of efflux pump, signal anchor	1.00
b3587	yiaW	Isolate 1	non-essential	conserved inner membrane protein	0.13
b3587	yiaW	Isolate 2	non-essential	conserved inner membrane protein	0.57
b3588	aldB	Isolate 1	non-essential	aldehyde dehydrogenase B	1.62
b3588	aldB	Isolate 2	non-essential	aldehyde dehydrogenase B	0.92
b3589	yiaY	Isolate 1	non-essential	predicted Fe-containing alcohol dehydrogenase	0.51
b3589	yiaY	Isolate 2	non-essential	predicted Fe-containing alcohol dehydrogenase	-0.56
b3590	selB	Isolate 1	non-essential	selenocysteinyl-tRNA-specific translation factor	0.23
b3590	selB	Isolate 2	non-essential	selenocysteinyl-tRNA-specific translation factor	0.74
b3591	selA	Isolate 1	non-essential	selenocysteine synthase	-0.12
b3591	selA	Isolate 2	non-essential	selenocysteine synthase	-0.28
b3592	yibF	Isolate 1	non-essential	predicted glutathione S-transferase	0.04
b3592	yibF	Isolate 2	non-essential	predicted glutathione S-transferase	0.34
b3593	rhsA	Isolate 1	non-essential	rhsA element core protein RshA	-1.63
b3593	rhsA	Isolate 2	non-essential	rhsA element core protein RshA	-1.04
b3594	yibA	Isolate 1	non-essential	lyase containing HEAT-repeat	-0.25
b3594	yibA	Isolate 2	non-essential	lyase containing HEAT-repeat	-0.14
b3596	yibG	Isolate 1	non-essential	conserved protein	-0.75
b3596	yibG	Isolate 2	non-essential	conserved protein	1.04
b3597	yibH	Isolate 1	non-essential	predicted protein	1.29
b3597	yibH	Isolate 2	non-essential	predicted protein	1.37
b3598	yibI	Isolate 1	non-essential	predicted inner membrane protein	0.26
b3598	yibI	Isolate 2	non-essential	predicted inner membrane protein	1.00
b3599	mtlA	Isolate 1	non-essential	fused mannitol-specific PTS enzyme IIABC components	0.02
b3599	mtlA	Isolate 2	non-essential	fused mannitol-specific PTS enzyme IIABC components	1.92
b3600	mtlD	Isolate 1	non-essential	mannitol-1-phosphate dehydrogenase, NAD(P)-binding	0.56
b3600	mtlD	Isolate 2	non-essential	mannitol-1-phosphate dehydrogenase, NAD(P)-binding	1.44
b3601	mtlR	Isolate 1	non-essential	DNA-binding transcriptional repressor	-1.69
b3601	mtlR	Isolate 2	non-essential	DNA-binding transcriptional repressor	-1.09
b3602	yibL	Isolate 1	non-essential	conserved protein	-0.92
b3602	yibL	Isolate 2	non-essential	conserved protein	0.51
b3603	lldP	Isolate 1	non-essential	L-lactate permease	0.10
b3603	lldP	Isolate 2	non-essential	L-lactate permease	-0.92
b3604	lldR	Isolate 1	non-essential	DNA-binding transcriptional repressor	-1.21

b3604	lldR	Isolate 2	non-essential	DNA-binding transcriptional repressor	-1.34
b3605	lldD	Isolate 1	non-essential	L-lactate dehydrogenase, FMN-linked	-1.14
b3605	lldD	Isolate 2	non-essential	L-lactate dehydrogenase, FMN-linked	-3.27
b3606	yibK	Isolate 1	non-essential	predicted rRNA methylase	-0.56
b3606	yibK	Isolate 2	non-essential	predicted rRNA methylase	0.65
b3607	cysE	Isolate 1	non-essential	serine acetyltransferase	-1.01
b3607	cysE	Isolate 2	non-essential	serine acetyltransferase	-2.32
b3609	secB	Isolate 1	non-essential	protein export chaperone	3.64
b3609	secB	Isolate 2	non-essential	protein export chaperone	-2.18
b3610	grxC	Isolate 1	non-essential	glutaredoxin 3	-0.28
b3610	grxC	Isolate 2	non-essential	glutaredoxin 3	0.27
b3611	yibN	Isolate 1	non-essential	predicted rhodanese-related sulfurtransferase	-0.33
b3611	yibN	Isolate 2	non-essential	predicted rhodanese-related sulfurtransferase	-1.66
b3612	gpmI	Isolate 1	non-essential	phosphoglycero mutase III, cofactor-independent	0.77
b3612	gpmI	Isolate 2	non-essential	phosphoglycero mutase III, cofactor-independent	2.00
b3613	envC	Isolate 1	non-essential	protease with a role in cell division	-1.41
b3613	envC	Isolate 2	non-essential	protease with a role in cell division	-1.00
b3614	yibQ	Isolate 1	non-essential	predicted polysaccharide deacetylase	0.79
b3614	yibQ	Isolate 2	non-essential	predicted polysaccharide deacetylase	-1.02
b3615	yibD	Isolate 1	non-essential	predicted glycosyl transferase	-0.58
b3615	yibD	Isolate 2	non-essential	predicted glycosyl transferase	0.13
b3616	tdh	Isolate 1	non-essential	threonine 3-dehydrogenase, NAD(P)-binding	-0.68
b3616	tdh	Isolate 2	non-essential	threonine 3-dehydrogenase, NAD(P)-binding	0.59
b3617	kbl	Isolate 1	non-essential	glycine C-acetyltransferase	0.45
b3617	kbl	Isolate 2	non-essential	glycine C-acetyltransferase	-0.42
b3618	htrL	Isolate 1	non-essential	predicted protein	-0.52
b3618	htrL	Isolate 2	non-essential	predicted protein	-0.79
b3619	rfaD	Isolate 1	non-essential	ADP-L-glycero-D-mannoheptose-6-epimerase, NAD(P)-binding	-5.45
b3619	rfaD	Isolate 2	non-essential	ADP-L-glycero-D-mannoheptose-6-epimerase, NAD(P)-binding	-3.93
b3620	rfaF	Isolate 1	non-essential	ADP-heptose:LPS heptosyltransferase II	-2.76
b3620	rfaF	Isolate 2	non-essential	ADP-heptose:LPS heptosyltransferase II	-0.35
b3621	rfaC	Isolate 1	non-essential	ADP-heptose:LPS heptosyl transferase I	-2.95
b3621	rfaC	Isolate 2	non-essential	ADP-heptose:LPS heptosyl transferase I	-2.76
b3622	rfaL	Isolate 1	non-essential	O-antigen ligase	-0.31
b3622	rfaL	Isolate 2	non-essential	O-antigen ligase	0.06
b3624	rfaZ	Isolate 1	non-essential	lipopolysaccharide core biosynthesis protein	-0.53
b3624	rfaZ	Isolate 2	non-essential	lipopolysaccharide core biosynthesis protein	0.64
b3625	rfaY	Isolate 1	non-essential	lipopolysaccharide core biosynthesis protein	1.10
b3625	rfaY	Isolate 2	non-essential	lipopolysaccharide core biosynthesis protein	-0.99
b3626	rfaJ	Isolate 1	non-essential	UDP-D-glucose:(galactosyl)lipopolysaccharide glucosyltransferase	-1.08
b3626	rfaJ	Isolate 2	non-essential	UDP-D-glucose:(galactosyl)lipopolysaccharide glucosyltransferase	-1.18
b3627	rfaI	Isolate 1	non-essential	UDP-D-galactose:(glucosyl)lipopolysaccharide-alpha-1,3-D-galactosyltransferase	2.00
b3627	rfaI	Isolate 2	non-essential	UDP-D-galactose:(glucosyl)lipopolysaccharide-alpha-1,3-D-galactosyltransferase	0.65

b3628	rfaB	Isolate 1	non-essential	UDP-D-galactose:(glucosyl)lipopolysaccharide-1,6-D-galactosyltransferase	-0.13
b3628	rfaB	Isolate 2	non-essential	UDP-D-galactose:(glucosyl)lipopolysaccharide-1,6-D-galactosyltransferase	0.47
b3629	rfaS	Isolate 1	non-essential	lipopolysaccharide core biosynthesis protein	0.00
b3629	rfaS	Isolate 2	non-essential	lipopolysaccharide core biosynthesis protein	0.42
b3630	rfaP	Isolate 1	non-essential	kinase that phosphorylates core heptose of lipopolysaccharide	-3.79
b3630	rfaP	Isolate 2	non-essential	kinase that phosphorylates core heptose of lipopolysaccharide	0.23
b3631	rfaG	Isolate 1	non-essential	glucosyltransferase I	0.50
b3631	rfaG	Isolate 2	non-essential	glucosyltransferase I	1.90
b3632	rfaQ	Isolate 1	non-essential	lipopolysaccharide core biosynthesis protein	-0.11
b3632	rfaQ	Isolate 2	non-essential	lipopolysaccharide core biosynthesis protein	0.10
b3633	kdtA	Isolate 1	essential	3-deoxy-D-manno-octulosonic-acid transferase (KDO transferase)	0.00
b3634	coaD	Isolate 1	essential	pantetheine-phosphate adenylyltransferase	3.66
b3635	mutM	Isolate 1	non-essential	formamidopyrimidine/5-formyluracil/ 5-hydroxymethyluracil DNA glycosylase	-0.84
b3635	mutM	Isolate 2	non-essential	formamidopyrimidine/5-formyluracil/ 5-hydroxymethyluracil DNA glycosylase	-0.10
b3636	rpmG	Isolate 1	non-essential	50S ribosomal subunit protein L33	-3.02
b3636	rpmG	Isolate 2	non-essential	50S ribosomal subunit protein L33	1.65
b3638	yicR	Isolate 1	non-essential	protein associated with replication fork, possible DNA repair protein	1.25
b3638	yicR	Isolate 2	non-essential	protein associated with replication fork, possible DNA repair protein	0.01
b3640	dut	Isolate 1	essential	deoxyuridinetriphosphatase	1.40
b3641	ttk	Isolate 1	non-essential	division inhibitor	-1.89
b3641	ttk	Isolate 2	non-essential	division inhibitor	-0.92
b3642	pyrE	Isolate 1	non-essential	orotate phosphoribosyltransferase	-2.14
b3642	pyrE	Isolate 2	non-essential	orotate phosphoribosyltransferase	-0.95
b3643	rph	Isolate 1	*	ribonuclease PH (pseudogene)	0.64
b3643	rph	Isolate 2	*	ribonuclease PH (pseudogene)	0.58
b3644	yicC	Isolate 1	non-essential	conserved protein	1.86
b3644	yicC	Isolate 2	non-essential	conserved protein	0.73
b3645	dinD	Isolate 1	non-essential	DNA-damage-inducible protein	-0.49
b3645	dinD	Isolate 2	non-essential	DNA-damage-inducible protein	3.07
b3646	yicG	Isolate 1	non-essential	conserved inner membrane protein	0.39
b3646	yicG	Isolate 2	non-essential	conserved inner membrane protein	1.95
b3647	ligB	Isolate 1	non-essential	DNA ligase, NAD(+)-dependent	0.48
b3647	ligB	Isolate 2	non-essential	DNA ligase, NAD(+)-dependent	0.96
b3648	gmk	Isolate 1	essential	guanylate kinase	-0.01
b3649	rpoZ	Isolate 1	non-essential	RNA polymerase, omega subunit	-2.63
b3649	rpoZ	Isolate 2	non-essential	RNA polymerase, omega subunit	-0.73
b3650	spoT	Isolate 1	essential	bifunctional (p)ppGpp synthetase II -/- guanosine-3',5'-bis pyrophosphate 3'-pyrophosphohydrolase	-0.48
b3651	trmH	Isolate 1	non-essential	tRNA (Guanosine-2'-O-)-methyltransferase	0.00
b3651	trmH	Isolate 2	non-essential	tRNA (Guanosine-2'-O-)-methyltransferase	-4.41
b3652	recG	Isolate 1	non-essential	ATP-dependent DNA helicase	1.03
b3652	recG	Isolate 2	non-essential	ATP-dependent DNA helicase	-2.22
b3653	gltS	Isolate 1	non-essential	glutamate transporter	-0.52
b3653	gltS	Isolate 2	non-essential	glutamate transporter	0.83

b3654	yicE	Isolate 1	non-essential	predicted transporter	-0.28
b3654	yicE	Isolate 2	non-essential	predicted transporter	0.65
b3655	yicH	Isolate 1	non-essential	conserved protein	0.14
b3655	yicH	Isolate 2	non-essential	conserved protein	-0.86
b3656	yicI	Isolate 1	non-essential	predicted alpha-glucosidase	0.40
b3656	yicI	Isolate 2	non-essential	predicted alpha-glucosidase	0.51
b3657	yicJ	Isolate 1	non-essential	predicted transporter	0.99
b3657	yicJ	Isolate 2	non-essential	predicted transporter	-0.81
b3659	setC	Isolate 1	non-essential	predicted sugar efflux system	-0.44
b3659	setC	Isolate 2	non-essential	predicted sugar efflux system	-2.23
b3660	yicL	Isolate 1	non-essential	predicted inner membrane protein	0.83
b3660	yicL	Isolate 2	non-essential	predicted inner membrane protein	-0.98
b3661	nlpA	Isolate 1	non-essential	cytoplasmic membrane lipoprotein-28	1.19
b3661	nlpA	Isolate 2	non-essential	cytoplasmic membrane lipoprotein-28	-1.44
b3662	yicM	Isolate 1	non-essential	predicted transporter	0.44
b3662	yicM	Isolate 2	non-essential	predicted transporter	0.78
b3663	yicN	Isolate 1	non-essential	conserved protein	-0.55
b3663	yicN	Isolate 2	non-essential	conserved protein	0.28
b3664	yicO	Isolate 1	non-essential	predicted xanthine/uracil permase	0.89
b3664	yicO	Isolate 2	non-essential	predicted xanthine/uracil permase	-0.27
b3665	ade	Isolate 1	non-essential	cryptic adenine deaminase	-1.20
b3665	ade	Isolate 2	non-essential	cryptic adenine deaminase	2.67
b3666	uhpT	Isolate 1	non-essential	hexose phosphate transporter	-0.07
b3666	uhpT	Isolate 2	non-essential	hexose phosphate transporter	-0.37
b3667	uhpC	Isolate 1	non-essential	membrane protein regulates uhpT expression	5.41
b3667	uhpC	Isolate 2	non-essential	membrane protein regulates uhpT expression	0.14
b3668	uhpB	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory sytem with UhpA	-0.32
b3668	uhpB	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory sytem with UhpA	1.76
b3669	uhpA	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system wtih UhpB	-1.07
b3669	uhpA	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system wtih UhpB	-0.76
b3670	ilvN	Isolate 1	non-essential	acetolactate synthase I, small subunit	0.45
b3670	ilvN	Isolate 2	non-essential	acetolactate synthase I, small subunit	1.24
b3671	ilvB	Isolate 1	non-essential	acetolactate synthase I, large subunit	0.65
b3671	ilvB	Isolate 2	non-essential	acetolactate synthase I, large subunit	-0.28
b3672	ivbL	Isolate 1	non-essential	ilvB operon leader peptide	-1.48
b3672	ivbL	Isolate 2	non-essential	ilvB operon leader peptide	0.82
b3673	emrD	Isolate 1	non-essential	multidrug efflux system protein	0.99
b3673	emrD	Isolate 2	non-essential	multidrug efflux system protein	0.60
b3674	yidF	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.60
b3674	yidF	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-3.38
b3675	yidG	Isolate 1	non-essential	predicted inner membrane protein	-0.77
b3675	yidG	Isolate 2	non-essential	predicted inner membrane protein	0.25
b3676	yidH	Isolate 1	non-essential	conserved inner membrane protein	0.25



b3676	yidH	Isolate 2	non-essential	conserved inner membrane protein	1.88
b3677	yidI	Isolate 1	non-essential	predicted inner membrane protein	0.11
b3677	yidI	Isolate 2	non-essential	predicted inner membrane protein	-0.58
b3678	yidJ	Isolate 1	non-essential	predicted sulfatase/phosphatase	-0.15
b3678	yidJ	Isolate 2	non-essential	predicted sulfatase/phosphatase	-0.98
b3679	yidK	Isolate 1	non-essential	predicted transporter	1.17
b3679	yidK	Isolate 2	non-essential	predicted transporter	0.45
b3680	yidL	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.34
b3680	yidL	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.13
b3681	glvG	Isolate 1	*	predicted 6-phospho-beta-glucosidase (pseudogene)	0.47
b3681	glvG	Isolate 2	*	predicted 6-phospho-beta-glucosidase (pseudogene)	0.68
b3682	glvB	Isolate 1	non-essential	arbutin specific enzyme IIB component of PTS	1.37
b3682	glvB	Isolate 2	non-essential	arbutin specific enzyme IIB component of PTS	0.56
b3683	glvC	Isolate 1	non-essential	arbutin sp ecific enzyme IIC component of PTS	0.22
b3683	glvC	Isolate 2	non-essential	arbutin sp ecific enzyme IIC component of PTS	-0.93
b3684	yidP	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.19
b3684	yidP	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.87
b3685	yidE	Isolate 1	non-essential	predicted transporter	0.50
b3685	yidE	Isolate 2	non-essential	predicted transporter	0.84
b3686	ibpB	Isolate 1	non-essential	heat shock chaperone	0.13
b3686	ibpB	Isolate 2	non-essential	heat shock chaperone	0.36
b3687	ibpA	Isolate 1	non-essential	heat shock chaperone	0.91
b3687	ibpA	Isolate 2	non-essential	heat shock chaperone	1.28
b3688	yidQ	Isolate 1	non-essential	conserved outer membrane protein	0.25
b3688	yidQ	Isolate 2	non-essential	conserved outer membrane protein	-0.25
b3689	yidR	Isolate 1	non-essential	conserved protein	-1.40
b3689	yidR	Isolate 2	non-essential	conserved protein	-0.93
b3690	cbrA	Isolate 1	non-essential	predicted oxidoreductase, FAD/NAD(P)-binding domain	-0.57
b3690	cbrA	Isolate 2	non-essential	predicted oxidoreductase, FAD/NAD(P)-binding domain	0.71
b3691	dgoT	Isolate 1	non-essential	D-galactonate transporter	-0.36
b3691	dgoT	Isolate 2	non-essential	D-galactonate transporter	0.50
b3692	*	Isolate 1	*	*	-1.36
b3692	*	Isolate 2	*	*	1.18
b3693	dgoK	Isolate 1	non-essential	2-oxo-3-deoxygalactonate kinase	-1.41
b3693	dgoK	Isolate 2	non-essential	2-oxo-3-deoxygalactonate kinase	0.38
b3696	yidX	Isolate 1	non-essential	predicted lipoproteinC	-0.98
b3696	yidX	Isolate 2	non-essential	predicted lipoproteinC	0.80
b3697	yidA	Isolate 1	non-essential	predicted hydrolase	-0.93
b3697	yidA	Isolate 2	non-essential	predicted hydrolase	-1.39
b3698	yidB	Isolate 1	non-essential	conserved protein	1.83
b3698	yidB	Isolate 2	non-essential	conserved protein	1.39
b3700	recF	Isolate 1	non-essential	gap repair protein	-0.54
b3700	recF	Isolate 2	non-essential	gap repair protein	-0.95

b3701	dnaN	Isolate 1	essential	DNA polymerase III, beta subunit	1.32
b3702	dnaA	Isolate 1	essential	chromosomal replication initiator protein DnaA, DNA-binding transcriptional dual regulator	-0.07
b3704	rnpA	Isolate 1	essential	protein C5 component of RNase P	0.22
b3705	yidC	Isolate 1	essential	cytoplasmic insertase into membrane protein, Sec system	0.83
b3706	trmE	Isolate 1	non-essential	GTPase	-0.30
b3706	trmE	Isolate 2	non-essential	GTPase	0.26
b3707	tnaC	Isolate 1	non-essential	tryptophanase leader peptide	0.64
b3707	tnaC	Isolate 2	non-essential	tryptophanase leader peptide	-0.40
b3708	tnaA	Isolate 1	non-essential	tryptophanase/L-cysteine desulfhydrase, PLP-dependent	1.97
b3708	tnaA	Isolate 2	non-essential	tryptophanase/L-cysteine desulfhydrase, PLP-dependent	4.15
b3709	tnaB	Isolate 1	unknown	tryptophan transporter of low affinity	-1.23
b3709	tnaB	Isolate 2	unknown	tryptophan transporter of low affinity	-0.98
b3710	mdtL	Isolate 1	non-essential	multidrug efflux system protein	0.37
b3710	mdtL	Isolate 2	non-essential	multidrug efflux system protein	-1.63
b3711	yidZ	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-1.79
b3711	yidZ	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.61
b3712	yieE	Isolate 1	non-essential	predicted phosphopantetheinyl transferase	-0.55
b3712	yieE	Isolate 2	non-essential	predicted phosphopantetheinyl transferase	0.86
b3713	yieF	Isolate 1	non-essential	chromate reductase, Class I, flavoprotein	1.71
b3713	yieF	Isolate 2	non-essential	chromate reductase, Class I, flavoprotein	0.75
b3714	yieG	Isolate 1	non-essential	predicted inner membrane protein	-2.28
b3714	yieG	Isolate 2	non-essential	predicted inner membrane protein	-0.97
b3715	yieH	Isolate 1	non-essential	predicted hydrolase	-1.18
b3715	yieH	Isolate 2	non-essential	predicted hydrolase	-0.16
b3716	yieI	Isolate 1	non-essential	predicted inner membrane protein	-1.32
b3716	yieI	Isolate 2	non-essential	predicted inner membrane protein	-0.75
b3717	cbrC	Isolate 1	non-essential	conserved protein	-0.55
b3717	cbrC	Isolate 2	non-essential	conserved protein	0.22
b3718	yieK	Isolate 1	non-essential	predicted 6-phosphogluconolactonase	2.71
b3718	yieK	Isolate 2	non-essential	predicted 6-phosphogluconolactonase	2.52
b3719	yieL	Isolate 1	non-essential	predicted xylanase	-1.08
b3719	yieL	Isolate 2	non-essential	predicted xylanase	0.23
b3720	bglH	Isolate 1	non-essential	carbohydrate-specific outer membrane porin, cryptic	-0.16
b3720	bglH	Isolate 2	non-essential	carbohydrate-specific outer membrane porin, cryptic	-1.76
b3721	bglB	Isolate 1	non-essential	cryptic phospho-beta-glucosidase B	0.24
b3721	bglB	Isolate 2	non-essential	cryptic phospho-beta-glucosidase B	1.21
b3722	bglF	Isolate 1	non-essential	fused beta-glucoside-specific PTS enzyme IIABC components	2.76
b3722	bglF	Isolate 2	non-essential	fused beta-glucoside-specific PTS enzyme IIABC components	0.49
b3723	bglG	Isolate 1	non-essential	transcriptional antiterminator of the bgl operon	1.72
b3723	bglG	Isolate 2	non-essential	transcriptional antiterminator of the bgl operon	0.27
b3724	phoU	Isolate 1	non-essential	DNA-binding transcriptional regulator	-0.16
b3724	phoU	Isolate 2	non-essential	DNA-binding transcriptional regulator	0.37
b3725	pstB	Isolate 1	non-essential	phosphate transporter subunit -!- ATP-binding component of ABC superfamily	-1.60

b3725	pstB	Isolate 2	non-essential	phosphate transporter subunit -!- ATP-binding component of ABC superfamily	-0.07
b3726	pstA	Isolate 1	non-essential	phosphate transporter subunit -!- membrane component of ABC superfamily	0.81
b3726	pstA	Isolate 2	non-essential	phosphate transporter subunit -!- membrane component of ABC superfamily	-1.80
b3727	pstC	Isolate 1	non-essential	phosphate transporter subunit -!- membrane component of ABC superfamily	1.50
b3727	pstC	Isolate 2	non-essential	phosphate transporter subunit -!- membrane component of ABC superfamily	-0.88
b3728	pstS	Isolate 1	non-essential	phosphate transporter subunit -!- periplasmic-binding component of ABC superfamily	-1.30
b3728	pstS	Isolate 2	non-essential	phosphate transporter subunit -!- periplasmic-binding component of ABC superfamily	-1.17
b3729	glmS	Isolate 1	essential	L-glutamine:D-fructose-6-phosphate aminotransferase	3.75
b3730	glmU	Isolate 1	essential	fused N-acetyl glucosamine-1-phosphate uridylyltransferase -!- glucosamine-1-phosphate acetyl transferase	1.44
b3731	atpC	Isolate 1	non-essential	F1 sector of membrane-bound ATP synthase, epsilon subunit	0.04
b3731	atpC	Isolate 2	non-essential	F1 sector of membrane-bound ATP synthase, epsilon subunit	0.13
b3732	atpD	Isolate 1	non-essential	F1 sector of membrane-bound ATP synthase, beta subunit	9.63
b3732	atpD	Isolate 2	non-essential	F1 sector of membrane-bound ATP synthase, beta subunit	0.24
b3733	atpG	Isolate 1	non-essential	F1 sector of membrane-bound ATP synthase, gamma subunit	0.19
b3733	atpG	Isolate 2	non-essential	F1 sector of membrane-bound ATP synthase, gamma subunit	3.06
b3734	atpA	Isolate 1	non-essential	F1 sector of membrane-bound ATP synthase, alpha subunit	-0.76
b3734	atpA	Isolate 2	non-essential	F1 sector of membrane-bound ATP synthase, alpha subunit	1.61
b3735	atpH	Isolate 1	non-essential	F1 sector of membrane-bound ATP synthase, delta subunit	1.17
b3735	atpH	Isolate 2	non-essential	F1 sector of membrane-bound ATP synthase, delta subunit	-0.25
b3736	atpF	Isolate 1	non-essential	F0 sector of membrane-bound ATP synthase, subunit b	-0.58
b3736	atpF	Isolate 2	non-essential	F0 sector of membrane-bound ATP synthase, subunit b	2.45
b3737	atpE	Isolate 1	non-essential	F0 sector of membrane-bound ATP synthase, subunit c	1.05
b3737	atpE	Isolate 2	non-essential	F0 sector of membrane-bound ATP synthase, subunit c	0.32
b3738	atpB	Isolate 1	non-essential	F0 sector of membrane-bound ATP synthase, subunit a	0.46
b3738	atpB	Isolate 2	non-essential	F0 sector of membrane-bound ATP synthase, subunit a	0.59
b3739	atpI	Isolate 1	non-essential	ATP synthase, membrane-bound accessory subunit	1.57
b3739	atpI	Isolate 2	non-essential	ATP synthase, membrane-bound accessory subunit	1.21
b3740	gidB	Isolate 1	non-essential	methyltransferase, glucose-inhibited cell-division protein	-1.49
b3740	gidB	Isolate 2	non-essential	methyltransferase, glucose-inhibited cell-division protein	-0.76
b3741	gidA	Isolate 1	non-essential	glucose-inhibited cell-division protein	-2.33
b3741	gidA	Isolate 2	non-essential	glucose-inhibited cell-division protein	-1.01
b3742	mioC	Isolate 1	non-essential	FMN-binding protein MioC	-0.06
b3742	mioC	Isolate 2	non-essential	FMN-binding protein MioC	2.02
b3743	asnC	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	-0.15
b3743	asnC	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	2.14
b3744	asnA	Isolate 1	non-essential	asparagine synthetase A	2.06
b3744	asnA	Isolate 2	non-essential	asparagine synthetase A	1.67
b3745	yieM	Isolate 1	non-essential	predicted von Willibrand factor containing protein	0.32
b3745	yieM	Isolate 2	non-essential	predicted von Willibrand factor containing protein	-1.26
b3746	yieN	Isolate 1	non-essential	fused predicted transcriptional regulators	1.93
b3746	yieN	Isolate 2	non-essential	fused predicted transcriptional regulators	1.63
b3747	trkD	Isolate 1	non-essential	potassium transporter	0.51
b3747	trkD	Isolate 2	non-essential	potassium transporter	-0.81

b3748	rbsD	Isolate 1	non-essential	predicted cytoplasmic sugar-binding protein	0.49
b3748	rbsD	Isolate 2	non-essential	predicted cytoplasmic sugar-binding protein	-0.84
b3749	rbsA	Isolate 1	non-essential	fused D-ribose transporter subunits -!- ATP-binding components ABC superfamily	1.10
b3749	rbsA	Isolate 2	non-essential	fused D-ribose transporter subunits -!- ATP-binding components ABC superfamily	0.48
b3750	rbsC	Isolate 1	non-essential	D-ribose transporter subunit -!- membrane component of ABC superfamily	0.78
b3750	rbsC	Isolate 2	non-essential	D-ribose transporter subunit -!- membrane component of ABC superfamily	2.41
b3751	rbsB	Isolate 1	non-essential	D-ribose transporter subunit -!- periplasmic-binding compoent of ABC superfamily	-0.76
b3751	rbsB	Isolate 2	non-essential	D-ribose transporter subunit -!- periplasmic-binding compoent of ABC superfamily	0.38
b3752	rbsK	Isolate 1	non-essential	ribokinase	1.79
b3752	rbsK	Isolate 2	non-essential	ribokinase	1.76
b3753	rbsR	Isolate 1	non-essential	DNA-binding transcriptional repressor	0.03
b3753	rbsR	Isolate 2	non-essential	DNA-binding transcriptional repressor	1.20
b3754	hsrA	Isolate 1	non-essential	predicted multidrug or homocysteine efflux system	0.68
b3754	hsrA	Isolate 2	non-essential	predicted multidrug or homocysteine efflux system	-1.01
b3755	yieP	Isolate 1	non-essential	predicted transcriptional regulator	-1.43
b3755	yieP	Isolate 2	non-essential	predicted transcriptional regulator	-0.03
b3764	yifE	Isolate 1	non-essential	conserved protein	-0.13
b3764	yifE	Isolate 2	non-essential	conserved protein	-0.45
b3765	yifB	Isolate 1	non-essential	predicted bifunctional protein, enzyme and transcriptional regulator	-0.06
b3765	yifB	Isolate 2	non-essential	predicted bifunctional protein, enzyme and transcriptional regulator	-1.44
b3766	ilvL	Isolate 1	non-essential	ilv operon leader peptide	0.90
b3766	ilvL	Isolate 2	non-essential	ilv operon leader peptide	1.37
b3767	ilvG	Isolate 1	*	acetolactate synthase II, large subunit, N-ter fragment (pseudogene)	1.03
b3767	ilvG	Isolate 2	*	acetolactate synthase II, large subunit, N-ter fragment (pseudogene)	0.32
b3769	ilvM	Isolate 1	non-essential	acetolactate synthase II, small subunit	-0.43
b3769	ilvM	Isolate 2	non-essential	acetolactate synthase II, small subunit	1.15
b3770	ilvE	Isolate 1	non-essential	branched-chain amino-acid aminotransferase	1.10
b3770	ilvE	Isolate 2	non-essential	branched-chain amino-acid aminotransferase	1.27
b3771	ilvD	Isolate 1	non-essential	dihydroxyacid dehydratase	0.83
b3771	ilvD	Isolate 2	non-essential	dihydroxyacid dehydratase	0.34
b3772	ilvA	Isolate 1	non-essential	threonine deaminase	0.06
b3772	ilvA	Isolate 2	non-essential	threonine deaminase	2.71
b3773	ilvY	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	2.02
b3773	ilvY	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	1.01
b3774	ilvC	Isolate 1	non-essential	ketol-acid reductoisomerase, NAD(P)-binding	0.65
b3774	ilvC	Isolate 2	non-essential	ketol-acid reductoisomerase, NAD(P)-binding	0.35
b3775	ppiC	Isolate 1	non-essential	peptidyl-prolyl cis-trans isomerase C (rotamase C)	-1.28
b3775	ppiC	Isolate 2	non-essential	peptidyl-prolyl cis-trans isomerase C (rotamase C)	0.81
b3777	yifN	Isolate 1	*	conserved protein (pseudogene)	-0.37
b3777	yifN	Isolate 2	*	conserved protein (pseudogene)	-0.90
b3778	rep	Isolate 1	non-essential	DNA helicase and single-stranded DNA-dependent ATPase	0.06
b3778	rep	Isolate 2	non-essential	DNA helicase and single-stranded DNA-dependent ATPase	0.16
b3779	gpp	Isolate 1	non-essential	guanosine pentaphosphatase/exopolyphosphatase	-0.66

b3779	gpp	Isolate 2	non-essential	guanosine pentaphosphatase/exopolyphosphatase	1.01
b3780	rhIB	Isolate 1	non-essential	ATP-dependent RNA helicase	0.12
b3780	rhIB	Isolate 2	non-essential	ATP-dependent RNA helicase	-2.16
b3781	trxA	Isolate 1	non-essential	thioredoxin 1	0.44
b3781	trxA	Isolate 2	non-essential	thioredoxin 1	-2.34
b3782	rhoL	Isolate 1	non-essential	rho operon leader peptide	0.05
b3782	rhoL	Isolate 2	non-essential	rho operon leader peptide	-2.12
b3783	rho	Isolate 1	non-essential	transcription termination factor	2.34
b3783	rho	Isolate 2	non-essential	transcription termination factor	2.39
b3784	rfe	Isolate 1	non-essential	UDP-GlcNAc:undecaprenylphosphate GlcNAc-1-phosphate transferase	-0.69
b3784	rfe	Isolate 2	non-essential	UDP-GlcNAc:undecaprenylphosphate GlcNAc-1-phosphate transferase	-0.40
b3785	wzzE	Isolate 1	non-essential	Entobacterial Common Antigen (ECA) polysaccharide chain length modulation protein	0.02
b3785	wzzE	Isolate 2	non-essential	Entobacterial Common Antigen (ECA) polysaccharide chain length modulation protein	0.55
b3786	rffE	Isolate 1	non-essential	UDP-N-acetyl glucosamine-2-epimerase	-2.34
b3786	rffE	Isolate 2	non-essential	UDP-N-acetyl glucosamine-2-epimerase	0.10
b3787	rffD	Isolate 1	non-essential	UDP-N-acetyl-D-mannosaminuronic acid dehydrogenase	-3.40
b3787	rffD	Isolate 2	non-essential	UDP-N-acetyl-D-mannosaminuronic acid dehydrogenase	-0.12
b3788	rffG	Isolate 1	non-essential	dTDP-glucose 4,6-dehydratase	-0.04
b3788	rffG	Isolate 2	non-essential	dTDP-glucose 4,6-dehydratase	-0.57
b3789	rffH	Isolate 1	non-essential	glucose-1-phosphate thymidyltransferase	-0.45
b3789	rffH	Isolate 2	non-essential	glucose-1-phosphate thymidyltransferase	0.11
b3790	rffC	Isolate 1	non-essential	TDP-fucosamine acetyltransferase	-0.02
b3790	rffC	Isolate 2	non-essential	TDP-fucosamine acetyltransferase	-0.13
b3791	rffA	Isolate 1	non-essential	TDP-4-oxo-6-deoxy-D-glucose transaminase	0.42
b3791	rffA	Isolate 2	non-essential	TDP-4-oxo-6-deoxy-D-glucose transaminase	0.50
b3792	wzxE	Isolate 1	non-essential	O-antigen translocase	1.17
b3792	wzxE	Isolate 2	non-essential	O-antigen translocase	1.68
b3794	rffM	Isolate 1	non-essential	UDP-N-acetyl-D-mannosaminuronic acid transferase	0.18
b3794	rffM	Isolate 2	non-essential	UDP-N-acetyl-D-mannosaminuronic acid transferase	-1.70
b3795	yifK	Isolate 1	non-essential	predicted transporter	-0.70
b3795	yifK	Isolate 2	non-essential	predicted transporter	0.19
b3800	aslB	Isolate 1	non-essential	predicted regulator of arylsulfatase activity	0.17
b3800	aslB	Isolate 2	non-essential	predicted regulator of arylsulfatase activity	-0.71
b3801	aslA	Isolate 1	non-essential	arylsulfatase-like enzyme	0.11
b3801	aslA	Isolate 2	non-essential	arylsulfatase-like enzyme	1.93
b3802	hemY	Isolate 1	non-essential	predicted protoheme IX synthesis protein	-0.86
b3802	hemY	Isolate 2	non-essential	predicted protoheme IX synthesis protein	-0.86
b3803	hemX	Isolate 1	non-essential	uroporphyrinogen III methylase	2.48
b3803	hemX	Isolate 2	non-essential	uroporphyrinogen III methylase	1.59
b3806	cyaA	Isolate 1	non-essential	adenylate cyclase	0.74
b3806	cyaA	Isolate 2	non-essential	adenylate cyclase	2.30
b3807	cyaY	Isolate 1	non-essential	frataxin, iron-binding and oxidizing protein	-0.20
b3807	cyaY	Isolate 2	non-essential	frataxin, iron-binding and oxidizing protein	0.39

b3808	yzcX	Isolate 1	non-essential	predicted protein	-0.48
b3808	yzcX	Isolate 2	non-essential	predicted protein	0.99
b3809	dapF	Isolate 1	non-essential	diaminopimelate epimerase	2.31
b3809	dapF	Isolate 2	non-essential	diaminopimelate epimerase	5.48
b3810	yigA	Isolate 1	non-essential	conserved protein	1.24
b3810	yigA	Isolate 2	non-essential	conserved protein	7.09
b3811	xerC	Isolate 1	non-essential	site-specific tyrosine recombinase	0.62
b3811	xerC	Isolate 2	non-essential	site-specific tyrosine recombinase	1.37
b3812	yigB	Isolate 1	non-essential	predicted hydrolase	0.00
b3812	yigB	Isolate 2	non-essential	predicted hydrolase	0.64
b3813	uvrD	Isolate 1	non-essential	DNA-dependent ATPase I and helicase II	-0.89
b3813	uvrD	Isolate 2	non-essential	DNA-dependent ATPase I and helicase II	0.83
b3816	corA	Isolate 1	non-essential	magnesium/nickel/cobalt transporter	1.53
b3816	corA	Isolate 2	non-essential	magnesium/nickel/cobalt transporter	-0.01
b3817	yigF	Isolate 1	non-essential	conserved inner membrane protein	1.81
b3817	yigF	Isolate 2	non-essential	conserved inner membrane protein	1.45
b3818	yigG	Isolate 1	non-essential	predicted inner membrane protein	0.70
b3818	yigG	Isolate 2	non-essential	predicted inner membrane protein	0.45
b3819	rarD	Isolate 1	non-essential	predicted chloramphenical resistance permease	-0.06
b3819	rarD	Isolate 2	non-essential	predicted chloramphenical resistance permease	0.25
b3820	yigI	Isolate 1	non-essential	conserved protein	2.68
b3820	yigI	Isolate 2	non-essential	conserved protein	1.38
b3821	pldA	Isolate 1	non-essential	outer membrane phospholipase A	-0.74
b3821	pldA	Isolate 2	non-essential	outer membrane phospholipase A	-1.71
b3822	recQ	Isolate 1	non-essential	ATP-dependent DNA helicase	-0.35
b3822	recQ	Isolate 2	non-essential	ATP-dependent DNA helicase	-0.45
b3823	rhtC	Isolate 1	non-essential	threonine efflux system	0.37
b3823	rhtC	Isolate 2	non-essential	threonine efflux system	1.41
b3824	rhtB	Isolate 1	non-essential	neutral amino-acid efflux system	1.79
b3824	rhtB	Isolate 2	non-essential	neutral amino-acid efflux system	-2.04
b3825	pldB	Isolate 1	non-essential	lysophospholipase L(2)	0.50
b3825	pldB	Isolate 2	non-essential	lysophospholipase L(2)	-0.18
b3826	yigL	Isolate 1	non-essential	predicted hydrolase	0.78
b3826	yigL	Isolate 2	non-essential	predicted hydrolase	1.34
b3827	yigM	Isolate 1	non-essential	predicted inner membrane protein	0.93
b3827	yigM	Isolate 2	non-essential	predicted inner membrane protein	0.00
b3828	metR	Isolate 1	non-essential	DNA-binding transcriptional activator, homocysteine-binding	1.35
b3828	metR	Isolate 2	non-essential	DNA-binding transcriptional activator, homocysteine-binding	1.98
b3829	metE	Isolate 1	non-essential	5-methyltetrahydropteroyltriglutamate-homocysteine S-methyltransferase	-0.43
b3829	metE	Isolate 2	non-essential	5-methyltetrahydropteroyltriglutamate-homocysteine S-methyltransferase	0.52
b3830	ysgA	Isolate 1	non-essential	predicted hydrolase	-0.38
b3830	ysgA	Isolate 2	non-essential	predicted hydrolase	-0.57
b3831	udp	Isolate 1	non-essential	uridine phosphorylase	-1.02

b3831	udp	Isolate 2	non-essential	uridine phosphorylase	-0.69
b3832	rmuC	Isolate 1	non-essential	predicted recombination limiting protein	-0.21
b3832	rmuC	Isolate 2	non-essential	predicted recombination limiting protein	-1.18
b3833	ubiE	Isolate 1	non-essential	bifunctional 2-octaprenyl-6-methoxy-1,4-benzoquinone methylase -!- S-adenosylmethionine:2-DMK methyltransferase	1.89
b3833	ubiE	Isolate 2	non-essential	bifunctional 2-octaprenyl-6-methoxy-1,4-benzoquinone methylase -!- S-adenosylmethionine:2-DMK methyltransferase	1.77
b3835	ubiB	Isolate 1	essential	2-octaprenylphenol hydroxylase	0.47
b3836	tatA	Isolate 1	non-essential	TatABCE protein translocation system subunit	0.06
b3836	tatA	Isolate 2	non-essential	TatABCE protein translocation system subunit	2.33
b3838	tatB	Isolate 1	non-essential	TatABCE protein translocation system subunit	-0.16
b3838	tatB	Isolate 2	non-essential	TatABCE protein translocation system subunit	0.28
b3839	tatC	Isolate 1	non-essential	TatABCE protein translocation system subunit	-0.08
b3839	tatC	Isolate 2	non-essential	TatABCE protein translocation system subunit	0.13
b3842	rfaH	Isolate 1	non-essential	DNA-binding transcriptional antiterminator	-1.58
b3842	rfaH	Isolate 2	non-essential	DNA-binding transcriptional antiterminator	0.76
b3844	fre	Isolate 1	non-essential	flavin reductase	4.95
b3844	fre	Isolate 2	non-essential	flavin reductase	2.20
b3845	fadA	Isolate 1	non-essential	3-ketoacyl-CoA thiolase (thiolase I)	1.15
b3845	fadA	Isolate 2	non-essential	3-ketoacyl-CoA thiolase (thiolase I)	-0.95
b3846	fadB	Isolate 1	non-essential	fused 3-hydroxybutyryl-CoA epimerase/delta(3)-cis-delta(2)-trans-enoyl-CoA isomerase/enoyl-CoA hydratase -!- 3-hydroxyacyl-CoA dehydratase	0.38
b3846	fadB	Isolate 2	non-essential	fused 3-hydroxybutyryl-CoA epimerase/delta(3)-cis-delta(2)-trans-enoyl-CoA isomerase/enoyl-CoA hydratase -!- 3-hydroxyacyl-CoA dehydratase	-0.11
b3847	pepQ	Isolate 1	non-essential	proline dipeptidase	-1.38
b3847	pepQ	Isolate 2	non-essential	proline dipeptidase	-0.33
b3848	yigZ	Isolate 1	non-essential	predicted elongation factor	-0.39
b3848	yigZ	Isolate 2	non-essential	predicted elongation factor	0.71
b3849	trkH	Isolate 1	non-essential	potassium transporter	-1.78
b3849	trkH	Isolate 2	non-essential	potassium transporter	-0.74
b3856	mobB	Isolate 1	non-essential	molybdopterin-guanine dinucleotide biosynthesis protein B	-1.08
b3856	mobB	Isolate 2	non-essential	molybdopterin-guanine dinucleotide biosynthesis protein B	-0.52
b3857	mobA	Isolate 1	non-essential	molybdopterin-guanine dinucleotide synthase	2.21
b3857	mobA	Isolate 2	non-essential	molybdopterin-guanine dinucleotide synthase	0.17
b3858	yihD	Isolate 1	non-essential	conserved protein	0.33
b3858	yihD	Isolate 2	non-essential	conserved protein	-0.03
b3859	yihE	Isolate 1	non-essential	predicted kinase	1.75
b3859	yihE	Isolate 2	non-essential	predicted kinase	0.04
b3860	dsbA	Isolate 1	non-essential	periplasmic protein disulfide isomerase I	0.69
b3860	dsbA	Isolate 2	non-essential	periplasmic protein disulfide isomerase I	-0.08
b3861	yihF	Isolate 1	non-essential	conserved protein	-0.57
b3861	yihF	Isolate 2	non-essential	conserved protein	-1.76
b3862	yihG	Isolate 1	non-essential	predicted endonuclease	1.46
b3862	yihG	Isolate 2	non-essential	predicted endonuclease	0.17
b3863	polA	Isolate 1	non-essential	fused DNA polymerase I 5'->3' exonuclease -!- 3'->5' polymerase -!- 3'->5' exonuclease	0.24
b3863	polA	Isolate 2	non-essential	fused DNA polymerase I 5'->3' exonuclease -!- 3'->5' polymerase -!- 3'->5' exonuclease	0.58
b3865	yihA	Isolate 1	essential	GTP-binding protein	2.52

b3866	yihI	Isolate 1	non-essential	conserved protein	1.11
b3866	yihI	Isolate 2	non-essential	conserved protein	-1.23
b3867	hemN	Isolate 1	non-essential	coproporphyrinogen III oxidase, SAM and NAD(P)H dependent, oxygen-independent	2.31
b3867	hemN	Isolate 2	non-essential	coproporphyrinogen III oxidase, SAM and NAD(P)H dependent, oxygen-independent	-0.62
b3868	glnG	Isolate 1	non-essential	fused DNA-binding response regulator in two-component regulatory system with GlnL, nitrogen regulator I (NRI)	3.51
b3868	glnG	Isolate 2	non-essential	fused DNA-binding response regulator in two-component regulatory system with GlnL, nitrogen regulator I (NRI)	-0.29
b3869	glnL	Isolate 1	non-essential	sensory kinase in two-component regulatory system with GlnG	-1.93
b3869	glnL	Isolate 2	non-essential	sensory kinase in two-component regulatory system with GlnG	-2.45
b3870	glnA	Isolate 1	non-essential	glutamine synthetase	-2.05
b3870	glnA	Isolate 2	non-essential	glutamine synthetase	-3.28
b3871	bipA	Isolate 1	non-essential	GTP-binding protein	1.98
b3871	bipA	Isolate 2	non-essential	GTP-binding protein	2.79
b3872	yihL	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	0.11
b3872	yihL	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	0.06
b3873	yihM	Isolate 1	non-essential	predicted sugar phosphate isomerase	-0.17
b3873	yihM	Isolate 2	non-essential	predicted sugar phosphate isomerase	-0.58
b3874	yihN	Isolate 1	non-essential	predicted transporter	0.06
b3874	yihN	Isolate 2	non-essential	predicted transporter	-2.06
b3875	ompL	Isolate 1	non-essential	predicted outer membrane porin L	2.29
b3875	ompL	Isolate 2	non-essential	predicted outer membrane porin L	1.34
b3876	yihO	Isolate 1	non-essential	predited transporter	2.28
b3876	yihO	Isolate 2	non-essential	predited transporter	2.44
b3877	yihP	Isolate 1	non-essential	predicted transporter	-0.25
b3877	yihP	Isolate 2	non-essential	predicted transporter	1.03
b3878	yihQ	Isolate 1	non-essential	alpha-glucosidase	0.83
b3878	yihQ	Isolate 2	non-essential	alpha-glucosidase	0.90
b3879	yihR	Isolate 1	non-essential	predicted aldose-1-epimerase	0.20
b3879	yihR	Isolate 2	non-essential	predicted aldose-1-epimerase	1.00
b3880	yihS	Isolate 1	non-essential	predicted glucosamine isomerase	0.06
b3880	yihS	Isolate 2	non-essential	predicted glucosamine isomerase	2.00
b3881	yihT	Isolate 1	non-essential	predicted aldolase	0.15
b3881	yihT	Isolate 2	non-essential	predicted aldolase	1.85
b3882	yihU	Isolate 1	non-essential	predicted oxidoreductase with NAD(P)-binding Rossmann-fold domain	0.53
b3882	yihU	Isolate 2	non-essential	predicted oxidoreductase with NAD(P)-binding Rossmann-fold domain	1.61
b3883	yihV	Isolate 1	non-essential	predicted sugar kinase	1.19
b3883	yihV	Isolate 2	non-essential	predicted sugar kinase	0.30
b3884	yihW	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	1.02
b3884	yihW	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	1.95
b3885	yihX	Isolate 1	non-essential	predicted hydrolase	-0.43
b3885	yihX	Isolate 2	non-essential	predicted hydrolase	2.07
b3886	rbn	Isolate 1	non-essential	tRNA processing exoribonuclease BN	-1.28
b3886	rbn	Isolate 2	non-essential	tRNA processing exoribonuclease BN	0.74
b3887	dtd	Isolate 1	non-essential	D-Tyr-tRNA(Tyr) deacylase	1.52



b3887	dtd	Isolate 2	non-essential	D-Tyr-tRNA(Tyr) deacylase	1.57
b3888	yiiD	Isolate 1	non-essential	predicted acetyltransferase	0.84
b3888	yiiD	Isolate 2	non-essential	predicted acetyltransferase	1.35
b3889	yiiE	Isolate 1	non-essential	predicted transcriptional regulator	-0.89
b3889	yiiE	Isolate 2	non-essential	predicted transcriptional regulator	1.29
b3890	yiiF	Isolate 1	non-essential	conserved protein	-1.80
b3890	yiiF	Isolate 2	non-essential	conserved protein	1.13
b3891	fdhE	Isolate 1	non-essential	formate dehydrogenase formation protein	-1.14
b3891	fdhE	Isolate 2	non-essential	formate dehydrogenase formation protein	-1.79
b3892	fdoI	Isolate 1	non-essential	formate dehydrogenase-O, cytochrome b556 subunit	0.37
b3892	fdoI	Isolate 2	non-essential	formate dehydrogenase-O, cytochrome b556 subunit	0.58
b3893	fdoH	Isolate 1	non-essential	formate dehydrogenase-O, Fe-S subunit	1.39
b3893	fdoH	Isolate 2	non-essential	formate dehydrogenase-O, Fe-S subunit	-0.32
b3894	fdoG	Isolate 1	non-essential	formate dehydrogenase-O, large subunit	-0.39
b3894	fdoG	Isolate 2	non-essential	formate dehydrogenase-O, large subunit	-1.18
b3895	fdhD	Isolate 1	non-essential	formate dehydrogenase formation protein	-1.46
b3895	fdhD	Isolate 2	non-essential	formate dehydrogenase formation protein	-0.37
b3896	yiiG	Isolate 1	non-essential	conserved protein	0.32
b3896	yiiG	Isolate 2	non-essential	conserved protein	-0.81
b3897	frvR	Isolate 1	non-essential	predicted regulator	-0.14
b3897	frvR	Isolate 2	non-essential	predicted regulator	-1.07
b3898	frvX	Isolate 1	non-essential	predicted endo-1,4-beta-glucanase	0.80
b3898	frvX	Isolate 2	non-essential	predicted endo-1,4-beta-glucanase	-0.70
b3899	frvB	Isolate 1	non-essential	fused predicted PTS enzyme IIBC components	-0.57
b3899	frvB	Isolate 2	non-essential	fused predicted PTS enzyme IIBC components	1.59
b3900	frvA	Isolate 1	non-essential	predicted enzyme IIA component of PTS	-0.06
b3900	frvA	Isolate 2	non-essential	predicted enzyme IIA component of PTS	1.23
b3901	yiiL	Isolate 1	non-essential	L-rhamnose mutarotase	-1.63
b3901	yiiL	Isolate 2	non-essential	L-rhamnose mutarotase	-1.29
b3905	rhaS	Isolate 1	non-essential	DNA-binding transcriptional activator, L-rhamnose-binding	2.47
b3905	rhaS	Isolate 2	non-essential	DNA-binding transcriptional activator, L-rhamnose-binding	2.48
b3906	rhaR	Isolate 1	non-essential	DNA-binding transcriptional activator, L-rhamnose-binding	-0.95
b3906	rhaR	Isolate 2	non-essential	DNA-binding transcriptional activator, L-rhamnose-binding	1.25
b3907	rhaT	Isolate 1	non-essential	L-rhamnose:proton symporter	0.93
b3907	rhaT	Isolate 2	non-essential	L-rhamnose:proton symporter	2.96
b3908	sodA	Isolate 1	non-essential	superoxide dismutase, Mn	2.57
b3908	sodA	Isolate 2	non-essential	superoxide dismutase, Mn	-0.61
b3909	kdgT	Isolate 1	non-essential	2-keto-3-deoxy-D-gluconate transporter	1.08
b3909	kdgT	Isolate 2	non-essential	2-keto-3-deoxy-D-gluconate transporter	0.41
b3910	yiiM	Isolate 1	non-essential	conserved protein	1.11
b3910	yiiM	Isolate 2	non-essential	conserved protein	-1.26
b3911	cpxA	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory system with CpxR	-3.02
b3911	cpxA	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory system with CpxR	-3.42

b3912	cpxR	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with CpxA	-2.43
b3912	cpxR	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with CpxA	-0.82
b3915	fieF	Isolate 1	non-essential	zinc transporter	-0.32
b3915	fieF	Isolate 2	non-essential	zinc transporter	0.85
b3916	pfkA	Isolate 1	non-essential	6-phosphofructokinase I	1.16
b3916	pfkA	Isolate 2	non-essential	6-phosphofructokinase I	0.00
b3917	sbp	Isolate 1	non-essential	sulfate transporter subunit -!- periplasmic-binding component of ABC superfamily	0.62
b3917	sbp	Isolate 2	non-essential	sulfate transporter subunit -!- periplasmic-binding component of ABC superfamily	-1.11
b3918	cdh	Isolate 1	non-essential	CDP-diacylglycerol phosphotidylhydrolase	1.50
b3918	cdh	Isolate 2	non-essential	CDP-diacylglycerol phosphotidylhydrolase	-1.62
b3919	tpiA	Isolate 1	non-essential	triosephosphate isomerase	0.64
b3919	tpiA	Isolate 2	non-essential	triosephosphate isomerase	-1.93
b3920	yiiQ	Isolate 1	non-essential	conserved protein	0.58
b3920	yiiQ	Isolate 2	non-essential	conserved protein	-1.11
b3921	yiiR	Isolate 1	non-essential	conserved inner membrane protein	0.38
b3921	yiiR	Isolate 2	non-essential	conserved inner membrane protein	1.04
b3922	yiiS	Isolate 1	non-essential	conserved protein	0.19
b3922	yiiS	Isolate 2	non-essential	conserved protein	0.80
b3923	yiiT	Isolate 1	non-essential	stress-induced protein	0.03
b3923	yiiT	Isolate 2	non-essential	stress-induced protein	-0.51
b3924	fpr	Isolate 1	non-essential	ferredoxin-NADP reductase	-0.71
b3924	fpr	Isolate 2	non-essential	ferredoxin-NADP reductase	0.99
b3925	glpX	Isolate 1	non-essential	fructose 1,6-bisphosphatase II	-1.00
b3925	glpX	Isolate 2	non-essential	fructose 1,6-bisphosphatase II	0.07
b3926	glpK	Isolate 1	non-essential	glycerol kinase	0.79
b3926	glpK	Isolate 2	non-essential	glycerol kinase	0.38
b3927	glpF	Isolate 1	non-essential	glycerol facilitator	0.60
b3927	glpF	Isolate 2	non-essential	glycerol facilitator	-0.83
b3928	yiiU	Isolate 1	non-essential	conserved protein	0.58
b3928	yiiU	Isolate 2	non-essential	conserved protein	1.35
b3929	rraA	Isolate 1	non-essential	ribonuclease E (RNase E) inhibitor protein	0.81
b3929	rraA	Isolate 2	non-essential	ribonuclease E (RNase E) inhibitor protein	1.27
b3930	menA	Isolate 1	non-essential	1,4-dihydroxy-2-naphthoate octaprenyltransferase	3.01
b3930	menA	Isolate 2	non-essential	1,4-dihydroxy-2-naphthoate octaprenyltransferase	0.82
b3931	hslU	Isolate 1	non-essential	molecular chaperone and ATPase component of HslUV protease	-0.57
b3931	hslU	Isolate 2	non-essential	molecular chaperone and ATPase component of HslUV protease	0.33
b3932	hslV	Isolate 1	non-essential	peptidase component of the HslUV protease	0.75
b3932	hslV	Isolate 2	non-essential	peptidase component of the HslUV protease	2.08
b3934	cytR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	-0.47
b3934	cytR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	-0.72
b3935	priA	Isolate 1	non-essential	Primosome factor n' (replication factor Y)	0.01
b3935	priA	Isolate 2	non-essential	Primosome factor n' (replication factor Y)	0.05
b3936	rpmE	Isolate 1	non-essential	50S ribosomal subunit protein L31	0.50

b3936	rpmE	Isolate 2	non-essential	50S ribosomal subunit protein L31	0.29
b3937	yiiX	Isolate 1	non-essential	predicted peptidoglycan peptidase	0.65
b3937	yiiX	Isolate 2	non-essential	predicted peptidoglycan peptidase	0.83
b3938	metJ	Isolate 1	non-essential	DNA-binding transcriptional repressor, S-adenosylmethionine-binding	-1.08
b3938	metJ	Isolate 2	non-essential	DNA-binding transcriptional repressor, S-adenosylmethionine-binding	0.94
b3939	metB	Isolate 1	non-essential	cystathionine gamma-synthase, PLP-dependent	0.58
b3939	metB	Isolate 2	non-essential	cystathionine gamma-synthase, PLP-dependent	1.44
b3940	metL	Isolate 1	non-essential	fused aspartokinase II -!- homoserine dehydrogenase II	0.00
b3940	metL	Isolate 2	non-essential	fused aspartokinase II -!- homoserine dehydrogenase II	2.02
b3941	metF	Isolate 1	non-essential	5,10-methylenetetrahydrofolate reductase	-1.62
b3941	metF	Isolate 2	non-essential	5,10-methylenetetrahydrofolate reductase	-0.50
b3942	katG	Isolate 1	non-essential	catalase/hydroperoxidase HPI(I)	2.61
b3942	katG	Isolate 2	non-essential	catalase/hydroperoxidase HPI(I)	-0.87
b3943	yijE	Isolate 1	non-essential	predicted permease	1.60
b3943	yijE	Isolate 2	non-essential	predicted permease	0.26
b3944	yijF	Isolate 1	non-essential	conserved protein	1.61
b3944	yijF	Isolate 2	non-essential	conserved protein	1.02
b3945	gldA	Isolate 1	non-essential	glycerol dehydrogenase, NAD	-0.98
b3945	gldA	Isolate 2	non-essential	glycerol dehydrogenase, NAD	-0.29
b3946	fsaB	Isolate 1	non-essential	fructose-6-phosphate aldolase 2	0.54
b3946	fsaB	Isolate 2	non-essential	fructose-6-phosphate aldolase 2	0.35
b3947	ptsA	Isolate 1	non-essential	fused predicted PTS enzymes Hpr component -!- enzyme I component -!- enzyme IIA component	1.26
b3947	ptsA	Isolate 2	non-essential	fused predicted PTS enzymes Hpr component -!- enzyme I component -!- enzyme IIA component	3.16
b3949	frwC	Isolate 1	non-essential	predicted enzyme IIC component of PTS	0.26
b3949	frwC	Isolate 2	non-essential	predicted enzyme IIC component of PTS	0.79
b3950	frwB	Isolate 1	non-essential	predicted enzyme IIB component of PTS	-2.28
b3950	frwB	Isolate 2	non-essential	predicted enzyme IIB component of PTS	-0.31
b3951	pflD	Isolate 1	non-essential	predicted formate acetyltransferase 2 (pyruvate formate lyase II)	-0.72
b3951	pflD	Isolate 2	non-essential	predicted formate acetyltransferase 2 (pyruvate formate lyase II)	-0.85
b3952	pflC	Isolate 1	non-essential	pyruvate formate lyase II activase	-1.34
b3952	pflC	Isolate 2	non-essential	pyruvate formate lyase II activase	-1.82
b3953	frwD	Isolate 1	non-essential	predicted enzyme IIB component of PTS	-0.59
b3953	frwD	Isolate 2	non-essential	predicted enzyme IIB component of PTS	-0.36
b3954	yijO	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.14
b3954	yijO	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.53
b3955	yijP	Isolate 1	non-essential	conserved inner membrane protein	-0.61
b3955	yijP	Isolate 2	non-essential	conserved inner membrane protein	0.11
b3956	ppc	Isolate 1	non-essential	phosphoenolpyruvate carboxylase	1.91
b3956	ppc	Isolate 2	non-essential	phosphoenolpyruvate carboxylase	2.69
b3957	argE	Isolate 1	non-essential	acetylornithine deacetylase	0.99
b3957	argE	Isolate 2	non-essential	acetylornithine deacetylase	1.36
b3958	argC	Isolate 1	non-essential	N-acetyl-gamma-glutamylphosphate reductase, NAD(P)-binding	0.46
b3958	argC	Isolate 2	non-essential	N-acetyl-gamma-glutamylphosphate reductase, NAD(P)-binding	-1.16

b3959	argB	Isolate 1	non-essential	acetylglutamate kinase	-0.36
b3959	argB	Isolate 2	non-essential	acetylglutamate kinase	-0.27
b3960	argH	Isolate 1	non-essential	argininosuccinate lyase	2.71
b3960	argH	Isolate 2	non-essential	argininosuccinate lyase	2.06
b3961	oxyR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	1.34
b3961	oxyR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	-0.46
b3962	sthA	Isolate 1	non-essential	pyridine nucleotide transhydrogenase, soluble	-1.18
b3962	sthA	Isolate 2	non-essential	pyridine nucleotide transhydrogenase, soluble	-0.94
b3963	fabR	Isolate 1	non-essential	DNA-binding transcriptional repressor	0.22
b3963	fabR	Isolate 2	non-essential	DNA-binding transcriptional repressor	-0.26
b3964	yijD	Isolate 1	non-essential	conserved inner membrane protein	0.91
b3964	yijD	Isolate 2	non-essential	conserved inner membrane protein	-0.44
b3965	trmA	Isolate 1	non-essential	tRNA (uracil-5-)-methyltransferase	0.59
b3965	trmA	Isolate 2	non-essential	tRNA (uracil-5-)-methyltransferase	-0.28
b3966	btuB	Isolate 1	non-essential	vitamin B12/cobalamin outer membrane transporter	2.39
b3966	btuB	Isolate 2	non-essential	vitamin B12/cobalamin outer membrane transporter	1.30
b3967	murI	Isolate 1	essential	glutamate racemase	1.98
b3972	murB	Isolate 1	essential	UDP-N-acetylenolpyruvoylglucosamine reductase, FAD-binding	3.47
b3973	birA	Isolate 1	essential	bifunctional biotin-[acetylCoA carboxylase] holoenzyme synthetase -!- DNA-binding transcriptional repressor, bio-5'-AMP-binding	-0.33
b3974	coaA	Isolate 1	non-essential	pantothenate kinase	1.67
b3974	coaA	Isolate 2	non-essential	pantothenate kinase	0.63
b3980	tufB	Isolate 1	non-essential	protein chain elongation factor EF-Tu (duplicate of tufA)	2.14
b3980	tufB	Isolate 2	non-essential	protein chain elongation factor EF-Tu (duplicate of tufA)	2.91
b3982	nusG	Isolate 1	essential	transcription termination factor	-0.30
b3983	rplK	Isolate 1	non-essential	50S ribosomal subunit protein L11	3.40
b3983	rplK	Isolate 2	non-essential	50S ribosomal subunit protein L11	1.81
b3984	rplA	Isolate 1	non-essential	50S ribosomal subunit protein L1	0.02
b3984	rplA	Isolate 2	non-essential	50S ribosomal subunit protein L1	-0.90
b3987	rpoB	Isolate 1	essential	RNA polymerase, beta subunit	-1.09
b3988	rpoC	Isolate 1	essential	RNA polymerase, beta prime subunit	0.90
b3989	htrC	Isolate 1	non-essential	heat shock protein	0.08
b3989	htrC	Isolate 2	non-essential	heat shock protein	2.34
b3990	thiH	Isolate 1	non-essential	thiamin biosynthesis ThiGH complex subunit	1.04
b3990	thiH	Isolate 2	non-essential	thiamin biosynthesis ThiGH complex subunit	0.75
b3991	thiG	Isolate 1	non-essential	thiamin biosynthesis ThiGH complex subunit	1.62
b3991	thiG	Isolate 2	non-essential	thiamin biosynthesis ThiGH complex subunit	1.94
b3992	thiF	Isolate 1	non-essential	thiamin (thiazole moiety) biosynthesis protein	1.71
b3992	thiF	Isolate 2	non-essential	thiamin (thiazole moiety) biosynthesis protein	0.09
b3993	thiE	Isolate 1	non-essential	thiamin phosphate synthase (thiamin phosphate pyrophosphorylase)	1.96
b3993	thiE	Isolate 2	non-essential	thiamin phosphate synthase (thiamin phosphate pyrophosphorylase)	1.14
b3994	thiC	Isolate 1	non-essential	thiamin (pyrimidine moiety) biosynthesis protein	1.30
b3994	thiC	Isolate 2	non-essential	thiamin (pyrimidine moiety) biosynthesis protein	1.11
b3995	rsd	Isolate 1	non-essential	stationary phase protein, binds sigma 70 RNA polymerase subunit	1.63

b3995	rsd	Isolate 2	non-essential	stationary phase protein, binds sigma 70 RNA polymerase subunit	-0.09
b3996	nudC	Isolate 1	non-essential	NADH pyrophosphatase	-0.25
b3996	nudC	Isolate 2	non-essential	NADH pyrophosphatase	-0.99
b3997	hemE	Isolate 1	non-essential	uroporphyrinogen decarboxylase	2.77
b3997	hemE	Isolate 2	non-essential	uroporphyrinogen decarboxylase	0.75
b3998	nfi	Isolate 1	non-essential	endonuclease V	0.88
b3998	nfi	Isolate 2	non-essential	endonuclease V	0.51
b3999	yjaG	Isolate 1	non-essential	conserved protein	-0.33
b3999	yjaG	Isolate 2	non-essential	conserved protein	-0.79
b4000	hupA	Isolate 1	non-essential	HU, DNA-binding transcriptional regulator, alpha subunit	3.64
b4000	hupA	Isolate 2	non-essential	HU, DNA-binding transcriptional regulator, alpha subunit	0.93
b4001	yjaH	Isolate 1	non-essential	conserved protein	1.35
b4001	yjaH	Isolate 2	non-essential	conserved protein	0.36
b4002	zraP	Isolate 1	non-essential	Zn-binding periplasmic protein	0.93
b4002	zraP	Isolate 2	non-essential	Zn-binding periplasmic protein	1.28
b4003	zraS	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory system with ZraR	-1.81
b4003	zraS	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory system with ZraR	0.49
b4004	zraR	Isolate 1	non-essential	fused DNA-binding response regulator in two-component regulatory system with ZraS	-1.40
b4004	zraR	Isolate 2	non-essential	fused DNA-binding response regulator in two-component regulatory system with ZraS	-0.49
b4005	purD	Isolate 1	non-essential	phosphoribosylglycinamide synthetase phosphoribosylamine-glycine ligase	-1.83
b4005	purD	Isolate 2	non-essential	phosphoribosylglycinamide synthetase phosphoribosylamine-glycine ligase	-1.30
b4006	purH	Isolate 1	non-essential	fused IMP cyclohydrolase -!- phosphoribosylaminoimidazolecarboxamide formyltransferase	-2.16
b4006	purH	Isolate 2	non-essential	fused IMP cyclohydrolase -!- phosphoribosylaminoimidazolecarboxamide formyltransferase	-2.07
b4011	yjaA	Isolate 1	non-essential	conserved protein	1.61
b4011	yjaA	Isolate 2	non-essential	conserved protein	0.65
b4012	yjaB	Isolate 1	non-essential	predicted acetyltransferase	-1.46
b4012	yjaB	Isolate 2	non-essential	predicted acetyltransferase	0.00
b4013	metA	Isolate 1	non-essential	homoserine transsuccinylase	-0.89
b4013	metA	Isolate 2	non-essential	homoserine transsuccinylase	1.30
b4014	aceB	Isolate 1	non-essential	malate synthase A	-0.88
b4014	aceB	Isolate 2	non-essential	malate synthase A	-0.13
b4015	aceA	Isolate 1	non-essential	isocitrate lyase	0.90
b4015	aceA	Isolate 2	non-essential	isocitrate lyase	0.38
b4016	aceK	Isolate 1	non-essential	isocitrate dehydrogenase kinase/phosphatase	1.21
b4016	aceK	Isolate 2	non-essential	isocitrate dehydrogenase kinase/phosphatase	-0.47
b4017	arpA	Isolate 1	non-essential	regulator of acetyl CoA synthetase	-0.23
b4017	arpA	Isolate 2	non-essential	regulator of acetyl CoA synthetase	-1.00
b4018	iclR	Isolate 1	non-essential	DNA-binding transcriptional repressor	0.50
b4018	iclR	Isolate 2	non-essential	DNA-binding transcriptional repressor	0.68
b4019	metH	Isolate 1	non-essential	homocysteine-N5-methyltetrahydrofolate transmethylase, B12-dependent	-0.88
b4019	metH	Isolate 2	non-essential	homocysteine-N5-methyltetrahydrofolate transmethylase, B12-dependent	-0.23
b4020	yjbB	Isolate 1	non-essential	predicted transporter	0.85
b4020	yjbB	Isolate 2	non-essential	predicted transporter	2.13

b4021	pepE	Isolate 1	non-essential	(alpha)-aspartyl dipeptidase	-0.98
b4021	pepE	Isolate 2	non-essential	(alpha)-aspartyl dipeptidase	-1.36
b4022	yjbC	Isolate 1	non-essential	23S rRNA pseudouridine synthase	0.30
b4022	yjbC	Isolate 2	non-essential	23S rRNA pseudouridine synthase	-0.04
b4023	yjbD	Isolate 1	non-essential	conserved protein	-0.74
b4023	yjbD	Isolate 2	non-essential	conserved protein	-0.25
b4024	lysC	Isolate 1	non-essential	aspartokinase III	-0.83
b4024	lysC	Isolate 2	non-essential	aspartokinase III	-1.20
b4025	pgi	Isolate 1	non-essential	glucosephosphate isomerase	1.02
b4025	pgi	Isolate 2	non-essential	glucosephosphate isomerase	1.88
b4026	yjbE	Isolate 1	non-essential	predicted protein	-0.19
b4026	yjbE	Isolate 2	non-essential	predicted protein	0.55
b4027	yjbF	Isolate 1	non-essential	predicted lipoprotein	2.08
b4027	yjbF	Isolate 2	non-essential	predicted lipoprotein	0.59
b4028	yjbG	Isolate 1	non-essential	conserved protein	-0.31
b4028	yjbG	Isolate 2	non-essential	conserved protein	-0.02
b4029	yjbH	Isolate 1	non-essential	predicted porin	-0.99
b4029	yjbH	Isolate 2	non-essential	predicted porin	-0.69
b4030	yjbA	Isolate 1	non-essential	predicted phosphate starvation inducible protein	-0.51
b4030	yjbA	Isolate 2	non-essential	predicted phosphate starvation inducible protein	-0.24
b4031	xylE	Isolate 1	non-essential	D-xylose transporter	0.13
b4031	xylE	Isolate 2	non-essential	D-xylose transporter	0.59
b4032	malG	Isolate 1	non-essential	maltose transporter subunit -!- membrane component of ABC superfamily	1.64
b4032	malG	Isolate 2	non-essential	maltose transporter subunit -!- membrane component of ABC superfamily	-0.84
b4033	malF	Isolate 1	non-essential	maltose transporter subunit -!- membrane component of ABC superfamily	-0.34
b4033	malF	Isolate 2	non-essential	maltose transporter subunit -!- membrane component of ABC superfamily	1.75
b4034	malE	Isolate 1	non-essential	maltose transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.18
b4034	malE	Isolate 2	non-essential	maltose transporter subunit -!- periplasmic-binding component of ABC superfamily	-1.05
b4035	malK	Isolate 1	non-essential	fused maltose transport subunit, ATP-binding component of ABC superfamily -!- regulatory protein	0.50
b4035	malK	Isolate 2	non-essential	fused maltose transport subunit, ATP-binding component of ABC superfamily -!- regulatory protein	-0.72
b4036	lamB	Isolate 1	non-essential	maltose outer membrane porin (maltoporin)	-0.29
b4036	lamB	Isolate 2	non-essential	maltose outer membrane porin (maltoporin)	-2.35
b4037	malM	Isolate 1	non-essential	maltose regulon periplasmic protein	-0.02
b4037	malM	Isolate 2	non-essential	maltose regulon periplasmic protein	-0.68
b4038	yjbI	Isolate 1	non-essential	conserved protein	-0.97
b4038	yjbI	Isolate 2	non-essential	conserved protein	-0.18
b4039	ubiC	Isolate 1	non-essential	chorismate pyruvate lyase	0.64
b4039	ubiC	Isolate 2	non-essential	chorismate pyruvate lyase	-0.07
b4042	dgkA	Isolate 1	non-essential	diacylglycerol kinase	-1.53
b4042	dgkA	Isolate 2	non-essential	diacylglycerol kinase	0.91
b4043	lexA	Isolate 1	essential	DNA-binding transcriptional repressor	-0.47
b4044	dinF	Isolate 1	non-essential	DNA-damage-inducible SOS response protein	-1.46
b4044	dinF	Isolate 2	non-essential	DNA-damage-inducible SOS response protein	-0.96

b4045	yjbJ	Isolate 1	non-essential	predicted stress response protein	-1.00
b4045	yjbJ	Isolate 2	non-essential	predicted stress response protein	-0.77
b4046	zur	Isolate 1	non-essential	DNA-binding transcriptional activator, Zn(II)-binding	2.56
b4046	zur	Isolate 2	non-essential	DNA-binding transcriptional activator, Zn(II)-binding	0.65
b4047	yjbL	Isolate 1	non-essential	predicted protein	1.40
b4047	yjbL	Isolate 2	non-essential	predicted protein	-1.13
b4048	yjbM	Isolate 1	non-essential	predicted protein	-0.72
b4048	yjbM	Isolate 2	non-essential	predicted protein	0.42
b4049	yjbN	Isolate 1	non-essential	tRNA-dihydrouridine synthase A	1.27
b4049	yjbN	Isolate 2	non-essential	tRNA-dihydrouridine synthase A	1.41
b4050	yjbO	Isolate 1	non-essential	phage shock protein G	1.34
b4050	yjbO	Isolate 2	non-essential	phage shock protein G	-1.55
b4051	qor	Isolate 1	non-essential	quinone oxidoreductase, NADPH-dependent	0.98
b4051	qor	Isolate 2	non-essential	quinone oxidoreductase, NADPH-dependent	0.85
b4052	dnaB	Isolate 1	essential	replicative DNA helicase	5.69
b4053	alr	Isolate 1	non-essential	alanine racemase 1, PLP-binding, biosynthetic	1.03
b4053	alr	Isolate 2	non-essential	alanine racemase 1, PLP-binding, biosynthetic	0.52
b4054	tyrB	Isolate 1	non-essential	tyrosine aminotransferase, tyrosine-repressible, PLP-dependent	0.64
b4054	tyrB	Isolate 2	non-essential	tyrosine aminotransferase, tyrosine-repressible, PLP-dependent	0.10
b4054.1	*	Isolate 1	*	*	0.93
b4054.1	*	Isolate 2	*	*	0.28
b4055	aphA	Isolate 1	non-essential	acid phosphatase/phosphotransferase, class B, non-specific	-1.93
b4055	aphA	Isolate 2	non-essential	acid phosphatase/phosphotransferase, class B, non-specific	-0.68
b4056	yjbQ	Isolate 1	non-essential	conserved protein	-0.82
b4056	yjbQ	Isolate 2	non-essential	conserved protein	0.48
b4057	yjbR	Isolate 1	non-essential	conserved protein	-0.88
b4057	yjbR	Isolate 2	non-essential	conserved protein	-0.61
b4058	uvrA	Isolate 1	non-essential	ATPase and DNA damage recognition protein of nucleotide excision repair excinuclease UvrABC	-0.61
b4058	uvrA	Isolate 2	non-essential	ATPase and DNA damage recognition protein of nucleotide excision repair excinuclease UvrABC	1.70
b4059	ssb	Isolate 1	essential	Single-stranded DNA-binding protein	4.24
b4060	yjcB	Isolate 1	non-essential	predicted inner membrane protein	-0.24
b4060	yjcB	Isolate 2	non-essential	predicted inner membrane protein	0.76
b4061	yjcC	Isolate 1	non-essential	predicted signal transduction protein (EAL domain containing protein)	0.12
b4061	yjcC	Isolate 2	non-essential	predicted signal transduction protein (EAL domain containing protein)	-1.97
b4062	soxS	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	1.03
b4062	soxS	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	-1.59
b4063	soxR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator, Fe-S center for redox-sensing	1.24
b4063	soxR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator, Fe-S center for redox-sensing	2.24
b4064	yjcD	Isolate 1	non-essential	predicted permease	-0.07
b4064	yjcD	Isolate 2	non-essential	predicted permease	-2.55
b4065	yjcE	Isolate 1	non-essential	predicted cation/proton antiporter	-0.53
b4065	yjcE	Isolate 2	non-essential	predicted cation/proton antiporter	1.75
b4066	yjcF	Isolate 1	non-essential	conserved protein	-1.36

b4066	yjcF	Isolate 2	non-essential	conserved protein	0.99
b4067	actP	Isolate 1	non-essential	acetate transporter	-0.71
b4067	actP	Isolate 2	non-essential	acetate transporter	-0.27
b4068	yjcH	Isolate 1	non-essential	conserved inner membrane protein involved in acetate transport	-0.33
b4068	yjcH	Isolate 2	non-essential	conserved inner membrane protein involved in acetate transport	-0.94
b4069	acs	Isolate 1	non-essential	bifunctional acetyl-CoA synthetase -!- propionyl-CoA synthetase	-0.55
b4069	acs	Isolate 2	non-essential	bifunctional acetyl-CoA synthetase -!- propionyl-CoA synthetase	-0.06
b4070	nrfA	Isolate 1	non-essential	nitrite reductase, formate-dependent, cytochrome	0.25
b4070	nrfA	Isolate 2	non-essential	nitrite reductase, formate-dependent, cytochrome	-1.67
b4071	nrfB	Isolate 1	non-essential	nitrite reductase, formate-dependent, penta-heme cytochrome c	-0.15
b4071	nrfB	Isolate 2	non-essential	nitrite reductase, formate-dependent, penta-heme cytochrome c	1.52
b4072	nrfC	Isolate 1	non-essential	formate-dependent nitrite reductase, 4Fe4S subunit	0.38
b4072	nrfC	Isolate 2	non-essential	formate-dependent nitrite reductase, 4Fe4S subunit	-0.87
b4073	nrfD	Isolate 1	non-essential	formate-dependent nitrite reductase, membrane subunit	0.59
b4073	nrfD	Isolate 2	non-essential	formate-dependent nitrite reductase, membrane subunit	1.54
b4074	nrfE	Isolate 1	non-essential	heme lyase (NrfEFG) for insertion of heme into c552, subunit NrfE	1.53
b4074	nrfE	Isolate 2	non-essential	heme lyase (NrfEFG) for insertion of heme into c552, subunit NrfE	0.48
b4075	nrfF	Isolate 1	non-essential	heme lyase (NrfEFG) for insertion of heme into c552, subunit NrfF	0.58
b4075	nrfF	Isolate 2	non-essential	heme lyase (NrfEFG) for insertion of heme into c552, subunit NrfF	0.48
b4076	nrfG	Isolate 1	non-essential	heme lyase (NrfEFG) for insertion of heme into c552, subunit NrfG	2.17
b4076	nrfG	Isolate 2	non-essential	heme lyase (NrfEFG) for insertion of heme into c552, subunit NrfG	0.29
b4077	gltP	Isolate 1	non-essential	glutamate/aspartate:proton symporter	-0.91
b4077	gltP	Isolate 2	non-essential	glutamate/aspartate:proton symporter	0.14
b4078	yjcO	Isolate 1	non-essential	conserved protein	-1.85
b4078	yjcO	Isolate 2	non-essential	conserved protein	0.32
b4079	fdhF	Isolate 1	non-essential	formate dehydrogenase-H, selenopolypeptide subunit	-3.05
b4079	fdhF	Isolate 2	non-essential	formate dehydrogenase-H, selenopolypeptide subunit	-0.70
b4080	yjcP	Isolate 1	non-essential	predicted outer membrane factor of efflux pump	-1.76
b4080	yjcP	Isolate 2	non-essential	predicted outer membrane factor of efflux pump	-0.42
b4081	yjcQ	Isolate 1	non-essential	predicted multidrug efflux system component	2.43
b4081	yjcQ	Isolate 2	non-essential	predicted multidrug efflux system component	0.00
b4082	yjcR	Isolate 1	non-essential	predicted membrane fusion protein of efflux pump	-3.56
b4082	yjcR	Isolate 2	non-essential	predicted membrane fusion protein of efflux pump	0.55
b4083	yjcS	Isolate 1	non-essential	predicted alkyl sulfatase	-0.31
b4083	yjcS	Isolate 2	non-essential	predicted alkyl sulfatase	0.47
b4084	alsK	Isolate 1	essential	D-allose kinase	-0.39
b4085	alsE	Isolate 1	non-essential	allulose-6-phosphate 3-epimerase	0.25
b4085	alsE	Isolate 2	non-essential	allulose-6-phosphate 3-epimerase	0.07
b4086	alsC	Isolate 1	non-essential	D-allose transporter subunit -!- membrane component of ABC superfamily	0.32
b4086	alsC	Isolate 2	non-essential	D-allose transporter subunit -!- membrane component of ABC superfamily	0.57
b4087	alsA	Isolate 1	non-essential	fused D-allose transporter subunits -!- ATP-binding components of ABC superfamily	-1.24
b4087	alsA	Isolate 2	non-essential	fused D-allose transporter subunits -!- ATP-binding components of ABC superfamily	-0.88
b4088	alsB	Isolate 1	non-essential	D-allose transporter subunit -!- periplasmic-binding component of ABC superfamily	1.73



b4088	alsB	Isolate 2	non-essential	D-allose transporter subunit -!- periplasmic-binding component of ABC superfamily	-0.51
b4089	rpiR	Isolate 1	non-essential	DNA-binding transcriptional repressor	1.36
b4089	rpiR	Isolate 2	non-essential	DNA-binding transcriptional repressor	-1.91
b4090	rpiB	Isolate 1	non-essential	ribose 5-phosphate isomerase B/allose 6-phosphate isomerase	0.23
b4090	rpiB	Isolate 2	non-essential	ribose 5-phosphate isomerase B/allose 6-phosphate isomerase	-0.42
b4091	*	Isolate 1	*	*	-2.02
b4091	*	Isolate 2	*	*	-0.82
b4092	phnP	Isolate 1	non-essential	carbon-phosphorus lyase complex accessory protein	-1.74
b4092	phnP	Isolate 2	non-essential	carbon-phosphorus lyase complex accessory protein	-2.92
b4093	phnO	Isolate 1	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	-0.97
b4093	phnO	Isolate 2	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	-0.09
b4094	phnN	Isolate 1	non-essential	ribose 1,5-bisphosphokinase	-4.38
b4094	phnN	Isolate 2	non-essential	ribose 1,5-bisphosphokinase	0.11
b4095	phnM	Isolate 1	non-essential	carbon-phosphorus lyase complex subunit	-0.29
b4095	phnM	Isolate 2	non-essential	carbon-phosphorus lyase complex subunit	0.71
b4096	phnL	Isolate 1	non-essential	carbon-phosphorus lyase complex subunit	0.06
b4096	phnL	Isolate 2	non-essential	carbon-phosphorus lyase complex subunit	-1.31
b4097	phnK	Isolate 1	non-essential	carbon-phosphorus lyase complex subunit	-0.57
b4097	phnK	Isolate 2	non-essential	carbon-phosphorus lyase complex subunit	-1.29
b4098	phnJ	Isolate 1	non-essential	carbon-phosphorus lyase complex subunit	-0.35
b4098	phnJ	Isolate 2	non-essential	carbon-phosphorus lyase complex subunit	-0.11
b4099	phnI	Isolate 1	non-essential	carbon-phosphorus lyase complex subunit	-1.07
b4099	phnI	Isolate 2	non-essential	carbon-phosphorus lyase complex subunit	-0.54
b4100	phnH	Isolate 1	non-essential	carbon-phosphorus lyase complex subunit	-2.02
b4100	phnH	Isolate 2	non-essential	carbon-phosphorus lyase complex subunit	0.51
b4101	phnG	Isolate 1	non-essential	carbon-phosphorus lyase complex subunit	0.38
b4101	phnG	Isolate 2	non-essential	carbon-phosphorus lyase complex subunit	-1.29
b4102	phnF	Isolate 1	non-essential	transcriptional regulator of phosphonate uptake and biodegradation	0.84
b4102	phnF	Isolate 2	non-essential	transcriptional regulator of phosphonate uptake and biodegradation	0.30
b4103	phnE	Isolate 1	*	phosphonate/organophosphate ester transporter (pseudogene)	0.01
b4103	phnE	Isolate 2	*	phosphonate/organophosphate ester transporter (pseudogene)	0.82
b4105	phnD	Isolate 1	non-essential	phosphonate/organophosphate ester transporter subunit -!- periplasmic binding component of ABC superfamily	0.05
b4105	phnD	Isolate 2	non-essential	phosphonate/organophosphate ester transporter subunit -!- periplasmic binding component of ABC superfamily	-0.40
b4106	phnC	Isolate 1	non-essential	phosphonate/organophosphate ester transporter subunit -!- ATP-binding component of ABC superfamily	1.21
b4106	phnC	Isolate 2	non-essential	phosphonate/organophosphate ester transporter subunit -!- ATP-binding component of ABC superfamily	-0.74
b4107	phnB	Isolate 1	non-essential	conserved protein	2.04
b4107	phnB	Isolate 2	non-essential	conserved protein	-3.36
b4108	phnA	Isolate 1	non-essential	predicted phosphonate metabolizing protein	0.01
b4108	phnA	Isolate 2	non-essential	predicted phosphonate metabolizing protein	0.20
b4109	yjdA	Isolate 1	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	0.43
b4109	yjdA	Isolate 2	non-essential	conserved protein with nucleoside triphosphate hydrolase domain	-0.06
b4110	yjcZ	Isolate 1	non-essential	conserved protein	1.35
b4110	yjcZ	Isolate 2	non-essential	conserved protein	0.73

b4111	proP	Isolate 1	non-essential	proline/glycine betaine transporter	2.52
b4111	proP	Isolate 2	non-essential	proline/glycine betaine transporter	0.86
b4112	basS	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory system with BasR	0.23
b4112	basS	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory system with BasR	-0.47
b4113	basR	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with BasS	-1.30
b4113	basR	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with BasS	-3.20
b4114	eptA	Isolate 1	non-essential	predicted metal dependent hydrolase	-0.68
b4114	eptA	Isolate 2	non-essential	predicted metal dependent hydrolase	0.64
b4115	adiC	Isolate 1	non-essential	arginine:agmatin	-0.73
b4115	adiC	Isolate 2	non-essential	arginine:agmatin	-1.30
b4116	adiY	Isolate 1	non-essential	DNA-binding transcriptional activator	0.29
b4116	adiY	Isolate 2	non-essential	DNA-binding transcriptional activator	1.70
b4117	adiA	Isolate 1	non-essential	biodegradative arginine decarboxylase	1.76
b4117	adiA	Isolate 2	non-essential	biodegradative arginine decarboxylase	0.49
b4118	melR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	0.86
b4118	melR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	-1.44
b4119	melA	Isolate 1	non-essential	alpha-galactosidase, NAD(P)-binding	-1.35
b4119	melA	Isolate 2	non-essential	alpha-galactosidase, NAD(P)-binding	0.99
b4120	melB	Isolate 1	non-essential	melibiose:sodium symporter	-0.55
b4120	melB	Isolate 2	non-essential	melibiose:sodium symporter	-1.20
b4121	yjdF	Isolate 1	non-essential	conserved inner membrane protein	-1.49
b4121	yjdF	Isolate 2	non-essential	conserved inner membrane protein	0.79
b4122	fumB	Isolate 1	non-essential	anaerobic class I fumarate hydratase (fumarase B)	1.82
b4122	fumB	Isolate 2	non-essential	anaerobic class I fumarate hydratase (fumarase B)	-0.81
b4123	dcuB	Isolate 1	non-essential	C4-dicarboxylate antiporter	2.91
b4123	dcuB	Isolate 2	non-essential	C4-dicarboxylate antiporter	3.79
b4124	dcuR	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with DcuS	-2.27
b4124	dcuR	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with DcuS	-0.51
b4125	dcuS	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory system with DcuR, regulator of anaerobic fumarate respiration	0.51
b4125	dcuS	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory system with DcuR, regulator of anaerobic fumarate respiration	-0.77
b4126	yjdI	Isolate 1	non-essential	conserved protein	0.21
b4126	yjdI	Isolate 2	non-essential	conserved protein	1.37
b4127	yjdJ	Isolate 1	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	-0.33
b4127	yjdJ	Isolate 2	non-essential	predicted acyltransferase with acyl-CoA N-acyltransferase domain	0.03
b4128	yjdK	Isolate 1	non-essential	predicted protein	-1.85
b4128	yjdK	Isolate 2	non-essential	predicted protein	-1.65
b4129	lysU	Isolate 1	non-essential	lysine tRNA synthetase, inducible	-1.58
b4129	lysU	Isolate 2	non-essential	lysine tRNA synthetase, inducible	0.37
b4130	yjdL	Isolate 1	non-essential	predicted transporter	0.48
b4130	yjdL	Isolate 2	non-essential	predicted transporter	0.00
b4131	cadA	Isolate 1	non-essential	lysine decarboxylase 1	0.74
b4131	cadA	Isolate 2	non-essential	lysine decarboxylase 1	-2.01
b4132	cadB	Isolate 1	non-essential	predicted lysine/cadaverine transporter	-0.30

b4132	cadB	Isolate 2	non-essential	predicted lysine/cadaverine transporter	1.86
b4133	cadC	Isolate 1	non-essential	DNA-binding transcriptional activator	0.99
b4133	cadC	Isolate 2	non-essential	DNA-binding transcriptional activator	0.73
b4135	yjdC	Isolate 1	non-essential	predicted transcriptional regulator	0.00
b4135	yjdC	Isolate 2	non-essential	predicted transcriptional regulator	-0.48
b4136	dipZ	Isolate 1	non-essential	fused thiol:disulfide interchange protein	0.57
b4136	dipZ	Isolate 2	non-essential	fused thiol:disulfide interchange protein	-0.28
b4137	cutA	Isolate 1	non-essential	copper binding protein, copper sensitivity	-2.29
b4137	cutA	Isolate 2	non-essential	copper binding protein, copper sensitivity	-2.28
b4138	dcuA	Isolate 1	non-essential	C4-dicarboxylate antiporter	0.72
b4138	dcuA	Isolate 2	non-essential	C4-dicarboxylate antiporter	1.39
b4139	aspA	Isolate 1	non-essential	aspartate ammonia-lyase	1.47
b4139	aspA	Isolate 2	non-essential	aspartate ammonia-lyase	2.08
b4140	fxsA	Isolate 1	non-essential	inner membrane protein	0.35
b4140	fxsA	Isolate 2	non-essential	inner membrane protein	-1.69
b4141	yjeH	Isolate 1	non-essential	predicted transporter	1.02
b4141	yjeH	Isolate 2	non-essential	predicted transporter	-0.91
b4142	groS	Isolate 1	essential	Cpn10 chaperonin GroES, small subunit of GroESL	0.25
b4143	groL	Isolate 1	non-essential	Cpn60 chaperonin GroEL, large subunit of GroESL	-1.75
b4143	groL	Isolate 2	non-essential	Cpn60 chaperonin GroEL, large subunit of GroESL	-1.81
b4144	yjeI	Isolate 1	non-essential	conserved protein	-0.65
b4144	yjeI	Isolate 2	non-essential	conserved protein	1.84
b4145	yjeJ	Isolate 1	non-essential	predicted protein	-2.29
b4145	yjeJ	Isolate 2	non-essential	predicted protein	-0.75
b4146	yjeK	Isolate 1	non-essential	predicted lysine aminomutase	-1.74
b4146	yjeK	Isolate 2	non-essential	predicted lysine aminomutase	0.03
b4147	efp	Isolate 1	non-essential	Elongation factor EF-P	1.92
b4147	efp	Isolate 2	non-essential	Elongation factor EF-P	-0.23
b4148	sugE	Isolate 1	non-essential	multidrug efflux system protein	0.74
b4148	sugE	Isolate 2	non-essential	multidrug efflux system protein	0.95
b4149	blc	Isolate 1	non-essential	outer membrane lipoprotein (lipocalin)	-1.58
b4149	blc	Isolate 2	non-essential	outer membrane lipoprotein (lipocalin)	-0.76
b4150	ampC	Isolate 1	non-essential	beta-lactamase/D-alanine carboxypeptidase	-0.07
b4150	ampC	Isolate 2	non-essential	beta-lactamase/D-alanine carboxypeptidase	2.11
b4151	frdD	Isolate 1	non-essential	fumarate reductase (anaerobic), membrane anchor subunit	-0.17
b4151	frdD	Isolate 2	non-essential	fumarate reductase (anaerobic), membrane anchor subunit	0.49
b4152	frdC	Isolate 1	non-essential	fumarate reductase (anaerobic), membrane anchor subunit	-2.59
b4152	frdC	Isolate 2	non-essential	fumarate reductase (anaerobic), membrane anchor subunit	-0.68
b4153	frdB	Isolate 1	non-essential	fumarate reductase (anaerobic), Fe-S subunit	0.01
b4153	frdB	Isolate 2	non-essential	fumarate reductase (anaerobic), Fe-S subunit	-1.07
b4154	frdA	Isolate 1	non-essential	fumarate reductase (anaerobic) catalytic and NAD/flavoprotein subunit	-0.78
b4154	frdA	Isolate 2	non-essential	fumarate reductase (anaerobic) catalytic and NAD/flavoprotein subunit	-0.61
b4155	poxA	Isolate 1	non-essential	predicted lysyl-tRNA synthetase	-1.01

b4155	poxA	Isolate 2	non-essential	predicted lysyl-tRNA synthetase	-0.66
b4156	yjeM	Isolate 1	non-essential	predicted transporter	1.03
b4156	yjeM	Isolate 2	non-essential	predicted transporter	0.74
b4157	yjeN	Isolate 1	non-essential	predicted protein	0.58
b4157	yjeN	Isolate 2	non-essential	predicted protein	-1.43
b4158	yjeO	Isolate 1	non-essential	conserved inner membrane protein	-1.86
b4158	yjeO	Isolate 2	non-essential	conserved inner membrane protein	0.78
b4159	yjeP	Isolate 1	non-essential	predicted mechanosensitive channel	-2.73
b4159	yjeP	Isolate 2	non-essential	predicted mechanosensitive channel	-0.88
b4161	rsgA	Isolate 1	non-essential	ribosome small subunit-dependent GTPase A	1.08
b4161	rsgA	Isolate 2	non-essential	ribosome small subunit-dependent GTPase A	1.04
b4166	yjeS	Isolate 1	non-essential	predicted Fe-S electron transport protein	0.57
b4166	yjeS	Isolate 2	non-essential	predicted Fe-S electron transport protein	1.17
b4168	yjeE	Isolate 1	essential	ATPase with strong ADP affinity	-2.10
b4169	amiB	Isolate 1	non-essential	N-acetylmuramoyl-l-alanine amidase II	1.03
b4169	amiB	Isolate 2	non-essential	N-acetylmuramoyl-l-alanine amidase II	0.44
b4170	mutL	Isolate 1	non-essential	methyl-directed mismatch repair protein	-0.60
b4170	mutL	Isolate 2	non-essential	methyl-directed mismatch repair protein	-0.63
b4171	miaA	Isolate 1	non-essential	delta(2)-isopentenylpyrophosphate tRNA-adenosine transferase	1.27
b4171	miaA	Isolate 2	non-essential	delta(2)-isopentenylpyrophosphate tRNA-adenosine transferase	1.45
b4172	hfq	Isolate 1	non-essential	HF-I, host factor for RNA phage Q beta replication	0.56
b4172	hfq	Isolate 2	non-essential	HF-I, host factor for RNA phage Q beta replication	0.50
b4173	hflX	Isolate 1	non-essential	predicted GTPase	-0.87
b4173	hflX	Isolate 2	non-essential	predicted GTPase	-0.50
b4174	hflK	Isolate 1	non-essential	modulator for HflB protease specific for phage lambda cII repressor	-0.13
b4174	hflK	Isolate 2	non-essential	modulator for HflB protease specific for phage lambda cII repressor	-1.55
b4175	hflC	Isolate 1	non-essential	modulator for HflB protease specific for phage lambda cII repressor	-0.58
b4175	hflC	Isolate 2	non-essential	modulator for HflB protease specific for phage lambda cII repressor	-1.64
b4176	yjeT	Isolate 1	non-essential	conserved inner membrane protein	0.43
b4176	yjeT	Isolate 2	non-essential	conserved inner membrane protein	-1.39
b4177	purA	Isolate 1	non-essential	adenylosuccinate synthetase	-1.43
b4177	purA	Isolate 2	non-essential	adenylosuccinate synthetase	-2.13
b4178	yjeB	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.39
b4178	yjeB	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.74
b4179	rnr	Isolate 1	non-essential	exoribonuclease R, RNase R	-0.03
b4179	rnr	Isolate 2	non-essential	exoribonuclease R, RNase R	-1.01
b4180	rlmB	Isolate 1	non-essential	23S rRNA (Gm2251)-methyltransferase	-0.25
b4180	rlmB	Isolate 2	non-essential	23S rRNA (Gm2251)-methyltransferase	-0.42
b4181	yjfl	Isolate 1	non-essential	conserved protein	-0.16
b4181	yjfl	Isolate 2	non-essential	conserved protein	-0.87
b4182	yjfJ	Isolate 1	non-essential	predicted transcriptional regulator effector protein	-1.17
b4182	yjfJ	Isolate 2	non-essential	predicted transcriptional regulator effector protein	-0.77
b4183	yjfK	Isolate 1	non-essential	conserved protein	-1.19

b4183	yjfK	Isolate 2	non-essential	conserved protein	0.00
b4184	yjfL	Isolate 1	non-essential	conserved inner membrane protein	-1.52
b4184	yjfL	Isolate 2	non-essential	conserved inner membrane protein	-0.80
b4185	yjfM	Isolate 1	non-essential	conserved protein	0.20
b4185	yjfM	Isolate 2	non-essential	conserved protein	0.02
b4186	yjfC	Isolate 1	non-essential	predicted synthetase/amidase	-0.37
b4186	yjfC	Isolate 2	non-essential	predicted synthetase/amidase	0.03
b4187	aidB	Isolate 1	non-essential	isovaleryl CoA dehydrogenase	-0.12
b4187	aidB	Isolate 2	non-essential	isovaleryl CoA dehydrogenase	0.44
b4188	yjfN	Isolate 1	non-essential	predicted protein	-1.46
b4188	yjfN	Isolate 2	non-essential	predicted protein	-1.55
b4189	yjfO	Isolate 1	non-essential	conserved protein	0.54
b4189	yjfO	Isolate 2	non-essential	conserved protein	-1.08
b4190	yjfP	Isolate 1	non-essential	predicted hydrolase	-1.52
b4190	yjfP	Isolate 2	non-essential	predicted hydrolase	-0.53
b4191	ulaR	Isolate 1	non-essential	DNA-binding transcriptional dual regulator	0.10
b4191	ulaR	Isolate 2	non-essential	DNA-binding transcriptional dual regulator	-0.60
b4192	ulaG	Isolate 1	non-essential	L-ascorbate 6-phosphate lactonase	0.11
b4192	ulaG	Isolate 2	non-essential	L-ascorbate 6-phosphate lactonase	-1.88
b4193	ulaA	Isolate 1	non-essential	L-ascorbate-specific enzyme IIC component of PTS	0.43
b4193	ulaA	Isolate 2	non-essential	L-ascorbate-specific enzyme IIC component of PTS	0.51
b4194	ulaB	Isolate 1	non-essential	L-ascorbate-specific enzyme IIB component of PTS	0.04
b4194	ulaB	Isolate 2	non-essential	L-ascorbate-specific enzyme IIB component of PTS	1.65
b4195	ulaC	Isolate 1	non-essential	L-ascorbate-specific enzyme IIA component of PTS	1.39
b4195	ulaC	Isolate 2	non-essential	L-ascorbate-specific enzyme IIA component of PTS	2.19
b4196	ulaD	Isolate 1	non-essential	3-keto-L-gulonate 6-phosphate decarboxylase	1.16
b4196	ulaD	Isolate 2	non-essential	3-keto-L-gulonate 6-phosphate decarboxylase	0.34
b4197	ulaE	Isolate 1	non-essential	L-xylulose 5-phosphate 3-epimerase	-0.44
b4197	ulaE	Isolate 2	non-essential	L-xylulose 5-phosphate 3-epimerase	-0.54
b4198	ulaF	Isolate 1	non-essential	L-ribulose 5-phosphate 4-epimerase	-0.03
b4198	ulaF	Isolate 2	non-essential	L-ribulose 5-phosphate 4-epimerase	-0.19
b4199	yjfY	Isolate 1	non-essential	predicted protein	0.60
b4199	yjfY	Isolate 2	non-essential	predicted protein	1.42
b4200	rpsF	Isolate 1	non-essential	30S ribosomal subunit protein S6	2.27
b4200	rpsF	Isolate 2	non-essential	30S ribosomal subunit protein S6	-0.31
b4201	priB	Isolate 1	non-essential	primosomal protein N	-1.81
b4201	priB	Isolate 2	non-essential	primosomal protein N	-1.25
b4203	rplI	Isolate 1	non-essential	50S ribosomal subunit protein L9	1.72
b4203	rplI	Isolate 2	non-essential	50S ribosomal subunit protein L9	1.76
b4204	yjfZ	Isolate 1	non-essential	predicted protein	-1.83
b4204	yjfZ	Isolate 2	non-essential	predicted protein	-1.17
b4205	ytfA	Isolate 1	non-essential	predicted transcriptional regulator	0.42
b4205	ytfA	Isolate 2	non-essential	predicted transcriptional regulator	0.94

b4206	ytfB	Isolate 1	non-essential	predicted cell envelope opacity-associated protein	1.42
b4206	ytfB	Isolate 2	non-essential	predicted cell envelope opacity-associated protein	-1.27
b4207	fkIB	Isolate 1	non-essential	FKBP-type peptidyl-prolyl cis-trans isomerase (rotamase)	0.03
b4207	fkIB	Isolate 2	non-essential	FKBP-type peptidyl-prolyl cis-trans isomerase (rotamase)	-0.58
b4208	cycA	Isolate 1	non-essential	D-alanine/D-serine/glycine transporter	0.36
b4208	cycA	Isolate 2	non-essential	D-alanine/D-serine/glycine transporter	-0.58
b4209	ytfE	Isolate 1	non-essential	predicted regulator of cell morphogenesis and cell wall metabolism	-2.01
b4209	ytfE	Isolate 2	non-essential	predicted regulator of cell morphogenesis and cell wall metabolism	-0.34
b4210	ytfF	Isolate 1	non-essential	predicted inner membrane protein	0.34
b4210	ytfF	Isolate 2	non-essential	predicted inner membrane protein	-0.44
b4211	ytfG	Isolate 1	non-essential	NAD(P)H:quinone oxidoreductase	-0.82
b4211	ytfG	Isolate 2	non-essential	NAD(P)H:quinone oxidoreductase	1.65
b4212	ytfH	Isolate 1	non-essential	predicted transcriptional regulator	1.62
b4212	ytfH	Isolate 2	non-essential	predicted transcriptional regulator	0.10
b4213	cpdB	Isolate 1	non-essential	2':3'-cyclic-nucleotide 2'-phosphodiesterase	0.83
b4213	cpdB	Isolate 2	non-essential	2':3'-cyclic-nucleotide 2'-phosphodiesterase	-0.23
b4214	cysQ	Isolate 1	non-essential	PAPS (adenosine 3'-phosphate 5'-phosphosulfate) 3'(2'),5'-bisphosphate nucleotidase	-1.81
b4214	cysQ	Isolate 2	non-essential	PAPS (adenosine 3'-phosphate 5'-phosphosulfate) 3'(2'),5'-bisphosphate nucleotidase	-0.71
b4215	ytfI	Isolate 1	non-essential	predicted protein	-0.09
b4215	ytfI	Isolate 2	non-essential	predicted protein	-1.00
b4216	ytfJ	Isolate 1	non-essential	predicted transcriptional regulator	-0.13
b4216	ytfJ	Isolate 2	non-essential	predicted transcriptional regulator	-1.73
b4217	ytfK	Isolate 1	non-essential	conserved protein	-0.29
b4217	ytfK	Isolate 2	non-essential	conserved protein	-1.50
b4218	ytfL	Isolate 1	non-essential	predicted inner membrane protein	0.44
b4218	ytfL	Isolate 2	non-essential	predicted inner membrane protein	-1.00
b4219	msrA	Isolate 1	non-essential	methionine sulfoxide reductase A	1.00
b4219	msrA	Isolate 2	non-essential	methionine sulfoxide reductase A	-0.46
b4220	ytfM	Isolate 1	non-essential	predicted outer membrane protein and surface antigen	0.36
b4220	ytfM	Isolate 2	non-essential	predicted outer membrane protein and surface antigen	0.66
b4221	ytfN	Isolate 1	non-essential	conserved protein	-1.39
b4221	ytfN	Isolate 2	non-essential	conserved protein	-1.72
b4222	ytfP	Isolate 1	non-essential	conserved protein	-2.83
b4222	ytfP	Isolate 2	non-essential	conserved protein	-1.90
b4223	yzfA	Isolate 1	non-essential	predicted protein	-0.58
b4223	yzfA	Isolate 2	non-essential	predicted protein	0.16
b4225	chpB	Isolate 1	non-essential	toxin of the ChpB-ChpS toxin-antitoxin system	-1.23
b4225	chpB	Isolate 2	non-essential	toxin of the ChpB-ChpS toxin-antitoxin system	0.79
b4226	ppa	Isolate 1	essential	inorganic pyrophosphatase	3.95
b4227	ytfQ	Isolate 1	non-essential	predicted sugar transporter subunit -!- periplasmic-binding component of ABC superfamily	0.28
b4227	ytfQ	Isolate 2	non-essential	predicted sugar transporter subunit -!- periplasmic-binding component of ABC superfamily	0.24
b4230	ytfT	Isolate 1	non-essential	predicted sugar transporter subunit -!- membrane component of ABC superfamily	-1.84
b4230	ytfT	Isolate 2	non-essential	predicted sugar transporter subunit -!- membrane component of ABC superfamily	-0.06

b4231	yjfF	Isolate 1	non-essential	predicted sugar transporter subunit -!- membrane component of ABC superfamily	2.31
b4231	yjfF	Isolate 2	non-essential	predicted sugar transporter subunit -!- membrane component of ABC superfamily	1.98
b4232	fbp	Isolate 1	non-essential	fructose-1,6-bisphosphatase I	-0.36
b4232	fbp	Isolate 2	non-essential	fructose-1,6-bisphosphatase I	0.77
b4233	mpl	Isolate 1	non-essential	UDP-N-acetylmuramate:L-alanyl-gamma-D-glutamyl-meso-diaminopimelate ligase	-0.42
b4233	mpl	Isolate 2	non-essential	UDP-N-acetylmuramate:L-alanyl-gamma-D-glutamyl-meso-diaminopimelate ligase	-0.09
b4234	yjgA	Isolate 1	non-essential	conserved protein	-1.32
b4234	yjgA	Isolate 2	non-essential	conserved protein	-0.24
b4235	pmbA	Isolate 1	non-essential	predicted peptidase required for the maturation and secretion of the antibiotic peptide MccB17	2.42
b4235	pmbA	Isolate 2	non-essential	predicted peptidase required for the maturation and secretion of the antibiotic peptide MccB17	2.79
b4236	cybC	Isolate 1	*	cytochrome b562, truncated (pseudogene)	-1.52
b4236	cybC	Isolate 2	*	cytochrome b562, truncated (pseudogene)	-1.44
b4237	nrdG	Isolate 1	non-essential	anaerobic ribonucleotide reductase activating protein	0.42
b4237	nrdG	Isolate 2	non-essential	anaerobic ribonucleotide reductase activating protein	1.46
b4238	nrdD	Isolate 1	non-essential	anaerobic ribonucleoside-triphosphate reductase	0.14
b4238	nrdD	Isolate 2	non-essential	anaerobic ribonucleoside-triphosphate reductase	-0.40
b4239	treC	Isolate 1	non-essential	trehalose-6-P hydrolase	-0.89
b4239	treC	Isolate 2	non-essential	trehalose-6-P hydrolase	-0.02
b4240	treB	Isolate 1	non-essential	fused trehalose(maltose)-specific enzyme IIBC component of PTS	-0.19
b4240	treB	Isolate 2	non-essential	fused trehalose(maltose)-specific enzyme IIBC component of PTS	-0.08
b4241	treR	Isolate 1	non-essential	DNA-binding transcriptional repressor	0.42
b4241	treR	Isolate 2	non-essential	DNA-binding transcriptional repressor	0.49
b4242	mgtA	Isolate 1	non-essential	magnesium transporter	0.09
b4242	mgtA	Isolate 2	non-essential	magnesium transporter	0.28
b4243	yjgF	Isolate 1	non-essential	ketoacid-binding protein	-1.97
b4243	yjgF	Isolate 2	non-essential	ketoacid-binding protein	-0.56
b4244	pyrI	Isolate 1	non-essential	aspartate carbamoyltransferase, regulatory subunit	-2.07
b4244	pyrI	Isolate 2	non-essential	aspartate carbamoyltransferase, regulatory subunit	-2.57
b4245	pyrB	Isolate 1	non-essential	aspartate carbamoyltransferase, catalytic subunit	-0.97
b4245	pyrB	Isolate 2	non-essential	aspartate carbamoyltransferase, catalytic subunit	0.94
b4246	pyrL	Isolate 1	non-essential	pyrBI operon leader peptide	-0.23
b4246	pyrL	Isolate 2	non-essential	pyrBI operon leader peptide	0.16
b4248	yjgH	Isolate 1	non-essential	predicted mRNA endoribonuclease	-1.08
b4248	yjgH	Isolate 2	non-essential	predicted mRNA endoribonuclease	-0.91
b4249	yjgI	Isolate 1	non-essential	predicted oxidoreductase with NAD(P)-binding Rossmann-fold domain	0.56
b4249	yjgI	Isolate 2	non-essential	predicted oxidoreductase with NAD(P)-binding Rossmann-fold domain	2.21
b4251	yjgJ	Isolate 1	non-essential	predicted transcriptional regulator	1.14
b4251	yjgJ	Isolate 2	non-essential	predicted transcriptional regulator	0.69
b4252	yjgK	Isolate 1	non-essential	conserved protein	-0.76
b4252	yjgK	Isolate 2	non-essential	conserved protein	-0.64
b4253	yjgL	Isolate 1	non-essential	predicted protein	-0.12
b4253	yjgL	Isolate 2	non-essential	predicted protein	-0.27
b4254	argI	Isolate 1	non-essential	ornithine carbamoyltransferase 1	1.16

b4254	argI	Isolate 2	non-essential	ornithine carbamoyltransferase 1	2.31
b4255	yjgD	Isolate 1	non-essential	conserved protein	-0.01
b4255	yjgD	Isolate 2	non-essential	conserved protein	-0.02
b4256	yjgM	Isolate 1	non-essential	predicted acetyltransferase	-1.44
b4256	yjgM	Isolate 2	non-essential	predicted acetyltransferase	-1.76
b4257	yjgN	Isolate 1	non-essential	conserved inner membrane protein	0.18
b4257	yjgN	Isolate 2	non-essential	conserved inner membrane protein	-0.55
b4258	valS	Isolate 1	essential	valyl-tRNA synthetase	-0.16
b4259	holC	Isolate 1	non-essential	DNA polymerase III, chi subunit	3.26
b4259	holC	Isolate 2	non-essential	DNA polymerase III, chi subunit	0.45
b4260	pepA	Isolate 1	non-essential	aminopeptidase A, a cyteinyglycinase	-0.79
b4260	pepA	Isolate 2	non-essential	aminopeptidase A, a cyteinyglycinase	-1.42
b4263	yjgR	Isolate 1	non-essential	predicted ATPase	-0.76
b4263	yjgR	Isolate 2	non-essential	predicted ATPase	-0.10
b4264	idnR	Isolate 1	non-essential	DNA-binding transcriptional repressor, 5-gluconate-binding	1.85
b4264	idnR	Isolate 2	non-essential	DNA-binding transcriptional repressor, 5-gluconate-binding	0.74
b4265	idnT	Isolate 1	non-essential	L-idonate and D-gluconate transporter	0.11
b4265	idnT	Isolate 2	non-essential	L-idonate and D-gluconate transporter	-2.98
b4266	idnO	Isolate 1	non-essential	5-keto-D-gluconate-5-reductase	-0.37
b4266	idnO	Isolate 2	non-essential	5-keto-D-gluconate-5-reductase	0.39
b4267	idnD	Isolate 1	non-essential	L-idonate 5-dehydrogenase, NAD-binding	-1.37
b4267	idnD	Isolate 2	non-essential	L-idonate 5-dehydrogenase, NAD-binding	-0.47
b4268	idnK	Isolate 1	non-essential	D-gluconate kinase, thermosensitive	-1.45
b4268	idnK	Isolate 2	non-essential	D-gluconate kinase, thermosensitive	1.72
b4269	yjgB	Isolate 1	non-essential	predicted alcohol dehydrogenase, Zn-dependent and NAD(P)-binding	-1.30
b4269	yjgB	Isolate 2	non-essential	predicted alcohol dehydrogenase, Zn-dependent and NAD(P)-binding	-1.04
b4271	intB	Isolate 1	non-essential	KpLE2 phage-like element; predicted integrase	1.80
b4271	intB	Isolate 2	non-essential	KpLE2 phage-like element; predicted integrase	0.09
b4274	yjgW	Isolate 1	non-essential	KpLE2 phage-like element; predicted protein	2.30
b4274	yjgW	Isolate 2	non-essential	KpLE2 phage-like element; predicted protein	1.32
b4275	yjgX	Isolate 1	*	KpLE2 phage-like element; predicted protein, middle fragment (pseudogene)	-0.91
b4275	yjgX	Isolate 2	*	KpLE2 phage-like element; predicted protein, middle fragment (pseudogene)	-0.20
b4276	yjgX	Isolate 1	*	KpLE2 phage-like element; predicted protein, N-ter fragment (pseudogene)	-1.41
b4276	yjgX	Isolate 2	*	KpLE2 phage-like element; predicted protein, N-ter fragment (pseudogene)	6.68
b4277	yjgZ	Isolate 1	non-essential	KpLE2 phage-like element; predicted protein	0.16
b4277	yjgZ	Isolate 2	non-essential	KpLE2 phage-like element; predicted protein	-1.66
b4279	yjhB	Isolate 1	non-essential	KpLE2 phage-like element; predicted transporter	-3.73
b4279	yjhB	Isolate 2	non-essential	KpLE2 phage-like element; predicted transporter	2.10
b4280	yjhC	Isolate 1	non-essential	KpLE2 phage-like element; predicted oxidoreductase	0.91
b4280	yjhC	Isolate 2	non-essential	KpLE2 phage-like element; predicted oxidoreductase	0.53
b4281	yjhD	Isolate 1	*	KpLE2 phage-like element; predicted protein (pseudogene)	-0.91
b4281	yjhD	Isolate 2	*	KpLE2 phage-like element; predicted protein (pseudogene)	1.48
b4282	yjhE	Isolate 1	*	KpLE2 phage-like element; predicted membrane protein (pseudogene)	-1.16



b4282	yjhE	Isolate 2	*	KpLE2 phage-like element; predicted membrane protein (pseudogene)	-1.02
b4286	yjhV	Isolate 1	non-essential	KpLE2 phage-like element; predicted protein	1.69
b4286	yjhV	Isolate 2	non-essential	KpLE2 phage-like element; predicted protein	0.44
b4287	fecE	Isolate 1	non-essential	KpLE2 phage-like element; iron-dicitrate transporter subunit -!- ATP-binding component of ABC superfamily	1.91
b4287	fecE	Isolate 2	non-essential	KpLE2 phage-like element; iron-dicitrate transporter subunit -!- ATP-binding component of ABC superfamily	2.04
b4288	fecD	Isolate 1	non-essential	KpLE2 phage-like element; iron-dicitrate transporter subunit -!- membrane component of ABC superfamily	1.16
b4288	fecD	Isolate 2	non-essential	KpLE2 phage-like element; iron-dicitrate transporter subunit -!- membrane component of ABC superfamily	0.30
b4289	fecC	Isolate 1	non-essential	KpLE2 phage-like element; iron-dicitrate transporter subunit -!- membrane component of ABC superfamily	0.51
b4289	fecC	Isolate 2	non-essential	KpLE2 phage-like element; iron-dicitrate transporter subunit -!- membrane component of ABC superfamily	0.25
b4290	fecB	Isolate 1	non-essential	KpLE2 phage-like element; iron-dicitrate transporter subunit -!- periplasmic-binding component of ABC superfamily	1.59
b4290	fecB	Isolate 2	non-essential	KpLE2 phage-like element; iron-dicitrate transporter subunit -!- periplasmic-binding component of ABC superfamily	1.76
b4291	fecA	Isolate 1	non-essential	KpLE2 phage-like element; ferric citrate outer membrane transporter	0.48
b4291	fecA	Isolate 2	non-essential	KpLE2 phage-like element; ferric citrate outer membrane transporter	0.38
b4292	fecR	Isolate 1	non-essential	KpLE2 phage-like element; transmembrane signal transducer for ferric citrate transport	-0.39
b4292	fecR	Isolate 2	non-essential	KpLE2 phage-like element; transmembrane signal transducer for ferric citrate transport	0.17
b4293	fecI	Isolate 1	non-essential	KpLE2 phage-like element; RNA polymerase, sigma 19 factor	-1.14
b4293	fecI	Isolate 2	non-essential	KpLE2 phage-like element; RNA polymerase, sigma 19 factor	-0.46
b4295	yjhU	Isolate 1	non-essential	KpLE2 phage-like element; predicted DNA-binding transcriptional regulator	1.70
b4295	yjhU	Isolate 2	non-essential	KpLE2 phage-like element; predicted DNA-binding transcriptional regulator	2.26
b4296	yjhF	Isolate 1	non-essential	KpLE2 phage-like element; predicted transporter	0.35
b4296	yjhF	Isolate 2	non-essential	KpLE2 phage-like element; predicted transporter	-0.78
b4297	yjhG	Isolate 1	non-essential	KpLE2 phage-like element; predicted dehydratase	-0.22
b4297	yjhG	Isolate 2	non-essential	KpLE2 phage-like element; predicted dehydratase	-1.47
b4298	yjhH	Isolate 1	non-essential	KpLE2 phage-like element; predicted lyase/synthase	-1.65
b4298	yjhH	Isolate 2	non-essential	KpLE2 phage-like element; predicted lyase/synthase	-1.33
b4299	yjhI	Isolate 1	non-essential	KpLE2 phage-like element; predicted DNA-binding transcriptional regulator	-0.76
b4299	yjhI	Isolate 2	non-essential	KpLE2 phage-like element; predicted DNA-binding transcriptional regulator	-0.21
b4300	sgcR	Isolate 1	non-essential	KpLE2 phage-like element; predicted DNA-binding transcriptional regulator	0.84
b4300	sgcR	Isolate 2	non-essential	KpLE2 phage-like element; predicted DNA-binding transcriptional regulator	3.35
b4301	sgcE	Isolate 1	non-essential	KpLE2 phage-like element; predicted epimerase	0.72
b4301	sgcE	Isolate 2	non-essential	KpLE2 phage-like element; predicted epimerase	-1.11
b4302	sgcA	Isolate 1	non-essential	KpLE2 phage-like element; predicted phosphotransferase enzyme IIA component	-1.28
b4302	sgcA	Isolate 2	non-essential	KpLE2 phage-like element; predicted phosphotransferase enzyme IIA component	1.76
b4303	sgcQ	Isolate 1	non-essential	KpLE2 phage-like element; predicted nucleoside triphosphatase	0.86
b4303	sgcQ	Isolate 2	non-essential	KpLE2 phage-like element; predicted nucleoside triphosphatase	-0.57
b4304	sgcC	Isolate 1	non-essential	KpLE2 phage-like element; predicted phosphotransferase enzyme IIC component	-0.89
b4304	sgcC	Isolate 2	non-essential	KpLE2 phage-like element; predicted phosphotransferase enzyme IIC component	-1.13
b4305	sgcX	Isolate 1	non-essential	KpLE2 phage-like element; predicted endoglucanase with Zn-dependent exopeptidase domain	-0.21
b4305	sgcX	Isolate 2	non-essential	KpLE2 phage-like element; predicted endoglucanase with Zn-dependent exopeptidase domain	-0.52
b4306	yjhP	Isolate 1	non-essential	KpLE2 phage-like element; predicted methyltransferase	-0.42
b4306	yjhP	Isolate 2	non-essential	KpLE2 phage-like element; predicted methyltransferase	-0.22
b4307	yjhQ	Isolate 1	non-essential	KpLE2 phage-like element; predicted acetyltransferase	0.11
b4307	yjhQ	Isolate 2	non-essential	KpLE2 phage-like element; predicted acetyltransferase	-0.27

b4308	yjhR	Isolate 1	non-essential	KpLE2 phage-like element; predicted frameshift suppressor	-0.09
b4308	yjhR	Isolate 2	non-essential	KpLE2 phage-like element; predicted frameshift suppressor	0.24
b4309	yjhS	Isolate 1	non-essential	conserved protein	1.82
b4309	yjhS	Isolate 2	non-essential	conserved protein	-0.37
b4310	yjhT	Isolate 1	non-essential	conserved protein	-1.25
b4310	yjhT	Isolate 2	non-essential	conserved protein	-1.17
b4311	yjhA	Isolate 1	non-essential	N-acetylnuraminic acid outer membrane channel protein	-0.71
b4311	yjhA	Isolate 2	non-essential	N-acetylnuraminic acid outer membrane channel protein	-0.19
b4312	fimB	Isolate 1	non-essential	tyrosine recombinase/inversion of on/off regulator of fimA	-0.21
b4312	fimB	Isolate 2	non-essential	tyrosine recombinase/inversion of on/off regulator of fimA	-0.43
b4313	fimE	Isolate 1	non-essential	tyrosine recombinase/inversion of on/off regulator of fimA	0.28
b4313	fimE	Isolate 2	non-essential	tyrosine recombinase/inversion of on/off regulator of fimA	-0.35
b4314	fimA	Isolate 1	non-essential	major type 1 subunit fimbrin (pilin)	0.64
b4314	fimA	Isolate 2	non-essential	major type 1 subunit fimbrin (pilin)	1.27
b4315	fimI	Isolate 1	non-essential	fimbrial protein involved in type 1 pilus biosynthesis	-1.56
b4315	fimI	Isolate 2	non-essential	fimbrial protein involved in type 1 pilus biosynthesis	-1.41
b4316	fimC	Isolate 1	non-essential	chaperone, periplasmic	0.86
b4316	fimC	Isolate 2	non-essential	chaperone, periplasmic	-2.10
b4317	fimD	Isolate 1	non-essential	outer membrane usher protein, type 1 fimbrial synthesis	-2.38
b4317	fimD	Isolate 2	non-essential	outer membrane usher protein, type 1 fimbrial synthesis	-2.80
b4318	fimF	Isolate 1	non-essential	minor component of type 1 fimbriae	2.10
b4318	fimF	Isolate 2	non-essential	minor component of type 1 fimbriae	0.25
b4319	fimG	Isolate 1	non-essential	minor component of type 1 fimbriae	-1.63
b4319	fimG	Isolate 2	non-essential	minor component of type 1 fimbriae	1.42
b4320	fimH	Isolate 1	non-essential	minor component of type 1 fimbriae	-0.06
b4320	fimH	Isolate 2	non-essential	minor component of type 1 fimbriae	1.36
b4321	gntP	Isolate 1	non-essential	fructuronate transporter	-0.03
b4321	gntP	Isolate 2	non-essential	fructuronate transporter	0.58
b4322	uxuA	Isolate 1	non-essential	mannonate hydrolase	0.60
b4322	uxuA	Isolate 2	non-essential	mannonate hydrolase	0.31
b4323	uxuB	Isolate 1	non-essential	D-mannonate oxidoreductase, NAD-binding	-0.90
b4323	uxuB	Isolate 2	non-essential	D-mannonate oxidoreductase, NAD-binding	3.15
b4324	uxuR	Isolate 1	non-essential	DNA-binding transcriptional repressor	-1.75
b4324	uxuR	Isolate 2	non-essential	DNA-binding transcriptional repressor	0.19
b4325	yjiC	Isolate 1	non-essential	predicted protein	0.60
b4325	yjiC	Isolate 2	non-essential	predicted protein	-0.50
b4326	yjiD	Isolate 1	non-essential	DNA replication/recombination/repair protein	0.35
b4326	yjiD	Isolate 2	non-essential	DNA replication/recombination/repair protein	0.18
b4327	yjiE	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-1.43
b4327	yjiE	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.60
b4328	iadA	Isolate 1	non-essential	isoaspartyl dipeptidase	1.13
b4328	iadA	Isolate 2	non-essential	isoaspartyl dipeptidase	-0.54
b4329	yjiG	Isolate 1	non-essential	conserved inner membrane protein	-0.46

b4329	yjiG	Isolate 2	non-essential	conserved inner membrane protein	0.03
b4330	yjiH	Isolate 1	non-essential	conserved inner membrane protein	-0.69
b4330	yjiH	Isolate 2	non-essential	conserved inner membrane protein	-0.61
b4331	kptA	Isolate 1	non-essential	2'-phosphotransferase	-1.09
b4331	kptA	Isolate 2	non-essential	2'-phosphotransferase	-0.78
b4332	yjiJ	Isolate 1	non-essential	predicted inner membrane protein	-0.50
b4332	yjiJ	Isolate 2	non-essential	predicted inner membrane protein	-1.07
b4333	yjiK	Isolate 1	non-essential	conserved protein	-0.12
b4333	yjiK	Isolate 2	non-essential	conserved protein	-0.08
b4334	yjiL	Isolate 1	non-essential	predicted ATPase, activator of (R)-hydroxyglutaryl-CoA dehydratase	0.40
b4334	yjiL	Isolate 2	non-essential	predicted ATPase, activator of (R)-hydroxyglutaryl-CoA dehydratase	0.54
b4335	yjiM	Isolate 1	non-essential	predicted 2-hydroxyglutaryl-CoA dehydratase	0.41
b4335	yjiM	Isolate 2	non-essential	predicted 2-hydroxyglutaryl-CoA dehydratase	-1.03
b4336	yjiN	Isolate 1	non-essential	conserved inner membrane protein	0.45
b4336	yjiN	Isolate 2	non-essential	conserved inner membrane protein	0.03
b4337	yjiO	Isolate 1	non-essential	multidrug efflux system protein	-0.38
b4337	yjiO	Isolate 2	non-essential	multidrug efflux system protein	1.05
b4338	yjiP	Isolate 1	*	predicted transposase (pseudogene)	-2.04
b4338	yjiP	Isolate 2	*	predicted transposase (pseudogene)	-0.35
b4340	yjiR	Isolate 1	non-essential	fused predicted DNA-binding transcriptional regulator -!- predicted aminotransferase	-0.18
b4340	yjiR	Isolate 2	non-essential	fused predicted DNA-binding transcriptional regulator -!- predicted aminotransferase	0.00
b4341	yjiS	Isolate 1	non-essential	conserved protein	-0.63
b4341	yjiS	Isolate 2	non-essential	conserved protein	0.78
b4342	yjiT	Isolate 1	non-essential	conserved protein	0.56
b4342	yjiT	Isolate 2	non-essential	conserved protein	-0.38
b4344	*	Isolate 1	*	*	-1.67
b4344	*	Isolate 2	*	*	0.03
b4345	mcrC	Isolate 1	non-essential	5-methylcytosine-specific restriction enzyme McrBC, subunit McrC	0.44
b4345	mcrC	Isolate 2	non-essential	5-methylcytosine-specific restriction enzyme McrBC, subunit McrC	-1.10
b4346	mcrB	Isolate 1	non-essential	5-methylcytosine-specific restriction enzyme McrBC, subunit McrB	-0.43
b4346	mcrB	Isolate 2	non-essential	5-methylcytosine-specific restriction enzyme McrBC, subunit McrB	-0.86
b4347	yjiW	Isolate 1	non-essential	conserved protein	-0.28
b4347	yjiW	Isolate 2	non-essential	conserved protein	-0.83
b4348	hsdS	Isolate 1	non-essential	specificity determinant for hsdM and hsdR	0.78
b4348	hsdS	Isolate 2	non-essential	specificity determinant for hsdM and hsdR	-2.24
b4349	hsdM	Isolate 1	non-essential	DNA methylase M	0.26
b4349	hsdM	Isolate 2	non-essential	DNA methylase M	0.95
b4350	hsdR	Isolate 1	non-essential	endonuclease R	0.04
b4350	hsdR	Isolate 2	non-essential	endonuclease R	-0.13
b4351	mrr	Isolate 1	non-essential	methylated adenine and cytosine restriction protein	-1.92
b4351	mrr	Isolate 2	non-essential	methylated adenine and cytosine restriction protein	0.11
b4352	yjiA	Isolate 1	non-essential	predicted GTPase	0.62
b4352	yjiA	Isolate 2	non-essential	predicted GTPase	0.34

b4353	yjiX	Isolate 1	non-essential	conserved protein	2.76
b4353	yjiX	Isolate 2	non-essential	conserved protein	0.70
b4354	yjiY	Isolate 1	non-essential	predicted inner membrane protein	1.27
b4354	yjiY	Isolate 2	non-essential	predicted inner membrane protein	-0.53
b4355	tsr	Isolate 1	non-essential	methyl-accepting chemotaxis protein I, serine sensor receptor	-0.69
b4355	tsr	Isolate 2	non-essential	methyl-accepting chemotaxis protein I, serine sensor receptor	-3.75
b4356	yjiZ	Isolate 1	non-essential	predicted transporter	0.05
b4356	yjiZ	Isolate 2	non-essential	predicted transporter	-1.47
b4357	yjjM	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.67
b4357	yjjM	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.23
b4358	yjjN	Isolate 1	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	0.77
b4358	yjjN	Isolate 2	non-essential	predicted oxidoreductase, Zn-dependent and NAD(P)-binding	1.45
b4359	mdoB	Isolate 1	non-essential	phosphoglycerol transferase I	0.74
b4359	mdoB	Isolate 2	non-essential	phosphoglycerol transferase I	2.21
b4360	yjjA	Isolate 1	non-essential	conserved protein	-0.05
b4360	yjjA	Isolate 2	non-essential	conserved protein	1.04
b4362	dnaT	Isolate 1	non-essential	DNA biosynthesis protein (primosomal protein I)	1.04
b4362	dnaT	Isolate 2	non-essential	DNA biosynthesis protein (primosomal protein I)	0.01
b4363	yjjB	Isolate 1	non-essential	conserved inner membrane protein	-1.16
b4363	yjjB	Isolate 2	non-essential	conserved inner membrane protein	-1.45
b4364	yjjP	Isolate 1	non-essential	predicted inner membrane protein	-1.05
b4364	yjjP	Isolate 2	non-essential	predicted inner membrane protein	0.80
b4365	yjjQ	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.33
b4365	yjjQ	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.11
b4366	bgIJ	Isolate 1	non-essential	DNA-binding transcriptional regulator	2.02
b4366	bgIJ	Isolate 2	non-essential	DNA-binding transcriptional regulator	0.22
b4367	fhuF	Isolate 1	non-essential	ferric iron reductase involved in ferric hydroximate transport	1.25
b4367	fhuF	Isolate 2	non-essential	ferric iron reductase involved in ferric hydroximate transport	3.27
b4371	rsmC	Isolate 1	non-essential	16S RNA m2G1207 methylase	0.88
b4371	rsmC	Isolate 2	non-essential	16S RNA m2G1207 methylase	2.89
b4372	holD	Isolate 1	non-essential	DNA polymerase III, psi subunit	0.08
b4372	holD	Isolate 2	non-essential	DNA polymerase III, psi subunit	2.30
b4373	rimI	Isolate 1	non-essential	acetylase for 30S ribosomal subunit protein S18	-0.52
b4373	rimI	Isolate 2	non-essential	acetylase for 30S ribosomal subunit protein S18	0.66
b4374	yjjG	Isolate 1	non-essential	predicted hydrolase	-0.25
b4374	yjjG	Isolate 2	non-essential	predicted hydrolase	-0.07
b4375	prfC	Isolate 1	non-essential	peptide chain release factor RF-3	0.11
b4375	prfC	Isolate 2	non-essential	peptide chain release factor RF-3	-0.39
b4376	osmY	Isolate 1	non-essential	periplasmic protein	0.62
b4376	osmY	Isolate 2	non-essential	periplasmic protein	-0.30
b4377	yjjU	Isolate 1	non-essential	predicted esterase	1.03
b4377	yjjU	Isolate 2	non-essential	predicted esterase	-0.13
b4378	yjjV	Isolate 1	non-essential	predicted DNase	0.63

b4378	yjjV	Isolate 2	non-essential	predicted DNase	0.97
b4379	yjjW	Isolate 1	non-essential	predicted pyruvate formate lyase activating enzyme	0.55
b4379	yjjW	Isolate 2	non-essential	predicted pyruvate formate lyase activating enzyme	1.04
b4380	yjjI	Isolate 1	non-essential	conserved protein	-0.36
b4380	yjjI	Isolate 2	non-essential	conserved protein	-1.57
b4381	deoC	Isolate 1	non-essential	2-deoxyribose-5-phosphate aldolase, NAD(P)-linked	0.68
b4381	deoC	Isolate 2	non-essential	2-deoxyribose-5-phosphate aldolase, NAD(P)-linked	1.89
b4382	deoA	Isolate 1	non-essential	thymidine phosphorylase	0.39
b4382	deoA	Isolate 2	non-essential	thymidine phosphorylase	-1.01
b4383	deoB	Isolate 1	non-essential	phosphopentomutase	0.10
b4383	deoB	Isolate 2	non-essential	phosphopentomutase	0.56
b4384	deoD	Isolate 1	non-essential	purine-nucleoside phosphorylase	0.17
b4384	deoD	Isolate 2	non-essential	purine-nucleoside phosphorylase	-0.67
b4385	yjjJ	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-0.33
b4385	yjjJ	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-1.33
b4386	lplA	Isolate 1	non-essential	lipoate-protein ligase A	-0.46
b4386	lplA	Isolate 2	non-essential	lipoate-protein ligase A	2.10
b4387	ytjB	Isolate 1	non-essential	conserved protein	-1.07
b4387	ytjB	Isolate 2	non-essential	conserved protein	0.00
b4388	serB	Isolate 1	non-essential	3-phosphoserine phosphatase	2.75
b4388	serB	Isolate 2	non-essential	3-phosphoserine phosphatase	-0.90
b4389	radA	Isolate 1	non-essential	predicted repair protein	-1.11
b4389	radA	Isolate 2	non-essential	predicted repair protein	0.73
b4390	nadR	Isolate 1	non-essential	bifunctional DNA-binding transcriptional repressor -!- NMN adenylyltransferase	-0.04
b4390	nadR	Isolate 2	non-essential	bifunctional DNA-binding transcriptional repressor -!- NMN adenylyltransferase	-2.04
b4391	yjjK	Isolate 1	non-essential	fused predicted transporter subunits -!- ATP-binding components of ABC superfamily	-0.56
b4391	yjjK	Isolate 2	non-essential	fused predicted transporter subunits -!- ATP-binding components of ABC superfamily	0.42
b4392	slt	Isolate 1	non-essential	lytic murein transglycosylase, soluble	0.34
b4392	slt	Isolate 2	non-essential	lytic murein transglycosylase, soluble	0.39
b4393	trpR	Isolate 1	non-essential	DNA-binding transcriptional repressor, tryptophan-binding	0.15
b4393	trpR	Isolate 2	non-essential	DNA-binding transcriptional repressor, tryptophan-binding	-0.69
b4394	yjjX	Isolate 1	non-essential	thiamin metabolism associated protein	-1.20
b4394	yjjX	Isolate 2	non-essential	thiamin metabolism associated protein	-0.75
b4395	ytjC	Isolate 1	non-essential	phosphoglyceromutase 2, co-factor independent	-0.59
b4395	ytjC	Isolate 2	non-essential	phosphoglyceromutase 2, co-factor independent	1.91
b4396	rob	Isolate 1	non-essential	DNA-binding transcriptional activator	1.83
b4396	rob	Isolate 2	non-essential	DNA-binding transcriptional activator	3.73
b4397	creA	Isolate 1	non-essential	conserved protein	-0.61
b4397	creA	Isolate 2	non-essential	conserved protein	0.42
b4398	creB	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with CreC	0.61
b4398	creB	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with CreC	-2.75
b4399	creC	Isolate 1	non-essential	sensory histidine kinase in two-component regulatory system with CreB or PhoB, regulator of the CreBC regulon	-1.05
b4399	creC	Isolate 2	non-essential	sensory histidine kinase in two-component regulatory system with CreB or PhoB, regulator of the CreBC regulon	-2.79

b4400	creD	Isolate 1	non-essential	inner membrane protein	0.17
b4400	creD	Isolate 2	non-essential	inner membrane protein	-0.54
b4401	arcA	Isolate 1	non-essential	DNA-binding response regulator in two-component regulatory system with ArcB or CpxA	0.38
b4401	arcA	Isolate 2	non-essential	DNA-binding response regulator in two-component regulatory system with ArcB or CpxA	0.12
b4402	yjjY	Isolate 1	non-essential	predicted protein	1.82
b4402	yjjY	Isolate 2	non-essential	predicted protein	0.26
b4403	yjtD	Isolate 1	non-essential	predicted rRNA methyltransferase	-0.11
b4403	yjtD	Isolate 2	non-essential	predicted rRNA methyltransferase	-0.64
b4404,b4405	*	Isolate 1	*	*	-0.21
b4404,b4405	*	Isolate 2	*	*	0.71
b4406	yaeP	Isolate 1	non-essential	conserved protein	-1.36
b4406	yaeP	Isolate 2	non-essential	conserved protein	0.28
b4407	thiS	Isolate 1	non-essential	sulphur carrier protein	1.66
b4407	thiS	Isolate 2	non-essential	sulphur carrier protein	-0.29
b4409	blr	Isolate 1	non-essential	beta-lactam resistance membrane protein	-0.03
b4410	ecnA	Isolate 1	non-essential	entericidin A membrane lipoprotein, antidote entericidin B	1.69
b4410	ecnA	Isolate 2	non-essential	entericidin A membrane lipoprotein, antidote entericidin B	3.36
b4411	ecnB	Isolate 1	non-essential	entericidin B membrane lipoprotein	0.94
b4411	ecnB	Isolate 2	non-essential	entericidin B membrane lipoprotein	-0.46
b4412	hokC	Isolate 1	*	toxic membrane protein, small	-0.36
b4412	hokC	Isolate 2	*	toxic membrane protein, small	-0.80
b4415	hokE	Isolate 1	non-essential	toxic polypeptide, small	0.33
b4415	hokE	Isolate 2	non-essential	toxic polypeptide, small	0.59
b4428	hokB	Isolate 1	non-essential	toxic polypeptide, small	-2.00
b4428	hokB	Isolate 2	non-essential	toxic polypeptide, small	-1.30
b4453	ldrD	Isolate 1	unknown	toxic polypeptide, small	-1.00
b4453	ldrD	Isolate 2	unknown	toxic polypeptide, small	0.49
b4455	hokA	Isolate 1	non-essential	toxic polypeptide, small	0.83
b4455	hokA	Isolate 2	non-essential	toxic polypeptide, small	-0.70
b4460	araH	Isolate 1	non-essential	fused L-arabinose transporter subunits -!- membrane components of ABC superfamily	-1.15
b4460	araH	Isolate 2	non-essential	fused L-arabinose transporter subunits -!- membrane components of ABC superfamily	0.72
b4461	yfjD	Isolate 1	non-essential	predicted inner membrane protein	-1.27
b4461	yfjD	Isolate 2	non-essential	predicted inner membrane protein	-0.84
b4462	ygaR	Isolate 1	non-essential	predicted protein	-0.84
b4462	ygaR	Isolate 2	non-essential	predicted protein	-2.86
b4463	ygcU	Isolate 1	non-essential	predicted FAD containing dehydrogenase	-2.00
b4463	ygcU	Isolate 2	non-essential	predicted FAD containing dehydrogenase	0.84
b4464	ygfQ	Isolate 1	non-essential	predicted transporter	-0.88
b4464	ygfQ	Isolate 2	non-essential	predicted transporter	0.12
b4465	yggP	Isolate 1	non-essential	predicted dehydrogenase	-1.98
b4465	yggP	Isolate 2	non-essential	predicted dehydrogenase	-1.96
b4466	yghJ	Isolate 1	non-essential	predicted inner membrane lipoprotein	0.67
b4466	yghJ	Isolate 2	non-essential	predicted inner membrane lipoprotein	0.23

b4467	glcF	Isolate 1	non-essential	glycolate oxidase iron-sulfur subunit	1.07
b4467	glcF	Isolate 2	non-essential	glycolate oxidase iron-sulfur subunit	-13.49
b4468	glcE	Isolate 1	non-essential	glycolate oxidase FAD binding subunit	0.35
b4468	glcE	Isolate 2	non-essential	glycolate oxidase FAD binding subunit	1.36
b4469	ygiQ	Isolate 1	non-essential	conserved protein	2.31
b4469	ygiQ	Isolate 2	non-essential	conserved protein	-0.10
b4470	yhaM	Isolate 1	non-essential	conserved protein	-0.43
b4470	yhaM	Isolate 2	non-essential	conserved protein	-0.78
b4471	tdcG	Isolate 1	non-essential	L-serine dehydratase 3	0.75
b4471	tdcG	Isolate 2	non-essential	L-serine dehydratase 3	0.71
b4472	yhdP	Isolate 1	non-essential	conserved membrane protein, predicted transporter	0.19
b4472	yhdP	Isolate 2	non-essential	conserved membrane protein, predicted transporter	-0.64
b4473	smf	Isolate 1	non-essential	conserved protein	-0.40
b4473	smf	Isolate 2	non-essential	conserved protein	1.59
b4475	rtcA	Isolate 1	non-essential	RNA 3'-terminal phosphate cyclase	0.38
b4475	rtcA	Isolate 2	non-essential	RNA 3'-terminal phosphate cyclase	-1.49
b4476	gntU	Isolate 1	non-essential	gluconate transporter, low affinity GNT 1 system	0.48
b4476	gntU	Isolate 2	non-essential	gluconate transporter, low affinity GNT 1 system	-0.41
b4477	dgoA	Isolate 1	non-essential	2-oxo-3-deoxygalactonate 6-phosphate aldolase	1.54
b4477	dgoA	Isolate 2	non-essential	2-oxo-3-deoxygalactonate 6-phosphate aldolase	1.64
b4479	dgoR	Isolate 1	non-essential	predicted DNA-binding transcriptional regulator	-1.07
b4479	dgoR	Isolate 2	non-essential	predicted DNA-binding transcriptional regulator	-0.27
b4480	hdfR	Isolate 1	non-essential	DNA-binding transcriptional regulator	0.01
b4480	hdfR	Isolate 2	non-essential	DNA-binding transcriptional regulator	1.11
b4482	yigE	Isolate 1	non-essential	predicted protein	-0.49
b4482	yigE	Isolate 2	non-essential	predicted protein	0.93
b4483	tatD	Isolate 1	non-essential	DNase, magnesium-dependent	1.71
b4483	tatD	Isolate 2	non-essential	DNase, magnesium-dependent	0.96
b4484	cpxP	Isolate 1	non-essential	periplasmic protein combats stress	-1.19
b4484	cpxP	Isolate 2	non-essential	periplasmic protein combats stress	-0.95
b4485	ytfR	Isolate 1	non-essential	predicted sugar transporter subunit -! ATP-binding component of ABC superfamily	-0.88
b4485	ytfR	Isolate 2	non-essential	predicted sugar transporter subunit -! ATP-binding component of ABC superfamily	0.38
b4488	ilvG	Isolate 1	*	large subunit of acetolactate synthase II (pseudogene)	-0.74
b4488	ilvG	Isolate 2	*	large subunit of acetolactate synthase II (pseudogene)	0.35
b4490	ycdN	Isolate 1	*	predicted membrane protein (pseudogene)	1.36
b4490	ycdN	Isolate 2	*	predicted membrane protein (pseudogene)	0.44
b4493	gapC	Isolate 1	*	glyceraldehyde-3-phosphate dehydrogenase C (pseudogene)	0.84
b4493	gapC	Isolate 2	*	glyceraldehyde-3-phosphate dehydrogenase C (pseudogene)	2.85
b4494	arpB	Isolate 1	*	predicted protein (pseudogene)	0.32
b4494	arpB	Isolate 2	*	predicted protein (pseudogene)	1.46
b4495	yedN	Isolate 1	*	predicted protein (pseudogene)	-2.44
b4495	yedN	Isolate 2	*	predicted protein (pseudogene)	-1.76
b4496	yedS	Isolate 1	*	predicted protein (pseudogene)	-1.97

b4496	yedS	Isolate 2	*	predicted protein (pseudogene)	-1.53
b4497	yeeL	Isolate 1	*	predicted protein (pseudogene)	-1.64
b4497	yeeL	Isolate 2	*	predicted protein (pseudogene)	-2.45
b4498	gatR	Isolate 1	*	DNA-binding transcriptional regulator (pseudogene)	0.71
b4498	gatR	Isolate 2	*	DNA-binding transcriptional regulator (pseudogene)	0.72
b4499	molR	Isolate 1	*	DNA-binding transcriptional regulator (pseudogene)	0.20
b4499	molR	Isolate 2	*	DNA-binding transcriptional regulator (pseudogene)	0.15
b4500	yfaS	Isolate 1	*	predicted protein (pseudogene)	0.30
b4500	yfaS	Isolate 2	*	predicted protein (pseudogene)	-0.58
b4501	torI	Isolate 1	non-essential	response regulator inhibitor for tor operon	0.44
b4501	torI	Isolate 2	non-essential	response regulator inhibitor for tor operon	-0.54
b4502	yeiW	Isolate 1	non-essential	conserved protein	-0.98
b4502	yeiW	Isolate 2	non-essential	conserved protein	0.09
b4504	ykfH	Isolate 1	non-essential	predicted protein	-1.54
b4505	ykgN	Isolate 1	non-essential	predicted IS protein	1.00
b4505	ykgN	Isolate 2	non-essential	predicted IS protein	1.18
b4506	ykgM	Isolate 1	non-essential	predicted ribosomal protein	0.86
b4506	ykgM	Isolate 2	non-essential	predicted ribosomal protein	0.40
b4508	ybcD	Isolate 1	*	DLP12 prophage; predicted replication protein fragment (pseudogene)	0.25
b4508	ybcD	Isolate 2	*	DLP12 prophage; predicted replication protein fragment (pseudogene)	0.76
b4509	ylcG	Isolate 1	non-essential	DLP12 prophage; predicted protein	0.67
b4509	ylcG	Isolate 2	non-essential	DLP12 prophage; predicted protein	-0.37
b4510	rzoD	Isolate 1	non-essential	DLP12 prophage; predicted lipoprotein	0.05
b4510	rzoD	Isolate 2	non-essential	DLP12 prophage; predicted lipoprotein	-0.47
b4511	ybdZ	Isolate 1	non-essential	conserved protein	-1.26
b4511	ybdZ	Isolate 2	non-essential	conserved protein	0.64
b4512	ybdD	Isolate 1	non-essential	conserved protein	-0.66
b4512	ybdD	Isolate 2	non-essential	conserved protein	-0.09
b4513	kdpF	Isolate 1	non-essential	potassium ion accessory transporter subunit	-0.47
b4513	kdpF	Isolate 2	non-essential	potassium ion accessory transporter subunit	0.54
b4514	ybfQ	Isolate 1	non-essential	predicted transposase	2.23
b4514	ybfQ	Isolate 2	non-essential	predicted transposase	-10.64
b4515	ybgT	Isolate 1	non-essential	conserved protein	-1.41
b4515	ybgT	Isolate 2	non-essential	conserved protein	-0.80
b4517	gnsA	Isolate 1	non-essential	predicted regulator of phosphatidylethanolamine synthesis	0.25
b4517	gnsA	Isolate 2	non-essential	predicted regulator of phosphatidylethanolamine synthesis	-0.41
b4518	ymdF	Isolate 1	non-essential	conserved protein	0.87
b4518	ymdF	Isolate 2	non-essential	conserved protein	0.48
b4519	icdC	Isolate 1	*	conserved protein (pseudogene)	-1.39
b4519	icdC	Isolate 2	*	conserved protein (pseudogene)	-3.27
b4520	ymgF	Isolate 1	non-essential	predicted protein	-0.03
b4520	ymgF	Isolate 2	non-essential	predicted protein	0.35
b4521	ymgH	Isolate 1	non-essential	predicted protein	-12.39



b4521	ymgH	Isolate 2	non-essential	predicted protein	4.97
b4524	ymjB	Isolate 1	non-essential	predicted protein	1.46
b4524	ymjB	Isolate 2	non-essential	predicted protein	0.53
b4525	ymjC	Isolate 1	non-essential	predicted oxidoreductase	-0.69
b4526	ydaE	Isolate 1	non-essential	Rac prophage; conserved protein	0.84
b4526	ydaE	Isolate 2	non-essential	Rac prophage; conserved protein	-0.40
b4527	ydaF	Isolate 1	non-essential	Rac prophage; predicted protein	-0.28
b4527	ydaF	Isolate 2	non-essential	Rac prophage; predicted protein	-0.89
b4528	rzoR	Isolate 1	non-essential	Rac prophage; predicted lipoprotein	0.14
b4528	rzoR	Isolate 2	non-essential	Rac prophage; predicted lipoprotein	-0.97
b4529	ydbJ	Isolate 1	non-essential	predicted protein	0.56
b4529	ydbJ	Isolate 2	non-essential	predicted protein	0.08
b4530	yncK	Isolate 1	*	predicted transposase, N-ter fragment (pseudogene)	-0.39
b4530	yncK	Isolate 2	*	predicted transposase, N-ter fragment (pseudogene)	-0.17
b4531	yncK	Isolate 1	*	predicted transposase, C-ter fragment (pseudogene)	-0.59
b4532	yncN	Isolate 1	non-essential	predicted protein	0.38
b4532	yncN	Isolate 2	non-essential	predicted protein	-1.07
b4533	ynfO	Isolate 1	non-essential	Qin prophage; predicted protein	0.15
b4533	ynfO	Isolate 2	non-essential	Qin prophage; predicted protein	-0.47
b4534	ynfP	Isolate 1	*	predicted protein (pseudogene)	-1.53
b4534	ynfP	Isolate 2	*	predicted protein (pseudogene)	-0.14
b4535	yniD	Isolate 1	non-essential	predicted protein	-0.34
b4535	yniD	Isolate 2	non-essential	predicted protein	-0.17
b4536	yobH	Isolate 1	non-essential	predicted protein	-0.14
b4536	yobH	Isolate 2	non-essential	predicted protein	0.40
b4537	yecJ	Isolate 1	non-essential	predicted protein	0.65
b4537	yecJ	Isolate 2	non-essential	predicted protein	-0.94
b4538	yoeF	Isolate 1	non-essential	conserved protein	0.86
b4538	yoeF	Isolate 2	non-essential	conserved protein	0.45
b4539	yoeB	Isolate 1	non-essential	toxin of the YoeB-YefM toxin-antitoxin system	0.34
b4539	yoeB	Isolate 2	non-essential	toxin of the YoeB-YefM toxin-antitoxin system	2.90
b4541	yehK	Isolate 1	non-essential	predicted protein	-0.91
b4541	yehK	Isolate 2	non-essential	predicted protein	-0.50
b4542	yohO	Isolate 1	non-essential	predicted protein	0.46
b4542	yohO	Isolate 2	non-essential	predicted protein	-0.44
b4543	ypaA	Isolate 1	*	predicted protein (pseudogene)	-0.71
b4544	yfbW	Isolate 1	non-essential	conserved protein	-0.97
b4544	yfbW	Isolate 2	non-essential	conserved protein	-1.78
b4545	ypdJ	Isolate 1	non-essential	predicted protein	-0.49
b4545	ypdJ	Isolate 2	non-essential	predicted protein	0.95
b4546	ypeB	Isolate 1	non-essential	predicted protein	-0.19
b4546	ypeB	Isolate 2	non-essential	predicted protein	-1.92
b4547	ypfN	Isolate 1	non-essential	predicted protein	-0.63

b4547	ypfN	Isolate 2	non-essential	predicted protein	0.74
b4548	ypjJ	Isolate 1	non-essential	predicted protein	-1.07
b4548	ypjJ	Isolate 2	non-essential	predicted protein	-0.61
b4550	yhdL	Isolate 1	non-essential	conserved protein	1.68
b4550	yhdL	Isolate 2	non-essential	conserved protein	0.49
b4551	yheV	Isolate 1	non-essential	predicted protein	-0.45
b4551	yheV	Isolate 2	non-essential	predicted protein	0.13
b4553	ysaB	Isolate 1	non-essential	predicted protein	-0.82
b4553	ysaB	Isolate 2	non-essential	predicted protein	0.46
b4554	yibT	Isolate 1	non-essential	predicted protein	-0.61
b4554	yibT	Isolate 2	non-essential	predicted protein	-2.75
b4555	yicS	Isolate 1	non-essential	predicted protein	-0.21
b4556	ysdC	Isolate 1	*	predicted protein (pseudogene)	1.40
b4556	ysdC	Isolate 2	*	predicted protein (pseudogene)	-0.96
b4558	yifL	Isolate 1	non-essential	predicted lipoprotein	0.50
b4558	yifL	Isolate 2	non-essential	predicted lipoprotein	1.00
b4559	yjdO	Isolate 1	non-essential	predicted protein	0.75
b4559	yjdO	Isolate 2	non-essential	predicted protein	0.30
b4561	insM	Isolate 1	*	KpLE2 phage-like element; predicted transposase fragment (pseudogene)	0.19
b4561	insM	Isolate 2	*	KpLE2 phage-like element; predicted transposase fragment (pseudogene)	2.14
b4565	sgcB	Isolate 1	non-essential	predicted enzyme IIB component of PTS	0.96
b4566	yjhX	Isolate 1	non-essential	conserved protein	0.17
b4567	yjjZ	Isolate 1	non-essential	predicted protein	0.08
b4567	yjjZ	Isolate 2	non-essential	predicted protein	0.21
b4569	yhcE	Isolate 1	*	predicted protein (pseudogene)	0.86
b4569	yhcE	Isolate 2	*	predicted protein (pseudogene)	-1.11
b4571	wbbL	Isolate 1	*	lipopolysaccharide biosynthesis protein (pseudogene)	-1.83
b4571	wbbL	Isolate 2	*	lipopolysaccharide biosynthesis protein (pseudogene)	-1.02
b4572	ylbE	Isolate 1	*	predicted protein (pseudogene)	0.17
b4572	ylbE	Isolate 2	*	predicted protein (pseudogene)	1.38
b4574	yciX	Isolate 1	*	predicted protein (pseudogene)	-2.31
b4574	yciX	Isolate 2	*	predicted protein (pseudogene)	0.66
b4575	yjgX	Isolate 1	*	KpLE2 phage-like element; predicted protein (pseudogene)	0.26
b4575	yjgX	Isolate 2	*	KpLE2 phage-like element; predicted protein (pseudogene)	1.71
CSCR	*	Isolate 1	*	*	0.28
CSCR	*	Isolate 2	*	*	-0.53
JW2207	*	Isolate 1	*	*	1.72
JW2207	*	Isolate 2	*	*	3.41
JW2574	*	Isolate 1	*	*	-0.63
JW2574	*	Isolate 2	*	*	-0.36
JW2606	*	Isolate 1	*	*	-11.86
JW2606	*	Isolate 2	*	*	-0.01
JW2616	*	Isolate 1	*	*	-1.75

JW2616	*	Isolate 2	*	*	-2.93
JW2623.5	*	Isolate 1	*	*	-1.13
JW4016	*	Isolate 1	*	*	0.82
JW4016	*	Isolate 2	*	*	1.95
JW5015	*	Isolate 1	*	*	2.88
JW5015	*	Isolate 2	*	*	0.69
JW5025	*	Isolate 1	*	*	1.61
JW5025	*	Isolate 2	*	*	1.33
JW5028	*	Isolate 1	*	*	-2.50
JW5028	*	Isolate 2	*	*	-0.38
JW5029	*	Isolate 1	*	*	1.45
JW5029	*	Isolate 2	*	*	0.87
JW5032	*	Isolate 1	*	*	0.98
JW5032	*	Isolate 2	*	*	1.10
JW5047	*	Isolate 1	*	*	1.41
JW5047	*	Isolate 2	*	*	0.22
JW5064	*	Isolate 1	*	*	-0.42
JW5064	*	Isolate 2	*	*	1.37
JW5068	*	Isolate 1	*	*	0.44
JW5068	*	Isolate 2	*	*	0.86
JW5069	*	Isolate 1	*	*	0.82
JW5069	*	Isolate 2	*	*	1.51
JW5075	*	Isolate 1	*	*	-1.25
JW5075	*	Isolate 2	*	*	1.84
JW5101	*	Isolate 1	*	*	2.37
JW5101	*	Isolate 2	*	*	0.88
JW5115	*	Isolate 1	*	*	0.92
JW5115	*	Isolate 2	*	*	0.29
JW5140	*	Isolate 1	*	*	0.36
JW5140	*	Isolate 2	*	*	0.98
JW5148	*	Isolate 1	*	*	-1.60
JW5148	*	Isolate 2	*	*	1.49
JW5163	*	Isolate 1	*	*	0.23
JW5163	*	Isolate 2	*	*	-1.48
JW5167	*	Isolate 1	*	*	2.59
JW5167	*	Isolate 2	*	*	0.76
JW5183	*	Isolate 1	*	*	-0.76
JW5183	*	Isolate 2	*	*	0.12
JW5191	*	Isolate 1	*	*	-0.84
JW5191	*	Isolate 2	*	*	0.54
JW5194	*	Isolate 1	*	*	0.02
JW5194	*	Isolate 2	*	*	-0.19
JW5231	*	Isolate 1	*	*	-1.52

JW5231	*	Isolate 2	*	*	-0.93
JW5236	*	Isolate 1	*	*	-0.73
JW5236	*	Isolate 2	*	*	0.61
JW5266	*	Isolate 1	*	*	-0.19
JW5266	*	Isolate 2	*	*	0.10
JW5305	*	Isolate 1	*	*	-1.83
JW5305	*	Isolate 2	*	*	0.41
JW5320	*	Isolate 1	*	*	1.07
JW5320	*	Isolate 2	*	*	0.91
JW5321	*	Isolate 1	*	*	-0.13
JW5321	*	Isolate 2	*	*	0.12
JW5337	*	Isolate 1	*	*	2.52
JW5337	*	Isolate 2	*	*	1.20
JW5357	*	Isolate 1	*	*	2.73
JW5357	*	Isolate 2	*	*	1.80
JW5360	*	Isolate 1	*	*	0.00
JW5360	*	Isolate 2	*	*	0.00
JW5392	*	Isolate 1	*	*	2.10
JW5392	*	Isolate 2	*	*	1.75
JW5398	*	Isolate 1	*	*	0.09
JW5398	*	Isolate 2	*	*	0.22
JW5410	*	Isolate 1	*	*	0.76
JW5410	*	Isolate 2	*	*	1.48
JW5411	*	Isolate 1	*	*	0.57
JW5411	*	Isolate 2	*	*	0.19
JW5417	*	Isolate 1	*	*	0.70
JW5417	*	Isolate 2	*	*	-1.18
JW5436	*	Isolate 1	*	*	-1.79
JW5436	*	Isolate 2	*	*	-0.97
JW5447	*	Isolate 1	*	*	-1.49
JW5447	*	Isolate 2	*	*	0.71
JW5452	*	Isolate 1	*	*	0.83
JW5452	*	Isolate 2	*	*	-1.33
JW5471	*	Isolate 1	*	*	0.06
JW5471	*	Isolate 2	*	*	0.01
JW5474	*	Isolate 1	*	*	0.02
JW5474	*	Isolate 2	*	*	3.48
JW5480	*	Isolate 1	*	*	-0.53
JW5480	*	Isolate 2	*	*	-1.03
JW5497	*	Isolate 1	*	*	0.92
JW5497	*	Isolate 2	*	*	-0.48
JW5552	*	Isolate 1	*	*	-0.13
JW5552	*	Isolate 2	*	*	-0.35

JW5554	*	Isolate 1	*	*	0.91
JW5554	*	Isolate 2	*	*	0.86
JW5565	*	Isolate 1	*	*	0.71
JW5565	*	Isolate 2	*	*	0.71
JW5572	*	Isolate 1	*	*	2.48
JW5572	*	Isolate 2	*	*	1.88
JW5635	*	Isolate 1	*	*	1.96
JW5635	*	Isolate 2	*	*	0.98
JW5639	*	Isolate 1	*	*	-0.34
JW5639	*	Isolate 2	*	*	-1.12
JW5649	*	Isolate 1	*	*	1.11
JW5649	*	Isolate 2	*	*	1.65
JW5661	*	Isolate 1	*	*	1.20
JW5661	*	Isolate 2	*	*	1.19
JW5662	*	Isolate 1	*	*	0.85
JW5662	*	Isolate 2	*	*	1.67
JW5675	*	Isolate 1	*	*	-1.42
JW5675	*	Isolate 2	*	*	0.51
JW5712	*	Isolate 1	*	*	-0.38
JW5712	*	Isolate 2	*	*	-0.53
JW5719	*	Isolate 1	*	*	0.00
JW5719	*	Isolate 2	*	*	-0.33
JW5720	*	Isolate 1	*	*	-1.42
JW5720	*	Isolate 2	*	*	1.57
JW5728	*	Isolate 1	*	*	3.18
JW5728	*	Isolate 2	*	*	0.25
JW5751	*	Isolate 1	*	*	0.66
JW5751	*	Isolate 2	*	*	0.18
JW5765	*	Isolate 1	*	*	-0.28
JW5765	*	Isolate 2	*	*	0.25
JW5766	*	Isolate 1	*	*	-2.04
JW5766	*	Isolate 2	*	*	3.32
JW5781	*	Isolate 1	*	*	-0.39
JW5781	*	Isolate 2	*	*	0.18
JW5799	*	Isolate 1	*	*	1.08
JW5799	*	Isolate 2	*	*	-0.50

<sup>a</sup> b-number represent "Blattner" number. In some cases, genes not assigned with b-number are represented as JW number.

<sup>b</sup> The *ygbT* deletion mutant strain is screened against the recipient F non essential deletion [1] or essential [2] hypomorphic strains on a genome-wide scale.

<sup>c</sup> Two independent single gene deletion mutant isolates from Keio collection were used in the study.

<sup>d</sup> 149 hypomorphic, Kan<sup>R</sup>- marked, strains with C-terminal Sequential Peptide Affinity (SPA)-tags on essential genes involved in conserved bacterial processes were included in the array collection [2].

<sup>e</sup> The non-essential represent F recipient *E. coli* "Keio" collection strains comprising of 3,967 "Isolate 1" and 3,955 "Isolate 2" deletion strains [3] used in the study.

<sup>f</sup> A quantitative interaction score (*S*) for *ygbT* deletion mutant screen is calculated to quantify the strength and confidence of epistasis determined for each mutant gene pair

based on an algorithm implemented for yeast SGA [4].

Negative *S*-scores correspond to aggravating interactions, while positive *S*-scores to alleviating interactions.

Asterisk represents the old JW numbers for which there is no information on the gene name or the essentiality on the gene information is not available.

**References:**

1. Baba, T. et al. Construction of Escherichia coli K-12 in-frame, single-gene knockout mutants: the Keio collection. *Mol. Syst. Biol.* 2, 2006.0008 (2006).
2. Butland, G. et al. Interaction network containing conserved and essential protein complexes in Escherichia coli. *Nature* 433, 531-537 (2005).
3. Butland, G., Babu, M. et al. eSGA: E. coli synthetic genetic array analysis. *Nat Methods* 5, 789-795 (2008).
4. Collins, S. R., Schuldiner, M., Krogan, N. J. & Weissman, J. S. A strategy for extracting and analyzing large-scale quantitative epistatic interaction data. *Genome Biol.* 7, R63 (2006).

**Table S4.** Functional Enrichment Analysis for Gene Ontology Terms Spanning Various Biological Processes Using the Interaction Scores from *the ygbT*  $\Delta$  Genome-Wide Genetic Screen

Description of GO category <sup>a</sup>	Number of genes in the GO category <sup>b</sup>	Number of genes matching the GO category <sup>c</sup>	<i>P</i> -value <sup>d</sup>	<i>Q</i> -value <sup>e</sup>
GO:0000160_two_component_signal_transduction_system_phosphorelay	160	160	0	0
GO:0001539_ciliary_or_flagellar_motility	50	50	0	0
GO:0005975_carbohydrate_metabolic_process	258	238	0	0
GO:0006096_glycolysis	54	48	0	0
GO:0006099_tricarboxylic_acid_cycle	42	42	0	0
GO:0006260_DNA_replication	92	73	0	0
GO:0006364_rRNA_processing	42	41	0	0
GO:0006412_translation	208	95	0	0
GO:0006414_translational_elongation	12	10	0	0
GO:0006418_tRNA_aminoacylation_for_protein_translation	42	23	0	0
GO:0006754_ATP_biosynthetic_process	12	12	0	0
GO:0006935_chemotaxis	44	44	0	0
GO:0007049_cell_cycle	108	62	0	0
GO:0007059_chromosome_segregation	12	8	0	0
GO:0007076_mitotic_chromosome_condensation	12	9	0	0
GO:0007155_cell_adhesion	68	68	0	0
GO:0007165_signal_transduction	86	86	0	0
GO:0008652_amino_acid_biosynthetic_process	210	197	0	0
GO:0009116_nucleoside_metabolic_process	24	23	0	0
GO:0009231_riboflavin_biosynthetic_process	10	4	0	0
GO:0015986_ATP_synthesis_coupled_proton_transport	16	16	0	0
GO:0016310_phosphorylation	72	71	0	0
GO:0018106_peptidyl_histidine_phosphorylation	56	56	0	0
GO:0019439_aromatic_compound_catabolic_process	26	26	0	0
GO:0042128_nitrate_assimilation	38	37	0	0
GO:0045449_regulation_of_transcription	126	125	0	0
GO:0045454_cell_redox_homeostasis	30	30	0	0
GO:0046677_response_to_antibiotic	124	99	0	0
GO:0051301_cell_division	104	60	0	0
GO:0006811_ion_transport	202	195	4.02E-14	7.31E-12

GO:0006461_protein_complex_assembly	10	10	1.01E-13	1.85E-11
GO:0008610_lipid_biosynthetic_process	58	35	1.90E-13	3.46E-11
GO:0006508_proteolysis	140	124	2.81E-13	5.11E-11
GO:0008033_tRNA_processing	78	71	1.30E-12	2.36E-10
GO:0006950_response_to_stress	158	149	1.61E-12	2.92E-10
GO:0015992_proton_transport	32	32	1.81E-12	3.29E-10
GO:0009089_lysine_biosynthetic_process_via_diaminopimelate	12	4	1.83E-12	3.33E-10
GO:0006353_transcription_termination	12	7	5.34E-12	9.72E-10
GO:0042773_ATP_synthesis_coupled_electron_transport	16	16	1.37E-11	2.49E-09
GO:0006310_DNA_recombination	194	87	1.54E-11	2.79E-09
GO:0006457_protein_folding	50	45	2.06E-10	3.75E-08
GO:0015031_protein_transport	102	91	6.81E-10	1.24E-07
GO:0006417_regulation_of_translation	24	15	7.51E-10	1.37E-07
GO:0009103_lipopolysaccharide_biosynthetic_process	142	136	2.56E-09	4.66E-07
GO:0009085_lysine_biosynthetic_process	22	12	9.91E-09	1.80E-06
GO:0000105_histidine_biosynthetic_process	22	20	1.44E-08	2.62E-06
GO:0006164_purine_nucleotide_biosynthetic_process	34	31	3.86E-08	7.03E-06
GO:0006826_iron_ion_transport	74	71	4.26E-08	7.76E-06
GO:0006269_DNA_replication_synthesis_of_RNA_primer	14	11	4.28E-08	7.79E-06
GO:0006865_amino_acid_transport	144	144	6.25E-08	1.14E-05
GO:0006633_fatty_acid_biosynthetic_process	34	18	8.99E-08	1.64E-05
GO:0006725_cellular_aromatic_compound_metabolic_process	26	26	1.75E-07	3.19E-05
GO:0009245_lipid_A_biosynthetic_process	22	14	2.90E-07	5.28E-05
GO:0008299_isoprenoid_biosynthetic_process	32	19	4.23E-07	7.70E-05
GO:0006396_RNA_processing	32	27	5.04E-07	9.17E-05
GO:0009058_biosynthetic_process	132	114	6.89E-07	0.000125408
GO:0001522_pseudouridine_synthesis	20	20	8.65E-07	0.000157353
GO:0044237_cellular_metabolic_process	30	29	9.63E-07	0.000175314
GO:0006120_mitochondrial_electron_transport_NADH_to_ubiquinone	26	26	1.90E-06	0.000345431
GO:0006541_glutamine_metabolic_process	30	27	2.74E-06	0.000497974
GO:0017004_cytochrome_complex_assembly	20	20	3.19E-06	0.00058041
GO:0009073_aromatic_amino_acid_family_biosynthetic_process	44	44	4.01E-06	0.000729628
GO:0006313_transposition_DNA_mediated	160	48	4.07E-06	0.000741302
GO:0009306_protein_secretion	64	60	5.65E-06	0.001027738
GO:0009597_detection_of_virus	24	24	7.60E-06	0.001383852



GO:0046718_entry_of_virus_into_host_cell	24	24	7.60E-06	0.001383852
GO:0009236_cobalamin_biosynthetic_process	20	18	1.14E-05	0.00206702
GO:0006281_DNA_repair	134	128	1.54E-05	0.002796467
GO:0006974_response_to_DNA_damage_stimulus	116	110	1.96E-05	0.003571938
GO:0016114_terpenoid_biosynthetic_process	14	5	2.03E-05	0.003700504
GO:0006044_N_acetylglucosamine_metabolic_process	10	8	4.39E-05	0.007995626
GO:0019344_cysteine_biosynthetic_process	16	16	6.62E-05	0.012051415
GO:0043213_bacteriocin_transport	12	12	8.29E-05	0.015093336
GO:0015074_DNA_integration	70	34	0.0001042	0.018961143
GO:0009250_glucan_biosynthetic_process	12	12	0.0001871	0.034055421
GO:0015740_C4_dicarboxylate_transport	10	10	0.0002845	0.051778816
GO:0006139_nucleobase_nucleoside_nucleotide_and_nucleic_acid_metabolic_process	22	20	0.000385	0.070077357
GO:0006259_DNA_metabolic_process	22	20	0.0004897	0.089124025
GO:0006306_DNA_methylation	12	12	0.0005901	0.107399369
GO:0008643_carbohydrate_transport	206	200	0.0007023	0.12780961
GO:0007047_cell_wall_organization	116	96	0.0007534	0.137110205
GO:0015891_siderophore_transport	12	10	0.001179	0.214582198
GO:0006526_arginine_biosynthetic_process	26	26	0.0014638	0.266417129
GO:0006807_nitrogen_compound_metabolic_process	22	20	0.0019481	0.354549926
GO:0006779_porphyrin_biosynthetic_process	32	18	0.0022779	0.414576911
GO:0015833_peptide_transport	22	22	0.0026026	0.473667448
GO:0006221_pyrimidine_nucleotide_biosynthetic_process	24	21	0.0041792	0.760619901
GO:0008615_pyridoxine_biosynthetic_process	14	14	0.0045821	0.833948421
GO:0000103_sulfate_assimilation	10	10	0.9344912	1
GO:0000162_tryptophan_biosynthetic_process	12	12	0.1984353	1
GO:0000271_polysaccharide_biosynthetic_process	18	18	0.3988569	1
GO:0000917_barrier_septum_formation	18	9	0.1800521	1
GO:0006004_fucose_metabolic_process	14	14	0.1089844	1
GO:0006006_glucose_metabolic_process	28	27	0.0815032	1
GO:0006012_galactose_metabolic_process	10	10	0.2528398	1
GO:0006071_glycerol_metabolic_process	30	30	0.2843478	1
GO:0006094_gluconeogenesis	14	14	0.5380584	1
GO:0006097_glyoxylate_cycle	12	12	0.3546741	1
GO:0006098_pentose_phosphate_shunt	20	20	0.0055311	1
GO:0006144_purine_base_metabolic_process	26	26	0.2918548	1

GO:0006166_purine_ribonucleoside_salvage	20	20	0.3340227	1
GO:0006189_'de_novo'_IMP_biosynthetic_process	12	12	0.0111086	1
GO:0006206_pyrimidine_base_metabolic_process	10	10	0.4437051	1
GO:0006207_'de_novo'_pyrimidine_base_biosynthetic_process	16	16	0.1660282	1
GO:0006265_DNA_topological_change	14	9	0.6651635	1
GO:0006268_DNA_unwinding_during_replication	14	12	0.5020404	1
GO:0006284_base_excision_repair	14	14	0.1514773	1
GO:0006289_nucleotide_excision_repair	10	10	0.8813046	1
GO:0006304_DNA_modification	16	13	0.8905482	1
GO:0006352_transcription_initiation	14	11	0.2238595	1
GO:0006400_tRNA_modification	18	15	0.1293019	1
GO:0006415_translational_termination	12	10	0.0060762	1
GO:0006464_protein_modification_process	16	15	0.041521	1
GO:0006520_amino_acid_metabolic_process	58	56	0.0116676	1
GO:0006525_arginine_metabolic_process	22	22	0.1209013	1
GO:0006537_glutamate_biosynthetic_process	10	10	0.3205155	1
GO:0006629_lipid_metabolic_process	40	40	0.177716	1
GO:0006631_fatty_acid_metabolic_process	28	28	0.8794461	1
GO:0006730_one_carbon_compound_metabolic_process	14	7	0.4194816	1
GO:0006744_ubiquinone_biosynthetic_process	18	13	0.1155871	1
GO:0006777_Mo_molybdopterin_cofactor_biosynthetic_process	24	24	0.9893172	1
GO:0006800_oxygen_and_reactive_oxygen_species_metabolic_process	10	10	0.2382541	1
GO:0006812_cation_transport	20	20	0.7347118	1
GO:0006813_potassium_ion_transport	38	38	0.3712255	1
GO:0006814_sodium_ion_transport	42	40	0.721563	1
GO:0006817_phosphate_transport	20	20	0.6321509	1
GO:0006829_zinc_ion_transport	12	10	0.8153652	1
GO:0006835_dicarboxylic_acid_transport	16	16	0.731124	1
GO:0006855_multidrug_transport	12	12	0.0798067	1
GO:0006857_oligopeptide_transport	50	50	0.0307388	1
GO:0006885_regulation_of_pH	12	12	0.792748	1
GO:0007600_sensory_perception	10	10	0.8784042	1
GO:0008272_sulfate_transport	18	18	0.9923699	1
GO:0008295_spermidine_biosynthetic_process	12	12	0.8866595	1
GO:0008360_regulation_of_cell_shape	72	44	0.2203232	1

GO:0008654_phospholipid_biosynthetic_process	30	17	0.0130064	1
GO:0009082_branched_chain_family_amino_acid_biosynthetic_process	36	36	0.6580187	1
GO:0009086_methionine_biosynthetic_process	22	20	0.0416809	1
GO:0009098_leucine_biosynthetic_process	10	10	0.9916351	1
GO:0009102_biotin_biosynthetic_process	16	16	0.6654095	1
GO:0009117_nucleotide_metabolic_process	16	15	0.6190599	1
GO:0009165_nucleotide_biosynthetic_process	10	6	0.260275	1
GO:0009166_nucleotide_catabolic_process	10	10	0.8985847	1
GO:0009228_thiamin_biosynthetic_process	22	19	0.5530635	1
GO:0009234_menaquinone_biosynthetic_process	14	14	0.7235073	1
GO:0009239_enterobactin_biosynthetic_process	12	9	0.8624097	1
GO:0009244_lipopolysaccharide_core_region_biosynthetic_process	12	12	0.2458971	1
GO:0009252_peptidoglycan_biosynthetic_process	64	44	0.2200835	1
GO:0009253_peptidoglycan_catabolic_process	20	20	0.6590683	1
GO:0009273_peptidoglycan_based_cell_wall_biogenesis	18	10	0.7536709	1
GO:0009296_flagellum_assembly	16	16	0.9959053	1
GO:0009307_DNA_restriction_modification_system	18	18	0.9434945	1
GO:0009396_folic_acid_and_derivative_biosynthetic_process	14	9	0.9823931	1
GO:0009401_phosphoenolpyruvate_dependent_sugar_phosphotransferase_system	116	113	0.2305194	1
GO:0009405_pathogenesis	18	16	0.3237603	1
GO:0009432_SOS_response	34	32	0.050303	1
GO:0009435_NAD_biosynthetic_process	12	9	0.0069033	1
GO:0015628_protein_secretion_by_the_type_II_secretion_system	24	20	0.4917391	1
GO:0015675_nickel_ion_transport	10	10	0.0499581	1
GO:0015716_phosphonate_transport	30	30	0.2849391	1
GO:0015725_gluconate_transport	14	14	0.0823007	1
GO:0016042_lipid_catabolic_process	12	12	0.3087273	1
GO:0016051_carbohydrate_biosynthetic_process	10	9	0.0070238	1
GO:0016226_iron_sulfur_cluster_assembly	18	17	0.0832667	1
GO:0016998_cell_wall_catabolic_process	32	32	0.0289036	1
GO:0019299_rhamnose_metabolic_process	10	4	0.1087148	1
GO:0019363_pyridine_nucleotide_biosynthetic_process	14	12	0.0469994	1
GO:0019402_galactitol_metabolic_process	14	12	0.7441308	1
GO:0019521_D_gluconate_metabolic_process	20	20	0.0948454	1
GO:0019538_protein_metabolic_process	14	14	0.3926911	1

GO:0019544_arginine_catabolic_process_to_glutamate	10	10	0.1797869	1
GO:0019835_cytolysis	20	20	0.6209913	1
GO:0019877_diaminopimelate_biosynthetic_process	14	4	0.5122409	1
GO:0030001_metal_ion_transport	12	10	0.9776441	1
GO:0032259_methylation	18	18	0.0194151	1
GO:0033014_tetrapyrrole_biosynthetic_process	10	0	1	1
GO:0045333_cellular_respiration	12	12	0.6431614	1
GO:0045892_negative_regulation_of_transcription_DNA_dependent	16	15	0.5132493	1
GO:0045893_positive_regulation_of_transcription_DNA_dependent	10	10	0.0641351	1
GO:0046656_folic_acid_biosynthetic_process	14	11	0.7971055	1
GO:0046685_response_to_arsenic	10	10	0.7991	1
GO:0065002_intracellular_protein_transmembrane_transport	22	13	0.0836465	1

<sup>a</sup> GO categories were downloaded from EMBL-EBI (<http://www.ebi.ac.uk/>). Gene set enrichment analysis was performed on the GO terms as per the method described previously [1]. GO categories with q-value  $\leq 0.05$  from the enrichment analysis is considered as significant (see [Protocol S4](#) for details).

<sup>b</sup> Number of genes in the GO category considered for the enrichment analysis.

<sup>c</sup> Number of genes matching the GO category.

<sup>d</sup> The enrichment  $P$  value is calculated based on the normal distribution.

<sup>e</sup> The  $Q$  value is generated by adjusting the  $P$  value using Benjamini and Hochberg correction procedure [2].

**Note:** Genes in each GO category used in the enrichment analysis and number of genes from our study matching the GO category is shown in Table S5-Sheet 2.

### Reference

1. Rafael A. Irizarry, Chi Wang, Yun Zhou, and Terence P. Speed, "GENE SET ENRICHMENT ANALYSIS MADE SIMPLE" (April 2009). Johns Hopkins University, Dept. of Biostatistics Working Papers. Working Paper 185.
2. Benjamini Y, Hochberg Y: Controlling the false discovery rate- a practical and powerful approach to multiple testing. JR Stat Soc Ser 1995, B57:289-300.

**Table S5.** Bacterial Strains used in this Study

Bacterial strains	Genotype	Source or Reference
Wild-type, K-12 BW25113	$\Delta(araD-araB)567$ , $\Delta lacZ4787 (::rrnB-3)$ , lambda-, <i>rph-1</i> , $\Delta(rhaD-$ <i>rhaB)568, <i>hsdR514</i></i>	Keio collection
DY330	$\Delta lacU169 gal490 \lambda cl^{857}$ $\Delta(cro-bioA)$	Yu et al., 2000
Hfr-C	Hfr Cavalli	<i>E. coli</i> genetic stock centre
BL21(DE3)	[ <i>E. coli</i> F <sup>-</sup> <i>ompT hsdS<sub>B</sub></i> (r)]	Invitrogen
<i>ygbT</i> $\Delta::Kan^a$	F BW25113	Keio collection
<i>ruvA</i> $\Delta::Kan$	F BW25113	Keio collection
<i>ruvB</i> $\Delta::Kan$	F BW25113	Keio collection
<i>ruvC</i> $\Delta::Kan$	F BW25113	Keio collection
<i>recN</i> $\Delta::Kan$	F BW25113	Keio collection
<i>recF</i> $\Delta::Kan$	F BW25113	Keio collection
<i>recO</i> $\Delta::Kan$	F BW25113	Keio collection
<i>recA</i> $\Delta::Kan$	F BW25113	Keio collection
<i>recB</i> $\Delta::Kan$	F BW25113	Keio collection
<i>recC</i> $\Delta::Kan$	F BW25113	Keio collection
<i>recD</i> $\Delta::Kan$	F BW25113	Keio collection
<i>aas</i> $\Delta::Kan$	F BW25113	Keio collection
<i>exo</i> $\Delta::Kan$	F BW25113	Keio collection
<i>ascB</i> $\Delta::Kan$	F BW25113	Keio collection
<i>proV</i> $\Delta::Kan$	F BW25113	Keio collection
<i>yecT</i> $\Delta::Kan$	F BW25113	Keio collection
<i>yobB</i> $\Delta::Kan$	F BW25113	Keio collection
<i>ygbT</i> $\Delta::Cm^b$	Hfr Cavalli with $\lambda$ Red	This study
<i>ruvA</i> $\Delta::Cm$	Hfr Cavalli with $\lambda$ Red	This study
<i>ruvB</i> $\Delta::Cm$	Hfr Cavalli with $\lambda$ Red	This study
<i>ruvC</i> $\Delta::Cm$	Hfr Cavalli with $\lambda$ Red	This study
<i>recA</i> $\Delta::Cm$	Hfr Cavalli with $\lambda$ Red	This study
<i>recB</i> $\Delta::Cm$	Hfr Cavalli with $\lambda$ Red	This study
<i>recC</i> $\Delta::Cm$	Hfr Cavalli with $\lambda$ Red	This study
<i>recD</i> $\Delta::Cm$	Hfr Cavalli with $\lambda$ Red	This study
<i>csdA</i> $\Delta::Cm$	Hfr Cavalli with $\lambda$ Red	This study
<i>rpoS</i> $\Delta::Cm$	Hfr Cavalli with $\lambda$ Red	This study
C-terminal YgbT-SPA <sup>c</sup>	DY330 with $\lambda$ Red	This study
C-terminal RuvB-SPA	DY330 with $\lambda$ Red	This study
C-terminal RecB-SPA	DY330 with $\lambda$ Red	This study
C-terminal RecC-SPA	DY330 with $\lambda$ Red	This study
C-terminal UvrC-SPA	DY330 with $\lambda$ Red	This study
C-terminal YgcH-SPA	DY330 with $\lambda$ Red	This study
C-terminal YgcJ-SPA	DY330 with $\lambda$ Red	This study
C-terminal YchM-SPA	DY330 with $\lambda$ Red	This study
<i>ygbT</i> $\Delta::Cm$ <i>ruvC</i> $\Delta::Kan$	F BW25113 with $\lambda$ Red	This study
<i>ygbT</i> $\Delta::Cm$ <i>ruvB</i> $\Delta::Kan$	F BW25113 with $\lambda$ Red	This study
<i>ygbT</i> $\Delta::Cm$ <i>ruvA</i> $\Delta::Kan$	F BW25113 with $\lambda$ Red	This study

<i>ygbT</i> Δ:: <i>Cm recN</i> Δ:: <i>Kan</i>	F <sup>-</sup> BW25113 with λ Red	This study
<i>ygbT</i> Δ:: <i>Cm recO</i> Δ:: <i>Kan</i>	F <sup>-</sup> BW25113 with λ Red	This study
<i>ygbT</i> Δ:: <i>Cm recF</i> Δ:: <i>Kan</i>	F <sup>-</sup> BW25113 with λ Red	This study
CRISPR cluster-I Δ:: <i>Cm</i>	Hfr Cavalli with λ Red	This study
CRISPR cluster-I Δ:: <i>Kan</i>	Hfr Cavalli with λ Red	This study
CRISPR cluster-II Δ:: <i>Cm</i>	Hfr Cavalli with λ Red	This study
CRISPR cluster-I Δ:: <i>Kan</i> and CRISPR cluster-II Δ:: <i>Cm</i>	Hfr Cavalli with λ Red	This study
CRISPR cluster-I Δ <i>ygbT</i> Δ:: <i>Cm</i>	Hfr Cavalli with λ Red	This study
CRISPR cluster-II Δ:: <i>Cm ygbT</i> Δ:: <i>Kan</i>	Hfr Cavalli with λ Red	This study
CRISPR cluster-I Δ:: <i>Kan</i> CRISPR cluster-II Δ:: <i>Cm ygbT</i> Δ:: <i>Tet</i> <sup>d</sup>	Hfr Cavalli with λ Red	This study
CRISPR cluster-I Δ:: <i>Kan</i> CRISPR cluster-II Δ:: <i>Tet YgbT</i> -YFP	Hfr Cavalli and DY330	This study
<i>YgbT</i> -YFP	DY330 with λ Red	This study
<i>RuvC</i> -YFP	DY330 with λ Red	This study
<i>RuvB</i> -YFP	DY330 with λ Red	This study
<i>RuvA</i> -YFP	DY330 with λ Red	This study
<i>RecN</i> -YFP	DY330 with λ Red	This study
<i>MutH</i> -YFP	DY330 with λ Red	This study
<i>ygbT</i> Δ/pBAD <i>ygbT</i> <sup>+</sup>	pBAD24 vector	This study
<i>ygbT</i> Δ [pBAD vector]	pBAD24 vector	This study
<i>ygbT</i> Δ <i>ruvA</i> Δ /pBAD <i>ygbT ruvA</i> <sup>+</sup>	pBAD24 vector	This study
<i>ygbT</i> Δ <i>ruvB</i> Δ /pBAD <i>ygbT ruvB</i> <sup>+</sup>	pBAD24 vector	This study
<i>ygbT</i> Δ <i>ruvC</i> Δ /pBAD <i>ygbT ruvC</i> <sup>+</sup>	pBAD24 vector	This study
<i>ygbT</i> Δ <i>ruvA</i> Δ [pBAD vector]	pBAD24 vector	This study
<i>ygbT</i> Δ <i>ruvB</i> Δ [pBAD vector]	pBAD24 vector	This study
<i>ygbT</i> Δ <i>ruvC</i> Δ [pBAD vector]	pBAD24 vector	This study
<i>ygbT</i> Δ/pBAD D218A	pBAD24 vector	This study
<i>ygbT</i> Δ/pBAD E141A	pBAD24 vector	This study
<i>ygbT</i> Δ/pBAD H208A	pBAD24 vector	This study

<sup>a</sup>Kan, Kanamycin resistance cassette

<sup>b</sup>Cm, Chloramphenicol resistance cassette

<sup>c</sup>SPA, Sequential Peptide Affinity

<sup>d</sup>Tet, Tetracycline resistance cassette

**Note:** When required we obtained the single non-essential gene deletion strains from the Keio [1] stock collection library marked with Kanamycin resistance cassette.

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1. Baba, T. et al. Construction of *Escherichia coli* K-12 in-frame, single-gene knockout mutants: the Keio collection. *Mol. Syst. Biol.* 2, 2006.0008 (2006).
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**Supplemental Table 6.** Crystallographic data collection and model refinement statistics

<b>Data collection statistics</b>	<b>YgbT C-terminal domain (aa 92-281)</b>	<b>YgbT full-length (aa 7-281)</b>
space group	P2 <sub>1</sub> 2 <sub>1</sub> 2 <sub>1</sub>	P2 <sub>1</sub> 2 <sub>1</sub> 2 <sub>1</sub>
unit cell (Å)	a= 53.7 Å, b =90.0 Å c = 121.9 Å	a = 78.7 Å, b =79.3 Å c = 101.5 Å
wavelength (Å)	0.9794	0.9794
resolution (Å)	40-1.40	35-1.95
number of observed reflections	557335	448281
number of unique reflections	115817	46873
$R_{\text{merge}}^a$ (%)	6.5 (64.0)	9.5(55.3)
completeness (%)	99.0 (99.6.)	99.6 (100)
$I/\sigma$	27.0 (2.6)	25.9 (4.0)
<b>Phasing method</b>	<b>SAD</b>	<b>MR (Phaser)</b>
<b>Refinement statistics</b>		
resolution range (Å)	40.0-1.40	35.0-1.95
$R_{\text{cryst}}$ (%)	17.7	21.1
$R_{\text{free}}$ (%)	20.0	25.8
number of protein molecules/residues	3/542	2/520
solvent	793	274
SO4/SO3/Et.glycol	5/2/4	-/-/-
<b>Rmsd from target values</b>		
bond lengths (Å)	0.015	0.022
bond angles (deg)	1.59	1.87
protein main chain	8.0	19.6

protein side chain	10.8	23.3
H <sub>2</sub> O/SO <sub>4</sub> /SO <sub>3</sub> /Et.glycol	22.3/26.1/30.8/28.6	26.9/-/-
<b>Ramachandran Plot (%)</b> favored/allowed/disallowed	94.8/5.2/-/-	93.9/6.1/-/-
<b>PDB code</b>	3NKE	3NKD



## Supplementary Materials

### **A dual function of the CRISPR-Cas system in bacterial antiviral immunity and DNA repair**

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#### **1. Supplementary Text**

##### ***Analysis of Genetic Interactions from the ygbTA Genome-Wide Genetic Screen in E. coli***

Recently, we (Butland et al., 2008) and others (Typas et al., 2008) have exploited the natural bacterial conjugation and genetic transfer capacity of Hfr strains with the Keio (Baba et al., 2006) single gene deletion collection as the basis of a high-throughput method for examining genetic interactions in a genome-wide manner in *E. coli*. To the Keio collection, we also added 149 F<sup>-</sup> potentially-hypomorphic Kan<sup>R</sup>-marked strains with C-terminal SPA (Sequential Peptide Affinity) - tagged essential genes involved in conserved bacterial processes (Butland et al., 2005), signifying that the tag does not markedly preclude protein folding or function *per se*. We reasoned that alteration of the 3'-UTR via integration of the marker cassette could destabilize certain transcripts or, on rare occasion, impede the proper function of the fusion protein. Using this assay, we have

screened an Hfr *ygbT* deletion mutant as a donor strain and crossed against all the *E. coli* genes (Supplementary Table S4).

The relative fitness of the *ygbT* double mutants produced by conjugation is digitally imaged, colony growth quantified and an interaction score (*S*) is calculated to quantify the strength and confidence of genetic interaction for each *E. coli* mutant gene pair (Supplementary Table S4). Fitness defects in *E. coli* (Butland et al., 2008) are inferred as a function of normalized growth rates relative to unperturbed growth corresponding to single gene mutant references. The expectation is that, the growth rate of a double mutant bearing two functionally unrelated genes should be approximately multiplicative in comparison with the two single mutants alone. An aggravating functional genetic relationship is conveyed by the non-additive slow growth or inviability of the double mutants relative to the expected summation of single deletion growth phenotypes, implying the genes are in related pathways that converge on a common cellular process or function. Conversely, less than additive growth defects indicate an alleviating interaction, suggesting that the two genes in question belong to the same biological pathway (i.e. component subunits of a protein complex).

### ***Gene Set Enrichment Analysis on the Genetic Interaction Scores from the ygbTA Genome-Wide Genetic Screen***

Rather than choosing a pre-arbitrary interaction score (*S*) threshold cut-off from the *ygbTΔ::Cm<sup>R</sup>* genome-wide genetic screen, we ranked the mutant gene pairs based on their interaction *S* scores (Supplementary Table S4) and identified the enrichment for Gene Ontology (GO) terms spanning various biological processes using the Gene Set

Enrichment Analysis (Irizarry et al., 2009) (Supplementary Table S5). We analyzed the two independent isolate strains (Isolate 1 and Isolate 2) of the same gene simultaneously, that is, for a given gene, say G, we treated them as G\_A and G\_B, respectively. We then evaluated the enrichment of GO terms using a standardized  $\chi^2$ -test that will allow us to compare gene sets of different sizes and different mean shifts (Irizarry et al., 2009).

$$E_g^{\chi^2} = \frac{\sum_{i \in A_g} (S_i - \bar{S})^2 - (N_g - 1)}{2 * (N_g - 1)}$$

In the above formula,  $S_i$  is the  $S$  score for gene  $i$  in gene set  $A_g$ ,  $\bar{S}$  is the mean  $S$  score of gene set  $A_g$ .  $N_g$  is the number of genes in  $A_g$ , when  $N_g$  is larger than 20,  $E_g^{\chi^2}$  follows a standard normal distribution. The enrichment  $P$  value of  $E_g^{\chi^2}$  is calculated based on the distribution. The calculated  $P$ -value is further adjusted using the Benjamini and Hochberg correction procedure (Benjamini and Hochberg, 1995) to determine a  $q$ -value. GO category with  $q$ -value  $\leq 0.05$  is considered to be significant. The result of this analysis is shown in Supplementary Table S5.

Of the 182 GO categories considered for GSEA, 76 GO categories from *ygbT* genetic screen with a corrected  $q$ -value below the cut-off ( $q$ -value  $\leq 0.05$ ) showed enrichment for several major functional processes including GO terms related to DNA repair ( $q$ -value  $< 0.002$ ), DNA recombination ( $q$ -value  $< 2.79E-09$ ), and chromosomal segregation and condensation ( $q$ -value  $< 0$ ) (Supplementary Table S5).

## 2. Supplementary Methods

*Bacterial strains, gene cloning, protein purification, and mutagenesis*

Single gene deletion strains were from the Keio knock-out library (Baba et al., 2006). Hfr strains were constructed using  $\lambda$ -Red recombination (Butland et al., 2008). For complementation assays, genes were cloned from *E. coli* genomic DNA using ligation-dependent cloning into the pBAD24 vector (from Jon Beckwith, Harvard Medical School, USA). Wild-type, mutant and truncated *ygbT* genes were cloned into the modified pET15b plasmid as previously described (Zhang et al., 2001). The proteins were expressed as a fusion with an N-terminal His<sub>6</sub>-tag in *E. coli* and purified to more than 95% homogeneity using metal-chelate affinity chromatography on nickel affinity resin and gel filtration on a Superdex 200 26/60 column (Amersham Biosciences) as described previously (Suppl. Fig. 1G) (Proudfoot et al., 2008; Zhang et al., 2001). Site-directed mutagenesis of YgbT was performed using a protocol based on the QuikChange site-directed mutagenesis kit (Stratagene).

### ***In Vitro Nuclease Assays with Linear Substrates***

The single-stranded RNA and DNA substrates (Supplementary Table S1) were purchased from IDT (USA). The reaction mixtures for DNase assays (10  $\mu$ l) contained 0.1  $\mu$ M 5' - [<sup>32</sup>P]-labeled ssDNA, 50 mM Tris-HCl (pH 9.0), 100 mM KCl, 10 mM MgCl<sub>2</sub>, 1 mM dithiothreitol, 0.25  $\mu$ g of YgbT. The reaction mixture was incubated at 37 °C for the indicated period of time and quenched by adding equal volume of formamide loading buffer, resolved by electrophoresis in 15% polyacrylamide/8M urea gels and visualized by autoradiography. The reaction mixture for RNase assays (10  $\mu$ l) contained 0.1  $\mu$ M 5' - [<sup>32</sup>P]-labeled ssRNA, 50 mM Tris-HCl (pH 6.0), 100 mM KCl, 5 mM MgCl<sub>2</sub>, 1 mM DTT and YgbT (100  $\mu$ g/ml). The reaction mixtures were incubated at 37 °C for 45 min and quenched by the addition of an equal volume of formamide loading buffer (80%

formamide, 0.025% bromophenol blue, 0.025% xylene cyanol, and 10mM EDTA pH 8.0). The reaction products were resolved by electrophoresis in 15% PAA/8M urea gels using TBE (10mM Tris-borate, pH 8.3 and 2mM EDTA) as a running buffer and visualized by autoradiography.

### ***Preparation of Branched DNA substrates***

The oligonucleotides were 5'-end labeled with [ $\gamma$ - $^{32}$ P] ATP (6000 Ci/mmol; Amersham) and T4 Polynucleotide kinase (PNK) (Fermentas) and then purified by denaturing PAGE (15% polyacrylamide/8M urea gel). The labeled oligonucleotides were eluted from the gel, precipitated with 2% LiClO<sub>4</sub> in acetone, washed with acetone, dried, and dissolved in DEPC-treated Milli-Q water. The synthetic HJ1 was made by annealing oligonucleotides 1, 2, 3 and 4 (Supplementary Table S1). The HJ2 contained oligonucleotides 5, 6, 7 and 8. The HJ3 contained oligonucleotides 9, 10, 11 and 12. The three-way junction 3wHJ was constructed from oligonucleotides 5, 6, and 7. The Y-junction YJ contained oligonucleotides 13, 14 and 15. The heterologous loop HL was generated by annealing oligonucleotides 16 and 17. The HJ4 contained oligonucleotides 18, 19, 20 and 21. The asymmetrical HJ5 contained oligonucleotides 18, 19, 22 and 23. The replication fork RF contained oligonucleotides 18, 23, 24 and 25. The 5'-flap (5'F) contained oligonucleotides 18, 21 and 24. The 3'-flap (3'F) contained oligonucleotides 18, 21, and 25. The splayed arm substrate was prepared by annealing oligonucleotides 18 and 21. The cruciform-like substrates CF1 and CF2 were generated by annealing oligonucleotides 26 and 27 (CF1) or oligonucleotides 28 and 29 (CF2) (Supplementary Table S1).

### ***Nuclease assays with branched DNA substrates***

All DNA or RNA substrates were 5'-end labeled with [ $\gamma$ - $^{32}$ P] ATP and T4 Polynucleotide kinase (PNK) and purified by denaturing polyacrylamide gel electrophoresis (PAGE) (15% polyacrylamide/8M urea gel). Reaction mixtures for branched DNA cleavage assays contained [ $5'$ - $^{32}$ P]-labeled substrate (20 nM), 50 mM Tris-HCl (pH 8.5 or 7.0), 100 mM KCl, 10 mM MgCl<sub>2</sub>, 1mM DTT, and YgbT (100  $\mu$ g/ml) or RuvC (50  $\mu$ g/ml). For non-denaturing PAGE, the reactions were stopped by the addition of loading buffer (10% glycerol, 0.025% bromophenol blue, 0.025% xylene cyanol, and 10 mM EDTA pH 8.0, 1% SDS), and the products were resolved on an 8% polyacrylamide gel. For denaturing PAGE analysis, reactions were quenched by the addition of an equal volume of formamide loading buffer (80% formamide, 0.025% bromophenol blue, 0.025% xylene cyanol, and 10 mM EDTA pH 8.0). The reaction products were resolved by electrophoresis in 15% polyacrylamide/8M urea gels using TBE (10 mM Tris-borate, pH 8.3 and 2 mM EDTA) as a running buffer. In the re-ligation experiments with T4 DNA ligase, the asymmetrical HJ5 was constructed by annealing oligonucleotides 18, 21, 22 and 23. YgbT (or RuvC) and HJ5 labeled on strand 3 were incubated using conditions described above for the HJ resolution assay. Reaction products were precipitated by 2% LiClO<sub>4</sub> in acetone, dissolved in the reaction buffer (40 mM Tris-HCl, pH 7.8, 10 mM MgCl<sub>2</sub>, 10 mM DTT, 0.5 mM ATP), and incubated with T4 DNA ligase (100 units) at 37 °C for 2 h.

### ***Crystallization and structure determination***

Se-Met-substituted crystals of the YgbT C-terminal domain (aa 92 – 281) were grown by the hanging drop vapor diffusion method against a crystallization buffer containing 50 mM MES (pH 6.5), 20% PEG 8K, 10 mM MgCl<sub>2</sub>, 10 mM adenylyl-imidodiphosphate,

0.2 M ammonium sulfate, and 0.3 M non-detergent sulfobetaine (NDSB)-211, whereas the crystals of the native two-domain YgbT fragment (7 – 281) were grown against a crystallization buffer containing 0.1 M Bis-Tris-HCl (pH 7.5), 0.1 M Na-formate, 0.1 M Li-sulfate, and 0.3 M NDSB-11 at 18°C. Diffraction data were collected using the SBC-Collect program at the selenium absorption edge (12.6603 keV) to 1.40 Å (C-terminal domain) or 1.95 Å (full-length YgbT) on the 19-ID beamline of the Structural Biology Center at the Advanced Photon Source (Rosenbaum et al., 2006). Data were integrated and scaled using the HKL3000 software package, and the structure of the YgbT C-terminal domain was determined using the single anomalous scattering dispersion (SAD) method (Supplementary Table S3). The initial protein model was built using the HKL3000 software package (Minor et al., 2006) and the final model was obtained using COOT (Emsley and Cowtan, 2004; Murshudov et al., 1997). The structure of the two-domain YgbT was determined by molecular replacement using the structure of the YgbT C-terminal domain as a model. Molecular replacement searches were completed with Phaser using the CCP4 suite (Collaborative Computational Project, 1994; McCoy et al., 2007), and the initial model was obtained using COOT and ARP/wARP (Morris et al., 2003). The final model was refined using REFMAC 5.5. The final round of refinement was carried out using TLS refinement and TLS operators were calculated using the TLSMD server (Painter and Merritt, 2006). The quality of the structures was checked using the validation tools of COOT and Molprobity (Davis et al., 2007) and all residues were within acceptable regions of the Ramachandran plot (Supplementary Table S2).

### ***Immunoprecipitation***

In co-immunoprecipitation assays, the *E. coli* cell lysates (~5 mg) from strains expressing SPA-tagged YgbT, RecB and RecC were incubated for 2 hr at 4°C with anti-Flag M2 agarose beads, which bind the FLAG epitopes of the SPA-tag. The immunoprecipitated proteins were separated on 12 % SDS/PAGE and transferred onto nitrocellulose membranes as previously described (Babu et al., 2009). The membranes were probed with anti-RecB and anti-RecC (the kind gift from Andrew Taylor and Gerry Smith, Fred Hutchinson Cancer Research Center, Seattle WA) and anti-RuvB (Santa Cruz Biotechnology, Inc.) monoclonal antibodies, and then visualized by chemiluminescence (Pierce).

The physical interaction of YgbT with YgcH and YgcJ was confirmed by co-immunoprecipitation experiments using the C41 (DE3) strain (a derivative of BL21 (DE3), [*E. coli* F<sup>-</sup> *ompT hsdS<sub>B</sub>* (*r<sub>B</sub><sup>-</sup> m<sub>B</sub><sup>-</sup>*) *gal dcm* (DE3)] expressing a chromosomal SPA-tagged (C-terminal) YgbT or Fis (a nucleoids DNA-binding protein) prepared as previously described (Babu et al., 2009). We note that the commercial strain of *E. coli* BL21 (DE3) cells contain a CRISPR but do not contain YgbT or any other Cas genes.

The YgbT or Fis SPA-tagged protein expression was confirmed by Western blotting using anti-FLAG antibody that recognizes the FLAG epitopes of the SPA-tag. One µL of the pCA24N plasmid (harbors chloramphenicol selectable marker) expressing full length YgcH or YgcJ with N-terminal His<sub>6</sub>-tag (Kitagawa et al., 2005) was transformed into the C41 (DE3) strains with the SPA-tagged YgbT or Fis. The transformants were selected on kanamycin (50 µg/ml) and chloramphenicol (34 µg/ml). The overnight cultures of these *E. coli* C41 (DE3) strains were grown at 25 °C in 50 ml LB containing kanamycin and chloramphenicol to OD<sub>600</sub> = 0.5. The cells were



centrifuged at 4,000 *xg* and the pellets were resuspended in 50 ml of LB with appropriate antibiotics, followed by IPTG induction. The cells were induced for 3 h at 25 °C by the addition of 0.5 mM IPTG and harvested by centrifugation at 4,000 *xg*. Cells were then lysed via sonication as previously described (Babu et al., 2009). The sonicated cell lysates were incubated for 2 hr at 4°C with anti-Flag M2 agarose beads, which binds the FLAG epitopes of the SPA-tag. The immunoprecipitated proteins were separated on 10 % SDS/PAGE and transferred onto nitrocellulose membranes as previously described (Babu et al., 2009). The membranes were probed with anti-His monoclonal antibody (Upstate, cat#05949) and visualized by chemiluminescence (Pierce) to detect the presence of YgcH or YgcJ.

### 3. Supplementary Text and Methods References

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## **4. SUPPLEMENTAL PROTOCOLS**

### **Protocol S1- YgbT association with proteins implicated in DNA repair and recombination.**

The YgbT, Ruv, Rec and three other CRISPR associated cascade complex subunits were chromosomally tagged as bait proteins and purified using the sequential peptide affinity purification protocol as described previously [4]. Identities of the co-purifying proteins (preys) were determined using two complementary, highly sensitive mass spectrometry methods: gel-free liquid chromatography-tandem mass spectrometry (LCMS) and gel-based peptide mass fingerprinting using matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS).

For MALDI-TOF MS, protein identification was performed using the ProFound search engine, which matches the observed peaks against the database of theoretical peaks. The program runs ProFound on all the spectra using one set of conditions. In addition, a Java program was developed in-house which automates the re-running of Knexus/ProFound using 72 varying parameter sets and evaluates the aggregate results to produce a set of identified proteins in each case. Based on these results, it calculates a single confidence Z-score for candidate protein identifications. In the case of LCMS, the acquired spectra were matched to candidate peptide sequences by searching against an *E. coli* protein FASTA formatted sequence database using the SEQUEST search algorithm on a cluster computer [SEQUEST-PVM v.27], with peak lists automatically generated using the

embedded ExtractMS script with default parameter settings [5]. The STATQUEST filtering algorithm [6] was then applied to all putative search results to obtain a measure of the statistical reliability (confidence score) for each candidate identification. Taking into account of the low codon adaptation index (CAI) and mRNA expression levels of YgbT (Cas1) and other CRISPR associated proteins (Suppl. Fig. S5), we applied a modest threshold cut-off score for the interactions with > 40% probability and with a number of spectral count >1 for LCMS, and with a Z-score of > 0.7 for the MALDI-TOF MS. Using this cut-off, we identified 79 interacting proteins from YgbT SPA-tag purification (Figure 3A, Suppl. Table 2).

**Protocol S2 - Codon adaptation index and mRNA expression levels of CRISPR associated proteins.**

From the YgbT SPA-tag purification, except YgcJ (CasC) and YgcH (CasE), we were unable to detect the other Cas proteins even at low probability scores from two different mass spectrometry methods, suggesting that the Cas proteins are in low abundance, as reflected by their Codon Adaptation Index (CAI) and mRNA expression levels (Suppl. Fig. 5). The CAI values are frequently used to assess the extent of expression of a gene with respect to the constitutive expression level of the housekeeping genes (e.g., ribosomal proteins, chaperones etc). The CAI [7] score is calculated by identifying the genes coding for ribosomal proteins in *E. coli* K12 strain against a reference (ribosomal) codon usage table built using the EMBOSS program 'cusp' (<http://emboss.sourceforge.net/>). The mRNA expression levels of each gene were obtained from the M3D database [8].

**Protocol S3 - YgbT interacts genetically with DNA repair and recombination pathways.**

Recently we [9] and others [10] have exploited the natural bacterial conjugation and genetic transfer capacity of Hfr strains with the Keio [11] single gene deletion collection as the basis of a high-throughput method for examining genetic interactions in a genome-wide manner in *E. coli*. To the Keio collection, we also added 149 F<sup>-</sup> potentially-hypomorphic Kan<sup>R</sup>-marked strains with C-terminal SPA (Sequential Peptide Affinity) - tagged essential genes involved in conserved bacterial processes [12], signifying that the tag does not markedly preclude protein folding or function *per se*. We reasoned that alteration of the 3'-UTR via integration of the marker cassette could destabilize certain transcripts or, on rare occasion, impede the proper function of the fusion protein. Using this assay, we have screened Hfr *ygbT* deletion mutant as a query strain and crossed against all the *E. coli* genes (Suppl. Table 3).

The relative fitness of the *ygbT* double mutants produced by conjugation is digitally imaged, colony growth quantified and an interaction score (*S*) is calculated to quantify the strength and confidence of genetic interaction for each *E. coli* mutant gene pair (shown in Suppl. Table 3). Fitness defects in *E. coli* [9] are inferred as a function of normalized growth rates relative to unperturbed corresponding to single gene mutant references. The expectation is that, the growth rate of double mutant bearing two functionally unrelated genes should be approximately multiplicative in comparison with the two single mutants alone. An aggravating functional genetic relationship is conveyed by the non-additive slow growth or inviability of the double mutants relative to the expected summation of single deletion growth phenotypes, implying the genes are in

related pathways that converge on a common cellular process or function. Conversely, less than additive growth defects indicate an alleviating interaction, suggesting that the two genes in question belong to the same biological pathway (i.e. component subunits of a protein complex).

**Protocol S4 - Functional enrichment analysis of the genetic interactions of *ygbT***

Rather than choosing a pre-arbitrary interaction score ( $S$ ) threshold cut-off from the *ygbT* $\Delta::Cm^R$  genome wide genetic screen, we ranked the mutant gene pairs based on their interaction  $S$  scores (Suppl. Table 3) and identified the enrichment for a *priori* defined functionally related gene sets for GO terms spanning various biological processes using Gene Set Enrichment Analysis (GSEA) [13] (Suppl. Table 4) . We analyzed the two independent isolate strains (Isolate 1 and Isolate 2) of the same gene simultaneously, that is, for a given gene, say  $G$ , we treated them as  $G\_A$  and  $G\_B$ , respectively. We then evaluated the enrichment of GO gene sets using a standardized  $\chi^2$ -test that will allow us to compare gene sets of different sizes and different mean shifts [13].

$$E_g^{\chi^2} = \frac{\sum_{i \in A_g} (S_i - \bar{S})^2 - (N_g - 1)}{2 * (N_g - 1)}$$

In the above formula,  $S_i$  is the  $S$  score for gene  $i$  in gene set  $A_g$ ,  $\bar{S}$  is the mean  $S$  score of gene set  $A_g$ .  $N_g$  is the number of genes in  $A_g$ , when  $N_g$  is larger than 20,  $E_g^{\chi^2}$  follows a standard normal distribution. The enrichment  $P$  value of  $E_g^{\chi^2}$  is calculated based on the distribution. The calculated  $P$ -value is further adjusted using Benjamini and Hochberg [14] correction procedure to determine a  $Q$ -value. GO category gene sets with  $Q$ -value < 0.05 is considered to be significant. The result of this analysis is shown in Suppl. Table 4.

Of the 182 GO category gene sets considered for GSEA, 76 gene sets from *ygbT* genetic screen with a corrected *Q*-value below the cut-off ( $Q\text{-value} \leq 0.05$ ) showed enrichment for several major functional processes including GO terms related to DNA repair ( $Q < 0.002$ ), DNA recombination ( $2.79\text{E-}09$ ), and chromosomal segregation and condensation ( $Q < 0$ ) (Suppl. Table 4).

**Protocol S5 - YgbT interacts with cell division and chromosome segregation proteins.**

Homologous recombination during the cell division process can generate a chromosome dimer which is converted to monomers by XerD, a site specific tyrosine recombinase, mediating the formation of recombinant products in Holliday junction containing DNA molecules as reaction intermediates to permit the segregation at cell division [15,16]. Independent deletion of *xerD* and *mukB* alleles have shown to have aberrant chromosomal segregation [17]. The *ftsK* allele activates the Xer recombination not only in localizing and coordinating these activities in DNA replication, occurring close to the midcell of newborn cells but also directly participate in the separation processes [16]. In *E. coli*, decatenation is mediated by ParC, a subunit of topoisomerase IV (Topo IV). When homologous recombination between newly replicated sister chromosomes undergo an odd number of crossovers, it results in a single dimeric chromosome. Such dimers are converted to monomers by site-specific tyrosine recombinases, XerC and XerD [18,19]. In this case, the observed SSL interactions likely occur because reduced levels of *xerD*, *parC*, *ftsK-SPA*, and *mukB-SPA* alleles resulting from the inactivation of the *ygbT* mutant might be necessary for an effective co-ordination in linking cell division and chromosomal segregation.

## **Protocol S6 - Validation of Genetic Interactions Using Custom Mini-Array eSGA Screening**

Reliability of SSL interactions of *ygbT* with *rec* or *ruv* is validated using custom mini-array eSGA screening. The *recA*, *recB*, *recC*, *recD*, *ruvA*, *ruvB*, *ruvC*, *csdA* and *rpoS* query deletion strains were first constructed by replacing the target gene in Hfr Cavalli with a chloramphenicol (Cm) resistance marker, using the  $\lambda$ -Red system as essentially previously described [9]. The recipient array is then constructed by placing 120ul of the overnight culture of *ygbT*, *proV*, *recA*, *ascB*, *yobB*, *ruvA*, *ruvB*, *ruvC*, *yecT*, *aas*, *recB*, *recC*, *recD* and *exo* non-essential single gene deletion mutants obtained from the Keio collection [11] knock-out library, selected for kanamycin (Kan), into a 96-well plate. The recipient array is subsequently pinned on to a LB-Kan from 96-well plate into a 384 higher density. In parallel, the overnight culture of the Hfr Cavalli query deletion strains, selected for Cm, were pinned independently onto a LB-Cm plate in 384 densities. Both recipient and donor plates are incubated at 32 °C for 16 hrs. Robotically, the overnight solid donor and recipient plates were pinned onto a LB-agar conjugation plate which is incubated again for 16 hrs at 32 °C. After two rounds of double antibiotic selection on LB-Kan-Cm, the plates were inspected manually and colonies were compared to the donor/recipient combinations.

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