

Table 3. Functional classification of the 2014 potential coding sequences in *Pasteurella multocida*

AMINO ACID BIOSYNTHESIS								
<i>Aromatic amino acids</i>								
PM0150	chorismate mutase prephenate dehydratase	<i>pheA</i>	PM0813	carbamoyltransferase		PM0940	anaerobic ribonucleoside-triphosphate reductase	<i>nrdD</i>
PM0359	chorismate synthase	<i>aroC</i>	PM0828	argininosuccinate synthetase	<i>argG</i>	PM0941	anaerobic ribonucleotide reductase activase	<i>nrdG</i>
PM0563	phospho-2-dehydro-3-deoxyheptonate aldolase	<i>aroG</i>	PM0936	amino-acid acetyltransferase, N-acetylglutamate synthetase	<i>argA</i>	PM0951	deoxycytidine triphosphate deaminase	<i>dcd</i>
PM0577	tryptophan synthase alpha chain	<i>trpA</i>	PM1117	gamma-glutamyl phosphate reductase	<i>proA</i>	PM1154	deoxyuridine 5'-triphosphate nucleotidohydrolase	<i>dut</i>
PM0578	tryptophan synthase beta chain	<i>trpB</i>	PM1118	acetylornithine deacetylase	<i>argE</i>	<i>Nucleotide and nucleoside interconversions</i>		
PM0580	indole-3-glycerol-phosphate synthase	<i>trpC</i>	PM1119	n-acetyl-gamma-glutamyl phosphate reductase	<i>argC</i>	PM0284	adenylate kinase	<i>adk</i>
PM0581	anthranilate phosphoribosyltransferase	<i>trpD</i>	PM1120	acetylglutamate kinase	<i>argB</i>	PM0922	guanylate kinase	<i>gmk</i>
PM0583	anthranilate synthase component II	<i>trpG</i>	PM1175	argininosuccinate lyase	<i>argH</i>	PM0952	uridine kinase	<i>udk</i>
PM0584	anthranilate synthase component	<i>trpE</i>	PM1189	glutamine synthetase	<i>glnA</i>	PM0981	dATP pyrophosphohydrolase	<i>nupA</i>
PM0664	t-protein, chorismate mutase	<i>tyrA</i>	PM1896	glutamate 5-kinase	<i>proB</i>	PM1986	uridylylate kinase	<i>pyrH</i>
PM0665	phospho-2-dehydro-3-deoxyheptonate aldolase	<i>aroF</i>	<i>Pyruvate family</i>			<i>Purine ribonucleotide biosynthesis</i>		
PM0811	tyrosine phenol-lyase		PM0566	branched-chain amino acid aminotransferase	<i>ivlE</i>	PM0020	phosphoribosylglycinamide formyltransferase	<i>purN</i>
PM0839	3-phosphoshikimate 1-carboxyvinyltransferase	<i>aroA</i>	PM0869	acetolactate synthase small subunit	<i>ilvH</i>	PM0021	phosphoribosylaminoimidazole synthetase	<i>purM</i>
PM1093	3-dehydroquininate dehydratase	<i>aroD</i>	PM0870	acetolactate synthase large subunit	<i>ilvI</i>	PM0222	phosphoribosylaminoimidazole ecarboxamide	<i>purH</i>
PM1223	3-dehydroquininate synthetase	<i>aroB</i>	PM1284	ketol-acid reductoisomerase	<i>ilvC</i>	PM0224	phosphoribosylamine--glycine ligase	<i>purD</i>
PM1224	shikimate kinase	<i>aroK</i>	PM1625	dihydroxy-acid dehydratase	<i>ilvD</i>	PM0244	phosphoribosylpyrophosphate synthetase	<i>prsA</i>
PM1271	shikimate 5-dehydrogenase	<i>aroE</i>	PM1627	acetolactate synthase small subunit	<i>ilvM</i>	PM0293	GMP synthase	<i>guaA</i>
PM1420	tryptophanase	<i>tnaA</i>	PM1628	acetolactate synthase large subunit	<i>ilvG</i>	PM0295	IMP (inosine 5'-monophosphate) dehydrogenase	<i>guaB</i>
PM1463	anthranilate synthase component II	<i>trpG</i>	PM1959	3-isopropylmalate dehydratase small subunit	<i>leuD</i>	PM0619	phosphoribosylaminoimidazole e carboxylase, catalytic subunit	<i>purE</i>
<i>Aspartate family</i>			PM1960	3-isopropylmalate dehydratase alpha chain	<i>leuC</i>	PM0620	phosphoribosylaminoimidazole e carboxylase, ATPase subunit	<i>purK</i>
PM0113	bifunctional aspartokinase/homoserine dehydrogenase I	<i>thrA</i>	PM1961	3-isopropylmalate dehydrogenase	<i>leuB</i>	PM0701	amidophosphoribosyltransferase	<i>purF</i>
PM0114	homoserine kinase	<i>thrB</i>	PM1962	2-isopropylmalate synthase	<i>leuA</i>	PM0815	phosphoribosylaminoimidazole e-succinocarboxamide synthase	<i>purC</i>
PM0115	threonine synthase	<i>thrC</i>	<i>Serine family</i>			PM0873	formyltetrahydrofolate deformylase	<i>purU</i>
PM0235	5,10-methylenetetrahydrofolate reductase	<i>metF</i>	PM0225	serine hydroxymethyltransferase (serine methylase)	<i>glyA</i>	PM0938	adenylosuccinate synthetase	<i>purA</i>
PM0420	5-methyltetrahydropteroyltri-glutamate--homocysteine aspartate aminotransferase	<i>metE</i>	PM0837	phosphoserine transaminase	<i>serC</i>	PM1028	nucleoside diphosphate kinase	<i>ndk</i>
PM0621	2,3,4,5-tetrahydropyridine-2-carboxylate n-succinyltransferase	<i>aspC</i>	PM1430	serine o-acetyltransferase	<i>cysE</i>	PM1053	phosphoribosylglycinamide formyltransferase	<i>pur</i>
PM0658	dihydrodipicolinate reductase	<i>dapB</i>	PM1657	phosphoserine phosphatase	<i>serB</i>	PM1085	phosphoribosylformylglycinamide synthase	<i>purL</i>
PM0726	cystathionine beta-lyase, putative	<i>metC</i>	PM1671	phosphoglycerate dehydrogenase	<i>serA</i>	PM1851	adenylosuccinate lyase	<i>purB</i>
PM0794	cystathionine beta-lyase	<i>metC</i>	PM1693	cysteine synthase	<i>cysK</i>	<i>Pyrimidine ribonucleotide biosynthesis</i>		
PM0866	homoserine o-acetyltransferase, putative	<i>met2</i>	PM1694	cysteine synthetase, putative	<i>cysZ</i>	PM0617	dihydroorotate dehydrogenase	<i>pyrD</i>
PM0937	aspartokinase III, lysine sensitive		<i>Histidine family</i>			PM0797	orotidine 5'-phosphate decarboxylase	<i>pyrF</i>
PM0995	cystathionine gamma-synthase	<i>metB</i>	PM0838	histidinol-phosphate transaminase	<i>hisH</i>	PM1207	uracil phosphoribosyltransferase	<i>pyrR</i>
PM1022	succinyl-diaminopimelate desuccinylase	<i>dapE</i>	PM1195	atp phosphoribosyltransferase	<i>hisG</i>	PM1502	carbamoyl phosphate synthetase small subunit	<i>carA</i>
PM1051	dihydrodipicolinate synthase	<i>dapA</i>	PM1198	histidinol dehydrogenase	<i>hisD</i>	PM1505	caramoylphosphate synthetase large subunit	<i>carB</i>
PM1424	diaminopimelate decarboxylase	<i>lysA</i>	PM1199	histidinol-phosphate transaminase	<i>hisH</i>	PM1673	thymidylate kinase	
PM1574	aspartate-ammonia ligase	<i>asnA</i>	PM1200	imidazoleglycerol-phosphate dehydratase / histidinol-phosphatase	<i>hisB</i>	PM1872	CTP synthetase	<i>pyrG</i>
PM1632	aspartate-semialdehyde dehydrogenase	<i>asd</i>	PM1202	amidotransferase	<i>hisH</i>	PM1877	orotate phosphoribosyltransferase	<i>pyrE</i>
PM1703	diaminopimelate epimerase	<i>dapF</i>	PM1203	phosphoribosylformimino-5-aminoimidazole carboxamide ribotide isomerase	<i>hisA</i>	<i>Salvage of nucleosides and nucleotides</i>		
PM1822	serine/threonine protein kinase	<i>ppkA</i>	PM1204	cyclase protein	<i>hisF</i>	PM0019	uracil phosphoribosyltransferase	<i>upp</i>
PM1933	methylenetetrahydrofolate dehydrogenase (NADP+)	<i>folD</i>	PM1205	amidotransferase	<i>hisH</i>	PM0121	hypoxanthine phosphoribosyltransferase	<i>hpt</i>
<i>Glutamate family</i>			PM1206	phosphoribosyl-AMP cyclohydrolase/phosphoribosyl-ATP pyrophosphatase	<i>hisIE</i>	PM0259	cytidine deaminase	<i>cdd</i>
PM0043	glutamate dehydrogenase	<i>gdhA</i>	PURINES, PYRIMIDINES, NUCLEOSIDES, NUCLEOTIDES			PM0363	adenine phosphoribosyltransferase	<i>apt</i>
PM0095	pyrroline-5-carboxylate reductase	<i>proC</i>	<i>2'-Deoxyribonucleotide metabolism</i>			PM0802	cytidylate kinase 1	<i>cmkA</i>
PM0344	acetylornithine transaminase, aminotransferase	<i>argD</i>	PM0079	thymidylate synthetase	<i>thyA</i>	PM1210	bis (5'nucleosyl)	<i>adaH</i>
PM0460	uridylyl transferase	<i>glnD</i>	PM0518	glutaredoxin 2	<i>grx2</i>			
PM0808	ornithine	<i>arcB</i>	PM0717	ribonucleoside-diphosphate reductase, alpha chain	<i>nrdA</i>			
			PM0719	ribonucleoside diphosphate reductase, beta chain	<i>nrdB</i>			
			PM0827	glutaredoxin	<i>grx</i>			

	tetraphosphatase	
PM1236	thymidine kinase	<i>tdk</i>
PM1291	purine-nucleoside phosphorylase	<i>deoD</i>
PM1369	xanthine-guanine phosphoribosyltransferase	<i>gpt</i>
PM1572	uridine phosphorylase	<i>udp</i>
PM1767	inosine-uridine preferring nucleoside hydrolase	<i>iunH</i>
PM2014	2',3'-cyclic-nucleotide 2'-phosphodiesterase	<i>cpdB</i>

Sugar-nucleotide biosynthesis and conversions

PM0829	mannose-6-phosphate isomerase	<i>pmi</i>
PM1193	5'-nucleotidase precursor	
PM1289	UTP-glucose-1-phosphate uridylyltransferase	<i>galU</i>

FATTY ACID AND PHOSPHOLIPID METABOLISM

Biosynthesis

PM0048	fatty acid metabolism regulator protein	<i>fadR</i>
PM0103	1-acyl-glycerol-3-phosphate acyltransferase	<i>plsC</i>
PM0182	enoyl-[acyl-carrier-protein] reductase (NADH)	<i>fabI</i>
PM0292	acetyl-CoA carboxylase	<i>accA</i>
PM0339	3-oxoacyl-[acyl-carrier-protein] synthase	<i>fabB</i>
PM0484	3-hydroxydecanoyl-[acyl-carrier-protein] dehydratase	<i>fabA</i>
PM0636	acetyl-coenzyme A carboxylase	<i>accD</i>
PM0856	cdp-diacylglycerol--glycerol-3-phosphate	<i>pgsA</i>
PM1091	biotin carboxylase, a subunit	<i>accC</i>
PM1092	acetyl-CoA carboxylase, biotin carboxyl carrier protein	<i>accB</i>
PM1182	glycerol-3-phosphate o-acyltransferase	<i>plsB</i>
PM1631	lysophospholipase L2	<i>pldB</i>
PM1856	cdp diacylglycerol--serine o-phosphatidyltransferase	<i>pssA</i>
PM1864	diacylglycerol kinase	<i>dgkA</i>
PM1899	phosphatidylserine decarboxylase	<i>psd</i>
PM1913	fatty acid/phospholipid synthesis protein	<i>plsX</i>
PM1914	3-oxoacyl-[acyl-carrier-protein] synthase	<i>fabH</i>
PM1915	malonyl CoA-acyl carrier protein transacylase	<i>fabD</i>
PM1916	3-oxoacyl-[acyl-carrier-protein] reductase	<i>fabG</i>
PM1917	acyl carrier protein	<i>acpP</i>
PM1990	phosphatidate cytidylyltransferase	<i>cdsA</i>
PM1995	(3R)-hydroxymyristoyl-[acyl carrier protein] dehydratase	<i>fabZ</i>

Degradation

PM0676	Phosphatidylglycerophosphatase B	<i>pdpB</i>
PM0707	long chain fatty acid Co-A ligase	<i>fadD</i>
PM0728	Phosphatidylglycerophosphatase A	<i>pgpA</i>
PM0925	long-chain-fatty-acid CoA ligase, putative	<i>fadD</i>
PM1444	glycerophosphodiester phosphodiesterase	<i>glpQ</i>

Other

PM0076	outer membrane esterase	<i>est</i>
PM0355	esterase/lipase, putative	
PM0570	acyl-CoA thioesterase II	<i>tesB</i>
PM1426	phospholipase A	
PM1451	acetyl esterase	<i>xynC</i>

BIOSYNTHESIS OF COFACTORS, PROSTHETIC GROUPS, AND CARRIERS

Biotin

PM0379	biotin synthase	<i>bioB</i>
PM0641	dethiobiotin synthase	<i>bioD1</i>
PM1900	adenosylmethionine--8-amino-7-oxononoate aminotransferase	<i>bioA</i>
PM1901	8-amino-7-oxononoate synthase	<i>bioF</i>
PM1903	biotin synthesis protein, putative	<i>bioC</i>
PM1904	dethiobiotin synthase	<i>bioD2</i>

Folic Acid

PM0439	dihydropteroate synthase	<i>folP</i>
PM0635	folylpolyglutamate synthase	<i>folC</i>
PM0693	GTP cyclohydrolase I	<i>folE</i>
PM0865	2-amino-4-hydroxy-6-hydroxymethyl-dihydropteridine	<i>folK</i>
PM1464	para-aminobenzoate synthase component I homolog, putative	<i>pabB</i>
PM1697	dihydroneopterin aldolase	<i>folB</i>
PM1893	dihydrofolate reductase	<i>folA</i>

Heme, prophyrin, and cobalamin

PM0462	glutamate-1-semialdehyde 2,1-aminomutase	<i>hemL</i>
PM0789	ferrochelataase	<i>hemH</i>
PM1499	heme biosynthesis protein	
PM1692	delta-aminolevulinic acid dehydratase, porphobilinogen synthase	<i>hemB</i>
PM1734	uroporphyrinogen decarboxylase, heme porphobilinogen deaminase	<i>hemE</i>
PM1812	uroporphyrinogen-III synthase, putative	<i>pbg</i>
PM1813	uroporphyrinogen-III synthase, putative	<i>hemX</i>
PM1833	O ₂ -independent coproporphyrinogen III oxidase	<i>hemN</i>

Lipoate

PM1930	lipoic acid synthetase	<i>lipA</i>
PM1929	lipoate--protein ligase, lipoate biosynthesis protein B	<i>lipB</i>

Menaquinone and ubiquinone

PM0053	menaquinone-specific isochorismate synthase	<i>menF</i>
PM0054	menaquinone biosynthesis protein	<i>menD</i>
PM0346	octylprenyl diphosphate synthase	<i>ispB</i>
PM0357	o-succinylbenzoate--CoA ligase	<i>menE</i>
PM0533	geranyltransferase	<i>ispA</i>
PM0700	3-octaprenyl-4-hydroxybenzoate carboxylase	<i>ubiX</i>
PM0840	3-dimethylubiquinone-9 3-methyltransferase	<i>ubiG</i>
PM1094	o-succinylbenzoate-CoA synthase	<i>menC</i>
PM1096	naphthoate synthase	<i>menB</i>
PM1168	s-adenosylmethionine	<i>menG</i>
PM1169	1,4-dihydroxy-2-naphthoate octaprenyltransferase	<i>menA</i>
PM1686	ubiquinone/menaquinone biosynthesis methyltransferase	<i>ubiE</i>
PM1688	ubiquinone/menaquinone biosynthesis protein	<i>aarF</i>
PM1725	2-octaprenyl-6-methoxyphenol	
PM1751	4-hydroxybenzoate octaprenyltransferase	<i>ubiA</i>
PM1940	quinone reductase homolog	

Molybdopterin

PM0622	molybdopterin-converting factor subunit 2	<i>moaE</i>
PM0623	molybdopterin-converting factor subunit 1	<i>moaD</i>
PM0624	molybdenum cofactor biosynthesis protein C	<i>moaC</i>
PM0625	molybdenum cofactor biosynthesis protein A	<i>moaA</i>
PM0694	molybdopterin biosynthesis protein	<i>moaE</i>
PM0695	molybdopterin biosynthesis protein	<i>moaB</i>
PM1785	molybdopterin-guanine dinucleotide biosynthesis	<i>mobB</i>
PM1799	molybdopterin-guanine dinucleotide biosynthesis	<i>mobA</i>
PM2003	molybdopterin biosynthesis	<i>mog</i>

Pantothenate and coenzyme A

PM1153	DNA/pantothenate metabolism flavoprotein	<i>dpp</i>
PM1747	pantothenate kinase	<i>coaA</i>
PM0650	riboflavin synthase alpha chain	<i>ribE</i>
PM0677	GTP cyclohydrolase II	<i>ribA</i>
PM0731	riboflavin synthase beta chain	<i>ribH</i>
PM0749	riboflavin biosynthesis protein	<i>ribD</i>
PM1385	3,4-dihydroxy-2-butanone 4-phosphate synthase	<i>ribB</i>
PM1661	riboflavin kinase, biosynthesis	<i>ribF</i>

Thiamine

PM0532	1-deoxyxylulose-5-phosphate synthase	<i>dxs</i>
PM0535	thiamine biosynthesis protein	<i>thiI</i>
PM0729	thiamin-phosphate kinase	<i>thiL</i>
PM1260	thiamin-phosphate pyrophosphorylase	<i>thiE</i>
PM1261	phosphomethylpyrimidine kinase	<i>thiD</i>
PM1262	hydroxyethylthiazole kinase	<i>thiM</i>
PM1263	thiamine biosynthesis protein, putative	
PM1334	thiamine biosynthesis lipoprotein	<i>apbE</i>

Other

PM0185	6-pyruvoyl tetrahydrobiopterin synthase	
PM1988	1-deoxy-D-xylulose 5-phosphate reductoisom	<i>dxr</i>
PM1989	undecaprenyl diphosphate synthase	

CENTRAL INTERMEDIARY METABOLISM

Amino Sugars

PM0874	n-acetylglucosamine-6-phosphate deacetylase	<i>nagA</i>
PM1731	glucosamine--fructose-6-phosphate aminotransferase (isomerizing)	<i>glmS</i>

Phosphorus compounds

PM1017	acid phosphatase, putative	
PM1191	inorganic pyrophosphatase	<i>ppa</i>
PM1807	exopolyphosphatase	

Polyamine biosynthesis

PM0371	carboxynorspermidine decarboxylase	<i>nspC</i>
PM0806	ornithine decarboxylase	<i>speF</i>
PM1381	agmatinase	<i>speE</i>
PM1382	arginine decarboxylase	<i>speA</i>

Sulfur metabolism

PM0039	arylsulfatase precursor	<i>ars</i>
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PM0605	peptide methionine sulfoxide reductase		PM1624	threonine deaminase (dehydratase)	<i>ilvA</i>	B	
PM1548	sulfite synthesis pathway protein	<i>cysQ</i>				PM0733	NAD(P)H nitroreductase, probable NAD(P)H-flavin oxidoreductase
<i>Nitrogen metabolism</i>			<i>Anaerobic</i>			PM0752	NAD(P)+ transhydrogenase (B-specific) beta
PM0319	NiU protein, IscU protein	<i>iscU</i>	PM0027	cytochrome C-type biogenesis protein	<i>nrfE</i>	PM0753	NAD(P)+ transhydrogenase (B-specific) alpha
PM1109	NifC protein, putative nitrogen fixation protein	<i>nifC</i>	PM0029	cytochrome C-type biogenesis, putative (partial)	<i>nrfF</i>	PM0973	cytochrome D ubiquinol oxidase, subunit II
PM0318	NifS homolog, putative iron-sulfur cofactor synthesis protein	<i>nifS</i>	PM0030	cytochrome C-type biogenesis, putative (partial)	<i>nrfF</i>	PM0974	cytochrome D ubiquinol oxidase, subunit I
PM0882	NifS homolog, putative iron-sulfur cofactor synthesis protein	<i>nifS</i>	PM0023	nitrite reductase, cytochrome C552	<i>nrfA</i>	PM0994	thioredoxin
<i>Other</i>			PM0024	nitrite reductase, cytochrome C-type	<i>nrfB</i>	PM1235	glutathione reductase
PM0052	aminotransferase, putative		PM0025	nitrite reductase, Fe-S protein	<i>nrfC</i>	PM1329	NADH:ubiquinone oxidoreductase, subunit B
PM0071	beta-hexosaminidase, putative		PM0026	nitrite reductase, transmembrane protein	<i>nrfD</i>	PM1330	NADH:ubiquinone oxidoreductase, putative
PM0149	oxidoreductase, putative		PM0198	fumarate reductase, 13 kDa hydrophobic protein	<i>frdD</i>	PM1331	NADH:ubiquinone oxidoreductase, putative
PM0290	pyridoxamine kinase	<i>pdxY</i>	PM0199	fumarate reductase, 15kDa hydrophobic protein	<i>frdC</i>	PM1332	NADH:ubiquinone oxidoreductase
PM0315	extragenic suppressor	<i>subB</i>	PM0200	fumarate reductase, iron sulfur protein	<i>frdB</i>	PM1592	ferredoxin-type protein
PM0559	2-hydroxyacid dehydrogenase, putative		PM0201	fumarate reductase, flavoprotein subunit	<i>frdA</i>	PM1595	ferredoxin-type protein
PM0685	hydroxyacylglutathione hydrolase, putative		PM0405	FdhE homolog	<i>fdhE</i>	PM1596	ferredoxin-type protein
PM0704	acetate kinase	<i>ackA</i>	PM0406	formate dehydrogenase, gamma subunit	<i>fdxI</i>	PM1598	cytochrome C-type protein
PM0790	selenide, water dikinase, selenophosphate synthase	<i>selD</i>	PM0407	formate dehydrogenase, beta subunit	<i>fdxH</i>	PM1705	thioredoxin
PM0987	lactoylglutathione lyase	<i>gloA</i>	PM0408	formate dehydrogenase, alpha major subunit	<i>fdxG</i>	PM1792	pentahemic c-type cytochrome
PM1027	S-adenosylmethionine synthetase	<i>metX</i>	PM0409	formate dehydrogenase, alpha major subunit	<i>fdxG</i>	PM1793	trimethylamine-n-oxide reductase precursor
PM1100	ureX homolog	<i>ureX</i>	PM0410	formate dehydrogenase D chain	<i>fdhD</i>	PM1794	trimethylamine-n-oxide oxidoreductase
PM1300	hydrolase, putative		PM1440	anaerobic glycerol-3-phosphate dehydrogenase	<i>glpC</i>	PM1858	ferredoxin-like protein, putative
PM1383	oxidoreductase, putative	<i>ordL</i>	PM1441	glycerol-3-phosphate dehydrogenase	<i>glpB</i>	<i>Entner-Doudoroff</i>	
PM1431	glycerol-3-phosphate dehydrogenase [NAD+]	<i>gspA</i>	PM1442	anaerobic glycerol-3-phosphate dehydrogenase	<i>glpA</i>	PM0947	4-hydroxy-2-oxoglutarate aldolase, 2-dehydro-3-deoxyphosphooctonate aldolase, KHG/KDPG aldolase
PM1436	GlpE homolog, glycerol metabolism	<i>glpE</i>	PM1754	anaerobic dimethyl sulfoxide reductase, chain A	<i>dmsA</i>	<i>Fermentation</i>	
PM1438	Glp homolog	<i>glpG</i>	PM1755	anaerobic dimethyl sulfoxide reductase, chain B	<i>dmsB</i>	PM0075	formate c-acetyltransferase
PM1446	glycerol kinase	<i>glpK</i>	PM1756	anaerobic dimethyl sulfoxide reductase, chain C	<i>dmsC</i>	PM0077	pyruvate formate-lyase 1 activating enzyme
PM1832	NAD(P)H nitroreductase system, putative		<i>ATP-proton motive force interconversion</i>			PM0579	oxidoreductase, short chain dehydrogenase/reductase, putative
PM1905	carbonic anhydrase		PM1488	ATP synthase, a chain	<i>atpB</i>	PM1453	alcohol dehydrogenase 2
ENERGY METABOLISM			PM1489	ATP synthase, c chain	<i>atpE</i>	PM1968	sorbitol-6-phosphate dehydrogenase
<i>Aerobic</i>			PM1490	ATP synthase, b chain	<i>atpF</i>	<i>Glycolysis</i>	
PM1594	periplasmic nitrate reductase precursor	<i>napA</i>	PM1491	ATP synthase, delta chain	<i>atpH</i>	PM0069	6-phosphofructokinase
PM1597	periplasmic nitrate reductase, cytochrome c-type protein	<i>napB</i>	PM1492	ATP synthase, alpha chain	<i>atpA</i>	PM0288	L-lactate dehydrogenase
<i>Amino acids and amines</i>			PM1493	ATP synthase, gamma chain	<i>atpG</i>	PM0416	glucose-6-phosphate isomerase
PM0036	L-serine deaminase (dehydratase)	<i>sdaA</i>	PM1494	ATP synthase, beta chain	<i>atpD</i>	PM0634	phosphoglycerate mutase, putative
PM0565	cytosine deaminase		PM1495	ATP synthase, epsilon chain	<i>atpC</i>	PM0653	pyruvate kinase
PM0589	bifunctional PutA protein, proline dehydrogenase	<i>putA</i>	<i>Electron transport</i>			PM0692	acetyl coA synthetase
PM1103	aspartate ammonia-lyase	<i>aspA</i>	PM1854	iron sulfur protein, putative		PM0792	glucokinase, thermosensitive
PM1366	3-hydroxyisobutyrate dehydrogenase		PM0009	cytochrome-C biosynthesis	<i>ccmE</i>	PM0924	glyceraldehyde-3-phosphate dehydrogenase
PM1522	4-hydroxyphenylacetic acid hydroxylase, putative		PM0010	cytochrome C-type biogenesis	<i>ccmF</i>	PM0930	fructose-1,6-bisphosphatase
PM1523	4-hydroxyphenylacetate 3-monooxygenase		PM0012	cytochrome C-type biogenesis	<i>ccmH</i>	PM1311	triosephosphate isomerase
PM1528	2-hydroxyhepta-2,4-diene-1,7,-dioate isomerase	<i>hpaG</i>	PM0013	cytochrome C-type biogenesis	<i>ccmH</i>	PM1373	fructose-1,6-bisphosphate aldolase
PM1529	2-hydroxyhepta-2,4-diene-1,7,-dioate	<i>hpaG</i>	PM0323	ferredoxin [2Fe-2S]	<i>fdx-1</i>	PM1506	phosphoglycerate mutase
PM1530	5-carboxymethyl-2-hydroxybutyrate semialdehyde dehydrogenase	<i>hpaE</i>	PM0353	flavodoxin	<i>fldA</i>	PM1542	phosphoenolpyruvate carboxykinase
PM1531	3,4-dihydroxyphenylacetate 2,3-dioxygenase	<i>hpaD</i>	PM0386	ferredoxin-like protein, putative		PM1640	triosephosphate isomerase
PM1532	5-carboxymethyl-2-hydroxybutyrate isomerase	<i>hpaF</i>	PM0446	cytochrome C-553 homolog		PM1796	1-phosphofructokinase
PM1534	2-oxo-hept-3-ene-1,7-dioate hydratase	<i>hpaH</i>	PM0447	cytochrome C biogenesis protein, putative	<i>resA</i>	PM1849	fructokinase
PM1535	2,4-dihydroxyhept-2-ene-1,7-dioic acid aldolase	<i>hpaI</i>	PM0573	thioredoxin reductase (NADPH)	<i>trxB</i>	PM1860	phosphoglycerate kinase
			PM0721	tetrathionate reductase subunit A	<i>ttrA</i>	PM1861	fructose bisphosphate aldolase
			PM0722	tetrathionate reductase subunit C	<i>ttrC</i>	PM1871	phosphopyruvate hydratase (enolase)
			PM0723	tetrathionate reductase subunit	<i>ttrB</i>		

<i>Pentose phosphate pathway</i>			<i>Biosynthesis and degradation of polysaccharides</i>		PM1384	spermidine/putrescine binding periplasmic protein	<i>poiD</i>	
PM1242	transketolase	<i>tkt</i>	PM0540	4-alpha-glucanotransferase	<i>malQ</i>	PM1419	tryptophan specific transport ptortin	<i>tnaB</i>
PM1280	ribulose-phosphate 3-epimerase	<i>dod</i>	PM0541	1,4-alpha-glucan branching enzyme	<i>glgB</i>	PM1873	branched-chain amino acid carrier	<i>brnQ</i>
PM1549	glucose-6-phosphate 1-dehydrogenase	<i>zwf</i>	PM0542	glycogen operon protein	<i>glgX</i>	PM1906	oligopeptide transport ATP-binding protein	<i>oppF</i>
PM1554	6-phosphogluconate dehydrogenase	<i>gnd</i>	PM0543	glucose-1-phosphate adenyllyltransferase	<i>glgC</i>	PM1907	oligopeptide transport ATP-binding protein	<i>oppD</i>
PM1602	transaldolase	<i>tal</i>	PM0544	glycogen synthase	<i>glgA</i>	PM1908	oligopeptide transport permease protein	<i>oppC</i>
PM1619	ribulose-phosphate 3-epimerase	<i>dod</i>	PM0545	glycogen phosphorylase	<i>glgP</i>	PM1909	oligopeptide transport system permease protein	<i>oppB</i>
PM1638	transketolase	<i>tkt</i>	<i>Other</i>			PM1910	oligopeptide-binding protein precursor	<i>oppA</i>
PM1639	transaldolase	<i>tal</i>	PM0343	TldD homolog	<i>tldD</i>			
PM1645	ribose-5-phosphate isomerase	<i>rpiA</i>	PM0394	methylglyoxal synthase	<i>mgsA</i>			
PM1670	ribose-5-phosphate isomerase	<i>rpiA</i>	PM0887	NAD(P)H oxidoreductase, putative				
<i>Pyruvate dehydrogenase</i>			PM1333	Na ⁺ -translocating NADH-ubiquinone oxidoreductase beta chain	<i>nqr6</i>	<i>Anions</i>		
PM0893	dihydrolipoamide dehydrogenase	<i>lpdA</i>	PM1343	deoxyribose-phosphate aldolase	<i>deoC</i>	PM0216	molybdenum-pterin-binding protein	<i>mopI</i>
PM0894	dihydrolipoamide s-acetyltransferase	<i>aceF</i>	PM1550	devB protein homolog	<i>devB</i>	PM0249	phosphate permease, putative phosphate transport ATP-binding protein	<i>pstB</i>
PM0895	pyruvate dehydrogenase E1 component	<i>aceE</i>				PM0433	phosphate transport system permease	<i>pstA</i>
<i>Sugars</i>			TRANSPORT AND BINDING PROTEINS			PM0434	phosphate transport system permease protein	<i>pstC</i>
PM0152	ribokinase	<i>rbsK</i>	<i>Amino acids, peptides and amines</i>			PM0435	phosphate transport system permease protein	<i>pstS</i>
PM0286	UDP-glucose 4-epimerase	<i>galE</i>	PM0037	serine transporter	<i>sdaC</i>	PM0436	phosphate-binding periplasmic protein precursor	<i>modC</i>
PM0766	hexulose-6-phosphate synthase, putative		PM0123	arginine transport protein	<i>artP</i>	PM0742	molybdenum transport ATP-binding protein	<i>modB</i>
PM0875	glucosamine-6-phosphate isomerase	<i>nagB</i>	PM0124	arginine binding protein	<i>artI</i>	PM0743	molybdenum transport system permease protein	<i>modA</i>
PM1034	aldose 1-epimerase	<i>galM</i>	PM0125	arginine transport system permease protein	<i>artQ</i>	PM0744	molybdate-binding periplasmic protein	<i>modE</i>
PM1035	galactokinase	<i>galK</i>	PM0126	arginine transport system permease protein	<i>artM</i>	PM0746	molybdenum transport protein	<i>modF</i>
PM1036	galactose-1-phosphate uridylyltransferase	<i>galT</i>	PM0162	arginine/ornithine antiporter, putative	<i>arcD</i>	PM0890	molybdenum transport protein, putative	<i>modB</i>
PM1062	d-mannitol-1-phosphate dehydrogenase	<i>mtlD</i>	PM0236	dipeptide transport protein, periplasmic	<i>dppA</i>	PM1108	molybdenum transport protein	<i>modD</i>
PM1244	L-ribulose-phosphate 4-epimerase	<i>araD</i>	PM0237	dipeptide transport system permease protein	<i>dppB</i>	PM1111	molybdenum transport system protein	
PM1245	hexulose-6-phosphate isomerase, putative		PM0238	dipeptide transport system permease protein	<i>dppC</i>	<i>Cations</i>		
PM1246	hexulose-6-phosphate synthase, putative		PM0239	dipeptide transport ATP-binding protein	<i>dppD</i>	PM0005	heme exporter ATP-binding protein A	<i>ccmA</i>
PM1247	xylulose kinase	<i>lyx</i>	PM0240	dipeptide transport ATP-binding protein	<i>dppF</i>	PM0006	heme exporter ATP-binding protein B	<i>ccmB</i>
PM1248	gluconolactonase precursor, putative		PM0260	spermidine/putrescine ABC transporter, periplasmic-binding protein	<i>poiD</i>	PM0007	heme exporter ATP-binding protein C	<i>ccmC</i>
PM1272	sugar kinase (xylulose), putative		PM0261	spermidine/putrescine ABC transporter, periplasmic-binding protein	<i>poiD</i>	PM0008	heme exporter ATP-binding protein D	<i>ccmD</i>
PM1371	xylulose kinase		PM0262	spermidine/putrescine transport system permease protein	<i>poiC</i>	PM0040	outer membrane heme receptor	<i>pfhR</i>
PM1372	sugar kinase, putative		PM0263	spermidine/putrescine ABC transporter, permease protein	<i>poiB</i>	PM0047	Na ⁺ /H ⁺ antiporter	<i>nhaB</i>
PM1620	phosphoglycolate phosphatase	<i>gph</i>	PM0264	spermidine/putrescine ABC transporter, ATP-binding protein	<i>poiA</i>	PM0049	ATPase, ABC type transport protein	<i>fbpC</i>
PM1710	acylneuraminatase		PM0335	proton glutamate symport protein, putative		PM0050	transmembrane permease, putative	<i>fbpB</i>
PM1712	cytidyltransferase		PM0564	cytosine permease/transport protein	<i>codB</i>	PM0051	iron binding protein FbpA precursor	<i>fbpA</i>
PM1715	glucose kinase, putative		PM0678	oligopeptide-binding protein homolog, periplasmic, putative		PM0128	membrane-bound iron(III) dicitrate transport protein	<i>fecE</i>
PM1715	N-acetylneuraminatase lyase, putative	<i>nanA</i>	PM0732	tyrosine-specific transport protein 1	<i>tyrP</i>	PM0129	iron (III) dicitrate transport system permease	<i>fecD</i>
PM1848	sucrose-6-phosphate hydrolase, sucrase	<i>scrB</i>	PM0807	putrescine-ornithine antiporter	<i>potE</i>	PM0130	iron (III) dicitrate transport system permease	<i>fecC</i>
<i>TCA cycle</i>			PM0810	tyrosine-specific transport protein 1	<i>tyrP</i>	PM0131	iron (III) dicitrate-binding periplasmic protein	<i>fecB</i>
PM0002	malate dehydrogenase	<i>mdh</i>	PM0911	peptide ABC transporter, periplasmic-binding protein	<i>sapA</i>	PM0241	high affinity zinc uptake system membrane protein	<i>yebM</i>
PM0204	aconitate hydratase 2	<i>acnB</i>	PM0912	peptide ABC transporter, permease protein	<i>sapB</i>	PM0242	high affinity zinc uptake system, ATP binding protein	
PM0276	citrate synthase	<i>glfA</i>	PM0913	peptide ABC transporter, permease protein	<i>sapC</i>	PM0300	TonB-dependent receptor, putative	
PM0277	2-oxoglutarate dehydrogenase, E1 component	<i>sucA</i>	PM0914	peptide ABC transporter, ATP-binding protein	<i>sapD</i>	PM0336	TonB-dependent receptor, putative	
PM0278	2-oxoglutarate dehydrogenase, E2 component, dihydrolipoamide succinyltransferase	<i>sucB</i>	PM0915	peptide ABC transporter, ATP-binding protein	<i>sapF</i>	PM0337	hemoglobin/haptoglobin binding protein	
PM0280	succinate-coa ligase (ADP-forming) beta	<i>sucC</i>	PM1192	tryptophan-specific transport protein	<i>mtr</i>	PM0341	sodium/proline symporter	<i>putP</i>
PM0281	succinate-coa ligase (ADP-forming) alpha	<i>sucD</i>				PM0365	Na ⁺ /H ⁺ antiporter, putative	<i>nhaP</i>
PM0546	phosphoenolpyruvate carboxylase	<i>ppc</i>				PM0397	iron (chelated) transporter, permease protein	<i>yfeD</i>
PM0550	malate dehydrogenase, putative	<i>mdh</i>						
PM0823	fumarate hydratase class II	<i>fumC</i>						
PM1606	isocitrate dehydrogenase	<i>idp</i>						

PM0398	iron (chelated) ABC transporter, permease protein, putative	<i>yfeC</i>	PM0275	C4-dicarboxylate-binding periplasmic protein		PM1653	large integral C4-dicarboxylate membrane transport protein, putative	
PM0399	iron (III) dicitrate transport ATP-binding protein, iron (chelated) transporter	<i>yfeB</i>	PM0765	unknown pentitol PTS enzyme, putative		PM1740	gluconate transport protein homolog	<i>gntP</i>
PM0400	Mn transport protein ABC transporter, iron (chelated) transporter, periplasmic-binding protein, putative	<i>yfeA</i>	PM0793	gluconate permease	<i>gntP</i>	PM1752	phosphotransferase system enzyme II, glucose-specific	<i>ptsG</i>
PM0576	heme-hemopexin utilization protein C	<i>hemR</i>	PM0832	phosphotransferase system enzyme II, mannose-specific, factor IID	<i>ptmD</i>	PM1763	maltose transport ATP-binding protein	
PM0588	sodium/proline symporter	<i>putP</i>	PM0833	phosphotransferase system enzyme II, mannose-specific, factor IIC	<i>ptmC</i>	PM1795	phosphotransferase system enzyme II, fructose-specific	<i>fruA</i>
PM0592	heme-binding protein A precursor	<i>hbpA</i>	PM0834	phosphotransferase system enzyme II, mannose-specific, factor IIAB		PM1797	phosphotransferase system enzyme II, fructose-specific, IIA/FPR component	<i>fruB</i>
PM0666	ferritin like protein 1	<i>rsgA1</i>	PM0876	phosphotransferase system permease for N-acetylglucosamine and glucose		PM1846	phosphotransferase system enzyme II, sucrose-specific, factor IIBC	<i>ptsB</i>
PM0667	ferritin like protein 2	<i>rsgA2</i>	PM0896	phosphotransferase system enzyme II, glucose-specific factor III	<i>crr</i>	PM1852	L-lactate permease	<i>lctP</i>
PM0741	hemoglobin receptor precursor		PM0897	phosphoenolpyruvate-protein phosphotransferase	<i>ptsI</i>	PM1918	C4-dicarboxylate membrane transporter	
PM0745	outer membrane heme receptor, hypothetical		PM0898	phosphocarrier protein hpr	<i>ptsH</i>	PM1969	phosphotransferase system enzyme III, glucitol	
PM0953	AfuA protein, putative	<i>afuA</i>	PM1038	D-galactose binding periplasmic protein precursor	<i>mglB</i>	PM1970	phosphotransferase system enzyme II, glucitol/sorbitol-specific, factor IIBC	
PM0954	AfuA protein, putative	<i>afuA</i>	PM1039	galactoside transport ATP-binding protein	<i>mglA</i>	PM1971	phosphotransferase system enzyme II, glucitol/sorbitol-specific, factor IIB	
PM0955	AfuA protein, putative	<i>afuA</i>	PM1040	galactoside ABC transporter, permease protein	<i>mglC</i>		<i>Nucleosides, purines, and pyrimidines</i>	
PM0956	AfuB protein, putative	<i>afuB</i>	PM1061	phosphotransferase system mannitol-specific enzyme IIBC component	<i>ptmA</i>	PM0018	uracil permease, putative	<i>uraA</i>
PM0957	ferric transport protein	<i>afuC</i>	PM1250	ribose transport system permease	<i>rbsC</i>		<i>Other</i>	
PM1052	bacterioferritin comigratory protein	<i>bcp</i>	PM1251	ribose transport ATP-binding protein	<i>rbsA</i>	PM0158	alkylphosphonate uptake protein	<i>phnA</i>
PM1078	hemin binding receptor		PM1274	ABC transporter ATP binding protein, probable ribose sugar transport ATP-binding protein		PM0331	outer membrane protein ompW precursor	<i>ompW</i>
PM1079	FecCD-family membrane transport		PM1275	ABC transporter ATP binding protein, probable L-arabinase sugar transport ATP-binding protein		PM0376	thiamin-binding periplasmic protein precursor	<i>tbpA</i>
PM1147	iron chelatin ABC transporter, putative		PM1276	ABC transporter ATP binding protein, probable ribose sugar transport ATP-binding protein		PM0377	thiamin ABC transporter, permease protein, putative	
PM1148	iron chelatin ABC transporter, putative		PM1277	sugar binding protein, putative		PM0378	thiamin ABC transporter, ATP-binding protein, putative	
PM1149	iron chelatin ABC transporter, putative		PM1324	D-allose binding periplasmic protein		PM1089	sodium/pantothenate symporter	<i>panF</i>
PM1186	biopolymer transport protein homolog	<i>exbB</i>	PM1325	D-allose binding periplasmic protein		PM1104	efflux pump component, putative	<i>mtrF</i>
PM1187	biopolymer transport protein	<i>exbD</i>	PM1326	ribose ABC transporter, ATP-binding protein		PM1155	transferrin binding protein, putative	
PM1188	TonB protein	<i>tonB</i>	PM1327	ribose transport system permease protein	<i>rbsC</i>	PM1421	oxaloacetate decarboxylase gamma chain, sodium ion pump	
PM1212	mercuric ion transport protein, putative	<i>merT</i>	PM1341	hexosephosphate transport protein	<i>uhpT</i>	PM1422	oxaloacetate decarboxylase alpha chain, sodium ion pump	
PM1213	mercuric reductase homolog, mercuric ion scavenger	<i>merP</i>	PM1359	gluconate transport protein homolog	<i>gntP</i>	PM1423	oxaloacetate decarboxylase beta chain, sodium ion pump	
PM1265	ABC transporter, permease protein, nitrate transport		PM1377	D-ribose binding periplasmic protein precursor	<i>rbsB</i>	PM1455	AfuB homolog	<i>afuB</i>
PM1308	ABC transporter, hemin permease homolog, putative	<i>hemU</i>	PM1378	ribose ABC transporter, permease protein			<i>Unknown substrate</i>	
PM1309	ferric enterobactin transport ATP-binding protein, hypothetical ABC transporter		PM1379	ribose ABC transporter, ATP-binding protein		PM0041	hypothetical ABC transporter, ATP binding protein I	
PM1315	magnesium and cobalt transport protein	<i>corA</i>	PM1434	anaerobic dicarboxylate transport protein homolog	<i>dcuB</i>	PM0094	3-phenylpropionic acid transporter, putative	
PM1337	cation-efflux system membrane protein	<i>czcD</i>	PM1443	glycerol-3-phosphate transporter	<i>glpT</i>	PM0170	nitrogen regulatory IIA protein	<i>ptsN</i>
PM1457	periplasmic iron-binding protein, putative		PM1445	glycerol uptake facilitator protein	<i>glpF</i>	PM0171	ABC transporter, ATP binding protein, putative	
PM1498	TRK system potassium uptake protein	<i>trkH</i>	PM1454	multiple sugar-binding transport ATP binding protein	<i>msmK</i>	PM0174	ABC transporter, ATP-binding protein, putative	
PM1563	TRK system potassium uptake protein	<i>trkA</i>	PM1458	phosphoglycerate transport regulatory protein	<i>pgtC</i>	PM0273	large integral membrane protein, transport protein, putative	
PM1622	heme receptor	<i>hasR</i>	PM1459	phosphoglycerate transport regulatory protein	<i>pgtC</i>	PM0274	small integral membrane protein, transport protein, putative	
PM1684	Na ⁺ /H ⁺ antiporter	<i>nhaA</i>	PM1525	C4-dicarboxylate periplasmic binding protein, putative	<i>dctP</i>	PM0380	sodium-dependent transporter, putative	
PM1891	mercuric ion-binding protein, putative		PM1527	large integral C4-dicarboxylate membrane transport protein, putative		PM0388	outer membrane protein	<i>ompH</i>
PM1892	cation-transport ATPase, potassium/copper-transporting ATPase, putative					PM0389	outer membrane protein	<i>ompH</i>
	<i>Carbohydrates, organic alcohols, and acids</i>					PM0425	ABC transporter, ATP-binding protein	
PM0074	formate transporter, putative					PM0450	hypothetical ABC transporter	
PM0153	D-ribose-binding periplasmic protein precursor	<i>rbsB</i>						
PM0154	ribose transport system permease protein	<i>rbsC</i>						
PM0155	ribose transport ATP-binding protein	<i>rbsA</i>						
PM0156	high affinity ribose transport protein	<i>rbsD</i>						
PM0230	C4-dicarboxylate anaerobic carrier	<i>dcuC</i>						

PM0470	ABC-type transport protein, putative	<i>yagD</i>	PM0206	recombination protein	<i>recR</i>	PM1486	glucose inhibited division protein B	<i>gidB</i>
PM0538	outer membrane protein, putative		PM0207	DNA topoisomerase III	<i>topB</i>	PM1561	Sun protein	<i>sun</i>
PM0561	ABC transporter, ATP-binding protein, putative		PM0332	DNA repair protein	<i>recN</i>	PM1601	DNA-3-methyladenine glycosidase I	<i>tagI</i>
PM0571	ATP-binding transport protein, putative	<i>cycC</i>	PM0356	SeqA protein homolog	<i>seqA</i>	PM1674	DNA polymerase III, delta' subunit	<i>holB</i>
PM0572	ATP-binding transport protein, putative	<i>cycD</i>	PM0364	DNA polymerase III, subunits gamma and tau	<i>dnaX</i>	PM1701	integrase/recombinase	<i>xerC</i>
PM0718	sodium-dependent transporter, putative		PM0369	topoisomerase IV subunit A	<i>parC</i>	PM1716	DNA ligase	<i>lig</i>
PM0764	transport protein, putative		PM0370	topoisomerase IV subunit B	<i>parE</i>	PM1750	DNA alkylation repair enzyme	
PM0786	outer membrane protein		PM0381	endonuclease III	<i>nth</i>	PM1817	RecA protein	<i>recA</i>
PM0830	outer membrane protein, putative		PM0411	DNA helicase II	<i>uvrD</i>	PM1830	DNA mismatch repair protein	<i>mutS</i>
PM0831	outer membrane protein	<i>ompH</i>	PM0412	replicative DNA helicase	<i>dnaB</i>	PM1867	DNA repair protein	<i>recO</i>
PM0843	TadG, nonspecific tight adherence protein	<i>tadG</i>	PM0429	excinuclease ABC subunit B	<i>uvrB</i>	PM1950	single-stranded DNA-binding protein	<i>ssb</i>
PM0844	TadF, nonspecific tight adherence protein	<i>tadF</i>	PM0445	pyrimidine dimer-specific glycosylase		PM1951	excinuclease ABC subunit A	<i>uvrA</i>
PM0845	TadE, nonspecific tight adherence protein	<i>tadE</i>	PM0467	DNA damage inducible protein P	<i>dinP</i>			
PM0846	TadD, nonspecific tight adherence protein	<i>tadD</i>	PM0516	exodeoxyribonuclease V, beta chain	<i>recB</i>	<i>Restriction/modification</i>		
PM0847	TadC, nonspecific tight adherence protein	<i>tadC</i>	PM0517	exodeoxyribonuclease V, alpha chain	<i>recD</i>	PM0390	adenine specific methylase, putative	<i>dam</i>
PM0848	TadB, nonspecific tight adherence protein	<i>tadB</i>	PM0615	DNA topoisomerase I	<i>topA</i>	PM0698	methyltransferase, type III DNA modification enzyme	
PM0849	TadA, nonspecific tight adherence protein	<i>tadA</i>	PM0628	integration host factor, alpha-subunit	<i>himA</i>	PM0699	type III restriction enzyme, restriction endonuclease	
PM0861	ABC-type transport protein	<i>msbA</i>	PM0691	exodeoxyribonuclease III		PM1041	transcription-repair coupling factor	<i>mfd</i>
PM0877	ABC transporter, ATP-binding protein	<i>uupI</i>	PM0710	ATP-dependent helicase, putative	<i>dnt</i>	PM1537	site-specific DNA-methyltransferase, type I modification	<i>hsdM</i>
PM0966	outer membrane protein		PM0800	integration host factor, beta-subunit	<i>himD</i>	PM1538	type I site-specific deoxyribonuclease, putative	<i>hsdA</i>
PM0996	ABC transporter, ATP-binding subunit homolog		PM0822	DNA polymerase III, chi subunit	<i>holC</i>	PM1541	type I site-specific deoxyribonuclease/modification	<i>hsdR</i>
PM1069	outer membrane protein P1 precursor		PM0841	DNA gyrase subunit A	<i>gyrA</i>	PM1750	DNA alkylation repair enzyme	
PM1072	ABC transporter, ATP-binding protein, putative		PM0857	excinuclease ABC subunit C	<i>uvrC</i>			
PM1110	ABC transporter, ATP-binding protein, putative		PM0863	DnaK suppressor protein	<i>dksA</i>	<i>Degradation of DNA</i>		
PM1131	permease, putative	<i>perM</i>	PM0892	ImpA protein, putative	<i>impA</i>	PM0168	exodeoxyribonuclease VII, large subunit	<i>xseA</i>
PM1266	ABC transporter, ATP-binding protein, nasD homolog		PM0904	DNA mismatch repair protein	<i>mutL</i>	PM0192	single-stranded-DNA-specific exonuclease	<i>recJ</i>
PM1301	ABC transporter, ATP-binding protein, putative		PM0919	ATP-dependent DNA helicase	<i>recG</i>	PM0534	exodeoxyribonuclease VII small subunit	<i>xseB</i>
PM1328	48 kDa outer membrane protein		PM0959	DNA polymerase III, psi subunit	<i>hold</i>	PM0611	exonuclease I	<i>sbcB</i>
PM1456	ATP-binding transport protein, putative		PM0961	exodeoxyribonuclease V, gamma chain	<i>recC</i>	<i>Chromosome-associated proteins</i>		
PM1473	ABC transporter, ATP-binding protein, putative		PM0976	Holliday junction DNA helicase	<i>ruvB</i>	PM0872	VicH, DNA-binding protein H-NS homolog	<i>hns</i>
PM1474	transport ATP binding protein	<i>cydD</i>	PM0977	Holliday junction DNA helicase	<i>ruvA</i>	PM1732	DNA-binding protein HU-2 alpha	<i>hupA</i>
PM1564	large conductance mechanosensitive channel	<i>mscL</i>	PM0978	crossover junction endodeoxyribonuclease	<i>ruvC</i>	TRANSCRIPTION		
PM1582	ABC transporter, ATP-binding protein, putative		PM1059	ATP-dependent DNA helicase	<i>rep</i>	<i>Degradation of RNA</i>		
PM1728	ATP-binding protein, ABC transporter		PM1065	DNA polymerase I	<i>polA</i>	PM0181	exoribonuclease II	<i>rnb</i>
PM1729	ABC transporter permease protein, putative		PM1067	DNA mismatch repair protein	<i>mutH</i>	PM1114	polynucleotide phosphorylase, polyribonucleotide nucleotidyltransferase	<i>pnp</i>
PM1791	transport protein homolog		PM1068	methylated-DNA--protein-cysteine methyltransferase	<i>datI</i>	PM1921	ATP-dependent RNA helicase	<i>rhB</i>
PM1982	ABC transporter, ATP-binding protein, putative		PM1086	factor for inversion stimulation protein, DNA-binding protein	<i>fis</i>	PM1998	Ribonuclease HIII	<i>rnhB</i>
PM1992	outer membrane antigen OMA87		PM1137	primosomal protein N'	<i>priA</i>	<i>DNA-dependent RNA polymerase</i>		
PM2000	outer membrane protein, putative		PM1145	formamidopyrimidine-DNA glycosylase	<i>fpg</i>	PM0921	DNA-directed RNA polymerase, omega chain	<i>rpoZ</i>
			PM1152	DNA repair protein	<i>radC</i>	PM1390	DNA-directed RNA polymerase, alpha chain	<i>rpoA</i>
DNA METABOLISM			PM1159	DNA/ATP binding protein RecF	<i>recF</i>	PM1736	DNA-directed RNA polymerase, beta' chain	<i>rpoC</i>
<i>DNA replication, recombination, and repair</i>			PM1160	DNA polymerase III, beta subunit	<i>dnaN</i>	PM1737	DNA-directed RNA polymerase, beta chain	<i>rpoB</i>
PM0034	DNA polymerase III, alpha subunit	<i>dnaE</i>	PM1161	chromosomal replication initiator protein	<i>dnaA</i>	PM1837	ATP-dependent helicase, RNA polymerase associated protein	<i>hepA</i>
PM0065	uracil DNA glycosylase	<i>ung</i>	PM1179	primosomal replication protein N	<i>priB</i>	<i>Transcription factors</i>		
PM0093	integrase/recombinase	<i>xerD</i>	PM1216	DNA polymerase III, delta subunit	<i>holA</i>	PM0092	sigma (54) modulation protein, putative	
PM0106	DNA polymerase III, epsilon subunit	<i>dnaQ</i>	PM1218	mutator MutT protein	<i>mutT</i>	PM0209	sigma factor, putative	
PM0107	ribonuclease H	<i>rnh</i>	PM1222	DNA adenine methylase	<i>dam</i>	PM0715	transcription elongation factor	<i>greA</i>
			PM1240	DNA primase	<i>dnaG</i>	PM0730	N utilization substance protein	<i>nusB</i>
			PM1319	A/G-specific adenine glycosylase	<i>mutY</i>			
			PM1427	ATP-dependent DNA helicase	<i>recQ</i>			
			PM1468	site-specific recombinase				
			PM1476	DNA gyrase subunit B	<i>gyrB</i>			
			PM1485	glucose inhibited division protein A	<i>gidA</i>			

PM0760	N utilization substance protein A, transcription anti-termination factor	<i>nusA</i>	PM1662	isoleucine--tRNA ligase, isoleucyl-tRNA synthetase	<i>ileS</i>	PM0229	putative queuine tRNA-ribosyltransferase	<i>tgt</i>
PM1241	RNA polymerase sigma-70-subunit	<i>rpoD</i>	PM1768	seryl-tRNA(Ser) selenium transferase	<i>sela</i>	PM0232	S-adenosylmethionine, tRNA ribosyltransferase-isomerase, queuosine biosynthesis protein	<i>queA</i>
PM1450	transcription elongation factor	<i>greB</i>	PM2011	histidyl-tRNA ligase, histidine-tRNA synthetase	<i>hisS</i>	PM0637	tRNA-pseudouridine synthase 1	<i>truA</i>
PM1584	RNA polymerase sigma-32 factor	<i>rpoH</i>	<i>Ribosomal proteins: synthesis and modification</i>			PM0756	tRNA pseudouridine 55 synthase	<i>truB</i>
PM1744	transcription anti-termination protein	<i>nusG</i>	PM0960	peptide N-acetyltransferase, ribosomal protein alanine acetyltransferase	<i>rimI</i>	PM0905	tRNA delta(2)-isopentenylpyrophosphate transferase	<i>trpX</i>
PM1789	RNA polymerase sigma-E factor	<i>rpoE</i>	PM0220	probable ribosomal protein L31	<i>rpL31</i>	PM0992	ribosomal large subunit pseudouridine synthase C	<i>rluC</i>
PM1920	transcription termination factor	<i>rho</i>	PM0301	ribosomal protein S15	<i>rpS15</i>	PM1209	dimethyladenosine transferase	<i>ksgA</i>
<i>RNA processing</i>			PM0347	ribosomal protein L21	<i>rpL21</i>	PM1296	16S rRNA processing protein, putative	<i>rimM</i>
PM0061	ribonuclease III	<i>rnc</i>	PM0348	ribosomal protein L27	<i>rpL27</i>	PM1297	tRNA (guanine-N1)-methyltransferase	<i>trmD</i>
PM0247	tRNA nucleotidyltransferase	<i>cca</i>	PM0520	ribosomal protein L13	<i>rpL13</i>	PM1336	tRNA 5-methylaminomethyl-2-thiouridylate, putative rRNA methylase, putative	<i>rbn</i>
PM0706	ribonuclease D	<i>rnd</i>	PM0521	ribosomal protein S9	<i>rpS9</i>	PM1513	ribonuclease BN	<i>rbn</i>
PM0757	ribosome binding factor A	<i>rbfA</i>	PM0603	ribosomal protein L35	<i>rpL35</i>	PM1616	ribosomal small subunit pseudouridine	<i>sfB</i>
PM0864	poly(A) polymerase	<i>pcnB</i>	PM0604	ribosomal protein L20	<i>rpL20</i>	PM1719	tRNA (uracil-5-)-methyltransferase	<i>trmA</i>
PM0988	ribonuclease T	<i>rnt</i>	PM0639	ribosomal protein L25	<i>rpL25</i>	PM1803	ribosomal large subunit pseudouridine synthase A	<i>rsuA</i>
PM0991	ribonuclease E	<i>rne</i>	PM0801	ribosomal protein S1	<i>rpS1</i>	PM1836	rRNA methylase, putative	
PM1163	ribonuclease P	<i>rnpA</i>	PM1088	ribosomal protein L11	<i>rpL11</i>	PM1857	rRNA methyltransferase, putative	
PM1876	ribonuclease PH	<i>rph</i>	PM1142	ribosomal protein L31	<i>rpL31</i>	PM1866	rRNA methyltransferase, putative	
<i>Other</i>			PM1150	ribosomal protein L33	<i>rpL33</i>	PM1953	tRNA/rRNA methyltransferase	
PM1447	transcription accessory protein, putative	<i>tex</i>	PM1151	ribosomal protein L28	<i>rpL28</i>	<i>Translation factors</i>		
PROTEIN SYNTHESIS			PM1162	ribosomal protein L34	<i>rpL34</i>	PM0100	translation elongation factor P	<i>efp</i>
<i>tRNA aminoacylation</i>			PM1177	ribosomal protein L9	<i>rpL9</i>	PM0190	peptide chain release factor 2	<i>prfB</i>
PM0189	lysine--tRNA ligase, lysyl-tRNA synthetase	<i>lysU</i>	PM1178	ribosomal protein S18	<i>rpS18</i>	PM0555	peptide chain release factor 1	<i>prfA</i>
PM0202	lysine--tRNA ligase, lysyl-tRNA synthetase	<i>lysU</i>	PM1180	ribosomal protein S6	<i>rpS6</i>	PM0602	translation initiation factor IF-3	<i>infC</i>
PM0258	seryl-tRNA ligase, serine-tRNA synthetase	<i>serS</i>	PM1239	ribosomal protein S21	<i>rpS21</i>	PM0759	translation initiation factor 2	<i>infB</i>
PM0303	methionine--tRNA ligase, methionyl-tRNA synthetase	<i>metG</i>	PM1298	ribosomal protein L19	<i>rpL19</i>	PM0816	peptide chain release factor 3	<i>prfC</i>
PM0528	glutamine--tRNA ligase, glutaminyl-tRNA synthetase	<i>glnS</i>	PM1354	ribosomal protein S12	<i>rpS12</i>	PM1031	translation initiation factor 1	<i>infA</i>
PM0551	arginine--tRNA ligase, arginyl-tRNA synthetase	<i>argS</i>	PM1355	ribosomal protein S7	<i>rpS7</i>	PM1356	translation elongation factor EF-G	<i>fusA</i>
PM0593	threonine--tRNA ligase, threonyl-tRNA synthetase	<i>thrS</i>	PM1389	ribosomal protein L17	<i>rpL17</i>	PM1357	translation elongation factor EF-Tu	<i>tufA</i>
PM0629	phenylalanine--tRNA ligase, phenylalanyl-tRNA synthetase	<i>pheT</i>	PM1391	ribosomal protein S4	<i>rpS4</i>	PM1746	translation elongation factor EF-Tu	<i>tufB</i>
PM0631	phenylalanine--tRNA ligase, phenylalanyl-tRNA synthetase	<i>pheT</i>	PM1392	ribosomal protein S11	<i>rpS11</i>	PM1766	selenocysteine-specific elongation factor	<i>selB</i>
PM0643	asparagine--tRNA ligase, asparaginyl-tRNA synthetase	<i>asnS</i>	PM1393	ribosomal protein S13	<i>rpS13</i>	PM1985	translation elongation factor EF-Ts	<i>tsf</i>
PM0684	glutamine--tRNA ligase, glutaminyl-tRNA synthetase	<i>gltX</i>	PM1394	ribosomal protein L36	<i>rpL36</i>	PM1987	ribosome recycling factor, releasing factor	<i>errf</i>
PM0755	tyrosine--tRNA ligase, tyrosyl-tRNA synthetase	<i>tyrS</i>	PM1396	ribosomal protein L15	<i>rpL15</i>	<i>Other</i>		
PM0818	valine--tRNA ligase, valyl-tRNA synthetase	<i>valS</i>	PM1397	ribosomal protein L30	<i>rpL30</i>	PM0164	peptidyl-tRNA hydrolase	<i>pth</i>
PM0945	cysteine--tRNA ligase, cysteinyl-tRNA synthetase	<i>cysS</i>	PM1398	ribosomal protein S5	<i>rpS5</i>	PM0217	small protein B	<i>smpB</i>
PM0983	aspartate--tRNA ligase, aspartyl-tRNA synthetase	<i>aspS</i>	PM1399	ribosomal protein L18	<i>rpL18</i>	PM0769	ATP-dependent helicase	<i>hrpA</i>
PM1098	glycine--tRNA ligase, glycyl-tRNA synthetase	<i>glyQ</i>	PM1400	ribosomal protein L6	<i>rpL6</i>	PM1112	ATP-dependent RNA helicase	<i>deaD</i>
PM1102	glycine--tRNA ligase beta chain, glycyl-tRNA synthetase beta chain	<i>glyS</i>	PM1401	ribosomal protein S8	<i>rpS8</i>	PM1840	ATP-dependent RNA helicase	<i>srmB</i>
PM1115	glutamate--tRNA ligase, glutamyl-tRNA synthetase	<i>gltX</i>	PM1402	ribosomal protein S14	<i>rpS14</i>	PROTEIN FATE		
PM1214	leucine tRNA ligase, leucyl-tRNA synthetase	<i>leuS</i>	PM1403	ribosomal protein L5	<i>rpL5</i>	<i>Protein and peptide secretion and trafficking</i>		
PM1287	alanine--tRNA ligase, alanyl-tRNA synthetase	<i>alaS</i>	PM1404	ribosomal protein L24	<i>rpL24</i>	PM0062	signal peptidase I	<i>lepB</i>
PM1370	proline--tRNA ligase, prolyl-tRNA synthetase	<i>proS</i>	PM1405	ribosomal protein L14	<i>rpL14</i>	PM0085	protein transport protein	<i>hofB</i>
PM1560	methionyl-tRNA formyltransferase	<i>fmt</i>	PM1406	ribosomal protein S17	<i>rpS17</i>	PM0086	protein transport protein	<i>hofC</i>
PM1621	tryptophan--tRNA ligase, tryptophanyl-tRNA synthetase	<i>trpS</i>	PM1407	ribosomal protein L29	<i>rpL29</i>	PM0087	putative type 4 prepilin-like protein specific leader peptidase	<i>hopD</i>
			PM1408	ribosomal protein L16	<i>rpL16</i>	PM0208	protein-export membrane protein	<i>secG</i>
			PM1409	ribosomal protein S3	<i>rpS3</i>	PM0226	protein-export membrane protein	<i>secF</i>
			PM1410	ribosomal protein L22	<i>rpL22</i>	PM0227	protein-export membrane protein	<i>secD</i>
			PM1411	ribosomal protein S19	<i>rpS19</i>			
			PM1412	ribosomal protein L2	<i>rpL2</i>			
			PM1413	ribosomal protein L23	<i>rpL23</i>			
			PM1414	ribosomal protein L4	<i>rpL4</i>			
			PM1415	ribosomal protein L3	<i>rpL3</i>			
			PM1416	ribosomal protein S10	<i>rpS10</i>			
			PM1659	ribosomal protein S20	<i>rpS20</i>			
			PM1738	ribosomal protein L12	<i>rpL12</i>			
			PM1739	ribosomal protein L10	<i>rpL10</i>			
			PM1742	ribosomal protein L1	<i>rpL1</i>			
			PM1743	ribosomal protein L11	<i>rpL11</i>			
			PM1912	ribosomal protein L32	<i>rpL32</i>			
			PM1984	ribosomal protein S2	<i>rpS2</i>			
			PM0826	ribosomal protein S6 modification protein	<i>rimK</i>			
			<i>tRNA and rRNA base modification</i>					
			PM0003	16S pseudouridylate 516 synthase, ribosomal small subunit pseudouridine synthetase A	<i>rsuA</i>			
			PM0070	rRNA methyltransferase,				

PM0228	preprotein translocase	<i>yajC</i>	PM0454	peptidase E	<i>pepE</i>	PM0754	sugar fermentation stimulation protein	<i>sfsA</i>
PM0246	outer membrane lipoprotein	<i>lolB</i>	PM0468	heat shock protein, probable protease	<i>htpX</i>	PM0762	transcription regulator, putative	
PM0256	outer membrane lipoproteins carrier protein	<i>lola</i>	PM0483	ion protease, putative		PM0791	gluconate utilization system gnt-L repressor	
PM1183	signal recognition 7particle protein	<i>ffh</i>	PM0585	protease, putative	<i>sohB</i>	PM0868	fructose repressor	<i>fruR</i>
PM1219	preprotein translocase	<i>secA</i>	PM0618	aminopeptidase N	<i>pepN</i>	PM0908	transcriptional regulatory protein	<i>tyrR</i>
PM1395	preprotein translocase	<i>secY</i>	PM0671	protease IV	<i>sppA</i>	PM0920	guanosine-3',5'-bis (diphosphate) 3'-pyrophosphohydrolase	<i>spoT</i>
PM1432	protein-export protein	<i>secB</i>	PM0680	oligopeptidase A	<i>prlC</i>	PM1019	lacZ expression regulator, Icc protein homolog	<i>icc</i>
PM1519	cell division protein, signal recognition particle	<i>ftsY</i>	PM0734	heat shock protein, periplasmic serine protease, putative	<i>htrA</i>	PM1026	SprT homolog	<i>sprT</i>
PM1663	lipoprotein signal peptidase	<i>lspA</i>	PM0748	protease DegS precursor	<i>degS</i>	PM1037	galactose operon repressor	<i>galR</i>
PM1691	sec-independent protein translocase protein	<i>tatC</i>	PM0804	zinc protease, zinc	<i>pqqL</i>	PM1063	mannitol operon repressor	<i>mtl</i>
PM1745	preprotein translocase	<i>secE</i>	PM0932	carboxypeptidase G2		PM1135	transcription regulator, putative	
<i>Protein modification and repair</i>			PM1029	peptidase B	<i>pepB</i>	PM1157	cAMP receptor protein, catabolite gene activator	<i>crp</i>
PM0120	PmbA homolog	<i>pmbA</i>	PM1238	O-sialoglycoprotein endopeptidase	<i>gcp</i>	PM1181	LexA repressor	<i>lexA</i>
PM0188	beta-galactoside alpha-2,6-sialyltransferase		PM1368	aminoacyl-histidine dipeptidase, X-his dipeptidase	<i>pepD</i>	PM1231	transcription regulator GntR family homolog	<i>gntR</i>
PM0375	glutamate-ammonia-ligase adenyllyltransferase	<i>glmE</i>	PM1590	peptidase E, putative	<i>pepE</i>	PM1257	transcriptional regulator, putative	
PM0414	glycosyltransferase homolog	<i>pglA</i>	PM1704	ATP-dependent Clp protease, ATPase subunit	<i>clpB</i>	PM1273	transcriptional regulator, sorC family, putative	
PM0459	methionine aminopeptidase	<i>map</i>	PM1724	aminopeptidase P,	<i>pepP</i>	PM1283	transcriptional activator	<i>ilvY</i>
PM1559	polypeptide deformylase	<i>def</i>	PM1749	heat shock protein, putative	<i>hslV</i>	PM1288	carbon storage regulator	<i>csrA</i>
PM1569	tyrosine phosphatase, putative	<i>yfkJ</i>	PM1976	ATP-dependent Clp protease, proteolytic subunit	<i>clpP</i>	PM1290	met repressor	<i>metJ</i>
<i>Protein folding and stabilization</i>			PM1977	ATP-dependent Clp protease, ATP-binding subunit	<i>clpX</i>	PM1302	saccharide biosynthesis regulatory protein	<i>opsX</i>
PM0011	thiol:disulfide interchange protein	<i>dsbE</i>	PM1978	ATP-dependent proteinase	<i>lon</i>	PM1338	regulatory protein	<i>uhpC</i>
PM0028	thiol:disulfide interchange protein	<i>dsbE</i>	REGULATORY FUNCTIONS			PM1339	sensor protein UhpB, hexose phosphate transport system regulatory protein	<i>uhpB</i>
PM0046	disulfide bond formation protein B	<i>dsbB</i>	<i>Other</i>			PM1340	transcription regulator protein	<i>uhpA</i>
PM0191	thiol:disulfide interchange protein	<i>dsbC</i>	PM0151	Rbs repressor homolog	<i>rbsR</i>	PM1344	deoxyribose operon repressor	<i>deoR</i>
PM0221	thiol:disulfide interchange protein	<i>dsbD</i>	PM0178	anti-sigma factor B antagonist, putative		PM1346	hydrogen peroxide-inducible genes activator	<i>oxyR</i>
PM0321	co-chaperone Hsc20	<i>hscB</i>	PM0214	transcriptional regulatory protein, putative	<i>ygiX</i>	PM1367	glycerol-3 phosphate regulon, putative	
PM0322	chaperone protein, heat shock protein	<i>hscA</i>	PM0215	sensor protein, putative	<i>ygiY</i>	PM1380	hybrid histidine protein kinase-phosphate acceptor regulatory protein	<i>cvgSY</i>
PM0334	heat shock protein	<i>grpE</i>	PM0219	aerobic respiration control protein	<i>arcA</i>	PM1387	transcription regulator	<i>nadR</i>
PM0736	DnaK heat shock protein 70	<i>DnaK</i>	PM0254	leucine responsive regulatory protein	<i>lrp</i>	PM1439	glycerol-3-phosphate regulon repressor	<i>glpR</i>
PM0740	heat shock protein	<i>dnaJ</i>	PM0268	positive regulator of proline porter II, putative	<i>proQ</i>	PM1460	phosphoglycerate transport system activator protein	
PM0943	peptidyl-prolyl cis-trans isomerase B		PM0296	biotin operon repressor/biotin acetyl coenzyme A	<i>birA</i>	PM1524	regulator of the 4HPA-hydroxylase operon	<i>hpaA</i>
PM0944	peptidyl-prolyl cis-trans isomerase B	<i>ppiB</i>	PM0313	carboxylase synthetase aerobic respiration control sensor protein	<i>arcB</i>	PM1573	regulatory protein AsnC	<i>asnC</i>
PM1024	heat shock protein	<i>htpG</i>	PM0325	operon repressor	<i>trpR</i>	PM1591	nitrate/nitrite sensor protein	<i>narQ</i>
PM1106	10 KD chaperonin, heat-shock protein	<i>groES</i>	PM0352	ferric uptake regulation protein	<i>fur</i>	PM1646	SmoC-like regulatory protein	
PM1107	60 KD chaperonin, heat shock protein	<i>groEL</i>	PM0403	DNA binding protein HpkR, putative	<i>hpkR</i>	PM1678	putative arylsulfatase regulator	
PM1349	FkbP-type peptidyl-prolyl cis-trans isomerase	<i>slyD</i>	PM0421	transcriptional activator protein	<i>metR</i>	PM1764	transcription regulator	<i>gntR</i>
PM1567	FkbP-type peptidyl-prolyl cis-trans isomerase	<i>fkpA</i>	PM0431	phosphate regulon sensor protein	<i>phoR</i>	PM1787	sigma-E factor regulatory protein	<i>rseB</i>
PM1593	NapD protein	<i>napD</i>	PM0432	phosphate regulon transcriptional regulatory protein	<i>phoB</i>	PM1788	sigma-E factor negative regulatory protein	<i>mclA</i>
PM1706	thiol:disulfide interchange protein	<i>dsbD</i>	PM0522	stringent starvation protein A	<i>sspA</i>	PM1810	nitrate/nitrite response regulator protein	<i>narP</i>
PM1748	heat shock protein	<i>hslU</i>	PM0523	stringent starvation protein B	<i>sspB</i>	PM1811	adenylate cyclase	<i>cyaA</i>
PM1801	thiol:disulfide interchange protein	<i>dsbA</i>	PM0547	purine nucleotide synthesis repressor	<i>purR</i>	PM1816	regulatory protein recX homolog	<i>recX</i>
PM1878	DnaJ heat shock protein	<i>djlA</i>	PM0549	arginine repressor	<i>argR</i>	PM1847	sucrose operon repressor	<i>scrR</i>
PM1898	peptidyl-prolyl cis-trans isomerase		PM0567	glycine cleavage system transcriptional activator	<i>gcvA</i>	PM1865	GTP pyrophosphokinase	<i>relA</i>
PM1975	trigger factor	<i>tig</i>	PM0600	putative arylsulfatase regulator		PM1887	transcriptional regulator in 2-component system	<i>cpxR</i>
PM1979	peptidyl-prolyl cis-trans isomerase D, putative		PM0660	cys regulon transcriptional activator	<i>cysB</i>	PM1888	sensor protein, chemotaxis protein	<i>cpxA</i>
<i>Degradation of protein, peptides, and glycopeptides</i>			PM0668	fumarate (and nitrate) reduction regulatory protein	<i>fnr</i>	PM1941	transcriptional regulator, merR family, putative	
PM0117	HflK protein	<i>hflK</i>	PM0683	N-acetylglucosamine repressor	<i>nagC</i>	PM1945	transcription regulator	<i>ycaN</i>
PM0118	HflC protein	<i>hflC</i>	PM0724	tetraphosphate reductase system sensor	<i>ttrS</i>	PM1964	glucitol operon repressor srlR	
PM0160	N-caramyl-L-amino acid amidohydrolase, putative		PM0725	tetraphosphate reductase system response regulator	<i>ttrR</i>	PM1967	activator of srl operon	<i>gutM</i>
PM0195	aminopeptidase A/I	<i>pepA</i>				PM2004	nitrogen regulatory protein P-	<i>glnB</i>
PM0233	protease, putative							
PM0265	peptidase T	<i>pepT</i>						
PM0269	tail specific protease	<i>prc</i>						

II			PM0148	UDP-3-0-(3-hydroxymyristoyl) N-acetylglucosamine deacetylase	<i>lpxC</i>	PM1996	UDP-N-acetylglucosamine acetyltransferase	<i>lpxA</i>
CELL ENVELOPE			PM0187	probable acylneuraminase	<i>neuA</i>	PM1997	lipid-A-disaccharide synthetase	<i>lpxB</i>
<i>Surface structures</i>			PM0362	cytidyltransferase (kdo)2-(lauroyl)-lipid IVA acyltransferase	<i>msbB</i>	<i>Other</i>		
PM0084	prepilin peptidase dependent protein D	<i>ptfA</i>	PM0463	undecaprenyl-phosphate alpha-N-acetylglucosaminyltransferase (rfe), putative	<i>rfe</i>	PM0080	prolipoprotein diacylglycerol transferase	<i>lgt</i>
PM0663	sialidase precursor, neuraminidase		PM0507	lipopolysaccharide biosynthesis protein, putative		PM0098	opacity associated protein	<i>oopA</i>
PM0851	rough colony protein B	<i>rcpB</i>	PM0511	glycosyltransferase homolog		PM0554	15 kDa peptidoglycan-associated lipoprotein	<i>lpp</i>
PM0852	rough colony protein A	<i>rcpA</i>	PM0512	lsg locus, lipopolysaccharide biosynthesis protein		PM0586	lipoprotein plp4	<i>plp4</i>
PM0926	adhesin B precursor, putative	<i>fimA</i>	PM0525	KpsF protein, putative	<i>kpsF</i>	PM0627	hypothetical HI1314, lipoprotein	
PM1000	sialidase A precursor, neuraminidase		PM0558	2-dehydro-3-deoxyphosphooxonate aldolase	<i>kdsA</i>	PM0646	lipoprotein LppC	<i>lppC</i>
PM1007	WbjB, o-antigen locus	<i>wbjB</i>	PM0772	PhyB, capsule biosynthetic locus	<i>phyB</i>	PM0705	phosphate acetyltransferase	<i>pta</i>
PM1008	WbjC, o-antigen locus	<i>wbjC</i>	PM0773	PhyA, capsule biosynthetic locus	<i>phyA</i>	PM0867	SanA protein	<i>sanA</i>
PM1009	WbjC, o-antigen locus	<i>wbjD</i>	PM0774	HyaE, capsule biosynthetic locus	<i>hyaE</i>	PM1025	opacity protein, putative	<i>opa</i>
<i>Biosynthesis of murein sacculus and peptidoglycan</i>			PM0775	glucourosyltransferase	<i>hyaD</i>	PM1032	apolipoprotein N-acyltransferase	<i>cutE</i>
PM0136	penicillin-binding protein 3	<i>ftsI</i>	PM0776	UDP-glucose 6-dehydrogenase, capsule biosynthetic locus	<i>hyaC</i>	PM1064	lipoprotein	
PM0137	UDP-N-acetylmuramyl-tripeptide synthetase	<i>murE</i>	PM0777	glycosyl transferase, putative	<i>hyaB</i>	PM1077	lipoprotein	
PM0138	UDP-MurNAc-pentapeptide synthetase	<i>murF</i>	PM0778	HexD, capsule biosynthetic locus	<i>hexD</i>	PM1165	inner membrane protein, 60 kDa	<i>gidC</i>
PM0139	phospho-N-acetylmuramoyl-pentapeptide-transferase E	<i>mraY</i>	PM0779	HexC, capsule biosynthetic locus	<i>hexC</i>	PM1215	lipoprotein, putative	
PM0140	UDP-N-acetylmuramoylalanine--D-glutamate ligase	<i>murD</i>	PM0780	HexB, capsule biosynthetic locus	<i>hexB</i>	PM1323	lipoprotein, putative	
PM0142	UDP-N-acetylglucosamine--N-acetylmuramyl-(pentapeptide) pyrophosphoryl-undecaprenol N-acetylglucosamine transferase	<i>murG</i>	PM0781	HexA, capsule biosynthetic locus	<i>hexA</i>	PM1347	membrane protein, putative	
PM0143	UDP-N-acetylmuramate--alanine ligase	<i>murC</i>	PM0858	3-deoxy-D-manno-octulosonate cytidyltransferase	<i>kdsB</i>	PM1501	vacJ lipoprotein homolog	<i>vacJ</i>
PM0144	D-alanine--D-alanine ligase	<i>ddlB</i>	PM0860	tetracyldisaccharide 4' kinase	<i>lpxK</i>	PM1512	membrane protein, putative	<i>lapB</i>
PM0180	UDP-N-acetylglucosamine 1-carboxyvinyltransferase	<i>murZ</i>	PM0884	ADP-heptose synthase	<i>rfaE</i>	PM1517	outer membrane lipoprotein	<i>plpE</i>
PM0324	monofunctional biosynthetic peptidoglycan transglycosylase		PM0885	acyl transferase, lipid A biosynthesis		PM1518	outer membrane lipoprotein	<i>plpP</i>
PM0326	soluble lytic murein transglycosylase, putative		PM1010	lipopolysaccharide biosynthesis		PM1613	lipoprotein B, putative	<i>lppB</i>
PM0360	penicillin-insensitive murein endopeptidase	<i>mepA</i>	PM1011	undecaprenyl-phosphate galactosephosphotransferase	<i>rfbP</i>	PM1614	outer membrane antigenic lipoprotein B	
PM0413	alanine racemase	<i>alr</i>	PM1015	dTDP-glucose-4,6-dehydratase	<i>rfb</i>	PM1720	lipoprotein, putative	
PM0456	penicillin-binding protein 1B	<i>ponB</i>	PM1016	polysaccharide export protein Wza	<i>wza</i>	PM1730	outer membrane lipoprotein 2 precursor	<i>plpB</i>
PM0513	lytic transglycosylase		PM1018	transmembrane protein Wzs	<i>wzs</i>	PM2006	UDP-n-acetylglucosamine-peptide-n-acetylglucosaminyltransferase	
PM0642	Mlc, making large colonies homolog	<i>mlc</i>	PM1030	dTDP-glucose 4,6-dehydratase	<i>rffG</i>			
PM0644	bifunctional penicillin-binding protein 1C	<i>ponC</i>	PM1074	phosphomannomutase	<i>yhxB</i>			
PM0716	penicillin binding protein 4 precursor, serine-type D-ala-D-ala-carboxypeptidase homolog	<i>dacB</i>	PM1140	glycosyl transferase, putative				
PM0903	N-acetylmuramoyl-L-alanine amidase		PM1141	lipooligosaccharide biosynthesis protein				
PM0917	glutamate racemase, putative	<i>murI</i>	PM1143	los biosynthesis enzyme LbgA	<i>losA</i>			
PM0928	membrane-bound lytic murein transglycosylase A		PM1144	D-glycero-D-manno-heptosyl transferase				
PM1230	penicillin-binding protein 1A	<i>ponA</i>	PM1304	lipopolysaccharide core biosynthesis protein	<i>kdtB</i>			
PM1589	UDP-N-acetylenolpyruvoylglucosamine reductase	<i>murB</i>	PM1305	3-deoxy-d-manno-octulosonic-acid transferase	<i>kdtA</i>			
PM1806	UDP-N-acetylglucosamine pyrophosphorylase	<i>glmU</i>	PM1306	glycosyl transferase, putative				
PM1924	penicillin-binding protein 2	<i>pbp2</i>	PM1321	membrane-bound lytic murein transglycosylase A	<i>mltC</i>			
PM1925	rod shape-determining protein	<i>rodA</i>	PM1342	ADP-L-glycero-D-mannoheptose-6-epimerase	<i>rfaD</i>			
PM1927	penicillin-binding protein 5, serine-type D-Ala-D-Ala carboxypeptidase	<i>dacA</i>	PM1562	glycosyl transferase, putative				
PM1955	rod shape-determining protein	<i>mreB</i>	PM1844	ADP-heptose--LPS heptosyltransferase II	<i>rfaF</i>			
PM1956	rod shape-determining protein	<i>mreC</i>	PM1993	Skp, lipid A biosynthesis	<i>skp</i>			
PM1957	rod shape-determining protein	<i>mreD</i>	PM1994	UDP-3-O-[3-hydroxymyristoyl] glucosamine n-acyltransferase	<i>firA</i>			
<i>Biosynthesis and degradation of surface polysaccharides and lipopolysaccharides</i>						CELLULAR PROCESSES		
PM0122	phosphoheptose isomerase	<i>gmhA</i>				<i>Cell Division</i>		
						PM0104	SufI protein	<i>sufI</i>
						PM0135	cell division protein	<i>ftsL</i>
						PM0141	cell division protein	<i>ftsW</i>
						PM0145	cell division protein	<i>ftsQ</i>
						PM0146	cell division protein	<i>ftsA</i>
						PM0147	cell division protein	<i>ftsZ</i>
						PM0255	cell division protein	<i>ftsK</i>
						PM0289	cell cycle protein	<i>mesJ</i>
						PM0342	cytoplasmic filament protein	<i>cafA</i>
						PM0437	cell division protein	<i>ftsJ</i>
						PM0438	cell division protein	<i>ftsH</i>
						PM0443	cell division inhibitor	<i>minC</i>
						PM0548	cell division inhibitor homolog H	
						PM0609	cell division protein	<i>mukB</i>
						PM1520	cell division ATP-binding protein	<i>ftsE</i>
						PM1521	cell division protein	<i>ftsX</i>
						PM1695	cell division protein	<i>zipA</i>
						<i>Chemotaxis and motility</i>		
						PM0714	hsf homolog, locus encoding surface fibrils	<i>hsf</i>
						PM0855	fimbrial protein	
						PM1570	hsf homolog, locus encoding surface fibrils	<i>hsf</i>
						PM2008	fimbrial biogenesis and twitching motility protein, putative	
						<i>Detoxification</i>		
						PM0001	superoxide dismutase	<i>sodA</i>
						PM0032	catalase	<i>hkeE</i>
						PM0795	alkylhydrogenperoxide reductase	<i>tsoA</i>

PM0354	hypothetical <i>E. coli</i>	PM0595	hypothetical <i>H. pylori</i>	PM0888	hypothetical <i>D. radiodurans</i>
PM0358	hypothetical HI0195	PM0596	hypothetical HI0806	PM0889	hypothetical <i>E. coli</i>
PM0361	hypothetical HI0198	PM0597	hypothetical HI10198	PM0891	hypothetical HI1545
PM0366	hypothetical HI1627	PM0598	hypothetical HI1316	PM0899	hypothetical HI1714
PM0367	hypothetical HI1626	PM0599	hypothetical HI0804	PM0900	hypothetical HI1715
PM0368	hypothetical HI1625	PM0601	hypothetical HI1317	PM0902	hypothetical HI0065
PM0372	hypothetical <i>H. pylori</i>	PM0606	hypothetical HI1371.1	PM0909	hypothetical HI0043
PM0374	hypothetical <i>R. prowazekii</i>	PM0610	hypothetical HI1376	PM0910	hypothetical HI1637
PM0382	hypothetical HI688	PM0616	hypothetical HI1400	PM0923	hypothetical <i>E. coli</i>
PM0383	hypothetical HI1687	PM0626	hypothetical <i>E. coli</i>	PM0927	hypothetical HI0118
PM0384	hypothetical HI1686	PM0632	hypothetical yeast	PM0929	hypothetical HI0121
PM0387	hypothetical <i>H. influenzae</i>	PM0633	hypothetical HI0042	PM0933	hypothetical <i>E. coli</i>
PM0391	hypothetical HI1202	PM0638	hypothetical <i>E. coli</i>	PM0934	hypothetical HI1241
PM0392	hypothetical HI1680	PM0640	hypothetical HI1629	PM0935	hypothetical HI1240
PM0393	hypothetical <i>E. coli</i>	PM0645	hypothetical HI1654	PM0942	hypothetical HI0081
PM0395	hypothetical HI1681	PM0647	hypothetical HI1656	PM0948	hypothetical <i>E. coli</i>
PM0401	hypothetical HI1371	PM0648	hypothetical HI1657	PM0949	hypothetical HI0135
PM0402	hypothetical HI0044	PM0651	hypothetical HI1612	PM0950	hypothetical HI0134
PM0417	hypothetical HI1476	PM0652	hypothetical <i>E. coli</i>	PM0958	hypothetical HI0012
PM0422	hypothetical HI1738	PM0659	hypothetical <i>R. prowazekii</i>	PM0962	hypothetical HI0941
PM0423	hypothetical HI1737	PM0661	hypothetical HI1199	PM0963	hypothetical HI0940
PM0424	hypothetical HI1736	PM0662	hypothetical HI1198	PM0964	hypothetical HI0939
PM0426	hypothetical HI1249	PM0669	hypothetical HI1426	PM0965	hypothetical HI0938
PM0427	hypothetical HI1248	PM0672	hypothetical HI1542	PM0971	hypothetical HI0386
PM0428	hypothetical <i>E. coli</i>	PM0673	hypothetical HI1326	PM0975	hypothetical HI0310
PM0441	hypothetical HI0441	PM0675	hypothetical HI0182	PM0980	hypothetical HI0315
PM0444	hypothetical HI1446	PM0686	hypothetical <i>E. coli</i>	PM0984	hypothetical HI0318
PM0448	hypothetical <i>Y. pestis</i>	PM0687	hypothetical HI1265	PM0985	hypothetical HI0319/3
PM0449	hypothetical <i>Y. pestis</i>	PM0688	hypothetical HI1628	PM0989	hypothetical HI0325
PM0451	hypothetical <i>Y. pestis</i>	PM0690	hypothetical <i>A. actinomycetemcomitans</i>	PM0990	hypothetical <i>A. pleuropneumoniae</i>
PM0452	hypothetical <i>Y. pestis</i>	PM0696	hypothetical <i>T. maritima</i>	PM0997	hypothetical <i>E. coli</i>
PM0453	hypothetical <i>Y. pestis</i>	PM0703	hypothetical HI1205	PM1001	hypothetical HI0019
PM0455	hypothetical <i>E. coli</i>	PM0708	hypothetical HI0389	PM1002	hypothetical <i>E. coli</i>
PM0457	hypothetical HI1724	PM0709	hypothetical HI0388	PM1003	hypothetical <i>S. sonnei</i>
PM0458	hypothetical HI1723	PM0711	hypothetical HI1317	PM1006	hypothetical <i>Synechocystis</i> sp.
PM0461	hypothetical <i>B. subtilis</i>	PM0712	hypothetical <i>R. prowazekii</i>	PM1013	hypothetical <i>T. maritima</i>
PM0464	hypothetical <i>E. coli</i>	PM0713	hypothetical HI1333	PM1020	hypothetical HI0398
PM0465	hypothetical HI1452	PM0720	hypothetical HI1309	PM1021	hypothetical HI0101
PM0466	hypothetical <i>E. coli</i>	PM0727	hypothetical HI1307	PM1023	hypothetical HI0103
PM0469	hypothetical HI1563	PM0735	hypothetical HI1236	PM1042	hypothetical <i>N. meningitidis</i>
PM0471	hypothetical <i>E. coli</i>	PM0747	hypothetical <i>E. coli</i>	PM1043	hypothetical <i>E. coli</i>
PM0473	hypothetical <i>A. pernix</i>	PM0750	hypothetical HI0943	PM1045	hypothetical HI0004
PM0475	hypothetical <i>E. coli</i>	PM0761	hypothetical HI1282	PM1047	hypothetical <i>B. subtilis</i>
PM0476	hypothetical HI1291	PM0763	hypothetical <i>E. coli</i>	PM1048	hypothetical <i>Synechocystis</i> sp.
PM0477	hypothetical HI1292	PM0770	hypothetical HI1073	PM1049	hypothetical HI0687
PM0478	hypothetical HI1436	PM0771	hypothetical HI1074	PM1050	hypothetical HI0256
PM0479	hypothetical HI1435	PM0782	hypothetical HI1165	PM1054	hypothetical HI0491
PM0482	hypothetical HI1323	PM0783	hypothetical <i>T. maritima</i>	PM1055	hypothetical HI0489
PM0485	hypothetical HI1434	PM0787	hypothetical HI1163	PM1057	hypothetical HI0488
PM0487	hypothetical <i>B. anthracis</i>	PM0788	hypothetical HI1161	PM1058	hypothetical HI0487
PM0506	hypothetical HI1701	PM0796	hypothetical HI1225	PM1060	hypothetical HI0650
PM0508	hypothetical HI1699	PM0798	hypothetical HI1223	PM1066	hypothetical HI0056
PM0509	hypothetical protein 1 <i>A. actinomycetemcomitans</i>	PM0799	hypothetical HI1222	PM1070	hypothetical HI0400
PM0510	hypothetical protein 2 <i>A. actinomycetemcomitans</i>	PM0803	hypothetical HI1369	PM1071	hypothetical HI0035
PM0514	hypothetical <i>E. coli</i>	PM0809	hypothetical HI0461	PM1073	hypothetical HI0966
PM0515	hypothetical <i>E. coli</i>	PM0814	hypothetical <i>E. coli</i>	PM1080	hypothetical <i>S. dysenteriae</i>
PM0519	hypothetical <i>E. coli</i>	PM0817	hypothetical HI1349	PM1087	hypothetical HI0979
PM0524	hypothetical HI1679	PM0821	hypothetical <i>D. radiodurans</i>	PM1090	hypothetical HI0974.1
PM0527	hypothetical HI1462	PM0824	hypothetical HI1399	PM1097	hypothetical <i>S. coelicolor</i>
PM0529	hypothetical HI0183	PM0825	hypothetical <i>E. coli</i>	PM1099	hypothetical HI0926
PM0536	hypothetical HI1450	PM0835	hypothetical HI1104	PM1113	hypothetical HI0230
PM0537	hypothetical <i>E. coli</i>	PM0836	hypothetical HI1168	PM1116	hypothetical <i>A. pleuropneumoniae</i>
PM0539	hypothetical HI1355	PM0842	hypothetical HI1253	PM1128	hypothetical HI0234
PM0552	hypothetical HI1582/1	PM0853	hypothetical <i>A. actinomycetemcomitans</i>	PM1129	hypothetical HI0235
PM0557	hypothetical HI1558	PM0854	hypothetical <i>A. actinomycetemcomitans</i>	PM1133	hypothetical <i>E. coli</i>
PM0560	hypothetical HI1555	PM0859	hypothetical <i>E. coli</i>	PM1134	hypothetical HI0894
PM0562	hypothetical HI1548	PM0871	hypothetical HI1586	PM1136	hypothetical HI0896
PM0568	hypothetical HI1195	PM0879	hypothetical HI1298	PM1139	hypothetical HI0258/2
PM0569	hypothetical HI0077	PM0880	hypothetical HI1297	PM1156	hypothetical <i>E. coli</i>
PM0574	hypothetical HI1159	PM0881	hypothetical HI1296	PM1158	hypothetical HI0095
PM0575	hypothetical HI1301	PM0883	hypothetical HI1293/94	PM1164	hypothetical HI1000
PM0587	hypothetical <i>E. coli</i>	PM0886	hypothetical HI1543	PM1167	hypothetical HI0608
PM0591	hypothetical			PM1170	hypothetical HI0510

PM1171	hypothetical <i>E. coli</i>	PM1487	hypothetical HI0485	PM1717	hypothetical <i>E. coli</i>
PM1172	hypothetical <i>B. subtilis</i>	PM1496	hypothetical HI0721	PM1718	hypothetical HI0175
PM1174	hypothetical <i>H. influenzae</i>	PM1497	hypothetical HI0722	PM1721	hypothetical HI0858
PM1184	hypothetical <i>E. coli</i>	PM1500	hypothetical <i>E. coli</i>	PM1722	hypothetical HI0857
PM1185	hypothetical HI0107	PM1503	hypothetical <i>Synechosystis sp.</i>	PM1723	hypothetical HI0817
PM1190	hypothetical yeast	PM1504	hypothetical <i>S. coelicolor</i>	PM1727	hypothetical HI0621
PM1194	hypothetical HI0912	PM1507	hypothetical HI0756	PM1733	hypothetical HI0431
PM1211	hypothetical HI1048	PM1508	hypothetical HI0755	PM1735	hypothetical HI0432
PM1220	hypothetical HI0908	PM1511	hypothetical HI1118	PM1741	hypothetical HI0091
PM1221	hypothetical HI0907	PM1515	hypothetical HI0974	PM1753	hypothetical HI0647
PM1232	hypothetical <i>B. subtilis</i>	PM1516	hypothetical HI0767	PM1757	hypothetical HI1044
PM1233	hypothetical <i>B. subtilis</i>	PM1544	hypothetical <i>E. coli</i>	PM1758	hypothetical HI1043
PM1243	hypothetical <i>E. coli</i>	PM1545	hypothetical <i>E. coli</i>	PM1759	hypothetical <i>S. pneumoniae</i>
PM1252	hypothetical HI1028	PM1546	hypothetical HI0562	PM1760	hypothetical <i>S. pneumoniae</i>
PM1253	hypothetical HI1029	PM1547	hypothetical HI0810	PM1761	hypothetical <i>S. pneumoniae</i>
PM1254	hypothetical HI1030	PM1555	hypothetical <i>B. subtilis</i>	PM1762	hypothetical <i>S. pneumoniae</i>
PM1255	hypothetical <i>E. coli</i>	PM1565	hypothetical HI0700	PM1765	hypothetical <i>S. pneumoniae</i>
PM1256	hypothetical HI1031	PM1568	hypothetical <i>H. pylori</i>	PM1770	hypothetical <i>C. elegans</i>
PM1258	hypothetical HI0507	PM1571	hypothetical <i>E. coli</i>	PM1784	hypothetical HI0852
PM1259	hypothetical	PM1575	hypothetical <i>E. coli</i>	PM1786	hypothetical HI0850
PM1264	hypothetical HI0358	PM1576	hypothetical <i>E. coli</i>	PM1790	hypothetical HI0627
PM1267	hypothetical HI0500	PM1577	hypothetical <i>E. coli</i>	PM1798	hypothetical HI0449
PM1268	hypothetical <i>E. coli</i>	PM1580	hypothetical <i>A. fulgidus</i>	PM1800	hypothetical HI0845
PM1269	hypothetical HI0657	PM1581	hypothetical <i>M. jannaschii</i>	PM1802	hypothetical HI0847
PM1270	hypothetical HI0656	PM1585	hypothetical <i>L. borgpetersenii</i>	PM1804	hypothetical HI0849
PM1278	hypothetical <i>E. coli</i>	PM1586	hypothetical <i>E. coli</i>	PM1808	hypothetical HI0696
PM1279	hypothetical <i>E. coli</i>	PM1604	hypothetical <i>E. coli</i>	PM1809	hypothetical HI0698
PM1281	hypothetical HI0680	PM1605	hypothetical HI0694	PM1814	hypothetical HI0602
PM1292	hypothetical HI0519	PM1607	hypothetical HI0673	PM1828	hypothetical
PM1293	hypothetical HI0522	PM1608	hypothetical HI0672	PM1831	hypothetical HI0753
PM1294	hypothetical HI0523	PM1609	hypothetical HI0671	PM1834	hypothetical HI0725
PM1299	hypothetical HI0585	PM1610	hypothetical HI0701	PM1835	hypothetical HI0724
PM1303	hypothetical HI0260	PM1611	hypothetical <i>E. coli</i>	PM1838	hypothetical HI1077
PM1307	hypothetical <i>M. barkeri</i>	PM1615	hypothetical HI0670	PM1839	hypothetical HI0423
PM1310	hypothetical HI1273	PM1617	hypothetical HI0277	PM1850	hypothetical HI0638
PM1312	hypothetical HI0677	PM1618	hypothetical <i>M. tuberculosis</i>	PM1853	hypothetical <i>E. coli</i>
PM1313	hypothetical <i>E. coli</i>	PM1626	hypothetical <i>E. coli</i>	PM1855	hypothetical <i>E. coli</i>
PM1314	hypothetical HI1036	PM1629	hypothetical HI0597	PM1859	hypothetical HI0526,
PM1316	hypothetical HI0341	PM1641	hypothetical <i>Synechocystis sp.</i>	PM1862	hypothetical HI0874
PM1317	hypothetical HI0340	PM1642	hypothetical <i>E. coli</i>	PM1863	hypothetical HI0874
PM1318	hypothetical	PM1644	hypothetical HI1028	PM1868	hypothetical HI0303
PM1320	hypothetical HI0760	PM1648	hypothetical <i>E. coli</i>	PM1869	hypothetical HI0304
PM1335	hypothetical HI0173	PM1649	hypothetical <i>E. coli</i>	PM1870	hypothetical HI0305
PM1345	hypothetical HI0570	PM1650	hypothetical <i>B. halodurans</i>	PM1874	hypothetical HI0466
PM1350	hypothetical HI0575	PM1651	hypothetical <i>E. coli</i>	PM1875	hypothetical HI0467
PM1351	hypothetical HI0576	PM1656	hypothetical HI1034	PM1879	hypothetical <i>E. coli</i>
PM1352	hypothetical HI0576.1	PM1665	hypothetical HI1008	PM1880	hypothetical HI0270
PM1353	hypothetical HI0577	PM1666	hypothetical HI0260	PM1881	hypothetical <i>E. coli</i>
PM1358	hypothetical <i>T. maritima</i>	PM1668	hypothetical <i>L. monocytogenes</i>	PM1882	hypothetical HI0842
PM1360	hypothetical HI1014	PM1669	hypothetical HI0463	PM1883	hypothetical HI0842
PM1362	hypothetical <i>T. maritima</i>	PM1672	hypothetical HI0457	PM1884	hypothetical HI0840
PM1363	hypothetical HI1013	PM1674	hypothetical <i>E. coli</i>	PM1885	hypothetical HI0839
PM1364	hypothetical HI1012	PM1675	hypothetical <i>E. coli</i>	PM1886	hypothetical HI0838
PM1365	hypothetical HI1011	PM1676	hypothetical HI0453	PM1889	hypothetical HI0862
PM1375	hypothetical <i>E. coli</i>	PM1677	hypothetical HI0452	PM1894	hypothetical HI0108
PM1376	hypothetical <i>Rhizobium sp.</i>	PM1679	hypothetical <i>A. vitis</i>	PM1895	hypothetical <i>E. coli</i>
PM1388	hypothetical HI0762	PM1681	hypothetical <i>A. vitis</i>	PM1902	hypothetical HI1552
PM1417	hypothetical HI0633	PM1682	hypothetical <i>E. coli</i>	PM1911	hypothetical HI0159
PM1418	hypothetical HI0634	PM1683	hypothetical HI1246	PM1922	hypothetical HI0034
PM1429	hypothetical HI0607	PM1685	hypothetical <i>E. coli</i>	PM1923	hypothetical HI0033
PM1433	hypothetical HI0744	PM1685	hypothetical <i>E. coli</i>	PM1926	hypothetical HI0030
PM1435	hypothetical <i>E. coli</i>	PM1687	hypothetical <i>E. coli</i>	PM1928	hypothetical HI0028
PM1448	hypothetical HI0568	PM1689	hypothetical HI0187	PM1931	hypothetical <i>E. coli</i>
PM1452	hypothetical <i>E. coli</i>	PM1690	hypothetical HI0187	PM1937	hypothetical
PM1461	hypothetical HI1643	PM1696	hypothetical HI0266	PM1938	hypothetical <i>E. coli</i>
PM1465	hypothetical HI1169	PM1698	hypothetical <i>R. capsulatus</i>	PM1939	hypothetical <i>S. typhimurium</i>
PM1466	hypothetical HI0719	PM1700	hypothetical <i>S. marcescens</i>	PM1943	hypothetical <i>Synechocystis sp.</i>
PM1470	hypothetical <i>B. subtilis</i>	PM1702	hypothetical <i>E. coli</i>	PM1958	hypothetical <i>E. coli</i>
PM1471	hypothetical <i>B. halodurans</i>	PM1707	hypothetical HI0148	PM1965	hypothetical <i>E. coli</i>
PM1472	hypothetical <i>M. pneumoniae</i>	PM1708	hypothetical HI0147	PM1973	hypothetical <i>E. coli</i>
PM1477	hypothetical <i>Synechosystis sp.</i>	PM1709	hypothetical HI0146	PM1974	hypothetical <i>E. coli</i>
PM1479	hypothetical <i>Synechosystis sp.</i>	PM1711	hypothetical HI0145	PM1981	hypothetical <i>E. coli</i>
PM1480	hypothetical <i>E. coli</i>	PM1713	hypothetical HI0227	PM1983	hypothetical <i>E. coli</i>
PM1483	hypothetical HI0668	PM1714	hypothetical HI0143	PM1991	hypothetical HI0918

PM1999	hypothetical <i>E. coli</i>	PM0681	unknown	PM1579	unknown
PM2002	hypothetical <i>E. coli</i>	PM0682	unknown	PM1583	unknown
PM2005	hypothetical HI0338	PM0689	unknown	PM1588	unknown
PM2007	hypothetical HI0365	PM0697	unknown	PM1603	unknown
PM2009	hypothetical HI0367	PM0737	unknown	PM1623	unknown
PM2012	hypothetical <i>A. actinomycetemcomitans</i>	PM0739	unknown	PM1633	unknown
		PM0751	unknown	PM1634	unknown
		PM0758	unknown	PM1635	unknown
<i>No homologues</i>		PM0767	unknown	PM1636	unknown
PM0015	unknown	PM0768	unknown	PM1637	unknown
PM0016	unknown	PM0784	unknown	PM1643	unknown
PM0090	unknown	PM0805	unknown	PM1647	unknown
PM0097	unknown	PM0812	unknown	PM1652	unknown
PM0109	unknown	PM0819	unknown	PM1654	unknown
PM0110	unknown	PM0850	unknown	PM1655	unknown
PM0111	unknown	PM0901	unknown	PM1658	unknown
PM0157	unknown	PM0918	unknown	PM1667	unknown
PM0161	unknown	PM0931	unknown	PM1680	unknown
PM0231	unknown	PM0946	unknown	PM1699	unknown
PM0234	unknown	PM0972	unknown	PM1771	unknown
PM0253	unknown	PM0979	unknown	PM1772	unknown
PM0279	unknown	PM0982	unknown	PM1773	unknown
PM0291	unknown	PM0986	unknown	PM1775	unknown
PM0294	unknown	PM0998	unknown	PM1776	unknown
PM0305	unknown	PM1004	unknown	PM1778	unknown
PM0306	unknown	PM1005	unknown	PM1779	unknown
PM0307	unknown	PM1012	unknown	PM1780	unknown
PM0308	unknown	PM1044	unknown	PM1781	unknown
PM0309	unknown	PM1075	unknown	PM1782	unknown
PM0310	unknown	PM1076	unknown	PM1783	unknown
PM0311	unknown	PM1081	unknown	PM1805	unknown
PM0312	unknown	PM1082	unknown	PM1818	unknown
PM0314	unknown	PM1083	unknown	PM1819	unknown
PM0373	unknown	PM1084	unknown	PM1820	unknown
PM0404	unknown	PM1095	unknown	PM1821	unknown
PM0415	unknown	PM1101	unknown	PM1824	unknown
PM0419	unknown	PM1105	unknown	PM1825	unknown
PM0430	unknown	PM1121	unknown	PM1826	unknown
PM0442	unknown	PM1122	unknown	PM1827	unknown
PM0474	unknown	PM1123	unknown	PM1829	unknown
PM0480	unknown	PM1124	unknown	PM1841	unknown
PM0488	unknown	PM1125	unknown	PM1842	unknown
PM0489	unknown	PM1126	unknown	PM1843	unknown
PM0490	unknown	PM1127	unknown	PM1845	unknown
PM0491	unknown	PM1146	unknown	PM1890	unknown
PM0492	unknown	PM1176	unknown	PM1897	unknown
PM0493	unknown	PM1189	unknown	PM1919	unknown
PM0494	unknown	PM1196	unknown	PM1932	unknown
PM0495	unknown	PM1201	unknown	PM1934	unknown
PM0496	unknown	PM1217	unknown	PM1935	unknown
PM0497	unknown	PM1237	unknown	PM1936	unknown
PM0498	unknown	PM1249	unknown	PM1942	unknown
PM0499	unknown	PM1282	unknown	PM1946	unknown
PM0500	unknown	PM1295	unknown	PM1947	unknown
PM0501	unknown	PM1374	unknown	PM1948	unknown
PM0502	unknown	PM1386	unknown	PM1949	unknown
PM0503	unknown	PM1428	unknown	PM1963	unknown
PM0504	unknown	PM1437	unknown	PM1966	unknown
PM0505	unknown	PM1449	unknown	PM1972	unknown
PM0530	unknown	PM1462	unknown	PM2001	unknown
PM0531	unknown	PM1467	unknown	PM2013	unknown
PM0553	unknown	PM1469	unknown		
PM0582	unknown	PM1478	unknown		
PM0590	unknown	PM1481	unknown		
PM0594	unknown	PM1509	unknown		
PM0612	unknown	PM1514	unknown		
PM0613	unknown	PM1526	unknown		
PM0614	unknown	PM1539	unknown		
PM0630	unknown	PM1540	unknown		
PM0654	unknown	PM1543	unknown		
PM0657	unknown	PM1551	unknown		
PM0670	unknown	PM1552	unknown		
PM0674	unknown	PM1553	unknown		
PM0679	unknown	PM1566	unknown		