

Set (sub-set)	# in sub-set	Protein (gene) IDs	Gerdes et al., 2003	PEC collection	Blattner et al.	SWISS-PROT FUNCTIONAL DESCRIPTION
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Sorting inside the sub-sets by b-numbers

Set A: genes consistently essential between Gerdes et al., 2002 and PEC data (viable gene knockouts from UW data are shown in the sub-set A1)

A1	1	REC04815	b1204	<i>pth</i>	E	E	N	Peptidyl-tRNA hydrolase (EC 3.1.1.29)
A1	2	REC05684	b2828	<i>lgt</i>	E	E	N	Prolipoprotein diacylglycerol transferase (EC 2.4.99.-)
A1	3	REC02989	b3066	<i>dnaG</i>	E	E	N	DNA primase (EC 2.7.7.-)
A1	4	REC05932	b3306	<i>rpsH</i>	E	E	N	30S ribosomal protein S8
A1	5	REC06031	b3463	<i>ftsE</i>	E	E	N	Cell division ATP-binding protein ftsE
A1	6	REC06080	b3560	<i>glyQ</i>	E	E	N	Glycyl-tRNA synthetase alpha chain (EC 6.1.1.14)
A1	7	REC03559	b3639	<i>dfp</i>	E	E	N	DNA/pantothenate metabolism flavoprotein
A1	8	REC05018	b1637	<i>tyrS</i>	E	E	N	Tyrosyl-tRNA synthetase (EC 6.1.1.1)
A1	9	REC05063	b1719	<i>thrS</i>	E	E	N	Threonyl-tRNA synthetase (EC 6.1.1.3)
A1	10	REC05174	b1912	<i>pgsA</i>	E	E	N	CDP-diacylglycerol-glycerol-3-phosphate 3-phosphatidyltransferase (EC 2.7.8.5)
A1	11	REC05355	b2231	<i>gyrA</i>	E	E	N	DNA gyrase subunit A (EC 5.99.1.3)
A1	12	REC05516	b2515	<i>ispG*</i>	E	E	N	1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate synthase (<i>gcpE</i>)
A1	13	REC05552	b2566	<i>era</i>	E	E	N	GTP-binding protein era
A1	14	REC05554	b2568	<i>lepB</i>	E	E	N	Signal peptidase I (EC 3.4.21.89)
A1	15	REC05600	b2697	<i>alaS</i>	E	E	N	Alanyl-tRNA synthetase (EC 6.1.1.7)
A1	16	REC05733	b2925	<i>fbaA</i>	E	E	N	Fructose-bisphosphate aldolase class II (EC 4.1.2.13)

A2	1	REC06566	b0026	<i>ileS</i>	E	E	X	Isoleucyl-tRNA synthetase (EC 6.1.1.5)
A2	2	REC00027	b0027	<i>lspA</i>	E	E	X	Lipoprotein signal peptidase (EC 3.4.23.36)
A2	3	REC00029	b0029	<i>ispH*</i>	E	E	X	IspH protein (<i>lytB</i>)
A2	4	REC00083	b0083	<i>ftsL</i>	E	E	X	Cell division protein ftsL
A2	5	REC00084	b0084	<i>ftsI</i>	E	E	X	Peptidoglycan synthetase ftsI precursor
A2	6	REC00085	b0085	<i>murE</i>	E	E	X	UDP-N-acetylmuramoylalanine-D-glutamate--2,6-diaminopimelate ligase (EC 6.3.2.13)
A2	7	REC00088	b0088	<i>murD</i>	E	E	X	UDP-N-acetylmuramoylalanine--D-glutamate ligase (EC 6.3.2.9)
A2	8	REC00089	b0089	<i>ftsW</i>	E	E	X	Cell division protein ftsW
A2	9	REC00090	b0090	<i>murG</i>	E	E	X	UDP-N-acetylglucosamine--N-acetylmuramyl-(Pentapeptide) pyrophosphoryl-undecaprenol N-acetylglucosamine transferase (EC 2.4.1.-)
A2	10	REC00091	b0091	<i>murC</i>	E	E	X	UDP-N-acetylmuramate--alanine ligase (EC 6.3.2.8)
A2	11	REC00093	b0093	<i>ftsQ</i>	E	E	X	Cell division protein ftsQ
A2	12	REC00094	b0094	<i>ftsA</i>	E	E	X	Cell division protein ftsA
A2	13	REC00095	b0095	<i>ftsZ</i>	E	E	X	Cell division protein ftsZ
A2	14	REC00098	b0098	<i>secA</i>	E	E	X	Preprotein translocase secA subunit
A2	15	REC04364	b0168	<i>map</i>	E	E	X	Methionine aminopeptidase (EC 3.4.11.18)
A2	16	REC00169	b0169	<i>rpsB</i>	E	E	X	30S ribosomal protein S2
A2	17	REC00171	b0171	<i>pyrH</i>	E	E	X	Uridylate kinase (EC 2.7.4.-)
A2	18	REC00172	b0172	<i>frr</i>	E	E	X	Ribosome recycling factor
A2	19	REC00174	b0174	<i>uppS</i>	E	E	X	Undecaprenyl pyrophosphate synthetase (EC 2.5.1.31)
A2	20	REC00175	b0175	<i>cdsA</i>	E	E	X	Phosphatidate cytidyltransferase (EC 2.7.7.41)

A2	21	REC00180	b0180	<i>fabZ</i>	E	E	X	(3R)-hydroxymyristoyl-[acyl carrier protein] dehydratase (EC 4.2.1.-)
A2	22	REC00181	b0181	<i>lpxA</i>	E	E	X	Acyl-[acyl-carrier-protein]-UDP-N-acetylglucosamine O-acyltransferase (EC 2.3.1.129)
A2	23	REC00182	b0182	<i>lpxB</i>	E	E	X	Lipid-A-disaccharide synthase (EC 2.4.1.182)
A2	24	REC00184	b0184	<i>dnaE</i>	E	E	X	DNA polymerase III alpha subunit (EC 2.7.7.7)
A2	25	REC00185	b0185	<i>accA</i>	E	E	X	Acetyl-coenzyme A carboxylase carboxyl transferase subunit alpha (EC 6.4.1.2)
A2	26	REC04367	b0194	<i>proS</i>	E	E	X	Prolyl-tRNA synthetase (EC 6.1.1.15)
A2	27	REC00400	b0416	<i>nusB</i>	E	E	X	N utilization substance protein B
A2	28	REC04462	b0420	<i>dxs</i>	E	E	X	1-deoxy-D-xylulose 5-phosphate synthase (EC 4.1.3.37)
A2	29	REC04463	b0421	<i>ispA</i>	E	E	X	Geranyltranstransferase (EC 2.5.1.10)
A2	30	REC00453	b0470	<i>dnaX</i>	E	E	X	DNA polymerase III subunit tau (EC 2.7.7.7)
A2	31	REC00457	b0474	<i>adk</i>	E	E	X	Adenylate kinase (EC 2.7.4.3)
A2	32	REC00509	b0526	<i>cysS</i>	E	E	X	Cysteinyl-tRNA synthetase (EC 6.1.1.16)
A2	33	REC04561	b0634	<i>mrdB</i>	E	E	X	Rod shape-determining protein rodA
A2	34	REC04562	b0635	<i>mrdA</i>	E	E	X	Penicillin-binding protein 2
A2	35	REC04567	b0640	<i>ho1A</i>	E	E	X	DNA polymerase III, delta subunit (EC 2.7.7.7)
A2	36	REC04569	b0642	<i>leuS</i>	E	E	X	Leucyl-tRNA synthetase (EC 6.1.1.4)
A2	37	REC00654	b0680	<i>glnS</i>	E	E	X	Glutamyl-tRNA synthetase (EC 6.1.1.18)
A2	38	REC00859	b0893	<i>serS</i>	E	E	X	Seryl-tRNA synthetase (EC 6.1.1.11)
A2	39	REC00880	b0914	<i>msbA</i>	E	E	X	Probable transport ATP-binding protein msbA
A2	40	REC00884	b0918	<i>kdsB</i>	E	E	X	3-deoxy-manno-octulosonate cytidyltransferase (EC 2.7.7.38)
A2	41	REC04692	b0930	<i>asnS</i>	E	E	X	Asparaginyl-tRNA synthetase (EC 6.1.1.22)
A2	42	REC04700	b0954	<i>fabA</i>	E	E	X	3-hydroxydecanoyl-[acyl-carrier-protein] dehydratase (EC 4.2.1.60)
A2	43	REC04762	b1084	<i>rne</i>	E	E	X	Ribonuclease E (EC 3.1.4.-)
A2	44	REC01054	b1092	<i>fabD</i>	E	E	X	Malonyl CoA-acyl carrier protein transacylase (EC 2.3.1.39)
A2	45	REC01055	b1093	<i>fabG</i>	E	E	X	3-oxoacyl-[acyl-carrier protein] reductase (EC 1.1.1.100)
A2	46	REC01060	b1098	<i>tmk</i>	E	E	X	Thymidylate kinase (EC 2.7.4.9)
A2	47	REC01061	b1099	<i>ho1B</i>	E	E	X	DNA polymerase III, delta' subunit (EC 2.7.7.7)
A2	48	REC01078	b1116	<i>lo1C</i>	E	E	X	Lipoprotein releasing system transmembrane protein lo1C
A2	49	REC01079	b1117	<i>lo1D</i>	E	E	X	Lipoprotein releasing system ATP-binding protein lo1D
A2	50	REC01080	b1118	<i>lo1E</i>	E	E	X	Lipoprotein releasing system transmembrane protein lo1E
A2	51	REC04780	b1133	<i>trmU</i>	E	E	X	tRNA (5-methylaminomethyl-2-thiouridylate)-methyltransferase (EC 2.1.1.61)
A2	52	REC04817	b1207	<i>prsA</i>	E	E	X	Ribose-phosphate pyrophosphokinase (EC 2.7.6.1)
A2	53	REC01234	b1274	<i>topA</i>	E	E	X	DNA topoisomerase I (EC 5.99.1.2)
A2	54	REC04856	b1288	<i>fabI</i>	E	E	X	Enoyl-[acyl-carrier-protein] reductase [NADH] (EC 1.3.1.9)
A2	55	REC05058	b1714	<i>pheS</i>	E	E	X	Phenylalanyl-tRNA synthetase alpha chain (EC 6.1.1.20)
A2	56	REC05060	b1716	<i>rp1T</i>	E	E	X	50S ribosomal protein L20
A2	57	REC05062	b1718	<i>infC</i>	E	E	X	Translation initiation factor IF-3
A2	58	REC01697	b1740	<i>nadE</i>	E	E	X	NH(3)-dependent NAD(+) synthetase (EC 6.3.5.1)
A2	59	REC05144	b1866	<i>aspS</i>	E	E	X	Aspartyl-tRNA synthetase (EC 6.1.1.12)
A2	60	REC01833	b1876	<i>argS</i>	E	E	X	Arginyl-tRNA synthetase (EC 6.1.1.19)
A2	61	REC02134	b2185	<i>rp1Y</i>	E	E	X	50S ribosomal protein L25
A2	62	REC06544	b2234	<i>nrdA</i>	E	E	X	Ribonucleoside-diphosphate reductase 1 alpha chain (EC 1.17.4.1)
A2	63	REC02184	b2235	<i>nrdB</i>	E	E	X	Ribonucleoside-diphosphate reductase 1 beta chain (EC 1.17.4.1)
A2	64	REC05416	b2323	<i>fabB</i>	E	E	X	3-oxoacyl-[acyl-carrier-protein] synthase I (EC 2.3.1.41)
A2	65	REC05459	b2400	<i>gltX</i>	E	E	X	Glutamyl-tRNA synthetase (EC 6.1.1.17)

A2	66	REC05464	b2411	<i>ligA</i>	E	E	X	DNA ligase (EC 6.5.1.2)
A2	67	REC05465	b2412	<i>zipA</i>	E	E	X	Cell division protein zipA
A2	68	REC05505	b2496	<i>yfgE</i>	E	E	X	Hypothetical protein yfgE
A2	69	REC05515	b2514	<i>hisS</i>	E	E	X	Histidyl-tRNA synthetase (EC 6.1.1.21)
A2	70	REC05549	b2563	<i>acpS</i>	E	E	X	Holo-[acyl-carrier protein] synthase (EC 2.7.8.7)
A2	71	REC05570	b2606	<i>rplS</i>	E	E	X	50S ribosomal protein L19
A2	72	REC05571	b2607	<i>trmD</i>	E	E	X	tRNA (Guanine-N(1)-)-methyltransferase (EC 2.1.1.31)
A2	73	REC05573	b2609	<i>rpsP</i>	E	E	X	30S ribosomal protein S16
A2	74	REC05574	b2610	<i>ffh</i>	E	E	X	Signal recognition particle protein
A2	75	REC05575	b2614	<i>grpE</i>	E	E	X	GrpE protein
A2	76	REC05792	b3018	<i>plsC</i>	E	E	X	1-acyl-sn-glycerol-3-phosphate acyltransferase (EC 2.3.1.51)
A2	77	REC05793	b3019	<i>parC</i>	E	E	X	Topoisomerase IV subunit A (EC 5.99.1.-)
A2	78	REC05800	b3030	<i>parE</i>	E	E	X	Topoisomerase IV subunit B (EC 5.99.1.-)
A2	79	REC05806	b3041	<i>ribB</i>	E	E	X	3,4-dihydroxy-2-butanone 4-phosphate synthase
A2	80	REC02990	b3067	<i>rpoD</i>	E	E	X	RNA polymerase sigma factor rpoD
A2	81	REC05854	b3165	<i>rpsO</i>	E	E	X	30S ribosomal protein S15
A2	82	REC05867	b3183	<i>yhbZ</i>	E	E	X	Hypothetical GTP-binding protein yhbZ
A2	83	REC05891	b3230	<i>rpsI</i>	E	E	X	30S ribosomal protein S9
A2	84	REC05892	b3231	<i>rplM</i>	E	E	X	50S ribosomal protein L13
A2	85	REC03205	b3287	<i>def</i>	E	E	X	Peptide deformylase (EC 3.5.1.88)
A2	86	REC05924	b3298	<i>rpsM</i>	E	E	X	30S ribosomal protein S13
A2	87	REC05926	b3300	<i>secY</i>	E	E	X	Preprotein translocase secY subunit
A2	88	REC05927	b3301	<i>rplO</i>	E	E	X	50S ribosomal protein L15
A2	89	REC05929	b3303	<i>rpsE</i>	E	E	X	30S ribosomal protein S5
A2	90	REC05930	b3304	<i>rplR</i>	E	E	X	50S ribosomal protein L18
A2	91	REC05931	b3305	<i>rplF</i>	E	E	X	50S ribosomal protein L6
A2	92	REC05933	b3307	<i>rpsN</i>	E	E	X	30S ribosomal protein S14
A2	93	REC05935	b3309	<i>rplX</i>	E	E	X	50S ribosomal protein L24
A2	94	REC05936	b3310	<i>rplN</i>	E	E	X	50S ribosomal protein L14
A2	95	REC05937	b3311	<i>rpsQ</i>	E	E	X	30S ribosomal protein S17
A2	96	REC05942	b3316	<i>rpsS</i>	E	E	X	30S ribosomal protein S19
A2	97	REC05943	b3317	<i>rplB</i>	E	E	X	50S ribosomal protein L2
A2	98	REC05944	b3318	<i>rplW</i>	E	E	X	50S ribosomal protein L23
A2	99	REC05945	b3319	<i>rplD</i>	E	E	X	50S ribosomal protein L4
A2	100	REC05946	b3320	<i>rplC</i>	E	E	X	50S ribosomal protein L3
A2	101	REC05947	b3321	<i>rpsJ</i>	E	E	X	30S ribosomal protein S10
A2	102	REC05954	b3340	<i>fusA</i>	E	E	X	Elongation factor G
A2	103	REC05956	b3342	<i>rpsL</i>	E	E	X	30S ribosomal protein S12
A2	104	REC05979	b3384	<i>trpS</i>	E	E	X	Tryptophanyl-tRNA synthetase (EC 6.1.1.2)
A2	105	REC06032	b3464	<i>ftsY</i>	E	E	X	Cell division protein ftsY
A2	106	REC06079	b3559	<i>glyS</i>	E	E	X	Glycyl-tRNA synthetase beta chain (EC 6.1.1.14)
A2	107	REC03553	b3633	<i>kdtA</i>	E	E	X	3-deoxy-D-manno-octulosonic-acid transferase (EC 2.-.-.-)
A2	108	REC03554	b3634	<i>coaD</i>	E	E	X	Phosphopantetheine adenylyltransferase (EC 2.7.7.3)
A2	109	REC03560	b3640	<i>dut</i>	E	E	X	Deoxyuridine 5'-triphosphate nucleotidohydrolase (EC 3.6.1.23)
A2	110	REC03568	b3648	<i>gmk</i>	E	E	X	Guanylate kinase (EC 2.7.4.8)

A2	111	REC06549	b3702	<i>dnaA</i>	E	E	X	Chromosomal replication initiator protein dnaA
A2	112	REC06172	b3730	<i>glmU</i>	E	E	X	Bifunctional glmU protein
A2	113	REC06219	b3865	<i>engB</i>	E	E	X	Probable GTP-binding protein engB
A2	114	REC03865	b3967	<i>murI</i>	E	E	X	Glutamate racemase (EC 5.1.1.3)
A2	115	REC03875	b3985	<i>rplJ</i>	E	E	X	50S ribosomal protein L10
A2	116	REC03876	b3986	<i>rplL</i>	E	E	X	50S ribosomal protein L7/L12
A2	117	REC03877	b3987	<i>rpoB</i>	E	E	X	DNA-directed RNA polymerase beta chain (EC 2.7.7.6)
A2	118	REC06616	b3988	<i>rpoC</i>	E	E	X	DNA-directed RNA polymerase beta' chain (EC 2.7.7.6)
A2	119	REC03938	b4052	<i>dnaB</i>	E	E	X	Replicative DNA helicase (EC 3.6.1.-)
A2	120	REC04028	b4142	<i>groS</i>	E	E	X	10 kDa chaperonin
A2	121	REC04029	b4143	<i>groL</i>	E	E	X	60 kDa chaperonin
A2	122	REC04033	b4147	<i>efp</i>	E	E	X	Elongation factor P
A2	123	REC04083	b4200	<i>rpsF</i>	E	E	X	30S ribosomal protein S6
A2	124	REC06383	b4226	<i>ppa</i>	E	E	X	Inorganic pyrophosphatase (EC 3.6.1.1)
A2	125	REC06399	b4258	<i>valS</i>	E	E	X	Valyl-tRNA synthetase (EC 6.1.1.9)
A2	126	REC06463	b4361	<i>dnaC</i>	E	E	X	DNA replication protein dnaC
A2	127	REC06464	b4362	<i>dnaT</i>	E	E	X	Primosomal protein I

Set B: genes essential in Gerdes et al., 2002 but non-essential in PEC data (viable gene knockouts from UW data are shown in the sub-set B1)

B1	1	REC04363	b0167	<i>glnD</i>	E	N	N	[Protein-Pil] uridylyltransferase (EC 2.7.7.59)
B1	2	REC00209	b0215	<i>dnaQ</i>	E	N	N	DNA polymerase III, epsilon chain (EC 2.7.7.7)
B1	3	REC00261	b0270	<i>yagG</i>	E	N	N	Hypothetical symporter yagG
B1	4	REC04411	b0285	<i>yagS</i>	E	N	N	Putative xanthine dehydrogenase yagS, FAD binding subunit (EC 1.1.1.204)
B1	5	REC00304	b0320	<i>yahF</i>	E	N	N	Hypothetical protein yahF
B1	6	REC04469	b0429	<i>cyoD</i>	E	N	N	Cytochrome O ubiquinol oxidase protein cyoD
B1	7	REC00452	b0469	<i>apt</i>	E	N	N	Adenine phosphoribosyltransferase (EC 2.4.2.7)
B1	8	REC04537	b0592	<i>fepB</i>	E	N	N	Ferrienterobactin-binding periplasmic protein precursor
B1	9	REC04574	b0652	<i>gltL</i>	E	N	N	Glutamate/aspartate transport ATP-binding protein gltL
B1	10	REC00707	b0733	<i>cydA</i>	E	N	N	Cytochrome D ubiquinol oxidase subunit I (EC 1.10.3.-)
B1	11	REC04641	b0810	<i>glnP</i>	E	N	N	Glutamine transport system permease protein glnP
B1	12	REC00890	b0924	<i>mukB</i>	E	N	N	Cell division protein mukB
B1	13	REC00937	b0972	<i>hyaA</i>	E	N	N	Hydrogenase-1 small chain precursor (EC 1.18.99.1)
B1	14	REC00939	b0974	<i>hyaC</i>	E	N	N	Probable Ni/Fe-hydrogenase 1 B-type cytochrome subunit
B1	15	REC00940	b0975	<i>hyaD</i>	E	N	N	Hydrogenase 1 maturation protease (EC 3.4.24.-)
B1	16	REC04771	b1123	<i>potD</i>	E	N	N	Spermidine/putrescine-binding periplasmic protein precursor
B1	17	REC04827	b1237	<i>hns</i>	E	N	N	DNA-binding protein H-NS
B1	18	REC01206	b1246	<i>oppD</i>	E	N	N	Oligopeptide transport ATP-binding protein oppD
B1	19	REC01241	b1281	<i>pyrF</i>	E	N	N	Orotidine 5'-phosphate decarboxylase (EC 4.1.1.23)
B1	20	REC01266	b1306	<i>pspC</i>	E	N	N	Phage shock protein C
B1	21	REC01268	b1308	<i>pspE</i>	E	N	N	Phage shock protein E precursor
B1	22	REC01381	b1421	<i>trg</i>	E	N	N	Methyl-accepting chemotaxis protein III
B1	23	REC01387	b1427	<i>rimL</i>	E	N	N	Ribosomal-protein-serine acetyltransferase (EC 2.3.1.-)
B1	24	REC01491	b1531	<i>marA</i>	E	N	N	Multiple antibiotic resistance protein marA
B1	25	REC01494	b1534	<i>ydeE</i>	E	N	N	Hypothetical protein ydeE
B1	26	REC04991	b1563	<i>relE</i>	E	N	N	Hypothetical relE protein

B1	27	REC01568	b1609	<i>rstB</i>	E	N	N	Sensor protein rstB (EC 2.7.3.-)
B1	28	REC01569	b1610	<i>tus</i>	E	N	N	DNA replication terminus site-binding protein
B1	29	REC05013	b1618	<i>uidR</i>	E	N	N	Uid operon repressor
B1	30	REC05049	b1702	<i>ppsA</i>	E	N	N	Phosphoenolpyruvate synthase (EC 2.7.9.2)
B1	31	REC01661	b1704	<i>aroH</i>	E	N	N	Phospho-2-dehydro-3-deoxyheptonate aldolase, Trp-sensitive (EC 4.1.2.15)
B1	32	REC05073	b1738	<i>celA</i>	E	N	N	PTS system, cellobiose-specific IIB component (EC 2.7.1.69)
B1	33	REC05086	b1764	<i>selD</i>	E	N	N	Selenide,water dikinase (EC 2.7.9.3)
B1	34	REC05141	b1863	<i>ruvC</i>	E	N	N	Crossover junction endodeoxyribonuclease ruvC (EC 3.1.22.4)
B1	35	REC05155	b1884	<i>cheR</i>	E	N	N	Chemotaxis protein methyltransferase (EC 2.1.1.80)
B1	36	REC05158	b1887	<i>cheW</i>	E	N	N	Chemotaxis protein cheW
B1	37	REC05161	b1890	<i>motA</i>	E	N	N	Chemotaxis motA protein
B1	38	REC05170	b1900	<i>araG</i>	E	N	N	L-arabinose transport ATP-binding protein araG
B1	39	REC05171	b1901	<i>araF</i>	E	N	N	L-arabinose-binding periplasmic protein precursor
B1	40	REC05237	b2042	<i>galF</i>	E	N	N	UTP--glucose-1-phosphate uridylyltransferase (EC 2.7.7.9)
B1	41	REC05271	b2091	<i>gatD</i>	E	N	N	Galactitol-1-phosphate 5-dehydrogenase (EC 1.1.1.251)
B1	42	REC02062	b2114	<i>metG</i>	E	N	N	Methionyl-tRNA synthetase (EC 6.1.1.10)
B1	43	REC05306	b2150	<i>mgLB</i>	E	N	N	D-galactose-binding periplasmic protein precursor
B1	44	REC05407	b2313	<i>cvpA</i>	E	N	N	Colicin V production protein
B1	45	REC05468	b2423	<i>cysW</i>	E	N	N	Sulfate transport system permease protein cysW
B1	46	REC02419	b2479	<i>gcvR</i>	E	N	N	Glycine cleavage system transcriptional repressor
B1	47	REC05519	b2518	<i>ndk</i>	E	N	N	Nucleoside diphosphate kinase (EC 2.7.4.6)
B1	48	REC05553	b2567	<i>rnc</i>	E	N	N	Ribonuclease III (EC 3.1.26.3)
B1	49	REC05610	b2717	<i>hycI</i>	E	N	N	Hydrogenase 3 maturation protease (EC 3.4.-.-)
B1	50	REC05613	b2720	<i>hycF</i>	E	N	N	Formate hydrogenlyase subunit 6
B1	51	REC05734	b2926	<i>pgk</i>	E	N	N	Phosphoglycerate kinase (EC 2.7.2.3)
B1	52	REC06542	b2935	<i>tktA</i>	E	N	N	Transketolase 1 (EC 2.2.1.1)
B1	53	REC05776	b2993	<i>hybD</i>	E	N	N	Hydrogenase 2 maturation protease (EC 3.4.24.-)
B1	54	REC03044	b3119	<i>tdcR</i>	E	N	N	Threonine dehydratase operon activator protein
B1	55	REC05853	b3164	<i>pnp</i>	E	N	N	Polyribonucleotide nucleotidyltransferase (EC 2.7.7.8)
B1	56	REC03157	b3234	<i>degQ</i>	E	N	N	Protease degQ precursor (EC 3.4.21.-)
B1	57	REC05981	b3386	<i>rpe</i>	E	N	N	Ribulose-phosphate 3-epimerase (EC 5.1.3.1)
B1	58	REC03419	b3500	<i>gor</i>	E	N	N	Glutathione reductase (EC 1.6.4.2)
B1	59	REC06097	b3607	<i>cysE</i>	E	N	N	Serine acetyltransferase (EC 2.3.1.30)
B1	60	REC06550	b3706	<i>trmE</i>	E	N	N	Probable tRNA modification GTPase trmE
B1	61	REC06173	b3731	<i>atpC</i>	E	N	N	ATP synthase epsilon chain (EC 3.6.3.14)
B1	62	REC06178	b3736	<i>atpF</i>	E	N	N	ATP synthase B chain (EC 3.6.3.14)
B1	63	REC03688	b3778	<i>rep</i>	E	N	N	ATP-dependent DNA helicase rep (EC 3.6.1.-)
B1	64	REC06581	b3816	<i>corA</i>	E	N	N	Magnesium and cobalt transport protein corA
B1	65	REC03940	b4054	<i>tyrB</i>	E	N	N	Aromatic-amino-acid aminotransferase (EC 2.6.1.57)
B1	66	REC06360	b4151	<i>frdD</i>	E	N	N	Fumarate reductase 13 kDa hydrophobic protein
B1	67	REC04308	b0058	<i>rluA</i>	E	N	N	Ribosomal large subunit pseudouridine synthase A (EC 4.2.1.70)
B1	68	REC00710	b0736	<i>ybgC</i>	E	N	N	Protein ybgC
B1	69	REC04633	b0798	<i>ybiA</i>	E	N	N	Hypothetical protein ybiA
B1	70	REC04799	b1175	<i>minD</i>	E	N	N	Septum site-determining protein minD
B1	71	REC04835	b1253	<i>yciA</i>	E	N	N	Putative acyl-CoA thioester hydrolase yciA (EC 3.1.2.-)

B1	72	REC04928	b1477	yddM	E	N	N	Hypothetical protein yddM
B1	73	REC05054	b1710	btuE	E	N	N	Vitamin B12 transport periplasmic protein btuE
B1	74	REC01710	b1753	ynjA	E	N	N	Hypothetical protein ynjA
B1	75	REC05135	b1852	zwf	E	N	N	Glucose-6-phosphate 1-dehydrogenase (EC 1.1.1.49)
B1	76	REC05195	b1961	dcm	E	N	N	DNA-cytosine methyltransferase (EC 2.1.1.73)
B1	77	REC05330	b2197	ccmE	E	N	N	Cytochrome c-type biogenesis protein ccmE
B1	78	REC05405	b2311	ubiX	E	N	N	3-octaprenyl-4-hydroxybenzoate carboxy-lyase (EC 4.1.1.-)
B1	79	REC05541	b2551	glyA	E	N	N	Serine hydroxymethyltransferase (EC 2.1.2.1)
B1	80	REC05567	b2594	rLuD	E	N	N	Ribosomal large subunit pseudouridine synthase D (EC 4.2.1.70)
B1	81	REC05683	b2827	thyA	E	N	N	Thymidylate synthase (EC 2.1.1.45)
B1	82	REC05723	b2907	ubiH	E	N	N	2-octaprenyl-6-methoxyphenol hydroxylase (EC 1.14.13.-)
B1	83	REC05750	b2957	ansB	E	N	N	L-asparaginase II precursor (EC 3.5.1.1)
B1	84	REC05773	b2990	hybG	E	N	N	Hydrogenase-2 operon protein hybG
B1	85	REC03125	b3202	rpoN	E	N	N	RNA polymerase sigma-54 factor
B1	86	REC03127	b3204	ptsN	E	N	N	Nitrogen regulatory IIA protein (EC 2.7.1.69)
B1	87	REC03160	b3237	argR	E	N	N	Arginine repressor
B1	88	REC03760	b3860	dsbA	E	N	N	Thiol:disulfide interchange protein dsbA precursor
B1	89	REC06240	b3902	rhaD	E	N	N	Rhamnulose-1-phosphate aldolase (EC 4.1.2.19)
B1	90	REC03856	b3958	argC	E	N	N	N-acetyl-gamma-glutamyl-phosphate reductase (EC 1.2.1.38)
B1	91	REC03916	b4030	yjbA	E	N	N	Hypothetical protein yjbA
B2	1	REC04745	b1051	msyB	E	N	X	Acidic protein msyB
B2	2	REC05143	b1865	nudB	E	N	X	dATP pyrophosphohydrolase (EC 3.6.1.-)
B2	3	REC06532	b4373	rimI	E	N	X	Ribosomal-protein-alanine acetyltransferase (EC 2.3.1.128)
B2	4	REC00009	b0009	mog	E	N	X	Molybdopterin biosynthesis mog protein
B2	5	REC00014	b0014	dnaK	E	N	X	Chaperone protein dnaK
B2	6	REC04295	b0023	rpsT	E	N	X	30S ribosomal protein S20
B2	7	REC00025	b0025	ribF	E	N	X	Riboflavin biosynthesis protein ribF
B2	8	REC00031	b0031	dapB	E	N	X	Dihydrodipicolinate reductase (EC 1.3.1.26)
B2	9	REC00048	b0048	folA	E	N	X	Dihydrofolate reductase (EC 1.5.1.3)
B2	10	REC00092	b0092	ddlB	E	N	X	D-alanine--D-alanine ligase B (EC 6.3.2.4)
B2	11	REC00115	b0115	aceF	E	N	X	Dihydrolipoamide acetyltransferase component of pyruvate dehydrogenase complex (EC 2.3.1.12)
B2	12	REC00116	b0116	lpdA	E	N	X	Dihydrolipoamide dehydrogenase (EC 1.8.1.4)
B2	13	REC00129	b0129	yadI	E	N	X	Putative PTS system IIA component yadI (EC 2.7.1.69)
B2	14	REC04349	b0142	folK	E	N	X	2-amino-4-hydroxy-6-hydroxymethylidihydropteridine pyrophosphokinase (EC 2.7.6.3)
B2	15	REC04355	b0154	hemL	E	N	X	Glutamate-1-semialdehyde 2,1-aminomutase (EC 5.4.3.8)
B2	16	REC04358	b0159	mtn	E	N	X	MTA/SAH nucleosidase
B2	17	REC04362	b0166	dapD	E	N	X	2,3,4,5-tetrahydropyridine-2-carboxylate N-succinyltransferase (EC 2.3.1.117)
B2	18	REC00173	b0173	dxr	E	N	X	1-deoxy-D-xylulose 5-phosphate reductoisomerase (EC 1.1.1.267)
B2	19	REC00183	b0183	rnhB	E	N	X	Ribonuclease HII (EC 3.1.26.4)
B2	20	REC04376	b0214	rnhA	E	N	X	Ribonuclease HI (EC 3.1.26.4)
B2	21	REC04399	b0265		E	N	X	Insertion element IS1 1/2/3/5/6 protein insA
B2	22	REC00262	b0271	yagH	E	N	X	Putative beta-xylosidase (EC 3.2.1.37)
B2	23	REC04413	b0289	yagV	E	N	X	Hypothetical protein yagV precursor
B2	24	REC00306	b0322	yahH	E	N	X	Hypothetical protein yahH

B2	25	REC00324	b0340	<i>cynS</i>	E	N	X	Cyanate hydratase (EC 4.2.1.104)
B2	26	REC04446	b0369	<i>hemB</i>	E	N	X	Delta-aminolevulinic acid dehydratase (EC 4.2.1.24)
B2	27	REC04453	b0386	<i>proC</i>	E	N	X	Pyrraline-5-carboxylate reductase (EC 1.5.1.2)
B2	28	REC00392	b0408	<i>secD</i>	E	N	X	Protein-export membrane protein secD
B2	29	REC00393	b0409	<i>secF</i>	E	N	X	Protein-export membrane protein secF
B2	30	REC00398	b0414	<i>ribD</i>	E	N	X	Riboflavin biosynthesis protein ribD
B2	31	REC00399	b0415	<i>ribH</i>	E	N	X	6,7-dimethyl-8-ribityllumazine synthase (EC 2.5.1.9)
B2	32	REC00402	b0418	<i>pgpA</i>	E	N	X	Phosphatidylglycerophosphatase A (EC 3.1.3.27)
B2	33	REC04487	b0467	<i>priC</i>	E	N	X	Primosomal replication protein N"
B2	34	REC00458	b0475	<i>hemH</i>	E	N	X	Ferrochelataase (EC 4.99.1.1)
B2	35	REC00488	b0505	<i>allA</i>	E	N	X	Ureidoglycolate hydrolase (EC 3.5.3.19)
B2	36	REC04508	b0525	<i>ppiB</i>	E	N	X	Peptidyl-prolyl cis-trans isomerase B (EC 5.2.1.8)
B2	37	REC00532	b0550	<i>rusA</i>	E	N	X	Crossover junction endodeoxyribonuclease rusA (EC 3.1.22.-)
B2	38	REC00545	b0564	<i>appY</i>	E	N	X	AppY protein
B2	39	REC04568	b0641	<i>rlpB</i>	E	N	X	Rare lipoprotein B precursor
B2	40	REC04575	b0653	<i>gltK</i>	E	N	X	Glutamate/aspartate transport system permease protein gltK
B2	41	REC00661	b0687	<i>seqA</i>	E	N	X	SeqA protein
B2	42	REC00676	b0702	<i>ybfB</i>	E	N	X	Hypothetical protein ybfB
B2	43	REC00678	b0704	<i>ybfC</i>	E	N	X	Hypothetical protein ybfC precursor
B2	44	REC00682	b0708	<i>phrB</i>	E	N	X	Deoxyribodipyrimidine photolyase (EC 4.1.99.3)
B2	45	REC04605	b0717	<i>ybgP</i>	E	N	X	Hypothetical fimbrial chaperone ybgP precursor
B2	46	REC00700	b0726	<i>sucA</i>	E	N	X	2-oxoglutarate dehydrogenase E1 component (EC 1.2.4.2)
B2	47	REC00701	b0727	<i>sucB</i>	E	N	X	Dihydrolipoamide succinyltransferase component of 2-oxoglutarate dehydrogenase complex (EC 2.3.1.61)
B2	48	REC00708	b0734	<i>cydB</i>	E	N	X	Cytochrome D ubiquinol oxidase subunit II (EC 1.10.3.-)
B2	49	REC04619	b0766	<i>ybhA</i>	E	N	X	Hypothetical protein ybhA
B2	50	REC04625	b0788	<i>ybhN</i>	E	N	X	Hypothetical protein ybhN
B2	51	REC00758	b0791	<i>ybhQ</i>	E	N	X	Hypothetical protein ybhQ
B2	52	REC04653	b0835	<i>yliG</i>	E	N	X	Hypothetical protein yliG
B2	53	REC04680	b0886	<i>cydC</i>	E	N	X	Transport ATP-binding protein cydC
B2	54	REC04681	b0887	<i>cydD</i>	E	N	X	Transport ATP-binding protein cydD
B2	55	REC00888	b0922	<i>mukF</i>	E	N	X	MukF protein
B2	56	REC00889	b0923	<i>mukE</i>	E	N	X	MukE protein
B2	57	REC00953	b0988	<i>insB4</i>	E	N	X	Insertion element IS1 4 protein insB
B2	58	REC04721	b0995	<i>torR</i>	E	N	X	TorCAD operon transcriptional regulatory protein torR
B2	59	REC00961	b0998	<i>torD</i>	E	N	X	Chaperone protein torD
B2	60	REC04742	b1039	<i>csgE</i>	E	N	X	Curli production assembly/transport component csgE precursor
B2	61	REC01053	b1091	<i>fabH</i>	E	N	X	3-oxoacyl-[acyl-carrier-protein] synthase III (EC 2.3.1.41)
B2	62	REC04772	b1124	<i>potC</i>	E	N	X	Spermidine/putrescine transport system permease protein potC
B2	63	REC01151	b1189	<i>dadA</i>	E	N	X	D-amino acid dehydrogenase small subunit (EC 1.4.99.1)
B2	64	REC04814	b1203	<i>ychF</i>	E	N	X	Probable GTP-binding protein ychF
B2	65	REC01174	b1212	<i>hemK</i>	E	N	X	Protein methyltransferase hemK (EC 2.1.1.-)
B2	66	REC04825	b1232	<i>purU</i>	E	N	X	Formyltetrahydrofolate deformylase (EC 3.5.1.10)
B2	67	REC01195	b1235	<i>hnr</i>	E	N	X	Hnr protein
B2	68	REC01196	b1236	<i>galU</i>	E	N	X	UTP--glucose-1-phosphate uridylyltransferase (EC 2.7.7.9)
B2	69	REC01198	b1238	<i>tdk</i>	E	N	X	Thymidine kinase (EC 2.7.1.21)

B2	70	REC01205	b1245	<i>oppC</i>	E	N	X	Oligopeptide transport system permease protein oppC
B2	71	REC01212	b1252	<i>tonB</i>	E	N	X	TonB protein
B2	72	REC04836	b1254	<i>ispZ</i>	E	N	X	Probable intracellular septation protein
B2	73	REC01229	b1269	<i>yciL</i>	E	N	X	Hypothetical protein yciL
B2	74	REC04847	b1270	<i>btuR</i>	E	N	X	COB(I)alamin adenosyltransferase (EC 2.5.1.17)
B2	75	REC04848	b1271	<i>yciK</i>	E	N	X	Hypothetical oxidoreductase yciK (EC 1.-.-.-)
B2	76	REC04850	b1277	<i>ribA</i>	E	N	X	GTP cyclohydrolase II (EC 3.5.4.25)
B2	77	REC04869	b1326	<i>ycjI</i>	E	N	X	Hypothetical protein ycjI
B2	78	REC01292	b1332	<i>ynaJ</i>	E	N	X	Hypothetical protein ynaJ
B2	79	REC01300	b1340	<i>ydaL</i>	E	N	X	Hypothetical protein ydaL
B2	80	REC04889	b1356	<i>racR</i>	E	N	X	Rac prophage repressor
B2	81	REC01317	b1357	<i>ydaS</i>	E	N	X	Hypothetical protein ydaS precursor
B2	82	REC01318	b1358	<i>ydaT</i>	E	N	X	Hypothetical protein ydaT
B2	83	REC01319	b1359	<i>ydaU</i>	E	N	X	Hypothetical protein ydaU
B2	84	REC04890	b1370	<i>insH5</i>	E	N	X	Transposase insH for insertion sequence element IS5Y
B2	85	REC04896	b1379	<i>hslJ</i>	E	N	X	Heat shock protein hslJ
B2	86	REC01350	b1390	<i>paaC</i>	E	N	X	Phenylacetic acid degradation protein paaC
B2	87	REC04903	b1412	<i>acpD</i>	E	N	X	Acyl carrier protein phosphodiesterase (EC 3.1.4.14)
B2	88	REC01394	b1434	<i>ydcN</i>	E	N	X	Hypothetical protein ydcN
B2	89	REC04918	b1464	<i>yddE</i>	E	N	X	Hypothetical protein yddE
B2	90	REC01530	b1570	<i>dicA</i>	E	N	X	Repressor protein of division inhibition gene dicB
B2	91	REC01573	b1614	<i>ydgA</i>	E	N	X	Hypothetical protein ydgA
B2	92	REC01593	b1634	<i>ydgR</i>	E	N	X	Hypothetical transporter ydgR
B2	93	REC01610	b1651	<i>g1cA</i>	E	N	X	Lactoylglutathione lyase (EC 4.4.1.5)
B2	94	REC01611	b1652	<i>rnt</i>	E	N	X	Ribonuclease T (EC 3.1.13.-)
B2	95	REC05029	b1662	<i>ribE</i>	E	N	X	Riboflavin synthase alpha chain (EC 2.5.1.9)
B2	96	REC05071	b1736	<i>celC</i>	E	N	X	PTS system, cellobiose-specific IIA component (EC 2.7.1.69)
B2	97	REC05087	b1765	<i>ydjA</i>	E	N	X	Protein ydjA
B2	98	REC01736	b1779	<i>gapA</i>	E	N	X	Glyceraldehyde 3-phosphate dehydrogenase A (EC 1.2.1.12)
B2	99	REC05147	b1874	<i>cutC</i>	E	N	X	Copper homeostasis protein cutC
B2	100	REC01896	b1942	<i>fliJ</i>	E	N	X	Flagellar fliJ protein
B2	101	REC01898	b1944	<i>fliL</i>	E	N	X	Flagellar fliL protein
B2	102	REC01900	b1946	<i>fliN</i>	E	N	X	Flagellar motor switch protein fliN
B2	103	REC05256	b2061	<i>wzb</i>	E	N	X	Low molecular weight protein-tyrosine-phosphatase wzb (EC 3.1.3.48)
B2	104	REC05282	b2105	<i>yohL</i>	E	N	X	Hypothetical protein yohL
B2	105	REC05285	b2110	<i>yehC</i>	E	N	X	Hypothetical fimbrial chaperone yehC precursor
B2	106	REC05286	b2111	<i>yehD</i>	E	N	X	Hypothetical protein yehD precursor
B2	107	REC05309	b2153	<i>fo1E</i>	E	N	X	GTP cyclohydrolase I (EC 3.5.4.16)
B2	108	REC02181	b2232	<i>ubiG</i>	E	N	X	3-demethylubiquinone-9 3-methyltransferase (EC 2.1.1.64)
B2	109	REC05368	b2260	<i>menE</i>	E	N	X	O-succinylbenzoic acid--CoA ligase (EC 6.2.1.26)
B2	110	REC02245	b2296	<i>ackA</i>	E	N	X	Acetate kinase (EC 2.7.2.1)
B2	111	REC02412	b2472	<i>dapE</i>	E	N	X	Succinyl-diaminopimelate desuccinylase (EC 3.5.1.18)
B2	112	REC05503	b2478	<i>dapA</i>	E	N	X	Dihydrodipicolinate synthase (EC 4.2.1.52)
B2	113	REC05526	b2526	<i>hscA</i>	E	N	X	Chaperone protein hscA
B2	114	REC02473	b2533	<i>suhB</i>	E	N	X	Inositol-1-monophosphatase (EC 3.1.3.25)

B2	115	REC02479	b2539	<i>hcaF</i>	E	N	X	3-phenylpropionate dioxygenase beta subunit (EC 1.14.1.-)
B2	116	REC02480	b2540	<i>hcaC</i>	E	N	X	3-phenylpropionate dioxygenase ferredoxin subunit
B2	117	REC05550	b2564	<i>pdxJ</i>	E	N	X	Pyridoxal phosphate biosynthetic protein pdxJ
B2	118	REC02525	b2585	<i>pssA</i>	E	N	X	CDP-diacylglycerol--serine O-phosphatidyltransferase (EC 2.7.8.8)
B2	119	REC05572	b2608	<i>rimM</i>	E	N	X	16S rRNA processing protein rimM
B2	120	REC02742	b2811	<i>ygdK</i>	E	N	X	Hypothetical protein ygdK
B2	121	REC02864	b2942	<i>metK</i>	E	N	X	S-adenosylmethionine synthetase (EC 2.5.1.6)
B2	122	REC05803	b3033	<i>yqiB</i>	E	N	X	Hypothetical protein yqiB
B2	123	REC02979	b3056	<i>cca</i>	E	N	X	tRNA nucleotidyltransferase (EC 2.7.7.25)
B2	124	REC05832	b3112	<i>tdcG</i>	E	N	X	L-serine dehydratase tdcG (EC 4.2.1.13)
B2	125	REC05857	b3168	<i>infB</i>	E	N	X	Translation initiation factor IF-2
B2	126	REC03109	b3187	<i>ispB</i>	E	N	X	Octaprenyl-diphosphate synthase (EC 2.5.1.-)
B2	127	REC05906	b3250	<i>mreC</i>	E	N	X	Rod shape-determining protein mreC
B2	128	REC05907	b3251	<i>mreB</i>	E	N	X	Rod shape-determining protein mreB
B2	129	REC03186	b3261	<i>fis</i>	E	N	X	DNA-binding protein fis
B2	130	REC03206	b3288	<i>fmt</i>	E	N	X	Methionyl-tRNA formyltransferase (EC 2.1.2.9)
B2	131	REC03209	b3291	<i>mscL</i>	E	N	X	Large-conductance mechanosensitive channel
B2	132	REC05953	b3339	<i>tufA</i>	E	N	X	Elongation factor Tu
B2	133	REC05962	b3349	<i>slyD</i>	E	N	X	FKBP-type peptidyl-prolyl cis-trans isomerase slyD (EC 5.2.1.8)
B2	134	REC05985	b3390	<i>aroK</i>	E	N	X	Shikimate kinase I (EC 2.7.1.71)
B2	135	REC06010	b3433	<i>asd</i>	E	N	X	Aspartate-semialdehyde dehydrogenase (EC 1.2.1.11)
B2	136	REC06029	b3461	<i>rpoH</i>	E	N	X	RNA polymerase sigma-32 factor
B2	137	REC03425	b3506	<i>slp</i>	E	N	X	Outer membrane protein slp precursor
B2	138	REC06099	b3609	<i>secB</i>	E	N	X	Protein-export protein secB
B2	139	REC03541	b3621	<i>rfaC</i>	E	N	X	Lipopolysaccharide heptosyltransferase-1 (EC 2.-.-.-)
B2	140	REC06161	b3719	<i>yieL</i>	E	N	X	Hypothetical protein yieL
B2	141	REC06171	b3729	<i>glmS</i>	E	N	X	Glucosamine--fructose-6-phosphate aminotransferase [isomerizing] (EC 2.6.1.16)
B2	142	REC03703	b3793	<i>wzyE</i>	E	N	X	Putative ECA polymerase
B2	143	REC03715	b3809	<i>dapF</i>	E	N	X	Diaminopimelate epimerase (EC 5.1.1.7)
B2	144	REC03717	b3811	<i>xerC</i>	E	N	X	Integrase/recombinase xerC
B2	145	REC03741	b3835	<i>ubiB</i>	E	N	X	Probable ubiquinone biosynthesis protein ubiB
B2	146	REC03755	b3850	<i>hemG</i>	E	N	X	Protoporphyrinogen oxidase (EC 1.3.3.4)
B2	147	REC06258	b3935	<i>priA</i>	E	N	X	Primosomal protein N'
B2	148	REC03867	b3973	<i>birA</i>	E	N	X	BirA bifunctional protein
B2	149	REC06271	b3974	<i>coaA</i>	E	N	X	Pantothenate kinase (EC 2.7.1.33)
B2	150	REC03870	b3980	<i>tufB</i>	E	N	X	Elongation factor Tu
B2	151	REC06617	b3997	<i>hemE</i>	E	N	X	Uroporphyrinogen decarboxylase (EC 4.1.1.37)
B2	152	REC04054	b4171	<i>miaA</i>	E	N	X	tRNA delta(2)-isopentenylpyrophosphate transferase (EC 2.5.1.8)
B2	153	REC04055	b4172	<i>hfq</i>	E	N	X	Hfq protein
B2	154	REC04084	b4201	<i>priB</i>	E	N	X	Primosomal replication protein N
B2	155	REC04107	b4224	<i>chpS</i>	E	N	X	PemI-like protein 2
B2	156	REC06400	b4259	<i>holC</i>	E	N	X	DNA polymerase III, chi subunit (EC 2.7.7.7)
B2	157	REC06471	b4386	<i>lpIA</i>	E	N	X	Lipoate-protein ligase A (EC 6.-.-.-)

Set C: genes essential in Gerdes et al., 2002 and unassigned in PEC data (viable gene knockouts from UW data are shown in the sub-set C1)

C1	1	REC04336	b0122	<i>yacC</i>	E	X	N	Hypothetical protein <i>yacC</i> precursor
C1	2	REC00504	b0521	<i>arcC</i>	E	X	N	Carbamate kinase (EC 2.7.2.2)
C1	3	REC01282	b1322	<i>ycjF</i>	E	X	N	Hypothetical protein <i>ycjF</i>
C1	4	REC05026	b1654	<i>ydhD</i>	E	X	N	Protein <i>ydhD</i>
C1	5	REC05130	b1846	<i>yebE</i>	E	X	N	Hypothetical protein <i>yebE</i>
C1	6	REC05132	b1848	<i>yebG</i>	E	X	N	Hypothetical protein <i>yebG</i>
C1	7	REC05142	b1864	<i>yebC</i>	E	X	N	Protein <i>yebC</i>
C1	8	REC01883	b1929	<i>yedE</i>	E	X	N	Hypothetical protein <i>yedE</i>
C1	9	REC02869	b2947	<i>gshB</i>	E	X	N	Glutathione synthetase (EC 6.3.2.3)
C1	10	REC04563	b0636	<i>ybeA</i>	E	X	N	Hypothetical protein <i>ybeA</i>
C1	11	REC00813	b0846	<i>ybjK</i>	E	X	N	Hypothetical protein <i>ybjK</i>
C1	12	REC00817	b0850	<i>ybjC</i>	E	X	N	Hypothetical protein <i>ybjC</i>
C1	13	REC04667	b0865	<i>ybjP</i>	E	X	N	Putative lipoprotein <i>ybjP</i> precursor
C1	14	REC00833	b0866	<i>ybjQ</i>	E	X	N	Hypothetical protein <i>ybjQ</i>
C1	15	REC00834	b0867	<i>ybjR</i>	E	X	N	Probable N-acetylmuramoyl-L-alanine amidase <i>ybjR</i> (EC 3.5.1.28)
C1	16	REC04668	b0868	<i>ybjS</i>	E	X	N	Hypothetical protein <i>ybjS</i>
C1	17	REC04683	b0897	<i>ycaC</i>	E	X	N	Protein <i>ycaC</i>
C1	18	REC04706	b0963	<i>mgsA</i>	E	X	N	Methylglyoxal synthase (EC 4.2.3.3)
C1	19	REC04722	b0999	<i>yccD</i>	E	X	N	Hypothetical protein <i>yccD</i>
C1	20	REC04730	b1010	<i>ycdK</i>	E	X	N	Hypothetical protein <i>ycdK</i>
C1	21	REC04731	b1011	<i>ycdL</i>	E	X	N	Hypothetical isochorismatase family protein <i>ycdL</i>
C1	22	REC01070	b1108	<i>ycfP</i>	E	X	N	Hypothetical protein <i>ycfP</i>
C1	23	REC04775	b1128	<i>ycfD</i>	E	X	N	Hypothetical protein <i>ycfD</i>
C1	24	REC01167	b1205	<i>ychH</i>	E	X	N	Hypothetical protein <i>ychH</i>
C1	25	REC01175	b1213	<i>ychQ</i>	E	X	N	Hypothetical protein <i>ychQ</i>
C1	26	REC01398	b1438	<i>ydcQ</i>	E	X	N	Hypothetical protein <i>ydcQ</i>
C1	27	REC01401	b1441	<i>ydcT</i>	E	X	N	Hypothetical ABC transporter ATP-binding protein <i>ydcT</i>
C1	28	REC01402	b1442	<i>ydcU</i>	E	X	N	Hypothetical ABC transporter permease protein <i>ydcU</i>
C1	29	REC01403	b1443	<i>ydcV</i>	E	X	N	Hypothetical ABC transporter permease protein <i>ydcV</i>
C1	30	REC01412	b1452	<i>yncE</i>	E	X	N	Hypothetical protein <i>yncE</i> precursor
C1	31	REC01423	b1463	<i>nhoA</i>	E	X	N	N-hydroxyarylamine O-acetyltransferase (EC 2.3.1.118)
C1	32	REC04966	b1523	<i>yneG</i>	E	X	N	Hypothetical protein <i>yneG</i>
C1	33	REC04985	b1556	<i>essQ</i>	E	X	N	Lysis protein S homolog from lambdoid prophage Qin
C1	34	REC01525	b1565	<i>ydfV</i>	E	X	N	Hypothetical protein <i>ydfV</i>
C1	35	REC04998	b1582	<i>ynfA</i>	E	X	N	Hypothetical protein <i>ynfA</i>
C1	36	REC01545	b1586	<i>ynfD</i>	E	X	N	Hypothetical protein <i>ynfD</i> precursor
C1	37	REC01548	b1589	<i>ynfG</i>	E	X	N	Probable anaerobic dimethyl sulfoxide reductase chain <i>ynfG</i>
C1	38	REC05025	b1648	<i>ydhL</i>	E	X	N	Hypothetical protein <i>ydhL</i> precursor
C1	39	REC05033	b1671	<i>ydhX</i>	E	X	N	Putative ferredoxin-like protein <i>ydhX</i>
C1	40	REC05044	b1684	<i>sufA</i>	E	X	N	SufA protein
C1	41	REC05046	b1686	<i>ydiI</i>	E	X	N	Hypothetical protein <i>ydiI</i>
C1	42	REC01652	b1695	<i>ydiO</i>	E	X	N	Hypothetical protein <i>ydiO</i>
C1	43	REC01655	b1698	<i>ydiR</i>	E	X	N	Putative electron transfer flavoprotein subunit <i>ydiR</i>
C1	44	REC01657	b1700	<i>ydiT</i>	E	X	N	Ferredoxin-like protein <i>ydiT</i>

C1	45	REC05064	b1722	<i>ydiY</i>	E	X	N	Hypothetical protein ydiY precursor
C1	46	REC01698	b1741	<i>ydjQ</i>	E	X	N	Hypothetical protein ydjQ
C1	47	REC05075	b1742	<i>ydjR</i>	E	X	N	Hypothetical protein ydjR
C1	48	REC05078	b1745	<i>astB</i>	E	X	N	Succinylarginine dihydrolase (EC 3.-.-.)
C1	49	REC05080	b1747	<i>astA</i>	E	X	N	Arginine N-succinyltransferase (EC 2.3.1.109)
C1	50	REC01713	b1756	<i>ynjD</i>	E	X	N	Hypothetical ABC transporter ATP-binding protein ynjD
C1	51	REC05264	b2073	<i>yegL</i>	E	X	N	Hypothetical protein yegL
C1	52	REC05455	b2387	<i>ypdH</i>	E	X	N	Putative PTS system IIB component ypdH (EC 2.7.1.69)
C1	53	REC05479	b2439	<i>eutL</i>	E	X	N	Ethanolamine utilization protein eutL
C1	54	REC05653	b2780	<i>pyrG</i>	E	X	N	CTP synthase (EC 6.3.4.2)
C1	55	REC05718	b2900	<i>yqfB</i>	E	X	N	Hypothetical protein yqfB
C1	56	REC05725	b2909	<i>ygfB</i>	E	X	N	Hypothetical protein ygfB
C1	57	REC05784	b3002	<i>yqhA</i>	E	X	N	Hypothetical protein yqhA
C1	58	REC03057	b3133	<i>agaV</i>	E	X	N	PTS system, N-acetylgalactosamine-specific IIB component 2 (EC 2.7.1.69)
C1	59	REC05958	b3344	<i>yheM</i>	E	X	N	Hypothetical protein yheM
C1	60	REC06278	b3995	<i>rsd</i>	E	X	N	Regulator of sigma D
C1	61	REC04041	b4155	<i>poxA</i>	E	X	N	Putative lysyl-tRNA synthetase (EC 6.1.1.6)
C1	62	REC04146	b4262	<i>yjgQ</i>	E	X	N	Hypothetical protein yjgQ
C1	63	REC06427	b4302	<i>sgcA</i>	E	X	N	Putative phosphotransferase enzyme II, A component sgcA (EC 2.7.1.69)
C2	1	REC05214	b2009	<i>gyrI</i>	E	X	X	DNA gyrase inhibitory protein
C2	2	REC05888	b3226	<i>yhcK</i>	E	X	X	Hypothetical transcriptional regulator yhcK
C2	3	REC03603	b3684	<i>yidP</i>	E	X	X	Hypothetical transcriptional regulator yidP
C2	4	REC06564	b0021	<i>insB1</i>	E	X	X	Insertion element IS1 1/5/6 protein insB
C2	5	REC06565	b0022		E	X	X	Insertion element IS1 1/2/3/5/6 protein insA
C2	6	REC04307	b0054	<i>imp</i>	E	X	X	Organic solvent tolerance protein precursor
C2	7	REC00082	b0082	<i>mraW</i>	E	X	X	S-adenosyl-methyltransferase mraW (EC 2.1.1.-)
C2	8	REC00097	b0097	<i>secM</i>	E	X	X	Secretion monitor precursor
C2	9	REC04326	b0103	<i>coaE</i>	E	X	X	Dephospho-CoA kinase (EC 2.7.1.24)
C2	10	REC04338	b0126	<i>yadF</i>	E	X	X	Protein yadF
C2	11	REC00170	b0170	<i>tsf</i>	E	X	X	Elongation factor Ts
C2	12	REC00177	b0177	<i>yaeT</i>	E	X	X	Unknown protein from 2D-page spots M62/M63/O3/O9/T35 precursor
C2	13	REC00204	b0210	<i>yafE</i>	E	X	X	Hypothetical protein yafE
C2	14	REC04386	b0245	<i>ykfI</i>	E	X	X	Hypothetical protein ykfI
C2	15	REC06629	b0298	<i>insE1</i>	E	X	X	Transposase insE for insertion sequence IS3A/B/C/D/E/fA/fB
C2	16	REC04440	b0357	<i>yaiN</i>	E	X	X	Hypothetical protein yaiN
C2	17	REC04445	b0364	<i>yaiS</i>	E	X	X	Hypothetical protein yaiS
C2	18	REC04451	b0379	<i>yaiY</i>	E	X	X	Hypothetical protein yaiY
C2	19	REC00401	b0417	<i>thiL</i>	E	X	X	Thiamine-monophosphate kinase (EC 2.7.4.16)
C2	20	REC00426	b0442	<i>ybaV</i>	E	X	X	Hypothetical protein ybaV precursor
C2	21	REC00439	b0456	<i>ybaA</i>	E	X	X	Hypothetical protein ybaA
C2	22	REC00451	b0468	<i>ybaN</i>	E	X	X	Hypothetical protein ybaN
C2	23	REC04492	b0482	<i>ybaP</i>	E	X	X	Hypothetical protein ybaP
C2	24	REC00466	b0483	<i>ybaQ</i>	E	X	X	Hypothetical protein ybaQ
C2	25	REC00481	b0498	<i>ybbC</i>	E	X	X	Hypothetical protein ybbC precursor

C2	26	REC00503	b0520	<i>y1bF</i>	E	X	X	Hypothetical protein y1bF
C2	27	REC04507	b0524	<i>lpxH</i>	E	X	X	UDP-2,3-diacetylglucosamine hydrolase (EC 3.6.1.-)
C2	28	REC00282	b0540	<i>insE3</i>	E	X	X	Transposase insE for insertion sequence IS3A/B/C/D/E/fA/fB
C2	29	REC00529	b0547	<i>ybcN</i>	E	X	X	Hypothetical protein ybcN in lambdoid DLP12 prophage region
C2	30	REC00531	b0549	<i>ybcO</i>	E	X	X	Hypothetical protein ybcO in lambdoid DLP12 prophage region
C2	31	REC04518	b0558	<i>ybcV</i>	E	X	X	Hypothetical protein ybcV
C2	32	REC04554	b0624	<i>crcB</i>	E	X	X	Protein crcB
C2	33	REC04581	b0659	<i>ybeY</i>	E	X	X	Hypothetical protein ybeY
C2	34	REC00656	b0682	<i>ybfN</i>	E	X	X	Hypothetical lipoprotein ybfN precursor
C2	35	REC00784	b0817	<i>mntR</i>	E	X	X	Transcriptional regulator mntR
C2	36	REC00848	b0881	<i>y1jA</i>	E	X	X	Protein y1jA
C2	37	REC00876	b0910	<i>cmk</i>	E	X	X	Cytidylate kinase (EC 2.7.4.14)
C2	38	REC00881	b0915	<i>lpxK</i>	E	X	X	Tetraacyldisaccharide 4'-kinase (EC 2.7.1.130)
C2	39	REC00892	b0926	<i>ycbK</i>	E	X	X	Hypothetical protein ycbK
C2	40	REC00931	b0965	<i>yccU</i>	E	X	X	Protein yccU
C2	41	REC04718	b0987	<i>ymcD</i>	E	X	X	Hypothetical protein ymcD
C2	42	REC06640	b1027	<i>insE4</i>	E	X	X	Transposase insE for insertion sequence IS3A/B/C/D/E/fA/fB
C2	43	REC00995	b1033	<i>ycdW</i>	E	X	X	Putative 2-hydroxyacid dehydrogenase ycdW
C2	44	REC00996	b1034	<i>ycdX</i>	E	X	X	Hypothetical protein ycdX precursor
C2	45	REC00998	b1036	<i>ycdZ</i>	E	X	X	Hypothetical protein ycdZ
C2	46	REC01031	b1069	<i>mviN</i>	E	X	X	Virulence factor mviN homolog
C2	47	REC01047	b1085		E	X	X	FROM BASES 1137539 TO 1147976 (SECTION 99 OF 400) OF THE COMPLETE GENOME
C2	48	REC01105	b1143	<i>ymfI</i>	E	X	X	Hypothetical protein ymfI
C2	49	REC04788	b1144	<i>ymfJ</i>	E	X	X	Hypothetical protein ymfJ
C2	50	REC04789	b1145	<i>ymfK</i>	E	X	X	Putative lambdoid prophage e14 repressor protein C2
C2	51	REC01108	b1146		E	X	X	FROM BASES 1195814 TO 1209543 (SECTION 104 OF 400) OF THE COMPLETE GENOME
C2	52	REC04792	b1160	<i>e1bA</i>	E	X	X	Enhancing lycopene biosynthesis protein 1
C2	53	REC04793	b1161	<i>ycgX</i>	E	X	X	Hypothetical protein ycgX
C2	54	REC01142	b1180	<i>ycgM</i>	E	X	X	Protein ycgM
C2	55	REC04811	b1199	<i>ycgS</i>	E	X	X	Protein ycgS
C2	56	REC04818	b1208	<i>ispE</i>	E	X	X	4-diphosphocytidyl-2-C-methyl-D-erythritol kinase (EC 2.7.1.148)
C2	57	REC01190	b1228		E	X	X	FROM BASES 1278800 TO 1289447 (SECTION 111 OF 400) OF THE COMPLETE GENOME
C2	58	REC01239	b1279	<i>yciS</i>	E	X	X	Hypothetical protein yciS
C2	59	REC01359	b1399	<i>paaX</i>	E	X	X	Phenylacetic acid degradation operon negative regulatory protein paaX
C2	60	REC01360	b1400	<i>paaY</i>	E	X	X	Phenylacetic acid degradation protein paaY
C2	61	REC04913	b1447	<i>ydcZ</i>	E	X	X	Hypothetical protein ydcZ
C2	62	REC04914	b1448	<i>yncA</i>	E	X	X	Hypothetical acetyltransferase yncA (EC 2.3.1.-)
C2	63	REC04925	b1471	<i>yddK</i>	E	X	X	Hypothetical protein yddK
C2	64	REC04926	b1472		E	X	X	FROM BASES 1540626 TO 1550846 (SECTION 134 OF 400) OF THE COMPLETE GENOME
C2	65	REC04935	b1485	<i>yddQ</i>	E	X	X	Hypothetical ABC transporter permease protein yddQ
C2	66	REC04984	b1555	<i>ydfR</i>	E	X	X	Hypothetical protein ydfR
C2	67	REC06568	b1578		E	X	X	Transposase insD for insertion element IS2A/D/F/H/I/K
C2	68	REC05003	b1599	<i>ydgE</i>	E	X	X	Hypothetical protein ydgE
C2	69	REC01624	b1667	<i>ydhR</i>	E	X	X	Protein ydhR precursor
C2	70	REC01681	b1724	<i>ydiZ</i>	E	X	X	Hypothetical protein ydiZ

C2	71	REC01748	b1791	<i>yeaN</i>	E	X	X	Hypothetical transport protein yeaN
C2	72	REC01749	b1792	<i>yeaO</i>	E	X	X	Hypothetical protein yeaO
C2	73	REC05111	b1807	<i>yeaZ</i>	E	X	X	Hypothetical protease yeaZ (EC 3.4.-.-)
C2	74	REC01766	b1809	<i>yoaB</i>	E	X	X	Hypothetical protein yoaB
C2	75	REC05126	b1839	<i>yebY</i>	E	X	X	Hypothetical protein yebY precursor
C2	76	REC01828	b1871	<i>yecP</i>	E	X	X	Hypothetical protein yecP
C2	77	REC01852	b1895	<i>yecG</i>	E	X	X	Hypothetical protein yecG
C2	78	REC01928	b1976	<i>yeeI</i>	E	X	X	Hypothetical protein yeel
C2	79	REC01953	b2005	<i>yeeV</i>	E	X	X	Hypothetical protein yeeV
C2	80	REC02028	b2080	<i>yegP</i>	E	X	X	Hypothetical protein yegP
C2	81	REC06644	b2088	<i>insE5</i>	E	X	X	Transposase insE for insertion sequence IS3A/B/C/D/E/fA/fB
C2	82	REC05313	b2161	<i>yeiJ</i>	E	X	X	Hypothetical transport protein yeiJ
C2	83	REC02112	b2163	<i>yeiL</i>	E	X	X	Hypothetical protein yeiL
C2	84	REC05315	b2164	<i>yeiM</i>	E	X	X	Hypothetical transport protein yeiM
C2	85	REC02193	b2244	<i>yfaD</i>	E	X	X	Hypothetical protein yfaD
C2	86	REC05361	b2246	<i>yfaV</i>	E	X	X	Hypothetical transport protein yfaV
C2	87	REC05375	b2267	<i>elaA</i>	E	X	X	Protein elaA
C2	88	REC02253	b2304	<i>yfcH</i>	E	X	X	Hypothetical protein yfcH
C2	89	REC05448	b2375	<i>yfdX</i>	E	X	X	YfdX protein precursor
C2	90	REC02384	b2444	<i>yffM</i>	E	X	X	Hypothetical protein yffM
C2	91	REC02386	b2446	<i>yffO</i>	E	X	X	Hypothetical protein yffO
C2	92	REC02390	b2450	<i>yffS</i>	E	X	X	Hypothetical protein yffS
C2	93	REC05487	b2456	<i>eutN</i>	E	X	X	Ethanolamine utilization protein eutN
C2	94	REC02411	b2471	<i>yffB</i>	E	X	X	Protein yffB
C2	95	REC05512	b2511	<i>engA</i>	E	X	X	Probable GTP-binding protein engA
C2	96	REC05525	b2525	<i>fdx</i>	E	X	X	Ferredoxin, 2Fe-2S
C2	97	REC05527	b2527	<i>hscB</i>	E	X	X	Chaperone protein hscB
C2	98	REC05529	b2529	<i>nifU</i>	E	X	X	NifU-like protein
C2	99	REC05530	b2530	<i>iscS</i>	E	X	X	Cysteine desulfurase (EC 4.4.1.-)
C2	100	REC05547	b2559	<i>yfhC</i>	E	X	X	Hypothetical protein yfhC
C2	101	REC05562	b2579	<i>yfiD</i>	E	X	X	Protein yfiD
C2	102	REC02522	b2582	<i>trxC</i>	E	X	X	Thioredoxin 2
C2	103	REC02548	b2612		E	X	X	Hypothetical protein yfjD
C2	104	REC02551	b2615	<i>ppnK</i>	E	X	X	Probable inorganic polyphosphate/ATP-NAD kinase (EC 2.7.1.23)
C2	105	REC05576	b2618	<i>yfjF</i>	E	X	X	Protein yfjF
C2	106	REC05577	b2619	<i>yfjG</i>	E	X	X	Hypothetical protein yfjG
C2	107	REC02580	b2646	<i>ypjF</i>	E	X	X	Hypothetical protein ypjF
C2	108	REC05589	b2650	<i>ypjC</i>	E	X	X	Hypothetical protein ypjC
C2	109	REC05591	b2665	<i>ygaU</i>	E	X	X	Unknown protein from 2D-page
C2	110	REC02601	b2668	<i>ygaP</i>	E	X	X	Hypothetical protein ygaP
C2	111	REC02606	b2673	<i>nrdH</i>	E	X	X	Glutaredoxin-like protein nrdH
C2	112	REC02607	b2674	<i>nrdI</i>	E	X	X	NrdI protein
C2	113	REC05619	b2732	<i>ygbA</i>	E	X	X	Hypothetical protein ygbA
C2	114	REC02666	b2737	<i>ygbK</i>	E	X	X	Hypothetical protein ygbK
C2	115	REC05626	b2746	<i>ispF</i>	E	X	X	2-C-methyl-D-erythritol 2,4-cyclodiphosphate synthase (EC 4.6.1.12)

C2	116	REC05627	b2747	<i>ispD</i>	E	X	X	2-C-methyl-D-erythritol 4-phosphate cytidyltransferase (EC 2.7.7.60)
C2	117	REC05628	b2748	<i>ygbQ</i>	E	X	X	Hypothetical protein ygbQ
C2	118	REC02779	b2854		E	X	X	ORF_O138
C2	119	REC02804	b2880	<i>ygfM</i>	E	X	X	Hypothetical protein ygfM
C2	120	REC05716	b2897	<i>ygfY</i>	E	X	X	Hypothetical protein ygfY
C2	121	REC05731	b2923	<i>yggA</i>	E	X	X	Hypothetical protein yggA
C2	122	REC02870	b2948	<i>yqgE</i>	E	X	X	Protein yqgE
C2	123	REC02871	b2949	<i>yqgF</i>	E	X	X	Hypothetical protein yqgF
C2	124	REC05752	b2959	<i>yggL</i>	E	X	X	Hypothetical protein yggL
C2	125	REC05795	b3021	<i>ygiT</i>	E	X	X	Hypothetical protein ygiT
C2	126	REC05799	b3027	<i>ygiZ</i>	E	X	X	Hypothetical protein ygiZ
C2	127	REC03008	b3086	<i>ygjQ</i>	E	X	X	Hypothetical protein ygjQ
C2	128	REC03020	b3095	<i>yqjA</i>	E	X	X	Hypothetical protein yqjA
C2	129	REC03021	b3096	<i>yqjB</i>	E	X	X	Hypothetical protein yqjB
C2	130	REC03025	b3100	<i>yqjK</i>	E	X	X	Hypothetical protein yqjK
C2	131	REC03058	b3134	<i>agaW</i>	E	X	X	PTS system, N-acetylgalactosamine-specific IIC component 2
C2	132	REC05846	b3152	<i>yraR</i>	E	X	X	Hypothetical protein yraR
C2	133	REC05847	b3154	<i>yhbP</i>	E	X	X	Hypothetical protein yhbP
C2	134	REC03079	b3155	<i>yhbQ</i>	E	X	X	Hypothetical protein yhbQ
C2	135	REC05848	b3156	<i>yhbS</i>	E	X	X	Hypothetical acetyltransferase yhbS (EC 2.3.1.-)
C2	136	REC05859	b3170	<i>yhbC</i>	E	X	X	Hypothetical protein yhbC
C2	137	REC03124	b3201	<i>yhbG</i>	E	X	X	Probable ABC transporter ATP-binding protein yhbG
C2	138	REC03142	b3219	<i>yhcF</i>	E	X	X	Hypothetical protein yhcF precursor
C2	139	REC05895	b3239	<i>yhcO</i>	E	X	X	Hypothetical protein yhcO
C2	140	REC05957	b3343	<i>yheL</i>	E	X	X	Hypothetical protein yheL
C2	141	REC05959	b3345	<i>yheN</i>	E	X	X	Hypothetical protein yheN
C2	142	REC03292	b3374	<i>yhfQ</i>	E	X	X	Hypothetical sugar kinase yhfQ
C2	143	REC04294	b3444		E	X	X	Insertion element IS1 1/2/3/5/6 protein insA
C2	144	REC03383	b3465	<i>yhhF</i>	E	X	X	Putative methylase yhhF (EC 2.1.1.-)
C2	145	REC03384	b3466	<i>yhhL</i>	E	X	X	Hypothetical protein yhhL
C2	146	REC06033	b3467	<i>yhhM</i>	E	X	X	Hypothetical protein yhhM
C2	147	REC03514	b3594	<i>yibA</i>	E	X	X	Hypothetical protein yibA
C2	148	REC03516	b3596	<i>yibG</i>	E	X	X	Hypothetical protein yibG precursor
C2	149	REC06202	b3804	<i>hemD</i>	E	X	X	Uroporphyrinogen-III synthase (EC 4.2.1.75)
C2	150	REC06578	b3805	<i>hemC</i>	E	X	X	Porphobilinogen deaminase (EC 4.3.1.8)
C2	151	REC06589	b3833	<i>ubiE</i>	E	X	X	Ubiquinone/menaquinone biosynthesis methyltransferase ubiE (EC 2.1.1.-)
C2	152	REC03826	b3928	<i>yiiU</i>	E	X	X	Hypothetical protein yiiU
C2	153	REC06279	b4002	<i>zraP</i>	E	X	X	Zinc resistance-associated protein precursor
C2	154	REC03933	b4047	<i>yjbL</i>	E	X	X	Hypothetical protein yjbL
C2	155	REC03934	b4048	<i>yjbM</i>	E	X	X	Hypothetical protein yjbM
C2	156	REC03936	b4050	<i>yjbO</i>	E	X	X	Hypothetical protein yjbO
C2	157	REC04044	b4158	<i>yjeO</i>	E	X	X	Hypothetical protein yjeO
C2	158	REC04051	b4168	<i>yjeE</i>	E	X	X	Hypothetical protein yjeE
C2	159	REC06764	b4215	<i>ytfI</i>	E	X	X	Hypothetical protein ytfI
C2	160	REC04098	b4215	<i>ytfI</i>	E	X	X	Hypothetical protein ytfI

C2	161	REC04112	b4229	<i>ytfS</i>	E	X	X	Hypothetical ABC transporter ATP-binding protein ytfR
C2	162	REC06391	b4243	<i>yjgF</i>	E	X	X	Protein yjgF
C2	163	REC04134	b4251	<i>yjgJ</i>	E	X	X	Hypothetical protein yjgJ
C2	164	REC04145	b4261	<i>yjgP</i>	E	X	X	Hypothetical protein yjgP
C2	165	REC04169	b4286		E	X	X	Very hypothetical 15.1 kDa protein in intB-fecE intergenic region
C2	166	REC04260	b4378	<i>yjjV</i>	E	X	X	Putative deoxyribonuclease yjjV (EC 3.1.21.-)
C2	167	REC06772		<i>yjbs</i>	E	X	X	Hypothetical protein yjbs
C2	168	REC06714		<i>sgcB</i>	E	X	X	Putative phosphotransferase enzyme II, B component sgcB (EC 2.7.1.69)

Set D: genes non-essential in Gerdes et al., 2002 but essential in PEC data (viable gene knockouts from UW data are shown in the sub-set D1)

D1	1	REC02410	b2470	<i>acrD</i>	N	E	N	Probable aminoglycoside efflux pump
D1	2	REC05858	b3169	<i>nusA</i>	N*	E	N	N utilization substance protein A
D1	3	REC05864	b3178	<i>hflB</i>	N	E	N	Cell division protein ftsH (EC 3.4.24.-)
D1	4	REC03158	b3235	<i>degS</i>	N	E	N	Protease degS precursor (EC 3.4.21.-)
D1	5	REC04086	b4203	<i>rplI</i>	N	E	N	50S ribosomal protein L9
D1	6	REC04779	b1132	<i>ycfC</i>	N	E	N	Hypothetical protein ycfC
D1	7	REC05413	b2319	<i>usg</i>	N*	E	N	USG-1 protein
D1	8	REC03763	b3863	<i>polA</i>	N	E	N	DNA polymerase I (EC 2.7.7.7)
D1	9	REC06270	b3965	<i>trmA</i>	N	E	N	tRNA (Uracil-5-)-methyltransferase (EC 2.1.1.35)

D2	1	REC00086	b0086	<i>murF</i>	N	E	X	UDP-N-acetylmuramoylalanyl-D-glutamyl-2,6-diaminopimelate--D-alanyl-D-alanyl ligase (EC 6.3.2.15)
D2	2	REC00087	b0087	<i>mraY</i>	N	E	X	Phospho-N-acetylmuramoyl-pentapeptide-transferase (EC 2.7.8.13)
D2	3	REC00178	b0178	<i>hlpA</i>	N	E	X	Histone-like protein HLP-1 precursor
D2	4	REC04566	b0639	<i>nadD</i>	N	E*	X	Nicotinate-nucleotide adenyltransferase (EC 2.7.7.18)
D2	5	REC04590	b0684	<i>fldA</i>	N	E	X	Flavodoxin 1
D2	6	REC00856	b0890	<i>ftsK</i>	N*	E	X	Cell division protein ftsK
D2	7	REC00857	b0891	<i>lolA</i>	N	E	X	Outer-membrane lipoproteins carrier protein precursor
D2	8	REC00877	b0911	<i>rpsA</i>	N*	E	X	30S ribosomal protein S1
D2	9	REC01177	b1215	<i>kdsA</i>	N*	E	X	2-dehydro-3-deoxyphosphooctonate aldolase (EC 4.1.2.16)
D2	10	REC05410	b2316	<i>accD</i>	N*	E	X	Acetyl-coenzyme A carboxylase carboxyl transferase subunit beta (EC 6.4.1.2)
D2	11	REC05862	b3176	<i>mrsA</i>	N	E	X	Protein mrsA
D2	12	REC05865	b3179	<i>rrmJ</i>	N	E	X	Ribosomal RNA large subunit methyltransferase J (EC 2.1.1.-)
D2	13	REC05871	b3189	<i>murA</i>	N	E	X	UDP-N-acetylglucosamine 1-carboxyvinyltransferase (EC 2.5.1.7)
D2	14	REC05934	b3308	<i>rplE</i>	N	E	X	50S ribosomal protein L5
D2	15	REC05939	b3313	<i>rplP</i>	N	E	X	50S ribosomal protein L16
D2	16	REC05940	b3314	<i>rpsC</i>	N	E	X	30S ribosomal protein S3
D2	17	REC05941	b3315	<i>rplV</i>	N	E	X	50S ribosomal protein L22
D2	18	REC05955	b3341	<i>rpsG</i>	N	E	X	30S ribosomal protein S7
D2	19	REC06030	b3462	<i>ftsX</i>	N	E	X	Cell division protein ftsX
D2	20	REC06256	b3933	<i>ftsN</i>	N	E	X	Cell division protein ftsN
D2	21	REC03866	b3972	<i>murB</i>	N	E	X	UDP-N-acetylenolpyruvoylglucosamine reductase (EC 1.1.1.158)
D2	22	REC03871	b3981	<i>secE</i>	N	E	X	Preprotein translocase secE subunit
D2	23	REC03872	b3982	<i>nusG</i>	N	E	X	Transcription antitermination protein nusG

Set E: genes unassigned in Gerdes et al., 2002 but essential in PEC data

E	1	REC05870	b3186	<i>rplU</i>	X	E	N	50S ribosomal protein L21
E	2	REC06292	b4041	<i>plsB</i>	X	E	N	Glycerol-3-phosphate acyltransferase (EC 2.3.1.15)

E	3	REC04579	b0657	<i>Int</i>	X	E	X	Apolipoprotein N-acyltransferase (EC 2.3.1.-)
E	4	REC01173	b1211	<i>prfA</i>	X	E	X	Peptide chain release factor 1
E	5	REC05652	b2779	<i>eno</i>	X	E	X	Enolase (EC 4.2.1.11)
E	6	REC05814	b3064	<i>gcp</i>	X	E	X	Probable O-sialoglycoprotein endopeptidase (EC 3.4.24.57)
E	7	REC02988	b3065	<i>rpsU</i>	X	E	X	30S ribosomal protein S21
E	8	REC05869	b3185	<i>rpmA</i>	X	E	X	50S ribosomal protein L27
E	9	REC03179	b3255	<i>accB</i>	X	E	X	Biotin carboxyl carrier protein of acetyl-CoA carboxylase
E	10	REC03180	b3256	<i>accC</i>	X	E	X	Biotin carboxylase (EC 6.3.4.14) (A subunit of acetyl-CoA carboxylase (EC 6.4.1.2))
E	11	REC05920	b3294	<i>rplQ</i>	X	E	X	50S ribosomal protein L17
E	12	REC05921	b3295	<i>rpoA</i>	X	E	X	DNA-directed RNA polymerase alpha chain (EC 2.7.7.6)
E	13	REC05922	b3296	<i>rpsD</i>	X	E	X	30S ribosomal protein S4
E	14	REC05923	b3297	<i>rpsK</i>	X	E	X	30S ribosomal protein S11
E	15	REC06155	b3699	<i>gyrB</i>	X	E	X	DNA gyrase subunit B (EC 5.99.1.3)
E	16	REC06157	b3701	<i>dnaN</i>	X	E	X	DNA polymerase III, beta chain (EC 2.7.7.7)
E	17	REC06615	b3983	<i>rplK</i>	X	E	X	50S ribosomal protein L11
E	18	REC03874	b3984	<i>rplA</i>	X	E	X	50S ribosomal protein L1
E	19	REC03945	b4059	<i>ssb</i>	X	E	X	Single-strand binding protein
E	20	REC06366	b4161	<i>yjeQ</i>	X	E	X	Hypothetical protein yjeQ

Set F: genes with ambiguous assignments in Gerdes et al., 2002 but essential in PEC data

F	1	REC00096	b0096	<i>lpxC</i>	?	E	X	UDP-3-O-[3-hydroxymyristoyl] N-acetylglucosamine deacetylase (EC 3.5.1.-)
F	2	REC00179	b0179	<i>lpxD</i>	?	E	X	UDP-3-O-[3-hydroxymyristoyl] glucosamine N-acyltransferase (EC 2.3.1.-)
F	3	REC04678	b0884	<i>infA</i>	?	E	X	Translation initiation factor IF-1
F	4	REC01051	b1089	<i>rpmF</i>	?	E	X	50S ribosomal protein L32
F	5	REC01056	b1094	<i>acpP</i>	?	E	X	Acyl carrier protein
F	6	REC05057	b1713	<i>pheT</i>	?	E	X	Phenylalanyl-tRNA synthetase beta chain (EC 6.1.1.20)
F	7	REC05061	b1717	<i>rpmI</i>	?	E	X	50S ribosomal protein L35
F	8	REC06534	b2891	<i>prfB</i>	?	E	X	Peptide chain release factor 2
F	9	REC05925	b3299	<i>rpmJ</i>	?	E	X	50S ribosomal protein L36
F	10	REC05928	b3302	<i>rpmD</i>	?	E	X	50S ribosomal protein L30
F	11	REC05938	b3312	<i>rpmC</i>	?	E	X	50S ribosomal protein L29
F	12	REC06117	b3636	<i>rpmG</i>	?	E	X	50S ribosomal protein L33
F	13	REC06118	b3637	<i>rpmB</i>	?	E	X	50S ribosomal protein L28
F	14	REC03570	b3650	<i>spoT</i>	?	E	X	Guanosine-3',5'-bis(Diphosphate) 3'-pyrophosphohydrolase (EC 3.1.7.2)
F	15	REC03621	b3703	<i>rpmH</i>	?	E	X	50S ribosomal protein L34
F	16	REC03622	b3704	<i>rnpA</i>	?	E	X	Ribonuclease P protein component (EC 3.1.26.5)
F	17	REC03623	b3705	<i>yidC</i>	?	E	X	60 kDa inner-membrane protein
F	18	REC03692	b3782	<i>rhoL</i>	?	E	X	Very hypothetical rho operon leader peptide
F	19	REC03693	b3783	<i>rho</i>	?	E	X	Transcription termination factor rho
F	20	REC03834	b3936	<i>rpmE</i>	?	E	X	50S ribosomal protein L31
F	21	REC04085	b4202	<i>rpsR</i>	?	E	X	30S ribosomal protein S18