



Figure S1. The mouse-adapted strain NSH57 (a variant of G27) retains a functional type IV secretion system as measured by the ability to translocate CagA into host cells and to induce IL-8 production during infection of AGS cells. A. Western blot data from infections of human AGS cells with mouse-adapted NSH57 and wild-type G27 from the time of infection (0 through 24 hours). CagA from whole-cell lysates is shown, first probed with a phosphotyrosine-specific antibody to identify CagA that has been translocated into the host cell cytoplasm, and then re-probed with a CagA-specific antibody that bound bacterial and AGS cell internal CagA. B. ELISA data from the same experiment showing IL-8 secretion over the time course of the infection. Data shown are representative of 2 biological replicates.

Supplemental Table 1 Oligonucleotide Primers

Name	Sequence
N	ACTTTATTGTCATAGTTTAGATCTATTTTG
N3	CTTTAATACGACGGGCAATTTGCACTTCAG
S	ATAATCCTTAAAACTCCATTTCCACCCCT
S2	CAGTTCCCAACTATTTTGTCC
C1	GATATAGATTGAAAAGTGGAT
C2	TTATCAGTGCGACAAACTGGG
hp0022-5	TGCTTTATAGCCTTATTTTTGGCG
hp0022-3M	ATCCACTTTTCAATCTATATCGTTGGTGTTTAAGACATTACCC
hp0022-5M	CCCAGTTTGTGCGACTGATAAGAAAACGCCAAGCAGCCCGCC
hp0022-3	CTCTTTTTTGTGTTTAAGCAG
hp0030-1	TAAACACTTCCATGCTCACATGC
hp0030-2	TGTCTTTTAAGGTTAAAGAGCG
hp0030-3	ATCCACTTTTCAATCTATATCGATAGTCCCAAAGGTAGTCCGC
hp0030-4	CCCAGTTTGTGCGACTGATAACCGCCATAGAGCAAGCAGAGGGC
ss2hp0137:5'	GCGCATTAAAGAAGCCAGAGCC
hp0137-3M	ATCCACTTTTCAATCTATATCCAAACAACCTTTCACGCATCGC
hp0137-5M	CCCAGTTTGTGCGACTGATAAGCTTGGGCATGATTGGGGCGG
ss2hp0137:3'	GCGACTTTTTGAGGCCCATGCACCCC
hp0368-5	GATCATTGGATAGTTTAAAGG
hp0368-3M	ATCCACTTTTCAATCTATATCAAGGACACACCGCTTTTTGTC
hp0368-5M	CCCAGTTTGTGCGACTGATAAGAGTGTGCGAAGACCAATTGC
hp0368-3	ATCTTAGACATCTTATCCTCC
hp0503-5	GTGGGAAATCCCCCTATAACG
ss2hp0503:5'	GTGGGAAATCCCCCTATAACGATAG
hp0503-3M	ATCCACTTTTCAATCTATATCGCATAATCCATTCGCCCTCGC
hp0503-5M	CCCAGTTTGTGCGACTGATAAGATTGCGATACGACGCTATGC
ss2hp0503:3'	CAAACCTACAAGGGTGTCTTGAAC
ss2hp0529cag9:5'	CATTGTTCTAATTGGTTGAAAGC
hp0529-3M	ATCCACTTTTCAATCTATATCCACTTGCCCACGCCGATCCCC
hp0529-5M	CCCAGTTTGTGCGACTGATAATTTGCTCTTTGGTGTTTTGGC
ss2hp0529cag9:3'	TAAACATAGATCCACCAACTCTTCC
hp0538-5	CGCACAAAAACAAAAATTGTGTTTGTGG
0538-KO-3	ATCCACTTTTCAATCTATATCCTAATTCTTTGTATTCACTCGG
0538-KO-4	CCCAGTTTGTGCGACTGATAAAATAACTACCAAGATACTAC
0538-KO-4-2	CCCAGTTTGTGCGACTGATAAGAACCCTTCTTATAGCTTCGTGCGC
hp0538-3	AAAATAAAAATTTTCATCAAAGGAATC
hp0963-1	ATATCCAAGGTTTAAAGAGAGG
hp0963-2	AATTTGTTTTGTTTCTCGCTCC
hp0963-3	ATCCACTTTTCAATCTATATCGTTTAAATACGAGCGATCAAATCG
hp0963-4	CCCAGTTTGTGCGACTGATAATTATGCTTCATAGACACGCCTGG
hp1028-5	CACATCATTGTTTGCATTGCGG
hp1028-3	CCCTTACGATGAAAAAAGAGATTTGATCG
1028-KO-3	atccacttttcaatctatcGCTATGACAAATGGGGGTATG
1028-KO-4	cccagtttgcgactgataaGCCATCCACATCAGAAATACC
ss2hp1081:5'	GGGTGTCAGTTTTTCAACAAAACGAC
hp1081-3M	ATCCACTTTTCAATCTATATCTTTAAGCCTTTCTTTAATGGC
hp1081-5M	CCCAGTTTGTGCGACTGATAATGACCCAAAAGCCGTCATGCG
ss2hp1081:3'	GCGTTCAAACGCTTTTCTAAACCC

Supplemental Table 2 Strains

Name	Description	Reference
G27		Covacci et al. 1993.Proc Natl Acad Sci USA 90:5791-5.
SS1		Lee et al. 1997.Gastroenterology 112:1386-1397.
10700	Human clinical isolate most related to SS1	Lee et al. 1997.Gastroenterology 112:1386-1397.
NSH57	Mouse adapted variant of G27	This study
NSH79	Mouse and laboratory passaged clinical isolate	This study
MHH9	NSH57, HP0022::Cat	This study
MHH13	NSH79, HP0022::Cat	This study
NSH59	NSH57, HP0030::Cat	This study
NSH61	NSH79, HP0030::Cat	This study
MHH19	NSH79, HP0137::Cat	This study
NSH49	NSH57, HP0137::Cat	This study
MHH11	NSH57, HP0368::Cat	This study
NSH48	NSH79, HP0368::Cat	This study
MHH1	NSH57, HP0503::Cat	This study
MHH8	NSH79, HP0503::Cat	This study
MHH2	NSH57, HP0529::Cat	This study
MHH4	NSH79, HP0529::Cat	This study
NSH44	NSH57, HP0538::Cat	This study
NSH45	NSH79, HP0538::Cat	This study
NSH60	NSH57, HP0963::Cat	This study
NSH62	NSH79, HP0963::Cat	This study
NSH35	NSH57, HP1028::Cat	This study
NSH36	NSH79, HP1028::Cat	This study
MHH6	NSH79, HP1081::Cat	This study
MHH7	NSH57, HP1081::Cat	This study

Supplemental Table 3

Supplemental Table 3 Gene content of mouse adapted strains							
TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0001	JHP0001	nusB	TRANSCRIPTION TERMINATION	1	1	1	1
HP0002	JHP0002	ribE	riboflavin synthase beta chain	1	1	1	1
HP0004	JHP0004	icfA	carbonic anhydrase	1	1	1	1
HP0005	JHP0005	pyrF	orotidine 5'-phosphate decarboxylase	1	1	1	1
HP0006	JHP0006	panC	pantoate-beta-alanine ligase , PANTOATE--BETA-ALANINE LIGASE	1	1	1	1
HP0007	N/A			1	1	1	1
HP0009	JHP0007		putative Outer membrane protein	1	1	0	1
HP0010	JHP0008	groEL	chaperone and heat shock protein , 60kDa chaperone	1	1	1	1
HP0012	JHP0010	dnaG	DNA primase	1	1	1	1
HP0013	JHP0011			1	1	1	1
HP0014	JHP0012			1	1	1	1
HP0015	JHP0013			1	1	1	1
HP0016	JHP0014			1	1	1	1
HP0017	JHP0015	virB4, virB4_1	virB4 homolog , DNA transfer protein	1	1	1	1
HP0018	JHP0016			1	1	1	1
HP0019	JHP0017	cheV, cheV_1	chemotaxis protein , putative chemotaxis protein	1	1	1	1
HP0020	JHP0018	nspC	carboxynorspermidine decarboxylase , putative carboxynorspermidine decarboxylase	1	1	1	1
HP0021	JHP0019			1	1	1	1
HP0022	JHP0020		conserved hypothetical integral membrane protein	1	1	1	1
HP0023	N/A			1	1	1	1
HP0025	JHP0021	omp2	outer membrane protein , putative Outer membrane protein	0	1	1	0
HP0026	JHP0022	gltA	citrate synthase	1	1	1	1
HP0027	JHP0023	icd	isocitrate dehydrogenase	1	1	1	1
HP0028	JHP0024		conserved hypothetical secreted protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0029	JHP0025	bioD	dethiobiotin synthetase	1	1	1	1
HP0030	JHP0026			1	1	0	1
HP0031	JHP0027			1	1	1	1
HP0032	JHP0028		conserved hypothetical protein	1	1	1	1
HP0033	JHP0029	clpA	ATP-dependent C1p protease , ATP-DEPENDENT PROTEASE,ATP-BINDING SUBUNIT	1	1	1	1
HP0034	JHP0030	panD	aspartate 1-decarboxylase	1	1	1	1
HP0035	JHP0031		conserved hypothetical protein	1	1	1	1
HP0036	JHP0032			1	1	1	1
HP0037	JHP0033		NADH-ubiquinone oxidoreductase subunit	1	1	1	1
HP0038	JHP0034	comB1	DNA transformation competency	1	1	1	1
HP0039	JHP0035	comB2	DNA transformation competency	1	1	1	1
HP0040	JHP0035	comB2	DNA transformation competency	1	1	1	1
HP0041	JHP0036	comB3	DNA transformation competency	1	1	1	1
HP0042	JHP0036	comB3	trbl protein, DNA transformation competency	1	1	1	1
HP0043	JHP0037	pmi, algA, manC	mannose-6-phosphate isomerase , phosphomannose isomerase/GDP-mannose pyrophosphorylase	1	1	1	1
HP0044	JHP0038	rfbD, gmd	GDP-D-mannose dehydratase	1	1	1	1
HP0045	JHP0039	nolK	nodulation protein , putative SUGAR NUCLEOTIDE BIOSYNTHESIS	1	1	1	1
HP0047	JHP0040	hypE	hydrogenase expression/formation protein	1	1	1	1
HP0048	JHP0041	hypF	transcriptional regulator , putative TRANSCRIPTIONAL REGULATOR	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0050	JHP0043	dpnA	adenine specific DNA methyltransferase , putative TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	1	1	1	1
HP0051	N/A	DDEM	cytosine specific DNA methyltransferase	1	1	1	0
HP0052	N/A			0	1	0	0
HP0053	N/A			0	1	0	0
HP0054	N/A		adenine/cytosine DNA methyltransferase	0	1	0	1
HP0055	JHP0047	putP	proline permease , sodium/proline symporter	1	1	1	1
HP0057	JHP0049			1	1	1	1
HP0058	JHP0050			0	1	1	0
HP0059	JHP0051			0	1	1	1
HP0060	JHP0052			0	1	1	1
HP0062	JHP0053			1	0	0	1
HP0063	JHP0054			1	1	1	1
HP0066	JHP0055			1	1	1	1
HP0067	JHP0057			1	0	0	1
HP0068	JHP0058			1	1	1	1
HP0066	JHP0061		conserved hypothetical ATP-binding protein	1	1	1	1
HP0067	JHP0062	ureH	urease accessory protein	1	1	1	1
HP0068	JHP0063	ureG	urease accessory protein	1	1	1	1
HP0069	JHP0064	ureF	urease accessory protein	1	1	1	1
HP0070	JHP0065	ureE	urease accessory protein	1	1	1	1
HP0073	JHP0068	ureA	urease alpha subunit (urea amidohydrolase), UREASE ALPHA SUBUNIT	1	1	1	1
HP0074	JHP0069	lspA	lipoprotein signal peptidase	1	1	1	1
HP0075	JHP0070	ureC, glmM	urease protein , phosphoglucosamine mutase	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0076	JHP0071	rps20, rpsT	ribosomal protein S20 , 30S RIBOSOMAL PROTEIN S20	1	1	1	1
HP0077	JHP0072	prfA	peptide chain release factor RF-1 , PEPTIDE CHAIN RELEASE FACTOR 1	1	1	1	1
HP0078	JHP0073		putative Outer membrane protein	1	1	1	1
HP0079	JHP0073	omp3	outer membrane protein	0	1	1	1
HP0082	JHP0075	tlpC	methyl-accepting chemotaxis transducer , methyl-accepting chemotaxis protein (MCP)	1	1	1	1
HP0083	JHP0076	rps9, rpsI	ribosomal protein S9 , 30S RIBOSOMAL PROTEIN S9	1	1	1	1
HP0084	JHP0077	rpl13, rplM	ribosomal protein L13 , 50S RIBOSOMAL PROTEIN L13	1	1	1	1
HP0086	JHP0079		conserved hypothetical protein	1	1	1	1
HP0087	JHP0080			1	1	1	1
HP0088	JHP0081	rpoD	RNA polymerase sigma-70 factor , RNA POLYMERASE SIGMA FACTOR (SIGMA-70)	1	1	1	1
HP0089	JHP0082	pfs	pfs protein	1	1	1	1
HP0090	JHP0083	fabD	malonyl coenzyme A-acyl carrier protein transacylase , MALONYL COA-ACYL CARRIER PROTEIN TRANSACYLASE	1	1	1	1
HP0091	JHP0084	hsdR	type II restriction enzyme R protein	1	1	1	1
HP0093	JHP0086		putative ALPHA(1,2)FUCOSYL TRANSFERASE	1	1	1	1
HP0094	JHP0086		conserved hypothetical protein	1	1	1	1
HP0095	JHP0087			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0096	JHP0088		phosphoglycerate dehydrogenase, putative keto-acid dehydrogenase	1	1	1	1
HP0097	JHP0089			1	1	1	1
HP0098	JHP0090	thrC	threonine synthase	1	1	1	1
HP0099	JHP0091	tlpA	methyl-accepting chemotaxis protein , methyl-accepting chemotaxis protein (MCP)	1	1	1	1
HP0100	JHP0092		conserved hypothetical protein	1	1	1	1
HP0101	JHP0093			1	1	1	1
HP0104	JHP0096	cpdB	2',3'-cyclic-nucleotide 2'-phosphodiesterase	1	1	1	1
HP0105	JHP0097		conserved hypothetical protein	1	1	1	1
HP0106	JHP0098	metB	cystathionine gamma-synthase , putative CYSTATHIONINE GAMMA-SYNTHASE	1	1	1	1
HP0107	JHP0099	cysK	cysteine synthetase , CYSTEINE SYNTHASE	1	1	1	1
HP0109	JHP0101	dnaK	chaperone and heat shock protein 70 , 70kDa chaperone	1	1	1	1
HP0110	JHP0102	grpE	co-chaperone and heat shock protein , 24kDa chaperone	1	1	1	1
HP0111	JHP0103			1	1	1	1
HP0112	JHP0104			1	1	1	1
HP0113	JHP0105			1	1	1	1
HP0115	JHP0107	flaB	flagellin B	1	1	1	1
HP0116	JHP0108	topA, topA_1	DNA topoisomerase I	1	1	1	1
HP0117	JHP0109		conserved hypothetical protein	1	1	1	1
HP0118	JHP0110			1	1	1	1
HP0120	N/A			1	1	1	1
HP0121	JHP0111	ppsA	phosphoenolpyruvate synthase	1	1	1	1
HP0122	JHP0112			1	1	1	1
HP0123	JHP0113	thrS	threonyl-tRNA synthetase	1	1	1	1
HP0124	JHP0114	infC	translation initiation factor IF-3	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0125	JHP0115	rpl35, rpml	ribosomal protein L35 , 50S RIBOSOMAL PROTEIN L35	1	1	1	1
HP0126	JHP0116	rpl20, rpIT	ribosomal protein L20 , 50S RIBOSOMAL PROTEIN L20	1	1	1	1
HP0127	JHP0117	omp4	outer membrane protein , putative Outer membrane protein	1	1	1	1
HP0129	JHP0118			1	1	1	1
HP0130	JHP0119			1	1	1	1
HP0132	JHP0120	sdaA, sdaB	L-serine deaminase , L-SERINE/L-THREONINEDEAMINASE	1	1	1	1
HP0133	JHP0121	sdaC	serine transporter , L-serine transporter, similar to E. coli nhaB	1	1	1	1
HP0134	JHP0122	dhs1, aroF	3-deoxy-D-arabino-heptulosonate 7-phosphate synthase , PHOSPHO-2-DEHYDRO-3-DEOXYHEPTONATE ALDOLASE	1	1	1	1
HP0135	JHP0123			1	1	1	1
HP0136	JHP0124	bcp	bacterioferritin comigratory protein	1	1	1	1
HP0137	JHP0125			1	1	1	1
HP0138	JHP0126		conserved hypothetical iron-sulfur protein	1	1	1	1
HP0139	JHP0127		conserved hypothetical secreted protein	1	1	1	1
HP0140	JHP0128	lctP, lldP_1	L-lactate permease	1	1	1	1
HP0141	JHP0129	lctP, lldP_2	L-lactate permease	1	1	1	1
HP0142	JHP0130	mutY	A/G-specific adenine glycosylase	1	1	1	1
HP0143	JHP0131			1	1	1	1
HP0145	JHP0133	fixO	cytochrome c oxidase, monoheme subunit, membrane-bound , Cytochrome oxidase (CBB3-TYPE)	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0146	JHP0134	CcoQ, fixQ	cbb3-type cytochrome c oxidase subunit Q , putative Cytochrome oxidase (CBB3-TYPE)	1	1	1	1
HP0147	JHP0135	fixP	cytochrome c oxidase, diheme subunit, membrane-bound , Cytochrome oxidase (CBB3-TYPE)	1	1	1	1
HP0148	JHP0136			1	1	1	1
HP0149	JHP0137			1	1	1	1
HP0150	JHP0138			1	1	1	1
HP0151	JHP0139		conserved hypothetical membrane protein	1	1	1	1
HP0152	JHP0140			1	1	1	1
HP0153	JHP0141	recA	recombinase , RECA PROTEIN.	1	1	1	1
HP0154	JHP0142	eno	enolase	1	1	1	1
HP0155	JHP0143			1	1	1	1
HP0156	JHP0144			1	1	1	1
HP0157	JHP0145	aroK	shikimic acid kinase I , SHIKIMATE KINASE I	1	1	1	1
HP0158	JHP0146			1	1	1	1
HP0159	JHP0147	rfaJ	lipopolysaccharide 1,2-glucosyltransferase , putative lipopolysaccharide biosynthesis protein	1	1	1	1
HP0160	JHP0148		conserved hypothetical secreted protein	1	1	1	1
HP0161	N/A			1	1	0	1
HP0162	JHP0149		conserved hypothetical protein	1	1	1	1
HP0163	JHP0150	hemB	delta-aminolevulinic acid dehydratase	1	1	1	1
HP0164	JHP0151		signal-transducing protein, histidine kinase	1	1	1	1
HP0165	JHP0151		putative histidine kinase sensor protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0166	JHP0152	ompR	response regulator , putative TRANSCRIPTIONAL REGULATOR	1	1	1	1
HP0167	JHP0153			1	1	1	1
HP0168	JHP0154			1	1	1	1
HP0169	JHP0155	prtC	collagenase , putative PROTEASE	1	1	1	1
HP0170	JHP0156			1	1	1	1
HP0171	JHP0157	prfB	peptide chain release factor RF-2 , PEPTIDE CHAIN RELEASE FACTOR 2 (RF-2)	1	1	1	1
HP0172	JHP0158	moeA	molybdopterin biosynthesis protein	1	1	1	0
HP0173	JHP0159	fliR	flagellar biosynthetic protein , FLAGELLAR BIOSYNTHESIS PROTEIN	1	1	1	1
HP0174	JHP0160			1	1	1	1
HP0175	JHP0161		cell binding factor 2, putative PEPTIDYL-PROLYL CIS-TRANS ISOMERASE	1	1	1	1
HP0176	JHP0162	tsr, fba	fructose-bisphosphate aldolase	1	1	1	1
HP0177	JHP0163	efp	translation elongation factor EF-P , ELONGATION FACTOR P (EF-P)	1	1	1	1
HP0178	JHP0166	neuB	spore coat polysaccharide biosynthesis protein E, sialic acid synthase	1	1	1	1
HP0179	JHP0167		ABC transporter, ATP-binding protein	1	1	1	1
HP0181	JHP0169			1	1	1	1
HP0182	JHP0170	lysS	lysyl-tRNA synthetase	1	1	1	1
HP0183	JHP0171	glyA	serine hydroxymethyltransferase	1	1	1	1
HP0184	JHP0172			1	1	1	1
HP0185	JHP0173			1	1	1	1
HP0186	JHP0174			1	1	1	1
HP0187	JHP0174			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0189	JHP0175		conserved hypothetical integral membrane protein	1	1	1	1
HP0190	JHP0176		conserved hypothetical secreted protein, putative cardiolipin synthase	1	1	1	1
HP0191	JHP0177	frdB	fumarate reductase, iron-sulfur subunit , Fumarate reductase	1	1	1	1
HP0192	JHP0178	frdA	fumarate reductase, flavoprotein subunit , Fumarate reductase	1	1	1	1
HP0193	JHP0179	frdC	fumarate reductase, cytochrome b subunit , Fumarate reductase	1	1	1	1
HP0194	JHP0180	tpi	triosephosphate isomerase , TRIOSE PHOPHATE ISOMERASE	1	1	1	1
HP0195	JHP0181	fabI	enoyl-(acyl-carrier-protein) reductase (NADH) , ENOYL-ACYL CARRIER PROTEIN REDUCTASE	1	1	1	1
HP0196	JHP0182	lpxD	UDP-3-O-(3-hydroxymyristoyl) glucosamine N-acyltransferase , UDP-3-O-[3-hydroxymyristoyl	1	1	1	1
HP0197	JHP0183	metX, metK	S-adenosylmethionine synthetase 2 , S-adenosylmethionine synthetase	1	1	1	1
HP0198	JHP0184	ndk	nucleoside diphosphate kinase	1	1	1	1
HP0199	JHP0185			1	1	1	1
HP0201	JHP0187	plsX	fatty acid/phospholipid synthesis protein , putative FATTY ACID/PHOSPHOLIPID SYNTHESIS PROTEIN	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0202	JHP0188	fabH	beta-ketoacyl-acyl carrier protein synthase III , BETA-KETOACYL-ACP SYNTHASE III	1	1	1	1
HP0203	JHP0189			1	1	1	1
HP0206	JHP0192			1	1	1	1
HP0207	JHP0193	mpr	ATP-binding protein	1	1	1	1
HP0208	JHP0194		putative lipopolysaccharide biosynthesis protein	1	1	1	1
HP0210	JHP0196	htpG	chaperone and heat shock protein C62.5 , 90kDa chaperone	1	1	1	1
HP0212	JHP0198	dapE	succinyl-diaminopimelate desuccinylase	1	1	1	1
HP0213	JHP0199	gidA	glucose inhibited division protein , GLUCOSE INHIBITED DIVISION PROTEIN A	1	1	1	1
HP0214	JHP0200	huNaDC-1	sodium-dependent transporter , putative transporter	1	1	1	1
HP0215	JHP0201	cdsA	CDP-diglyceride synthetase , CDP-DIACYLGLYCEROL SYNTHASE	1	1	1	1
HP0216	JHP0202		conserved hypothetical protein	1	1	1	1
HP0217	JHP0203			1	0	1	1
HP0218	JHP0204			1	1	1	1
HP0219	JHP0205			1	1	1	1
HP0220	JHP0206	nifS	synthesis of [Fe-S] cluster , putative AMINOTRANSFERASE	1	1	1	1
HP0222	JHP0208			1	1	1	1
HP0223	JHP0209	sms, radA	ATP-dependent protease , DNA REPAIR PROTEIN	1	1	1	1
HP0224	JHP0210	msrA	peptide methionine sulfoxide reductase , putative PEPTIDE METHIONINE SULFOXIDE REDUCTASE	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0226	JHP0211		conserved hypothetical integral membrane protein	1	1	1	1
HP0227	JHP0212	omp5	outer membrane protein , putative Outer membrane protein	1	1	0	1
HP0229	JHP0214	omp6, hopA	outer membrane protein , Outer membrane protein/porin	1	1	1	1
HP0231	JHP0216			1	1	1	1
HP0232	JHP0217		secreted protein involved in flagellar motility, motility protein	1	1	1	1
HP0233	JHP0218		conserved hypothetical protein	1	1	1	1
HP0234	JHP0219		conserved hypothetical integral membrane protein	1	1	1	1
HP0235	JHP0220		conserved hypothetical secreted protein	1	1	1	1
HP0236	JHP0221			1	1	1	1
HP0237	JHP0222	hemC	porphobilinogen deaminase	1	1	1	1
HP0238	JHP0223	proS	prolyl-tRNA synthetase	1	1	1	1
HP0239	JHP0224	hemA	glutamyl-tRNA reductase , GLUTAMYL TRNA REDUCTASE	1	1	1	1
HP0240	JHP0225	ispB	octaprenyl-diphosphate synthase , putative OCTAPRENYL-DIPHOSPHATE SYNTHASE	1	1	1	1
HP0241	JHP0226			1	1	1	1
HP0242	JHP0227			1	1	1	1
HP0243	JHP0228	napA	neutrophil activating protein (bacterioferritin), NEUTROPHIL-ACTIVATING PROTEIN A	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0244	JHP0229	atoS	signal-transducing protein, histidine kinase , putative histidine kinase sensor protein	1	1	1	1
HP0246	JHP0231	flgl	flagellar basal-body P-ring protein , FLAGELLAR P-RING PROTEIN	1	1	1	1
HP0247	JHP0232	deaD	ATP-dependent RNA helicase, DEAD-box family , ATP-DEPENDENT RNA HELICASE DEAD	1	1	1	1
HP0248	JHP0233		conserved hypothetical protein	1	1	1	1
HP0249	JHP0234			1	1	1	1
HP0251	JHP0236	oppC	oligopeptide ABC transporter, permease protein , ABC transporter, permease	1	1	1	1
HP0254	JHP0238	omp8	outer membrane protein	1	1	1	1
HP0255	JHP0239	purA	adenylosuccinate synthetase	1	1	1	1
HP0256	JHP0240			1	1	1	1
HP0257	JHP0241		conserved hypothetical secreted protein	1	1	1	1
HP0258	JHP0242		conserved hypothetical integral membrane protein	1	1	1	1
HP0260	JHP0244	mod	adenine specific DNA methyltransferase , TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFER ASE)	1	1	1	1
HP0261	JHP0245			1	1	0	1
HP0263	JHP0248	hpaim	adenine specific DNA methyltransferase , TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFER ASE)	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0264	JHP0249	clpB	ATP-dependent protease binding subunit , HEAT SHOCK PROTEIN	1	1	1	1
HP0265	JHP0250	ccdA	cytochrome c biogenesis protein , putative CYTOCHROME C-TYPE BIOGENESIS PROTEIN	1	1	1	1
HP0266	JHP0251	pyrC, pyrC_1	dihydroorotase	1	1	1	1
HP0267	JHP0252	orf1	chlorohydrolase	1	1	1	1
HP0268	JHP0253			1	1	1	1
HP0270	JHP0255			1	1	1	1
HP0271	JHP0256			1	1	1	1
HP0272	JHP0257			1	1	1	1
HP0274	JHP0259		conserved hypothetical protein	1	1	1	1
HP0275	JHP0260	addB	ATP-dependent nuclease	1	1	1	1
HP0276	JHP0261			1	1	1	1
HP0278	JHP0263	gppA	guanosine pentaphosphate phosphohydrolase , GUANOSINE-5'-TRIPHOSPHATE,3'-DIPHOSPHATE PYROPHOSPHATASE	1	1	1	1
HP0279	JHP0264	rfaC, waaC	lipopolysaccharide heptosyltransferase-1	1	1	1	1
HP0280	JHP0265	ibpB, waaM	heat shock protein B , putative LIPID A BIOSYNTHESIS ACYLTRANSFERASE	1	1	1	1
HP0281	JHP0266	tgt	tRNA-guanine transglycosylase , QUEUINE TRNA-RIBOSYLTRANSFERASE	1	1	1	1
HP0282	JHP0267			1	1	1	1
HP0283	JHP0268	aroB	3-dehydroquinate synthase	1	1	1	1
HP0284	JHP0269		conserved hypothetical integral membrane protein	1	1	1	1
HP0285	JHP0270		conserved hypothetical protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0286	JHP0271	ftsH, ftsH_1	cell division protein , ATP-DEPENDENT ZINC METALLOPEPTIDASE	1	1	1	1
HP0288	JHP0273			1	1	1	1
HP0290	JHP0275	lysA	diaminopimelate decarboxylase (dap decarboxylase) , DIAMINOPIMELATE DECARBOXYLASE	1	1	1	1
HP0291	JHP0276			1	1	1	1
HP0292	JHP0277			1	1	1	1
HP0293	JHP0278	pabB	para-aminobenzoate synthetase , P- AMINO BENZOATE SYNTHETASE	1	1	1	1
HP0294	JHP0279	aimE, amiE	aliphatic amidase	1	1	1	1
HP0295	JHP0280	fla, flgL	flagellin B homolog , putative FLAGELLAR- HOOK ASSOCIATED PROTEIN 3 (HAP3)	1	1	1	1
HP0296	JHP0281	rpl21, rplU	ribosomal protein L21 , 50S RIBOSOMAL PROTEIN L21	1	1	1	1
HP0297	JHP0282	rpl27, rpmA	ribosomal protein L27 , 50S RIBOSOMAL PROTEIN L27	1	1	1	1
HP0299	JHP0284	dppB	dipeptide ABC transporter, permease protein , DIPEPTIDE TRANSPORT SYSTEM PERMEASE PROTEIN	1	1	1	1
HP0300	JHP0285	dppC	dipeptide ABC transporter, permease protein	1	1	1	1
HP0301	JHP0286	dppD	dipeptide ABC transporter, ATP- binding protein , DIPEPTIDE TRANSPORT SYSTEM DIPEPTIDE TRANSPORT SYSTEM ATP- BINDING PROTEIN	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0302	JHP0287	dppF	dipeptide ABC transporter, ATP-binding protein , DIPEPTIDE TRANSPORT SYSTEM ATP-BINDING PROTEIN	1	1	1	1
HP0303	JHP0288	obg	GTP-binding protein	1	1	1	1
HP0304	JHP0289			1	1	1	1
HP0307	JHP0292			1	1	1	1
HP0308	JHP0293			1	1	1	1
HP0309	JHP0294		conserved hypothetical protein	1	1	1	1
HP0310	JHP0295		conserved hypothetical protein	1	1	1	1
HP0311	JHP0296			1	1	1	1
HP0312	JHP0297		conserved hypothetical ATP-binding protein	1	1	1	1
HP0313	JHP0298	narK	nitrite extrusion protein	1	1	1	1
HP0315	N/A	vapD	virulence associated protein D	1	1	0	0
HP0317	N/A	omp9	outer membrane protein	0	1	0	1
HP0318	JHP0301		conserved hypothetical protein	1	1	1	1
HP0319	JHP0302	argS	arginyl-tRNA synthetase	1	1	1	1
HP0321	JHP0304	gmk	5'-guanylate kinase , GUANYLATE KINASE	1	1	1	1
HP0322	JHP0305		poly E-rich protein	1	1	1	1
HP0323	JHP0306	nuc	membrane bound endonuclease , putative ENDONUCLEASE	1	1	1	1
HP0324	JHP0307	omp10	outer membrane protein , putative Outer membrane protein	1	1	1	1
HP0325	JHP0308	flgH	flagellar basal-body L-ring protein , FLAGELLAR L-RING PROTEIN PRECURSOR (BASAL BODY L-RING PROTEIN)	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0326	JHP0309	neuA	CMP-N-acetylneuraminic acid synthetase	1	1	1	1
HP0327	JHP0310	flaG	flagellar protein G , putative FLAGELLAR BIOSYNTHESIS PROTEIN	1	1	1	1
HP0328	JHP0311	lpxK	conserved hypothetical protein, putative tetraacyldisaccharide-1-P 4'-kinase	1	1	1	1
HP0329	JHP0312	nadE	NH(3)-dependent NAD ⁺ synthetase	1	1	1	1
HP0330	JHP0313	ilvC	ketol-acid reductoisomerase	1	1	1	1
HP0331	JHP0314	minD	cell division inhibitor	1	1	1	1
HP0332	JHP0315	minE	cell division topological specificity factor , putative cell division topological specificity factor	1	1	1	1
HP0333	JHP0316	dprA	DNA processing chain A	1	1	1	1
HP0334	JHP0317		conserved hypothetical protein	1	1	1	1
HP0335	N/A			0	0	0	0
HP0336	N/A			0	1	0	0
HP0337	JHP0319			1	1	1	1
HP0338	JHP0320			1	1	1	1
HP0339	N/A			0	1	0	0
HP0340	N/A			0	1	0	0
HP0341	N/A			0	1	0	1
HP0342	N/A			0	1	0	0
HP0343	N/A			0	1	1	0
HP0344	N/A			0	1	0	0
HP0345	N/A			0	1	1	0
HP0346	N/A			0	1	0	0
HP0347	JHP0321		conserved hypothetical protein	1	1	1	1
HP0348	JHP0322	recJ	single-stranded-DNA-specific exonuclease , putative SINGLE-STRANDED-DNA-SPECIFIC EXONUCLEASE RECJ	1	1	1	1
HP0349	JHP0323	pyrG	CTP synthetase , CTP SYNTHASE	1	1	1	1
HP0350	JHP0324			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0352	JHP0326	fliG	flagellar motor switch protein	1	1	1	1
HP0353	JHP0327	fliH	flagellar export protein , putative FLAGELLAR EXPORT APPARATUS	1	1	1	1
HP0354	JHP0328	dxs	deoxyxylulose-5-phosphate synthase, putative , 1-DEOXYXYLULOSE-5-PHOSPHATE SYNTHASE	1	1	1	1
HP0355	JHP0329	lepA	GTP-binding membrane protein , GTP-BINDING PROTEIN	1	1	1	1
HP0356	JHP0330			0	1	0	0
HP0357	JHP1023		short chain alcohol dehydrogenase, putative oxidoreductase	1	1	1	1
HP0360	JHP1020	galE	UDP-glucose 4-epimerase	1	1	1	1
HP0361	JHP1019	hisT, truA	pseudouridylate synthase I	1	1	1	1
HP0362	JHP1018		conserved hypothetical integral membrane protein	1	1	1	1
HP0363	JHP1017	pcm	L-isoaspartyl-protein carboxyl methyltransferase , PROTEIN-L-ISOASPARTATE O-METHYLTRANSFERASE	1	1	1	1
HP0364	JHP1016	nrdB	ribonucleoside diphosphate reductase, beta subunit , RIBONUCLEOSIDE-DIPHOSPHATE REDUCTASE 1 BETA CHAIN	1	1	1	1
HP0366	JHP1015		spore coat polysaccharide biosynthesis protein C, putative SUGAR NUCLEOTIDE BIOSYNTHESIS	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0367	JHP1014			1	1	1	1
HP0368	JHP1013			1	1	1	1
HP0369	JHP1012		putative TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	1	1	1	1
HP0370	JHP1011	accC	biotin carboxylase	1	1	1	1
HP0371	JHP1010	fabE, accB	biotin carboxyl carrier protein	1	1	1	1
HP0372	JHP1009	dcd	deoxycytidine triphosphate deaminase	1	1	1	1
HP0373	JHP1008		conserved hypothetical protein, putative outer membrane protein	0	1	1	0
HP0374	JHP1007		conserved hypothetical protein	1	1	1	1
HP0375	JHP1006			1	1	1	1
HP0376	JHP1005	hemH	ferrochelatase	1	1	1	1
HP0377	JHP1004	dsbC	thiol:disulfide interchange protein	1	1	1	1
HP0378	JHP1003	ycf5	cytochrome c biogenesis protein , putative CYTOCHROME C-TYPE BIOGENESIS PROTEIN	1	1	1	1
HP0379	JHP1002		fucosyltransferase, ALPHA-(1,3)-FUCOSYLTRANSFERASE	1	1	1	1
HP0380	JHP1001	gdhA	glutamate dehydrogenase	1	1	1	1
HP0381	JHP1000	hemK, hemG	protoporphyrinogen oxidase	1	1	1	1
HP0382	JHP0999	YJR117W	zinc-metallo protease , putative ZINC-METALLO PROTEASE	1	1	1	1
HP0383	JHP0998			1	1	1	1
HP0384	JHP0997			1	1	1	1
HP0387	JHP0994	priA	primosomal protein replication factor , PRIMOSOMAL PROTEIN N' (REPLICATION FACTOR Y)	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0388	JHP0993		conserved hypothetical protein	1	1	1	1
HP0389	JHP0992	sodB, sodF	superoxide dismutase , iron-dependent superoxide dismutase	1	1	1	1
HP0391	JHP0990	cheW	purine-binding chemotaxis protein , histidine kinase - MCP coupling protein	1	1	1	1
HP0392	JHP0989	cheA	histidine kinase	1	1	1	1
HP0393	JHP0988	cheV, cheV_3	chemotaxis protein , putative chemotaxis protein	1	1	1	1
HP0394	JHP0987			1	1	1	1
HP0395	JHP0986		conserved hypothetical protein	1	1	1	1
HP0396	JHP0985		conserved hypothetical protein	1	1	1	1
HP0397	JHP0984	serA	phosphoglycerate dehydrogenase , D-3-PHOSPHOGLYCERATE DEHYDROGENASE	1	1	1	1
HP0398	JHP0983			1	1	1	0
HP0399	JHP0982	rps1, rpsA	ribosomal protein S1 , 30S RIBOSOMAL PROTEIN S1	1	1	1	1
HP0400	JHP0981	lytB	penicillin tolerance protein , LYSIS TOLERANCE PROTEIN	1	1	1	1
HP0401	JHP0980	aroA	3-phosphoshikimate 1-carboxyvinyltransferase , 3-PHOSPHOSHIKIMATE 1-CARBOXYVINYL TRANSFERASE	1	1	1	1
HP0402	JHP0979	pheT	phenylalanyl-tRNA synthetase, beta subunit , PHENYLALANYL-TRNA SYNTHETASE BETA CHAIN	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0403	JHP0978	pheS	phenylalanyl-tRNA synthetase, alpha subunit , PHENYLALANYL-TRNA SYNTHETASE ALPHA CHAIN	1	1	1	1
HP0404	JHP0977		protein kinase C inhibitor , HIT FAMILY PROTEIN	1	1	1	1
HP0405	JHP0976		nifS-like protein, putative AMINOTRANSFERAS E	1	1	1	1
HP0406	JHP0975			1	1	1	1
HP0407	JHP0974	bisC	biotin sulfoxide reductase , putative S/N-oxide reductase	1	1	1	1
HP0408	JHP0973			1	1	1	1
HP0409	JHP0972	guaA	GMP synthase , GMP SYNTHETASE	1	1	1	1
HP0410	JHP0971	hpaA	putative neuraminylactose-binding hemagglutinin homolog , putative PARALOG OF HpaA	1	1	1	1
HP0411	N/A			1	1	1	1
HP0413	N/A		transposase-like protein, PS3IS	0	0	1	0
HP0414	N/A		IS200 insertion sequence from SARA17	0	0	1	0
HP0415	JHP0969		conserved hypothetical integral membrane protein	1	1	1	1
HP0416	JHP0968	cfa	cyclopropane fatty acid synthase , CYCLOPOCYCLOPROPANE FATTY ACID SYNTHASE	1	1	1	1
HP0417	JHP0967	metS, metG	methionyl-tRNA synthetase	1	1	1	1
HP0418	JHP0966			1	1	1	1
HP0419	JHP0965		conserved hypothetical protein	1	1	1	1
HP0420	JHP0964			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0421	JHP0963	capJ	type 1 capsular polysaccharide biosynthesis protein J , putative POLYSACCHARIDE BIOSYNTHESIS PROTEIN	1	1	1	1
HP0422	JHP0962	speA	arginine decarboxylase	1	1	1	1
HP0423	N/A			0	1	0	0
HP0424	N/A			1	1	1	1
HP0425	N/A			1	1	1	1
HP0426	N/A			1	1	1	1
HP0427	JHP0952			0	1	0	0
HP0431	N/A	ptc1	protein phosphatase 2C homolog	0	1	0	0
HP0432	N/A		protein kinase C-like protein	0	1	0	0
HP0434	N/A			0	0	0	0
HP0435	N/A			0	0	0	0
HP0438	N/A	tnpB	IS605 transposase	0	1	0	0
HP0447	N/A		conserved hypothetical protein	0	0	0	0
HP0448	N/A			0	0	0	0
HP0449	N/A			0	0	0	0
HP0450	N/A			0	0	0	0
HP0451	N/A			0	0	0	0
HP0452	N/A		conserved hypothetical protein	0	0	0	0
HP0453	N/A			0	1	0	0
HP0454	N/A			0	1	0	0
HP0456	N/A			0	1	1	0
HP0459	N/A	virB4	virB4 homolog	0	0	1	0
HP0462	N/A	hsdS	type I restriction enzyme S protein	1	1	1	1
HP0463	JHP0415	hsdM, hsdM_1	type I restriction enzyme M protein , TYPE I RESTRICTION ENZYME (MODIFICATION SUBUNIT)	1	1	1	1
HP0464	JHP0416	hsdR	type I restriction enzyme R protein	1	1	1	1
HP0465	JHP0417		conserved hypothetical protein	1	1	1	1
HP0466	JHP0418		conserved hypothetical protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0467	JHP0419		conserved hypothetical integral membrane protein	1	1	1	1
HP0468	JHP0420		conserved hypothetical protein	1	1	1	0
HP0469	JHP0421		conserved hypothetical protein	1	1	1	1
HP0470	JHP0422	pepF	oligoendopeptidase F , OLIGOPEPTIDASE	1	1	1	1
HP0471	JHP0423	kefB	glutathione-regulated potassium-efflux system protein	1	1	1	1
HP0472	JHP0424	omp11	outer membrane protein , putative Outer membrane protein	1	1	1	1
HP0473	JHP0425	modA	molybdenum ABC transporter, periplasmic molybdate-binding protein , Molybdate ABC transporter, periplasmic-binding protein	1	1	1	1
HP0474	JHP0426	modB	molybdenum ABC transporter, permease protein , Molybdate ABC transporter, permease	1	1	1	1
HP0475	JHP0427	modD, modC	molybdenum ABC transporter, ATP-binding protein , Molybdate ABC transporter, ATP-binding protein	1	1	1	1
HP0476	JHP0428	gltX, gltX_1	glutamyl-tRNA synthetase	1	1	1	1
HP0477	JHP0429	omp12	outer membrane protein , putative Outer membrane protein	1	1	1	1
HP0478	JHP0430	VSPIM	adenine specific DNA methyltransferase , TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	1	1	1	1
HP0479	JHP0431			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0480	JHP0432	yihK	GTP-binding protein, fusA-homolog	1	1	1	1
HP0482	JHP0434			1	1	1	1
HP0483	JHP0435		TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	1	1	1	1
HP0484	JHP0436			1	1	1	1
HP0485	JHP0437		catalase-like protein	1	1	1	1
HP0486	JHP0438		Outer membrane protein	1	1	1	1
HP0487	JHP0439		putative Outer membrane protein	1	1	1	1
HP0488	JHP0440			0	1	0	1
HP0490	JHP0442		putative potassium channel protein, putative, PUTATIVE POTASSIUM CHANNEL PROTEIN	1	1	1	1
HP0491	JHP0443	rpL28, rpmB	ribosomal protein L28 , 50S RIBOSOMAL PROTEIN L28	1	1	1	1
HP0492	JHP0444		putative paralog of HpaA	1	1	1	1
HP0493	JHP0445	mraY	phospho-N-acetylmuramoyl-pentapeptide-transferase	1	1	1	1
HP0495	JHP0447			1	1	1	1
HP0497	JHP0449		sodium- and chloride-dependent transporter, putative transporter	1	1	1	1
HP0498	JHP0450		sodium- and chloride-dependent transporter, putative transporter	1	1	1	1
HP0499	JHP0451	pldA	phospholipase A1 precursor (DR-phospholipase A), putative PHOSPHOLIPASE A1	1	1	1	1
HP0500	JHP0452	dnaN	DNA polymerase III beta-subunit , DNA POLYMERASE III, BETA CHAIN	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0501	JHP0453	gyrB	DNA gyrase, sub B , DNA GYRASE SUBUNIT B	1	1	1	1
HP0502	JHP0454			1	1	1	1
HP0503	JHP0454			1	1	1	1
HP0506	JHP0456		conserved hypothetical secreted protein, putative Outer membrane protein	1	1	1	1
HP0507	JHP0457		conserved hypothetical protein	1	1	1	1
HP0508	JHP0458			1	1	1	1
HP0509	JHP0459	glcD	glycolate oxidase subunit , putative Glycolate oxidase	1	1	1	1
HP0510	JHP0460	dapB	dihydrodipicolinate reductase	1	1	1	1
HP0513	JHP0462			0	0	0	0
HP0514	JHP0463	rpl9, rplI	ribosomal protein L9 , 50S RIBOSOMAL PROTEIN L9	1	1	1	1
HP0515	JHP0464	hslV	heat shock protein	1	1	1	1
HP0516	JHP0465	hslU	heat shock protein	1	1	1	1
HP0518	JHP0467		conserved hypothetical secreted protein	1	1	1	1
HP0519	JHP0468		conserved hypothetical protein	1	1	1	1
HP0520	JHP0469	cag1, orf6	cag pathogenicity island protein , putative cag island protein	1	1	1	1
HP0521	JHP0470	orf7	cag island protein	1	1	0	1
HP0522	JHP0471	cag3, orf8	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0523	JHP0472	cag4, orf9	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0524	JHP0473	cag5, virD4	cag pathogenicity island protein , cag island protein, DNA transfer protein	1	1	1	1
HP0525	JHP0474	virB11_1	virB11 homolog, cag island protein, DNA transfer protein	1	1	1	1
HP0526	JHP0475	cag6, orf12	cag pathogenicity island protein , cag island protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0528	JHP0477	cag8, orf15	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0529	JHP0478	cag9, orf16	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0530	JHP0479	cag10, orf17	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0531	JHP0480	cag11, orf18	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0532	JHP0481	cag12, cagT	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0534	JHP0482	cag13, cagS	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0535	JHP0483	cag14, cagQ	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0536	JHP0484	cag15, cagP	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0537	JHP0485	cag16, cagM	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0538	JHP0486	cag17, cagN	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0539	JHP0487	cag18, cagL	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0540	JHP0488	cag19, cagI	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0542	JHP0490	cag21, cagG	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0543	JHP0491	cag22, cagF	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0544	JHP0492	cag23, cagE	cag pathogenicity island protein , DNA transfer protein (Agrobacterium VirB4 homolog)	1	1	1	1
HP0545	JHP0493	cag24, cagD	cag pathogenicity island protein , cag island protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0546	JHP0494	cag25, cagC	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0548	N/A			1	1	0	1
HP0549	JHP0496	glr, murI	glutamate racemase	1	1	1	1
HP0550	JHP0497	rho	transcription termination factor Rho , TRANSCRIPTION TERMINATION FACTOR	1	1	1	1
HP0551	JHP0498	rpl31, rpmE	ribosomal protein L31 , 50S RIBOSOMAL PROTEIN L31	1	1	1	1
HP0552	JHP0499		conserved hypothetical protein	1	1	1	1
HP0553	JHP0500		conserved hypothetical protein	1	1	1	1
HP0554	JHP0501			1	1	1	1
HP0556	JHP0503			1	1	1	1
HP0557	JHP0504	accA	acetyl-coenzyme A carboxylase , ACETYL-COENZYME A CARBOXYLASE SUBUNIT A	1	1	1	1
HP0558	JHP0505	fabF, fabB	beta ketoacyl-acyl carrier protein synthase II , BETA-KETOACYL-ACP SYNTHASE I	1	1	1	1
HP0559	JHP0506	acpP	acyl carrier protein	1	1	1	1
HP0561	JHP0508	fabG	3-ketoacyl-acyl carrier protein reductase , ACETYL-COENZYME A CARBOXYLASE SUBUNIT A	1	1	1	1
HP0563	JHP0510			1	1	1	1
HP0565	JHP0512			1	1	1	1
HP0566	JHP0513	dapF	diaminopimelate epimerase	1	1	1	1
HP0567	JHP0514		membrane protein, putative Inner membrane protein	1	1	1	1
HP0568	JHP0515			1	1	1	1
HP0569	JHP0516	gtp1	GTP-binding protein	1	1	1	1
HP0570	JHP0517	pepA	aminopeptidase a/i , AMINOPEPTIDASE	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0572	JHP0519	apt	adenine phosphoribosyltransferase	1	1	1	1
HP0573	JHP0520			1	1	1	1
HP0574	JHP0521	lacA, rpi	galactosidase acetyltransferase, RIBOSE 5-PHOSPHATE ISOMERASE	1	1	1	1
HP0575	JHP0522		conserved hypothetical membrane protein	1	1	1	1
HP0576	JHP0523	lepB	signal peptidase I	1	1	1	1
HP0577	JHP0524	folD	methylene-tetrahydrofolate dehydrogenase, METHYLENETETRAHYDROFOLATE DEHYDROGENASE/METHENYLtetrahydrofolate cyclohydrolase	1	1	1	1
HP0578	JHP0525			1	1	1	1
HP0579	JHP0526			1	1	1	1
HP0580	JHP0527			1	1	1	1
HP0581	JHP0528	pyrC, pyrC_2	dihydroorotase	1	1	1	1
HP0582	JHP0529	tonB_1	putative siderophore-mediated iron transport protein	1	1	1	1
HP0583	JHP0530			1	1	1	1
HP0584	JHP0531	fliN	flagellar switch protein	1	1	1	1
HP0585	JHP0532	nth	endonuclease III	1	1	1	1
HP0586	JHP0534			1	1	1	1
HP0587	JHP0535	pabC	aminodeoxychorismate lyase	1	1	1	1
HP0588	JHP0536	oorD	ferredoxin-like protein, subunit of 2-oxoglutarate oxidoreductase	1	1	1	1
HP0589	JHP0537	oorA	ferredoxin oxidoreductase, alpha subunit, subunit of 2-oxoglutarate oxidoreductase	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0590	JHP0538	oorB	ferredoxin oxidoreductase, beta subunit, SUBUNIT OF 2-OXOGLUTARATE OXIDOREDUCTASE	1	1	1	1
HP0591	JHP0539	oorC	ferredoxin oxidoreductase, gamma subunit, SUBUNIT OF 2-OXOGLUTARATE OXIDOREDUCTASE	1	1	1	1
HP0593	N/A	mod	adenine specific DNA methyltransferase	0	1	0	0
HP0594	JHP0541			1	1	1	1
HP0595	JHP0542			1	1	1	1
HP0596	JHP0543			1	1	1	1
HP0597	JHP0544	PBP-1A	penicillin-binding protein 1A , PENICILLIN-BINDING PROTEIN	1	1	1	1
HP0598	JHP0545	bioF	8-amino-7-oxononanoate synthase	1	1	1	1
HP0600	JHP0547	spaB	multidrug resistance protein , putative secretion/efflux abc transporter, ATP-binding protein	0	1	1	1
HP0601	JHP0548	flaA	flagellin A	1	1	1	1
HP0602	JHP0549		endonuclease III	1	1	1	1
HP0603	JHP0550			1	1	1	1
HP0604	JHP0551	hemE	uroporphyrinogen decarboxylase	1	1	1	1
HP0605	JHP0552			1	1	1	1
HP0606	JHP0553	mtrC	membrane fusion protein , putative efflux transporter	1	1	1	1
HP0607	JHP0554	acrB	acriflavine resistance protein , putative efflux transporter	1	1	1	1
HP0611	JHP0299			1	1	1	1
HP0612	JHP0299			1	1	1	1
HP0613	JHP0300		ABC transporter, ATP-binding protein, putative abc transporter, ATP-binding protein	1	1	1	1
HP0614	JHP0557			1	1	1	1
HP0615	JHP0558	lig	DNA ligase	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0616	JHP0559	cheV, cheV_2	chemotaxis protein , putative chemotaxis protein	1	1	1	1
HP0617	JHP0560	aspS	aspartyl-tRNA synthetase	1	1	1	1
HP0618	JHP0561	adk	adenylate kinase	1	1	1	1
HP0619	JHP0563		putative lipopolysaccharide biosynthesis protein	1	1	1	1
HP0620	JHP0564	ppa	inorganic pyrophosphatase	1	1	1	1
HP0621	JHP0565	MutS	DNA mismatch repair protein	1	1	1	1
HP0622	JHP0566			1	1	1	1
HP0623	JHP0567	murC	UDP-N-acetylmuramate-alanine ligase , UDP-N-ACETYLMURAMATE--ALANINE LIGASE	1	1	1	1
HP0624	JHP0568	aspB	solute-binding signature and mitochondrial signature protein , AMINOTRANSFERASE	1	1	1	1
HP0625	JHP0569	gcpE	protein E	1	1	1	1
HP0626	JHP0570	dapD	tetrahydrodipicolinate N-succinyltransferase , putative 2,3,4,5-TETRAHYDROPYRIDINE-2-CARBOXYLATE N-SUCCINYLTRANSFERASE	1	1	1	1
HP0627	JHP0571			1	1	1	1
HP0628	JHP0571			1	1	1	1
HP0629	JHP0572			1	1	1	1
HP0630	JHP0573	mda66	modulator of drug activity	1	1	1	1
HP0631	JHP0574	hydA, hyaA	quinone-reactive Ni/Fe hydrogenase, small subunit , Hydrogenase, small subunit	1	1	1	1
HP0632	JHP0575	hydB, hyaB	quinone-reactive Ni/Fe hydrogenase, large subunit , Hydrogenase, large subunit	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0633	JHP0576	hydC, hyaC	quinone-reactive Ni/Fe hydrogenase, cytochrome b subunit , Hydrogenase, cytochrome subunit	1	1	1	1
HP0634	JHP0577	hydD, hyaD	quinone-reactive Ni/Fe hydrogenase , Hydrogenase expression/formation protein	1	1	1	1
HP0635	JHP0578			1	1	1	1
HP0638	JHP0581	omp13	outer membrane protein , putative Outer membrane protein	1	1	1	1
HP0639	JHP0582		conserved hypothetical protein	1	1	1	1
HP0640	JHP0583	papS, pcnB	poly(A) polymerase , POLYNUCLEOTIDE ADENYLYLTRANSFERASE	1	1	1	1
HP0641	JHP0584			1	1	1	0
HP0642	JHP0586		NAD(P)H-flavin oxidoreductase, putative Oxidoreductase	1	1	1	1
HP0643	JHP0588	gltX, gltX_2	glutamyl-tRNA synthetase	1	1	1	1
HP0644	JHP0589		conserved hypothetical integral membrane protein	1	1	1	1
HP0645	JHP0590	slt	soluble lytic murein transglycosylase , LYTIC MUREIN TRANSGLYCOSYLASE	1	1	1	1
HP0646	JHP0591	galU	UDP-glucose pyrophosphorylase , UTP--GLUCOSE-1-PHOSPHATE URIDYLYLTRANSFERASE	1	1	1	1
HP0647	JHP0592			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0648	JHP0593	murZ, murA	UDP-N-acetylglucosamine enolpyruvyl transferase , UDP-N- ACETYLGLUCOSAMI NE ENOLPYRUVYLTRAN SFERASE	1	1	1	1
HP0649	JHP0594	aspA	aspartate ammonia- lyase	1	1	1	1
HP0650	JHP0595			1	1	1	1
HP0652	JHP0597	serB	phosphoserine phosphatase	1	1	1	1
HP0654	JHP0599			1	1	1	1
HP0655	JHP0600		putative Outer membrane protein	1	1	1	1
HP0656	JHP0601			1	1	1	1
HP0657	JHP0602		putative PROCESSING PROTEASE	1	1	1	1
HP0659	JHP0604			1	1	1	1
HP0660	JHP0605			1	1	1	1
HP0661	JHP0606	rnhA	RIBONUCLEASE HI	1	1	1	1
HP0662	JHP0607	rnc	RIBONUCLEASE III	1	1	1	1
HP0663	JHP0608	aroC	CHORISMATE SYNTHASE	1	1	1	1
HP0664	JHP0609			1	1	1	1
HP0665	JHP0610	hemN_1	OXYGEN- INDEPENDENT COPROPORPHYRIN OGEN III OXIDASE	1	1	1	1
HP0666	JHP0611	glpC	glycerol-3-phosphate dehydrogenase	1	1	1	1
HP0667	JHP0612			1	1	0	1
HP0668	JHP0612			1	1	1	1
HP0670	N/A			0	0	0	0
HP0671	JHP0614	omp14	outer membrane protein , putative Outer membrane protein	1	1	1	1
HP0672	JHP0615	aspB	solute-binding signature and mitochondrial signature protein , ASPARTATE AMINOTRANSFERAS E	1	1	1	1
HP0674	N/A			0	0	0	0

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0675	JHP0617	xerC	integrase/recombinase , INTEGRASE-RECOMBINASE PROTEIN (XERCD FAMILY)	1	1	1	1
HP0676	JHP0618	dat1, ogt	methylated-DNA--protein-cysteine methyltransferase	1	1	1	1
HP0677	JHP0619		conserved hypothetical integral membrane protein	1	1	1	1
HP0679	JHP0620	wbpB	lipopolysaccharide biosynthesis protein , putative LIPOPOLYSACCHARIDE BIOSYNTHESIS PROTEIN	1	1	1	1
HP0680	JHP0621	nrdA	ribonucleoside-diphosphate reductase 1 alpha subunit , RIBONUCLEOSIDE-DIPHOSPHATE REDUCTASE 1 ALPHA CHAIN	1	1	1	1
HP0681	JHP0622			1	0	1	1
HP0682	JHP0623			0	0	1	1
HP0683	JHP0624	glmU	UDP-N-acetylglucosamine pyrophosphorylase	1	1	1	1
HP0684	JHP0625	fliP	FLAGELLAR BIOSYNTHESIS PROTEIN	1	1	1	1
HP0685	JHP0625	fliP	flagellar biosynthetic protein	1	1	1	1
HP0686	JHP0626	fecA, fecA_1	iron(III) dicitrate transport protein	1	1	1	1
HP0687	JHP0627	feoB	iron(II) transport protein , FERROUS IRON TRANSPORT PROTEIN B	1	1	1	1
HP0690	JHP0638	fadA, thl	acetyl coenzyme A acetyltransferase(thiolase) , ACETYL-COA ACETYLTRANSFERASE	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0691	JHP0637	yxjD, scoA	3-oxoadipate coA-transferase subunit A , 3-OXOACID COA-TRANSFERASE, SUBUNIT A	1	1	1	1
HP0693	JHP0635	atoE	conserved hypothetical integral membrane protein, short-chain fatty acids transporter	1	1	1	1
HP0694	JHP0634		putative Outer membrane protein	1	1	1	1
HP0695	JHP0633	hyuA	hydantoin utilization protein A , putative HYDANTOIN UTILIZATION	1	1	1	1
HP0696	JHP0632		N-methylhydantoinase, putative HYDANTOIN UTILIZATION	1	1	1	1
HP0697	JHP0631			1	1	1	1
HP0699	JHP0639			1	1	1	1
HP0700	JHP0640	dgkA	diacylglycerol kinase	1	1	1	0
HP0701	JHP0641	gyrA	DNA gyrase, sub A , DNA GYRASE SUBUNIT A	1	1	1	1
HP0702	JHP0642			1	1	1	1
HP0703	JHP0643		response regulator, putative TRANSCRIPTIONAL REGULATOR	1	1	1	1
HP0706	JHP0645	omp15, hopE	outer membrane protein , Outer membrane protein/porin	1	1	1	1
HP0707	JHP0646		conserved hypothetical protein	1	1	1	1
HP0708	JHP0647			1	1	1	1
HP0709	JHP0648		conserved hypothetical protein	1	1	1	1
HP0710	JHP0649		conserved hypothetical protein, putative Outer membrane protein	1	1	1	1
HP0711	JHP0650			1	1	1	1
HP0712	JHP0651			1	1	0	1
HP0713	JHP0651			1	1	0	1
HP0714	JHP0652	rpoN	RNA polymerase sigma-54 factor	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0715	JHP0653		ABC transporter, ATP-binding protein, putative abc transporter, ATP-binding protein	1	1	1	1
HP0716	JHP0654		conserved hypothetical protein	1	1	1	1
HP0717	JHP0655	dnaX	DNA polymerase III gamma and tau subunits , DNA POLYMERASE III SUBUNITS GAMMA AND TAU	1	1	1	1
HP0718	JHP0656		conserved hypothetical integral membrane protein	1	1	1	1
HP0719	JHP0657			1	1	1	1
HP0720	JHP0657			1	1	1	1
HP0721	JHP0658			1	1	1	1
HP0722	JHP0659		putative Outer membrane protein	0	1	0	0
HP0723	JHP0661	ansB	L-asparaginase II	1	1	1	1
HP0725	JHP0662		putative Outer membrane protein	0	1	1	0
HP0726	JHP0663		putative Outer membrane protein	1	1	1	1
HP0727	JHP0664		transcriptional regulator, putative, putative TRANSCRIPTIONAL REGULATOR	1	1	1	1
HP0728	JHP0665		conserved hypothetical protein	1	1	1	1
HP0729	JHP0666			1	1	1	1
HP0730	JHP0667			0	1	1	1
HP0731	JHP0668			1	1	1	1
HP0733	JHP0670			1	1	0	0
HP0734	JHP0671		conserved hypothetical protein	1	1	1	1
HP0735	JHP0672	gpt	xanthine guanine phosphoribosyl transferase , XANTHINE-GUANINE PHOSPHORIBOSYLTRANSFERASE	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0737	JHP0674	pgpA	conserved hypothetical integral membrane protein, PHOSPHATIDYLGLYCEROPHOSPHATASE A	1	1	1	1
HP0738	JHP0675	ddlA, ddl	D-alanine:D-alanine ligase A , D-ALANINE--D-ALANINE LIGASE	1	1	1	1
HP0739	JHP0676		2-hydroxy-6-oxohepta-2,4-dienoate hydrolase	1	1	1	1
HP0740	JHP0677	murF	UDP-MurNac-pentapeptide presynthetase , D-ALANYL-D-ALANINE-ADDING ENZYME	1	1	1	1
HP0741	JHP0678		conserved hypothetical protein, HIT FAMILY PROTEIN	1	1	1	1
HP0742	JHP0679	prsA	phosphoribosylpyrophosphate synthetase , PHOSPHORIBOSYL PYROPHOSPHATE SYNTHETASE	1	1	1	1
HP0743	JHP0680	mreB, rodA_1	rod shape-determining protein , putative ROD SHAPE-DETERMINING PROTEIN	1	1	1	1
HP0744	JHP0681			0	1	1	1
HP0745	JHP0682		conserved hypothetical protein	1	1	1	1
HP0746	JHP0683			1	1	1	1
HP0747	JHP0684		conserved hypothetical protein	1	1	1	1
HP0748	JHP0685	ftsE	cell division protein , putative abc transporter, ATP-binding protein	1	1	1	1
HP0749	JHP0686	ftsX	cell division membrane protein	1	1	1	1
HP0750	JHP0687			1	1	1	1
HP0751	JHP0688	flaG	polar flagellin , putative FLAGELLIN PROTEIN	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0752	JHP0689	fliD	flagellar hook-associated protein 2 , putative FLAGELLAR HOOK-ASSOCIATED PROTEIN 2 (HAP2)	1	1	1	1
HP0753	JHP0690	fliS	flagellar protein , putative FLAGELLAR PROTEIN	1	1	1	1
HP0754	JHP0691			1	1	1	1
HP0755	JHP0692	moeB	molybdopterin biosynthesis protein	1	1	1	1
HP0756	JHP0693			1	1	1	1
HP0757	JHP0694		beta-alanine synthetase homolog	1	1	1	1
HP0758	JHP0695		conserved hypothetical integral membrane protein	1	1	1	1
HP0759	JHP0696		conserved hypothetical integral membrane protein	1	1	1	1
HP0760	JHP0697		conserved hypothetical protein	1	1	1	1
HP0761	JHP0698			1	1	1	1
HP0762	JHP0699			1	1	1	1
HP0763	JHP0700	ftsY	cell division protein , FUNCTIONAL HOMOLOG OF SRP RECEPTOR	1	1	1	1
HP0764	JHP0701			1	1	1	1
HP0765	JHP0702			0	0	0	0
HP0768	JHP0705	moaA	molybdenum cofactor biosynthesis protein A , MOLYBDOPTERIN COFACTOR BIOSYNTHETIC PROTEIN	1	1	1	1
HP0769	JHP0706	mobA	molybdopterin-guanine dinucleotide biosynthesis protein A	1	1	1	1
HP0770	JHP0707	flhB, flhB_1	flagellar biosynthetic protein , FLAGELLAR BIOSYNTHESIS PROTEIN	1	1	1	1
HP0771	JHP0708			1	1	1	1
HP0773	JHP0710			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0774	JHP0711	tyrS	tyrosyl-tRNA synthetase	1	1	1	1
HP0775	JHP0712	spoT	penta-phosphate guanosine-3'-pyrophosphohydrolase , GUANOSINE-3',5'-BIS(DIPHOSPHATE) 3'-PYROPHOSPHOHYDROLASE	1	1	1	1
HP0776	JHP0713			1	1	1	1
HP0777	JHP0714	pyrH	uridine 5'-monophosphate (UMP) kinase, URIDYLATE KINASE	1	1	1	1
HP0778	JHP0715			1	1	1	1
HP0780	JHP0717			1	1	1	1
HP0781	JHP0718			1	1	1	1
HP0782	JHP0719		putative Outer membrane protein	1	1	1	1
HP0783	JHP0720			1	1	1	1
HP0785	JHP0722		conserved hypothetical secreted protein	1	1	1	1
HP0787	JHP0724		conserved hypothetical integral membrane protein	1	1	1	1
HP0788	JHP0725		putative Outer membrane protein	1	1	1	1
HP0789	N/A			0	1	1	0
HP0790	N/A	prfB	anti-codon nuclease masking agent	0	1	1	0
HP0791	JHP0727	cadA, hmcT	cadmium-transporting ATPase, P-type , putative HEAVY-METAL CATION-TRANSPORTING P-TYPE ATPASE	1	1	1	1
HP0792	JHP0728		sigma-54 interacting protein	1	1	1	1
HP0793	JHP0729	def	polypeptide deformylase	1	1	1	1
HP0794	JHP0730	clpP	ATP-dependent clp protease proteolytic component , ATP-DEPENDENT PROTEASE, PROTEOLYTIC SUBUNIT	1	1	1	1
HP0795	JHP0731	tig	trigger factor	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0796	JHP0732	omp18	outer membrane protein , putative Outer membrane protein	1	1	1	1
HP0797	JHP0733	hpaA	flagellar sheath adhesin hpaA, NEURAMINYLLACTOSE-BINDING HEMAGGLUTININ PRECURSOR	1	1	1	1
HP0798	JHP0734	moaC	molybdenum cofactor biosynthesis protein C	1	1	1	1
HP0799	JHP0735	mog	molybdopterin biosynthesis protein	1	1	1	1
HP0800	JHP0736	moaE	molybdopterin converting factor, subunit 2	1	1	1	1
HP0801	JHP0737	moaD	molybdopterin converting factor, subunit 1 , putative MOLYBDOPTERIN CONVERTING FACTOR, SUBUNIT 1	1	1	1	1
HP0802	JHP0738	ribA	GTP cyclohydrolase II	1	1	1	1
HP0803	JHP0739			1	1	1	1
HP0804	JHP0740	ribA, ribB, ribBA	GTP cyclohydrolase II/3,4-dihydroxy-2-butanone 4-phosphate synthase , GTP CYCLOHYDROLASE II/3,4-DIHYDROXY-2-BUTANONE 4-PHOSPHATE SYNTHASE	1	1	1	1
HP0805	JHP0741	lex2B	lipooligosaccharide 5G8 epitope biosynthesis-associated protein , putative lipopolysaccharide biosynthesis protein	1	1	1	1
HP0806	JHP0742			1	1	1	1
HP0807	JHP0743	fecA, fecA_2	iron(III) dicitrate transport protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0808	JHP0744	acpS	holo-acp synthase , HOLO-ACYL CARRIER PROTEIN SYNTHASE	1	1	1	1
HP0810	JHP0746		conserved hypothetical protein	1	1	1	1
HP0812	JHP0748			1	1	1	1
HP0813	JHP0749		conserved hypothetical protein	1	1	1	1
HP0814	JHP0750	thiF, moeB	thiamin biosynthesis protein , MOLYBDOPTERIN-SYNTHASE SULFURYLASE	1	1	1	1
HP0816	JHP0752	motB	flagellar motor rotation protein , FLAGELLAR MOTOR PROTEIN	1	1	1	1
HP0817	JHP0753			1	1	1	1
HP0818	JHP0754 JHP0757	proWX	osmoprotection protein	1	1	1	1
HP0819	JHP0758	proV	osmoprotection protein , osmoprotection ATP-binding protein	1	1	1	1
HP0820	JHP0759			1	1	1	1
HP0821	JHP0760	uvrC	excinuclease ABC subunit C	1	1	1	1
HP0822	JHP0761	metL, hom	homoserine dehydrogenase	1	1	1	1
HP0823	JHP0762		conserved hypothetical protein	1	1	1	1
HP0824	JHP0763	trxA	thioredoxin	1	1	1	1
HP0825	JHP0764	trxB, trxB_1	thioredoxin reductase	1	1	1	1
HP0826	JHP0765	lex2B	lipooligosaccharide 5G8 epitope biosynthesis-associated protein , putative lipopolysaccharide biosynthesis protein	1	1	1	1
HP0827	JHP0766		ss-DNA binding protein 12RNP2 precursor	1	1	1	1
HP0828	JHP0767	atpB	ATP synthase F0, subunit a	1	1	1	1
HP0829	JHP0768	guaB	inosine-5'-monophosphate dehydrogenase	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0830	JHP0769	gatA	Glu-tRNA(Gln) amidotransferase, subunit A , GLU-TRNA AMIDOTRANSFERASE, SUBUNIT A	1	1	1	1
HP0831	JHP0770		conserved hypothetical ATP binding protein	1	1	1	1
HP0832	JHP0771	speE	spermidine synthase , putative spermidine synthase	1	1	1	1
HP0833	JHP0772			1	1	1	1
HP0834	JHP0773	yphC	GTP-binding protein homologue	1	1	1	1
HP0835	JHP0774	hup	histone-like DNA-binding protein HU , DNA-BINDING PROTEIN HU	1	1	1	1
HP0836	JHP0775			1	1	1	1
HP0838	JHP0776			1	1	1	1
HP0839	JHP0777	ompP1	outer membrane protein P1 , putative Outer membrane protein	1	1	1	1
HP0840	JHP0778		flaA1 protein, putative SUGAR NUCLEOTIDE BIOSYNTHESIS PROTEIN	1	1	1	1
HP0841	JHP0779	dfp	pantothenate metabolism flavoprotein	1	1	1	1
HP0842	JHP0780			1	1	1	1
HP0843	JHP0781	thiB, thiE	thiamin phosphate pyrophosphorylase/hydroxyethylthiazole kinase , THIAMINE PHOSPHATE PYROPHOSPHORYLASE	1	1	1	1
HP0844	JHP0782	thi, thiD	thiamine biosynthesis protein , PHOSPHOMETHYL PYRIMIDINE KINASE	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0845	JHP0783	thiM	thiamin phosphate pyrophosphorylase/hydroxyethylthiazole kinase HYDROXYETHYLTHIAZOLE KINASE	1	1	1	1
HP0846	JHP0784	hsdR, hsdR_2	type I restriction enzyme R protein , TYPE I RESTRICTION ENZYME (RESTRICTION SUBUNIT)	1	1	1	1
HP0848	JHP0785	hsdS, hsdS_2	type I restriction enzyme S protein , TYPE I RESTRICTION ENZYME (SPECIFICITY SUBUNIT)	0	0	0	0
HP0849	JHP0785			0	1	0	1
HP0850	JHP0786	hsdM, hsdM_2	type I restriction enzyme M protein , TYPE I RESTRICTION ENZYME (MODIFICATION SUBUNIT)	1	1	1	1
HP0851	JHP0787		conserved hypothetical integral membrane protein	1	1	1	1
HP0852	JHP0788			1	1	1	1
HP0853	JHP0789	yheS	ABC transporter, ATP-binding protein , putative abc transporter, ATP-binding protein	1	1	1	1
HP0854	JHP0790	guaC	GMP reductase	1	1	1	1
HP0856	N/A			0	0	0	0
HP0857	JHP0791	gmhA	phosphoheptose isomerase	1	1	1	1
HP0858	JHP0792	rfaE, waaE	ADP-heptose synthase , putative ADP-D-glycero-D-mannoheptose synthase	1	1	1	1
HP0859	JHP0793	rfaD, gmhD	ADP-L-glycero-D-mannoheptose-6-epimerase	1	1	1	1
HP0860	JHP0794		conserved hypothetical protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0861	JHP0795			1	1	1	1
HP0862	JHP0796			1	1	1	1
HP0863	JHP0797			1	1	1	1
HP0864	JHP0798			1	1	1	1
HP0865	JHP0799	dut	deoxyuridine 5'-triphosphate nucleotidohydrolase	1	1	1	1
HP0866	JHP0800	greA	transcription elongation factor GreA , TRANSCRIPTION ELONGATION FACTOR (TRANSCRIPT CLEAVAGE FACTOR)	1	1	1	1
HP0867	JHP0801	lpxB	lipid A disaccharide synthetase , LIPID-A-DISACCHARIDE SYNTHASE	1	1	1	1
HP0868	JHP0802			1	1	1	1
HP0869	JHP0803	hypA	hydrogenase expression/formation protein	1	1	1	1
HP0870	JHP0804	flgE	flagellar hook , FLAGELLAR HOOK PROTEIN	1	1	1	1
HP0871	JHP0805	cdh	CDP-diglyceride hydrolase , CDP-DIACYLGLYCEROL PYROPHOSPHATASE	1	1	1	1
HP0872	JHP0806	phnA	alkylphosphonate uptake protein , putative ALKYLPHOSPHONATE UPTAKE PROTEIN	1	1	1	1
HP0873	JHP0807			1	1	1	1
HP0874	JHP0808			1	1	1	1
HP0875	JHP0809	katA	catalase	1	1	1	1
HP0876	JHP0810	frpB, frpB_1	iron-regulated outer membrane protein , putative IRON-REGULATED OUTER MEMBRANE PROTEIN	1	1	1	1
HP0878	JHP0812			1	1	1	1
HP0879	JHP0812			1	1	1	1
HP0882	N/A			0	0	0	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0883	JHP0815	ruvA	Holliday junction DNA helicase	1	1	1	1
HP0884	JHP0816			1	1	1	1
HP0885	JHP0817	mviN	virulence factor mviN protein	1	1	1	1
HP0886	JHP0818	cysS	cysteinyl-tRNA synthetase	1	1	1	1
HP0888	JHP0821	fecE	iron(III) dicitrate ABC transporter, ATP-binding protein, IRON(III) DICITRATE TRANSPORT SYSTEM ATP-BINDING PROTEIN	1	1	1	1
HP0889	JHP0822	fecD	iron(III) dicitrate ABC transporter, permease protein , IRON(III) DICITRATE TRANSPORT SYSTEM PERMEASE PROTEIN	1	1	1	1
HP0890	JHP0823		conserved hypothetical protein	1	1	1	1
HP0891	JHP0824		conserved hypothetical protein	1	1	1	1
HP0892	JHP0831		conserved hypothetical protein	1	1	1	1
HP0893	JHP0832			1	1	1	1
HP0895	N/A			1	1	1	1
HP0896	JHP1164	omp19, babB	outer membrane protein , outer membrane protein - adhesin	1	1	1	1
HP0897	N/A			1	1	1	1
HP0898	JHP0835	hypD	hydrogenase expression/formation protein	1	1	1	1
HP0899	JHP0836	hypC	hydrogenase expression/formation protein	1	1	1	1
HP0900	JHP0837	hypB	hydrogenase expression/formation protein	1	1	1	1
HP0902	JHP0839			1	1	1	1
HP0903	JHP0840	ackA	ACETATE KINASE	1	0	1	1
HP0904	JHP0841	pta	PHOSPHOTRANSAC ETYLASE	1	0	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0908	JHP0844	flgE	flagellar hook , putative FLAGELLAR BASAL-BODY/ROD/HOOKPROTEIN	1	1	1	1
HP0909	JHP0845			1	1	1	0
HP0910	JHP0846	HINDIIM	adenine specific DNA methyltransferase , TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	1	1	1	1
HP0911	JHP0847	rep	rep helicase, single-stranded DNA-dependent ATPase , putative ATP-DEPENDENT HELICASE	1	1	1	1
HP0912	JHP0848	omp20, hopC	outer membrane protein , Outer membrane protein/porin	1	1	1	1
HP0913	JHP0849	omp21, hopB	outer membrane protein , Outer membrane protein/porin	1	1	1	1
HP0914	JHP0850		putative Outer membrane protein	1	1	1	1
HP0915	JHP0851	frpB, frpB_2	iron-regulated outer membrane protein , putative IRON-REGULATED OUTER MEMBRANE PROTEIN	1	1	1	1
HP0916	JHP0851	frpB	iron-regulated outer membrane protein	1	1	1	1
HP0920	JHP0854		conserved hypothetical integral membrane protein	1	1	1	1
HP0921	JHP0855	gap, gap_1	glyceraldehyde-3-phosphate dehydrogenase , GLYCERALDEHYDE 3 PHOSPHATE DEHYDROGENASE	1	1	1	1
HP0923	JHP0857	omp22	outer membrane protein , putative Outer membrane protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0924	JHP0858	dmpI	4-oxalocrotonate tautomerase	1	1	1	1
HP0925	JHP0859	recR	recombinational DNA repair protein , RECOMBINATION PROTEIN	1	1	1	1
HP0926	JHP0860		conserved hypothetical protein	1	1	1	1
HP0928	JHP062 JHP063	foIE	GTP cyclohydrolase I	1	1	1	1
HP0929	JHP0864	ispA	geranyltranstransferase	1	1	1	1
HP0930	JHP0865	surE	stationary-phase survival protein , STATIONARY PHASE PROTEIN	1	1	1	1
HP0931	JHP0866			1	1	1	1
HP0932	JHP0866			1	1	1	1
HP0933	JHP0867			1	1	1	1
HP0934	JHP0868		conserved hypothetical protein	1	1	1	1
HP0935	JHP0869			1	1	1	1
HP0936	JHP0871	proP	proline/betaine transporter	1	1	1	1
HP0937	JHP0872			1	1	1	1
HP0939	JHP0874	yckJ	amino acid ABC transporter, permease protein , putative AMINO ACID ABC TRANSPORTER, PERMEASE PROTEIN	1	1	1	1
HP0940	JHP0875	yckK	amino acid ABC transporter, periplasmic binding protein , putative AMINO ACID ABC TRANSPORTER, BINDING PROTEIN PRECURSOR	1	1	1	1
HP0942	JHP0877	dagA	D-alanine glycine permease , putative SODIUM/ALANINE SYMPORTER	1	1	1	1
HP0943	JHP0878	dadA	D-amino acid dehydrogenase	1	1	1	1
HP0944	JHP0879		conserved hypothetical protein	1	1	1	1
HP0945	N/A			0	0	0	0

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0946	JHP0880		conserved hypothetical integral membrane protein	1	1	1	1
HP0947	JHP0881			1	1	1	1
HP0948	JHP0882			1	1	1	1
HP0949	JHP0883		conserved hypothetical secreted protein	1	1	1	1
HP0950	JHP0884	accD	acetyl-CoA carboxylase beta subunit , ACETYL-COENZYME A CARBOXYLASE SUBUNIT B	1	1	1	1
HP0951	JHP0885			1	1	1	1
HP0952	JHP0886		conserved hypothetical integral membrane protein	1	1	1	1
HP0954	JHP0888		oxygen-insensitive NAD(P)H nitroreductase, putative aldehyde dehydrogenase	1	1	1	1
HP0955	JHP0889	lgt	prolipoprotein diacylglycerol transferase , putative PROLIPOPROTEIN DIACYLGLYCERYL TRANSFERASE	1	1	1	1
HP0956	JHP0890		conserved hypothetical protein	1	1	1	1
HP0957	JHP0891	kdtA, waaA	3-deoxy-d-manno-octulosonic-acid transferase	1	1	1	1
HP0958	JHP0892			1	1	1	1
HP0959	JHP0893		conserved hypothetical protein	1	1	1	1
HP0961	JHP0895	gpsA	glycerol-3-phosphate dehydrogenase, NAD(P)+ dependent, GLYCEROL-3-PHOSPHATE DEHYDROGENASE (NAD+)	1	1	1	1
HP0963	JHP0897			1	1	1	1
HP0964	JHP0898			1	0	0	1
HP0965	JHP0899			1	1	1	1
HP0966	JHP0900		conserved hypothetical protein	1	1	1	1
	JHP0901						

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0970	JHP0904	nccB, czcB_1	nickel-cobalt-cadmium resistance protein , putative cation efflux system protein	1	1	1	1
HP0971	JHP0905			1	1	1	1
HP0972	JHP0906	glyS	glycyl-tRNA synthetase, beta subunit , GLYCYL-TRNA SYNTHETASE BETA CHAIN	1	1	1	1
HP0973	JHP0907			1	1	1	1
HP0974	JHP0908	pgm	phosphoglycerate mutase , 2,3-BISPHOSPHOGLYCE RATE-INDEPENDENT PHOSPHOGLYCERATE MUTASE	1	1	1	1
HP0975	JHP0909	gatC	Glu-tRNA(Gln) amidotransferase, subunit C , GLU-TRNA AMIDOTRANSFERASE, SUBUNIT C	0	0	1	0
HP0976	JHP0910	bioA	adenosylmethionine-8-amino-7-oxononanoate aminotransferase	1	1	1	1
HP0977	JHP0911		conserved hypothetical secreted protein	1	1	1	1
HP0978	JHP0912	ftsA	cell division protein, septum formation protein	1	1	1	1
HP0979	JHP0913	ftsZ	cell division protein , GTPase in circumferential ring formation	1	1	1	1
HP0980	N/A		conserved hypothetical secreted protein	1	1	1	1
HP0981	N/A	xseA	exonuclease VII-like protein	1	1	1	1
HP0982	N/A			0	1	0	0
HP0983	JHP0915		conserved hypothetical integral membrane protein	1	1	1	1
HP0988	N/A	tnpA	IS605 transposase	0	1	1	0
HP0989	N/A	tnpB	IS605 transposase	0	1	0	0

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0990	JHP0938			0	0	0	0
HP0991	JHP0939			0	0	0	0
HP0994	N/A			0	0	1	0
HP0995	JHP0941	xerD	integrase/recombinase , INTEGRASE/RECOMBINASE (XERCD FAMILY)	0	0	1	0
HP0996	JHP0942			0	0	1	0
HP0997	N/A	tnpB	IS605 transposase	0	1	0	0
HP0998	N/A	tnpA	IS605 transposase	0	1	1	0
HP0999	N/A			0	1	1	0
HP1002	N/A			0	1	1	0
HP1003	N/A			0	1	1	0
HP1004	N/A			0	1	1	0
HP1006	N/A	traG	conjugal transfer protein	0	1	1	0
HP1007	N/A			0	0	1	0
HP1008	N/A		IS200 insertion sequence from SARA17	0	0	1	0
HP1009	N/A		site-specific recombinase	0	1	0	0
HP1010	JHP0413	ppk	polyphosphate kinase	1	1	1	1
HP1011	JHP0412	pyrD	dihydroorotate dehydrogenase	1	1	1	1
HP1012	JHP0411	pqqE	protease , putative ZINC PROTEASE	1	1	1	1
HP1013	JHP0410	dapA	dihydrodipicolinate synthetase , DIHYDRODIPICOLINATE SYNTHASE	1	1	1	1
HP1014	JHP0409	hdhA	7-alpha-hydroxysteroid dehydrogenase , putative Short chain dehydrogenase	1	1	1	1
HP1015	JHP0408			1	1	1	1
HP1016	JHP0407	pgsA	phosphatidylglycerophosphate synthase	1	1	1	1
HP1017	JHP0406	rocE	amino acid permease	1	1	1	1
HP1019	JHP0405	htrA	serine protease , PROTEASE DO	1	1	1	1
HP1020	JHP0404		conserved hypothetical protein	1	1	1	1
HP1021	JHP0403		response regulator, putative TRANSCRIPTIONAL REGULATOR	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1022	JHP0402			1	1	1	1
HP1024	JHP0400	CbpA, dnaJ_1	co-chaperone-curved DNA binding protein A , putative co-chaperone with DnaK	1	1	1	1
HP1025	JHP0399	hspR	putative heat shock protein , putative TRANSCRIPTIONAL REGULATORY PROTEIN	1	1	1	1
HP1027	JHP0397	fur	ferric uptake regulation protein	1	1	1	1
HP1028	JHP0396			1	1	1	1
HP1029	JHP0395			1	1	1	1
HP1030	JHP0394	fliY	fliY protein , FLAGELLAR MOTOR SWITCH PROTEIN	1	1	1	1
HP1031	JHP0393	fliM	flagellar motor switch protein	1	1	1	1
HP1032	JHP0392	fliA	alternative transcription initiation factor, sigma-F , RNA POLYMERASE SIGMA FACTOR (sigma 28)	1	1	1	1
HP1033	JHP0391			1	1	1	1
HP1034	JHP0390	ylxH	ATP-binding protein	1	1	1	1
HP1035	JHP0389	flhF	flagellar biosynthesis protein , putative FLAGELLAR BIOSYNTHESIS PROTEIN	1	1	1	1
HP1036	JHP0388	folK	7, 8-dihydro-6-hydroxymethylpterin-pyrophosphokinase	1	1	1	1
HP1037	JHP0387	pepQ	conserved hypothetical protein, putative proline peptidase	1	1	1	1
HP1038	JHP0386	aroQ, aroD	3-dehydroquinase type II , 3-DEHYDROQUINATE DEHYDRATASE	1	1	1	1
HP1039	JHP0385			1	1	1	1
HP1041	JHP0383	flhA	flagellar biosynthesis protein	1	1	1	1
HP1042	JHP0382			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1043	JHP0381		response regulator, putative TRANSCRIPTIONAL REGULATOR	1	1	1	1
HP1044	JHP0380		conserved hypothetical integral membrane protein	1	1	1	1
HP1046	JHP0379		conserved hypothetical protein	1	1	1	1
HP1047	JHP0378	rbfA	ribosome-binding factor A , putative RIBOSOME-BINDING FACTOR A	1	1	1	1
HP1048	JHP0377	infB	translation initiation factor IF-2	1	1	1	1
HP1049	JHP0376		conserved hypothetical protein	1	1	1	1
HP1051	JHP0374			1	1	1	1
HP1052	JHP0373	envA, lpxC	UDP-3-O-acyl N-acetylglucosamine deacetylase , UDP-3-O-[3-HYDROXYMYRISTOYL	1	1	1	1
HP1054	JHP0371			1	1	1	1
HP1055	JHP0370			1	1	1	1
HP1056	JHP0369			1	1	1	1
HP1058	JHP0367	panB	3-methyl-2-oxobutanoate hydroxymethyltransferase	1	1	1	1
HP1059	JHP0366	ruvB	Holliday junction DNA helicase , HOLLIDAY JUNCTION DNA HELICASE RUVB	1	1	1	1
HP1061	JHP0364		conserved hypothetical integral membrane protein	1	1	1	1
HP1062	JHP0363	queA	S-adenosylmethionine:tRNA ribosyltransferase-isomerase , S-ADENOSYLMETHIONINE TRNA RIBOSYLTRANSFERASE-ISOMERASE	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1063	JHP0362	gidB	glucose-inhibited division protein , GLUCOSE INHIBITED DIVISION PROTEIN B	1	1	1	1
HP1065	JHP0360			1	1	1	1
HP1066	JHP0359		conserved hypothetical protein, putative Outer membrane protein	1	1	1	1
HP1067	JHP0358	cheY	chemotaxis protein , response regulator	1	1	1	1
HP1068	JHP0357	prmA	ribosomal protein L11 methyltransferase , putative RIBOSOMAL PROTEIN L11 METHYLTRANSFERASE	1	1	1	1
HP1069	JHP0356	ftsH, ftsH_2	cell division protein , ATP-DEPENDENT ZINC METALLOPEPTIDASE	1	1	1	1
HP1071	JHP0354	pssA	phosphatidylserine synthase	1	1	1	1
HP1072	JHP0353	copA	copper-transporting ATPase, P-type , COPPER-TRANSPORTING P-TYPE ATPASE	1	1	1	1
HP1073	JHP0352	copP	copper ion binding protein , copper-associated protein	1	1	1	1
HP1075	JHP0350		conserved hypothetical secreted protein	1	1	1	1
HP1076	JHP0349			1	1	1	1
HP1077	JHP0348	nixA	nickel transport protein , HIGH-AFFINITY NICKEL-TRANSPORT PROTEIN	1	1	1	1
HP1078	JHP0347			0	0	1	0
HP1079	JHP0346			1	0	1	1
HP1080	JHP0345		conserved hypothetical integral membrane protein	1	1	1	1
HP1081	JHP0344			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1082	JHP0343	msbA	multidrug resistance protein , multi-drug resistance protein	1	1	1	1
HP1083	JHP0342		putative Outer membrane protein	1	1	1	1
HP1084	JHP0341	pyrB	aspartate transcarbamoylase , ASPARTATE CARBAMOYLTRANSFERASE CATALYTIC CHAIN	1	1	1	1
HP1085	JHP0340			1	1	1	1
HP1086	JHP0339	tly, hlyA	hemolysin , putative hemolysin	1	1	1	1
HP1087	JHP0338	ribC, ribF	riboflavin biosynthesis regulatory protein , RIBOFLAVIN KINASE	1	1	1	1
HP1088	JHP0337	tktA	transketolase A , transketolase	1	1	1	1
HP1089	JHP0336			1	1	1	1
HP1090	JHP0335	ftsK	cell division protein , septum formation protein	1	1	1	1
HP1091	JHP0334	kgtP	alpha-ketoglutarate permease	1	1	1	1
HP1092	JHP0333	flgG, flgG_1	flagellar basal-body rod protein	1	1	1	1
HP1093	N/A			1	1	0	1
HP1094	N/A			0	1	0	0
HP1095	N/A	tnpB	IS605 transposase	0	1	0	0
HP1096	N/A	tnpA	IS605 transposase	0	1	1	0
HP1097	N/A			1	1	1	1
HP1098	JHP1024		conserved hypothetical secreted protein	1	1	1	1
HP1099	JHP1025	eda	2-keto-3-deoxy-6-phosphogluconate aldolase	1	1	1	1
HP1100	JHP1026	edd	6-phosphogluconate dehydratase, PHOSPHOGLUCONATE DEHYDRATASE	1	1	1	1
HP1101	JHP1027	g6pD, zwf	glucose-6-phosphate dehydrogenase , GLUCOSE-6-PHOSPHATE 1-DEHYDROGENASE	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1102	JHP1028	devB	glucose-6-phosphate 1-dehydrogenase , putative dehydrogenase	1	1	1	1
HP1103	JHP1029	glk	glucokinase	1	1	1	1
HP1104	JHP1030	cad	cinnamyl-alcohol dehydrogenase ELI3-2 , ZINC-DEPENDENT ALCOHOL DEHYDROGENASE	1	1	1	1
HP1105	JHP1031		LPS biosynthesis protein, putative lipopolysaccharide biosynthesis protein	1	1	0	1
HP1106	JHP1033			1	1	1	1
HP1107	JHP1034	omp23	outer membrane protein , putative Outer membrane protein	1	1	1	1
HP1108	JHP1035	porG	pyruvate ferredoxin oxidoreductase, gamma subunit, Pyruvate ferredoxin oxidoreductase	1	1	1	1
HP1109	JHP1036	porD	pyruvate ferredoxin oxidoreductase, delta subunit, Pyruvate ferredoxin oxidoreductase	1	1	1	1
HP1110	JHP1037	porA	pyruvate ferredoxin oxidoreductase, alpha subunit, Pyruvate ferredoxin oxidoreductase	1	1	1	1
HP1111	JHP1038	porB	pyruvate ferredoxin oxidoreductase, beta subunit, Pyruvate ferredoxin oxidoreductase	1	1	1	1
HP1112	JHP1039	purB	adenylosuccinate lyase	1	1	1	1
HP1113	JHP1040	omp24	outer membrane protein , putative Outer membrane protein	1	1	1	1
HP1115	JHP1042			0	1	1	1
HP1117	JHP1045		conserved hypothetical secreted protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1118	JHP1046	ggt	gamma-glutamyltranspeptidase	1	1	1	1
HP1119	JHP1047	flgK	flagellar hook-associated protein 1 (HAP1)	1	1	1	1
HP1120	JHP1048			1	1	1	1
HP1121	JHP1050	BSP6IM	cytosine specific DNA methyltransferase , TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	1	1	1	1
HP1122	JHP1051			1	1	1	1
HP1123	JHP1052	slyD	peptidyl-prolyl cis-trans isomerase, FKBP-type rotamase , FKBP-TYPE PEPTIDYL-PROLYL CIS-TRANS ISOMERASE	1	1	1	1
HP1124	JHP1053			1	1	1	1
HP1125	JHP1054	omp18	peptidoglycan associated lipoprotein precursor , putative Outer membrane protein	1	1	1	1
HP1126	JHP1055	tolB	colicin tolerance-like protein , putative TONB-INDEPENDENT PROTEIN-UPTAKE PROTEIN	1	1	1	1
HP1129	JHP1057	exbD, exbD_1	biopolymer transport protein	1	1	1	1
HP1130	JHP1058	exbB, exbB_1	biopolymer transport protein	1	1	1	1
HP1131	JHP1059	atpC	ATP synthase F1, subunit epsilon	1	1	1	1
HP1133	JHP1061	atpG	ATP synthase F1, subunit gamma	1	1	1	1
HP1134	JHP1062	atpA	ATP synthase F1, subunit alpha	1	1	1	1
HP1135	JHP1063	atpH	ATP synthase F1, subunit delta , putative ATP synthase F1, subunit delta	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1136	JHP1064	atpF	ATP synthase F0, subunit b	1	1	1	1
HP1137	JHP1065	atpF', atpX	ATP synthase F0, subunit b' , ATP synthase B'	1	1	1	1
HP1138	JHP1066		plasmid replication-partition related protein	1	1	1	1
HP1139	JHP1067	soj	SpoOJ regulator	1	1	1	1
HP1140	JHP1068	birA	biotin operon repressor/biotin acetyl coenzyme A carboxylase synthetase , putative BIOTIN ACTIVATION PROTEIN	1	1	1	1
HP1141	JHP1069	fmt	methionyl-tRNA formyltransferase	1	1	1	1
HP1143	JHP1071			1	1	1	1
HP1144	JHP1072			1	1	1	1
HP1145	JHP1073			0	1	1	0
HP1146	JHP1073			1	1	1	1
HP1147	JHP1074	rpl19, rplS	ribosomal protein L19 , 50S RIBOSOMAL PROTEIN L19.	1	1	1	1
HP1148	JHP1075	trmD	tRNA (guanine-N1)-methyltransferase	1	1	1	1
HP1150	JHP1077			1	1	1	1
HP1151	JHP1078	rpS16, rpsP	ribosomal protein S16 , 30S RIBOSOMAL PROTEIN S16	1	1	1	1
HP1152	JHP1079	ffh	signal recognition particle protein , putative SIGNAL RECOGNITION PARTICLE PROTEIN	1	1	1	1
HP1153	JHP1080	valS	valyl-tRNA synthetase	1	1	1	1
HP1154	JHP1081			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1155	JHP1082	murG	transferase, peptidoglycan synthesis , UDP-N-ACETYLGLUCOSAMINE--N-ACETYLMURAMYL-(PENTAPEPTIDE) PYROPHOSPHORYL-UNDECAPRENOL N-ACETYLGLUCOSAMINE TRANSFERASE	1	1	1	1
HP1156	JHP1083	omp25	outer membrane protein , putative Outer membrane protein	1	1	1	1
HP1157	JHP1084	omp26	outer membrane protein , putative Outer membrane protein	1	1	1	0
HP1158	JHP1085	proC	pyrroline-5-carboxylate reductase , putative PYRROLINE-5-CARBOXYLATE REDUCTASE	1	1	1	1
HP1159	JHP1086	fic	cell filamentation protein , putative cAMP induced cell filamentation protein	1	1	1	1
HP1160	JHP1087		conserved hypothetical protein	1	1	1	1
HP1161	JHP1088	fldA	flavodoxin	1	1	1	1
HP1162	JHP1089		conserved hypothetical integral membrane protein	1	1	1	1
HP1163	JHP1090	fixS	putative component of cation transport for cbb3-type oxidase	1	1	1	1
HP1164	JHP1091	trxB, trxB_2	thioredoxin reductase , putative THIOREDOXIN REDUCTASE	1	1	1	1
HP1165	JHP1092		tetracycline resistance protein tetA(P), putative	1	1	1	1
HP1166	JHP1093	pgi	glucose-6-phosphate isomerase	1	1	1	1
HP1167	JHP1094		putative Outer membrane protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1168	JHP1095	cstA	carbon starvation protein	1	1	1	1
HP1169	JHP1096	glnP	glutamine ABC transporter, permease protein , AMINO ACID ABC TRANSPORTER, PERMEASE PROTEIN	1	1	1	1
HP1170	JHP1097	glnP	glutamine ABC transporter, permease protein , AMINO ACID ABC TRANSPORTER, PERMEASE PROTEIN	1	1	1	1
HP1171	JHP1098	glnQ	glutamine ABC transporter, ATP-binding protein , AMINO ACID ABC TRANSPORTER, ATP-BINDING PROTEIN	1	1	1	1
HP1172	JHP1099	glnH	glutamine ABC transporter, periplasmic glutamine-binding protein , AMINO ACID ABC TRANSPORTER, BINDING PROTEIN PRECURSOR	1	1	1	1
HP1173	JHP1100			1	1	1	1
HP1174	JHP1101	gluP	glucose/galactose transporter	1	1	1	1
HP1175	JHP1102		conserved hypothetical integral membrane protein	1	1	1	1
HP1177	JHP1103	omp27	outer membrane protein , putative Outer membrane function	1	1	1	1
HP1178	JHP1104	deoD	purine-nucleoside phosphorylase , PURINE NUCLEOSIDE PHOSPHORYLASE	1	1	1	1
HP1179	JHP1105	deoB	phosphopentomutase	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1180	JHP1106	nupC	pyrimidine nucleoside transport protein , putative nucleoside transporter	1	1	1	1
HP1181	JHP1107		multidrug-efflux transporter, putative transporter	1	1	1	1
HP1182	JHP1108		conserved hypothetical protein	1	1	1	1
HP1183	JHP1109	napA	NA ⁺ /H ⁺ antiporter , putative NA ⁺ /H ⁺ ANTIPORTER	1	1	1	1
HP1184	JHP1110		conserved hypothetical integral membrane protein	1	1	1	1
HP1185	JHP1111		conserved hypothetical integral membrane protein	1	1	1	1
HP1186	JHP1112		carbonic anhydrase	1	1	1	1
HP1187	JHP1113			1	1	1	1
HP1188	N/A			1	1	1	1
HP1189	JHP1114	asd	aspartate-semialdehyde dehydrogenase	1	1	1	1
HP1190	JHP1115	hisS	histidyl-tRNA synthetase	1	1	1	1
HP1191	JHP1116	rfaF, waaF	ADP-heptose-lps heptosyltransferase II , ADP-HEPTOSE--LPS HEPTOSYLTRANSFERASE II	1	1	1	1
HP1192	JHP1117		secreted protein involved in flagellar motility, putative motility protein	1	1	1	1
HP1193	N/A		aldo-keto reductase, putative	1	1	0	1
HP1195	JHP1118	fusA	translation elongation factor EF-G , ELONGATION FACTOR G (EF-G)	1	1	1	1
HP1196	JHP1119	rps7, rpsG	ribosomal protein S7 , 30S RIBOSOMAL PROTEIN S7	1	1	1	1
HP1197	JHP1120	rps12, rpsL	ribosomal protein S12 , 30S RIBOSOMAL PROTEIN S12	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1199	JHP1122	rpl7/l12, rplL	ribosomal protein L7/L12 , 50S RIBOSOMAL PROTEIN L7/L12	1	1	1	1
HP1200	JHP1123	rpl10, rplJ	ribosomal protein L10 , 50S RIBOSOMAL PROTEIN L10	1	1	1	1
HP1201	JHP1124	rpl1, rplA	ribosomal protein L1 , 50S RIBOSOMAL PROTEIN L1	1	1	1	1
HP1202	JHP1125	rpl11, rplK	ribosomal protein L11 , 50S RIBOSOMAL PROTEIN L11	1	1	1	1
HP1204	JHP1127	rpl33, rpmG	ribosomal protein L33 , 50S RIBOSOMAL PROTEIN L33	1	1	1	1
HP1205	JHP1128	tufB, tufA	translation elongation factor EF-Tu , ELONGATION FACTOR TU (EF-TU)	1	1	1	1
HP1206	JHP1129	hetA	multidrug resistance protein , abc transporter, ATP-binding protein	1	1	1	1
HP1207	JHP1130			1	1	1	1
HP1208	JHP1131	M.HpyI	ulcer associated adenine specific DNA methyltransferase, TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	1	1	1	1
HP1209	N/A	iceA	ulcer-associated gene restriction endonuclease	0	0	1	0
HP1210	JHP1133	cysE	serine acetyltransferase , O-SERINE ACETYLTRANSFERASE	1	1	1	1
HP1211	JHP1134			1	1	1	1
HP1212	JHP1135	atpE	ATP synthase F0, subunit c	1	1	0	1
HP1213	JHP1136	pnp	polynucleotide phosphorylase , POLYRIBONUCLEOTIDE NUCLEOTIDYLTRANSFERASE	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1214	JHP1137		conserved hypothetical protein	1	1	1	1
HP1215	JHP1138	imp	putative role in outer membrane permeability	1	1	1	1
HP1216	JHP1138		conserved hypothetical secreted protein	1	1	1	1
HP1217	JHP1139			1	1	1	1
HP1218	JHP1140	purD	glycinamide ribonucleotide synthetase	1	1	1	1
HP1219	N/A			1	1	1	1
HP1220	JHP1141	yhcG	ABC transporter, ATP-binding protein, putative ABC transporter, ATP-binding protein	1	1	1	1
HP1221	JHP1142		conserved hypothetical protein	1	1	1	1
HP1222	JHP1143	dld	D-lactate dehydrogenase	1	1	1	1
HP1223	JHP1144			1	1	1	1
HP1224	JHP1145	hemD	uroporphyrinogen III cosynthase, putative UROPORPHYRINOGEN-III SYNTHASE	0	1	1	1
HP1225	JHP1146		conserved hypothetical integral membrane protein	1	1	1	1
HP1226	JHP1147	hemN, hemN_2	oxygen-independent coproporphyrinogen III oxidase	1	1	1	1
HP1227	JHP1148		cytochrome c553, PERIPLASMIC CYTOCHROME C-553	1	1	1	1
HP1229	JHP1150	lysC	aspartokinase, ASPARTOKINASE 2 ALPHA AND BETA SUBUNITS	1	1	1	1
HP1230	JHP1151			1	1	1	1
HP1231	JHP1152	holB	DNA polymerase III delta prime subunit, putative DNA polymerase III subunit delta'	1	1	1	1
HP1232	JHP1153	folP	dihydropterolate synthase	1	1	1	1
HP1233	JHP1154			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1234	JHP1155		conserved hypothetical integral membrane protein	1	1	1	1
HP1235	JHP1156		conserved hypothetical integral membrane protein	1	1	1	1
HP1236	JHP1157			1	1	1	1
HP1237	JHP1158	pyrAa, carA	carbamoyl-phosphate synthetase , CARBAMOYL-PHOSPHATE SYNTHASE SMALL CHAIN	1	1	1	1
HP1238	JHP1159	aimE	aliphatic amidase	1	1	1	1
HP1239	N/A			1	1	1	1
HP1242	JHP1163		conserved hypothetical protein	1	1	1	1
HP1243	JHP0833	omp28, babA	outer membrane protein , outer membrane protein - adhesin	0	1	0	0
HP1244	JHP1165	rps18, rpsR	ribosomal protein S18 , 30S RIBOSOMAL PROTEIN S18	1	1	1	1
HP1245	JHP1166	ssb	single-strand DNA-binding protein , SINGLE-STRAND BINDING PROTEIN	1	1	1	1
HP1246	JHP1167	rps6, rpsF	ribosomal protein S6 , 30S RIBOSOMAL PROTEIN S6	1	1	1	1
HP1249	JHP1170	aroE	shikimate 5-dehydrogenase	1	1	1	1
HP1250	JHP1171			1	1	1	1
HP1251	JHP1172	oppB	oligopeptide ABC transporter, permease protein , putative Peptide ABC transporter, ATP-binding protein	1	1	1	1
HP1253	JHP1174	trpS	tryptophanyl-tRNA synthetase	1	1	1	1
HP1255	JHP1176	secG	protein translocation protein, low temperature , PROTEIN-EXPORT MEMBRANE PROTEIN	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1256	JHP1177	frr	ribosome releasing factor , RIBOSOME RECYCLING FACTOR (RIBOSOME RELEASING FACTOR) (RRF)	1	1	1	1
HP1257	JHP1178	pyrE	orotate phosphoribosyltransferase	1	1	1	1
HP1258	JHP1179		conserved hypothetical mitochondrial protein 4	1	1	1	1
HP1259	JHP1180		conserved hypothetical protein	1	1	1	1
HP1260	JHP1181	NQO7, nuoA	NADH-ubiquinone oxidoreductase, NQO7 subunit , NADH oxidoreductase I	1	1	1	1
HP1261	JHP1182	NQO6, nuoB	NADH-ubiquinone oxidoreductase, NQO6 subunit , NADH oxidoreductase I	1	1	1	1
HP1262	JHP1183	NQO5, nuoC	NADH-ubiquinone oxidoreductase, NQO5 subunit , NADH oxidoreductase I	1	1	1	1
HP1263	JHP1184	NQO4, nuoD	NADH-ubiquinone oxidoreductase, NQO4 subunit , NADH oxidoreductase I	1	1	1	1
HP1266	JHP1187	NQO3, nuoG	NADH-ubiquinone oxidoreductase, NQO3 subunit , NADH oxidoreductase I	1	1	1	1
HP1267	JHP1188	NQO8, nuoH	NADH-ubiquinone oxidoreductase, NQO8 subunit , NADH oxidoreductase I	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1268	JHP1189	NQO9, nuoI	NADH-ubiquinone oxidoreductase, NQO9 subunit , NADH oxidoreductase I	1	1	1	1
HP1269	JHP1190	NQO10, nuoJ	NADH-ubiquinone oxidoreductase, NQO10 subunit , NADH oxidoreductase I	1	1	1	1
HP1270	JHP1191	NQO11, nuoK	NADH-ubiquinone oxidoreductase, NQO11 subunit , NADH oxidoreductase I	1	1	1	1
HP1272	JHP1193	NQO13, nuoM	NADH-ubiquinone oxidoreductase, NQO13 subunit , NADH oxidoreductase I	1	1	1	1
HP1273	JHP1194	NQO14, nuoN	NADH-ubiquinone oxidoreductase, NQO14 subunit , NADH oxidoreductase I	1	1	1	1
HP1274	JHP1195	pflA	paralysed flagella protein , FLAGELLAR FUNCTIONAL PROTEIN	1	1	1	1
HP1275	JHP1196	algC	phosphomannomutase , phosphohexosemutase	1	1	1	1
HP1276	JHP1197			0	1	1	1
HP1277	JHP1198	trpA	tryptophan synthase, alpha subunit , TRYPTOPHAN SYNTHASE ALPHA CHAIN	1	1	1	1
HP1278	JHP1199	trpB	tryptophan synthase, beta subunit , TRYPTOPHAN SYNTHASE BETA CHAIN	1	1	1	1
HP1279	JHP1200	trpC	anthranilate isomerase , INDOLE-3-GLYCEROL PHOSPHATE SYNTHASE	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1280	JHP1201	trpD	ANTHRANILATE PHOSPHORIBOSYLTRANSFERASE	1	1	1	1
HP1281	JHP1202	trpD, trpG	anthranilate synthase component II	1	1	1	1
HP1283	N/A			0	1	0	0
HP1284	JHP1204		conserved hypothetical protein	1	1	1	1
HP1286	JHP1206		conserved hypothetical secreted protein	1	1	1	1
HP1287	JHP1207	tenA	transcriptional regulator , putative TRANSCRIPTIONAL REGULATOR	1	1	1	1
HP1288	JHP1208			0	0	0	0
HP1289	JHP1209			1	1	0	1
HP1292	JHP1212	rpl17, rplQ	ribosomal protein L17 , 50S RIBOSOMAL PROTEIN L17	1	1	1	1
HP1293	JHP1213	rpoA	DNA-directed RNA polymerase, alpha subunit , RNA POLYMERASE ALPHA SUBUNIT	1	1	1	1
HP1294	JHP1214	rps4, rpsD	ribosomal protein S4 , 30S RIBOSOMAL PROTEIN S4	1	1	1	1
HP1295	JHP1215	rps11, rpsK	ribosomal protein S11 , 30S RIBOSOMAL PROTEIN S11	1	1	1	1
HP1296	JHP1216	rps13, rpsM	ribosomal protein S13 , 30S RIBOSOMAL PROTEIN S13	1	1	1	1
HP1297	JHP1217	rpl36, rpmJ	ribosomal protein L36 , 50S RIBOSOMAL PROTEIN L36	1	1	1	1
HP1299	JHP1219	map	methionine amino peptidase , METHIONINE AMINOPEPTIDASE	1	1	1	1
HP1300	JHP1220	secY	preprotein translocase subunit	1	1	1	1
HP1301	JHP1221	rpl15, rplO	ribosomal protein L15 , 50S RIBOSOMAL PROTEIN L15	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1302	JHP1222	rps5, rpsE	ribosomal protein S5 , 30S RIBOSOMAL PROTEIN S5	1	1	1	1
HP1303	JHP1223	rpl18, rplR	ribosomal protein L18 , 50S RIBOSOMAL PROTEIN L18	1	1	1	1
HP1304	JHP1224	rpl6, rplF	ribosomal protein L6 , 50S RIBOSOMAL PROTEIN L6	1	1	1	1
HP1305	JHP1225	rps8, rpsH	ribosomal protein S8 , putative 30S RIBOSOMAL PROTEIN S8	1	1	1	1
HP1306	JHP1226	rpS14, rpsN	ribosomal protein S14 , 30S RIBOSOMAL PROTEIN S14	1	1	1	1
HP1308	JHP1228	rpl24, rplX	ribosomal protein L24 , 50S RIBOSOMAL PROTEIN L24	1	1	1	1
HP1309	JHP1229	rpl14, rplN	ribosomal protein L14 , 50S RIBOSOMAL PROTEIN L14	1	1	1	1
HP1310	JHP1230	rps17, rpsQ	ribosomal protein S17 , 30S RIBOSOMAL PROTEIN S17	1	1	1	1
HP1311	JHP1231	rpL29, rpmC	ribosomal protein L29 , 50S RIBOSOMAL PROTEIN L29	1	1	1	1
HP1312	JHP1232	rpl16, rplP	ribosomal protein L16 , 50S RIBOSOMAL PROTEIN L16	1	1	1	1
HP1313	JHP1233	rps3, rpsC	ribosomal protein S3 , 30S RIBOSOMAL PROTEIN S3	1	1	1	1
HP1314	JHP1234	rpl22, rplV	ribosomal protein L22 , 50S RIBOSOMAL PROTEIN L22	1	1	1	1
HP1318	JHP1238	rpl4, rplD	ribosomal protein L4 , 50S RIBOSOMAL PROTEIN L4	1	1	1	1
HP1319	JHP1239	rpl3, rplC	ribosomal protein L3 , 50S RIBOSOMAL PROTEIN L3	1	1	1	1
HP1320	JHP1240	rps10, rpsJ	ribosomal protein S10 , 30S RIBOSOMAL PROTEIN S10	1	1	1	1
HP1322	JHP1242			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1323	JHP1243	rnhB	ribonuclease HII	1	1	1	1
HP1324	JHP1244			1	1	0	1
HP1325	JHP1245	fumC	fumarase	1	1	1	1
HP1326	JHP1246			1	1	1	1
HP1327	JHP1247			1	1	1	1
HP1328	JHP1248	czcA, czcB_2	cation efflux system protein	1	1	1	1
HP1329	JHP1249	czcA, czcA_2	cation efflux system protein	1	1	1	1
HP1330	JHP1250		conserved hypothetical integral membrane protein	1	1	1	1
HP1331	JHP1251		conserved hypothetical integral membrane protein	1	1	1	1
HP1332	JHP1252	dnaJ, dnaJ_2	co-chaperone and heat shock protein , co-chaperone with DnaK	1	1	1	1
HP1333	JHP1253			1	1	1	1
HP1334	N/A			0	1	0	0
HP1335	JHP1254	trmU	conserved hypothetical protein, putative TRNA (5-METHYLAMINOMETHYL-2-THIOURIDYLATE)-METHYLTRANSFERASE	1	1	1	1
HP1337	JHP1256		conserved hypothetical protein	1	1	1	1
HP1338	JHP1257		conserved hypothetical protein	1	1	1	1
HP1339	JHP1258	exbB, exbB_2	biopolymer transport protein	1	1	1	1
HP1340	JHP1259	exbD, exbD_2	biopolymer transport protein , BIOPOLYMER TRANSPORT EXBD PROTEIN	1	1	1	0
HP1341	JHP1260	tonB, tonB_2	siderophore-mediated iron transport protein	1	1	1	1
HP1342	JHP1261	omp29	outer membrane protein , putative Outer membrane protein	1	1	0	1
HP1343	JHP1262		conserved hypothetical integral membrane protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1344	JHP1263	corA	magnesium and cobalt transport protein	1	1	1	1
HP1345	JHP1264	pgk	phosphoglycerate kinase	1	1	1	1
HP1346	JHP1265	gap, gap_2	glyceraldehyde-3-phosphate dehydrogenase , GLYCERALDEHYDE 3 PHOSPHATE DEHYDROGENASE	1	1	1	1
HP1347	JHP1266	ung	uracil-DNA glycosylase	1	1	1	1
HP1348	JHP1267	plsC	1-acyl-glycerol-3-phosphate acyltransferase , 1-ACYL-SN-GLYCEROL-3-PHOSPHATE ACYLTRANSFERASE	1	1	1	1
HP1349	JHP1268			1	1	1	1
HP1350	JHP1269	prc	protease, CARBOXYL-TERMINAL PROTEASE	1	1	1	1
HP1351	JHP1270			1	1	0	1
HP1352	JHP1271	HINFIM	adenine specific DNA methyltransferase , TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	1	1	0	1
HP1354	JHP1272		putative adenine specific DNA methyltransferase	1	1	1	1
HP1355	JHP1273	nadC	nicotinate-nucleotide pyrophosphorylase	1	1	1	1
HP1356	JHP1274	nadA	quinolinate synthetase A , QUINOLINATE SYNTHETASE	1	1	1	1
HP1357	JHP1275	psd	phosphatidylserine decarboxylase proenzyme , PHOSPHATIDYLSERINE DECARBOXYLASE	1	1	1	1
HP1358	JHP1276			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1359	JHP1277			1	1	1	1
HP1361	JHP1279	comE3, comEC	competence locus E , DNA transfer protein	1	1	1	1
HP1362	JHP1280	dnaB	replicative DNA helicase	1	1	1	1
HP1363	JHP1281		conserved hypothetical integral membrane protein	1	1	1	1
HP1365	JHP1283 JHP1443		response regulator	1	1	1	1
HP1366	JHP1442	MBOIIR	type IIS restriction enzyme R protein , TYPE II RESTRICTION ENZYME	0	0	0	0
HP1367	N/A	mod	type IIS restriction enzyme M1 protein	0	0	0	0
HP1368	N/A	mod	type IIS restriction enzyme M2 protein	0	0	0	0
HP1369	N/A			1	1	1	1
HP1370	N/A	mod	type III restriction enzyme M protein	1	1	1	1
HP1372	JHP1286	mreC	rod shape-determining protein	1	1	1	1
HP1373	JHP1287	mreB	rod shape-determining protein	1	1	1	1
HP1374	JHP1288	clpX	ATP-dependent protease ATPase subunit , ATP-DEPENDENT PROTEASE,ATP-BINDING SUBUNIT	1	1	1	1
HP1375	JHP1289	lpxA	UDP-N-acetylglucosamine acyltransferase	1	1	1	1
HP1376	JHP1290	fabZ	(3R)-hydroxymyristoyl-(acyl carrier protein) dehydratase , HYDROXYMYRISTOYL-ACYL CARRIER PROTEIN DEHYDRATASE	1	1	1	1
HP1377	JHP1291			1	1	1	1
HP1378	JHP1292	comL	competence lipoprotein	1	1	1	1
HP1379	JHP1293	lon	ATP-dependent protease , ATP-DEPENDENT PROTEASE LA	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1380	JHP1294	tyrA	prephenate dehydrogenase	1	1	1	1
HP1382	JHP1295		putative ENDONUCLEASE	1	1	1	1
HP1383	N/A		restriction modification system S subunit	1	0	1	1
HP1384	JHP1441			1	1	1	1
HP1385	JHP1440	fbp	fructose-1,6-bisphosphatase	1	1	1	1
HP1386	JHP1439	rpe	D-ribulose-5-phosphate 3 epimerase , RIBULOSE-PHOSPHATE 3-EPIMERASE	1	1	1	1
HP1387	JHP1438	dnaQ	DNA polymerase III epsilon subunit , DNA POLYMERASE III	1	1	1	1
HP1390	N/A			0	0	0	0
HP1391	JHP1436			1	1	1	1
HP1392	JHP1435		fibronectin/fibrinogen-binding protein	1	1	1	1
HP1393	JHP1434	recN	DNA repair protein , DNA REPAIR PROTEIN(RECOMBINATION PROTEIN N)	1	1	1	1
HP1394	JHP1433		conserved hypothetical protein	1	1	1	1
HP1395	JHP1432	omp30	outer membrane protein , putative OUTER MEMBRANE PROTEIN	1	1	1	1
HP1397	JHP1430			0	1	1	1
HP1398	JHP1428	ald	alanine dehydrogenase , L-ALANINE DEHYDROGENASE	1	1	1	1
HP1400	JHP1426	fecA, fecA_3	iron(III) dicitrate transport protein , putative IRON(III) DICITRATE TRANSPORT PROTEIN	1	1	1	1
HP1401	JHP1425		conserved hypothetical protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1403	JHP1423	hsdM, hsdM_3	type I restriction enzyme M protein , TYPE I RESTRICTION ENZYME (MODIFICATION SUBUNIT)	1	1	1	1
HP1404	N/A	hsdS	type I restriction enzyme S protein	1	0	1	1
HP1406	JHP1298	bioB	biotin synthetase	1	1	1	1
HP1407	JHP1299	rbn	conserved hypothetical integral membrane protein, putative ribonuclease N	1	1	1	1
HP1408	JHP1300			1	1	0	1
HP1409	JHP1301			0	1	1	0
HP1410	JHP1302			1	1	1	1
HP1411	JHP1303			1	1	1	1
HP1412	JHP1304			0	1	0	0
HP1413	JHP1305			1	1	1	1
HP1414	JHP1307			1	1	1	1
HP1415	JHP1308		conserved hypothetical protein	1	1	1	1
HP1416	JHP1309		conserved hypothetical protein	1	1	1	1
HP1417	JHP1310	miaA	tRNA delta(2)-isopentenylpyrophosphate transferase	1	1	1	1
HP1418	JHP1311	rfaJ	lipopolysaccharide 1,2-glucosyltransferase , lipopolysaccharide biosynthesis protein	1	1	1	1
HP1419	JHP1312			1	1	1	1
HP1420	JHP1313	murB	UDP-N-acetylenolpyruvoylglucosamine reductase	0	1	1	1
HP1421	JHP1314	fliQ	flagellar biosynthetic protein , FLAGELLAR BIOSYNTHESIS PROTEIN	1	1	1	1
HP1422	JHP1315	fliI	flagellar export protein ATP synthase , FLAGELLUM-SPECIFIC ATP SYNTHASE	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1421	JHP1316	trbB, virB11_2	conjugative transfer regulon protein , DNA transfer protein	1	1	1	1
HP1423	JHP1318		conserved hypothetical protein	1	1	1	1
HP1424	JHP1319			1	1	1	1
HP1425	N/A			1	0	1	1
HP1427	JHP1320	hpn	histidine-rich, metal binding polypeptide , putative histidine-rich metal-binding protein	1	1	1	1
HP1428	JHP1325		conserved hypothetical protein	1	1	1	1
HP1429	JHP1324	kpsF	polysialic acid capsule expression protein	1	1	1	1
HP1430	JHP1323		conserved hypothetical ATP-binding protein	1	1	1	1
HP1431	JHP1322	ksgA	16S rRNA(adenosine-N6,N6-)-dimethyltransferase , DIMETHYLADENOSINE TRANSFERASE	1	1	1	1
HP1432	JHP1321		histidine and glutamine-rich protein, putative histidine and glutamine-rich metal-binding protein	0	1	1	1
HP1434	JHP1327	purU	formyltetrahydrofolate hydrolase	1	1	1	1
HP1435	JHP1328	PspA, sppA	protease IV , putative PROTEASE IV	1	1	1	1
HP1436	JHP1329			1	1	1	1
HP1437	JHP1330			0	1	1	0
HP1438	JHP1331		conserved hypothetical lipoprotein	0	0	0	0
HP1439	JHP1332			1	1	0	1
HP1440	JHP1333			1	1	1	1
HP1441	JHP1334	ppi, ppiA	peptidyl-prolyl cis-trans isomerase B, cyclosporin-type rotamase , PEPTIDYL-PROLYL CIS-TRANS ISOMERASE	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1442	JHP1335	csrA	carbon storage regulator , putative carbon storage regulator	1	1	1	1
HP1443	JHP1336		conserved hypothetical protein	1	1	1	1
HP1444	JHP1337	smpB	small protein	1	1	1	1
HP1445	JHP1338	exbB, exbB_3	biopolymer transport protein	1	1	1	1
HP1446	JHP1339	exbD, exbD_3	biopolymer transport protein	1	1	1	1
HP1447	JHP1340	rpl34, rpmH	ribosomal protein L34 , 50S RIBOSOMAL PROTEIN L34	1	1	1	1
HP1448	JHP1341	rnpA	ribonuclease P, protein component , putative RIBONUCLEASE P PROTEIN COMPONENT	1	1	1	1
HP1449	JHP1342		conserved hypothetical protein	1	1	1	1
HP1450	JHP1343		60 kDa inner-membrane protein, putative Inner membrane protein	1	1	1	1
HP1451	JHP1344			1	1	1	1
HP1453	JHP1346		conserved hypothetical protein, putative Outer membrane protein	1	1	1	1
HP1454	JHP1347			1	1	1	1
HP1455	JHP1348			1	1	1	1
HP1456	JHP1349	lpp20	membrane-associated lipoprotein , conserved lipoprotein	1	1	1	1
HP1457	JHP1350			1	1	1	1
HP1458	JHP1351		thioredoxin, putative THIOREDOXIN	1	1	1	1
HP1459	JHP1352		conserved hypothetical protein	1	1	1	1
HP1460	JHP1353	dnaE	DNA polymerase III alpha-subunit , DNA POLYMERASE III, ALPHA CHAIN	1	1	1	1
HP1461	JHP1354		cytochrome c551 peroxidase, putative CYTOCHROME C PEROXIDASE	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1462	JHP1355		secreted protein involved in flagellar motility, putative motility protein	1	1	1	1
HP1463	JHP1356			1	1	1	1
HP1465	JHP1358	HI1087	ABC transporter, ATP-binding protein , putative amino acid abc transporter, ATP-binding protein	1	1	1	1
HP1466	JHP1359		conserved hypothetical integral membrane protein	1	1	1	1
HP1467	JHP1360		putative Outer membrane protein	1	1	1	1
HP1468	JHP1361	ilvE	branched-chain-amino-acid aminotransferase , BRANCHED-CHAIN AMINO ACID AMINOTRANSFERASE	1	1	1	1
HP1469	JHP1362	omp31	outer membrane protein , putative Outer membrane protein	1	1	1	1
HP1471	JHP1364	BCGIB	type IIS restriction enzyme R protein , putative TYPE II RESTRICTION ENZYME	1	1	0	1
HP1472	JHP1365	mod	type IIS restriction enzyme M protein , putative TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	1	0	1	1
HP1473	JHP1366			1	1	1	1
HP1474	JHP1367	tmk	thymidylate kinase	1	1	1	1
HP1475	JHP1368	kdtB	lipopolysaccharide core biosynthesis protein	1	1	1	1
HP1476	JHP1369	ubiD	phenylacrylic acid decarboxylase, OCTAPRENYL-4-HYDROXYBENZOATE CARBOXY-LYASE	1	1	1	1
HP1477	JHP1370			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1478	JHP1371	uvrD, rep	DNA helicase II , putative ATP-DEPENDENT DNA HELICASE	1	1	1	1
HP1479	JHP1372			1	1	1	1
HP1480	JHP1373	serS	seryl-tRNA synthetase	1	1	1	1
HP1481	JHP1374			1	1	1	1
HP1482	JHP1375			1	1	1	1
HP1483	JHP1376	gerC2, ubiE	gerC2 protein , UBIQUINONE/MENAUINONE BIOSYNTHESIS METHYLTRANSFERASE	1	1	1	1
HP1484	JHP1377		conserved hypothetical integral membrane protein	1	1	1	1
HP1485	JHP1378		conserved hypothetical protein	1	1	1	1
HP1487	JHP1380		conserved hypothetical integral membrane protein	1	1	1	1
HP1488	JHP1381		conserved hypothetical secreted protein	1	1	1	1
HP1489	JHP1382		lipase-like protein	1	1	1	1
HP1490	JHP1383		conserved hypothetical protein	1	1	1	1
HP1491	JHP1384		phosphate permease, putative PHOSPHATE PERMEASE	1	1	1	1
HP1492	JHP1385		conserved hypothetical nifU-like protein	1	1	1	1
HP1493	JHP1386			1	1	1	1
HP1494	JHP1387	murE	UDP-MurNac-tripeptide synthetase , UDP-N-ACETYLMURAMYL-TRIPETIDE SYNTHETASE	1	1	1	1
HP1495	JHP1388	tal	transaldolase	1	1	1	1
HP1496	JHP1389	ctc, rplY	general stress protein , putative ribosomal protein L25	1	1	1	1
HP1498	JHP1391			1	1	1	1
HP1499	JHP1392			0	0	0	0

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1501	JHP1394	omp32	outer membrane protein , putative Outer membrane protein	1	1	1	1
HP1502	JHP1395			1	1	1	1
HP1504	JHP1397		conserved hypothetical protein	1	1	1	1
HP1505	JHP1398	ribG, ribD	riboflavin biosynthesis protein , putative RIBOFLAVIN-SPECIFIC DEAMINASE	1	1	1	1
HP1506	JHP1399	gltS	glutamate permease , Sodium/Glutamate Symporter	1	1	1	1
HP1507	JHP1400		conserved hypothetical ATP-binding protein	1	1	1	1
HP1509	JHP1402		conserved hypothetical integral membrane protein	1	1	1	1
HP1510	JHP1403	folB	conserved hypothetical protein, DIHYDRONEOPTERIN ALDOLASE	1	1	1	1
HP1511	JHP1404			1	1	0	1
HP1512	JHP1405	frpB, frpB_3	iron-regulated outer membrane protein , putative IRON-REGULATED OUTER MEMBRANE PROTEIN	1	1	1	1
HP1513	JHP1406	selA	selenocysteine synthase SelA, putative, L-SERYL-TRNA(SER) SELENIUM TRANSFERASE	1	1	1	1
HP1516	N/A			1	0	1	1
HP1517	N/A	ECO57IR	type IIS restriction enzyme R and M protein	0	0	1	0
HP1519	N/A			1	0	1	1
HP1520	N/A			1	0	1	1
HP1521	JHP1410	res, res_2	type III restriction enzyme R protein , TYPE III RESTRICTION ENZYME	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1522	JHP1411	mod_2	TYPE III DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	0	1	0	0
HP1524	JHP1413			1	1	1	1
HP1525	JHP1414			1	1	1	1
HP1526	JHP1415	lexA, exoA	exodeoxyribonuclease	1	1	1	1
HP1527	JHP1416			1	1	1	1
HP1529	JHP1417	dnaA	chromosomal replication initiator protein	1	1	1	1
HP1532	JHP1420	glmS	glucosamine fructose-6-phosphate aminotransferase (isomerizing) , glutamine fructose-6-phosphate aminotransferase	1	1	1	1
HP1533	JHP1421		conserved hypothetical protein	1	1	1	1
HP1534	N/A	tnpB	IS605 transposase	0	1	0	0
HP1535	N/A	tnpA	IS605 transposase	0	1	1	0
HP1537	N/A			1	1	1	1
HP1538	JHP1461	petC	Ubiquinol cytochrome c oxidoreductase, cytochrome c1 subunit	1	1	1	1
HP1539	JHP1460	fbcH, petB	ubiquinol cytochrome c oxidoreductase, cytochrome b subunit	1	1	1	1
HP1540	JHP1459	fbcF, petA	ubiquinol cytochrome c oxidoreductase, Rieske 2Fe-2S subunit , Ubiquinol cytochrome c oxidoreductase, 2Fe-2S subunit	1	1	1	1
HP1543	JHP1456	tagE	toxR-activated gene	1	1	1	1
HP1544	JHP1455	tagE	toxR-activated gene	1	1	1	1
HP1545	JHP1454	folC	folylpolyglutamate synthase	1	1	1	1
HP1546	JHP1453			1	1	1	1
HP1548	JHP1451		conserved hypothetical integral membrane protein	1	1	1	1
HP1549	JHP1450	secF	protein-export membrane protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1550	JHP1449	secD	protein-export membrane protein	1	1	1	1
HP1551	JHP1448		conserved hypothetical secreted protein	1	1	1	1
HP1553	JHP1446	pcrA	helicase, putative ATP-DEPENDENT HELICASE	1	1	1	1
HP1554	JHP1445	rps2, rpsB	ribosomal protein S2 , 30S RIBOSOMAL PROTEIN S2	1	1	1	1
HP1555	JHP1444	tsf, tfs	translation elongation factor EF-Ts , ELONGATION FACTOR TS (EF-TS)	1	1	1	1
HP1556	JHP1464	ftsI	cell division protein , PENICILLIN-BINDING PROTEIN	1	1	1	1
HP1557	JHP1465	fliE	flagellar basal-body protein , FLAGELLAR HOOK-BASAL BODY COMPLEX PROTEIN	1	1	1	1
HP1558	JHP1466	flgC	flagellar basal-body rod protein (proximal rod protein), FLAGELLAR BASAL-BODY ROD PROTEIN	1	1	1	1
HP1559	JHP1467	flgB	flagellar basal-body rod protein (proximal rod protein), FLAGELLAR BASAL-BODY ROD PROTEIN	1	1	1	1
HP1560	JHP1468	ftsW, rodA_2	cell division protein , putative ROD SHAPE-DETERMINING PROTEIN	1	1	1	1
HP1561	JHP1469	ceuE	iron (III) ABC transporter, periplasmic iron-binding protein	1	0	1	1
HP1562	JHP1470	ceuE	iron (III) ABC transporter, periplasmic iron-binding protein	1	1	1	1
HP1563	JHP1471	tsaA	alkyl hydroperoxide reductase , putative peroxidase	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1564	JHP1472		outer membrane protein, putative Outer membrane protein	1	1	1	1
HP1565	JHP1473	pbp2	penicillin-binding protein 2 , PENICILLIN-BINDING PROTEIN	1	1	1	1
HP1566	JHP1474			1	1	1	1
HP1567	JHP1475		conserved hypothetical GTP-binding protein	1	1	1	1
HP1568	JHP1476			1	1	1	1
HP1569	JHP1477			1	1	1	1
HP1570	JHP1478		conserved hypothetical protein	1	1	1	1
HP1571	JHP1479	rlpA	rare lipoprotein A , putative Outer membrane protein	1	1	1	1
HP1572	JHP1480	dniR	regulatory protein DniR, putative REGULATORY PROTEIN	1	1	1	1
HP1573	JHP1481		conserved hypothetical protein	1	1	1	1
HP1574	JHP1482	ribC	riboflavin synthase alpha subunit , RIBOFLAVIN SYNTHASE ALPHA CHAIN	1	1	1	1
HP1575	JHP1483	flhB_2	ABC transporter, putative, putative FLAGELLAR BIOSYNTHESIS PROTEIN	1	1	1	1
HP1576	JHP1484	abc	ABC transporter, ATP-binding protein	1	1	1	1
HP1577	JHP1485	yaeE	ABC transporter, permease protein , ABC transporter, permease	1	1	1	1
HP1578	N/A		LPS biosynthesis protein	0	1	0	0
HP1579	JHP1486			1	1	1	0
HP1580	JHP1487			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1581	JHP1488	llm, wecA	methicillin resistance protein , putative UNDECAPRENYL-PHOSPHATE-ALPHA-N-ACETYLGLUCOSAMINYLTRANSFERASE	1	1	1	1
HP1582	JHP1489	pdxJ	pyridoxal phosphate biosynthetic protein J , PYRIDOXAL PHOSPHATE SYNTHETASE	1	1	1	1
HP1583	JHP1490	pdxA	pyridoxal phosphate biosynthetic protein A	1	1	1	1
HP1584	JHP1491	gcp, ydiE	sialoglycoprotease , putative O-SIALOGLYCOPROTEIN ENDOPEPTIDASE	1	1	1	1
HP1585	JHP1492	flgG, flgG_2	flagellar basal-body rod protein , FLAGELLAR BASAL-BODY ROD PROTEIN (DISTAL ROD PROTEIN)	1	1	1	1
HP1586	N/A			0	1	1	0
HP1587	JHP1493		conserved hypothetical protein	0	1	0	0
HP1588	JHP1494		conserved hypothetical protein	1	1	1	1
HP1589	N/A			0	1	1	0
HP1590	N/A			0	1	0	0
N/A	JHP0044		putative TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	0	1	0	1
N/A	JHP0046		putative TYPE II restriction enzyme	0	0	0	0
N/A	JHP0164		putative restriction enzyme	0	0	0	0
N/A	JHP0165			0	0	0	0
N/A	JHP0414	hsdS_1a	TYPE I RESTRICTION ENZYME (SPECIFICITY SUBUNIT)	0	0	1	0
N/A	JHP0540			1	0	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
N/A	JHP0562		putative lipopolysaccharide biosynthesis protein	1	0	1	1
N/A	JHP0585		putative 3-HYDROXYACID DEHYDROGENASE	1	1	1	1
N/A	JHP0587			0	1	0	0
N/A	JHP0616			1	0	0	1
N/A	JHP0630		putative TYPE II RESTRICTION ENZYME	0	0	0	0
N/A	JHP0726	hsdS_4	putative TYPE I RESTRICTION ENZYME (SPECIFICITY SUBUNIT)	0	1	1	0
N/A	JHP0755			0	1	0	0
N/A	JHP0756		putative TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFER ASE)	0	1	0	0
N/A	JHP0813			0	0	0	0
N/A	JHP0820		putative lipopolysaccharide biosynthesis protein	1	0	0	1
N/A	JHP0825			0	1	0	0
N/A	JHP0826	tnpB	IS606 TRANSPOSASE	0	0	1	0
N/A	JHP0827	tnpA	IS606 TRANSPOSASE	0	0	1	0
N/A	JHP0828			0	1	1	1
N/A	JHP0829			0	0	0	0
N/A	JHP0830			1	1	0	1
N/A	JHP0896			0	0	0	0
N/A	JHP0914			0	0	0	0
N/A	JHP0916			0	0	1	0
N/A	JHP0917	virB4_2	DNA transfer protein	0	1	0	0
N/A	JHP0918	virB4_3	DNA transfer protein	0	1	0	0
N/A	JHP0922			0	1	0	0
N/A	JHP0924			0	1	0	0
N/A	JHP0925			0	0	1	0
N/A	JHP0926			0	0	1	0
N/A	JHP0927			0	1	1	0
N/A	JHP0931	topA_3	topoisomerase I	0	0	1	0
N/A	JHP0933			0	0	1	0
N/A	JHP0934			0	0	1	0
N/A	JHP0935			0	0	1	0
N/A	JHP0936			0	0	1	0
N/A	JHP0940			0	0	0	0

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
N/A	JHP0945			0	1	1	0
N/A	JHP0946			0	1	0	0
N/A	JHP0948			0	0	0	0
N/A	JHP0950			1	0	0	1
N/A	JHP0954			1	1	1	1
N/A	JHP0955			1	1	1	1
N/A	JHP0956			1	1	1	0
N/A	JHP0957			1	1	1	1
N/A	JHP0958			1	1	0	1
N/A	JHP0959			0	1	0	1
N/A	JHP0960			0	0	0	0
N/A	JHP1032		putative lipopolysaccharide biosynthesis protein	1	0	0	1
N/A	JHP1043			0	0	0	0
N/A	JHP1049			1	0	0	1
N/A	JHP1132			1	1	0	1
N/A	JHP1160			0	0	1	0
N/A	JHP1296	mod_1	putative TYPE III DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	1	1	1	1
N/A	JHP1306			0	1	1	1
N/A	JHP1408			0	0	1	1
N/A	JHP1409		putative TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	0	0	0	1
N/A	JHP1429		ZINC-DEPENDENT ALCOHOL DEHYDROGENASE	1	0	0	1
N/A	JHP1437			1	1	0	1
N/A	JHP1462			0	0	1	0
N/A	JHP1463			0	0	1	0
N/A	JHP1495			0	1	0	0
HP0962	N/A	acpP	acyl carrier protein	0	1	1	0
HP0211	JHP0197		conserved hypothetical secreted protein	1	1	1	1
HP0960	JHP0894	glyQ	glycyl-tRNA synthetase, alpha subunit , GLYCYL-TRNA SYNTHETASE ALPHA CHAIN	1	1	1	1
HP0927	JHP0861	htpX	heat shock protein , stress protein	1	1	1	1
HP0064	JHP0059			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1486	JHP1379		conserved hypothetical integral membrane protein	1	1	1	1
HP1452	JHP1345	tdhF, thdF	thiophene and furan oxidizer , putative thiophene/furan oxidation protein	1	1	1	1
HP1353	JHP1272			1	1	1	1
HP1291	JHP1211		conserved hypothetical protein	1	1	1	1
HP1057	JHP0368			1	1	1	1
HP0102	JHP0094		conserved hypothetical protein	1	1	1	1
HP1364	JHP1282		signal-transducing protein, histidine kinase, putative histidine kinase sensor protein	1	1	1	1
HP0517	JHP0466	era	GTP-binding protein	1	1	1	1
HP0692	JHP0636	yxjE, scoB	3-oxoadipate coA-transferase subunit B , 3-OXOACID COA-TRANSFERASE, SUBUNIT B	1	1	1	1
HP0071	JHP0066	urel	urease accessory protein , urea transporter	1	1	1	1
HP0287	JHP0272			1	1	1	1
HP0228	JHP0213		conserved hypothetical integral membrane protein	1	1	1	1
HP1497	JHP1390	pth	peptidyl-tRNA hydrolase	0	1	1	1
HP0953	JHP0887			1	1	1	1
HP0494	JHP0446	murD	UDP-N-acetylmuramoylalanine-D-glutamate ligase , UDP-N-ACETYLMURAMOYLALANINE--D-GLUTAMATE LIGASE	1	1	1	1
HP1552	JHP1447	nhaA	Na ⁺ /H ⁺ antiporter , NA(+)/H(+) ANTIporter 1	1	1	1	1
HP1290	JHP1210	pnuC	nicotinamide mononucleotide transporter	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1026	JHP0398		conserved hypothetical helicase-like protein	1	1	1	1
HP0230	JHP0215	kdsB	CTP: CMP-3-deoxy-D-manno-octulosonate-cytidylyl-transferase , 3-DEOXY-MANNO-OCTULOSONATE CYTIDYLYLTRANSFERASE	1	1	1	1
HP1252	JHP1173	oppA	oligopeptide ABC transporter, periplasmic oligopeptide-binding protein	1	1	1	1
HP0555	JHP0502			1	1	1	1
HP0221	JHP0207		nifU-like protein	1	1	1	1
HP1265	JHP1186	nuoF	putative NADH oxidoreductase I	0	1	1	1
HP1247	JHP1168			1	1	1	1
HP0541	JHP0489	cag20, cagH	cag pathogenicity island protein , cag island protein	1	1	1	1
HP1514	JHP1407	nusA	transcription termination factor NusA , N-UTILIZATION SUBSTANCE PROTEIN A	1	1	1	1
HP0481	JHP0433	MFOKI	adenine specific DNA methyltransferase , putative TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	1	1	1	1
HP1248	JHP1169	vacB	virulence associated protein homolog , RIBONUCLEASE II FAMILY PROTEIN	1	1	1	1
HP1271	JHP1192	NQO12, nuoL	NADH-ubiquinone oxidoreductase, NQO12 subunit , NADH oxidoreductase I	1	1	1	1
HP0766	JHP0704			0	0	0	0
HP0269	JHP0254		conserved hypothetical ATP-binding protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1132	JHP1060	atpD	ATP synthase F1, subunit beta	1	1	1	1
HP1203	JHP1126	nusG	transcription termination factor NusG , TRANSCRIPTION ANTITERMINATION PROTEIN	1	1	1	1
HP1307	JHP1227	rpl5, rplE	ribosomal protein L5 , 50S RIBOSOMAL PROTEIN L5	1	1	1	1
HP0072	JHP0067	ureB	urease beta subunit (urea amidohydrolase) , UREASE BETA SUBUNIT	1	1	1	1
HP1523	JHP1412	recG	DNA recombinase , ATP-DEPENDENT DNA HELICASE	1	1	1	1
HP0305	JHP0290			1	1	1	1
HP1530	JHP1418	punB	purine nucleoside phosphorylase	1	1	1	1
HP1285	JHP1205		conserved hypothetical secreted protein	1	1	1	1
HP0390	JHP0991	tagD, tpx	adhesin-thiol peroxidase , THIOL PEROXIDASE	1	1	1	1
HP0306	JHP0291	hemL	glutamate-1-semialdehyde 2,1-aminomutase	1	1	1	1
HP0505	JHP0455			0	1	1	1
HP1426	N/A		conserved hypothetical protein	1	0	1	1
HP0918	JHP0852			1	1	1	1
HP0433	N/A			0	0	0	0
HP0809	JHP0745	fliL	putative FLAGELLAR BIOSYNTHESIS PROTEIN	1	1	1	1
HP0658	JHP0603	gatB	GLU-TRNA AMIDOTRANSFERASE, SUBUNIT B	1	1	1	1
N/A	JHP0045		putative TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	0	0	0	0
HP0320	JHP0303		conserved hypothetical secreted protein	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0277	JHP0262		ferredoxin	1	1	1	1
HP0967	N/A	vapD	virulence associated protein D	0	0	0	0
HP1315	JHP1235	rps19, rpsS	ribosomal protein S19 , 30S RIBOSOMAL PROTEIN S19	1	1	1	1
HP0689	JHP0628			1	1	1	1
HP0245	JHP0230			1	1	1	1
HP1198	JHP1121	rpoB	DNA-directed RNA polymerase, beta subunit	1	1	1	1
N/A	JHP0928			0	1	1	0
HP0527	JHP0476	cag7, orf13/14	cag pathogenicity island protein , cag island protein	1	1	1	1
HP0610	JHP0556		toxin-like outer membrane protein	1	1	1	1
HP0922	JHP0856		toxin-like outer membrane protein, putative vacuolating cytotoxin (VacA) paralog	1	1	1	1
HP0887	JHP0819	vacA	vacuolating cytotoxin	1	1	1	1
HP0609	JHP0556		putative vacuolating cytotoxin (VacA) paralog	1	1	1	1
HP0547	JHP0495	cag26, cagA	cag pathogenicity island protein , cag island protein, CYTOTOXICITY ASSOCIATED IMMUNODOMINANT ANTIGEN	1	1	1	1
HP0056	JHP0048	putA	delta-1-pyrroline-5-carboxylate dehydrogenase, Proline/pyrroline-5-carboxylate dehydrogenase	1	1	1	1
HP0919	JHP0853	pyrAb, carB	carbamoyl-phosphate synthase (glutamine-hydrolysing) , CARBAMOYL-PHOSPHATE SYNTHASE LARGE CHAIN	1	1	1	1
HP1541	JHP1458	trcF, mfd	transcription-repair coupling factor	1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP0592	N/A	res	type III restriction enzyme R protein	0	1	0	0
HP1402	JHP1424	hsdR, hsdR_3	type I restriction enzyme R protein , TYPE I RESTRICTION ENZYME (RESTRICTION SUBUNIT)	1	1	1	1
HP1371	JHP1285		type III restriction enzyme R protein	1	1	1	1
HP1116	JHP1044			1	1	0	0
HP0705	JHP0644	uvrA	excinuclease ABC subunit A , EXCINUCLEASE ABC SUBUNIT A.	1	1	1	1
HP1470	JHP1363	polA	DNA polymerase I	1	1	1	1
HP0786	JHP0723	secA	preprotein translocase subunit	1	1	1	1
HP1241	JHP1162	alaS	alanyl-tRNA synthetase	1	1	1	1
HP0779	JHP0716	acnB	aconitase B , ACONITATE HYDRATASE	1	1	1	1
HP1547	JHP1452	leuS	leucyl-tRNA synthetase	1	1	1	1
HP1503	JHP1396	copA, fixI	cation-transporting ATPase, P-type , putative component of cation transport for cbb3-type oxidase	1	1	1	1
HP0103	JHP0095	tlpB	methyl-accepting chemotaxis protein , methyl-accepting chemotaxis protein (MCP)	1	1	1	1
HP0259	JHP0243	xseA	exonuclease VII, large subunit , EXODEOXYRIBONUCLEASE LARGE SUBUNIT	1	1	1	1
HP0599	JHP0546	hylB	hemolysin secretion protein precursor , methyl-accepting chemotaxis protein (MCP)	1	1	1	1
HP0439	N/A			0	1	0	0
HP0049	JHP0042			1	1	1	1
HP0905	JHP0841	pta	phosphotransacetylase	1	0	1	0

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
HP1360	JHP1278	ubiA	4-hydroxybenzoate octaprenyltransferase	1	1	1	1
HP1050	JHP0375	thrB	homoserine kinase	1	1	1	1
HP1053	JHP0372			1	1	1	1
HP0119	N/A			1	1	1	1
HP1542	JHP1457			1	1	1	1
N/A	JHP1297	res_1	putative TYPE III RESTRICTION ENZYME	1	1	1	1
HP0637	JHP0580			1	1	1	1
HP1298	JHP1218	infA	translation initiation factor EF-1 , TRANSLATION INITIATION FACTOR IF-1	1	1	1	1
HP0250	JHP0235	oppD	oligopeptide ABC transporter, ATP-binding protein , ABC transporter, ATP-binding protein	1	1	1	1
HP0351	JHP0325	fliF	flagellar basal-body M-ring protein , FLAGELLAR M-RING PROTEIN	1	1	1	1
HP0877	JHP0811	ruvC	Holliday junction endodeoxyribonuclease , CROSSOVER JUNCTION ENDODEOXYRIBONUCLEASE	1	1	1	1
HP0114	JHP0106			1	1	1	1
HP0262	JHP0246 JHP0247			0	1	0	1
HP1114	JHP1041	uvrB	excinuclease ABC subunit B	1	1	1	1
HP0180	JHP0168	cute, Int	apolipoprotein N-acyltransferase	1	1	1	1
HP0358	JHP1022		putative Outer membrane protein	1	1	1	1
HP0969	JHP0903	czcA, czcA_1	cation efflux system protein , putative cation efflux system protein	1	1	1	1
HP0669	JHP0613			1	1	1	1
HP0205	JHP0191			1	1	1	1
HP1142	JHP1070			0	0	1	0
HP0440	N/A	topA	DNA topoisomerase I	0	0	0	0
HP1045	N/A	acoE	acetyl-CoA synthetase	1	1	0	1
HP0080	JHP0074			1	1	1	1

Supplemental Table 3

TIGR	ASTRA	Gene Name	Gene Description	10700(SS1 premouse) ^a	G27/NSH 57	NSH79	SS1
			dipeptide ABC transporter, periplasmic dipeptide-binding protein , PERIPLASMIC DIPEPTIDE TRANSPORT SUBSTRATE-BINDING PROTEIN				
HP0298	JHP0283	dppA		1	1	1	1
N/A	JHP0318			1	0	0	1
HP1127	JHP1056			1	1	1	1
HP1531	JHP1419			1	1	1	1
^a gene present (1), gene absent (0)							

Supplemental Table 4

Supplemental Table 4 Genes with transposon insertions detected							
Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
3	HP0003	JHP0003	kdsA	3-deoxy-d-manno-octulosonic acid 8-phosphate synthetase , 3-deoxy-D-manno-octulosonic acid 8-phosphate synthase	-2		M
4	HP0004	JHP0004	icfA	carbonic anhydrase	-3		M
7	HP0007	N/A				0.5	
9	HP0009	JHP0007		putative Outer membrane protein	0		
10	HP0010	JHP0008	groEL	chaperone and heat shock protein , 60kDa chaperone	1	7	
16	HP0016	JHP0014			3		
18	HP0018	JHP0016			0.5		
20	HP0020	JHP0018	nspC	carboxynorspermidine decarboxylase , putative carboxynorspermidine decarboxylase	0.5		
22	HP0022	JHP0020		conserved hypothetical integral membrane protein	0	-7.5	D
25	HP0025	JHP0021	omp2	outer membrane protein , putative Outer membrane protein	5.5	3.5	
26	HP0026	JHP0022	gltA	citrate synthase	3.5	-1.5	D
30	HP0030	JHP0026				-2.5	M
31	HP0031	JHP0027				-2.5	M
36	HP0036	JHP0032			-1	2	
37	HP0037	JHP0033	comB 7	DNA transformation competence protein	0	-1	
42	HP0042	JHP0036	comB 3	trbI protein, DNA transformation competency	-6.5		M
43	HP0043	JHP0037	pmi, algA, manC	mannose-6-phosphate isomerase , phosphomannose isomerase/GDP-mannose pyrophosphorylase	-16.5		M
44	HP0044	JHP0038	rfbD, gmd	GDP-D-mannose dehydratase	-25.5	-6	B
45	HP0045	JHP0039	fcl	GDP-fucose synthetase (previously annotated as nodulation protein NolK)	-2.5	-7	B
46	HP0046	N/A				1	
47	HP0047	JHP0040	hypE	hydrogenase expression/formation protein	4	5	

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
50	HP0050	JHP0043	dpnA	adenine specific DNA methyltransferase , putative TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	0		
53	HP0053	N/A			3	0.5	
54	HP0054	N/A		adenine/cytosine DNA methyltransferase		0.5	
55	N/A	JHP0044		putative TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)		0.5	
58	HP0055	JHP0047	putP	proline permease , sodium/proline symporter		0	
62	HP0059	JHP0052			2		
63	HP0060	JHP0053 JHP0054 JHP0055			2	3	
64	HP0061	JHP0056			0	-1	
66	HP0063	JHP0058			2	-0.5	
69	HP0066	JHP0061	-	Predicted ATP-binding protein	1	3	
70	HP0067	JHP0062	ureH	urease accessory protein	-1.5	0	D
71	HP0068	JHP0063	ureG	urease accessory protein	-2	-1	D
72	HP0069	JHP0064	ureF	urease accessory protein	-0.5	-1	
73	HP0070	JHP0065	ureE	urease accessory protein	1	-2	D
74	HP0071	JHP0066	ureI	urease accessory protein , urea transporter		-3.5	M
75	HP0072	JHP0067	ureB	urease beta subunit (urea amidohydrolase) , UREASE BETA SUBUNIT	-1.5	-12.5	B
76	HP0073	JHP0068	ureA	urease alpha subunit (urea amidohydrolase), UREASE ALPHA SUBUNIT	-8	-2	B
77	HP0074	JHP0069	lspA	lipoprotein signal peptidase	-1.5	-1.5	B
80	HP0077	JHP0072	prfA	peptide chain release factor RF-1 , PEPTIDE CHAIN RELEASE FACTOR 1		-1	
81	HP0078	JHP0073		putative Outer membrane protein		0.5	
82	HP0079	JHP0073	omp3	outer membrane protein		1.5	

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
83	HP0080	JHP0074			0		
84	HP0081	N/A			-1.5	-1	D
85	HP0082	JHP0075	tlpC	methyl-accepting chemotaxis transducer , methyl-accepting chemotaxis protein (MCP)	-11.5	-2	B
86	HP0083	JHP0076	rps9, rpsI	ribosomal protein S9 , 30S RIBOSOMAL PROTEIN S9		2.5	
87	HP0084	JHP0077	rpl13, rplM	ribosomal protein L13 , 50S RIBOSOMAL PROTEIN L13	0		
88	HP0085	JHP0078			0		
89	HP0086	JHP0079	mgo	Malate:quinone oxidoreductase	1		
90	HP0087	JHP0080			-1		
91	HP0088	JHP0081	rpoD	RNA polymerase sigma-70 factor , RNA POLYMERASE SIGMA FACTOR (SIGMA-70)	1		
93	HP0090	JHP0083	fabD	malonyl coenzyme A-acyl carrier protein transacylase , MALONYL COA ACYL CARRIER PROTEIN TRANSACYLASE	-1.5		M
94	HP0091	JHP0084	hsdR	type II restriction enzyme R protein	-1.5		M
95	HP0092	JHP0085	hsdM	type II restriction enzyme M protein , TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)		1	
96	HP0093	JHP0086		putative ALPHA(1,2)FUCOSYLTRANSFERASE	2	1	
97	HP0094	JHP0086		conserved hypothetical protein	-0.5		
98	HP0095	JHP0087			-0.5		
99	HP0096	JHP0088		phosphoglycerate dehydrogenase, putative keto-acid dehydrogenase	3		
100	HP0097	JHP0089			-7		M
101	HP0098	JHP0090	thrC	threonine synthase	6	0.5	
102	HP0099	JHP0091	tlpA	methyl-accepting chemotaxis protein , methyl-accepting chemotaxis protein (MCP)		-2.5	M
103	HP0100	JHP0092		conserved hypothetical protein	-2.5	-2	B

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
104	HP0101	JHP0093			0.5		
105	HP0102	JHP0094	-	Predicted glycosyl transferase	-15		M
106	HP0103	JHP0095	tlpB	methyl-accepting chemotaxis protein , methyl-accepting chemotaxis protein (MCP)	-5		M
107	HP0104	JHP0096	cpdB	2',3'-cyclic-nucleotide 2'-phosphodiesterase	-4	0	D
108	HP0105	JHP0097	luxS	Autoinducer-2 synthase	0		
115	HP0112	JHP0104	fucA	Predicted L-fucose-1-phosphate aldolase	0.5		
116	HP0113	JHP0105			1		
117	HP0114	JHP0106			0.5	-1	
118	HP0115	JHP0107	flaB	flagellin B		0.5	
119	HP0116	JHP0108	topA, topA_1	DNA topoisomerase I		1.5	
120	HP0117	JHP0109		conserved hypothetical protein	-1	8.5	
121	HP0118	JHP0110			2	0.5	
122	HP0119	N/A			14	2.5	
123	HP0120	N/A			12		
130	HP0127	JHP0117	omp4	outer membrane protein , putative Outer membrane protein	-3		M
132	HP0129	JHP0118			-2		M
133	HP0130	JHP0119			-3	1.5	D
135	HP0132	JHP0120	sdaA, sdaB	L-serine deaminase , L-SERINE/L-THREONINEDEAMINASE		1.5	
137	HP0134	JHP0122	dhs1, aroF	3-deoxy-D-arabino-heptulosonate 7-phosphate synthase , PHOSPHO-2-DEHYDRO-3-DEOXYHEPTONATE ALDOLASE	-0.5		
138	HP0135	JHP0123			-0.5	-0.5	
139	HP0136	JHP0124	bcp	bacterioferritin comigratory protein	2	-3.5	D
140	HP0137	JHP0125				-7.5	M
141	HP0138	JHP0126		conserved hypothetical iron-sulfur protein		-3	M

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
142	HP0139	JHP0127		conserved hypothetical secreted protein		0.5	
143	HP0140	JHP0128	lctP, lldP_1	L-lactate permease	-2	-0.5	D
144	HP0141	JHP0129	lctP, lldP_2	L-lactate permease		-3.5	M
146	HP0143	JHP0131				4	
153	HP0150	JHP0138			0		
154	HP0151	JHP0139		conserved hypothetical membrane protein	0		
156	HP0153	JHP0141	recA	recombinase , RECA PROTEIN.	1		
160	HP0157	JHP0145	aroK	shikimic acid kinase I , SHIKIMATE KINASE I		1	
161	HP0158	JHP0146			-7	12.5	D
162	HP0159	JHP0147	rfaJ	lipopolysaccharide 1,2-glucosyltransferase , putative lipopolysaccharide biosynthesis protein	-8	4.5	D
163	HP0160	JHP0148	hcpD	Cysteine-rich protein D	1	0	
164	HP0161	N/A				0	
176	HP0173	JHP0159	fliR	flagellar biosynthetic protein , FLAGELLAR BIOSYNTHESIS PROTEIN	-1		
177	HP0174	JHP0160				-2	M
180	HP0177	JHP0163	efp	translation elongation factor EF-P , ELONGATION FACTOR P (EF-P)		-1	
183	HP0178	JHP0166	neuB	spore coat polysaccharide biosynthesis protein E, sialic acid synthase		-1	
185	HP0180	JHP0168	cute, lnt	apolipoprotein N-acyltransferase		-4	M
186	HP0181	JHP0169				-4	M
189	HP0184	JHP0172			0		
190	HP0185	JHP0173				0.5	
191	HP0186	JHP0174				0.5	
193	HP0188	JHP0174			-0.5		

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
194	HP0189	JHP0175		conserved hypothetical integral membrane protein	-0.5		
207	HP0202	JHP0188	fabH	beta-ketoacyl-acyl carrier protein synthase III , BETA-KETOACYL-ACP SYNTHASE III		0.5	
210	HP0205	JHP0191			3	0.5	
213	HP0208	JHP0194		putative lipopolysaccharide biosynthesis protein		-0.5	
214	HP0209	JHP0195		putative Outer membrane protein chaperone and heat shock protein	1	-0.5	
215	HP0210	JHP0196	htpG	C62.5 , 90kDa chaperone	-6.5	-0.5	D
216	HP0211	JHP0197	hcpA	Cysteine-rich protein A	-2	-7.5	B
217	HP0212	JHP0198	dapE	succinyl-diaminopimelate desuccinylase	-0.5	-3	D
218	HP0213	JHP0199	gidA	glucose inhibited division protein , GLUCOSE INHIBITED DIVISION PROTEIN A		-1	
219	HP0214	JHP0200	huNaD C-1	sodium-dependent transporter , putative transporter	5	0.5	
221	HP0216	JHP0202	dxr	Predicted 1-deoxyxylulose-5-phosphate reductoisomerase		0	
223	HP0218	JHP0204			-0.5	-8	D
224	HP0219	JHP0205			1	-7.5	D
225	HP0220	JHP0206	nifS	synthesis of [Fe-S] cluster , putative AMINOTRANSFERASE	4	-1	
227	HP0222	JHP0208			-0.5		
228	HP0223	JHP0209	sms, radA	ATP-dependent protease , DNA REPAIR PROTEIN	-0.5	4	
229	HP0224	JHP0210	msrA	peptide methionine sulfoxide reductase , putative PEPTIDE METHIONINE SULFOXIDE REDUCTASE		9	
232	HP0227	JHP0212	omp5	outer membrane protein , putative Outer membrane protein	0	3	
233	HP0228	JHP0213	-	Predicted sulfate permease	3		
234	HP0229	JHP0214	omp6, hopA	outer membrane protein , Outer membrane protein/porin		-0.5	

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
235	HP0230	JHP0215	kdsB	CTP: CMP-3-deoxy-D-manno-octulosonate-cytidylyl-transferase , 3-DEOXY-MANNO-OCTULOSONATE CYTIDYLYLTRANSFERASE		-0.5	
236	HP0231	JHP0216				0.5	
238	HP0233	JHP0218	gsp	Predicted glutathionespermidine synthetase	1	0.5	
239	HP0234	JHP0219		conserved hypothetical integral membrane protein		0.5	
240	HP0235	JHP0220	hcpE	Cysteine-rich protein E	3	3	
241	HP0236	JHP0221				-1	
242	HP0237	JHP0222	hemC	porphobilinogen deaminase	1	5.5	
251	HP0246	JHP0231	flgl	flagellar basal-body P-ring protein , FLAGELLAR P-RING PROTEIN	-3.5		M
252	HP0247	JHP0232	deaD	ATP-dependent RNA helicase, DEAD-box family , ATP-DEPENDENT RNA HELICASE DEAD	-0.5		
253	HP0248	JHP0233		conserved hypothetical protein		0.5	
256	HP0251	JHP0236	oppC	oligopeptide ABC transporter, permease protein , ABC transporter, permease	2	1.5	
258	HP0253	JHP0238		putative Outer membrane protein	1	0.5	
259	HP0254	JHP0238	omp8	outer membrane protein		0.5	
260	HP0255	JHP0239	purA	adenylosuccinate synthetase		1	
261	HP0256	JHP0240				-6	M
262	HP0257	JHP0241		conserved hypothetical secreted protein		0	
263	HP0258	JHP0242		conserved hypothetical integral membrane protein		2	
264	HP0259	JHP0243	xseA	exonuclease VII, large subunit , EXODEOXYRIBONUCLEASE LARGE SUBUNIT	1.5		
265	HP0260	JHP0244	mod	adenine specific DNA methyltransferase , TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	0.5	-0.5	

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
266	HP0261	JHP0245				0.5	
267	HP0262	JHP0246 JHP0247			-4		M
271	HP0266	JHP0251	pyrC, pyrC_1	dihydroorotase		0.5	
274	HP0269	JHP0254		conserved hypothetical ATP-binding protein	1	0.5	
285	HP0280	JHP0265	ibpB, waaM	heat shock protein B , putative LIPID A BIOSYNTHESIS ACYLTRANSFERASE		-1	
286	HP0281	JHP0266	tgt	tRNA-guanine transglycosylase , QUEUINE TRNA-RIBOSYLTRANSFERASE		-1	
294	HP0289	JHP0274		toxin-like outer membrane protein, putative vacuolating cytotoxin (VacA) paralog	3	0.5	
297	HP0292	JHP0277			1	2.5	
298	HP0293	JHP0278	pabB	para-aminobenzoate synthetase , P-AMINO BENZOATE SYNTHETASE	1	6	
299	HP0294	JHP0279	aimE, amiE	aliphatic amidase	0	-2.5	D
300	HP0295	JHP0280	fla, flgL	flagellin B homolog , putative FLAGELLAR-HOOK ASSOCIATED PROTEIN 3 (HAP3)	4	0.5	
303	HP0298	JHP0283	dppA	dipeptide ABC transporter, periplasmic dipeptide-binding protein , PERIPLASMIC DIPEPTIDE TRANSPORT SUBSTRATE-BINDING PROTEIN		-0.5	
307	HP0302	JHP0287	dppF	dipeptide ABC transporter, ATP-binding protein , DIPEPTIDE TRANSPORT SYSTEM ATP-BINDING PROTEIN		9	
308	HP0303	JHP0288	obg	GTP-binding protein	-1.5		M
309	HP0304	JHP0289			-1.5		M
310	HP0305	JHP0290				3	
314	HP0309	JHP0294	-	Predicted N-carbamoyl-D-amino acid amidohydrolase	1		
315	HP0310	JHP0295		conserved hypothetical protein	7.5	8	
316	HP0311	JHP0296			1.5	1	

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
317	HP0312	JHP0297		conserved hypothetical ATP-binding protein	-2	0	D
318	HP0313	JHP0298	narK	nitrite extrusion protein	0		
322	HP0317	N/A	omp9, hopU, babC	outer membrane protein	0		
329	HP0324	JHP0307	omp10	outer membrane protein , putative Outer membrane protein	-1.5		M
330	HP0325	JHP0308	flgH	flagellar basal-body L-ring protein , FLAGELLAR L-RING PROTEIN PRECURSOR (BASAL BODY L-RING PROTEIN)	-5.5		M
344	HP0338	JHP0320			2		
347	HP0341	N/A			3		
348	HP0342	N/A			0.5		
349	HP0343	N/A			0.5		
350	HP0344	N/A			2		
351	HP0345	N/A			2		
353	HP0347	JHP0321	rluD1	Predicted ribosomal large subunit pseudouridine synthase D	-1.5		M
354	HP0348	JHP0322	recJ	single-stranded-DNA-specific exonuclease , putative SINGLE-STRANDED-DNA-SPECIFIC EXONUCLEASE RECJ	-0.5		
356	HP0350	JHP0324			-2		M
357	HP0351	JHP0325	fliF	flagellar basal-body M-ring protein , FLAGELLAR M-RING PROTEIN	1		
358	HP0352	JHP0326	fliG	flagellar motor switch protein	1		
360	HP0354	JHP0328	dxs	deoxyxylulose-5-phosphate synthase, putative , 1-DEOXYXYLULOSE-5-PHOSPHATE SYNTHASE	1.5		
361	HP0355	JHP0329	lepA	GTP-binding membrane protein , GTP-BINDING PROTEIN	2		
362	HP0356	JHP0330			0		
363	N/A	JHP0331			-1		
364	HP0357	JHP1023		short chain alcohol dehydrogenase, putative oxidoreductase	-3		M
367	HP0360	JHP1020	galE	UDP-glucose 4-epimerase	-4.5		M
368	HP0361	JHP1019	hisT, truA	pseudouridylate synthase I	0.5		

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
370	HP0363	JHP1017	pcm	L-isoaspartyl-protein carboxyl methyltransferase , PROTEIN-L-ISOASPARTATE O-METHYLTRANSFERASE	1		
373	HP0366	JHP1015		spore coat polysaccharide biosynthesis protein C, putative SUGAR NUCLEOTIDE BIOSYNTHESIS		-9	M
375	HP0368	JHP1013	-	Non-functional type II restriction endonuclease	-0.5	-4	D
376	HP0369	JHP1012		putative TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	-0.5	-4	D
379	HP0372	JHP1009	dcd	deoxycytidine triphosphate deaminase		-8.5	M
380	HP0373	JHP1008		conserved hypothetical protein, putative outer membrane protein		-0.5	
387	HP0380	JHP1001	gdhA	glutamate dehydrogenase	19		
388	HP0381	JHP1000	hemK, hemG	protoporphyrinogen oxidase		0.5	
390	HP0383	JHP0998				1	
396	HP0389	JHP0992	sodB, sodF	superoxide dismutase , iron-dependent superoxide dismutase		-2.5	M
397	HP0390	JHP0991	tagD, tpx	adhesin-thiol peroxidase , THIOL PEROXIDASE	0		
398	HP0391	JHP0990	cheW	purine-binding chemotaxis protein , histidine kinase - MCP coupling protein	1	-3.5	D
399	HP0392	JHP0989	cheA	histidine kinase	11	-10	D
400	HP0393	JHP0988	cheV, cheV_3	chemotaxis protein , putative chemotaxis protein	3	0.5	
401	HP0394	JHP0987			2	-2	D
403	HP0396	JHP0985	ubiD	Predicted 3-octaprenyl-4-hydroxybenzoate carboxy-lyase		0.5	
404	HP0397	JHP0984	serA	phosphoglycerate dehydrogenase , D-3-PHOSPHOGLYCERATE DEHYDROGENASE		1	
407	HP0400	JHP0981	ispH	Predicted IPP/DMAPP synthetase (previously annotated as lysis tolerance protein LytB)		1	

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
408	HP0401	JHP0980	aroA	3-phosphoshikimate 1-carboxyvinyltransferase , 3-PHOSPHOSHIKIMATE 1-CARBOXYVINYL TRANSFERASE	3.5		
410	HP0403	JHP0978	pheS	phenylalanyl-tRNA synthetase, alpha subunit , PHENYLALANYL-TRNA SYNTHETASE ALPHA CHAIN	3.5		
413	HP0406	JHP0975			0		
414	HP0407	JHP0974	bisC	biotin sulfoxide reductase , putative S/N-oxide reductase		-4.5	M
416	HP0409	JHP0972	guaA	GMP synthase , GMP SYNTHETASE		-0.5	
427	HP0420	JHP0964			2		
431	N/A	JHP0955				0	
432	N/A	JHP0956				0	
433	N/A	JHP0957				-2	M
437	N/A	JHP0961				0.5	
439	HP0423	N/A			0		
440	HP0424	N/A			0	2	
441	HP0425	N/A				-4.5	M
442	HP0426	N/A			1	-2	D
444	HP0428	N/A		phage/colicin/tellurite resistance cluster terY protein	-0.5		
445	HP0429	N/A			-0.5		
453	HP0437	N/A	tnpA	IS605 transposase	-3		M
454	HP0438	N/A	tnpB	IS605 transposase	-5		M
466	HP0450	N/A			1		
469	HP0453	N/A			1		
470	HP0454	N/A			-2		M
478	HP0462	N/A	hsdS	type I restriction enzyme S protein	1		
479	HP0463	JHP0415	hsdM, hsdM_1	type I restriction enzyme M protein , TYPE I RESTRICTION ENZYME (MODIFICATION SUBUNIT)		3.5	
481	HP0465	JHP0417		conserved hypothetical protein		0.5	
482	HP0466	JHP0418		conserved hypothetical protein	-3		M
487	HP0471	JHP0423	kefB	glutathione-regulated potassium-efflux system protein		0	

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
490	HP0474	JHP0426	modB	molybdenum ABC transporter, permease protein , Molybdate ABC transporter, permease	-2		M
491	HP0475	JHP0427	modD, modC	molybdenum ABC transporter, ATP-binding protein , Molybdate ABC transporter, ATP-binding protein	1	-0.5	
492	HP0476	JHP0428	gltX, gltX_1	glutamyl-tRNA synthetase		-0.5	
493	HP0477	JHP0429	omp12	outer membrane protein , putative Outer membrane protein	1	0.5	
494	HP0478	JHP0430	VSPIM	adenine specific DNA methyltransferase , TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	0.5	-0.5	
495	HP0479	JHP0431	-	Non-functional type II restriction endonuclease	-1		
496	HP0480	JHP0432	yihK	GTP-binding protein, fusA-homolog	-0.5		
497	HP0481	JHP0433	MFOK I	adenine specific DNA methyltransferase , putative TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	0	-6.5	D
498	HP0482	JHP0434	-	Non-functional type II restriction endonuclease	1	-11.5	D
499	HP0483	JHP0435		TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	-2	-5	B
500	HP0484	JHP0436	-	Non-functional type II restriction endonuclease	0		
501	HP0485	JHP0437	-	Predicted catalase-like protein	1	-1	
502	HP0486	JHP0438		Outer membrane protein		-1	
503	HP0487	JHP0439		putative Outer membrane protein	-1		
505	HP0489	JHP0441			1.5		
506	HP0490	JHP0442		putative potassium channel protein, putative, PUTATIVE POTASSIUM CHANNEL PROTEIN	1.5		
509	HP0493	JHP0445	mraY	phospho-N-acetylmuramoyl-pentapeptide-transferase		0.5	
510	HP0494	JHP0446	murD	UDP-N-acetylmuramoylalanine-D-glutamate ligase , UDP-N-ACETYLMURAMOYLALANINE--D-GLUTAMATE LIGASE		0.5	
512	HP0496	JHP0448		conserved hypothetical protein		-4.5	M

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
513	HP0497	JHP0449		sodium- and chloride-dependent transporter, putative transporter		-12.5	M
514	HP0498	JHP0450		sodium- and chloride-dependent transporter, putative transporter	-3.5	-16	B
515	HP0499	JHP0451	pldA	phospholipase A1 precursor (DR-phospholipase A), putative PHOSPHOLIPASE A1	-0.5	4	
517	HP0501	JHP0453	gyrB	DNA gyrase, sub B , DNA GYRASE SUBUNIT B	1	0.5	
518	HP0502	JHP0454			-4	0.5	D
519	HP0503	JHP0454			-4	-3	B
520	HP0504	JHP0455			-1.5		M
521	HP0505	JHP0455			-1.5		M
522	HP0506	JHP0456		conserved hypothetical secreted protein, putative Outer membrane protein	0		
533	HP0517	JHP0466	era	GTP-binding protein	5	4.5	
534	HP0518	JHP0467		conserved hypothetical secreted protein	2		
535	HP0519	JHP0468		conserved hypothetical protein	-0.5	0.5	
536	HP0520	JHP0469	cag1, orf6	cag pathogenicity island protein , putative cag island protein	0.5		
537	HP0521	JHP0470	orf7	cag island protein	3.5		
538	HP0522	JHP0471	cag3, orf8	cag pathogenicity island protein , cag island protein	0.5	0	
539	HP0523	JHP0472	cag4, orf9	cag pathogenicity island protein , cag island protein	-0.5	-1	
540	HP0524	JHP0473	cag5, virD4	cag pathogenicity island protein , cag island protein, DNA transfer protein	0.5	0	
541	HP0525	JHP0474	virB11 _1	virB11 homolog, cag island protein, DNA transfer protein	0	1	
542	HP0526	JHP0475	cag6, orf12	cag pathogenicity island protein , cag island protein	-1		
543	HP0527	JHP0476	cag7, orf13/14	cag pathogenicity island protein , cag island protein	0.5		
544	HP0528	JHP0477	cag8, orf15	cag pathogenicity island protein , cag island protein	2	-8.5	D
545	HP0529	JHP0478	cag9, orf16	cag pathogenicity island protein , cag island protein	0.5	-6	D

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
546	HP0530	JHP0479	cag10, orf17	cag pathogenicity island protein , cag island protein		-1	
551	HP0535	JHP0483	cag14, cagQ	cag pathogenicity island protein , cag island protein	-1.5	-1	D
552	HP0536	JHP0484	cag15, cagP	cag pathogenicity island protein , cag island protein	-1.5		M
554	HP0538	JHP0486	cag17, cagN	cag pathogenicity island protein , cag island protein		-4	M
555	HP0539	JHP0487	cag18, cagL	cag pathogenicity island protein , cag island protein		-4	M
559	HP0543	JHP0491	cag22, cagF	cag pathogenicity island protein , cag island protein		-0.5	
560	HP0544	JHP0492	cag23, cagE	cag pathogenicity island protein , DNA transfer protein (Agrobacterium VirB4 homolog)	-1	0.5	
582	HP0566	JHP0513	dapF	diaminopimelate epimerase		-1	
584	HP0568	JHP0515			5.5	2	
585	HP0569	JHP0516	gtp1	GTP-binding protein	1.5		
591	HP0575	JHP0522		conserved hypothetical membrane protein		0.5	
594	HP0578	JHP0525			1	2.5	
595	HP0579	JHP0526				-0.5	
596	HP0580	JHP0527				-4	M
600	HP0584	JHP0531	fliN	flagellar switch protein	0		
601	HP0585	JHP0532	nth	endonuclease III	0		
602	HP0586	JHP0534				0	
603	HP0587	JHP0535	pabC	aminodeoxychorismate lyase	-4	-1	D
604	HP0588	JHP0536	oorD	ferredoxin-like protein, SUBUNIT OF 2-OXOGLUTARATE OXIDOREDUCTASE	1	-1	
609	HP0592	N/A	res	type III restriction enzyme R protein	-1		
610	HP0593	N/A	mod	adenine specific DNA methyltransferase	-2		M

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
612	HP0595	JHP0542			0.5		
613	HP0596	JHP0543			0.5		
616	HP0599	JHP0546	hylB	hemolysin secretion protein precursor , methyl-accepting chemotaxis protein (MCP)	-0.5		
617	HP0600	JHP0547	spaB	multidrug resistance protein , putative secretion/efflux abc transporter, ATP-binding protein	-4.5	1	D
618	HP0601	JHP0548	flaA	flagellin A		-1	
619	HP0602	JHP0549	magIII	3-methyladenine DNA glycosylase (previously annotated as an endonuclease III)	-2	-1	D
620	HP0603	JHP0550			0	0	
626	HP0609	JHP0556		putative vacuolating cytotoxin (VacA) paralog	7	-1.5	D
627	HP0610	JHP0556		toxin-like outer membrane protein	-1	0.5	
628	HP0611	JHP0299			2		
629	HP0612	JHP0299				2	
632	HP0615	JHP0558	lig	DNA ligase		0.5	
633	HP0616	JHP0559	cheV, cheV_2	chemotaxis protein , putative chemotaxis protein		1	
634	HP0617	JHP0560	aspS	aspartyl-tRNA synthetase		0.5	
644	HP0626	JHP0570	dapD	tetrahydrodipicolinate N-succinyltransferase , putative 2,3,4,5-TETRAHYDROPYRIDINE-2-CARBOXYLATE N-SUCCINYLTRANSFERASE	0		
645	HP0627	JHP0571	hcpF	Cysteine-rich protein F	-8	0.5	D
646	HP0628	JHP0571			-5	1	D
647	HP0629	JHP0572			-7.5		M
648	HP0630	JHP0573	mda66	modulator of drug activity	4	4	
649	HP0631	JHP0574	hydA, hyaA	quinone-reactive Ni/Fe hydrogenase, small subunit , Hydrogenase, small subunit	-0.5	1.5	

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
650	HP0632	JHP0575	hydB, hyaB	quinone-reactive Ni/Fe hydrogenase, large subunit , Hydrogenase, large subunit		-2.5	M
651	HP0633	JHP0576	hydC, hyaC	quinone-reactive Ni/Fe hydrogenase, cytochrome b subunit , Hydrogenase, cytochrome subunit	-7	-9.5	B
652	HP0634	JHP0577	hydD, hyaD	quinone-reactive Ni/Fe hydrogenase , Hydrogenase expression/formation protein	4	1.5	
653	HP0635	JHP0578				-10	M
654	HP0636	JHP0579				-0.5	
655	HP0637	JHP0580				-1	
657	HP0639	JHP0582	exsB	Predicted trans-regulatory protein		0.5	
658	HP0640	JHP0583	papS, pcnB	poly(A) polymerase , POLYNUCLEOTIDE ADENYLYLTRANSFERASE	0	0.5	
660	N/A	JHP0585		putative 3-HYDROXYACID DEHYDROGENASE		1	
661	HP0642	JHP0586		NAD(P)H-flavin oxidoreductase, putative Oxidoreductase	1	7.5	
662	N/A	JHP0587				1.5	
663	HP0643	JHP0588	gltX, gltX_2	glutamyl-tRNA synthetase		6	
671	HP0651	JHP0596	fucT	fucosyltransferase, ALPHA (1,3)-FUCOSYLTRANSFERASE	1		
673	HP0653	JHP0598	pfr	nonheme iron-containing ferritin		-2.5	M
674	HP0654	JHP0599				-2.5	M
675	HP0655	JHP0600		putative Outer membrane protein	4		
683	HP0663	JHP0608	aroC	CHORISMATE SYNTHASE		4	
686	HP0666	JHP0611	glpC	glycerol-3-phosphate dehydrogenase		-5	M
687	HP0667	JHP0612	llaGI	Remnant of type I restriction-modification polypeptide		-5	M
688	HP0668	JHP0612			0	3	
689	HP0669	JHP0613			-1	2	

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
691	HP0671	JHP0614	omp14	outer membrane protein , putative Outer membrane protein		2	
696	HP0675	JHP0617	xerC	integrase/recombinase , INTEGRASE-RECOMBINASE PROTEIN (XERCD FAMILY)		-2.5	M
697	HP0676	JHP0618	dat1, ogt	methylated-DNA--protein-cysteine methyltransferase		0.5	
698	HP0677	JHP0619		conserved hypothetical integral membrane protein		-1	
701	HP0680	JHP0621	nrdA	ribonucleoside-diphosphate reductase 1 alpha subunit , RIBONUCLEOSIDE-DIPHOSPHATE REDUCTASE 1 ALPHA CHAIN		-3.5	M
702	HP0681	JHP0622				-2	M
703	HP0682	JHP0623				-1.5	M
706	HP0685	JHP0625	fliP	flagellar biosynthetic protein		0	
707	HP0686	JHP0626	fecA, fecA_1	iron(III) dicitrate transport protein	1	3.5	
709	HP0688	JHP0628				0.5	
710	HP0689	JHP0628				4	
711	HP0690	JHP0638	fadA, thl	acetyl coenzyme A acetyltransferase(thiolase) , ACETYL-COA ACETYLTRANSFERASE	5	4.5	
712	HP0691	JHP0637	scoA	Succinyl-CoA-transferase subunit A (previously annotated as involved in phospholipid synthesis)	7	4.5	
714	HP0693	JHP0635	atoE	conserved hypothetical integral membrane protein, short-chain fatty acids transporter	23	3	
715	HP0694	JHP0634		putative Outer membrane protein	29	-6	D
716	HP0695	JHP0633	hyuA	hydantoin utilization protein A , putative HYDANTOIN UTILIZATION	35	1	
717	HP0696	JHP0632		N-methylhydantoinase, putative HYDANTOIN UTILIZATION	1	7	
718	HP0697	JHP0631				0	
726	HP0703	JHP0643		response regulator, putative TRANSCRIPTIONAL REGULATOR	-4	-1	D

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
728	HP0705	JHP0644	uvrA	excinuclease ABC subunit A , EXCINUCLEASE ABC SUBUNIT A.		1	
729	HP0706	JHP0645	omp15 , hopE	outer membrane protein , Outer membrane protein/porin		0	
731	HP0708	JHP0647				2.5	
732	HP0709	JHP0648		conserved hypothetical protein		2.5	
734	HP0711	JHP0650			-1	-1	
735	HP0712	JHP0651			-1		
737	HP0714	JHP0652	rpoN	RNA polymerase sigma-54 factor		1	
738	HP0715	JHP0653		ABC transporter, ATP-binding protein, putative abc transporter, ATP-binding protein		1	
743	HP0720	JHP0657			-0.5		
744	HP0721	JHP0658			-0.5		
745	HP0722	JHP0659		putative Outer membrane protein	1.5		
746	HP0723	JHP0661	ansB	L-asparaginase II	2.5		
747	HP0724	JHP0660	dcuA	anaerobic C4-dicarboxylate transport protein , ANAEROBIC C4- DICARBOXYLATE MEMBRANE TRANSPORTER	1		
750	HP0727	JHP0664		transcriptional regulator, putative, putative TRANSCRIPTIONAL REGULATOR	0	0.5	
751	HP0728	JHP0665		conserved hypothetical protein		0.5	
757	HP0734	JHP0671		conserved hypothetical protein		2	
758	HP0735	JHP0672	gpt	xanthine guanine phosphoribosyl transferase , XANTHINE-GUANINE PHOSPHORIBOSYLTRANSFERASE		3	
759	HP0736	JHP0673	serC	phosphoserine aminotransferase , putative aminotransferase		1	
774	HP0751	JHP0688	flaG	polar flagellin , putative FLAGELLIN PROTEIN	2		
775	HP0752	JHP0689	fliD	flagellar hook-associated protein 2 , putative FLAGELLAR HOOK- ASSOCIATED PROTEIN 2 (HAP2)	3		

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
776	HP0753	JHP0690	fliS	flagellar protein , putative FLAGELLAR PROTEIN	1		
790	HP0767	N/A			-0.5	-0.5	
791	HP0768	JHP0705	moaA	molybdenum cofactor biosynthesis protein A , MOLYBDOPTERIN COFACTOR BIOSYNTHETIC PROTEIN	-1	-0.5	
792	HP0769	JHP0706	mobA	molybdopterin-guanine dinucleotide biosynthesis protein A	0	1.5	
793	HP0770	JHP0707	flhB, flhB_1	flagellar biosynthetic protein , FLAGELLAR BIOSYNTHESIS PROTEIN	3	-5	D
795	HP0772	JHP0709	amiA	N-acetylmuramoyl-L-alanine amidase , putative PROBABLE N- ACETYLMURAMOYL-L-ALANINE AMIDASE		-1	
800	HP0777	JHP0714	pyrH	uridine 5'-monophosphate (UMP) kinase, URIDYLATE KINASE	3	9.5	
801	HP0778	JHP0715				0.5	
802	HP0779	JHP0716	acnB	aconitase B , ACONITATE HYDRATASE		3.5	
803	HP0780	JHP0717			-0.5		
804	HP0781	JHP0718			0.5	-0.5	
805	HP0782	JHP0719		putative Outer membrane protein	-2.5	1	D
806	HP0783	JHP0720			-0.5		
810	HP0787	JHP0724	lolC	Predicted lipoprotein releasing system	0.5	-3	D
811	HP0788	JHP0725		putative Outer membrane protein	4.5	-1.5	D
812	HP0789	N/A				-2	M
813	HP0790	N/A	prdB	anti-codon nuclease masking agent	-5	-3.5	B
814	N/A	JHP0726	hsdS_4	putative TYPE I RESTRICTION ENZYME (SPECIFICITY SUBUNIT)	5.5	-6	D
815	HP0791	JHP0727	cadA, hmcT	cadmium-transporting ATPase, P-type , putative HEAVY-METAL CATION- TRANSPORTING P-TYPE ATPASE	-0.5		
819	HP0795	JHP0731	tig	trigger factor		-0.5	
820	HP0796	JHP0732	omp18	outer membrane protein , putative Outer membrane protein		-10	M

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
821	HP0797	JHP0733	hpaA	flagellar sheath adhesin hpaA, NEURAMINYLLACTOSE-BINDING HEMAGGLUTININ PRECURSOR		-1.5	M
824	HP0800	JHP0736	moaE	molybdopterin converting factor, subunit 2		5.5	
825	HP0801	JHP0737	moaD	molybdopterin converting factor, subunit 1, putative MOLYBDOPTERIN CONVERTING FACTOR, SUBUNIT 1		0.5	
826	HP0802	JHP0738	ribA	GTP cyclohydrolase II		0	
829	HP0805	JHP0741	lex2B	lipooligosaccharide 5G8 epitope biosynthesis-associated protein, putative lipopolysaccharide biosynthesis protein	0		
831	HP0807	JHP0743	fecA, fecA_2	iron(III) dicitrate transport protein		2	
835	HP0811	JHP0747			-0.5	-2	D
836	HP0812	JHP0748			-0.5	-2	D
837	HP0813	JHP0749		conserved hypothetical protein		1	
839	HP0815	JHP0751	motA	flagellar motor rotation protein, putative CHEMOTAXIS PROTEIN (MOTILITY PROTEIN A)	-1		
840	N/A	JHP0755			-1		
841	N/A	JHP0756		putative TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	-0.5		
842	HP0816	JHP0752	motB	flagellar motor rotation protein, FLAGELLAR MOTOR PROTEIN	-0.5		
843	HP0817	JHP0753				-0.5	
844	HP0818	JHP0754 JHP0757	proW X	osmoprotection protein		-0.5	
848	HP0822	JHP0761	metL, hom	homoserine dehydrogenase	3	-0.5	
849	HP0823	JHP0762		conserved hypothetical protein	3		
850	HP0824	JHP0763	trxA	thioredoxin	1		

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
851	HP0825	JHP0764	trxB, trxB_1	thioredoxin reductase	-0.5	-2.5	D
852	HP0826	JHP0765	lex2B	lipooligosaccharide 5G8 epitope biosynthesis-associated protein , putative lipopolysaccharide biosynthesis protein	-5.5	-2.5	B
853	HP0827	JHP0766		ss-DNA binding protein 12RNP2 precursor		-0.5	
854	HP0828	JHP0767	atpB	ATP synthase F0, subunit a	0.5	1	
855	HP0829	JHP0768	guaB	inosine-5'-monophosphate dehydrogenase	12	1.5	
857	HP0831	JHP0770	coaE	Predicted dephospho-CoA kinase	13	2	
858	HP0832	JHP0771	speE	spermidine synthase , putative spermidine synthase		1	
859	HP0833	JHP0772			3	5.5	
860	HP0834	JHP0773	engA	Predicted GTP-binding protein		-0.5	
865	HP0839	JHP0777	ompP 1	outer membrane protein P1 , putative Outer membrane protein	1	2	
867	HP0841	JHP0779	dfp	pantothenate metabolism flavoprotein	-1		
868	HP0842	JHP0780			-1		
869	HP0843	JHP0781	thiB, thiE	thiamin phosphate pyrophosphorylase/hydroxyethylthiazole kinase , THIAMINE PHOSPHATE PYROPHOSPHORYLASE	0	1.5	
870	HP0844	JHP0782	thi, thiD	thiamine biosynthesis protein , PHOSPHOMETHYLPYRIMIDINE KINASE	0	3	
871	HP0845	JHP0783	thiM	thiamin phosphate pyrophosphorylase/hydroxyethylthiazole kinase , HYDROXYETHYLTHIAZOLE KINASE	5		
872	HP0846	JHP0784	hsdR, hsdR_2	type I restriction enzyme R protein , TYPE I RESTRICTION ENZYME (RESTRICTION SUBUNIT)	1	-2	D
873	HP0847	N/A				-5	M
876	HP0850	JHP0786	hsdM, hsdM_2	type I restriction enzyme M protein , TYPE I RESTRICTION ENZYME (MODIFICATION SUBUNIT)	1		

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
877	HP0851	JHP0787		conserved hypothetical integral membrane protein	4.5		
878	HP0852	JHP0788			0.5	-2	D
880	HP0854	JHP0790	guaC	GMP reductase	1.5	2	
883	HP0857	JHP0791	gmhA	phosphoheptose isomerase	0.5		
893	HP0867	JHP0801	lpxB	lipid A disaccharide synthetase , LIPID-A-DISACCHARIDE SYNTHASE	-5	0.5	D
894	HP0868	JHP0802			-3		M
895	HP0869	JHP0803	hypA	hydrogenase expression/formation protein	-3		M
896	HP0870	JHP0804	flgE	flagellar hook , FLAGELLAR HOOK PROTEIN	-4	10.5	D
897	HP0871	JHP0805	cdh	CDP-diglyceride hydrolase , CDP- DIACYLGLYCEROL PYROPHOSPHATASE		3.5	
898	HP0872	JHP0806	phnA	alkylphosphonate uptake protein , putative ALKYLPHOSPHONATE UPTAKE PROTEIN		0.5	
899	HP0873	JHP0807				0.5	
900	HP0874	JHP0808				6.5	
901	HP0875	JHP0809	katA	catalase	5.5	-0.5	
902	HP0876	JHP0810	frpB, frpB_1	iron-regulated outer membrane protein , putative IRON-REGULATED OUTER MEMBRANE PROTEIN	-3.5	7.5	D
903	HP0877	JHP0811	ruvC	Holliday junction endodeoxyribonuclease , CROSSOVER JUNCTION ENDODEOXYRIBONUCLEASE	-1		
904	HP0878	JHP0812			-1		
905	HP0879	JHP0812				-3	M
915	HP0887	JHP0819	vacA	vacuolating cytotoxin		0	
917	HP0888	JHP0821	fecE	iron(III) dicitrate ABC transporter, ATP- binding protein, IRON(III) DICITRATE TRANSPORT SYSTEM ATP- BINDING PROTEIN	0.5		

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
918	HP0889	JHP0822	fecD	iron(III) dicitrate ABC transporter, permease protein , IRON(III) DICITRATE TRANSPORT SYSTEM PERMEASE PROTEIN	0		
919	HP0890	JHP0823	vdIC	Predicted short-chain oxidoreductase	1		
920	HP0891	JHP0824	vdID	Predicted acyl coenzyme A thioesterase	-0.5		
925	HP0896	JHP1164	omp19 , babB	outer membrane protein , outer membrane protein - adhesin	5	0	
936	HP0900	JHP0837	hypB	hydrogenase expression/formation protein	-1		
942	HP0906	JHP0842			1		
943	HP0907	JHP0843	flgD	hook assembly protein, flagella , putative FLAGELLAR BIOSYNTHESIS PROTEIN	-0.5		
944	HP0908	JHP0844	flgE	flagellar hook , putative FLAGELLAR BASAL-BODY/ROD/HOOKPROTEIN	-10.5	2	D
945	HP0909	JHP0845	-	Non-functional type II restriction endonuclease		-0.5	
946	HP0910	JHP0846	HINDII M	adenine specific DNA methyltransferase , TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)		-0.5	
947	HP0911	JHP0847	rep	rep helicase, single-stranded DNA-dependent ATPase , putative ATP-DEPENDENT HELICASE		2	
948	HP0912	JHP0848	omp20 , hopC	outer membrane protein , Outer membrane protein/porin	3	0.5	
949	HP0913	JHP0849	omp21 , hopB	outer membrane protein , Outer membrane protein/porin		5.5	
950	HP0914	JHP0850		putative Outer membrane protein	-2	-3.5	B
951	HP0915	JHP0851	frpB, frpB_2	iron-regulated outer membrane protein , putative IRON-REGULATED OUTER MEMBRANE PROTEIN	-6	-0.5	D
952	HP0916	JHP0851	frpB	iron-regulated outer membrane protein	-3.5		M
953	HP0917	N/A				-0.5	
958	HP0922	JHP0856		toxin-like outer membrane protein, putative vacuolating cytotoxin (VacA) paralog	-1		

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
959	HP0923	JHP0857	omp22	outer membrane protein , putative Outer membrane protein	-1		
960	HP0924	JHP0858	dmpl	4-oxalocrotonate tautomerase	1.5		
961	HP0925	JHP0859	recR	recombinational DNA repair protein , RECOMBINATION PROTEIN	1.5		
972	N/A	JHP0870		putative outer membrane protein	1	3.5	
973	HP0936	JHP0871	proP	proline/betaine transporter	-0.5	1	
974	HP0937	JHP0872			-3.5		M
975	HP0938	JHP0873			1	3	
976	HP0939	JHP0874	yckJ	amino acid ABC transporter, permease protein , putative AMINO ACID ABC TRANSPORTER, PERMEASE PROTEIN		1	
980	HP0943	JHP0878	dadA	D-amino acid dehydrogenase	1		
983	HP0946	JHP0880		conserved hypothetical integral membrane protein		5	
991	HP0954	JHP0888		oxygen-insensitive NAD(P)H nitroreductase, putative aldehyde dehydrogenase		3.5	
992	HP0955	JHP0889	lgt	prolipoprotein diacylglyceryl transferase , putative PROLIPOPROTEIN DIACYLGLYCERYL TRANSFERASE		3.5	
998	HP0961	JHP0895	gpsA	glycerol-3-phosphate dehydrogenase, NAD(P)+ dependent, GLYCEROL-3-PHOSPHATE DEHYDROGENASE (NAD+)		-4	M
999	HP0962	N/A	acpP	acyl carrier protein		-3.5	M
1000	N/A	JHP0896				-3	M
1001	HP0963	JHP0897				-2	M
1006	HP0968	JHP0902				-0.5	
1008	HP0970	JHP0904	nccB, czcB_1	nickel-cobalt-cadmium resistance protein , putative cation efflux system protein	-1		
1009	HP0971	JHP0905			-2	-1.5	B

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
1010	HP0972	JHP0906	glyS	glycyl-tRNA synthetase, beta subunit , GLYCYL-TRNA SYNTHETASE BETA CHAIN		-3.5	M
1013	HP0975	JHP0909	gatC	Glu-tRNA(Gln) amidotransferase, subunit C , GLU-TRNA AMIDOTRANSFERASE, SUBUNIT C	0		
1014	HP0976	JHP0910	bioA	adenosylmethionine-8-amino-7-oxononanoate aminotransferase	0		
1020	HP0981	N/A	xseA	exonuclease VII-like protein	1.5		
1021	HP0982	N/A			0		
1022	HP0983	JHP0915		conserved hypothetical integral membrane protein	-0.5		
1024	N/A	JHP0917	virB4_2	DNA transfer protein	-8		M
1036	N/A	JHP0929				13.5	
1038	N/A	JHP0931	topA_3	topoisomerase I		8	
1048	HP0987	N/A			1		
1049	HP0988	N/A	tnpA	IS605 transposase	-3		M
1050	HP0989	N/A	tnpB	IS605 transposase	-6		M
1061	N/A	JHP0945			1		
1068	HP0997	N/A	tnpB	IS605 transposase	-6		M
1069	HP0998	N/A	tnpA	IS605 transposase	-1		
1070	HP0999	N/A			-0.5		
1071	HP1000	N/A		PARA protein	-0.5	5	
1075	HP1004	N/A				10	
1076	HP1005	N/A				1	
1077	HP1006	N/A	traG	conjugal transfer protein	1	3	
1080	HP1009	N/A		site-specific recombinase	-1		
1081	N/A	JHP0414	hsdS_1a	TYPE I RESTRICTION ENZYME (SPECIFICITY SUBUNIT)	5		
1084	HP1012	JHP0411	pqqE	protease , putative ZINC PROTEASE		0.5	
1086	HP1014	JHP0409	hdhA	7-alpha-hydroxysteroid dehydrogenase , putative Short chain dehydrogenase	1	0.5	
1091	HP1019	JHP0405	htrA	serine protease , PROTEASE DO		0.5	
1094	HP1022	JHP0402	-	Predicted 5'-3' exonuclease	1	-5	D
1095	HP1023	JHP0401			2	0	
1096	HP1024	JHP0400	CbpA, dnaJ_1	co-chaperone-curved DNA binding protein A , putative co-chaperone with DnaK		3	

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
1097	HP1025	JHP0399	hspR	putative heat shock protein , putative TRANSCRIPTIONAL REGULATOR		2	
1098	HP1026	JHP0398		conserved hypothetical helicase-like protein	-0.5		
1099	HP1027	JHP0397	fur	ferric uptake regulation protein	-0.5	-6.5	D
1100	HP1028	JHP0396			0	-10	D
1101	HP1029	JHP0395			-1.5	-3.5	B
1102	HP1030	JHP0394	fliY	fliY protein , FLAGELLAR MOTOR SWITCH PROTEIN	-1.5	-5.5	B
1103	HP1031	JHP0393	fliM	flagellar motor switch protein	-1	-1.5	D
1104	HP1032	JHP0392	fliA	alternative transcription initiation factor, sigma-F , RNA POLYMERASE SIGMA FACTOR (sigma 28)		1.5	
1106	HP1034	JHP0390	ylxH	ATP-binding protein		-2.5	M
1107	HP1035	JHP0389	flhF	flagellar biosynthesis protein , putative FLAGELLAR BIOSYNTHESIS PROTEIN	1	-2.5	D
1109	HP1037	JHP0387	pepQ	conserved hypothetical protein, putative proline peptidase	-1		
1113	HP1041	JHP0383	flhA	flagellar biosynthesis protein	2		
1114	HP1042	JHP0382			-3		M
1115	HP1043	JHP0381		response regulator, putative TRANSCRIPTIONAL REGULATOR	-3		M
1116	HP1044	JHP0380		conserved hypothetical integral membrane protein	-2		M
1117	HP1045	N/A	acoE	acetyl-CoA synthetase	0.5		
1118	HP1046	JHP0379		conserved hypothetical protein	-3		M
1125	HP1053	JHP0372	minC	Predicted septum site-directing protein	0.5		
1126	HP1054	JHP0371			0.5	4	
1128	HP1056	JHP0369			1	3	
1129	HP1057	JHP0368				-4.5	M
1130	HP1058	JHP0367	panB	3-methyl-2-oxobutanoate hydroxymethyltransferase		-4.5	M

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
1137	HP1065	JHP0360			-1.5		M
1138	HP1066	JHP0359		conserved hypothetical protein, putative Outer membrane protein	-1.5	0	D
1143	HP1071	JHP0354	pssA	phosphatidylserine synthase		1.5	
1144	HP1072	JHP0353	copA	copper-transporting ATPase, P-type , COPPER-TRANSPORTING P-TYPE ATPASE		2.5	
1145	HP1073	JHP0352	copP	copper ion binding protein , copper-associated protein		0.5	
1147	HP1075	JHP0350		conserved hypothetical secreted protein		-4	M
1148	HP1076	JHP0349				-4.5	M
1149	HP1077	JHP0348	nixA	nickel transport protein , HIGH-AFFINITY NICKEL-TRANSPORT PROTEIN		-8.5	M
1152	HP1080	JHP0345		conserved hypothetical integral membrane protein		-1.5	M
1153	HP1081	JHP0344				-3	M
1155	HP1083	JHP0342		putative Outer membrane protein	1		
1156	HP1084	JHP0341	pyrB	aspartate transcarbamoylase , ASPARTATE CARBAMOYLTRANSFERASE CATALYTIC CHAIN	1		
1162	HP1090	JHP0335	ftsK	cell division protein , septum formation protein	-0.5	1	
1163	HP1091	JHP0334	kgtP	alpha-ketoglutarate permease	-7	-3	B
1164	HP1092	JHP0333	flgG, flgG_1	flagellar basal-body rod protein	-10.5		M
1165	N/A	JHP0332			-4		M
1166	HP1093	N/A			1		
1167	HP1094	N/A			-0.5		
1168	HP1095	N/A	tnpB	IS605 transposase	1.5	1.5	
1169	HP1096	N/A	tnpA	IS605 transposase	-2.5	1	D
1170	HP1097	N/A				0.5	
1171	HP1098	JHP1024	hcpC	Cysteine-rich protein C	11	19.5	
1172	HP1099	JHP1025	eda	2-keto-3-deoxy-6-phosphogluconate aldolase	8	5.5	

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
1173	HP1100	JHP1026	edd	6-phosphogluconate dehydratase, PHOSPHOGLUCONATE DEHYDRATASE	8	1.5	
1174	HP1101	JHP1027	g6pD, zwf	glucose-6-phosphate dehydrogenase , GLUCOSE-6-PHOSPHATE 1- DEHYDROGENASE	1.5	0	
1175	HP1102	JHP1028	pgl	Predicted 6-phosphogluconolactonase (previously annotated as a putative dehydrogenase)		0	
1176	HP1103	JHP1029	glk	glucokinase	0.5	0.5	
1177	HP1104	JHP1030	cad	cinnamyl-alcohol dehydrogenase ELI3 2 , ZINC-DEPENDENT ALCOHOL DEHYDROGENASE	0.5	0.5	
1178	HP1105	JHP1031		LPS biosynthesis protein, putative lipopolysaccharide biosynthesis protein	-2		M
1181	HP1107	JHP1034	omp23	outer membrane protein , putative Outer membrane protein	2		
1187	HP1113	JHP1040	omp24	outer membrane protein , putative Outer membrane protein	1		
1188	HP1114	JHP1041	uvrB	excinuclease ABC subunit B	2.5	2	
1189	HP1115	JHP1042			1		
1191	HP1116	JHP1044			-0.5	1	
1192	HP1117	JHP1045	hcpX	Cystein-rich protein X	1.5		
1193	HP1118	JHP1046	ggt	gamma-glutamyltranspeptidase	-1	2	
1194	HP1119	JHP1047	flgK	flagellar hook-associated protein 1 (HAP1)	-2.5		M
1222	HP1146	JHP1073				1	
1223	HP1147	JHP1074	rpl19, rplS	ribosomal protein L19 , 50S RIBOSOMAL PROTEIN L19.		1	
1229	HP1153	JHP1080	valS	valyl-tRNA synthetase	1		
1230	HP1154	JHP1081				-0.5	
1232	HP1156	JHP1083	omp25	outer membrane protein , putative Outer membrane protein		0.5	
1233	HP1157	JHP1084	omp26	outer membrane protein , putative Outer membrane protein		-3.5	M

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
1234	HP1158	JHP1085	proC	pyrroline-5-carboxylate reductase , putative PYRROLINE-5-CARBOXYLATE REDUCTASE		-7	M
1235	HP1159	JHP1086	fic	cell filamentation protein , putative cAMP-induced cell filamentation protein	-2	5	D
1236	HP1160	JHP1087		conserved hypothetical protein	-2		M
1237	HP1161	JHP1088	fldA	flavodoxin	1		
1240	HP1164	JHP1091	trxB, trxB_2	thioredoxin reductase , putative THIOREDOXIN REDUCTASE	-1.5		M
1241	HP1165	JHP1092		tetracycline resistance protein tetA(P), putative	1.5		
1242	HP1166	JHP1093	pgi	glucose-6-phosphate isomerase	1		
1243	HP1167	JHP1094		putative Outer membrane protein	-2		M
1244	HP1168	JHP1095	cstA	carbon starvation protein	3	-2	D
1245	HP1169	JHP1096	glnP	glutamine ABC transporter, permease protein , AMINO ACID ABC TRANSPORTER, PERMEASE PROTEIN	0.5	0	
1246	HP1170	JHP1097	glnP	glutamine ABC transporter, permease protein , AMINO ACID ABC TRANSPORTER, PERMEASE PROTEIN	-0.5	2.5	
1247	HP1171	JHP1098	glnQ	glutamine ABC transporter, ATP-binding protein , AMINO ACID ABC TRANSPORTER, ATP-BINDING PROTEIN		0.5	
1248	HP1172	JHP1099	glnH	glutamine ABC transporter, periplasmic glutamine-binding protein , AMINO ACID ABC TRANSPORTER, BINDING PROTEIN PRECURSOR	2.5	1	
1249	HP1173	JHP1100			0.5	1.5	
1250	HP1174	JHP1101	gluP	glucose/galactose transporter	0.5	3	
1251	HP1175	JHP1102		conserved hypothetical integral membrane protein	0.5	0.5	
1253	HP1177	JHP1103	omp27	outer membrane protein , putative Outer membrane function		1	

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
1254	HP1178	JHP1104	deoD	purine-nucleoside phosphorylase , PURINE NUCLEOSIDE PHOSPHORYLASE		-0.5	
1255	HP1179	JHP1105	deoB	phosphopentomutase		0.5	
1256	HP1180	JHP1106	nupC	pyrimidine nucleoside transport protein , putative nucleoside transporter		0.5	
1257	HP1181	JHP1107		multidrug-efflux transporter, putative transporter		1.5	
1258	HP1182	JHP1108		conserved hypothetical protein		2.5	
1259	HP1183	JHP1109	napA	NA ⁺ /H ⁺ antiporter , putative NA ⁺ /H ⁺ ANTIPORTER		2	
1260	HP1184	JHP1110		conserved hypothetical integral membrane protein	0.5		
1261	HP1185	JHP1111	sotB	Predicted sugar efflux transporter	6.5	5.5	
1262	HP1186	JHP1112		carbonic anhydrase	6	1.5	
1263	HP1187	JHP1113			1	-2.5	D
1264	HP1188	N/A			13	-7	D
1265	HP1189	JHP1114	asd	aspartate-semialdehyde dehydrogenase	0.5	-5	D
1266	HP1190	JHP1115	hisS	histidyl-tRNA synthetase	1.5	0	
1267	HP1191	JHP1116	rfaF, waaF	ADP-heptose-lps heptosyltransferase II , ADP-HEPTOSE--LPS HEPTOSYLTRANSFERASE II		0.5	
1269	HP1193	N/A		aldo-keto reductase, putative	0		
1270	HP1194	N/A			-2.5		M
1271	HP1195	JHP1118	fusA	translation elongation factor EF-G , ELONGATION FACTOR G (EF-G)	-3.5		M
1281	HP1205	JHP1128	tufB, tufA	translation elongation factor EF-Tu , ELONGATION FACTOR TU (EF-TU)	1		
1285	N/A	JHP1132			0.5		
1298	HP1221	JHP1142	uppS	Predicted undecaprenyl pyrophosphate synthase	1	2.5	
1301	HP1224	JHP1145	hemD	uroporphyrinogen III cosynthase , putative UROPORPHYRINOGEN-III SYNTHASE		0.5	
1302	HP1225	JHP1146	crcB	Predicted CrcB integral membrane protein		3	

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
1303	HP1226	JHP1147	hemN, hemN_2	oxygen-independent coproporphyrinogen III oxidase	2	1	
1310	HP1233	JHP1154			0.5		
1311	HP1234	JHP1155		conserved hypothetical integral membrane protein	1.5		
1314	HP1237	JHP1158	pyrAa, carA	carbamoyl-phosphate synthetase , CARBAMOYL-PHOSPHATE SYNTHASE SMALL CHAIN	2		
1315	HP1238	JHP1159	amiF	Formamidase (previously annotated as a aliphatic amidase)	5	-2	D
1329	HP1251	JHP1172	oppB	oligopeptide ABC transporter, permease protein , putative Peptide ABC transporter, ATP-binding protein	4	-2	D
1330	HP1252	JHP1173	oppA	oligopeptide ABC transporter, periplasmic oligopeptide-binding protein		0	
1336	HP1258	JHP1179		conserved hypothetical mitochondrial protein 4		0.5	
1337	HP1259	JHP1180		conserved hypothetical protein		5.5	
1353	HP1275	JHP1196	algC	phosphomannomutase , phosphohexosemutase	0.5		
1354	HP1276	JHP1197			0.5		
1355	HP1277	JHP1198	trpA	tryptophan synthase, alpha subunit , TRYPTOPHAN SYNTHASE ALPHA CHAIN	-1.5		M
1356	HP1278	JHP1199	trpB	tryptophan synthase, beta subunit , TRYPTOPHAN SYNTHASE BETA CHAIN	-1.5		M
1357	HP1279	JHP1200	trpC	anthranilate isomerase , INDOLE-3-GLYCEROL PHOSPHATE SYNTHASE	0	0.5	
1359	HP1281	JHP1202	trpD, trpG	anthranilate synthase component II	-1	0	
1360	HP1282	JHP1203	trpE	anthranilate synthase component I	-3		M
1361	HP1283	N/A			-1		
1362	HP1284	JHP1204		conserved hypothetical protein	-7	-5	B
1363	HP1285	JHP1205	aphA	Predicted acid phosphatase lipoprotein	-6.5		M
1364	HP1286	JHP1206		conserved hypothetical secreted protein	-0.5	-8	D

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
1365	HP1287	JHP1207	tenA	transcriptional regulator , putative TRANSCRIPTIONAL REGULATOR	-2	-0.5	D
1372	HP1294	JHP1214	rps4, rpsD	ribosomal protein S4 , 30S RIBOSOMAL PROTEIN S4	0.5		
1373	HP1295	JHP1215	rps11, rpsK	ribosomal protein S11 , 30S RIBOSOMAL PROTEIN S11	0.5		
1376	HP1298	JHP1218	infA	translation initiation factor EF-1 , TRANSLATION INITIATION FACTOR IF-1	1		
1379	HP1301	JHP1221	rpl15, rplO	ribosomal protein L15 , 50S RIBOSOMAL PROTEIN L15	3	0.5	
1382	HP1304	JHP1224	rpl6, rplF	ribosomal protein L6 , 50S RIBOSOMAL PROTEIN L6		0.5	
1389	HP1311	JHP1231	rpL29, rpmC	ribosomal protein L29 , 50S RIBOSOMAL PROTEIN L29	1		
1401	HP1323	JHP1243	rnhB	ribonuclease HII		6	
1405	HP1327	JHP1247			4.5		
1406	HP1328	JHP1248	czcA, czcB_ 2	cation efflux system protein	-0.5	-14	D
1407	HP1329	JHP1249	czcA, czcA_ 2	cation efflux system protein		-3	M
1410	HP1332	JHP1252	dnaJ, dnaJ_ 2	co-chaperone and heat shock protein , co-chaperone with DnaK	-0.5		
1411	HP1333	JHP1253			-1	0	
1419	HP1341	JHP1260	tonB, tonB_ 2	siderophore-mediated iron transport protein	0	0	
1420	HP1342	JHP1261	omp29	outer membrane protein , putative Outer membrane protein	6	6	
1421	HP1343	JHP1262		conserved hypothetical integral membrane protein	-1		
1423	HP1345	JHP1264	pgk	phosphoglycerate kinase	2		
1425	HP1347	JHP1266	ung	uracil-DNA glycosylase		-12	M
1430	HP1352	JHP1271	HINFI M	adenine specific DNA methyltransferase , TYPE II DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	-1		
1431	HP1353	JHP1272	-	Predicted adenine-specific DNA methylase	-1		

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
1432	HP1354	JHP1272		putative adenine specific DNA methyltransferase	-1		
1439	HP1361	JHP1279	comE 3, comE C	competence locus E , DNA transfer protein	4		
1440	HP1362	JHP1280	dnaB	replicative DNA helicase		-2	M
1449	HP1370	N/A	mod	type III restriction enzyme M protein	-1	0.5	
1451	HP1372	JHP1286	mreC	rod shape-determining protein		0.5	
1453	HP1374	JHP1288	clpX	ATP-dependent protease ATPase subunit , ATP-DEPENDENT PROTEASE,ATP-BINDING SUBUNIT	0	6	
1454	HP1375	JHP1289	lpxA	UDP-N-acetylglucosamine acyltransferase	-1	1	
1455	HP1376	JHP1290	fabZ	(3R)-hydroxymyristoyl-(acyl carrier protein) dehydratase , HYDROXYMYRISTOYL-ACYL CARRIER PROTEIN DEHYDRATASE		0.5	
1456	HP1377	JHP1291				2.5	
1460	HP1381	N/A			0.5	-1	
1461	HP1382	JHP1295		putative ENDONUCLEASE	1.5	-1	
1462	N/A	JHP1296	mod_1	putative TYPE III DNA MODIFICATION ENZYME (METHYLTRANSFERASE)	3	1	
1463	N/A	JHP1297	res_1	putative TYPE III RESTRICTION ENZYME	1		
1472	N/A	JHP1437	hcpG	Cysteine-rich protein G	1	-1.5	D
1473	HP1391	JHP1436			8	-1.5	D
1474	HP1392	JHP1435		fibronectin/fibrinogen-binding protein	-1		
1475	HP1393	JHP1434	recN	DNA repair protein , DNA REPAIR PROTEIN(RECOMBINATION PROTEIN N)	2		
1479	HP1397	JHP1430			-1		
1480	HP1398	JHP1428	ald	alanine dehydrogenase , L-ALANINE DEHYDROGENASE		4.5	
1482	HP1399	JHP1427	rocF	arginase	-0.5	6	

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
1483	HP1400	JHP1426	fecA, fecA_3	iron(III) dicitrate transport protein , putative IRON(III) DICITRATE TRANSPORT PROTEIN	-3.5	-44	B
1484	HP1401	JHP1425		conserved hypothetical protein	-5	-9.5	B
1486	HP1403	JHP1423	hsdM, hsdM_3	type I restriction enzyme M protein , TYPE I RESTRICTION ENZYME (MODIFICATION SUBUNIT)	4	1	
1490	HP1406	JHP1298	bioB	biotin synthetase		1	
1491	HP1407	JHP1299	rbn	conserved hypothetical integral membrane protein, putative ribonuclease N		1	
1493	HP1409	JHP1301 JHP1302			5	-0.5	
1494	HP1410	JHP1303				-5	M
1501	HP1416	JHP1311	rfaJ	lipopolysaccharide 1,2-glucosyltransferase , lipopolysaccharide biosynthesis protein	-2		M
1502	HP1417	JHP1312			-4	-12	B
1508	HP1423	JHP1318		conserved hypothetical protein		1.5	
1509	HP1424	JHP1319			0	-0.5	
1512	HP1427	JHP1320	hpn	histidine-rich, metal binding polypeptide , putative histidine-rich metal-binding protein	0	-1	
1513	HP1428	JHP1325		conserved hypothetical protein		-5	M
1514	HP1429	JHP1324	kpsF	polysialic acid capsule expression protein		0.5	
1516	HP1431	JHP1322	ksgA	16S rRNA(adenosine-N6,N6)-dimethyltransferase , DIMETHYLADENOSINE TRANSFERASE		0.5	
1517	HP1432	JHP1321		histidine and glutamine-rich protein, putative histidine and glutamine-rich metal-binding protein		0.5	
1518	HP1433	JHP1326			-1		
1520	HP1435	JHP1328	PspA, sppA	protease IV , putative PROTEASE IV	-1		

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
1525	HP1440	JHP1333			-2		M
1537	HP1452	JHP1345	tdhF, thdF	thiophene and furan oxidizer , putative thiophene/furan oxidation protein	0.5		
1538	HP1453	JHP1346		conserved hypothetical protein, putative Outer membrane protein	1.5	-0.5	
1539	HP1454	JHP1347			0.5	-1	
1540	HP1455	JHP1348			0	-1	
1541	HP1456	JHP1349	lpp20	membrane-associated lipoprotein , conserved lipoprotein	0		
1542	HP1457	JHP1350				0.5	
1543	HP1458	JHP1351		thioredoxin, putative THIOREDOXIN	1	2	
1544	HP1459	JHP1352	rluB	Predicted ribosomal large subunit pseudouridine synthase B	0	1.5	
1546	HP1461	JHP1354		cytochrome c551 peroxidase, putative CYTOCHROME C PEROXIDASE	0.5		
1547	HP1462	JHP1355		secreted protein involved in flagellar motility, putative motility protein	0.5		
1551	HP1466	JHP1359	-	Predicted ABC transport system permease		-9	M
1552	HP1467	JHP1360		putative Outer membrane protein		-9	M
1553	HP1468	JHP1361	ilvE	branched-chain-amino-acid aminotransferase , BRANCHED-CHAIN AMINO ACID AMINOTRANSFERASE		0	
1554	HP1469	JHP1362	omp31	outer membrane protein , putative Outer membrane protein		5.5	
1555	HP1470	JHP1363	polA	DNA polymerase I	-1		
1574	HP1489	JHP1382		lipase-like protein	-1	-0.5	
1575	HP1490	JHP1383	tlyC	Predicted TlyC-like hemolysin		0.5	
1580	HP1495	JHP1388	tal	transaldolase		-0.5	
1581	HP1496	JHP1389	ctc, rplY	general stress protein , putative ribosomal protein L25		-0.5	
1583	HP1498	JHP1391				0	
1585	HP1500	JHP1393			1	-2	D

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
1586	HP1501	JHP1394	omp32	outer membrane protein , putative Outer membrane protein	-1	-3	D
1587	HP1502	JHP1395			-1		
1592	HP1507	JHP1400		conserved hypothetical ATP-binding protein	-1	0.5	
1594	HP1509	JHP1402		conserved hypothetical integral membrane protein	-1	0.5	
1596	HP1511	JHP1404			1		
1597	HP1512	JHP1405	frpB, frpB_3	iron-regulated outer membrane protein , putative IRON-REGULATED OUTER MEMBRANE PROTEIN	1		
1610	HP1523	JHP1412	recG	DNA recombinase , ATP-DEPENDENT DNA HELICASE	1		
1612	HP1525	JHP1414				-4	M
1613	HP1526	JHP1415	lexA, exoA	exodeoxyribonuclease		-4	M
1614	HP1527	JHP1416	comH	Periplasmic protein essential for natural competence	-1	4.5	
1615	HP1528	N/A				0	
1616	HP1529	JHP1417	dnaA	chromosomal replication initiator protein		2	
1621	HP1534	N/A	tnpB	IS605 transposase	-6		M
1622	HP1535	N/A	tnpA	IS605 transposase	-1		
1624	HP1537	N/A			0		
1627	HP1538	JHP1461	petC	Ubiquinol cytochrome c oxidoreductase, cytochrome c1 subunit	0.5		
1630	HP1541	JHP1458	trcF, mfd	transcription-repair coupling factor	-1	-2	D
1631	HP1542	JHP1457			-1		
1632	HP1543	JHP1456	tagE	toxR-activated gene		1	
1633	HP1544	JHP1455	tagE	toxR-activated gene		0.5	
1634	HP1545	JHP1454	folC	folylpolyglutamate synthase		4.5	
1635	HP1546	JHP1453				2.5	
1648	HP1559	JHP1467	flgB	flagellar basal-body rod protein (proximal rod protein), FLAGELLAR BASAL-BODY ROD PROTEIN	5.5	-1	

Supplemental Table 4

Pseudo Gene Order	26695 Gene Number	J99 Gene Number	Gene Name	Gene Description	NSH57 Screen Totals ^a	NSH79 Screen Totals ^a	Candidate Mutants ^b
1649	HP1560	JHP1468	ftsW, rodA_2	cell division protein , putative ROD SHAPE-DETERMINING PROTEIN	-0.5	2	
1650	HP1561	JHP1469	ceuE	iron (III) ABC transporter, periplasmic iron-binding protein		5.5	
1651	HP1562	JHP1470	ceuE	iron (III) ABC transporter, periplasmic iron-binding protein	1.5	1	
1652	HP1563	JHP1471	tsaA	alkyl hydroperoxide reductase , putative peroxidase	0.5	-1	
1653	HP1564	JHP1472		outer membrane protein, putative Outer membrane protein	0	-0.5	
1654	HP1565	JHP1473	pbp2	penicillin-binding protein 2 , PENICILLIN-BINDING PROTEIN	2		
1669	HP1580	JHP1487			1		
1670	HP1581	JHP1488	llm, wecA	methicillin resistance protein , putative UNDECAPRENYL-PHOSPHATE-ALPHA-N-ACETYLGLUCOSAMINYLTRANSFERASE	-5		M
1671	HP1582	JHP1489	pdxJ	pyridoxal phosphate biosynthetic protein J , PYRIDOXAL PHOSPHATE SYNTHETASE	-1		
1673	HP1584	JHP1491	gcp, ydiE	sialoglycoprotease , putative O-SIALOGLYCOPROTEIN ENDOPEPTIDASE	-2		M
1674	HP1585	JHP1492	flgG, flgG_2	flagellar basal-body rod protein , FLAGELLAR BASAL-BODY ROD PROTEIN (DISTAL ROD PROTEIN)	-8		M
1675	HP1586	N/A			0		
1676	HP1587	JHP1493		conserved hypothetical protein	-2.5		M
1677	HP1588	JHP1494		conserved hypothetical protein	0.5		
1679	HP1589	N/A			2		
1680	HP1590	N/A			-1		

^aSummed number of transposon insertions in the indicated genes detected in mice from all 25 pools. Insertions were given a positive value if they had no phenotype and a negative value if they had a phenotype (see Material and Methods)

^bM- candidate mutant in one strain background, B- candidate mutant in both strain backgrounds, D- discordant data in the two strain backgrounds